Ribbon Communications

Jefferies 2019 Semiconductor, Hardware and Communications Infrastructure Summit

August 27, 2019

Cautionary Note Regarding Forward-Looking Statements

This presentation contains "forward-looking statements" within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, which are subject to a number of risks and uncertainties. All statements other than statements of historical facts contained in this presentation, including without limitation statements regarding our outlook for the Company in the sections "Our Strategic Direction", "Competitive and Technology Differentiation", "Ribbon's Leadership Position and Market Opportunity", "Addressable Markets", "2019 Full Year Guidance", and "Investment Highlights", the future results of operations and financial position, opportunities for the Company, business strategy, strategic position, plans and objectives of management for future operations and plans for future product development and manufacturing, are forward-looking statements. Without limiting the foregoing, the words "believes", "estimates", "expects", "expectations", "intends", "may", "plans", "projects" and other similar language, whether in the negative or affirmative, are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict. Our actual results may differ materially from those contemplated in these forward-looking statements due to various risks, uncertainties and other important factors, including our ability to realize the benefits from acquisitions that we have completed; the effects of disruption from acquisitions, making it more difficult to maintain relationships with employees, customers, business partners or government entities; the timing of customer purchasing decisions and our recognition of revenues; economic conditions; our ability to recruit and retain key personnel; difficulties supporting our strategic focus on channel sales; difficulties retaining and expanding our customer base; difficulties leveraging market opportunities; the impact of restructuring and cost-containment activities; litigation; actions taken by significant stockholders; difficulties providing solutions that meet the needs of customers; market acceptance of our products and services; rapid technological and market change; our ability to protect our intellectual property rights; our ability to maintain partner, reseller, distribution and vendor support and supply relationships; higher risks in international operations and markets; the impact of increased competition; increases in tariffs, trade restrictions or taxes on our products; currency fluctuations; changes in the market price of our common stock; and/or failure or circumvention of our controls and procedures.

Our forward-looking statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. We caution you against relying on any of these forward-looking statements. Important factors that could cause actual results to differ materially from these forward-looking statements are discussed in Part I, Item IA "Risk Factors" and Part II, Item 7A "Quantitative and Qualitative Disclosures About Market Risk" in our most recent Annual Report on Form 10-K/A filed with the SEC and Part II , Item IA "Risk Factors", Part I, Item 2 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Part I, Item 3 "Quantitative and Qualitative Disclosures About Market Risk" in Ribbon Communications' most recent Quarterly Report on Form 10-Q filed with the SEC, as well as in our other reports filed with the SEC. Any forward-looking statement made by us in this presentation speaks only as of the date of this presentation. Factors or events that could cause our actual results to differ may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to publicly update any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law.

In addition to the U.S. GAAP financials, this presentation includes certain non-GAAP financial measures. The non-GAAP measures have limitations as analytical tools and you should not consider them in isolation or as a substitute for the most directly comparable financial measures prepared in accordance with U.S. GAAP. There are a number of limitations related to the use of these non-GAAP financial measures versus their nearest GAAP equivalents. Ribbon Communications urges you to review the reconciliation of Ribbon's non-GAAP financial measures to the most directly comparable GAAP financial measures set forth in the Appendix, and not to rely on any single financial measure to evaluate Ribbon Communications' business.

About Ribbon

Ribbon is a global leader in secure real-time communications, providing software and cloud network solutions to communications service providers and enterprises

Four Decades of Combined Leadership Experience in Real Time Communications

~ 2,300 Employees Doing Business in 100+ Countries

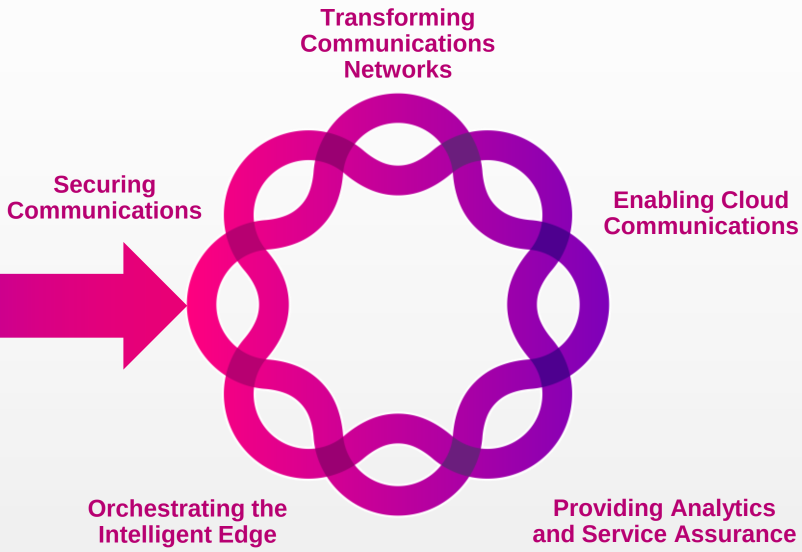
1,000+ Service Provider and Enterprise Customers Globally

#2 in Session Border Controllers, #1 in Media Gateways, #2 in VoIP Switching

Leader in Network Edge Orchestration, #1 in Enterprise SMB Session Border Controllers

800+ Patents Worldwide

Publicly Traded Company on Nasdaq (RBBN)



Leadership Ranking Source: IHS Research 1Q-2019 Market share data for past 12 months. See Appendix section “TAM and Market Share References” items 1.

Our Leadership

Fritz W. Hobbs
President & Chief Executive Officer

Daryl Raiford
EVP & Chief Financial Officer

Steven Bruny
EVP, Global Sales & Services

Justin Ferguson
EVP, General Counsel & Corporate Secretary

Petrena Ferguson
SVP, Human Resources

Patrick Joggerst
EVP & Chief Marketing Officer

Rick Marmurek
SVP & Chief Accounting Officer

John McCready
EVP & Chief Strategy Officer

John St. Amand
EVP, Analytics Business Strategy

Kevin Riley
EVP & Chief Technology Officer

Tony Scarfo
EVP, Products, R&D, Support & Supply Chain

Susan Villare
SVP & Corporate Treasurer

Our Strategic Direction

Invest	In Core Products with Balanced Investments
Broaden	Solution Offers to Global Installed Base
Expand	Into New Adjacent Markets and Applications
Scale	With Acquisitions and Alliances

What We Do For Our Customers

Service Providers

TELCO

Enterprises

End-User Benefits

IP Software Solutions

- Upgrade Communications Networks to IP Software and Cloud
- Enable Software-Defined and Virtualized Networks
- Secure IP Communications Networks
- Enable Edge Orchestration, Intelligent Edge and SD-WAN

Applications Software Solutions

- Enable Cloud Unified Communications
- Enable Embedded Communications
- Secure Communications
- Provide Analytics Applications for Security, Operations and Monetization

Advanced Communications
Integrated Communications
Secure Communications
Reliable Communications

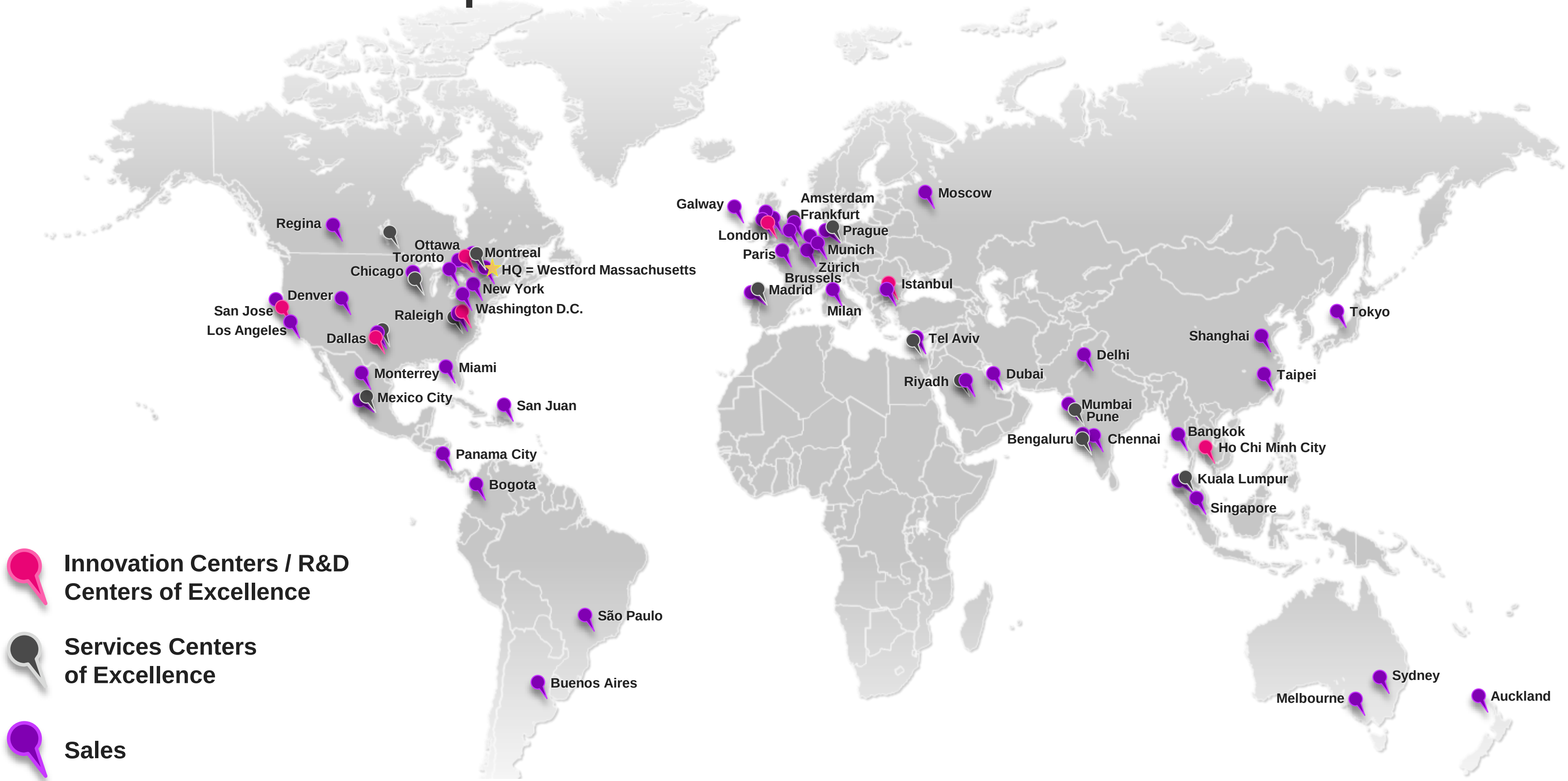
Where You Will Find Us

The World's Leading Tier One Service Providers and ISVs

The Largest Banks, Airlines, Retailers and Manufacturers across the Globe

More than 350 U.S. Department of Defense Locations

Global Sales and Operations



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Competitive and Technology Differentiation

- Large Software Installed Base
- End-to-End Breadth of Software Products and Solutions
- Leader in Network Edge Orchestration
- Leader in Media Processing Technology – CPU, GPU
- Cloud, Security and Virtualization Innovation and Expertise
- Solution Reliability, Performance, Functionality at Scale

Breadth of Our Product Portfolio

	Service Provider Market				Enterprise Market			
Brand/Product		ORACLE	cisco broadsoft	metaswitch		ORACLE	cisco	AudioCodes
Session Border Controllers	✓	✓		✓	✓	✓	✓	✓
Intelligent Edge, Orchestration and SD-WAN	✓		✓		✓		✓	✓
Application Server and WebRTC	✓		✓	✓	✓	✓	✓	✓
Call Controllers	✓			✓	✓			
Media Gateways	✓			✓	✓			✓
Network Functions Virtualization	✓	✓		✓	✓	✓	✓	✓
Signaling, Policy and Routing	✓	✓			✓			
Analytics Applications	✓	✓			✓	✓	✓	

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Ribbon's Leadership Position and Market Opportunity

IP Software Solutions

Network
Transformation & SBC
2022 TAM: $3.2B
'18 -'22 CAGR: 5%

- #2 Session Border Controllers
- #1 Media Gateways
- #2 Voice over IP Call Controllers
- #3 Voice Application Server

Applications Software Solutions

Cloud Communications
and Analytics/Security
2022 TAM: $17.6B
'18 -'22 CAGR: 27%

- Kandy Cloud Communications as a Service
- Analytics: Security, Operations and Monetization applications

TELCO

Leadership Ranking Source: IHS Research Q1-2019 Market share data for past 12 months. See Appendix section "TAM and Market Share References" items 1.
TAM and CAGR Source: see Appendix section "TAM and Market Share References" items 1 and 2.

Addressable Markets

Forecasted 2022 Total Addressable Market $20.8B
Estimated 2018-2022 CAGR 22%

Core Business ($B)

Expected 2022 TAM: $3.2B
2018 – 2022 CAGR +5%

Estimated Service Provider ($B)
CAGR: 2%

SS, MGW, SP-SBC, VAS, MRF, STP, VMC Client

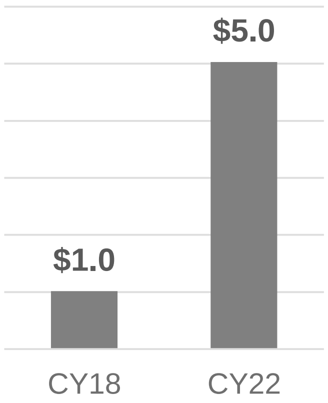
Estimated Enterprise ($B)
CAGR: 12%

E-SBC, Edge SD-WAN, PBX/UC Evolution

Security & Analytics Business ($B)

Expected 2022 TAM: $5B
2018 – 2022 CAGR +49%

Estimated Security & Analytics ($B)
CAGR: 49%

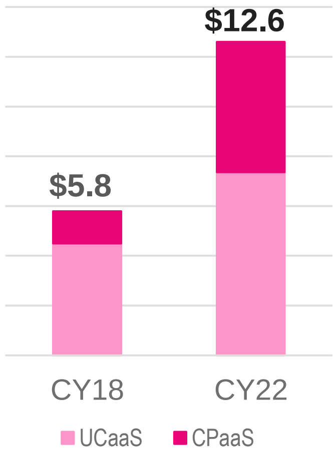


Security & Analytics

SaaS Business ($B)

Expected 2022 TAM: $12.6B
2018 – 2022 CAGR +21%

Estimated UCaaS/CPaaS ($B)
CAGR: 21%
UCaaS CAGR: 13% CPaaS CAGR: 42%



Source: IHS Markit[1,2, 3, 4], Exact Ventures [5], IDC Research [6], Gartner [7,8], Juniper [9], Statista [10] , Frost & Sullivan [11], Ribbon Modeling
TAM and CAGR Source: see Appendix section "TAM and Market Share References" items 1 through 11.

Recent Customer Highlights

Bell Canada Network Transformation

Home Phone

Business Phone

Broadband

TV

Media

Wireless

- Bell Network Transformation
- Bell Toll Connect

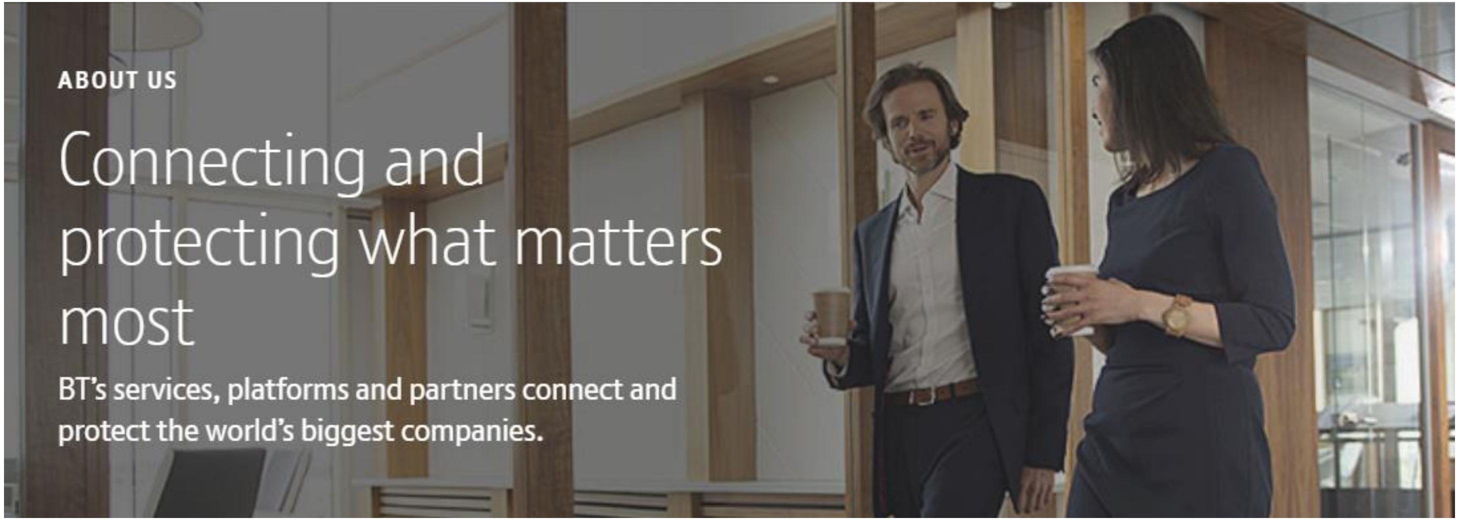
Powered By

U.S. Department of Defense

- Largest Voice-over-IP deployment in the U.S. Department of Defense's history
- More than 60,000 users migrated to Ribbon's Joint Interoperability Test Command (JITC)-certified technologies

Powered By ribbon

BT Global Services



Global network expansion powered by ribbon

CommsChoice Australia

CommsChoice Group (ASX:CCG), a global leader in connecting businesses to the cloud, has upgraded to the latest release of **Ribbon's session software solutions with the Session Border Controller Software edition (SBC SWe) on Amazon Web Services (AWS)** to launch its new Microsoft Teams SIPConnect offering.

SBC SWe

Microsoft Teams

Powered By

Softbank Accelerates IP Migration and Deploys Ribbon’s Analytics

SoftBank

Protect

SBC

- Softbank selected Ribbon's advanced security and analytics solution for its ability to provide real-time communications network traffic monitoring and analytics
- Softbank accelerated its migration to IP by replacing its legacy equipment with Ribbon’s SBCs

Verizon Enterprise Solutions offers SBC as a Service with Ribbon

Network Edge Services

National Service Provider in Asia

Network Transformation Powered By ribbon

Tier 1 Service Provider in Australia

- Network Transformation
- VoIP Business Services
- SIP Trunking
- Legacy SBC replacement
- Small/Medium Business Mobile-First Unified Communications Services using Kandy

Powered By ribbon

Kandy Cloud Communications as a Service

City of Los Angeles (50,000+ Employees)

Upgrading UC capabilities and voicemail system, replacing 45 legacy on-premise PBX and hundreds of key systems to cloud-based UCaaS capabilities.

Migrating communications at airports, car sales sites and neighborhood locations to the cloud. Over 60% of the sites already migrated to Kandy and also expanded into Europe.

AT&T API Marketplace

Digital Marketplace launched March 2019 powered by ribbon

Financial Information

Investment Highlights

Technology embedded in largest service providers worldwide positions us well to capture share in network modernization

Investment in leading edge technology ahead of the market in virtualized software and cloud solutions

Strong management team made up of industry veterans with deep domain expertise

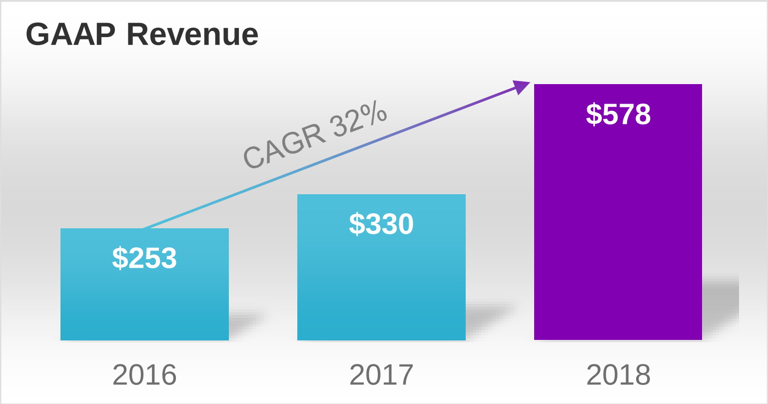
Expanding Enterprise - #2 Enterprise SBC market leader; Enterprise Edge market is expected to grow at 12% 5-year CAGR[1]

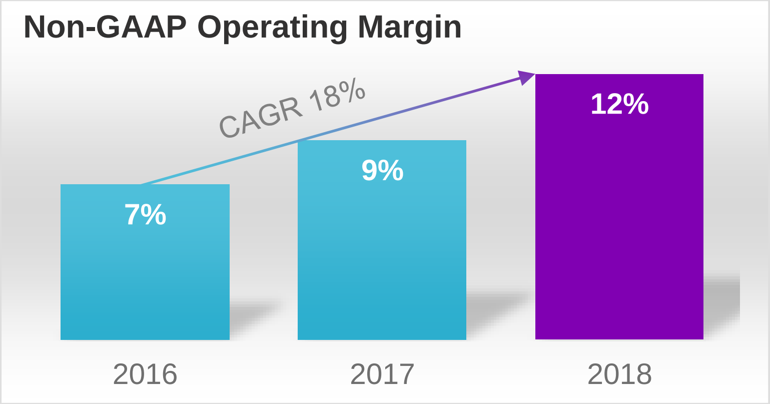
Accelerating Margin and EBITDA from growing software mix, operational improvements and cost synergies

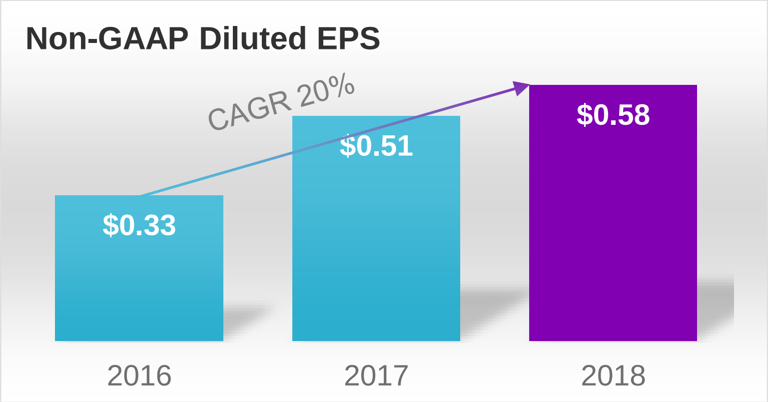
Market leader with financial scale to benefit from further consolidation potential

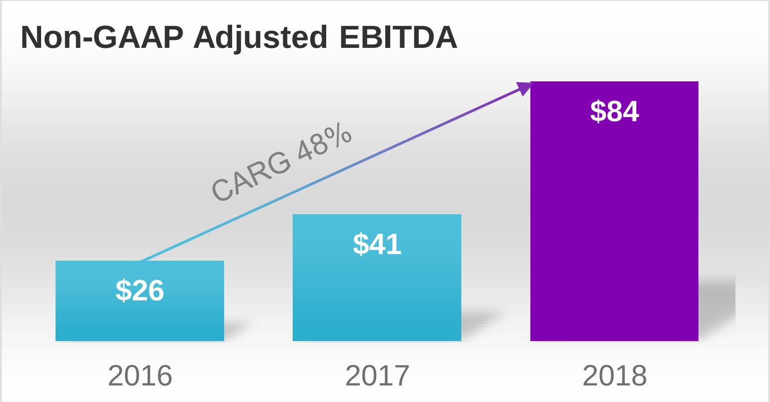
[1]Leadership Ranking and CAGR Source: IHS Research 1Q-2019 Market share data for past 12 months. See Appendix section "TAM and Market Share References" items 1

Recent Financial Trends









Non-GAAP reconciliations provided in presentation appendix.
GAAP Revenue and Non-GAAP Adjusted EBITDA are millions of US dollars.

Second Quarter 2019 Financial Highlights

- **Summary financial metrics:**
  - Total revenue was $145 million
  - Non-GAAP[1] Net income was $16 million
  - Non-GAAP[1] Diluted earnings per share was $0.14
  - Adjusted EBITDA[1] was $22 million
  - Cash was $51 million at June 30, 2019

- **Announced a two-year common stock repurchase program for up to $75 million, utilizing open market repurchases under Rule 10b-18**
  - Repurchased and retired 1 million shares for $5 million in the second quarter of 2019

- **Improved capital structure with a $50 million term loan and a $100 million facility available for revolving loans**
  - Retired GENBAND acquisition debt, with an original principal amount of $22.5 million
  - Retired Edgewater deferred consideration of $22 million

- **Reached an agreement with competitor that resolved prior litigation**
  - $63 million royalty settlement comprised of $37.5 million paid in the second quarter 2019 and $25.5 million over three annual instalments

[1]Non-GAAP reconciliations provided in presentation appendix.

Condensed Statements of Operations

USD Millions except percentages and EPS	Q117	Q217	Q317	Q417	FY17	Q118	Q218	Q318	Q418	FY18	Q119	Q219
GAAP FINANCIAL MEASURES												
Product Revenue	25	29	44	83	181	52	63	77	87	279	47	72
Service Revenue	28	27	31	63	149	70	74	75	80	299	71	73
Total Revenue	**53**	**56**	**75**	**146**	**330**	**121**	**137**	**152**	**167**	**578**	**119**	**145**
Gross Profit	34	36	55	77	201	55	75	82	96	308	57	81
Gross Margin %	*63%*	*65%*	*73%*	*53%*	*61%*	*46%*	*55%*	*54%*	*57%*	*53%*	*48%*	*55%*
Research and development	20	20	21	40	101	39	36	34	36	145	36	35
Selling, general and administratative	24	24	28	55	131	48	46	47	54	194	49	41
Acquisition, Integration and Restructuring	1	5	2	17	24	11	10	8	5	34	8	11
Total Operating Expenses	**45**	**49**	**51**	**112**	**257**	**98**	**92**	**90**	**95**	**374**	**93**	**88**
Income/(Loss) from Operations	**(11)**	**(13)**	**4**	**(36)**	**(55)**	**(42)**	**(17)**	**(8)**	**1**	**(65)**	**(36)**	**(7)**
Net Income/(Loss)	**(11)**	**(12)**	**3**	**(16)**	**(35)**	**(45)**	**(20)**	**(10)**	**(2)**	**(77)**	**(31)**	**49**
Diluted EPS	**($0.22)**	**($0.25)**	**$0.07**	**($0.18)**	**($0.60)**	**($0.44)**	**($0.20)**	**($0.10)**	**($0.02)**	**($0.74)**	**($0.29)**	**$0.45**
Diluted Shares	49	50	50	87	59	102	102	105	107	104	108	111
NON-GAAP FINANCIAL MEASURE												
Adjusted EBITDA	**(3)**	**1**	**15**	**28**	**41**	**1**	**20**	**29**	**34**	**84**	**(0)**	**22**

Basis of presentation and non-GAAP reconciliations provided in presentation appendix.

Revenue Key Metrics

USD Millions except for percentages	Q117	Q217	Q317	Q417	FY17	Q118	Q218	Q318	Q418	FY18	Q119	Q219
GAAP Revenue												
Product	25	29	44	83	181	52	63	77	87	279	47	72
Service	28	27	31	63	149	70	74	75	80	299	71	73
Total Revenue	**53**	**56**	**75**	**146**	**330**	**121**	**137**	**152**	**167**	**578**	**119**	**145**
% of Total GAAP Revenue:												
GAAP Revenue Mix												
Product	48%	52%	59%	57%	55%	43%	46%	51%	52%	48%	40%	50%
Services	52%	48%	41%	43%	45%	57%	54%	49%	48%	52%	60%	50%
GAAP Revenue by Geography												
Domestic	67%	69%	75%	60%	66%	47%	61%	61%	62%	58%	58%	58%
International	33%	31%	25%	40%	34%	53%	39%	39%	38%	42%	42%	42%
GAAP Revenue by Channel												
Direct	66%	70%	76%	82%	76%	84%	88%	66%	69%	75%	60%	60%
Indirect	34%	30%	24%	18%	24%	16%	12%	34%	31%	25%	40%	40%
GAAP Product Revenue By Market												
Enterprise	28%	25%	22%	14%	20%	14%	11%	31%	23%	21%	31%	21%
Service Providers	72%	75%	78%	86%	80%	86%	89%	69%	77%	79%	69%	79%
10% Total Revenue Customers	Verizon	Verizon AT&T	Verizon AT&T	Verizon	Verizon	Verizon	Verizon	Verizon AT&T	Verizon	Verizon	Verizon AT&T	Verizon

Basis of presentation provided in presentation appendix.

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Condensed Balance Sheets

USD Millions	Q117	Q217	Q317	Q417	Q118	Q218	Q318	Q418	Q119	Q219
ASSETS										
Cash and Investments[1]	129	126	132	83	85	55	43	51	46	51
Accounts Receivable, Net	40	43	52	165	126	136	151	188	135	155
Inventory, Net	18	17	16	21	21	19	22	23	19	17
Property Plant Equipment, Net	11	11	10	25	24	24	26	27	28	28
Goodwill and Intangibles	78	76	73	580	568	556	646	635	640	627
Other Assets	19	21	20	36	38	37	37	34	78	98
Total Assets	**294**	**292**	**302**	**911**	**861**	**828**	**924**	**957**	**946**	**977**
LIABILITIES AND EQUITY										
Revolving Credit Facility	-	-	-	20	20	20	58	55	57	35
Liabilities	28	31	37	138	116	112	154	165	160	156
Deferred Revenue	55	59	55	115	117	105	98	123	125	112
Long-term Debt	-	-	-	23	23	23	24	24	25	47
Stockholders' Equity	212	203	211	615	585	567	590	590	579	627
Total Liabilities and Equity	**294**	**292**	**302**	**911**	**861**	**828**	**924**	**957**	**946**	**977**
DSO[2]	67	69	62	102	93	89	89	101	102	96

[1]Includes cash, cash equivalents, and short- and long-term investments.
[2]DSO is computed using GAAP Revenue.

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Condensed Statements of Cash Flows

USD Millions	Q117	Q217	Q317	Q417	FY17	Q118	Q218	Q318	Q418	FY18	Q119	Q219	1H19
Cash from Operations	4	(1)	6	(1)	**8**	3	(26)	(1)	14	**(10)**	20	10	**29**
Purchases of PP&E	(1)	(2)	(1)	(1)	**(4)**	(2)	(2)	(2)	(2)	**(8)**	(4)	(2)	**(6)**
Business Acquisitions	-	-	-	(43)	**(43)**	-	-	(46)	-	**(46)**	(22)	-	**(22)**
Revolver[1]	-	-	-	2	**2**	-	-	38	(3)	**35**	2	(22)	**(20)**
Other	-	(1)	-	(5)	**(6)**	-	(2)	(1)	(1)	**(4)**	(1)	20	**19**
Net Change	**3**	**(3)**	**6**	**(48)**	**(43)**	**2**	**(30)**	**(12)**	**8**	**(32)**	**(5)**	**5**	**0**
Cash[2] Beginning of Period	**126**	**129**	**126**	**132**	**126**	**83**	**85**	**55**	**43**	**83**	**51**	**46**	**51**
Cash[2] End of Period	**129**	**126**	**132**	**83**	**83**	**85**	**55**	**43**	**51**	**51**	**46**	**51**	**51**

[1]Revolver is borrowings (payments), net.
[2]Includes cash, cash equivalents and short- and long-term investments.

Basis of presentation provided in presentation appendix.

2019 Full Year Guidance[1]

Full Year Adjusted EBITDA

- Effective as of the second quarter of 2019, the Company no longer increases non-GAAP results by adding back revenue lost in purchase accounting.

- The Company's Adjusted EBITDA guidance, taking into account this change in practice, is approximately $92 million[2] for the full year 2019.

[1]This earnings guidance was given as of July 31, 2019. This presentation does not confirm or update such prior guidance.
[2]Ribbon has not provided a reconciliation of Adjusted EBITDA guidance for the year ending December 31, 2019, as it is unable to project without unreasonable efforts the comparable GAAP net loss figure, which includes interest expense, net; income tax provision; depreciation; amortization of intangible assets; stock-based compensation; certain litigation costs; acquisition- and integration-related expense; restructuring and related expense; and other income (expense), net.

Appendix

TAM and Market Share References

1. TAM & Market Share IHS Markit, Service Provider VoIP and IMS Equipment and Subscribers, (Quarterly)
   [TAM] (SS, SP-SBC, MGW, VAS) August 23, 2018, Edition: Q2-2018 (for the quarter ended 30 June 2018)
   [Market Share] May 22, 2019, Edition: Q1 2019 (for the quarter ended 31 March 2019)
2. TAM: IHS Markit, Enterprise SBCs and VoIP Gateways, (Quarterly)
   [TAM] (E-SBC) September 5, 2018, Edition: Q2-2018 (for the quarter ended 31 June 2018)
3. TAM (UCaaS): IHS Markit, VoIP and Unified Communication Services and Subscribers, (Annually)
   Published April 13, 2018, Edition: 2018 (for the year ended 31 December 2017)
4. TAM (PBX): IHS Markit Enterprise Unified Communications and Voice Equipment, (Quarterly)
   Published May 31, 2018, Edition Q1-2018 (for quarter ended 31 March 2018)
5. TAM (STP): Exact Ventures, STP Signaling Forecast Edition April 2018
6. TAM (CPaaS): IDC, Worldwide Voice and Text Messaging Communications Platform-as-a-Service Forecast, 2018–2022,
   Published May 2018, (#US43805418)
7. TAM (Security): Gartner, Forecast: Enterprise Application Software, Worldwide, 2016-2022, Q1-2018 Update,
   Published March 28, 2018, (G00353888),
8. TAM (Security): Gartner, Forecast: Information Security, Worldwide, 2015-2021, Q4-2017 Update,
   Published March 28, 2018, (G00350860)
9. TAM (VMC-Client): Juniper Research, MOBILE VOICE Market Sizing & Forecasts 2017-2021, Published March 2017
10. TAM (VMC-Client): Statista, Global smartphone shipments forecast from 2010 to 2021 (in million units), Online query October 20, 2017
11. TAM (SD-WAN): Frost & Sullivan, Forecast: Analysis of the Software-Defined WAN Market, 2017,
    Global, 2017-2022, Q1-2018 Update, Published October 2017 (BCS 11-5)

Product Definitions

Call Controllers
Call Controllers are communications network elements that connect voice calls between subscribers within a network and route voice calls between networks. Call controllers are essential elements in service provider networks utilized to provide regulated and un-regulated business and consumer voice services. In combined voice-over-internet protocol (VoIP) and circuit-based networks, call controllers are the intelligence in the network that connect and route calls, and media gateways carry and transmit the voice conversation.

Media Gateways
Media Gateways are communications network elements that bridge and interwork the voice conversation between circuit-based networks and packet-based internet protocol (IP) networks on instruction from a call controller. Media Gateways are essential elements in service provider networks utilized to provide regulated and un-regulated business and consumer voice services and interconnect services.

Session Border Controllers (SBCs)
Session Border Controllers are essential communication network elements in VoIP that secure, route and interwork voice calls or sessions across internet protocol (IP) network borders. SBCs are the voice firewalls in internet protocol communication networks and are required at service provider access or interconnect network borders for deploying business and consumer voice services. SBCs are also essential elements within enterprise networks for securing internet protocol-based unified business communications within and across business locations. SBCs can be deployed in network or consumed from the cloud as a Service. As networks migrate to virtualization and the cloud, and traffic on voice over internet protocol networks grows, so does the demand for SBCs.

Software-Defined Wide Area Network (SD-WAN)
The software-defined wide-area network (SD-WAN) is a specific application of software-defined networking (SDN) technology applied to WAN connections, which are used to connect enterprise networks – including branch offices and data centers – over large geographic distances.

Product Definitions

Application Servers

Application servers are the elements in internet protocol (IP) communication networks that enable a variety of unified business communications capabilities like voice calling, messaging and collaboration across different devices. Application servers are essential elements needed by service providers to offer unified communications as a service to businesses from their network or their cloud. Application servers are also deployed by businesses on their premises or in their data center to provide unified communications for their employees and to engage with their customers. In certain network architectures, service providers will also utilize application servers to provide services to their broadband consumers customers.

Cloud Communications as a Service - Kandy

Kandy is a cloud communications platform that enables service providers and enterprises to provide embedded communications and unified communications under their own brand and consume them as a service from the platform. These services are referred to as communications platform as a service (CPaaS) and unified communications as a service (UCaaS), respectively. Embedded communications is the embedding of real-time communications into software applications and business workflows. Unified communications are business communications capabilities like voice calling, messaging and collaboration supported across communications devices and the web. Both CPaaS and UCaaS enable highly productive customer and employee communications. CPaaS and UCaaS are fast-growing markets as service providers and enterprises increasingly shift their communication services to the cloud.

Communications Security and Analytics – Ribbon Protect

Ribbon Protect is a real-time communications security, fraud management and intelligence solution that empowers service providers and enterprises to respond to attacks and fraud by performing network-wide data analytics, machine learning and policy enforcement. The solution also provides network operations with a centralized and single view of the end to end communications network. Communications security is a fast-growing market as service providers and enterprises mobilize to protect their environments and address these security challenges. With the acquisition of Anova Data, Inc., Ribbon Protect will be enhanced and broadened to provide additional solutions including service assurance, subscriber profiling, monetization and privacy management. Anova’s technology will also be utilized to gather information from additional network elements thus making the overall solution more effective.

Financial Information - Basis of Presentation

- Totals may not sum due to rounding.

- Results for the periods through September 30, 2017 are those of Sonus only. Results in the quarter ended December 31, 2017 represent three months of Sonus and the period October 27, 2017 through December 31, 2017 for GENBAND. Results in the year ended December 31, 2018 represent Sonus and GENBAND for all periods and Edgewater for the period August 3, 2018 through December 31, 2018. Results in the quarter ended June 30, 2019 represent three months for Sonus, GENBAND, Edgewater and Anova.

- Effective for the first quarter of 2019 and for subsequent reporting periods, the Company no longer adjusts non-GAAP revenue for the impact of the adoption of the new revenue standard in 2018.

- Effective for the second quarter of 2019 and for subsequent reporting periods, the Company no longer adjusts non-GAAP revenue for the impact of purchase accounting on revenue.

Discussion of Non-GAAP Financial Measures

Ribbon's management uses several different financial measures, both GAAP and non-GAAP, in analyzing and assessing the overall performance of the business, making operating decisions, planning and forecasting future periods, and determining payments under compensation programs. Our annual financial plan is prepared both on a GAAP and non-GAAP basis, and the non-GAAP annual financial plan is approved by our board of directors. Continuous budgeting and forecasting for revenue and expenses are conducted on a non-GAAP basis (in addition to GAAP) and actual results on a non-GAAP basis are assessed against the annual financial plan. We consider the use of non-GAAP financial measures helpful in assessing the core performance of our continuing operations and when planning and forecasting future periods. By continuing operations, we mean the ongoing results of the business adjusted for certain expenses and credits, including, but not limited to stock-based compensation, amortization and impairment of intangible assets, merger integration costs, settlement expense, certain litigation costs, acquisition-related facilities adjustments, cancelled debt offering costs, acquisition- and integration-related expense, restructuring and related expense, gains on the sales of intangible assets, gains from litigation settlements, the reduction in deferred purchase consideration, the tax effects of these adjustments and income tax adjustments arising from purchase accounting and tax reform. Effective for the second quarter of 2019 and for subsequent reporting periods, we no longer adjust for the impact of purchase accounting on revenue and, effective for the first quarter of 2019 and for subsequent reporting periods, we no longer adjust for the impact of the adoption in 2018 of the new revenue standard. While our management uses non-GAAP financial measures as a tool to enhance their understanding of certain aspects of our financial performance, our management does not consider these measures to be a substitute for, or superior to, GAAP measures. In addition, our presentations of these measures may not be comparable to similarly titled measures used by other companies. These non-GAAP financial measures should not be considered alternatives for, or in isolation from, the financial information prepared and presented in accordance with GAAP.

Investors are cautioned that there are material limitations associated with the use of non-GAAP financial measures as an analytical tool. In particular, many of the adjustments to Ribbon's financial measures reflect the exclusion of items that are recurring and will be reflected in our financial results for the foreseeable future.

Discussion of Non-GAAP Financial Measures (continued)

Acquisition-Related Revenue and Cost of Revenue; Impact of New Revenue Standard

We provide the historical supplementary non-GAAP financial measure of non-GAAP Total revenue, which, for periods prior to the second quarter of 2019, including revenue related to our acquisitions that we would have recognized but for the purchase accounting treatment of these transactions, and which, for periods prior to the first quarter of 2019, included eliminated revenue resulting from our adoption of the new revenue recognition standard in 2019. Effective for the second quarter of 2019 and for subsequent reporting periods, we no longer include any increases to non-GAAP revenue arising from the purchase accounting treatment of assumed deferred revenue. Effective for the first quarter of 2019 and for subsequent reporting periods, we no longer include any increases to non-GAAP revenue arising from the 2018 revenue standard adoption. Therefore, for the second quarter of 2019 and for subsequent reporting periods, our non-GAAP revenue is equivalent to our GAAP revenue.

Stock-Based Compensation

Stock-based compensation expense is different from other forms of compensation, as it is a non-cash expense. For example, a cash salary generally has a fixed and unvarying cash cost. In contrast, the expense associated with an equity-based award is generally unrelated to the amount of cash ultimately received by the employee, and the cost to us is based on a stock-based compensation valuation methodology, subjective assumptions and the variety of award types, all of which may vary over time. We evaluate performance without these measures because stock-based compensation expense is influenced by the Company’s stock price and other factors such as volatility and interest rates that are beyond our control. The expense related to stock-based awards is generally not controllable in the short-term and can vary significantly based on the timing, size and nature of awards granted. As such, we do not include such charges in our operating plans, and we believe that presenting non-GAAP operating results that exclude stock-based compensation provides investors with visibility and insight into our management’s method of analysis and the Company’s core operating performance. It is reasonable to expect that stock-based compensation will continue in future periods.

Discussion of Non-GAAP Financial Measures (continued)

Amortization of Intangible Assets

We exclude the amortization of acquired intangible assets from non-GAAP expense and income measures. These amortization amounts are inconsistent in frequency and amount and are significantly impacted by the timing and size of acquisitions. Although we exclude amortization of acquired intangible assets from our non-GAAP expenses, we believe that it is important for investors to understand that intangible assets contribute to revenue generation. We believe that excluding the non-cash amortization of intangible assets facilitates the comparison of our financial results to our historical operating results and to other companies in our industry as if the acquired intangible assets had been developed internally rather than acquired. Amortization of intangible assets that relate to past acquisitions will recur in future periods until such intangible assets have been fully amortized.

Impairment of Intangible Assets

In the fourth quarter of 2017, we discontinued our ongoing development of certain intangible assets that we had previously acquired, as we had determined that there were no alternative uses of the technology within either our existing or future product lines. As a result, we recorded an impairment charge of $5.5 million to write down the carrying value of the assets to zero. Had we developed those intangible assets internally and made the decision to discontinue their ongoing development, we would have ceased work on such development projects and eliminated the related future costs. Because we do not capitalize these costs, there would have been no asset to write off. As a result, we believe that excluding non-cash impairment charges from our non-GAAP operating results as if these impaired intangible assets had been developed internally rather than acquired facilitates a comparison to our historical operating results and to other companies in our industry.

Discussion of Non-GAAP Financial Measures (continued)

Merger Integration Costs

We consider certain merger integration costs to be unpredictable and dependent on a significant number of factors that may be outside of our control. This amount represents costs related to the Merger initially recorded as a component of General and administrative expense in the third quarter of 2017. In the fourth quarter of 2017, we reclassified these merger integration costs, aggregating $0.2 million, to Acquisition- and integration-related expense. We do not consider these merger integration costs to be related to the continuing operations of the combined business or the Company. We believe that excluding merger integration costs facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Settlement Expense

In the first quarter of 2018, we recorded $1.7 million of expense related to settlements, comprised of $1.4 million for the settlement of litigation in connection with our acquisition of Taqua LLC and $0.3 million of patent litigation settlement expense. In the third quarter of 2017, we recorded $1.6 million of expense related to potential fines in connection with the then-ongoing SEC investigation, which we paid to the SEC, along with an additional $0.3 million recorded in the fourth quarter of 2017, in the third quarter of 2018. In 2016, we recorded $0.6 million related to the settlement of certain patent litigation. These amounts are included as components of general and administrative expense. We believe that such settlement costs are not part of our core business or ongoing operations, are unplanned and generally not within our control. Accordingly, we believe that excluding these costs facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Discussion of Non-GAAP Financial Measures (continued)

Litigation Costs

We were involved in litigation with a certain competitor with whom we reached a settlement in the second quarter of 2019, under which the competitor agreed to pay us an aggregate amount of $63 million (see also “Litigation Settlement” below). In connection with this litigation, we have incurred litigation costs beginning in the fourth quarter of 2017. These costs are included as a component of general and administrative expense. We believe that such costs are not part of our core business or ongoing operations. Accordingly, we believe that excluding the litigation costs related to this specific legal matter facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Acquisition-Related Facilities Adjustments

GAAP accounting requires that the deferred rent liability of an acquired company be written off as part of purchase accounting and that the combined company’s rent expense on a straight-line basis begin as of the acquisition date. As a result, we recorded more rent expense than would have been recognized but for the purchase accounting treatment of GENBAND’s assumed deferred rent liability. We include this adjustment, which relates to the acquisition of GENBAND, to allow for more complete comparisons to the financial results of our historical operations, forward-looking guidance and the financial results of peer companies. We believe these adjustments provide an indication of the rent expense that would have been recognized, but for the purchase accounting in connection with the acquisition of GENBAND.

Discussion of Non-GAAP Financial Measures (continued)

Cancelled Debt Offering Costs

In November 2018, we announced that we intended to offer, subject to market conditions and other factors, $150 million aggregate principal amount of convertible senior notes in a private offering to qualified institutional buyers. We decided not to proceed with our offering, as we believed that then-current market conditions were not conducive for an offering on terms that would be in the best interests of our stockholders. In connection with this offering, we incurred $1.0 million of expense. We do not consider these debt offering costs to be related to the continuing operations of the Company, and accordingly, we believe that excluding these cancelled debt offering costs facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Acquisition- and Integration-Related Expense

We consider certain acquisition- and integration-related costs to be unrelated to the organic continuing operations of our acquired businesses and the Company and they are generally not relevant to assessing or estimating the long-term performance of the acquired assets. In addition, the size, complexity and/or volume of an acquisition, which often drives the magnitude of acquisition- and integration-related costs, may not be indicative of future acquisition- and integration-related costs. By excluding these acquisition- and integration-related costs from our non-GAAP measures, management is better able to evaluate our ability to utilize our existing assets and estimate the long-term value that acquired assets will generate for us. We exclude certain acquisition- and integration-related costs to allow more accurate comparisons of our financial results to our historical operations, forward-looking guidance and the financial results of less acquisitive peer companies. In addition, we believe that providing supplemental non-GAAP measures that exclude these items allows management and investors to consider the ongoing operations of the business both with and without such expenses.

Discussion of Non-GAAP Financial Measures (continued)

Restructuring and Related Expense

We have recorded restructuring and related expense to streamline operations and reduce operating costs by closing and consolidating certain facilities and reducing our worldwide workforce. We review our restructuring accruals and facilities requirements regularly and record adjustments to these estimates as required. We believe that excluding restructuring and related expense facilitates the comparison of our financial results to our historical operating results and to other companies in our industry, as there are no future revenue streams or other benefits associated with these costs.

Gains on Sales of Intangible Assets

From time to time, we have sold intangible assets that we had acquired in connection with previous acquisitions. The proceeds from these sales are included as components of other income (expense), net. We believe that such gains are not part of our core business or ongoing operations, as we had not used the intangible assets in connection with revenue-producing activities and would not have used them as such in the future. Accordingly, we believe that excluding the gains arising from these sales from our results facilitates the comparison of our financial results to our historical results and to other companies in our industry.

Litigation Settlement

We were involved in litigation with a certain competitor with whom we reached a settlement in the second quarter of 2019, under which the competitor agreed to pay us an aggregate amount of $63 million (see “Litigation Costs” above). This gain is included as a component of other income (expense), net. We believe that excluding the other income arising from this settlement facilitates the comparison of our results to our historical results and other companies in our industry.

Discussion of Non-GAAP Financial Measures (continued)

Reduction in Deferred Purchase Consideration

We recorded $8.1 million in other income, net, in the first quarter of 2019 related to the reduction of deferred purchase consideration for Edgewater. We believe that such reductions to deferred purchase consideration are not part of our core business or ongoing operations, as they relate to specific acquisitive transactions. Accordingly, we believe that excluding such reductions related to acquisitive transactions facilitates the comparison of our financial results to our historical results and to other companies in our industry.

Tax Effect of Non-GAAP Adjustments

Beginning with the second quarter of 2019 and for subsequent reporting periods, non-GAAP income tax expense is calculated based on an estimated tax rate applied against forecasted annual non-GAAP income. The non-GAAP income tax expense assumes no available net operating losses or any valuation allowances as a result of reporting significant cumulative non-GAAP income over the past several years. Due to the methodology applied to our estimated annual tax rate as described above, our estimated tax rate on non-GAAP income will differ from our GAAP tax rate and from our actual tax liabilities.

Income Tax Benefits Arising from Purchase Accounting and Tax Reform

In the third quarter of 2018, we reduced our valuation allowance in connection with our acquisition of Edgewater, resulting in an income tax benefit of $0.8 million. In the fourth quarter of 2018, we recorded an adjustment to that amount, resulting in income tax expense of $0.1 million for a net tax benefit of $0.7 million related to this acquisition. In the fourth quarter of 2017, we reduced our valuation allowance in connection with the GENBAND transaction, resulting in an income tax benefit of $16.4 million. In addition, we recognized an income tax benefit of $4.8 million related to the Tax Cut and Jobs Act of 2017. We believe that such adjustments are not part of our core business or ongoing operations, as they are either the result of acquisitions or new tax legislation, neither of which relates to our revenue-producing activities. Accordingly, we believe that excluding impact of these adjustments to our income tax provision facilitates the comparison of our financial results to our historical results and to other companies in our industry.

Discussion of Non-GAAP Financial Measures (continued)

Adjusted EBITDA

We use Adjusted EBITDA as a supplemental measure to review and assess our performance. We calculate Adjusted EBITDA by excluding from net income (loss): interest income (expense), net; income tax benefit (provision); depreciation; and amortization and impairment of intangible assets. In addition, we exclude from net income (loss): historical adjustments to revenue and cost of revenue related to revenue reductions resulting from purchase accounting (for periods prior to the second quarter of 2019 only) and adoption of the new revenue standard (for periods prior to the first quarter of 2019 only); stock-based compensation expense; merger integration costs; settlement expense; certain litigation costs; acquisition-related facilities adjustments; cancelled debt offering costs; acquisition- and integration-related expense; restructuring and related expense; and other income (expense), net. In general, we add back the expenses that we consider to be non-cash and/or not part of our ongoing operations. Adjusted EBITDA is a non-GAAP financial measure that is used by our investing community for comparative and valuation purposes. We disclose this metric to support and facilitate our dialogue with research analysts and investors. Other companies may calculate Adjusted EBITDA differently than we do, limiting its usefulness as a comparative measure.

We believe that providing non-GAAP information to investors, in addition to the GAAP presentation, will allow investors to view the financial results in the way management views them. We further believe that providing this information helps investors to better understand our core financial and operating performance and evaluate the efficacy of the methodology and information used by our management to evaluate and measure such performance.

2019 Quarterly GAAP to Non-GAAP Reconciliations

$000s, except per share data		Q219
GAAP Net income (loss)	$	49,470
Stock-based compensation		1,530
Amortization of intangible assets		12,647
Litigation costs		1,315
Acquisition- and integration-related expense		1,965
Restructuring and related expense		9,144
Gain on litigation settlement		(63,000)
Tax effectof non-GAAP adjustments		2,625
Non-GAAP Net income (loss)	$	15,696
GAAP diluted earnings per share or (loss) per share	$	0.45
Stock-based compensation		0.01
Amortization of intangible assets		0.12
Litigation costs		0.01
Acquisition- and integration-related expense		0.02
Restructuring and related expense		0.08
Gain on litigation settlement		(0.57)
Tax effect of non-GAAP adjustments		0.02
Non-GAAP diluted earnings per share or (loss) per share	$	0.14

Annual and Quarterly GAAP to Non-GAAP Reconciliation

$000's	Q117	Q217	Q317	Q417	FY17	Q118	Q218	Q318	Q418	FY18	Q119	Q219
Adjusted EBITDA												
GAAP Net income (loss)	$ (10,646)	$ (12,345)	$ 3,453	$ (15,714)	**$ (35,252)**	$ (44,904)	$ (19,922)	$ (10,158)	$ (1,826)	**$ (76,810)**	$ (30,832)	$ 49,470
Interest (income) expense	(258)	(254)	(260)	509	**(263)**	599	735	1,420	1,476	**4,230**	1,364	1,262
Income tax (benefit) provision	123	471	727	(19,761)	**(18,440)**	2,170	499	(82)	813	**3,400**	1,014	5,033
Depreciation	1,823	1,772	1,660	3,231	**8,486**	2,507	2,811	2,952	2,930	**11,200**	2,921	2,970
Amortization of intangible assets	2,259	2,293	2,293	10,267	**17,112**	12,309	11,964	13,448	12,002	**49,723**	11,922	12,647
Impairment of intangible assets	-	-	-	5,471	**5,471**	-	-	-	-	-	-	-
Acquisition-related revenue adjustment*	-	-	-	23,280	**23,280**	11,118	4,288	4,063	4,613	**24,082**	2,798	-
Acquisition-related cost of revenue adjustment*	-	-	-	(10,364)	**(10,364)**	(1,977)	-	-	-	**(1,977)**	-	-
Adjustment for new revenue standard**	-	-	-	-	-	3,015	2,949	2,178	1,903	**10,045**	-	-
Adjustment to cost of revenue for new revenue standard**	-	-	-	-	-	(110)	-	-	-	**(110)**	-	-
Stock-based compensation	3,263	4,237	3,887	14,270	**25,657**	2,824	2,081	2,516	3,651	**11,072**	4,139	1,530
Merger integration expense	-	-	178	(178)	-	-	-	-	-	-	-	-
Settlement expense	-	-	1,600	300	**1,900**	1,730	-	-	-	**1,730**	-	-
Litigation costs	-	-	-	373	**373**	673	1,901	3,147	1,961	**7,682**	6,186	1,315
Acquisition-related facilities adjustment	-	-	-	-	-	211	252	251	252	**966**	-	-
Cancelled debt offering costs	-	-	-	-	-	-	-	-	1,003	**1,003**	-	-
Acquisition- and integration-related expense	56	4,679	1,543	8,485	**14,763**	4,412	4,280	5,570	2,689	**16,951**	3,199	1,965
Restructuring and related expense	570	501	-	8,365	**9,436**	6,668	6,097	2,397	1,853	**17,015**	4,932	9,144
Other (income) expense, net	(1)	(575)	(1)	(697)	**(1,274)**	(248)	2,052	1,254	714	**3,772**	(7,774)	(62,861)
Non-GAAP Adjusted EBITDA	$ (2,811)	$ 779	$ 15,080	$ 27,837	**$ 40,885**	$ 997	$ 19,987	$ 28,956	$ 34,034	**$ 83,974**	$ (131)	$ 22,475

* Effective Q2 2019, the Company no longer adjusts for the impact of purchase accounting on revenue

** Effective Q1 2019, the Company no longer adjusts for the impact of the adoption in 2018 of the new revenue standard

Annual GAAP to Non-GAAP Reconciliation

	FY16	FY17	FY18
Operating margin (income (loss) from operations as a percentage of revenue)			
GAAP loss from operations as a percentage of revenue	-5.4%	-16.7%	-11.3%
Acquisition-related revenue adjustment**	0.0%	7.7%	4.4%
Acquisition-related cost of revenue adjustment**	0.0%	-2.9%	-0.3%
Adjustment for new revenue standard***	0.0%	0.0%	1.6%
Adjustment to cost of revenue for new revenue standard***	0.0%	0.0%	*
Stock-based compensation	7.8%	7.3%	1.8%
Amortization of intangible assets	3.0%	4.8%	8.1%
Impairment of intangible assets	0.0%	1.5%	0.0%
Settlement expense	0.2%	0.5%	0.3%
Litigation costs	0.0%	0.1%	1.3%
Acquisition-related facilities adjustment	0.0%	0.0%	0.2%
Cancelled debt offering costs	0.0%	0.0%	0.2%
Acquisition- and integration-related expense	0.5%	4.2%	2.8%
Restructuring and related expense	1.1%	2.7%	2.8%
Non-GAAP Operating margin	7.2%	9.2%	11.9%

* Less than 0.1% impact on non-GAAP income from operations as a percentage of revenue

** Effective Q2 2019, the Company no longer adjusts for the impact of purchase accounting on revenue

*** Effective Q1 2019, the Company no longer adjusts for the impact of the adoption in 2018 of the new revenue standard

Annual GAAP to Non-GAAP Reconciliation (continued)

	FY16	FY17	FY18
Earnings (loss) per share			
GAAP Loss per share	$ (0.28)	$ (0.60)	$ (0.74)
Acquisition-related revenue adjustment**	-	0.38	0.23
Acquisition-related cost of revenue adjustment**	-	(0.17)	(0.02)
Adjustment for new revenue standard***	-	-	0.10
Adjustment to cost of revenue for new revenue standard***	-	-	*
Stock-based compensation	0.40	0.43	0.11
Amortization of intangible assets	0.15	0.29	0.48
Impairment of intangible assets	-	0.09	-
Settlement expense	0.01	0.03	0.02
Litigation costs	-	0.01	0.07
Acquisition-related facilities adjustment	-	-	0.01
Cancelled debt offering costs	-	-	0.01
Acquisition- and integration-related expense	0.02	0.25	0.16
Restructuring and related expense	0.06	0.16	0.16
Gains on sales of intangible assets	(0.03)	(0.01)	(0.01)
Tax benefits arising from purchase accounting and tax reform	-	(0.35)	-
Non-GAAP diluted earnings per share	$ 0.33	$ 0.51	$ 0.58

* Less than $0.01 impact on EPS

** Effective Q2 2019, the Company no longer adjusts for the impact of purchase accounting on revenue

*** Effective Q1 2019, the Company no longer adjusts for the impact of the adoption in 2018 of the new revenue standard

Annual GAAP to Non-GAAP Reconciliation (continued)

$000's	FY16	FY17	FY18
Adjusted EBITDA			
GAAP Net loss	$ (13,932)	$ (35,252)	$ (76,810)
Interest (income) expense	(769)	(263)	4,230
Income tax (benefit) provision	2,516	(18,440)	3,400
Depreciation	7,970	8,486	11,200
Amortization of intangible assets	7,500	17,112	49,723
Impairment of intangible assets	-	5,471	-
Acquisition-related revenue adjustment*	-	23,280	24,082
Acquisition-related cost of revenue adjustment*	-	(10,364)	(1,977)
Adjustment for new revenue standard**	-	-	10,045
Adjustment to cost of revenue for new revenue standard**	-	-	(110)
Stock-based compensation	19,768	25,657	11,072
Settlement expense	605	1,900	1,730
Litigation costs	-	373	7,682
Acquisition-related facilities adjustment	-	-	966
Cancelled debt offering costs	-	-	1,003
Acquisition- and integration-related expense	1,152	14,763	16,951
Restructuring and related expense	2,740	9,436	17,015
Other (income) expense, net	(1,424)	(1,274)	3,772
Non-GAAP Adjusted EBITDA	$ 26,126	$ 40,885	$ 83,974

* Effective Q2 2019, the Company no longer adjusts for the impact of purchase accounting on revenue

** Effective Q1 2019, the Company no longer adjusts for the impact of the adoption in 2018 of the new revenue standard

Outlook GAAP to Non-GAAP Reconciliation[1]

Adjusted EBITDA: Ribbon has not provided a reconciliation of Adjusted EBITDA for the year ending December 31, 2019, as it is unable to project without unreasonable efforts the comparable GAAP net income (loss) figure, which includes interest expense, net; income tax provision; depreciation; amortization of intangible assets; stock-based compensation; certain litigation costs; restructuring and related expense; and other income (expense), net.

[1]The Adjusted EBITDA guidance provided within this presentation was given as of July 31, 2019. This presentation does not confirm or update such prior guidance.

Thank You