spōk

Making care collaboration easier.

# 2018

## ANNUAL REPORT

spōk

**Spok delivers clinical information to care teams when and where it matters most to improve patient outcomes.**

**All of the organizations on the U.S. News & World Report's 2018-19 Best Hospitals Honor Roll rely on Spok.**

# A message from the President and Chief Executive Officer

**To Our Stockholders:**

In 2018 Spok made substantial progress accelerating Spok Care Connect® platform development. We aligned our resources and focus where needed most to increase the Company's long-term growth potential. We successfully completed the third year of our five-year transformation plan, and we believe we are well-positioned for continued progress throughout 2019.

Before I talk about our many achievements in 2018, I want to underscore where we are strategically, with respect to our business plan and outlook. For the past few years we have laid out a strategy where Spok would pivot from a telecommunications company to a provider of clinical communication software solutions, with an initial primary focus on the North American healthcare market. That transformation included substantial investment in the evolution of our Spok Care Connect platform. I am pleased to inform you that our transformation is on track, and we continue to see the benefits from investments in our software solutions platform.

This transformation marked a shift in our strategic direction for healthcare, our largest customer segment. Spok's five-year plan signaled a very intentional move from offering our customers "point", or single-product, solutions for call center software, alarm management, and secure messaging to offering them a single integrated platform. We believe this approach is the right use of our capital and will create sustainable and long-term value for our stockholders, as Spok takes advantage of the large opportunity in the U.S. healthcare market.

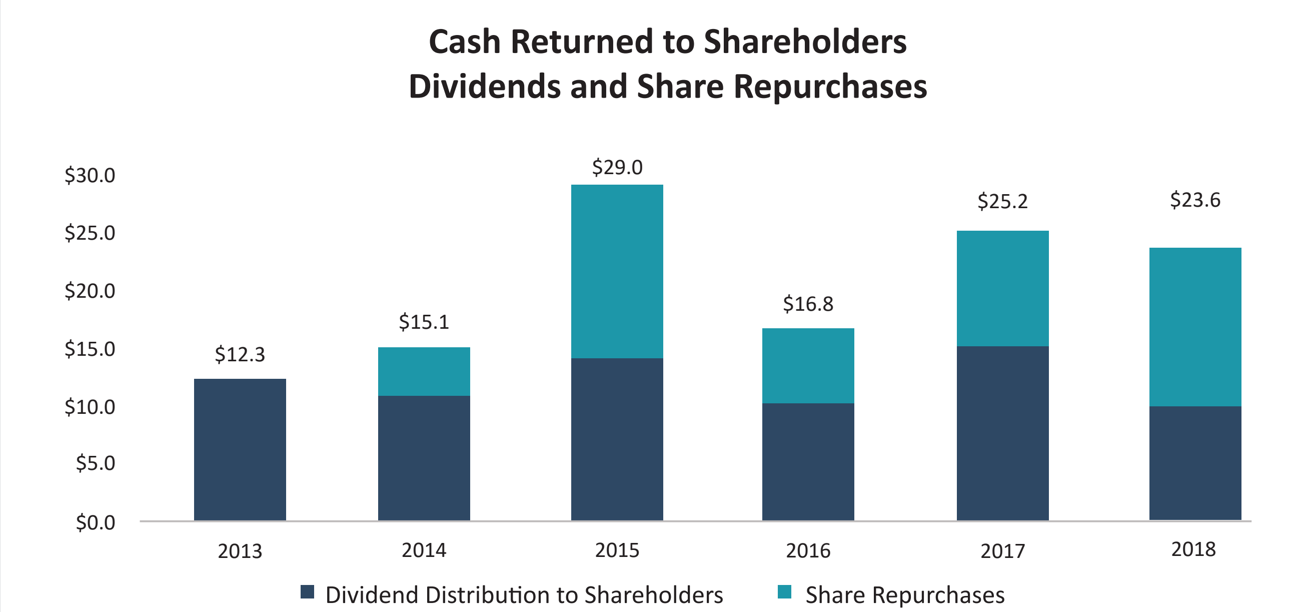
> **"Our strategy is simple: Create beautiful software that delights our customers, retain our wireless subscribers and revenue for as long as possible, and demonstrate a path to long-term top line growth and profitability. For the past few years we have laid out a strategy where Spok would pivot from a telecommunications company to a provider of software solutions. Let me take this opportunity to thank our investors for joining us in this ongoing transformation and for your continued support."**

**–Vincent D. Kelly**
**President and Chief Executive Officer**

Late in 2018, the introduction of that platform was well-received by over 150 of our customers at Spok's annual Connect Conference. This year we continued to build on our industry-leading reputation when we publicly introduced the evolution of the Spok Care Connect platform at the HIMSS19 conference in Orlando. The announcement and our progress were incredibly well received, and we continue to get positive feedback on it.

Let me take this opportunity to thank our investors for joining us in this ongoing transformation and for your continued support. We are a company with the majority of our revenues still coming from our wireless paging base. We believe this will change over time as software revenue increases exceed the continuing decline in wireless revenue and as we move from a flat top line to a growing top and bottom line over time.

While our wireless base has slowed in its year-over-year erosion and outperforms our own forecasts on a regular basis, we still believe it will continue to shrink over time and that we need to invest in the growth potential of our healthcare software initiative. However, in the near-term, let me reiterate that our wireless revenue base is key to our strategic footprint and transformation as it gives us the financial flexibility to invest in our software communications solutions and continues to provide valuable customer relationships to leverage.




2017 dividends: Includes the $5.2 million special dividend that was declared in December 2016 and paid in January 2017

## Business Review

**20%**

**reduction in sepsis mortality rate for patients with MEWS 7-11**

**University of Utah Health**

Spok's consolidated 2018 revenues were on plan and totaled $169.5 million*, down less than 1 percent from 2017, reflecting continued, planned erosion in our paging base. During the year, we continued to invest in our business to enhance our product offerings and maintain a strong balance sheet. At year end, our cash, cash equivalents and short-term investments balance was $87.3 million with no debt. Our ability to generate cash allowed us to make key strategic investments for long-term growth and execute against our capital allocation plan. In 2018, Spok returned $23.6 million to stockholders in the form of dividends and share repurchases. Spok also generated more than $10 million in net cash provided by operating activities during 2018 that partially offset cash returned to stockholders and capital expenditures.

In 2018, we continued our investments to grow our software solutions capability, while maintaining our valuable wireless revenue stream. Software revenues were up nearly 5 percent from 2017, totaling approximately $75.2 million* for the year. Full-year software revenue reflects a continuing trend of greater than 99 percent renewal rates on software maintenance contracts. This provides us with a recurring and stable revenue stream. In fact, when you consider our wireless revenue base, nearly 79 percent of our total revenue is recurring in nature.

Software bookings grew by nearly 5 percent from the prior year, totaling $81.3 million in 2018, reflecting increased demand for Spok solutions as well as an increase in average deal size. Our pipeline of marketing qualified sales leads also remained strong. Demand remained strongest in North American markets, specifically among hospitals and other healthcare organizations where we sold solutions for smartphone communications, call center management, secure texting, clinical alerting, and emergency notification to both new and existing customers. Although we are greatly encouraged by the software revenue momentum we saw in 2018, and, in particular, the nearly 10 percent growth we saw in the second half of the year, we expect it will take more time for the Company to grow meaningfully on an annual basis, as we complete the build-out and introduction of the new Spok cloud-native platform solution.

*FOOTNOTE: On January 1, 2018, Spok adopted Accounting Standards Codification ("ASC") 606, Revenue from Contracts with Customers, using the modified retrospective method applied to those contracts which were not completed as of January 1, 2018. Unless otherwise stated, results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts have not been adjusted, and continue to be reported in accordance with the Company's historic accounting under ASC 605. As such, adjusted to exclude the adoption of ASC 606, consolidated revenue for 2018 was $167.5 million and software revenue totaled $73.3 million.

Wireless subscriber and revenue trends continued to improve in 2018 as we exceeded our expectations for gross placements, net unit churn, revenue, and average revenue per unit (ARPU). Our year-over-year rate of paging unit erosion declined from prior year levels, as the net number of units lost during the year was down 5,000 units from 2017.

Our year-over-year rate of wireless revenue erosion was a historically-low 6.8 percent for 2018, a 90-basis point improvement from the prior year and a sharp reduction from the 10.1 percent we saw three years ago. We were especially pleased to see these positive trends continue in our top-performing healthcare segment, with the highest rate of gross placements and lowest rate of unit disconnects.

Consolidated operating expenses, which exclude depreciation, amortization, accretion and impairment, were up less than 9 percent from 2017 and were at the mid-point of the guidance that we had provided at the beginning of the year. Noteworthy was that our team was able to achieve this performance with a nearly 31 percent increase in product research and development (R&D) expenses over the same period in order to support our investment in the Spok Care Connect platform. Net of product R&D costs, the modest increases in year-over-year operating expenses reflected a cost structure that is fully aligned with the demand levels we saw during the year. We continue to manage operating expenses closely, and the efficiencies we have been able to implement across our cost structure provide a solid financial platform as we continue to make investments in areas that support our strategy for long-term growth.

Other key operating metrics for 2018 included:

- Software backlog totaled $40.4 million at December 31, 2018, compared to $42.3 million at the end of 2017.
- The renewal rate for software maintenance revenue in 2018 continued to exceed 99 percent.
- Annual wireless paging unit erosion totaled 57,000 units, or 5.4 percent, in 2018, down from the prior year level of unit erosion of 62,000 units. Paging units in service at December 31, 2018, totaled 992,000, compared to 1,049,000 at the end of the prior year.
- Total paging ARPU was $7.39 in 2018, compared to $7.51 in 2017.
- In 2018, consolidated operating expenses (excluding depreciation, amortization and accretion) totaled $161.9 million, compared to $148.8 million in 2017.
- For 2018, capital expenses totaled $5.9 million, compared to $9.2 million in 2017.
- The number of full-time equivalent employees at December 31, 2018, totaled 596, the same as year-end 2017.
- Capital returned to stockholders in 2018 totaled $23.6 million. This came in the form of approximately $10.1 million from the regular quarterly dividend and approximately $13.5 million from share repurchases.
- The Company's cash, cash equivalents and short-term investments balance at December 31, 2018, was $87.3 million, compared to $107.2 million at December 31, 2017.

Case Study:

# Bermuda Hospitals Board

### Bermuda Hospitals Board

Bermuda Hospitals Board (BHB) is the only hospital on the island of Bermuda and includes the King Edward VII Memorial Hospital, Mid-Atlantic Wellness Institute, and the Lamb Foggo Urgent Care Centre. Located in the western North Atlantic Ocean, 650 miles from North Carolina, this 324-bed hospital serves over 65,000 island residents and an annual tourist population of 692,000.

### The Challenge

BHB is focused on providing accurate and efficient communications, especially during disasters and other major events. However, BHB was using several outdated legacy systems to contact key personnel, taking upward of three hours to reach clinical team members and requiring staff to manually manage a time-intensive call log. BHB needed to simplify how they communicated and make it easier for care teams to connect.

### The Solution

After implementing the Spok Care Connect® platform, BHB is able to support an IT strategy focused on standardization and automation. Spok solutions for web directory, emergency notification, and secure messaging allow BHB to support a bring your own device (BYOD) environment where clinicians can safely send and receive messages containing patient information. In addition, BHB is using Spok speech recognition to ease operator overload by pre-recording responses to routine information requests from patients and their families, such as visiting hours.

### The Outcome

By focusing on faster alerts using Spok emergency notifications and secure messaging application, BHB better manages major incidents and has shortened response time for Code Blue alerts by 50 percent. In addition, they decreased disaster response time from an average of 150 minutes to less than 30 minutes. As a result of these changes, BHB staff can focus on patient care and not worry about extraneous administrative tasks. In the future, BHB plans to enhance hospital workflows using Spok clinical alerting to efficiently route messages from nurse call to nurses' preferred mobile devices.

**Decreased disaster response time from 150 minutes to**

**<30 minutes**

**"We knew that if we could find a communication platform that did everything, we would not only advance our technology, we'd substantially impact patient care. For me, the opportunities with Spok Care Connect are endless."**

**– Lloyd Holder**
**Vice President of IT Services**
**Bermuda Hospitals Board**

Overall, we are pleased with Spok's operating performance and our solid financial platform. In 2018, we continued to transform Spok into a company positioned to achieve long-term growth.

**2018 Accomplishments**

Our strategy is simple: Create beautiful software that delights our customers, retain our wireless subscribers and revenue for as long as possible, and demonstrate a path to long-term top line growth and profitability. Spok is proud to be a leader in healthcare communications. We support the critical function of delivering information to care teams when and where it matters most to improve patient outcomes. We believe that in the near term, the U.S. healthcare market offers the greatest opportunity for growth.

In 2018, we welcomed more than 70 new customers, who join a prestigious list of more than 1,900 hospitals and health systems in the U.S. who rely on Spok for their communications. For the sixth consecutive year, this customer list includes all 30 adult and children's hospitals on the U.S. News and World Report's Best Hospitals Honor Roll. These hospitals rely on our solutions to help them provide the best care. Our healthcare customers are an important part of our future growth, as they continue to expand their enterprise communications, and add more of our services and solutions. Secure text messaging remains one of our best-performing solutions, with 2018 sales up from the prior year.

Other key accomplishments in 2018 included:

- We announced key strategic partnerships with companies such as Zebra Technologies, Spectralink, and Bernoulli Health.
- Members of our leadership team were keynote speakers at numerous C-suite conferences.
- Spok received recognition as the No.1 provider of secure communications by Black Book Market Research.

Our team intends to carry this momentum throughout 2019 to stimulate long-term growth.

Additionally, we took our Spok Care Connect message to the market.  Our strategy of offering a single platform, single database, and single technology that create an enterprise solution for our healthcare customers has now been validated and endorsed by both customers and industry analysts.  We are confident we are on the right path for our future.

**50%**

**Reduction in critical code launch time**

**University of Maryland Capital Region Health**

> **“Spok Care Connect was the clear choice to standardize our communications. We are excited that we can now work with one vendor to improve multiple workflows across our care teams.”**

**– Darrell Messersmith, MSPT, CHCIO**
**CMIO and CIO**
**Vail Health**

Spok has many loyal, satisfied customers and strengths as an organization. This is evidenced by our extremely high maintenance renewal rates and positive customer feedback. However, our goal is to be the best we can be in a very competitive environment and the only way to do that is to invest in our future and take our solution set to the next level.

**2019 Business Objectives**

As I outlined at the beginning of this letter, about three years ago, we embarked on a transformation that was a tidal shift in our strategic direction for healthcare, our largest customer segment. This strategy pivot is a five-year plan that signaled a very intentional move from offering our customers “point” solutions, or single-product solutions, for call center software, alarm management, and secure messaging to offering them a cloud-native, single, integrated clinical communication and collaboration platform called Spok Care Connect.

We decided to make this shift and focus on the Spok Care Connect platform for many reasons, including:

- Customer needs, as our healthcare customers told us they needed a more unified approach to communications across their enterprise.
- The large potential market opportunity as we further penetrate the $2.5-4 billion healthcare IT communications market.
- Business simplification, as we previously offered our customers too many different products in multiple versions on several different platforms.
- Competitive positioning, as we concluded that no competitor offers a single, integrated platform for healthcare communications.

As a result of listening to what our customers have been telling us and our work with our innovation partners, we were proud to introduce the next evolution of our Spok Care Connect platform at the HIMSS19 conference.

Our core foundation of clinical communication is strong. And we are proud of the work our employees have done in support of this mission. We have accomplished so much together since we became Spok. We are laser focused on making Spok Care Connect the leading clinical communication and collaboration platform for the healthcare industry.

In 2019, we continue our investment commitment to address near-term opportunities and to achieve long-term organic growth.  We believe these investments are critical in support of our strategy to deliver our industry-leading clinical communication and collaboration platform and drive long-term stockholder value. However, while we believe that we need to continue investing in our future, we have completed the bulk of our investments as we launch the evolution of our Spok Care Connect platform.

We believe that R&D expense increases will continue to slow in 2019 and approach a more steady-state level. We anticipate that R&D expenses will increase from 2018 levels, although at a much slower pace, and will be primarily offset by expense reductions in other categories.

Last, with respect to our capital allocation strategy, our overall goal has been to achieve sustainable business growth, while maximizing long-term stockholder value through our multi-faceted capital allocation strategy, which has included:

- Dividends and share repurchases;
- Key strategic investments to improve our operating platform and infrastructure and drive long-term organic growth; and
- Potential acquisitions that could provide additional revenue streams and are accretive to earnings.

For 2019 we expect to continue paying our 12.5 cents per share quarterly dividend. We will continue to evaluate our capital allocation strategy on a quarterly basis and communicate our plans to you with respect to dividends, share repurchases, and other uses of capital each quarter when we report earnings.

In conclusion, we remain committed to our core values of putting the customer first, providing solutions that matter, innovation, and accountability. We believe our past results and future plans reflect these values.

I want to take this opportunity to thank our talented team of employees and our loyal customers and strategic partners. Together, we made enormous progress in 2018. We also want to thank our stockholders for your continued support as we take this journey together.

Vincent D. Kelly
President and Chief Executive Officer
April 2019

# 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, 2018**
**or**

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the transition period from to**

**Commission file number 001-32358**

# SPOK HOLDINGS, INC.

**(Exact name of registrant as specified in its charter)**

| | |
|---|---|
| **DELAWARE** | **16-1694797** |
| **(State or other jurisdiction of incorporation or organization)** | **(I.R.S. Employer Identification No.)** |
| **6850 Versar Center, Suite 420 Springfield, Virginia** | **22151-4148** |
| **(Address of principal executive offices)** | **(Zip Code)** |

**(800) 611-8488**
**(Registrant's telephone number, including area code)**

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

| Title of each class | Name of each exchange on which registered |
|---|---|
| Common Stock, par value $0.0001 per share | NASDAQ National Market® |

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

**None**

Indicate by 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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

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 is a shell company (as defined in Rule 12b-2 of the Act). YES ☐ NO ☒

The aggregate market value of the common stock held by non-affiliates of the registrant was $348.1 million based on the closing price of $17.43 per share on the NASDAQ National Market® on June 30, 2018.

The number of shares of registrant's common stock outstanding on February 22, 2019 was 19,342,655.

**DOCUMENTS INCORPORATED BY REFERENCE**

Portions of the registrant's Definitive Proxy Statement for the 2019 Annual Meeting of Stockholders of the registrant, which will be filed with the Securities and Exchange Commission pursuant to Regulation 14A no later than April 30, 2019, are incorporated by reference into Part III of this Report.

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**Forward-Looking Statements**

This Annual Report on Form 10-K contains forward-looking statements and information relating to Spok Holdings, Inc. and its subsidiaries ("Spok" or the "Company") that set forth anticipated results based on management's current plans, known trends and assumptions. These statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Statements that are predictive in nature, that depend upon or refer to future events or conditions, or that include words such as "anticipate," "believe," "estimate," "expect," "intend," "will," "target," "forecast" and similar expressions, as they relate to Spok are forward-looking statements.

Although these statements are based upon current plans, known trends and assumptions that management considers reasonable, they are subject to certain risks, uncertainties and assumptions, including but not limited to the following:

- Continuing decline in the number of paging units we have in service with customers, commensurate with a continuing decline in our wireless revenue
- The sales cycle of our software solutions and services can run from six to eighteen months, making it difficult to plan for and meet our sales objectives and bookings on a steady basis quarter-to-quarter and year-to-year
- Our ability to manage network rationalization to lower our costs without causing disruption of service to our customers
- Our ability to design and develop an integrated clinical communications and collaboration platform to address mobile communications, clinical alerting, nursing and workflow functions at state of the art hospitals that gains market acceptance and wide-spread use by customers
- Our ability to address changing market conditions with new or revised software solutions
- Our ability to retain key management personnel and to attract and retain talent within the organization
- Our ability to manage change related to regulation, including laws and regulations affecting hospitals and the healthcare industry generally
- Competition for our services and products from new technologies or those offered and/or developed from firms that are substantially larger and have much greater financial and human capital resources
- The reliability of our networks and servers and our ability to prevent cyber-attacks and other security issues and disruptions
- We may experience litigation claiming intellectual property infringement by us, and we may not be able to protect our rights in intellectual property that we own and develop
- Unauthorized breaches or failures in cybersecurity measures adopted by us and/or included in our products and services
- Those matters discussed in this Annual Report under Item 1A "Risk Factors."

Should known or unknown risks or uncertainties materialize, known trends change, or underlying assumptions prove inaccurate, actual results or outcomes may differ materially from past results and those described herein as anticipated, believed, estimated, expected, intended, targeted or forecasted. Investors are cautioned not to place undue reliance on these forward-looking statements.

The Company undertakes no obligation to update forward-looking statements. Investors are advised to consult all further disclosures the Company makes in its subsequent reports on Form 10-Q and Form 8-K that it will file with the United States Securities and Exchange Commission ("SEC"). Also note that, in the risk factors section, the Company provides a cautionary discussion of risks, uncertainties and possibly inaccurate assumptions relevant to its business. These are factors that, individually or in the aggregate, could cause the Company's actual results to differ materially from past results as well as those results that may be anticipated, believed, estimated, expected, intended, targeted or forecasted. It is not possible to predict or identify all such risk factors. Consequently, investors should not consider the risk factor discussion to be a complete discussion of all of the potential risks or uncertainties that could affect Spok's business, statement of operations or financial condition, subsequent to the filing of this Annual Report.

## PART I

The terms "we," "us," "our," "Company" and "Spok" refer to Spok Holdings, Inc. and its direct and indirect wholly-owned subsidiaries.

## ITEM 1. *BUSINESS*

### Overview

Spok, Inc., a wholly owned subsidiary of Spok Holdings, Inc. (NASDAQ: SPOK), is proud to be the global leader in healthcare communications. We deliver clinical information to care teams when and where it matters most to improve patient outcomes. Top hospitals rely on the Spok Care Connect suite to enhance workflows for clinicians, support administrative compliance, and provide a better experience for patients.

Our headquarters is located at 6850 Versar Center, Suite 420, Springfield, Virginia 22151, and our telephone number is 800-611-8488. We maintain an Internet website at http://www.spok.com. (This website address is for information only and is not intended to be an active link or to incorporate any website information into this 2018 Annual Report on Form 10-K ("2018 Form 10-K").)

We are a provider of paging services and select software solutions in the United States and abroad, on a limited basis, in Europe, Canada, Australia, Asia and the Middle East. We offer our services and products to three major market segments: healthcare, government, and large enterprise, with a greater emphasis on the healthcare market segment.

### *Industry Overview*

We deliver smart, reliable clinical communication and collaboration solutions to help protect the health, well-being, and safety of people around the globe, primarily in the United States. Our customers rely on Spok for workflow improvement, secure texting, paging services, contact center optimization, and public safety response.

We develop, sell, and support enterprise-wide systems primarily for healthcare and other organizations needing to automate, centralize, and standardize their approach to clinical communications. Our solutions can be found in prominent hospitals; large government agencies; leading public safety institutions, colleges and universities; large hotels, resorts and casinos; and well-known manufacturers.

Our primary market is healthcare providers, particularly hospitals. We have identified hospitals with 200 or more beds as the primary targets for our software solutions as well as our paging services. Within this market, we have identified the following dynamics and have focused our efforts to address these dynamics:

- a heightened awareness of the ubiquitous, critical role of communications in healthcare;
- an increased focus within hospitals on quality of care and patient safety initiatives;
- the importance of confidentiality when sharing information;
- increased regulations that may result in process changes, increased documentation and reporting and increased costs;
- a continuing focus within hospitals to reduce labor and administrative costs while increasing productivity; and
- a broader proliferation of information technology in healthcare as hospitals strive to apply technology to solve their business problems.

### *Sales and Marketing*

*Sales.* We market and distribute our clinical communication and collaboration solutions through a direct sales force and an indirect sales channel.

The direct sales force contracts or sells products, solutions, messaging services and other services directly to customers ranging from small and medium-sized businesses to companies in the Fortune 1000; healthcare and related businesses; and Federal, state, and local government agencies. We will continue to market primarily to commercial enterprises, with a focus on healthcare organizations, interested in our communication solutions. We maintain a sales presence in key markets throughout the United States, and in limited markets internationally including our Asia-Pacific sales team, in an effort to gain new customers and to retain and increase sales to existing customers. The direct sales force targets leadership responsible for the procurement of clinical communication and collaboration solutions such as chief information officers, chief technology officers, chief medical officers, chief nursing officers, information technology directors, telecommunications directors, and contact center managers. The timing for a direct sale varies, but may take from six to 18 months depending on the type and scope of software solution.

The indirect sales force complements our direct sales force. Through relationships with alliance partners we are able to sell our solutions to a wider customer base. For paging services that we do not provide directly, we contract with and invoice an intermediary for airtime services. For our software sales, our relationships with alliance partners assist us in broadening the distribution of our products and further diversifying into markets outside healthcare.

*Marketing*. We have a centralized marketing function, which is focused on supporting our solutions and sales efforts by strengthening our corporate brand, generating sales leads, and facilitating the sales process. Our principal marketing programs include:

- Content marketing (eBriefs, case studies, brochures, videos, infographics, and more) as an underlying foundation of all marketing campaigns or initiatives;
- Website development and maintenance, which provides product and Company information, customer support options, paging capabilities, as well as thought leadership and engagement;
- Participation at trade shows and industry events, such as Healthcare Information and Management Systems Society, College of Healthcare Information Management Executives, Association of Medical Directors of Information Systems, American Organization of Nurse Executives, Becker's Healthcare Conference, and other Healthcare Information technology related shows and conferences;
- Webinars about customer successes, current industry trends, and our solutions;
- Social media involvement to provide information regarding upcoming educational events or new product offerings;
- Industry analyst relationships;
- Newsletters and blog posts to provide information about industry trends and our solutions to customers, prospects, and alliances; and
- Annual customer conferences that solicit feedback on our solutions and services.

***Licenses and Messaging Networks***

In order to provide our wireless services, we hold licenses to operate on various frequencies in the 900 MHz narrowband. We are licensed by the United States Federal Communications Commission (the “FCC”) to operate Commercial Mobile Radio Services (“CMRS”). These licenses are required to provide one-way and two-way messaging services over our networks.

We operate local, regional and nationwide one-way networks, which enable subscribers to receive messages over a desired geographic area. One-way networks operating in 900 MHz frequency bands utilize the FLEX™ protocol developed by Motorola Mobility, Inc. (“Motorola”). The FLEX™ protocol has advantages of functioning at higher network speeds (which increases the volume of messages that can be transmitted over the network) and of having more robust error correction (which facilitates message delivery to a device with fewer transmission errors).

Our two-way networks utilize the ReFLEX 25™ protocol, also developed by Motorola. ReFLEX 25™ promotes spectrum efficiency and high network capacity by dividing coverage areas into zones and sub-zones. Messages are directed to the zone or sub-zone where the subscriber is located, allowing the same frequency to be reused to carry different traffic in other zones or sub-zones. As a result, the ReFLEX 25™ protocol allows the two-way network to transmit substantially more messages than a one-way network using the FLEX™ protocols. The two-way network also provides for assured message delivery. The network stores, for a limited amount of time, messages that could not be delivered to a device that is out of coverage for any reason, and when the unit returns to service, those messages are delivered. The two-way paging network operates under a set of licenses called narrowband Personal Communications Service, which uses 900 MHz frequencies. These licenses require certain minimum five and ten-year build-out commitments established by the FCC, which have been satisfied.

Although the capacities of our networks vary by geographic area, we have excess capacity at a consolidated level. We have implemented a plan to manage network capacity and to improve overall network efficiency by consolidating subscribers onto fewer, higher capacity networks with increased transmission speeds. This plan is referred to as network rationalization. Network rationalization will result in fewer networks and therefore fewer transmitter locations, which we believe will result in lower operating expenses due primarily to lower site rent expenses. As we continue to implement our network rationalization plan, we expect to have fewer transmitters that can be removed efficiently from our networks and still maintain the level of service required for our customers, and thus the benefits of network rationalization will decline. We expect related cost savings will begin to slow in 2019 as compared to historical cost savings. As we reach certain minimum frequency commitments, as outlined by the United States Federal Communications Commission, we will be unable to continue our efforts to rationalize and consolidate our networks. Our messaging networks and related infrastructure are located exclusively in the United States.

Generally, our software solutions do not require licenses or permits from Federal, state and/or local government agencies in order to be sold to customers. However, certain of our software products are subject to regulation by the United States Food and Drug Administration ("FDA") and are subject to certification by the Joint Interoperability Test Command to be sold to the branches of the armed services of the United States and the United States government. (see “Regulation” below).

***Our Strategy***

Our goal is to continue to execute on our vision of integrated communication and collaboration enterprise solutions. In doing so, we will strengthen our core product offerings and offer new solutions as we continue to focus on serving the mission critical needs of our customers, while operating an efficient and profitable business strategy.

Critical aspects of our strategy include:

***Growth of our software revenue and bookings*** — We expect to continue to substantially increase our investment in sales and marketing, product implementation, product development and customer support to drive software, services and maintenance bookings and revenue growth. We will continue to focus our sales and marketing efforts in the healthcare market in order to identify opportunities for sales and close those opportunities in the form of bookings. We have established software revenue and software operations bookings as key performance objectives for our consolidated operations in 2019.

We have an ongoing initiative to further penetrate the hospital segment in the United States and while we believe there is a significant opportunity to sell clinical communication and collaboration solutions to hospitals located outside the United States our focus is on the domestic market. We intend to leverage the strength of our market presence and the breadth of our product offerings to further expand our customer base in healthcare.

***Retention of our wireless subscribers and revenue stream*** — We will continue to focus on reducing the rate of subscriber disconnects and minimize the rate of wireless revenue erosion. We continue to have a valuable wireless presence in the healthcare market, particularly in larger hospitals. We offer a comprehensive suite of wireless messaging products and services focused on healthcare and “campus” type environments and critical mission notification. We will continue to focus on network reliability and customer service to help minimize the rate of subscriber disconnects. We have established wireless revenue as a key performance objective for our consolidated operations in 2019.

We recognize that the number of our wireless subscribers, our units in service and the related revenue will continue to decline. We intend to continue reducing our underlying cost structure impacting this wireless revenue stream. We will reduce payroll and related expenses as well as network related expenses as necessary in light of the declining wireless revenue. We will integrate and consolidate operations as necessary to ensure the lowest cost operational platform for our consolidated business. We have established operating and capital expenditures as a key performance objective for our consolidated operations in 2019.

***Invest in our future solutions*** — The market for clinical communication and collaboration solutions is expected to grow as healthcare continues to change. Focus on patient satisfaction, population health management, reimbursement changes and emphasis on quality improvement and care coordination are all driving an evolution in communication and collaboration between previously disparate departments and systems within and outside hospitals and across the healthcare ecosystem. Maintaining our position as a leader in healthcare communication and collaboration requires us to continue development of our integrated platform and invest in the key areas of customer need including: 1) mobility, 2) integrated platform, 3) nursing and physician solutions and 4) alerting. We will continue to increase our spending on product development and strategy in 2019 and beyond to develop these solutions and compete in the changing marketplace. Investment in our future solutions is discussed in further detail under "Research and Development." We have established specific product development related activities as a key performance objective for our consolidated operations in 2019.

***Return capital to our stockholders*** — We understand that our primary objective is to create long-term stockholder value. We will continue to evaluate how best to deploy our capital resources to support sustainable business growth and maximize stockholder value. We expect to continue to pay a quarterly dividend of $0.125 per share of common stock or $0.50 annually in 2019. We will continue to evaluate both market and Company factors to determine whether a common stock repurchase program is an appropriate method to return capital to our stockholders.

***Long-term revenue growth through business diversification*** — We believe that add-on acquisitions of companies or technologies could be an important part of our future growth. We believe add-on acquisitions of complementary companies or technologies in the healthcare market could enhance our position with current customers and expand our overall addressable markets. Rapidly and successfully integrating strategic acquisitions and improving operational efficiencies is a focus of our management team. Given the nature of our solutions, new technologies can be integrated to accelerate cross-selling opportunities. We evaluate these potential businesses or technologies to determine if they can be acquired at a reasonable valuation and will be profitably accretive and accelerate our revenue goals.

To ensure focus on our business strategy we establish specific performance objectives and develop short-term and long-term incentive plans (“STIP” and "LTIP," respectively) for our management that include a combination of these operating objectives and priorities.

## Our Products and Services

*Wireless Products and related Services.* We offer subscriptions to one-way or two-way messaging services for a periodic (monthly, quarterly, semi-annual, or annual) service fee. The level of service fees is generally based upon the type of service provided, the geographic area covered, the number of devices provided to the customer and the period of commitment. A subscriber to one-way messaging services may select coverage on a local, regional, or nationwide basis to best meet their messaging needs. Two-way messaging is generally offered on a nationwide basis. In addition, subscribers either contract for a messaging device from us for an additional fixed monthly fee or they own a device, having purchased it either from us or from another vendor. We also sell devices to resellers who lease or resell them to their subscribers and then sell messaging services utilizing our networks. We offer ancillary services, such as voicemail and equipment loss or maintenance protection, which help increase the monthly recurring revenue we receive along with these traditional messaging services. In 2015 and 2016 we launched new and exclusive one-way (T5) and two-way (T52) alphanumeric pagers, respectively. Both pagers are configurable to support un-encrypted or encrypted operation. When configured for encryption, they utilize AES-128 bit encryption, screen locking and remote wipe capabilities. With encryption enabled these new secure paging devices enhance our service offerings to the healthcare community by adding Health Insurance Portability and Accountability Act ("HIPAA") security capabilities to the low cost, highly reliable and availability benefits of paging.

The demand for one-way and two-way messaging services declined during the years ended December 31, 2018, 2017 and 2016 and we believe demand will continue to decline for the foreseeable future. Wireless products and services revenue represented 56%, 59% and 61% of total consolidated revenue for the years ended December 31, 2018, 2017 and 2016, respectively. As demand for one-way and two-way messaging has declined, we have developed or added service offerings in order to increase our revenue potential and mitigate the decline in our wireless revenues. We will continue to evaluate opportunities to provide customers the highest value possible.

*Software.* Dependable clinical communications are paramount for individuals in healthcare and a host of other industries. We offer a number of solutions, providing our customers with the ability to communicate anywhere, anytime across a number of situations. Our solutions are used for contact centers, clinical alerting and notification, mobile communications and messaging, and for public safety notifications. We offer clinical communication and collaboration solutions in four major product categories:

***Contact Center***

- **Spok® Healthcare Console:** Provides operators with the information needed to process calls using their computers, with just a few keystrokes. This solution integrates with the customers' existing phone systems and is used by the operator group to answer incoming calls to the contact center. Operators can quickly and accurately perform directory searches and code calls, as well as messaging and paging by individual, groups, and roles using the Spok Healthcare Console's computer telephony integration ("CTI") and directory capabilities.
- **Spok® Web-Based Directory:** Makes employee contact information more accessible and enables staff to send messages quickly right from the directory. Authenticated users can log on anywhere, anytime to perform a variety of important updates to contact information and on-call schedules, search the directory, and send important messages.
- **Spok® Web-Based On-Call Scheduling:** Keeps personnel, calendars and on-call scheduling information updated, even with thousands of staff, using a secure web portal to maintain and allow password-protected access to the latest on-call schedules and personnel information.
- **Spok® Speech:** Enables the organization to process routine phone requests, including transfers, directory assistance, messaging and paging without live operators and with more ease-of-use than touchtone menus.
- **Spok® Call Recording and Quality Management:** Records, monitors, and scores operators' conversations to allow for better management of calls, helping improve customer service.

***Clinical Alerting***

- **Spok® Messenger:** Provides an intelligent, FDA, 510(k)-cleared solution that connects virtually all crucial alert systems, including nurse call, fire, security, patient monitoring, and building management to mobile staff via their wireless communication devices. This solution provides the ability to reach mobile team members within seconds of an alert, improving overall workflow, staff productivity, and the comfort and safety of everyone in the facility.
- **Spok® e.Notify:** Enables organizations to quickly and reliably notify and confirm team member availability during emergency situations without relying on calling trees, thereby reducing confusion that may arise in an emergency situation. This solution automatically delivers messages, collects responses, escalates issues to others, and logs all activities for reporting and analysis purposes.
- **Spok® Critical Test Results Management:** Automates and streamlines the process of delivering critical test results to the right clinicians to help ensure patient safety. This solution can send messages from the cardiology, laboratory and radiology

departments by means of encrypted smartphone communications, two-way paging, secure email, secure text, images, annotations, and voice to a variety of endpoints such as workstations, laptops, tablets, smartphones, pagers, and other wireless devices.

***Mobile Communications***

- **Spok Mobile®:** Simplifies communications and strengthens care by using smartphones and tablets for secure code alerts, patient updates, results, consult requests, and much more. Allows users to access the full directory of accurate contact information to send messages/photos/videos to smartphones and other devices, and to ensure clinical communications are logged, all with security, traceability, and reliability.
- **Spok® Device Preference Engine:** Facilitates voice conversations among doctors and caregivers by enabling users to choose the desired communication method based on factors such as message priority.

***Public Safety***

- **Spok® pc/psap:** Speeds emergency dispatch by giving Public Safety Answering Point ("PSAP") call-takers an easy-to-use, standards-based, graphical interface that integrates the underlying phone system, mapping systems, and other resources for critical information availability. 9-1-1 call-takers are able to instantly involve police, fire, EMT, and hazardous material personnel with a single click of the mouse or touch of the screen.
- **Spok® Enterprise Alert:** Directs emergency personnel to a 9-1-1 caller's exact location (building, floor, room), helping to ensure speed, accuracy, and reliability of response. The E9-1-1 software provides real-time, onsite notification when 9-1-1 is dialed, and works to decrease emergency response time.

*Services.* We offer a variety of professional services to assist our customers in the successful implementation of, and to maximize the benefits obtained from the use of, our software solutions. We also offer support services to enhance and refine the customers experience throughout their relationship with Spok.

- **Professional Services:** We offer a full suite of professional services which are provided by a dedicated group of professional service employees. Our professional services include consultation, implementation, and training services. For software solution implementations, our professional services staff uses a branded, consistent methodology that provides a comprehensive phased work plan for both new software installations and/or upgrades. In support of our implementation methodology, we manage the various aspects of the process through a professional services automation tool. We may also use third-party professional services firms to implement our solutions for customers depending on the circumstances. Professional services revenue represented 11% of total consolidated revenue for the year ended December 31, 2018 and 10% of total consolidated revenue for each of the years ended December 31, 2017 and 2016.
- **Software License Updates and Product Support (Maintenance):** Software license updates and product support, which is generally referred to as maintenance when sold to customers, is an important offering to customers who utilize our software solutions. In order to support our products that provide clinical communication and collaboration solutions to our customer's organizations, we have a dedicated customer support organization. The customer support organization provides support 24 hours a day, 7 days a week, 365 days a year and the service can be accessed via telephone, email or the Internet via the Spok webpage. The Spok support service is augmented by third party services where needed. Software license updates and product support are generally priced together as a percentage of the software licenses for which these services will be provided. Largely all of our customers purchase maintenance when they purchase new software licenses after which renewals generally occur on an annual basis and are paid in advance. Software license updates provide customers with rights to unspecified product upgrades as well as maintenance and patch releases that are released during the term of the support period. Software license updates and product support revenue (i.e. maintenance revenue) represented 23%, 23% and 21% of total consolidated revenue for the years ended December 31, 2018, 2017 and 2016 respectively.

## Sources of Equipment

We do not manufacture the messaging devices our customers need to take advantage of our services or the network equipment we use to provide messaging services. We have relationships with several vendors to purchase new messaging devices. Used messaging devices are available in the secondary market from various sources. We believe existing inventory, returns of devices from customers that canceled services, and purchases from other available sources of new and reconditioned devices will be sufficient to meet expected messaging device requirements for the foreseeable future. We negotiate contractual terms with our vendors that do not directly relate to the manufacturing of the network equipment or messaging devices. The network equipment and messaging devices are generic on which we may place our logo or label.

We sell third party equipment for use with our software solutions. The third-party equipment that we sell is generally available and does not require any specialty manufacturing to accommodate our software solutions.

We currently have inventory and network equipment on hand that we believe will be sufficient to meet our wireless and software equipment requirements for the foreseeable future.

**Intellectual Property**

As of December 31, 2018, we held 71 trademarks and 17 patents which we believe are important to protect our intellectual property. We believe our intellectual property distinguishes our business from our competition and are integral to our continued success in the area of clinical communication and collaboration solutions. The expiration dates of these trademarks range from 2019 to 2032 and can be extended for 10 year periods upon renewals.

**Customers**

Our customers include businesses and employees who need to be accessible to their offices or customers, first responders who need to be accessible in emergencies, and third parties, such as other telecommunication carriers and resellers that pay our Company to use our networks. Customers include businesses, professionals, management personnel, medical personnel, field sales personnel and service forces, members of the construction industry and construction trades, real estate brokers and developers, sales and services organizations, specialty trade organizations, manufacturing organizations and government agencies.

We offer our communication services and products primarily in the United States and to three major market segments: healthcare, government and large enterprise, but with a greater emphasis on the healthcare market segment. For the years ended December 31, 2018, 2017 and 2016, revenues from healthcare customers accounted for approximately 77.9%, 74.6% and 70.3% of our total revenues, respectively. We expect the trend of an increasing percentage of our total revenue to come from the healthcare segment to continue, even as our total revenue declines due to our subscriber erosion from our wireless services. No single customer accounted for more than 10% of our total revenues in 2018, 2017 or 2016. For the years ended December 31, 2018, 2017 and 2016, foreign sales represented approximately 2.9%, 2.6% and 3.2% of our consolidated revenue, respectively.

We pursue close, long-term relationships with our customers because we believe strong customer relationships enable us to retain our current customer base and expand our services and revenue to that customer base.

**Backlog**

Our software backlog of undelivered or in-progress orders was $40.4 million and $42.3 million at December 31, 2018 and 2017, respectively. Of the current backlog, we expect to deliver and complete all but $7.2 million in 2019.

**Competition**

The competitors and degree of competition vary among our various product categories. Competition is particularly strong for our wireless messaging services. Within the wireless industry, companies compete on the basis of price, coverage area, services offered, transmission quality, network reliability, and customer service. We compete by maintaining competitive pricing for our products and services, by providing broad coverage options through high-quality, reliable messaging networks and by providing quality customer service. Direct competitors for wireless messaging services include American Messaging Service, LLC and a variety of other regional and local providers. We also compete with a broad array of wireless messaging services provided by mobile telephone companies, including AT&T Mobility LLC, Sprint Nextel Corporation, T-Mobile USA, Inc., and Verizon Wireless, Inc. This competition has intensified as prices for the services of mobile telephone companies have declined and as those companies have incorporated messaging capabilities into their mobile phone devices. Many of these companies possess far greater financial, technical and other resources than we do.

Most personal communications service and other mobile phone devices currently sold in the United States are capable of sending and receiving one-way and two-way messages. Most subscribers that purchase these services no longer need to subscribe to a separate messaging service. As a result, many one-way and two-way messaging subscribers can readily switch to cellular, personal communications service and other mobile telephone services. The decrease in prices and increase in capacity and functionality for cellular, personal communications service, WiFi, and other mobile telephone services have led many subscribers to select combined voice and messaging services from mobile telephone companies as an alternative to our stand-alone messaging services.

We also have a number of competitors whose software products compete with one or more modules of our clinical communication and collaboration solutions. These competitors are a mix of privately held and public companies that offer a number of call center, alerting and mobile communication products. Our primary competitive advantages include having:

- An integrated product suite;
- A communication-driven workflow;
- Certifications, such as those through the Joint Interoperability Test Command (See "Joint Interoperability Test Command" below) and the FDA; and
- A complete directory of contacts throughout the customer enterprise.

Although there are no competitors that offer a similar comprehensive set of software modules that match our product offerings, there are several competitors who offer software similar to many of our solutions. As we continue our transition to a software company the Company's competitive landscape will continue to evolve. Selected competitors for portions of our product portfolio include:

- Alaska Communications Systems Group, Inc. - Mobile communications solutions;
- Appfolio, Inc. - Cloud-based software solutions;
- Boingo Wireless, Inc. - Mobile communications solutions;
- Castlight Health, Inc. - Software as a service health benefits platform;
- Computer Programs and Systems, Inc. - Healthcare IT solutions;
- Everbridge, Inc. - Clinical alerting solutions;
- Evolent Health, Inc. - Healthcare delivery and payment solutions;
- Five9, Inc. - Cloud-based solutions;
- Globalstar, Inc. - Mobile communications solutions;
- HealthStream, Inc. - healthcare development solutions;
- LivePerson,Inc. - Mobile and online messaging solutions;
- MobileIron, Inc. - Mobile communications solutions;
- Model N, Inc. - Revenue management cloud solutions;
- NextGen Healthcare, Inc. - Medical and Dental software, services, and analytic solutions;
- ORBCOMM Inc. - Network connectivity and device management solutions; and
- Vocera Communications, Inc. - Mobile communications solutions;

In addition, substantially larger companies in the electronic medical records ("EMR") space such as Epic Systems Corporation, Athenahealth, Inc. and Allscripts Healthcare Solutions, Inc. may choose to offer software related solutions similar to our clinical communication and collaboration solutions, or may acquire one of our competitors.

## Research and Development

We maintain a product development group, a substantial portion of which is focused on developing new software products, especially with respect to developing an integrated platform for communications solutions and additional enhancements. Within our research and development group is a separate task force focused on ongoing maintenance and enhancement of existing point-solution products. Our product development group uses a methodology that balances enhancement requests from a number of sources including customers, regulatory requirements, the professional services staff, customer support incidents, known defects, market and technology trends, and competitive requirements. These requests are reviewed and prioritized based on criteria that include the potential for increased revenue, customer/employee satisfaction, possible cost savings, and development time and expense.

We continue to focus our product development activities on developing our clinical communication and collaboration, Spok Care Connect®. This unified communication solution focuses on four key areas of customer need: mobility offerings, an integrated platform, alerting, and nursing solutions. The development of Spok Care Connect requires a multi-year effort by a dedicated product development staff and will be deployed in multiple phases which include planned development and enhancements. We believe that development of the Spok Care Connect Platform will drive long-term stockholder value and play an important role in determining the future success of our strategy.

We plan to continue to invest in our research and development efforts to build a fully integrated communications and workflow platform for hospitals focused on mobility, critical alerting, and nursing care with full enterprise accessibility. However, we expect our research and development expenses will begin to grow at a slower pace in 2019.

## Employees

At both December 31, 2018 and 2017 we had 596 full time equivalent (“FTE”) employees, respectively. Our employees are not represented by labor unions or covered by a collective bargaining agreement.

## Regulation

### *Federal Regulation*

The FCC issues licenses to use radio frequencies necessary to conduct our business and regulate many aspects of the operations that support our wireless revenue. Licenses granted to us by the FCC have varying terms, generally of up to ten years, at which time the FCC must approve renewal applications. In the past, FCC renewal applications generally have been granted upon showing compliance with FCC regulations and adequate service to the public. Other than those still pending, the FCC has thus far granted each license renewal that we have requested.

The Communications Act of 1934, as amended (the "Communications Act"), requires radio licensees, including us, to obtain prior approval from the FCC for the assignment or transfer of control of any construction permit or station license or authorization of any rights thereunder. The FCC has thus far granted each assignment or transfer request we have made in connection with a change of control.

The Communications Act also places limitations on foreign ownership of CMRS licenses, which constitute the majority of our licenses. These foreign ownership restrictions limit the percentage of stockholders' equity that may be owned or voted, directly or indirectly, by non-United States citizens or their representatives, foreign governments or their representatives, or foreign corporations. Our Amended and Restated Certificate of Incorporation permits the redemption of our equity from stockholders where necessary to ensure compliance with these requirements.

The FCC's rules and regulations require us to pay a variety of fees that otherwise increase our costs of doing business. For example, the FCC requires licensees, including Spok, to pay levies and fees, such as universal service fees, to cover the costs of certain regulatory programs and to promote various other societal goals. These requirements increase the cost of the services provided. By law, we are permitted to bill our customers for these regulatory costs and we typically do so.

Additionally, the Communications Assistance to Law Enforcement Act of 1994, ("CALEA") and certain rules implementing CALEA require some telecommunication companies, including Spok, to design and/or modify their equipment in order to allow law enforcement personnel to "wiretap" or otherwise intercept messages. Other regulatory requirements restrict how we may use customer information and prohibit certain commercial electronic messages, even to our own customers.

In addition, the FCC's rules require us to pay other carriers for the transport and termination of some telecommunication traffic. As a result of various FCC decisions over the last few years, we no longer pay fees for the termination of traffic originating on the networks of local exchange carriers providing wireline services interconnected with our services. In some instances, we received refunds for prior payments to certain local exchange carriers. We have entered into a number of interconnection agreements with local exchange carriers in order to resolve various issues regarding charges imposed by local exchange carriers for interconnection.

Failure to follow the FCC's rules and regulations can result in a variety of penalties, ranging from monetary fines to the loss of licenses. Additionally, the FCC has the authority to modify licenses, or impose additional requirements through changes to its rules.

The FDA has determined software systems that connect to medical devices are subject to regulation as medical devices as defined by the federal Food, Drug and Cosmetic Act ("the FDC Act"). Since our middleware software products connect to medical devices, we are required to comply with the FDC Act's requirements, including but not limited to: registration and listing, labeling, medical device reporting (reporting of medical device-related adverse events), removal and correction, and good manufacturing practice requirements. We have complied with the regulatory requirements of the FDC Act, and registered and received the necessary clearances for our products. As we modify and/or enhance our software products (including our middleware product), we may be required to request FDA clearance before we are permitted to market these products.

In addition, our software solutions may handle or have access to personal health information subject in the United States to the HIPAA, the Health Information Technology for Economic and Clinical Health Act ("HITECH"), and related regulations. These statutes and related regulations impose numerous requirements regarding the use and disclosure of personal health information with which we help our customers comply. Our failure to accurately anticipate or interpret these complex and technical laws could subject us to civil and/or criminal liability. We believe that we are in compliance with these laws and their related regulations.

Although these and other regulatory requirements have not, to date, had a material adverse effect on our operating results, such requirements could have a material impact on our operating results in the future. We monitor discussions at the FCC and FDA on pending changes in regulatory policy or regulations; however, we are unable to predict what changes, if any, may occur in 2019 to regulatory policy or regulations.

***State Regulation***

As a result of the enactment by the United States Congress of the Omnibus Budget Reconciliation Act of 1993 ("OBRA") in August 1993, states are now generally preempted from exercising rate or entry regulation over any of our operations. States are not preempted, however, from regulating "other terms and conditions" of our operations, including consumer protection and similar rules of general applicability. Zoning requirements are also generally permissible, however, provisions of the OBRA prohibit local zoning authorities from unreasonably restricting wireless services. States that regulate our services also may require us to obtain prior approval of (1) the acquisition of controlling interests in other paging companies and (2) a change of control.

At this time, we are not aware of any proposed state legislation or regulations that would have a material adverse impact on our business.

***Joint Interoperability Test Command ("JITC") Certification***

JITC is a military organization that tests technology for use by the branches of the armed services of the United States and the United States federal government. JITC certification is required of all systems with joint interfaces or joint information exchanges with other systems used by these organizations and is done to ensure all systems operate effectively together. All information technology and national security systems that exchange and use information to enable units or forces to operate effectively in joint, combined, coalition and interagency operations and simulations must be certified. Once a system has been certified under this program, the certification must be renewed every four years or after any changes that may affect interoperability. The interoperability certification process consists of four basic steps, which are:

- Identify (interoperability) requirements;
- Develop certification approach (planning);
- Perform interoperability test and evaluation; and
- Report certifications and statuses.

We submit and receive JITC certification for certain of our products through the Defense Information Systems Agency ("DISC"), which allows us to sell and implement our solutions at federal government agencies. We currently certify a console, web, speech, mass notification, public safety answering point, call recording and campus 911 product with JITC. We have a roadmap to renew the existing certifications with new releases of existing products and to bring additional products to JITC to increase the products that can be sold into Federal agencies.

**Available Information**

We make available on our website at http://www.spok.com, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and all amendments to those reports as soon as reasonably practicable after such reports are electronically filed with, or furnished to, the United States Securities and Exchange Commission ("SEC"). The SEC also maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at http://www.sec.gov. We also make available on our website, and in print, if any stockholder or other person so requests, our code of business conduct and ethics entitled “Code of Ethics” which is applicable to all employees and directors, our “Corporate Governance Guidelines” and the charters for all committees of our Board of Directors, including Audit, Compensation and Nominating and Governance. Any changes to our Code of Ethics or waiver, if any, of our Code of Ethics for executive officers or directors will be posted on that website.

## ITEM 1A. *RISK FACTORS*

The following important factors, among others, could cause our actual operating results to differ materially from those indicated or suggested by forward-looking statements made in this 2018 Form 10-K or presented elsewhere by management from time to time.

***The rate of wireless subscriber and revenue erosion could exceed our ability to reduce wireless operating expenses in order to maintain overall positive operating cash flow.***

Our wireless revenue is dependent on the number of subscribers that use our paging devices. Our customers may not renew their subscriptions after the expiration of their subscription agreements. In addition, our customers may opt for a lower-priced edition of our offerings or for fewer subscriptions. We have limited historical data with respect to rates of customer subscription renewals, so we cannot accurately predict customer renewal rates. Our customers' renewal rates may decline or fluctuate as a result of a number of factors, including their level of satisfaction with our offerings and their ability to continue their operations and spending levels. Increasing awareness and concern over HIPAA/HITECH compliance is causing healthcare organizations, our largest customer segment, to re-evaluate paging subscriptions for clinical use cases when users are not equipped with our encrypted pager offerings.

We face intense competition for subscribers from other paging service providers and alternate wireless communications providers such as mobile phone and mobile data service providers. There is a risk that our competitors' products may provide better performance or include additional features when compared to our offerings. Competitive pressures could also affect the prices we may charge or the demand for our offerings, resulting in reduced profit margins and loss of market share. Our efforts to compete effectively may not be sufficient, which may adversely affect our business, financial condition, operating results and cash flows.

In addition to competition, our customer base may be impacted by the introduction of new technologies. As mobile communications technology evolves, competitors that provide wireless broadband data services may lower their prices to customers that approach, meet or undercut our prices for paging services. We are unable to predict how customer perceptions of the value of our wireless services will be impacted by the development of new wireless technologies. Our continued success will depend on our ability to adapt to rapidly changing technologies and user preferences, to adapt our offerings to evolving industry standards, to predict user preferences and industry changes in order to continue to provide value to our customers and to improve the performance and reliability of our offerings. Our failure to adapt to such changes could harm our business, and our efforts to adapt to such changes could require substantial expenditures on our part to modify our offerings or infrastructure. Delays in developing, completing or delivering new or enhanced offerings and technologies could result in delayed or reduced revenue for those offerings and could also adversely affect customer acceptance of those offerings and technologies. Even if we are able to enhance our existing offerings or introduce new offerings that are well perceived by the market, if our marketing or sales efforts do not generate interest in or sales for these offerings, they may be unsuccessful.

We expect our wireless subscriber results, units in service and revenue will continue to decline into the foreseeable future. As this revenue erosion continues, maintaining positive cash flow is dependent on substantial and timely reductions in selected wireless operating expenses. Reductions in wireless operating expenses require both the reduction of internal costs and negotiation of lower costs from outside vendors. As we require fewer services and products from our vendors, our negotiating leverage to lower our costs is diminished. There can be no assurance that we will be able to reduce our wireless operating expenses commensurate with the level of revenue erosion. The inability to reduce wireless operating expenses would have a material adverse impact on our business, financial condition and statement of income including our continued ability to remain profitable, produce positive operating cash flow, continue our research and development investment in our Spok Care Connect Platform, pay cash dividends to stockholders, and repurchase shares of our common stock.

***We may be unable to effectively develop, introduce and deploy our integrated communications platform, Spok Care Connect, which is the basis for our future growth.***

Our future revenue growth depends on our ability to develop, introduce and effectively deploy our communication and collaboration platform. This multi-year effort will require the coordination of multiple development teams dedicated to this task. Simultaneously with this new development effort, we must continue to improve and support our existing suite of products to transition to the integrated clinical communication and collaboration platform. We foresee the following risks inherent in our research and product development efforts:

- Requirements Definition - Our plans for a communication and collaboration platform may not meet the market's needs or customer expectations and could result in low market demand and/or acceptance.
- Product Scope and Schedule - Product scope may be subject to growth from market-led requirements, new technology, or competitors expanding product capabilities or entering into adjacencies. We may fail to manage the scope of our software development activities effectively, resulting in delays to meet key milestones, achieve network solutions on a fully integrated basis, or solve coding problems in a timely and efficient manner. In addition, the continuing software development efforts on our existing products could distract management time and focus on developing our communication and collaboration platform.

- Staffing and Organization - The development of the communication and collaboration platform requires the hiring of new staff. We may be unable to attract, in a timely manner, the qualified staff to meet our requirements. The organizational changes and new hires necessary to address our development requirements could create attrition risk for our current staff.
- Operational Readiness - Even if the development of the communication and collaboration platform occurs as we have planned, we may not be prepared or ready to sell, deliver and support the new platform technology.

***Technical problems and higher costs may affect our product development initiatives.***

Our future software revenue growth depends on our ability to develop, introduce and effectively deploy new solutions and features to our existing software solutions. These new features and functionalities are designed to address both existing and new customer requirements. We may experience technical problems and additional costs as these new features are tested and deployed. Failure to effectively develop new or improved software solutions could adversely impact software revenue growth and could have a material adverse effect on our operations, financial condition and statement of operations including our continued ability to remain profitable, produce positive operating cash flow, pay cash dividends to stockholders, and repurchase shares of our common stock.

***We are dependent on the U.S. healthcare provider market segment for most of our revenue.***

Over 75 percent of our revenue for wireless services and software products comes from sales to hospitals and other healthcare provider organizations in the United States. These customers, both non-profit and for-profit, are greatly affected by healthcare reform and the reimbursement policies of the federal and state governments and health insurance companies, and any decline in revenue received by our customers due to adverse economic conditions or legislative or regulatory changes could significantly affect the type and amount of services and products they order from us. We do not anticipate any flexibility in increasing prices for our wireless services notwithstanding general inflation due to an unrelenting focus by our customers on their cost structures, and our customers could be slow to invest in our software products and professional services due to budgetary pressures.

***If we are unable to retain key management personnel, we might not be able to find suitable replacements in a timely manner, or at all, and our business could be disrupted.***

Our success is largely dependent upon the continued service, availability and performance of key personnel, including our Chief Executive Officer, senior management team and other highly skilled personnel, particularly in product development, product strategy and sales. We believe that there is, and will continue to be, intense competition for qualified personnel in the telecommunication and software industries, and there is no assurance that we will be able to attract, motivate and retain the personnel necessary for the management and development of our business. Turnover, particularly among senior management, can also create distractions as we search for replacement personnel, which could result in significant recruiting, relocation, training and other costs, and could cause operational inefficiencies as replacement personnel become familiar with our business and operations. In addition, manpower in certain areas may be constrained, which could lead to disruptions over time. The elimination or reconfiguration of employee responsibilities could impact retention decisions by key executives and personnel. Also, to the extent we hire personnel from competitors, we may be subject to allegations that they have been improperly solicited, that they have divulged proprietary or other confidential information, or that their former employers own their inventions or other work product. Moreover, the loss of these key employees, particularly to a competitor, some of which may be in a position to offer greater compensation, and any resulting loss of customers could reduce our market share and diminish our brands.

***In order to grow our software revenue and bookings and maintain our wireless revenue and subscribers we are dependent on our ability to effectively manage our employee base in sales and marketing to achieve our sales productivity goals.***

Growth in our software revenue and bookings and maintenance of our wireless revenue and subscriber base is dependent on the productivity of our sales organization. From time to time it may be necessary to reorient our sales representatives to focus on specific market segments, product lines or new software solutions or to remove underperforming individuals which may require additional resources to maintain productivity. The impact of these changes could adversely impact our ability to achieve our sales productivity goals. We have also identified the following risks that could impact our sales productivity:

- Customer Dissatisfaction and Spok's Reputation - We may experience customer dissatisfaction with our solutions that could result in lost opportunities for sales. Potential low ratings of our solutions may result in us being excluded from consideration by both customers and prospects with respect to future opportunities. In addition, fewer customer references for our solutions could impact our ability to prospect new sales.
- Training - Training of our marketing and sales personnel as to the clinical requirements of our healthcare customers and the complexity of our service offerings, takes time and requires a substantial, continuing investment in new hires as well as long term employees.
- Competitive Speed - Sales productivity can be impacted by the capabilities of our competitors. There is a risk that competitors can innovate or partner faster than we do to deliver a unified communications platform.

- Employee Retention - The impact of the elements noted above can challenge the ability of employees to make sales. This is tough on morale and can affect employee retention.

***We may experience a long sales cycle for our software products.***

Our software revenue growth results from a long sales cycle that from initial contact to final sales order may take six to 18 months depending on the type of software solution. Our software sales and marketing efforts involve educating our customers on the technical capabilities of our software solutions and the potential benefits from the deployment of our software, as well as educating ourselves as to the clinical needs of our customers. The inherent unpredictability of decision making in our target market segment of healthcare resulting from customer budget constraints, multiple approvals and administrative issues may result in fluctuating bookings and revenue from month to month, quarter to quarter and year to year. Our bookings and corresponding revenue are dependent on actions that have occurred in the past. Each month we need to spend substantial time, effort, and expense on our marketing and sales efforts that may not result in future revenue.

***Undetected defects or bugs in our products could adversely affect the market acceptance of new products, damage our reputation with current or prospective customers, and materially and adversely affect our operating costs.***

Software products, such as those we offer, may contain defects and bugs when they are first introduced or as new versions are released, or their release may be delayed due to unforeseen difficulties during product development. If any of our products, including products of companies we have acquired, or third-party components used in our products, contain defects or bugs, or have reliability, quality or compatibility problems, we may not be able to successfully design workarounds. Any defects we do not detect and fix in pre-release testing could cause reduced sales and revenue, damage to our reputation, repair or remediation costs, delays in the release of new products or versions, or legal liability. There can be no assurance that provisions in our license agreements that limit our exposure to liability will be sufficient or withstand legal challenge.

***Wireless service to our customers could be adversely impacted by network rationalization.***

We have an active program to consolidate the number of networks and related transmitter locations, which is referred to as network rationalization. Network rationalization is necessary to match our technical infrastructure to our smaller subscriber base and to reduce both site rent and telecommunication costs. The implementation of the network rationalization program could adversely impact service to our existing subscribers, and there can be no assurance that any efforts to minimize that impact would be successful. This adverse impact could increase the rate of gross subscriber cancellations and/or the level of wireless revenue erosion. Adverse changes in gross subscriber cancellations and/or revenue erosion could have a material adverse effect on our business, financial condition and results of operations.

***We may be unable to find vendors able to supply us with wireless paging equipment based on future demands.***

We purchase paging equipment from third party vendors. This equipment is sold or leased to customers in order to provide wireless messaging services. The reduction in industry demand for paging equipment has caused various suppliers to cease manufacturing this equipment or increase prices for devices. There can be no assurance that we will continue to find vendors to supply paging equipment, or that the vendors will supply equipment at costs that allow us to remain a competitive alternative in the wireless messaging industry. A lack of paging equipment could impact our ability to provide certain wireless messaging services and could have a material adverse effect on our business, leading to further wireless revenue erosion.

***We may be unable to maintain successful relationships with our channel partners.***

We use channel partners such as resellers, consulting firms, original equipment manufacturers, and technology partners to license and support our products. We rely, to a significant degree, on each of our channel partners to select, screen and maintain relationships with its distribution network and to distribute our offerings in a manner that is consistent with applicable law and regulatory requirements and our quality standards. Contract defaults by any of these channel partners or the loss of our relationships with them may materially adversely affect our ability to develop, market, sell, or support our communication solution offerings. If our indirect distribution channel is disrupted, we may be required to devote more resources to distribute our offerings directly and support our customers, which may not be as effective and could lead to higher costs, reduced revenue and growth that is slower than expected.

Recruiting and retaining qualified channel partners and training them in the use of our enterprise technologies requires significant time and resources. If we fail to devote sufficient resources to support and expand our network of channel partners, our business may be adversely affected. In addition, because we rely on channel partners for the indirect distribution of our enterprise technologies, we may have little or no contact with the ultimate end-users of our technologies, thereby making it more difficult for us to establish brand awareness, ensure proper delivery and installation of our software, support ongoing customer requirements, estimate end-user demand, respond to evolving customer needs and obtain subscription renewals from end-users.

***We may be unable to realize the benefits associated with our deferred income tax assets.***

We have significant deferred income tax assets that are available to offset future taxable income and increase cash flows from operations. The use of these deferred income tax assets is dependent on the availability of taxable income in future periods. The availability of future taxable income is dependent on our ability to profitably manage our operations to support a growing base of software revenue offset by declining wireless subscribers and revenue. To the extent that anticipated reductions in wireless operating expenses do not occur or sufficient revenue is not generated, we may not achieve sufficient taxable income to allow for use of our deferred income tax assets. The accounting for deferred income tax assets is based upon an estimate of future results, and any valuation allowance we may apply to our deferred tax assets may be increased or decreased as conditions change or if we are unable to implement certain tax planning strategies. If we are unable to use these deferred income tax assets, our financial condition and statement of operations may be materially affected. In addition, a significant portion of our deferred income tax assets relate to net operating losses. If our ability to utilize these losses is limited, due to Internal Revenue Code ("IRC") Section 382, our financial condition and statement of operations may be materially affected.

***Our wireless products are regulated by the FCC and, to a lesser extent, state and local regulatory authorities. Changes in regulation could result in increased costs to us and our customers.***

We are subject to regulation by the FCC and, to a lesser extent, by state and local authorities. Changes in regulatory policy could increase the fees we must pay to the government or to third parties, and could subject us to more stringent requirements that could cause us to incur additional capital and/or operating costs. To the extent additional regulatory costs are passed along to customers, those increased costs could adversely impact subscriber cancellations.

For example, the FCC issued an order in October 2007 that mandated paging carriers (including the Company) along with all other CMRS providers serving a defined minimum number of subscribers to maintain an emergency back-up power supply at all cell sites to enable operation for a minimum of eight hours in the event of a loss of commercial power (the "Back-up Power Order"). Ultimately, after a hearing by the DC Circuit Court and disapproval by the Office of Management and Budget (the "OMB") of the information collection requirements of the Back-Up Power Order, the FCC indicated that it would not seek to override the OMB's disapproval. Rather the FCC indicated that it would issue a Notice of Proposed Rulemaking with the goal of adopting revised back-up power rules. To date, there has been no Notice of Proposed Rulemaking by the FCC and we are unable to predict what impact, if any, a revised back-up power rule could have on our operations, cash flows, ability to continue payment of cash dividends to stockholders, and ability to repurchase shares of our common stock.

As a further example, the FCC continues to consider changes to the rules governing the collection of universal service fees. The FCC is evaluating a flat monthly charge per assigned telephone number as opposed to assessing universal service contributions based on telecommunication carriers' interstate revenue. There is no timetable for any rulemaking to implement this numbers-based methodology. If the FCC adopts a numbers-based methodology, our attempt to recover the increased contribution costs from our customers could significantly diminish demand for our services, and our failure to recover such increased contribution costs could have a material adverse impact on our business, financial condition and results of operations.

***Certain of our software products are regulated by the FDA. The application of or changes in regulations could impact our ability to market new or revised software products to our customers.***

Certain of our software products are regulated by the FDA as medical devices. The classification of our software products as medical devices means that we are required to comply with certain registration and listing, labeling, medical device reporting, removal and correction, and good manufacturing practice requirements. Updates to these products or the development of new products could require us to seek clearance from the FDA before we are permitted to market or sell these software products. In addition, changes to FDA regulations could impact existing software products or updates to existing products. The impact of delays in FDA clearance or changes to FDA regulations could impact our ability to market or sell our software products and could have a material adverse effect on our software sales, financial condition and results of operations, including our continued ability to remain profitable, produce positive operating cash flow, pay cash dividends to stockholders and repurchase shares of our common stock.

***We have investigated potential acquisitions and may not be able to identify an opportunity at favorable terms or have the ability to close on financing necessary to consummate the transaction.***

We cannot provide any assurances that we will be successful in finding such acquisitions or consummating future acquisitions on favorable terms. We anticipate that our acquisitions will be financed through a combination of methods, including but not limited to the use of available cash on hand, and, if necessary, borrowings from third party financial institutions. Disruptions in credit markets and an unwillingness to lend may limit our ability to finance acquisitions.

***We have investigated potential acquisitions and may be unable to successfully integrate such acquisitions into our business and may not achieve all or any of the operating synergies or anticipated benefits of those acquisitions.***

We continue to evaluate acquisitions of other businesses where we believe such acquisitions will yield increased cash flows, improved market penetration and/or identified operating efficiencies and synergies. We may face various challenges with our integration efforts, including the combination and simplification of product and service offerings, sales and marketing approaches and establishment of combined operations.

We may have limited or no history of owning and operating any business that we acquire. If we were to acquire these businesses, there can be no assurance that:

- such businesses will perform as expected;
- such businesses will not incur unforeseen obligations or liabilities;
- such businesses will generate sufficient cash flow to support the indebtedness, if incurred, to acquire them or the expenditures needed to develop them; and/or
- the rate of return from such businesses will justify the decision to invest the capital to acquire them.

There can be no assurance that we will manage these challenges and risks successfully. Moreover, if we are not successful in completing transactions that we have pursued or may pursue, our business may be adversely affected, and we may incur substantial expenses and divert significant management time and resources. In addition, in pursuing and completing such transactions, we could use substantial portions of our available cash as all or a portion of the purchase price for these transactions or as retention incentives to employees of the acquired business, or we may incur substantial debt. We could also issue additional securities as all or a portion of the purchase price for these transactions or as retention incentives to employees of the acquired business, which could cause our stockholders to suffer significant dilution. Any transaction may not generate additional revenue or profit for us, or may take longer to do so than expected, which may adversely affect our business, financial condition, operating results and cash flows.

***We may experience litigation claiming intellectual property infringement by us, and we may not be able to protect our rights in intellectual property that we own and develop.***

Intellectual property infringement litigation has become commonplace, particularly in the wireless and software industries in which we operate. This litigation can be protracted, expensive, and time consuming. There is no assurance that we will remain immune to this litigation. Any such claims, whether meritorious or not, could be time consuming and costly in terms of both resources and management time.

Third parties may claim we infringe their intellectual property rights. We may receive claims that we have infringed the intellectual property rights of others, including claims regarding patents, copyrights, and trademarks. The number and types of these claims may grow as a result of constant technological change in the segments in which our wireless services and software products compete, the extensive patent coverage of existing technologies, and the rapid rate of issuance of new patents.

Our patents, trademarks, copyrights and trade secrets relating to our wireless services and networks, and our software solutions, are important assets. The efforts we undertake to protect our proprietary rights may not be sufficient or effective. Any significant impairment to our intellectual property rights could harm our business and our ability to compete effectively. Protecting our intellectual property rights can be costly and time consuming.

We seek to maintain certain of our intellectual property rights as trade secrets, including the source code for many of our software solutions and innovations. Our source code and system architecture may be reverse engineered by our competitors, or the secrecy of our solutions and designs could be compromised through a security breach or otherwise, or by our employees or former employees, intentionally or accidentally. Any compromise of our trade secrets could cause us to lose any competitive advantage our software solutions have and the investment we have made in developing our products and services.

Our portfolio of issued patents and copyrights may be insufficient to defend ourselves against intellectual property infringement claims, and the validity and scope of our patents could be challenged by third parties were we to seek to enforce them.

***We may encounter issues with privacy and security of personal information.***

A substantial portion of our revenue comes from healthcare customers. As part of our business, we (or third parties with whom we contract) may receive, store and process our data, as well as our customers' and partners' private data and personal information. As such, our business is subject to a variety of federal, state and international laws and regulations that apply to the collection, use, retention, protection, disclosure, transfer and processing of personal data.

Our software solutions may handle or have access to personal health information subject in the United States to HIPAA, HITECH and related regulations as well as legislation and regulations in foreign countries. These statutes and related regulations impose numerous requirements regarding the use and disclosure of personal health information with which we and our software solutions must comply. Our failure to accurately anticipate or interpret these complex and technical laws and regulations could subject us to civil and/or criminal liability. Such failure could adversely impact our ability to market and sell our software solutions to healthcare customers, and have a material adverse impact on our software sales. In addition to personal health information the Company may handle or have access to personal information subject in the European Union to General Data Protection Regulations (GDPR). The GDPR imposes several stringent requirements for controllers and processors of personal data and will increase our obligations, including, for example, by requiring more robust disclosures to individuals, strengthening the individual data rights regime, shortening timelines for data breach notifications, limiting retention periods and secondary use of information, and imposing additional obligations when we contract third party processors in connection with the processing of personal data. The GDPR could limit our ability to use and share personal data or could cause our costs to increase and harm our business, financial condition, operating results and cash flows. Failure to comply with the requirements of the GDPR and the applicable European Union member states may result in fines of up to €20,000,000 or up to 4% of the total worldwide annual turnover of the preceding financial year, whichever is higher, and other administrative penalties. To comply with the new data protection rules imposed by the GDPR we may be required to put in place additional mechanisms which could be onerous and adversely affect our business, financial condition, results of operations and prospects.

In addition, customers may use our wireless services to transmit patient health information subject to HIPAA and other regulatory requirements. While we offer encrypted pagers to our customers, many customers use pager devices provided by us that do not encrypt text messages. While we disclaim liability for customer non-compliance with HIPAA and other privacy requirements, there remains some risk we could be held responsible for privacy violations by our customers.

There can be no assurance that the security and testing measures we take relating to our offerings and operations will prevent all security breaches and data loss that could harm our business or the businesses of our customers and partners. These risks may increase as we continue to grow our services and offerings and as we receive, store and process more of our customers' data. Actual or perceived vulnerabilities may lead to regulatory investigations, claims against us by customers, partners or other third parties, or costs, such as those related to providing customer notifications and fraud monitoring. There can be no assurance that any provisions in our customer agreements limiting our liability will be enforceable or effective under applicable law. In addition, the cost and operational consequences of implementing further data protection measures could be significant.

The data privacy- and protection-related laws and regulations to which we subject are evolving, with new or modified laws and regulations proposed and implemented frequently and existing laws and regulations subject to new or different interpretations. Any failure by us to comply with data privacy- and protection-related laws and regulations could result in enforcement actions, significant penalties or other legal actions against us or our customers or suppliers. An actual or alleged failure to comply, which could result in negative publicity, reduce demand for our offerings, increase the cost of compliance, require changes in business practices that result in reduced revenue, restrict our ability to provide our offerings in certain locations, result in our customers' inability to use our offerings and prohibit data transfers or result in other claims, liabilities or sanctions, including fines, could have an adverse effect on our business, financial condition, operating results and cash flows.

***System disruptions and security threats to our computer networks, satellite control or telecommunications systems could have a material adverse effect on our business.***

The performance and reliability of our computer network and telecommunications systems infrastructure, as well as the technology infrastructure of third parties, is critical to our operations. This technology infrastructure may be vulnerable to damage or interruption from natural disasters, power loss, telecommunication failures, terrorist attacks, software errors and other events. Any computer system or satellite network error or failure, regardless of cause, could result in a substantial outage that materially disrupts our operations. In addition, we face the threat to our computer systems of unauthorized access, computer hackers, computer viruses, malicious code, organized cyber-attacks and other security problems and system disruptions. Our satellite network connections for our wireless services depend upon VSAT terminals, many of which are based on decades-old technology or equipment that could fail resulting in a loss of service to our customers. With respect to our Enterprise Reporting and Management systems and data storage we rely on third party data centers and services with whom we are dependent for maintaining accessibility, reliability and uninterrupted connectivity.

A significant number of the systems making up this infrastructure are not redundant, and our disaster recovery planning may not be sufficient for every eventuality. We may not carry business interruption insurance sufficient to protect us from all losses that may result from interruptions in our services as a result of technology infrastructure failures or to cover all contingencies. We may be required to expend significant resources to protect against the threat of these system disruptions or to alleviate problems caused by these disruptions. Any interruption in the availability of our websites and on-line interactions with customers or partners may cause a reduction in customer or partner satisfaction levels, which in turn could cause additional claims, reduced revenue or loss of customers or partners. There can be no assurance that any precautions we may take will prove successful, and such problems could result in, among other consequences, a loss of data, loss of confidence in the stability and reliability of our offerings, damage to our reputation, and legal liability, all of which may adversely affect our business, financial condition, operating results and cash flows.

***Unauthorized breaches or failures in cybersecurity measures adopted by us and/or included in our products and services could have a material adverse effect on our business.***

Our security systems are designed to maintain the physical security of our facilities and protect our customers', suppliers' and employees' confidential information, as well as our own proprietary information. However, we are also dependent on a number of third-party providers of critical corporate infrastructure services relating to, among other things, human resources, electronic communication services and certain finance functions, and we are, of necessity, dependent on the security systems of these providers. Accidental or willful security breaches or other unauthorized access by third parties or our employees or contractors of our facilities, our information systems or the systems of our third party providers, or the existence of computer viruses or malware in our or their data or software could expose us to a risk of information loss and misappropriation of proprietary and confidential information, including information relating to our products or customers and the personal information of our employees. We utilize a costly, multilayered security framework including detailed security policies and procedures, security appliances and software, third party vulnerability testing and detailed business continuity plans that could be disrupted at any time.

In addition, we have, from time to time, also been subject to unauthorized network intrusions and malware on our own IT networks. Any theft or misuse of confidential, personal or proprietary information as a result of such activities could result in, among other things, unfavorable publicity, damage to our reputation, loss of our trade secrets and other competitive information, difficulty in marketing our products, allegations by our customers that we have not performed our contractual obligations, litigation by affected parties and possible financial obligations for liabilities and damages related to the theft or misuse of such information, as well as fines and other sanctions resulting from any related breaches of data privacy regulations, any of which could have a material adverse effect on our reputation, business, profitability and financial condition. Since the techniques used to obtain unauthorized access or to sabotage systems change frequently and are often not recognized until launched against a target, we may be unable to anticipate these techniques or to implement adequate preventative measures.

***General economic conditions that are largely out of our control may adversely affect our financial condition and statement of operations.***

Our business is sensitive to changes in general economic conditions, both in the United States and foreign markets. Recessionary economic cycles, higher interest rates, inflation, higher levels of unemployment, higher tax rates and other changes in tax laws, or other economic factors that may affect business spending or buying habits could adversely affect the demand for our services. This adverse impact could increase the rate of gross subscriber cancellations and/or the level of revenue erosion.

A significant portion of our revenue is derived from healthcare customers and we are impacted by changes in the healthcare economic environment. The healthcare industry is highly regulated and is subject to changing political, legislative, regulatory, and other economic developments. These developments can have a dramatic effect on the decision-making and the spending by our customers for information technology and software. This economic uncertainty can add to the unpredictability of decision-making and lengthen our sales cycle.

Further, the consequences of the implementation of changes to healthcare reform legislation continue to impact both the economy in general and the healthcare market in particular. The uncertainty created by the possibility of changes to the legislation is impacting customer decision making and information technology plans in our key healthcare market. We are unable to predict the full consequences of this uncertainty on our operations. Adverse changes in the economic environment could adversely impact our ability to market and sell our wireless and software solutions to healthcare customers.

## ITEM 1B. *UNRESOLVED STAFF COMMENTS*

We had no unresolved SEC staff comments as of February 28, 2019.

## ITEM 2. *PROPERTIES*

Our corporate headquarters is located in Springfield, Virginia, and consists of approximately 18,000 square feet of space under a lease that expires on March 31, 2021. At December 31, 2018, we leased facility space, including our executive headquarters, sales offices, technical facilities, warehouse and storage facilities in 61 locations in 28 states in the United States, one facility in Australia and one facility in the Middle East. The total leased space is approximately 171,000 square feet. At December 31, 2018, we owned four small parcels of land in three states in the United States.

At December 31, 2018, we leased transmitter sites on commercial broadcast towers, buildings and other fixed structures, some of which are free of charge, in approximately 3,238 locations throughout the United States. These leases are for our active transmitters and are for various terms and provide for periodic lease payments at various rates.

At December 31, 2018, we had 3,934 active transmitters on leased sites which provide service to our customers.

## ITEM 3. *LEGAL PROCEEDINGS*

Refer to Note 9, "Commitments and Contingencies" in the Notes to Consolidated Financial Statements for information regarding legal proceedings in which we are involved.

## 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

Our sole class of common equity is our $0.0001 par value common stock, which is listed on the NASDAQ National Market® and is traded under the symbol “SPOK.”

### Holders of Common Stock

As of February 22, 2019, there were 3,064 holders of record of our common stock.

### Dividends

The Company declared dividends totaling $10.1 million and $10.3 million during 2018 and 2017, respectively, and expects to pay dividends of $0.125 per common share each quarter, subject to declaration by the Board of Directors, in 2019. Cash dividends declared for the years ended December 31, 2018 and 2017, respectively, include dividends related to unvested restricted stock units (“RSUs”) and shares of unvested restricted common stock (“restricted stock”) granted under the Spok Holdings, Inc. Equity Incentive Plan (“Equity Plan”) to executives and non-executive members of our Board of Directors. Cash distributions on RSUs and restricted stock are accrued and paid when the applicable vesting conditions are met. Accrued cash distributions on forfeited RSUs and restricted stock are also forfeited.

The following table details information on our dividends declared and cash distributions since the formation of the Company through the year ended December 31, 2018:

| Year | Dividends Declared Per Share Amount | Total Payment[1] (Dollars in thousands) |
| --- | --- | --- |
| 2005 | $ 1.500 | $ 40,691 |
| 2006[2] | 3.650 | 98,904 |
| 2007[3] | 3.600 | 98,250 |
| 2008[4] | 1.400 | 39,061 |
| 2009[3] | 2.000 | 45,502 |
| 2010[3] | 2.000 | 44,234 |
| 2011 | 1.000 | 22,121 |
| 2012[5] | 0.750 | 16,512 |
| 2013 | 0.500 | 12,312 |
| 2014 | 0.500 | 10,826 |
| 2015[6] | 0.625 | 13,333 |
| 2016[7] | 0.750 | 10,287 |
| 2017 | 0.500 | 15,234 |
| 2018 | $ 0.500 | $ 10,064 |
| Total | $ 19.275 | $ 477,331 |

(1) The total payment reflects the cash distributions paid in relation to common stock, vested RSUs and vested shares of restricted stock.

(2) On August 8, 2006, we announced the adoption of a regular quarterly cash distribution of $0.65 per share of common stock.

(3) The cash distribution includes an additional special one-time cash distribution to stockholders of $1.00 per share of common stock.

(4) On May 2, 2008, our Board of Directors reset the quarterly cash distribution rate to $0.25 per share of common stock from $0.65 per share of common stock.

(5) On July 30, 2012, our Board of Directors reset the quarterly cash distribution rate to $0.125 per share of common stock from $0.25 per share of common stock.

(6) The cash distribution includes an additional special one-time cash distribution to stockholders of $0.125 per share of common stock.

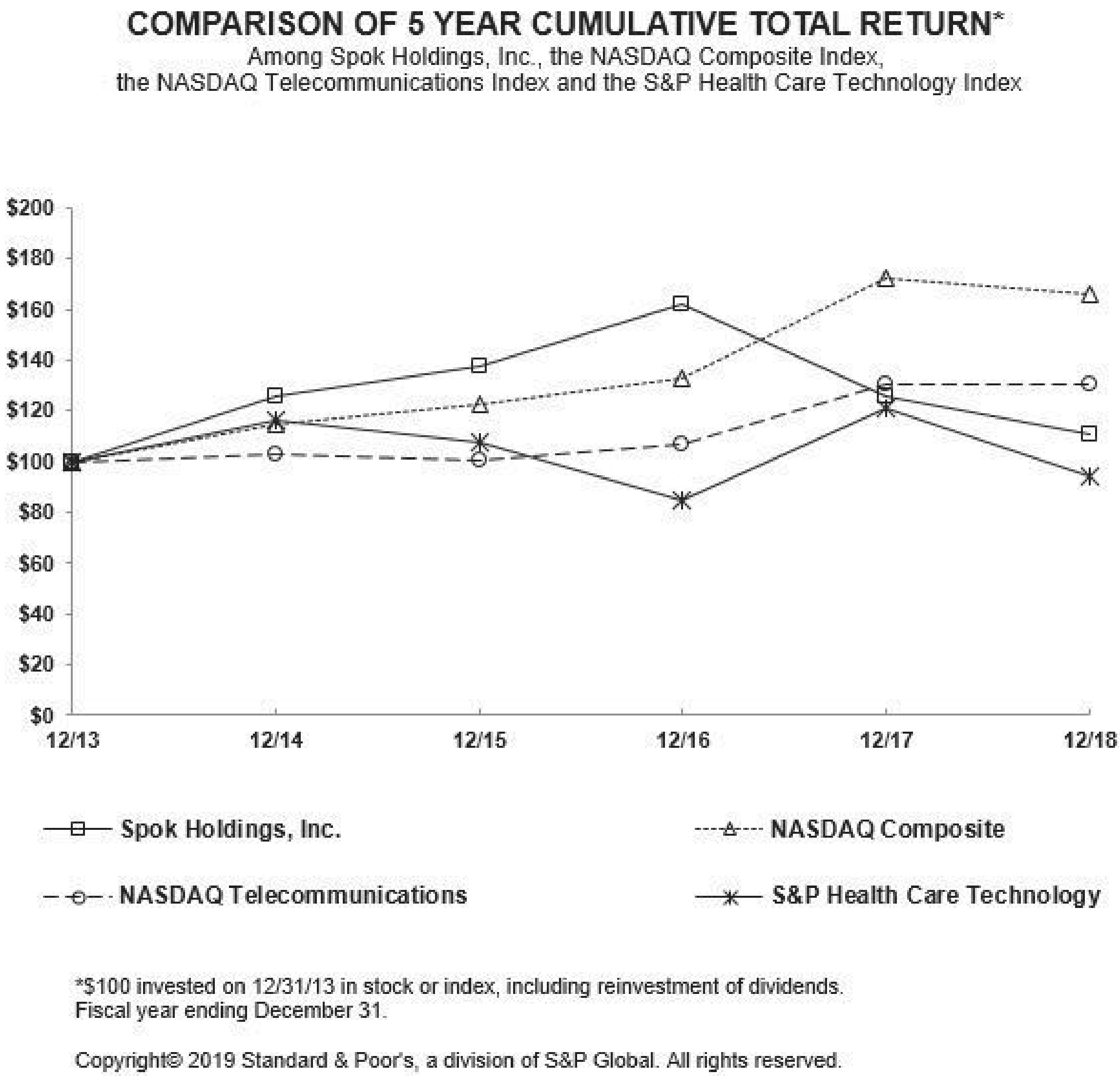
(7) The per share amount includes a special one-time dividend of $0.25 per share of common stock declared in 2016 but payable to stockholders in 2017.

On February 27, 2019, our Board of Directors declared a regular quarterly cash dividend of $0.125 per share of common stock, with a record date of March 15, 2019, and a payment date of March 29, 2019. This cash dividend of approximately $2.4 million is expected to be paid from available cash on hand.

**Performance Graph**

We began trading on the NASDAQ National Market® on November 17, 2004. The chart below compares the relative changes in the cumulative total return of our common stock for the period December 31, 2013 to December 31, 2018, against the cumulative total return of the NASDAQ Composite Index®, the NASDAQ Telecommunications Index® and the S&P Health Care Technology Index for the same period.

The chart below assumes that on December 31, 2013, $100 was invested in our common stock and in each of the indices. The comparisons assume that all cash distributions were reinvested. The chart indicates the dollar value of each hypothetical $100 investment based on the closing price as of the last trading day of each fiscal year from December 31, 2013 to December 31, 2018.




| | December 31, | | | | | |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| **Spok Holdings, Inc.** | $ 100.00 | $ 125.61 | $ 137.40 | $ 162.28 | $ 126.03 | $ 110.41 |
| **NASDAQ Composite** | 100.00 | 114.62 | 122.81 | 133.19 | 172.11 | 165.84 |
| **NASDAQ Telecommunications** | 100.00 | 102.75 | 100.20 | 106.61 | 130.48 | 130.76 |
| **S&P Health Care Technology** | 100.00 | 116.00 | 107.95 | 84.98 | 120.90 | 94.08 |

**Purchases of Equity Securities by the Issuer and Affiliated Purchasers**

The following table presents information with respect to common stock repurchased by us (excluding the purchase of common stock for tax withholdings) during the three months ended December 31, 2018.

| For the Three Months Ended | Total Number of Shares Purchased | Average Price Paid Per Share[(1)] | Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs | Approximate Dollar Value of Shares that May Yet Be Purchased Under the Plans or Programs[(2)(3)] |
|---|---|---|---|---|
| | | | | (Dollars in thousands) |
| October 1 - October 31, 2018 | — | $ — | — | 10,000 |
| November 1 - November 30, 2018 | — | $ — | — | 10,000 |
| December 1 - December 31, 2018 | 263,000 | $ 13.10 | 263,000 | 6,555 |
| Total | 263,000 | $ 13.10 | 263,000 | |

(1) Average price paid per share excludes commissions of $10,520.

(2) In February 2018, the Board of Directors authorized the repurchase of up to $10.0 million of the Company's common stock through December 31, 2018.

(3) In August 2018, the Board of Directors authorized the repurchase of up to $10.0 million of the Company's common stock through December 31, 2018. In November 2018, the Board of Directors authorized an extension of this repurchase authority through December 31, 2019.

Repurchased shares of our common stock were accounted for as a reduction to common stock and additional paid-in-capital in the period in which the repurchase occurred. In August 2018, the Company's Board of Directors reset the repurchase authority under the share repurchase program to $10.0 million which was set to expire on December 31, 2018. In November 2018, the Company's Board of Directors extended the repurchase authority through December 31, 2019.

**Transfer Restrictions on Common Stock**

In order to reduce the possibility that certain changes in ownership could impose limitations on the use of our deferred income tax assets, our Amended and Restated Certificate of Incorporation contains provisions that generally restrict transfers by or to any 5% stockholder of our common stock or any transfer that would cause a person or group of persons to become a 5% stockholder of our common stock. After a cumulative indirect shift in ownership of more than 45% since our emergence from bankruptcy proceedings in May 2002 through a transfer of our common stock, any transfer of our common stock by or to a 5% stockholder of our common stock or any transfer that would cause a person or group of persons to become a 5% stockholder of such common stock, will be prohibited unless the transferee or transferor provides notice of the transfer to us and our Board of Directors determines in good faith that the transfer would not result in a cumulative indirect shift in ownership of more than 47%.

Prior to a cumulative indirect ownership change of more than 45%, transfers of our common stock will not be prohibited, except to the extent that they result in a cumulative indirect shift in ownership of more than 47%, but any transfer by or to a 5% stockholder of our common stock or any transfer that would cause a person or group of persons to become a 5% stockholder of our common stock requires notice to us. Similar restrictions apply to the issuance or transfer of an option to purchase our common stock, if the exercise of the option would result in a transfer that would be prohibited pursuant to the restrictions described above. These restrictions will remain in effect until the earliest of (1) the repeal of IRC Section 382 (or any comparable successor provision) and (2) the date on which the limitation amount imposed by IRC Section 382 in the event of an ownership change would not be less than the tax attributes subject to these limitations. Transfers by or to us and any transfer pursuant to a merger approved by our Board of Directors or any tender offer to acquire all of our outstanding stock where a majority of the shares have been tendered will be exempt from these restrictions.

Based on publicly available information and after considering any direct knowledge we may have, our combined cumulative change in ownership was an insignificant amount as of December 31, 2018 and 2017.

## ITEM 6. *SELECTED FINANCIAL DATA*

The following selected consolidated financial data should be read in conjunction with "Item 7. Management's Discussion and Analysis of Financial Condition and Statement of Operations" ("MD&A"), the consolidated financial statements and notes thereto, and other financial information appearing elsewhere in this 2018 Form 10-K. The amounts below related to current and total assets have been revised for 2017. For more information on these changes, refer to Note 1, "Organization and Significant Accounting Policies" of the Consolidated Financial Statements for additional information.

| | For the Year Ended December 31, | | | | |
|---|---|---|---|---|---|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| | (Dollars in thousands except per share amounts) | | | | |
| **Statements of Operations Data:** | | | | | |
| Revenues | $ 169,474 | $ 171,175 | $ 179,561 | 189,628 | 200,273 |
| Operating expenses | 172,647 | 160,469 | 157,408 | 164,528 | 172,122 |
| Operating (loss) income | (3,173) | 10,706 | 22,153 | 25,100 | 28,151 |
| Net (loss) income | (1,479) | (15,306) | 13,979 | 80,246 | 20,745 |
| Basic and diluted net (loss) income per common share | (0.08) | (0.76) | 0.68 | 3.74 | 0.96 |
| Cash dividends declared per common share | 0.50 | 0.50 | 0.75 | 0.625 | 0.50 |

| | December 31, | | | | |
|---|---|---|---|---|---|
| | 2018 | 2017 | 2016 | 2015 | 2014 |
| | (Dollars in thousands) | | | | |
| **Balance Sheets Data:** | | | | | |
| Current assets | $ 130,978 | $ 144,303 | $ 155,862 | $ 141,613 | $ 142,761 |
| Total assets | 327,712 | 348,004 | 388,087 | 386,433 | 337,890 |
| Long-term liabilities, excluding deferred revenue | 7,734 | 8,075 | 8,921 | 8,972 | 8,131 |
| Stockholders' equity | 274,554 | 290,529 | 322,087 | 329,564 | 279,059 |

## ITEM 7. *MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND STATEMENT OF OPERATIONS*

The following discussion and analysis should be read in conjunction with our consolidated financial statements and related notes and the discussion under "Organization and Significant Accounting Policies" (refer to Note 1), which describes key estimates and assumptions we make in the preparation of our consolidated financial statements; the cautionary language that appears under the title "Forward Looking Statements" immediately following the Table of Contents; "Item 1. Business," which describes our operations; and "Item 1A. Risk Factors," which describes key risks associated with our operations and markets in which we operate. A reference to a "Note" in this section refers to the accompanying Notes to Consolidated Financial Statements.

### Overview and Highlights

We are a comprehensive provider of clinical communication and collaboration solutions for enterprises. We offer a suite of unified clinical communication and collaboration solutions that include call center operations, clinical alerting and notifications, one-way and advanced two-way wireless messaging services, mobile communications and public safety response. Our customers rely on Spok for workflow improvement, secure texting, paging services, contact center optimization and public safety response. Our product offerings are capable of addressing a customer's mission clinical communications needs. We develop, sell and support enterprise-wide systems for healthcare and other organizations needing to automate, centralize and standardize their approach to clinical communications. Our solutions can be found in prominent hospitals; large government agencies; leading public safety institutions, colleges and universities; large hotels, resorts and casinos; and well-known manufacturers. Our primary market has been the healthcare industry, particularly hospitals. We have identified hospitals with 200 or more beds as the primary targets for our software and wireless solutions.

Revenue generated by wireless messaging services (including voice mail, personalized greeting, message storage and retrieval) and equipment loss and/or maintenance protection to both one-way and two-way messaging subscribers is presented as wireless revenue in our statements of operations. Revenue generated by the sale of our software solutions, which includes software license, professional services (installation, consulting and training), equipment procured by us from third parties (to be used in conjunction with our software) and post-contract support (on-going maintenance), is presented as software revenue in our statements of operations. Our software is licensed to end users under an industry standard software license agreement.

***2018 Highlights***

Total revenue declined by 1.0% or $1.7 million during 2018 compared to 2017, primarily as a result of moderate growth in software revenue, offset by the continued and expected decline in wireless revenue. This represents a $6.7 million improvement in the decrease of consolidated revenues period over period as compared to the year ended December 31, 2017 and brings us closer to consolidated revenue growth as we continue our transition into a software company. The anticipated rate of decline in wireless revenues has trended favorably over the last several years continuing in 2018 as we saw the lowest level of erosion in the last five years, declining at a rate of only 6.8%. As expected, our operating expenses increased by 7.6% or $12.2 million during 2018 compared to 2017, driven primarily by our continued investment in the development of the Spok Care Connect Platform and the related research and development costs. We believe increases in staffing and the use of outside services in research and development will begin to grow at a slower pace in 2019. As future sales related to our research and development efforts begin to materialize, we expect those costs will decrease as a percentage of total revenues and begin to return to normalized levels. We returned approximately $23.6 million of capital to stockholders in the form of cash dividends and share repurchases.

***2017 Highlights***

Total revenue declined by 4.7% or $8.4 million during 2017 compared to 2016, driven primarily by a continued and expected decline in wireless revenue while software revenue remained relatively flat for the same period. This is a $1.7 million improvement in the decrease of consolidated revenues period over period as compared to the year ended December 31, 2016. We continue to see a trend in wireless revenue as the decline year over year has decreased for the past five consecutive years. Our operating expenses increased by 1.9% or $3.1 million during 2017 compared to 2016, driven primarily by our continued investment in the development of the Spok Care Connect Platform and the related research and development costs. We returned approximately $20.3 million of capital to stockholders in the form of cash dividends and share repurchases.

***Wireless Revenue***

Wireless revenue consists of two primary components: Paging revenue and product and other revenue. Paging revenue consists primarily of recurring fees associated with the provision of messaging services and fees for paging devices and is net of a provision for service credits. Product and other revenue reflects system sales, the sale of devices and charges for paging devices that are not returned and are net of anticipated credits. Our core offering includes subscriptions to one-way or two-way messaging services for a periodic (monthly, quarterly, semiannual, or annual) service fee. This is generally based upon the type of service provided, the geographic area covered, the number of devices provided to the customer and the period of commitment. A subscriber to one-way messaging services may select coverage on a local, regional or nationwide basis to best meet their messaging needs. Two-way messaging is generally offered on a nationwide basis. In addition, subscribers either contract for a messaging device from us for an additional fixed monthly fee or they own a device, having purchased it either from us or from another vendor. We also sell devices to resellers who lease or resell devices to their subscribers and then sell messaging services utilizing our networks. We offer ancillary services, such as voicemail and equipment loss or maintenance protection, which help increase the monthly recurring revenue we receive along with these traditional messaging services. In 2015 and 2016 we launched new and exclusive one-way (T5) and two-way (T52) alphanumeric pagers, respectively. Both pagers are configurable to support un-encrypted or encrypted operation. When configured for encryption, they utilize AES-128 bit encryption, screen locking and remote wipe capabilities. With encryption enabled these new secure paging devices enhance our service offerings to the healthcare community by adding Health Insurance Portability and Accountability Act ("HIPAA") security capabilities to the low cost, highly reliable and availability benefits of paging. (See Item 1. “Business” for more details.)

***Software Revenue***

Software revenue consists of two primary components: operations revenue and maintenance revenue. Operations revenue consists primarily of license revenues for our healthcare communications solutions, equipment revenues that facilitate the use of our software solutions, and professional services revenue related to the implementation of our solutions. Maintenance revenue is for ongoing support of our software solutions or related equipment (typically for one year).

Beginning in 2018 with the adoption of ASC 606 our software licenses and hardware are generally recognized at a point in time when we have transferred control to the customer. For software licenses, revenue is not recognized until the related license(s) has been made available to the customer and the customer can begin to benefit from its right to use the license(s). Our software licenses represent a right to use Spok's intellectual property ("IP") as it exists at a point in time at which the license is granted. Many of our software licenses have significant standalone functionality due to their ability to process a transaction or perform a function or task, and we do not need to maintain those products, once provided to the customer, for value to exist. While the functionality of IP that we license may substantively change during the license period, customers are not contractually or practically required to update their license as a result of those changes. Our wireless, professional and maintenance services are generally recognized over time due to a customer's simultaneous receipt and consumption of the benefit as we perform the work. As we transfer control over time, we recognize revenue based on the extent of progress towards completion of the performance obligation. The selection of the method to measure progress towards completion requires significant judgment and is based on the nature of the products or services to be provided. Generally, we use the time-elapsed measure of progress for performance obligations which include wireless or maintenance services. We believe this method best depicts the simultaneous transfer and consumption of the benefit based on our performance as these services are generally considered standby services. For professional services, we leverage an input methodology based on the number of hours worked on a project versus the total expected hours necessary to complete the project. Revenues are recognized proportionally as hours are incurred.

***Operating Expenses***

Our operating expenses are presented in functional categories. Certain of our functional categories are especially important to overall expense control and management. These operating expenses are categorized as follows:

- *Cost of revenue*. These are expenses primarily for hardware, third-party software, outside service expenses and payroll and related expenses for our professional services, logistics, customer support and maintenance staff.
- *Research and Development.* These expenses relate primarily to the development of new software products and the ongoing maintenance and enhancement of existing products. This classification consists primarily of employee payroll and related expenses, outside services related to the design, development, testing and enhancement of our solutions and to a lesser extent hardware equipment.
- *Technology operations*. These are expenses associated with the operation of our paging networks. Expenses consist largely of site rent expenses for transmitter locations, telecommunication expenses to deliver messages over our paging networks, and payroll and related expenses for our engineering and pager repair functions. We actively pursue opportunities to consolidate transmitters and other service, rental and maintenance expenses in order to maintain an efficient network while simultaneously ensuring adequate service for our customers. We believe continued reductions in these expenses will occur as our networks continue to be consolidated for the foreseeable future. Technology operations was formally referred to as service, rental and maintenance.
- *Selling and marketing*. The sales and marketing staff are involved in selling our communication solutions primarily in the United States. These expenses support our efforts to maintain gross placements of units in service, which mitigated the impact of disconnects on our wireless revenue base, and to identify business opportunities for additional or future software sales. We have a centralized marketing function, which is focused on supporting our products and vertical sales efforts by strengthening our brand, generating sales leads and facilitating the sales process. These marketing functions are accomplished through targeted email campaigns, webinars, regional and national user conferences, monthly newsletters and participation at industry trade shows. Expenses consist largely of payroll and related expenses, commissions and other costs such as travel and advertising costs.
- *General and administrative*. These are expenses associated with information technology and administrative functions which includes finance and accounting, human resources and executive management. This classification consists primarily of payroll and related expenses, outside service expenses, taxes, licenses and permit expenses, and facility rent expenses.

### Results of Operations

The following table is a summary of our Consolidated Statements of Operations for the years ended December 31, 2018, 2017 and 2016:

| (Dollars in thousands) | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| Revenues: | | | | | | | |
| Wireless | $ 94,277 | (6,911) | (6.8)% | $ 101,188 | $ (8,402) | (7.7)% | $ 109,590 |
| Software | 75,197 | 5,210 | 7.4 % | 69,987 | 16 | — % | 69,971 |
| Total revenue | 169,474 | (1,701) | (1.0)% | 171,175 | (8,386) | (4.7)% | 179,561 |
| Operating expenses: | | | | | | | |
| Cost of revenue | 32,408 | 3,990 | 14.0 % | 28,418 | (2,231) | (7.3)% | 30,649 |
| Research and development | 24,464 | 5,762 | 30.8 % | 18,702 | 5,235 | 38.9 % | 13,467 |
| Technology operations | 31,356 | (146) | (0.5)% | 31,502 | (1,232) | (3.8)% | 32,734 |
| Selling and marketing | 24,553 | 1,730 | 7.6 % | 22,823 | (1,945) | (7.9)% | 24,768 |
| General and administrative | 49,097 | 1,697 | 3.6 % | 47,400 | 4,573 | 10.7 % | 42,827 |
| Depreciation, amortization and accretion | 10,769 | (855) | (7.4)% | 11,624 | (1,339) | (10.3)% | 12,963 |
| Total operating expenses | 172,647 | 12,178 | 7.6 % | 160,469 | 3,061 | 1.9 % | 157,408 |
| Operating (loss) income | (3,173) | (13,879) | (129.6)% | 10,706 | (11,447) | (51.7)% | 22,153 |
| Interest income | 1,638 | 919 | 127.8 % | 719 | 444 | 161.5 % | 275 |
| Other income (expense) | (650) | (784) | (585.1)% | 134 | (409) | (75.3)% | 543 |
| (Loss) income before income tax benefit (expense) | (2,185) | (13,744) | (118.9)% | 11,559 | (11,412) | (49.7)% | 22,971 |
| Income tax (benefit) expense | 706 | 27,571 | (102.6)% | (26,865) | (17,873) | 198.8 % | (8,992) |
| Net (loss) income | $ (1,479) | $ 13,827 | (90.3)% | $ (15,306) | $ (29,285) | (209.5)% | $ 13,979 |
| **Supplemental information** | | | | | | | |
| FTEs | 596 | — | — % | 596 | 9 | 1.5 % | 587 |
| Active transmitters | 3,934 | (96) | (2.4)% | 4,030 | (129) | (3.1)% | 4,159 |

The following table is a summary of our Consolidated Statements of Operations for the years ended December 31, 2018, 2017 and 2016 adjusted to exclude the adoption of ASC 606:

| (Dollars in thousands) | 2018[(1)] | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| Revenues: | | | | | | | |
| Wireless | $ 94,277 | (6,911) | (6.8)% | $ 101,188 | $ (8,402) | (7.7)% | $ 109,590 |
| Software | 73,265 | 3,278 | 4.7 % | 69,987 | 16 | — % | 69,971 |
| Total revenue | 167,542 | (3,633) | (2.1)% | 171,175 | (8,386) | (4.7)% | 179,561 |
| Operating expenses: | | | | | | | |
| Cost of revenue | 32,408 | 3,990 | 14.0 % | 28,418 | (2,231) | (7.3)% | 30,649 |
| Research and development | 24,464 | 5,762 | 30.8 % | 18,702 | 5,235 | 38.9 % | 13,467 |
| Technology operations | 31,356 | (146) | (0.5)% | 31,502 | (1,232) | (3.8)% | 32,734 |
| Selling and marketing | 24,250 | 1,427 | 6.3 % | 22,823 | (1,945) | (7.9)% | 24,768 |
| General and administrative | 49,097 | 1,697 | 3.6 % | 47,400 | 4,573 | 10.7 % | 42,827 |
| Depreciation, amortization and accretion | 10,769 | (855) | (7.4)% | 11,624 | (1,339) | (10.3)% | 12,963 |
| Total operating expenses | 172,344 | 11,875 | 7.4 % | 160,469 | 3,061 | 1.9 % | 157,408 |
| Operating (loss) income | (4,802) | (15,508) | (144.9)% | 10,706 | (11,447) | (51.7)% | 22,153 |
| Interest income | 1,638 | 919 | 127.8 % | 719 | 444 | 161.5 % | 275 |
| Other income (expense) | (664) | (798) | (595.5)% | 134 | (409) | (75.3)% | 543 |
| (Loss) income before income tax benefit (expense) | (3,828) | (15,387) | (133.1)% | 11,559 | (11,412) | (49.7)% | 22,971 |
| Income tax (benefit) expense | 706 | 27,571 | (102.6)% | (26,865) | (17,873) | 198.8 % | (8,992) |
| Net (loss) income | $ (3,122) | $ 12,184 | (79.6)% | $ (15,306) | $ (29,285) | (209.5)% | $ 13,979 |
| **Supplemental information** | | | | | | | |
| FTEs | 596 | — | — % | 596 | 9 | 1.5 % | 587 |
| Active transmitters | 3,934 | (96) | (2.4)% | 4,030 | (129) | (3.1)% | 4,159 |

(1)Adjusted to exclude the adoption of ASC 606, with the exception of income tax (benefit) expense.

***Revenue***

The table below details total revenue for the periods stated:

| (Dollars in thousands) | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| **Revenue - wireless** | | | | | | | |
| Paging revenue | $ 90,570 | $ (6,726) | (6.9)% | $ 97,296 | $ (7,752) | (7.4)% | $ 105,048 |
| Product and other revenue | 3,707 | (185) | (4.8)% | 3,892 | (650) | (14.3)% | 4,542 |
| Total wireless revenue | 94,277 | (6,911) | (6.8)% | 101,188 | (8,402) | (7.7)% | 109,590 |
| **Revenue - software** | | | | | | | |
| License | 13,042 | 3,501 | 36.7 % | 9,541 | 709 | 8.0 % | 8,832 |
| Services | 18,091 | 461 | 2.6 % | 17,630 | (964) | (5.2)% | 18,594 |
| Equipment | 4,995 | 848 | 20.4 % | 4,147 | (1,325) | (24.2)% | 5,472 |
| Operations revenue | 36,128 | 4,810 | 15.4 % | 31,318 | (1,580) | (4.8)% | 32,898 |
| Maintenance revenue | 39,069 | 400 | 1.0 % | 38,669 | 1,596 | 4.3 % | 37,073 |
| Total software revenue | 75,197 | 5,210 | 7.4 % | 69,987 | 16 | — % | 69,971 |
| Total revenue | $ 169,474 | $ (1,701) | (1.0)% | $ 171,175 | $ (8,386) | (4.7)% | $ 179,561 |

The decrease in wireless revenue during 2018 compared to both 2017 and 2016, respectively, reflects the decrease in demand for our wireless services. Wireless revenue is generally based upon the number of units in service and the monthly Average Revenue Per User ("ARPU"). On a consolidated basis ARPU is affected by several factors, including the mix of units in service and the pricing of the various components of our services. The number of units in service changes based on subscribers added, referred to as gross placements, less subscriber cancellations, or disconnects. ARPU for the years ended December 31, 2018, 2017 and 2016 was $7.39, $7.51 and $7.67, respectively, while total units in service were 1.0 million for the years ended December 31, 2018 and 2017 and 1.1 million for the year ended December 31, 2016. While demand for wireless services continues to decline, it has done so at a slower rate for each of the periods presented. While we are encouraged that this trend will continue in future periods, we believe that demand will continue to decline for the foreseeable future in line with recent and historical trends. As our wireless products and services are replaced with other competing technologies, such as the shift from narrow band wireless service offerings to broad band technology services, our wireless revenue will continue to decrease.

The following reflects the impact of subscribers and ARPU on the change in wireless revenue:

| | Units in Service as of December 31, | | | Revenue for the Year Ended December 31, | | | Change Due To: | |
|---|---|---|---|---|---|---|---|---|
| | 2018 | 2017 | Change | 2018 | 2017 | Change | ARPU | Units |
| | (Units in thousands) | | | (Dollars in thousands) | | | | |
| Total | 992 | 1,049 | (57) | $ 90,570 | $ 97,296 | $ (6,726) | $ (1,524) | $ (5,202) |

| | Units in Service as of December 31, | | | Revenue for the Year Ended December 31, | | | Change Due To: | |
|---|---|---|---|---|---|---|---|---|
| | 2017 | 2016 | Change | 2017 | 2016 | Change | ARPU | Units |
| | (Units in thousands) | | | (Dollars in thousands) | | | | |
| Total | 1,049 | 1,111 | (62) | $ 97,296 | $ 105,048 | $ (7,752) | $ 1,979 | $ (5,773) |

As demand for one-way and two-way messaging has declined, we have developed or added service offerings such as encrypted paging and Spok Mobile with a pager number in order to increase our revenue potential and mitigate the decline in our wireless revenue. We will continue to explore ways to innovate and provide customers the highest value possible.

The increase in software operations revenue during 2018 when compared to 2017 primarily reflects an increase in the size and value of projects being worked during 2018 as compared to the same period in 2017 as well as the acceleration of license revenue due to a change in revenue rules resulting from the adoption of ASC 606. The decrease in operations revenue during 2017 when compared to 2016 primarily reflects a decrease in the number and size of projects completed during 2017 as compared to the same period in 2016.

The continued increase in maintenance revenue for each of the periods stated reflects our continuing success in renewals of our maintenance support for existing software solutions and in maintenance support for sales of new solutions. The renewal rates for maintenance revenue, including the annual uplifts, for the years ended December 31, 2018, 2017 and 2016 were in excess of 99%. We achieve very high maintenance revenue renewal rates compared to many companies that have software offerings, and we may experience a downward trend in maintenance renewals as communications technology and services continue to advance, and customers have more choices and opportunities to shift to newer solutions for their communication and work flow needs.

**Supplemental Revenue Discussion - ASC 605 Analysis**

The table below details total software revenue, adjusted to exclude the adoption of ASC 606, for the periods stated:

| (Dollars in thousands) | 2018[1] | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| **Revenue - software** | | | | | | | |
| License | $ 9,042 | $ (499) | (5.2)% | $ 9,541 | $ 709 | 8.0 % | $ 8,832 |
| Services | 18,869 | 1,239 | 7.0 % | 17,630 | $ (964) | (5.2)% | 18,594 |
| Equipment | 5,071 | 924 | 22.3 % | 4,147 | (1,325) | (24.2)% | 5,472 |
| Operations revenue | 32,982 | 1,664 | 5.3 % | 31,318 | (1,580) | (4.8)% | 32,898 |
| Maintenance revenue | 40,283 | 1,614 | 4.2 % | 38,669 | 1,596 | 4.3 % | 37,073 |
| Total software revenue | $ 73,265 | $ 3,278 | 4.7 % | $ 69,987 | $ 16 | — % | $ 69,971 |

[1] Adjusted to exclude the adoption of ASC 606

The increase in operations revenue for the twelve months ended December 31, 2018 primarily reflects an increase in the number and size of projects in process and completed as compared to the same period in 2017 and 2016. The increase in maintenance revenue for twelve months ended December 31, 2018 and 2017 reflects our continuing success in renewals of our maintenance support for existing software solutions and in maintenance support for sales of new solutions. The maintenance revenue renewal rates for the twelve months ended December 31, 2018, 2017 and 2016 were in excess of 99%.

***Operating Expenses***

Certain immaterial prior period amounts, within individual operating expense categories, have been reclassified to conform to the current period's presentation. These reclassifications had no effect on the reported results of operations nor did they have any effect on the total operating expense amounts they are a part of.

*Cost of revenue.* Cost of revenue consisted primarily of the following items:

| Cost of revenue | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| (Dollars in thousands) | | | | | | | |
| Payroll and related | $ 19,535 | $ 1,729 | 9.7 % | $ 17,806 | $ (310) | (1.7)% | $ 18,116 |
| Cost of sales | 10,571 | 2,453 | 30.2 % | 8,118 | (1,992) | (19.7)% | 10,110 |
| Stock based compensation | 249 | 70 | 39.1 % | 179 | 123 | 219.6 % | 56 |
| Other | 2,053 | (262) | (11.3)% | 2,315 | (52) | (2.2)% | 2,367 |
| Total cost of revenue | $ 32,408 | $ 3,990 | 14.0 % | $ 28,418 | $ (2,231) | (7.3)% | $ 30,649 |
| FTEs | 178 | (7) | (3.8)% | 185 | 4 | 2.2 % | 181 |

Cost of revenue expense increased for the year ended December 31, 2018 compared to December 31, 2017 primarily due to the increase in cost of sales and payroll and benefits. The increase in cost of sales is primarily due to an increase in the usage of third party implementation resources and an increase in equipment revenue which caused a corresponding increase in cost of sales.

Cost of revenue expense decreased for the year ended December 31, 2017 compared to December 31, 2016 primarily due to the reduction in cost of sales. Of the $2.0 million reduction in cost of sales, $1.2 million was attributable to a decrease in cost of sales directly related to the decrease in equipment revenue over the same periods and the remaining $0.8 million related to reduction in the usage of third party professional service resources.

*Research and development.* Research and development consisted primarily of the following items:

| Research and development (Dollars in thousands) | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| Payroll and related | $ 17,567 | $ 2,830 | 19.2% | $ 14,737 | $ 3,761 | 34.3% | $ 10,976 |
| Outside services | 6,149 | 2,763 | 81.6% | 3,386 | 1,298 | 62.2% | 2,088 |
| Stock based compensation | 236 | 144 | 156.5% | 92 | 40 | 76.9% | 52 |
| Other | 512 | 25 | 5.1% | 487 | 136 | 38.7% | 351 |
| Total research and development | $ 24,464 | $ 5,762 | 30.8% | $ 18,702 | $ 5,235 | 38.9% | $ 13,467 |
| FTEs | 121 | 10 | 9.0% | 111 | 23 | 26.1% | 88 |

Research and development expense increased for the year ended December 31, 2018 compared to the same periods in 2017 and 2016 primarily as a result of our anticipated increases in payroll and benefits and outside service related costs as we continue to focus on the development efforts of our software solutions. We intend to continue these efforts based on their importance to our continued success and do not anticipate a return to historically low costs. However, we believe increases in staffing and the use of outside services will begin to grow at a slower pace in 2019. These costs will continue to substantially impact margins and our cash flow from operations as the benefits from our development efforts will not be realized for at least one to three years.

*Technology operations.* Technology operations consisted primarily of the following items:

| Technology Operations (Dollars in thousands) | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| Payroll and related | $ 10,792 | $ 525 | 5.1 % | $ 10,267 | $ (445) | (4.2)% | $ 10,712 |
| Site rent | 13,948 | (281) | (2.0)% | 14,229 | (343) | (2.4)% | 14,572 |
| Telecommunications | 3,805 | (318) | (7.7)% | 4,123 | (484) | (10.5)% | 4,607 |
| Stock based compensation | 95 | 16 | 20.3 % | 79 | 66 | 507.7 % | 13 |
| Other | 2,716 | (88) | (3.1)% | 2,804 | (26) | (0.9)% | 2,830 |
| Total technology operations | $ 31,356 | $ (146) | (0.5)% | $ 31,502 | $ (1,232) | (3.8)% | $ 32,734 |
| FTEs | 92 | — | — % | 92 | (5) | (5.2)% | 97 |

Technology operations expense has decreased during each of the periods presented primarily due to reductions in site rent and telecommunications expense. The number of active transmitters declined 2.4% from December 31, 2017 to December 31, 2018 and 3.1% from December 31, 2016 to December 31, 2017. The number of active transmitters directly relates to the amount of site rent and telecommunications expenses we generally incur on an annual basis. We expect savings in site rent and telecommunications expenses to begin slowing in 2019 as compared to historical cost savings. As we reach certain minimum frequency commitments, as outlined by the United States Federal Communications Commission, we will be unable to continue our efforts to rationalize and consolidate our networks.

*Selling and marketing*. Selling and marketing consisted primarily of the following items:

| Selling and marketing (Dollars in thousands) | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| Payroll and related | $ 13,052 | $ 1,256 | 10.6 % | $ 11,796 | $ (2,370) | (16.7)% | $ 14,166 |
| Commissions | 6,152 | 961 | 18.5 % | 5,191 | (458) | (8.1)% | 5,649 |
| Stock based compensation | 503 | 126 | 33.4 % | 377 | 310 | 462.7 % | 67 |
| Advertising and events | 4,247 | (306) | (6.7)% | 4,553 | 641 | 16.4 % | 3,912 |
| Other | 599 | (307) | (33.9)% | 906 | (68) | (7.0)% | 974 |
| Total selling and marketing | $ 24,553 | $ 1,730 | 7.6 % | $ 22,823 | $ (1,945) | (7.9)% | $ 24,768 |
| FTEs | 97 | 4 | 4.3 % | 93 | (14) | (13.1)% | 107 |

Selling and marketing expense increased for the year ended December 31, 2018 compared to December 31, 2017 primarily due to an increase in benefits expenses due to higher medical benefit costs incurred across our employee base. The increase in commissions expenses for the year ended December 31, 2018 primarily relates to the increase in operations revenue and the adoption of ASC 606. Selling and marketing expense decreased for the year ended December 31, 2017 compared to December 31, 2016 primarily due to the reduction in payroll and benefits and commissions expense partially offset by increases in stock based compensation, conferences and trade show expenses.

*General and administrative.* General and administrative consisted primarily of the following items:

| General and administrative (Dollars in thousands) | 2018 | Change | | 2017 | Change | | 2016 |
|---|---|---|---|---|---|---|---|
| Payroll and related | $ 17,677 | $ 599 | 3.5 % | $ 17,078 | $ (72) | (0.4)% | $ 17,150 |
| Stock based compensation | 3,871 | 910 | 30.7 % | 2,961 | 2,295 | 344.6 % | 666 |
| Facility rent and office costs | 6,492 | (1,222) | (15.8)% | 7,714 | 791 | 11.4 % | 6,923 |
| Outside services | 11,260 | 852 | 8.2 % | 10,408 | 723 | 7.5 % | 9,685 |
| Taxes, licenses and permits | 3,295 | (926) | (21.9)% | 4,221 | (33) | (0.8)% | 4,254 |
| Bad debt | 1,624 | 1,096 | 207.6 % | 528 | 85 | 19.2 % | 443 |
| Other | 4,878 | 388 | 8.6 % | 4,490 | 784 | 21.2 % | 3,706 |
| Total general and administrative | $ 49,097 | $ 1,697 | 3.6 % | $ 47,400 | $ 4,573 | 10.7 % | $ 42,827 |
| FTEs | 108 | (7) | (6.1)% | 115 | 1 | 0.9 % | 114 |

General and administrative expense increased for the year ended December 31, 2018 compared to December 31, 2017 primarily due to an increase in benefits expenses due to higher medical benefit costs incurred across our employee base, stock compensation, outside services and bad debt. The increase in stock based compensation is largely related to additional grants made during the year ended December 31, 2018 which replace awards that vested on December 31, 2017 but were amortized at 50% of the original award due to anticipated forfeitures related to unmet performance obligations. The increase in outside services primarily resulted from the reclassification of expense from facility rent and related costs (which were not made for the same periods in 2017 or 2016) and incremental costs due to the implementation of project management software. The increase in bad debt is related to providing for our estimated exposure to potentially uncollectible accounts receivable.

General and administrative expense increased for the year ended December 31, 2017 compared to December 31, 2016 primarily due to an increase in stock based compensation, outside services and other expenses. The increase in stock based compensation was largely due to additional grants made during the year ended December 31, 2017 and a reduction in stock based compensation during the year ended December 31, 2016 due to the estimated outcome of the 2015 and 2016 grants being reduced to 50% of the original awards. The increase in outside services was largely due to the use of consultants related to the implementation of a new accounting system as well as general staff augmentation throughout 2017. The increase in other was primarily related to increased placement fees for recruiting new hires, computer refresh costs and various other immaterial expenses.

*Depreciation, amortization and accretion.* For the year ended December 31, 2018 compared to the same period in 2017 depreciation, amortization and accretion expenses decreased by $0.9 million due primarily to various assets becoming fully depreciated during 2018.The decrease of $1.3 million in depreciation, amortization and accretion expenses for the year ended December 31, 2017 compared to the same period in 2016 was primarily due to the full amortization of trademark costs during the first quarter of 2017 and other various intangible costs that were fully amortized during 2016.

***Interest income, Other income, and Income tax expense (benefit)***

*Interest income.* Interest income increased for the year ended December 31, 2018, compared to the same periods in 2017 and 2016, respectively, primarily due to higher interest rates earned on the company's cash balances and short term investments.

*Other (expense) income*. For the year ended December 31, 2018 compared to the same period in 2017 other (expense) income, decreased by $0.8 million primarily as a result of legal and other expenses related to the lawsuit previously reported in the 2017 Annual Report and our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2018. The decrease of $0.4 million in other (expense) income, net for the year ended December 31, 2017 compared to the same period in 2016 was due primarily to a variety of immaterial transactions.

*Income tax (benefit) expense.* The effects of foreign taxes are immaterial for all periods presented. The following is the effective tax rate reconciliation for the years ended December 31, 2018, 2017 and 2016, respectively (See Note 8, "Income Taxes", for further discussion on our income taxes):

| **Effective tax rate reconciliation** | **2018** | | **2017** | | **2016** | |
|---|---|---|---|---|---|---|
| **(Dollars in thousands)** | | | | | | |
| (Loss) income before income tax (benefit) expense | $ (2,185) | | $ 11,559 | | $ 22,971 | |
| Income taxes computed at the Federal statutory rate | $ (459) | 21.0 % | $ 4,046 | 35.0 % | $ 8,040 | 35.0% |
| State income taxes, net of Federal benefit | 306 | (14.0)% | 472 | 4.1 % | 867 | 3.8% |
| Impact of 2017 Tax Act | — | — % | 24,235 | 209.7 % | — | —% |
| Research and development and other tax credits | (1,144) | 52.4 % | (1,775) | (15.4)% | — | —% |
| Excess executive compensation | 281 | (12.9)% | — | — % | — | —% |
| Other | 310 | (14.2)% | (113) | (1.0)% | 85 | 0.4% |
| Income tax (benefit) expense | $ (706) | 32.3 % | $ 26,865 | 232.4 % | $ 8,992 | 39.1% |

Income tax expense decreased by $27.6 million for the year ended December 31, 2018 compared to the same period in 2017 due primarily to the write-off of deferred tax assets ("DTA's") as a result of the 2017 Tax Act partially offset by research and development and other tax credits. Our investment in research and development qualifies for the research and development income tax credit under Section 41 of the Internal Revenue Code. Unused research and development tax credits have a 20-year carryover and will provide future tax benefits once Spok's net operating losses are fully utilized.

**Liquidity and Capital Resources**

***Cash and Cash Equivalents***

At December 31, 2018, we had cash and cash equivalents of $83.3 million. The available cash and cash equivalents are held in accounts managed by third-party financial institutions and consist of invested cash and cash in our operating accounts. The invested cash is invested in interest bearing funds managed by third-party financial institutions. These funds invest in direct obligations of the government of the United States. To date, we have experienced no loss or lack of access to our invested cash or cash equivalents; however, we can provide no assurance that access to our invested cash and cash equivalents will not be impacted by adverse market conditions.

We maintain a level of liquidity sufficient to allow us to meet our cash needs in both the short-term and long-term. At any point in time, we have approximately $7.0 to $12.0 million in our operating accounts that are with third-party financial institutions. While we monitor daily the cash balances in our operating accounts and adjust the cash balances as appropriate, these cash balances could be impacted if the underlying financial institutions fail or are subject to other adverse conditions in the financial markets. To date, we have experienced no loss or lack of access to cash in our operating accounts.

We intend to use our cash on hand to provide working capital, to support operations, to invest in our business and to return value to stockholders through cash dividends and possible repurchases of our common stock. We may also consider using cash to fund or complete opportunistic investments and acquisitions that we believe will provide a measure of growth or revenue stability while supporting our existing operations. Because we intend to increase substantially our investment in developing our integrated communications platform over the next two or three years commensurate with declining revenues from our wireless business, we anticipate that our cash on hand will decrease significantly during that period and possibly longer until revenues from our Spok Care Connect platform begin to be realized.

***Cash Flows Overview***

In the event that net cash provided by operating activities and cash on hand are not sufficient to meet future cash requirements, we may be required to reduce planned capital expenses, reduce or eliminate our cash dividends to stockholders, not resume our common stock repurchase program, and/or sell assets or seek additional financing. We can provide no assurance that reductions in planned capital expenses or proceeds from asset sales would be sufficient to cover shortfalls in available cash or that additional financing would be available on acceptable terms.

Based on current and anticipated levels of operations, we anticipate net cash provided by operating activities, together with the available cash on hand at December 31, 2018, should be adequate to meet anticipated cash requirements for the foreseeable future.

The following table sets forth information on our net cash flows from operating, investing, and financing activities for the periods stated:

| | For the Year Ended December 31, | | | |
|---|---|---|---|---|
| | **2018** | **2017** | **2016** | **Change Between 2018 and 2017** |
| | (Dollars in thousands) | | | |
| Net cash provided by operating activities | $ 10,315 | $ 15,515 | $ 37,551 | $ (5,200) |
| Net cash used in investing activities | (5,826) | (9,171) | (8,229) | 3,345 |
| Net cash used in financing activities | (24,276) | (25,001) | (16,723) | 725 |

*Net Cash Provided by Operating Activities.* As discussed above, we are dependent on cash flows from operating activities to meet our cash requirements. Cash from operations varies depending on changes in various working capital items, including deferred revenues, accounts payable, accounts receivable, prepaid expenses and various accrued expenses. Net cash provided by operating activities decreased $5.2 million for the year ended December 31, 2018 compared to the same period in 2017 due primarily to an increase in net income of $13.8 million (increase in cash flow), a decrease of $0.9 million in depreciation, amortization and accretion expenses (decrease in cash flow), a decrease in deferred income tax expense of $27.1 million (decrease in cash flow), and an increase of $1.7 million in other non-cash items (increase in cash flow), partially offset by an increase of $1.3 million in stock based compensation expenses (increase in cash flow). With respect to changes in assets and liabilities the net cash provided by operating activities reflects a $1.7 million increase in accounts payable, accrued liabilities and other (increase in cash flow) and a net $7.9 million lower decrease to assets (increase in cash flow) partially offset by a $3.6 million decrease in deferred revenue (decrease in cash flow).

*Net Cash Used in Investing Activities*. Net cash used in investing activities decreased $3.3 million for the year ended December 31, 2018 compared to the same period in 2017 due primarily to costs associated with the Company's business expansion related to research and development during the twelve months ended December 31, 2017 that were not incurred in 2018.

*Net Cash Used in Financing Activities*. Net cash used in financing activities decreased $0.7 million for the year ended December 31, 2018 from the same period in 2017 due to a lower dividend payment of $5.1 million (primarily from a special dividend payment made during the twelve months ended December 31, 2017) partially offset by $4.4 million greater purchase of common stock (which includes $1.0 million of common stock purchased for tax withholding on vested equity awards).

*Cash Dividends to Stockholders.* For the year ended December 31, 2018, we paid a total of $10.1 million in cash dividends compared to $15.2 million in cash dividends for the same period in 2017. Cash dividends paid to stockholders in 2018 decreased by $5.1 million primarily due to a special dividend of $0.25 per common stock which was declared in 2016 and paid in 2017.

*Future Cash Dividends to Stockholders.* On February 27, 2019, our Board of Directors declared a regular quarterly cash dividend of $0.125 per share of common stock, with a record date of March 15, 2019, and a payment date of March 29, 2019. This cash dividend of approximately $2.4 million is expected to be paid from available cash on hand.

*Common Stock Repurchase Program.* For the year ended December 31, 2018, we purchased 929,116 shares of our common stock under the repurchase program for $13.4 million excluding commission. The repurchase authority allows us, at management’s discretion, to selectively repurchase shares of our common stock from time to time in the open market depending upon market price and other factors. In August 2018, the Company's Board of Directors reset the repurchase authority under the share repurchase program to $10.0 million which was set to expire on December 31, 2018. In November 2018, the Company's Board of Directors extended the repurchase authority through December 31, 2019. (See Note 7, "Stockholders' Equity", for further discussion on our common stock repurchase program.)

*Other.* For 2019, the Board of Directors currently expects to pay dividends of $0.125 per common share each quarter, subject to declaration by the Board of Directors.

## Commitments and Contingencies

*Contractual Obligations.* The following table provides the Company's significant commitments and contractual obligations as of December 31, 2018.

| (Dollars in thousands) | Payments Due by Period<br>Total | Less than 1 Year | 1 to 3 years | 3 to 5 years | More than 5 years |
|---|---|---|---|---|---|
| Operating lease obligations | $ 20,213 | $ 6,716 | $ 9,160 | $ 3,913 | $ 424 |
| Unconditional purchase obligations | $ 2,614 | $ 1,263 | $ 1,313 | $ 38 | $ — |
| Total contractual obligations | $ 22,827 | $ 7,979 | $ 10,473 | $ 3,951 | $ 424 |

As of December 31, 2018, our contractual payment obligations under our operating leases for office and transmitter locations are indicated in the table above. For purposes of the table above, purchase obligations are defined as agreements to purchase goods or services that are enforceable, legally binding, noncancelable, has a remaining term in excess of one year and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable pricing provisions; and the approximate timing of transactions. The amounts are based on our contractual commitments; however, it is possible that we may be able to negotiate lower payments if we choose to exit these contracts before their expiration date. Refer to Note 9, "Commitments and Contingencies", for further discussion on commitments and contingencies.

*Off-Balance Sheet Arrangements.* We do not have any relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. As such, we are not exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in such relationships.

## Related Parties

Refer to Note 11, "Related Parties", for further discussion on our related party transactions.

## Inflation

Inflation has not had a material effect on our operations to date. System equipment and operating costs have not significantly increased in price, and the price of wireless messaging devices has tended to decline in recent years. Our general operating expenses, such as salaries, site rent for transmitter locations, employee benefits and occupancy costs, are subject to normal inflationary pressures.

## Critical Accounting Policies and Estimates

Refer to Note 1, "Organization and Significant Accounting Policies", for a summary of significant accounting policies and estimates.

Refer to Note 2, "Recent and Pending Accounting Standards", for a summary of recent and pending accounting standards.

## ITEM 7A. *QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK*

### *Interest Rate Risk*

At December 31, 2018, we had no outstanding borrowings or associated debt service requirements.

### *Foreign Currency Exchange Rate Risk*

We conduct a limited amount of business outside the United States. The financial impact of transactions billed in foreign currencies is immaterial to our financial results and, consequently, we do not have any material exposure to the risk of foreign currency exchange rate fluctuations.

## ITEM 8. *FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA*

The consolidated financial statements are included in this Report beginning on Page F-1.



## ITEM 9. *CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE*

There are no reportable events.

## ITEM 9A. *CONTROLS AND PROCEDURES*

### Evaluation of Disclosure Controls and Procedures

Our management carried out an evaluation, as required by Rule 13a-15(b) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), with the participation of our principal executive officer and our principal financial officer, of the effectiveness of our disclosure controls and procedures, as of the end of our last fiscal year. Disclosure controls and procedures are defined under Rule 13a-15(e) under the Exchange Act as controls and other procedures of an issuer that are designed to ensure that the information required to be disclosed by the issuer in the reports that it files or submits under the Exchange Act (i) is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and (ii) is accumulated and communicated to the issuer's management, including its principal executive officer and principal financial officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Based upon this evaluation, our principal executive officer and our principal financial officer have concluded that our disclosure controls and procedures were effective as of December 31, 2018.

### Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in the Exchange Act Rule 13a-15(f) and 15d-15(f). Management conducted an evaluation of the effectiveness of our internal control over financial reporting based on the 2013 *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO").

Such internal controls include those policies and procedures that:

- pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures are being made only in accordance with authorizations of management and members of the Board of Directors of the Company; and
- 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.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. 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.

Based on our evaluation under the 2013 *Internal Control — Integrated Framework*, our management concluded that our internal control over financial reporting was effective as of December 31, 2018.

The effectiveness of our internal control over financial reporting as of December 31, 2018 has been audited by Grant Thornton LLP, an independent registered public accounting firm, as stated in their report which appears in this 2018 Annual Report on Form 10-K.

**Changes in Internal Control Over Financial Reporting**

There were no changes made in the Company's internal control over financial reporting during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, the Company's internal controls over financial reporting**.**

**ITEM 9B.** ***OTHER INFORMATION***

None.

## PART III

Certain information called for by Items 10 through 14 is incorporated by reference from Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders, which will be filed with the SEC no later than April 30, 2019.

### ITEM 10. *DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE*

The following information required by this item is incorporated by reference from Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders:

- information regarding directors is set forth under the caption "Election of Directors";
- information regarding executive officers is set forth under the caption "Executive Officers";
- information regarding our audit committee and designated "audit committee financial expert" is set forth under the caption "Committees of the Board of Directors"; and
- information regarding compliance with Section 16(a) of the Exchange Act is set forth under the caption "Section 16(a) Beneficial Ownership Reporting Compliance."

We also make available on our website, and in print, if any stockholder or other person so requests, our code of business conduct and ethics entitled "Code of Ethics" which is applicable to all employees and directors, our "Corporate Governance Guidelines," and the charters for all committees of our Board of Directors, including Audit, Compensation and Nominating and Governance. Any changes to our Code of Ethics or waiver, if any, of our Code of Ethics for executive officers or directors will be posted on that website.

### ITEM 11. *EXECUTIVE COMPENSATION*

The information required by this item is incorporated by reference from the section of Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders entitled "Compensation Discussion and Analysis."

### ITEM 12. *SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS*

The information required by this item is incorporated by reference from the section of Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders entitled "Security Ownership of Certain Beneficial Owners and Management."

### ITEM 13. *CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE*

The information required by this item with respect to certain relationships and related transactions is incorporated by reference from the section of Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders entitled "Related Person Transactions and Code of Conduct." The information required by this item with respect to director independence is incorporated by reference from the section of Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders entitled "Board of Directors and Governance Matters."

### ITEM 14. *PRINCIPAL ACCOUNTING FEES AND SERVICES*

The information required by this item is incorporated by reference from the section of Spok's definitive Proxy Statement for our 2019 Annual Meeting of Stockholders entitled "Independent Registered Public Accounting Firm Fees."

## PART IV

## ITEM 15. *EXHIBITS AND FINANCIAL STATEMENT SCHEDULES*

The following documents are filed as part of this Annual Report on Form 10-K:

(a) 1. *Financial Statements*



2. *Financial Statement Schedules*



(b) *Exhibits*

The exhibits listed in the accompanying index to exhibits, that follows the Signatures page, are filed as part of this Annual Report on Form 10-K.

## 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 our behalf by the undersigned, thereunto duly authorized.

Spok Holdings, Inc.

By: /s/ Vincent D. Kelly

Vincent D. Kelly
President and Chief Executive Officer
February 28, 2019

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 and on the dates indicated.

| Signature | Title | Date |
|---|---|---|
| /s/ Vincent D. Kelly<br>Vincent D. Kelly | Director, President and Chief Executive Officer (principal executive officer) | February 28, 2019 |
| /s/ Michael W. Wallace<br>Michael W. Wallace | Chief Financial Officer (principal financial officer and principal accounting officer) | February 28, 2019 |
| /s/ Royce Yudkoff<br>Royce Yudkoff | Chairman of the Board | February 28, 2019 |
| /s/ N. Blair Butterfield<br>N. Blair Butterfield | Director | February 28, 2019 |
| /s/ Stacia A. Hylton<br>Stacia A. Hylton | Director | February 28, 2019 |
| /s/ Brian O'Reilly<br>Brian O'Reilly | Director | February 28, 2019 |
| /s/ Matthew Oristano<br>Matthew Oristano | Director | February 28, 2019 |
| /s/ Todd Stein<br>Todd Stein | Director | February 28, 2019 |
| /s/ Samme L. Thompson<br>Samme L. Thompson | Director | February 28, 2019 |

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| Index to Consolidated Financial Statements | Page |
|---|---|

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Spok Holdings, Inc.

**Opinion on the financial statements**

We have audited the accompanying consolidated balance sheets of Spok Holdings, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive (loss) income, changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and financial statement schedule included under Item 15(a) (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

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, 2018, based on criteria established in the 2013 Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"), and our report dated February 28, 2019 expressed an unqualified opinion.

**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 supporting 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.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2006.

Arlington, Virginia
February 28, 2019

## REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Spok Holdings, Inc.

**Opinion on internal control over financial reporting**

We have audited the internal control over financial reporting of Spok Holdings, Inc. (a Delaware corporation) and subsidiaries (the "Company") as of December 31, 2018, based on criteria established in the 2013 *Internal Control-Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in the 2013 *Internal Control-Integrated Framework* issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated financial statements of the Company as of and for the year ended December 31, 2018, and our report dated February 28, 2019 expressed an unqualified opinion on those financial statements.

**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 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/ GRANT THORNTON LLP

Arlington, Virginia
February 28, 2019

## SPOK HOLDINGS, INC.
## CONSOLIDATED BALANCE SHEETS

| (Dollars in thousands except share and per share amounts) | December 31, 2018 | December 31, 2017 |
|---|---|---|
| **ASSETS** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 83,343 | $ 103,179 |
| Short-term investments | 3,963 | 3,978 |
| Accounts receivable, net | 32,386 | 29,722 |
| Prepaid expenses and other | 9,578 | 5,752 |
| Inventory, net | 1,708 | 1,672 |
| Total current assets | 130,978 | 144,303 |
| Non-current assets: | | |
| Property and equipment, net | 10,354 | 13,399 |
| Goodwill | 133,031 | 133,031 |
| Intangible assets, net | 5,417 | 7,917 |
| Deferred income tax assets, net | 46,484 | 47,679 |
| Other non-current assets | 1,448 | 1,675 |
| Total non-current assets | 196,734 | 203,701 |
| TOTAL ASSETS | $ 327,712 | $ 348,004 |
| **LIABILITIES AND STOCKHOLDERS' EQUITY** | | |
| Current liabilities: | | |
| Accounts payable | $ 2,010 | $ 1,305 |
| Accrued compensation and benefits | 11,348 | 11,018 |
| Accrued taxes | 1,822 | 2,547 |
| Deferred revenue | 26,285 | 28,857 |
| Other current liabilities | 3,483 | 4,610 |
| Total current liabilities | 44,948 | 48,337 |
| Non-current liabilities: | | |
| Deferred revenue | 476 | 1,063 |
| Other non-current liabilities | 7,734 | 8,075 |
| Total non-current liabilities | 8,210 | 9,138 |
| TOTAL LIABILITIES | 53,158 | 57,475 |
| COMMITMENTS AND CONTINGENCIES (Note 9) | | |
| STOCKHOLDERS' EQUITY: | | |
| Preferred stock—$0.0001 par value; 25,000,000 shares authorized; no shares issued or outstanding | $ — | $ — |
| Common stock—$0.0001 par value; 75,000,000 shares authorized; 19,389,066 and 20,135,514 shares issued and outstanding as of December 31, 2018 and December 31, 2017, respectively | 2 | 2 |
| Additional paid-in capital | 90,559 | 99,819 |
| Accumulated other comprehensive loss | (1,301) | (1,088) |
| Retained earnings | 185,294 | 191,796 |
| TOTAL STOCKHOLDERS' EQUITY | 274,554 | 290,529 |
| TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY | $ 327,712 | $ 348,004 |

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

## SPOK HOLDINGS, INC.
## CONSOLIDATED STATEMENTS OF OPERATIONS

| (Dollars in thousands, except share and per share amounts) | For the Year Ended December 31, 2018 | 2017 | 2016 |
|---|---|---|---|
| Revenue: | | | |
| Wireless | $ 94,277 | $ 101,188 | $ 109,590 |
| Software | 75,197 | 69,987 | 69,971 |
| Total revenue | 169,474 | 171,175 | 179,561 |
| Operating expenses: | | | |
| Cost of revenue | 32,408 | 28,418 | 30,649 |
| Research and development | 24,464 | 18,702 | 13,467 |
| Technology operations | 31,356 | 31,502 | 32,734 |
| Selling and marketing | 24,553 | 22,823 | 24,768 |
| General and administrative | 49,097 | 47,400 | 42,827 |
| Depreciation, amortization and accretion | 10,769 | 11,624 | 12,963 |
| Total operating expenses | 172,647 | 160,469 | 157,408 |
| Operating (loss) income | (3,173) | 10,706 | 22,153 |
| Interest income | 1,638 | 719 | 275 |
| Other (expense) income | (650) | 134 | 543 |
| (Loss) income before income tax benefit (expense) | (2,185) | 11,559 | 22,971 |
| Income tax benefit (expense) | 706 | (26,865) | (8,992) |
| Net (loss) income | $ (1,479) | $ (15,306) | $ 13,979 |
| Basic and diluted net (loss) income per common share | $ (0.08) | $ (0.76) | $ 0.68 |
| Basic and diluted weighted average common shares outstanding | 19,667,891 | 20,210,260 | 20,586,066 |
| Cash dividends declared per common share | $ 0.50 | $ 0.50 | $ 0.75 |

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

## SPOK HOLDINGS, INC.
## CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

| | For the Twelve Months Ended, | | |
|---|---|---|---|
| **(Dollars in thousands)** | **2018** | **2017** | **2016** |
| Net (loss) income | $ (1,479) | $ (15,306) | $ 13,979 |
| Other comprehensive (loss) income, net of tax: | | | |
| Foreign currency translation adjustments | (49) | 11 | (109) |
| Other comprehensive (loss) income | (49) | 11 | (109) |
| Comprehensive (loss) income | $ (1,528) | $ (15,295) | $ 13,870 |

## SPOK HOLDINGS, INC.
## CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

| (Dollars in thousands except share amounts) | Outstanding Common Shares | Common Stock | Additional Paid-In Capital & Accumulated Other Comprehensive Loss | Retained Earnings | Total Stockholders' Equity |
|---|---|---|---|---|---|
| Balance, January 1, 2016 | 20,886,261 | $ 2 | $ 110,435 | $ 219,127 | $ 329,564 |
| Net income | — | — | — | 13,979 | 13,979 |
| Issuance of common stock for vested restricted stock units under the 2012 Equity Plan | 3,961 | — | 53 | — | 53 |
| Purchased and retired common stock | (2) | — | — | — | — |
| Amortization of stock based compensation | — | — | 854 | — | 854 |
| Cash dividends declared | — | — | — | (15,766) | (15,766) |
| Common stock repurchase program | (388,255) | — | (6,489) | — | (6,489) |
| Issuance of restricted stock under the Equity Plan | 23,649 | — | — | — | — |
| Other | — | $ — | $ (43) | $ (65) | $ (108) |
| Balance, December 31, 2016 | 20,525,614 | $ 2 | $ 104,810 | $ 217,275 | $ 322,087 |
| Net loss | — | — | — | (15,306) | (15,306) |
| Issuance of common stock under the Employee Stock Purchase Plan | 17,760 | — | 256 | — | 256 |
| Issuance of common stock for vested restricted stock units under the 2012 Equity Plan | 143,394 | — | — | — | — |
| Amortization of stock based compensation | — | — | 3,688 | — | 3,688 |
| Cash dividends declared | — | — | — | (10,332) | (10,332) |
| Common stock repurchase program | (572,550) | — | (10,023) | — | (10,023) |
| Issuance of restricted stock under the Equity Plan | 21,296 | — | — | — | — |
| Other | — | — | — | 159 | 159 |
| Balance, December 31, 2017 | 20,135,514 | $ 2 | $ 98,731 | $ 191,796 | $ 290,529 |
| Net loss | — | — | — | (1,479) | (1,479) |
| Adjustment to beginning balance resulting from adoption of ASC 606 | — | — | (166) | 6,836 | 6,670 |
| Estimated tax impact resulting from adoption of ASC 606 | — | — | — | (1,726) | (1,726) |
| Issuance of common stock under the Employee Stock Purchase Plan | 20,120 | — | 247 | — | 247 |
| Issuance of common stock for vested restricted stock units under the 2012 Equity Plan | 24,989 | — | — | — | — |
| Purchase of common stock for tax withholding | (62,432) | — | (976) | — | (976) |
| Amortization of stock based compensation | — | — | 4,954 | — | 4,954 |
| Cash dividends declared | — | — | — | (10,133) | (10,133) |
| Common stock repurchase program including commissions | (929,116) | — | (13,483) | — | (13,483) |
| Issuance of restricted stock under the Equity Plan | 199,991 | — | — | — | — |
| Cumulative translation adjustment | — | — | (49) | — | (49) |
| Balance, December 31, 2018 | 19,389,066 | $ 2 | $ 89,258 | $ 185,294 | $ 274,554 |

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

## SPOK HOLDINGS, INC.
## CONSOLIDATED STATEMENTS OF CASH FLOWS

| | For the Year Ended December 31, | | |
|---|---|---|---|
| **(Dollars in thousands)** | **2018** | **2017** | **2016** |
| Cash flows from operating activities: | | | |
| Net (loss) income | $ (1,479) | $ (15,306) | $ 13,979 |
| Adjustments to reconcile net (loss) income to net cash provided by operating activities: | | | |
| Depreciation, amortization and accretion | 10,769 | 11,624 | 12,963 |
| Deferred income tax (benefit) expense | (1,692) | 25,390 | 6,926 |
| Stock based compensation | 4,954 | 3,688 | 854 |
| Provisions for doubtful accounts, service credits and other | 2,125 | 1,029 | 763 |
| Adjustments of non-cash transaction taxes | (203) | (807) | (270) |
| Changes in assets and liabilities: | | | |
| Accounts receivable | (915) | (9,648) | (1,790) |
| Prepaid expenses, intangible assets and other assets | (646) | 244 | 824 |
| Accounts payable, accrued liabilities and other | (1,553) | (3,278) | 1,192 |
| Deferred revenue | (1,045) | 2,579 | 2,110 |
| Net cash provided by operating activities | 10,315 | 15,515 | 37,551 |
| Cash flows from investing activities: | | | |
| Purchases of property and equipment | (5,915) | (9,214) | (6,254) |
| Purchase of short-term investments | (3,911) | (3,957) | (3,975) |
| Maturity of short-term investments | 4,000 | 4,000 | 2,000 |
| Net cash used in investing activities | (5,826) | (9,171) | (8,229) |
| Cash flows from financing activities: | | | |
| Cash distributions to stockholders | (10,064) | (15,234) | (10,287) |
| Purchase of common stock (including commissions) | (13,483) | (10,023) | (6,489) |
| Proceeds from issuance of common stock under the Employee Stock Purchase Plan | 247 | 256 | 53 |
| Purchase of common stock for tax withholding on vested equity awards | (976) | — | — |
| Net cash used in financing activities | (24,276) | (25,001) | (16,723) |
| Effect of exchange rate on cash | (49) | 11 | (109) |
| Net (decrease) increase in cash and cash equivalents | (19,836) | (18,646) | 12,490 |
| Cash and cash equivalents, beginning of period | 103,179 | 121,825 | 109,335 |
| Cash and cash equivalents, end of period | $ 83,343 | $ 103,179 | $ 121,825 |
| Supplemental disclosure: | | | |
| Income taxes paid | $ 1,061 | $ 2,620 | $ 695 |

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

**SPOK HOLDINGS, INC.**
**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

## NOTE 1 - ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES

Spok, Inc., a wholly owned subsidiary of Spok Holdings, Inc. (NASDAQ: SPOK) ("Spok" or the "Company"), is proud to be the global leader in healthcare communications. We deliver clinical information to care teams when and where it matters most to improve patient outcomes. Top hospitals rely on the Spok Care Connect platform to enhance workflows for clinicians, support administrative compliance, and provide a better experience for patients. Our customers send over 100 million messages each month through their Spok solutions.

We offer a focused suite of unified clinical communication and collaboration solutions that include call center operations, clinical alerting and notifications, one-way and advanced two-way wireless messaging services, mobile communications and public safety solutions.

We provide one-way and advanced two-way wireless messaging services including information services throughout the United States. These services are offered on a local, regional and nationwide basis employing digital networks. One-way messaging consists of numeric and alphanumeric messaging services. Numeric messaging services enable subscribers to receive messages that are composed entirely of numbers, such as a phone number, while alphanumeric messages may include numbers and letters, which enable subscribers to receive text messages. Two-way messaging services enable subscribers to send and receive messages to and from other wireless messaging devices, including pagers, personal digital assistants and personal computers. We also offer voice mail, personalized greeting, message storage and retrieval, and equipment loss and/or maintenance protection to both one-way and two-way messaging subscribers. These services are commonly referred to as wireless messaging and information services.

We also develop, sell and support enterprise-wide systems for hospitals and other organizations needing to automate, centralize and standardize mission clinical communications. These solutions are used for contact centers, clinical alerting and notification, mobile communications and messaging and for public safety notifications. These areas of market focus compliment the market focus of our wireless services outlined above.

***Basis of Presentation***

The accompanying consolidated financial statements include our accounts and the accounts of our wholly owned direct and indirect subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. Our consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States (“GAAP”) and the rules and regulations of the United States Securities and Exchange Commission (the “SEC”). In management's opinion, the consolidated financial statements include all adjustments and accruals that are necessary for a fair presentation of the results of all periods reported herein and all such adjustments are of a normal, recurring nature (except for those related to the adoption of ASC 606 and described in further detail in Note 2, "Recent and Pending Accounting Standards" and Note 3, "Revenue, Deferred Revenue and Deferred Commissions").

Amounts shown on the consolidated statements of operations within the operating expense categories of cost of revenue; research and development; technology operations; selling and marketing; and general and administrative are recorded exclusive of depreciation, amortization and accretion. These items are shown separately on the consolidated statements of operations within operating expenses to the extent that they are considered material for the periods presented.

Certain prior period amounts in the consolidated financial statements have been reclassified to conform to the current period's presentation. These reclassifications had no effect on the reported results of operations or the statement of financial position. In the fourth quarter of 2018, the Company reclassified $2.9 million from subscription revenue to license revenue on its Consolidated Statements of Operations. Corresponding reclassifications of $2.3 million and $2.1 million were made for the years ended December 31, 2017 and 2016 respectively. Finally, the Company reclassified $4.0 million from cash and cash equivalents to short-term investments on its Consolidated Balance Sheets. A corresponding reclassification of $4.0 million was made for the year ended December 31, 2017. As a result of this reclassification the Company made corresponding changes to its Consolidated Statement of Cash Flows such that the cash and cash equivalents would agree with the reclassifications made to the Company's Consolidated Balance Sheet. The balance of short-term investments previously included within cash and cash equivalents is not considered material to the Company's consolidated financial statements for the years ended December 31, 2018 and 2017, respectively. However, the Company has significantly increased its investment in short-term U.S. Treasuries during the first quarter of 2019 and believes this reclassification is necessary to properly present short-term investments in 2019 and beyond.

In addition, the company reclassified certain balances between unbilled accounts receivable (presented in Accounts receivable, net) and deferred revenue of approximately $2.6 million in its 2018 Consolidated Balance Sheet. Because the reclassified amounts also existed in the prior period, a corresponding reclassification of the same amount were made between unbilled accounts receivable and deferred revenue in its 2017 Consolidated Balance Sheet. This prior period reclassification had an impact on the Company's Consolidated Balance Sheet for the year ended December 31, 2017, effectively reducing accounts receivable, net and deferred revenue by $2.6 million. Correspondingly, current assets, current liabilities, total assets, total liabilities, and total liabilities and stockholders' equity were also reduced by $2.6 million for the same period.

***Use of Estimates***

The preparation of these consolidated financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosures. On an on-going basis, we evaluate estimates and assumptions, including but not limited to those related to the impairment of long-lived assets, intangible assets subject to amortization and goodwill, accounts receivable allowances, revenue recognition, depreciation expense, asset retirement obligations, and income taxes. We base our estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

***Revenue Recognition - Adoption of ASC 606 “Revenue from Contracts with Customers”***

The majority of our revenues are derived from short-term contracts related to the sale of wireless paging services and software solutions. Our arrangements exist primarily with customers in the healthcare market and to a lesser extent State and Federal governments, as well as large enterprise businesses.

Under the typical payment terms of our software contracts customers will normally pay a material amount of the contract price immediately upon execution of the contract. The remaining payments are required when product is delivered, when services begin and, to a lesser extent, when services are completed. Wireless services are generally billed as incurred on a monthly basis. Our contracts will generally result in billings in excess of revenue recognized, which we present as deferred revenues on the Consolidated Balance Sheets, primarily due to the receipt of payment in advance of product or services being provided. Amounts billed and due from our customers are classified as receivables on the Consolidated Balance Sheets. At times, we may have contracts which require us to perform work or provide products prior to billing which will generally result in revenue recognized in excess of billings. This excess is presented as unbilled receivables in the Notes to the Consolidated Balance Sheets. We generally do not have transactions that include a significant financing component (whether payments are made in advance or in arrears) as our contracts typically take less than 12 months to complete once started. We would not adjust the total consideration for the effects of a significant financing component if we anticipate, at contract inception, that the period between when we transfer a promised good or service to a customer and when the customer pays for that good or service will be one year or less.

We account for a contract when: (1) both parties have approved the contract through mutually signed agreements but at times may be done through other methods such as purchase orders or master agreements; (2) the rights of the parties have been identified; (3) payment terms have been identified; (4) the contract has commercial substance; and (5) collectability of consideration is probable. We also evaluate whether two or more contracts should be combined and accounted for as a single contract. In our evaluation, we consider criteria such as, but not limited to, whether: (1) the contracts are negotiated as a package with a single commercial objective; (2) the amount of consideration to be paid in one contract is dependent on the price or performance of another contract; and (3) some or all of the goods or services promised in the contracts are a single performance obligation. Should we consider contracts related, we would account for those contracts as if they were a single contract. Evaluating whether two or more contracts should be combined and accounted for as a single contract requires significant judgment. In the aggregate, a decision to combine a group of contracts could significantly impact the amount of revenue and profit recorded in a given period.

We review each contract to determine whether to account for the various promises as one or more performance obligations. The assessment and determination of performance obligations for a given contract requires significant judgment. Contracts which include wireless services are generally considered to be a single promise and therefore accounted for as a single performance obligation. Less commonly, however, we may promise to provide other distinct goods or services in conjunction with wireless services in which case we would account for the contract as having multiple performance obligations. Contracts which include goods or services related to our software solutions are generally sold with multiple promises and therefore will often include multiple performance obligations. Material performance obligations related to the sale of our software solutions include software licenses, professional services, hardware and maintenance, of which professional services and maintenance are generally considered a series of performance obligations.

More often than not, total consideration will equate to the stated value on the contract taking into consideration any period or term over which services are to be provided, if applicable. However, we could have contracts in which variable consideration is present. It is common for our contracts which include wireless services to contain customer penalties if rental pagers are not returned and fees for usage of services in excess of the contractually allotted amount for a given period. It is also common for our contracts that include professional services to include travel related costs. These are costs which we incur in the normal course of delivering professional services and are generally billable to the customer based on our incurred expenses. These elements of variable consideration are fully constrained when an agreement is initially executed and are generally not considered estimable until the penalties, fees or costs have been incurred or are otherwise known. We include estimated amounts in the transaction price to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Estimating variable consideration requires significant judgment and our assessment includes all relevant information that is reasonably available to us including historical, current and forecasted information. We have elected to exclude from revenue, all amounts collected on behalf of third parties, and therefore, items such as sales and use tax are excluded from our calculation of the total transaction price.

If a contract is separated into more than one performance obligation we allocate the total transaction price to each performance obligation proportionately based on the estimated relative standalone selling price ("SSP") of the promised goods or services underlying each performance obligation. We rarely sell goods or services with readily observable standalone sales, however, if we do, the observable standalone sales are used to determine the SSP. In most cases, we must estimate the relative SSP which requires significant judgment and estimates. In instances where SSP is not directly observable we determine the SSP using information that may include contractually stated prices, market conditions, costs, renewal contracts, list prices and other observable inputs. A discount is present if the total transaction price is less than the sum of the estimated SSPs of the goods or services promised in the contract. Discounts are generally allocated proportionately based on the relative SSP of the identified performance obligations for a given contract.

Our wireless, professional and maintenance services are generally recognized over time due to a customer's simultaneous receipt and consumption of the benefit as we perform the work. As we transfer control over time, we recognize revenue based on the extent of progress towards completion of the performance obligation. The selection of the method to measure progress towards completion requires significant judgment and is based on the nature of the products or services to be provided. Generally, we use the time-elapsed measure of progress for performance obligations which include wireless or maintenance services. We believe this method best depicts the simultaneous transfer and consumption of the benefit based on our performance as these services are generally considered standby services. For professional services, we leverage an input methodology based on the number of hours worked on a project versus the total expected hours necessary to complete the project. Revenues are recognized proportionally as hours are incurred. This is a significant area of judgment as it requires an estimate at completion (“EAC”) for each contract. Our initial EAC is primarily based on prior experience also taking into consideration any specific facts and circumstances for a given contract. As projects progress, the EAC is periodically updated and reviewed to ensure the timing of revenue recognition is appropriate. The creation, maintenance and review of a project's EAC requires significant judgment to determine an appropriate number of hours over which the remaining project is expected to be completed.

Our software licenses and hardware are generally recognized at a point in time when we have transferred control to the customer. For software licenses, revenue is not recognized until the related license(s) has been made available to the customer and the customer can begin to benefit from its right to use the license(s). Our software licenses represent a right to use Spok’s Intellectual Property (“IP”) as it exists at a point in time at which the license is granted. Many of our software licenses have significant standalone functionality due to their ability to process a transaction or perform a function or task, and we do not need to maintain those products, once provided to the customer, for value to exist. While the functionality of IP that we license may substantively change during the license period, customers are not contractually or practically required to update their license as a result of those changes. Assessing when transfer of control has occurred requires significant judgment. In most contracts transfer of control for software licenses occurs in a short period of time after a contract has been executed and licenses are made electronically available.

Contracts may be modified to account for changes in a project's scope or other customer requirements. Most of our contract modifications are for goods or services that are distinct from the existing contract. In these instances, the contract modification would either be recognized as an entirely new and separate contract or the modification would be treated as if it were a termination of the existing contract and the creation of a new contract including all undelivered goods and services under the previous contract. Revenue would be recognized on a prospective basis and a cumulative catch-up would not be recognized.

***Summary of Results under ASC 605 "Revenue Recognition"***

The following table presents the Consolidated Financial Statement components impacted as a result of adopting ASC 606, stated under ASC 605 for comparative purposes:

| | For the Twelve Months Ended December 31, | | | |
|---|---|---|---|---|
| | 2018 | | 2017 | 2016 |
| **(Dollars in thousands)** | **ASC 606** | **ASC 605** | **ASC 605** | **ASC 605** |
| **Consolidated Statement of Operations** | | | | |
| Revenues: Software | $ 75,197 | $ 73,265 | $ 69,987 | $ 69,971 |
| Operating expenses: Selling and marketing | 24,553 | 24,250 | 22,823 | 24,768 |
| **Consolidated Statements of Comprehensive Income** | | | | |
| Other comprehensive loss, net of tax: foreign currency translation adjustments | $ (49) | $ 117 | $ 11 | $ (109) |

| | As of December 31, | | |
|---|---|---|---|
| | 2018 | | 2017 |
| **(Dollars in thousands)** | **ASC 606** | **ASC 605** | **ASC 605** |
| **Consolidated Balance Sheets** | | | |
| Current assets: Accounts receivable, net | $ 32,386 | $ 30,709 | $ 29,722 |
| Current assets: Prepaid expenses and other | 9,578 | 9,192 | 5,752 |
| Current liabilities: Deferred revenue | 26,285 | 32,267 | 28,857 |
| Non-current liabilities: Deferred revenue | 476 | 624 | 1,063 |
| Stockholder equity: Accumulated other comprehensive loss | (1,301) | (1,015) | (1,088) |
| Stockholder equity: Retained earnings | 185,294 | 176,815 | 191,796 |

***Incremental Costs of Obtaining a Contract and Costs to Fulfill a Contract***

Our incremental costs primarily relate to sales commissions. We capitalize commissions and proportionally recognize the related expense to revenue as it is recognized on the underlying performance obligations. Some of these costs may relate to specific future anticipated contracts, specifically future maintenance renewals, which we do not pay commensurate sales commissions on. We amortize commission costs proportionally with revenue, thus it is necessary for us to estimate future revenues when there are future anticipated contracts. We estimate future revenues based on anticipated renewal amounts over an expected useful life (e.g. the period over which we believe the initial sales commissions relate to future anticipated contracts). The expected useful life is based on a review of our product life cycles, customer upgrade patterns and the rate at which customers renew maintenance. Commission expense was $6.2 million, $5.2 million and $5.6 million for the years ended December 31, 2018, 2017 and 2016, respectively. Commission expense is classified within the selling and marketing operating expenses category.

***Impairment of Long-Lived Assets, Intangible Assets Subject to Amortization and Goodwill***

We are required to evaluate the carrying value of our long-lived assets, amortizable intangible assets and goodwill. Amortizable intangible assets include customer-related and acquired technology intangibles that resulted from previous acquisitions. Such intangibles are amortized over periods up to ten years. Quarterly, we assess whether circumstances exist which suggest that the carrying value of long-lived and amortizable intangible assets may not be recoverable. When applicable, we assess the recoverability of the carrying value of our long-lived assets and certain amortizable intangible assets based on estimated undiscounted cash flows to be generated from such assets. In assessing the recoverability of these assets, we forecast estimated enterprise-level cash flows based on various operating assumptions such as revenue forecasted by product line and in-process research and development cost. If the forecast of undiscounted cash flows does not exceed the carrying value of the long-lived and amortizable intangible assets, we record an impairment charge to the extent the carrying value exceeded the fair value of such assets.

Goodwill is not amortized but is evaluated for impairment at least annually, or when events or circumstances suggest a potential impairment has occurred. We generally perform this annual impairment test in the fourth quarter of the fiscal year. We evaluate goodwill for impairment between annual tests if indicators of impairment exist. The impairment test involves comparing the fair value of the reporting unit with its carrying value. An impairment charge is recognized for the amount that the carrying value exceeds the reporting unit's fair value. For purposes of the goodwill impairment evaluation, the Company as a whole is considered the reporting unit. The fair value of the reporting unit is estimated under a market based approach using the fair value of the Company's common stock. A confirmatory discounted cash flow analysis is also used to assess whether impairment exists. This calculation requires significant judgments, including estimation of future cash flows, which is dependent on internal forecasts, estimation of the long-term rate of growth for our business, estimation of the useful life over which cash flows will occur and determination of our weighted average cost of capital.

We did not record any impairment of long-lived assets, definite lived intangible assets or goodwill for the years ended December 31, 2018, 2017 and 2016.

***Accounts Receivable Allowances***

Our two most significant allowance accounts are: an allowance for doubtful accounts and an allowance for service credits. Provisions for these allowances are recorded on a monthly basis and are included as a component of general and administrative expenses, respectively.

Estimates are used in determining the allowance for doubtful accounts and are based on historical collection experience and current and forecasted trends as well as known specific collection risks. In determining these estimates, we review historical write-offs, including comparisons of write-offs to provisions for doubtful accounts and as a percentage of revenues. We compare the ratio of the allowance to gross receivables to historical levels, and monitor amounts collected and related statistics. We write off receivables when they are deemed uncollectible. While write-offs of customer accounts have historically been within our expectations and the provisions established, we cannot guarantee that the future write-off experience will be consistent with historical experience, which could result in material differences when compared to the allowance for doubtful accounts and related provisions.

From time to time, we grant service credits for customer retention purposes or when there is an adjustment in the scope of work. The allowance for service credits related provisions are based on historical credit percentages, current credit and aging trends, historical actual payment trends and actual credit experience. We analyze our past credit experience over several time frames. Using this analysis along with current operational data including existing experience of credits issued and the time frames in which credits are issued, we establish an appropriate allowance for service credits. This allowance also reduces accounts receivable for lost and non-returned pagers to the expected realizable amounts and for free wireless services. While credits issued have been within our expectations and the provisions established, we cannot guarantee that future credit experience will be consistent with historical experience, which could result in material differences when compared to the allowance for service credits and maintenance related provisions.

***Inventory***

Inventories are stated at the lower of cost or net realizable value. Cost is computed using a weighted average cost approach which averages the prices at which goods are purchased from vendors. We evaluate our ending inventories for shrinkage and estimated obsolescence. Any shrinkage identified is written off to cost of goods sold in the period in which the shrinkage is identified. Further, we assess the impact of changing technology on our inventories and we write off inventories that are considered obsolete in the period in which the analysis takes place. Inventory consists primarily of finished goods. We do not account for inventory as work-in-process or raw materials as any such inventory would be immaterial to the consolidated financial statements.

***Property and Equipment***

Property and equipment are reported at cost and are depreciated using the straight-line method based on estimated useful lives which range from one to five years.

Transmitter assets are grouped into tranches based on our transmitter decommissioning forecast and are depreciated using the group life method on a straight-line basis. Depreciation expense is determined by the expected useful life of each tranche of the underlying transmitter assets. The expected useful life is based on our forecasted usage of those assets and their retirement over time and aligns the useful lives of these transmitter assets with their planned removal from service. Disposals are charged against accumulated depreciation with no gain or loss recognized. This rational and systematic method matches the underlying usage of these assets to the underlying revenue that is generated from these assets. Depreciation expense for these assets is subject to change based upon revisions in the timing of transmitter deconstruction resulting from our long-range planning and network rationalization process.

*Asset Retirement Obligations*

We recognize liabilities and corresponding assets for future obligations associated with the retirement of assets. We have paging equipment assets, principally transmitters, which are located on leased locations. The underlying leases generally require the removal of equipment at the end of the lease term; therefore, a future obligation exists. Asset retirement costs are reflected in paging equipment assets with depreciation expense recognized over the estimated lives, which range between one and five years. The asset retirement costs and the corresponding liabilities that have been recorded to date generally relate to either current plans to consolidate networks or to the removal of assets at a future terminal date. When an asset retirement obligation arises, the liabilities and corresponding assets are recorded at their present value using a discounted cash flow approach and the liabilities are accreted using the interest method.

The recognition of an asset retirement obligation requires that management make numerous assumptions regarding such factors as the cost and timing of deconstruction; the credit-adjusted risk-free rate to be used; inflation rates; and future advances in technology. The fair value estimate of contractor fees to remove each asset is assumed to escalate by 2% each year through the terminal date. The total estimated liability is based on the estimated future value of those costs and the timing of deconstruction.

We believe these estimates are reasonable at the present time, but we can give no assurance that changes in technology, our financial condition, the economy or other factors would not result in higher or lower asset retirement obligations. Any variations from our estimates would generally result in a change in the assets and liabilities in equal amounts, and operating results would differ in the future by any difference in depreciation expense and accretion expense (see Note 4, "Consolidated Financial Statement Components", and Note 6, "Asset Retirement Obligations", for additional details).

*Income Taxes*

We file a consolidated U.S. Federal income tax return and income tax returns in state, local and foreign jurisdictions as required. The provision for current income taxes is calculated and accrued on income and expenses expected to be included in current year U.S. and foreign income tax returns. The provision for current income taxes may also include interest, penalties and an estimated amount reflecting uncertain tax positions.

Deferred income tax assets and liabilities are computed based on temporary differences between the financial statement values and the tax bases of assets and liabilities including net operating loss and tax credit carryforwards at the enacted tax rates expected to apply to taxable income when taxes are actually paid or recovered. Changes in deferred income tax assets and liabilities are included as a component of deferred income tax expense. Deferred income tax assets represent amounts available to reduce future income taxes payable. We provide a valuation allowance when we consider it “more likely than not” (greater than a 50% probability) that a deferred income tax asset will not be fully recovered. Our valuation allowance assessment includes an evaluation of our history of generating taxable income and estimates of future taxable income, including when applicable the use of appropriate tax planning strategies.

Assets and liabilities are established for uncertain tax positions taken or positions expected to be taken in income tax returns when such positions fail to meet the “more likely than not” threshold based on the technical merits of the positions. We assess whether previously unrecognized tax benefits may be recognized when the tax position is (1) more likely than not of being sustained based on its technical merits, (2) effectively settled through examination, negotiation or litigation, or (3) settled through actual expiration of the relevant tax statutes We had no uncertain tax positions for the periods ended December 31, 2018 and 2017. (see Note 8, "Income Taxes", for additional details).

*Research and Development*

Development costs incurred in the research and development of new software products and enhancements to existing software products for external use are charged to operations and expensed as incurred. Until technological feasibility has been established, research and development costs are expensed as incurred. Material costs incurred after technological feasibility is established and before the product is ready for general release are capitalized and amortized on a straight-line basis over the estimated remaining economic life of the product or the ratio of current revenues to total projected product revenues, whichever is greater. To date, the time between technological feasibility and general release to the public has been extremely short and consequently expenses available for capitalization have been immaterial. Accordingly, all research and developments costs incurred to date have been expensed as incurred.

*Shipping and Handling Costs*

We incur shipping and handling costs to send and receive messaging devices and other equipment to/from our customers. Amounts billed to customers related to shipping and handling are classified as revenue and the Company's shipping and handling costs are classified as cost of revenue. These costs are expensed as incurred.

***Advertising Expenses***

Advertising costs are charged to operations when incurred. Advertising costs are classified as selling and marketing expenses. Advertising expenses were $2.4 million, $2.3 million and $1.8 million for the years ended December 31, 2018, 2017, and 2016, respectively.

***Stock Based Compensation***

We account for share-based payments to employees, including restricted stock units ("RSUs"), restricted common stock ("restricted stock") and the option to purchase common stock under the Employee Stock Purchase Plan ("ESPP") based on their fair value and the estimated number of shares we expect will vest based on the performance metrics associated with the award, if applicable. Fair value is measured based on the closing fair market value of the Company's common stock on the date of grant. Compensation expense is recognized on a straight-line basis over the requisite service period. Forfeitures and withdrawals are accounted for on an as incurred basis.

Changes in our estimates of the expected attainment of performance targets are reflected in the amount of compensation expense that we recognize for the related instruments during the interim reporting period when the change in estimate is determined and may cause the amount of compensation expense that we record for each period to vary. Further information regarding stock based compensation can be found in Note 7, "Stockholders' Equity".

***Concentration of Credit Risk***

Our financial instruments that are potentially subject to concentrations of credit risk consist primarily of cash, cash equivalents, short-term receivables and accounts receivable. While our cash and cash equivalents are managed by reputable financial institutions, deposits at these institutions and funds may, at times, exceed federally insured limits. Management believes that these financial institutions and funds are financially sound and, accordingly, that minimal credit risk exists.

Accounts receivable are typically unsecured and are derived from revenue earned from customers across different geographic locations, primarily within the U.S. We perform ongoing credit evaluations of our customers, and generally do not require collateral. We maintain an allowance for estimated credit losses. During the years ended December 31, 2018, 2017, and 2016, our bad debt expenses were 1.6 million, 0.5 million, and 0.4 million, respectively. In the event that accounts receivable collection cycles deteriorate, our operating results and financial position could be adversely affected. No customer represented 10% or more of total revenue or accounts receivable during the years ended December 31, 2018, 2017, and 2016.

***Sales and Use Taxes***

Sales and use taxes imposed on the ultimate consumer are excluded from revenue where we are required by law or regulation to act as collection agent for the taxing jurisdiction.

***Fair Value Measurements and Financial Instruments***

We account for certain assets and liabilities at fair value. We categorize each of our fair value measurements in one of the following three levels based on the lowest level input that is significant to the fair value measurement in its entirety. These levels are:

*Level 1* - Inputs are based upon unadjusted quoted prices for identical instruments in active markets.

*Level 2* - Inputs are based upon quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, inputs other than quoted prices that are observable for the asset or liability and inputs that are corroborated by other observable market data.

*Level 3* - Unobservable inputs that cannot be corroborated by observable market data and typically reflect management's estimates of assumptions that market participants would use in pricing the asset or liability.

We consider all highly liquid interest-earning investments with a maturity of three months or less at the date of purchase to be cash equivalents. Those investments with an original maturity of greater than three months and less than one year are classified as short-term investments. Cash and cash equivalents consist primarily of cash on deposit with banks and investments in money market funds.

Our short-term investments consist entirely of U.S. Treasury securities which are classified as held-to-maturity and are measured at amortized cost on our Consolidated Balance Sheet. These investments are classified as Level 1 and mature within 12 months. The differences between carrying value and fair value are not material to the Consolidated Financial Statements.

Financial instruments including cash and cash equivalents, accounts receivable and accounts payable all have fair values that approximate their carrying values at December 31, 2018 and 2017 due to their short maturities.

***Earnings Per Common Share***

The calculation of earnings per common share is based on the weighted-average number of common shares outstanding during the applicable period. The calculation for diluted earnings per common share recognizes the effect of all potential dilutive common shares that were outstanding during the respective periods, unless the impact would be anti-dilutive. Further information regarding earnings per common share can be found in Note 7, "Stockholders' Equity".

## NOTE 2 - RECENT AND PENDING ACCOUNTING STANDARDS

***Recently Adopted***

***Revenue -*** In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, *Revenue from Contracts with Customers*. ASU No. 2014-09 creates a five-step model that requires companies to exercise judgment when considering all relevant facts and circumstances in the determination of when and how revenue is recognized and requires entities to recognize revenues when control of the promised goods or services is transferred to customers at an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. On January 1, 2018, we adopted ASC 606 using the modified retrospective method applied to those contracts which were not completed as of January 1, 2018. During the quarter ended September 30, 2018, we adjusted our entry to record the effect of adopting ASC 606 by approximately $0.4 million. This adjustment did not have a material impact on the Company's financial statements for any quarter during the nine-month period ended September 30, 2018. As a result, our beginning retained earnings as of January 1, 2018 was $6.8 million greater than what was reported at December 31, 2017. This was due to a $4.6 million decrease in deferred revenue, a $0.2 million decrease in accumulated other comprehensive income related to translation adjustments, an increase in unbilled receivables of $1.3 million and an increase of $0.7 million in deferred commissions that resulted from the adoption of ASC 606. Results for reporting periods beginning after January 1, 2018 are presented under ASC 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under ASC 605. For additional details refer to Note 1, "Organization and Significant Accounting Policies Update" and Note 3, "Revenues, Deferred Revenue and Deferred Commissions."

***Leases -*** In February 2016, the FASB issued ASU No. 2016-02, *Leases*. The new standard establishes a right of use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than twelve months. Leases will be classified as either financing or operating with the classification affecting the pattern of expense recognition in the operating statement.

ASU No. 2016-02 will be effective beginning on January 1, 2019, including interim periods within that fiscal year, and early adoption is permitted at any time. A modified retrospective transition approach is required for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available.

While we continue to finalize our adjustment to beginning balances for January 1, 2019, we currently estimate that the impact to our assets and liabilities will be an increase between $15.0 and $20.0 million. This estimate is subject to change given the ongoing review of leases outstanding at December 31, 2018.

## NOTE 3 - REVENUE, DEFERRED REVENUE AND DEFERRED COMMISSIONS

***Wireless Revenue***

Wireless revenue consists of two primary components: paging revenue and product and other revenue. Paging revenue consists primarily of recurring fees associated with the provision of messaging services and fees for paging devices and is net of a provision for service credits. Product and other revenue reflects system sales, the sale of devices and charges for paging devices that are not returned and are net of anticipated credits. Our core offering includes subscriptions to one-way or two-way messaging services for a periodic (monthly, quarterly, semiannual, or annual) service fee. This is generally based upon the type of service provided, the geographic area covered, the number of devices provided to the customer and the period of commitment. A subscriber to one-way messaging services may select coverage on a local, regional or nationwide basis to best meet their messaging needs. Two-way messaging is generally offered on a nationwide basis. In addition, subscribers either contract for a messaging device from us for an additional fixed monthly fee or they own a device, having purchased it either from us or from another vendor. We also sell devices to resellers who lease or resell devices to their subscribers and then sell messaging services utilizing our networks. We offer ancillary services, such as voicemail and equipment loss or maintenance protection, which help increase the monthly recurring revenue we receive along with these traditional messaging services. In 2015 and 2016 we launched new and exclusive one-way (T5) and two-way (T52) alphanumeric pagers, respectively. Both pagers are configurable to support un-encrypted or encrypted operation. When configured for encryption, they utilize AES-128 bit encryption, screen locking and remote wipe capabilities. With encryption enabled these new secure paging devices enhance our service offerings to the healthcare community by adding Health Insurance Portability and Accountability Act ("HIPAA") security capabilities to the low cost, highly reliable and availability benefits of paging. (See Item 1. "Business," for more details.)

***Software Revenue***

Software revenue consists of two primary components: operations revenue and maintenance revenue. Operations revenue consists primarily of license revenues for our healthcare communications solutions, equipment revenues that facilitate the use of our software solutions, and professional services revenue related to the implementation of our solutions. Maintenance revenue is for ongoing support of our software solutions or related equipment (typically for one year). Our software licenses and hardware are generally recognized at a point in time when we have transferred control to the customer. For software licenses, revenue is not recognized until the related license(s) has been made available to the customer and the customer can begin to benefit from its right to use the license(s). Our software licenses represent a right to use Spok's IP as it exists at a point in time at which the license is granted. Many of our software licenses have significant standalone functionality due to their ability to process a transaction or perform a function or task, and we do not need to maintain those products, once provided to the customer, for value to exist. While the functionality of IP that we license may substantively change during the license period, customers are not contractually or practically required to update their license as a result of those changes. Our wireless, professional and maintenance services are generally recognized over time due to a customer's simultaneous receipt and consumption of the benefit as we perform the work. As we transfer control over time, we recognize revenue based on the extent of progress towards completion of the performance obligation. The selection of the method to measure progress towards completion requires significant judgment and is based on the nature of the products or services to be provided. Generally, we use the time-elapsed measure of progress for performance obligations which include wireless or maintenance services. We believe this method best depicts the simultaneous transfer and consumption of the benefit based on our performance as these services are generally considered standby services. For professional services, we leverage an input methodology based on the number of hours worked on a project versus the total expected hours necessary to complete the project. Revenues are recognized proportionally as hours are incurred.

***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.

The following table presents our revenues disaggregated by revenue type:

| | For the Twelve Months Ended December 31, | | |
|---|---|---|---|
| **(Dollars in thousands)** | **2018** | **2017[1]** | **2016[1]** |
| Wireless products and services | $ 94,277 | $ 101,188 | $ 109,590 |
| License | 13,042 | 9,541 | 8,832 |
| Professional services | 18,091 | 17,630 | 18,594 |
| Equipment | 4,995 | 4,147 | 5,472 |
| Maintenance | 39,069 | 38,669 | 37,073 |
| Total revenue | $ 169,474 | $ 171,175 | $ 179,561 |

(1)

Prior period amounts have not been adjusted under the modified retrospective method for the adoption of ASC 606.

The Company is currently structured as a single operating (and reportable) segment, a clinical communication and collaboration business. The U.S. was the only country that accounted for more than 10% of the Company's total revenue for the years ended December 31, 2018, 2017 and 2016. Revenue generated in the U.S. and internationally consisted of the following for the periods stated:

| | For the Twelve Months Ended December 31, | | |
|---|---|---|---|
| **(Dollars in thousands)** | **2018** | **2017[1]** | **2016[1]** |
| Revenue | | | |
| United States | $ 164,558 | $ 166,790 | $ 173,852 |
| International | 4,916 | 4,385 | 5,709 |
| Total revenue | $ 169,474 | $ 171,175 | $ 179,561 |

(1) Prior period amounts have not been adjusted under the modified retrospective method for the adoption of ASC 606.

***Deferred Revenues***

Our deferred revenues represent payments made to, or due from, customers in advance of our performance. Changes in the balance of total deferred revenue during the twelve months ended December 31, 2018 are as follows:

| (Dollars in thousands) | December 31, 2017[2] | Additions | Revenue Recognized[1] | December 31, 2018 |
|---|---|---|---|---|
| Deferred Revenue | $ 29,920 | $ 67,914 | $ (71,073) | $ 26,761 |

[1]Includes $4.6 million which went to retained earnings and was not recognized as revenue resulting from the adoption of ASC 606.
[2]Includes a $2.6 million adjustment to deferred revenue. Refer to Note 1, "Organization and Significant Accounting Policies", for additional details.

During the twelve months ended December 31, 2018, the Company recognized $20.4 million of revenue related to amounts deferred as of December 31, 2017.

***Deferred Commissions***

Our deferred commissions represent payments made to employees in advance of our performance on the related underlying contracts. These costs have been incurred directly in relation with obtaining a contract. As such, these costs are amortized over the estimated period of benefit. Changes in the balance of total deferred commissions during the twelve months ended December 31, 2018 are as follows:

| (Dollars in thousands) | December 31, 2017 | Additions[1] | Commissions Recognized | December 31, 2018 |
|---|---|---|---|---|
| Deferred Commissions | $ 1,676 | $ (5,434) | $ 6,152 | $ 2,394 |

[1]Includes $0.7 million in previously recognized commissions expense which was removed from retained earnings and included in deferred commissions resulting from the adoption of ASC 606.

Deferred commissions are included within prepaid assets on the Consolidated Balance Sheets and commissions expense is included within Selling and marketing on the Consolidated Statement of Operations.

***Remaining Performance Obligations***

We have elected not to disclose the value of unsatisfied performance obligations for contracts with an original expected length of one year or less and for variable consideration which is allocated entirely to a wholly unsatisfied performance obligation or to a wholly unsatisfied promise to transfer a distinct good or service that forms part of a single performance obligation. The remaining backlog is immaterial to our Consolidated Financial Statements.

## NOTE 4 - CONSOLIDATED FINANCIAL STATEMENTS' COMPONENTS

***Depreciation, Amortization and Accretion***

Depreciation, amortization and accretion consisted of the following for the periods stated:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| (Dollars in thousands) | 2018 | 2017 | 2016 |
| Depreciation | | | |
| Leasehold improvements | $ 232 | $ 234 | $ 189 |
| Asset retirement costs | (300) | (388) | (277) |
| Paging and computer equipment | 7,397 | 8,024 | 7,974 |
| Furniture, fixtures and vehicles | 398 | 306 | 294 |
| Total depreciation | 7,727 | 8,176 | 8,180 |
| Amortization | 2,500 | 2,886 | 4,160 |
| Accretion | 542 | 562 | 623 |
| Total depreciation, amortization and accretion expense | $ 10,769 | $ 11,624 | $ 12,963 |

***Accounts Receivable, net***

Accounts receivable was recorded net of an allowance of $1.7 million and $1.1 million for the years ended December 31, 2018 and 2017, respectively. Accounts receivable, net includes $8.7 million and $7.3 million of unbilled receivables for the years ended December 31, 2018 and 2017, respectively. Unbilled receivables are defined as the Company's right to consideration in exchange for goods or services that we have transferred to the customer but have not yet billed for, generally as a result of contractual billing terms. For additional information related to unbilled receivables and adjustments made during the year ended December 31, 2018 please reference Note 1, "Organization and Significant Accounting Policies". The increase in unbilled receivables was primarily due to the adoption of ASC 606 and the acceleration of license revenue for the year ended December 31, 2018.

***Property and Equipment, net***

Property and equipment, net consisted of the following for the periods stated:

| **(Dollars in thousands)** | **Useful Life (In Years)** | **For the Year Ended December 31, 2018** | **2017** |
|---|---|---|---|
| Leasehold improvements | lease term | $ 4,139 | $ 4,107 |
| Asset retirement costs | 1-5 | 2,021 | 3,228 |
| Paging and computer equipment | 1-5 | 98,401 | 103,520 |
| Furniture, fixtures and vehicles | 3-5 | 4,353 | 4,545 |
| Total property and equipment | | 108,914 | 115,400 |
| Accumulated depreciation | | (98,560) | (102,001) |
| Total property and equipment, net | | $ 10,354 | $ 13,399 |

For purposes of assessing our asset retirement costs, we completed a review of the estimated useful life of our transmitter assets during the fourth quarter of 2018 (that are part of paging and computer equipment). This review was based on the results of our long-range planning and network rationalization process and indicated that the expected useful life of the last tranche of the transmitter assets was no longer appropriate. As a result of that review, the expected useful life of the final tranche of transmitter assets was extended from 2022 to 2023. This change resulted in a revision of the expected future depreciation expense for the transmitter assets and an immaterial impact to the consolidated financial statements beginning in 2019. We believe these estimates remain reasonable at the present time, but we can give no assurance that changes in technology, customer usage patterns, our financial condition, the economy or other factors would not result in changes to our transmitter decommissioning plans. Any further variations from our estimates could result in a change in the expected useful lives of the underlying transmitter assets and operating results could differ in the future by any difference in depreciation expense. The extension of the depreciable life was accounted for as a change in accounting estimate.

***Other Current Liabilities***

Other current liabilities consisted of the following for the periods stated:

| **(Dollars in thousands)** | **December 31, 2018** | **2017** |
|---|---|---|
| Accrued network costs, asset retirement obligations and other | 1,870 | 2,557 |
| Accrued outside services | $ 1,613 | $ 2,053 |
| Total other current liabilities | $ 3,483 | $ 4,610 |

***Other Non-Current Liabilities***

Other non-current liabilities consisted of the following for the periods stated:

| **(Dollars in thousands)** | **December 31, 2018** | **2017** |
|---|---|---|
| Asset retirement obligations | $ 6,513 | $ 7,174 |
| Other | 1,221 | 901 |
| Total other non-current liabilities | $ 7,734 | $ 8,075 |

## NOTE 5 - INTANGIBLE ASSETS, NET

***Intangible Assets***

Amortizable intangible assets at December 31, 2018 and 2017 related primarily to customer relationships. Such intangibles are being amortized over a period of ten years. We have not recorded an impairment of our intangible assets during the years ended December 31, 2018, 2017 and 2016.

The net consolidated balance of intangible assets consisted of the following at December 31, 2018 and 2017:

| | | As of December 31, | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2018 | | | 2017 | | |
| (Dollars in thousands) | Useful Life (In Years) | Gross Carrying Amount | Accumulated Amortization | Net Carrying Amount | Gross Carrying Amount | Accumulated Amortization | Net Carrying Amount |
| Customer relationships | 10 | $ 25,002 | $ (19,585) | $ 5,417 | $ 25,002 | $ (17,085) | $ 7,917 |

Estimated amortization of intangible assets for future periods was as follows:

| For the year ending December 31, | (Dollars in thousands) |
|---|---|
| 2019 | $ 2,500 |
| 2020 | 2,500 |
| 2021 | 417 |
| Total | $ 5,417 |

## NOTE 6 - ASSET RETIREMENT OBLIGATIONS

The components of the changes in the asset retirement obligation liabilities for the periods stated were as follows:

| (Dollars in thousands) | Short-Term Portion | Long-Term Portion | Total |
|---|---|---|---|
| Balance at January 1, 2017 | $ 85 | $ 7,472 | $ 7,557 |
| Accretion | 8 | 554 | 562 |
| Amounts paid | (248) | — | (248) |
| Reductions | 5 | (468) | (463) |
| Reclassifications | 384 | (384) | — |
| Balance at December 31, 2017 | 234 | 7,174 | 7,408 |
| Accretion | (91) | 633 | 542 |
| Amounts paid | (154) | — | (154) |
| Reductions | (185) | (1,064) | (1,249) |
| Reclassifications | 230 | (230) | — |
| Balance at December 31, 2018 | $ 34 | $ 6,513 | $ 6,547 |

Increases and reductions other than accretion, reclassification and amounts paid primarily relate to changes in estimates of the underlying liability, specifically as it relates to updates in estimated costs to remove a transmitter and the estimated timing of removal. The cost associated with the estimated removal costs and timing refinements due to ongoing network rationalization activities is expected to accrete to a total liability of $8.1 million. The total estimated liability is based on the transmitter locations remaining after we have consolidated the number of networks we operate and assume the underlying leases continue to be renewed to that future date.

Accretion expense related solely to asset retirement obligations and was recorded based on the interest method utilizing the following discount rates for the specified periods:

| Period | Discount Rate |
|---|---|
| 2018 – January 1 through December 31 – Additions[2] | 14.00% |
| 2018 – December 31 Incremental Estimates | 12.09% |
| 2017 – January 1 through September 30 – Additions[2] | 11.50% |
| 2017 – December 31 Additions[2] and Incremental Estimates | 14.00% |
| 2016 – January 1 through December 31 – Additions[2] | 11.50% |
| 2016 – December 31 - Incremental Estimates | 12.09% [1] |

(1) Weighted average credit adjusted risk-free rate used to discount downward revision to estimated future cash flows.
(2) Transmitters moved to new sites resulting in additional liability.

Additional information regarding asset retirement costs, depreciation expense, accretion and liabilities can be found in Note 4, "Consolidated Financial Statements' Components".

## NOTE 7 - STOCKHOLDERS' EQUITY

### *General*

Our authorized capital stock consists of 75 million shares of common stock, par value $0.0001 per share, and 25 million shares of preferred stock, par value $0.0001 per share.

At December 31, 2018 and 2017, we had no stock options outstanding.

At December 31, 2018 and 2017, there were 19,389,066 and 20,135,514 shares of common stock outstanding, respectively, and no shares of preferred stock outstanding.

### *Dividends*

For the three years ending December 31, 2018, 2017 and 2016 our Board of Directors declared cash dividends of $0.50, $0.50 and $0.75 per share of our outstanding common stock, respectively. An immaterial amount of dividends declared were related to unvested RSUs and unvested shares of restricted stock which are accrued for and paid when the applicable vesting conditions are met. Accrued cash dividends on forfeited RSUs and restricted stock are also forfeited. Cash dividends paid as disclosed in the statements of cash flows for the years ended December 31, 2018, 2017 and 2016 included previously declared cash dividends on vested RSUs and on shares of vested restricted stock issued to non-executive members of our Board of Directors.

On February 27, 2019, our Board of Directors declared a regular quarterly cash dividend of $0.125 per share of common stock, with a record date of March 15, 2019, and a payment date of March 29, 2019. This cash dividend of approximately $2.4 million is expected to be paid from available cash on hand.

### *Common Stock Repurchase Program*

On July 31, 2008, our Board of Directors approved a program to repurchase our common stock in the open market. This program has been extended at various times. In February 2018, the Company's Board of Directors authorized the repurchase of up to $10.0 million of the Company's common stock through December 31, 2018 on the open market or in privately negotiated transactions. As of July 2018, the repurchase authority had been exhausted. In August 2018, the Company's Board of Directors authorized the repurchase of up to an additional $10.0 million of the Company's common stock through December 31, 2018 on the open market or in privately negotiated transactions. In November 2018, the Company's Board of Directors extended the repurchase authority through December 31, 2019.

We use available cash on hand and net cash provided by operating activities to fund the common stock repurchase program. This repurchase authority allows us, at management's discretion, to selectively repurchase shares of our common stock from time to time in the open market depending upon market price and other factors.

Repurchased shares of our common stock were accounted for as a reduction to common stock and additional paid-in-capital in the period in which the repurchase occurred. All repurchased shares of common stock are returned to the status of authorized, but unissued, shares of the Company.

Common stock purchased in 2018, 2017 and 2016 (excluding commission and the purchase of common stock for tax withholdings) was as follows:

| For the Three Months Ended | Shares Purchased | Amount | Shares Purchased | Amount | Shares Purchased | Amount |
|---|---|---|---|---|---|---|
| (dollars in thousands) | 2018 | | 2017 | | 2016 | |
| March 31, | 127,792 | $ 1,922 | — | $ — | 291,861 | $ 4,893 |
| June 30, | 501,782 | 7,520 | 572,550 | 10,000 | 65,791 | 1,078 |
| September 30, | 36,542 | 558 | — | — | 13,884 | 228 |
| December 31, | 263,000 | 3,446 | — | — | 16,719 | 274 |
| Total | 929,116 | $ 13,446 | 572,550 | $ 10,000 | 388,255 | $ 6,473 |

### *Net (Loss) Income per Common Share*

Basic net (loss) income per common share is computed on the basis of the weighted average common shares outstanding. Diluted net (loss) income per common share is computed on the basis of the weighted average common shares outstanding plus the effect of all potentially dilutive common shares including unvested and outstanding equity awards. The components of basic and diluted net (loss) income per common share were as follows for the periods stated:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| (in thousands, except for share and per share amounts) | 2018 | 2017 | 2016 |
| **Numerator:** | | | |
| Net (loss) income | $ (1,479) | $ (15,306) | $ 13,979 |
| **Denominator:** | | | |
| Basic and diluted weighted average outstanding shares of common stock | 19,667,891 | 20,210,260 | 20,586,066 |
| Basic and diluted net (loss) income per common share | $ (0.08) | $ (0.76) | $ 0.68 |

For the years ended December 31, 2018, 2017 and 2016, the following securities were not included in the calculation of diluted shares outstanding as the effect would have been anti-dilutive:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| | 2018 | 2017 | 2016 |
| Restricted stock units | 178,279 | 90,665 | — |

### *Share-based Compensation Plans*

On March 23, 2012, our Board of Directors adopted the Spok Holdings, Inc. 2012 Equity Incentive Award Plan (the “2012 Equity Plan”) that was subsequently approved by our stockholders on May 16, 2012. A total of 2,194,986 shares of common stock have been reserved for issuance under this plan.

Awards under the 2012 Equity Plan may be in the form of stock options, common stock, restricted stock, RSUs, performance awards, dividend equivalents, deferred stock, deferred stock units, or stock appreciation rights.

Restricted stock awards generally vest one year from the date of grant. Related dividends accumulate during the vesting period and are paid at the time of vesting.

Contingent RSU's generally vest over a three-year performance period upon successful completion of the performance objectives. Non-contingent RSU's generally vest in thirds, annually, over a three-year period. Dividend equivalents rights generally accompany each RSU award and those rights accumulate and vest along with the underlying RSU.

The following table summarizes the activities under the 2012 Equity Plan from January 1, 2016 through December 31, 2018:

| | Activity |
|---|---|
| Total equity securities available at January 1, 2016 | 1,483,231 |
| Less: RSU and restricted stock awarded to eligible employees, net of forfeitures | (236,292) |
| Total equity securities available at December 31, 2016 | 1,246,939 |
| Less: RSU and restricted stock awarded to eligible employees, net of forfeitures | (106,281) |
| Total equity securities available at December 31, 2017 | 1,140,658 |
| Less: RSU and restricted stock awarded to eligible employees, net of forfeitures | (236,221) |
| Total equity securities available at December 31, 2018 | 904,437 |

The following table details activities with respect to outstanding RSUs and restricted stock for the year ended December 31, 2018 and has been reclassified to conform to current period's presentation which includes restricted stock activity:

| | Shares | Weighted-Average Grant Date Fair Value |
|---|---|---|
| Unvested at January 1, 2018 | 393,084 | $ 18.54 |
| Granted | 343,102 | 15.65 |
| Vested | (199,991) | 17.22 |
| Forfeited[1] | (131,870) | 16.93 |
| Unvested at December 31, 2018 | 404,325 | $ 17.27 |

[1] 100,767 RSUs did not vest based on the Company's actual performance at December 31, 2017 as compared to the related performance obligations.

Of the 404,325 unvested RSUs and restricted stock outstanding at December 31, 2018, 254,641 RSUs include contingent performance requirements for vesting purposes. At December 31, 2018, there was $3.5 million of unrecognized net compensation cost related to RSUs and restricted stock, which is expected to be recognized over a weighted average period of 1.60 years.

***Employee Stock Purchase Plan***

In 2016, our Board of Directors adopted the Spok Holdings, Inc. Employee Stock Purchase Plan ("ESPP") that was subsequently approved by our stockholders on July 25, 2016. A total of 250,000 shares of common stock have been reserved for issuance under this plan.

The Company's ESPP allows employees to purchase shares of common stock at a discounted rate, subject to plan limitations. Under the ESPP, eligible participants can voluntarily elect to have contributions withheld from their pay for the duration of an offering period, subject to the ESPP limits. At the end of an offering period, contributions will be used to purchase the Company's common stock at a discount to the market price based on the first or last day of the offering period, whichever is lower. Participants are required to hold common stock for a minimum period of two years from the grant date. Participants will begin earning dividends on shares after the purchase date. Each offering period will generally last for no longer than six months. Once an offering period begins, participants cannot adjust their withholding amount. If a participant chooses to withdraw, any previously withheld funds will be returned to the participant, with no stock purchased, and that participant will be eligible to participate in the ESPP at the next offering period. If the participant terminates employment with the Company during the offering period, all contributions will be returned to the employee and no stock will be purchased at a discounted rate.

The Company uses the Black-Scholes model to calculate the fair value of each offering period on their offer date. The Black-Scholes model requires the use of estimates for the expected term, the expected volatility of the underlying common stock over the expected term, the risk-free interest rate and the expected dividend payment.

For the year ended December 31, 2018, employees purchased 20,120 shares of common stock for a total price of $0.2 million. For the year ended December 31, 2017, employees purchased 17,760 shares of common stock for a total price of $0.3 million.

The following table summarizes the activities under the ESPP from January 1, 2016 through December 31, 2018:

| | Activity |
|---|---|
| Total ESPP equity securities available at January 1, 2016 | — |
| Plus: Registration of 2016 ESPP | 250,000 |
| Less: common stock purchased by eligible employees | (3,961) |
| Total ESPP equity securities available at January 1, 2017 | 246,039 |
| Less: common stock purchased by eligible employees | (17,760) |
| Total ESPP equity securities available at January 1, 2018 | 228,279 |
| Less: common stock purchased by eligible employees | (20,120) |
| Total ESPP equity securities available at December 31, 2018 | 208,159 |

Amounts withheld from participants will be classified as a liability on the balance sheet until funds are used to purchase shares. This liability amount is immaterial to the consolidated financial statements.

***Stock-Based Compensation Expense***

Compensation expense associated with common stock, RSUs and restricted stock was recognized based on the grant date fair value of the instruments, over the instruments' vesting period.

During the year ended December 31, 2016 a one-time reversal of approximately $2.0 million in stock compensation expense was incurred based on our assessment that it was probable that only 50% of the awards issued in 2016 and 2015 would vest based on the related performance criteria and our assessment of the anticipated future performance applied to the performance criteria. This directly impacted the stock based compensation expense for the year ended December 31, 2016 and indirectly impacted stock compensation expense for the year ended December 31, 2017 as a result of lower amortization.

The following table reflects stock based compensation expense for the periods stated:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| **(Dollars in thousands)** | **2018** | **2017** | **2016** |
| Performance-based RSUs | $ 2,127 | $ 1,762 | $ 413 |
| Time-based RSUs and restricted stock | 2,756 | 1,862 | 418 |
| ESPP | 71 | 64 | 23 |
| Total stock based compensation | $ 4,954 | $ 3,688 | $ 854 |

## NOTE 8 - INCOME TAXES

The Tax Cuts and Jobs Act of 2017 ("2017 Tax Act") was signed into law on December 22, 2017. The 2017 Tax Act significantly revised the U.S. corporate income tax by, among other things, lowering the statutory corporate tax rate from 35% to 21%, eliminating certain deductions, imposing a mandatory one-time tax on accumulated earnings of foreign subsidiaries, introducing new tax regimes, and changing how foreign earnings are subject to U.S. tax. The 2017 Tax Act also enhanced and extended through 2026 the option to claim accelerated depreciation deductions on qualified property. We have completed our determination of the accounting implications of the 2017 Tax Act on our tax accruals.

The significant components of our income tax (benefit) expense attributable to current operations for the periods stated were as follows:

| | For the Year Ended December 31, | | |
|---|---|---|---|
| **(Dollars in thousands)** | **2018** | **2017** | **2016** |
| (Loss) income before income tax (benefit) expense | $ (2,185) | $ 11,559 | $ 22,971 |
| Current: | | | |
| Federal tax | $ — | $ 199 | $ 669 |
| State tax | 838 | 1,006 | 1,294 |
| Foreign tax | 148 | 270 | 103 |
| Total current | 986 | 1,475 | 2,066 |
| Deferred: | | | |
| Federal tax | (1,467) | 26,348 | 6,811 |
| State tax | (532) | (787) | 41 |
| Foreign tax | 307 | (171) | 74 |
| Total deferred | (1,692) | 25,390 | 6,926 |
| Total income tax (benefit) expense | $ (706) | $ 26,865 | $ 8,992 |

Foreign income before income tax (expense) benefit is immaterial to consolidated income before income tax benefit (expense).

The following table summarizes the principal elements of the difference between the United States Federal statutory rate of 21% and our effective tax rate:

| **Effective tax rate reconciliation** | **2018** | | **2017** | | **2016** | |
|---|---|---|---|---|---|---|
| **(Dollars in thousands)** | | | | | | |
| (Loss) income before income tax (benefit) expense | $ (2,185) | | $ 11,559 | | $ 22,971 | |
| Income taxes computed at the Federal statutory rate | $ (459) | 21.0 % | $ 4,046 | 35.0 % | $ 8,040 | 35.0% |
| State income taxes, net of Federal benefit | 306 | (14.0)% | 472 | 4.1 % | 867 | 3.8% |
| Impact of 2017 Tax Act | — | — % | 24,235 | 209.7 % | — | —% |
| Research and development and other tax credits | (1,144) | 52.4 % | (1,775) | (15.4)% | — | —% |
| Excess executive compensation | 281 | (12.9)% | — | — % | — | —% |
| Other | 310 | (14.2)% | (113) | (1.0)% | 85 | 0.4% |
| Income tax (benefit) expense | $ (706) | 32.3 % | $ 26,865 | 232.4 % | $ 8,992 | 39.1% |

The anticipated effective income tax rate is expected to continue to differ from the Federal statutory rate primarily due to the effect of state income taxes, the benefit of the research and development tax credit, permanent differences between book and taxable income and certain discrete items. The earnings of non-US subsidiaries are deemed to be indefinitely reinvested in non-US operations.

The components of deferred income tax assets at December 31, 2018 and 2017 were as follows:

| (Dollars in thousands) | December 31, 2018 | December 31, 2017 |
|---|---|---|
| Net operating losses and tax credits | $ 22,003 | $ 26,296 |
| Property and equipment | 5,969 | 8,289 |
| AMT minimum tax receivable | 1,348 | 2,489 |
| Accruals and accrued loss contingencies | 5,776 | 4,833 |
| Capitalized research and development costs | 14,220 | 9,108 |
| Gross deferred income tax assets | 49,316 | 51,015 |
| Deferred income tax liabilities: | | |
| Intangible assets | (2,711) | (3,075) |
| Prepaid and other expenses | (121) | (261) |
| Gross deferred income tax liabilities | (2,832) | (3,336) |
| Net deferred income tax assets | $ 46,484 | $ 47,679 |

***Net Operating Losses***

As of December 31, 2018, we had approximately $83.9 million of NOLs available to offset future taxable income. The Federal NOLs begin expiring in 2026 and will fully expire in 2029. We have an immaterial amount of foreign NOLs and tax credits available for future use.

***Valuation Allowance***

We assess the recoverability of our deferred income tax assets, which represent the tax benefits of future tax deductions, NOLs and tax credits, by considering the adequacy of future taxable income from all sources, including prudent and feasible tax planning strategies. This assessment is required to determine whether based on all available evidence, it is “more likely than not” (which means a probability of greater than 50%) that all or some portion of the DTAs will be realized in future periods. As of December 31, 2018 and 2017, we believe it is more likely than not that our DTAs will be realized in future periods and thus did not have a valuation allowance.

***Income Tax Audits***

Our Federal income tax returns have been examined by the Internal Revenue Service ("IRS") through December 31, 2008. The audits of the Federal returns for the years ended 2005 through 2008 resulted in no changes. The IRS also audited Amcom’s 2009 Federal tax return (pre-acquisition) with no changes. The 2016, 2017 and 2018 income tax returns of the Company have not been audited by the IRS and are within the statute of limitations (“SOL”).

We operate in all states and the District of Columbia and are subject to various state income and franchise tax audits. The states’ SOL varies from three to four years from the later of the due date of the return or the date filed. We usually file our Federal and all state and local income tax returns on or before September 15 of the following year; therefore, the SOL for those states with a three-year SOL is open for calendar years ending 2015 through 2018, and for the four-year SOL states, the SOL is open for years ending from 2014 through 2018.

## NOTE 9 - COMMITMENTS AND CONTINGENCIES

***Contractual Obligations***

We had no significant commitments and contractual obligations as of December 31, 2018.

***Other Commitments***

We have various LOCs outstanding with multiple state agencies which are considered to be immaterial to the consolidated financial statements. The LOCs typically have one to three-year contract requirements and contain automatic renewal terms.

### *Legal Contingencies*

We are involved, from time to time, in lawsuits arising in the normal course of business. We believe these pending lawsuits will not have a material adverse impact on our financial position or statement of operations. There have been no material changes during the twelve months ended December 31, 2018 to the commitments and contingencies previously reported in the 2017 Annual Report and our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2018.

### *Operating Leases*

We have operating leases for office and transmitter locations. Substantially all of these leases have lease terms ranging from one month to five years. We continue to review our office and transmitter locations, and intend to replace, reduce or consolidate leases, where possible.

Future minimum lease payments under non-cancelable operating leases at December 31, 2018 were as follows:

| For the Year Ended December 31, | (Dollars in thousands) |
|---|---|
| 2019 | $ 6,716 |
| 2020 | 5,058 |
| 2021 | 4,102 |
| 2022 | 2,327 |
| 2023 | 1,586 |
| Thereafter | 424 |
| Total | $ 20,213 |

These leases typically include renewal options and escalation clauses. Where material, we recognize rent expense on a straight-line basis over the lease period. The difference between rent paid and rent expense is recorded as other current liabilities and other non-current liabilities on the consolidated balance sheets.

Total rent expense under operating leases for the years ended December 31, 2018, 2017 and 2016, was approximately $17.5 million, $17.7 million and $17.9 million, respectively.

## NOTE 10 - EMPLOYEE BENEFIT PLANS

### *Spok Holdings, Inc. Savings and Retirement Plan*

The Company has a savings plan in the U.S. that qualifies under Section 401(k) of the Internal Revenue Code ("IRC"). Participating U.S. employees may elect to contribute a percentage of their salary, subject to certain limitations. Matching contributions under the savings plan were approximately $1.6 million for the year ended December 31, 2018, and $1.1 million for each of the years ended December 31, 2017 and 2016.

## NOTE 11 - RELATED PARTIES

A member of our Board of Directors also serves as a director for an entity that leases transmission tower sites to the Company. For the years ended December 31, 2018, 2017 and 2016, we incurred $3.6 million, $3.8 million and $3.9 million, respectively, in site rent expenses from the entity on which the individual serves as a director. These amounts are included in technology operations expenses.

## NOTE 12 - SELECTED QUARTERLY FINANCIAL INFORMATION (UNAUDITED)

Quarterly financial information for the years ended December 31, 2018 and 2017 is summarized below:

| For the Year Ended December 31, 2018 | First Quarter | Second Quarter | Third Quarter | Fourth Quarter |
|---|---|---|---|---|
| | (Dollars in thousands except per share amounts) | | | |
| Revenues[2] | $ 43,114 | $ 40,628 | $ 42,476 | $ 43,256 |
| Operating income (loss)[2][4] | 584 | (2,346) | (1,560) | 149 |
| Net income (loss)[2][4] | 345 | (1,172) | (840) | 189 |
| Basic and diluted net income (loss) per common share[1] | 0.02 | (0.06) | (0.04) | 0.01 |

| For the Year Ended December 31, 2017 | First Quarter | Second Quarter | Third Quarter | Fourth Quarter[4] |
|---|---|---|---|---|
| | (Dollars in thousands except per share amounts) | | | |
| Revenues[2] | $ 41,444 | $ 42,325 | $ 43,636 | $ 43,770 |
| Operating income[2] | 1,382 | 2,410 | 3,325 | 3,589 |
| Net income (loss)[2][3] | 854 | 1,498 | 3,727 | 21,384 |
| Basic and diluted net income per common share[1] | 0.04 | 0.07 | 0.19 | (1.07) |

(1) Basic and diluted net income (loss) per common share is computed independently for each period presented. As a result, the sum of the quarterly basic and diluted net income (loss) per common share for the years ended December 31, 2018 and 2017 may not equal the total computed for the year.

(2) Slight variations in totals are due to rounding.

(3) Fourth quarter 2017 net loss includes $24.2 million from the write-off of the deferred income tax asset related to the 2017 Tax Act (refer to Note 8, "Income Taxes").

(4) An adjustment of $771 to cost of revenue, identified in the fourth quarter of 2018, has been reflected in this table as a reduction of Operating income (loss) and Net income (loss) of $166, $196 and $359 in the first, second and third quarters, respectively. Income (loss) per common share has been adjusted accordingly for the impact of these adjustments to each quarter.

**SCHEDULE II**

## SPOK HOLDINGS, INC.
## VALUATION AND QUALIFYING ACCOUNTS

| Allowance for Doubtful Accounts, Service Credits and Other | Balance at the Beginning of the Period | Charged to Operations | Write-offs | Balance at the End of the Period |
|---|---|---|---|---|
| | (Dollars in thousands) | | | |
| Year ended December 31, 2018 | $ 1,065 | $ 2,125 | $ (1,485) | $ 1,705 |
| Year ended December 31, 2017 | $ 1,056 | $ 1,035 | $ (1,026) | $ 1,065 |
| Year ended December 31, 2016 | $ 1,286 | $ 761 | $ (991) | $ 1,056 |

## EXHIBIT INDEX

| Exhibit Number | Exhibit Description | Incorporated by Reference | | | | Filed/Furnished Herewith |
|---|---|---|---|---|---|---|
| | | Form | File No. | Exhibit | Filing Date | |
| 3.1 | Amended and Restated Certificate of Incorporation | 8-K | 001-32358 | 3.1 | 7/8/2014 | |
| 3.2 | Second Amended and Restated Bylaws | 8-K | 001-32358 | 3.1 | 12/20/2016 | |
| 4.1* | Specimen of common stock certificate, par value $0.0001 per share | S-4/A | 333-115769 | 4.1 | 10/6/2004 | |
| 10.1 | Form of Indemnification Agreement for executive officers of Spok, Holding Inc. | 10-Q | 001-32358 | 10.1 | 10/25/2018 | |
| 10.2* | USA Mobility, Inc. Equity Incentive Plan Restricted Stock Agreement (For Board of Directors) (amended) | 10-Q | 001-32358 | 10.18 | 11/1/2007 | |
| 10.3* | Form of Director's Indemnification Agreement | 10-Q | 001-32358 | 10.24 | 10/30/2008 | |
| 10.4* | USA Mobility, Inc. 2012 Equity Incentive Award Plan | DEF 14A | 001-32358 | A | 3/28/2012 | |
| 10.5† | Employment Agreement, between Spok Holdings, Inc. and Vince D. Kelly, dated as of January 1, 2019 | 8-K | 001-32358 | 10.1 | 1/4/2019 | |
| 10.6* | Restricted Stock Unit Grant Notice for the USA Mobility, Inc. 2012 Equity Incentive Award Plan | 10-K | 001-32358 | 10.16 | 3/2/2017 | |
| 10.7 | Restricted Stock Unit Grant Notice for the Spok Holdings, Inc. 2015 Long-Term Incentive Plan | 10-K | 001-32358 | 10.17 | 3/2/2017 | |
| 10.8*† | Spok Holdings, Inc. Severance Pay Plan and Summary Plan Description (For certain C-Level, not including CEO) (amended and restated) | 10-K | 001-32358 | 10.18 | 3/2/2017 | |
| 10.9† | Spok Holdings, Inc. 2015 Long-Term Incentive Plan | 10-K | 001-32358 | 10.10 | 3/1/2018 | |
| 10.10† | Exhibits to Spok Holdings, Inc., 2015 Long-Term Incentive Plan for the 2016 - 2018 performance period | 10-K | | | | Filed |
| 10.11† | Spok Holdings, Inc. 2016 Short-Term Incentive Plan | 10-K | 001-32358 | 10.11 | 3/2/2017 | |
| 10.12† | Spok Holdings, Inc. 2017 Short-Term Incentive Plan | 10-K | 001-32358 | 10.13 | 3/1/2018 | |
| 10.13† | Exhibits to Spok Holdings, Inc., 2015 Long-Term Incentive Plan for the 2017 - 2019 performance period(1) | 10-K | 001-32358 | 10.15 | 3/2/2017 | |
| 10.14† | Spok Holdings, Inc. 2018 Short-Term Incentive Plan | | | | | Filed |
| 10.15† | Spok Holdings, Inc. 2018 Long-Term Incentive Plan(1) | 10-K | 001-32358 | 10.16 | 3/1/2018 | |
| 10.16† | Spok Holdings, Inc. 2019 Short-Term Incentive Plan | | | | | Filed |
| 10.17* | Amendment to the USA Mobility, Inc. 2012 Equity Incentive Award Plan | DEF 14A | 001-32358 | A | 4/27/2017 | |
| 10.18† | NEO Severance and Change in Control Document | 10-Q | 001-32358 | 10.2 | 4/27/2017 | |
| 21 | Subsidiaries of the Company | 10-K | 001-32358 | 21 | 3/1/2018 | |
| 23 | Consent of Grant Thornton LLP | | | | | Filed |
| 31.1 | Certification of President and Chief Executive Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended | | | | | Filed |
| 31.2 | Certification of Chief Financial Officer pursuant to Rule 13a-14(a)/Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended | | | | | Filed |
| 32.1 | Certification of President and Chief Executive Officer pursuant to 18 U.S.C. Section 1350 | | | | | Furnished |
| 32.2 | Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350 | | | | | Furnished |
| 101.INS | XBRL Instance Document** | | | | | Furnished |
| 101.SCH | XBRL Taxonomy Extension Schema** | | | | | Furnished |
| 101.CAL | XBRL Taxonomy Extension Calculation** | | | | | Furnished |
| 101.DEF | XBRL Taxonomy Extension Definition** | | | | | Furnished |
| 101.LAB | XBRL Taxonomy Extension Labels** | | | | | Furnished |
| 101.PRE | XBRL Taxonomy Extension Presentation** | | | | | Furnished |

* On July 8, 2014, the Company changed its name from USA Mobility, Inc. to Spok Holdings, Inc.

** The financial information contained in these XBRL documents is unaudited.

† Denotes a management contract or compensatory plan or arrangement.

(1) Portions of this document have been omitted and filed separately with the Securities and Exchange Commission pursuant to requests for confidential treatment pursuant to Rule 24b-2.

# Board of Directors

Royce Yudkoff
Chairman of the Board, Spok
Holdings, Inc. and Co-Founder of ABRY Partners, LLC

Vincent D. Kelly
President and Chief Executive Officer

N. Blair Butterfield
Chairman of Wind River Advisory Group, LLC

Stacia A. Hylton
Retired Director of The United States Marshals Service

Brian O'Reilly
Consultant

Matthew Oristano
Chairman and Chief Executive Officer of Reaction
Biology Corporation

Samme L. Thompson
President of Telit Associates, Inc.

Todd Stein
Principal of Braeside Capital

# Corporate Officers

Vincent D. Kelly
President and Chief Executive Officer

Michael W. Wallace
Chief Financial Officer and
Chief Accounting Officer

Bonnie K. Culp
Executive Vice President, Human
Resources and Administration and
Chief Compliance Officer, Spok, Inc.

Sharon Woods Keisling
Corporate Secretary and Treasurer

# Annual meeting

A formal notice of the meeting is being mailed to each stockholder. The proxy statement, proxy card and 2018 Annual Report on Form 10-K are available at www.proxyvote.com.

**2018 Annual Report on Form 10-K**

This annual report contains the 2018 Form 10-K filed with the Securities and Exchange Commission. Spok Holdings, Inc. will provide without charge to each stockholder of record additional copies of the Company's 2018 Form 10-K. Please send your request to:

Investor Relations
Spok Holdings, Inc.
6850 Versar Center, Suite 420
Springfield, VA 22151

**Investor and Media Information**

Inquiries from investors, the financial community, and news organizations should be directed to Investor Relations and Corporate Communications at the address noted above, by calling (800) 611-8488, or by visiting our website at www.spok.com.

**Securities Listing**

The common stock of Spok Holdings, Inc., trading symbol "SPOK," trades on the NASDAQ National Market®.

**Transfer Agent and Registrar**

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**Corporate Counsel**

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# ABOUT SPOK, INC.

Spok, Inc., a wholly owned subsidiary of Spok Holdings, Inc. (NASDAQ: SPOK), is proud to be a global leader in healthcare communications. We deliver clinical information to care teams when and where it matters most to improve patient outcomes. Top hospitals rely on the Spok Care Connect® platform to enhance workflows for clinicians, support administrative compliance, and provide a better experience for patients. Our customers send over 100 million messages each month through their Spok® solutions. Spok is making care collaboration easier.

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