

FOCUS Telecom Technology and Services Group Carrier-Focused Telecom Technology Quarterly

Winter 2017 Report

Vol. 7, No. 4

FOCUS

Investment Banking

Strategic, Personal, Dedicated

Investment Banking and Advisory Services
FOCUS Investment Banking LLC is a leading investment bank with specialized telecom technology and services expertise, concentrating on providing highly tailored services to emerging middle market and larger organizations in this sector:

Mergers & Acquisition Advisory
Corporate Development Consulting
Strategic Partnering & Alliances
Capital Financing, Debt & Equity
Corporate Valuations

In this Issue

- 2** Introduction / Sub Sector Definitions
- 3** Summary Comments: Public Markets
- 4** Public Market Summary Charts 1-6
- 6** Summary Comments: M&A
- 7** M&A Summary Charts 1-2
- 8** Announced Transactions
- 8** Announced Transactions with Revenue Multiples
- 9** Sub Sector Analysis: Large Cap Charts 1-6
- 10** Sub Sector Analysis: OSS/BSS Charts 1-6
- 11** Sub Sector Analysis: IP Networking Charts 1-6
- 12** Sub Sector Analysis: Wireline Access and Transport Charts 1-6
- 13** Sub Sector Analysis: Cable and Video Charts 1-6
- 14** Sub Sector Analysis: Broadband Wireless Charts 1-6
- 15** Sub Sector Analysis: Test and Measurement Charts 1-6
- 16** FOCUS Telecom Technology and Services Team

Carrier-Focused Telecom Technology Quarterly

By Richard Pierce, FOCUS Managing Director and Telecom Technology and Services Team Leader

The FOCUS Telecom Technology and Services group consists of four professionals with a mix of backgrounds that include both C-level operating expertise and experience at leading middle market investment banks. The FOCUS Telecom team is uniquely qualified to help middle market clients reach their strategic objectives because the group:

- Devotes significant senior level resources to executing transactions for lower middle market clients,
- Has a breadth of knowledge that covers most segments of the telecom industry,
- Has bankers with C-level operating experience in the telecom industry,
- Has a proven transaction methodology for delivering results,
- Is equally comfortable with buy side and sell side M&A,
- Leverages an experienced team of research professionals,
- Has a national presence with coverage of both east and west coasts.

In 2017, members of the FOCUS Telecom team will be attending many conferences and meetings throughout the U.S. and are always delighted to receive introductions to

innovative companies in the industry. We hope to see you at one of these events, and look forward to exploring your capital market needs as you continue to grow your enterprise.

Sub Sector Definitions

- **Large Cap:** Large, diversified companies with products across a variety of sub sectors
- **OSS/BSS Software:** Software systems that manage and bill the customer base and monitor and maintain telecom networks
- **IP Networking:** Carrier Ethernet switching, routers and IP Multimedia Subsystem (“IMS”) components
- **Wireline Access and Transport:** DSL equipment, PON equipment and WDM-based transport
- **Cable and Video:** Products such as headends and servers that support video delivery as well as broadband products for cable networks
- **Broadband Wireless:** High capacity, fixed wireless equipment
- **Test and Measurement:** Equipment used by both service providers and manufacturers to test and monitor networks and equipment

Summary Comments

Public Markets

The FOCUS Carrier-Focused Telecom Technology Index (CFTTI) had a nice pop in our winter reporting period as it jumped 9.7% in the past three months. This outperformed both the S&P 500 (which gained 7.1%) and the NASDAQ (which gained 6.9%). It also was good to see that all the sub sectors save one were in the black for the reporting period. Over the past 12 months, the CFTTI is up 22.7%. This is better than the 20.4% year-over-year gain in the S&P 500, but lags the 29.1% return of the NASDAQ. Sector multiples are up sharply from this time last year. The sector revenue multiple went from 1.4x to 1.8x, while the sector EBITDA multiple increased from 8.3x to 11.8x.

Large Cap

The 10.8% gain in the Large Cap sub sector over the past three months was good enough to make it the second best performing sub sector in the CFTTI over this time frame. ZTE was the most impressive performer with a three-month gain of nearly 40%, while Cisco also was up double digits with a gain of 15.8%. On the other end of the spectrum, Nokia had a tough go of it as it shed nearly 20% of its value this period. The Large Cap sub sector is the top performing sub sector over the past year with a gain of 26.4%. ZTE was a big factor in this increase as it more than doubled in price, but Cisco, Ericsson, and Nokia also posted double digit gains. Sub sector multiples closed out the period at 1.8x revenue and 11.4x EBITDA. These both are higher than year-ago multiples of 1.4x revenue and 7.6x EBITDA.

OSS/BSS Software

The OSS/BSS Software sub sector was the lone component of the CFTTI in negative territory this period, dropping 0.8% over the past three months. Synchronoss was the major drag on the sub sector with a drop of 40.2%. On the bright side, Astellia (up 36.1%), CSG Systems (up 18.5%), and Redknee (up 41.8%) all performed extremely well. Unfortunately, the situation is not much better for the OSS/BSS Software sub sector over the 12-month period. The sub sector is down 5.2% over the past 12 months, which once again puts it in the CFTTI's cellar in terms of performance. Sub sector multiples also are down, with the revenue multiple falling from 2.3x to 2.1x and the EBITDA multiple dropping from 13.4x to 12.6x.

IP Networking

The IP Networking sub sector was another sub sector that had a strong winter reporting period. The sub sector overcame a roughly 50% decline at Radisys to post a three-month gain of 9.3%. Allot Communications was up more than 20%, while newly minted Ribbon Communications (formed from the merger of SONUS Networks and Gen-Band) had a nice initial quarter as it gained 12.4%. The sub sector also is up 20.8% over the past year, with every company in the index save Radisys enjoying a double-digit gain. The sub sector revenue multiple showed a nice increase over the past year from 1.7x to 2.6x. Overall sub sector EBITDA was negative at the end of the current reporting period, so the sub sector's EBITDA multiple was not meaningful.

Wireline Access and Transport

While a 1.5% gain may not seem like a lot, after two straight reporting periods with a double-digit decline, at least the Wireline Access and Transport sub sector managed to stem the bleeding. ADVA, BATM, and Dasan Zhone were the sub sector's top performers. The sub sector still is in the red for the full-year period with a decline of 1.2%. Once again, BATM and Dasan Zhone were among the top performers. Sub sector multiples closed out the period at 1.1x revenue and 21.1x EBITDA.

Cable and Video

The 8.1% gain in the Cable and Video sub sector made it another strong performer this reporting period. Harmonic was the best performer with a gain of 29.2%, but sub sector bellwether ARRIS also turned in a solid 7.6% gain. This period's gain was good enough to bring the sub sector's year-over-year performance into positive territory with a 12-month gain of 4.3%. Amino and NetGem enjoyed double digit returns over this time frame, while ARRIS had a more modest gain of 4.5%. Sub sector multiples are down compared to last year, but only by the narrowest of margins. The sub sector revenue multiple dipped from 1.1x to 1.0x, while the sub sector EBITDA multiple decreased from 10.1x to 10.0x.

Broadband Wireless

For the second straight reporting period, the Broadband Wireless sub sector was the CFTTI's top performing sub sector. It earned this distinction by gaining 11.3% in the

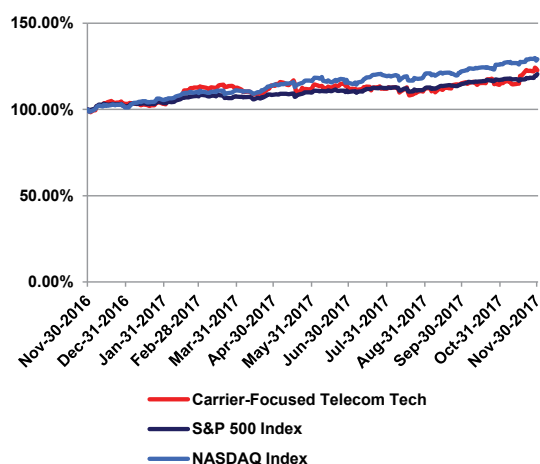
past three months. This increase was entirely the result of a 12.1% gain at Ubiquiti Networks. The sub sector's year-over-year return also continues to improve and now stands at 18.1%. In addition to a 19.4% gain at Ubiquiti Networks, Aviat Networks also was up more than 20%. Even with the gains in the sub sector index over the past year, sub sector multiples still declined. The sub sector revenue multiple now stands at 3.4x (down from 3.5x a year ago) while the sub sector EBITDA multiple ended the period at 14.7x (down from 16.7x a year ago).

Test and Measurement

The Test and Measurement sub sector was relatively flat for the past three months, increasing a scant 0.1%. The 20.1% gain at Anritsu and the 14.0% gain at Spirent were counterbalanced by losses at EXFO (down 6.1%), Gigamon (down 9.5%), and Viavi (down 6.7%). The sub sector still looks good for the full-year period with a gain just shy of 20%. Anritsu had the sub sector's best year-over-year gain, but Spirent and Viavi also were up sharply. Sub sector multiples are higher than last year. The revenue multiple increased from 1.7x to 2.0x, and the EBITDA multiple expanded from 14.0x to 18.9x.

Carrier-Focused Telecom Technology: Public Market Summary

Twelve Month Index Returns



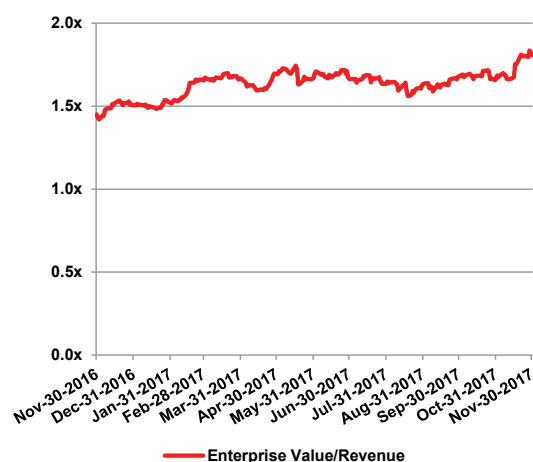
Sector and Sub Sector Returns

	12 Month	3 Month
Carrier-Focused Telecom Tech	22.7%	9.7%
Large Cap	26.4%	10.8%
OSS/BSS	-5.2%	-0.8%
IP Networking	20.8%	9.3%
Wireline Access and Transport	-1.2%	1.5%
Cable and Video	4.3%	8.1%
Broadband Wireless	18.1%	11.3%
Test and Measurement	19.8%	0.1%
S&P 500	20.4%	7.1%
NASDAQ	29.1%	6.9%

Source: Capital IQ

Carrier-Focused Telecom Technology: Public Market Summary (*continued*)

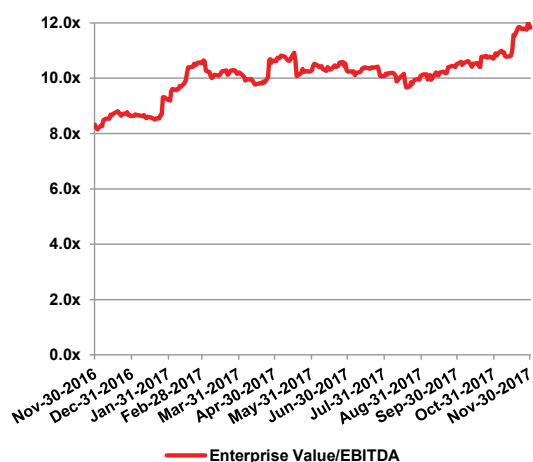
Revenue Multiple Trends



Sector and Sub Sector Revenue Multiples

	11/30/2017	11/30/2016
Carrier-Focused Telecom Tech	1.8x	1.4x
Large Cap	1.8x	1.4x
OSS/BSS	2.1x	2.3x
IP Networking	2.6x	1.7x
Wireline Access and Transport	1.1x	1.2x
Cable and Video	1.0x	1.1x
Broadband Wireless	3.4x	3.5x
Test and Measurement	2.0x	1.7x

EBITDA Multiple Trends



Sector and Sub Sector EBITDA Multiples

	11/30/2017	11/30/2016
Carrier-Focused Telecom Tech	11.8x	8.3x
Large Cap	11.4x	7.6x
OSS/BSS	12.6x	13.4x
IP Networking	NM	34.0x
Wireline Access and Transport	21.1x	13.4x
Cable and Video	10.0x	10.1x
Broadband Wireless	14.7x	16.7x
Test and Measurement	18.9x	14.0x

Source: Capital IQ

Carrier-Focused Telecom Technology: M&A Summary

Carrier-Focused Telecom Technology Stocks

M&A

The level of M&A activity in the Carrier Focused Telecom Technology sector remained slow with only 11 transactions in our winter reporting period. However, at \$1.4 billion, the total announced transaction dollar volume was relatively solid. Year-to-date, we count 50 transactions for the sector with a total announced transaction dollar volume of \$5.5 billion. This means that 2017 is likely to be the slowest year in the last five in terms of the number of transactions, although announced transaction dollar volume will still be solid compared to recent levels.

OSS/BSS Software

The OSS/BSS Software sub sector had six transactions in our three-month reporting period. Software consolidators Enghouse Systems and Constellation Software both inked deals, as Enghouse acquired Xconnect and Constellation acquired the wireless data services division of Conduent. The remaining transactions in the space were all by first time acquirers. Two of these (Adapt IT's acquisition of CDR Live and Yaana Technologies' acquisition of NeuString) were in the analytics space. In addition, Carnegie Technologies acquired the SmartSwitch data management assets from Chemring and Polystar Instruments acquired performance management software provider P-OSS Solutions.

IP Networking

There were no M&A transactions in the IP Networking sub sector this reporting period.

Wireline Access and Transport

There were no M&A transactions in the Wireline Access and Transport sub sector this reporting period.

Cable and Video

Vecima Networks remained an active acquirer as the company purchased the content delivery and storage assets of Concurrent Computer. The deal was done at a value of \$29.0 million.

Broadband Wireless

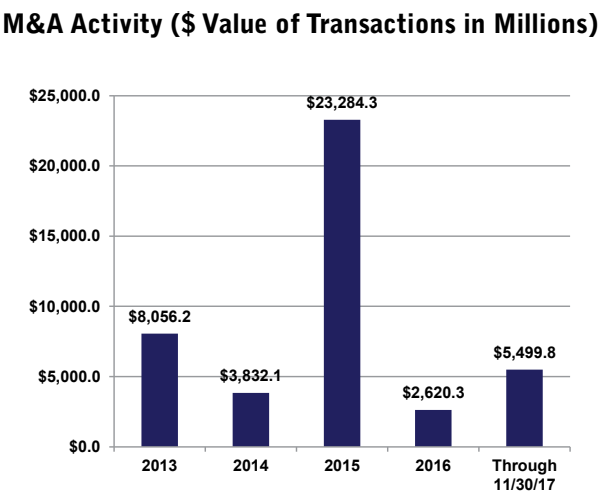
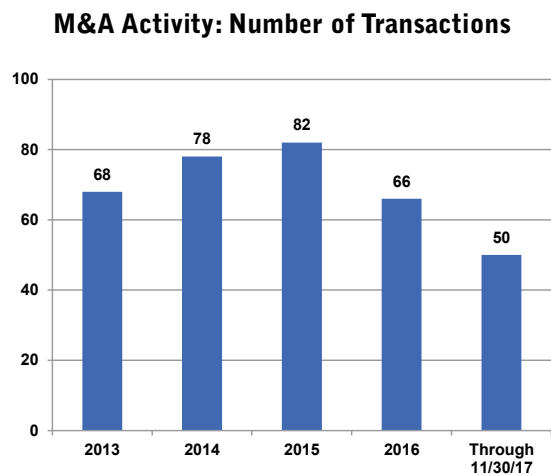
This period marked the end of DragonWave's run as an independent company. The formerly publicly traded company was acquired out of bankruptcy by Transform-X for an undisclosed sum.

Test and Measurement

Activity in the Test and Measurement sub sector was fairly robust by historical standards with three transactions this period. This included the acquisition of Gigamon by Elliott Capital, which at a total enterprise value of \$1.3 billion was by far the largest transaction this reporting period. In addition, EXFO continued to be an active acquirer with the pickup of optical test equipment vendor Yenista Optics and first-time acquirer AEM Holdings purchased InspiRain Technologies

Transactions with Multiples

The two transactions this period with announced multiples were the acquisition of Gigamon by Elliott Capital and the acquisition of the Concurrent Computer content delivery and storage business by Vecima Networks. The Gigamon transaction was done at an extremely healthy multiple of 4.3x revenue and more than 100x EBITDA. The Vecima Networks' deal was at a much lower multiple of 1.1x revenue.



Announced Transactions (9/1/17 – 11/30/17)

Acquiror	Target	Date Announced	Sector	Purchase Price	Description
Enghouse Systems	Xconnect	11/28/17	OSS/BSS Software	NA	VoIP interconnection and number portability SaaS and services for telecommunications carriers and VoIP operators.
Adapt IT	CDR Live	11/22/17	OSS/BSS Software	\$5.0	Data collection, management, business intelligence and analysis software for telecommunications providers.
Carnegie Technologies	Chemring (SmartSwitch Assets)	11/1/17	OSS/BSS Software	NA	Smartphone connection and data management systems for multiple network operators and multiple service operators.
Elliott Capital	Gigamon	10/26/17	Test and Measurement	\$1,327.1	Traffic intelligence applications that provide controls for traffic selection, forwarding, manipulation and generation of flow records.
Polystar Instruments	P-OSS Solutions	10/20/17	OSS/BSS Software	NA	Develops web-based network performance management software for communications service providers worldwide.
Vecima Networks	Concurrent Computer (Content Delivery and Storage Business)	10/16/17	Cable and Video	\$29.0	Content delivery solutions consisting of software, hardware and services for intelligently streaming video content.
Transform-X	DragonWave	10/6/17	Broadband Wireless	NA	Supplier of packet microwave radio systems for mobile and access networks.
EXFO	Yenista Optics	10/2/17	Test and Measurement	\$11.1	Supplies advanced optical test equipment for the R&D and manufacturing markets.
AEM Holdings	Inspira Technologies	9/30/17	Test and Measurement	\$2.7	Engages in research, development and production of network infrastructure test and measurement solutions and equipment.
Constellation Software	Conduent (Wireless Data Services Division)	9/29/17	OSS/BSS Software	NA	Software and services that enable wireless network operators to provision, manage and support their customers.
Yaana Technologies	NeuString	9/6/17	OSS/BSS Software	NA	Develops and delivers predictive analytics software solutions for the mobile telecommunications industry.

Announced Transactions with Revenue Multiples (12/1/16 – 11/30/17)

Acquiror	Target	Date Announced	Sector	Purchase Price	Revenue Multiple	EBITDA Multiple	Description
Elliott Capital	Gigamon	10/26/17	Test and Measurement	\$1,327.1	4.3 x	125.8 x	Traffic intelligence applications that provide controls for traffic selection, forwarding, manipulation and generation of flow records.
Vecima Networks	Concurrent Computer (Content Delivery and Storage Business)	10/16/17	Cable and Video	\$29.0	1.1 x	NA	Content delivery solutions consisting of software, hardware and services for intelligently streaming video content.
EXFO	Astellia	8/31/17	OSS/BSS Software	\$36.1	0.7 x	33.4 x	Network and subscriber intelligence solutions for mobile operators worldwide.
Adva Optical Networking	MRV Communications	7/2/17	Wireline Access and Transport	\$48.1	0.6 x	NM	Offers optical transport, packet/carrier Ethernet, network management and infrastructure management products and services.
Procera Networks	Sandvine	6/27/17	IP Networking	\$314.7	2.8 x	18.6 x	Network policy control solutions for fixed, mobile and converged communications service providers.
Siris Capital	Synchronoss	6/23/17	OSS/BSS Software	\$986.2	2.1 x	18.2 x	Provides cloud solutions and software-based activation for connected devices worldwide.
Sonus Networks	GenBand	5/23/17	IP Networking	\$412.0	1.0 x	NA	Provides IP switching systems and gateways for businesses and telecom services providers globally.
Enghouse Systems	Tollgrade Communications	4/12/17	Test and Measurement	\$23.0	1.0 x	NA	Centralized, software based test systems for broadband telecom access providers.
Keysight Technologies	Ixia	1/30/17	Test and Measurement	\$1,526.5	3.1 x	18.7 x	Provides application performance and security resilience solutions.
Nokia	Comptel Corporation (AXIOS Assets)	2/9/17	OSS/BSS Software	\$366.9	3.2 x	25.3 x	Software to detect network anomalies, manage the customer experience and provide service fulfillment.

Sub Sector Analysis: Large Cap

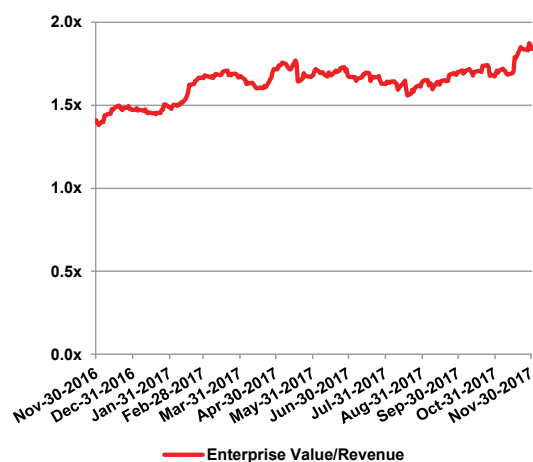
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Large Cap Index	26.4%	10.8%
Cisco	25.1%	15.8%
Ericsson	22.1%	7.2%
Juniper	0.8%	0.1%
Nokia	17.0%	-18.8%
ZTE	104.7%	38.2%

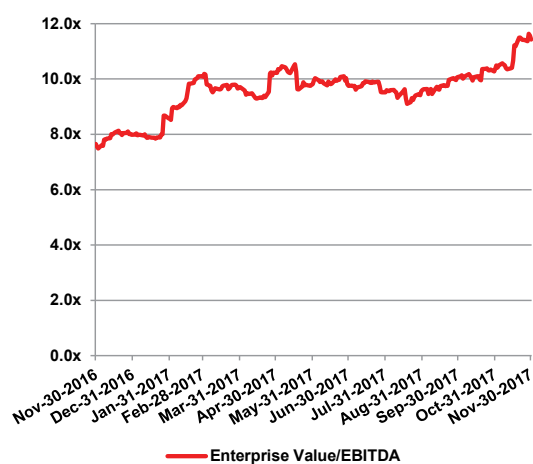
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
Large Cap Index	1.8x	1.4x
Cisco	3.1x	2.3x
Ericsson	0.8x	0.6x
Juniper	1.8x	2.1x
Nokia	0.9x	0.8x
ZTE	1.3x	0.6x

EBITDA Multiple Trends



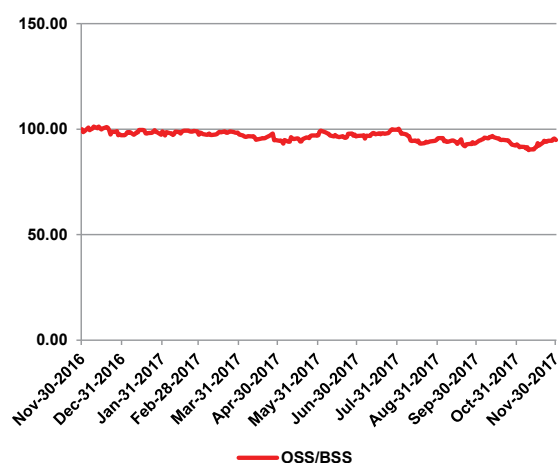
Company EBITDA Multiples

	11/30/2017	11/30/2016
Large Cap Index	11.4x	7.6x
Cisco	10.3x	7.6x
Ericsson	36.8x	4.4x
Juniper	7.8x	9.6x
Nokia	8.8x	8.3x
ZTE	32.8x	299.8x

Source: Capital IQ

Sub Sector Analysis: OSS/BSS Software

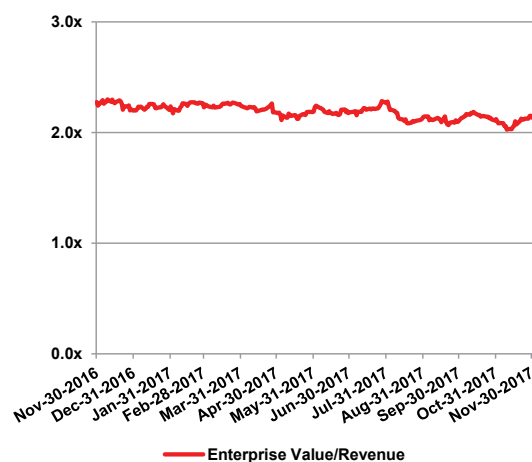
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
OSS/BSS Index	-5.2%	-0.8%
Amdocs	10.7%	0.8%
Astellia	89.3%	36.1%
CSG Systems	3.1%	18.5%
Evolving Systems	15.2%	-4.2%
NetScout Systems	-0.5%	-5.2%
Radcom	6.4%	2.3%
Redknee	-40.8%	41.8%
Subex	-10.1%	-1.2%
Synchronoss	-79.3%	-40.2%
Tecnotree	-12.1%	7.2%

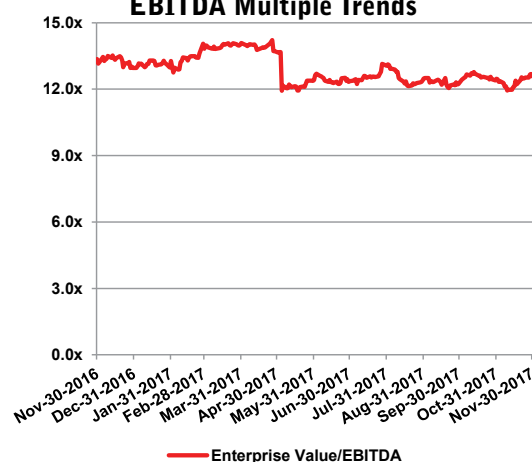
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
OSS/BSS Index	2.1x	2.3x
Amdocs	2.2x	2.1x
Astellia	0.8x	0.4x
CSG Systems	2.1x	2.1x
Evolving Systems	2.3x	1.8x
NetScout Systems	2.4x	2.5x
Radcom	6.6x	7.0x
Redknee	1.6x	1.0x
Subex	1.5x	1.9x
Synchronoss	1.3x	3.8x
Tecnotree	0.5x	0.6x

EBITDA Multiple Trends



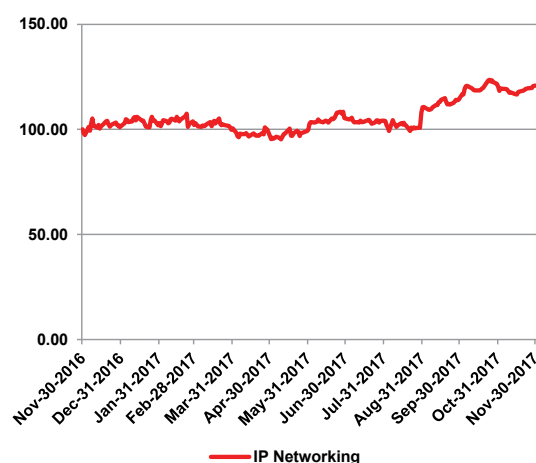
Company EBITDA Multiples

	11/30/2017	11/30/2016
OSS/BSS Index	12.6x	13.4x
Amdocs	11.7x	11.3x
Astellia	NM	20.1x
CSG Systems	11.6x	9.4x
Evolving Systems	7.9x	6.2x
NetScout Systems	13.8x	14.6x
Radcom	NM	NM
Redknee	NM	NM
Subex	6.9x	8.5x
Synchronoss	11.1x	18.3x
Tecnotree	NM	6.2x

Source: Capital IQ

Sub Sector Analysis: IP Networking

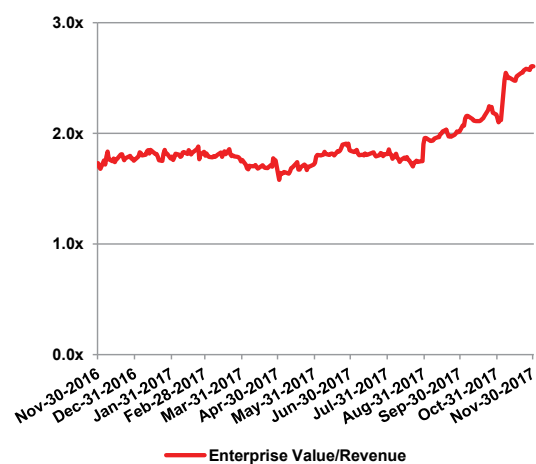
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
IP Networking Index	20.8%	9.3%
Allot Communications	29.0%	21.7%
Audiocodes	12.0%	0.3%
Broadsoft	32.5%	11.0%
Radisys	-82.1%	-52.5%
Ribbon Communications	28.9%	12.4%

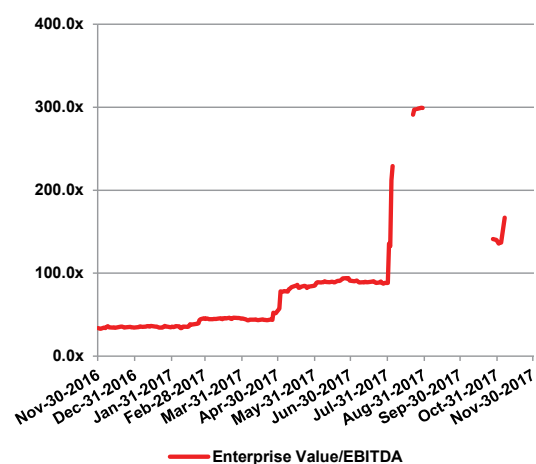
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
IP Networking Index	2.6x	1.7x
Allot Communications	1.0x	0.5x
Audiocodes	1.3x	1.3x
Broadsoft	4.4x	3.7x
Radisys	0.2x	0.7x
Ribbon Communications	2.7x	0.8x

EBITDA Multiple Trends



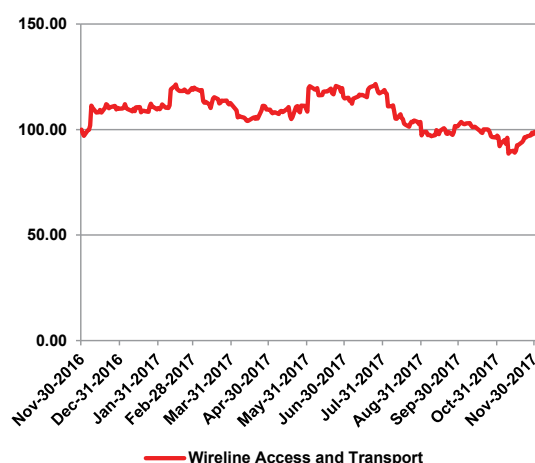
Company EBITDA Multiples

	11/30/2017	11/30/2016
IP Networking Index	NM	34.0x
Allot Communications	NM	NM
Audiocodes	18.4x	19.4x
Broadsoft	66.5x	30.9x
Radisys	NM	36.9x
Ribbon Communications	NM	40.2x

Source: Capital IQ

Sub Sector Analysis: Wireline Access and Transport

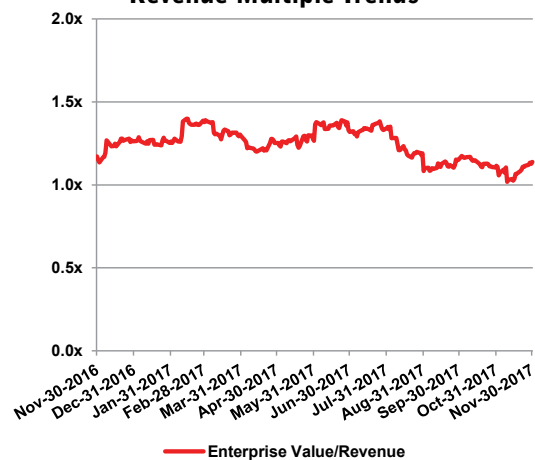
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Wireline Access & Transport Index	-1.2%	1.5%
ADTRAN	13.5%	4.5%
ADVA	-3.3%	28.7%
BATM	86.5%	54.4%
Calix	-12.6%	34.7%
CIENA	1.4%	0.6%
Communications Systems	-23.6%	5.8%
Dasan Zhone Solutions	51.3%	26.8%
Infinera	-14.8%	-14.4%
Net Insight	-21.5%	-3.6%

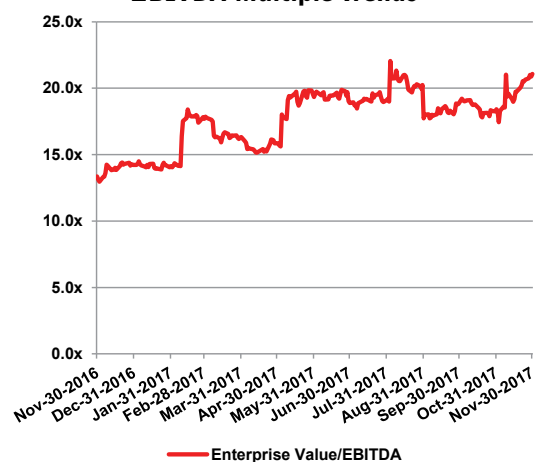
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
Wireline Access & Transport Index	1.1x	1.2x
ADTRAN	1.4x	1.5x
ADVA	0.7x	0.6x
BATM	1.3x	0.7x
Calix	0.6x	0.7x
CIENA	1.2x	1.3x
Communications Systems	0.2x	0.3x
Dasan Zhone Solutions	0.6x	0.6x
Infinera	1.3x	1.2x
Net Insight	4.0x	5.1x

EBITDA Multiple Trends



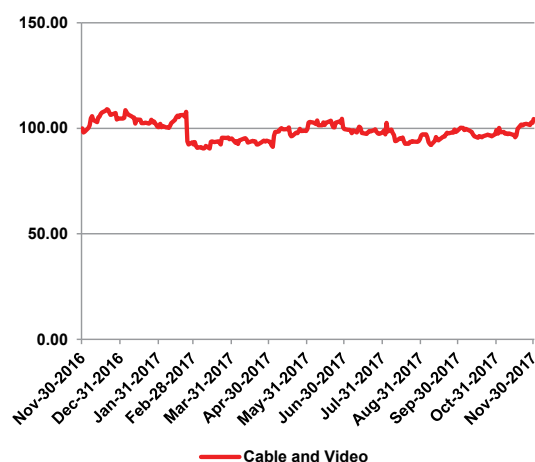
Company EBITDA Multiples

	11/30/2017	11/30/2016
Wireline Access & Transport Index	21.1x	13.4x
ADTRAN	15.7x	19.0x
ADVA	10.6x	9.7x
BATM	NM	NM
Calix	NM	NM
CIENA	9.2x	10.9x
Communications Systems	NM	NM
Dasan Zhone Solutions	197.1x	NM
Infinera	NM	11.0x
Net Insight	73.8x	62.7x

Source: Capital IQ

Sub Sector Analysis: Cable and Video

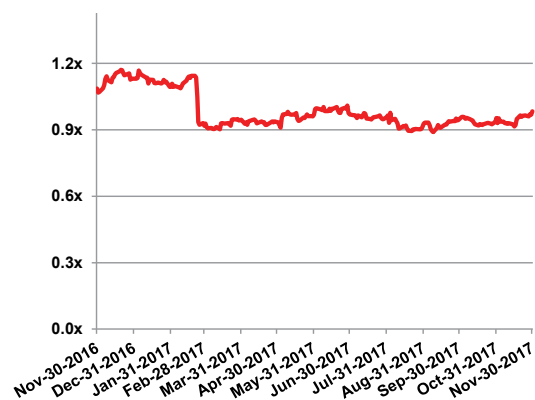
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Cable and Video Index	4.3%	8.1%
Amino	16.8%	3.0%
Arris	4.5%	7.6%
Harmonic	-9.7%	29.2%
NetGem	38.2%	-3.0%
SeaChange	2.7%	2.7%

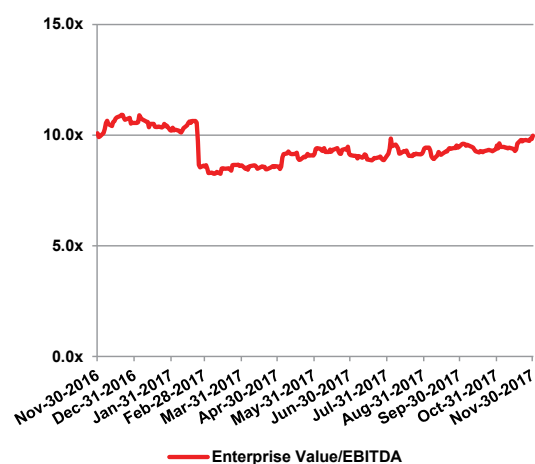
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
Cable and Video Index	1.0x	1.1x
Amino	1.6x	1.6x
Arris	1.0x	1.1x
Harmonic	1.1x	1.2x
NetGem	0.7x	0.6x
SeaChange	0.8x	0.5x

EBITDA Multiple Trends



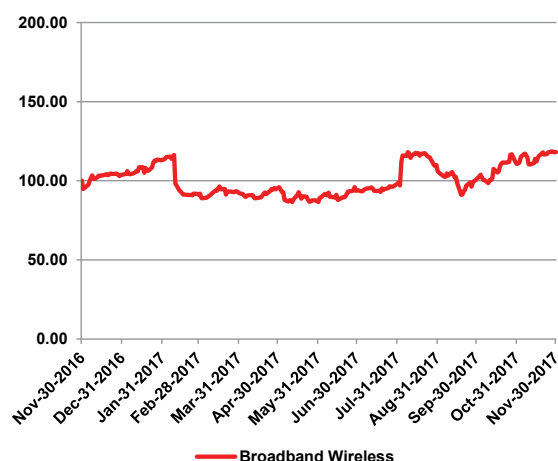
Company EBITDA Multiples

	11/30/2017	11/30/2016
Cable and Video Index	10.0x	10.1x
Amino	11.2	13.2x
Arris	9.1x	10.2x
Harmonic	NM	NM
NetGem	7.7x	6.5x
SeaChange	NM	NM

Source: Capital IQ

Sub Sector Analysis: Broadband Wireless

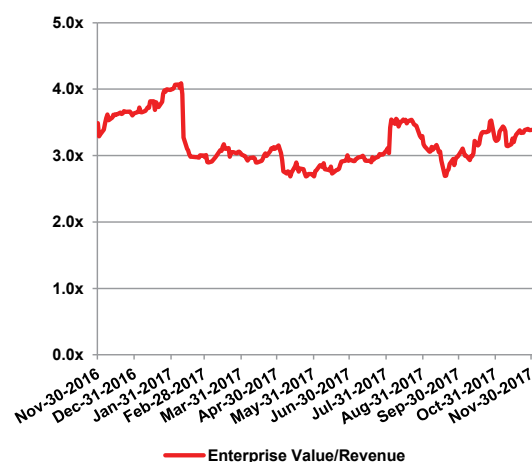
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Broadband Wireless Index	18.1%	11.3%
Aviat Networks	24.8%	1.8%
Ceragon Networks	-16.5%	-7.7%
Redline Communications	3.7%	-3.4%
Ubiquiti Networks	19.4%	12.1%

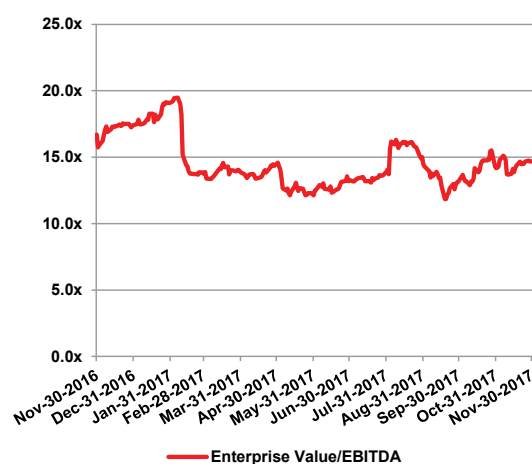
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
Broadband Wireless Index	3.4x	3.5x
Aviat Networks	0.2x	0.2x
Ceragon Networks	0.4x	0.6x
Redline Communications	0.5x	0.5x
Ubiquiti Networks	5.4x	5.9x

EBITDA Multiple Trends



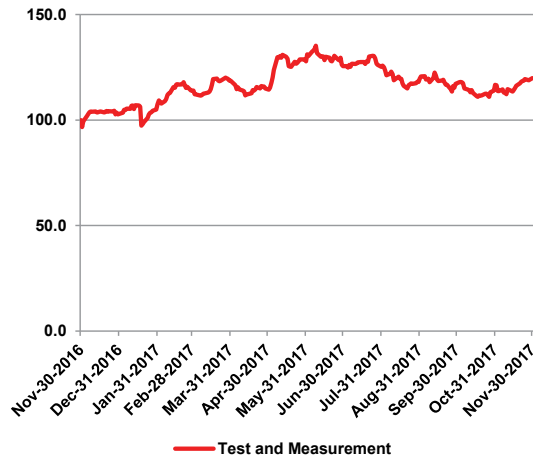
Company EBITDA Multiples

	11/30/2017	11/30/2016
Broadband Wireless Index	14.7x	16.7x
Aviat Networks	8.2x	NM
Ceragon Networks	4.4x	6.5x
Redline Communications	NM	NM
Ubiquiti Networks	15.7x	15.9x

Source: Capital IQ

Sub Sector Analysis: Test and Measurement

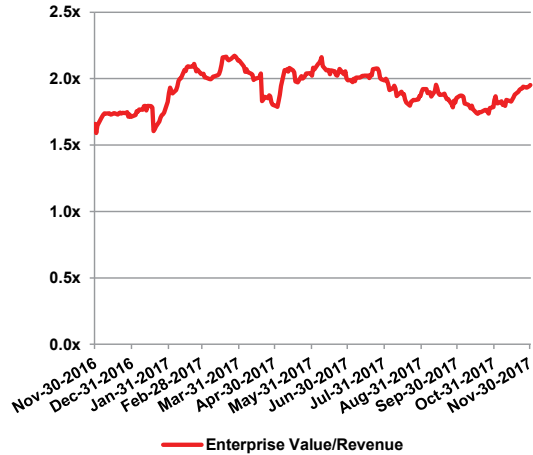
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Test and Measurement Index	19.8%	0.1%
Anritsu	88.2%	20.1%
EXFO	1.3%	-6.1%
Gigamon	-27.2%	-9.5%
Spirent	43.0%	14.0%
Viavi	19.4%	-6.7%

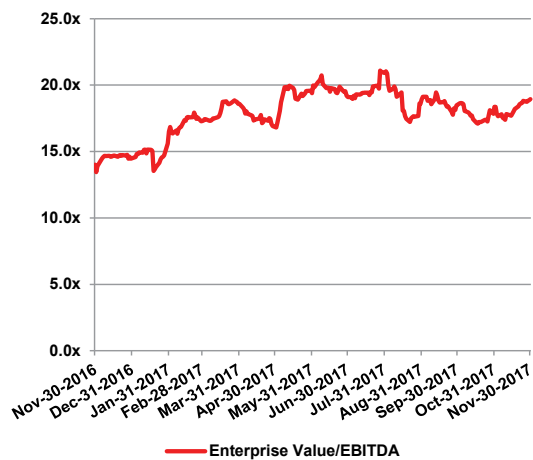
Revenue Multiple Trends



Company Revenue Multiples

	11/30/2017	11/30/2016
Test and Measurement Index	2.0x	1.7x
Anritsu	1.5x	0.6x
EXFO	0.8x	0.8x
Gigamon	4.0x	5.7x
Spirent	1.7x	1.1x
Viavi	2.2x	1.6x

EBITDA Multiple Trends



Company EBITDA Multiples

	11/30/2017	11/30/2016
Test and Measurement Index	18.9x	14.0x
Anritsu	14.9x	6.8x
EXFO	10.0x	8.8x
Gigamon	281.2x	50.2x
Spirent	10.6x	7.7x
Viavi	17.7x	13.4x

Source: Capital IQ

FOCUS Telecom Technology and Services Team

Richard H. Pierce



Managing Director and Telecom Technology and Services Team Leader, Washington, DC

rich.pierce@focusbankers.com
202-470-1983

Rich Pierce has more than ten years of investment banking experience advising middle market clients on a variety of mergers and acquisitions and capital raising transactions. Dur-

ing that time, Mr. Pierce's primary emphasis has been on serving clients in the telecommunications industry including providers of network related hardware and software products, wireless, and wireline telecommunications service providers and network engineering and construction companies.

John T. Bradshaw



Partner, Bend, Oregon
john.bradshaw@focusbankers.com
541-306-6451

John Bradshaw has over 30 years experience in sales, marketing, manufacturing, finance, and systems engineering with corporations specializing in technology-driven business products and services. Mr. Bradshaw has been a successful

senior executive and manager in both large and small organizations, and has spent the last 15 years working with entrepreneurial companies. Mr. Bradshaw has particular expertise in enterprise communications and contact center related technology.

David Freeland



Principal, San Francisco, California
david.freeland@focusbankers.com
978-505-1837

David Freeland, a FOCUS Principal, has more than fifteen years of experience providing investment banking and management consulting services to a variety of corporate clients, ranging from the Fortune 500 to start-up businesses. He has been an

investment banker since 2003, advising clients on mergers and acquisitions and capital raising transactions. Mr. Freeland has broad experience in the telecom and technology industry and has significant experience with data center companies.

Eric M. Oganessoff



Managing Director, Washington, DC
eric.oganessoff@focusbankers.com
202-470-1969

Eric Oganessoff has conducted over forty M&A, debt, and capital raise transactions with an aggregate value of over \$300 million and has served as the CEO or President of several companies. Mr. Oganessoff has over twenty years of senior executive level

experience in leading businesses ranging from wireless solutions, software, and RFID services to manufacturing, industrial products, energy, and environmental products and government contracting.

About FOCUS Investment Banking LLC

FOCUS Investment Banking LLC provides a range of middle market investment banking services with an emphasis on mergers, acquisitions, divestitures and corporate finance. FOCUS is a national firm serving clients from offices in major cities across the United States. FOCUS specializes in business units with transactions or revenues in the \$5-300 million range, serving entrepreneurs, corporate owners and various types of investors across a broad range of industries, throughout the U.S. and worldwide. FOCUS bankers are seasoned operating and financial executives with extensive transaction experience. Securities transactions conducted by FOCUS Securities LLC, an affiliated company, registered Broker/Dealer and member FINRA/SIPC. For more information on FOCUS, visit www.focusbankers.com.

© 2017 FOCUS Investment Banking LLC

FOCUS

Investment Banking

MID-ATLANTIC REGION

FOCUS Investment Banking LLC
Headquarters
1133 20th Street, NW
Suite 200
Washington, DC 20036
202.785.9404
202.785.9413 (fax)

SOUTHEAST REGION

FOCUS Investment Banking LLC
Atlanta Office
3353 Peachtree Road, NE
Suite 1160
Atlanta, GA 30326
404.504.8620
404.814.9141 (fax)

WESTERN REGION

FOCUS Investment Banking LLC
Los Angeles Office
355 South Grand Avenue
Suite 2450
Los Angeles, CA 90071
213.426.1395
213.943.1397 (fax)

Securities transactions conducted by FOCUS Securities LLC, an affiliated company, registered Broker Dealer member FINRA/SIPC.