UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the fiscal year ended **December 31, 2020.**
or
☐ Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

For the transition period from to

Q2 Holdings, Inc.
(Exact name of Registrant as Specified in Its Charter)

Delaware	**001-36350**	**20-2706637**
(State or Other Jurisdiction of Incorporation or Organization)	(Commission File Number)	(IRS Employer Identification No.)

13785 Research Blvd, Suite 150
Austin, Texas 78750
(512) 275-0072
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Trading Symbol(s)**	**Name of each exchange on which registered**
Common Stock, $0.0001 par value	QTWO	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by a check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
Emerging growth company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Based on the closing price of the registrant's common stock on the last business day of the registrant's most recently completed second fiscal quarter, which was June 30, 2020, the aggregate market value of its shares held by non-affiliates on that date was approximately $4,565,099,860. Shares of common stock held by each officer and director and by each person who owns 5% or more of the outstanding Common Stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status was based on publicly filed documents and is not necessarily a conclusive determination for other purposes.

There were 55,599,512 shares of the registrant's common stock outstanding as of January 31, 2021.

Part III of this Annual Report on Form 10-K incorporates certain information by reference from the definitive proxy statement for the registrant's 2021 Annual Meeting of Stockholders to be filed within 120 days of the registrant's fiscal year ended December 31, 2020, or the Proxy Statement. Except with respect to information specifically incorporated by reference in this Annual Report on Form 10-K, the Proxy Statement is not deemed to be filed as part of this Annual Report on Form 10-K.

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PART I

Special Note Regarding Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements that are based on our management's beliefs and assumptions and on information currently available to our management. The statements contained in this Annual Report on Form 10-K that are not purely historical are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. You can identify these statements by words such as "anticipates," "believes," "can," "continue," "could," "estimates," "expects," "intends," "may," "plans," "seeks," "should," "will," "strategy," "future," "likely," or "would" or the negative of these terms or similar expressions. These statements are not guarantees of future performance or development and involve known and unknown risks, uncertainties and other factors that are in some cases beyond our control including the recent COVID-19 pandemic and the associated effort to limit its spread. All of our forward-looking statements are subject to risks and uncertainties that may cause our actual results to differ materially from our expectations. Factors that may cause such differences include, but are not limited to, the risks described under "Risk Factors" in this Annual Report on Form 10-K and those discussed in other documents we file with the Securities and Exchange Commission, or the SEC.

Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. Also, forward-looking statements represent our management's beliefs and assumptions only as of the date of this Annual Report on Form 10-K. You should read this Annual Report on Form 10-K completely and with the understanding that our actual future results may be materially different from what we expect. We hereby qualify our forward-looking statements by these cautionary statements. Except as required by law, we assume no obligation to update these forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

Item 1. Business.

Overview

Q2 is a leading provider of secure, cloud-based digital solutions that transform the ways in which traditional and emerging financial services providers engage with account holders and end users, or End Users. We sell our solutions to financial institutions, alternative finance and leasing companies, or Alt-FIs, and financial technology companies, or FinTechs. Our solutions enable our customers to deliver robust suites of digital banking, lending, leasing, and banking as a service, or BaaS, services that make it possible for End Users to transact and engage anytime, anywhere and on any device. Our solutions are often the most frequent point of engagement between our customers and their End Users. As such, we purpose-build our solutions to deliver compelling and consistent End-User experiences across digital channels and to drive the success of our customers by optimizing their digital brands and enhancing End-User acquisition, retention and engagement.

We have deep domain expertise in developing and delivering secure, advanced digital solutions designed to help our customers compete in the complex and heavily regulated financial services industry. Q2 began by providing digital banking solutions to regional and community financial institutions, or RCFIs, with the mission of empowering them to leverage technology to compete more effectively and to strengthen the communities and End Users they serve. Through investment in innovation and acquisitions, our solutions have grown to include a broader range of services and experiences, including commercial banking, regulatory and compliance, digital lending and leasing, BaaS, digital account opening and data-driven sales enablement and portfolio management solutions, further serving the needs of financial institutions as well as Alt-FIs and FinTechs.

The RCFI market includes approximately 10,200 banks and credit unions with less than $100 billion in assets according to data compiled by BauerFinancial as of September 30, 2020. To date, a substantial majority of our revenues continue to come from sales of our digital banking platform, and we continue to be focused on our founding mission of building stronger and more diverse communities by strengthening their financial institutions.

The growth and adoption of digital financial services creates challenges and opportunities in the markets served by financial institutions as well as emerging providers such as Alt-FIs and FinTechs. The proliferation and ubiquity of mobile and tablet devices and End Users' increasing expectations for digital services have driven increases in the number of providers, greater fragmentation of financial services markets and a broadening set of new and innovative digital services. End Users increasingly expect to transact and engage with financial services providers anytime, anywhere and on any device, and seamlessly across devices. End Users also select digital solutions based on the quality and intuitiveness of the digital user experience.

Financial institutions, Alt-FIs and FinTechs are seeking to address these challenges and opportunities and capture End-User engagement by providing new, innovative digital financial services, solutions and experiences. Traditional financial services providers such as banks and credit unions are experiencing reduced End-User engagement in their physical branches and increased End-User engagement with their digital services and thus, they are increasing their investment in digital services. Emerging providers such as Alt-FIs and FinTechs are leveraging their digital focus and expertise and capitalizing on increased End-User demand for digital financial services by creating new and expanding existing digital service offerings. The combination of these two drivers of investment by traditional and emerging financial services providers is driving new competition, innovation and unique market opportunities.

Despite the competition between traditional and emerging financial service providers, the digital solutions offered by emerging financial services providers are often dependent upon core banking functions, creating an interdependency between them. Financial institutions of all sizes provide two fundamental banking functions among others - they hold NCUA-insured or FDIC-insured deposits and they transfer money. Providing these critical banking functions generally requires a federal or state banking charter, as well as specialized expertise and infrastructure, and subjects the provider to complex regulatory oversight by various authorities, which requires financial institutions to implement and maintain complex and costly operating policies, procedures and infrastructure to protect End Users, their deposits and their personal information. As emerging financial services providers explore new digital services offerings, they often utilize the banking services of financial institutions in partnership rather than making the significant investments in expertise and infrastructure necessary to obtain a banking charter and otherwise become regulatory-compliant.

The Alt-FI and FinTech markets consist of thousands of emerging financial services providers all over the world seeking to provide End Users with financial services, experiences and solutions that can be competitive with, but also complimentary to and dependent upon banking. Alt-FIs and FinTechs are typically less constrained than traditional financial services providers by legacy technology solutions, physical branch locations and regulation. Alt-FIs and FinTechs have received substantial investment, estimated to be greater than $250 billion globally from 2008 through 2020, according to Deloitte Touche Tohmatsu Limited's, or Deloitte's, web-based Interactive Fintech Funding Report citing Venture Scanner source data.

We have continuously invested in expanding and improving our digital banking platform since its introduction in 2005. In addition, over the past several years we have acquired or developed new solutions and additional functions that serve a broader range of needs of financial institutions as well as the needs of Alt-FIs and FinTechs. Our solutions now include a broad range of services and experiences including commercial banking, regulatory and compliance, digital lending and leasing, BaaS, digital account opening and data-driven sales enablement and portfolio management solutions. We believe our expanded solution offerings and the corresponding growth of our customer base and market opportunity have increased the addressable market for our solutions to greater than $10.0 billion.

Our solutions utilize a software-as-a-service, or SaaS, delivery model, designed to scale with our customers as they grow their business, add End Users on our solutions and expand the breadth of digital services and solutions they offer. On average, Q2 Platform customers have historically grown subscription revenue by approximately 30% within 36 months of implementation. Our SaaS delivery model is also designed to reduce the cost and complexity of implementing, maintaining and enhancing the digital services and solutions our customers provide to their End Users.

We design and develop our solutions with an open platform approach intended to provide comprehensive integration among our solution offerings and our customers' internal and third-party systems. This integrated approach allows our customers to deliver unified and robust financial experiences across digital channels. Our solutions provide our customers the flexibility to configure their digital services in a manner that is consistent with each customer's specific workflows, processes and controls. Our solutions also allow our customers to personalize the digital experiences they deliver to their End Users by extending their individual services and brand requirements across digital channels. Our solutions and our data center infrastructure and resources are designed to comply with the stringent security and technical regulations applicable to financial institutions and financial services providers and to safeguard our customers' data and that of their End Users.

We believe that financial services providers are best served by a broad integrated portfolio of digital solutions that provide rapid, flexible and comprehensive integration with internal and third-party solutions allowing them to provide modern, intuitive digital financial services in a secure, regulatory-compliant manner. We also believe that the breadth and depth of our solution offerings across the financial institution, Alt-FI and FinTech markets, our open and flexible platform approach, our position as a leading provider of digital banking solutions to a large network of RCFIs, and our expertise in delivering new, innovative, secure and regulatory-compliant digital solutions uniquely position us in the market for digital financial services solutions.

As of December 31, 2020, we had 450 installed digital banking platform customers located in 48 states, and those customers had approximately 17.8 million consumer and commercial users registered on our digital banking platform. Registered users of our digital banking platform, or Registered Users, executed over $1.4 trillion in financial transactions on our digital banking platform during 2020. Please see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Operating Measures" for additional detail on how we define "Installed Customers" and "Registered Users."

We primarily sell subscriptions to our solutions through our direct sales organization and recognize the related revenues over the terms of our customer agreements. The initial term of our digital banking platform agreements averages over five years. Our digital banking platform revenues generally increase as we add new customers, sell additional solutions to existing customers, the number of End Users on our solutions grows and the number of transactions that End Users perform on our solutions increases. The structure and terms of our newer lending and leasing, BaaS and sales enablement and portfolio management solution arrangements are varied, but generally are also sold on a subscription basis through our direct sales organization, and the related revenues are recognized over the terms of the customer agreements.

We have achieved significant growth since our inception. We had total revenues of $402.8 million, $315.5 million and $241.1 million in 2020, 2019 and 2018, respectively. We have invested, and intend to continue to invest, to grow our business by expanding our sales and marketing activities, developing and acquiring new solutions, enhancing our existing solutions and technical infrastructure and scaling our operations. We incurred net losses of $137.6 million, $70.9 million and $35.4 million in 2020, 2019 and 2018, respectively. As of December 31, 2020 and 2019, we had total assets of $1.4 billion and $1.0 billion, respectively.

Refer to "Impact of COVID-19 Pandemic" included in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risks Related to Covid-19 Pandemic" included in Item 1A, "Risk Factors" for additional information on the impacts and risks of the COVID-19 Pandemic on us and the actions we have taken in response to the COVID-19 pandemic.

We were incorporated in March 2005 in the state of Delaware under the name CBG Holdings, Inc. We changed our name to Q2 Holdings, Inc. in March 2013. We are headquartered in Austin, Texas, and our principal executive offices are located at 13785 Research Blvd, Suite 150, Austin, Texas 78750. Our telephone number is (512) 275-0072.

Industry Background

The financial services market is intensely competitive. The growth and adoption of digital financial services has and continues to create challenges and opportunities for both traditional providers such as financial institutions as well as emerging providers such as Alt-FIs and FinTechs.

The proliferation and adoption of mobile and tablet devices and digital services are dramatically changing the financial services market

The proliferation and ubiquity of mobile and tablet devices and End Users' increasing expectations for digital services have driven increases in the number of financial services providers, greater fragmentation of the financial services market and a broadening set of new and innovative digital financial services. End Users increasingly expect to transact and engage with financial services providers anytime, anywhere and on any device, and seamlessly across devices. These changes in the financial services market and in End-User expectations create challenges and opportunities for financial institutions as well as emerging financial services providers such as Alt-FIs and FinTechs.

Financial institutions, Alt-FIs and FinTechs are seeking to address these challenges and opportunities and capture End-User engagement by providing an ever-broadening set of new and innovative digital financial services, solutions and experiences which better align with End Users' increasingly digital lives, experiences and interactions. These services, experiences and solutions include, among other things, account opening, deposits, investments, payments, money transfers, credit card management and loan applications.

The digital solutions offered by emerging financial services providers are often dependent upon core banking functions, creating an interdependency between emerging and traditional financial services providers. Financial institutions of all sizes provide two fundamental banking functions among others - they hold NCUA-insured or FDIC-insured deposits and they transfer money. Providing these critical banking functions generally requires a federal or state banking charter, as well as specialized expertise and infrastructure, and subjects the provider to complex regulatory oversight by various authorities. As an example, electronic payment transactions in the United States, other than wire transfers, are conducted as automated clearinghouse, or ACH, transactions, which settle through the Federal Reserve System in most cases, and generally, only financial institutions can obtain the necessary master account with a Federal Reserve Bank to settle transactions. These laws and regulations have existed for decades, are extremely burdensome, constantly evolving, and require financial institutions to implement and maintain complex and costly operating policies, procedures and infrastructure to protect End Users, their deposits and their personal information. As emerging financial services providers explore new digital services offerings, they often utilize the banking services of financial institutions in partnership rather than making the significant investments in expertise and infrastructure necessary to obtain a banking charter and otherwise become regulatory-compliant.

Security is paramount for digital financial services

The risks of theft and fraud have always existed in banking and financial services. However, as the adoption, use, and breadth of digital financial services offerings has increased, the incidence of fraud and theft in digital channels has grown substantially. The methods by which criminals seek to commit fraud are constantly changing, requiring financial services providers and their technology providers to continually modify their security protocols. In addition, safeguarding the funds and information of financial service providers and their End Users becomes increasingly complex as digital financial services grow and extend across new channels, devices, and services not previously contemplated.

Digital financial services are highly regulated

Financial services providers and their solutions are subject to extensive and complex regulations and oversight by federal, state and other regulatory authorities. These laws and regulations are constantly evolving and affect the conduct of financial service providers' operations and, as a result, the business of their technology providers. The compliance of digital financial solutions with these regulatory requirements depends on a variety of factors, including functionality and design, the classification of the financial service provider and its services, and the manner in which the financial service provider and its End Users utilize the solutions. In order to comply with and assist financial service providers in complying with these laws, technology providers to financial service providers may be required to implement operating policies and procedures to protect the privacy and security of their, the financial service providers' and their End Users' information, and to undergo periodic audits and examinations. Maintaining such regulatory compliance becomes increasingly complex as digital financial services grow and extend across new channels, devices, and services not previously contemplated.

Digital financial services are complex and often have limitations

The continued proliferation of mobile and tablet devices and digital solutions offered through open development platforms makes it increasingly difficult to provide a consistent, intuitive and personalized End-User experience and requires digital solutions to support new and rapidly changing mobile operating systems and device types. The technical and operational complexities of delivering integrated digital solutions across multiple operating systems, devices, channels, and complex functionality increase the difficulty of providing a consistent, intuitive and personalized End-User experience. Aging or increasingly complex solutions can create the following challenges for financial services providers:

- integrating applications and systems from multiple vendors may increase costs and time-to-market;
- managing relationships with multiple vendors can be time consuming and require greater management infrastructure;
- building, maintaining and upgrading regulatory-compliant and secure solutions and infrastructure can be expensive and time-consuming and require special expertise that can be hard to find and retain;
- operating, supporting and upgrading systems from multiple vendors can be difficult, costly and less secure and limit the ability to provide a unified End-User experience or comprehensive view of End-User behavior;
- partnering with FinTechs and Alt-FIs and innovating and delivering new solutions can be difficult and cost-prohibitive when integration with dated legacy infrastructure is required; and
- training End Users and internal personnel on the use of different point systems can be challenging, time-consuming and costly.

The use of multiple point solutions for digital financial services can require End Users to maintain different login credentials across digital channels and learn and understand different systems. Additionally, the disjointed nature of the underlying workflows, data and terminology caused by the implementation of multiple solutions can lead to decreased End-User adoption, retention and satisfaction. End Users' adoption, retention and satisfaction can also be adversely impacted by the dated End User interfaces of older legacy systems.

The market for digital financial services is significant

We define RCFIs as federally-insured banks and credit unions with less than $100 billion in assets, which according to data compiled by BauerFinancial as of September 30, 2020, consisted of approximately 10,200 financial institutions with combined assets of $8.3 trillion, representing 36% of assets held by all federally-insured financial institutions. RCFIs have historically sought to differentiate themselves by providing local, personalized banking services that are responsive to the changing needs and circumstances of their communities. Many RCFIs are locally owned and obtain deposits and make lending decisions on a local basis. RCFIs account for a large portion of small business loans, helping local businesses create jobs and drive economic growth in the communities they serve. RCFIs seek to develop strong, lasting relationships with their End Users and can serve as centers of commerce and influence in their communities.

The Alt-FI and FinTech markets consist of thousands of emerging financial services providers all over the world seeking to provide End Users with new and innovative financial services, experiences and solutions that can be competitive with, but also complimentary to and dependent upon banking. Alt-FIs and FinTechs are typically more nimble and development-focused and less constrained than traditional financial services providers are by legacy technology solutions, physical branch locations and regulation. Alt-FIs and FinTechs have received substantial investment, estimated to be greater than $250 billion globally from 2008 through 2020, according to Deloitte's web-based Interactive Fintech Funding Report citing Venture Scanner source data.

We have continuously invested in expanding and improving our digital banking platform since its introduction in 2005. In addition, over the past three years we have acquired or developed new solutions and additional functions that serve a broader range of needs of financial institutions as well as the needs of Alt-FIs and FinTechs. Our solutions now include a broad range of services and experiences including commercial banking, regulatory and compliance, digital lending and leasing, BaaS, digital account opening and data-driven sales enablement and portfolio management solutions. Our expanded solution offerings and the corresponding growth of our customer base and market opportunity have increased our addressable market.

Based on our estimates of the number of target RCFIs for our digital banking solutions and our internal assumptions as to the number and types of digital accounts they serve, the prices for our solutions and the number of transactions processed, we believe that the market for our digital banking solutions, including retail, small business, commercial, digital account opening and Centrix solutions is greater than $5.0 billion. Based on our estimate of the number of target providers of digital lending and leasing services and our internal assumptions as to the number of End Users they serve and the prices for our solutions, we believe that the market for our digital lending and leasing solutions, including the borrower portal, origination, underwriting, servicing, collections, actionable insights, coaching, negotiation, pricing and sales enablement modules, is greater than $4.0 billion. The market for our open application programming interface, or API, solutions for financial services generally, including potential customer segments and product use cases, is relatively new, broad and continually evolving. Based on our estimates of the number of target financial institutions and FinTechs for our BaaS solutions and our internal assumptions as to the number of End Users they serve, the prices for our solutions and the number of transactions processed, we believe the market for our BaaS solutions is greater than $1.0 billion. In the aggregate, we believe that the worldwide market for our solutions is greater than $10.0 billion.

The continued proliferation of mobile and tablet devices and digital solutions offered through open development platforms makes it increasingly difficult to provide a consistent, intuitive and personalized End-User experience and requires digital solutions to support new and rapidly changing mobile operating systems and device types. The technical and operational complexities of delivering secure, regulatory-compliant, integrated digital solutions across multiple operating systems, devices, channels, and complex functionality increases the difficulty of providing a consistent, intuitive and personalized End-User experience.

We believe that financial services providers are best served by a broad integrated portfolio of digital solutions that provide rapid, flexible and comprehensive integration with internal and third-party systems allowing them to provide modern, intuitive digital financial services in a secure, regulatory-compliant manner. We have deep domain expertise in new, innovative, secure and regulatory-compliant digital solutions in the complex and highly-regulated financial services industry and with the technical and operational complexities of delivering integrated financial services solutions across multiple operating systems, devices and channels. As a result, we believe that the breadth and depth of our solution offerings across the financial institution, Alt-FI and FinTech markets, our open and flexible platform approach, our position as a leading provider of digital banking solutions to a large network of RCFIs, and our expertise in delivering new, innovative, secure and regulatory-compliant digital solutions uniquely position us in the market for digital financial services solutions.

Our Solutions

We are a leading provider of secure, cloud-based digital solutions that transform the ways in which traditional and emerging financial service providers engage with End Users. We sell our solutions to financial institutions, Alt-FIs, and FinTechs. Our solutions are designed to deliver a robust suite of digital financial services that enable End Users of banking, lending, leasing and BaaS solutions to transact and engage anytime, anywhere and on any device. Our solutions are often the most frequent point of engagement between our customers and their End Users. As such, we purpose-build our solutions to deliver compelling and consistent End-User experiences across digital channels and to drive the success of our customers by optimizing their digital brands and enhancing End-User acquisition, retention and engagement.

Key Solution Offerings

Our portfolio of digital solutions includes the following key offerings:

- ***Digital Banking Platform***: Our digital banking platform supports our RCFI customers in their delivery of unified digital banking services across digital channels. Our open digital banking platform provides our RCFI customers with the tools, knowledge, and access necessary to customize and extend the platform, allowing our RCFI customers to deliver targeted experiences and branding to End Users.
- ***Lending and Leasing***: Our end-to-end digital lending and leasing portfolio allows our financial institution, Alt-FI and FinTech customers to simplify the End-User experiences of borrowers, accelerate loan decisioning, and reduce operational inefficiencies through digitization and automation of the traditional loan application and underwriting process. In addition, our leasing solutions provide our financial institution, Alt-FI and FinTech customers with digital solutions for consumer, commercial, small business, construction and equipment financing. Our lending portfolio also provides commercial relationship managers with actionable data-driven insights into an individual commercial End User's entire portfolio, assessing the overall portfolio and individual relationships, highlighting potential concerns and identifying opportunities, and ultimately helping the relationship manager to more effectively price, negotiate and close commercial loans.
- ***BaaS***: Our portfolio of open API tools provides our RCFI, Alt-FI and FinTech customers with a cost-effective platform to quickly develop and launch a variety of BaaS solutions that are complimentary to and, in most cases, dependent on banking. In addition, our open API tools allow our RCFI customers to create their own digital deposit and payment products, either by building their own custom solutions or by using Q2-developed white-label products utilizing the API portfolio.

Key Benefits

Our solutions provide the following key benefits to our customers and their End Users:

- ***Intuitive design:*** We designed from inception the features and End-User experience of our solutions to be optimized for touch-based devices and then extend that design to other digital channels. This design process and our broad feature offerings enable our solutions to deliver a modern, unified End-User experience across digital channels.
- ***Comprehensive view of End Users:*** Our digital banking platform provides our RCFI customers with a comprehensive view of End-User access and activity across devices and channels. The insights made possible by a comprehensive view enable an enhanced, personalized End-User experience, real-time risk and fraud assessment and other analytic features that improve the function and security of our solutions.
- ***Flexible integration:*** We have developed a highly flexible set of integration tools, enabling the rapid integration of third-party applications and data sources. These integration tools connect with a wide variety of third-party applications, allowing us to seamlessly integrate with our customers' internal and third-party systems such as account services, payments and imaging.
- ***SaaS delivery model:*** We developed our solutions to be cloud-based. Our customers subscribe and pay for their use of our solutions over time, and our solutions do not require our customers to install any significant technical infrastructure. While we host our digital banking platform for substantially all of our RCFI customers, our lending, leasing, and BaaS solutions are hosted with industry leading public cloud service providers. Our SaaS delivery model can reduce the total cost of ownership of our customers by providing the development, implementation, integration, maintenance, monitoring and support of our cloud-based solutions on a subscription basis. Our solutions are designed to support the rapid addition of new services as well as the introduction of new devices and digital channels. As a result, our customers can easily scale the use of our solutions with their needs as they add End Users and expand the digital services and solutions they offer.
- ***Regulatory compliance:*** Our solutions leverage our deep domain expertise and the significant investments we have made in the design and development of our data center architecture and other technical infrastructure, including public cloud services, to meet the stringent security and technical requirements on financial institutions and financial services providers. Customers who use our cloud-based solutions are able to satisfy security and technical compliance obligations by relying on the security programs and regulatory certification of our data centers and other technical infrastructure. By doing so, our customers avoid the significant cost and effort associated with building, maintaining and upgrading a regulatory-compliant and secure environment on their own.

- ***Delivery of robust digital financial services across multiple channels:*** Our solutions enable our customers to deliver robust and integrated digital financial services to their End Users who increasingly expect and appreciate the freedom to transact and engage anytime, anywhere and on any device. Through a single log-in and consistent workflow, End Users are able to seamlessly conduct consumer and commercial transactions across digital channels and devices.
- ***Improved and more frequent engagement with End Users:*** The breadth of our solutions and quality of the End-User experience they provide enable our customers to increase the frequency and effectiveness of their interactions with End Users. We believe the frequency and ease of these interactions can strengthen the relationships between End Users and our customers and help our customers better serve their End Users through a more comprehensive understanding of their behavior and activities. We believe that engaging with commercial End Users, in particular, involves unique challenges, and by enabling commercial relationship managers with actionable data-driven insights into commercial End-User relationships, they can better serve their commercial End Users and increase the overall performance of their financial institution.
- ***Drive End-User loyalty:*** We believe our customers are able to drive loyalty by increasing their level and quality of End-User engagement. Our customers are able to tailor our solutions by offering individually relevant functionality as well as branded, localized End-User experiences. Our digital banking platform and lending solutions provide our financial institution customers with a comprehensive view of operational and End-User activity across channels and devices allowing them to look for opportunities to improve End-User engagement and grow their End-User relationships with targeted offerings based on specific behavior. We believe this further strengthens End-User loyalty by enabling our customers to engage End Users through customized and End-User-friendly digital experiences.
- ***More effective marketing of products and services:*** Our customers' marketing of their new and existing products and services through our solutions can be frequent, timely and targeted. The ease and availability of communications within digital channels also make it easier for End Users to find information about products and services. Our solutions also offer a simplified transaction experience, which can help improve sales of products and services.
- ***Real-time security:*** We employ multi-layered controls to help secure our customers' and End Users' information. Each layer addresses specific areas of possible fraud or data vulnerability. Our customers can use transactional-based controls to reduce fraudulent transactions by allowing them to adjust configurations such as transaction values, payment windows or account suspension. Our digital banking platform customers who leverage our Q2 Sentinel product are able to block suspected fraudulent activity in real-time at the application layer and notify operations staff and End Users of suspect transactions prior to consummation of a transaction. This approach reduces and better manages the security risks in financial services and help protect our customers' reputations.

Our Business Strengths

Since our inception, our mission has been to help financial institutions compete and strengthen the markets they serve. We are highly committed to this mission, and support it by focusing on designing, developing and acquiring new, innovative digital banking and other financial services solutions to meet transforming End-User expectations. We believe we are well positioned to connect and serve traditional and emerging financial services providers as they transform the ways in which they engage, either independently or in partnership, with End Users globally:

- ***Our purpose-built digital banking platform leads the RCFI digital banking market:*** We built our digital banking platform to address unique challenges that RCFIs face in providing digital banking services. Our digital banking platform was created to support the proliferation of mobile and tablet devices and the speed at which their use has become a common part of daily life. Our digital banking platform reduces the inefficiencies of traditional point-to-point integration strategies and replaces multiple management consoles with a single unified view of the rules, rights and security involved with operating seamlessly across digital channels. Our digital banking solutions enable our RCFI customers to provide a compelling, unified End-User experience to consumer and commercial End Users using a single login anywhere, anytime and on any device. We believe our deep domain experience as a leading provider of digital banking solutions positions us well to provide new, innovative digital banking and other financial services solutions to meet transforming End-User expectations.
- ***We have acquired and developed solutions to better serve our financial institution customers and a broader set of global financial service providers including Alt-FIs and FinTechs:*** Over the past few years, we have expanded our portfolio to include offerings such as our end-to-end lending and leasing, BaaS, digital account opening and data-driven sales enablement and portfolio management solutions. As the financial services landscape has evolved to become more digitized and open, we have strived to ensure our customers can offer a broader range of digital services to their End Users.

- ***We have a proven track record in providing digital solutions to financial services providers:*** Our founders and management have a track record of successfully delivering technology for financial services providers. We have deep domain expertise in financial services and community banking which we utilize to develop and deliver our solutions and services to our customers.
- ***Our sales model is tailored to our different markets:*** The financial institution market is well defined and allows us to effectively direct our go-to-market strategy for our sales and marketing efforts. Utilizing the deep industry experience of our management and sales teams, we are able to leverage our relationships with leaders and influencers at many of our financial institution customers as valuable sources of reference and promotion. We have also developed actionable insights into our sales and marketing performance, enabling us to be efficient with our go-to-market investments. The Alt-FI and FinTech markets are relatively new, broad and continually evolving. As a result, we utilize third-party partnerships and insights from our experience with financial institution customers to effectively pursue these markets.
- ***We grow our customer relationships over time:*** Throughout our long-term customer relationships, we employ a structured strategy designed to inform, educate and enhance customer confidence and help our customers identify and implement additional solutions to benefit and grow their End-User bases.
- ***Our revenues are highly predictable:*** To date, a substantial majority of our revenues continue to result from sales of our digital banking platform to RCFIs. We generally recognize our revenues over the terms of our customer agreements. The initial term of our digital banking platform customer agreements averages over five years. Our long-term agreements and our high customer retention, as well as the growth over time in the number of End Users using our solutions, drive the recurring nature of our revenues and provide us with significant visibility into future revenues. Furthermore, we believe our customer services model drives high retention rates and incremental sales of our solutions.
- ***Our award-winning culture drives innovation and customer success:*** We believe our award-winning, innovation-focused culture and the location of our operations facilitate recruiting and retaining top development, integration and design talent. We are headquartered in Austin, Texas which is a vibrant city that continues to attract an increasing number of young professionals and has close ties to leading research institutions. In each of the past ten years, the Austin American Statesman recognized us as one of Austin's "Top Places to Work." We believe our mission, combined with our focus on delivering leading-edge digital solutions, enables us to attract and retain top talent.

Our Growth Strategy

We believe we are well positioned to connect and serve traditional and emerging financial services providers as they transform the ways in which they engage, either independently or in partnership, with End Users globally. To accomplish this goal, we are pursuing the following growth strategies:

- ***Further penetrate our large market opportunity:*** We believe financial institutions are increasingly adopting cloud-based digital banking solutions. With the ubiquity of mobile and tablet devices and resulting proliferation of mobile digital solutions provided through their open developer platforms, End Users are increasingly engaging with financial institutions, Alt-FIs and FinTechs across a variety of digital channels. Over the past three years, in response to the increasing demand for innovative digital banking and other financial services, we have expanded our addressable market by acquiring and developing solutions that serve the needs of a broader, global set of emerging financial services providers such as Alt-FIs and FinTechs and their End Users, which also facilitates partnerships with and integration to the digital solutions of our financial institution customers. We intend to further penetrate our large market opportunity and increase our number of financial institution, Alt-FI and FinTech customers using our broad range of digital solutions through acquiring and developing additional solutions, investments in our sales and marketing organization and related activities.
- ***Grow revenues by expanding our relationships with existing customers:*** We believe there is significant opportunity to expand our relationships with existing customers by selling additional solutions such as our lending and leasing, digital account opening and data-driven sales enablement and portfolio management solutions. In addition, our revenues from existing customers continue to grow as these customers increase the number of End Users on our solutions and as the number of transactions these End Users perform on our solutions increases. We believe our recent investments in digital lending, leasing, BaaS, digital account opening and data-driven sales enablement and portfolio management, and other innovative solutions will help our customers expand their relationships with us by allowing them to more efficiently sell and market additional services and solutions to their End Users.

- ***Continue to expand our solutions offerings and enhance our platform:*** We believe our history of innovation distinguishes us in the market, and we intend to continue to invest in our software development efforts and introduce new solutions that are largely informed by and aligned with the business objectives of our existing and new customers. For example, in June 2017, we introduced Q2 BaaS (previously known as Q2 Open), a portfolio of open API financial services which are designed to allow RCFIs, Alt-FIs and FinTechs to develop and support their own digital financial services and solutions more quickly and cost-effectively. Q2 BaaS additionally provides an opportunity for our RCFI customers to partner with Alt-FIs and FinTechs in providing innovative digital services and solutions to meet evolving End-User demands. In October 2018, we acquired Cloud Lending Solutions, or Cloud Lending. With the Cloud Lending acquisition, we added to our portfolio of solutions an end-to-end digital lending and leasing platform which allows RCFIs, Alt-FIs and FinTechs to automate and digitize lending and leasing related activities. In November 2018, we acquired Gro Solutions, or Gro. With the Gro acquisition, we added Q2 Gro to our portfolio of solutions, a digital online account opening and sales and marketing platform which enables customers to make personalized recommendations and cross-sell banking products, such as deposit accounts and loans. In October 2019, we acquired Lender Performance Group, LLC, or PrecisionLender. With the PrecisionLender acquisition, we added to our portfolio of solutions PrecisionLender's data-driven sales enablement, pricing and portfolio management platform to support commercial lending for financial institutions globally, as well as Andi®, a digital enterprise coach powered by machine learning.
- ***Selectively pursue acquisitions and strategic investments:*** In addition to continuing to develop our solutions organically, we regularly evaluate strategic opportunities, such as our acquisitions of Centrix, Social Money, Unbill, Cloud Lending, Gro and PrecisionLender. We anticipate that we will continue to selectively pursue acquisitions of and strategic investments in technologies that will strengthen and expand the features and functionality of our solutions and provide access to new customers and new markets.

The Q2 Solutions

We design and develop our solutions with a platform approach intended to provide comprehensive integration between our solution offerings and our customers' internal and third-party systems. This integrated approach allows our customers to deliver a unified and robust financial experience across digital channels. We leverage the benefits of our open platform to provide our customers the following solutions:

Digital Banking Platform

Our digital banking platform allows RCFIs to offer a comprehensive and unified suite of digital banking services to their End Users. Our open platform architecture, deep integration with other systems and the multi-tenant aspects of our infrastructure, enable us to develop digital banking solutions that allow our customers to harness the power of the information within their other systems to gain greater insights and to improve the overall security of their End Users and themselves. To date, a substantial majority of our revenues continue to result from sales of our digital banking platform to RCFIs.

Our digital banking platform provides our customers with the following benefits:

- single-login and multi-layered security across channels and devices;
- deep integration with numerous other internal and third-party systems;
- single interface to an FI's core transaction processing and other systems of record;
- unified End-User experience and consistent workflows, languages and data;
- rapid configurability, development and deployment of new features and functionality;
- comprehensive view of End-User activity across channels and devices;
- platform wide operational, administrative and customer experience/success reporting; and
- flexible, predictive branding and personalization.

We provide the following digital banking platform solutions:

Solution	Features
Q2 Digital Banking and Transactions - Q2 UUX	• Browser-based digital banking solution • Unified and robust financial experience across digital channels • Comprehensive RCFI-branded digital banking capabilities such as account access, check balancing, funds transfers, bill pay, recurring payments processing, statement viewing and new products and service applications • Support for single and batch ACH processing, payroll, state and federal tax payments and domestic and international wires • Management functionality such as End-User enrollment, password management, permissions, rights management, reports, integrated security as well as feature assignment for digital banking
Q2mobility App	• Mobile and tablet digital banking solution • Enables consumer and commercial End Users to access, engage and complete banking transactions such as adding and managing payees, transferring funds, executing single or recurring payments for multiple bank accounts, viewing e-statements or check images and managing other general banking services from their Apple iOS or Android-enabled mobile or tablet device • Native functionality for mobile and tablet devices such as touch, camera and geolocation to enhance the digital banking experience of End Users
Q2mobile Remote Deposit Capture	• Partnered solution that allows remote check deposit capture utilizing End Users' camera-ready mobile and tablet devices
Q2 Person-to-Person Payments	• Partnered integrated person-to-person payments solution that gives End Users the ability to pay anyone quickly, easily and securely, from any device
Q2 Business Solutions	• Advanced digital banking solutions deliver a flexible, efficient, and positive experience for all types of business users, from sole proprietors to enterprise-level account holders • Allows commercial End Users to more efficiently manage and execute higher volume and more complex transactions by restricting transactions based on accounts, subsidiaries, approval levels, End-User roles, date and time as well as geographic location • Advanced reporting designed to help RCFIs deliver key business information to commercial End Users
Q2 Sentinel	• Real-time security analytics solution designed to help RCFIs detect and block suspect transactions • Behavioral analytics and policy-based decision prompts for RCFI administrators • Continuous learning of End-User behaviors while providing an analysis of transaction activity via easy-to-use case management tools supporting either the authorization or interruption of transactions
Q2 Patrol	• Event-driven validation product designed to mitigate certain high-risk, non-transactional fraudulent activity • Behavioral machine learning designed to identify fraudulent digital banking sessions • Analyzes past login behavior and device details, including IP addresses, geolocation, device type, time stamps and more to create a digital footprint for each End User • Enhances security by requiring End Users to further authenticate a digital banking session if that session is deemed suspect based on abnormal behavioral login and device detail • Supplies session details in the End-User interface to better involve End Users in their own account safety • Reporting for regulatory compliance and risk reduction
Q2 SMART	• Targeting and messaging platform that allows RCFIs to analyze End-User data utilizing machine learning and statistical analysis designed to identify opportunities to grow their End-User relationships with targeted offerings based on specific End-User behavior • Multichannel approach to identify traits across a broad range of End-User behavioral patterns to help RCFIs create new End-User campaigns, conversations and offers based on specific End-User behaviors • Recommendation engine to determine which products an End User is most likely to adopt • Summarizes End User behavioral data using clear and easily understood metrics, graphs and charts that are updated daily and presented through an intuitive End-User interface
Q2 Contextual PFM	• Allows End Users to easily add external accounts and view them together with internal accounts on their digital banking home page • Allows financial institutions the ability to offer End Users simplified transaction descriptions and automatic categorization across their internally and externally held accounts • Enables financial institutions to better understand End Users' consumer financial data, analytics, and behaviors • Allow End Users to view their personal data in a variety of ways, such as budgets, spending, net worth, debts, and trends
Q2 Goals	• Enables End Users to establish and save towards specific savings goals • Allows End Users to easily track their progress and activity towards achieving their savings goals • Provides financial institutions visibility into End Users' savings goals enabling them to assess additional opportunities to offer additional financial services to assist such End Users
Q2 CardSwap	• Allows RCFIs who issue debit or credit cards to enable End Users receiving newly issued cards to automatically change their payment information with existing subscription and digital point-of-sale services, which have previously been set up for payment with a different card • Assists End Users with compromised card replacement

Q2 Gro	• Digital account opening and digital sales and marketing platform that drives customer acquisition growth across digital channels • Enables RCFIs to make personalized recommendations and cross-sell banking products, such as deposit accounts and loans, to both retail and business End Users • Combines advanced, multichannel account opening with targeted marketing capabilities as well as a shopping cart experience
Q2 Caliper Software Development Kit	• Tools, knowledge, and access necessary to customize and extend our digital banking platform • Enables the development and integration of workflows in the Q2 development environment through open APIs
Q2 Biller Direct	• Bill payment solution that aggregates End Users' bills and payments into a single view, enabling bill presentment, aggregation and bill pay functionality
Q2 Partner Marketplace	• Online marketplace of pre-integrated third-party applications RCFI's can offer to their End Users and for which they can receive a portion of the End-User fees
Centrix Dispute Tracking System	• Electronic transaction dispute management solution • Assists in the administration of disputed electronic transactions (debit card, ATM, ACH and remittance transfers) for the purpose of compliance with Regulation E of the Electronic Fund Transfer Act • Includes an optional Fraud Alerts module which allows customers to quickly and accurately measure the financial impact of data breaches involving card payments
Centrix Payments I.Q. System	• ACH file monitoring and risk reporting solution • Simple and intuitive analytical reporting of both originated and inbound ACH activity, while also safeguarding against ACH fraud with calendaring and real-time validation of originated files
Centrix Exact/Transaction Management System	• Fraud prevention tool focused on the transaction management needs of commercial End Users • Encompasses check positive pay with payee match, ACH positive pay and full account reconciliation

Lending and Leasing Solutions

Cloud Lending Solutions

Our Q2 Cloud Lending, or CL, digital lending and leasing platform is a cloud-based, end-to-end lending and leasing solution that allows RCFIs, Alt-FIs and FinTechs to automate and digitize their lending and leasing activities, supporting digital lending and leasing applications, scoring, underwriting, servicing and collections for multiple assets classes. The CL digital lending and leasing platform allows RCFIs, Alt-FIs and FinTechs to originate and service a wide range of loan types including online, consumer, commercial, small business and marketplace, or peer-to-peer, loans, and leases. The CL digital lending and leasing platform utilizes the Force.com platform and includes the following distinct solutions, which RCFIs and Alt-FIs can use as a complete package or individually to supplement existing operations:

Solution	Features
2 CL Portal	• Configurable front-end portal that provides a differentiated borrowing experience for consumer, commercial and small business loans for borrowers, investors and stakeholders
2 CL Originate	• Customer-centric, agile loan origination and underwriting solution • Designed to meet the needs of consumer, commercial, small business, marketplace, or peer-to-peer, lending, and equipment leasing • Manages the entire origination and underwriting process including loan file management, workflows, auto-decisioning, parties management, credit memo, credit analysis, approvals and covenants
2 CL Loan	• Loan servicing application that automates loan billing, payments, collections, and accounting within one robust, flexible, and secure platform • Manages portfolios, increases transaction volume, and rapidly brings new products to market
2 CL Lease	• Agile, customer-centric, cloud-based lease servicing application that enables lessors to efficiently service equipment leases • Automates operations, manages and tracks multiple assets in a single lease, and manages repossessions and returns • Integrates the work of collection agents, repossession agents, equipment resellers, and dealers • Allows for automation to apply fees, calculate taxes, and collect payments through ACH and credit cards
2 CL Marketplace	• Cloud-based marketplace application designed to handle the complexities of managing the entire online marketplace, or peer-to-peer, loan cycle, including online origination, loan fractionalization, servicing and managing multiple investor portfolios
2 CL Collections	• Customer-centric collections application that enables lenders to define and automate collection strategies, optimize customer interaction across channels, lower risk, and reduce technical and operational costs • Allows lenders to track customer interactions, set priorities and optimize workloads
2 PPP	• Paycheck Protection Program and Loan Forgiveness solution for lenders participating in the U.S. Small Business Administration Paycheck Protection Program, or PPP • Manages the entire origination, underwriting and loan forgiveness process for PPP loans including loan file management, workflows, auto-decisioning, parties management, credit analysis and approvals

PrecisionLender Solutions

Our PrecisionLender platform is a cloud-based, data-driven sales enablement, pricing and portfolio management solution that allows financial institutions globally to more effectively structure and negotiate commercial lending transactions. During the commercial lending negotiation process, the PrecisionLender platform analyzes a financial institution's entire commercial End-User portfolio, and individual commercial End-User relationships, in addition to other external market information, to assess the performance of the portfolio and relationships. Based on such analysis, PrecisionLender provides commercial bankers with actionable insights by highlighting potential concerns and identifying potential opportunities, ultimately allowing them to more efficiently and effectively price, negotiate and close commercial loans. The PrecisionLender platform user experience is enhanced by Andi®, a digital enterprise coach powered by machine learning. The PrecisionLender platform includes the following distinct solutions:

Solution	Features
PrecisionLender Platform	• Cloud-based loan pricing and negotiation functionality that provides commercial and small business relationship managers with actionable insights based on analysis of their commercial and small business account holder portfolios to efficiently and effectively price and structure commercial loans, deposits and other fee-based banking services
Data Studio	• Managed and configured data environment that provides in depth analysis and reporting of a financial institution's commercial and small business account portfolios, enabling commercial and small business relationship managers to assess performance trends as well as identify cross-sales and other opportunities for improvement
Andi®	• Configurable digital enterprise coach powered by machine learning which accompanies the commercial and small business relationship manager throughout the commercial and small business loan structuring, negotiating and pricing process, making recommendations along the way leveraging the real-time analysis being performed by the PrecisionLender Platform

BaaS Solutions

In June 2017, we introduced Q2 BaaS (formerly known as Q2 Open), a portfolio of open API financial services which are designed to allow RCFIs, Alt-FIs and FinTechs to develop and support their own applications and digital financial services. Q2 BaaS additionally provides an opportunity for our RCFI customers to partner with Alt-FIs and FinTechs in providing new innovative digital financial services to meet evolving consumer expectations. Q2 BaaS is an open API portfolio which allows development-capable organizations to build front-end interfaces and experiences on top of Q2 BaaS API infrastructure:

Solution	Features
Q2 CorePro API	• An agile, cloud-based core processor that provides API tools, supporting functionality designed to enable financial institutions, Alt-FIs and FinTechs to develop applications offering federally insured deposit accounts, leveraging a system of record for ledgering banking transactions including access to ACH payments and branded debit cards integrated into Visa or MasterCard networks.

Implementation and Customer Support

We seek to deepen and grow our customer relationships by providing consistent, high-quality implementation and customer support services, which we believe drive higher customer retention and incremental sales opportunities within our existing customer base. We structure our implementation teams to effectively collaborate with the management and technology teams of our customers ensuring the rapid deployment and effective utilization of our solutions. Under certain circumstances for our digital lending and leasing solutions, we partner with third-party professional system integrators to support our customers in the installation and configuration process. These implementation teams develop and execute a coordinated implementation plan for our customers centered around five standard phases of IT transformation projects: initiation, configuration, application testing, limited production and production.

Our customer support personnel serve the comprehensive support-related needs of our customers. Due to the highly-regulated and complex nature of the financial services industry, our implementation and customer support service teams, including any third-party professional system integrators with which we partner, must be knowledgeable about our solutions and the regulatory environment in which our customers are required to operate.

Partner Offerings

Our customers are reliant on an ever-growing ecosystem of third-party digital solutions to complement their financial services offerings and we provide a broad range of tools to help our customers efficiently bring them to market. The flexible nature of our solutions, along with an internally developed, highly flexible set of integration tools allows us to build rapid integrations with our customers' internal and third-party systems to support End-User activities and customer processes. These integration tools connect with a wide variety of third-party applications, allowing us to seamlessly integrate with our customers' internal and third-party systems such as account services, payments and imaging. Our ability to integrate with these systems enables our customers to offer a comprehensive set of consumer and commercial functionality to their End Users.

Sales and Marketing

Our sales and marketing organization is responsible for growing our customer base and maintaining and expanding relationships with our existing customers. We sell our solutions primarily through our direct sales organization but also through partnerships for select solutions and global regions. Our direct sales organization consists of experienced sales professionals who are organized by geography, account size, type of market and whether a prospect is a new or existing customer. Customers are assigned a dedicated representative to provide ongoing assistance in the execution of the customer's digital strategy to meet the needs of its End Users. Our sales representatives are supported by our solutions consulting and sales operations teams.

Our marketing team complements our sales organization through integrated programs for demand creation, pipeline acceleration, customer expansion and brand advocacy. While the financial institution market is well-defined due to the regulatory classification of financial institutions, the Alt-FI and FinTech markets are broader and more difficult to define due to the changing number of providers in each market. We focus our marketing efforts on sponsorships, highly-targeted tradeshows, publications, digital newsletters, digital advertising, account-based marketing, as well as referral agreements with strategic industry partners. Our marketing team also conducts primary research to support our industry thought leadership and to identify emerging trends in End-User behavior and digital activities. Our marketing programs primarily target digital transformation, technology, finance, operations and marketing executives as well as senior business leaders.

Research and Development

Our focus on innovation has fueled our growth and enables us to provide our customers secure, cloud-based digital solutions that transform the ways in which traditional and emerging financial service providers engage with End Users. We allocate significant resources to developing and improving our solutions to meet our customers' evolving needs. We monitor and test our solutions regularly, and we maintain a disciplined release process to enhance our existing solutions and introduce new capabilities without interrupting service delivery. We follow state-of-the-art practices in software development and design, including using modern programming languages, data storage systems and other tools. Our multi-tiered architecture enables us to scale, add and modify features quickly in response to changing market dynamics, customer needs and regulatory requirements. Our platform approach supports rapid development and deployment of new features to address evolving market needs. We also enable customers to address their market-specific needs via our extension and integration frameworks, which is a key aspect of our technology strategy.

Technology and Operations

Due to the highly regulated nature of the financial services industry, our digital banking platform combines both multi-tenant and single instance aspects. This structure is designed to maximize End-User data security and minimize compliance cost and risks. Our solutions utilize a multi-tiered architecture that allows for scalability, operational simplicity, security and disaster recovery. We have also developed an internal operations and analytics platform that aggregates and leverages customer instance and End-User experience captured within our solutions to drive future innovation and scale.

We serve our digital banking platform customers from two secure, third-party, American National Standards Institute Tier 4 data center facilities, one located in Carrollton, Texas and the other located in Austin, Texas. Both data centers are operated by the same third-party provider. Our digital lending and leasing and BaaS solutions are hosted by cloud-based hosting services, including Amazon Web Services and Microsoft Azure. We believe that our current data centers have sufficient capacity to meet our anticipated growth for the foreseeable future. Although we utilize a third party to manage our data center facilities for our digital banking platform, we manage the hardware and software on which our digital banking platform operates. We utilize industry standard hardware in resilient configurations to minimize service interruptions, and regularly consider and implement improvements to enhance the resiliency of our services, including our recent improvements to actively distribute services across both data centers. As a result of these improvements, our network infrastructure is fully redundant within each of our data centers, including network teaming to provide network redundancy that includes multiple upstream Internet connections. We have also purchased a private block of IP address space to simplify and expedite our disaster recovery management operations for our digital banking platform customers.

Our digital banking platform has had average uptime in excess of 99.9% since January 2013. We actively monitor our infrastructure 24x7 for any sign of failure, and we seek to take preemptive action to minimize and prevent downtime. Our data centers employ advanced measures to ensure physical integrity and security, including redundant power from multiple substations and cooling systems, fire and flood prevention mechanisms, continual security coverage and biometric readers at entry points as well as perimeter boundary security measures. We have also implemented extensive disaster recovery measures and continue to invest in data center and other technical infrastructure.

All End Users are authenticated, authorized and validated before they can access our solutions. End Users must have, at a minimum, a valid user ID and associated password. Many of our customers also employ other authentication methods such as out-of-band one-time password delivery to log on to our solutions and hardware cryptographic tokens to authorize transactions. Our layered security model allows different groups of End Users to have different levels of access to our solutions. Our solutions' vulnerability is tested using internal tools prior to release, and an independent third party performs penetration and vulnerability tests on our solutions periodically.

Intellectual Property

We rely on a combination of patent, trademark, trade secrets and copyright laws, as well as confidentiality procedures and contractual restrictions, to establish, maintain and protect our proprietary rights. As of December 31, 2020, we had nine U.S. patent applications pending and four issued U.S. patents, with expiration dates ranging from October 2027 to January 2038. Despite substantial investment in research and development activities, we have not focused on patents and patent applications historically. We license third-party technologies, such as bill pay technologies, that are incorporated into some of our solutions.

The efforts we have taken to protect our intellectual property rights may not be sufficient or effective. It may be possible for other parties to copy or otherwise obtain and use the content of our solutions without authorization. Failure to protect our proprietary rights adequately could significantly harm our competitive position and operating results.

Operating companies as well as other opportunistic patent and trademark holders, some of whom own large numbers of patents, copyrights, trademarks and trade secrets, seek to profit from royalties in connection with grants of licenses to their intellectual property, including through litigation, or threats of litigation, based on allegations of infringement or other violations of intellectual property rights. We have received in the past, and will likely in the future, receive notices that claim we have misappropriated or misused other parties' intellectual property rights. There may be intellectual property rights held by others, including issued or pending patents and trademarks that cover significant aspects of our solutions. Any intellectual property claim against us, regardless of merit, could be time consuming and expensive to settle or litigate and could divert our management's attention and other resources. These claims could also subject us to significant liability for damages and could result in our having to stop using solutions found to be in violation of another party's rights. We might be required or may opt to seek a license for rights to intellectual property held by others, which may not be available on commercially reasonable terms, or at all. Even if a license is available, we could be required to pay significant royalties, which would increase our operating expenses. We may also be required to develop alternative non-infringing solutions, which could require significant effort and expense and which we may not be able to perform efficiently or at all. If we cannot license the intellectual property at issue or develop non-infringing solutions for any allegedly infringing aspect of our business, we may be unable to compete effectively.

Our Competition

The market for digital solutions for financial services providers is highly competitive. We compete with new and established point solution vendors, core processing vendors, as well as internally developed solutions. We believe that the comprehensive integration among our solution offerings and our customers' internal and third-party systems, combined with our deep industry expertise, reputation for consistent, high-quality customer support, and our unified cloud-based digital banking, digital lending and leasing and BaaS solutions distinguish us from the competition.

We currently compete with providers of technology and services in the financial services industry, including point system vendors and core processing vendors, as well as systems internally developed by financial services providers. With respect to our digital banking platform, we have a number of point solution competitors, including NCR Corporation, or NCR, nCino, Inc., Alkami Technology, Inc. and Kony, Inc. (acquired by Temenos AG in September 2019) in the online, consumer and small business banking space and Finastra, ACI Worldwide, Inc. and Bottomline Technologies (de), Inc. in the commercial banking space. We also compete with core processing vendors that provide systems and services such as Fiserv, Inc., Jack Henry and Associates, Inc. and Fidelity National Information Services, Inc., or FIS. With respect to our lending and leasing platform, we compete against a number of point system competitors, including Abrigo, Baker Hill Solutions, LLC, Fair Isaac Corporation, nCino, Inc., Finastra, Moody's Analytics, Inc., Brilliance Financial Technology, Oracle Corporation, Temenos AG, and core processing vendors, including FIS and Fiserv. With respect to our BaaS solutions, due to the vast number of potential use cases and customer segments, the list of potential competitors is extremely broad and varied, but includes companies across the retail banking, financial services, transaction processing, consumer technology and financial technology services industries.

Many of our competitors have significantly more financial, technical, marketing and other resources than we have, may devote greater resources to the promotion, sale and support of their systems than we can, have more extensive customer bases and broader customer relationships than we have and have longer operating histories and greater name recognition than we have. In addition, many of our competitors expend more funds on research and development.

Although we compete with point system vendors and core processing vendors, we also partner with some of these vendors for certain data and services utilized in our solutions and receive referrals from them. In addition, certain of our customers have or can obtain the ability to create their own in-house systems, and while many of these systems have difficulties scaling and providing an integrated platform, we still face challenges displacing in-house systems and retaining customers that choose to develop an in-house system.

We believe the principal competitive factors for our solutions in the financial services markets we serve include the following:

- alignment with the missions of our customers;
- ability to provide a single platform for consumer and commercial End Users;
- full-feature functionality across digital channels;
- ability to integrate targeted offers for End Users across digital channels;
- ability to support financial institutions in acquiring deposits with open API technologies;
- SaaS delivery and pricing model;
- ability to support both internal and external developers to quickly integrate with third-party applications and systems utilizing a software development kit;
- design of the End-User experience, including modern, intuitive and touch-centric features;
- configurability and branding capabilities for customers;
- familiarity of workflows and terminology and feature-on-demand functionality;
- integrated multi-layered security and compliance of solutions with regulatory requirements;
- quality of implementation, integration and support services;
- domain expertise and innovation in financial services technology;
- ability to innovate and respond to customer needs rapidly; and
- rate of development, deployment and enhancement of solutions.

We believe that we compete favorably with respect to these factors within the financial institution, Alt-FI and FinTech markets we serve, but we expect competition to continue and increase as existing competitors continue to evolve their offerings and as new companies enter our market. To remain competitive, we believe we must continue to invest in research and development, sales and marketing, customer support and our business operations generally.

People

As of December 31, 2020, we had 1,751 employees, of which 1,749 are full time employees, 1,520 were employed in the United States, and 231 were employed outside of the United States. We consider our current relationship with our employees to be good. None of our employees are represented by a labor union or are a party to a collective bargaining agreement.

People are at the center of everything we do. Our mission is to build stronger and more diverse communities by strengthening their financial institutions. Our employees are paramount to our success, and our founders have created a set of principles to help guide us to be ethical and accountable to our customers, partners, communities we serve, each other and other stakeholders in achieving our mission. To ensure our success, we continually endeavor to create and implement employee programs that inspire learning, improve well-being and reward performance. Our current programs focus on the following key human capital measures and objectives:

Diversity, Equity and Inclusion

As a global company, we embrace the diversity of our employees, partners, customers, other stakeholders and the communities we collectively serve. We believe that consideration of differing points of view, including unique backgrounds, experiences and talents, is critical to our success. We are building diversity, equity and inclusion into our culture with a focus on creating environments and practices that mitigate bias and allow our employees to be their best. Based on information provided by our employees who opted to self-identify, representing the vast majority of our employees, our employee population as of December 31, 2020 reflected the following:

	Women	**Non-White** [(1)]
Overall	35%	26%
Director-level employees and above	23%	17%

(1) Excludes the impact of our Bangalore, India operations.

Our diversity, equity and inclusion efforts highlight:

- promoting an equal opportunity work environment that enables employees to feel safe to express their ideas and perspectives and where they feel they belong;
- educating employees and leaders to recognize where bias exists and building practices to combat its impact;
- recruiting, developing and retaining diverse top talent; and
- reinforcing our commitment by supporting external community-based diversity and inclusion-focused causes and organizations.

In fiscal 2020, we created and launched a diversity-focused council of 11 employees of color, sponsored by our Chief Executive Officer, to help guide us in implementing a more comprehensive diversity and inclusion strategy. Key to this strategy, in 2021 we plan to hire our first full-time leader of diversity, equity and inclusion. We are also investing in a more robust procurement and vendor management function to better promote diversity within our suppliers and partners and are adding a role that will focus on improving diversity in our employee recruiting pipeline and results. Externally, we are partnering with Austin's African American Leadership Institute development program in their mission to enhance civic awareness and leadership opportunities to make an innovative community impact on Central Texas.

Employee Engagement and Culture

Since our inception, our culture has been rooted in our mission to build stronger and more diverse communities by strengthening the financial institutions that serve them. We believe our passion, dedication and commitment towards this mission is a significant differentiator for us with our customers and employees. Our culture is demonstrated and shared through our employee traditions and customs and daily engagements among our employees and with our customers. We live our essential mission of supporting communities through active community support with volunteerism and financial support. We partner with local non-profits that align to our employees' passions with hands-on and virtual volunteering, providing care and impact to communities across the globe. Additionally, we use technology and online tools, such as YourCause, to help promote volunteer opportunities for individual employees and teams. We reward our employees for their service with donation dollars to share back with non-profits of their choice.

Listening to our employees is a core component to our employee engagement strategy. Being able to understand the needs, preferences and general feedback of our Q2 employees is critical to the design of our People programs. We gather these insights through frequent pulse-style surveys on a range of topics as well as an annual world-wide employee engagement survey conducted by an external vendor. Each year, our leadership team considers the feedback from our employee engagement surveys, both positive and constructive, and focuses on making employee-suggested changes to become an even better place to work.

We are proud to have been recognized as a highlighted employer through the Austin American-Stateman's "Top Places to Work" for the past ten years based upon our employees' satisfaction ratings. Our Charlotte, North Carolina operations have received similar recognition as a "Best Place to Work" by the Charlotte Business Journal for the last six years.

Our culture is visible across our organization and highlighted through a host of initiatives, programs and committees including the following:

- our portfolio of company-wide events and forums that foster connections to the organization and one another;
- our employee volunteer committees focused on culture, wellness, and charitable causes help create opportunities for employees to support causes to make a difference in the workplace and local communities;
- our workspaces and virtual workspace resources that reinforce our mission and guiding principles and promote a collaborative, high-energy work environment that helps facilitate team-based problem solving and cross-departmental learning; and
- our new-hire employee orientations that help new employees understand our business, culture, mission and values.

To create a culture of teamwork and rewards, we support a range of recognition programs. One of our most utilized programs is a points-based rewards system that allows our employees to highlight successes and give thanks to individuals and teams across the organization. We encourage the engagement of peer-to-peer recognition and showcase our wins, while we utilize Q2's guiding principles as a framework to recognize the behaviors we expect our employees to model. We provide other meaningful opportunities for recognition that emphasize our commitments to each other and our customers, including our Circle of Awesomeness recognition program which awards our outstanding sales and non-sales employees based on employee and customer nominations with sizable awards, which have included company-paid group vacations and team events among other items. In January 2021, we also announced our agreement with Austin FC, Austin's new Major League Soccer team, to be the exclusive naming rights partner for their home stadium in Austin, now called Q2 Stadium. Our agreement with Austin FC will enhance our brand within Austin and globally and enable a variety of unique and exciting opportunities for us to engage our employees, customers, partners and communities.

Learning and Development

We recognize the importance of employees developing and progressing in their careers, starting on their first day with our robust new-hire employee orientation and thoughtful onboarding plans, which are designed to give employees a successful beginning of their Q2 careers. Once employees are onboarded, we then look at the ways in which their skills and careers can further develop at Q2. We provide a variety of resources to help our employees grow in their current roles and build new skills, including a wide variety of development resources and courses through on-demand as well as facilitated learning opportunities. We emphasize individual and team development planning as part of our annual goal-setting process. We believe leading our employees is one of the greatest acts of trust we can provide, and accordingly all managers go through training to enable them to effectively perform as leaders. We offer leadership development resources and programs for all leaders at all experience levels, have created leadership competencies based on our guiding principles to help frame our leadership development programs and continue to build tools to continually advance leaders' capabilities to develop and scale their teams. Globally, we are invested in higher education through internship programs that target colleges and universities. We annually host dozens of interns across various of our geographies with immersive training and on-the-job learning opportunities across a broad set of functions.

Talent Acquisition

We work diligently to attract the best talent from a diverse range of sources to meet the current and future demands of our business. We have established relationships with world-class universities, including historically black colleges and universities, or HBCUs, professional associations and industry groups to proactively attract talent. We have a strong employee value proposition that leverages our unique mission-driven culture, collaborative working environment and exciting growth opportunity to attract talent. We leverage multiple resources specifically targeting diversity of candidates in our recruiting pipeline, and we are making investments to help us reduce or mitigate any unconscious bias that exists in the recruiting process. We continue to focus on talent development to broaden and enable our recruiting and leadership teams to advise and deploy even more inclusive recruitment practices.

Compensation and Benefits

Our compensation programs are designed to provide a compensation package that will attract, retain, motivate and reward superior employees who must operate in a fast paced, highly-competitive, and technologically-challenging environment. We seek to do this by linking annual changes in compensation to overall Company performance, as well as each individual's contribution to the results achieved. The emphasis on overall Company performance is intended to align the employee's financial interests with the interests of our stockholders, particularly as it relates to our long-term incentive plans. We are committed to fair pay and strive to be externally competitive while ensuring internal equity across our organization, considering roles, relative experience and performance. We conduct global pay equity assessments and compensation reviews, and we are actively working to reduce unconscious bias in our hiring practices, performance reviews and promotion opportunities that may contribute to pay inequities.

We are committed to providing comprehensive benefit options, and it is our intention to offer benefits that will allow our employees and their families to live healthier and more secure lives. Some examples of our wide-ranging global benefits offered are: 401(k) retirement plan and pension plans, including employer contributions; medical insurance, prescription drug benefits, dental insurance, vision insurance, accident insurance, critical illness insurance, life insurance, disability insurance, health savings accounts, flexible spending accounts, legal insurance and pet insurance.

Employee Well-Being

We are committed to the health, safety and well-being of our employees. In addition to traditional employee benefits, we offer a number of innovative benefits to support the physical, mental and financial health of our employees. These include, among many other things: onsite and virtual wellness clinics and classes; online tools that assist employees with their physical and mental health; and special events with outside vendors and participants focusing on employee well-being. We also provide global access to an Employee Assistance Program (EAP) providing our employees and anyone living in their household with access to a variety of resources, including mental health and counseling, work life balance and online legal resources.

COVID-19 Measures

Since March 2020, in response to the COVID-19 pandemic nearly all of our employees have worked remotely from home. With this transition we began providing a variety of additional resources and benefits to help our employees effectively navigate the impacts of the COVID-19 pandemic as it relates to their physical, financial and mental well-being, as well as their productivity. The primary goal of these additional measures has been to create an environment where our employees feel safe and secure and are allowed the grace and flexibility to adapt to the new demands brought about by this pandemic experience. We have provided opportunities for more flexible work schedules, which has helped employees manage the challenges of unplanned at-home childcare and virtual schooling and conflicting at-home work schedules of other household members. We implemented a COVID day off program creating multiple extra global holidays for employees, affording them extra time to attend to personal matters. Additionally, we offered monthly financial stipends to all employees globally to assist them and their households with the extra expenses of at-home work, education and well-being. We also launched the Q2@home employer-paid benefit to enhance our employees' at-home work experience, providing them with a selection of ergonomic office furniture. We have implemented a number of other benefits and cultural enhancements in response to the COVID-19 pandemic, including:

- employer-paid access to virtual meditation resources;
- employer-paid telehealth for eligible U.S. employees;
- increased flexibility for employees to change contributions to flexible spending accounts;
- elimination of deductibles for COVID-related benefits claims for eligible U.S. employees;
- increased COVID-related health coverage for certain eligible non-U.S. employees;
- new virtual physical therapy benefit for eligible U.S. employees; and
- increased variety and amount of virtual culture events ranging from exercise classes, cooking classes, book clubs, musical performances, DJ dance parties, to coffees and cocktails with senior leaders.

Government Regulation

As a technology service provider to banks and credit unions in the United States, we are not required to be chartered by the Office of the Comptroller of the Currency, the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the National Credit Union Administration or other federal or state agencies that regulate or supervise our customers and other providers of financial services in the United States.

Our customers and prospects are subject to extensive and complex regulations and oversight by federal, state and other regulatory authorities. These laws and regulations are constantly evolving and affect the conduct of our customers' operations and, as a result, our business. Our solutions must enable our customers to comply with applicable requirements such as the following:

- the Dodd-Frank Wall Street Reform and Consumer Protection Act, or Dodd-Frank Act;
- the Electronic Funds Transfer Act;
- Mobile Banking Guidance;
- the Electronic Signatures in Global and National Commerce Act;
- federal, state and other usury laws;
- the Gramm-Leach-Bliley Act, or GLBA;
- the EU General Data Protection Regulation, or GDPR;
- laws against unfair, deceptive, or abusive acts or practices;
- the Privacy of Consumer Financial Information regulations;
- the Guidance on Supervision of Technology Services Providers promulgated by the Federal Financial Institutions Examination Council, or FFIEC;
- the Guidance on Outsourcing Technology Services promulgated by the FFIEC; and
- other federal, state and international laws and regulations.

We are subject to periodic examination by banking regulators under the authority of the FFIEC under its Guidance on the Supervision of Technology Services Providers and the Gramm-Leach-Bliley Act of 1999, and federal, state and other laws that apply to technology service providers as a result of the services we provide to the institutions and entities they regulate. As an independent technology service provider, we are examined by federal financial regulators on a rotating basis. These examinations are based on guidance from the FFIEC, which is a formal interagency body empowered to prescribe uniform principles, standards and report forms for the examination of financial institutions and to make recommendations to promote uniformity in the supervision of financial institutions. The examinations cover a wide variety of subjects, including our management, acquisition and development activities, support and delivery, IT audits, as well as our disaster preparedness and business recovery planning. The banking regulators that make up the FFIEC have broad supervisory authority to remedy any shortcomings identified in an examination. Following an examination, our financial institutions customers may request an executive summary of the examination through their lead examination agency.

The Dodd-Frank Act granted the Consumer Financial Protection Bureau, or CFPB, authority to promulgate rules and interpret certain federal consumer financial protection laws, some of which apply to the solutions we offer. In certain circumstances, the CFPB also has examination and supervision powers with respect to service providers who provide a material service to a financial institution offering consumer financial products and services.

The compliance of our solutions with these requirements depends on a variety of factors, including the functionality and design of our solutions, the classification of our customers, and the manner in which our customers and their End Users utilize our solutions. In order to comply with our obligations under these laws, we are required to implement operating policies and procedures to protect the privacy and security of our customers' and their End Users' information and to undergo periodic audits and examinations.

Privacy and Information Safeguard Laws

In the ordinary course of our business, we and our customers using our solutions access and transmit certain types of data, which subjects us and our customers to certain privacy and information security laws in the United States and internationally, including, for example, GLBA and GDPR, and other laws or rules designed to regulate consumer information and mitigate identity theft. We are also subject to privacy laws of various states. These laws impose obligations with respect to the collection, processing, storage, disposal, use and disclosure of personal information, and require that financial services providers have in place policies regarding information privacy and security. In addition, under certain of these laws, we must provide notice to consumers of our policies and practices for sharing nonpublic information with third parties, provide advance notice of any changes to our policies and, with limited exceptions, give consumers the right to prevent use of their nonpublic personal information and disclosure of it to unaffiliated third parties. Certain of these laws may, in some circumstances, require us to notify affected individuals of security breaches of computer databases that contain their personal information. These laws may also require us to notify relevant law enforcement, regulators or consumer reporting agencies in the event of a data breach, as well as businesses and governmental agencies that own data. In order to comply with the privacy and information safeguard laws, we have confidentiality and information security standards and procedures in place for our business activities and our third-party vendors and service providers. Privacy and information security laws evolve regularly, requiring us to adjust our compliance program on an ongoing basis and presenting compliance challenges.

Available Information

Our website address is https://q2.com. Our Annual Report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 are available through the investor relations page of our Internet website free of charge as soon as reasonably practicable after we electronically file such material with, or furnish it to the SEC. Our website and the information contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K. In addition, the SEC maintains an Internet site (http://www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Item 1A. Risk Factors.

Our business, prospects, financial condition, operating results and the trading price of our common stock could be materially adversely affected by a variety of risks and uncertainties, including those described below, as well as other risks not currently known to us or that are currently considered immaterial. In assessing these risks, you should also refer to the other information contained in this Annual Report on Form 10-K, including our consolidated financial statements and related notes. Our principal risks include risks associated with:

- *the COVID-19 pandemic and its effects;*
- *our ability to manage our rapid growth;*
- *the development of and changes to the market for our solutions compared to our expectations;*
- *focusing on the financial services industry and any geographies where we have customer concentration;*
- *managing implementation of a higher volume of or more complex configurations of our solutions;*
- *customer acceptance of and satisfaction with our existing and new solutions;*
- *intense competition in the markets we serve;*
- *integration of our solutions with and reliance by our solutions on third-party systems or services;*
- *security breaches and defects or errors in our solutions;*
- *failures associated with payment transactions;*
- *customer training and customer support;*
- *evolving technological requirements and enhancements and additions to our solution offerings;*
- *our sales and marketing capabilities, including partner relationships and the length, cost and unpredictability of our sales cycle;*
- *dependency on our management team and other key employees and recruiting and retaining key employees;*

- *international operations;*
- *mergers and acquisitions;*
- *our ability to secure sufficient additional financing;*
- *our revenue recognition method and the relative impacts of changes in subscription rates on implementation costs;*
- *quarterly fluctuations in our operating results relative to our expectations and guidance and the accuracy of our forecasts and the market data we use;*
- *our history of net operating losses and our ability to utilize our net operating loss carryforwards;*
- *the unpredictability of customer subscription renewals or adoption;*
- *our profit margins and the unpredictability of End-User adoption and usage, and customer implementation and support requirements;*
- *changes in financial accounting standards or practices;*
- *maintaining proper and effective internal controls and producing accurate and timely financial statements;*
- *sales taxes on our solutions;*
- *accounting for our convertible notes;*
- *regulations applicable to us, our customers and our solutions and the impacts of any violation of these regulations;*
- *litigation or threats of litigation;*
- *protecting our intellectual property;*
- *"open source" software in our solutions;*
- *expenses and administrative burdens as a public company;*
- *the dilutive effects of future sales, or anticipation of future sales, of our common stock;*
- *unfavorable or misleading research by industry analysts;*
- *our stock price volatility and historical policy of no dividends;*
- *anti-takeover provisions in our charter documents and Delaware law;*
- *dilution to our stockholders resulting from raising capital or using equity for acquisitions; and*
- *our convertible notes and related hedge, warrant and capped call transactions.*

Risks Related to the COVID-19 Pandemic

Uncertain and weakened economic conditions resulting from the COVID-19 pandemic are adversely affecting our industry, business and results of operations, and the extent to which the pandemic and measures taken in response thereto may impact our business, results of operations, liquidity and financial condition is uncertain and difficult to predict.

Global health concerns stemming from the COVID-19 pandemic and related government actions have caused significant disruption to the global economic environment and significantly increased economic uncertainty. In response to the pandemic, government authorities have implemented numerous measures to try to contain the spread of the disease, including travel bans and restrictions, quarantines, shelter-in-place or total lock-down orders and business limitations and shutdowns. More recently, various vaccines have become available on a limited basis offering hope for potential progress in controlling the pandemic and an eventual return to normal. However, to date the availability of the vaccine has been relatively limited.

The COVID-19 pandemic is adversely impacting our customers and our business, but the long-term extent of such impacts is highly uncertain and difficult to predict. While we believe that to date our business continuity and pandemic plans are operating effectively and that we have been able to operate and provide services to our customers under the circumstances, if we are not able to respond to and manage these impacts and related changes effectively, our business, results of operations, liquidity and financial condition will continue to be adversely impacted. Moreover, even after the pandemic has subsided, we may continue to experience materially adverse impacts to our business, results of operation and financial condition as a result of the virus' global economic impact, including reduced spending, lower economic activity and weakened banking and financial systems.

For example, the spread of COVID-19 has caused us to modify our business practices (including restricting employee travel, developing social distancing plans for our employees and cancelling physical participation in meetings, events and conferences), and we may take further actions as may be required by government authorities or as we determine are in the best interests of our employees, customers and business partners. While we believe these actions are reasonable and necessary as a result of the COVID-19 pandemic, they have resulted in disruptions to our normal business operations. There is no certainty that such measures will be sufficient to mitigate the risks posed by the virus or will otherwise be satisfactory to government authorities. Although we have taken steps to try to protect the health of our employees in light of the COVID-19 pandemic, the continued spread of the virus may increase the risk that one or more of our key employees or other significant portions of our workforce become temporarily or permanently unavailable. Nearly all of our employees, and many of the employees of our customers and third-party providers on which we depend, are currently working remotely and have been since early March 2020 due to government work and travel restrictions, and we currently have no firm plans to begin having employees return to onsite work. Implementation services can be more challenging when being performed by our employees remotely in conjunction with customers and third-party providers whose employees also may be working remotely. Additionally, third party providers of hardware, services and software have been, and may continue to be negatively impacted or cease operating as a result of operational and economic challenges triggered by the COVID-19 pandemic. Any failures or delays in our systems or resources, including as a result of operational constraints or increased online banking activity triggered by government shelter-in-place or similar orders or demand related to government stimulus programs related to the COVID-19 pandemic, could cause service interruptions or impaired system performance. This may impair or delay our ability to sell our solutions, adversely impact our product development and harm productivity and collaboration.

In addition, the COVID-19 pandemic and the resulting weakening of the global economy, rapid increase in unemployment rates, declines in interest rates and reductions in business confidence and activity have had a significant impact on our financial institution, Alt-FI and FinTech customers, as well as the End-User businesses and individuals that utilize our customers' services. These conditions may affect the rate of technology spending and influence the timing of our customers' and prospective customers' technology purchasing and implementation decisions, which could adversely affect our customers' and prospective customers' ability or willingness to purchase our solutions, delay prospective customers' purchasing decisions, reduce the value or duration of their subscriptions, negatively affect our renewal rates and churn or result in a decrease in the number of End Users of our solutions or the transactions performed using our solutions, each of which is difficult to predict and any of which could adversely affect our operating results and financial condition on both a short-term and long-term basis. For example, we have experienced and expect to continue to experience delayed implementations as a result of the COVID-19 pandemic as our customers focus on other initiatives in response to the COVID-19 pandemic and manage their own operations in light of the pandemic. In addition, while we believe the COVID-19 pandemic will increase the importance and prominence of digital financial solutions, likely resulting in increased registration of new End Users with existing Installed Customers and the retention of certain customers that may have otherwise not renewed their contracts, the increased economic uncertainty and reduced economic activity, including consumer and business spending, is resulting in delays in certain purchasing decisions and implementations, which may delay bookings and our recognition of revenue. Given the uncertainty that still surrounds COVID-19, we are expecting sales performance for the foreseeable future across all our solutions to be slower than it would have been without the pandemic. The impact of the COVID-19 pandemic also has and may continue to delay customer decisions with respect to contract extensions and may result in certain downgrades and cancellations from existing customers. For example, we have experienced and expect to continue to experience certain customers requesting reduced or extended payment terms to assist them with cost reduction measures as a result of the COVID-19 pandemic, which we have to date made conditional on associated contract extensions to offset the impact of the reduced payments. We also have and could continue to experience contract terminations with customers who become insolvent as a result of the COVID-19 pandemic.

With the increased economic uncertainty and reduced economic activity, including consumer and business spending, resulting from the COVID-19 pandemic, our growth rate is likely to decline, and may decline significantly. In addition, the operational constraints placed on our business as a result of the COVID-19 pandemic may adversely impact our ability to bring new solutions to market in a timely manner. The duration and extent of the impact from COVID-19 on our growth rate depends on future developments that cannot be accurately predicted at this time.

Other factors related to the COVID-19 pandemic that may adversely impact our business operations include:

- challenges to our operations and our ability to meet customer service level commitments due to government shelter-in-place or other orders under which we are not able to provide certain customer-facing services remotely, which may cause potential loss of revenue or contractual penalties, as well as associated costs resulting from potential legal disputes regarding force majeure or other related contract defenses;
- service interruptions or impaired system performance due to failures of or delays in our systems or resources as a result of increased online banking activity related to End Users utilizing digital banking services while subject to government shelter-in-place or similar orders, or increased use of our solutions resulting from government stimulus programs;
- changes to our normal operations, including as a result of increased remote working and the possibility that one or more clusters of COVID-19 cases could occur at one of our locations, data centers or other third-party providers, affecting our employees or affecting the systems or employees of our customers or other third parties on which we depend;
- risks, including public and private litigation, based upon, arising out of or related to COVID-19 and our actions and responses thereto, including any actions that we may take in connection with re-opening our offices where permitted by local law;
- an increase in the volume of customer and regulatory requests for information and support; and
- increased cyber fraud risk related to increased online banking, e-commerce and other online activity.

There are no comparable recent events that provide guidance as to the effect the spread of COVID-19 as a global pandemic may have, and, as a result, the ultimate impact of the pandemic is highly uncertain and subject to change. We do not yet know the full extent of the impacts on our business, our operations or the global economy as a whole. However, the effects could have a material adverse effect on our results of operations, liquidity or financial condition and could cause, contribute to or increase the likelihood of many of the risks with respect to our business and ownership of our securities described further in this "Risk Factors" section, any of which could also have a material adverse effect on our results of operations, liquidity or financial condition.

Risks Related to our Operations, Industry and the Markets We Serve

We have experienced rapid growth in recent periods and if we fail to manage our growth effectively or experience a decline in our growth rate, we may be unable to execute our business plan, maintain high levels of service and customer satisfaction or adequately address competitive challenges, and our financial performance may be adversely affected.

Since our inception, our business has rapidly grown, which has resulted in large increases in our number of employees, expansion of the types of solutions we sell and the customers we sell them to, expansion to international locations and international customers, expansion of our infrastructure, enhancement of our internal systems and other significant changes and additional complexities. Our revenues increased from $241.1 million for the twelve months ended December 31, 2018 to $315.5 million for the twelve months ended December 31, 2019 and $402.8 million for the twelve months ended December 31, 2020. While we intend to further expand our overall business, customer base, and number of employees, our recent growth rate is not necessarily indicative of the growth that we will achieve in the future. The growth in our business generally, our management of a growing workforce and international customer base and the stress of such growth on our internal controls and systems require substantial management effort, infrastructure and operational capabilities. To support our growth, we must continue to improve our management resources and our operational and financial controls and systems, and these improvements may increase our expenses more than anticipated and result in a more complex business, and our failure to timely and effectively implement these improvements could have an adverse effect on our operations and financial results. In addition, our increased focus on selling our solutions to larger customers and the increased breadth of our solution offerings and the types of customers we serve may result in greater uncertainty and variability in our business and sales results. We also will have to anticipate the necessary expansion of our relationship management, implementation, customer service and other personnel to support our growth and achieve high levels of customer service and satisfaction, particularly as we sell to larger customers that have heightened levels of complexity in their hardware, software and network infrastructure needs and as we sell a broader range of solutions to a broader set of customers. Our success will depend on our ability to plan for and manage this growth effectively and to address challenges to our growth model resulting from rapid changes in economic conditions. If we fail to anticipate and manage our growth or are unable to provide high levels of system performance and customer service, our reputation, as well as our business, results of operations and financial condition, could be harmed.

If the market for our solutions develops more slowly than we expect or changes in a way that we fail to anticipate, our sales would suffer and our operating results would be harmed.

The market for financial services has been dramatically changing, and we do not know whether financial institutions and traditional and emerging financial services providers will adopt or continue to adopt our existing and new solutions or whether the market will change in ways that we do not anticipate. Many financial institutions have invested substantial personnel and financial resources in legacy software, and these institutions may be reluctant or unwilling to convert from their existing systems to our solutions. For financial institutions, switching from one provider of solutions (or from an internally developed legacy system) to a new provider is a significant endeavor. Many potential customers believe switching providers involves too many potential disadvantages such as disruption of business operations, loss of accustomed functionality, and increased costs (including conversion and transition costs). Furthermore, some financial institutions may be reluctant or unwilling to use a cloud-based solution over concerns such as the security of their data and reliability of the delivery model. These concerns or other considerations may cause financial institutions to choose not to adopt cloud-based solutions such as ours or to adopt alternative solutions, either of which would harm our operating results. We attempt to overcome these concerns through value enhancing strategies such as a flexible integration process and continued investment in the enhanced functionality and features of our solutions. If financial institutions are unwilling to transition from their legacy systems, the demand for our solutions and related services could decline and adversely affect our business, operating results and financial condition.

Our future success also depends on our ability to sell new solutions and enhanced solutions to our current and new customers. As we create new solutions and enhance our existing solutions to support new customer types, technologies and devices, these solutions and related services may not be attractive to customers. In addition, promoting and selling these new and enhanced solutions may require increasingly costly sales and marketing efforts, and if customers choose not to adopt these solutions, our business could suffer.

We derive substantially all of our revenues from customers in the financial services industry, and any downturn or consolidation in the financial services industry, or unfavorable economic conditions affecting regions in which a significant portion of our customers are concentrated or segments of potential customers on which we focus, could harm our business.

A significant portion of our revenues is derived from RCFIs. RCFIs have experienced significant pressure in recent years due to economic uncertainty, liquidity concerns and increased regulation. In recent years, many RCFIs have failed, merged or been acquired. Failures and consolidations are likely to continue, and there are very few new RCFIs being created. Further, if our customers merge with or are acquired by other entities such as financial institutions that have in-house developed solutions or that are not our customers or use fewer of our solutions, our customers may discontinue, reduce or change the terms of their use of our solutions. It is also possible that the larger RCFIs that result from mergers or consolidations could have greater leverage in negotiating terms with us or could decide to replace some or all of our solutions. Financial institutions increasingly face competition from non-depository institutions or other innovative products or emerging technologies, such as cryptocurrencies, which may reduce the number of End Users or transactions using their more traditional financial services. Any of these developments could have an adverse effect on our business, results of operations and financial condition.

In addition, any downturn in the financial services industry or unfavorable economic conditions affecting the regions in which our customers are concentrated or particular segments of customers on which we focus may cause our customers to reduce their spending on solutions such as ours, seek to terminate or renegotiate their contracts with us or fail. Additionally, a significant portion of our revenues is derived from RCFIs in states, in particular Texas, whose economies are substantially dependent upon the energy and natural resources market, in particular oil and gas exploration and production. Since 2014, the price of oil and gas has remained low resulting in significant economic uncertainty in Texas and such other states. Should the price of oil and gas decline further or remain at the current low price for an extended period, the general economic conditions in Texas and such other states will be negatively affected, which could have a material adverse effect on our RCFI customers, and accordingly our business, results of operations, and financial condition.

As the number, size, type and complexity of customers that we serve increase and change, we may encounter implementation challenges, and we may have to delay revenue recognition for some complex engagements, which would harm our business and operating results.

We may face unexpected implementation challenges related to the complexity of our customers' implementation and integration requirements, particularly implementations for larger customers that have heightened levels of complexity in their hardware, software and network infrastructure needs. Our implementation expenses increase when customers have unexpected data, hardware or software technology challenges, or complex or unanticipated business or regulatory requirements. In addition, our customers typically require complex acceptance testing related to the implementation of our solutions. Implementation delays also may require us to delay revenue recognition under the related customer agreement longer than expected. Further, because we do not fully control our customers' implementation schedules, if our customers do not allocate the internal resources necessary to meet implementation timelines or if there are unanticipated implementation delays or difficulties, our revenue recognition may be delayed. Losses of End Users or any difficulties or delays in implementation processes could cause customers to delay or forgo future purchases of our solutions, which would adversely affect our business, operating results and financial condition.

Our business could be adversely affected if our customers are not satisfied with our solutions, particularly as we introduce new products and solutions, or our systems, infrastructure and resources fail to meet their needs.

Our business depends on our ability to satisfy our customers and meet their needs. Our customers use a variety of network infrastructure, hardware and software, which typically increases in complexity the larger the customer is, and our solutions must support the specific configuration of our customers' existing systems, including in many cases the solutions of third-party providers. If our solutions do not currently support a customer's required data format or appropriately integrate with a customer's applications and infrastructure, then we must configure our solutions to do so, which could negatively affect the performance of our systems and increase our expenses and the time it takes to implement our solutions. Any failure of or delays in our systems or resources could cause service interruptions or impaired system performance. Some of our customer agreements require us to issue credits for downtime in excess of certain thresholds, and in some instances give our customers the ability to terminate the agreements in the event of significant amounts of downtime, or if we experience other defects with our solutions. If sustained or repeated, these performance issues could reduce the attractiveness of our solutions to new and existing customers, cause us to lose customers, and lower renewal rates by existing customers, each of which could adversely affect our revenue and reputation. In addition, negative publicity resulting from issues related to our customer relationships, regardless of accuracy, may damage our business by adversely affecting our ability to attract new customers and maintain and expand our relationships with existing customers.

If the use of our solutions increases, or if our customers demand more advanced features from our solutions, we will need to devote additional resources to improving our solutions, and we also may need to expand our technical infrastructure and related resources at a more rapid pace than we have in the past. This would involve spending substantial amounts to purchase or lease data center capacity and equipment, subscribe to new or additional third-party hosting services, upgrade our technology and infrastructure or introduce new or enhanced solutions. It takes a significant amount of time to plan, develop and test changes to our solutions and related infrastructure and resources, and we may not be able to accurately forecast demand or predict the results we will realize from such improvements. There are inherent risks associated with changing, upgrading, improving and expanding our technical infrastructure and related resources. Any failure of our solutions to operate effectively with future infrastructure and technologies could reduce the demand for our solutions, resulting in customer dissatisfaction and harm to our business. Also, any expansion of our infrastructure and related resources would likely require that we appropriately scale our internal business systems and services organization, including implementation and customer support services, to serve our growing customer base. If we are unable to respond to these changes or fully and effectively implement them in a cost-effective and timely manner, our service may become ineffective, we may lose customers, and our operating results may be negatively impacted.

The markets in which we participate are intensely competitive, and pricing pressure, new technologies or other competitive dynamics could adversely affect our business and operating results.

We currently compete with providers of technology and services in the financial services industry, including point system vendors and core processing vendors, as well as systems internally developed by financial services providers. With respect to our digital banking platform, we have a number of point system competitors, including NCR Corporation, or NCR, nCino, Inc., Alkami Technology, Inc. and Kony, Inc. (acquired by Temenos AG in September 2019) in the online, consumer and small business banking space and Finastra, ACI Worldwide, Inc. and Bottomline Technologies (de), Inc. in the commercial banking space. We also compete with core processing vendors that provide systems and services such as Fiserv, Inc., Jack Henry and Associates, Inc. and Fidelity National Information Services, Inc., or FIS. With respect to our lending and leasing platform, we compete against a number of point system competitors, including Abrigo, Baker Hill Solutions, LLC, Fair Isaac Corporation, nCino, Inc., Finastra, Moody's Analytics, Inc., Brilliance Financial Technology, Oracle Corporation, Temenos AG, and core processing vendors, including FIS and Fiserv. With respect to our BaaS solutions, due to the vast number of potential use cases and customer segments, the list of potential competitors is extremely broad and varied, but includes companies across the retail banking, financial services, transaction processing, consumer technology and financial technology services industries. Many of our competitors have significantly more financial, technical, marketing and other resources than we have, may devote greater resources to the promotion, sale and support of their systems than we can, have more extensive customer bases and broader customer relationships than we have and have longer operating histories and greater name recognition than we have. In addition, many of our competitors expend more funds on research and development. In the uncertain economic environment caused by COVID-19, many of our competitors may have greater liquidity and access to capital than we do and may respond to market conditions by lowering prices to compete for customers, the impact of which could adversely impact our business and financial results.

We also may face competition from new companies entering our markets, which may include large established businesses that decide to develop, market or resell competitive solutions, acquire one of our competitors or form a strategic alliance with one of our competitors. In addition, new companies entering our markets may choose to offer competitive solutions at little or no additional cost to the customer by bundling them with their existing applications, including adjacent financial services technologies and core processing software. New entrants to the markets we serve might also include financial services providers developing financial services solutions and other technologies, including solutions built using competing BaaS solutions or open API platforms. Competition from these new entrants may make our business more difficult and adversely affect our results.

If we are unable to compete in this environment, sales and renewals of our solutions could decline and adversely affect our business, operating results and financial condition. With the introduction of new technologies and potential new entrants into the markets for our solutions, we expect competition to intensify in the future, which could harm our ability to increase sales and achieve profitability. In addition, we may face increased competition in our existing markets as we enter new markets or sections of a market with larger or different customers and new solutions. Our industry has also experienced recent consolidation which we believe may continue. Any further consolidation our industry experiences could lead to increased competition and result in pricing pressure or loss of market share, either of which could have a material adverse effect on our business, limit our growth prospects or reduce our revenues.

If we are unable to effectively integrate our solutions with other systems or services used by our customers and prospective customers, including if we are forced to discontinue integration due to security or quality concerns with a third-party system or service, or if there are performance issues with such third-party systems or services, our solutions will not operate effectively and our operations will be adversely affected.

The functionality of our solutions depends on our ability to integrate with other third-party systems and services used by our customers, including core processing software and, in the case of our BaaS solutions, banking services. Certain providers of these third-party systems or services also offer solutions that are competitive with our solutions and may have an advantage over us with customers using their software by having better ability to integrate with their software and by being able to bundle their competitive products with other applications used by our customers and prospective customers at favorable pricing. We do not have formal arrangements with many of these third-party providers regarding our access to their APIs to enable these customer integrations.

Our business may be harmed if any such third-party provider:

- changes the features or functionality of its services, applications and platforms in a manner adverse to us;
- discontinues or limits our solutions' access to its systems or services;
- suffers a security incident or other incident that requires us to discontinue integration with its systems or services or results in a compromise of our systems or services;
- ceases to operate;
- terminates or does not allow us to renew or replace our existing contractual relationships on the same or better terms;
- modifies its terms of service or other policies, including fees charged to, or other restrictions on, us or our customers; or
- establishes more favorable relationships with one or more of our competitors, or acquires one or more of our competitors and offer competing services.

Such changes could limit or prevent us from integrating our solutions with these third-party systems or services, which could impair the functionality of our solutions, prohibit the use of our solutions or limit our ability to sell our solutions to customers, each of which could harm our business. If we are unable to integrate with such third-party systems or services as a result of changes to or restricted access to the systems or services by such third parties during the terms of existing agreements with customers using such third-party systems or services, we may not be able to meet our contractual obligations to customers, which may result in disputes with customers and harm to our business. In addition, if any such third-party providers experience an outage, our solutions integrated with such systems or services will not function properly or at all, and our customers may be dissatisfied with our solutions. If the systems or services of such third-party providers have performance or other problems, such issues may reflect poorly on us and the adoption and renewal of our solutions and our business may be harmed. Although our customers may be able to switch to alternative technologies if a provider's systems or services were unreliable or if a provider was to limit such customer's access and utilization of its data or the provider's functionality, our business could nevertheless be harmed due to the risk that our customers could reduce their use of our solutions.

If our security measures or the security measures of our customers or third-party providers on whom we rely are compromised or unauthorized access to our systems or customer data is otherwise obtained, our solutions may not be secure or may be perceived as not being secure, and customers may curtail or cease their use of our solutions, our reputation may be harmed, and we may incur significant liabilities.

Certain elements of our solutions process and store personally identifiable information, or PII, such as banking and personal information of our customers and their End Users, and we also may have access to PII during various stages of the implementation process or during the course of providing customer support. Furthermore, as we develop additional functionality, we may gain greater access to PII. We maintain policies, procedures and technological safeguards designed to protect the confidentiality, integrity and availability of this information and our information technology systems. However, we cannot entirely eliminate the risk of improper or unauthorized access to or disclosure of PII or other security events that impact the integrity or availability of PII or our systems and operations, or the related costs we may incur to mitigate the consequences from such events. Further, given the flexibility and complexity of our solutions, there is a risk that configurations of, or defects in, the solutions or errors in implementation could create vulnerabilities to security breaches. There may be unlawful attempts to disrupt or gain access to our information technology systems or the PII or other data of our customers or their End Users that may disrupt our or our customers' operations. In addition, because we leverage third-party providers, including cloud, software, data center and other critical technology vendors to develop and deliver our solution to our customers and their End Users, we rely heavily on the data security technology practices and policies adopted by these third-party providers. A vulnerability in a third-party provider's software or systems, a failure of our third-party providers' safeguards, policies or procedures, or a breach of a third-party provider's software or systems could result in the compromise of the confidentiality, integrity or availability of our systems or the data housed in our solutions.

Our security measures and the security measures of our customers or third-party providers on whom we rely may not be sufficient to prevent our systems from being compromised as a result of third-party action, the error or intentional misconduct of employees, customers or their End Users, malfeasance or stolen or fraudulently obtained login credentials. Security incidents can result in unauthorized access to, loss of or unauthorized disclosure of this information, litigation, indemnity obligations and other possible liabilities, as well as negative publicity, which could damage our reputation, impair our sales, harm our business and result in increased volatility in our stock price. Cyber-attacks, ransomware attacks, account take-over attacks, fraudulent representations and other malicious Internet-based activity continue to increase and evolve and financial services providers, their End Users, and technology providers are often targets of such attacks. In addition to traditional computer "hackers," malicious code (such as viruses and worms), phishing, employee theft or misuse and denial-of-service attacks, sophisticated criminal networks as well as nation-state and nation-state supported actors now engage in attacks, including advanced persistent threat intrusions. Current or future criminal capabilities, discovery of existing or new vulnerabilities, and attempts to exploit those vulnerabilities or other developments, may compromise or breach our systems or solutions. In addition, third parties may attempt to fraudulently induce our employees or the employees of our customers or third-party providers into disclosing sensitive information such as usernames, passwords or other information to gain access to our confidential or proprietary information or the data of our customers and their End Users. A party who is able to compromise the security of our facilities could cause interruptions or malfunctions in our operations. We may be unable to anticipate or prevent techniques used to obtain unauthorized access or sabotage systems because they change frequently and generally are not detected until after an incident has occurred. As we increase our customer base and our brand becomes more widely known and recognized, we may become more of a target for third parties seeking to compromise our security systems or gain unauthorized access to the data of our customers and their End Users. In addition, there may be an increased risk of cyber-attacks or cyber fraud related to the COVID-19 pandemic, as cybercriminals attempt to profit from the disruption, given increased online banking, e-commerce and other online activity. Additionally, there is an increased risk that we may experience cybersecurity-related events such as COVID-19 themed phishing attacks and other security challenges as a result of most of our employees and our service providers working remotely from non-corporate managed networks during the ongoing COVID-19 pandemic and potentially continuing working remotely even after the COVID-19 pandemic has subsided. A failure or inability to meet our customers' expectations with respect to security and confidentiality could seriously damage our reputation and affect our ability to retain customers and attract new business.

Federal, state and other regulations may require us to notify customers and their End Users of data security incidents involving certain types of personal data. Security compromises experienced by our competitors, by our customers or by us may lead to public disclosures and widespread negative publicity. Any security compromise in our industry, whether actual or perceived, could erode customer confidence in the effectiveness of our security measures, negatively impact our ability to attract new customers, cause existing customers to elect not to renew their subscriptions or subject us to third-party lawsuits, regulatory fines or other action or liability, which could materially and adversely affect our business and operating results.

In addition, some of our customers contractually require notification of any data security compromise and include representations and warranties that our solutions comply with certain regulations related to data security and privacy. Although our customer agreements typically include limitations on our potential liability, there can be no assurance that such limitations of liability would be enforceable or adequate or would otherwise protect us from any such liabilities or damages with respect to any particular claim. We also cannot be sure that our existing general liability insurance coverage and coverage for errors or omissions will continue to be available on acceptable terms or will be available in sufficient amounts to cover one or more claims, or that our insurers will not deny or attempt to deny coverage as to any future claim. The successful assertion of one or more claims against us, the inadequacy of or denial of coverage under our insurance policies, litigation to pursue claims under our policies or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business, financial condition and results of operations.

Our sales cycle can be unpredictable, time-consuming and costly, which could harm our business and operating results.

Our sales process involves educating prospective customers and existing customers about the use, technical capabilities and benefits of our solutions. Prospective customers, especially larger financial services providers, often undertake a prolonged evaluation process, which typically involves not only our solutions, but also those of our competitors and lasts from six to nine months or longer. We may spend substantial time, effort and money on our sales and marketing efforts without any assurance that our efforts will produce any sales. It is also difficult to predict the level and timing of sales opportunities that come from our referral partners.

Events affecting our customers' businesses may occur during the sales cycle that could affect the size or timing of a purchase, contributing to more unpredictability in our business and operating results. Such events may cause our customers or partners to delay, reduce, or even cancel planned digital financial services spending and may impact our business and operations. If customers or partners significantly reduce their spending with us or significantly delay or fail to make payments to us, our business, results of operations, and financial condition would be materially adversely affected, and as a result of our sales cycle, subscription model and our revenue recognition policies, the effects of such reductions or delays on our results of operations may not be fully reflected for some time.

Defects or errors in our solutions, including failures associated with payment transactions, could harm our reputation, result in significant costs to us, impair our ability to sell our solutions and subject us to substantial liability.

Our solutions are inherently complex and may contain defects or errors, particularly when first introduced or as new versions are released. The volume and dollar amount of payment transactions that we, our customers and our third-party partners process is significant and continues to grow. Transactions facilitated by us, our customers and our third-party partners include debit card, credit card, electronic bill payment transactions, Automated Clearing House, or ACH, payments, real-time payments through faster payment networks and check clearing that support consumers, financial institutions and other businesses. Despite extensive testing, from time-to-time we have discovered defects or errors in our solutions. In addition, due to changes in regulatory requirements relating to our customers or to technology providers to financial services providers like us, we may discover deficiencies in our software processes related to those requirements. Material performance problems or defects in our solutions might arise in the future.

Any such errors, defects, other performance problems or disruptions in service to provide bug fixes or upgrades, whether in connection with day-to-day operations or otherwise, could be costly for us to remedy, damage our customers' businesses and harm our reputation. If the continuity of operations, integrity of processing, or ability to detect or prevent fraudulent payments were compromised in connection with payments transactions, we could suffer financial as well as reputational loss. In addition, if we have any such errors, defects or other performance problems, our customers could seek to terminate their agreements, elect not to renew their subscriptions, delay or withhold payment or make claims against us. Any of these actions could result in lost business, increased insurance costs, difficulty in collecting our accounts receivable, costly litigation and adverse publicity. Such errors, defects or other problems could also result in reduced sales or a loss of, or delay in, the market acceptance of our solutions.

Moreover, software development is time-consuming, expensive, complex and requires regular maintenance. Unforeseen difficulties can arise. If we do not complete our periodic maintenance according to schedule or if customers are otherwise dissatisfied with the frequency or duration of our maintenance services, customers could elect not to renew, or delay or withhold payment to us or cause us to issue credits, make refunds or pay penalties. Because our solutions are often customized and deployed on a customer-by-customer basis, rather than through a multi-tenant SaaS method of distribution, applying bug fixes, upgrades or other maintenance services may require updating each instance of our software, which could be time consuming and cause us to incur significant expense. We might also encounter technical obstacles, and it is possible that we discover problems that prevent our solutions from operating properly. If our solutions do not function reliably or fail to achieve customer expectations in terms of performance, customers could seek to cancel their agreements with us and assert liability claims against us, which could damage our reputation, impair our ability to attract or maintain customers and harm our results of operations.

Failures or reduced accessibility of third-party hardware, software or other services on which we rely could impair the delivery of our solutions and adversely affect our business.

We rely on hardware and services that we purchase or lease and software, including open source software, that we develop or license from, or that is hosted by third parties, to offer our solutions. In addition, we obtain licenses from third parties to use intellectual property associated with the development of our solutions. These licenses might not continue to be available to us on acceptable terms, or at all. These third-party providers have chosen and may in the future choose not to continue to support certain of the hardware, software or services we license. We also have chosen and may in the future choose to discontinue the use of the hardware, services or software we acquire or license from such third-party providers, which may require that we pay termination fees or recognize related accounting charges or impairments. While we are not substantially dependent upon any third-party hardware, services or software other than our third-party data centers, the loss of the right or ability to use all or a significant portion of our third-party hardware, services or software required for the development, maintenance and delivery of our solutions could result in delays in the provision of our solutions until we develop or identify, obtain and integrate equivalent technology, which could harm our business.

Any errors or defects in the hardware, services or software we use could result in errors, interruptions or a failure of our solutions. Although we believe that there are alternatives, any significant interruption in the availability of all or a significant portion of such hardware, services or software could have an adverse impact on our business unless and until we can replace the functionality provided by these products at a similar cost. Furthermore, such hardware, services and software may not be available on commercially reasonable terms, or at all. The loss of the right to use all or a significant portion of such hardware, services or software could limit access to our solutions. Additionally, we rely upon third parties' abilities to enhance their current products, develop new products on a timely and cost-effective basis and respond to emerging industry standards and other technological changes. We may be unable to effect changes to such third-party technologies, which may prevent us from rapidly responding to evolving customer requirements. We also may be unable to replace the functionality provided by the third-party software currently offered in conjunction with our solutions in the event that such software becomes obsolete or incompatible with future versions of our solutions or is otherwise not adequately maintained or updated.

We depend on data centers operated by third parties and third-party Internet hosting providers, and any disruption in the operation of these facilities or access to the Internet could adversely affect our business.

We currently host our digital banking platform solutions primarily from two third-party data center hosting facilities located in Austin, Texas and Carrollton, Texas, which are both operated by the same third-party provider, and certain of our lending and leasing and BaaS solutions are hosted by cloud-based providers, including Amazon Web Services and Microsoft Azure. The owners and operators of these current and future facilities and cloud-based hosting services do not guarantee that our customers' access to our solutions will be uninterrupted, error-free or secure. We may experience website disruptions, outages and other performance problems. These problems may be caused by a variety of factors, including infrastructure changes, human or software errors, viruses, security attacks, fraud, operational disruption, spikes in customer usage and denial of service issues. In early April 2020 and January 2021, financial institutions and their online banking service providers experienced unprecedented user login activity as a result of increased online banking activity due to global shelter-in-place and similar orders, as well as a significant increase in logins by End Users seeking to check their accounts for receipt of government stimulus funds. In April 2020, these unprecedented levels of logins resulted in delayed access to online banking for many financial institutions, including many of our customers. As a result of these delays, we have taken steps and made investments in additional data center capacity to increase the processing capacity of our online banking platform to minimize any future delays, and we expect to make additional incremental investments to further enhance our hosting infrastructure and support. In some instances, we may not be able to identify the cause or causes of these performance problems within an acceptable period of time. We do not control the operation of these data center facilities and cloud-based services, and such facilities and services are vulnerable to damage or interruption from human error, intentional bad acts, power loss, hardware failures, telecommunications failures, fires, wars, terrorist attacks, floods, earthquakes, hurricanes, tornadoes, pandemics or similar catastrophic events. They also could be subject to break-ins, computer viruses, sabotage, intentional acts of vandalism and other misconduct. The occurrence of a natural disaster or an act of terrorism, a decision to close the facilities without adequate notice or terminate our hosting arrangement or other unanticipated problems could result in lengthy interruptions in the delivery of our solutions, cause system interruptions, prevent our customers' End Users from accessing their accounts or services online, reputational harm and loss of critical data, prevent us from supporting our solutions or cause us to incur additional expense in arranging for new facilities, services and support.

We also depend on third-party Internet-hosting providers and continuous and uninterrupted access to the Internet through third-party bandwidth providers to operate our business. If we lose the services of one or more of our Internet-hosting or bandwidth providers for any reason or if their services are disrupted, for example due to viruses or denial of service or other attacks on their systems, or due to human error, intentional bad acts, power loss, hardware failures, telecommunications failures, fires, wars, terrorist attacks, floods, earthquakes, hurricanes, tornadoes, pandemics or similar catastrophic events, we could experience disruption in our ability to offer our solutions and adverse perception of our solutions' reliability, or we could be required to retain the services of replacement providers, which could increase our operating costs and harm our business and reputation.

We do not have any control over the availability or performance of salesforce.com's Force.com platform, and if we or our digital lending and leasing solution customers encounter problems with it, we may be required to replace Force.com with another platform, which would be difficult and costly.

Certain of our digital lending and leasing solutions run on salesforce.com's Force.com platform, and we do not have any control over the Force.com platform or the prices salesforce.com charges to our customers. Salesforce.com may discontinue or modify Force.com or increase its fees or modify its pricing incentives for our customers. If salesforce.com takes any of these actions, we may suffer lower sales, increased operating costs and loss of revenue from certain of our digital lending and leasing solutions until equivalent technology is either developed by us, or, if available from a third party, is identified, obtained and integrated. Additionally, we may not be able to honor commitments we have made to our customers and we may be subject to breach of contract or other claims from our customers.

In addition, we do not control the performance of Force.com. If Force.com experiences an outage, certain of our digital lending and leasing solutions will not function properly, and our customers may be dissatisfied. If salesforce.com has performance or other problems with its Force.com platform or its operations generally, they will reflect poorly on us and the adoption and renewal of certain of our digital lending and leasing solutions and our business may be harmed.

If we fail to provide effective customer training on our solutions and high-quality customer support, our business and reputation would suffer.

Effective customer training on our solutions and high-quality, ongoing customer support are important to the successful marketing and sale of our solutions and for the renewal of existing customer agreements. Providing this training and support requires that our customer training and support personnel have financial services knowledge and expertise, making it difficult for us to hire qualified personnel and scale our training and support operations. Additionally, training and support services may become more difficult to perform in light of the operational constraints related to the COVID-19 pandemic, including remote working by us and our customers' employees. The demand on our customer support organization will increase as we expand our business and pursue new customers, and such increased support could require us to devote significant development services and support personnel, which could strain our team and infrastructure and reduce our profit margins. If we do not help our customers quickly resolve any post-implementation issues and provide effective ongoing customer support, our ability to sell additional solutions to existing and future customers could suffer and our reputation would be harmed.

If we fail to respond to evolving technological requirements or introduce adequate enhancements, new features or solutions, our solutions could become obsolete or less competitive.

The markets for our solutions are characterized by rapid technological advancements, changes in customer requirements and technologies, frequent new product introductions and enhancements and changing regulatory requirements. The life cycles of our solutions are difficult to estimate. Rapid technological changes and the introduction of new products and enhancements by new or existing competitors or large financial services providers could undermine our current market position. Other means of digital financial services solutions may be developed or adopted in the future, and our solutions may not be compatible with these new technologies. In addition, the technological needs of, and services provided by, customers may change if they or their competitors offer new services to End Users. Maintaining adequate research and development resources to meet the demands of the markets we serve is essential. The process of developing new technologies and solutions is complex and expensive. The introduction of new solutions by our competitors, the market acceptance of competitive solutions based on new or alternative technologies or the emergence of new technologies or solutions in the broader financial services industry could render our solutions obsolete or less effective.

The success of any enhanced or new solution depends on several factors, including timely completion, adequate testing and market release and acceptance of the solution. Any new solutions that we develop or acquire may not be introduced in a timely or cost-effective manner, may contain defects or may not achieve the broad market acceptance necessary to generate significant revenues. If we are unable to anticipate customer requirements or work with our customers successfully on implementing new solutions or features in a timely manner or enhance our existing solutions to meet our customers' requirements, our business and operating results may be adversely affected.

If we fail to effectively expand our sales and marketing capabilities and teams, including through partner relationships, we may not be able to increase our customer base and achieve broader market acceptance of our solutions.

Increasing our customer base and achieving broader market acceptance of our solutions will depend on our ability to expand our sales and marketing organizations and their abilities to obtain new customers and sell additional solutions and services to new and existing customers. We believe there is significant competition for direct sales professionals with the skills and knowledge that we require, and we may be unable to hire or retain sufficient numbers of qualified individuals in the future. Our ability to achieve significant future revenue growth will depend on our success in recruiting, training and retaining a sufficient number of direct sales professionals. New hires require significant training and time before they become fully productive and may not become as productive as quickly as we anticipate. As a result, the cost of hiring and carrying new representatives cannot be offset by the revenues they produce for a significant period of time. Our growth prospects will be harmed if our efforts to expand, train and retain our direct sales team do not generate a corresponding increase in revenues. Additionally, if we fail to sufficiently invest in our marketing programs or they are unsuccessful in creating market awareness of our company and solutions, our business may be harmed and our sales opportunities limited. Furthermore, as a result of the COVID-19 pandemic, nearly all of our employees, and many of the employees of our customers and third-party providers on which we depend, now perform their functions remotely. If shelter-in-place, business closure, business occupancy limitation, and other restrictive orders continue, they may adversely impact our ability to effectively train and retain qualified individuals and the effectiveness of our direct sales team. We also may take additional actions in response to the COVID-19 pandemic that further alter our business operations as the situation evolves. These decisions may delay or reduce sales and harm productivity and collaboration. The ultimate impact of the COVID-19 pandemic and the effects of the operational alterations we have made in response on our business cannot be predicted at this time.

In addition to our direct sales team, we also extend our sales distribution through formal and informal relationships with referral partners. While we are not substantially dependent upon referrals from any partner, our ability to achieve significant revenue growth in the future will depend upon continued referrals from our partners and growth of the network of our referral partners. These partners are under no contractual obligation to continue to refer business to us, nor do these partners have exclusive relationships with us and may choose to instead refer potential customers to our competitors. We cannot be certain that these partners will prioritize or provide adequate resources for promoting our solutions or that we will be successful in maintaining, expanding or developing our relationships with referral partners. Our competitors may be effective in providing incentives to third parties, including our partners, to favor their solutions or prevent or reduce subscriptions to our solutions either by disrupting our relationships with existing customers or limiting our ability to win new customers. Establishing and retaining qualified partners and training them with respect to our solutions requires significant time and resources. If we are unable to devote sufficient time and resources to establish and train these partners or if we are unable to maintain successful relationships with them, we may lose sales opportunities and our revenues could suffer.

We rely on our management team and other key employees, and the loss of one or more key employees could harm our business.

Our success and future growth depend upon the continued services of our management team, in particular our Chief Executive Officer, and other key employees, including in the areas of research and development, marketing, sales, services and general and administrative functions. From time to time, there may be changes in our management team resulting from the hiring or departure of executives, which could disrupt our business. We also are dependent on the continued service of our existing development professionals because of the complexity of our solutions, including complexity arising as a result of the regulatory requirements that are applicable to our customers and the pace of technology changes impacting our customers and their End Users. We may terminate any employee's employment at any time, with or without cause, and any employee may resign at any time, with or without cause; however, our employment agreements with our named executive officers provide for the payment of severance under certain circumstances. We also have entered into employment agreements with our other executive officers which provide for the payment of severance under similar circumstances as in our named executive officers' employment agreements. The loss of one or more of our key employees could harm our business.

Because competition for key employees is intense, we may not be able to attract and retain the highly-skilled employees we need to support our operations and future growth.

Competition for executive officers, software developers and other key employees in our industry is intense. In particular, we compete with many other companies for executive officers, for software developers with high levels of experience in designing, developing and managing software, as well as for skilled sales and operations professionals and knowledgeable customer support professionals, and we may not be successful in attracting the professionals we need. Competition for software development and engineering personnel is intense. We may have difficulty hiring and retaining suitably skilled personnel or expanding our research and development organization. In addition, job candidates and existing employees often consider the actual and potential value of the equity awards they receive as part of their overall compensation. Thus, if the perceived value or future value of our stock declines, our ability to attract and retain highly skilled employees may be adversely affected. In addition, many of our existing employees may exercise vested options or vest in outstanding restricted stock units and sell our stock, which may make it more difficult for us to retain key employees. If we fail to attract and retain new employees, our business and future growth prospects could be harmed.

Because our long-term success depends on our ability to operate our business internationally and increase sales of our solutions to customers located outside of the U.S., our business is susceptible to risks associated with international operations.

We have international operations in India, Australia, the United Kingdom and Europe. We also may expand our international operations in the foreseeable future. The continued international expansion of our operations requires significant management attention and financial resources and results in increased administrative and compliance costs. Our limited experience in operating our business in certain regions outside the U.S. increases the risk that our expansion efforts into those regions may not be successful. In particular, our business model may not be successful in particular countries or regions outside the U.S. for reasons that we currently are unable to anticipate. In addition, conducting international operations subjects us to risks that we have not generally faced in the U.S. These include, but are not limited to:

- fluctuations in currency exchange rates;
- the complexity of, or changes in, foreign regulatory requirements;
- the cost and complexity of bringing our solutions into compliance with foreign regulatory requirements, and risks of our solutions not being compliant;
- difficulties in managing the staffing of international operations, including compliance with local labor and employment laws and regulations;
- complexities implementing and enforcing cross-border information technology and security controls;
- potentially adverse tax consequences, including the complexities of foreign value added tax systems, overlapping tax regimes, restrictions on the repatriation of earnings and changes in tax rates;
- dependence on resellers and distributors to increase customer acquisition or drive localization efforts;
- the burdens of complying with a wide variety of foreign laws and different legal standards, certain of which may be significantly more burdensome than those in place in the U.S.;
- increased financial accounting and reporting burdens and complexities;
- longer payment cycles and difficulties in collecting accounts receivable;
- longer sales cycles;
- political, social and economic instability abroad;
- terrorist attacks and security concerns in general;
- integrating personnel with diverse business backgrounds and organizational cultures;
- difficulties entering new non-U.S. markets due to, among other things, consumer acceptance and business knowledge of these new markets;
- travel restrictions imposed in response to the COVID-19 pandemic;

- constraints of remote working by employees during the COVD-19 pandemic due to limitations of local infrastructure or other resources;
- reduced or varied protection for intellectual property rights in some countries; and
- the risk of U.S. regulation of foreign operations.

The occurrence of any one of these risks could negatively affect our international business and, consequently, our operating results. We cannot be certain that the investment and additional resources required to establish, acquire or integrate operations in other countries will produce desired levels of revenue or profitability. If we are unable to effectively manage our expansion into additional geographic markets, our financial condition and results of operations could be harmed.

In particular, we operate some of our research and development activities internationally and outsource a portion of the coding and testing of our products and product enhancements to contract development vendors. We believe that performing research and development in our international facilities and supplementing these activities with our contract development vendors enhances the efficiency and cost-effectiveness of our product development. If we experience problems with our workforce or facilities internationally, we may not be able to develop new products or enhance existing products in an alternate manner that may be equally or less efficient and cost-effective. In addition, if information technology and security controls we have implemented to address risks posed by research and development activities outside of the U.S. are breached or are otherwise ineffective, our intellectual property or technical infrastructure could be compromised or stolen and we could be subjected to cyberattacks or intrusions.

We are monitoring developments related to the United Kingdom's departure from the European Union commonly referred to as "Brexit." The potential effects of Brexit on our business will depend upon any agreements the United Kingdom makes to retain access to European Union markets either during the current transitional period or more permanently and negotiations are ongoing. Since we have operations in the United Kingdom and Europe, Brexit could potentially have corporate structural consequences, adversely change tax benefits or liabilities and disrupt some of the markets and jurisdictions in which we operate. In addition, Brexit could lead to legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which European Union laws to replace or replicate.

We may acquire or invest in companies, or pursue business partnerships, which may divert our management's attention and present additional risks, and we may be unable to integrate acquired businesses and technologies successfully or achieve the expected benefits of such acquisitions or investments, all of which could have a material adverse effect on our business and results of operations.

We have completed, and may in the future evaluate and consider, potential strategic transactions, including acquisitions of, or investments in, businesses, technologies, services, products and other assets. We also may enter into relationships with other businesses to expand our solutions, which could involve preferred or exclusive licenses, additional channels of distribution, discount pricing or investments in other companies. Negotiating these transactions can be time-consuming, difficult and expensive, and our ability to close these transactions may be subject to approvals that are beyond our control. In addition, we have limited experience in acquiring other businesses. We may not be able to find and identify desirable additional acquisition targets, we may incorrectly estimate the value of an acquisition target, and we may not be successful in entering into an agreement with any particular target. Consequently, these transactions, even if undertaken and announced, may not close.

We may not achieve the anticipated benefits from our past acquisitions or any additional businesses we acquire due to a number of factors, including:

- our inability to integrate, manage or benefit from acquired operations, technologies or services;
- unanticipated costs or liabilities associated with the acquisition, including the assumption of liabilities or commitments of the acquired business that were not disclosed to us or that exceeded our estimates;
- difficulty integrating the accounting systems, operations and personnel of the acquired business;
- difficulties and additional expenses associated with supporting legacy solutions and hosting infrastructure of the acquired business;
- uncertainty of entry into markets in which we have limited or no prior experience or in which competitors have stronger market positions;
- difficulty converting the customers of the acquired business to our solutions and contract terms, including disparities in the revenues, licensing, support or professional services model of the acquired company;
- diversion of management's attention from other business concerns;

- adverse effects to our existing business relationships with business partners and customers as a result of the acquisition;
- use of resources that are needed in other parts of our business;
- the use of a substantial portion of our cash that we may need to operate our business and which may limit our operational flexibility and ability to pursue additional strategic transactions;
- the issuance of additional equity securities that would dilute the ownership interests of our stockholders;
- incurrence of debt on terms unfavorable to us or that we are unable to repay;
- incurrence of large charges or substantial liabilities;
- our inability to apply and maintain internal standards, controls, procedures and policies with respect to the acquired businesses;
- difficulties retaining key employees of the acquired company or integrating diverse software codes or business culture; and
- becoming subject to adverse tax consequences, substantial depreciation or deferred compensation charges.

In addition, a significant portion of the purchase price of companies we acquire may be allocated to acquired goodwill and other intangible assets, which must be assessed for impairment at least annually. In the future, if our acquisitions do not yield expected returns, we may be required to take charges to our operating results based on this impairment assessment process, which could adversely affect our results of operations.

We may not be able to secure sufficient additional financing on favorable terms, or at all, to meet our future capital needs.

We may require additional capital in the future to pursue business opportunities or acquisitions, pay off our existing debt or respond to challenges and unforeseen circumstances. We also may decide to engage in equity or debt financings or enter into credit facilities for other reasons. We may not be able to secure additional debt or equity financing in a timely manner, on favorable terms, or at all. Any debt financing we obtain in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and pursue business opportunities, including potential acquisitions.

Financial and Accounting-Related Risks

Because we recognize revenues from a significant portion of our solutions over the terms of our customer agreements, the impact of changes in the subscriptions for such solutions will not be immediately reflected in our operating results, and rapid growth in our customer base may adversely affect our operating results in the short term since we expense a substantial portion of implementation costs as incurred.

We generally recognize revenues monthly over the terms of our customer agreements. The initial term of our digital banking platform customer agreements averages over five years, although it varies by customer. As a result, the substantial majority of the revenues we report in each quarter are related to agreements entered into during previous quarters. Consequently, a change in the level of new customer agreements or implementations in any quarter may have a small impact on our revenues in that quarter but will affect our revenues in future quarters. Accordingly, the effect of significant downturns in sales and market acceptance of our solutions, or changes in our rate of renewals may not be fully reflected in our results of operations until future periods. For example, any decrease in sales resulting from the economic effects of the COVID-19 pandemic may have a greater impact on our financial results in future periods than in the period in which the decrease occurs. Our subscription model also makes it difficult for us to rapidly increase our revenues through additional sales in any period.

Additionally, we recognize our expenses over varying periods based on the nature of the expense. In particular, we recognize a substantial portion of implementation expenses as incurred even though we recognize the related revenues over extended periods. As a result, we may report poor operating results in periods in which we are incurring higher implementation expenses related to revenues that we will recognize in future periods, including implementations for larger customers that have heightened levels of complexity in their hardware, software and network infrastructure needs. Alternatively, we may report better operating results in periods due to lower implementation expenses, but such lower expenses may be indicative of slower revenue growth in future periods. As a result, our expenses may fluctuate as a percentage of revenues and changes in our business generally may not be immediately reflected in our results of operations. For example, any delays in our ability to complete previously planned implementations as a result of COVID-19 pandemic may result in significant fluctuations in our expenses in future periods.

We may experience quarterly fluctuations in our operating results due to a number of factors, which makes our future results difficult to predict and could cause our operating results to fall below expectations or our guidance.

Our quarterly operating results have fluctuated in the past and are expected to fluctuate in the future due to a variety of factors, many of which are outside of our control. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Our past results may not be indicative of our future performance. In addition to the other risks described in this report, factors that may affect our quarterly operating results include the following:

- the addition or loss of customers, including through acquisitions, consolidations or failures;
- the amount of use of our solutions in a period and the amount of any associated revenues and expenses;
- budgeting cycles of our customers and changes in spending on solutions by our current or prospective customers;
- seasonal variations in sales of our solutions, which may be lowest in the first quarter of the calendar year;
- changes in the competitive dynamics of our industry, including consolidation among competitors, changes to pricing or the introduction of new products and services that limit demand for our solutions or cause customers to delay purchasing decisions;
- the amount and timing of cash collections from our customers;
- long or delayed implementation times for new customers, including larger customers, or other changes in the levels of customer support we provide;
- the timing and predictability of sales of our solutions and the impact that the timing of bookings may have on our revenue and financial performance in a period;
- the timing of customer payments and payment defaults by customers, including any buyouts by customers of the remaining term of their contracts with us in a lump sum payment that we would have otherwise recognized over the term of those contracts, and any costs associated with impairments of related contract assets;
- the amount and timing of our operating costs and capital expenditures;
- changes in tax rules or the impact of new accounting pronouncements, including the effects of our adoption of newly issued accounting standards regarding revenue recognition;
- general economic conditions that may adversely affect our customers' ability or willingness to purchase solutions, delay a prospective customer's purchasing decision, reduce our revenues from customers or affect renewal rates;
- public health emergencies and their effect on the operations of us, our customers, our third-party providers and on the overall economy;
- unexpected expenses such as those related to litigation or other disputes;
- the timing of stock awards to employees and related adverse financial statement impact of having to expense those stock awards over their vesting schedules; and
- the amount and timing of costs associated with recruiting, hiring, training and integrating new employees, many of whom we hire in advance of anticipated needs.

Moreover, the price of our convertible notes and our common stock might be based on expectations of investors or securities analysts of future performance that are inconsistent with our actual growth opportunities or that we might fail to meet and, if our revenues or operating results fall below expectations, the price of our convertible notes and common stock could decline substantially.

We have a history of losses, and we do not expect to be profitable for the foreseeable future.

We have incurred losses from operations in each period since our inception in 2005, except for 2010 when we recognized a gain on the sale of a subsidiary. We incurred net losses of $137.6 million, $70.9 million and $35.4 million for the years ended December 31, 2020, 2019 and 2018, respectively. As of December 31, 2020, we had an accumulated deficit of $381.2 million. These losses and accumulated deficit reflect the substantial investments we have made to develop our solutions and acquire customers. As we seek to continue to grow our number of customers, including through acquisitions, we expect to incur significant sales, marketing, implementation and other related expenses, including amortization of acquired intangibles. Our ability to achieve or sustain profitability will depend on our obtaining sufficient scale and productivity so that the cost of adding and supporting new customers does not adversely impact our margins. We also expect to make other significant expenditures to develop and expand our solutions and our business, including continuing to increase our marketing, services and sales operations and continuing our significant investment in research and development and our technical infrastructure. We expect to incur losses for the foreseeable future as we continue to focus on adding new customers and solutions, and we cannot predict whether or when we will achieve or sustain profitability. Our efforts to grow our business may be more costly than we expect, and we may not be able to increase our revenues enough to offset our higher operating expenses. In addition, as a public company, we incur significant legal, accounting and other expenses. These increased expenditures will make it harder for us to achieve and maintain profitability. While our revenues have grown in recent periods, such growth may not be sustainable, and our revenues could decline or grow more slowly than we expect. We also may incur additional losses in the future for a number of reasons, including due to litigation and other unforeseen reasons and the risks described in this report. Accordingly, we cannot assure you that we will achieve profitability in the future, nor that, if we do become profitable, we will be able to sustain profitability. If we are unable to achieve and sustain profitability, our customers may lose confidence in us and slow or cease their purchases of our solutions and we may be unable to attract new customers, which would adversely impact our operating results.

The markets in which we compete and demands of our customers are constantly changing and it is difficult to accurately predict the long-term rate of customer subscription renewals or adoption, or the impact these renewals and adoption, or any customer terminations, will have on our revenues or operating results.

As the markets for our existing solutions develop and evolve, we may be unable to attract new customers at the same price or based on the same pricing model as we have used historically. Additionally, as a result of the operational and economic challenges being faced by our customers, we could be forced to modify contractual or payment terms with our customers. Moreover, large or influential financial services providers may demand more favorable pricing or other contract terms, including termination rights. As a result, in the future we may be required to reduce our prices or accept other unfavorable contract terms, each of which could adversely affect our revenues, gross margin, profitability, financial position and cash flow.

Our customers have no obligation to renew their subscriptions for our solutions after the expiration of the initial subscription term, and if our customers renew at all, then our customers may renew for fewer solutions or on different pricing terms. Our renewal rates may decline or fluctuate as a result of a number of factors, including our customers' satisfaction with our pricing or our solutions or their ability to continue their operations and spending levels. Additionally, certain agreements may include termination rights allowing customers to terminate their customer agreements in the event of, among other things, defects with our solutions, changes in our solution, breach by us of our obligations, requirements from regulatory authorities or a change in control of our company. If our customers terminate or do not renew their subscriptions for our solutions on similar pricing terms, our revenues may decline and our business could suffer. As we create new solutions or enhance our existing solutions to support new technologies and devices, our pricing of these solutions and related services may be unattractive to customers or fail to cover our costs.

Shifts over time in the number of End Users of our solutions, their use of our solutions and our customers' implementation and customer support needs could negatively affect our profit margins.

Our profit margins can vary depending on numerous factors, including the scope and complexity of our implementation efforts, the number of End Users on our solutions, the frequency and volume of their use of our solutions and the level of customer support services required by our customers. For example, our services offerings typically have a much higher cost of revenues than subscriptions to our solutions, so any increase in sales of services as a proportion of our subscriptions would have an adverse effect on our overall gross margin and operating results. If we are unable to increase the number of End Users and the number of transactions they perform on our solutions, the types of customers that purchase our solutions changes, or the mix of solutions purchased by our customers changes, our profit margins could decrease and our operating results could be adversely affected.

The market data and forecasts included in this report may prove to be inaccurate, and even if the markets in which we compete achieve the forecasted growth, we cannot assure you that our business will grow at similar rates, or at all.

The market data and forecasts included in our Annual Report on Form 10-K for the year ended December 31, 2020 and our other filings with the SEC, including the data and forecasts published by BauerFinancial, Deloitte and Venture Scanner among others, and our internal estimates and research are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. If the forecasts of market growth or anticipated spending prove to be inaccurate, our business and growth prospects could be adversely affected. Even if the forecasted growth occurs, our business may not grow at a similar rate, or at all. Our future growth is subject to many factors, including our ability to successfully implement our business strategy, which itself is subject to many risks and uncertainties. Such reports speak as of their respective publication dates and the opinions expressed in such reports are subject to change. Accordingly, potential investors in our common stock are urged not to put undue reliance on such forecasts and market data.

We may not be able to utilize a significant portion of our net operating loss carryforwards, which could adversely affect our operating results and cash flows.

As of December 31, 2020, we had approximately $536.5 million of U.S. federal net operating loss carryforwards. Utilization of these net operating loss carryforwards depends on many factors, including our future income, which cannot be assured. Our loss carryforwards begin to expire in 2026. In addition, Section 382 of the Internal Revenue Code, as amended, generally imposes an annual limitation on the amount of net operating loss carryforwards that may be used to offset taxable income when a corporation has undergone an ownership change. An ownership change is generally defined as a greater than 50% change in equity ownership by value over a 3-year period. We have undergone one or more ownership changes as a result of prior financings and may have undergone an ownership change as a result of our initial public offering in March 2014, or our registered common stock offerings in March 2015, September 2015, June 2019, May 2020, or in connection with shares of our common stock issued in connection with our November 2020 convertible debt exchange, and any such change in ownership and the corresponding annual limitation may prevent us from using our current net operating losses prior to their expiration. In addition, our acquisition of the various businesses acquired since 2015 may result in an ownership change, and any such change in ownership may result in a corresponding annual limitation which may prevent us from being able to fully utilize the net operating losses we acquired prior to their expiration. Future ownership changes or future regulatory changes could further limit our ability to utilize our net operating loss carryforwards. To the extent we are not able to offset our future income against our net operating loss carryforwards, this would adversely affect our operating results and cash flows if we attain profitability.

Our business may be subject to additional obligations to collect and remit sales tax and other taxes, and we may be subject to tax liability for past sales. Any successful action by state, local or other authorities to collect additional or past sales tax could adversely harm our business.

We file sales and other tax returns within the U.S. and foreign jurisdictions as required by law and certain customer contracts for a portion of the solutions that we provide. Our tax liabilities with respect to sales and other taxes in various jurisdictions was approximately $0.9 million as of December 31, 2020. From time to time, we face sales and other tax audits, and we will likely continue to do so in the future, and our liability for these taxes could exceed our estimates as tax authorities could still assert that we are obligated to collect additional amounts as taxes from our customers and remit those taxes to such authorities.

We do not collect sales or other similar taxes in other states or jurisdictions and some jurisdictions do not apply sales or similar taxes to certain solutions. State, local and foreign taxing jurisdictions have differing rules and regulations governing sales and other taxes, and these rules and regulations are subject to varying interpretations that may change over time. In particular, the applicability of sales taxes to our solutions in various jurisdictions is unclear. We review these rules and regulations periodically, and when we believe we are subject to sales and other taxes in a particular jurisdiction, we may voluntarily engage tax authorities to determine how to comply with their rules and regulations. A successful assertion by one or more jurisdictions, including those for which we have not accrued tax liability, requiring us to collect sales or other taxes with respect to sales of our solutions or customer support could result in substantial tax liabilities for past transactions, including interest and penalties, discourage customers from purchasing our solutions or otherwise harm our business and operating results.

Changes in financial accounting standards or practices may cause adverse, unexpected financial reporting fluctuations and affect our reported results of operations.

Financial accounting standards may change or their interpretation may change. A change in accounting standards or practices can have a significant effect on our reported results and may even affect our reporting of transactions completed before the change becomes effective. Changes to existing rules or the re-examining of current practices may adversely affect our reported financial results or the way we conduct our business. Accounting for revenues from sales of our solutions is particularly complex, is often the subject of intense scrutiny by the SEC and will evolve as the Financial Accounting Standards Board, or FASB, continues to consider applicable accounting standards in this area. In particular, in order to be able to comply and maintain compliance with the requirements of the new revenue recognition standard under Accounting Standards Codification, or ASC, 606, we have updated and enhanced our internal accounting systems and processes and our internal controls over financial reporting. This has required, and will continue to require, additional investments by us, and may require incremental resources and system configurations that could increase our operating costs in future periods. Further, as companies operate in compliance with ASC 606, its interpretation and application will likely evolve over time which could adversely impact our current and historical financial results and require further changes to our disclosures, internal systems and processes and internal controls.

If we fail to maintain proper and effective internal controls, our ability to produce accurate and timely financial statements could be impaired, which could harm our operating results, our ability to operate our business and investors' views of us.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently, including if we acquire additional businesses and integrate their operations. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and preparation of financial statements in accordance with U.S. generally accepted accounting principles, or GAAP. While we have documented and assessed our internal controls, we continue to evaluate opportunities to further strengthen the effectiveness and efficiency of our internal controls and procedures for compliance with Section 404 of the Sarbanes-Oxley Act, which requires annual management assessment and annual independent registered public accounting firm attestation reports of the effectiveness of our internal control over financial reporting. Additionally, as a result of operational constraints related to the COVID-19 pandemic, including nearly all of our employees working remotely and employees of our independent registered accounting firm no longer having access to our facilities, our existing controls and procedures may prove inadequate, or may require enhancement and we may be required to adopt additional controls and procedures. If we make additional acquisitions, we will need to similarly assess and ensure the adequacy of the internal financial and accounting controls and procedures of such acquisitions. If we fail to maintain proper and effective internal controls, including with respect to acquired businesses, our ability to produce accurate and timely financial statements could be impaired, which could harm our operating results, harm our ability to operate our business and reduce the trading price of our common stock.

Legal and Regulatory Risks

Our customers are highly regulated and subject to a number of challenges and risks. Our failure to comply with laws and regulations applicable to us as a technology provider to financial services providers and to enable our customers to comply with the laws and regulations applicable to them could adversely affect our business and results of operations, increase costs and impose constraints on the way we conduct our business.

Our customers and prospective customers are highly regulated and may be required to comply with stringent regulations in connection with subscribing to and implementing our solutions. As a provider of technology to financial institutions, we are examined on a periodic basis by various regulatory agencies and required to review certain of our suppliers and partners. As a result of the COVID-19 pandemic, we and our customers may experience an increase in the volume of regulatory inquiries, examinations or additional regulatory requirements, which could require additional resources and costs to address. The examination handbook and other guidance issued by the Federal Financial Institutions Examination Council, or FFIEC, govern the examination of our operations and include a review of our systems and data center and technical infrastructure, management, financial condition, development activities and our support and delivery capabilities. If deficiencies are identified, customers may choose to terminate or reduce their relationships with us. In addition, while much of our operations are not directly subject to the same regulations applicable to financial institutions, we are generally obligated to our customers to provide software solutions and maintain internal systems and processes that comply with federal, state and other regulations applicable to them. In particular, as a result of obligations under our customer agreements, we are required to comply with certain provisions of the Gramm-Leach-Bliley Act related to the privacy of consumer information and may be subject to other privacy and data security laws because of the solutions we provide. In addition, numerous regulations have been proposed and are still being written to implement the Dodd-Frank Act, including requirements for enhanced due diligence of the internal systems and processes of companies like ours by their financial institution customers. In general, larger financial institutions are subject to more stringent regulations and as a result, as we sell our solutions to larger financial institutions, we will become obligated to meet more stringent regulatory standards, including more in-depth audits. Laws and regulations put in place in response to the COVID-19 pandemic also may result in new regulatory obligations or frameworks. If we have to make changes to our internal processes and solutions as a result of these regulatory changes, we could be required to invest substantial additional time and funds and divert time and resources from other corporate purposes to remedy any identified deficiency.

This evolving, complex and often unpredictable regulatory environment could result in our failure to provide regulatory-compliant solutions, which could result in customers' not purchasing our solutions or terminating their agreements with us or the imposition of fines or other liabilities for which we may be responsible. In addition, federal, state or foreign agencies may attempt to further regulate our activities in the future. For example, Congress could enact legislation to regulate providers of electronic commerce services as consumer financial services providers or under another regulatory framework. If enacted or deemed applicable to us, such laws, rules or regulations could be imposed on our activities or our business thereby rendering our business or operations more costly, burdensome, less efficient or impossible, any of which could have a material adverse effect on our business, financial condition and operating results.

We are subject to various global data privacy and security regulations, which could result in additional costs and liabilities to us.

Our business is subject to a wide variety of local, state, national and international laws, directives and regulations that apply to the collection, use, retention, protection, disclosure, transfer and other processing of personal data. These data protection and privacy-related laws and regulations continue to evolve and may result in ever-increasing regulatory and public scrutiny and escalating levels of enforcement and sanctions and increased costs of compliance. In the U.S., these include rules and regulations promulgated under the authority of the Federal Trade Commission, and state breach notification laws. If there is a breach of our systems and we know or suspect that unencrypted personal customer or End-User information has been stolen, we may be required to inform the representative state attorney general or federal or country regulator, media and credit reporting agencies, and any customers whose information was stolen, which could harm our reputation and business. Other states and countries have enacted different requirements for protecting personal information collected and maintained electronically. We expect that there will continue to be new proposed laws, regulations and industry standards concerning privacy, data protection and information security in the U.S., the European Union and other jurisdictions, and we cannot yet determine the impact such future laws, regulations and standards will have on our business or the businesses of our customers, including, but not limited to, the European Union's GDPR, which came into force in May 2018 and the California Consumer Privacy Act, which came into force in January 2020, each of which creates a range of new compliance obligations, which could require us to change our business practices, and significantly increases financial penalties for noncompliance.

Failure to comply with laws concerning privacy, data protection and information security could result in enforcement action against us, including fines, imprisonment of company officials and public censure, claims for damages by customers, End Users and other affected individuals, damage to our reputation and loss of goodwill (both in relation to existing customers and End Users and prospective customers and End Users), any of which could have a material adverse effect on our operations, financial performance and business. In addition, we could suffer adverse publicity and loss of customer confidence were it known that we did not take adequate measures to assure the confidentiality of the personally identifiable information that our customers had given to us. This could result in a loss of customers and revenue that could jeopardize our success. We may not be successful in avoiding potential liability or disruption of business resulting from the failure to comply with these laws and, even if we comply with laws, may be subject to liability because of a security incident. If we were required to pay any significant amount of money in satisfaction of claims under these laws, or any similar laws enacted by other jurisdictions, or if we were forced to cease our business operations for any length of time as a result of our inability to comply fully with any of these laws, our business, operating results and financial condition could be adversely affected. Further, complying with the applicable notice requirements in the event of a security breach could result in significant costs.

Additionally, our business efficiencies and economies of scale depend on generally uniform solutions offerings and uniform treatment of customers and their End Users across all jurisdictions in which we operate. Compliance requirements that vary significantly from jurisdiction to jurisdiction impose added costs on our business and can increase liability for compliance deficiencies.

Our failure to comply with laws and regulations related to the Internet and mobile usage could adversely affect our business and results of operations, increase costs and impose constraints on the way we conduct our business.

We and our customers are subject to laws and regulations applicable to doing business over the Internet and through the use of mobile devices. It is often not clear how existing laws governing issues such as property ownership, sales and other taxes apply to the Internet and mobile usage, as these laws have in some cases failed to keep pace with technological change. Laws governing the Internet could also impact our business or the business of our customers. For instance, existing and future regulations on taxing Internet use, pricing, characterizing the types and quality of services and products, or restricting the exchange of information over the Internet or mobile devices could result in reduced growth of our business, a general decline in the use of the Internet by financial services providers, or their End Users, or diminished viability of our solutions and could significantly restrict our customers' ability to use our solutions. Changing laws and regulations, industry standards and industry self-regulation regarding the collection, use and disclosure of certain data may have similar effects on our and our customers' businesses. Any such constraint on the growth in Internet and mobile usage could decrease its acceptance as a medium of communication and commerce or result in increased adoption of new modes of communication and commerce that may not be supported by our solutions. Any such adverse legal or regulatory developments could substantially harm our operating results and our business.

Legislation relating to consumer privacy may affect our ability to collect data that we use in providing our customers' End-User information, which, among other things, could negatively affect our ability to satisfy our customers' needs.

We collect and store personal and identifying information regarding our customers' End Users to enable certain functionality of our solutions and provide our customers with data about their End Users. The enactment of new or amended legislation or industry regulations pertaining to consumer or private sector privacy issues could have a material adverse impact on our collection, storage and sharing of such information. Legislation or industry regulations regarding consumer or private sector privacy issues could place restrictions upon the collection, sharing and use of information that is currently legally available, which could materially increase our cost of collecting some data. These types of legislation or industry regulations could also prohibit us from collecting or disseminating certain types of data, which could adversely affect our ability to meet our customers' requirements and our profitability and cash flow targets. These legislative measures impose strict requirements on reporting time frames for providing notice, as well as the contents of such notices. The costs of compliance with, the inability to determine whether a data breach has occurred within the time frame provided by, and other burdens imposed by, such laws and regulations may lead to significant fines, penalties or liabilities for any noncompliance with such privacy laws. Even the perception of privacy concerns, whether or not valid, may inhibit market adoption of our solutions.

In addition to government activity, privacy advocacy groups and the technology and other industries are considering various new, additional or different self-regulatory standards that may place additional burdens on us. If the collecting, storing and processing of personal information were to be curtailed, our solutions would be less effective, which may reduce demand for our solutions and adversely affect our business.

Any use of our solutions by our customers in violation of regulatory requirements could damage our reputation and subject us to additional liability.

If our customers or their End Users use our solutions in violation of regulatory requirements and applicable laws, we could suffer damage to our reputation and could become subject to claims. We rely on contractual obligations made to us by our customers that their use and their End Users' use of our solutions will comply with applicable laws. However, we do not audit our customers or their End Users to confirm compliance. We may become subject to or involved with claims for violations by our customers or their End Users of applicable laws in connection with their use of our solutions. Even if claims asserted against us do not result in liability, we may incur costs in investigating and defending against such claims. If we are found liable in connection with our customers' or their End Users' activities, we could incur liabilities and be required to redesign our solutions or otherwise expend resources to remedy any damages caused by such actions and to avoid future liability.

Any future litigation against us could be costly and time-consuming to defend.

We may become subject, from time to time, to legal proceedings and claims that arise in the ordinary course of business such as claims brought by our customers in connection with commercial or intellectual property disputes or employment claims made by our current or former employees. Litigation might result in substantial costs and may divert management's attention and resources, which might seriously harm our business, our overall financial condition and our operating results. Insurance may not cover such claims, provide sufficient payments to cover all the costs to resolve one or more such claims or continue to be available on terms acceptable to us. A claim brought against us that is uninsured or underinsured could result in unanticipated costs and impact our liquidity, thereby reducing our operating results and impacting our financial condition, leading analysts and investors to reduce their confidence and expectations and reduce the trading price of our stock.

Lawsuits by third parties against us or our customers for alleged infringement of the third parties' proprietary rights or for other intellectual property related claims could result in significant expenses and harm our operating results and financial condition.

Our industry is characterized by the existence of a large number of patents, copyrights, trademarks, trade secrets and other intellectual property and proprietary rights as well as a high number of allegations and disputes related to these rights. Our competitors and the competitors of our customers, as well as a number of other entities and individuals (both operating and non-operating), own or claim to own intellectual property relating to our industry. As a result, we regularly are subject to allegations and involved in disputes, either directly or on behalf of our customers, that our solutions and the underlying technology infringe the patent and other intellectual property rights of third parties. The frequency of these types of claims also may increase as we continue to add new customers and as a result of our being a public company. The defense against these allegations and disputes and, if unsuccessful, their resolution could result in our having to pay damages and negatively impact our ability to continue to sell and provide all or a portion of our solutions or certain third-party solutions, any of which could materially harm our reputation, business results and financial condition. Insurance may not cover such claims, provide sufficient payments to cover all the costs to resolve one or more such claims or continue to be available on terms acceptable to us. Successful outcomes in these disputes depend upon our ability to demonstrate that our solutions do not infringe upon the intellectual property rights of others. We have a very limited patent portfolio, which will likely prevent us from deterring patent infringement claims, and our competitors and others may now and in the future have significantly larger or more relevant patent portfolios than we have.

Our customer agreements typically require us to indemnify our customers in connection with claims alleging our solutions or the underlying technologies infringe the patent or other intellectual property rights of third parties. Our customers regularly receive allegations from third parties or are involved in these disputes with third parties, and we may be required to indemnify them in connection with these matters. We are currently involved in these types of disputes, and given the high level of this activity in our industry, we expect these types of disputes to continue to arise in the future. If we are unsuccessful in defending claims for which we are required to provide indemnity, our business and operating results could be adversely affected. Any significant disputes among us and our customers as to the applicability of our indemnity obligations could negatively impact our reputation and customer relations, affect our ability to sell our solutions and harm our operating results. Further, there can be no assurances that any provisions in our contracts that purport to limit our liability would be enforceable or adequate or would otherwise protect us from any such liabilities or damages with respect to any particular claim.

In certain instances, we license technologies from third parties for use directly or indirectly in our solutions or for resale with our solutions. Our contracts with these third parties may include provisions that require the third party to indemnify us in the event of any claim or dispute that the third party's technologies infringe upon the patent or other intellectual property rights of others. If we are unable for any reason to seek indemnity or otherwise collect from those third parties our direct or indirect liabilities related to any claim, then we may have to bear the liabilities ourselves and our business performance and financial condition could be substantially harmed.

The risk of patent litigation exists with operating entities but also has been amplified by the increase in the number of non-practicing patent asserting entities, or "patent trolls." Any claims or litigation, whether by operating entities or "patent trolls," could cause us to incur significant expenses and, if successfully asserted against us or our customers whom we indemnify, could require that we pay substantial damages or ongoing royalty payments, prevent us from offering our solutions or require that we comply with other unfavorable terms. Even if the claims do not result in litigation or are resolved in our favor, these claims and the time and resources necessary to resolve them, could divert the resources of our management and harm our business and operating results.

If we are unable to protect our intellectual property, our business could be adversely affected.

Our success depends upon our ability to protect our intellectual property, which may require us to incur significant costs. We have developed much of our intellectual property internally, and we rely on a combination of confidentiality obligations in contracts, patents, copyrights, trademarks, service marks, trade secret laws and other contractual restrictions to establish and protect our intellectual property and other proprietary rights. In particular, we enter into confidentiality and invention assignment agreements with our employees and consultants and enter into confidentiality agreements with the parties with whom we have business relationships in which they will have access to our confidential information. We also rely upon licenses to intellectual property from third parties. No assurance can be given that these agreements or other steps we take to protect our intellectual property or the third-party intellectual property used in our solutions will be effective in controlling access to and distribution of our solutions and our confidential and proprietary information. We will not be able to protect our intellectual property if we are unable to enforce our rights or if we do not detect unauthorized uses of our intellectual property.

Despite our precautions, it may be possible for third parties to copy our solutions and use information that we regard as proprietary to create solutions and services that compete with ours. Third parties also may independently develop technologies that are substantially equivalent to our solutions. Some license provisions protecting against unauthorized use, copying, transfer and disclosure of our solutions may be unenforceable under the laws of certain jurisdictions.

In some cases, litigation may be necessary to enforce our intellectual property rights or to protect our trade secrets. Litigation could be costly, time consuming and distracting to management and could result in the impairment or loss of portions of our intellectual property. Furthermore, our efforts to enforce our intellectual property rights may be met with defenses, counterclaims and countersuits attacking the validity and enforceability of our intellectual property rights and exposing us to significant damages or injunctions. Our inability to protect our intellectual property against unauthorized copying or use, as well as any costly litigation or diversion of our management's attention and resources, could delay sales or the implementation of our solutions, impair the functionality of our solutions, delay introductions of new solutions, result in our substituting less-advanced or more-costly technologies into our solutions or harm our reputation. In addition, we may be required to license additional intellectual property from third parties to develop and market new solutions, and we cannot assure you that we could license that intellectual property on commercially reasonable terms or at all.

As of December 31, 2020, we had nine U.S. patent applications pending and four issued U.S. patents. We do not know whether our pending patent applications will result in the issuance of patents or whether the examination process will require us to narrow the scope of our claims. To the extent that our pending patent applications or any portion of such applications proceed to issuance as a patent, any such future patent may be opposed, contested, circumvented, designed around by a third party or found to be invalid or unenforceable. In addition, our existing and any future issued patents may be opposed, contested, circumvented, designed around by a third party or found to be invalid or unenforceable. The process of seeking patent protection can be lengthy and expensive. We rely on a combination of patent, copyright, trade secret, trademark and other intellectual property laws to protect our intellectual property, and much of our technology is not covered by any patent or patent application.

We use "open source" software in our solutions, which may restrict how we use or distribute our solutions, require that we release the source code of certain software subject to open source licenses or subject us to litigation or other actions that could adversely affect our business.

We currently use in our solutions, and may use in the future, software that is licensed under "open source," "free" or other similar licenses where the licensed software is made available to the general public on an "as-is" basis under the terms of a specific non-negotiable license. Some open source software licenses require that software subject to the license be made available to the public and that any modifications or derivative works based on the open source code be licensed in source code form under the same open source licenses. Although we monitor our use of open source software, we cannot assure you that all open source software is reviewed prior to use in our solutions, that our programmers have not incorporated open source software into our solutions, or that they will not do so in the future. In addition, some of our products may incorporate third-party software under commercial licenses. We cannot be certain whether such third-party software incorporates open source software without our knowledge. In the past, companies that incorporate open source software into their products have faced claims alleging noncompliance with open source license terms or infringement or misappropriation of proprietary software. Therefore, we could be subject to suits by parties claiming noncompliance with open source licensing terms or infringement or misappropriation of proprietary software. Because few courts have interpreted open source licenses, the manner in which these licenses may be interpreted and enforced is subject to some uncertainty. There is a risk that open source software licenses could be construed in a manner that imposes unanticipated conditions or restrictions on our ability to market or provide our solutions. As a result of using open source software subject to such licenses, we could be required to release our proprietary source code, pay damages, re-engineer our products, limit or discontinue sales or take other remedial action, any of which could adversely affect our business.

Risks Related to Ownership of Our Common Stock

We have incurred and will continue to incur significant increased expenses and administrative burdens as a public company, which could have a material adverse effect on our operations and financial results.

As a public company, we have incurred and will continue to incur significant legal, accounting, administrative and other costs and expenses. For example, we are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and are required to comply with the applicable requirements of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act, and the Dodd-Frank Wall Street Reform and Consumer Protection Act, as well as rules and regulations subsequently implemented by the SEC, the Public Company Accounting Oversight Board and the New York Stock Exchange, including the establishment and maintenance of effective disclosure and financial controls and changes in corporate governance practices. Compliance with public company requirements has increased our costs and made some activities more time-consuming. In addition, our management and other personnel have been required to divert attention from operational and other business matters to devote substantial time to these public company requirements. In particular, we have incurred and will continue to incur significant expenses as well as devote substantial management effort toward ensuring ongoing compliance with the requirements of Section 404 of the Sarbanes-Oxley Act. Although we have hired additional employees to comply with these requirements, we may need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge to comply with any regulatory changes.

Furthermore, if we identify any issues in complying with public company reporting requirements (for example, if our financial systems prove inadequate or we or our auditors identify deficiencies in our internal control over financial reporting), we could incur additional costs rectifying those issues, and the existence of those issues could adversely affect us, our reputation or investor perceptions of us. It is also more expensive to maintain director and officer liability insurance as a public company. Risks associated with our status as a public company may make it more difficult for us to attract and retain qualified persons to serve on our board of directors or as executive officers. The additional reporting and other obligations imposed on us by these rules and regulations have and we expect will continue to increase our legal and financial compliance costs and the costs of our related legal, accounting and administrative activities. These costs require us to divert a significant amount of money that we could otherwise use to expand our business and achieve our strategic objectives. Proposals submitted by stockholders at our annual meeting or other advocacy efforts by stockholders and third parties also may prompt additional changes in governance and reporting requirements, which could further increase our costs.

In addition, changing laws, regulations and standards relating to corporate governance and public disclosure are creating uncertainty for public companies, increasing legal and financial compliance costs and making some activities more time consuming. These laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This situation could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management's time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to their application and practice, regulatory authorities may initiate investigations, inquiries, administrative proceedings or legal proceedings against us and our business may be adversely affected.

Any future sales of our common stock in the public markets, or the perception that such sales might occur, could reduce the price that our common stock might otherwise attain and may dilute the voting power and ownership interest in us of our then-existing stockholders.

As of December 31, 2020, we had an aggregate of 55,562,094 outstanding shares of common stock. The shares sold in our public offerings can be freely sold in the public market without restriction unless they are held by "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining shares can be freely sold in the public market, subject in some cases to volume and other restrictions under Rule 144 under the Securities Act and various agreements. We have registered 20,115,776 shares of common stock that we have issued and may issue under our stock plans. These shares can be freely sold in the public market upon issuance, subject in some cases to volume and other restrictions under Rules 144 under the Securities Act, and various vesting agreements. In addition, some of our employees, including some of our executive officers, have entered into 10b5-1 trading plans regarding sales of shares of our common stock. These plans provide for sales to occur from time to time. If any of these additional shares are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

In February 2018, we issued $230.0 million aggregate principal amount of 0.75% Convertible Senior Notes due 2023, or the 2023 Notes. In June 2019, we issued $316.3 million aggregate principal amount of 0.75% Convertible Senior Notes due 2026, or the 2026 Notes. In addition, in June 2019, we also completed a registered offering of a total of 3,033,684 shares of our common stock at a price of $69.50 per share. In May 2020, we completed a registered offering of a total of 4,735,294 shares of our common stock at a price of $76.50 per share. In November 2020, we entered into a privately negotiated exchange and/or subscription agreements with certain new investors and certain holders of our existing 2023 Notes to exchange $181.9 million of our 2023 Notes for $210.7 million of our 0.125% Convertible Senior Notes due 2025, or the 2025 Notes, and to issue $139.3 million of incremental 2025 Notes to new investors, resulting in the issuance of an aggregate of $350.0 million principal amount of 2025 Notes. In the future, we may issue additional securities to raise capital or in connection with investments and acquisitions. In addition, a substantial number of shares of our common stock are reserved for issuance upon conversion of our convertible notes issued in connection with the offering of the 2023 Notes, 2025 Notes, 2026 Notes and exercise of our warrants issued in connection with the 2023 Notes. The amount of our common stock issued in connection with any such issuance could constitute a material portion of our then outstanding stock. Due to these factors, sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock.

If securities or industry analysts publish unfavorable or misleading research about our business, or cease coverage of our company, our stock price and trading volume could decline.

The trading market for our common stock is influenced in part by the research and reports that securities or industry analysts publish about us or our business. If one or more of the securities or industry analysts who covers us downgrades our stock or publishes unfavorable or misleading research about our business, our stock price would likely decline. If one or more of these analysts ceases coverage of our company or fails to publish reports on us regularly, we could lose visibility in the market for our stock, and demand for our stock could decrease, which could cause our stock price or trading volume to decline.

Our stock price may be volatile.

The trading price of our common stock has been and is expected to continue to be highly volatile and could be subject to wide fluctuations in response to various factors, including the risk factors described in this report, and other factors beyond our control. Additional factors affecting the trading price of our common stock include:

- variations in our operating results or the operating results of similar companies;
- announcements of technological innovations, new solutions or enhancements or strategic partnerships or agreements by us or by our competitors;

- changes in the estimates of our operating results, our financial guidance or changes in recommendations by any securities analysts that follow our common stock;
- the gain or loss of customers, particularly our larger customers;
- adoption or modification of regulations, policies, procedures or programs applicable to our business and our customers' business;
- marketing and advertising initiatives by us or our competitors;
- threatened or actual litigation;
- changes in our senior management; and
- recruitment or departure of key personnel.

In addition, the stock market in general and the market for technology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may harm the market price of our common stock regardless of our actual operating performance. Each of these factors, among others, could adversely affect your investment in our common stock. Some companies that have had volatile market prices for their securities have had securities class action lawsuits filed against them. If a suit were filed against us, regardless of its merits or outcome, it could result in substantial costs and divert management's attention.

We currently do not intend to pay dividends on our common stock, and, consequently, the only opportunity to achieve a return on investment is if the price of our common stock appreciates.

We have never declared nor paid cash dividends on our capital stock. We currently do not plan to declare dividends on shares of our common stock in the foreseeable future. We currently intend to retain any future earnings to finance the operation and expansion of our business. Any payment of future dividends will be at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant. Consequently, the only opportunity to achieve a return on investment in our company will be if the market price of our common stock appreciates and shares are sold at a profit. There is no guarantee that the price of our common stock that will prevail in the market will ever exceed the price that is paid for our common stock.

Anti-takeover provisions in our charter documents and Delaware law could discourage, delay or prevent a change in control of our company and may affect the trading price of our common stock.

We are a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law, which apply to us, may discourage, delay or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the stockholder becomes an interested stockholder, even if a change in control would be beneficial to our existing stockholders. In addition, our amended and restated certificate of incorporation and amended and restated bylaws may discourage, delay or prevent a change in our management or control over us that stockholders may consider favorable. Our certificate of incorporation and bylaws:

- authorize the issuance of "blank check" preferred stock that could be issued by our board of directors to help defend against a takeover attempt;
- require that directors only be removed from office for cause and only upon a supermajority stockholder vote;
- provide that vacancies on the board of directors, including newly created directorships, may be filled only by a majority vote of directors then in office rather than by stockholders;
- prevent stockholders from calling special meetings;
- include advance notice procedures for stockholders to nominate candidates for election as directors or bring matters before an annual meeting of stockholders;
- prohibit stockholder action by written consent, requiring all actions to be taken at a meeting of the stockholders; and
- provide that certain litigation against us can only be brought in Delaware.

We may not be able to obtain capital when desired on favorable terms, if at all, and we may not be able to obtain capital or complete acquisitions through the use of equity or without dilution to our stockholders.

We may need additional financing to execute on our current or future business strategies, including to develop new or enhance existing products and services, acquire businesses and technologies, or otherwise to respond to competitive pressures. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and newly-issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we accumulate additional funds through debt financing, a substantial portion of our operating cash flow may be dedicated to the payment of principal and interest on such indebtedness, thus limiting funds available for our business activities. We cannot assure you that additional financing will be available on terms favorable to us, or at all. If adequate funds are not available or are not available on acceptable terms, when we desire them, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products and services, or otherwise respond to competitive pressures would be significantly limited. Any of these factors could harm our results of operations and negatively impact the trading price of our common stock.

Risks Related to Our Convertible Notes

We incurred indebtedness by issuing our 2023 Notes in 2018, our 2026 Notes in 2019, and our 2025 Notes in 2020, and our debt repayment obligations may adversely affect our financial condition and cash flows from operations in the future.

Our indebtedness under our convertible notes may impair our ability to obtain additional financing in the future for general corporate purposes, including working capital, capital expenditures, potential acquisitions and strategic transactions, and a portion of our cash flows from operations may have to be dedicated to repaying the principal of the 2023 Notes in 2023, the principal of the 2026 Notes in 2026, and the principal of the 2025 Notes in 2025 or earlier if necessary. Our ability to meet our debt obligations will depend on our future performance, which will be affected by financial, business, economic, regulatory and other factors. We cannot control many of these factors. Our future operations may not generate sufficient cash to enable us to repay our debt, including the 2023 Notes, 2025 Notes or 2026 Notes. If we fail to make a payment on our debt, we could be in default on such debt. If we are at any time unable to pay our indebtedness when due, we may be required to renegotiate the terms of the indebtedness, seek to refinance all or a portion of the indebtedness or obtain additional financing. There can be no assurance that, in the future, we will be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us.

In addition, holders of each series of our convertible notes will have the right to require us to repurchase all or a portion of their notes upon the occurrence of a fundamental change, as defined in the respective indentures, at a repurchase price equal to 100% of the principal amount of the notes to be repurchased, plus accrued and unpaid interest. Upon conversion of each series of convertible notes, unless we elect to deliver solely shares of our common stock to settle such conversion (other than paying cash in lieu of delivering any fractional share), we will be required to make cash payments in respect of the series of notes being converted. However, we may not have enough available cash or be able to obtain financing at the time we are required to make repurchases of the series of convertible notes surrendered therefor or at the time such series of convertible notes is being converted. In addition, our ability to repurchase each series of convertible notes or to pay cash upon conversions of each series of convertible notes may be limited by law, by regulatory authority or by agreements governing our future indebtedness. Our failure to repurchase a series of convertible notes at a time when the repurchase is required by the indenture or to pay any cash payable on future conversions of such series of convertible notes as required by the indenture governing such series of convertible notes would constitute a default under such indenture. A default under the indenture or the fundamental change itself could also lead to a default under agreements governing our future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay the indebtedness and repurchase the notes or make cash payments upon conversions thereof. An event of default under the indenture governing the notes may lead to an acceleration of the notes. Any such acceleration could result in our bankruptcy. In a bankruptcy, the holders of the notes would have a claim to our assets that is senior to the claims of our equity holders.

Conversion of the convertible notes will dilute the ownership interest of our existing stockholders or may otherwise depress the price of our common stock.

The conversion of some or all of our convertible notes will dilute the ownership interests of existing stockholders. Any sales in the public market of our common stock issuable upon such conversion of our convertible notes could adversely affect prevailing market prices of our common stock. In addition, the existence of the convertible notes may encourage short selling by market participants because the conversion of the notes could be used to satisfy short positions, or anticipated conversion of the convertible notes into shares of our common stock could depress the price of our common stock.

Our convertible notes bond hedge and warrant transactions entered into in connection with the offering of the 2023 Notes may affect the value of our common stock.

In connection with the offering of the 2023 Notes, we entered into convertible notes bond hedge, or Bond Hedge, transactions with one or more counterparties. We also entered into warrant transactions with the counterparties pursuant to which we sold warrants for the purchase of our common stock. The Bond Hedge transactions related to the 2023 Notes are expected generally to reduce the potential dilution upon any conversion of 2023 Notes or offset any cash payments we are required to make in excess of the principal amount upon conversion of any 2023 Notes. The warrant transactions could separately have a dilutive effect to the extent that the market price per share of our common stock exceeds the strike price of the warrants. In connection with establishing their initial hedges of the 2023 Note hedge and warrant transactions, the counterparties or their respective affiliates purchased shares of our common stock or entered into various derivative transactions with respect to our common stock concurrently with or shortly after the pricing of the 2023 Notes. The counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock or purchasing or selling our common stock in secondary market transactions prior to the maturity of the 2023 Notes, and are likely to do so during any observation period related to a conversion of 2023 Notes or following any repurchase of 2023 Notes by us. This activity could also cause or avoid an increase or a decrease in the market price of our common stock.

The capped call transactions entered into in connection with the offering of the 2025 Notes and 2026 Notes may affect the value of our common stock.

In connection with the offering of the 2025 Notes and 2026 Notes, we entered into capped call transactions with one or more counterparties, or the Capped Calls. The Capped Calls cover, subject to customary adjustments, the number of shares of our common stock initially underlying the 2025 Notes and 2026 Notes. The Capped Calls are expected to offset the potential dilution and/or offset any cash payments we are required to make in excess of the principal amount of converted 2025 Notes or 2026 Notes, as a result of conversion of the 2025 Notes or 2026 Notes, with such offset subject to a cap. In connection with establishing their initial hedges of the Capped Calls, the counterparties or their respective affiliates purchased shares of our common stock or entered into various derivative transactions with respect to our common stock concurrently with or shortly after the pricing of the 2025 Notes and 2026 Notes. The counterparties or their respective affiliates may modify their hedge positions by entering into or unwinding various derivatives with respect to our common stock and/or purchasing or selling our common stock or other securities of ours in secondary market transactions prior to the maturity of the 2025 Notes and 2026 Notes, and are likely to do so during any observation period related to a conversion of the 2025 Notes or 2026 Notes or following any repurchase of 2025 Notes or 2026 Notes by us. This activity could also cause or avoid an increase or a decrease in the market price of our common stock.

Certain provisions in the indentures governing our convertible notes may delay or prevent an otherwise beneficial takeover attempt of us and may affect the trading price of our common stock.

Certain provisions in the indentures governing our convertible notes may make it more difficult or expensive for a third party to acquire us. For example, the indentures governing our convertible notes will require us to repurchase the convertible notes for cash upon the occurrence of a fundamental change (as defined in the respective indentures) of us and, in certain circumstances, to increase the conversion rate for a holder that converts the convertible notes in connection with a make-whole fundamental change. A takeover of us may trigger the requirement that we repurchase our convertible notes, and/or increase the conversion rate, which could make it more costly for a potential acquirer to engage in such takeover. Such additional costs may have the effect of delaying or preventing a takeover of us that would otherwise be beneficial to investors in our common stock.

If the conditional conversion feature of any series of convertible notes is triggered, our financial condition and operating results may be adversely affected which could decrease the trading price of our common stock.

In the event the conditional conversion feature of the 2023 Notes, 2025 Notes or 2026 Notes is triggered, note holders will be entitled to convert their 2023 Notes, 2025 Notes or 2026 Notes, as applicable, at any time during specified periods at their option. If one or more holders elect to convert the 2023 Notes, 2025 Notes or 2026 Notes, as applicable, we may elect to satisfy our conversion obligation by delivering solely shares of our common stock (other than paying cash in lieu of delivering any fractional share), which would result in dilution to the holders of our common stock. If we elect to or would be required to settle a portion or all of our conversion obligation in cash, it could adversely affect our liquidity, which may negatively impact the trading price of our common stock. In addition, even if holders of the 2023 Notes, 2025 Notes or 2026 Notes do not elect to convert their 2023 Notes, 2025 Notes or 2026 Notes, as applicable, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the 2023 Notes, 2025 Notes or 2026 Notes as a current rather than long-term liability, which would result in a material reduction of our net working capital, which may negatively impact the trading price of our common stock.

The accounting method for convertible notes that may be settled in cash, such as our convertible notes, could have a material effect on our reported financial results.

Under ASC 470-20, "Debt with Conversion and Other Options," an entity must separately account for the liability and equity components of the convertible debt instruments, such as our convertible notes, that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer's economic interest cost. The effect of ASC 470-20 on the accounting for our convertible notes is that the equity component is required to be included in the additional paid-in capital section of stockholders' equity on our consolidated balance sheet at the issuance date and the value of the equity component would be treated as debt discount for purposes of accounting for the debt component of our convertible notes. As a result, we will be required to record a greater amount of non-cash interest expense as a result of the amortization of the discounted carrying value of our convertible notes to their face amount over the applicable term of the convertible notes. We will report larger net losses, or lower net income, in our financial results because ASC 470-20 will require interest to include both the amortization of the debt discount and the instrument's nonconvertible coupon interest rate, which could adversely affect our reported or future financial results and the trading price of our common stock.

In addition, under certain circumstances, convertible debt instruments, such as our convertible notes, that may be settled entirely or partly in cash may be accounted for utilizing the treasury stock method, the effect of which is that the shares issuable upon conversion of the 2023 Notes, 2025 Notes or 2026 Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the 2023 Notes, 2025 Notes and 2026 Notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable or otherwise elect not to use the treasury stock method in accounting for the shares issuable upon conversion of the 2023 Notes, 2025 Notes and 2026 Notes then our diluted earnings per share could be adversely affected.

Item 1B. Unresolved Staff Comments.

Not applicable.

Item 2. Properties.

Our principal executive offices are located in Austin, Texas in two adjacent buildings under separate lease agreements, pursuant to the first of which we lease approximately 67,000 square feet of office space under a lease agreement which expires on April 30, 2021, and pursuant to the second of which we lease approximately 129,000 square feet of office space with an initial term that expires on April 30, 2028, with the option to extend the lease for an additional ten-year term. On December 18, 2019, we entered into a lease agreement to lease approximately 129,000 square feet of an office building to be located immediately adjacent to our current headquarters, in order to expand our headquarters. This new lease agreement provides for a commencement date of June 1, 2021 for the entire premises and runs 120 months with respect to approximately 69,000 square feet, with an initial two-year renewal option, and 84 months with respect to 60,000 square feet, with an initial five-year renewal option, and an additional five-year renewal option for the entire premises after the expiration of the initial renewal terms. We also lease office space in Lincoln, Nebraska; Des Moines, Iowa; Atlanta, Georgia; Asheville, North Carolina; Charlotte, North Carolina; Cary, North Carolina; Bangalore, India; and Sydney, Australia. We believe our current facilities will be adequate for our needs for the current term.

Item 3. Legal Proceedings.

From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. Our management believes that there are no claims or actions pending against us, the ultimate disposition of which would have a material impact on our business, financial condition, results of operations or cash flows.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities.

Market Information and Holders

Our common stock has been listed on the New York Stock Exchange under the symbol "QTWO" since March 20, 2014. Prior to that date, there was no public trading market for our common stock. Our common stock was priced at $13.00 per share in our initial public offering on March 20, 2014.

As of December 31, 2020, we had 25 holders of record of our common stock. The actual number of holders of common stock is greater than this number of record holders and includes stockholders who are beneficial owners, but whose shares are held in street name by brokers and nominees. The number of holders of record also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We have never declared or paid any cash dividends on our common stock. Any future determination to declare cash dividends on our common stock will be made at the discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, general business conditions and other factors that our board of directors may deem relevant. We do not anticipate paying cash dividends on our common stock for the foreseeable future.

Use of Proceeds From Registered Securities

On May 15, 2020, we completed a registered public offering of 4,735,294 shares of our common stock at a price of $76.50 per share, before underwriting discounts and commissions. We sold 4,235,294 of such shares and existing stockholders sold 500,000 of such shares. We did not receive any proceeds from the sale of shares by the selling stockholders in the May 2020 common stock offering. The May 2020 common stock offering was made pursuant to an automatically effective shelf registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the "SEC") on June 4, 2019 (File No. 333-231947), as amended on May 11, 2020. There have been no material changes in the planned use of proceeds from our May 2020 common stock offering from that described in the final prospectus filed with the SEC pursuant to Rule 424(b) on May 13, 2020.

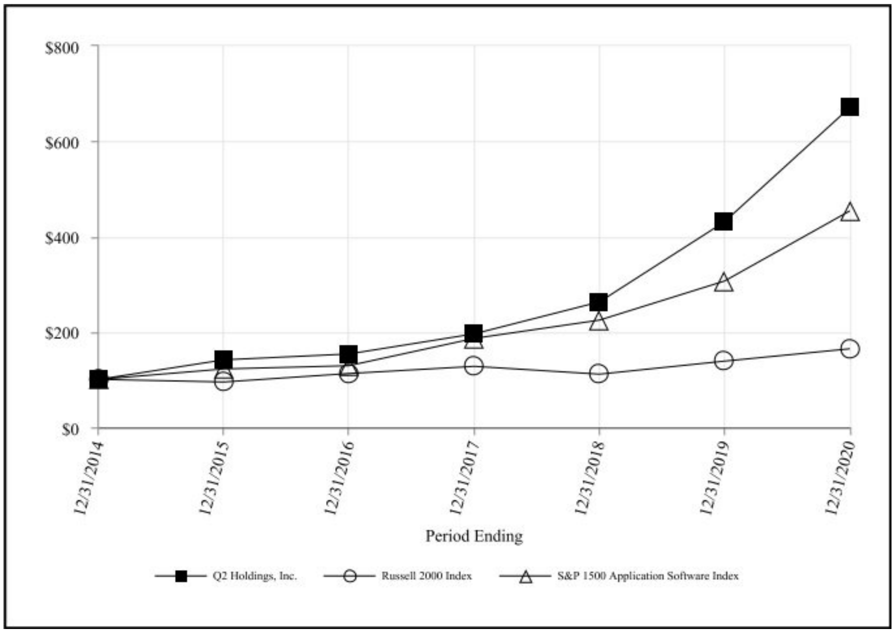
Equity Compensation Plan Information

Information regarding the securities authorized for issuance under our equity compensation plans will be included in our Proxy Statement relating to our 2021 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2020 and is incorporated herein by reference.

Performance Graph

The graph set forth below compares the cumulative total stockholder return on our common stock between March 20, 2014 (the date of our IPO) and December 31, 2020, with the cumulative total return of (i) the Russell 2000 Index and (ii) the S&P 1500 Application Software Index. This graph assumes the investment of $100 on December 31, 2014 in our common stock, the S&P 1500 Application Software Index and the Russell 2000 Index, and assumes the reinvestment of dividends, if any. Note that historic stock price performance is not necessarily indicative of future stock price performance.

The information contained in the Stock Performance Graph shall not be deemed to be soliciting material or to be filed with the SEC nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act, except to the extent we specifically incorporate it by reference into such filing.



Issuer Purchases of Equity Securities

	Total Number of Shares Purchased[1]	Average Price Paid Per Share[2]	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares That May Be Purchased Under the Plans or Programs
October 1 - 31, 2020	—	$ —	—	$ —
November 1 - 30, 2020	871	114.93	—	—
December 1 - 31, 2020	2,062	115.61	—	—
Total	2,933	$ 115.41	—	$ —

(1) Total shares purchased are attributable to shares of common stock tendered to us by one or more holders of common stock options to cover the exercise price of options exercised.

(2) Reflects the closing price of Q2 Holdings, Inc. shares as reported on the New York Stock Exchange on the date of exercise.

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Item 6. Selected Financial Data.

The following selected consolidated statements of operations data for the years ended December 31, 2020, 2019 and 2018, and the selected consolidated balance sheet data as of December 31, 2020 and 2019 are derived from our audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. The selected consolidated statements of operations data for the years ended December 31, 2017 and 2016 and the balance sheet data as of December 31, 2018, 2017 and 2016 were derived from our audited consolidated financial statements not included in this Annual Report on Form 10-K. The selected consolidated financial data should be read together with "Management's Discussion and Analysis of Financial Condition and Results of Operations," our consolidated financial statements, related notes, and other financial information included elsewhere in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of our results to be expected in any future period. All amounts are in thousands, except per share data.

	Year Ended December 31, 2020	2019	2018	2017	2016
Consolidated Statements of Operations Data:					
Revenues[1]	$ 402,751	$ 315,484	$ 241,100	$ 193,978	$ 150,224
Cost of revenues[2][3]	228,152	162,485	121,855	99,485	77,429
Gross profit	174,599	152,999	119,245	94,493	72,795
Operating expenses:					
Sales and marketing[2]	72,323	63,947	48,124	41,170	36,284
Research and development[2]	97,381	76,273	51,334	40,338	32,460
General and administrative[2]	70,937	56,739	44,990	37,179	31,959
Acquisition related costs	478	16,027	4,145	1,232	6,307
Amortization of acquired intangibles	17,888	6,339	1,844	1,481	1,470
Partnership termination charges	13,244	—	—	—	—
Unoccupied lease charges[4]	2,181	420	658	—	33
Total operating expenses	274,432	219,745	151,095	121,400	108,513
Loss from operations	(99,833)	(66,746)	(31,850)	(26,907)	(35,718)
Total other income (expense), net[5]	(36,371)	(16,618)	(7,350)	429	(209)
Loss before income taxes	(136,204)	(83,364)	(39,200)	(26,478)	(35,927)
Benefit from (provision for) income taxes	(1,416)	12,487	3,803	314	(427)
Net loss	$ (137,620)	$ (70,877)	$ (35,397)	$ (26,164)	$ (36,354)
Net loss per common share:					
Net loss per common share, basic and diluted	$ (2.65)	$ (1.53)	$ (0.83)	$ (0.63)	$ (0.92)
Weighted average common shares outstanding:					
Basic and diluted	52,019	46,198	42,797	41,218	39,649
Other Financial Data:					
Adjusted EBITDA[6]	$ 22,220	$ 19,608	$ 18,975	$ 10,210	$ (4,539)

(1) Includes deferred revenue reduction from purchase accounting of $4.4 million and $1.8 million for the years ended December 31, 2020 and 2019, respectively.

(2) Includes stock-based compensation expense as follows:

	Year Ended December 31, 2020	2019	2018	2017	2016
Cost of revenues	$ 9,888	$ 6,427	$ 4,773	$ 3,729	$ 2,043
Sales and marketing	8,770	7,740	5,837	3,243	2,231
Research and development	12,869	9,864	6,852	4,464	2,934
General and administrative	17,708	15,347	11,758	9,503	5,432
Total stock-based compensation expense	$ 49,235	$ 39,378	$ 29,220	$ 20,939	$ 12,640

(3) Includes amortization of acquired technology of $21.3 million, $9.9 million, $4.5 million, $3.6 million, and $3.2 million for the years ended December 31, 2020, 2019, 2018, 2017, and 2016, respectively.

(4) Unoccupied lease charges include costs related to the early vacating of various facilities, partially offset by anticipated sublease income from these facilities. In 2020 the charges related to facilities in California, North Carolina, and Texas. In 2019 the charges related to facilities in Georgia. In 2018 the charges related to facilities in Texas. In 2016 charges related to facilities in Nebraska.

(5) The year ended December 31, 2020 includes an $8.9 million reduction related to the loss on the early extinguishment of a portion of our 2023 Notes.

(6) We define adjusted EBITDA as net loss before depreciation, amortization, stock-based compensation, certain costs related to acquisitions, (benefit from) provision for income taxes, total other (income) expense, net, deferred revenue reduction from purchase accounting, partnership termination charges, loss on extinguishment of debt, and unoccupied lease charges.

The following table presents a reconciliation of net loss to adjusted EBITDA for each of the periods indicated:

	Year Ended December 31,				
	2020	2019	2018	2017	2016
Reconciliation of Net Loss to Adjusted EBITDA:					
Net loss	$ (137,620)	$ (70,877)	$ (35,397)	$ (26,164)	$ (36,354)
Depreciation and amortization	51,840	28,457	16,802	14,946	12,199
Stock-based compensation	49,235	39,378	29,220	20,939	12,640
Acquisition related costs	1,408	16,316	4,145	1,232	6,307
(Benefit from) provision for income taxes	1,416	(12,487)	(3,803)	(314)	427
Total other (income) expense, net	27,180	16,572	7,350	(429)	209
Deferred revenue reduction from purchase accounting	4,404	1,829	—	—	—
Partnership termination charges	13,244	—	—	—	—
Loss on extinguishment of debt	8,932	—	—	—	—
Unoccupied lease charges	2,181	420	658	—	33
Adjusted EBITDA	$ 22,220	$ 19,608	$ 18,975	$ 10,210	$ (4,539)

	Year Ended December 31,				
	2020	2019	2018	2017	2016
Consolidated Balance Sheet Data:					
Cash and cash equivalents	$ 407,703	$ 100,094	$ 108,341	$ 57,961	$ 54,873
Restricted cash	3,482	3,468	1,815	2,315	1,315
Investments	131,352	32,325	68,979	41,685	42,249
Deferred implementation, solution, and other costs, total	75,266	65,848	41,637	34,076	30,998
Intangible assets, net	184,859	223,861	63,296	12,034	15,208
Goodwill	462,274	462,023	107,907	12,876	12,876
Convertible notes, net of current portion	557,468	424,784	182,723	—	—
Deferred revenues, total	111,138	90,804	65,594	66,668	61,830
Working capital	470,390	53,369	144,631	63,014	66,458
Total stockholders' equity	$ 643,364	$ 379,412	$ 158,900	$ 106,622	$ 100,235

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. In addition to historical consolidated financial information, the following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in the forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in the section titled "Risk Factors."

Overview

We are a leading provider of secure, cloud-based digital solutions that transform the ways in which traditional and emerging financial services providers engage with account holders and end users, or End Users. We sell our solutions to financial institutions, alternative finance and leasing companies, or Alt-FIs, and financial technology companies, or FinTechs. Our solutions enable our customers to deliver robust suites of digital banking, lending, leasing, and banking as a service, or BaaS, services that make it possible for End Users to transact and engage anytime, anywhere and on any device. Our solutions are often the most frequent point of engagement between our customers and their End Users. As such, we purpose-build our solutions to deliver compelling and consistent End-User experiences across digital channels and to drive the success of our customers by optimizing their digital brands and enhancing End-User acquisition, retention and engagement.

The effective delivery and management of secure and advanced digital solutions in the complex and heavily regulated financial services industry requires significant resources, personnel and expertise. We provide digital solutions that are designed to be highly configurable, scalable and adaptable to the specific needs of our customers. We design and develop our solutions with an open platform approach intended to provide comprehensive integration among our solution offerings and our customers' internal and third-party systems. This integrated approach allows our customers to deliver unified and robust financial experiences across digital channels. Our solutions provide our customers the flexibility to configure their digital services in a manner that is consistent with each customer's specific workflows, processes and controls. Our solutions also allow our customers to personalize the digital experiences they deliver to their End Users by extending their individual services and brand requirements across digital channels. Our solutions and our data center infrastructure and resources are also designed to comply with the stringent security and technical regulations applicable to financial institutions and financial services providers and to safeguard our customers and their End Users.

We began by providing digital banking solutions to domestic regional and community financial institutions, or RCFIs, with the mission of empowering them to leverage technology to compete more effectively and to strengthen the communities and End Users they serve. To date, a substantial majority of our revenues continue to come from sales of our digital banking platform, and we continue to be focused on our founding mission of building stronger and more diverse communities by strengthening their financial institutions. However, the continued proliferation and ubiquity of mobile and tablet devices and End Users' increasing expectations for digital services have driven increases in the number of providers, greater fragmentation of financial services markets and a broadening set of new and innovative digital services, creating challenges and opportunities in the markets served by financial institutions as well as emerging providers such as Alt-FIs and FinTechs. End Users increasingly expect to transact and engage with financial services providers anytime, anywhere and on any device, and seamlessly across devices. End Users also select digital solutions based on the quality and intuitiveness of the digital user experience.

Financial institutions, Alt-FIs and FinTechs are seeking to address these challenges and opportunities and capture End-User engagement by providing new, innovative digital financial services, solutions and experiences. Traditional financial services providers such as banks and credit unions are experiencing reduced End-User engagement in their physical branches and increased End-User engagement with their digital services and thus, they are increasing their investment in digital services. Emerging providers such as Alt-FIs and FinTechs are leveraging their digital focus and expertise and capitalizing on increased End-User demand for digital financial services by creating new and expanding existing digital service offerings. The combination of these two drivers of investment by traditional and emerging financial services providers is driving new competition, innovation and unique market opportunities.

We deliver our solutions to the substantial majority of our customers using a software-as-a-service, or SaaS, model under which our customers pay subscription fees for the use of our solutions. A small portion of our revenues are derived from customers which host our solutions in their own data centers under term license and maintenance agreements. Our digital banking platform customers have numerous End Users, and those End Users can represent one or more consumer or commercial users registered on our digital banking platform, or Registered Users, on our solutions. We generally price our digital banking platform solutions based on the number of solutions purchased by our customers and the number of Registered Users utilizing our solutions. We generally earn additional revenues from our digital banking platform customers based on the number of transactions that Registered Users perform on our solutions in excess of the levels included in our standard subscription fee. As a result, our revenues from digital banking platform customers grow as our customers buy more solutions from us and increase the number of Registered Users utilizing our solutions and as those users increase their number of transactions on our solutions. The structure and terms of the arrangements for our newer lending and leasing and BaaS solutions are varied, but we generally sell these solutions on a subscription basis through our direct sales organization, and the related revenues are recognized over the terms of the customer agreements.

We have achieved significant growth since our inception. During each of the past eight years, our average number of Registered Users per installed customer on our digital banking platform, or Installed Customer, has grown, and in many instances we have been able to sell additional solutions to existing customers. Our revenues per Installed Customer and per Registered User vary period-to-period based on the length and timing of customer implementations, changes in the average number of Registered Users per customer, sales of additional solutions to existing customers, changes in the number of transactions on our solutions by Registered Users and variations among existing customers and new customers with respect to the mix of purchased solutions and related pricing. Please see "Management's Discussion and Analysis of Financial Condition and Results of Operations—Key Operating Measures" for additional detail on how we define "Installed Customers" and "Registered Users."

The COVID-19 pandemic creates significant risks and uncertainties for our customers, their End Users, our partners and suppliers, our employees and our business generally. However, we believe that these events could accelerate the transition to digital financial solutions and that our portfolio of digital financial services solutions and our position and reputation in the market provide us with an opportunity to continue to serve customers and grow our business. We considered the uncertainties and risks posed by the continuing COVID-19 pandemic when preparing our 2021 budget and hiring plans and though hiring may be somewhat lower than the growth rates experienced in 2019 and prior, we expect our hiring plans to accelerate during 2021 based on our expectations that buying environments and cross sale opportunities continue to improve in 2021. In the long term, and subject to more certainty regarding the COVID-19 pandemic, we remain committed to continuing to strategically invest across our organization to position us to increase revenues and to improve operating efficiencies. We are also considering how our physical facilities requirements might change when we eventually return to increased onsite operations, including the costs associated with ensuring a safe work environment and the likely increased prevalence of working from home for employees. The timing and amount of these investments will vary based on the rate at which we expect to add new customers or sell additional solutions to existing customers, our customer retention rates, the implementation and support needs of our customers, our software development plans, our technology and physical infrastructure requirements, and changes thereto resulting from the COVID-19 pandemic, and other needs of our organization (including needs resulting from the COVID-19 pandemic). Many of these investments will occur in advance of our realizing any resultant benefit which may make it difficult to determine if we are effectively allocating our resources.

If we are successful in growing our revenues by increasing the number and scope of our customer relationships, we anticipate that greater economies of scale and increased operating leverage will improve our margins over the long term. We also anticipate that increases in the number of Registered Users for existing digital banking platform customers in the longer term will improve our margins. However, we do not have any control or influence over whether End Users of our digital banking platform elect to become Registered Users of our customers' digital banking services.

We sell our solutions primarily through our professional sales organization. While the financial institutions market is well-defined due to the regulatory classifications of those financial institutions, the Alt-FI and FinTech markets are broader and more difficult to define due to the changing number of providers in each market. Over the long term, we intend to continue to invest in additional sales representatives to identify and address the financial institution, Alt-FI and FinTech markets across the U.S. and internationally and to increase our number of sales support and marketing personnel, as well as our investment in marketing initiatives designed to increase awareness of our solutions and generate new customer opportunities.

We have continuously invested in expanding and improving our digital banking platform since its introduction in 2005, and we currently intend to continue investing both organically and inorganically through acquisitions to expand our portfolio. Over the past five years we have acquired or developed new solutions and additional functions that serve a broader range of needs of financial institutions as well as the needs of Alt-FIs and FinTechs. Our solutions now include a broad range of services and experiences including commercial banking, regulatory and compliance, digital lending and leasing, BaaS, digital account opening and data-driven sales enablement and portfolio management solutions both in the U.S. and internationally.

We believe that financial services providers are best served by a broad, integrated portfolio of digital solutions that provide rapid, flexible and comprehensive integration with internal and third-party systems allowing them to provide modern, intuitive digital financial services in a secure, regulatory-compliant manner. We also believe that the breadth and depth of our solution offerings across the financial institution, Alt-FI and FinTech markets, our open and flexible platform approach, our position as a leading provider of digital banking solutions to a large network of RCFIs, and our expertise in delivering new, innovative, secure and regulatory-compliant digital solutions uniquely position us in the market for digital financial services solutions. We currently intend to increase investments in technology innovation and software development as we enhance our solutions and platforms and increase or expand the number of solutions that we offer.

We believe that delivery of consistent, high-quality customer support is a significant driver of purchasing and renewal decisions of our prospects and customers. To develop and maintain a reputation for high-quality service, we seek to build deep relationships with our customers through our customer service organization, which we staff with personnel who are motivated by our common mission of using technology to help our customers succeed and who are knowledgeable with respect to the regulated and complex nature of the financial services industry. As our business grows, we currently intend to continue to invest in and grow our services and delivery organization to support our customers' needs and maintain our reputation.

COVID-19 Pandemic

Global health concerns with respect to the COVID-19 pandemic and related government actions taken to reduce the spread of the virus have caused significant disruption to the macroeconomic environment, and the pandemic has significantly increased economic uncertainty and reduced economic activity, including consumer and business spending. The extent of the impact of the COVID-19 pandemic on our operational and financial performance will depend on future developments unknown and unpredictable at this time, including the duration, severity and spread of the pandemic, related restrictions on travel and transportation and other actions that may be taken by governmental authorities, the impact to our customers, their End Users, our suppliers and partners, and other items identified under "Risk Factors" above. There are no comparable recent events that provide guidance as to the impacts that the spread of COVID-19 may have, and, as a result, the ultimate impacts of the pandemic are highly uncertain and subject to change.

We have for many years maintained a business continuity plan and a pandemic plan, which we regularly test and update as needed. Based on the information available to us to date, we believe we have taken an informed, proactive and effective approach to addressing the direct known effects of the COVID-19 pandemic on us, our customers and other third parties on which we rely.

In late February 2020, we implemented enhanced sanitation efforts at our locations, including more strict cleaning protocols for common surfaces and additional hand sanitization stations across our locations. In early March 2020, we indefinitely suspended all non-essential, work-related domestic and international travel, instituted two-week self-quarantines for any employees who had recently traveled prior to the suspension, and implemented protocols for employees to report personal health situations which resemble COVID-19. By early March 2020, over 90% of our employees had transitioned to working remotely from home and by mid-March 2020 virtually every one of our employees had transitioned to working remotely from home. We have now implemented strict protocols for any employee to enter any of our facilities, including the approval of senior management, advance health screening for COVID-19 symptoms and strict social distancing requirements while onsite, including mask-wearing, physical-spacing and indoor foot-traffic requirements. As of the filing date of this Annual Report on Form 10-K, we continue to operate with nearly every employee working remotely, except for minimal essential functions requiring facility access from time to time, only if required, in compliance with such protocols. We currently have no firm plans to begin having employees return to onsite work. We also modified our 2020 annual customer conference to be a virtual event, which we hosted in multiple segments from April to June 2020. We have similarly cancelled all in-person aspects of our contemplated spring 2021 customer conference and are currently evaluating to what extent and in what format we may hold the conference in the future. In addition, we have performed additional due diligence with critical vendors and other third parties on which we rely to assess their responses to the COVID-19 pandemic and impacts on their operations and services. To date, we have not experienced any material adverse impacts from any of our vendors or other third parties on which we rely. We intend to continue to conduct enhanced due diligence on such vendors and third parties for the foreseeable future as the uncertainty caused by the COVID-19 pandemic continues to persist.

We believe that to date our business continuity and pandemic plans are operating effectively and that we have been able to effectively deliver and support our solutions for our customers utilizing numerous remote capabilities and channels. We do not yet have firm plans on when or how we will transition back to onsite operations across our facilities, but we continue to monitor the situation closely and to plan accordingly. To date, we believe our corporate culture, business model, customer relations, and technology and information technology infrastructure have effectively allowed our employees to substantially perform their roles while working remotely. We are also considering how our physical facilities requirements might change when we eventually return to increased onsite operations, including the costs associated with ensuring a safe work environment and the likely increased prevalence of working from home for many employees.

We also have conducted an extensive outreach to our customers and many prospective customers to assess their needs in the face of the COVID-19 pandemic and to seek to identify ways that we may assist them with our solutions and services. We believe the impacts of COVID-19 on our existing and prospective customers present both challenges and opportunities. While we believe the pandemic will increase the importance and prominence of digital financial solutions, the increased economic uncertainty and reduced economic activity, including consumer and business spending, has resulted in delays in certain purchasing decisions and implementations. For example, we are able to deliver our solutions remotely. However, the

COVID-19 pandemic and its related restrictions have caused challenges for financial institutions to execute in-branch operations which makes executing more complex projects, such as implementations of new technology solutions, more difficult. Further, we have experienced and expect to continue to experience delays in some implementations and the associated revenue recognition as our customers focus on other initiatives in response to the COVID-19 pandemic and manage their own operations in light of the pandemic. We also have experienced and expect to continue to experience certain customers requesting reduced or extended payment terms to assist them with cost reduction measures as a result of the COVID-19 pandemic, which we have to date made conditional on associated contract extensions to offset the impact of the reduced payments. Accordingly, we expect to continue to see negative impacts of COVID-19 on our bookings, revenues, gross margins and cash flows from operations, although we anticipate gradual improvement during 2021 as compared to the impacts we experienced in 2020.

Given the uncertainty that still surrounds the COVID-19 pandemic, we are expecting sales performance across all our solutions to continue to be slower than what it otherwise would have been for the year ending December 31, 2021. However, based on feedback we have received from our existing and prospective customers and observations from our sales team after operating since March 2020 in the COVID-19 pandemic, we believe we will begin to see improvements in the predictability of purchasing decisions and implementations by customers, and a corresponding gradual increase in bookings during the year ending December 31, 2021, although at this time we are unable to predict the extent of such improvement. However, the duration and impacts of the COVID-19 pandemic continue to be highly unpredictable and may continue to disrupt any seasonality trends that may otherwise typically be inherent in our historical operating results.

Despite these challenges among financial institutions, the usage by End Users of digital financial solutions has never been higher, and we are making additional investments to enhance our technology infrastructure to support this heightened usage. We have seen increased online banking activity as a result of shelter-in-place and similar orders as well as spikes in logins as End Users check accounts for such things as government stimulus funds. We believe the challenges and opportunities posed by the COVID-19 pandemic have and will continue to cause financial institutions to increase their focus on maintaining and improving their digital financial services offerings.

Refer to "COVID-19 Measures" included in Item 1, "Business – People" for additional information on actions we have taken in response to the COVID-19 pandemic.

Recent Events

On November 18-19, 2020 we consummated privately negotiated exchanges and subscriptions with certain holders of our 2023 Notes and certain new investors pursuant to which we issued $350 million principal amount of 0.125% Convertible Senior Notes due 2025, or 2025 Notes, consisting of (a) $210.7 million of 2025 Notes and either shares of our common stock or cash in exchange for approximately $181.9 million principal amount of the 2023 Notes, or the Exchange Transactions, and (b) $139.3 million principal amount of 2025 Notes for cash, or the Subscription Transactions. The 2025 Notes bear interest at a fixed rate of 0.125% per year, payable semi-annually in arrears on May 15 and November 15 of each year, beginning on May 15, 2021. In connection with the issuance of the 2025 Notes, we entered into capped call transactions with one or more counterparties, with the intention of using the capped calls to offset the potential dilution to the common stock upon any conversion of the 2025 Notes and/or offset any cash payments we are required to make in excess of the principal amount of the 2025 Notes, as the case may be, in the event the market price per share of common stock is greater than the strike price of the capped calls, with such offset subject to a cap. We did not receive any cash proceeds from the Exchange Transactions. In exchange for issuing the 2025 Notes pursuant to the Exchange Transactions, we received and cancelled the exchanged 2023 Notes. The Subscription Transactions generated net proceeds to us of approximately $92.6 million, after deducting $6.9 million in offering costs, including $39.8 million to purchase the capped calls. We refer to the capped call transactions entered into in connection with our 2025 Notes and our previously issued 2026 Notes as the Capped Calls.

Key Operating Measures

In addition to the United States generally accepted accounting principles, or GAAP, measures described below in "Management's Discussion and Analysis of Financial Condition and Results of Operations—Components of Operating Results," we monitor the following operating measures to evaluate growth trends, plan investments and measure the effectiveness of our sales and marketing efforts:

Installed Customers

We define Installed Customers as the number of customers on our digital banking platform from which we are currently recognizing revenues. The average size of our Installed Customers, measured in both Registered Users per Installed Customer and revenues per Installed Customer, has increased over time as our existing Installed Customers continue to add Registered Users and buy more solutions from us, and as we add larger RCFIs to our Installed Customer base. The net rate at which we add Installed Customers varies based on our implementation capacity, the size and unique needs of our customers, the readiness of our customers to implement our solutions, and customer attrition, including as a result of merger and acquisition activity among financial institutions. While we believe the COVID-19 pandemic has and will continue to increase the importance and prominence of our portfolio of digital financial services solutions and provide us with an opportunity to continue to grow our business, the increased economic uncertainty and reduced economic activity resulting from the pandemic, including consumer and business spending, is resulting in delays in certain purchasing decisions and implementations, which we anticipate will continue to slow the rate at which we add new Installed Customers during 2021 as compared to what our growth rate would have been without the effects of the pandemic. We had 450, 414 and 401 Installed Customers on our digital banking platform as of December 31, 2020, 2019 and 2018, respectively.

Registered Users

We define a Registered User as an individual related to an account holder of an Installed Customer on our digital banking platform who has registered to use one or more of our solutions and has current access to use those solutions as of the last day of the reporting period presented. We price our digital banking platform solutions based on the number of Registered Users, so as the number of Registered Users of our solutions increases, our revenues typically grow. Our average number of Registered Users per Installed Customer grows as our existing digital banking platform customers add more Registered Users and as we add larger RCFIs to our Installed Customer base. We anticipate that the number of Registered Users will grow at a faster rate than our number of Installed Customers. The rate at which our customers add Registered Users and the incremental revenues we recognize from new Registered Users vary significantly period-to-period based on the timing of our implementations of new customers and the timing of registration of new End Users. We add new Registered Users through both organic growth from existing customers and from the addition of End Users from new Installed Customers. We believe the COVID-19 pandemic has and will result in increased registration of new End Users with existing customers; however, the increased economic uncertainty and reduced economic activity, including consumer and business spending, is also resulting in delays in certain purchasing decisions and implementations, that has and may continue to slow the rate at which we add new Installed Customers and with them, new Registered Users from such customers. Accordingly, at this time we are unable to predict the anticipated long-term impact of the COVID-19 pandemic on the growth in our number of Registered Users. Our Installed Customers had approximately 17.8 million, 14.6 million and 12.8 million Registered Users as of December 31, 2020, 2019 and 2018, respectively.

Revenue Retention Rate

We believe that our ability to retain our customers and expand their use of our products and services over time is an indicator of the stability of our revenue base and the long-term value of our customer relationships. We assess our performance in this area using a metric we refer to as our revenue retention rate. We calculate our revenue retention rate as the total revenues in a calendar year, excluding any revenues from solutions of businesses acquired during such year, from customers who were implemented on any of our solutions as of December 31 of the prior year, expressed as a percentage of the total revenues during the prior year from the same group of customers. Our revenue retention rate provides insight into the impact on current year revenues of: the number of new customers implemented on any of our solutions during the prior year; the timing of our implementation of those new customers in the prior year; growth in the number of End Users on such solutions and changes in their usage of such solutions; sales of new products and services to our existing customers during the current year, excluding any products or services resulting from businesses acquired during such year and customer attrition. The most significant drivers of changes in our revenue retention rate each year have historically been the number of new customers in the prior year and the timing of our implementation of those new customers. The timing of our implementation of new customers in the prior year is significant because we do not start recognizing revenues from new customers until they are implemented. If implementations are weighted more heavily in the first or second half of the prior year, our revenue retention rate will be lower or higher, respectively. We believe the COVID-19 pandemic has and will continue to create incentives for our existing customers to purchase additional features to support the increase in demand for digital banking; however, the increased economic uncertainty and reduced economic activity, including consumer and business spending, also has and likely will continue to result in delays in certain purchasing decisions and implementations and customer decisions with respect to contract extensions, which may adversely affect our revenue retention rate. We also have and could continue to experience contract terminations with customers who become insolvent as a result of the COVID-19 pandemic. Accordingly, at this time we are unable to predict the anticipated long-term impact of the COVID-19 pandemic on our revenue retention rate. Our use of revenue retention rate has limitations as an analytical tool, and investors should not consider it in isolation. Other companies in our industry may calculate revenue retention rate differently, which reduces its usefulness as a comparative measure. Our revenue retention rate was 122%, 120% and 114% for the years ended December 31, 2020, 2019 and 2018, respectively.

Churn

We utilize churn to monitor the satisfaction of our customers and evaluate the effectiveness of our business strategies. We define churn as the amount of any monthly recurring revenue losses due to customer cancellations and downgrades, net of upgrades and additions of new solutions, during a year, divided by our monthly recurring revenue at the beginning of the year. Cancellations refer to customers that have either stopped using our services completely or remained a customer but terminated a particular service. Downgrades are a result of customers taking less of a particular service or renewing their contract for identical services at a lower price. We believe the COVID-19 pandemic has and will continue to create incentives for our existing customers to purchase additional features to support the increase in demand for digital banking; however, the increased economic uncertainty and reduced economic activity, including consumer and business spending, has and likely will continue to result in delays in certain purchasing decisions and implementations and customer decisions with respect to contract extensions and also may result in certain downgrades and cancellations from existing customers, each of which may adversely affect our churn. For example, we have experienced certain customers requesting reduced or extended payment terms to assist them with cost reduction measures as a result of the COVID-19 pandemic, which we have to date made conditional on associated contract extensions to offset the impact of the reduced payments. We also have and could continue to experience contract terminations with customers who become insolvent as a result of the COVID-19 pandemic. Accordingly, at this time we are unable to predict the anticipated long-term impact of the COVID-19 pandemic on our churn. Our annual churn has ranged from 5.9% to 3.5% over the last nine years, and we had annual churn of 5.9%, 5.1%, and 5.0% for the years ended and December 31, 2020, 2019, and 2018, respectively. Our use of churn has limitations as an analytical tool, and investors should not consider it in isolation. Other companies in our industry may calculate churn differently, which reduces its usefulness as a comparative measure.

Non-GAAP Financial Measures

In addition to financial measures prepared in accordance with GAAP, we use certain non-GAAP financial measures to clarify and enhance our understanding, and aid in the period-to-period comparison, of our performance. We believe that these non-GAAP financial measures provide supplemental information that is meaningful when assessing our operating performance because they exclude the impact of certain categories that our management and board of directors do not consider part of core operating results when assessing our operational performance, allocating resources, preparing annual budgets and determining compensation. Accordingly, these non-GAAP financial measures may provide insight to investors into the motivation and decision-making of management in operating the business. Set forth in the tables below are the corresponding GAAP financial measures for each non-GAAP financial measure. Investors are encouraged to review the reconciliation of each of these non-GAAP financial measures to its most comparable GAAP financial measure included below. While we believe that these non-GAAP financial measures provide useful supplemental information, non-GAAP financial measures have limitations and should not be considered in isolation from, or as a substitute for, their most comparable GAAP measures. These non-GAAP financial measures are not prepared in accordance with GAAP, do not reflect a comprehensive system of accounting and may not be comparable to similarly titled measures of other companies due to potential differences in their financing and accounting methods, the book value of their assets, their capital structures, the method by which their assets were acquired and the manner in which they define non-GAAP measures. Items such as the deferred revenue reduction from purchase accounting, stock-based compensation, acquisition related costs, amortization of acquired technology, amortization of acquired intangible assets, partnership termination charges and unoccupied lease charges can have a material impact on our GAAP financial results.

Non-GAAP Revenue

We define non-GAAP revenue as total revenue excluding the impact of PrecisionLender purchase accounting. We monitor these measures to assess our performance because we believe our revenue growth rates would be understated without these adjustments. We believe presenting non-GAAP revenue aids in the comparability between periods and in assessing our overall operating performance.

	Year Ended December 31,		
	2020	**2019**	**2018**
Revenue:			
GAAP revenue	$ 402,751	$ 315,484	$ 241,100
Deferred revenue reduction from purchase accounting	4,404	1,829	—
Total Non-GAAP revenue	$ 407,155	$ 317,313	$ 241,100

Non-GAAP Operating Income

We provide non-GAAP operating income using non-GAAP revenue as discussed above and excluding such items as deferred revenue reduction from purchase accounting, stock-based compensation, acquisition related costs, amortization of acquired technology, amortization of acquired intangible assets, partnership termination charges and unoccupied lease charges. We believe these measures are useful for the following reasons:

- *Deferred revenue reduction from purchase accounting.* We provide non-GAAP information that excludes the deferred revenue reduction from purchase accounting. We believe that the exclusion of deferred revenue reduction from purchase accounting allows users of our financial statements to better review and understand the historical and current results of our continuing operations.
- *Stock-based compensation*. We provide non-GAAP information that excludes expenses related to stock-based compensation. We believe that the exclusion of stock-based compensation expense provides for a better comparison of our operating results to prior periods and to our peer companies as the calculations of stock-based compensation vary from period to period and company to company due to different valuation methodologies, subjective assumptions and the variety of award types. Because of these unique characteristics of stock-based compensation, we exclude these expenses when analyzing the organization's business performance.
- *Acquisition related costs*. We exclude certain expense items resulting from our acquisitions, such as legal, accounting and consulting fees, changes in fair value of contingent consideration, and retention expense. We consider these adjustments, to some extent, to be unpredictable and dependent on a significant number of factors that are outside of our control. Furthermore, acquisitions result in operating expenses that would not otherwise have been incurred by us in the normal course of our organic business operations. We believe that providing these non-GAAP measures that exclude acquisition related costs, allows users of our financial statements to better review and understand the historical and current results of our continuing operations, and also facilitates comparisons to our historical results and results of less acquisitive peer companies, both with and without such adjustments.
- *Amortization of acquired technology.* We provide non-GAAP information that excludes expenses related to purchased technology associated with our acquisitions. We believe that eliminating this expense from our non-GAAP measures is useful to investors, because the amortization of acquired technology can be inconsistent in amount and frequency and is significantly impacted by the timing and magnitude of our acquisition transactions, which also vary in frequency from period to period. Accordingly, we analyze the performance of our operations in each period without regard to such expenses.
- *Amortization of acquired intangible assets.* We provide non-GAAP information that excludes expenses related to purchased intangible assets associated with our acquisitions. We believe that eliminating this expense from our non-GAAP measures is useful to investors, because the amortization of acquired intangible assets can be inconsistent in amount and frequency and is significantly impacted by the timing and magnitude of our acquisition transactions, which also vary in frequency from period to period. Accordingly, we analyze the performance of our operations in each period without regard to such expenses.
- *Partnership termination charges.* In the quarter ended June 30, 2020, in connection with the termination of a strategic partnership, we agreed to pay a termination fee of $5.6 million in May 2020 and $7.6 million in the third quarter of 2021. We are excluding the charges associated with this partnership termination as they are non-recurring in nature and would not otherwise have been incurred by us in the normal course of our organic business operations. We believe that providing these non-GAAP measures that exclude partnership termination charges allows users of our financial statements to better review and understand the historical and current results of our continuing operations, and also facilitates comparisons to our historical results and results of peer companies, both with and without such adjustments.
- *Unoccupied lease charges.* We provide non-GAAP information that excludes restructuring charges related to the estimated costs of exiting and terminating facility lease commitments, as they relate to our corporate restructuring and exit activities. These charges are inconsistent in amount and are significantly impacted by the timing and nature of these events. Therefore, although we may incur these types of expenses in the future, we believe that eliminating these charges for purposes of calculating the non-GAAP financial measures facilitates a more meaningful evaluation of our operating performance and comparisons to our past operating performance.

	Year Ended December 31,		
	2020	2019	2018
GAAP operating loss	$ (99,833)	$ (66,746)	$ (31,850)
Deferred revenue reduction from purchase accounting	4,404	1,829	—
Stock-based compensation	49,235	39,378	29,220
Acquisition related costs	1,408	16,316	4,145
Amortization of acquired technology	21,341	9,871	4,465
Amortization of acquired intangibles	17,888	6,339	1,844
Partnership termination charges	13,244	—	—
Unoccupied lease charges	2,181	420	658
Non-GAAP operating income	$ 9,868	$ 7,407	$ 8,482

Adjusted EBITDA

We define adjusted EBITDA as net loss before depreciation, amortization, stock-based compensation, certain costs related to our recent acquisitions, (benefit from) provision for income taxes, interest and other (income) expense, net, deferred revenue reduction from purchase accounting, partnership termination charges, loss on extinguishment of debt, and unoccupied lease charges. We believe that adjusted EBITDA provides useful information to investors and others in understanding and evaluating our operating results for the following reasons:

- adjusted EBITDA is widely used by investors and securities analysts to measure a company's operating performance without regard to items that can vary substantially from company to company depending upon their financing, capital structures and the method by which assets were acquired;
- our management uses adjusted EBITDA in conjunction with GAAP financial measures for planning purposes, in the preparation of our annual operating budget, as a measure of our operating performance, to assess the effectiveness of our business strategies and to communicate with our board of directors concerning our financial performance;
- adjusted EBITDA provides more consistency and comparability with our past financial performance, facilitates period-to-period comparisons of our operations and also facilitates comparisons with other companies, many of which use similar non-GAAP financial measures to supplement their GAAP results; and
- our investor and analyst presentations include adjusted EBITDA as a supplemental measure of our overall operating performance.

Adjusted EBITDA should not be considered as an alternative to net loss or any other measure of financial performance calculated and presented in accordance with GAAP. The use of adjusted EBITDA as an analytical tool has limitations such as:

- depreciation and amortization are non-cash charges, and the assets being depreciated or amortized will often have to be replaced in the future and adjusted EBITDA does not reflect cash requirements for such replacements;
- adjusted EBITDA may not reflect changes in, or cash requirements for, our working capital needs or contractual commitments;
- adjusted EBITDA does not reflect the potentially dilutive impact of stock-based compensation;
- adjusted EBITDA does not reflect interest or tax payments that could reduce cash available for use; and
- other companies, including companies in our industry, might calculate adjusted EBITDA or similarly titled measures differently, which reduces their usefulness as comparative measures.

Because of these and other limitations, you should consider adjusted EBITDA together with our GAAP financial measures including cash flow from operations and net loss. The following table presents a reconciliation of net loss to adjusted EBITDA for each of the periods indicated (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Reconciliation of net loss to adjusted EBITDA:			
Net loss	$ (137,620)	$ (70,877)	$ (35,397)
Depreciation and amortization	51,840	28,457	16,802
Stock-based compensation expense	49,235	39,378	29,220
Acquisition related costs	1,408	16,316	4,145
(Benefit from) provision for income taxes	1,416	(12,487)	(3,803)
Total other (income) expense, net	27,180	16,572	7,350
Deferred revenue reduction from purchase accounting	4,404	1,829	—
Partnership termination charges	13,244	—	—
Loss on extinguishment of debt	8,932	—	—
Unoccupied lease charges	2,181	420	658
Adjusted EBITDA	$ 22,220	$ 19,608	$ 18,975

Components of Operating Results

Revenues

Revenue-generating activities directly relate to the sale, implementation and support of our solutions within a single operating segment. We derive the majority of our revenues from subscription fees for the use of our solutions hosted in either our data centers or with cloud-based services, transaction revenue from bill-pay solutions, and revenues for customer support and implementation services related to our solutions. We recognize the corresponding revenues over time on a ratable basis over the customer agreement term. A small portion of our revenues are derived from customers which host and manage our solutions on-premises or in third-party data centers under term license and maintenance agreements. We recognize the software license revenue once the customer obtains control of the license and the remaining arrangement consideration for maintenance revenue over time on a ratable basis over the term of the software license.

Subscription fees are based on the number of solutions purchased by our customers, the number of End Users using the solutions and the number of bill-pay and certain other transactions those users conduct using our solutions in excess of the levels included in our standard subscription fee. Subscription fees are billed monthly, quarterly, or annually and are recognized monthly over the term of our customer agreements. The initial term of our digital banking platform agreements averages over five years, although it varies by customer. The structure and terms of the arrangements for our newer lending and leasing and BaaS solutions are varied, but we generally sell these solutions on a subscription basis through our direct sales organization, and the related revenues are recognized over the terms of the customer agreements. We begin recognizing subscription fees when the control of the service transfers to the customer, generally when the solution is implemented and made available to the customer. The timing of our implementations varies period-to-period based on our implementation capacity, the number of solutions purchased by our customers, the size and unique needs of our customers and the readiness of our customers to implement our solutions. We recognize any related implementation services revenues ratably over the initial customer agreement term beginning on the date we commence recognizing subscription fees. Contract asset balances arise primarily when we provide services in advance of billing for those services. Amounts that have been invoiced but not paid are recorded in accounts receivable or other long-term assets, depending on the timing of expected billing, and in revenues or deferred revenues, depending on when control of the service transfers to the customer.

As a result of the economic and operational impact of the COVID-19 pandemic on our customers, our bookings, in particular with respect to new customer agreements, have been and we anticipate will continue to be adversely impacted as a result of the COVID-19 pandemic, although at this time we are unable to the predict the extent or duration of such impact. We have experienced a significant slowing of net new customer deals, partially offset by an increase in cross sales of additional features and functionality to our existing customer base due to the increased utilization and demand for digital banking solutions caused by the decreased in-branch operations resulting from the COVID-19 pandemic. Given the uncertainty that still surrounds the COVID-19 pandemic, we are expecting sales performance across all our solutions to continue to be slower than they would have been without the pandemic during the year ending December 31, 2021. However, based on feedback we have received from our existing and prospective customers and observations from our sales team after operating since March 2020 in the COVID-19 pandemic, we believe we will see improvements in the predictability of purchasing decisions and implementations by customers, and a corresponding gradual increase in bookings, in 2021. However, the duration and impacts of the COVID-19 pandemic continue to be highly unpredictable and may continue to disrupt any seasonality trends that may otherwise typically be inherent in our historical operating results.

Cost of Revenues

Cost of revenues is comprised primarily of salaries and other personnel-related costs, including employee benefits, bonuses and stock-based compensation, for employees providing services to our customers. This includes the costs of our implementation, customer support, data center and customer training personnel, as well as costs related to research and development personnel who perform implementation and customer support services. Cost of revenues also includes the direct costs of bill-pay and other third-party intellectual property included in our solutions, the amortization of deferred solution and services costs, co-location facility costs and depreciation of our data center assets, cloud-based hosting services, an allocation of general overhead costs, the amortization of acquired technology, and referral fees. We allocate general overhead expenses to all departments based on the number of employees in each department, which we consider to be a fair and representative means of allocation.

We capitalize certain personnel costs directly related to the implementation of our solutions to the extent those costs are recoverable from future revenues. We amortize the costs for an implementation once revenue recognition commences, and we amortize those implementation costs to cost of revenues over the expected period of customer benefit, which has been determined to be the estimated life of the technology. Other costs not directly recoverable from future revenues are expensed in the period incurred.

We capitalize certain software development costs related to programmers, software engineers and quality control teams working on our software solutions. We have commenced amortization of capitalized costs in which products have reached general release. Capitalized software development costs are computed on an individual product basis and products available for market are amortized to cost of revenues over the products' estimated economic lives.

We intend to continue to increase our investments in our implementation and customer support teams and technology infrastructure to serve our customers and support our growth. Over the long-term, we expect cost of revenues to continue to grow in absolute dollars as we grow our business but to fluctuate as a percentage of revenues based principally on the level and timing of implementation and support activities and other related costs, including during periods where revenues are lower or implementations are delayed due to the effects of the COVID-19 pandemic.

Operating Expenses

Operating expenses consist of sales and marketing, research and development and general and administrative expenses. They also include costs related to our acquisitions and the resulting amortization of acquired intangible assets from those acquisitions. Over the long term, we intend to continue to hire new employees and make other investments to support our anticipated growth. As a result, we expect our operating expenses to increase in absolute dollars but to decrease as a percentage of revenues over the long term as we grow our business.

The uncertainties and risks posed by the continuing COVID-19 pandemic were considered while preparing our 2021 budget and hiring plans and while hiring may be somewhat lower than the growth rates experienced in 2019 and prior, we do expect them to accelerate in 2021 as compared to hiring in 2020 based on our expectation that buying environments and cross sale opportunities continue to improve. Additionally, while nearly all of our employees are working remotely from home and we have suspended all non-essential business travel and conference participation, including cancelling in-person attendance at our own customer conference typically held in April of each year, we do expect that as the COVID-19 vaccine becomes more widely available and based on the expectation that cases would correspondingly begin to decline, that some of these activities will begin to return in the second half of 2021. As a result, certain costs associated with operating physical locations and facilitating employee travel will remain reduced in the first half of 2021, but we anticipate that we will see a gradual increase in such costs in the second half of 2021. As of the filing date of this Form 10-K, we have no firm plans to begin having employees return to onsite work.

Sales and Marketing

Sales and marketing expenses consist primarily of salaries and other personnel-related costs, including commissions, employee benefits, bonuses and stock-based compensation. Sales and marketing expenses also include expenses related to advertising, lead generation, promotional event programs, corporate communications, travel and allocated overhead.

Sales and marketing expenses as a percentage of total revenues will change in any given period based on several factors including the addition of newly-hired sales professionals, the number and timing of newly-installed customers and the amount of sales commissions expense amortized related to those customers, including during periods where revenues are lower or implementations are delayed due to the effects of the COVID-19 pandemic. Commissions are generally capitalized and then amortized over the expected period of customer benefit.

Research and Development

We believe that continuing to improve and enhance our solutions is essential to maintaining our reputation for innovation and growing our customer base and revenues. Research and development expenses include salaries and personnel-related costs, including employee benefits, bonuses and stock-based compensation, third-party contractor expenses, software development costs, allocated overhead and other related expenses incurred in developing new solutions and enhancing existing solutions.

Certain research and development costs that are related to our software development, which include salaries and other personnel-related costs, including employee benefits and bonuses attributed to programmers, software engineers and quality control teams working on our software solutions, are capitalized and are included in intangible assets, net on the consolidated balance sheets.

General and Administrative

General and administrative expenses consist primarily of salaries and other personnel-related costs, including employee benefits, bonuses and stock-based compensation, of our administrative, finance and accounting, information systems, legal and human resources employees. General and administrative expenses also include consulting and professional fees, insurance and travel. We expect to continue to incur incremental expenses associated with the growth of our business and to meet increased compliance requirements associated with operating as a regulated, public company. These expenses include costs to comply with Section 404 of the Sarbanes-Oxley Act and other regulations governing public companies, increased costs of directors' and officers' liability insurance and investor relations activities.

Acquisition Related Costs

Acquisition related costs include compensation expenses related to milestone provisions and retention agreements with certain former shareholders and employees of acquired businesses, which are recognized as earned, changes in fair value of the contingent consideration related to potential acquisition earnout payments and various legal and professional service expenses incurred in connection with the acquisitions, which are recognized when incurred.

Amortization of Acquired Intangibles

Amortization of acquired intangibles represents the amortization of intangibles recorded in connection with our business acquisitions which are amortized on a straight-line basis over the estimated useful lives of the related assets.

Partnership Termination Charges

Partnership termination charges represent the fees paid related to termination of a strategic partnership during the quarter ended June 30, 2020. These charges are non-recurring in nature and would not otherwise have been incurred by us in the normal course of our organic business operations.

Unoccupied Lease Charges

Unoccupied lease charges include costs related to the early vacating of certain facilities, partially offset by anticipated sublease income from the associated facilities.

Total Other Income (Expense), Net

Total other income (expense), net, consists primarily of interest income and expense and loss on disposal of long-lived assets. We earn interest income on our cash, cash equivalents and investments. Interest expense consists primarily of the interest from the amortization of debt discount, issuance costs, and coupon interest attributable to our convertible notes issued in February 2018, or 2023 Notes, our convertible notes issued in June 2019, or 2026 Notes, and our convertible notes issued in November 2020, or 2025 Notes, as well as fees and interest associated with the letter of credit issued to our landlord for the security deposit for our corporate headquarters.

As a result of the convertible debt exchange we completed in November 2020, we also recorded an $8.9 million non-cash loss on early extinguishment of debt as other expense in the consolidated statements of comprehensive loss, reflecting the early extinguishment of a portion of our 2023 Notes. The non-cash loss on the early extinguishment of debt is the difference between the amount paid to exchange the 2023 Notes that we attributed to the liability component and the net carrying balance of the liability component at the time that we completed the debt exchange.

(Benefit from) Provision for Income Taxes

As a result of our current net operating loss position, current income tax expenses and benefits consist primarily of state income taxes, deferred income tax expenses relating to the tax amortization of recently acquired goodwill, and income tax expense from foreign operations. We incurred state and foreign income taxes for each of the years ended December 31, 2020, 2019 and 2018. Our net operating loss carryforwards for federal income tax purposes were $536.5 million and $415.2 million at December 31, 2020 and 2019, respectively, which will expire at various dates beginning in 2026, if not utilized. Federal net operating losses generated during and after the year ended December 31, 2018 will have an indefinite carryforward period. We also held state tax credits of $2.2 million and $2.4 million for the years ended December 31, 2020 and 2019, respectively, and federal R&D tax credits of $8.2 million and $8.1 million for the years ended December 31, 2020 and 2019, respectively. The state tax credits will begin to expire 2026 if not utilized and the federal R&D tax credits will begin to expire in 2036, if not utilized.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses. In accordance with GAAP, we base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances. Actual results might differ from these estimates under different assumptions or conditions.

Our significant accounting policies are described in Note 2 to our consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K, and we believe that the accounting policies discussed below involve the greatest degree of complexity and exercise of significant judgments and estimates by our management. The methods, estimates and judgments that we use in applying our accounting policies have a significant impact on our results of operations and, accordingly, we believe the policies described below are the most critical for understanding and evaluating our financial condition and results of operations.

Revenue Recognition

Revenues are recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services over the term of the agreement, generally when our solutions are implemented and made available to our customers. The promised consideration may include fixed amounts, variable amounts or both. Revenues are recognized net of sales credits and allowances.

Revenue-generating activities are directly related to the sale, implementation and support of our solutions within a single operating segment. We derive the majority of our revenues from subscription fees for the use of our solutions hosted in either our data centers or cloud-based hosting services, transaction revenue from bill-pay solutions, and revenues for customer support and implementation services related to our solutions. We recognize the corresponding revenues over time on a ratable basis over the customer agreement term.

Subscription Revenues

Our software solutions are available for use as hosted application arrangements under subscription fee agreements without licensing perpetual rights to the software. Subscription fees from these applications, including contractual periodic price increases, are recognized over time on a ratable basis over the customer agreement term beginning on the date our solution is made available to the customer. Amounts that have been invoiced are recorded in accounts receivable and deferred revenues or revenues, depending on whether the revenue recognition criteria have been met. Periodic price increases are estimated at contract inception and result in contract assets as revenue recognition may exceed the amount billed early in the contract. Additional fees for monthly usage above the levels included in the standard subscription fee are recognized as revenue in the month when the usage amounts are determined and reported.

A small portion of our customers host and manage our solutions on-premises or in third-party data centers under term license and maintenance agreements. Term licenses sold with maintenance entitle the customer to technical support, upgrades and updates to the software on a when-and-if-available basis. We recognize software license revenue once the customer obtains control of the license, which generally occurs at the start of each license term. We recognize the remaining arrangement consideration for maintenance revenue over time on a ratable basis over the term of the software license. If the expected length of time between when we transfer the software license to the customer and when the customer pays for it results in a significant financing component, we adjust the promised amount of consideration for the effects of the time value of money, which reflects the price the customer would have paid when the license was transferred. Revenues from term licenses and maintenance agreements and the related financing component were not significant in the periods presented.

Transactional Revenues

We generate the majority of our transactional revenues based on the number of bill-pay transactions that End Users initiate on our digital banking platform. We also generate a smaller portion of our transactional revenues from interchange fees generated when End Users utilize debit cards integrated with our Q2 CorePro API or Q2 Biller Direct products. We recognize revenue for bill-pay transaction services and interchange fees in the month incurred based on actual transactions.

Services and Other Revenues

Implementation services are required for each new digital banking and lending and leasing platform and Centrix standalone contract, and there is a significant level of integration and configuration for each customer. Our revenue for upfront implementation services is billed upfront and recognized over time on a ratable basis over the customer agreement term for our hosted application agreements. Upfront implementation services for on-premises agreements are recognized at commencement date. Under certain circumstances, we partner with third-party professional system integrators to support the installation and configuration process for certain products, and therefore, we have determined that these services qualify as a separate performance obligation in certain markets and geographies, and the implementation services for these agreements are recognized over time as services are performed.

Professional services revenues, which primarily consist of training, advisory services, core conversion services, web design, and other general professional services, are generally billed and recognized when delivered. Certain out-of-pocket expenses billed to customers are recorded as revenues rather than an offset to the related expense.

Significant Judgments

Performance Obligations and Standalone Selling Price

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of accounting. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. We have contracts with customers that often include multiple performance obligations, usually including multiple subscription and implementation services. For these contracts, we account for individual performance obligations that are separately distinct by allocating the contract's total transaction price to each performance obligation in an amount based on the relative standalone selling price, or SSP, of each distinct good or service in the contract. In determining whether implementation services are distinct from subscription services, we considered various factors including the significant level of integration, interdependency, and interrelation between the implementation and subscription service, as well as the inability of the customer's personnel or other service providers to perform significant portions of the services. We have concluded that the implementation services included in contracts with multiple performance obligations in the North American banking market and implementation services for our loan pricing and portfolio management solution are not distinct and, as a result, we defer any arrangement fees for implementation services and recognize such amounts over time on a ratable basis as one performance obligation with the underlying subscription revenue for the initial agreement term of the hosted application agreements. We have concluded that outside the North American banking market, the implementation services for our lending and leasing platform included in contracts with multiple performance obligations are distinct and, as a result, we recognize implementation fees on such arrangements over time as services are performed.

The majority of our revenue recognized at a particular point in time is for usage revenue and on-premise software licenses. These services are performed within a relatively short period of time and are recognized at the point in time in which the customer obtains control of the asset, which is generally upon completion of the service or the point the customer obtained control of the software.

Judgment is required to determine the SSP for each distinct performance obligation. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The primary method used to estimate SSP is the adjusted market assessment approach, which considers its overall pricing objectives, market conditions and other factors, including the value of our contracts, our discounting practices, the size and volume of our transactions, customer characteristics, price lists, go-to-market strategy, historical standalone sales and agreement prices, and the number and types of users within our contracts.

Variable Consideration

We recognize usage revenue related to End Users accessing our products in excess of contracted amounts, bill-pay transactions that End Users initiate on our digital banking platform, and interchange fees that End Users generate using our solutions. Judgment is required to determine the accounting for these types of revenue. We consider various factors including the degree to which usage is interdependent or interrelated to past services, costs to us per user over the contract, contractual price per user changes and their relationship to market terms, forecasted data, and our cost to fulfill the obligation. We have concluded that our usage revenue relates specifically to the transfer of the service to the customer and is consistent with the allocation objective of Topic 606 when considering all of the performance obligations and payment terms in the contract. Therefore, we recognize usage revenue on a monthly or quarterly basis in accordance with the agreement, as determined and reported. This allocation reflects the amount we expect to receive for the services for the given period.

We sometimes provide credits or incentives to our customers. Known and estimable credits and incentives represent a form of variable consideration, which are estimated at contract inception and reduce the revenues recognized for a particular contract. These estimates are updated at the end of each reporting period as additional information becomes available. We believe that there will not be significant changes to our estimates of variable consideration as of December 31, 2020.

Other Considerations

We evaluate whether we are the principal (i.e., report revenues on a gross basis) or agent (i.e., report revenues on a net basis) with respect to the vendor reseller agreements pursuant to which we resell certain third-party solutions along with our solutions. Generally, we report revenues from these types of contracts on a gross basis, meaning the amounts billed to customers are recorded as revenues, and expenses incurred are recorded as cost of revenues. Where we are the principal, we first obtain control of the inputs to the specific good or service and direct their use to create the combined output. Our control is evidenced by our involvement in the integration of the good or service on our platform before it is transferred to our customers and is further supported by us being primarily responsible to our customers and having a level of discretion in establishing pricing. Revenues provided from agreements in which we are an agent are insignificant.

Deferred Revenues

Deferred revenues primarily consist of amounts that have been billed to or received from customers in advance of revenue recognition and prepayments received from customers in advance for implementation, maintenance and other services, as well as initial subscription fees. We recognize deferred revenues as revenues when the services are performed and the corresponding revenue recognition criteria are met. Customer prepayments are generally applied against invoices issued to customers when services are performed and billed.

Our payment terms vary by the type and location of our customer and the products or services offered. The period of time between invoicing and when payment is due is not significant. For certain products or services and customer types, we require payment before the products or services are delivered to the customer.

Deferred Implementation Costs

We capitalize certain personnel and other costs, such as employee salaries, benefits and the associated payroll taxes that are direct and incremental to the implementation of our solutions. We analyze implementation costs that may be capitalized to assess their recoverability, and only capitalize costs that we anticipate to be recoverable. We assess the recoverability of our deferred implementation costs based on the amount of the non-cancellable portion of a customer's contract as it relates to the specific implementation costs incurred. We begin amortizing the deferred implementation costs for an implementation once the revenue recognition criteria have been met, and we amortize those deferred implementation costs ratably over the expected period of customer benefit, which has been determined to be the estimated life of the technology, which we estimate to be five to seven years. We determined the period of benefit by considering factors such as historically high renewal rates with similar customers and contracts, initial contract length, an expectation that there will still be a demand for the product at the end of its term, and the significant costs to switch to a competitor's product, all of which are governed by the estimated useful life of the technology.

The portion of deferred implementation costs expected to be amortized during the succeeding twelve-month period is recorded in current assets as deferred implementation costs, current portion, and the remainder is recorded in long-term assets as deferred implementation costs, net of current portion on the consolidated balance sheet.

Deferred Solution and Other Costs

We capitalize sales commissions and other third-party costs such as third-party licenses and maintenance related to our customer agreements. We capitalize sales commissions because the commission charges are considered incremental and recoverable costs of obtaining a contract with a customer. We capitalize commissions and bonuses for those involved in the sale, including direct employees and indirect supervisors, as these are incremental to the sale. Historically, we typically paid commissions in two increments. The initial payment was made after the contract had been executed and the initial deposit had been received from the customer, and the final payment was made upon commencement date. We required that an individual remain employed to collect a commission when it was due. The service period between the first and second payment was considered to be a substantive service period, and as a result, we expensed the final payment when made. Beginning in 2020, commissions were paid in a single payment once the contract had been executed and the initial deposit had been received from the customer. We begin amortizing deferred solution and other costs for a particular customer agreement once the revenue recognition criteria are met and amortize those deferred costs over the expected period of customer benefit, which has been determined to be the estimated life of the technology, which we estimate to be five to seven years. We determined the period of benefit by considering factors such as historically high renewal rates with similar customers and contracts, initial contract length, an expectation that there will still be a demand for the product at the end of its term, and the significant costs to switch to a competitor's product, all of which are governed by the estimated useful life of the technology.

We analyze solution and other costs that may be capitalized to assess their recoverability and only capitalize costs that we anticipate being recoverable. The portion of capitalized costs expected to be amortized during the succeeding twelve-month period is recorded in current assets as deferred solution and other costs, current portion, and the remainder is recorded in long-term assets as deferred solution and other costs, net of current portion.

Contract Balances

The timing of revenue recognition, billings and cash collections can result in billed accounts receivable, unbilled receivables, or contract assets, and deferred revenues, or contract liabilities. Billings scheduled to occur after the performance obligation has been satisfied and revenue recognition has occurred result in contract assets. Contract assets that are expected to be billed during the succeeding twelve-month period are recorded in contract assets, current portion, and the remaining portion is recorded in contract assets, net of current portion on the accompanying consolidated balance sheets at the end of each reporting period. A contract liability results when we receive prepayments or deposits from customers in advance for implementation, maintenance and other services, as well as initial subscription fees. Customer prepayments are generally applied against invoices issued to customers when services are performed and billed. We recognize contract liabilities as revenues when the services are performed, and the corresponding revenue recognition criteria are met. Contract liabilities that are expected to be recognized as revenues during the succeeding twelve-month period are recorded in deferred revenues, current portion, and the remaining portion is recorded in deferred revenues, net of current portion, on the accompanying consolidated balance sheets at the end of each reporting period.

We are exposed to credit losses primarily through sales of products and services. We assess the collectability of outstanding contract assets on an ongoing basis and maintain a reserve which is included in the allowance for credit losses for contract assets deemed uncollectable. Under ASU 2016-13, we analyze the contract asset portfolio for significant risks by considering historical collection experience and forecasting future collectability to determine the amount of revenues that will ultimately be collected from our customers. This estimate is analyzed quarterly and adjusted as necessary. Identified risks pertaining to our contract assets include the customer type. Future collectability is contingent upon current and anticipated macroeconomic conditions that could impact our customers such as unemployment, inflation and regulation matters. Additionally, specific allowance amounts may be established to record the appropriate provision for customers that have a higher probability of default. We have increased our reserve during 2020 due to the anticipated impact of the COVID-19 pandemic. There are no comparable recent events that provide guidance as to the potential impact of the COVID-19 global pandemic. As a result, the potential impact of the pandemic is highly uncertain and subject to change. We do not yet know the full extent of the impact of the COVID-19 pandemic on our business operations or the global economy as a whole, however, the impact will likely have an adverse effect on our customers and inherently the related contract assets.

Accounts Receivable

Accounts receivable are stated at net realizable value, including both billed and unbilled receivables to customers. Unbilled receivable balances arise primarily when we provide services in advance of billing for those services. Generally, billing for revenues related to the number of End Users and the number of transactions processed by our End Users that are included in our minimum subscription fee occurs in the month the revenue is recognized, resulting in accounts receivable. Billing for revenues relating to the number of End Users and the number of transactions processed by our End Users that are in excess of our minimum subscription fees are, generally, billed in the month following the month the revenues were earned, resulting in an unbilled receivable.

We assess the collectability of outstanding accounts receivable on an ongoing basis and maintain an allowance for doubtful accounts for accounts receivable deemed uncollectable. Under ASU 2016-13, we analyze the accounts receivable portfolio for significant risks and consider prior periods and forecast future collectability to determine the amount of revenues that will ultimately be collected from our customers. This estimate is analyzed quarterly and adjusted as necessary. Identified risks pertaining to our accounts receivable balance include the delinquency level and customer type. Future collectability is contingent upon current and anticipated macroeconomic conditions that could impact our customers such as unemployment, inflation and regulation matters. Due to the short-term nature of such receivables, the estimate of the amount of accounts receivable that may not be collected is based on aging of the accounts receivable balances and the financial condition of customers. Historically, our collection experience has not varied significantly, and bad debt expenses have been insignificant. As a result of the COVID-19 pandemic, we have increased our reserve. There are no comparable recent events that provide guidance as to the potential impact of the COVID-19 pandemic. As a result, the potential impact of the pandemic is highly uncertain and subject to change. We do not yet know the full extent of the impact of the COVID-19 pandemic on our business operations or the global economy as a whole, however the impact will potentially have an adverse effect on our customers and inherently the related receivables.

We maintain a reserve for estimated sales credits issued to customers for billing disputes or other service-related reasons. This allowance is recorded as a reduction against current period revenues and accounts receivable. In estimating this allowance, we analyze prior periods to determine the amounts of sales credits issued to customers compared to the revenues in the period that related to the original customer invoice. This estimate is analyzed quarterly and adjusted as necessary.

Stock-Based Compensation

Stock options, restricted stock units, and market stock units awarded to employees, directors, executives and consultants are measured at fair value at each grant date. We do not use a forfeiture rate to recognize compensation expense. Generally, options vest 25% on the one-year anniversary of the grant date with the balance vesting monthly over the following 36 months, and restricted stock unit awards vest in four annual installments of 25% each. Market stock units are performance-based awards that vest based on our stockholder return relative to the total stockholder return of the Russell 2000 Index, or Index, over a three-year period on the anniversary of the date of grant. Generally, up to one-third of the target shares of our common stock subject to each market stock unit award are eligible to be earned after the first and second years of the performance period and up to 200% of the full target number of shares subject to each market stock unit award are eligible to be earned after the completion of the three-year performance period (less any shares earned for years one and two) based on the average price of our common stock relative to the Index during the performance period. From time to time, we may make grants of restricted stock units or market stock units with vesting formulas that vary from those described above.

We value stock options using the Black-Scholes option-pricing model, which requires the input of subjective assumptions, including the risk-free interest rate, expected life, expected stock price volatility, and dividend yield. The risk-free interest rate assumption is based upon observed interest rates for constant maturity U.S. Treasury securities consistent with the expected term of our employee stock options. The expected life represents the period of time the stock options are expected to be outstanding and is based on the simplified method. Under the simplified method, the expected life of an option is presumed to be the mid-point between the vesting date and end of the contractual term. We use the simplified method due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to otherwise estimate the expected life of the stock options. Expected volatility is based on historical volatilities for publicly traded stock of comparable companies over the estimated expected life of the stock options. We assume no dividend yield because we do not expect to pay dividends in the near future, which is consistent with our history of not paying dividends. We recognize compensation expense ratably over the requisite service period of the stock option award.

We value restricted stock units at the closing market price on the date of grant and recognize compensation expense ratably over the requisite service period of the restricted stock unit award.

We estimate the fair value of market stock units on the date of grant using a Monte Carlo simulation model. The determination of fair value of the market stock units is affected by our stock price and a number of assumptions including the expected volatility and the risk-free interest rate. Our expected volatility at the date of grant was based on the historical volatilities of our stock and peer firms' stocks and the Index over the performance period. We assume no dividend yield and recognize compensation expense ratably over the performance period of the market stock unit award. We recognize compensation expense using the graded attribution method on a straight-line basis over the performance period for each market stock unit award.

Convertible Senior Notes

In February 2018, we issued $230.0 million principal amount of convertible senior notes due in February 2023, or the 2023 Notes. In June 2019, we issued $316.3 million principal amount of convertible senior notes due in June 2026, or the 2026 Notes. In November 2020, we issued $350.0 million principal amount of convertible senior notes due in November 2025, or the 2025 Notes. This was achieved by exchanging $181.9 million principal amount of the 2023 Notes for $210.7 million principal amount of the 2025 Notes and issuing an additional $139.3 million of new notes.

When accounting for the issuance of convertible notes, we typically separate each of the convertible notes into liability and equity components. The carrying amount of the liability component is calculated by measuring the fair value, as of the date of issuance, of a similar debt without the conversion feature. The carrying amount of the equity component representing the conversion feature is determined by deducting the fair value of the liability components from the total initial proceeds. The difference between the par amount of the convertible notes and the carrying amount of the liability component represents debt discounts that are amortized to interest expense over the respective terms of the convertible notes using the effective interest rate method. The equity components are not remeasured as long as they continue to meet the conditions for equity classification. In accounting for the issuance costs related to its convertible notes, we allocate the total amount of issuance costs incurred to liability and equity components based on their relative values. Issuance costs attributable to the liability components are amortized to interest expense over the respective terms of the convertible notes using the effective interest rate method. The issuance costs attributable to the equity components were netted against the respective equity components in additional paid-in capital.

When accounting for an exchange of convertible notes, we evaluate whether the transaction should be evaluated as a modification or extinguishment transaction. The partial exchange of the 2023 Notes and issuance of the 2025 Notes were deemed to have substantially different terms due to the significant difference between the value of the conversion option immediately prior to and after the exchange, and consequently, the 2023 Notes partial exchange was accounted for as a debt extinguishment. In an exchange transaction, we will allocate a portion of the settlement consideration to the reacquisition of the liability component, which is equal to the fair value of that component immediately prior to the extinguishment, and allocate the remaining settlement consideration to the reacquisition of the equity component and recognize that amount as a reduction of additional paid in capital. The difference between the consideration attributed to the liability component and the sum of the net carrying amount of the liability component and any unamortized debt issuance costs is recognized as a gain or loss on debt extinguishment in our consolidated statements of comprehensive loss.

Purchase Price Allocation, Intangible Assets and Goodwill

The purchase price allocation for business combinations and asset acquisitions requires extensive use of accounting estimates and judgments to allocate the purchase price to the identifiable tangible and intangible assets acquired and liabilities assumed based on their respective fair values. We determine whether substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets. If this threshold is met, the single asset or group of assets, as applicable, is not a business. If it is not met, we determine whether the single asset or group of assets, as applicable, meets the definition of a business.

In connection with our acquisitions and asset purchase discussed in Note 3 - Business Combinations, we recorded certain intangible assets, including acquired technology, customer relationships, trademarks, non-compete agreements and assembled workforce. Amounts allocated to the acquired intangible assets are being amortized on a straight-line basis over the estimated useful lives. We periodically review the estimated useful lives and fair values of our identifiable intangible assets, taking into consideration any events or circumstances which might result in a diminished fair value or revised useful life.

The excess purchase price over the fair value of assets acquired is recorded as goodwill. We test goodwill for impairment annually in October, or whenever events or changes in circumstances indicate an impairment may have occurred. Because we operate in a single reporting unit, the impairment test is performed at the consolidated entity level by comparing the estimated fair value of the company to the carrying value of the company. We estimate the fair value of the reporting unit using a "step one" analysis using a fair-value-based approach based on the market capitalization or a discounted cash flow analysis of projected future results to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. Determining the fair value of goodwill is subjective in nature and often involves the use of estimates and assumptions including, without limitation, use of estimates of future prices and volumes for our products, capital needs, economic trends and other factors which are inherently difficult to forecast. If actual results, or the plans and estimates used in future impairment analyses are lower than the original estimates used to assess the recoverability of these assets, we could incur impairment charges in a future period. The annual impairment test was performed as of October 31, 2020. No impairment of goodwill was identified during 2020.

Software Development Costs

We capitalize certain software development costs under accounting frameworks that differ based on the nature of the software. Software development costs include salaries and other personnel-related costs, including employee benefits and bonuses attributed to programmers, software engineers, quality control teams working on our software solutions, and third-party development costs. Capitalized software development costs are computed on an individual product basis and products available for market are amortized to cost of revenues over the products' estimated economic lives. The costs related to software development are included in intangible assets, net on the consolidated balance sheets.

We capitalize certain development costs associated with software that is to be sold, leased or otherwise marketed that are incurred between reaching technological feasibility of a solution and the point at which the solution is ready for general release.

We capitalize certain development costs associated with internal use software incurred during the application development stage. We expense costs associated with preliminary project phase activities, training, maintenance and any post-implementation costs as incurred.

Leases

We determine if a contract contains a lease for accounting purposes at the inception of the arrangement. We have elected to apply the practical expedient which allows us to account for lease and non-lease components of a contract as a single leasing arrangement. In addition, we have elected the practical expedients related to lease classification and the short-term lease exemption, whereby leases with initial terms of one year or less are not capitalized and instead expensed generally on a straight-line basis over the lease term. We are primarily a lessee with a lease portfolio comprised mainly of real estate and equipment leases. As of December 31, 2020, we had no finance leases.

Operating lease assets are included on our consolidated balance sheets in non-current assets as a right-of-use, or ROU, asset, and represent our right to use an underlying asset for the lease term. Operating lease liabilities are included on our consolidated balance sheets in lease liabilities, current portion, for the portion that is due within 12 months and in lease liabilities, net of current portion, for the portion that is due beyond 12 months of the financial statement date and represent our obligation to make lease payments.

ROU assets and lease liabilities are recognized at the commencement date of the lease based on the present value of lease payments over the lease term using an appropriate discount rate. If an implicit rate is not readily determined by our leases, we utilize the incremental borrowing rate based on the available information at the commencement date to determine the lease payments. The depreciable lives of the underlying leased assets are generally limited to the expected lease term inclusive of any optional lease renewals where we conclude at the inception of the lease that we are reasonably certain of exercising those options. The ROU asset calculation may also include any initial direct costs paid and is reduced by any lease incentives provided by the lessor. Lease expense for operating lease payments is recognized on a straight-line basis over the lease term.

Contingent Consideration

Certain former stockholders of Cloud Lending had the right to receive an earnout payment based upon satisfaction of certain financial milestones. The initial fair value of the contingent consideration related to the earnout payment was calculated utilizing the Monte Carlo simulation method under the option pricing model. Between the time of the purchase price finalization and the final measurement date of March 31, 2020, the fair value of the contingent consideration was estimated on a quarterly basis through a collaborative effort by our sales and finance departments. Changes in the fair value of the contingent consideration subsequent to the purchase price finalization were recorded as acquisition related costs in the consolidated statements of comprehensive loss. As of December 31, 2020 all of the contingent consideration had been paid.

Income Taxes

We account for income taxes under the asset and liability method. We record deferred tax assets and liabilities for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases, as well as for operating loss and tax credit carryforwards. We measure deferred tax assets and liabilities using enacted tax rates expected to apply to taxable income in the years in which we expect to recover or settle those temporary differences. We recognize the effect of a change in tax rates on deferred tax assets and liabilities in the results of operations in the period that includes the enactment date. We assess the likelihood that deferred tax assets will be realized, and we recognize a valuation allowance if it is more likely than not that some portion of the deferred tax assets will not be realized. This assessment requires judgment as to the likelihood and amounts of future taxable income by tax jurisdiction. To date, we have provided a valuation allowance against our deferred tax assets as we believe the objective and verifiable evidence of our historical pretax net losses outweighs any positive evidence of our forecasted future results. Although we believe that our tax estimates are reasonable, the ultimate tax determination involves significant judgment. We will continue to monitor the positive and negative evidence and will adjust the valuation allowance as sufficient objective positive evidence becomes available.

We account for uncertain tax positions by recognizing the financial statement effects of a tax position only when, based upon technical merits, it is more likely than not that the position will be sustained upon examination. We recognize potential accrued interest and penalties associated with unrecognized tax positions within our global operations in income tax expense.

Results of Operations

Consolidated Statements of Operations Data

The following table sets forth our consolidated statements of operations data for each of the periods indicated (in thousands):

	Year Ended December 31, 2020	2019	2018
Revenues[1]	$ 402,751	$ 315,484	$ 241,100
Cost of revenues[2][3]	228,152	162,485	121,855
Gross profit	174,599	152,999	119,245
Operating expenses:			
Sales and marketing[3]	72,323	63,947	48,124
Research and development[3]	97,381	76,273	51,334
General and administrative[3]	70,937	56,739	44,990
Acquisition related costs	478	16,027	4,145
Amortization of acquired intangibles	17,888	6,339	1,844
Partnership termination charges	13,244	—	—
Unoccupied lease charges[4]	2,181	420	658
Total operating expenses	274,432	219,745	151,095
Loss from operations	(99,833)	(66,746)	(31,850)
Total other income (expense), net[5]	(36,371)	(16,618)	(7,350)
Loss before income taxes	(136,204)	(83,364)	(39,200)
Benefit from (provision for) income taxes	(1,416)	12,487	3,803
Net loss	$ (137,620)	$ (70,877)	$ (35,397)

(1) Includes deferred revenue reduction from purchase accounting of $4.4 million, $1.8 million and zero for the years ended December 31, 2020, 2019 and 2018, respectively.

(2) Includes amortization of acquired technology of $21.3 million, $9.9 million and $4.5 million for the years ended December 31, 2020, 2019 and 2018, respectively.

(3) Includes stock-based compensation expense as follows (in thousands):

	Year Ended December 31, 2020	2019	2018
Cost of revenues	$ 9,888	$ 6,427	$ 4,773
Sales and marketing	8,770	7,740	5,837
Research and development	12,869	9,864	6,852
General and administrative	17,708	15,347	11,758
Total stock-based compensation expense	$ 49,235	$ 39,378	$ 29,220

(4) Unoccupied lease charges include costs related to the early vacating of various facilities, partially offset by anticipated sublease income from these facilities. In 2020 the charges related to facilities in California, North Carolina and Texas. In 2019 the charges related to facilities in Georgia. In 2018 the charges related to facilities in Texas.

(5) The year ended December 31, 2020 includes an $8.9 million reduction related to the loss on the early extinguishment of a portion of our 2023 Notes.

The following table sets forth our consolidated statements of operations data as a percentage of revenues for each of the periods indicated:

	Year Ended December 31,		
	2020	2019	2018
Revenues[1]	100.0 %	100.0 %	100.0 %
Cost of revenues[2][3]	56.6 %	51.5 %	50.5 %
Gross profit	43.4 %	48.5 %	49.5 %
Operating expenses:			
Sales and marketing[3]	18.0 %	20.3 %	20.0 %
Research and development[3]	24.2 %	24.2 %	21.3 %
General and administrative[3]	17.6 %	18.0 %	18.7 %
Acquisition related costs	0.1 %	5.1 %	1.7 %
Amortization of acquired intangibles	4.4 %	2.0 %	0.8 %
Partnership termination charges	3.3 %	— %	— %
Unoccupied lease charges[4]	0.5 %	0.1 %	0.3 %
Total operating expenses	68.1 %	69.7 %	62.7 %
Loss from operations	(24.7)%	(21.2)%	(13.2)%
Total other income (expense), net[5]	(9.0)%	(5.3)%	(3.0)%
Loss before income taxes	(33.8)%	(26.5)%	(16.2)%
Benefit from (provision for) income taxes	(0.4)%	4.0 %	1.6 %
Net loss	(34.2)%	(22.5)%	(14.6)%

(1) Includes deferred revenue reduction from purchase accounting of 1.1%, 0.6% and 0.0% for the years ended December 31, 2020, 2019 and 2018, respectively.

(2) Includes amortization of acquired technology of 5.3%, 3.1% and 1.9% for the years ended December 31, 2020, 2019 and 2018, respectively.

(3) Includes stock-based compensation expense as follows:

	Year Ended December 31,		
	2020	2019	2018
Cost of revenues	2.5 %	2.0 %	2.0 %
Sales and marketing	2.2 %	2.5 %	2.4 %
Research and development	3.2 %	3.1 %	2.8 %
General and administrative	4.4 %	4.9 %	4.9 %
Total stock-based compensation expense	12.3 %	12.5 %	12.1 %

(4) Unoccupied lease charges include costs related to the early vacating of various facilities, partially offset by anticipated sublease income from these facilities. In 2020 the charges related to facilities in California, North Carolina and Texas. In 2019 the charges related to facilities in Georgia. In 2018 the charges related to facilities in Texas.

(5) The year ended December 31, 2020 includes a 2.2% reduction related to the loss on the early extinguishment of a portion of our 2023 Notes.

Due to rounding, totals may not equal the sum of the line items in the tables above.

Comparison of Year Ended December 31, 2020 and 2019, and the Year Ended December 31, 2019 and 2018

Revenues

The following table presents our revenues for each of the periods indicated (dollars in thousands):

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Revenues	$ 402,751	$ 315,484	$ 87,267	27.7 %	$ 315,484	$ 241,100	$ 74,384	30.9 %

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Revenues increased by $87.3 million, or 27.7%, from $315.5 million for the year ended December 31, 2019 to $402.8 million for the year ended December 31, 2020. This increase was primarily attributable to a $59.4 million increase from the sale of additional solutions to new and existing customers and growth in Registered Users from new and existing customers. In addition, $21.5 million of the increase was generated from the business acquired in the fourth quarter of 2019, $7.2 million of the increase was generated from increases in the number of transactions processed using our solutions and $2.0 million of the increase was generated from our "Paycheck Protection Program" solutions as a result of successfully funded applications during the year ended December 31, 2020. These increases were partially offset by a $2.8 million decrease for a contract asset impairment related to the restructuring of a contract with one of our FinTech customers. The number of Registered Users on our online banking platform increased from 14.6 million on December 31, 2019 to 17.8 million on December 31, 2020.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Revenues increased by $74.4 million, or 30.9%, from $241.1 million for the year ended December 31, 2018 to $315.5 million for the year ended December 31, 2019. This increase was primarily attributable to a $43.2 million increase from the sale of additional solutions to new and existing customers and growth in Registered Users from new and existing customers. In addition, $19.4 million of the increase was generated from the businesses acquired in the fourth quarter of 2018, $9.2 million of the increase was generated from increases in the number of transactions processed using our solutions, and $2.6 million of the increase was generated from the business acquired in the fourth quarter of 2019. The number of Registered Users on our online banking platform increased from 12.8 million on December 31, 2018 to 14.6 million on December 31, 2019.

Cost of Revenues

The following table presents our cost of revenues for each of the periods indicated (dollars in thousands):

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Cost of revenues	$ 228,152	$ 162,485	$ 65,667	40.4 %	$ 162,485	$ 121,855	$ 40,630	33.3 %
Percentage of revenues	56.6 %	51.5 %			51.5 %	50.5 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Cost of revenues increased by $65.7 million, or 40.4%, from $162.5 million for the year ended December 31, 2019 to $228.2 million for the year ended December 31, 2020. This increase was attributable to a $29.7 million increase in personnel costs due to an increase in the number of personnel who provide implementation and customer support services and maintain our data centers and other technical infrastructure, which included a $5.2 million increase in personnel costs from the business acquired in the fourth quarter of 2019, and a $3.5 million increase in stock-based compensation expense allocated to cost of revenues for the increase in the number of stock-based awards vested during the period and the fair value of the awards granted due to the variance in our stock price. In addition, there was an $11.5 million increase from amortization of acquired customer technology resulting from the business acquired in the fourth quarter of 2019, a $9.8 million increase in co-location facility costs and depreciation for our data center assets resulting from the increased infrastructure necessary to support our growing customer base, a $5.6 million increase in third-party costs related to intellectual property included in our solutions and transaction processing costs incurred as a result of the increase in Registered Users from new and existing customers, as well as implementation and support personnel expenses that are reimbursable from our customers, a $6.8 million increase from amortization of capitalized implementation services as a result of customer go lives during the year ended December 31, 2020, a $2.2 million increase in overhead costs which were allocated to our implementation and support departments, and a $1.4 million increase in other discretionary expenses. These increases were partially offset by a decrease in travel-related expenses of $1.3 million due to significantly reduced travel as a result of the COVID-19 pandemic.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Cost of revenues increased by $40.6 million, or 33.3%, from $121.9 million for the year ended December 31, 2018 to $162.5 million for the year ended December 31, 2019. This increase was primarily attributable to a $14.4 million increase in personnel costs due to an increase in the number of personnel who provide implementation and customer support services and maintain our data centers and other technical infrastructure, which includes $1.2 million and $10.8 million in personnel costs from the businesses acquired in the fourth quarter of 2019 and the fourth quarter of 2018, respectively, and a $1.6 million increase in stock-based compensation expense allocated to cost of revenue for the increase in the number of stock-based awards vested during the period and the increased fair value of the awards granted due to the increase in our stock price. In addition, there was a $9.3 million increase in direct costs related to bill-pay transaction processing and other third-party intellectual property included in our solutions which was related to the increase in the number of new Registered Users and transactions processed on our digital banking platform and increases in implementation and support expenses that are reimbursable from our customers, a $5.5 million increase in co-location facility costs and depreciation of our data center assets resulting from the increased infrastructure necessary to support our expanding customer base, a $5.3 million increase in amortization of acquired customer technology from the businesses acquired in the fourth quarter of 2019 and the fourth quarter of 2018, a $3.0 million increase from capitalized services amortization, a $2.4 million increase in facilities and other overhead costs which were allocated to our implementation and support departments, and a $0.6 million increase in travel and other discretionary expenses.

We defer certain personnel and other costs directly related to the implementation of our solutions to the extent those costs are recoverable from future revenues. However, a substantial portion of our implementation costs are not eligible for deferral and, as a result, are expensed in the period incurred. Costs related to implementations that have been deferred are amortized over the expected period of customer benefit. Additionally, we invest in personnel, business processes and systems infrastructure to standardize our business processes and drive future efficiency in our implementations, customer support and data center operations. We expect these investments will increase cost of revenues in absolute dollars as we continue to make investments in capacity, process improvement, and systems infrastructure, and we expect such expenses to decline as a percentage of revenue as our operations continue to scale and revenues grow.

Operating Expenses

The following tables present our operating expenses for each of the periods indicated (dollars in thousands):

Sales and Marketing

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Sales and marketing	$ 72,323	$ 63,947	$ 8,376	13.1 %	$ 63,947	$ 48,124	$ 15,823	32.9 %
Percentage of revenues	18.0 %	20.3 %			20.3 %	20.0 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Sales and marketing expenses increased by $8.4 million, or 13.1%, from $63.9 million for the year ended December 31, 2019 to $72.3 million for the year ended December 31, 2020. This increase was primarily attributable to a $13.4 million increase in personnel costs due to the growth of our sales and marketing organizations, which included an $8.0 million increase in personnel costs from the business acquired in the fourth quarter of 2019, and a $1.0 million increase in stock-based compensation expense allocated to sales and marketing expenses for the increase in the number of stock-based awards vested during the period and the fair value of the awards granted due to the variance in our stock price. In addition, there was a $0.7 million increase in other overhead costs which were allocated to our sales and marketing departments. These increases were partially offset by a $3.5 million decrease in travel-related expenses due to significantly reduced travel as a result of the COVID-19 pandemic and a $2.2 million decrease in other discretionary expenses primarily related to reduced trade show activities and other events as a result of the COVID-19 pandemic.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Sales and marketing expenses increased by $15.8 million, or 32.9%, from $48.1 million for the year ended December 31, 2018 to $63.9 million for the year ended December 31, 2019. This increase was primarily attributable to a $13.2 million increase in personnel costs due to the growth of our sales and marketing organizations. The increase in personnel costs includes $0.5 million and $9.7 million in personnel costs from the businesses acquired in the fourth quarter of 2019 and the fourth quarter of 2018, respectively, and a $1.9 million increase in stock-based compensation expense allocated to sales and marketing for the increase in the number of stock-based awards vested during the period and the increased fair value of the awards granted due to the increase in our stock price. In addition, there was a $1.1 million increase in facilities and other overhead costs which were allocated to our sales and marketing departments, a $0.9 million increase in travel-related expenses due to increased employee travel to attract new customers and support our sales and marketing initiatives, and a $0.6 million increase in the growth in our annual customer conference.

We anticipate that sales and marketing expenses will continue to increase in absolute dollars in the future as we add personnel to support our revenue growth and as we increase marketing spend to attract new customers, retain and grow existing customers and build brand awareness. We expect such expenses to decline as a percentage of our revenues over time as our revenues grow.

Research and Development

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Research and development	$ 97,381	$ 76,273	$ 21,108	27.7 %	$ 76,273	$ 51,334	$ 24,939	48.6
Percentage of revenues	24.2 %	24.2 %			24.2 %	21.3 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Research and development expenses increased by $21.1 million, or 27.7%, from $76.3 million for the year ended December 31, 2019 to $97.4 million for the year ended December 31, 2020. This increase was primarily attributable to a $21.7 million increase in personnel costs as a result of the growth in our research and development organization to support continued enhancements to our solutions, which included a $10.3 million increase in personnel costs from the business acquired in the fourth quarter of 2019, and a $3.0 million increase in stock-based compensation expense allocated to research and development expenses for the increase in the number of stock-based awards vested during the period and the fair value of the awards granted due to the variance in our stock price. Additionally, there was a $1.2 million increase in facilities and other overhead costs which were allocated to our research and development departments. These increases were partially offset by a $1.2 million decrease in travel-related and other discretionary expenses as a result of the COVID-19 pandemic and a $0.6 million decrease as a result of increased capitalized software development costs.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Research and development expenses increased by $24.9 million, or 48.6%, from $51.3 million for the year ended December 31, 2018 to $76.3 million for the year ended December 31, 2019. This increase was primarily attributable to a $22.6 million increase in personnel costs as a result of the growth in our research and development organization for continued enhancements to our solutions, which includes $0.3 million and $9.2 million in personnel costs from the businesses acquired in the fourth quarter of 2019 and the fourth quarter of 2018, respectively, and a $3.0 million increase in stock-based compensation expense allocated to research and development expenses for the increase in the number of stock-based awards vested during the period and the increased fair value of the awards granted due to the increase in our stock price. In addition, there was a $2.4 million increase in facilities and other overhead costs, and a $0.1 million increase in travel and other discretionary expenses partially offset by a $0.1 million decrease from capitalized research and development salaries as software development costs during 2019.

We anticipate that research and development expenses will increase in absolute dollars in the future as we continue to support and expand our platform and enhance our existing solutions, as we believe existing customers will have an increased focus on maintaining and improving their digital banking offerings, including functionality such as digital account opening and online lending.

General and Administrative

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
General and administrative	$ 70,937	$ 56,739	$ 14,198	25.0 %	$ 56,739	$ 44,990	$ 11,749	26.1 %
Percentage of revenues	17.6 %	18.0 %			18.0 %	18.7 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. General and administrative expenses increased by $14.2 million, or 25.0%, from $56.7 million for the year ended December 31, 2019 to $70.9 million for the year ended December 31, 2020. The increase in general and administrative expenses was primarily attributable to an $8.6 million increase in personnel costs to support the growth of our business, which included a $3.7 million increase in personnel costs from the business acquired in the fourth quarter of 2019, and a $2.3 million increase in stock-based compensation expense allocated to general and administrative expenses for the increase in the number of stock-based awards vested during the period and the fair value of the awards granted due to the variance in our stock price. In addition, there was a $2.4 million increase in overhead costs which were allocated to our general and administrative departments, a $1.6 million increase in professional services for legal and compliance fees, a $1.0 million increase in bad debt expense due to additional estimated credit losses from the adoption of ASU 2016-13, a $0.8 million increase in expenses, in which we used savings from decreased office expenses and travel, to assist employees and enhance their remote working experience, a $0.5 million increase for price concessions given to customers related to isolated delivery issues of certain of our solutions and a $0.2 million increase in recruiting expenses. These increases were partially offset by a $0.9 million decrease in travel-related expenses due to significantly reduced travel as a result of the COVID-19 pandemic.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. General and administrative expenses increased by $11.7 million, or 26.1%, from $45.0 million for the year ended December 31, 2018 to $56.7 million for the year ended December 31, 2019. The increase in general and administrative expenses was primarily attributable to a $8.8 million increase in personnel costs to support the growth of our business which includes a $3.7 million increase in stock-based compensation expense allocated to general and administrative expenses for the increase in the number of stock-based awards vested during the period and the increased fair value of the awards granted due to the increase in our stock price and $1.2 million and $3.4 million in personnel costs from the businesses acquired in the fourth quarter of 2019 and the fourth quarter of 2018, respectively. The remaining increase was attributable to a $1.4 million increase in facilities and other overhead costs, a $0.7 million increase in travel and other discretionary expenses, a $0.5 million increase in external audit fees, and a $0.3 million increase in professional services for legal and consulting fees.

General and administrative expenses consist primarily of salaries and other personnel-related costs of our administrative, finance and accounting, information systems, legal and human resources employees. General and administrative expenses also include costs to comply with regulations governing public companies, costs of directors' and officers' liability insurance, investor relations activities and costs to comply with Section 404 of the Sarbanes-Oxley Act, or SOX. Over the long term, we anticipate that general and administrative expenses will continue to increase in absolute dollars as we continue to incur both increased external audit fees as well as additional spending to ensure continued regulatory and SOX compliance. We expect such expenses to decline as a percentage of our revenues over the longer term as our revenues grow.

Acquisition Related Costs

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Acquisition related costs	$ 478	$ 16,027	$ (15,549)	(97.0)%	$ 16,027	$ 4,145	$ 11,882	286.7 %
Percentage of revenues	0.1 %	5.1 %			5.1 %	1.7 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Acquisition related costs decreased by $15.5 million, or 97.0%, from $16.0 million for the year ended December 31, 2019 to $0.5 million for the year ended December 31, 2020. The expense for the year ended December 31, 2020 included $3.1 million of compensation expense related to the retention bonuses for employees of companies acquired in the fourth quarter of 2018 and the fourth quarter of 2019 and $0.3 million of additional legal, professional services, and other costs, substantially offset by a $2.9 million negative adjustment to the fair value of the contingent consideration related to the acquisition of Cloud Lending based on actual achievement at the final March 31, 2020 measurement date.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Acquisition related costs increased by $11.9 million, or 286.7%, from $4.1 million for the year ended December 31, 2018 to $16.0 million for the year ended December 31, 2019. The expense for the year ended December 31, 2019 included $7.3 million for the changes in fair value of the contingent consideration of Cloud Lending, $6.5 million of legal, professional services and other costs related to the 2019 acquisition of PrecisionLender, and $0.7 million and $1.5 million of compensation expense related to retention bonuses for employees of companies acquired in 2019 and 2018, respectively. The expense for the year ended December 31, 2018 included $3.1 million of legal, professional services and other costs related to the 2018 acquisitions of Cloud Lending and Gro, $0.6 million of compensation expense related to the remaining retention bonuses for employees of companies acquired in 2015, and $0.3 million of compensation expense related to Cloud Lending and Gro.

Amortization of Acquired Intangibles

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Amortization of acquired intangibles	$ 17,888	$ 6,339	$ 11,549	182.2 %	$ 6,339	$ 1,844	$ 4,495	243.8 %
Percentage of revenues	4.4 %	2.0 %			2.0 %	0.8 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Amortization of acquired intangibles increased by $11.5 million, or 182.2%, from $6.3 million for the year ended December 31, 2019 to $17.9 million for the year ended December 31, 2020. The expense for the year ended December 31, 2020 included the full year of amortization of acquired intangible assets purchased in the fourth quarter of 2019 from PrecisionLender, as well as acquired intangible asset amortization related to our business combinations in 2018 and 2015 and asset purchase in 2017.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Amortization of acquired intangibles increased by $4.5 million, or 243.8%, from $1.8 million for the year ended December 31, 2018 to $6.3 million for the year ended December 31, 2019. The expense for the year ended December 31, 2019 included the amortization of acquired intangible assets purchased in the fourth quarter of 2019 from PrecisionLender, as well as acquired intangible asset amortization related to our business combinations in 2018 and 2015 and asset purchase in 2017. The expense for the year ended December 31, 2018 included the amortization of acquired intangible assets purchased in the fourth quarter of 2018 from Cloud Lending and Gro, as well as acquired intangible asset amortization related to our business combinations in 2015 and asset purchase in 2017.

Unoccupied Lease Charges

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Unoccupied lease charges	$ 2,181	$ 420	$ 1,761	419.3 %	$ 420	$ 658	$ (238)	(36.2)%
Percentage of revenues	0.5 %	0.1 %			0.1 %	0.3 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Unoccupied lease charges increased by $1.8 million, or 419.3%, from $0.4 million for the year ended December 31, 2019 to $2.2 million for the year ended December 31, 2020. During the year ended December 31, 2020, the charges included costs related to the early vacating of facilities in California, North Carolina and Texas, partially offset by anticipated sublease income from these facilities. During the year ended December 31, 2019, the charges included costs related to the early vacating of facilities in Georgia, partially offset by anticipated sublease income from these facilities.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Unoccupied lease charges decreased by $0.2 million, or 36.2%, from $0.7 million for the year ended December 31, 2018 to $0.4 million for the year ended December 31, 2019. During the year ended December 31, 2019, the charges included costs related to the early vacating of facilities in Georgia, partially offset by anticipated sublease income from these facilities. During the year ended December 31, 2018, the charges included costs related to the early vacating of facilities in Texas, partially offset by anticipated sublease income from these facilities.

Total Other Income (Expense), Net

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Total other income (expense), net	$ (36,371)	$ (16,618)	$ (19,753)	118.9 %	$ (16,618)	$ (7,350)	$ (9,268)	126.1 %
Percentage of revenues	(9.0)%	(5.3)%			(5.3)%	(3.0)%		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Total other income (expense), net represented a net expense of $36.4 million for the year ended December 31, 2020 compared to a net expense of $16.6 million for the year ended December 31, 2019. The change was primarily attributable to an $8.9 million loss from the early extinguishment of a portion of our 2023 Notes, a $6.6 million increase in interest expense from the amortization of debt discount and issuance costs attributable to our convertible notes, a $1.7 million increase in interest expense from the amortization of coupon interest attributable to our convertible notes and financing arrangements, and a $2.5 million decrease in interest income from investments.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Total other income (expense), net represented a net expense of $16.6 million for the year ended December 31, 2019 compared to a net expense of $7.4 million for the year ended December 31, 2018. The change was primarily attributable to a $7.6 million increase in interest expense from the amortization of debt discount, issuance costs, and coupon interest attributable to our 2026 Notes issued in June 2019, a $2.0 million increase in interest expense from the amortization of debt discount, issuance costs, and coupon interest attributable to our 2023 Notes issued in February 2018, a $0.3 million increase in interest expense on various purchases and a loss on disposal of long-lived asset of $0.3 million, partially offset by a $1.0 million increase in interest income earned on cash, cash equivalents, and investments.

Benefit from (provision for) income taxes

	Year Ended December 31,		Change		Year Ended December 31,		Change	
	2020	2019	$	(%)	2019	2018	$	(%)
Benefit from (provision for) income taxes	$ (1,416)	$ 12,487	$ (13,903)	(111.3)%	$ 12,487	$ 3,803	$ 8,684	228.3 %
Percentage of revenues	(0.4)%	4.0 %			4.0 %	1.6 %		

Year Ended December 31, 2020 Compared to the Year Ended December 31, 2019. Total benefit from (provision for) income taxes decreased by $13.9 million from a benefit of $12.5 million for the year ended December 31, 2019 to an expense of $1.4 million for the year ended December 31, 2020. The decrease in the tax benefit for the year ended December 31, 2020 consisted of a reduction of $15.0 million relating to the acquired businesses in the fourth quarter of 2019. Additionally, there was a decrease in tax expense of $1.1 million relating to the operations of the business.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018. Total benefit from income taxes increased by $8.7 million from a benefit of $3.8 million for the year ended December 31, 2018 to a benefit of $12.5 million for the year ended December 31, 2019. The increase in the tax benefit for the year ended December 31, 2019 consisted of a reduction in the valuation allowance of $15.0 million due to the deferred tax liability for the acquired businesses in the fourth quarter of 2019.

Seasonality and Quarterly Results

Our overall operating results fluctuate from quarter to quarter as a result of a variety of factors, including the timing of investments to grow our business. The timing of our implementation activities and corresponding revenues from new customers are subject to fluctuations based on the timing of our sales. Historically, sales have tended to be lower in the first quarter of each year than in subsequent quarters but any resulting impact on our results of operation has been difficult to measure due to the timing of our implementations and overall growth in our business. The timing of our implementations also varies period-to-period based on our implementation capacity, the number of solutions purchased by our customers, the size and unique needs of our customers and the readiness of our customers to implement our solutions.

Given the uncertainty that still surrounds the COVID-19 pandemic, we are expecting sales performance across all our solutions to continue to be slower during the year ending December 31, 2021 than what it otherwise would have been without the pandemic. However, based on feedback we have received from our existing and prospective customers and observations from our sales team after operating since March 2020 in the COVID-19 pandemic, we believe we will begin to see improvements in the predictability of purchasing decisions and implementations by customers, and a corresponding gradual increase in bookings during 2021. However, the duration and impacts of the COVID-19 pandemic continue to be highly unpredictable and may continue to disrupt any seasonality trends that may otherwise typically be inherent in our historical operating results.

Our solutions are often the most frequent point of engagement between our customers and their End Users. As a result, we and our customers are very deliberate and measured in our implementation activities to help ensure a successful roll-out of the solutions to End Users and increase the registration of new End Users. Unusually long or short implementations, for even a small number of customers, may result in short-term quarterly variability in our results of operations.

Our quarterly results of operations may vary significantly in the future and period-to-period comparisons of our operating results may not be meaningful and should not be relied upon as an indication of future results.

Liquidity and Capital Resources

Sources of Liquidity

We have financed our operations primarily through the proceeds from the issuance of common stock in our initial public offering in March 2014, and additional registered common stock offerings, including our June 2019 and May 2020 common stock offerings, cash flows from operations, our February 2018 convertible note offering, our June 2019 convertible note offering, and our November 2020 convertible note offering. As of December 31, 2020, our principal sources of liquidity were cash, cash equivalents and investments of $539.1 million. Based upon our current levels of operations, and our current expectations regarding the impacts of the COVID-19 pandemic on our operations and financial performance, we believe that our cash flow from operations along with our other sources of liquidity are adequate to meet our cash requirements for the next twelve months. However, if we determine the need for additional short-term liquidity, there is no assurance that such financing, if pursued and obtained, would be adequate or on terms acceptable to us.

Cash Flows

The following table summarizes our cash flows for the periods indicated (in thousands):

	Year Ended December 31,		
	2020	2019	2018
Net cash provided by (used in):			
Operating activities	$ (2,890)	$ 567	$ 4,595
Investing activities	(124,163)	(483,252)	(171,292)
Financing activities	434,676	476,091	216,577
Net increase (decrease) in cash, cash equivalents, and restricted cash	$ 307,623	$ (6,594)	$ 49,880

Cash Flows from Operating Activities

Cash provided by (used in) operating activities is primarily influenced by the amount and timing of customer receipts and vendor payments, fair value re-measurement related to contingent earnout payment liabilities and by the amount of cash we invest in personnel and infrastructure to support the anticipated growth of our business and increase in the number of installed customers.

For the year ended December 31, 2020, our net cash and cash equivalents used in operating activities was $2.9 million, which consisted of a net loss of $137.6 million and cash outflows from changes in operating assets and liabilities of $26.9 million, partially offset by non-cash adjustments of $161.6 million. Cash outflows are the result of a $32.2 million increase in deferred solution and implementation costs due to our increased customer growth and new and existing customers undergoing implementations during the period, a $14.6 million increase in accounts receivable due to the timing of payments received, a $3.7 million increase in contract assets, a $3.0 million net decrease in accounts payable and accrued liabilities due to timing of payments in support of our expanding customer base and related growth in our technical infrastructure and expanded facilities, and a $2.4 million increase in other prepaid assets. Cash inflows were the result of a $20.4 million increase in deferred revenue due to increased payments and deposits received from customers prior to the recognition of revenue from those related payments, a $5.0 million increase in deferred rents and other long-term liabilities, and a $3.7 million decrease in other long-term assets driven by the amortization of right-of-use assets. Non-cash items consisted primarily of $51.8 million of depreciation and amortization expense, $50.7 million of stock-based compensation expense, $23.3 million in amortization of the 2023 Notes, 2025 Notes and 2026 Notes discount and related debt issuance costs, $22.9 million of amortization of deferred implementation and deferred solution and other costs, $8.9 million related to the early extinguishment of a portion of the 2023 Notes, $2.2 million of unoccupied lease charges and $1.8 million of other non-cash items.

For the year ended December 31, 2019, our net cash and cash equivalents provided by operating activities was $0.6 million, which consisted of a net loss of $70.9 million and cash outflows from changes in operating assets and liabilities of $16.1 million, offset by non-cash adjustments of $87.6 million. Cash outflows are the result of a $37.8 million increase in deferred solution and implementation costs due to our increased customer growth and new and existing customers undergoing implementations during the period, an $8.0 million decrease in deferred rents and other long-term liabilities, a $5.2 million increase in contract assets, and a $0.8 million increase in other prepaid assets. Cash inflows were the result of a $15.8 million net increase in accounts payable and accrued liabilities due to timing of payments in support of our expanding customer base and related growth in our technical infrastructure and expanded facilities, a $13.4 million increase in deferred revenue due to increased payments and deposits received from customers prior to the recognition of revenue from those related payments, a

$6.1 million decrease in other long-term assets driven by the amortization of right-of-use assets, and a $0.4 million decrease in accounts receivable due to the timing of payments received. Non-cash items consisted primarily of $40.5 million of stock-based compensation expense, $28.5 million of depreciation and amortization expense, $16.6 million in amortization of the 2023 Notes and 2026 Notes discount and related debt issuance costs, $13.6 million of amortization of deferred implementation and deferred solution and other costs, and $1.1 million of other non-cash items, partially offset by a $12.8 million decrease in deferred income taxes from the acquisition of PrecisionLender and the increase in valuation allowance against state tax credits.

For the year ended December 31, 2018, our net cash and cash equivalents provided by operating activities were $4.6 million, which consisted of non-cash adjustments of $61.8 million, offset by a net loss of $35.4 million and cash outflows from changes in operating assets and liabilities of $21.8 million. Cash outflows are the result of a $15.8 million increase in deferred solution and implementation costs due to our increased customer growth and new and existing customers undergoing implementations during the period, a $5.8 million increase in contract assets due to the adoption of the new revenue standard, a $4.7 million increase in accounts receivable due to the timing of billings at the end of the current year, a $1.4 million increase in other long-term assets from the addition of deferred tax assets, and a $1.1 million decrease in deferred rents and other long-term liabilities. Cash inflows were the result of a $4.5 million increase in deferred revenue due to increased payments and deposits received from customers prior to the recognition of revenue from those related payments, a $1.8 million decrease in other prepaid assets, and a $0.7 million net increase in accounts payable and accrued liabilities due to timing of payments in support of our expanding customer base and related growth in our technical infrastructure and expanded facilities. Non-cash items consisted primarily of $29.5 million of stock-based compensation expense, $16.8 million of depreciation and amortization expense, $8.5 million in amortization of the Convertible Notes discount and related debt issuance costs, $8.4 million of amortization of deferred implementation and deferred solution and other costs, a $2.1 million decrease in our deferred income taxes, and $0.6 million of other non-cash items.

Cash Flows from Investing Activities

Our investing activities have consisted primarily of purchases and maturities of investments, our recent acquisitions, purchases of property and equipment to support our growth, and costs incurred for the development of capitalized software. Purchases of property and equipment may vary period-to-period due to the timing of the expansion of our operations, data center and other technical infrastructure.

For the year ended December 31, 2020, net cash used in investing activities was $124.2 million, consisting primarily of $131.3 million for the purchase of investments, $23.7 million for the purchase of property and equipment, and $1.0 million in capitalized software development costs. These outflows were partially offset by $31.8 million received from the maturities of investments.

For the year ended December 31, 2019, net cash used in investing activities was $483.3 million, consisting primarily of $505.6 million for the acquisition of PrecisionLender, $27.3 million for the purchase of investments, $13.9 million for the purchase of property and equipment, $0.3 million from the purchase of intangible assets, and $0.2 million in capitalized software development costs. These outflows were partially offset by $64.0 million received from the maturities of investments.

For the year ended December 31, 2018, net cash used in investing activities was $171.3 million, consisting primarily of $130.7 million for the acquisitions of Cloud Lending and Gro and release of the hold back from the asset acquisition in 2017, $75.7 million for the purchase of investments, and $13.3 million for the purchase of property and equipment. These outflows were partially offset by $48.4 million received from the maturities of investments.

Cash Flows from Financing Activities

Our recent financing activities have consisted primarily of our June 2019 and May 2020 common stock offerings, our February 2018 offering of the 2023 Notes, our June 2019 offering of the 2026 Notes, our November 2020 offering of the 2025 Notes, net proceeds from exercises of options to purchase our common stock, as well as payments on financing obligations.

For the year ended December 31, 2020, net cash provided by financing activities was $434.7 million, which was primarily due to proceeds from the issuance of common stock of $311.3 million, net of issuance costs, from the May 2020 common stock offering, issuance of $132.6 million principal amount of the 2025 Notes, net of issuance costs, from the November 2020 offering of the 2025 Notes, $34.1 million net proceeds received in connection with the early termination of bond hedges and warrants related to the 2023 Notes, and $13.3 million of cash received from the exercise of stock options, partially offset by the Capped Call transactions of $39.8 million and payment of contingent consideration related to the acquisition of Cloud Lending, of which $16.9 million of the payment was estimated at acquisition date fair value and included in financing activities.

For the year ended December 31, 2019, net cash provided by financing activities was $476.1 million, which was primarily due to the issuance of $307.0 million principal amount of the 2026 Notes, net of issuance costs, proceeds from the issuance of common stock of $195.3 million, net of issuance costs, from the June 2019 common stock offering, and $14.6 million of cash received from the exercise of stock options partially offset by the Capped Call transactions of $40.8 million.

For the year ended December 31, 2018, net cash provided by financing activities was $216.6 million, which was primarily due to the issuance of $223.2 million principal amount of the Convertible Notes, net of issuance costs, and the related sale of Warrants for $22.4 million, offset by the purchase of bond hedges for $41.7 million. In addition, cash flows from financing activities included $12.7 million of cash received from the exercise of stock options.

Contractual Obligations and Commitments

Our principal commitments consist of the 2023 Notes, 2025 Notes, 2026 Notes, non-cancelable operating leases related to our facilities, minimum purchase commitments for sponsorship obligations, third-party products, co-location fees and other product costs. In February 2018, we issued $230.0 million in aggregate principal amount of 0.75% 2023 Notes due February 15, 2023, unless earlier converted or repurchased in accordance with their terms prior to such date. Interest on the 2023 Notes is payable semi-annually on February 15 and August 15 of each year. In June 2019, we issued $316.3 million in aggregate principal amount of 0.75% 2026 Notes due June 1, 2026, unless earlier converted or repurchased in accordance with their terms prior to such date. Interest on the 2026 Notes is payable semi-annually on June 1 and December 1 of each year, beginning on December 1, 2019. In November 2020, we exchanged $181.9 million of our 2023 Notes for $210.7 million of new 2025 Notes and issued an additional $139.3 million of new 2025 Notes for an aggregate principal amount of $350.0 million of 0.125% 2025 Notes due November 15, 2025, unless earlier converted or repurchased in accordance with their terms prior to such date. Interest on the 2025 Notes is payable semi-annually on May 15 and November 15 of each year.

As of December 31, 2020, our total lease payment obligations were $82.1 million, of which $36.7 million was included in lease liabilities, net of current portion in our consolidated balance sheets.

We are also party to several purchase commitments related to sponsorship obligations and also third-party products that contain both a contractual minimum obligation and a variable obligation based upon usage or other factors which can change on a monthly basis. The estimated amounts for usage and other factors are not included within the table below.

The following table summarizes our contractual obligations and commitments at December 31, 2020 (in thousands):

	Payment due by period				
Contractual Obligations:	**Less Than 1 Year**	**1 to 3 Years**	**3 to 5 Years**	**More Than 5 Years**	**Total**
Convertible Notes, including interest	$ 3,148	$ 54,180	$ 355,637	$ 317,436	$ 730,401
Operating lease obligations	10,421	24,250	21,047	26,417	82,135
Purchase commitments	31,065	34,593	7,279	10,500	83,437
Total	$ 44,634	$ 113,023	$ 383,963	$ 354,353	$ 895,973

Off-Balance Sheet Arrangements

As of December 31, 2020, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K, such as the use of unconsolidated subsidiaries, structured finance, special purpose entities or variable interest entities.

Recent Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326)" which modifies the measurement of expected credit losses of certain financial instruments. The new guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. We adopted the standard effective January 1, 2020. The standard impacted our accounting for allowances for credit losses, available-for-sale debt securities and other assets subject to credit risk. Credit losses on trade and other receivables, contract assets, available-for-sale debt securities, and other instruments reflect our current estimate of the expected credit losses and generally result in the earlier recognition of allowance for losses. Adoption of the new standard resulted in the recording of a cumulative-effect adjustment to accumulated deficit of $0.3 million on January 1, 2020. We will continue to actively monitor the impact of the recent COVID-19 pandemic on expected credit losses.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment" which simplifies the accounting for goodwill impairment by removing Step 2 of the goodwill impairment test and requires an entity to write down the carrying value of goodwill up to the amount by which the carrying amount of a reporting unit exceeds its fair value. The standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years and early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. We adopted the standard effective January 1, 2020. There was no material impact on our financial position and results of operations based on the adoption of ASU 2017-04.

In August 2020, the FASB issued ASU No. 2020-06, "Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)" which simplifies the accounting for convertible debt instruments by eliminating the requirement to separate embedded conversion features from the host contract when the conversion features are not required to be accounted for as derivatives under Topic 815, Derivatives and Hedging, or that do not result in substantial premiums accounted for as paid-in capital. In addition, the guidance eliminates the treasury stock method to calculate diluted earnings per share for convertible instruments and requires the use of the if-converted method. The standard is effective for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. We may adopt the guidance through either a modified retrospective method of transition or a fully retrospective method of transition. We are currently evaluating the potential effects of this guidance on our consolidated financial statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

Market risk is the risk of loss to future earnings, values or future cash flows that may result from changes in the price of a financial instrument. The value of a financial instrument might change as a result of changes in interest rates, exchange rates, commodity prices, equity prices and other market changes. We do not use derivative financial instruments for speculative, hedging or trading purposes, although in the future we might enter into exchange rate hedging arrangements to manage the risks described below.

Interest Rate Risk

We have cash and cash equivalents held primarily in cash and money market funds. In addition, we have marketable securities which typically include U.S. government securities, corporate bonds and commercial paper, and certificates of deposit. Cash and cash equivalents are held for working capital purposes. Marketable securities are held and invested with capital preservation as the primary objective. Due to the short-term nature of these investments, we believe that we do not have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates. Any declines in interest rates will reduce future interest income. As of December 31, 2020, we had an outstanding principal amount of $364.3 million of 2023 Notes and 2026 Notes, which each have a fixed annual interest rate of 0.75% and an outstanding principal amount of $350.0 million of 2025 Notes with a fixed annual interest rate of 0.125%. If overall interest rates fell by 10% in 2020 or 2019, our interest income would not have been materially affected.

Foreign Currency Risk

During 2018, we commenced international operations. As a result, our results of operations and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. As of December 31, 2020, our most significant currency exposures were the Indian rupee, British pound, and Australian dollar. As of December 31, 2020, we had operating subsidiaries in India, the United Kingdom, and Australia. Due to the relatively low volume of payments made by us through these foreign subsidiaries, we do not believe we have significant exposure to foreign currency exchange risks. However, fluctuations in currency exchange rates could harm our results of operations in the future.

We currently do not use derivative financial instruments to mitigate foreign currency exchange risks. We will continue to review this matter and may consider hedging certain foreign exchange risks in future years.

Inflation Risk

We do not believe that inflation has had a material effect on our business, financial condition or results of operations. We continue to monitor the impact of inflation in order to reduce its effects through pricing strategies, productivity improvements and cost reductions. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could harm our business, financial condition and results of operations.

Item 8. Financial Statements and Supplementary Data.

The information required by this item is incorporated by reference to the consolidated financial statements and accompanying notes set forth on pages F-1 through F-45 of this Annual Report on Form 10-K.

Item 9. Change in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures

The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act refers to controls and procedures that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that such information is accumulated and communicated to a company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2020, the end of the period covered by this Annual Report on Form 10-K. Based upon such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of such date.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act). Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting as of December 31, 2020 based on the guidelines established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Our internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements.

Based on that evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2020.

Our independent registered public accounting firm, Ernst & Young, LLP, issued an attestation report on our internal control over financial reporting. This report appears on page F-4.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with management's evaluation required by Rules 13a-15(d) and 15d-15(d) under the Exchange Act that occurred during the quarter ended December 31, 2020, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on Controls

Our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives as specified above. Management does not expect, however, that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all error and fraud. Any control system, no matter how well designed and operated, is based upon certain assumptions and can provide only reasonable, not absolute, assurance that its objectives will be met. Further, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our business have been detected.

Item 9B. Other Information.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Information required by Part III, Item 10, will be included in our Proxy Statement relating to our 2021 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2020, and is incorporated herein by reference.

Item 11. Executive Compensation.

Information required by Part III, Item 11, will be included in our Proxy Statement relating to our 2021 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2020, and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information required by Part III, Item 12, will be included in our Proxy Statement relating to our 2021 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2020, and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

Information required by Part III, Item 13, will be included in our Proxy Statement relating to our 2021 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2020, and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services.

Information required by Part III, Item 14, will be included in our Proxy Statement relating to our 2021 annual meeting of stockholders to be filed with the SEC within 120 days after the end of our fiscal year ended December 31, 2020, and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a) Documents Filed with Report

(1) *Financial Statements.*

(2) *Financial Statement Schedules.*

Schedules required by this item have been omitted since they are either not required or not applicable or because the information required is included in the consolidated financial statements included elsewhere herein or the notes thereto.

(3) *Exhibits.*

The information required by this Item is set forth on the exhibit index that precedes the signature page of this Annual Report on Form 10-K.

Exhibit Index

Exhibit Number		Description	Incorporated by Reference				Filed / Furnished Herewith
			Form	Filing No.	Filing Date	Exhibit No.	
2.1		Stock Purchase Agreement, dated July 31, 2015, by and among Q2 Software, Inc., Centrix Solutions, Inc., all shareholders of Centrix Solutions, Inc. and Timothy Schnell, as Agent	8-K	001-36350	7/31/2015	2.1	
2.2		Agreement and Plan of Merger, dated August 6, 2018, by and among Q2 Software, Inc., Montana Merger Subsidiary, Inc., Cloud Lending, Inc. and Fortis Advisors, LLC, as equity holder representative	8-K	001-36350	8/8/2018	2.1	
2.3		Agreement and Plan of Merger, dated September 30, 2019, by and among the Q2 Software, Inc., Merger Sub, Lender Performance Group, LLC, the Blockers, Blocker Merger Subs and Insight Venture Partners, LLC, as equity holder representative	8-K	001-36350	10/1/2019	2.1	
2.4		First Amendment to Agreement and Plan of Merger, dated October 31, 2019, by and among the Q2 Software, Inc., Merger Sub, Lender Performance Group, LLC, the Blockers, Blocker Merger Subs and Insight Venture Partners, LLC, as equity holder representative	10-K	001-36350	2/21/2020	2.4	
2.5		Second Amendment to Agreement and Plan of Merger, dated December 27, 2019, by and among the Q2 Software, Inc., Merger Sub, Lender Performance Group, LLC, the Blockers, Blocker Merger Subs and Insight Venture Partners, LLC, as equity holder representative	10-K	001-36350	2/21/2020	2.5	
3.1		Fifth Amended and Restated Certificate of Incorporation of the Registrant	8-K	001-36350	6/12/2019	3.1	
3.2		Amended and Restated Bylaws of the Registrant	8-K	001-36350	6/12/2019	3.2	
4.1		Indenture, dated February 26, 2018, between the Registrant and Wilmington Trust, National Association, as trustee	8-K	001-36350	2/26/2018	4.1	
4.2		Form of Global Note, dated February 26, 2018, between the Registrant and Wilmington Trust, National Association, as trustee	8-K	001-36350	2/26/2018	4.2	
4.3		Indenture, dated June 10, 2019 between the Registrant and Wilmington Trust, National Association, as trustee	8-K	001-36350	6/11/2019	4.1	
4.4		Form of Global Note, dated June 10, 2019 between the Registrant and Wilmington Trust, National Association, as trustee	8-K	001-36350	6/11/2019	4.2	
4.5		Description of Registrant Securities Registered under Section 12 of the Exchange Act				*	
4.6		Indenture, dated November 18, 2020, between Registrant and Wilmington Trust National Association, as trustee	8-K	001-36350	11/20/2020	4.1	
4.7		Form of Global Note, dated November 18, 2020, between Registrant and Wilmington Trust National Association, as trustee	8-K	001-36350	11/20/2020	4.2	
10.1		Form of Indemnification Agreement for directors and officers	S-1/A	333- 193911	2/25/2014	10.1	
10.2.1	†	2007 Stock Plan, as amended	S-1/A	333- 193911	2/25/2014	10.2.1	
10.2.2	†	Form of Stock Option Agreement under the 2007 Stock Plan	S-1	333- 193911	2/12/2014	10.2.2	
10.2.3	†	Form of Stock Option Agreement for Executive Officers under the 2007 Stock Plan	S-1	333- 193911	2/12/2014	10.2.3	
10.2.4	†	Form of Stock Option Agreement for Directors under the 2007 Stock Plan	S-1	333- 193911	2/12/2014	10.2.4	
10.3.1		Lease Agreement, dated November 20, 2012, by and among the Q2 Software, Inc. and 13785 Research Blvd, LLC	S-1	333- 193911	2/12/2014	10.4	
10.3.2		First Amendment to Lease Agreement and Tri-Party Agreement, dated February 27, 2015, by and among Q2 Software, Inc., FPG Aspen Lake Owner, L.P. and FPG TOH Owner, L.P., amending the Lease Agreement, dated November 20, 2012, by and among the Q2 Software, Inc. and 13785 Research Blvd, LLC	10-Q	001-36350	5/8/2015	10.1	

Exhibit Number		Description	Incorporated by Reference				Filed / Furnished Herewith
			Form	Filing No.	Filing Date	Exhibit No.	
10.3.3		Second Amendment to Lease Agreement and Tri-Party Agreement, dated April 1, 2015, by and among Q2 Software, Inc., FPG Aspen Lake Owner, L.P. and FPG TOH Owner, L.P., amending the Lease Agreement, dated November 20, 2012, by and among the Q2 Software, Inc. and 13785 Research Blvd, LLC	10-Q	001-36350	5/8/2015	10.2	
10.3.4		Third Amendment to Lease Agreement, dated October 8, 2015, by and among Q2 Software, Inc. and FPG Aspen Lake Owner, L.P., amending the Lease Agreement, dated November 20, 2012, by and among the Q2 Software, Inc. and 13785 Research Blvd, LLC	10-Q	001-36350	11/6/2015	10.2	
10.3.5		Lease Agreement, dated July 18, 2014, by and among Q2 Software, Inc. and CREF Aspen Lake Building II, LLC	8-K	001-36350	7/23/2014	10.1	
10.3.6		First Amendment to Lease Agreement, dated May 1, 2015, by and among Q2 Software, Inc. and CREF Aspen Lake Building II, LLC	8-K	001-36350	5/4/2015	10.1	
10.3.7		Second Amendment to Lease Agreement, dated February 3, 2016, by and among Q2 Software, Inc. and CREF Aspen Lake Building II, LLC	10-Q	001-36350	5/10/2016	10.1	
10.4		Lease Agreement, dated December 18, 2019, by and among Q2 Software, Inc. and Aspen Lake Building Three, LLC	8-K	001-36350	12/20/2019	10.1	
10.5	†	Amended and Restated Employment Agreement, dated February 20, 2014, by and among the Registrant and Matthew P. Flake	S-1/A	333- 193911	2/25/2014	10.5	
10.7	†	Employment Agreement, dated February 20, 2014, by and among the Registrant and Jennifer N. Harris	10-K	001-36350	2/12/2015	10.7	
10.8	†	Employment Agreement, dated February 20, 2014, by and among the Registrant and Adam D. Blue	10-K	001-36350	2/12/2015	10.8	
10.9.1	†	2014 Equity Incentive Plan and forms of agreements thereunder	S-1/A	333- 193911	3/6/2014	10.9	
10.9.2	†	Forms of Restricted Stock Units Agreements under the Registrant's 2014 Equity Incentive Plan.	10-Q	001-36350	11/10/2014	10.2	
10.9.3	†	Form of Stock Option Agreement and Restricted Stock Unit Agreement for Remote Executive Officers under Registrant's 2014 Equity Incentive Plan	10-Q	001-36350	11/6/2015	10.3	
10.9.4	†	Form of Market Stock Units Agreement under the Registrant's 2014 Equity Incentive Plan	10-Q	001-36350	5/3/2018	10.4	
10.10	†	2014 Employee Stock Purchase Plan	S-1/A	333- 193911	3/6/2014	10.1	
10.11.1		Master Service Agreement dated January 11, 2010, by and among the Registrant and Cyrus Networks, LLC	S-1	333- 193911	2/12/2014	10.12	
10.11.2		Service Level Agreement dated January 11, 2010, by and among the Registrant and Cyrus Networks, LLC	S-1	333- 193911	2/12/2014	10.12.1	
10.12	†	Employment Agreement, dated February 20, 2014, by and among the Registrant and John E. Breeden	10-K	001-36350	2/12/2016	10.13	
10.13	†	Employment Agreement, dated November 9, 2020, by and among the Registrant and David J. Mehok	8-K	0001-36350	11/4/2020	10.1	
10.14	†	Employment Agreement, dated February 20, 2014, by and among the Registrant and William M. Furrer	S-1/A	333- 193911	2/25/2014	10.7	
10.17		Purchase Agreement, dated February 21, 2018, by and among the Registrant, Morgan Stanley & Co. LLC, J.P. Morgan Securities LLC and Stifel, Nicolaus & Company, Incorporated, as representatives of the several initial purchasers named therein	8-K	001-36350	2/26/2018	10.1	
10.18		Form of Bond Hedge Confirmation	8-K	001-36350	2/26/2018	10.2	
10.19		Form of Warrant Confirmation	8-K	001-36350	2/26/2018	10.3	

Exhibit Number	Description	Incorporated by Reference Form	Filing No.	Filing Date	Exhibit No.	Filed / Furnished Herewith
10.20	Purchase Agreement, dated June 5, 2019 by and among the Registrant, Morgan Stanley & Co. LLC, J.P. Morgan Securities LLC, Stifel, Nicolaus & Company, Incorporated and BMO Capital Markets Corp., as representatives of the several initial purchasers named therein	8-K	001-36350	6/6/2019	10.1	
10.21	Form of Capped Call Confirmation	8-K	001-36350	6/6/2019	10.2	
10.22	Form of Amendment to Employment Agreement entered into between the Registrant and each of its executive officers	10-Q	001-36350	5/8/2019	10.1	
10.23	Executive Incentive Compensation Plan	8-K	001-36350	6/15/2020	10.1	
10.24	Form of Exchange and Subscription Agreement	8-K	001-36350	11/12/2020	10.1	
10.25	Form of Capped Call	8-K	001-36350	11/12/2020	10.2	
21.1	List of Subsidiaries of the Registrant					*
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm					*
24.1	Power of Attorney (see the signature pages to this Annual Report on Form 10-K).					*
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002.					*
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, as adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002.					*
32.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350 as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002.					#
32.2	Certification of Principal Financial Officer Required under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350 as adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002.					#
101.INS	XBRL Instance Document.					*
101.SCH	XBRL Taxonomy Extension Schema.					*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.					*
101.LAB	XBRL Taxonomy Extension Calculation Label Linkbase.					*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.					*
101.DEF	XBRL Taxonomy Extension Definition Linkbase.					*
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)					*

* Filed herewith
# Furnished herewith
† Management contract, compensatory plan or arrangement

(in thousands, except per share amounts and unless otherwise indicated)

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date:	**Q2 HOLDINGS, INC.**	
February 19, 2021	By:	/s/ MATTHEW P. FLAKE
		Matthew P. Flake *Chief Executive Officer*

SIGNATURES AND POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints Matthew P. Flake, with full power of substitution and re-substitution and full power to act without the other, as his or her true and lawful attorney-in-fact and agent to act in his or her name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorney-in-fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities indicated.

Name	Title	Date
/s/ MATTHEW P. FLAKE Matthew P. Flake	Chief Executive Officer (Principal Executive Officer) and Director	February 19, 2021
/s/ DAVID J. MEHOK David J. Mehok	Chief Financial Officer (Principal Financial and Accounting Officer)	February 19, 2021
/s/ R. H. SEALE, III R.H. Seale, III	Executive Chairman of the Board of Directors	February 19, 2021
/s/ R. LYNN ATCHISON R. Lynn Atchison	Director	February 19, 2021
/s/ JEFFREY T. DIEHL Jeffrey T. Diehl	Director	February 19, 2021
/s/ CHARLES T. DOYLE Charles T. Doyle	Director	February 19, 2021
/s/ STEPHEN C. HOOLEY Stephen C. Hooley	Director	February 19, 2021
/s/ JAMES R. OFFERDAHL James R. Offerdahl	Director	February 19, 2021
/s/ MARGARET L. TAYLOR Margaret L. Taylor	Director	February 19, 2021

Q2 HOLDINGS, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Q2 Holdings, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Q2 Holdings, Inc. (the Company) as of December 31, 2020 and 2019, the related consolidated statements of comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 19, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing a separate opinion on the critical audit matters or on the accounts or disclosure to which they relate.

	Accounting for Revenue Recognition
Description of the Matter	As described in Note 2 of the consolidated financial statements, the Company's revenue-generating activities are directly related to the sale, implementation and support of the Company's solutions. The Company derives most of its revenues from subscription fees for the use of its solutions hosted in the Company's data centers, transaction revenue from bill-pay solutions, as well as revenues for customer support and implementation services related to the Company's solutions. The Company's revenue recognition process involves several information technology (IT) applications responsible for the initiation, processing, and recording of transactions from the Company's various customers, and the calculation of revenue in accordance with the Company's accounting policy. Auditing the Company's accounting for revenue recognition was complex due to the dependency on the effective design and operation of multiple IT applications, some of which are specifically designed for the Company's business and the use of multiple data sources in the revenue recognition process.

How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design, and tested the operating effectiveness of internal controls over the Company's accounting for revenue from contracts with customers. For example, with the assistance of IT professionals, we tested the controls over the initiation and billing of new and recurring subscriptions and when control of the subscription performance obligation was transferred to the customer, which is referred to as the "go-live" date. We also tested the controls related to the key application interfaces between the provisioning, billing, and accounting systems, which included controls related to access to the relevant applications and data and changes to the relevant systems and interfaces, as well as controls over the configuration of the relevant applications. To test the Company's accounting for revenue from contracts with customers, we performed substantive audit procedures that included, among others, testing on a sample basis the completeness and accuracy of the underlying data within the Company's billing system, performing data analytics by extracting data from the system to evaluate the completeness and accuracy of recorded revenue and deferred revenue amounts, tracing a sample of cash receipts to supporting journal entries, and testing the appropriate commencement of subscription revenue recognition on the "go-live" date.
	Accounting for Convertible Note Exchange Transactions
Description of the Matter	As more fully described in Note 11 to the financial statements, in November 2020 the Company issued $350 million in principal of 0.125% convertible senior notes due in 2025. A portion of the proceeds from the Convertible Notes along with shares of the Company’s common stock were exchanged for the extinguishment of a portion of the Company's previously outstanding convertible notes due in 2023 ("2023 Convertible Notes"). The accounting for the transaction was complex, as it required management to assess as to whether features, other than the conversion feature, required bifurcation and separate valuation. Additionally, the transaction required management to perform a valuation of the conversion feature within the debt instruments, involving estimation of the fair value of the debt instruments absent of any conversion feature, as well as the assessment of the appropriate classification of the conversion feature in the consolidated financial statements. Management also used this information to determine the extinguishment loss on the retired 2023 Convertible Notes. Auditing management's evaluation of the transaction was challenging due to the complexity in assessing the features of the convertible notes for separate accounting, as well as evaluating management's valuation of the debt instruments absent of the conversion feature, and determining the extinguishment loss on the 2023 Convertible Notes. The fair value was sensitive to changes in certain key inputs, including a synthetic credit rating and yield and changes to those inputs could have had a material effect on the initial recognition of the liability and equity components of the convertible debt and subsequent accretion of the liability component for the year ended December 31, 2020.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design, and tested the operating effectiveness of controls over the Company's initial convertible debt accounting process, including the valuation and recognition of the liability and equity components of the convertible debt, and the determination of the extinguishment loss. To test the initial accounting for the convertible debt, our audit procedures included, among others, inspection of the debt agreement and testing management's application of the relevant accounting guidance, which included the classification of the conversion feature. We also involved our valuation specialists to assist in the evaluation of the Company's determination of the fair value of the debt absent any conversion feature, which included testing the appropriateness of the methodology and underlying assumptions used. For example, we compared the discount rate that was adjusted for the credit risk of the Company to the interest rates on comparable issuances of debt securities in the public market, and we compared the forecasted volatility of the Company's common stock price to its historical volatility. Also, we tested the Company's key inputs into the calculation of the extinguishment loss.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2013.

Austin, Texas
February 19, 2021

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Q2 Holdings, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Q2 Holdings, Inc.'s internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Q2 Holdings, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of Q2 Holdings, Inc. as of December 31, 2020 and 2019, the related consolidated statements of comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2020, and the related notes and our report dated February 19, 2021 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Austin, Texas
February 19, 2021

Q2 HOLDINGS, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except per share data)

	December 31, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 407,703	$ 100,094
Restricted cash	3,482	3,468
Investments	131,352	32,325
Accounts receivable, net	36,430	22,442
Contract assets, current portion	1,088	872
Prepaid expenses and other current assets	8,861	6,354
Deferred solution and other costs, current portion	19,042	15,609
Deferred implementation costs, current portion	8,258	5,171
Total current assets	616,216	186,335
Property and equipment, net	49,558	39,252
Right of use assets	34,709	35,388
Deferred solution and other costs, net of current portion	32,782	29,220
Deferred implementation costs, net of current portion	15,184	15,848
Intangible assets, net	184,859	223,861
Goodwill	462,274	462,023
Contract assets, net of current portion	18,694	15,189
Other long-term assets	2,426	2,318
Total assets	$ 1,416,702	$ 1,009,434
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 7,887	$ 10,967
Accrued liabilities	22,444	16,341
Accrued compensation	26,716	38,668
Deferred revenues, current portion	81,935	57,850
Lease liabilities, current portion	6,844	9,140
Total current liabilities	145,826	132,966
Convertible notes, net of current portion	557,468	424,784
Deferred revenues, net of current portion	29,203	32,954
Lease liabilities, net of current portion	36,739	36,079
Other long-term liabilities	4,102	3,239
Total liabilities	773,338	630,022
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred stock: $0.0001 par value; 5,000 shares authorized, no shares issued or outstanding as of December 31, 2020 and 2019	—	—
Common stock: $0.0001 par value; 150,000 shares authorized, 55,562 shares issued and outstanding as of December 31, 2020, and 48,386 shares issued and outstanding as of December 31, 2019	6	5
Additional paid-in capital	1,024,577	622,692
Accumulated other comprehensive income (loss)	(32)	14
Accumulated deficit	(381,187)	(243,299)
Total stockholders' equity	643,364	379,412
Total liabilities and stockholders' equity	$ 1,416,702	$ 1,009,434

The accompanying notes are an integral part of these consolidated financial statements.

Q2 HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands, except per share data)

	Year Ended December 31, 2020	2019	2018
Revenues	$ 402,751	$ 315,484	$ 241,100
Cost of revenues[1]	228,152	162,485	121,855
Gross profit	174,599	152,999	119,245
Operating expenses:			
Sales and marketing[1]	72,323	63,947	48,124
Research and development[1]	97,381	76,273	51,334
General and administrative[1]	70,937	56,739	44,990
Acquisition related costs	478	16,027	4,145
Amortization of acquired intangibles	17,888	6,339	1,844
Partnership termination charges	13,244	—	—
Unoccupied lease charges	2,181	420	658
Total operating expenses	274,432	219,745	151,095
Loss from operations	(99,833)	(66,746)	(31,850)
Other income (expense):			
Interest and other income	1,207	3,672	2,811
Interest and other expense	(28,646)	(20,290)	(10,161)
Loss on extinguishment of debt	(8,932)	—	—
Total other income (expense), net	(36,371)	(16,618)	(7,350)
Loss before income taxes	(136,204)	(83,364)	(39,200)
Benefit from (provision for) income taxes	(1,416)	12,487	3,803
Net loss	(137,620)	(70,877)	(35,397)
Other comprehensive gain (loss):			
Unrealized gain (loss) on available-for-sale investments	(118)	223	24
Foreign currency translation adjustment	72	(172)	78
Comprehensive loss	$ (137,666)	$ (70,826)	$ (35,295)
Net loss per common share, basic and diluted	$ (2.65)	$ (1.53)	$ (0.83)
Weighted average common shares outstanding:			
Basic and diluted	52,019	46,198	42,797

[1] Includes stock-based compensation expense as follows:

	Year Ended December 31, 2020	2019	2018
Cost of revenues	$ 9,888	$ 6,427	$ 4,773
Sales and marketing	8,770	7,740	5,837
Research and development	12,869	9,864	6,852
General and administrative	17,708	15,347	11,758
Total stock-based compensation expense	$ 49,235	$ 39,378	$ 29,220

The accompanying notes are an integral part of these consolidated financial statements.

Q2 HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(in thousands)

	Year Ended December 31,		
	2020	2019	2018
Total stockholders' equity, beginning balances	$ 379,412	$ 158,900	$ 106,622
Common stock and additional paid-in capital:			
Beginning balances	622,697	331,359	259,730
Stock-based compensation expense	50,682	40,510	29,545
Exercise of stock options	14,283	15,694	12,982
Shares acquired to settle the exercise of stock options	(966)	(941)	(333)
Retirement of treasury stock	—	—	(164)
Proceeds from issuance of common stock, net of issuance costs	311,321	195,290	—
Equity component of convertible notes, less issuance costs	73,097	81,550	48,919
Equity component of early extinguishment of convertible notes	(40,842)	—	—
Exercise (purchase) of convertible note hedges	171,679	—	(41,699)
(Exercise) issuance of warrants	(137,538)	—	22,379
Purchase of capped call transactions	(39,830)	(40,765)	—
Ending balances	1,024,583	622,697	331,359
Treasury stock:			
Beginning balances	—	—	(855)
Shares acquired to settle the exercise of stock options	—	—	(62)
Retirement of treasury stock	—	—	917
Ending balances	—	—	—
Accumulated deficit:			
Beginning balances	(243,299)	(172,422)	(152,114)
Cumulative effect of the adoption of new accounting standard	(268)	—	15,842
Retirement of treasury stock	—	—	(753)
Net loss	(137,620)	(70,877)	(35,397)
Ending balances	(381,187)	(243,299)	(172,422)
Accumulated other comprehensive income (loss):			
Beginning balances	14	(37)	(139)
Other comprehensive income (loss)	(46)	51	102
Ending balances	(32)	14	(37)
Total stockholders' equity, ending balances	$ 643,364	$ 379,412	$ 158,900
Common stock (in shares):			
Beginning balances	48,386	43,535	41,967
Shares acquired to settle the exercise of stock options	(9)	(12)	(7)
Exercise of stock options	720	1,059	1,038
Shares issued for the vesting of restricted stock awards	916	770	537
Proceeds from issuance of common stock, net of issuance costs	4,235	3,034	—
Equity component of early extinguishment of convertible notes	1,314	—	—
Ending balances	55,562	48,386	43,535

The accompanying notes are an integral part of these consolidated financial statements.

Q2 HOLDINGS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31,		
	2020	2019	2018
Cash flows from operating activities:			
Net loss	$ (137,620)	$ (70,877)	$ (35,397)
Adjustments to reconcile net loss to net cash from operating activities:			
Amortization of deferred implementation, solution and other costs	22,936	13,634	8,448
Depreciation and amortization	51,840	28,457	16,802
Amortization of debt issuance costs	1,977	1,467	829
Amortization of debt discount	21,317	15,154	7,646
Amortization of premiums on investments	366	226	(3)
Stock-based compensation expense	50,682	40,510	29,545
Realized gain (loss) on sale of marketable securities	(14)	—	—
Deferred income taxes	946	(12,774)	(2,050)
Allowance for credit losses	306	—	—
Allowance for sales credits	2	172	(141)
Loss on disposal of long-lived assets	151	287	19
Loss on extinguishment of debt	8,932	—	—
Impairment of intangible assets	—	6	17
Unoccupied lease charges	2,181	420	658
Changes in operating assets and liabilities:			
Accounts receivable, net	(14,560)	372	(4,677)
Prepaid expenses and other current assets	(2,440)	(822)	1,844
Deferred solution and other costs	(15,333)	(23,548)	(8,780)
Deferred implementation costs	(16,880)	(14,296)	(6,993)
Contract assets	(3,721)	(5,191)	(5,812)
Other long-term assets	3,711	6,141	(1,359)
Accounts payable	(2,297)	1,126	(263)
Accrued liabilities	(685)	14,718	952
Deferred revenue	20,351	13,400	4,454
Deferred rent and other long-term liabilities	4,962	(8,015)	(1,144)
Net cash provided by (used in) operating activities	(2,890)	567	4,595
Cash flows from investing activities:			
Purchases of investments	(131,337)	(27,330)	(75,674)
Maturities of investments	31,841	63,980	48,407
Purchases of property and equipment	(23,715)	(13,860)	(13,285)
Business combinations, net of cash acquired	—	(505,577)	(130,694)
Purchase of intangible assets	—	(288)	(46)
Capitalized software development costs	(952)	(177)	—
Net cash used in investing activities	(124,163)	(483,252)	(171,292)
Cash flows from financing activities:			
Proceeds from issuance of common stock, net of issuance costs	311,321	195,289	—
Proceeds from issuance of convertible notes, net of issuance costs	132,589	307,016	223,167
Purchases of capped call transactions	(39,830)	(40,765)	—
Proceeds from (payments for) bond hedge related to convertible notes	171,679	—	(41,699)
Proceeds from (payments for) warrants related to convertible notes	(137,538)	—	22,379
Payment of contingent consideration	(16,862)	—	—
Proceeds from exercise of stock options to purchase common stock	13,317	14,551	12,730
Net cash provided by financing activities	434,676	476,091	216,577
Net increase in cash, cash equivalents, and restricted cash	307,623	(6,594)	49,880
Cash, cash equivalents, and restricted cash beginning of period	103,562	110,156	60,276
Cash, cash equivalents, and restricted cash end of period	$ 411,185	$ 103,562	$ 110,156
Supplemental disclosures of cash flow information:			
Cash paid for taxes, net of refund	$ 566	$ 322	$ 250
Cash paid for interest	$ 4,096	$ 2,853	$ 810
Supplemental disclosure of non-cash financing activities:			
Shares acquired to settle the exercise of stock options	$ (966)	$ (941)	$ (395)
Impact of extinguishment of convertible senior notes due 2023	$ (40,842)	$ —	$ —
Data center assets acquired under deferred payment arrangements or financing arrangements	$ 448	$ 1,104	$ —

The accompanying notes are an integral part of these consolidated financial statements.

Q2 HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except per share amounts and unless otherwise indicated)

1. Organization and Description of Business

Q2 Holdings, Inc. and its wholly-owned subsidiaries, collectively the Company, is a leading provider of secure, cloud-based digital solutions that transform the ways in which traditional and emerging financial services providers engage with account holders and end users, or End Users. The Company sells its solutions to financial institutions, alternative finance and leasing companies, and financial technology companies. The Company's solutions enable customers to deliver robust suites of digital banking, lending, leasing, and banking as a service, or BaaS, services that make it possible for account holders and End Users to transact and engage anytime, anywhere and on any device. The Company delivers its solutions to the substantial majority of its customers using a software-as-a-service, or SaaS, model under which its customers pay subscription fees for the use of the Company's solutions. The Company was incorporated in Delaware in March 2005 and is a holding company that owns 100% of the outstanding capital stock of Q2 Software, Inc. The Company's headquarters are located in Austin, Texas.

2. Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

These consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States, or GAAP, and Securities and Exchange Commission, or SEC, requirements. The consolidated financial statements include the accounts of Q2 Holdings, Inc. and its direct and indirect wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Effective January 1, 2018 the Company adopted the requirements of Accounting Standards Update, or ASU, No. 2014-09 "Revenue from Contracts with Customers (Topic 606)," or the new revenue standard, effective January 1, 2019 the Company adopted the requirements of ASU No. 2016-02, "Leases (Topic 842)," and effective January 1, 2020, the Company adopted the requirements of ASU No. 2017-04 "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment," and ASU No. 2016-13 "Financial Instruments - Credit Losses (Topic 326)." All amounts and disclosures set forth in this Form 10-K have been updated to comply with the new standards.

Use of Estimates

The preparation of the accompanying consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses. Significant items subject to such estimates include revenue recognition including determining the nature and timing of satisfaction of performance obligations, variable consideration, standalone selling price, and other revenue items requiring significant judgment; estimate of credit losses; stock-based compensation; the carrying value of goodwill; the fair value of acquired intangibles; the capitalization of software development costs; the useful lives of property and equipment and long-lived intangible assets; fair value of contingent consideration; fair value of the conversion features of convertible notes; and income taxes. In accordance with GAAP, management bases its estimates on historical experience and on various other assumptions that management believes are reasonable under the circumstances. Management regularly evaluates its estimates and assumptions using historical experience and other factors; however, actual results could differ significantly from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments acquired with an original maturity of ninety days or less at the date of purchase to be cash equivalents. Cash equivalents are stated at cost or fair value based on the underlying security.

Restricted Cash

Restricted cash consists of deposits held as collateral for the Company's secured letters of credit or bank guarantees issued in place of security deposits for the Company's corporate headquarters and various other leases.

Investments

Investments typically include U.S. government securities, corporate bonds, commercial paper, certificates of deposit and money market funds. All investments are considered available for sale and are carried at fair value.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist of cash and cash equivalents, restricted cash, investments and accounts receivable. The Company's cash and cash equivalents, restricted cash and investments are placed with high credit quality financial institutions and issuers, and at times may exceed federally-insured limits. The Company has not experienced any loss relating to cash and cash equivalents or restricted cash in these accounts. The Company provides credit, in the normal course of business, to a number of its customers. The Company performs periodic credit evaluations of its customers' financial condition and generally does not require collateral. No individual customer accounted for 10% or more of revenues for each of the years ended December 31, 2020, 2019 and 2018. No individual customer accounted for 10% or more of accounts receivable, net, as of December 31, 2020 and 2019.

Contract Balances

The timing of revenue recognition, billings and cash collections can result in billed accounts receivable, unbilled receivables, or contract assets, and deferred revenues, or contract liabilities. Billings scheduled to occur after the performance obligation has been satisfied and revenue recognition has occurred result in contract assets. Contract assets that are expected to be billed during the succeeding twelve-month period are recorded in contract assets, current portion, and the remaining portion is recorded in contract assets, net of current portion on the accompanying consolidated balance sheets at the end of each reporting period. A contract liability results when the Company receives prepayments or deposits from customers in advance for implementation, maintenance and other services, as well as initial subscription fees. Customer prepayments are generally applied against invoices issued to customers when services are performed and billed. The Company recognizes contract liabilities as revenues when the services are performed, and the corresponding revenue recognition criteria are met. Contract liabilities that are expected to be recognized as revenues during the succeeding twelve-month period are recorded in deferred revenues, current portion, and the remaining portion is recorded in deferred revenues, net of current portion, on the accompanying consolidated balance sheets at the end of each reporting period.

The Company is exposed to credit losses primarily through sales of products and services. The Company assesses the collectability of outstanding contract assets on an ongoing basis and maintains a reserve which is included in the allowance for credit losses for contract assets deemed uncollectable. Under ASU 2016-13, the Company analyzes the contract asset portfolio for significant risks by considering historical collection experience and forecasting future collectability to determine the amount of revenues that will ultimately be collected from its customers. This estimate is analyzed quarterly and adjusted as necessary. Identified risks pertaining to the Company's contract assets include the customer type. Future collectability is contingent upon current and anticipated macroeconomic conditions that could impact the Company's customers such as unemployment, inflation and regulation matters. Additionally, specific allowance amounts may be established to record the appropriate provision for customers that have a higher probability of default. Adoption of ASU 2016-13 resulted in recording an aggregate allowance reserve related to the Company's contract asset of $0.1 million as of January 1, 2020. The Company has provisioned $0.2 million for expected losses for the year ended December 31, 2020, of which zero has been written off and charged against the allowance as of December 31, 2020. During the fourth quarter of 2020 the Company recognized a $2.9 million impairment related to the restructuring of a contract with a FinTech customer. The Company has increased its reserve during 2020 due to the anticipated impact of the COVID-19 pandemic. There are no comparable recent events that provide guidance as to the potential impact of the COVID-19 global pandemic. As a result, the potential impact of the pandemic is highly uncertain and subject to change. The Company does not yet know the full extent of the impact of the COVID-19 pandemic on the Company's business operations or the global economy as a whole, however, the impact will likely have an adverse effect on the Company's customers and inherently the related contract assets. The allowance for credit losses related to contract assets was $0.3 million and zero as of December 31, 2020 and 2019, respectively.

(in thousands, except per share amounts and unless otherwise indicated)

Accounts Receivable

Accounts receivable are stated at net realizable value, including both billed and unbilled receivables to customers. Unbilled receivable balances arise primarily when the Company provides services in advance of billing for those services. Generally, billing for revenues related to the number of End Users and the number of transactions processed by the Company's End Users that are included in the Company's minimum subscription fee occurs in the month the revenue is recognized, resulting in accounts receivable. Billing for revenues relating to the number of End Users and the number of transactions processed by the Company's End Users that are in excess of the Company's minimum subscription fees are, generally, billed in the month following the month the revenues were earned, resulting in an unbilled receivable. Unbilled receivables of $2.1 million and $4.3 million were included in the accounts receivable balance as of December 31, 2020 and 2019, respectively.

The Company assesses the collectability of outstanding accounts receivable on an ongoing basis and maintains an allowance for credit losses for accounts receivable deemed uncollectable. Under ASU 2016-13, the Company analyzes the accounts receivable portfolio for significant risks and considers prior periods and forecasts future collectability to determine the amount of revenues that will ultimately be collected from its customers. This estimate is analyzed quarterly and adjusted as necessary. Identified risks pertaining to the Company's accounts receivable include the delinquency level and customer type. Future collectability is contingent upon current and anticipated macroeconomic conditions that could impact the Company's customers such as unemployment, inflation and regulation matters. Due to the short-term nature of such receivables, the estimate of the amount of accounts receivable that may not be collected is based on aging of the accounts receivable balances and the financial condition of customers. Historically, the Company's collection experience has not varied significantly, and bad debt expenses have been insignificant. Adoption of ASU 2016-13 resulted in the recording of an allowance reserve of approximately $0.2 million as of January 1, 2020. The Company has provisioned $1.0 million for expected losses as of December 31, 2020, of which $0.6 million has been written off and charged against the allowance as of December 31, 2020. As a result of the COVID-19 pandemic, the Company has increased its reserve. There are no comparable recent events that provide guidance as to the potential impact of the COVID-19 pandemic. As a result, the potential impact of the pandemic is highly uncertain and subject to change. The Company does not yet know the full extent of the impact of the COVID-19 pandemic on the Company's business operations or the global economy as a whole, however the impact will potentially have an adverse effect on the Company's customers and inherently the related receivables. The allowance for credit losses related to accounts receivable was $0.6 million and zero as of December 31, 2020 and 2019, respectively.

The Company maintains a reserve for estimated sales credits issued to customers for billing disputes or other service-related reasons. This allowance is recorded as a reduction against current period revenues and accounts receivable. In estimating this allowance, the Company analyzes prior periods to determine the amounts of sales credits issued to customers compared to the revenues in the period that related to the original customer invoice. This estimate is analyzed quarterly and adjusted as necessary. The allowance for sales credits was $0.5 million as of December 31, 2020 and 2019.

The following table shows the Company's allowance for sales credits and credit losses as follows:

	Beginning Balance	Additions	Deductions	Ending Balance
Year Ended December 31, 2018	$ 226	$ 1,845	$ (1,704)	$ 367
Year Ended December 31, 2019	367	1,388	(1,216)	539
Year Ended December 31, 2020	$ 539	$ 2,789	$ (1,941)	$ 1,387

Deferred Revenues

Deferred revenues primarily consist of amounts that have been billed to or received from customers in advance of revenue recognition and prepayments received from customers in advance for implementation, maintenance and other services, as well as initial subscription fees. The Company recognizes deferred revenues as revenues when the services are performed and the corresponding revenue recognition criteria are met. Customer prepayments are generally applied against invoices issued to customers when services are performed and billed.

The net increase in the deferred revenue balance for the year ended December 31, 2020, is primarily driven by cash payments received or due in advance of satisfying the Company's performance obligations of $427.1 million for current year invoices and $2.0 million from the netting of contract assets and liabilities on a contract-by-contract basis, partially offset by the recognition of $307.3 million of revenue recognized from current year invoices and $101.5 million of revenue that was included in the deferred revenue balance at December 31, 2019. Amounts recognized from deferred revenues represent primarily revenue from the sale of subscription and implementation services.

The Company's payment terms vary by the type and location of its customer and the products or services offered. The period of time between invoicing and when payment is due is not significant. For certain products or services and customer types, the Company requires payment before the products or services are delivered to the customer.

On December 31, 2020, the Company had $1.3 billion of remaining performance obligations, which represents contracted revenue minimums that have not yet been recognized, including amounts that will be invoiced and recognized as revenue in future periods. The Company expects to recognize approximately 47% percent of its remaining performance obligations as revenue in the next 24 months, an additional 39% percent in the next 25 to 48 months, and the balance thereafter.

Deferred Implementation Costs

The Company capitalizes certain personnel and other costs such as employee salaries, benefits and the associated payroll taxes that are direct and incremental to the implementation of its solutions. The Company analyzes implementation costs that may be capitalized to assess their recoverability, and only capitalizes costs that it anticipates being recoverable. The Company assesses the recoverability of its deferred implementation costs based on the amount of the non-cancellable portion of a customer's contract as it relates to the specific implementation costs incurred. The Company begins amortizing the deferred implementation costs for an implementation once the revenue recognition criteria have been met, and the Company amortizes those deferred implementation costs ratably over the expected period of customer benefit. The Company has determined this period to be the estimated life of the technology, which is estimated to be five to seven years. The Company determined the period of benefit by considering factors such as historically high renewal rates with similar customers and contracts, initial contract length, an expectation that there will still be a demand for the product at the end of its term, and the significant costs to switch to a competitor's product, all of which are governed by the estimated useful life of the technology.

The portion of deferred implementation costs expected to be amortized during the succeeding twelve-month period is recorded in current assets as deferred implementation costs, current portion, and the remainder is recorded in long-term assets as deferred implementation costs, net of current portion in the accompanying consolidated balance sheets. The Company capitalized implementation costs in the amount of $16.9 million and $14.3 million during the years ended December 31, 2020 and 2019, respectively, and recognized $14.5 million and $7.7 million of amortization during the years ended December 31, 2020 and 2019, respectively. Amortization expense is included in cost of revenues in the accompanying consolidated statements of comprehensive loss.

Deferred Solution and Other Costs

The Company capitalizes sales commissions and other third-party costs such as third-party licenses and maintenance related to its customer agreements. The Company capitalizes sales commissions because the commission charges are considered incremental and recoverable costs of obtaining a contract with a customer. The Company capitalizes commissions and bonuses for those involved in the sale, including direct employees and indirect supervisors, as these are incremental to the sale. Historically, the Company typically paid commissions in two increments. The initial payment was made after the contract had been executed and the initial deposit had been received from the customer, and the final payment was made upon commencement date. The Company required that an individual remain employed to collect a commission when it was due. The service period between the first and second payment was considered a substantive service period and as a result, the Company expensed the final payment when made. Beginning in 2020, commissions were paid in a single payment once the contract had been executed and the initial deposit had been received from the customer. The Company begins amortizing deferred solution and other costs for a particular customer agreement once the revenue recognition criteria are met and amortizes those deferred costs over the expected period of customer benefit. The Company has determined this period to be the estimated life of the technology, which is estimated to be five to seven years. The Company determined the period of benefit by considering factors such as historically high renewal rates with similar customers and contracts, initial contract length, an expectation that there will still be a demand for the product at the end of its term, and the significant costs to switch to a competitor's product, all of which are governed by the estimated useful life of the technology.

(in thousands, except per share amounts and unless otherwise indicated)

The Company analyzes solution and other costs that may be capitalized to assess their recoverability and only capitalizes costs that it anticipates being recoverable. The portion of capitalized costs expected to be amortized during the succeeding twelve-month period is recorded in current assets as deferred solution and other costs, current portion, and the remainder is recorded in long-term assets as deferred solution and other costs, net of current portion. The Company capitalized $15.0 million and $14.2 million in deferred commissions costs during the years ended December 31, 2020 and 2019, respectively, and recognized $8.5 million and $6.0 million of amortization during the years ended December 31, 2020 and 2019, respectively. Amortization expense is included in sales and marketing expenses in the accompanying consolidated statements of comprehensive loss.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation and amortization. Depreciation is calculated on a straight-line basis over the estimated useful lives of the related assets. Leasehold improvements are amortized over the shorter of the lease term or the estimated useful lives of the related assets. Maintenance and repairs that do not extend the life of or improve an asset are expensed in the period incurred.

The estimated useful lives of property and equipment are as follows:

Computer hardware and equipment	3 - 5 years
Purchased software and licenses	3 - 5 years
Furniture and fixtures	7 years
Leasehold improvements	Lesser of estimated useful life or lease term

Purchase Price Allocation, Intangible Assets, and Goodwill

The purchase price allocation for business combinations and asset acquisitions requires extensive use of accounting estimates and judgments to allocate the purchase price to the identifiable tangible and intangible assets acquired and liabilities assumed based on their respective fair values. The Company determines whether substantially all the fair value of the gross assets acquired is concentrated in a single identifiable asset or a group of similar identifiable assets. If this threshold is met, the single asset or group of assets, as applicable, is not a business. If it is not met, the Company determines whether the single asset or group of assets, as applicable, meets the definition of a business.

In connection with the Company's acquisitions discussed in Note 3 - Business Combinations, the Company recorded certain intangible assets, including acquired technology, customer relationships, trademarks, and non-compete agreements. Amounts allocated to the acquired intangible assets are being amortized on a straight-line basis over the estimated useful lives. The Company periodically reviews the estimated useful lives and fair values of its identifiable intangible assets, taking into consideration any events or circumstances which might result in a diminished fair value or revised useful life.

The excess purchase price over the fair value of assets acquired is recorded as goodwill. The Company tests goodwill for impairment annually in October, or whenever events or changes in circumstances indicate an impairment may have occurred. Because the Company operates in a single reporting unit, the impairment test is performed at the consolidated entity level by comparing the estimated fair value of the Company to the carrying value of the Company. The Company estimates the fair value of the reporting unit using a "step one" analysis using a fair-value-based approach based on the market capitalization or a discounted cash flow analysis of projected future results to determine if it is more likely than not that the fair value of a reporting unit is less than its carrying amount. Determining the fair value of goodwill is subjective in nature and often involves the use of estimates and assumptions including, without limitation, use of estimates of future prices and volumes for the Company's products, capital needs, economic trends and other factors which are inherently difficult to forecast. If actual results, or the plans and estimates used in future impairment analyses are lower than the original estimates used to assess the recoverability of these assets, the Company could incur impairment charges in a future period.

(in thousands, except per share amounts and unless otherwise indicated)

Revenues

Revenues are recognized when control of the promised goods or services is transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services over the term of the agreement, generally when the Company's solutions are implemented and made available to the customers. The promised consideration may include fixed amounts, variable amounts or both. Revenues are recognized net of sales credits and allowances.

Revenue-generating activities are directly related to the sale, implementation and support of the Company's solutions within a single operating segment. The Company derives the majority of its revenues from subscription fees for the use of its solutions hosted in either the Company's data centers or cloud-based hosting services, transaction revenue from bill-pay solutions, and revenues for customer support and implementation services related to the Company's solutions. The Company recognizes the corresponding revenues over time on a ratable basis over the customer agreement term.

The following table disaggregates the Company's revenue by major source:

	Year Ended December 31,		
	2020	2019	2018
Subscription	$ 286,961	$ 221,983	$ 168,226
Transactional	55,580	48,396	39,232
Services and Other	60,210	45,105	33,642
Total Revenues	$ 402,751	$ 315,484	$ 241,100

Subscription Revenues

The Company's software solutions are available for use as hosted application arrangements under subscription fee agreements without licensing perpetual rights to the software. Subscription fees from these applications, including contractual periodic price increases, are recognized over time on a ratable basis over the customer agreement term beginning on the date the Company's solution is made available to the customer. Amounts that have been invoiced are recorded in accounts receivable and deferred revenues or revenues, depending on whether the revenue recognition criteria have been met. Periodic price increases are estimated at contract inception and result in contract assets as revenue recognition may exceed the amount billed early in the contract. Additional fees for monthly usage above the levels included in the standard subscription fee are recognized as revenue in the month when the usage amounts are determined and reported.

A small portion of the Company's customers host and manage the Company's solutions on-premises or in third-party data centers under term license and maintenance agreements. Term licenses sold with maintenance entitle the customer to technical support, upgrades and updates to the software on a when-and-if-available basis. The Company recognizes software license revenue once the customer obtains control of the license, which generally occurs at the start of each license term. The Company recognizes the remaining arrangement consideration for maintenance revenue over time on a ratable basis over the term of the software license. If the expected length of time between when the Company transfers the software license to the customer and when the customer pays for it results in a significant financing component, the Company adjusts the promised amount of consideration for the effects of the time value of money, which reflects the price the customer would have paid when the license was transferred. Revenues from term licenses and maintenance agreements and the related financing component were not significant in the periods presented.

Transactional Revenues

The Company generates the majority of its transactional revenues based on the number of bill-pay transactions that End Users initiate on its digital banking platform. The Company also generates a smaller portion of its transactional revenues from interchange fees generated when End Users utilize debit cards integrated with its Q2 CorePro API or Q2 Biller Direct products. The Company recognizes revenue for bill-pay transaction services and interchange fees in the month incurred based on actual transactions.

Services and Other Revenues

Implementation services are required for each new digital banking and lending and leasing platform and Centrix standalone contract, and there is a significant level of integration and configuration for each customer. The Company's revenue for upfront implementation services is billed upfront and recognized over time on a ratable basis over the customer agreement term for its hosted application agreements. Upfront implementation services for on-premises agreements are recognized at commencement date. Under certain circumstances, the Company partners with third-party professional system integrators to support the installation and configuration process for certain products, and therefore, the Company has determined that these services qualify as a separate performance obligation in certain markets and geographies, and the implementation services for these agreements are recognized over time as services are performed.

Professional services revenues, which primarily consist of training, advisory services, core conversion services, web design, and other general professional services, are generally billed and recognized when delivered.

Certain out-of-pocket expenses billed to customers are recorded as revenues rather than an offset to the related expense. Revenues recorded from out-of-pocket expense reimbursements totaled approximately $1.3 million, $1.9 million and $1.7 million during the years ended December 31, 2020, 2019 and 2018, respectively. The out-of-pocket expenses are reported in cost of revenues.

Significant Judgments

Performance Obligations and Standalone Selling Price

A performance obligation is a promise in a contract to transfer a distinct good or service to the customer and is the unit of accounting. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. The Company has contracts with customers that often include multiple performance obligations, usually including multiple subscription and implementation services. For these contracts, the Company accounts for individual performance obligations that are separately distinct by allocating the contract's total transaction price to each performance obligation in an amount based on the relative standalone selling price, or SSP, of each distinct good or service in the contract. In determining whether implementation services are distinct from subscription services, the Company considered various factors including the significant level of integration, interdependency, and interrelation between the implementation and subscription service, as well as the inability of the customer's personnel or other service providers to perform significant portions of the services. The Company has concluded that the implementation services included in contracts with multiple performance obligations in the North American banking market and implementation services for the Company's loan pricing and portfolio management solution are not distinct and, as a result, the Company defers any arrangement fees for implementation services and recognizes such amounts over time on a ratable basis as one performance obligation with the underlying subscription revenue for the initial agreement term of the hosted application agreements. The Company has concluded that outside the North American banking market, the implementation services for its lending and leasing platform included in contracts with multiple performance obligations are distinct and, as a result, the Company recognizes implementation fees on such arrangements over time as services are performed.

The majority of the Company's revenue recognized at a particular point in time is for usage revenue and on-premise software licenses. These services are performed within a relatively short period of time and are recognized at the point in time in which the customer obtains control of the asset, which is generally upon completion of the service or the point the customer obtained control of the software.

Judgment is required to determine the SSP for each distinct performance obligation. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when, or as, the performance obligation is satisfied. The primary method used to estimate SSP is the adjusted market assessment approach, which considers its overall pricing objectives, market conditions and other factors, including the value of the Company's contracts, its discounting practices, the size and volume of its transactions, customer characteristics, price lists, go-to-market strategy, historical standalone sales and agreement prices, and the number and types of users within its contracts.

Variable Consideration

The Company recognizes usage revenue related to bill-pay transactions that End Users initiate on its digital banking platform and interchange fees that End Users generate using the Company's solutions. Judgment is required to determine the accounting for these types of revenue. The Company considers various factors including the degree to which usage is interdependent or interrelated to past services, costs to the Company per user over the contract, and contractual price per user changes and their relationship to market terms, forecasted data, and the Company's cost to fulfill the obligation. The Company has concluded that its usage revenue relates specifically to the transfer of the service to the customer and is consistent with the allocation objective of Topic 606 when considering all of the performance obligations and payment terms in the contract. Therefore, the Company recognizes usage revenue on a monthly or quarterly basis in accordance with the agreement, as determined and reported. This allocation reflects the amount the Company expects to receive for the services for the given period.

The Company sometimes provides credits or incentives to its customers. Known and estimable credits and incentives represent a form of variable consideration, which are estimated at contract inception and reduce the revenues recognized for a particular contract. These estimates are updated at the end of each reporting period as additional information becomes available. The Company believes that there will not be significant changes to its estimates of variable consideration as of December 31, 2020.

Other Considerations

The Company evaluates whether it is the principal (i.e., report revenues on a gross basis) or agent (i.e., report revenues on a net basis) with respect to the vendor reseller agreements pursuant to which the Company resells certain third-party solutions along with the Company's solutions. Generally, the Company reports revenues from these types of contracts on a gross basis, meaning the amounts billed to customers are recorded as revenues, and expenses incurred are recorded as cost of revenues. Where the Company is the principal, it first obtains control of the inputs to the specific good or service and directs their use to create the combined output. The Company's control is evidenced by its involvement in the integration of the good or service on its platform before it is transferred to its customers and is further supported by the Company being primarily responsible to its customers and having a level of discretion in establishing pricing. Revenues provided from agreements in which the Company is an agent are insignificant.

Cost of Revenues

Cost of revenues are comprised primarily of salaries and other personnel-related costs, including employee benefits, bonuses and stock-based compensation, for employees providing services to the Company's customers. This includes the costs of the Company's implementation, customer support, data center and customer training personnel, as well as costs related to research and development personnel who perform implementation and customer support services. Cost of revenues also includes the direct costs of bill-pay and other third-party intellectual property included in the Company's solutions, the amortization of deferred solution and services costs, co-location facility costs and depreciation of the Company's data center assets, cloud-based hosting services, an allocation of general overhead costs and referral fees. Direct costs of third-party intellectual property include amounts paid for third-party licenses and related maintenance that are incorporated into the Company's software and the amortization of acquired technology from the Company's recent acquisitions, with the costs amortized to cost of revenues over the useful lives of the purchased assets.

The Company capitalizes certain personnel costs directly related to the implementation of its solutions to the extent those costs are recoverable from future revenues. The Company amortizes the costs for an implementation once revenue recognition commences, and the Company amortizes those implementation costs to cost of revenues over the expected period of customer benefit, which has been determined to be the estimated life of the technology. Other costs not directly recoverable from future revenues are expensed in the period incurred.

Software Development Costs

The Company capitalizes certain software development costs under accounting frameworks that differ based on the nature of the software. Software development costs include salaries and other personnel-related costs, including employee benefits and bonuses attributed to programmers, software engineers, quality control teams working on the Company's software solutions. and third-party development costs. Capitalized software development costs are computed on an individual product basis and products available for market are amortized to cost of revenues over the products' estimated economic lives. The costs related to software development are included in intangible assets, net on the consolidated balance sheets.

The Company capitalizes certain development costs associated with software that is to be sold, leased or otherwise marketed that are incurred between reaching technological feasibility of a solution and the point at which the solution is ready for general release. Under this accounting framework, the Company capitalized zero software development costs for each of the years ended December 31, 2020, 2019 and 2018. The Company recognized $0.8 million of amortization of capitalized software development costs for each of the years ended December 31, 2020, 2019 and 2018.

The Company capitalizes certain development costs associated with internal use software incurred during the application development stage. The Company expenses costs associated with preliminary project phase activities, training, maintenance and any post-implementation costs as incurred. Under this accounting framework, the Company capitalized internal use software development costs associated with its SaaS-based technology platforms in the amount of $1.0 million, $0.2 million and zero during the years ended December 31, 2020, 2019 and 2018, respectively, and recognized zero amortization for each of the years ended December 31, 2020, 2019 and 2018.

Research and Development Costs

Research and development costs include salaries and other personnel-related costs, including employee benefits, bonuses and stock-based compensation, third-party contractor expenses, third-party consultants, software development tools, an allocation of facilities and depreciation expenses and other related expenses incurred in developing new solutions and upgrading and enhancing existing solutions.

Certain research and development costs that are related to the Company's software development, which include salaries and other personnel-related costs, including employee benefits and bonuses attributed to programmers, software engineers and quality control teams working on the Company's software solutions, are capitalized and are included in intangible assets, net on the consolidated balance sheets.

Advertising

Advertising costs of the Company are generally expensed the first time the advertising takes place. Advertising costs were $0.7 million, $1.3 million and $1.5 million for the years ended December 31, 2020, 2019 and 2018, respectively. The Company signed a long-term sponsorship arrangement on December 31, 2020, and payments under this arrangement will be deferred and expensed as advertising costs on a straight-line basis over the term of the arrangement.

Sales Tax

The Company presents sales taxes and other taxes collected from customers and remitted to governmental authorities on a net basis and, as such, excludes them from revenues.

Comprehensive Loss

Comprehensive loss includes net loss as well as other changes in stockholders' equity that result from transactions and economic events other than those with stockholders. Other comprehensive loss consists of net loss, unrealized gains and losses on available-for-sale investments, and foreign currency translation adjustments.

Stock-Based Compensation

Stock options, restricted stock units, and market stock units awarded to employees, directors, executives and consultants are measured at fair value at each grant date. The Company does not use a forfeiture rate to recognize compensation expense. Generally, options vest 25% on the one-year anniversary of the grant date with the balance vesting monthly over the following 36 months, and restricted stock unit awards vest in four annual installments of 25% each. Market stock units are performance-based awards that vest based on the Company's stockholder return relative to the total stockholder return of the Russell 2000 Index, or Index, over a three-year period on the anniversary of the date of grant. Generally, up to one-third of the target shares of the Company's common stock subject to each market stock unit award are eligible to be earned after the first and second years of the performance period and up to 200% of the full target number of shares subject to each market stock unit award are eligible to be earned after the completion of the three-year performance period (less any shares earned for years one and two) based on the average price of the Company's common stock relative to the Index during the performance period. From time to time, we may make grants of restricted stock units or market stock units with vesting formulas that vary from those described above.

The Company values stock options using the Black-Scholes option-pricing model, which requires the input of subjective assumptions, including the risk-free interest rate, expected life, expected stock price volatility and dividend yield. The risk-free interest rate assumption is based upon observed interest rates for constant maturity U.S. Treasury securities consistent with the expected term of the Company's employee stock options. The expected life represents the time the stock options are expected to be outstanding and is based on the simplified method. Under the simplified method, the expected life of an option is presumed to be the mid-point between the vesting date and end of the contractual term. The Company used the simplified method due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to otherwise estimate the expected life of the stock options. Expected volatility is based on historical volatilities for publicly traded stock of comparable companies over the estimated expected life of the stock options. The Company assumes no dividend yield because it does not expect to pay dividends in the near future, which is consistent with the Company's history of not paying dividends. The Company recognizes compensation expense ratably over the requisite service period of the stock option award.

The Company values restricted stock units at the closing market price on the date of grant and recognizes compensation expense ratably over the requisite service period of the restricted stock unit award.

The Company estimates the fair value of market stock units on the date of grant using a Monte Carlo simulation model. The determination of fair value of the market stock units is affected by the Company's stock price and a number of assumptions including the expected volatility and the risk-free interest rate. The Company's expected volatility at the date of grant was based on the historical volatilities of its stock and peer firms' stocks and the Index over the performance period. The Company assumes no dividend yield and recognizes compensation expense ratably over the performance period of the market stock unit award. The Company recognizes compensation expense using the graded attribution method on a straight-line basis over the performance period for each market stock unit award.

Convertible Senior Notes

In February 2018, the Company issued $230.0 million principal amount of convertible senior notes due in February 2023, or the 2023 Notes. In June 2019, the Company issued $316.3 million principal amount of convertible senior notes due in June 2026, or the 2026 Notes. In November 2020, the Company issued $350.0 million principal amount of convertible senior notes due in November 2025, or the 2025 Notes. This was achieved by exchanging $181.9 million principal amount of the 2023 Notes for $210.7 million principal amount of the 2025 Notes and issuing an additional $139.3 million of new notes.

When accounting for the issuance of convertible notes, the Company typically separates each of the convertible notes into liability and equity components. The carrying amount of the liability component is calculated by measuring the fair value, as of the date of issuance, of a similar debt without the conversion feature. The carrying amount of the equity component representing the conversion feature is determined by deducting the fair value of the liability components from the total initial proceeds. The difference between the par amount of the convertible notes and the carrying amount of the liability component represents debt discounts that are amortized to interest expense over the respective terms of the convertible notes using the effective interest rate method. The equity components are not remeasured as long as they continue to meet the conditions for equity classification. In accounting for the issuance costs related to its convertible notes, the Company allocates the total amount of issuance costs incurred to liability and equity components based on their relative values. Issuance costs attributable to the liability components are amortized to interest expense over the respective terms of the convertible notes using the effective interest rate method. The issuance costs attributable to the equity components were netted against the respective equity components in additional paid-in capital.

When accounting for an exchange of convertible notes, the Company evaluates whether the transaction should be evaluated as a modification or extinguishment transaction. The partial exchange of the 2023 Notes and issuance of the 2025 Notes were deemed to have substantially different terms due to the significant difference between the value of the conversion option immediately prior to and after the exchange, and consequently, the 2023 Notes partial exchange was accounted for as a debt extinguishment. In an exchange transaction, the Company will allocate a portion of the settlement consideration to the reacquisition of the liability component, which is equal to the fair value of that component immediately prior to the extinguishment, and allocate the remaining settlement consideration to the reacquisition of the equity component and recognize that amount as a reduction of additional paid in capital. The difference between the consideration attributed to the liability component and the sum of the net carrying amount of the liability component and any unamortized debt issuance costs is recognized as a gain or loss on debt extinguishment in the Company's consolidated statements of comprehensive loss.

Leases

The Company determines if a contract contains a lease for accounting purposes at the inception of the arrangement. The Company has elected to apply the practical expedient which allows the Company to account for lease and non-lease components of a contract as a single leasing arrangement. In addition, the Company has elected the practical expedients related to lease classification and the short-term lease exemption, whereby leases with initial terms of one year or less are not capitalized and instead expensed generally on a straight-line basis over the lease term. The Company is primarily a lessee with a lease portfolio comprised mainly of real estate and equipment leases. As of December 31, 2020, the Company had no finance leases.

Operating lease assets are included on the Company's consolidated balance sheets in non-current assets as a right-of-use, or ROU, asset, and represent the Company's right to use an underlying asset for the lease term. Operating lease liabilities are included on the Company's consolidated balance sheets in lease liabilities, current portion, for the portion that is due within 12 months and in lease liabilities, net of current portion, for the portion that is due beyond 12 months of the financial statement date and represent the Company's obligation to make lease payments.

ROU assets and lease liabilities are recognized at the commencement date of the lease based on the present value of lease payments over the lease term using an appropriate discount rate. If an implicit rate is not readily determined by the Company's leases, the Company utilizes the incremental borrowing rate based on the available information at the commencement date to determine the lease payments. The depreciable lives of the underlying leased assets are generally limited to the expected lease term inclusive of any optional lease renewals where the Company concludes at the inception of the lease that the Company is reasonably certain of exercising those options. The ROU asset calculation may also include any initial direct costs paid and is reduced by any lease incentives provided by the lessor. Lease expense for operating lease payments is recognized on a straight-line basis over the lease term.

Contingent Consideration

On October 15, 2018, the Company's wholly-owned subsidiary, Q2 Software, Inc. acquired all of the outstanding capital stock of Cloud Lending, Inc., a Delaware corporation, or Cloud Lending. Certain former stockholders of Cloud Lending had the right to receive an earnout payment of up to an additional $59.5 million in the aggregate based upon satisfaction of certain financial milestones. The initial fair value calculation of the contingent consideration related to the earnout payment was calculated utilizing the Monte Carlo simulation method under the option pricing model. Between the time of the purchase price finalization and the final measurement date of March 31, 2020, the fair value of the contingent consideration was estimated on a quarterly basis through a collaborative effort by our sales and finance departments. Changes in the fair value of the contingent consideration subsequent to the purchase price finalization were recorded as acquisition related costs in the consolidated statements of comprehensive loss. As of December 31, 2020, all of the contingent consideration has been paid.

Income Taxes

Deferred income taxes are provided for the tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and operating loss carryforwards and credits using enacted tax rates expected to be in effect in the years in which the differences are expected to reverse. The Company assesses the likelihood that deferred tax assets will be realized and recognizes a valuation allowance if it is more likely than not that some portion of the deferred tax assets will not be realized. This assessment requires judgment as to the likelihood and amounts of future taxable income by tax jurisdiction. To date, the Company has provided a valuation allowance against most of its deferred tax assets as it believes the objective and verifiable evidence of its historical pretax net losses outweighs any positive evidence of its forecasted future results. Although the Company believes that its tax estimates are reasonable, the ultimate tax determination involves significant judgment that is subject to audit by tax authorities in the ordinary course of business. The Company will continue to monitor the positive and negative evidence, and it will adjust the valuation allowance as sufficient objective positive evidence becomes available.

(in thousands, except per share amounts and unless otherwise indicated)

The Company evaluates its uncertain tax positions based on a determination of whether and how much of a tax benefit taken by the Company in its tax filings or positions is more likely than not to be realized. Potential interest and penalties associated with any uncertain tax positions are recorded as a component of income tax expense.

Basic and Diluted Net Loss per Common Share

The following table sets forth the computations of net loss per share for the periods listed:

	Year ended December 31,		
	2020	**2019**	**2018**
Numerator:			
Net loss	$ (137,620)	$ (70,877)	$ (35,
Denominator:			
Weighted-average common shares outstanding, basic and diluted	52,019	46,198	42,
Net loss per common share, basic and diluted	$ (2.65)	$ (1.53)	$ (0

Due to net losses for each of the years ended December 31, 2020, 2019 and 2018, basic and diluted loss per share were the same, as the effect of all potentially dilutive securities would have been anti-dilutive. The following table sets forth the anti-dilutive common share equivalents for the periods listed:

	Year ended December 31,		
	2020	**2019**	**2018**
Stock options, restricted stock units, and market stock units	2,797	3,805	5,
Shares related to the 2023 Notes	298	887	
Shares subject to warrants related to the issuance of the 2023 Notes	96	—	
Shares related to the 2026 Notes	15	—	
	3,206	4,692	5,

Because the Company has the intention and ability to settle the principal amount of each of its 2023 Notes, 2025 Notes and 2026 Notes in cash, the treasury stock method is expected to be used for calculating any potential dilutive effect of the conversion spread on diluted net income per share, if applicable. For the 2023 Notes, the conversion premium has a dilutive impact on net income per share of common stock when the average market price of common stock for a given period exceeds the conversion price of $57.38 per share. For the 2025 Notes, the conversion premium has a dilutive impact on net income per share of common stock when the average market price of common stock for a given period exceeds the conversion price of $140.14 per share. For the 2026 Notes, the conversion premium has a dilutive impact on net income per share of common stock when the average market price of common stock for a given period exceeds the conversion price of $88.61 per share. The warrants issued by the Company in connection with its February 2018 convertible note offering, or Warrants, have a dilutive effect when the average market price of common stock for a given period exceeds the Warrant's strike price of $78.75 per share. For the year ended December 31, 2020, the average market price per share of the Company's common stock exceeded the conversion price of the 2023 and 2026 Notes and the strike price of the Warrants; however, since the Company is in a net loss position, there was no dilutive effect on net income per share of the Company's common stock during any period presented. During the year ended December 31, 2020, the average market price per share of the Company's common stock was below the conversion price of the 2025 Notes.

Recent Accounting Pronouncements

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326)" which modifies the measurement of expected credit losses of certain financial instruments. The new guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. The Company adopted the standard effective January 1, 2020. The standard impacted the Company's accounting for allowances for credit losses, available-for-sale debt securities and other assets subject to credit risk. Credit losses on trade and other receivables, contract assets, available-for-sale debt securities, and other instruments reflect the Company's current estimate of the expected credit losses and generally result in the earlier recognition of allowance for losses. Adoption of the new standard resulted in the recording of a cumulative-effect adjustment to accumulated deficit of $0.3 million on January 1, 2020. The Company will continue to actively monitor the impact of the recent COVID-19 pandemic on expected credit losses.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment" which simplifies the accounting for goodwill impairment by removing Step 2 of the goodwill impairment test and requires an entity to write down the carrying value of goodwill up to the amount by which the carrying amount of a reporting unit exceeds its fair value. The standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years and early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. The Company adopted the standard effective January 1, 2020. There was no material impact on the Company's financial position or results of operations based on the adoption of ASU 2017-04.

In August 2020, the FASB issued ASU No. 2020-06, "Debt - Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging - Contracts in Entity's Own Equity (Subtopic 815-40)" which simplifies the accounting for convertible debt instruments by eliminating the requirement to separate embedded conversion features from the host contract when the conversion features are not required to be accounted for as derivatives under Topic 815, Derivatives and Hedging, or that do not result in substantial premiums accounted for as paid-in capital. In addition, the guidance eliminates the treasury stock method to calculate diluted earnings per share for convertible instruments and requires the use of the if-converted method. The standard is effective for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. The Company may adopt the guidance through either a modified retrospective method of transition or a fully retrospective method of transition. The Company is currently evaluating the potential effects of this guidance on its consolidated financial statements.

3. Business Combinations

PrecisionLender

On October 31, 2019, the Company's wholly-owned subsidiary, Q2 Software, Inc. acquired all of the outstanding equity interests of privately-owned PrecisionLender. The acquisition added to the Company's portfolio of solutions PrecisionLender's data-driven sales enablement, pricing and portfolio management solutions for financial institutions globally. The purchase price paid was in excess of the fair value of the net assets acquired and, as a result, the Company recorded goodwill.

PrecisionLender was acquired for approximately $510.0 million in cash from existing balances. At closing, the Company deposited into an escrow account $3.0 million of the initial consideration, or PL Purchase Price Escrow Amount, to compensate for any post-closing working capital adjustments. To the extent not utilized, the PL Purchase Price Escrow Amount was to be paid to the former stockholders of PrecisionLender at the end of the 60-day adjustment period unless there were any unresolved claims remaining at that time. The Company released the $3.0 million in the PL Purchase Price Escrow Amount and paid out an additional $0.2 million related to the finalization of the closing estimates to the former stockholders of PrecisionLender during the year ended December 31, 2020. At closing, the Company also deposited into an escrow account $1.8 million of the initial consideration, or PL Escrow Amount, to compensate for any breach of a representation or warranty or any violation or default of any obligation by the sellers subsequent to the acquisition during a period of 18 months following the acquisition date. To the extent not utilized, the PL Escrow Amount shall be paid to the former stockholders of PrecisionLender at the end of the 18-month period unless there are any unresolved claims remaining at that time.

The Company accrues for payouts contingent upon continued and future employment of acquired employees and contractors of PrecisionLender, and the unpaid amounts due to the continuing employees are recorded in accrued compensation in the consolidated balance sheets. Compensation expense recognized under these agreements, which is included in cost of revenues in the consolidated statements of comprehensive loss, was $0.9 million and $0.2 million for the years ended December 31, 2020 and 2019, respectively, and compensation expense recognized under these agreements included in acquisition related costs in the consolidated statements of comprehensive loss was $2.7 million and $0.5 million for the years ended December 31, 2020 and 2019, respectively. The Company paid $3.7 million to acquired employees during the year ended December 31, 2020.

Gro Solutions

On November 30, 2018, the Company's wholly-owned subsidiary, Q2 Software, Inc. acquired all of the outstanding shares of Gro Solutions, or Gro, a privately-owned provider of digital account opening and sales and marketing solutions. The purchase price paid was in excess of the fair value of the net assets acquired, and as a result, the Company recorded goodwill.

Gro was acquired for approximately $25.5 million in cash from existing balances. At closing, the Company deposited into an escrow account $0.4 million of the initial consideration, or Gro Escrow Amount, to compensate for any breach of a representation or warranty or any violation or default of any obligation by the sellers subsequent to the acquisition during an escrow period of 12 or 18 months following the acquisition date depending upon the nature of the breach, violation or default. To the extent not utilized, the Gro Escrow Amount shall be paid to the former stockholders of Gro at the end of the 18-month period unless there are any unresolved claims remaining at that time. The Company released approximately $0.3 million and $0.1 million during the years ended December 31, 2020 and 2019, respectively, related to the Gro Escrow Amount, bringing the balance of the escrow to zero at December 31, 2020.

The Company accrues for payouts contingent upon continued and future employment of acquired employees and contractors of Gro, and the unpaid amounts due to the continuing employees are recorded in accrued compensation in the consolidated balance sheets. Compensation expense recognized under these agreements, which is included in acquisition related costs and cost of revenues in the consolidated statements of comprehensive loss, was $0.3 million, $0.2 million and $0.1 million for the years ended December 31, 2020, 2019 and 2018, respectively. The Company has paid out $0.1 million to acquired employees and contractors during each of the years ended December 31, 2020 and 2019.

Cloud Lending

On October 15, 2018, the Company's wholly-owned subsidiary, Q2 Software, Inc. acquired all of the outstanding capital stock of Cloud Lending Inc., or Cloud Lending, a privately-owned provider of end-to-end digital lending and leasing platform solutions. The purchase price paid was in excess of the fair value of the net assets acquired and, as a result, the Company recorded goodwill.

Cloud Lending was acquired for a purchase price of approximately $125.1 million of which the Company paid $107.3 million in cash. At closing, the Company deposited into an escrow account $10.5 million of the initial consideration, or CL Escrow Amount, to compensate for any breach of a representation or warranty or any violation or default of any obligation by the sellers subsequent to the acquisition during the period of 18 months following the acquisition date. During the year ended December 31, 2020, the Company released $10.1 million of the CL Escrow Amount, bringing the balance of the escrow to zero at December 31, 2020.

Certain former stockholders of Cloud Lending had the right to receive an earnout payment of up to an additional $59.5 million in the aggregate based upon the achievement of certain financial milestones by applicable measurement dates of June 30, 2019 and March 31, 2020. Financial milestones triggering payout on the first measurement date of June 30, 2019 were not achieved. The final calculation for the contingent consideration payment based on the final measurement date of March 31, 2020 was $21.2 million. As of December 31, 2020, all of the contingent consideration had been paid. Changes in the fair value of the contingent consideration subsequent to the purchase price finalization were recorded as acquisition related costs in the consolidated statements of comprehensive loss.

The Company accrues for payouts contingent upon continued and future employment of acquired employees and contractors of Cloud Lending, and the unpaid amounts due to the continuing employees are recorded in accrued compensation in the consolidated balance sheets. Compensation expense recognized under these agreements, which is included in acquisition related costs and cost of revenues in the consolidated statements of comprehensive loss, was $0.1 million, $1.6 million and $0.3 million for the years ended December 31, 2020, 2019 and 2018, respectively. The Company paid $0.8 million and $1.1 million to acquired employees and contractors during the years ended December 31, 2020 and 2019, respectively.

(in thousands, except per share amounts and unless otherwise indicated)

4. Fair Value Measurements

The carrying values of the Company's financial instruments, principally cash equivalents, investments, accounts receivable, restricted cash and accounts payable, approximated their fair values due to the short period of time to maturity or repayment.

Fair value is defined as the exchange price that would be received for an asset or an exit price paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The current accounting guidance for fair value measurements defines a three-level valuation hierarchy for disclosures as follows:

- Level I—Unadjusted quoted prices in active markets for identical assets or liabilities;
- Level II—Inputs other than quoted prices included within Level I that are observable, unadjusted quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data; and
- Level III—Unobservable inputs that are supported by little or no market activity, which requires the Company to develop its own assumptions.

The categorization of a financial instrument within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The following table details the fair value hierarchy of the Company's financial assets measured at fair value on a recurring basis as of December 31, 2020:

		Fair Value Measurements Using:		
Assets	**Fair Value**	**Quoted Prices in Active Markets for Identical Assets (Level I)**	**Significant Other Observable Inputs (Level II)**	**Significant Unobservable Inputs (Level III)**
Cash Equivalents:				
Money market funds	$ 188,469	$ 188,469	$ —	$ —
Certificates of deposit	25,028	—	25,028	—
Corporate bonds and commercial paper	996	—	996	—
U.S. government securities	19,999	—	19,999	—
	$ 234,492	$ 188,469	$ 46,023	$ —
Investments:	**Fair Value**	**Quoted Prices in Active Markets for Identical Assets (Level I)**	**Significant Other Observable Inputs (Level II)**	**Significant Unobservable Inputs (Level III)**
Corporate bonds and commercial paper	$ 31,239	$ —	$ 31,239	$ —
Certificates of deposit	10,007	—	10,007	—
U.S. government securities	90,106	—	90,106	—
	$ 131,352	$ —	$ 131,352	$ —

(in thousands, except per share amounts and unless otherwise indicated)

The following table details the fair value hierarchy of the Company's financial assets measured at fair value on a recurring basis as of December 31, 2019:

		Fair Value Measurements Using:		
Assets	**Fair Value**	**Quoted Prices in Active Markets for Identical Assets (Level I)**	**Significant Other Observable Inputs (Level II)**	**Significant Unobservable Inputs (Level III)**
Cash Equivalents:				
Money market funds	$ 14,518	$ 14,518	$ —	$ —
Investments:	**Fair Value**	**Quoted Prices in Active Markets for Identical Assets (Level I)**	**Significant Other Observable Inputs (Level II)**	**Significant Unobservable Inputs (Level III)**
Corporate bonds and commercial paper	$ 32,325	$ —	$ 32,325	$ —
Liabilities				
Accrued compensation:	**Fair Value**	**Quoted Prices in Active Markets for Identical Assets (Level I)**	**Significant Other Observable Inputs (Level II)**	**Significant Unobservable Inputs (Level III)**
Contingent consideration	$ 24,120	$ —	$ —	$ 24,120

The Company determines the fair value of its investment holdings based on pricing from its pricing vendors. The valuation techniques used to measure the fair value of financial instruments having Level II inputs were derived from non-binding consensus prices that are corroborated by observable market data or quoted market prices for similar instruments. Such market prices may be quoted prices in active markets for identical assets (Level I inputs) or pricing determined using inputs other than quoted prices that are observable either directly or indirectly (Level II inputs).

The Company added contingent consideration on October 15, 2018 with the acquisition of Cloud Lending. The contingent consideration liabilities were recorded at fair value on the acquisition date and subsequently adjusted to fair value at each reporting period. The Company's contingent consideration was valued using a Monte Carlo simulation model. The assumptions used in preparing the Monte Carlo simulation model included estimates for revenue growth rates, revenue volatility, revenue recognition periods, risk-free rates and discount rates. The increases or decreases in the fair value of contingent consideration payable can result from changes in anticipated revenue levels and assumed discount periods and rates. The final calculation for the contingent consideration payment based on the final measurement date of March 31, 2020 was $21.2 million. As of December 31, 2020, all of the contingent consideration has been paid. The final value of the contingent consideration decreased by $2.9 million from the estimated fair value at December 31, 2019. This decrease was mainly attributable to the Company's actual achievement, which was in part impacted by the delays in customer purchasing decisions experienced as a result of the uncertainty around COVID-19.

5. Cash, Cash Equivalents and Investments

The Company's cash, cash equivalents and investments as of December 31, 2020 and 2019 consisted primarily of cash, U.S. government securities, corporate bonds, commercial paper, certificates of deposit and money market funds.

The Company classifies investments as available-for-sale at the time of purchase and reevaluates such classification as of each balance sheet date. All investments are recorded at estimated fair value. Unrealized gains and losses on available-for-sale investments are included in accumulated other comprehensive loss, a component of stockholders' equity. The adoption of ASU 2016-13 did not have a material impact on the Company's accounting for available-for-sale debt securities. If the Company does not expect to recover the entire amortized cost basis of the available-for-sale debt security, it considers the available-for-sale debt security to be impaired. For individual debt securities classified as available-for-sale and deemed impaired, the Company assesses whether such decline has resulted from a credit loss or other factors. Impairment relating to credit losses is recorded through a reserve, limited to the amount that the fair value is less than the amortized cost basis. Impairment deemed to be non-credit related is reported in other income (expense), net in the consolidated statements of comprehensive loss. Realized gains and losses are determined based on the specific identification method and are reported in other income (expense), net in the consolidated statements of comprehensive loss. Interest, amortization of premiums and accretion of discount on all investments classified as available-for-sale are also included as a component of other income (expense), net in the consolidated statements of comprehensive loss. Based on the Company's assessment, no impairments for credit losses were recognized during the year ended December 31, 2020.

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As of December 31, 2020 and 2019, the Company's cash was $173.2 million and $85.6 million, respectively.

A summary of the cash equivalents and investments as of December 31, 2020 is as follows:

Cash Equivalents:	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Money market funds	$ 188,469	$ —	$ —	$ 188,469
Certificates of deposit	25,028	—	—	25,028
Corporate bonds and commercial paper	997	—	(1)	996
U.S. government securities	19,999	—	—	$ 19,999
	$ 234,493	$ —	$ (1)	$ 234,492

Investments:	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds and commercial paper	$ 31,233	$ 15	$ (9)	$ 31,239
Certificates of deposit	10,007	—	—	10,007
U.S. government securities	90,120	—	(14)	$ 90,106
	$ 131,360	$ 15	$ (23)	$ 131,352

A summary of the cash equivalents and investments as of December 31, 2019 is as follows:

Cash Equivalents:	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Money market funds	$ 14,518	$ —	$ —	$ 14,518

Investments:	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate bonds and commercial paper	$ 32,216	$ 110	$ (1)	$ 32,325

The Company may sell its investments at any time, without significant penalty, for use in current operations or for other purposes, even if they have not yet reached maturity. As a result, the Company classifies its investments, including investments with maturities beyond twelve months, as current assets in the accompanying consolidated balance sheets.

(in thousands, except per share amounts and unless otherwise indicated)

The following table summarizes the estimated fair value of the Company's investments, designated as available-for-sale and classified by the contractual maturity date of the investments as of the dates shown:

	December 31,	
	2020	2019
Due within one year or less	$ 131,352	$ 29,789
Due after one year through five years	—	2,536
	$ 131,352	$ 32,325

The Company has certain available-for-sale investments in a gross unrealized loss position, all of which have been in such position for less than twelve months. The Company regularly reviews its investments for impairment resulting from credit loss using both qualitative and quantitative criteria, as necessary, based on the composition of the portfolio at period end. The Company considers factors such as the length of time and extent to which the market value has been less than the cost, the financial position and near-term prospects of the issuer and its intent to sell, or whether it is more likely than not the Company will be required to sell the investment before recovery of the investment's amortized-cost basis. If the Company determines that impairment exists in one of these investments, the respective investment would be written down to fair value. For debt securities, the portion of the write-down related to credit loss would be recognized in other income, net in the consolidated statements of comprehensive loss if the intent of the Company was to sell the investment before recovery. If the Company did not intend to sell, the portion of the write-down related to credit loss would be recorded to a reserve. Any portion not related to credit loss would be included in accumulated other comprehensive loss in the consolidated statements of comprehensive loss. Because the Company does not intend to sell any investments which have an unrealized loss position at this time, and it is not more likely than not that the Company will be required to sell the investment before recovery of its amortized cost basis, which may be maturity, the reserve for available-for-sale debt securities was zero as of December 31, 2020.

The following table shows the fair values and the gross unrealized losses of these available-for-sale investments aggregated by investment category as of December 31, 2020:

	Adjusted Cost	Gross Unrealized Loss	Fair Value
U.S. government securities	$ 90,120	$ (14)	$ 90,106
Corporate bonds and commercial paper	21,445	(9)	21,436
	$ 111,565	$ (23)	$ 111,542

The following table shows the fair values and the gross unrealized losses of these available-for-sale investments aggregated by investment category as of December 31, 2019:

	Adjusted Cost	Gross Unrealized Loss	Fair Value
Corporate bonds and commercial paper	$ 2,537	$ (1)	$ 2,536

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6. Deferred Solution and Other Costs

Deferred solution and other costs, current portion and net of current portion, consisted of the following:

	December 31,	
	2020	2019
Deferred solution costs	$ 12,487	$ 10,658
Deferred commissions	6,555	4,951
Deferred solution and other costs, current portion	$ 19,042	$ 15,609
Deferred solution costs	$ 11,075	$ 12,464
Deferred commissions	21,707	16,756
Deferred solution and other costs, net of current portion	$ 32,782	$ 29,220

7. Property and Equipment

Property and equipment consisted of the following:

	December 31,	
	2020	2019
Computer hardware and equipment	$ 51,570	$ 40,887
Purchased software and licenses	10,219	11,509
Furniture and fixtures	7,396	6,811
Leasehold improvements	15,202	14,655
	84,387	73,862
Accumulated depreciation	(34,829)	(34,610)
Property and equipment, net	$ 49,558	$ 39,252

Depreciation expense was $11.8 million, $11.4 million and $9.7 million for the years ended December 31, 2020, 2019 and 2018, respectively.

8. Goodwill and Intangible Assets

The carrying amount of goodwill was $462.3 million and $462.0 million at December 31, 2020 and 2019, respectively. During the fourth quarter of 2019, the Company added $354.2 million of goodwill for the PrecisionLender acquisition. Goodwill represents the excess purchase price over the fair value of assets acquired. The Company has one operating segment and one reporting unit. Goodwill is tested for impairment on an annual basis, and between annual tests if indicators of potential impairment exist, using a fair-value-based approach based on the market capitalization of the reporting unit. The annual impairment test was performed as of October 31, 2020. No impairment of goodwill was identified during 2020, nor has any impairment of goodwill been recorded to date.

(in thousands, except per share amounts and unless otherwise indicated)

Intangible assets at December 31, 2020 and 2019 were as follows:

	As of December 31, 2020			As of December 31, 2019		
	Gross Amount	Accumulated Amortization	Net Carrying Amount	Gross Amount	Accumulated Amortization	Net Carrying Amount
Customer relationships	$ 64,405	$ (18,568)	$ 45,837	$ 64,405	$ (5,746)	$ 58,659
Non-compete agreements	12,705	(3,205)	9,500	13,505	(1,375)	12,130
Trademarks	19,870	(3,612)	16,258	22,280	(3,653)	18,627
Acquired technology	141,340	(30,256)	111,084	148,613	(16,192)	132,421
Assembled workforce	—	—	—	38	(37)	1
Capitalized software development costs	5,103	(2,923)	2,180	4,151	(2,128)	2,023
	$ 243,423	$ (58,564)	$ 184,859	$ 252,992	$ (29,131)	$ 223,861

The estimated useful lives and weighted average amortization periods for intangible assets at December 31, 2020 are as follows (in years):

	Estimated Useful Life	Weighted Average Amortization Period
Customer relationships	3 - 6	3.8
Non-compete agreements	5	3.8
Trademarks	8 - 10	7.4
Acquired technology	5 - 7	5.6
Capitalized software development costs	3 - 5	2.2
Total		5.2

The Company recorded intangible assets from the business combinations discussed in Note 3, Business Combinations. Intangible assets are amortized on a straight-line basis over their estimated useful lives, which range from three to ten years. Amortization expense included in cost of revenues in the consolidated statements of comprehensive loss was $21.3 million, $9.9 million and $4.5 million for the years ended December 31, 2020, 2019 and 2018, respectively. Amortization expense included in operating expenses in the consolidated statements of comprehensive loss was $17.9 million, $6.3 million and $1.8 million for the years ended December 31, 2020, 2019 and 2018, respectively.

Gross capitalized software development costs were $5.1 million and $4.2 million as of December 31, 2020 and 2019, respectively. The Company amortized $0.8 million for each of the years ended December 31, 2020, 2019 and 2018. Capitalized software development costs are computed on an individual product basis and those products available for market are amortized to cost of revenues over the products' estimated economic lives, which are expected to be three to five years.

The estimated future amortization expense related to intangible assets as of December 31, 2020 was as follows:

	Amortization
Year Ended December 31,	
2021	$ 39,1
2022	38,3
2023	37,5
2024	32,2
2025	20,3
Thereafter	17,1
Total amortization	$ 184,8

(in thousands, except per share amounts and unless otherwise indicated)

9. Accrued Liabilities

Accrued liabilities consisted of the following:

	December 31,	
	2020	2019
Accrued data center equipment and software purchases	$ 828	$ 1.
Accrued transaction processing fees	4,434	6.
Accrued partnership termination charges	7,619	
Accrued professional services	1,743	1.
Other	7,820	6.
	$ 22,444	$ 16.

10. Commitments and Contingencies

Operating Lease Commitments

The Company leases office space under non-cancellable operating leases for its corporate headquarters in Austin, Texas in two adjacent buildings under separate lease agreements. Pursuant to the first of which the Company leases approximately 67 square feet of office space which expires on April 30, 2021, with the option to extend the lease for an additional five-year term, and pursuant to the second of which the Company leases approximately 129 square feet of office space with an initial term that expires on April 30, 2028, with the option to extend the lease for an additional ten-year term. The Company also leases office space in Lincoln, Nebraska; Des Moines, Iowa; Atlanta, Georgia; Asheville, North Carolina; Charlotte, North Carolina; Cary, North Carolina; Bangalore, India; and Sydney Australia. On December 18, 2019, the Company entered into an office lease agreement with Aspen Lake Building Three, LLC to lease approximately 129 rentable square feet of an office building to be located immediately adjacent to the Company's headquarters in order to expand the Company's headquarters, commencing June 1, 2021.

During the year ended December 31, 2020, the Company vacated facilities in San Mateo, California; south Austin, Texas; and a portion of the facilities in Charlotte, North Carolina and recorded an unoccupied lease charge of $2.2 million for the remaining contractual lease payments and related fees, less estimated sublease income. During the year ended December 31, 2019, the Company vacated one of its Atlanta, Georgia facilities and recorded an unoccupied lease charge of $0.4 million for the remaining contractual lease payments and related fees, less estimated sublease income. During the year ended December 31, 2018, the Company vacated a portion of its south Austin office and recorded an unoccupied lease charge of $0.7 million for the remaining contractual lease payments, associated asset disposal, and related fees, less estimated sublease income. The lease liabilities related to the subleases that are expected to be paid during the succeeding twelve-month period of $0.7 million are recorded in accrued liabilities, and the remaining portion of the associated liability of $1.4 million is recorded in other long-term liabilities on the accompanying consolidated balance sheet at December 31, 2020.

The Company believes its current facilities and facilities under contract will be adequate for its needs for the current term. Rent expense under operating leases was $6.6 million, $5.3 million and $4.4 million for the years ended December 31, 2020, 2019 and 2018, respectively.

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The components of lease costs, lease term and discount rate as of December 31 were as follows:

	Operating Leases	
	2020	2019
Lease expense:		
Operating lease expense	$ 8,874	$ 2,289
Sublease income	(691)	(157)
Total lease expense	$ 8,183	$ 2,132
Other information:		
Cash paid for operating operating lease liabilities	$ 9,326	$ 2,011
Right-of-use assets obtained in exchange for operating lease liabilities for the years ended December 31, 2020 and 2019	$ 3,646	$ 7,097
Weighted-average remaining lease term - operating leases	6.3 years	6.8 years
Weighted-average discount rate - operating leases	5.5 %	5.5 %

Future minimum payments required under operating leases that have initial or remaining non-cancelable lease terms in excess of one year at December 31, 2020 were as follows:

	Operating Leases
Year Ended December 31,	
2021	$ 9,170
2022	8,750
2023	8,395
2024	7,336
2025	6,320
Thereafter	10,549
Total lease payments	$ 50,520
Less: present value discount	(6,937)
Present value of lease liabilities	$ 43,583

As of December 31, 2020, the Company had approximately $31.6 million of future payments under an additional lease, primarily for corporate facilities, that has not yet commenced. This operating lease will commence in June 2021 with a lease term of approximately ten years.

Contractual Commitments

The Company has non-cancelable contractual commitments related to the 2023 Notes, 2025 Notes and the 2026 Notes as well as the related interest, third-party products, co-location fees and other product costs. The Company is party to several purchase commitments for third-party products that contain both a contractual minimum obligation and a variable obligation based upon usage or other factors which can change on a monthly basis. The interest on the 2023 Notes is payable semi-annually on February 15 and August 15 of each year. The interest on the 2025 Notes is payable semi-annually on May 15 and November 15 of each year. The interest on the 2026 Notes is payable semi-annually on June 1 and December 1 of each year. The estimated amounts for usage and other factors are not included within the table below.

In the quarter ended June 30, 2020, in connection with the termination of a strategic partnership, the Company paid a termination fee of $5.6 million in May 2020 with a remaining payment of $7.6 million to be made in the third quarter of 2021. The Company recorded the $13.2 million charge in partnership termination charges in the consolidated statements of comprehensive loss in the second quarter of 2020 and has recorded the unpaid portion of the termination fee in accrued liabilities on the accompanying consolidated balance sheet at December 31, 2020.

(in thousands, except per share amounts and unless otherwise indicated)

On December 31, 2020, the Company entered into a long-term sponsorship agreement, beginning in 2021 and ending in 2028, which grants the Company exclusive naming rights, sponsorship, signage, advertising and other promotional rights and benefits. The advertising benefits of such rights will be amortized on a straight-line basis and recorded in sales and marketing expense in the consolidated statements of comprehensive loss. The prepaid commitment balance, net of amortization, will be included in prepaid expenses and other current assets in the consolidated balance sheets.

Future minimum contractual commitments that have initial or remaining non-cancelable terms in excess of one year were as follows:

	Contractual Commitments
Year Ended December 31,	
2021	$ 34,212
2022	23,490
2023	65,283
2024	6,589
2025	356,328
Thereafter	327,936
Total commitments	$ 813,838

Legal Proceedings

From time to time, the Company may become involved in legal proceedings arising in the ordinary course of its business. The Company is not presently a party to any legal proceedings that, if determined adversely to the Company, would have a material adverse effect on the Company.

Loss Contingencies

In the ordinary course of business, the Company is subject to loss contingencies that cover a range of matters. An estimated loss from a loss contingency, such as a legal proceeding or claim, is accrued if it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated.

11. Convertible Senior Notes

0.75% Convertible Notes due 2023

In February 2018, the Company issued $230.0 million principal amount of convertible senior notes due in February 2023. The interest rate for the 2023 Notes is fixed at 0.75% per annum with interest payable semi-annually on February 15 and August 15 of each year, commencing on August 15, 2018. The 2023 Notes mature on February 15, 2023, unless earlier converted or repurchased in accordance with their terms prior to such date. Each $1,000 of principal of the 2023 Notes will initially be convertible into 17.4292 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately $57.38 per share. The initial conversion price for each of the 2023 Notes is subject to adjustment upon the occurrence of certain specified events.

In November 2020, the Company exchanged $181.9 million in aggregate principal amount of the 2023 Notes for $210.7 million in aggregate principal of 2025 Notes and 1.3 million shares of common stock. The Company did not receive any cash proceeds from the exchange. In exchange for issuing 2025 Notes pursuant to the exchange transaction, the Company received and cancelled the exchanged 2023 Notes. As of the exchange date, the carrying value of the 2023 Notes, net of unamortized debt discount and issuance costs, was $42.9 million. The partial exchange of the 2023 Notes resulted in an $8.9 million loss on early debt extinguishment, of which $2.0 million consisted of unamortized debt issuance costs. As of December 31, 2020, $48.0 million of principal remained outstanding on the 2023 Notes.

The 2023 Notes are the Company's senior unsecured obligations and rank senior in right of payment to any of the Company's indebtedness that is expressly subordinated in right of payment to the 2023 Notes, rank equally in right of payment with any of the Company's indebtedness that is not so subordinated, including the 2026 Notes and 2025 Notes, are effectively junior in right of payment to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness and are structurally junior to all indebtedness and other liabilities (including trade payables) of the Company's current or future subsidiaries.

On or after November 15, 2022, holders may convert all or any portion of their 2023 Notes at any time prior to the close of business on the second scheduled trading day immediately preceding the maturity date, regardless of the succeeding conditions described herein. Upon conversion, the Company will pay or deliver cash, shares of its common stock or a combination of cash and shares of its common stock, at its election, as described in the indenture governing the 2023 Notes.

Holders may convert their 2023 Notes at their option at any time prior to the close of business on the business day immediately preceding November 15, 2022 only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on June 30, 2018 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- during the five consecutive business day period after any five consecutive trading day period in which the trading price per $1,000 principal amount of 2023 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such trading day; or
- upon the occurrence of specified corporate events.

If a fundamental change (as defined in the relevant indenture governing the 2023 Notes) occurs prior to the maturity date, holders of each of the 2023 Notes may require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount of the 2023 Notes, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date.

For more than 20 trading days during the 30 consecutive trading days ended December 31, 2019, the last reported sale price of the Company's common stock exceeded 130% of the conversion price of the 2023 Notes. As a result, the 2023 Notes became convertible at the option of the holders on January 1, 2020 and were convertible through March 31, 2020. For more than 20 trading days during the 30 consecutive trading days ended June 30, 2020, September 30, 2020 and December 31, 2020, the last reported sale price of the Company's common stock exceeded 130% of the conversion price of the 2023 Notes. As a result, the 2023 Notes became convertible at the option of the holders on July 1, 2020 and will remain convertible through March 31, 2021. As of December 31, 2020, the if-converted value of the 2023 Notes exceeded the principal amount by $57.9 million. The if-converted value was determined based on the closing price of the Company's stock of $126.53 on December 31, 2020. 20 notes of the 2023 Notes, with a principal amount of $1,000 each, have been converted since original issuance of the 2023 Notes through the date of this filing.

In accordance with accounting guidance for cash conversion features, the Company valued the liability component at the estimated fair value, as of the date of issuance, of a similar debt without the conversion feature. The effective interest rate for the liability component was 5.875%. The liability component of the 2023 Notes is recorded in long-term debt, and the interest payable is recorded in accrued liabilities on the consolidated balance sheets as of December 31, 2020. The Company recorded the difference between the initial proceeds of the convertible debt and the fair value of the conversion feature, and the difference was allocated to additional paid-in capital on the consolidated balance sheet as the carrying amount of the equity component.

In accounting for the transaction costs for the February 2018 convertible note offering, the Company allocated the costs incurred to the liability and equity components in proportion to the allocation of the proceeds from issuance to the liability and equity components. Issuance costs attributable to the liability component, totaling $5.3 million for the 2023 Notes are being amortized to expense over the expected life the 2023 Notes using the effective interest method. Issuance costs attributable to the equity component related to the conversion feature, totaling $1.5 million for the 2023 Notes were netted with the equity component.

Q2 HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except per share amounts and unless otherwise indicated)

The 2023 Notes consist of the following:

	As of December 31,	
	2020	2019
Liability component:		
Principal	$ 48,035	$ 229,999
Unamortized debt discount	(4,915)	(33,376)
Unamortized debt issuance costs	(501)	(3,486)
Net carrying amount	42,619	193,137
Equity component		
Net carrying amount	$ 7,784	$ 48,919

The following table sets forth total interest expense recognized related to the 2023 Notes:

	As of December 31,	
	2020	2019
Contractual interest expense	$ 1,566	$ 1,725
Amortization of debt issuance costs	999	1,001
Amortization of debt discount	9,080	9,414
Total	$ 11,645	$ 12,140

As of December 31, 2020, the remaining period over which the debt discount and debt issuance costs will be amortized was 2.1 years.

Bond Hedges and Warrants Transactions

Concurrent with the February 2018 convertible note offering, the Company entered into separate convertible notes bond hedges, or Bond Hedges, and Warrants transactions. The Bond Hedges are generally expected to reduce potential dilution to the Company's common stock upon conversion of the 2023 Notes. The Bond Hedges are call options that give the Company the option to purchase, subject to anti-dilution adjustments substantially identical to those in the 2023 Notes, approximately 0.9 million shares of its common stock for $57.38 per share, exercisable upon conversion of the 2023 Notes and expires in February 2023. The total cost of the Bond Hedges transactions was $41.7 million.

In November 2020, and in connection with the partial exchange of the 2023 Notes, the Company terminated Bond Hedges corresponding to approximately 0.7 million shares for cash proceeds of $171.7 million. The proceeds were recorded as an increase to additional paid-in capital in the consolidated balance sheets. As of December 31, 2020, Bond Hedges giving the Company the option to repurchase approximately 0.2 million shares remained outstanding.

Under the Warrants transaction, the Company issued warrants to acquire, subject to anti-dilution adjustments, up to approximately 4.0 million shares over 80 scheduled trading days beginning on May 15, 2023 at an exercise price of $78.75 per share. If the Warrants are not exercised on their exercise dates, they will expire. Pursuant to the Warrants, if the average market value per share of the Company's common stock for the reporting period, as measured under the Warrants, exceeds the exercise price of the Warrants of $78.75, the Warrants will have a dilutive effect on the Company's earnings per share, assuming the Company is profitable. The Company received $22.4 million in cash proceeds from the sale of the Warrants.

In November 2020, and in connection with the partial exchange of the 2023 Notes, the Company terminated Warrants corresponding to approximately 3.2 million shares for total cash payments of $137.5 million. The termination payment was recorded as a decrease to additional paid-in capital in the consolidated balance sheets. As of December 31, 2020, Warrants to acquire up to approximately 0.8 million shares remained outstanding.

The Bond Hedges and the Warrants are separate transactions, in each case, entered into by the Company with counterparties, and are not part of the terms of the 2023 Notes and will not affect any holders' rights under the 2023 Notes. The holders of the 2023 Notes will not have any rights with respect to the Bond Hedges or Warrants transactions. The Bond Hedges and Warrants do not meet the criteria for derivative accounting as they are indexed to the Company's stock. The amounts paid for the Bond Hedges and the proceeds received from the sale of the Warrants have been included as a net reduction to additional paid-in capital.

0.75% Convertible Note due 2026

In June 2019, the Company issued $316.3 million principal amount of convertible senior notes due in June 2026. The interest rate for the 2026 Notes is fixed at 0.75% per annum with interest payable semi-annually on June 1 and December 1 of each year, commencing on December 1, 2019. The 2026 Notes mature on June 1, 2026, unless earlier converted or repurchased in accordance with their terms prior to such date. Each $1,000 of principal of the 2026 Notes will initially be convertible into 11.2851 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately $88.61 per share. The initial conversion price for each of the 2026 Notes is subject to adjustment upon the occurrence of certain specified events.

The 2026 Notes are the Company's senior unsecured obligations and rank senior in right of payment to any of the Company's indebtedness that is expressly subordinated in right of payment to the 2026 Notes, rank equally in right of payment with any of the Company's indebtedness that is not so subordinated, including the 2023 Notes and 2025 Notes, are effectively junior to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness and are structurally junior to all indebtedness and other liabilities (including trade payables) of the Company's current and future subsidiaries.

On or after June 5, 2023, the Company may redeem for cash all or any portion of the 2026 Notes, at the Company's option if the last reported sale price of the Company's common stock has been at least 130% of the conversion price in effect for at least 20 trading days (whether or not consecutive) during any 30-consecutive trading-day period. If the Company calls any or all of the 2026 Notes for redemption, holders may convert all or any portion of their 2026 Notes at any time prior to the close of business on the scheduled trading day prior to the redemption date, even if the 2026 Notes are not otherwise convertible at such time. After that time, the right to convert such 2026 Notes will expire, unless the Company defaults in the payment of the redemption price, in which case a holder of 2026 Notes may convert all or any portion of its 2026 Notes until the redemption price has been paid or duly provided for.

On or after March 1, 2026, holders may convert all or any portion of their 2026 Notes at any time prior to the close of business on the second scheduled trading day immediately preceding the maturity date regardless of the succeeding conditions described herein. Upon conversion, the Company will pay or deliver cash, shares of its common stock or a combination of cash and shares of its common stock, at its election, as described in the indenture governing the 2026 Notes.

Holders may convert their 2026 Notes at their option at any time prior to the close of business on the business day immediately preceding March 1, 2026 only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on September 30, 2019 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- during the five consecutive business day period after any five consecutive trading day period in which the trading price per $1,000 principal amount of 2026 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such trading day; or
- upon the occurrence of specified corporate events.

(in thousands, except per share amounts and unless otherwise indicated)

If a fundamental change (as defined in the relevant indenture governing the 2026 Notes) occurs prior to the maturity date, holders of each of the 2026 Notes may require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount of the 2026 Notes, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date. As of December 31, 2020, the 2026 Notes were not convertible. However, as of December 31, 2020, the if-converted value of the 2026 Notes exceeded the principal amount by $135.3 million. The if-converted value was determined based on the closing price of the Company's common stock of $126.53 on December 31, 2020.

In accordance with accounting guidance for cash conversion features, the Company valued the liability component at the estimated fair value, as of the date of issuance, of a similar debt without the conversion feature. The effective interest rate for the liability component was 5.38%. The liability component of the 2026 Notes is recorded in long-term debt, and the interest payable is recorded in accrued liabilities on the consolidated balance sheets as of December 31, 2020. The Company recorded the difference between the initial proceeds of the convertible debt and the fair value of the conversion feature, and the difference was allocated to additional paid-in capital on the consolidated balance sheet as the carrying amount of the equity component.

In accounting for the transaction costs for the June 2019 convertible note offering, the Company allocated the costs incurred to the liability and equity components in proportion to the allocation of the proceeds from issuance to the liability and equity components. Issuance costs attributable to the liability component, totaling $6.4 million for the 2026 Notes are being amortized to expense over the expected life the 2026 Notes using the effective interest method. Issuance costs attributable to the equity component related to the conversion feature, totaling $2.9 million for the 2026 Notes were netted with the equity component.

The 2026 Notes consist of the following:

	As of December 31,	
	2020	2019
Liability component:		
Principal	$ 316,250	$ 316,250
Unamortized debt discount	(67,977)	(78,672)
Unamortized debt issuance costs	(5,114)	(5,931)
Net carrying amount	243,159	231,647
Equity component:		
Net carrying amount	$ 81,550	$ 81,550

The following table sets forth total interest expense recognized related to the 2026 Notes:

	As of December 31,	
	2020	2019
Contractual interest expense	$ 2,365	$ 593
Amortization of debt issuance costs	821	466
Amortization of debt discount	10,696	5,740
Total	$ 13,882	$ 6,799

As of December 31, 2020, the remaining period over which the debt discount and debt issuance costs will be amortized was 5.4 years.

Capped Call Transactions

In connection with the June 2019 convertible note offering, the Company entered into capped call transactions with one or more counterparties, or the Capped Calls. The Capped Calls each have an initial strike price of $88.6124 per share, subject to certain adjustments, which correspond to the initial conversion price of the 2026 Notes. The Capped Calls have initial cap prices of $139.00 per share. The Capped Calls are expected to offset the potential dilution to the common stock upon any conversion of the 2026 Notes and/or offset any cash payments the Company is required to make in excess of the principal amount of the 2026 Notes in the event the market price per share of common stock is greater than the strike price of the Capped Call, with such offset subject to a cap. If, however, the market price per share of the common stock exceeds the cap price of the Capped Calls, there would be dilution and/or there would not be an offset of such potential cash payments, in each case, to the extent that the then-market price per share of the common stock exceeds the cap price. As the Capped Calls are considered indexed to the Company's stock and are considered equity classified, they are recorded in stockholders' equity on the consolidated balance sheet and are not accounted for as derivatives. The cost of $40.8 million incurred in connection with the Capped Calls was recorded as a reduction to additional paid-in capital.

0.125% Convertible Notes due 2025

In November 2020, the Company issued $350.0 million principal amount of convertible senior notes due in November 2025. This was achieved by exchanging $181.9 million principal amount of the 2023 Notes for $210.7 million principal amount of the 2025 Notes and issuing an additional $139.3 million of new notes. The interest rate for the 2025 Notes is fixed at 0.125% per annum with interest payable semi-annually on May 15 and November 15 of each year, commencing on May 15, 2021. The 2025 Notes mature on November 15, 2025, unless earlier converted or repurchased in accordance with their terms prior to such date. Each $1,000 of principal of the 2025 Notes will initially be convertible into 7.1355 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately $140.14 per share. The initial conversion price for each of the 2025 Notes is subject to adjustment upon the occurrence of certain specified events.

The 2025 Notes are the Company's senior unsecured obligations and rank senior in right of payment to any of the Company's indebtedness that is expressly subordinated in right of payment to the 2025 Notes, rank equally in right of payment with any of the Company's indebtedness that is not so subordinated, including the 2023 Notes and 2026 Notes, are effectively junior to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness and are structurally junior to all indebtedness and other liabilities (including trade payables) of the Company's current and future subsidiaries.

On or after November 20, 2023, the Company may redeem for cash all or any portion of the 2025 Notes, at the Company's option if the last reported sale price of the Company's common stock has been at least 130% of the conversion price in effect for at least 20 trading days (whether or not consecutive) during any 30-consecutive trading-day period. If the Company calls any or all of the 2025 Notes for redemption, holders may convert all or any portion of their 2025 Notes at any time prior to the close of business on the scheduled trading day prior to the redemption date, even if the 2025 Notes are not otherwise convertible at such time. After that time, the right to convert such 2025 Notes will expire, unless the Company defaults in the payment of the redemption price, in which case a holder of 2025 Notes may convert all or any portion of its 2025 Notes until the redemption price has been paid or duly provided for.

On or after August 15, 2025, holders may convert all or any portion of their 2025 Notes at any time prior to the close of business on the second scheduled trading day immediately preceding the maturity date regardless of the succeeding conditions described herein. Upon conversion, the Company will pay or deliver cash, shares of its common stock or a combination of cash and shares of its common stock, at its election, as described in the indenture governing the 2025 Notes.

Holders may convert their 2025 Notes at their option at any time prior to the close of business on the business day immediately preceding August 15, 2025 only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on March 30, 2021 (and only during such calendar quarter), if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- during the five consecutive business day period after any five consecutive trading day period in which the trading price per $1,000 principal amount of 2025 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such trading day; or
- upon the occurrence of specified corporate events.

(in thousands, except per share amounts and unless otherwise indicated)

If a fundamental change (as defined in the relevant indenture governing the 2025 Notes) occurs prior to the maturity date, holders of each of the 2025 Notes may require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount of the 2025 Notes, plus any accrued and unpaid interest to, but excluding, the fundamental change repurchase date. As of December 31, 2020, the 2025 Notes were not yet convertible.

In accordance with accounting guidance for cash conversion features, the Company valued the liability component at the estimated fair value, as of the date of issuance, of a similar debt without the conversion feature. The effective interest rate for the liability component was 5.0%. The liability component of the 2025 Notes is recorded in long-term debt, and the interest payable is recorded in accrued liabilities on the consolidated balance sheets as of December 31, 2020. The Company recorded the difference between the initial proceeds of the convertible debt and the fair value of the conversion feature, and the difference was allocated to additional paid-in capital on the consolidated balance sheet as the carrying amount of the equity component.

In accounting for the transaction costs for the November 2020 convertible note offering, the Company allocated the costs incurred to the liability and equity components in proportion to the allocation of the proceeds from issuance to the liability and equity components. Issuance costs attributable to the liability component, totaling $5.4 million for the 2025 Notes are being amortized to expense over the expected life the 2025 Notes using the effective interest method. Issuance costs attributable to the equity component related to the conversion feature, totaling $1.5 million for the 2025 Notes were netted with the equity component.

The 2025 Notes consist of the following:

		As of December 31, 2020
Liability component:		
Principal	$	350,000
Unamortized debt discount		(73,075)
Unamortized debt issuance costs		(5,235)
Net carrying amount		271,690
Equity component:		
Net allocation of proceeds		74,556
Net issuance costs		(1,459)
Net carrying amount	$	73,097

The following table sets forth total interest expense recognized related to the 2025 Notes:

		As of December 31, 2020
Contractual interest expense	$	51
Amortization of debt issuance costs		157
Amortization of debt discount		1,541
Total	$	1,749

As of December 31, 2020, the remaining period over which the debt discount and debt issuance costs will be amortized was 4.9 years.

Capped Call Transactions

In connection with the November 2020 convertible note offering, the Company entered into capped call transactions with one or more counterparties, or the Capped Calls. The Capped Calls each have an initial strike price of $140.1443 per share, subject to certain adjustments, which correspond to the initial conversion price of the 2025 Notes. The Capped Calls have initial cap prices of $211.54 per share. The Capped Calls are expected to offset the potential dilution to the common stock upon any conversion of the 2025 Notes and/or offset any cash payments the Company is required to make in excess of the principal amount of the 2025 Notes in the event the market price per share of common stock is greater than the strike price of the Capped Call, with such offset subject to a cap. If, however, the market price per share of the common stock exceeds the cap price of the Capped Calls, there would be dilution and/or there would not be an offset of such potential cash payments, in each case, to the extent that the then-market price per share of the common stock exceeds the cap price. As the Capped Calls are considered indexed to the Company's stock and are considered equity classified, they are recorded in stockholders' equity on the consolidated balance sheet and are not accounted for as derivatives. The cost of $39.8 million incurred in connection with the Capped Calls was recorded as a reduction to additional paid-in capital.

12. Stockholders' Equity

On May 15, 2020, the Company completed a registered public offering of 4,735,294 shares of the Company's common stock at a price of $76.50 per share, before underwriting discounts and commissions. The Company sold 4,235,294 of such shares and existing stockholders sold an aggregate of 500,000 of such shares. The May 2020 common stock offering generated net proceeds to the Company of approximately $311.3 million, after deducting $12.7 million in underwriting discounts and commissions and offering costs, which have been recorded against the proceeds received from the offering. The Company did not receive any proceeds from the sale of shares by the selling stockholders in the May 2020 common stock offering.

On June 10, 2019, the Company completed a registered public offering of 2,637,986 shares of the Company's common stock at a price of $69.50 per share, before underwriting discounts and commissions. On June 12, 2019, the Company completed the sale of an additional 395,698 shares of the Company's common stock at a price of $69.50 per share, before underwriting discounts and commissions, as a result of the underwriters' exercise of their option to purchase additional shares. The Company sold 2,913,684 of such shares and an existing stockholder sold an aggregate of 120,000 of such shares. The June 2019 common stock offering generated net proceeds to the Company of approximately $195.3 million, after deducting $8.2 million in underwriting discounts and commissions and offering costs, which have been recorded against the proceeds received from the offering. The Company did not receive any proceeds from the sale of shares by the selling stockholder in the June 2019 common stock offering.

13. Stock-Based Compensation

In March 2014, the Company's board of directors approved the 2014 Equity Incentive Plan, or 2014 Plan, under which stock options, stock appreciation rights, restricted stock, restricted stock units, performance shares and units and other cash-based or stock-based awards may be granted to employees, consultants and directors. Shares of common stock that are issued and available for issuance under the 2014 Plan consist of authorized, but unissued or reacquired shares of common stock or any combination thereof.

As of December 31, 2019, a total of 11,145 shares had been reserved for issuance under the 2014 Plan. The 2014 Plan contains a provision that automatically increases the shares available for issuance under the plan on January 1 of each year subsequent to the 2014 Plan's adoption through 2024, by an amount equal to the smaller of (a) 4.5% of the number of shares of common stock issued and outstanding on the immediately preceding December 31, or (b) an amount determined by the Company's board of directors. On January 1, 2020, 2,177 shares were added to the 2014 Plan in accordance with the annual automatic increase provision of the 2014 Plan. In addition, the 2014 Plan reserve is automatically increased to include any shares issuable upon expiration or termination of options granted under the Company's 2007 Stock Plan, or 2007 Plan, for options that expire or terminate without having been exercised. For the year ended December 31, 2020, no shares have been transferred to the 2014 Plan from the 2007 Plan, and as of December 31, 2020, a total of 13,322 shares were allocated for issuance under the 2014 Plan. As of December 31, 2020, options to purchase a total of 2,706 shares of common stock have been granted under the 2014 Plan, 5,683 shares have been reserved under the 2014 Plan for the vesting of restricted stock units and market stock units, 1,123 shares have been returned to the 2014 Plan as a result of termination of options that expired or terminated without having been exercised and restricted stock awards that terminated prior to the awards vesting, and 6,056 shares of common stock remain available for future issuance under the 2014 Plan.

In July 2007, the Company adopted the 2007 Plan under which options or stock purchase rights may be granted to employees, consultants and directors. Upon the completion of the Company's initial public offering, or IPO, in March 2014, the board of directors terminated the 2007 Plan in connection with the IPO and all shares that were available for future issuance under the 2007 Plan at such time were transferred to the 2014 Plan. The 2007 Plan will continue to govern the terms and conditions of all outstanding equity awards granted under the 2007 Plan. As of December 31, 2020, no shares remain available for future issuance under the 2007 Plan.

(in thousands, except per share amounts and unless otherwise indicated)

Stock Options

The following summarizes the assumptions used for estimating the fair value of stock options granted during the periods indicated, as there were no stock options granted during the year ended December 31, 2020 or 2019:

	Year Ended December 31, 2018
Risk-free interest rate	2.6%
Expected life (in years)	4.8
Expected volatility	41.0%
Dividend yield	—
Weighted-average grant date fair value per share	$18.14

Stock option activity was as follows:

	Number of Options	Weighted Average Exercise Price
Balance as of January 1, 2018	3,692	$ 17.63
Granted	12	47.00
Exercised	(1,038)	10.07
Forfeited	(12)	27.93
Balance as of December 31, 2018	2,654	19.72
Granted	—	—
Exercised	(1,180)	14.15
Forfeited	(55)	39.27
Balance as of December 31, 2019	1,419	23.61
Granted	—	—
Exercised	(720)	19.82
Forfeited	(29)	29.50
Balance as of December 31, 2020	670	$ 27.43

The summary of stock options outstanding as of December 31, 2020 is as follows:

	Options Outstanding			Options Exercisable		
Range of Exercise Prices	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)	Number of Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life (in years)
$1.75 - $7.58	37	$ 2.71	0.8	37	$ 2.71	0.8
$13 - $19.50	167	15.91	1.0	167	15.91	1.0
$20.19 - $30.29	114	25.08	1.8	114	25.08	1.8
$35.05 - $52.58	352	36.23	3.2	326	36.13	3.2
	670	$ 27.43	2.3	644	$ 27.03	2.2

(in thousands, except per share amounts and unless otherwise indicated)

Restricted Stock Units

The Company's restricted stock units typically vest over a four-year period and upon vesting, the vested shares are issued to the recipient of the restricted stock units.

Restricted stock unit activity was as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested as of January 1, 2018	1,680	$ 3
Granted	910	5
Vested	(537)	3
Forfeited	(116)	3
Nonvested as of December 31, 2018	1,937	4
Granted	904	7
Vested	(683)	3
Forfeited	(206)	4
Nonvested as of December 31, 2019	1,952	5
Granted	772	8
Vested	(752)	5
Forfeited	(215)	6
Nonvested as of December 31, 2020	1,757	$ 7

The aggregate intrinsic value of stock options exercised during each of the years ended December 31, 2020, 2019 and 2018 was $53.4 million, $71.0 million and $42.8 million, respectively. The total fair value of stock options vested during each of the years ended December 31, 2020, 2019 and 2018 was $2.4 million, $4.2 million and $7.7 million, respectively.

As of December 31, 2020, the aggregate intrinsic value of options outstanding was $66.4 million, the total unrecognized stock-based compensation expense related to stock options was $0.3 million, which the Company expects to recognize over the next 0.4 years, and total unrecognized stock-based compensation expense related to restricted stock units was $104.5 million, which the Company expects to recognize over a weighted average period of 2.8 years.

Market Stock Units

In 2018, the Company began granting market stock units to certain executives under the 2014 Plan. The market stock units are performance-based awards that vest based upon the Company's relative stockholder return. The actual number of market stock units that will be eligible to vest is based on the total stockholder return of the Company relative to the total stockholder return of the Index over the three-year performance period. Up to one-third of the target shares of the Company's common stock subject to each market stock unit award are eligible to be earned after the first and second years of the performance period and up to 200% of the full target number of shares subject to each market stock unit award are eligible to be earned after the completion of the three-year performance period (less any shares earned for years one and two) based on the average price of the Company's common stock relative to the Index during the performance period.

(in thousands, except per share amounts and unless otherwise indicated)

Market stock unit activity was as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested as of January 1, 2018	—	$ —
Granted	260	21.98
Vested	—	—
Forfeited	—	—
Nonvested as of December 31, 2018	260	21.98
Granted	264	30.31
Vested	(87)	12.76
Forfeited	(3)	26.34
Nonvested as of December 31, 2019	434	28.85
Granted	148	32.85
Vested	(164)	15.71
Forfeited	(48)	33.46
Nonvested as of December 31, 2020	370	$ 35.67

The Company estimates the fair value of market stock units on the date of grant using a Monte Carlo simulation model. The determination of fair value of the market stock units is affected by the Company's and peer firms' stock prices and a number of assumptions including the expected volatilities of the Company's and peer firms' stock and the Index, and its risk-free interest rate. The Company's expected volatility at the date of grant was based on the historical volatilities of its stock and peer firms' stocks and the Index over the performance period. The Company did not estimate a dividend rate or a forfeiture rate for the market stock units due to the limited size, the vesting period and nature of the grantee population and the lack of history of granting this type of award.

Significant assumptions used in the Monte Carlo simulation model for the market stock units granted during the year ended December 31, 2020, 2019, and 2018 are as follows:

	As of December 31,		
	2020	2019	2018
Volatility	31.3 - 42.8%	30.7 - 31.3%	34.5 - 36.6%
Risk-free interest rate	0.2 - 0.6%	1.6 - 2.4%	2.4 - 2.8%
Dividend yield	—	—	—
Longest remaining performance period (in years)	3	3	3

Total unrecognized stock-based compensation expense related to market stock units was $5.3 million, which the Company expects to recognize over a weighted average period of 1.6 years.

(in thousands, except per share amounts and unless otherwise indicated)

14. Provision for Income Taxes

The U.S. and non-U.S. components of loss before income taxes consisted of the following:

	December 31,	
	2020	2019
U.S.	$ (138,119)	$ (85,325)
Non-U.S.	1,915	1,961
Loss before income taxes	$ (136,204)	$ (83,364)

The components of the Company's (benefit from) provision for income taxes consisted of the following:

	Year Ended December 31,		
	2020	2019	2018
Current taxes:			
Foreign	$ (104)	$ 918	$ 83
State	240	101	69
Total current taxes	$ 136	$ 1,019	$ 152
Deferred taxes:			
Federal	$ 508	$ 129	$ (305)
Change in valuation allowance - acquisitions	—	(14,994)	(2,970)
Foreign	180	(113)	(2)
State	592	1,472	(678)
Total deferred taxes	1,280	(13,506)	(3,955)
(Benefit from) provision for income taxes	$ 1,416	$ (12,487)	$ (3,803)

The Company had federal net operating loss carryforwards of approximately $536.5 million and $415.2 million at December 31, 2020 and 2019, respectively, which will expire at various dates beginning in 2026, if not utilized. Federal net operating losses generated during and after the year ended December 31, 2018 will have an indefinite carryforward period. The Company also held state tax credits of $2.2 million and $2.4 million for the years ended December 31, 2020 and 2019, respectively, and federal R&D tax credits of $8.2 million and $8.1 million for the years ended December 31, 2020 and 2019, respectively. The federal and state net operating losses along with state tax credits will begin to expire in 2026, if not utilized.

Utilization of the net operating losses and credit carryforwards may be subject to a substantial annual limitation due to the "change in ownership" provisions of the Internal Revenue Code of 1986. The annual limitation may result in the expiration of net operating losses and credit carryforwards before utilization.

Q2 HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(in thousands, except per share amounts and unless otherwise indicated)

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the Company's deferred taxes consisted of the following:

	December 31, 2020	December 31, 2019
Deferred tax assets:		
NOL and credit carryforwards	$ 140,897	$ 109,610
Deferred revenue	14,197	10,082
Accrued expenses and other	8,254	2,596
Stock-based compensation	6,087	5,894
Lease liabilities	10,668	10,778
Interest expense carryforwards	13,550	619
Convertible debt hedge	19,518	9,932
Total deferred tax assets	213,171	149,511
Deferred tax liabilities:		
Deferred expenses	(12,667)	(10,264)
Convertible debt	(36,044)	(27,115)
Depreciation and amortization	(29,675)	(31,610)
Capitalized software	(538)	(490)
Right of use assets	(8,478)	(8,400)
Total deferred tax liabilities	(87,402)	(77,879)
Deferred tax assets less tax liabilities	125,769	71,632
Less: valuation allowance	(127,362)	(71,945)
Net deferred tax liability	$ (1,593)	$ (313)

The Company has established a valuation allowance due to uncertainties regarding the realization of deferred tax assets based on the Company's lack of earnings history. During 2020, the valuation allowance increased by approximately $48.5 million due to continuing operations and $10.3 million due to the release of an uncertain tax position. The valuation allowance change included a reduction of $3.4 million due to the issuance of convertible debt during the year.

At December 31, 2020, the Company did not provide any U.S. income or foreign withholding taxes on approximately $2.2 million of certain foreign subsidiaries' undistributed earnings, as such earnings have been retained and are intended to be indefinitely reinvested. It is not practicable to estimate the amount of any taxes that would be payable upon remittance of these earnings, because such tax, if any, is dependent upon circumstances existing if and when remittance occurs. The Company's benefit from (provision for) income taxes attributable to continuing operations differs from the expected tax benefit amount computed by applying the statutory federal income tax rate of 21% to income before taxes for each of the years ended December 31, 2020, 2019, and 2018, respectively, primarily as a result of the following:

	Year Ended December 31, 2020	2019	2018
Income tax at U.S. statutory rate	21.0 %	21.0 %	21.0 %
Effect of:			
Increase in deferred tax valuation allowance	(35.8)	(50.6)	(50.6)
Stock compensation	11.4	20.7	21.9
Acquisitions	(0.6)	15.8	5.9
R&D credit	0.1	4.8	5.0
State taxes, net of federal benefit	4.6	7.1	7.6
Executive compensation	(2.5)	(3.3)	(0.3)
Other permanent items	0.9	(0.4)	(0.8)
Income tax benefit (provision) effective rate	(0.9)%	15.1 %	9.7 %

(in thousands, except per share amounts and unless otherwise indicated)

The Company files income tax returns in the U.S. federal jurisdiction, several state jurisdictions, and several foreign jurisdictions. With few exceptions, the Company is no longer subject to U.S. federal, state or local income tax examinations by tax authorities for years before 2017. Operating losses generated in years prior to 2017 remain open to adjustment until the statute of limitations closes for the tax year in which the net operating losses are utilized. The tax years 2017 through 2020 remain open to examination by all the major taxing jurisdictions to which the Company is subject, though the Company is not currently under examination by any major taxing jurisdiction.

The total amount of unrecognized benefits as of December 31, 2020 and 2019 was $0.4 million and $10.7 million. The reconciliation of unrecognized tax benefits at the beginning and end of the year is as follows:

	Year Ended December 31,	
	2020	2019
Beginning balance	$ 10,738	$ 293
Gross increase related to prior year positions	(10,460)	396
Gross increase related to current year positions	80	10,049
Ending balance	$ 358	$ 10,738

At December 31, 2020, approximately $0.4 million, including interest, would reduce the Company's annual effective tax rate, if recognized. As of December 31, 2020, the Company had less than $0.03 million of accrued interest. The Company believes it is reasonably possible that $0.4 million of its unrecognized tax benefits will be resolved within the next 12 months due to state tax refund claim settlements and foreign voluntary disclosures. The Company records any interest and penalties related to unrecognized tax benefits in income tax expense. By December 31, 2020, the Company had received beneficial rulings on the IRS private letter ruling and the related unrecognized tax benefit of $10.0 million was reversed, which had an insignificant impact to the income tax provision for the year ended December 31, 2020.

15. Employee Benefit Plan

In January 2009, the Company adopted a 401(k) profit-sharing plan, or 401(k) Plan, covering substantially all employees. Employees can contribute between 1% and 50% of their total earnings. The 401(k) Plan also provides for employer contributions to be made at the Company's discretion.

The Company makes matching contributions equal to 25% of employee contributions, which could be applied to up to 6% of each participant's compensation beginning in 2018. Employees with at least 90 days of continuous service are eligible to participate, and certain employees are eligible for matching contributions after one year of continuous service. The Company's contributions vest 50% after one year of continuous service and 100% after two years of continuous service. The Company's policy prohibits participants from direct investment in shares of its common stock within the plan. The Company's contributions charged to expense were $2.7 million, $1.4 million and $0.9 million for the years ended December 31, 2020, 2019 and 2018, respectively.

16. Segments and Geographic Information

All revenue-generating activities are directly related to the sale, implementation and support of the Company's solutions in a single operating segment. The Company's chief operating decision maker, the Chief Executive Officer, reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. Substantially all of the Company's principal operations, assets and decision-making functions are located in the United States.

17. Related Parties

For the years ended December 31, 2020, 2019 and 2018, the Company recorded revenues from a related-party customer of $0.6 million, $0.6 million and $0.4 million, respectively.

(in thousands, except per share amounts and unless otherwise indicated)

18. Selected Quarterly Financial Data (unaudited)

Selected summarized quarterly financial information for the years ended 2020 and 2019 is as follows:

	Three Months Ended							
	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020	September 30, 2020	December 31, 2020
Revenues	$ 71,296	$ 77,646	$ 79,702	$ 86,840	$ 92,380	$ 97,581	$ 103,804	$ 108,986
Cost of revenues	37,184	40,052	40,447	44,802	53,107	53,203	57,366	64,476
Gross profit	34,112	37,594	39,255	42,038	39,273	44,378	46,438	44,510
Operating expenses:								
Sales and marketing	15,805	15,866	15,700	16,576	19,884	16,310	18,403	17,726
Research and development	17,657	19,118	19,617	19,881	24,958	23,642	23,568	25,213
General and administrative	13,860	14,079	13,418	15,382	19,110	17,203	17,563	17,061
Acquisition related costs	2,718	1,977	2,758	8,574	(1,967)	1,127	818	500
Amortization of acquired intangibles	1,215	905	912	3,307	4,491	4,491	4,465	4,441
Partnership termination charges	—	—	—	—	—	13,244	—	—
Unoccupied lease charges	—	—	244	176	—	668	1,468	45
Total operating expenses	51,255	51,945	52,649	63,896	66,476	76,685	66,285	64,986
Loss from operations	(17,143)	(14,351)	(13,394)	(21,858)	(27,203)	(32,307)	(19,847)	(20,476)
Total other income (expense), net	(2,207)	(3,217)	(5,206)	(5,988)	(6,465)	(6,599)	(6,757)	(16,550)
Loss before income taxes	(19,350)	(17,568)	(18,600)	(27,846)	(33,668)	(38,906)	(26,604)	(37,026)
Benefit from (provision for) income taxes	39	237	31	12,180	(440)	(65)	(116)	(795)
Net loss	$ (19,311)	$ (17,331)	$ (18,569)	$ (15,666)	$ (34,108)	$ (38,971)	$ (26,720)	$ (37,821)
Net loss per common share, basic and diluted	$ (0.44)	$ (0.39)	$ (0.39)	$ (0.32)	$ (0.70)	$ (0.76)	$ (0.50)	$ (0.69)

Exhibit 4.5

**DESCRIPTION OF THE REGISTRANT’S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

Q2 Holdings, Inc. (“Q2”) has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”): our common stock, par value $0.0001 per share (the “common stock”).

DESCRIPTION OF COMMON STOCK

The following summary description sets forth some of the general terms and provisions of the common stock. Because this is a summary description, it does not contain all of the information that may be important to you. For a more detailed description of the common stock, you should refer to the provisions of our fifth amended and restated certificate of incorporation (the “certificate of incorporation”) and our amended and restated bylaws each of which is an exhibit to the Annual Report on Form 10-K to which this description is an exhibit.

General

Under the certificate of incorporation, Q2 is authorized to issue up to 150 million shares of common stock with a par value of $0.0001 per share and up to 5 million shares of preferred stock with a par value of $0.0001 per shares (the “preferred stock”). The shares of common stock currently outstanding are fully paid and nonassessable. No shares of preferred stock are currently outstanding. The board of directors has the authority to repeal, alter or amend the bylaws or adopt new bylaws, subject to certain limitations set forth in the bylaws.

No Preemptive, Redemption or Conversion Rights

The common stock is not redeemable, is not subject to sinking fund provisions, does not have any conversion rights and is not subject to call. Holders of shares of common stock have no preemptive rights to maintain their percentage of ownership in future offerings or sales of stock of Q2.

Voting Rights

Holders of shares of common stock have one vote per share in all elections of directors and on all other matters submitted to a vote of stockholders of Q2. Holders of shares of common stock do not have cumulative voting rights.

Board of Directors

At our 2019 annual meeting of stockholders our stockholders approved an amendment to our certificate of incorporation to eliminate our previously existing classified board of directors. Prior to such amendment, we had a classified board of directors, divided into three classes, with each class elected every three years. As amended at our 2019 annual meeting of stockholders, our certificate of incorporation provides that the declassification of our board of directors will be phased in so that it will not affect the unexpired term of any director elected before our 2020 annual meeting. Directors elected prior to the effectiveness of the amendment who are nominated for re-election will stand for election for one-year terms once their then-current terms expire. This means that directors whose terms expire at the 2021 annual meeting of stockholders will be elected for one-year terms, and beginning with our 2022 annual meeting of stockholders, all directors will be elected for one-year terms at each annual meeting of stockholders. Our bylaws establish that the size of the whole board of directors shall be 8, or as otherwise fixed from time to time by a duly adopted resolution of the board of directors.

Anti-Takeover Provisions in Our Certificate of Incorporation and Bylaws

Certain provisions of our certificate of incorporation and bylaws could have the effect of delaying, deterring or preventing another party from acquiring or seeking to acquire control of us. These anti-takeover provisions included in our certificate of incorporation and bylaws are described in the subsection entitled *"Anti-takeover provisions in our charter documents and Delaware law could discourage, delay or prevent a change in control of our company and may affect the trading price of our common stock"* in Item 1A (Risk Factors) in the Annual Report on Form 10-K to which this description is an exhibit.

No Action by Stockholder Consent

The certificate of incorporation prohibits action that is required or permitted to be taken at any annual or special meeting of stockholders of Q2 from being taken by the written consent of stockholders without a meeting.

Power to Call Special Stockholder Meeting

Under Delaware law, a special meeting of stockholders may be called by our board of directors or by any other person authorized to do so in the certificate of incorporation or bylaws. Pursuant to our bylaws, special meetings of the stockholders may be called, for any purpose or purposes, by our board of directors, the Chairman of our board of directors or our Chief Executive Officer at any time.

Dividend Rights

Subject to the preferences applicable to any outstanding shares of preferred stock, the holders of common stock are entitled to receive dividends, if any, as and when declared, from time to time, by our board of directors out of funds legally available therefor.

Liquidation, Dissolution or Similar Rights

Subject to the preferences applicable to any outstanding shares of preferred stock, upon liquidation, dissolution or winding up of the affairs of Q2, the holders of common stock will be entitled to participate equally and ratably, in proportion to the number of shares held, in the net assets of Q2 available for distribution to holders of stock of Q2.

EXHIBIT 21.1

List of Subsidiaries of the Registrant

Wholly-Owned Subsidiaries of the Registrant:

Name of Subsidiary	Jurisdiction of Organization
Q2 Software, Inc.	Delaware

Indirect Subsidiaries of the Registrant:

Name of Subsidiary	Jurisdiction of Organization	Ownership
Cloud Lending U.K. Ltd.	United Kingdom	100% by Q2 Software, Inc.
Cloud Lending Australia Pty. Ltd.	Australia	100% by Q2 Software, Inc.
MFIFLEX Tech. Pvt. Ltd.	India	100% by Q2 Software, Inc.
Lender Performance Group, LLC	Delaware	100% by Q2 Software, Inc.
Lender Performance Group I, LLC	Delaware	100% by Lender Performance Group, LLC
LPG - International, LLC	Delaware	100% by Lender Performance Group, LLC
LPG - AU Services Pty Ltd	Australia	100% by LPG - International, LLC
LPG - UK Services Pty Ltd	United Kingdom	100% by LPG - International, LLC

EXHIBIT 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

1) Registration Statement (Form S-3 No. 333-206869) of Q2 Holdings, Inc.,
2) Registration Statement (Form S-3 No. 333-231947) of Q2 Holdings, Inc.,
3) Registration Statement (Form S-8 No. 333-195981) pertaining to the 2007 Stock Plan, 2014 Employee Stock Purchase Plan, and 2014 Equity Incentive Plan of Q2 Holdings, Inc.,
4) Registration Statement (Form S-8 No. 333-202062) pertaining to the 2014 Equity Incentive Plan of Q2 Holdings, Inc.,
5) Registration Statement (Form S-8 No. 333-209522) pertaining to the 2014 Equity Incentive Plan of Q2 Holdings, Inc.,
6) Registration Statement (Form S-8 No. 333-216156) pertaining to the 2014 Equity Incentive Plan of Q2 Holdings, Inc.,
7) Registration Statement (Form S-8 No. 333-223087) pertaining to the 2014 Equity Incentive Plan of Q2 Holdings, Inc.,
8) Registration Statement (Form S-8 No. 333-229733) pertaining to the 2014 Equity Incentive Plan of Q2 Holdings, Inc.; and
9) Registration Statement (Form S-8 No. 333-236569) pertaining to the 2014 Equity Incentive Plan of Q2 Holdings, Inc.

of our reports dated February 19, 2021, with respect to the consolidated financial statements of Q2 Holdings, Inc. and the effectiveness of internal control over financial reporting of Q2 Holdings, Inc. included in this Annual Report (Form 10-K) of Q2 Holdings, Inc. for the year ended December 31, 2020.

/s/ Ernst & Young LLP

Austin, Texas

February 19, 2021

EXHIBIT 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002

I, Matthew P. Flake, certify that:

1. I have reviewed this Annual Report on Form 10-K of Q2 Holdings, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 19, 2021

/s/ MATTHEW P. FLAKE
Matthew P. Flake
Chief Executive Officer
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO SECTION 302(a) OF THE SARBANES-OXLEY ACT OF 2002

I, David J. Mehok, certify that:

1. I have reviewed this Annual Report on Form 10-K of Q2 Holdings, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c. Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d. Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 19, 2021

/s/ DAVID J. MEHOK
David J. Mehok
Chief Financial Officer
(Principal Financial and Accounting Officer)

EXHIBIT 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The undersigned, the Chief Executive Officer of Q2 Holdings, Inc. (the “Company”), does hereby certify under the standards set forth and solely for the purposes of 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report on Form 10-K of the Company for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 19, 2021

/s/ MATTHEW P. FLAKE
Matthew P. Flake
Chief Executive Officer
(Principal Executive Officer)

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

EXHIBIT 32.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The undersigned, the Chief Financial Officer of Q2 Holdings, Inc. (the “Company”), does hereby certify under the standards set forth and solely for the purposes of 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report on Form 10-K of the Company for the fiscal year ended December 31, 2020 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in such Annual Report on Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 19, 2021

/s/ DAVID J. MEHOK
David J. Mehok
Chief Financial Officer
(Principal Financial and Accounting Officer)

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.