

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

Fall 2017 Report

Vol. 7, No. 3

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

For the second straight reporting period, the FOCUS Carrier-Focused Telecom Technology Index (CFTTI) delivered a relatively flat financial performance. In this case, the sector was down 0.1% over the past three months. This underperformed the broader indices, as both the S&P 500 (up 2.5%) and the NASDAQ (up 3.7%) increased over the corresponding time period. The gap between the CFTTI and the broader indices for the full-year period continues to widen. While the CFTTI was up 4.2% in the past year, the S&P 500 had a 12-month gain of 13.9% while the NASDAQ had an even higher 12-month gain of 23.3%. Looking at multiples, the sector revenue multiple remained flat at 1.6x compared to last year. However, the sector EBITDA multiple increased from 8.7x a year ago to 10.1x at the end of the current period.

Large Cap

The Large Cap sub sector was flat over the past three months, with losses at Ericsson, Juniper, and Nokia counterbalanced by gains at Cisco and ZTE. Ericsson had a particularly difficult period, dropping nearly 20% in the past three months. Conversely, ZTE shot up 26.3% over the same time period. For the full year, the Large Cap sub sector is up 4.4%. Performance is more consistent over the 12-month time frame, as all the companies in the index save Ericsson delivered a positive return, including three companies with double digit gains. Sub sector multiples closed out the period at 1.6x revenue and 9.6x EBITDA. This compares to multiples from a year ago of 1.6x revenue and 8.1x EBITDA.

OSS/BSS Software

The OSS/BSS Software sub sector had yet another reporting period with a loss as it dropped 1.6%. This marks the fourth straight reporting period where the sub sector was in negative territory. The biggest drags on the sector were Evolving Systems (down 11.2%), NetScout (down 10.5%), and Subex (down 12.9%). On the plus side, both Astellia and Synchronoss delivered substantial gains after making announcements that they would be acquired. The OSS/BSS Software sub sector was also down 2.8% over the full-year period. Over this time frame, it was Redknee and Synchronoss that experienced the greatest challenges. In addition to the sub sector's drop in stock price, multiples also are lower than they were at this time last year. The sub sector revenue multiple dropped from 2.2x to 2.1x, and the sub sector EBITDA multiple went from 13.3x to 12.5x.

IP Networking

The IP Networking sub sector took a silver medal this period as our second best performing sub sector. The sub sector gained 12.3%, largely sparked by gains at Broadsoft and Sandvine. Both of these gains were M&A driven, as word leaked that Broadsoft was fielding acquisition offers and Sandvine announced that it was canceling its deal with Vector Capital to pursue a superior offer from DPI competitor Procera Networks. This period's gains were strong enough to move the sub sector into the black for the full-year period with a gain of 1.6%. Sub sector multiples closed out the period at 2.0x revenue and 98.3x EBITDA. The sub sector revenue multiple was flat compared to the year-ago period, but the EBITDA multiple was up sharply from its value of 23.0x a year ago.

Wireline Access and Transport

The Wireline Access and Transport sub sector had the dubious distinction of a second straight period as the worst performing sub sector in the CFTTI. The sub sector plummeted 10.4% in the past three months as seven of the nine stocks were in negative territory. The market reacted particularly negatively to ADVA, as the company shed nearly half of its market value. The situation looks a bit better for the full-year period, as the sub sector was only down 2.5% over this time frame. Sub sector multiple performance was mixed over the past 12 months. The sub sector revenue multiple fell from 1.2x to 1.1x, while the EBITDA multiple increased from 13.4x to 17.7x.

Cable and Video

The Cable and Video sub sector was another sub sector that had a challenging period as it dropped 3.2% over the past three months. SeaChange was the only stock in the sub sector with a positive return this period, while Harmonic was the biggest loser with a drop of 35.6%. The sub sector also is down 1.1% over the past year. Multiples for the sub sector continued to decline. The revenue multiple now stands at 0.9x (compared to 1.2x a year ago) while the EBITDA multiple was 9.4x (down from 11.4x a year ago).

Broadband Wireless

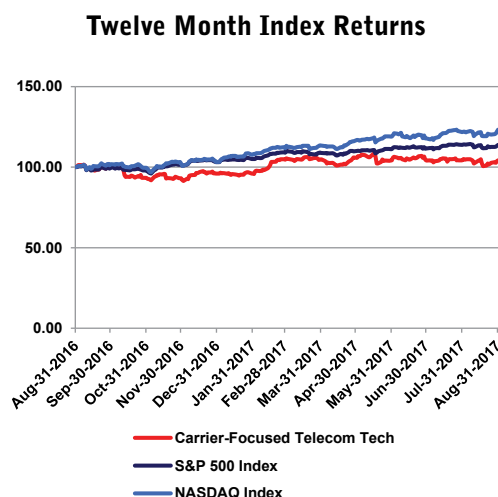
The Broadband Wireless sub sector rebounded from two successive disappointing periods to take the top spot in our fall reporting period with a gain of 22.4%. Ubiquiti Networks is typically the main driver of performance in the sub sector, and this period was no exception as the company was up 26.4% for the period. In addition, Dragon-

Wave and Redline Communications also delivered strong returns over the past three months. The Broadband Wireless sub sector also is up 15.1% over the past year, making it the second best performing sub sector in the CFTTI over this time period. Even with the sharp gains over the past year, sub sector multiples were flat to down. The sub sector revenue multiple remained constant compared to last year at 3.2x, and the sub sector EBITDA multiple dropped from 16.2x to 14.5x.

Test and Measurement

The Test and Measurement sub sector failed to capitalize on the momentum from our last report and dropped 6.3% in our current reporting period. Losses are broad-based as four of the five stocks in the sub sector are in negative territory. The lone exception is Gigamon, which is up 12.6% for the period. Even with this period's losses, Test and Measurement was still the CFTTI's best performing sub sector for the full-year period with a gain of 28.9%. Not surprisingly, sub sector multiples are up sharply over the past year. The sub sector revenue multiple increased from 1.5x to 1.9x, while the sub sector EBITDA multiple jumped from 13.1x to 18.9x.

Carrier-Focused Telecom Technology: Public Market Summary



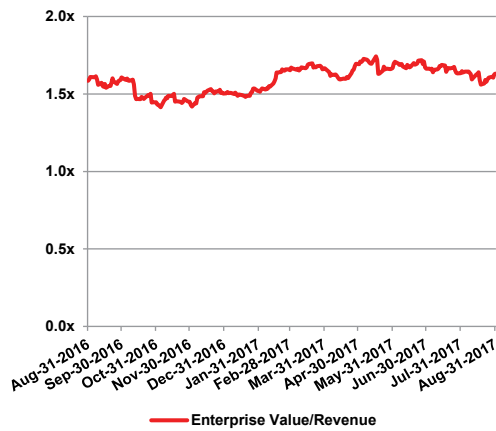
Sector and Sub Sector Returns

	12 Month	3 Month
Carrier-Focused Telecom Tech	4.2%	-0.1%
Large Cap	4.4%	0.0%
OSS/BSS	-2.8%	-1.6%
IP Networking	1.6%	12.3%
Wireline Access and Transport	-2.5%	-10.4%
Cable and Video	-1.1%	-3.2%
Broadband Wireless	15.1%	22.4%
Test and Measurement	28.9%	-6.3%
S&P 500	13.9%	2.5%
NASDAQ	23.3%	3.7%

Source: Capital IQ

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

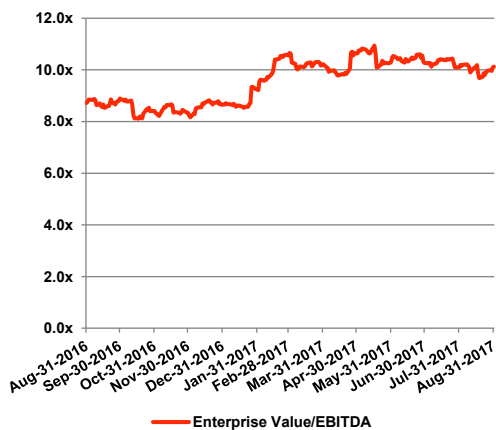
Revenue Multiple Trends



Sector and Sub Sector Revenue Multiples

	8/31/2017	8/31/2016
Carrier-Focused Telecom Tech	1.6x	1.6x
Large Cap	1.6x	1.6x
OSS/BSS	2.1x	2.2x
IP Networking	2.0x	2.0x
Wireline Access and Transport	1.1x	1.2x
Cable and Video	0.9x	1.2x
Broadband Wireless	3.2x	3.2x
Test and Measurement	1.9x	1.5x

EBITDA Multiple Trends



Sector and Sub Sector EBITDA Multiples

	8/31/2017	8/31/2016
Carrier-Focused Telecom Tech	10.1x	8.7x
Large Cap	9.6x	8.1x
OSS/BSS	12.5x	13.3x
IP Networking	98.3x	23.0x
Wireline Access and Transport	17.7x	13.4x
Cable and Video	9.4x	11.4x
Broadband Wireless	14.5x	16.2x
Test and Measurement	18.9x	13.1x

Source: Capital IQ

Carrier-Focused Telecom Technology: M&A Summary

Carrier-Focused Telecom Technology Stocks

M&A

The Carrier Focused Telecom Technology sector had an anemic three months of M&A activity in terms of the number of transactions. We counted only 11 transactions for the period. However, dollar volume for the period came in at an extremely respectable \$1.4 billion as the few deals that were announced were relatively sizable. For the full year, we now count 39 total transactions with a total announced transaction dollar volume of \$4.1 billion. This puts 2017 on pace to be fairly light in terms of total deals but to stack up well with previous years in terms of the announced dollar volume of transactions.

OSS/BSS Software

The OSS/BSS Software sub sector had only four transactions this reporting period, marking the lowest level of activity for the sub sector in recent memory. However, activity did include Siris Capital's take private acquisition of Synchronoss for just shy of \$1 billion, which was far and away the period's largest transaction. In another transaction involving a public company target, test and measurement vendor EXFO announced that it would acquire wireless network management company Astellia. Finally, Simplify Compliance acquired telecom and colocation database vendor FiberLocator from NEF, while Light-River acquired multi-vendor network and element management software company Unique Computer Services.

IP Networking

Certainly, the most interesting transaction in the IP Networking sub sector was Procera Networks' acquisition of Sandvine. Procera Networks beat out a previously announced transaction with Vector Capital with a \$315 million proposal. This offer topped the initial Vector Capital deal of \$238 million by a wide margin. In addition, newly independent Mavenir Systems acquired the virtual evolved packet core assets of Brocade Communications.

Wireline Access and Transport

Activity in the Wireline Access and Transport sub sector consisted of ADVA's purchase of optical transport vendor MRV Communications for \$48.1 million.

Cable and Video

For the second straight reporting period, the Cable and Video sub sector had only a single transaction. This was J-Stream's acquisition of IP television and digital broadcasting headend systems vendor InnoQos.

Broadband Wireless

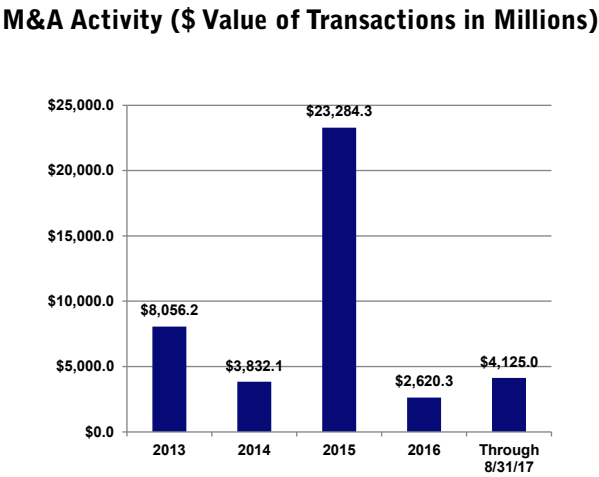
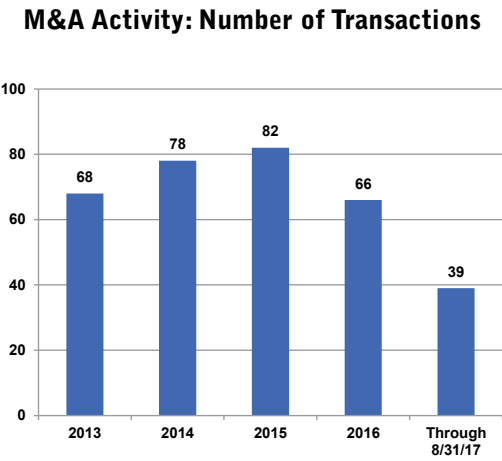
After having no transactions in our summer report, activity picked up in the Broadband Wireless sub sector with two transactions for the period. The most notable of these was Corning's acquisition of in-building wireless specialist SpiderCloud. The acquisition continues Corning's push into the in-building wireless market that includes its prior acquisition of software vendor iBwave Solutions. The second transaction was Cubic's acquisition of wireless access point company Deltenna.

Test and Measurement

Viavi was the only active acquirer in the Test and Measurement space this period. The company acquired Trilithic, a manufacturer of video test and measurement solutions including signal level meters and leakage detection devices.

Transactions with Multiples

Of the four transactions with announced multiples this period, two were at relatively high multiples while two fell at the lower end of the multiple spectrum. On the high end, Synchronoss and Sandvine enjoyed revenue multiples of 2.8x and 2.1x, respectively. The corresponding EBITDA multiples were virtually identical at 18.6x and 18.2x. Clearly, the acquirers saw strategic value in both of these companies. On the other end of the spectrum, EXFO's acquisition of Astellia went for only 0.7x revenue. However, the transaction's EBITDA multiple of 33.4x likely indicates the reason for the low revenue multiple: very low EBITDA margins. The ADVA acquisition of MRV Communications went for an even lower multiple of 0.6x revenue. MRV Communications was not generating positive cash flow, so the EBITDA multiple for the transaction was not meaningful.



Announced Transactions (6/1/17 – 8/31/17)

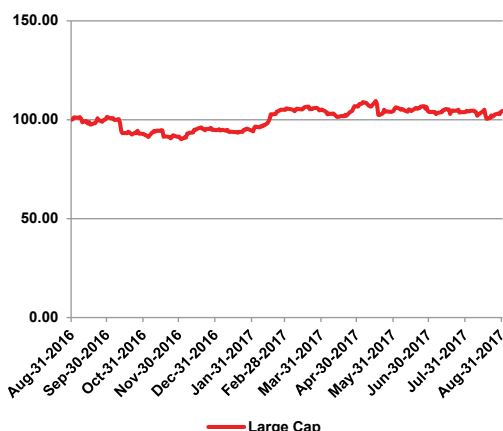
Acquiror	Target	Date Announced	Sector	Purchase Price	Description
EXFO	Astellia	8/31/17	OSS/BSS Software	\$36.1	Network and subscriber intelligence solutions for mobile operators worldwide.
Viavi Solutions	Trilithic	8/15/17	Test and Measurement	NA	Video test and measurement solutions including cable TV signal level meters, leakage detection devices and head end analyzers.
Mavenir Systems	Brocade Communications (Evolved Packet Cloud Assets)	7/31/17	IP Networking	NA	Virtualized evolved packet core, customer base and advanced network slicing capabilities technology for 5G architectures.
Corning	SpiderCloud	7/19/17	Broadband Wireless	NA	Scalable small-cell network platforms that deliver coverage and capacity for wireless services inside buildings.
Cubic	Deltenna	7/18/17	Broadband Wireless	NA	Designs and manufactures wireless infrastructure and access points.
Simplify Compliance	NEF (FiberLocator Business)	7/11/17	OSS/BSS Software	NA	Telecommunications and colocation database with information on facilities-based carriers, data centers and on-net buildings.
Adva Optical Networking	MRV Communications	7/2/17	Wireline Access and Transport	\$48.1	Offers optical transport, packet/carrier Ethernet, network management and infrastructure management products and services.
J-Stream	InnoQos	6/30/17	Cable and Video	NA	Internet protocol television and digital broadcasting headend systems and IP multicast transmission devices.
Procera Networks	Sandvine	6/27/17	IP Networking	\$314.7	Network policy control solutions for fixed, mobile and converged communications service providers.
Siris Capital	Synchronoss	6/23/17	OSS/BSS Software	\$986.2	Provides cloud solutions and software-based activation for connected devices worldwide.
LightRiver	Unique Computer Services	6/6/17	OSS/BSS Software	NA	Multi-vendor telecommunications network and element management systems software.

Announced Transactions with Revenue Multiples (6/1/17 – 8/31/17)

Acquiror	Target	Date Announced	Sector	Purchase Price	Revenue Multiple	EBITDA Multiple	Description
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 (AXIOSS 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.
Sonus Networks	Taqua	9/26/16	IP Networking	\$20.0	0.7 x	NA	Fixed and mobile converged switching, gateway, media processing and backhaul solutions for wireline, cable and wireless carriers.

Sub Sector Analysis: Large Cap

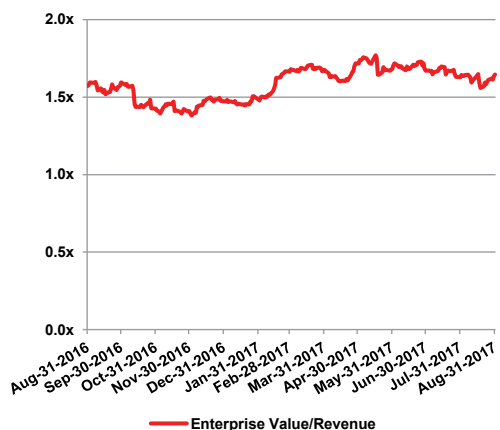
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Large Cap Index	4.4%	0.0%
Cisco	2.4%	2.2%
Ericsson	-18.1%	-19.5%
Juniper	20.1%	-5.5%
Nokia	10.0%	-2.5%
ZTE	64.8%	26.3%

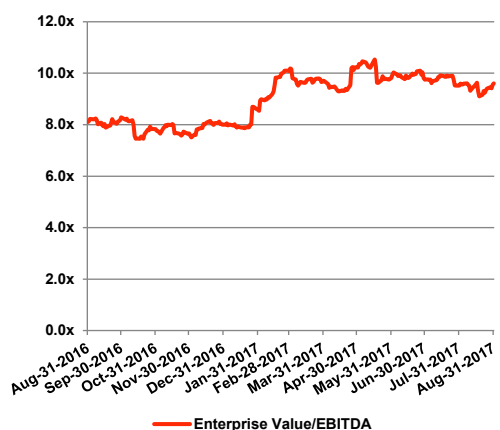
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
Large Cap Index	1.6x	1.6x
Cisco	2.6x	2.5x
Ericsson	0.8x	0.7x
Juniper	1.8x	1.8x
Nokia	1.1x	1.3x
ZTE	1.0x	0.5x

EBITDA Multiple Trends



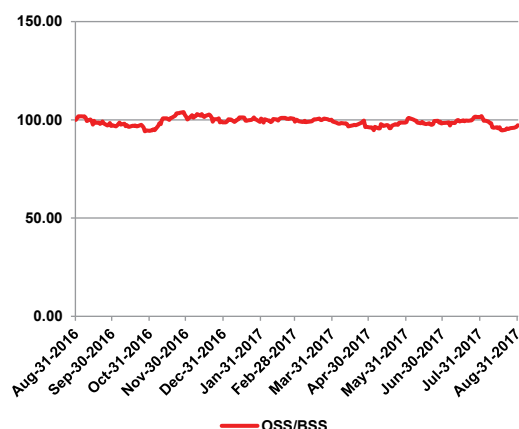
Company EBITDA Multiples

	8/31/2017	8/31/2016
Large Cap Index	9.6x	8.1x
Cisco	8.4x	8.2x
Ericsson	22.2x	5.1x
Juniper	7.9x	8.1x
Nokia	9.8x	15.7x
ZTE	27.2x	26.5x

Source: Capital IQ

Sub Sector Analysis: OSS/BSS Software

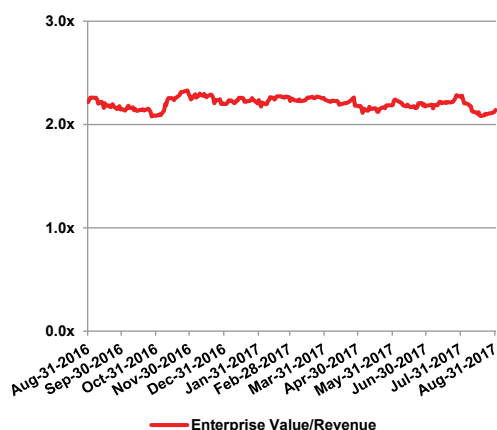
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
OSS/BSS Index	-2.8%	-1.6%
Amdocs	7.8%	0.0%
Astellia	16.1%	20.2%
CSG Systems	-11.5%	-3.0%
Evolving Systems	15.9%	-11.2%
NetScout Systems	10.7%	-10.5%
Radcom	3.4%	-4.4%
Redknee	-65.1%	-5.4%
Subex	-25.0%	-12.9%
Synchronoss	-59.8%	31.4%
Tecnotree	-31.2%	-25.8%

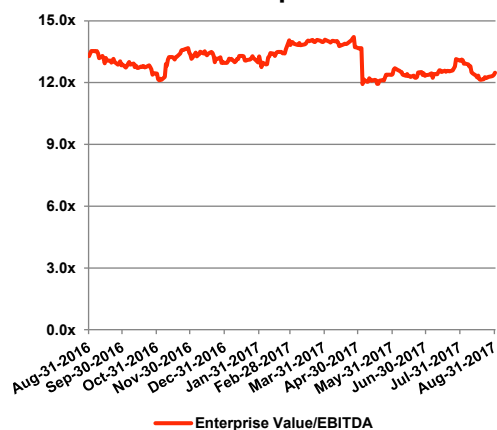
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
OSS/BSS Index	2.1x	2.2x
Amdocs	2.2x	2.1x
Astellia	0.5x	0.4x
CSG Systems	1.8x	2.0x
Evolving Systems	2.4x	1.9x
NetScout Systems	2.5x	2.4x
Radcom	5.9x	7.9x
Redknee	0.5x	1.0x
Subex	1.7x	2.3x
Synchronoss	1.9x	3.4x
Tecnotree	0.5x	0.6x

EBITDA Multiple Trends



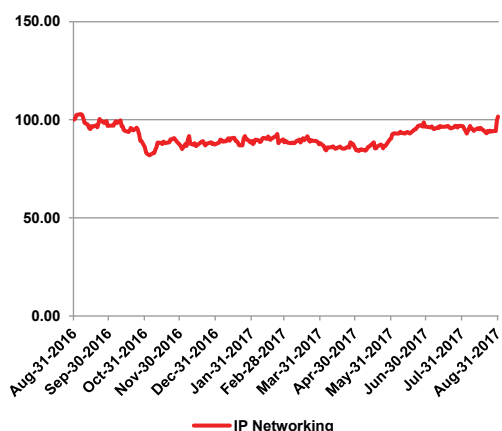
Company EBITDA Multiples

	8/31/2017	8/31/2016
OSS/BSS Index	12.5x	13.3x
Amdocs	11.8x	11.1x
Astellia	25.5x	27.8x
CSG Systems	9.6x	9.4x
Evolving Systems	7.6x	7.4x
NetScout Systems	14.1x	16.4x
Radcom	NM	273.4x
Redknee	NM	630.3x
Subex	8.1x	9.8x
Synchronoss	16.6x	15.4x
Tecnotree	NM	5.1x

Source: Capital IQ

Sub Sector Analysis: IP Networking

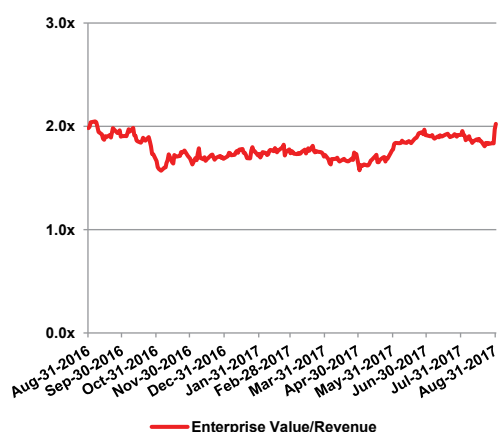
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
IP Networking Index	1.6%	12.3%
Allot Communications	-1.4%	-1.8%
Audiocodes	83.9%	5.6%
Broadsoft	13.6%	23.9%
Radisys	-64.7%	-58.4%
Sandvine	63.1%	21.4%
SONUS Networks	-24.6%	2.4%

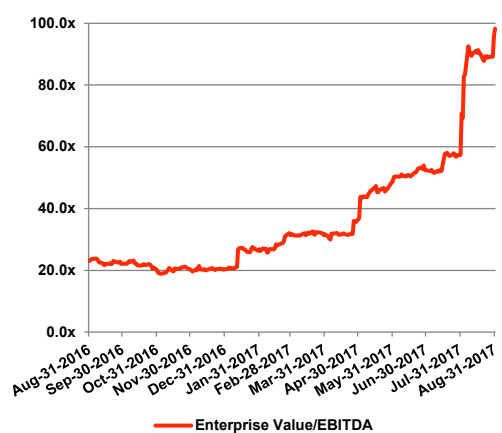
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
IP Networking Index	2.0x	2.0x
Allot Communications	0.6x	0.6x
Audiocodes	1.3x	1.2x
Broadsoft	3.9x	4.1x
Radisys	0.4x	0.9x
Sandvine	2.7x	1.9x
SONUS Networks	1.1x	1.3x

EBITDA Multiple Trends



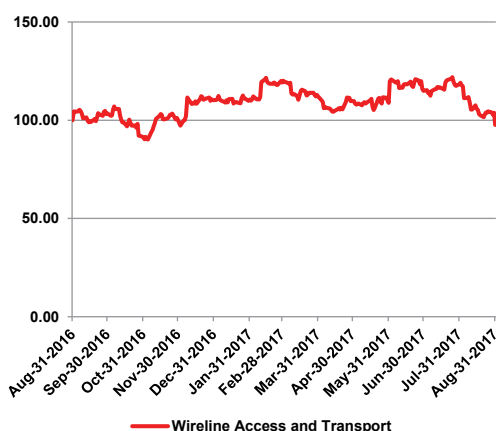
Company EBITDA Multiples

	8/31/2017	8/31/2016
IP Networking Index	98.3x	23.0x
Allot Communications	NM	NM
Audiocodes	19.3x	19.9x
Broadsoft	56.7x	34.2x
Radisys	NM	43.3x
Sandvine	18.4x	5.4x
SONUS Networks	NM	41.1x

Source: Capital IQ

Sub Sector Analysis: Wireline Access and Transport

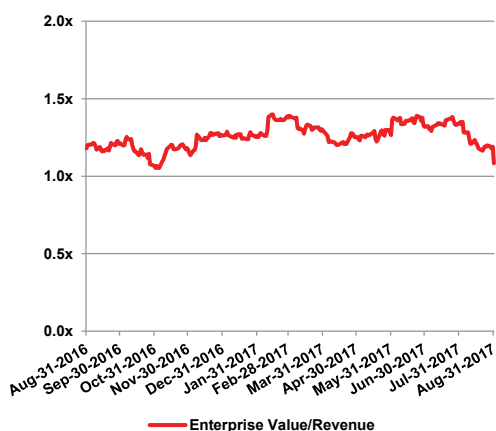
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Wireline Access & Transport Index	-2.5%	-10.4%
ADTRAN	20.2%	14.8%
ADVA	-34.0%	-49.9%
BATM	-0.5%	-2.3%
Calix	-34.1%	-25.2%
CIENA	0.7%	-8.0%
Communications Systems	-35.2%	-20.0%
Dasan Zhone Solutions	6.7%	10.1%
Infinera	-1.4%	-13.0%
Net Insight	-17.9%	-14.3%

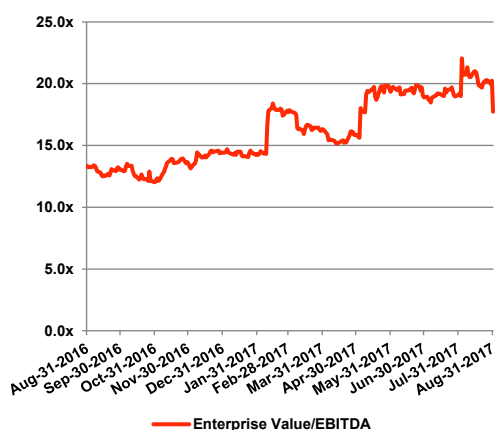
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
Wireline Access & Transport Index	1.1x	1.2x
ADTRAN	1.4x	1.3x
ADVA	0.4x	0.7x
BATM	0.8x	0.8x
Calix	0.4x	0.7x
CIENA	1.2x	1.3x
Communications Systems	0.1x	0.3x
Dasan Zhone Solutions	0.6x	0.5x
Infinera	1.6x	1.1x
Net Insight	4.1x	5.5x

EBITDA Multiple Trends



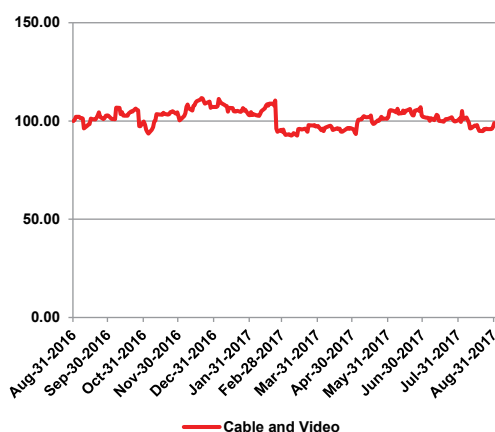
Company EBITDA Multiples

	8/31/2017	8/31/2016
Wireline Access & Transport Index	17.7x	13.4x
ADTRAN	17.5x	17.7x
ADVA	4.9x	11.2x
BATM	NM	57.7x
Calix	NM	76.7x
CIENA	8.9x	11.3x
Communications Systems	NM	NM
Dasan Zhone Solutions	NM	NM
Infinera	NM	9.5x
Net Insight	65.3x	70.2x

Source: Capital IQ

Sub Sector Analysis: Cable and Video

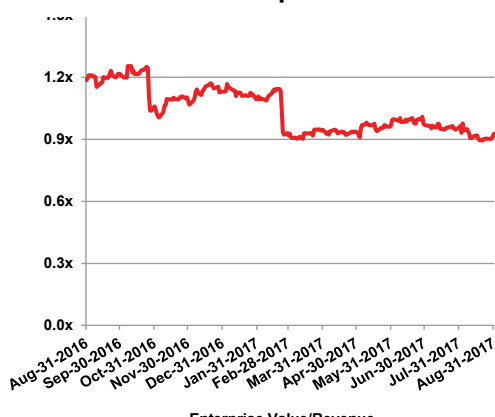
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Cable and Video Index	-1.1%	-3.2%
Amino	28.1%	-8.1%
Arris	-0.7%	-0.6%
Harmonic	-25.1%	-35.6%
NetGem	35.1%	-3.3%
SeaChange	-10.6%	6.5%

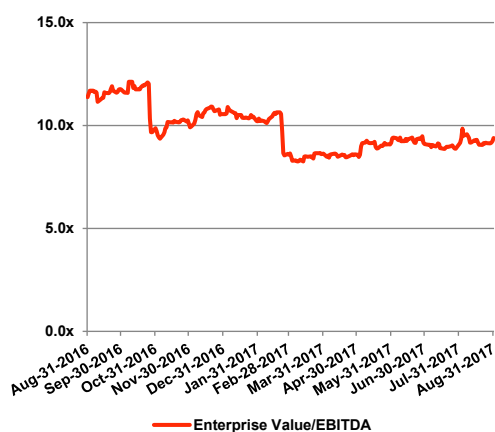
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
Cable and Video Index	0.9x	1.2x
Amino	1.5x	1.5x
Arris	0.9x	1.2x
Harmonic	0.9x	1.1x
NetGem	1.1x	0.6x
SeaChange	0.7x	0.5x

EBITDA Multiple Trends



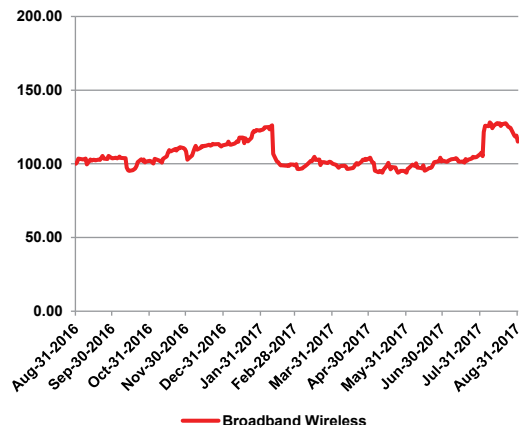
Company EBITDA Multiples

	8/31/2017	8/31/2016
Cable and Video Index	9.4x	11.4x
Amino	10.8x	12.8x
Arris	8.3x	10.2x
Harmonic	NM	NM
NetGem	11.4x	6.5x
SeaChange	NM	NM

Source: Capital IQ

Sub Sector Analysis: Broadband Wireless

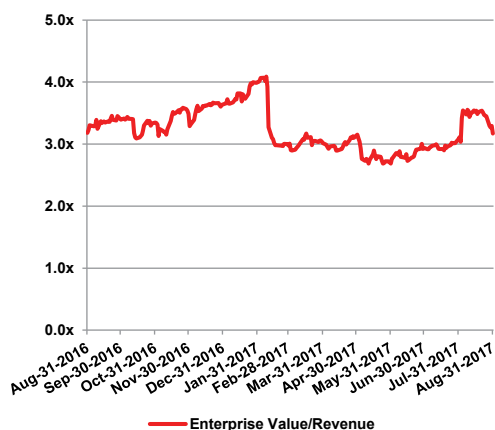
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Broadband Wireless Index	15.1%	22.4%
Aviat Networks	63.6%	-11.6%
Ceragon Networks	-12.6%	-29.3%
DragonWave	-69.1%	21.2%
Redline Communications	-15.1%	19.8%
Ubiquiti Networks	15.9%	26.4%

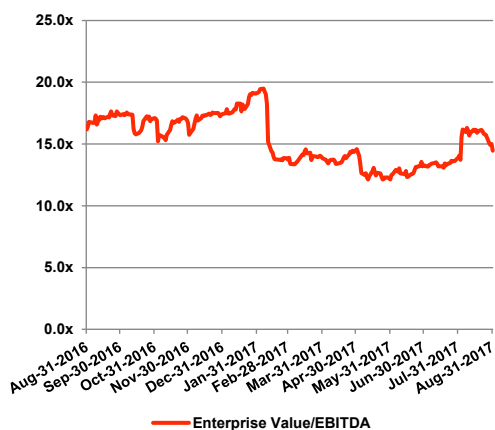
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
Broadband Wireless Index	3.2x	3.2x
Aviat Networks	0.2x	0.1x
Ceragon Networks	0.4x	0.6x
DragonWave	0.6x	0.5x
Redline Communications	0.5x	0.7x
Ubiquiti Networks	5.1x	5.8x

EBITDA Multiple Trends



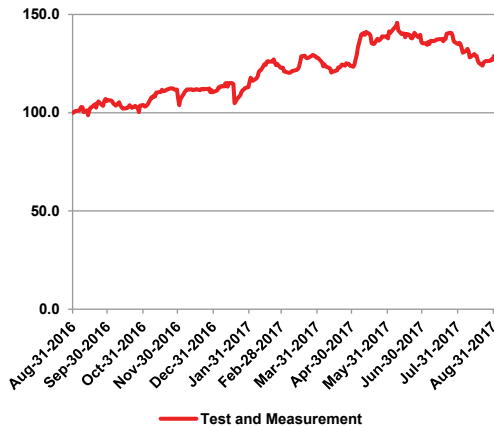
Company EBITDA Multiples

	8/31/2017	8/31/2016
Broadband Wireless Index	14.5x	16.2x
Aviat Networks	9.3x	NM
Ceragon Networks	4.3x	6.5x
DragonWave	NM	NM
Redline Communications	NM	NM
Ubiquiti Networks	14.9x	15.9x

Source: Capital IQ

Sub Sector Analysis: Test and Measurement

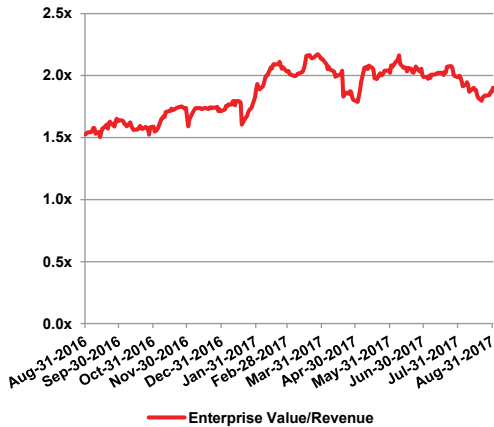
Twelve Month Index Returns



Company Returns

	12 Month	3 Month
Test and Measurement Index	28.9%	-6.3%
Anritsu	44.2%	-8.2%
EXFO	41.6%	-4.6%
Gigamon	-2.8%	12.6%
Spirent	12.3%	-20.5%
Viavi	29.0%	-10.6%

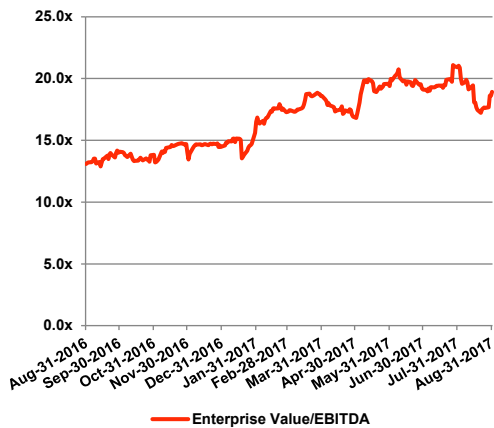
Revenue Multiple Trends



Company Revenue Multiples

	8/31/2017	8/31/2016
Test and Measurement Index	1.9x	1.5x
Anritsu	1.2x	0.7x
EXFO	0.9x	0.6x
Gigamon	4.4x	5.0x
Spirent	1.4x	1.2x
Viavi	2.2x	1.6x

EBITDA Multiple Trends



Company EBITDA Multiples

	8/31/2017	8/31/2016
Test and Measurement Index	18.9x	13.1x
Anritsu	13.0x	6.3x
EXFO	11.9x	6.4x
Gigamon	127.8x	46.8x
Spirent	9.2x	8.3x
Viavi	19.1x	15.0x

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.