Ribbon Communications

Jefferies Conference

September, 2020

Bruce McClelland
President & CEO

Mick Lopez
EVP & CFO

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 the proposed sale of the Kandy and anticipated benefits therefrom, our outlook for the Company in the section titled "2020 Busines Outlook" and elsewhere in the presentation, opportunities for the Company, growth in the business, plans for future product offerings, strategic position are forward-looking statements. Without limiting the foregoing, the words "believes", "estimates", "expects", "expectations", "intends", "may", "plans", "projects" and other similar language 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 and that may cause our actual results to be materially different. These risks include, but are not limited to, the ability to satisfy, on a timely basis or at all, closing conditions for the Kandy transaction; risks related to the COVID-19 pandemic; risks that the businesses of ECI Telecom Group Ltd. ("ECI") will not be integrated successfully or that the combined companies will not realize estimated cost savings; failure to realize anticipated benefits of the merger with ECI and/or the sale of the Kandy business; disruptions from the integration efforts that could harm our business; disruption from mergers, acquisitions and dispositions, making it more difficult to maintain relationships with employees, customers, business partners or government entities; supply chain disruptions resulting from geopolitical instabilities and disputes; unpredictable fluctuations in quarterly revenue and operating results; failure to compete successfully against telecommunications equipment and networking companies; failure to grow our customer base or generate recurring business from our existing customers; the impact of restructuring and cost-containment activities; litigation; market acceptance of our products and services; rapid technological and market change; our ability to protect our intellectual property rights and obtain necessary licenses; our ability to maintain partner, reseller, distribution and vendor support and supply relationships; the potential for defects in our products; risks related to the terms of our credit agreement; higher risks in international operations and markets; increases in tariffs, trade restrictions or taxes on our products; currency fluctuations; changes in the market price of our common stock and the other factors and risks included in our most recent Quarterly Report on Form 10-Q and Annual Report on Form 10-K (including under the heading "Risk Factors") filed with the SEC and the Company's other SEC filings. Unlisted factors may present significant additional obstacles to the realization of forward-looking statements. Therefore, we caution you against relying on any of these forward-looking statements. Any forward-looking statements represent Ribbon's views only as of the date on which such statement is made. While Ribbon Communications may elect to update forward-looking statements at some point, Ribbon Communications specifically disclaims any obligation to do so, except as may be required by law.

Use of Non-GAAP Financial Measures

This presentation includes certain non-GAAP financial measures in addition to the U.S. GAAP financials. Ribbon Communications management believes that presenting certain non-GAAP financial measures provides meaningful information to investors in understanding operating results and may enhance investors' ability to analyze financial and business trends including the ability to compare period to period more easily by excluding items that could have a disproportionately negative or positive impact on results in a given financial period. 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. 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 to this Presentation, and not to rely on any single financial measure to evaluate Ribbon Communications' business.

About Ribbon

Global provider of converged communications software and network solutions to service providers, enterprises, and critical infrastructure sectors

- Customers in over 140 countries[1]
- Combined annual revenue of over $898 million[2]
- Over 3,900 employees globally[3]
- #2 market leader in Session Border Controllers globally[4]
- Ranked "Very Strong" in 5G Transport solutions[5]
- Listed on Nasdaq as RBBN

[1] Cloud and Edge and Packet Optical combined at December 31, 2019.
[2] Cloud and Edge and Packet Optical combined trailing twelve months ended June 30, 2020.
[3] As of 2Q20.
[4] Omdia (IHS Markit) Q120 Service Provider VoIP and IMS Equipment, Subscribers and Enterprise SBCs and VoIP Gateways. Market share data for past 12 months.
[5] GlobalData 5G Transport: Competitive Landscape Assessment, July, 2020.

We Cover the Globe

R&D Centers of Excellence

Sales & Support Locations

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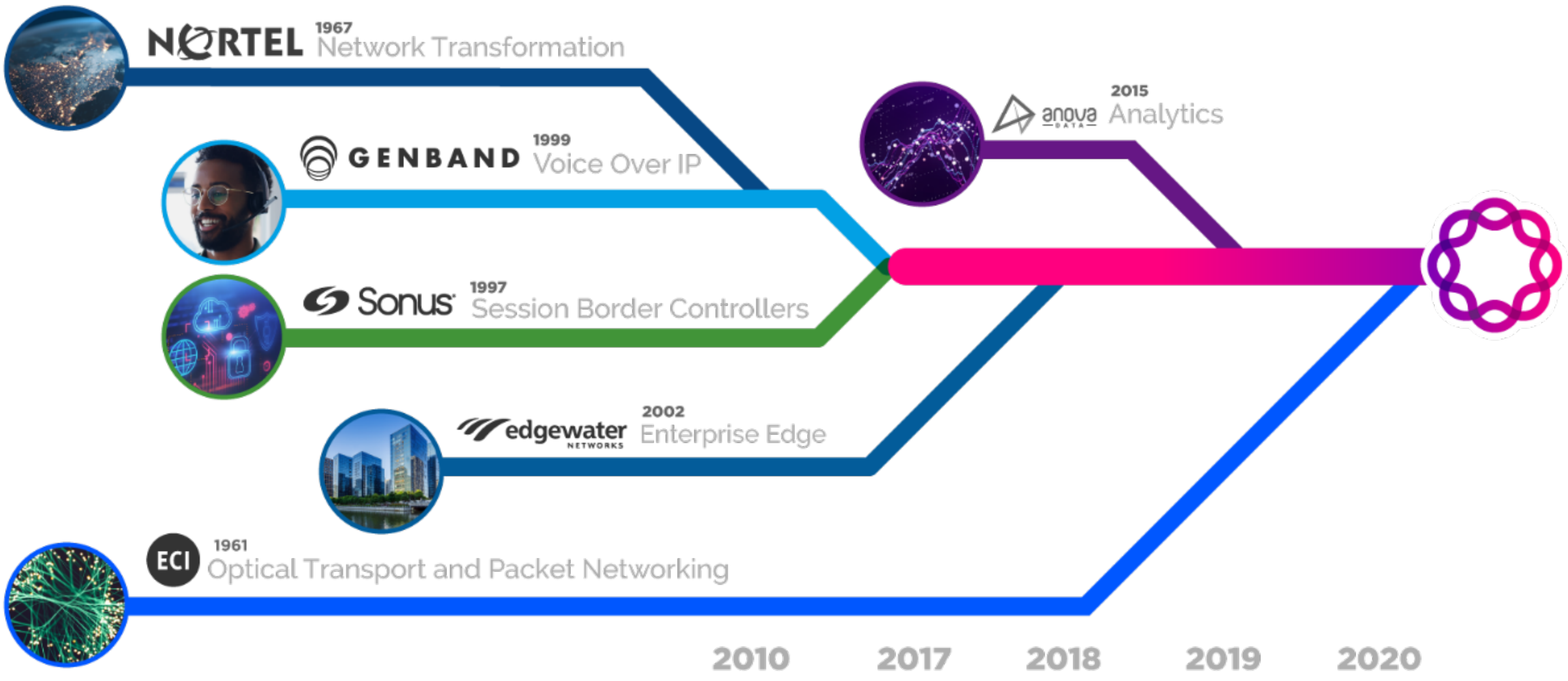
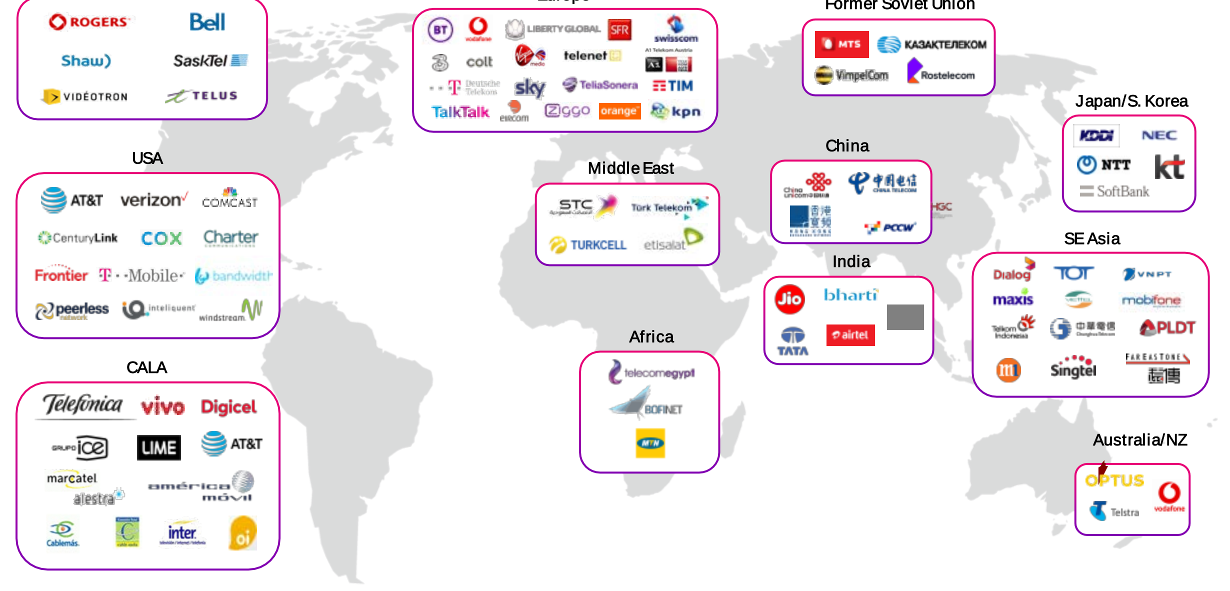
History of Innovation



Strong and Diversified Customer Base

Service Providers



Canada

Europe

Former Soviet Union

Japan/S. Korea

USA

Middle East

China

India

SE Asia

CALA

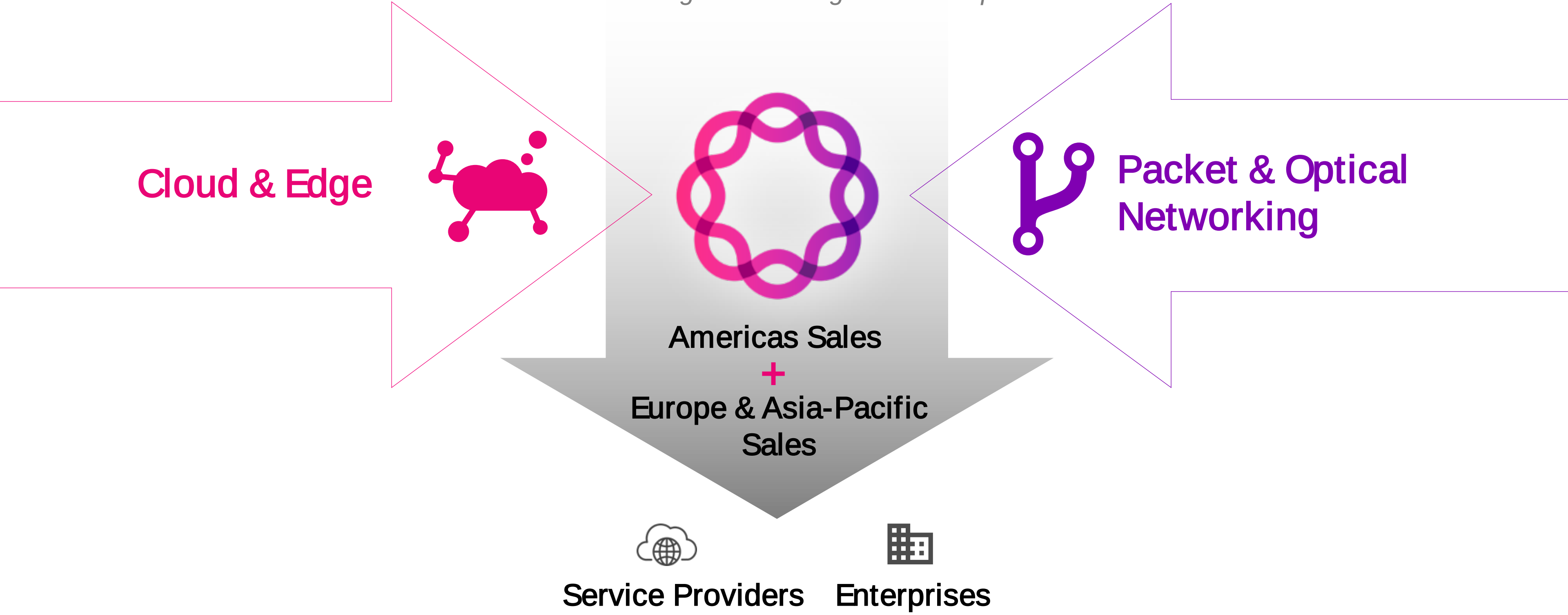
Africa

Australia/NZ

Enterprises & Verticals

Organized For Success

Region-based Sales Organizations serving Ribbon's key Service Provider and Enterprise markets through two strategic business pillars



Experienced Leadership Team

Bruce McClelland
President, CEO & Director

Steven Bruny
EVP Sales, Americas Region

Fernando Valdivielso
EVP Sales, EMEA and APAC

Mick Lopez
EVP, Chief Financial Officer

Sam Bucci
EVP, General Manager
Packet Optical Networking BU

Tony Scarfo
EVP and GM
Cloud and Edge BU

Kevin Riley
EVP, Chief Technical Officer

Petrena Ferguson
SVP, Human Resources

John McCready
EVP, Chief Transformation Officer

Patrick Macken
EVP, General Counsel

Enabling a broad set of networking services

Cloud & Edge

- Enable cloud and premises-based communications services and applications
- Secure Voice Over IP (VoIP) applications
- Transform fixed, mobile and MSO communication services networks
- Provide analytics platform and applications for network insights, security and service assurance
- Provide call trust and identity assurance for robocall and fraud mitigation
- Portfolio of "as a service" offers that enable voice calling from collaboration apps, including Microsoft Teams Direct Routing

Packet & Optical Networking

- Enable 5G-native mobile backhaul and transport
- Aggregate, groom, and transport multiservice optical traffic for metro and regional networks
- Encrypt layer 1 services
- Provide MEF-certified carrier ethernet services for businesses using "elastic MPLS"
- Provide broadband and multiservice aggregation and backhaul
- Migrate TDM/SONET to Packet
- Provide Utility telcos (Utelco) infrastructure for end-user services
- Provide cyber-security for critical infrastructure

MEF – Metro Ethernet Forum
MPLS – Multi-Protocol Label Switching
TDM – Time Division Multiplexing
SONET – Synchronous Optical Networking

Trends Driving Demand

3G ➡ 4G ➡ 5G

Mobile & Video

Low Latency Applications

Private Networks

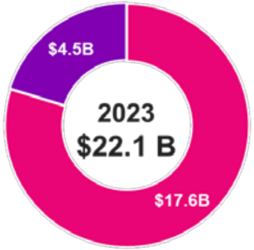
Centralized ➡ Cloud & Edge

Private/Public Cloud Workloads

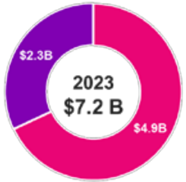
Work From Home Cloud Communications

Analytics

Packet and Optical Transport TAM



$29.3B Total TAM



Cloud, Edge & Analytics TAM

■ Service Provider ■ Enterprise

TAM Sources: Ribbon Modelling based on Omdia, Exact Ventures, IDC Research and Gartner reports

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Cloud and Edge Portfolio

Products

- Session Border Controllers
- Policy Routing & Signaling
- Intelligent Edge uCPE
- Call Controllers
- Media Gateways
- Application Server
- XaaS
- Analytics & Security
- Identity Assurance

Solutions

Service Provider Solutions

- Fixed, Mobile and MSO Network Evolution
- Edge Orchestration Managed Service
- Hosted or Managed Services
- SIP Trunking
- Secure Network Interconnects
- Analytics, Network Insights and Security
- Identity Assurance and Call Trust

Enterprise Solutions

- Direct Routing for Microsoft Teams
- Intelligent Edge for UCaaS
- Legacy PBX Evolution and Unified Communications
- SIP Trunking
- Government, Finance, Healthcare Solutions
- Analytics, Security and Assurance

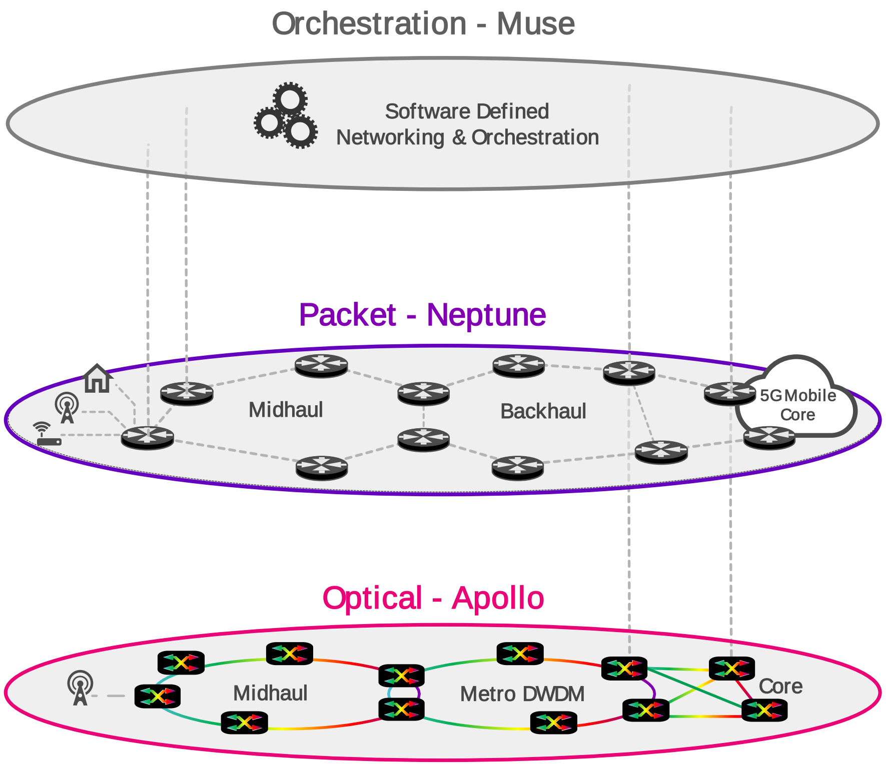
Packet and Optical Networking Portfolio

Packet - Neptune

- Dynamic, deterministic transport
- 5G transport with elastic scalability
- Multiservice access aggregation

Optical - Apollo

- **Powerful**
  10G to 2x600G in the same platform
- **Intelligent**
  SDN features and integrated monitoring
- **Open**
  Multivendor disaggregated solutions



Competitive Landscape Assessment from Global Data for 5G Transport Solutions

Ribbon 5G Transport Portfolio – Rated “Very Strong”

GlobalData. July 21, 2020

5G Transport: Competitive Landscape Assessment

Emir Halilovic

Buying Criteria Ratings

- Timing and Synchronization: **Leader**
- Network Slicing and Programmability: **Leader**
- Power and Physical Characteristics: **Leader**
- Capacity and Scale: **Very Strong**
- 5G Xhaul Support: **Very Strong**
- Portfolio Breadth: **Competitive**

Strengths

- Solution portfolio providing multilayer-optimized packet and optical transport for 5G
- Comprehensive hard and soft slicing technologies; including FlexE, segment routing, OTN
- Comprehensive timing with SyncE and 1588v2, Class C and designed for Class D support in most platforms
- Network slicing domain orchestrator and holistic security with encryption, service isolation, &secured platforms
- Multilayer-optimized packet and optical transport

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Services Portfolio

Global Presence and Scale

- Network analysis & consulting
- Engineering design & installation
- Integration & validation
- Transformation & migration
- Third party solution services
- 24x7 global technical support
- Software updates & upgrades
- Hardware support & spares management
- Managed network operations
- Education services

Ribbon Communications

Second Quarter 2020 Results

Q2 FY 2020 Business Highlights

Customers

- Bharti Airtel (top 3 global mobile provider) 5G-ready IP/MPLS network deployment
- 5G/VoLTE transcoding win with Tier One North American Carrier
- Bandwidth Inc. leverages Ribbon cloud-based SBC using Amazon Web Services for rapid deployment
- Japanese mobile carrier OpenRAN Wireless 4G launch using Ribbon SBC
- Microsoft 365 Business Voice Direct Routing Training for One Commercial Partners
- AT&T API Marketplace launches IP Toll Free Click-to-Connect service using Kandy Business Services platform
- Kandy UCaaS surpasses 200k seats and signed 80k seat 6-year regional health care deal

Transformation

- Integration on Track
- New Leadership
- Cost Management

KANDY

Unlocking value!

Financial

- Continued growth in higher margin software sales
- Growth in Enterprise sales
- Recovery in Packet Optical Networks sales
- Cost management
- Effectively managing Covid-19 challenges
- Improving visibility in 2H20

Q2 FY 2020 Highlights

Growing Revenue

Sales of $210M, up $65M YoY[1]
Includes $64M from Packet Optical Networks

Cash Flow and Balance Sheet

Ending Cash of $94M

Improving Profitability

Adjusted EBITDA[2] of $30M, up $7M[1]

Cloud and Edge[2]

Growing Software Sales

Revenue from pure software products was 60% of total product revenue

Accelerating Gross Margin

Non-GAAP Gross Margin[2] of 67%, up 5 ppts YoY[1]

Packet Optical Networks[2]

Revenue Trend

Down 26% YoY[3]
Up 15% QoQ[4]

Projected Growth 2H20[5]

Customer Success

8 New Customer Wins

Strengthening 2H20[5] Pipeline

Profit Stabilization

Non-GAAP Gross Margin[2] of 39%

Focused on Expense Controls

[1]Three months ended June 30, 2020 compared with the corresponding period in 2019.
[2]Please see the basis of presentation and the non-GAAP reconciliation in the appendix.
[3]Calculated as Packet Optical Networks total revenue of $64M and $86M for the three months ended June 30, 2020 and 2019, respectively. The amount for the three months ended June 30, 2019 is not included in Ribbon's consolidated results as this period was prior to the March 3, 2020 merger date.

[4]Calculated as Packet Optical Networks total revenue of $64M and $55M for the three months ended June 30, 2020 and March 31, 2020, respectively. Of the amount for the three months ended March 31, 2020, $30M was included in Ribbon's consolidated results. The remaining $25M was not included in Ribbon's consolidated results as this revenue was recognized by Packet Optical Networks prior to the March 3, 2020 merger date.
[5]Six months ended December 31, 2020 compared to the six months ended June 30, 2020.

Second Quarter 2020 Key Metrics

Bookings

Improving 2H20[1] Visibility

Product/PS Book to Bill[2] Ratio of 1.12 in 2Q20

Solid Pipeline

Revenue Mix

39% Software Revenue[4]

33% Maintenance Revenue[5]

Top 10 Customers Revenue 47%[5]

Enterprise 30%[4]
Service Provider 70%[4]

Domestic 48%[5]
International 52%[5]

Balance Sheet

Cash Balance $94M

Term Loan $397.5M
Effective Rate 3.9%

Cash Flow

Cash From Operations ($3M)

Unlevered Free Cash Flow ($6M)

$9M Capex in 2Q20 included $5M of real estate facility improvements

[1]Six months ended December 31, 2020 compared to the six months ended June 30, 2020.
[2]Product and Professional Services (excluding maintenance) divided by Product and Profession Services Revenue for the three months ended June 30, 2020.
[3]Three months ended June 30, 2020 compared with the corresponding period in 2019.
[4]As a percentage of total product revenue.
[5]As a percentage of total revenue.

Please see the basis of presentation and the non-GAAP reconciliation in the appendix.

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GAAP Financial Highlights

	1Q19	2Q19	1Q20[1]	2Q20[1]
Revenue	$119M	$145M	$158M	$210M
Gross Margin	48%	55%	52%	53%
OPEX	$93M	$88M	$110M	$111M
Net income (loss)	$(31)M	$49M	$(33)M	$(8)M
Diluted EPS	$(0.29)	$0.45	$(0.27)	$(0.06)

[1]Please see the basis of presentation in the appendix. For the three months ended March 31, 2020, Ribbon's consolidated results includes Packet Optical Networks post the March 3, 2020 merger date. For the three months ended June 30, 2020, Ribbon's consolidated results includes Packet Optical Networks for the full quarter.

Non-GAAP Financial Highlights 2Q20

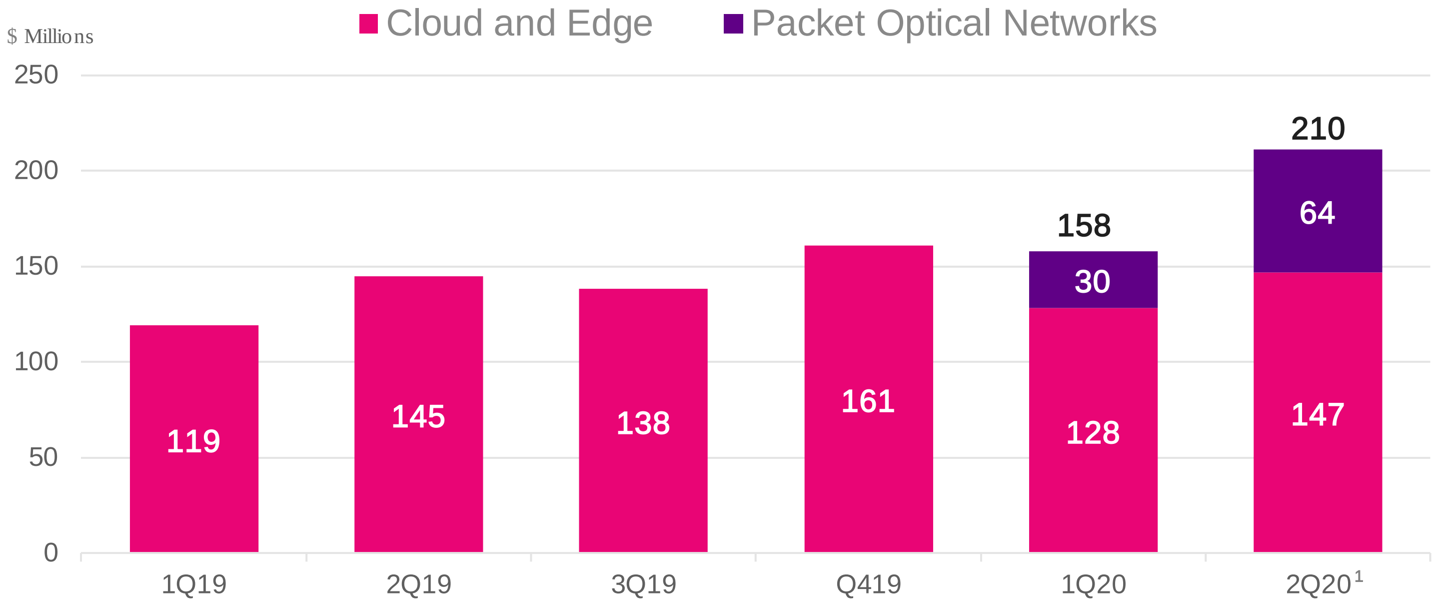
	Cloud and Edge 2Q20	Packet Optical Network (ECI Legal Entity) 2Q20	Consolidated 2Q20
Revenue	\$147M +1% YoY[1]	\$64M -26% YoY[3]	\$210M
Non-GAAP Gross Margin[2]	67% + 5 ppts YoY[1]	39%	59%
Non-GAAP OPEX[2]	\$64M - 10% YoY[1]	\$34M	\$99M
Non-GAAP Operating Margin[2]	23% +10 ppts YoY[1]	(15%)	12%
Non-GAAP Adjusted EBITDA[2]	\$37M	(\$7M)	\$30M +31% YoY[1]

Non-GAAP EPS \$0.06

[1]Three months ended June 30, 2020 compared with the corresponding period in 2019.
[2]Please see the basis of presentation and the non-GAAP reconciliation in the appendix.
[3]Calculated as Packet Optical Network's total revenue of \$64M and \$86M for the three months ended June 30, 2020 and 2019, respectively. The amount for the three months ended June 30, 2019 is not included in Cloud and Edge's consolidated results as this period was prior to the March 3, 2020 merger date.

Total Revenue

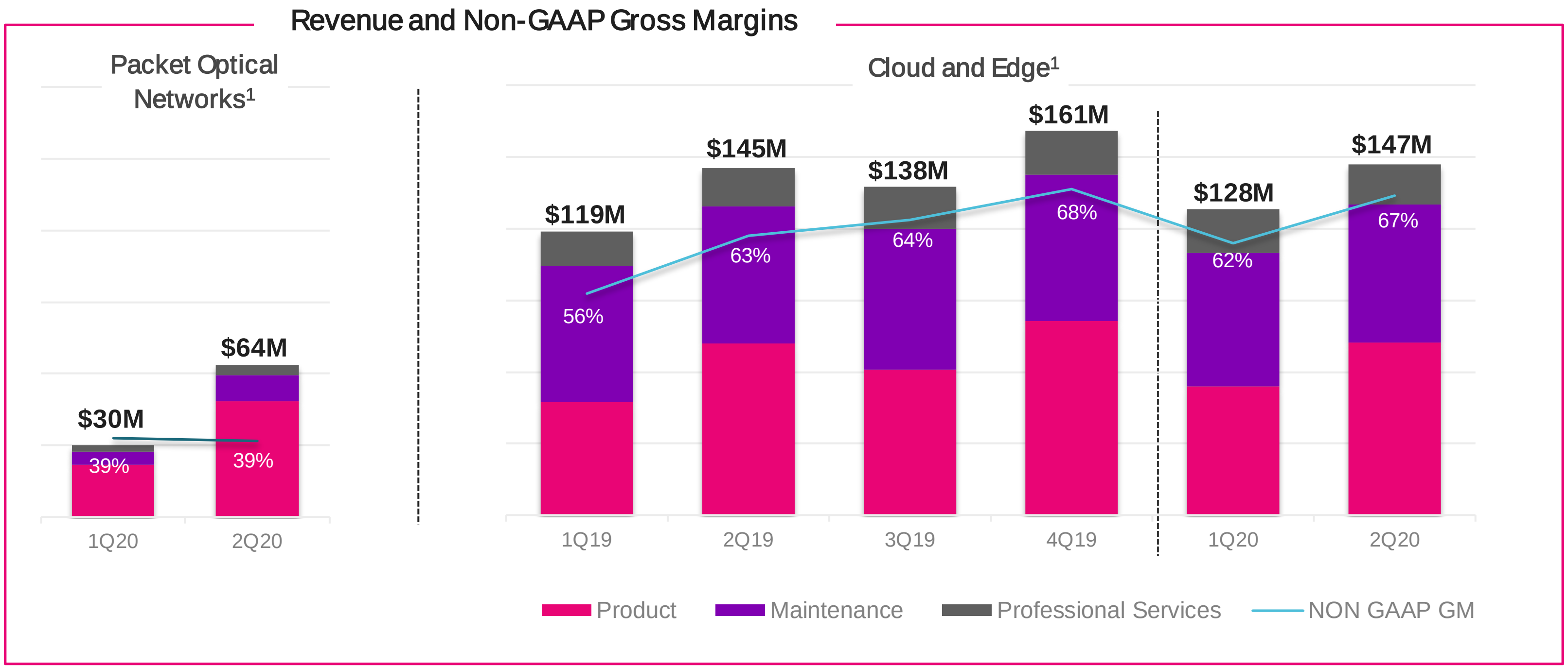
Revenue by Quarter: Cloud & Edge and Packet Optical Networks



[1]Includes reduction of revenue related to Packet Optical Networks purchase accounting of $2M in 2Q20.

Please see the basis of presentation in the appendix.

Quarterly Performance



[1]Please see the basis of presentation in the appendix.

2020 Business Outlook

Focused on serving customers and caring for our employees

Strong focus on Packet Optical Networks integration and transformation of Ribbon to deliver significant shareholder value

Extensive portfolio review and actions to improve cost structure and achieve deal synergies while investing in key growth areas

Confident in strategy to accelerate profitable growth

Cloud and Edge[1]

- Good visibility with solid backlog
- 2-3% YoY sales growth with expanded margins

Packet Optical Networking[1]

- Visibility improving with expanded pipeline
- COVID-19 global pandemic continues to impact deployment velocity and pace of new opportunity wins
- Cost actions improving profitability

3Q20 Outlook[2]

- Revenue between $210 million and $220 million
- Non-GAAP earnings per share[2] of $0.05 to $0.07
- Adjusted EBITDA[2] of $25 million to $29 million

[1]Please see the basis of presentation in the appendix.
[2]This outlook excludes any potential effects of the sale of Kandy. Please see non-GAAP reconciliations in the Appendix.

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Building for the Future

Core

Strong telecom portfolio with established incumbent position in global Service Provider networks provides foundation for the company

Growth

Investment in adjacent growth categories including:

Packet Optical Networking

Enterprise Real Time Communications

Security and Service Assurance

Scaling of cloud business and consumption models

Emerging

Differentiated solutions to address evolving 5G-enabled economy

Advanced Analytics and Machine Learning to manage increasing network complexities

Why Ribbon

Customer Centric

- Responsive
- Outcome oriented
- Trusted by marquee customers
- Global reach
- Regional support

Deep Knowledge & Experience

- Optical transport
- Packet networking & 5G
- Session security
- Real-Time Communications
- Advanced analytics
- Cloud-based deployments

Best In Class Technology

- Mission-critical deployments
- Market leading products
- High performance & scale
- 950+ patents
- 5G Native solutions

Thank You

APPENDIX: Key Trends and Outlook

Cloud & Edge Portfolio

Products & Services

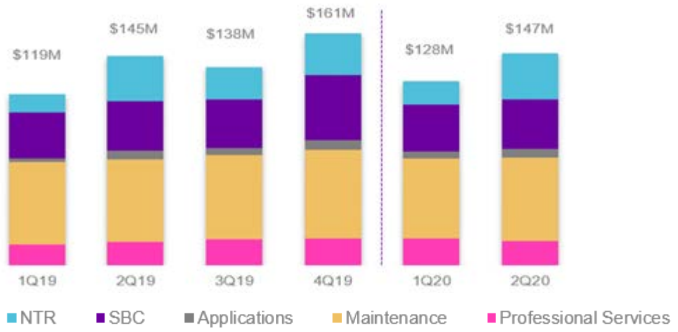
Core and Edge Solutions

- Digital Network Transformation (NTR)
  - Application Server, Call Control, Media GW, Policy & Routing, Signaling
- Session Management (SBC)
  - Carrier Session Border Control
  - Enterprise Session Border Control
  - Enterprise Edge uCPE
  - 4G/5G VoLTE Voice Transcoding

Network Intelligence & Management (Applications)

- Unified Communications
- Analytics, Security & Network Insights
- Call Trust & Identity Assurance

Cloud and Edge Revenue Mix



Looking Forward

Key Trends

- Work-from-home driving continued higher network utilization and need for capacity augmentation
- Digital transformation to modernize networks and reduce cost remain high priority
- Enterprise adoption of Unified Communications as foundational technology for both advanced collaboration and traditional voice services with security top of mind

Short Term Priorities

- Grow share of Enterprise Session Management with major focus on Microsoft Teams and Zoom platforms
- Successful launch of Ribbon Connect – SBCaaS Direct Routing for Microsoft Teams
- Expand Analytics Use Cases and customer deployments
- Drive thought and technology leadership for Trust and Identity solutions
- Cross-sell Packet Optical Networks portfolio to key accounts

Outlook

- 2-3% YoY sales growth with improving margins and lower opex yielding 20%+ EBITDA margin
- Solid 2H outlook on both products and services
- 7-8% YoY growth in Session Management driven by both Enterprise and Service Provider demand
- Lower near-term demand for on-premise Enterprise Edge CPE

Packet Optical Networks Portfolio

Products & Services

Apollo

- Optical Transport
- OTN Switching

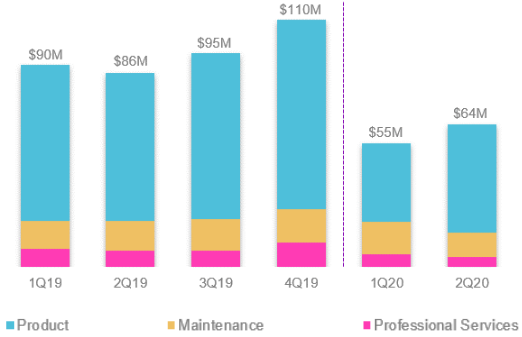
Neptune

- Multiservice aggregation with advanced IP Networking support
- 5G-enabled with advanced timing and configurable hard/soft network slicing support advanced Private Network

Muse

- Network lifecycle applications and automation
- 5G network slice management
- SDN and NFV orchestration

Packet Optical Networks Revenue Mix



Note: 1Q19 through 4Q19 was not included in Ribbon's consolidated results as it was prior to the March 3, 2020 merger date. Of the amount for the three months ended March 31, 2020, $30M was included in Ribbon's consolidated results. All of 2Q20 was included in Ribbon's consolidated results.

Looking Forward

Key Trends

- Work-from-home driving continued higher network utilization and need for capacity augmentation
- Mobile network traffic growing exponentially and will increase 5x by 2025, with 5G traffic accounting for 45% of all mobile data traffic[1]
- Significant influx of investment from Internet companies into Indian economy
- Legacy TDM and SDH/Sonet networks reaching end of life and migrating to IP
- Global pressure on China creating level playing field

Short Term Priorities

- Leverage key technology advantages to increase market share: 5G timing and hard-slicing, optimized IP-MPLS platforms, performance (1.2Tbps dual-transceiver design)
- Penetrate North American Service Provider and Critical Infrastructure markets
- Cross-sell Packet Optical Networks portfolio to key accounts
- Maintain maximum operational flexibility to quickly respond to demand recovery from Indian carriers

Outlook

- Significant recovery in 2H20 as Indian telecom providers settle AGR fee dispute and return to normal spend cycle
- Increasing mind-share in North American market and positioned to challenge for business in 2021
- Optimized cost structure improving profitability and leverage combined scale
- Growing China vendor replacement opportunities
- Significant international Defense and critical infrastructure opportunities to drive further growth

1 Ericsson 2020 Mobility Report https://www.ericsson.com/en/mobility-report/reports/june-2020

APPENDIX: Financial Information

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Basis of Presentation

- Totals may not sum due to rounding.
- The terms “Cloud and Edge”, “Ribbon standalone”, “Ribbon’s organic business” and “organic” as used herein refer to the business, continuing operations and/or financial results, as the context dictates, of Ribbon Communications excluding the recently acquired ECI Telecom business, which was completed on March 3, 2020. The term “overall” as used herein refers to Ribbon consolidated results (including the results of ECI post-merger through June 30, 2020) for the metric or period indicated. Periods prior to the first quarter of 2020 represent Ribbon reported results for the respective period.
- ECI results prior to the closing of the merger with Ribbon Communications on March 3, 2020 have been combined with (added to) the Ribbon standalone results for certain financial metrics, for illustrative purposes only. These combined results are presented for illustrative purposes and are not intended to represent or be indicative of the actual results of the combined company that would have been achieved had the merger occurred on January 1, 2019.
- Packet Optical Networks relates to the ECI Telecom business. **Cloud and Edge** relates to Ribbon standalone and excludes the ECI Telcom business.
- Ribbon Communications’ 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 on a non-GAAP basis and is approved by our board of directors. Budgeting and forecasting for revenue and expenses are conducted on a non-GAAP basis, 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 of intangible assets; acquisition-related facilities adjustments; certain litigation costs; impairment of goodwill; settlement expense; cancelled debt offering costs; acquisition- and integration-related expense; restructuring and related expense; a gain on the settlement of litigation; a reduction to deferred purchase consideration; the tax effect of these adjustments; and the income tax benefit arising from purchase accounting. Effective for the first quarter of 2019 and for subsequent reporting periods, we no longer adjust for the impact of the adoption of the new revenue standard in 2018.
- The term “Cloud and Edge” as used herein refers to the business, continuing operations and/or financial results, as the context dictates, of Ribbon Communications on a non-GAAP basis excluding the recently acquired ECI business. The term “Packet Optical Networks” as used herein refers to the business, continuing operations and/or financial results, as the context dictates, of ECI on a non-GAAP basis for the period since March 3, 2020. The term “Consolidated” refers to the consolidated results of Ribbon, including the recently acquired ECI business. 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 our financial measures reflect the exclusion of items that are recurring and will be reflected in our financial results for the foreseeable future.
- *Impact of New Revenue Standard:* For periods prior to the first quarter of 2019, we adjusted our non-GAAP financial measures for eliminated revenue resulting from our adoption of the new revenue recognition standard in 2018 and related cost of revenue. Effective for the first quarter of 2019 and for subsequent reporting periods, we no longer adjust our non-GAAP financial measures for the 2018 revenue standard adoption.
- *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 an 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.
- Unlevered Free Cash Flow: We use Unlevered Free Cash Flow to measure the cash we generate or utilize from operations and to maintain our capital assets. We calculate Unlevered Free Cash Flow as net cash provided by (used in) operating activities excluding interest paid, less capital expenditures. We disclose this metric to support and facilitate our dialogue with research analysts and investors, as we believe Unlevered Free Cash Flow is representative of cash that is available for working capital, investments and financing de-leveraging. Accordingly, we believe that Unlevered Free Cash Flow provides useful information to investors in understanding and evaluating our liquidity in the same manner as management. Other companies may calculate Unlevered Free Cash Flow 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 our 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.

Ribbon Condensed Statements of Operations

USD Millions except percentages and EPS	1Q18	2Q18	3Q18	4Q18	FY18	1Q19	2Q19	3Q19	4Q19	FY19	1Q20	2Q20
GAAP FINANCIAL MEASURES												
Product Revenue	52	63	77	87	279	47	72	61	81	262	76	121
Service Revenue	70	74	75	80	299	71	73	77	80	301	82	90
Total Revenue	**121**	**137**	**152**	**167**	**578**	**119**	**145**	**138**	**161**	**563**	**158**	**210**
Gross Profit	**55**	**75**	**82**	**96**	**308**	**57**	**81**	**79**	**101**	**317**	**82**	**112**
Gross Margin %	*46%*	*55%*	*54%*	*57%*	*53%*	*48%*	*55%*	*57%*	*63%*	*56%*	*52%*	*53%*
Research and development	39	36	34	36	145	36	35	34	36	141	42	52
Selling, general and administrative	48	46	47	54	194	49	41	38	44	172	54	53
Impairment of goodwill	-	-	-	-	-	-	-	-	164	164	-	-
Acquisition, Integration and Restructuring	11	10	8	5	34	8	11	4	6	29	14	6
Total Operating Expenses	**98**	**92**	**90**	**95**	**374**	**93**	**88**	**76**	**250**	**507**	**110**	**111**
Income/(Loss) from Operations	**(42)**	**(17)**	**(8)**	**1**	**(65)**	**(36)**	**(7)**	**3**	**(149)**	**(189)**	**(29)**	**2**
Operating Margin %	*-35%*	*-12%*	*-5%*	*1%*	*-11%*	*-30%*	*-5%*	*2%*	*-92%*	*-34%*	*-18%*	*1%*
Net Income/(Loss)	**(45)**	**(20)**	**(10)**	**(2)**	**(77)**	**(31)**	**49**	**2**	**(150)**	**(130)**	**(33)**	**(8)**
Diluted EPS	**($0.44)**	**($0.20)**	**($0.10)**	**($0.02)**	**($0.74)**	**($0.29)**	**$0.45**	**$0.01**	**($1.36)**	**($1.19)**	**($0.27)**	**($0.06)**
Weighted Average Diluted Shares	102	102	105	107	104	108	111	111	110	110	121	144
Cash Flow from Operating Activities	**3**	**(26)**	**(1)**	**14**	**(10)**	**20**	**10**	**(6)**	**33**	**56**	**40**	**(3)**
NON-GAAP FINANCIAL MEASURES												
Adjusted EBITDA	**(8)**	**16**	**25**	**29**	**62**	**(3)**	**22**	**23**	**43**	**86**	**10**	**30**
Unlevered Free Cash Flow	**2**	**(28)**	**(3)**	**13**	**(15)**	**17**	**9**	**(8)**	**31**	**49**	**35**	**(6)**

Please see the basis of presentation and the non-GAAP reconciliations elsewhere in this appendix,

Ribbon Condensed Balance Sheets

USD Millions	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20
ASSETS										
Cash and Investments[1]	85	55	43	51	46	51	40	45	110	94
Accounts Receivable, Net	126	136	151	188	135	155	163	193	206	205
Inventory, Net	21	19	22	23	19	17	14	15	67	58
Property Plant Equipment, Net	24	24	26	27	28	28	27	29	47	48
Goodwill and Intangibles	568	556	646	635	640	627	615	438	866	866
Other Assets	38	37	37	34	78	98	98	95	177	157
Total Assets	**861**	**828**	**924**	**957**	**946**	**977**	**957**	**815**	**1,472**	**1,428**
LIABILITIES AND EQUITY										
Revolving Credit Facility	20	20	58	55	57	35	34	8	-	-
Liabilities	116	112	154	165	160	153	141	155	384	362
Deferred Revenue	117	105	98	123	125	112	102	121	140	130
Debt	23	23	24	24	25	50	49	48	395	392
Stockholders' Equity	585	567	590	590	579	627	631	483	554	545
Total Liabilities and Equity	**861**	**828**	**924**	**957**	**946**	**977**	**957**	**815**	**1,472**	**1,428**

[1] Includes cash, cash equivalents, short- and long-term investments and restricted cash

Ribbon Condensed[2] Statements of Cash Flows

USD Millions	1Q18	2Q18	3Q18	4Q18	FY18	1Q19	2Q19	3Q19	4Q19	FY19	1Q20	2Q20
Cash from Operations	3	(26)	(1)	14	(10)	20	10	(6)	33	56	40	(3)
Purchases of PP&E	(2)	(2)	(2)	(2)	(8)	(4)	(2)	(2)	(2)	(11)	(6)	(9)
Stock Repurchase	-	-	-	-	-	-	(5)	-	-	(5)	-	-
Business Acquisitions	-	-	(46)	-	(46)	(22)	-	-	-	(22)	(347)	-
Sale of Fixed Assets	-	-	-	-	-	-	-			-	44	-
Borrowings, net	-	-	38	(3)	35	2	3	(2)	(27)	(23)	336	(4)
Other	-	(1)	(1)	(1)	(4)	(1)	-	-	0	(1)	(1)	0
Net Change	**2**	**(30)**	**(12)**	**8**	**(32)**	**(5)**	**5**	**(11)**	**4**	**(6)**	**65**	**(16)**
Cash[1] Beginning of Period	**83**	**85**	**55**	**43**	**83**	**51**	**46**	**51**	**40**	**51**	**45**	**110**
Cash[1] End of Period	**85**	**55**	**43**	**51**	**51**	**46**	**51**	**40**	**45**	**45**	**110**	**94**

[1]Includes cash, cash equivalents, short- and long-term investments and restricted cash.
[2]Please see the basis of presentation in our latest 10-K, 10-Q and quarterly earnings release presentations. All are included in our website at www.RBBN.com

Ribbon Revenue Key Statistics

USD Millions except for percentages	1Q18	2Q18	3Q18	4Q18	FY18	1Q19	2Q19	3Q19	4Q19	FY19	1Q20	2Q20
GAAP Revenue												
Product	52	63	77	87	279	47	72	61	81	262	76	121
Service	70	74	75	80	299	71	73	77	80	301	82	90
Total Revenue	**121**	**137**	**152**	**167**	**578**	**119**	**145**	**138**	**161**	**563**	**158**	**210**
% of Total GAAP Revenue:												
GAAP Revenue Mix												
Product	43%	46%	51%	52%	48%	40%	50%	44%	50%	47%	48%	57%
Services	57%	54%	49%	48%	52%	60%	50%	56%	50%	53%	52%	43%
GAAP Revenue by Geography												
Domestic	47%	61%	61%	62%	58%	58%	58%	64%	62%	61%	50%	48%
International	53%	39%	39%	38%	42%	42%	42%	36%	38%	39%	50%	52%
GAAP Revenue by Channel												
Direct	84%	88%	66%	69%	75%	60%	60%	65%	69%	64%	62%	73%
Indirect	16%	12%	34%	31%	25%	40%	40%	35%	31%	36%	38%	27%
GAAP Product Revenue By Market												
Enterprise	14%	11%	31%	23%	21%	31%	21%	29%	29%	27%	36%	30%
Service Providers	86%	89%	69%	77%	79%	69%	79%	71%	71%	73%	64%	70%
10% Total Revenue Customers	Verizon	Verizon	Verizon AT&T	Verizon	Verizon	Verizon AT&T	Verizon	Verizon AT&T	Verizon AT&T	Verizon AT&T	Verizon AT&T	Verizon

Please see the basis of presentation in the appendix.

GAAP to Non-GAAP Reconciliation

$000's	1Q18	2Q18	3Q18	4Q18	FY18	1Q19	2Q19	3Q19	4Q19	FY19	1Q20	2Q20
Adjusted EBITDA												
GAAP Net (loss) income	$ (44,904)	$ (19,922)	$ (10,158)	$ (1,826)	$ (76,810)	$ (30,832)	$ 49,470	$ 1,650	$ (150,363)	$ (130,075)	$ (33,170)	$ (8,251)
Interest expense, net	599	735	1,420	1,476	4,230	1,364	1,262	726	525	3,877	3,395	5,400
Income tax provision (benefit)	2,170	499	(82)	813	3,400	1,014	5,033	(197)	1,332	7,182	191	2,036
Depreciation	2,507	2,811	2,952	2,930	11,200	2,921	2,970	2,933	3,125	11,949	3,474	4,786
Amortization of intangible assets	12,309	11,964	13,448	12,002	49,723	11,922	12,647	12,260	12,396	49,225	14,334	14,669
Adjustment to revenue 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	2,824	2,081	2,516	3,651	11,072	4,139	1,530	2,485	4,447	12,601	2,976	3,222
Acquisition-related facilities adjustment	211	252	251	252	966	-	-	-	-	-	-	-
Litigation costs	673	1,901	3,147	1,961	7,682	6,186	1,315	(1,534)	1,767	7,734	3,038	(937)
Impairment of goodwill	-	-	-	-	-	-	-	-	164,300	164,300	-	-
Settlement expense	1,730	-	-	-	1,730	-	-	-	-	-	-	-
Cancelled debt offering costs	-	-	-	1,003	1,003	-	-	-	-	-	-	-
Acquisition- and integration-related expense	4,412	4,280	5,570	2,689	16,951	3,199	1,965	1,697	6,092	12,953	12,384	857
Restructuring and related expense	6,668	6,097	2,397	1,853	17,015	4,932	9,144	2,372	(49)	16,399	2,075	5,361
Other (income) expense, net	(248)	2,052	1,254	714	3,772	(7,774)	(62,861)	507	(316)	(70,444)	844	2,407
Non-GAAP Adjusted EBITDA	$ (8,144)	$ 15,699	$ 24,893	$ 29,421	$ 61,869	$ (2,929)	$ 22,475	$ 22,899	$ 43,256	$ 85,701	$ 9,541	$ 29,550
Unlevered Free Cash Flow												
GAAP Net cash provided by (used in) operating activities	$ 3,392	$ (26,083)	$ (850)	$ 13,946	$ (9,595)	$ 19,579	$ 9,540	$ (6,488)	$ 33,054	$ 55,685	$ 39,932	$ (3,220)
Interest paid	667	228	673	799	2,367	831	1,814	1,004	423	4,072	668	5,607
Purchases of property and equipment	(1,827)	(1,665)	(2,458)	(1,957)	(7,907)	(3,766)	(2,387)	(2,441)	(2,230)	(10,824)	(6,017)	(8,874)
Non-GAAP Unlevered free cash flow	$ 2,232	$ (27,520)	$ (2,635)	$ 12,788	$ (15,135)	$ 16,644	$ 8,967	$ (7,925)	$ 31,247	$ 48,933	$ 34,583	$ (6,487)

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

GAAP to Non-GAAP Reconciliation (continued)

$000's	1Q19	2Q19	3Q19	4Q19	FY19	1Q20 Cloud and Edge	1Q20 Packet Optical Networks	1Q20 Consolidated	2Q20 Cloud and Edge	2Q20 Packet Optical Networks	2Q20 Consolidated
Revenue											
Product	$ 47,480	$ 72,059	$ 61,152	$ 81,339	$ 262,030	$ 54,210	$ 21,689	$ 75,899	$ 72,310	$ 48,552	$ 120,862
Service											
Maintenance	56,989	57,141	58,901	61,197	234,228	55,556	5,512	61,068	57,853	10,770	68,623
Professional services	14,459	16,221	17,600	18,573	66,853	18,265	2,750	21,015	16,744	4,264	21,008
Total service	71,448	73,362	76,501	79,770	301,081	73,821	8,262	82,083	74,597	15,034	89,631
Total revenue	$ 118,928	$ 145,421	$ 137,653	$ 161,109	$ 563,111	$ 128,031	$ 29,951	$ 157,982	$ 146,907	$ 63,586	$ 210,493
Total gross profit	$ 56,589	$ 80,673	$ 78,877	$ 100,945	$ 317,084	$ 70,919	$ 10,651	$ 81,570	$ 90,706	$ 21,611	$ 112,317
GAAP Gross margin - total (Total gross profit/Revenue)	47.6%	55.5%	57.3%	62.7%	56.3%	55.4%	35.6%	51.6%	61.7%	34.0%	53.4%
Stock-based compensation	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	*	0.1%
Amortization of intangible assets	8.1%	6.9%	6.9%	5.1%	6.7%	6.2%	3.6%	5.7%	5.4%	4.8%	5.2%
Non-GAAP Gross margin - total	55.8%	62.5%	64.3%	67.9%	63.1%	61.7%	39.2%	57.4%	67.2%	38.8%	58.7%

* Less than 0.1% impact on Gross margin.

GAAP to Non-GAAP Reconciliation (continued)

$000s	2Q19	2Q20 Cloud and Edge	2Q20 Packet Optical Networks	2Q20 Consolidated
GAAP Operating expenses	$ 87,769	$ 74,820	$ 35,905	$ 110,725
Stock-based compensation	(1,357)	(2,950)	(74)	(3,024)
Amortization of intangible assets	(2,555)	(3,439)	(280)	(3,719)
Litigation costs	(1,315)	937	-	937
Acquisition- and integration-related expense	(1,965)	(856)	(1)	(857)
Restructuring and related expense	(9,144)	(4,246)	(1,115)	(5,361)
Non-GAAP Operating expenses	$ 71,433	$ 64,266	$ 34,435	$ 98,701
Income (loss) from operations as a percentage of revenue ("Operating margin")				
GAAP Operating margin	-4.9%	10.8%	-22.5%	0.8%
Stock-based compensation	1.1%	2.1%	0.1%	1.5%
Amortization of intangible assets	8.6%	7.7%	5.3%	7.0%
Litigation costs	0.9%	-0.6%	0.0%	-0.4%
Acquisition- and integration-related expense	1.4%	0.6%	*	0.4%
Restructuring and related expense	6.3%	2.9%	1.8%	2.5%
Non-GAAP Operating margin	13.4%	23.5%	-15.3%	11.8%

* Less than 0.1% impact on Operating margin.

GAAP to Non-GAAP Reconciliation (continued)

($000s, except (Loss) earnings per share)	2Q19	2Q20
(Loss) earnings per share		
GAAP (loss) per share or diluted earnings per share	$ 0.45	$ (0.06)
Stock-based compensation	0.01	0.02
Amortization of intangible assets	0.12	0.10
Litigation costs	0.01	(0.01)
Acquisition- and integration-related expense	0.02	0.01
Restructuring and related expense	0.08	0.04
Gain on litigation settlement	(0.57)	-
Tax effect of non-GAAP adjustments	0.02	(0.04)
Non-GAAP diluted earnings per share	$ 0.14	$ 0.06
Weighted average shares used to diluted earnings per share or (loss) per share		
GAAP Shares used to compute diluted earnings per share or (loss) per share	110,698	144,483
Non-GAAP Shares used to compute diluted earnings per share	110,698	150,512

	2Q19	2Q20		
		Cloud and Edge	Packet Optical Networks	Consolidated
Adjusted EBITDA				
GAAP Net income (loss)	$ 49,470	$ 8,853	$ (17,104)	$ (8,251)
Interest expense, net	1,262	4,464	936	5,400
Income tax provision	5,033	1,453	583	2,036
Depreciation	2,970	2,984	1,802	4,786
Amortization of intangible assets	12,647	11,324	3,345	14,669
Stock-based compensation	1,530	3,138	84	3,222
Litigation costs	1,315	(937)	-	(937)
Acquisition- and integration-related expense	1,965	856	1	857
Restructuring and related expense	9,144	4,246	1,115	5,361
Other (income) expense, net	(62,861)	788	1,619	2,407
Non-GAAP Adjusted EBITDA	$ 22,475	$ 37,169	$ (7,619)	$ 29,550

Discussion of Non-GAAP Financial Measures

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 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.

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 a 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 included this adjustment, which related to the acquisition of GENBAND, through the fourth quarter of 2018, to allow for more complete comparisons to the financial results of our historical operations and the financial results of peer companies.

Litigation Costs: We were involved in litigation with a certain competitor with whom we reached a settlement in the second quarter of 2019 (see also "Gain on Litigation Settlement" below). In connection with this litigation, we incurred litigation costs beginning in the fourth quarter of 2017. In addition, we reached a settlement with a former business partner of GENBAND regarding amounts loaned to this former business partner that were never repaid, for which we began incurring litigation costs in the fourth quarter of 2019. In the second quarter of 2020 we recorded a credit of $0.9 million, which represents discounts on certain legal invoices and insurance reimbursements. We believe that such costs and credits are not part of our core business or ongoing operations. Accordingly, we believe that excluding the litigation costs related to these specific legal matters facilitates the comparison of our financial results to our historical operating results and to other companies in our industry.

Impairment of Goodwill: We performed our annual testing for impairment of goodwill in the fourth quarter of 2019. We operate as a single operating segment with one reporting unit and consequently we evaluate goodwill for impairment based on an evaluation of the fair value of the Company as a whole. Upon completion of the goodwill impairment test, we determined that it was necessary to reduce our goodwill carrying amount and recorded a non-cash impairment charge in the fourth quarter of 2019. We believe that such non-cash costs are not part of our core business or ongoing operations. Accordingly, we believe that excluding the goodwill impairment charge 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. 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 other companies in our industry.

Cancelled Debt Offering Costs: In the fourth quarter of 2018, we announced that we intended to offer, subject to market conditions and other factors, $150 million aggregate principal amount of convertible senior notes due 2023 in a private offering to qualified institutional buyers. Subsequent to the announcement, we determined the 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. 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 continuing operations of our acquired businesses and the Company, and such costs 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 drive 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, we believe that our management is better able to evaluate our ability to utilize our existing assets and estimate the long-term value that the 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 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.

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.

Tax Benefit Arising from Purchase Accounting: In 2018, we assessed our ability to use our tax benefits and determined that it was more likely than not that some of these benefits will be recognized. As a result, we reduced our deferred tax asset valuation allowance, resulting in an income tax benefit of $0.7 million and a reduction to our income tax provision in 2018. We believe that such a benefit is not part of our core business or ongoing operations, as it was the result of an acquisition and was unrelated to our revenue-producing activities. Accordingly, we believe that excluding the benefit arising from this adjustment to our income tax provision facilitates the comparison of our financial results to our historical results and to other companies in our industry.

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 provision; depreciation; and amortization of intangible assets. In addition, we exclude from net income (loss): historical adjustments to revenue and cost of revenue related to our adoption of the new revenue standard (for periods prior to the first quarter of 2019); stock-based compensation expense; acquisition-related facilities adjustments; certain litigation costs; impairment of goodwill; settlement expense; 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.

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