

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

Summer 2019 Report

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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

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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 2019, 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

After a string of positive returns, the FOCUS Carrier-Focused Telecom Technology Index (CFTTI) reversed course and suffered a modest loss of 2.7% over this past three months. This underperformed both the S&P 500 and NASDAQ, which suffered losses over this time frame of 1.2% and 1.1%, respectively. Even with this period's decline, the CFTTI still handily outperforms the indices over the 12-month time frame. The CFTTI is up 15.3% in the past year, while the S&P 500 is up 1.7% and the NASDAQ eked out only a 0.2% gain. The sector revenue multiple is up strongly over the past year, increasing from 2.0x to 2.5x. The sector EBITDA multiple also increased, but much more modestly from 12.9x to 14.1x. This indicates that overall sector EBITDA margins improved.

Large Cap

The Large Cap sub sector fell by 1.7% this reporting period. This was in spite of a 6.6% gain at Ericsson and a positive performance by Cisco. Unfortunately the gains at these two companies were not enough to overcome losses at other companies in the sub sector; most notably a 17.5% drop at Nokia. For the full year period, the sub sector enjoyed a gain of 16.4%. Once again these increases were driven by Cisco and Ericsson, which were up 21.8% and 34.1%, respectively, over the past year. However, the remaining companies in the sub sector did not fare so well, and all are in negative territory year-over-year. Sub sector multiples closed out the period at 2.5x revenue and 13.8x EBITDA. Both of these compare favorably to year-ago multiples of 2.1x revenue and 12.5x EBITDA.

OSS/BSS Software

After being the worst performing sub sector in the CFTTI in our spring reporting period, the OSS/BSS Software sub sector was the only sub sector in the CFTTI in positive territory this past three months. The 2.7% gain in the sub sector was the result of strong performances by Amdocs, CSG Systems, Radcom and Subex. However, gains were not broad-based as six of the ten companies in the sub sector suffered losses this period. The sub-sector is still down 9.4% over the 12-month period, largely as a result of losses at Amdocs, Evolving Systems, Optiva and Radcom. Sub sector multiples are slightly lower than they were this time last year. The sub sector revenue multiple dropped from 2.1x a year ago to 2.0x currently, while the sub sector EBITDA multiple dipped from 13.1x to 12.8x over the same time period.

IP Networking

The IP Networking sub sector continued to alternate between gains and losses, following up a solid gain in the spring with a 5.3% decline in our summer reporting period. Ribbon Communications was the main culprit with a decline of 17.1%, but Allot Communications also contributed with a 7.2% drop. On the plus side, Audio-codes was up 12.8% for the period. The sub sector still remains in the black for the full year with a gain of 8.5%. Compared to last year, the sub sector revenue multiple remained unchanged at 1.3x. The sub sector EBITDA multiple is at a lofty 76.6x, which at least means the sub sector is EBITDA positive. Last year the sub sector EBITDA was negative, resulting in a "Not Meaningful" EBITDA multiple.

Wireline Access and Transport

Doing the reverse of the OSS/BSS sub sector, the Wireline Access and Transport sub sector went from being the CFTTI's best performer in the spring to its second worst in the summer. In fact, the sub sector dropped 18.5% this period, largely due to significant declines at optical transport vendors ADVA (down 21.1%), CIENA (down 18.1%) and Infinera (down 39.1%). On the plus side, the sub sector is still 13.7% higher than it was at this same time last year. Sub sector multiples did not change dramatically over the past year. The sub sector revenue multiple increased from 1.1x to 1.3x, while the sub sector EBITDA multiple fell slightly from 25.6x to 23.0x.

Cable and Video

The Cable and Video sub sector had an even more challenging reporting period as it shed 27.7% of its value in the past three months. Not surprisingly, this made it the CFTTI's worst performing sub sector this period. Casa Systems was particularly hard hit as it dropped almost 45%. The situation is not much better for the full year period as the sub sector is down more than 50% over this time frame. Harmonic was the lone bright spot with a year-over-year gain of 35.6%. All of the other companies in the index were in steeply negative territory. The sub sector revenue multiple fell sharply from 2.3x to 1.4x over the past year. However, the sub sector EBITDA multiple actually increased from 15.3x to 17.0x. This implies a significant decline in sub sector EBITDA margin.

Broadband Wireless

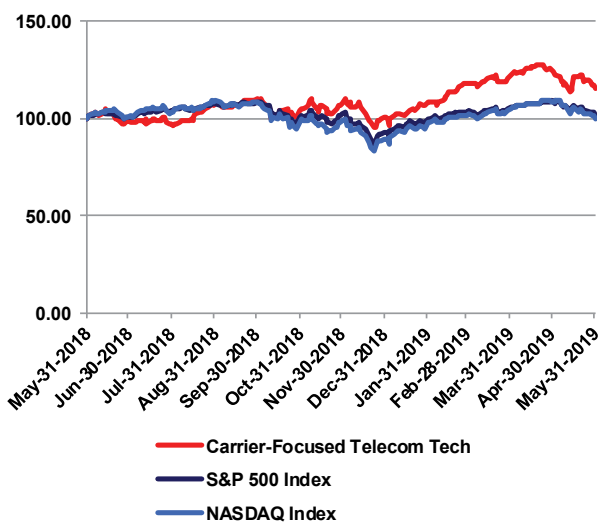
After a meteoric rise over our last several reports, the Broadband Wireless sub sector finally came back to earth a bit with a loss of 16.9% for the current period. All of the stocks in the sub sector were in negative territory, including a 16.7% loss at sub sector bellwether Ubiquiti Networks. The sub sector is still up 41.7% for the full year, although this gain is solely due to a 45.7% gain at Ubiquiti Networks. All of the other companies in the index are in negative territory for the year. Sub sector multiples ended the period at 5.1x revenue (compared to 4.0x a year ago) and 19.9x EBITDA (compared to 17.6x a year ago).

Test and Measurement

The Test and Measurement sub sector was yet another CFTTI sub sector to suffer a double-digit loss, falling 10.5% in the past three months. Anritsu and Viavi were largely responsible for the loss as they dropped 19.1% and 8.2%, respectively. The picture looks much better for the full year period, with all of the companies in the sub sector contributing double digit gains over this time period to lead to an overall sub sector increase of 24.1%. The year-over-year gains were not the result of multiple increases, as the sub sector revenue multiple only increased from 2.1x to 2.2x, while the sub sector EBITDA multiple actually declined from 16.8x to 14.5x.

Carrier-Focused Telecom Technology: Public Market Summary

Twelve Month Index Returns



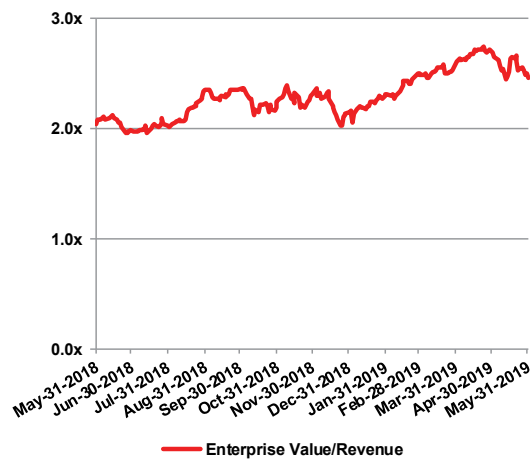
Source: Capital IQ

Sector and Sub Sector Returns

| | 12 Month | 3 Month |
|-------------------------------|----------|---------|
| Carrier-Focused Telecom Tech | 15.3% | -2.7% |
| Large Cap | 16.4% | -1.7% |
| OSS/BSS | -9.4% | 2.7% |
| IP Networking | 8.5% | -5.3% |
| Wireline Access and Transport | 13.7% | -18.5% |
| Cable and Video | -53.4% | -27.7% |
| Broadband Wireless | 41.7% | -16.9% |
| Test and Measurement | 24.1% | -10.5% |
| S&P 500 | 1.7% | -1.2% |
| NASDAQ | 0.2% | -1.1% |

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

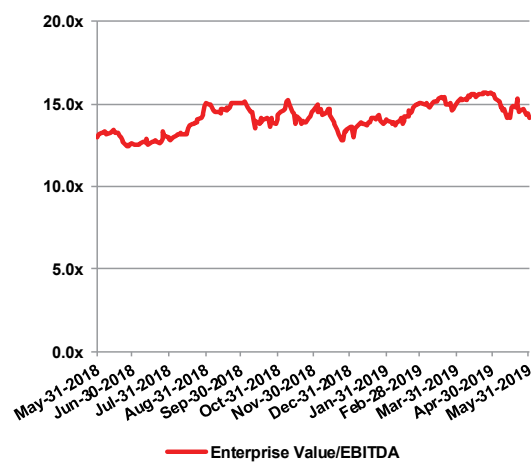
Revenue Multiple Trends



Sector and Sub Sector Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|-------------------------------|-----------|-----------|
| Carrier-Focused Telecom Tech | 2.5x | 2.0x |
| Large Cap | 2.5x | 2.1x |
| OSS/BSS | 2.0x | 2.1x |
| IP Networking | 1.3x | 1.3x |
| Wireline Access and Transport | 1.3x | 1.1x |
| Cable and Video | 1.4x | 2.3x |
| Broadband Wireless | 5.1x | 4.0x |
| Test and Measurement | 2.2x | 2.1x |

EBITDA Multiple Trends



Sector and Sub Sector EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|-------------------------------|-----------|-----------|
| Carrier-Focused Telecom Tech | 14.1x | 12.9x |
| Large Cap | 13.8x | 12.5x |
| OSS/BSS | 12.8x | 13.1x |
| IP Networking | 76.6x | NM |
| Wireline Access and Transport | 23.0x | 25.6x |
| Cable and Video | 17.0x | 15.3x |
| Broadband Wireless | 19.9x | 17.6x |
| Test and Measurement | 14.5x | 16.8x |

Source: Capital IQ

Carrier-Focused Telecom Technology: M&A Summary

Carrier-Focused Telecom Technology Stocks

M&A

The number of M&A transactions in the Carrier Focused Telecom Technology sub sector slowed dramatically in our summer reporting period with only eight total transactions. The total announced dollar volume of these transactions was slightly better at just shy of \$250 million, although even this represents a relatively low level of activity. The situation is just as bad for the year-to-date period with only 18 transactions for a total announced transaction dollar volume of \$288.8 million. Thus far 2019 is on pace to have the lowest level of M&A activity of any year in the last five both in terms of the number of deals and total announced transaction dollar volume.

OSS/BSS Software

Activity in the OSS/BSS Software sub sector was extremely light with a mere three transaction for the period. The sub sector did have the period's largest announced dollar volume transaction, the \$118 million purchase of service fulfillment software vendor Sigma Systems by Hansen Technologies. We also noted that the National Information Solutions Cooperative acquired Affinegy, a provider of TR-069 management software for broadband CPE. Finally, MIND CTI acquired SMS messaging platform Message Mobile for a purchase price of \$3.0 million.

IP Networking

There were no transactions in the IP Networking sub sector this period.

Wireline Access and Transport

The Wireline Access and Transport sub sector was moderately busy with two transactions for the period. The first of these was the acquisition of broadband CPE vendor

Shenzhen Shuangying Weiye Technology by fellow Chinese company Shenzhen Division. The sub sector's second transaction was the acquisition of the OTN switching assets of Padtec by Ekinops for \$11.2 million.

Cable and Video

Activity in the Cable and Video sub sector slowed down a bit from our spring period, but with a total of two transactions the level of activity was still relatively healthy. In a transaction involving two German companies, BTV Multimedia acquired DTV, a provider of head-end and CPE for cable and FTTH networks. This period also saw the acquisition of IPTV middleware vendor Espial Group by consolidator Enghouse Systems for \$17.2 million.

Broadband Wireless

There were no transactions in the Broadband Wireless sub sector this period.

Test and Measurement

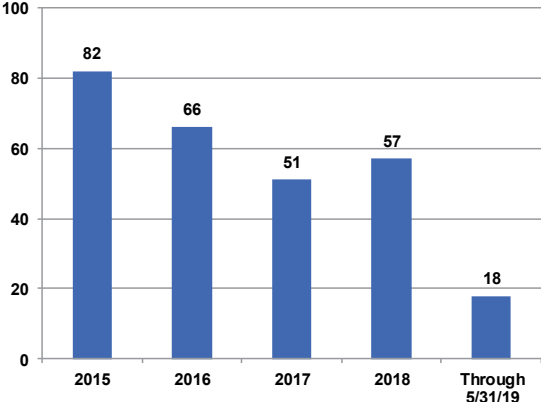
For the third straight reporting period we had only a single transaction in the Test and Measurement sub sector. This was the \$20 million acquisition of General Photonics by Luna Technologies. General Photonics provides instruments and modules for testing optical networks.

Transactions with Multiples

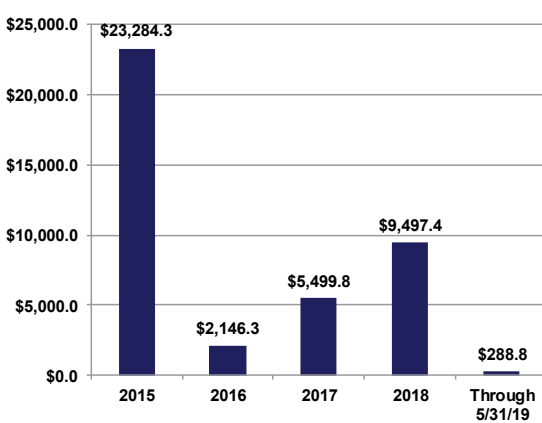
We had two transactions with announced multiples this period. The Enghouse Systems acquisition of Espial Group had a multiple of 0.9x revenue. Espial Group's EBITDA was negative, so the EBITDA multiple was "Not Meaningful." In the only other transaction with an announced multiple, OSS/BSS company Sigma Systems received a multiple of 2.1x revenue and 8.4x EBITDA in its acquisition by Hansen Technologies.

Carrier-Focused Telecom Technology: M&A Summary

M&A Activity: Number of Transactions



M&A Activity (\$ Value of Transactions in Millions)



Announced Transactions (3/1/19 – 5/31/19)

| Acquiror | Target | Date Announced | Sector | Purchase Price | Description |
|--|--------------------------------------|----------------|-------------------------------|----------------|---|
| Ekinops | Padtec (OTN Switching Assets) | 5/29/19 | Wireline Access and Transport | \$11.2 | Develops and manufactures optical communications equipment and components for the telecommunications industry. |
| Shenzhen Division | Shenzhen Shuangying Weiye Technology | 5/16/19 | Wireline Access and Transport | \$80.0 | Communication equipment including ethernet switches, routers, XPON, wireless terminals, EoC, home plug and VoIP. |
| Hansen Technologies | Sigma Systems | 5/1/19 | OSS/BSS Software | \$118.0 | Software for cable and telecom service providers for service fulfillment and management, device provisioning and service mediation. |
| National Information Solutions Cooperative | Affinegy | 4/23/19 | OSS/BSS Software | NA | Cloud-based, service enablement software and connected device management for broadband service providers. |
| MIND CTI | Message Mobile | 3/26/19 | OSS/BSS Software | \$3.0 | Provides SMS messaging, bulk SMS, instant messaging, mobile payment and advertising services and software for businesses. |
| Enghouse Systems | Espial Group | 3/25/19 | Cable and Video | \$17.2 | Provides IPTV and set-top box middleware, video-on-demand management and delivery software and TV Web browser software. |
| BTV Multimedia | DKT | 3/6/19 | Cable and Video | NA | Optical and coaxial products including head-end equipment, FTTH CPE gateways, FTTH optical nodes and optical CATV transmission. |
| Luna Technologies | General Photonics Corporation | 3/4/19 | Test and Measurement | \$20.0 | Optical instruments and modules for optical networks, sensor systems, and biomedical diagnosis systems. |

Announced Transactions with Revenue Multiples (6/1/18 – 5/31/19)

| Acquiror | Target | Date Announced | Sector | Purchase Price | Revenue Multiple | EBITDA Multiple | Description |
|-------------------------|--------------------|----------------|-------------------------------|----------------|------------------|-----------------|--|
| Hansen Technologies | Sigma Systems | 5/1/19 | OSS/BSS Software | \$118.0 | 2.1 x | 8.4 x | Software for cable and telecom service providers for service fulfillment and management, device provisioning and service mediation. |
| Enghouse Systems | Espial Group | 3/25/19 | Cable and Video | \$17.2 | 0.9 x | NM | Provides IPTV and set-top box middleware, video-on-demand management and delivery software and TV Web browser software. |
| SeaChange International | Xstream | 2/11/19 | Cable and Video | \$5.5 | 0.9 x | NA | Provides over-the-top content and authenticated streaming online video management and distribution SaaS. |
| Boku | Danal | 12/6/18 | OSS/BSS Software | \$61.3 | 12.0 x | NM | Mobile identity and access management, authentication, carrier billing and payments apps for mobile telecom service providers. |
| Inside Secure | Verimatrix | 12/5/18 | Cable and Video | \$158.0 | 2.0 x | 10.9 x | Provides IPTV content encryption and digital rights management SaaS for cable and IPTV service providers. |
| CommScope | ARRIS | 11/8/18 | Cable and Video | \$7,621.2 | 1.1 x | 9.3 x | Networking hardware and software for cable TV service providers including routers, encoders, amplifiers, access points and gateways. |
| Infinera | Coriant | 7/24/18 | Wireline Access and Transport | \$430.0 | 0.5 x | NA | Supplies packet optical, IP and SDN solutions to Tier 1 global service providers and web-scale internet operators. |
| Reliance Industries | Radisys | 6/29/18 | IP Networking | \$87.6 | 0.7 x | NM | Provides ATCA, AMC, media and embedded servers for the telecommunications sector and businesses. |
| Ribbon Communications | Edgewater Networks | 6/25/18 | IP Networking | \$110.0 | 1.7 x | 27.5 x | Software that enables monitoring of IP-based voice, video and data traffic, and manages service quality and remote troubleshooting. |
| Pareteum | Artium | 6/7/18 | OSS/BSS Software | \$96.0 | 6.0 x | NM | Mobile telecommunications software to network operators and enablers including network operators, MVNOs and MVNEs. |

Sub Sector Analysis: Large Cap

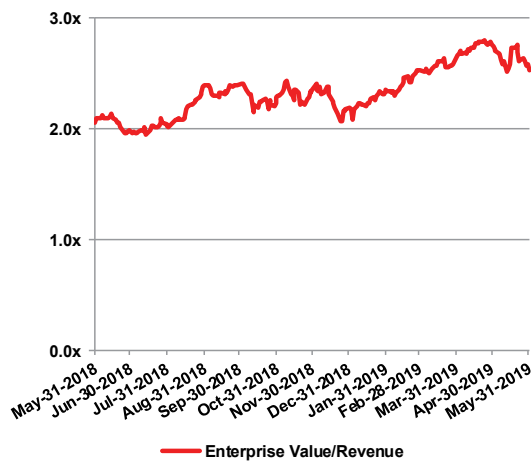
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|-----------------|----------|---------|
| Large Cap Index | 16.4% | -1.7% |
| Cisco | 21.8% | 0.5% |
| Ericsson | 34.1% | 6.6% |
| Juniper | -7.6% | -9.1% |
| Nokia | -13.3% | -17.5% |
| ZTE | -16.5% | -6.5% |

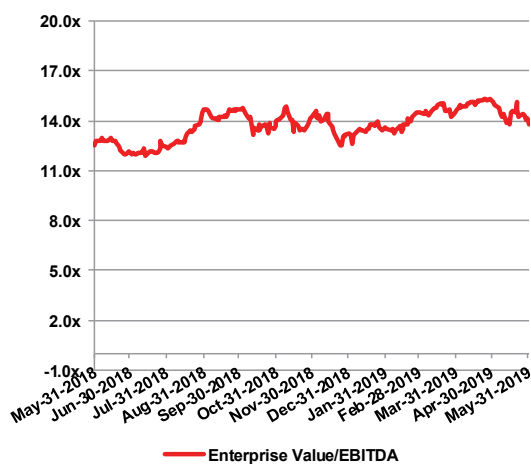
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------|-----------|-----------|
| Large Cap Index | 2.5x | 2.1x |
| Cisco | 4.1x | 3.6x |
| Ericsson | 1.3x | 1.0x |
| Juniper | 1.6x | 1.7x |
| Nokia | 1.0x | 1.0x |
| ZTE | 1.5x | 1.1x |

EBITDA Multiple Trends



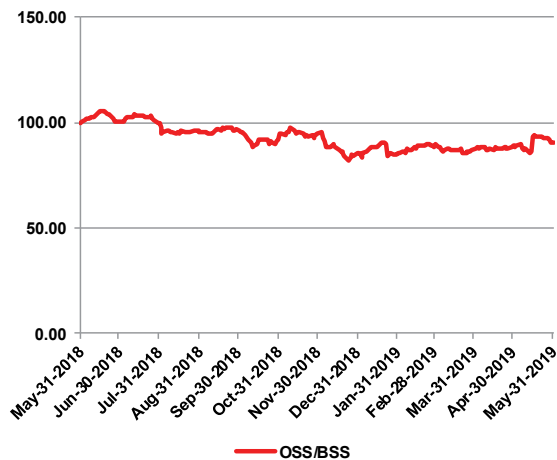
Company EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------|-----------|-----------|
| Large Cap Index | 13.8x | 12.5x |
| Cisco | 13.7x | 12.1x |
| Ericsson | 16.2x | 177.4x |
| Juniper | 8.9x | 8.3x |
| Nokia | 9.8x | 7.8x |
| ZTE | 49.0x | 17.6x |

Source: Capital IQ

Sub Sector Analysis: OSS/BSS Software

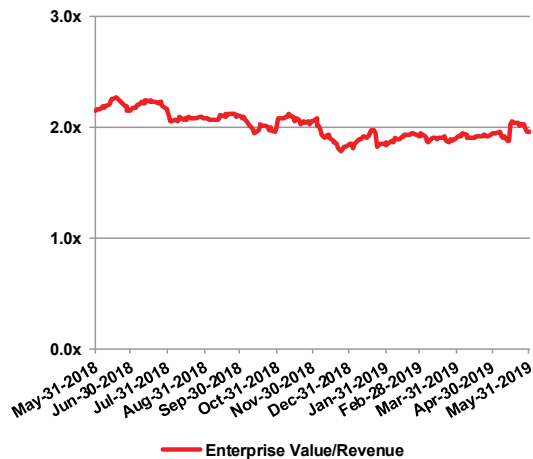
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|------------------|----------|---------|
| OSS/BSS Index | -9.4% | 2.7% |
| Amdocs | -11.9% | 6.9% |
| CSG Systems | 8.4% | 7.9% |
| Evolving Systems | -73.3% | -36.2% |
| NetScout | -9.2% | -10.4% |
| Optiva | -20.5% | -12.2% |
| Pareteum | 63.3% | -2.5% |
| Radcom | -54.6% | 13.8% |
| Subex | 7.1% | 28.6% |
| Synchronoss | 11.3% | -20.7% |
| Tecnotree | -11.3% | -0.9% |

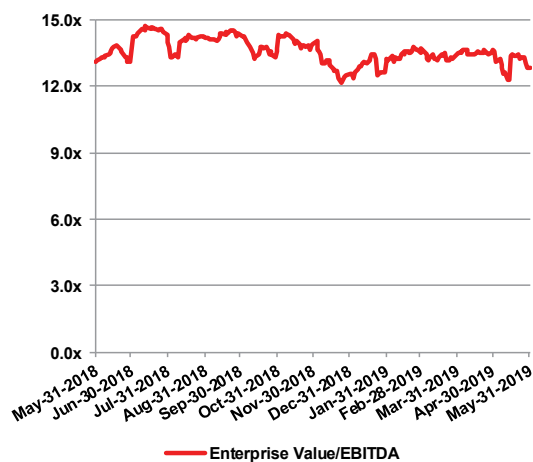
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|------------------|-----------|-----------|
| OSS/BSS Index | 2.0x | 2.1x |
| Amdocs | 1.9x | 2.3x |
| CSG Systems | 1.9x | 1.9x |
| Evolving Systems | 0.4x | 1.3x |
| NetScout Systems | 2.2x | 2.4x |
| Optiva | 1.7x | 1.4x |
| Pareteum | 8.8x | 7.7x |
| Radcom | 2.3x | 4.6x |
| Subex | 0.9x | 0.9x |
| Synchronoss | 1.5x | 1.0x |
| Tecnotree | 0.7x | 0.4x |

EBITDA Multiple Trends



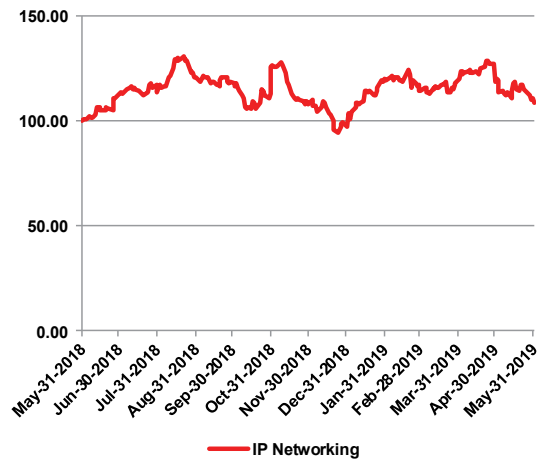
Company EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|------------------|-----------|-----------|
| OSS/BSS Index | 12.8x | 13.1x |
| Amdocs | 10.3x | 12.6x |
| CSG Systems | 11.4x | 11.1x |
| Evolving Systems | 8.6x | 6.5x |
| NetScout Systems | 15.2x | 15.1x |
| Optiva | NM | NM |
| Pareteum | NM | NM |
| Radcom | NM | 50.2x |
| Subex | 5.9x | 6.0x |
| Synchronoss | NM | NM |
| Tecnotree | 2.6x | 2.2x |

Source: Capital IQ

Sub Sector Analysis: IP Networking

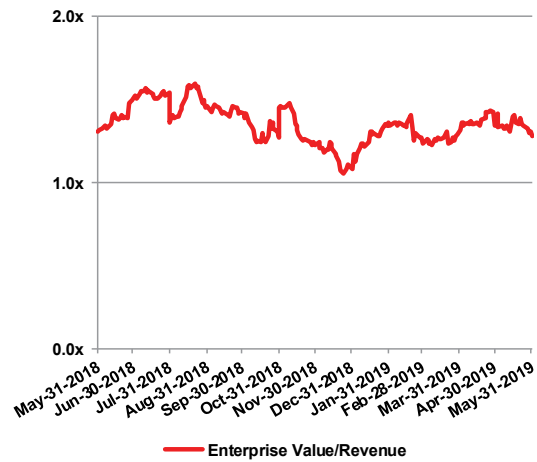
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|-----------------------|----------|---------|
| IP Networking Index | 8.5% | -5.3% |
| Allot Communications | 27.3% | -7.2% |
| Audiocodes | 106.9% | 12.8% |
| Ribbon Communications | -29.5% | -17.1% |

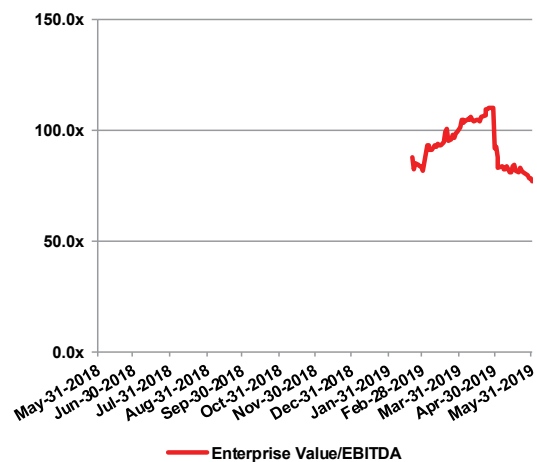
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------------|-----------|-----------|
| IP Networking Index | 1.3x | 1.3x |
| Allot Communications | 1.4x | 0.9x |
| Audiocodes | 2.2x | 1.1x |
| Ribbon Communications | 1.0x | 1.5x |

EBITDA Multiple Trends



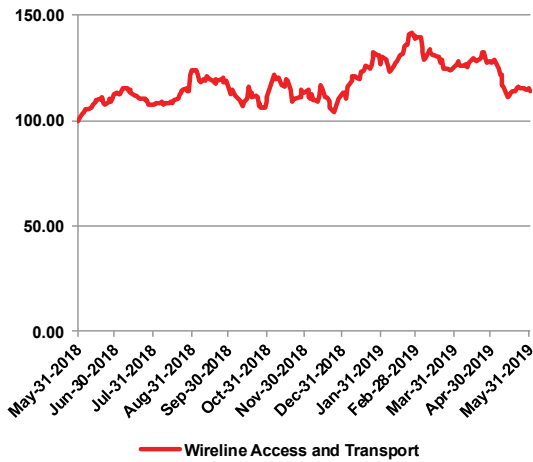
Company EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------------|-----------|-----------|
| IP Networking Index | 76.6x | NM |
| Allot Communications | NM | NM |
| Audiocodes | 19.7x | 13.5x |
| Ribbon Communications | NM | NM |

Source: Capital IQ

Sub Sector Analysis: Wireline Access and Transport

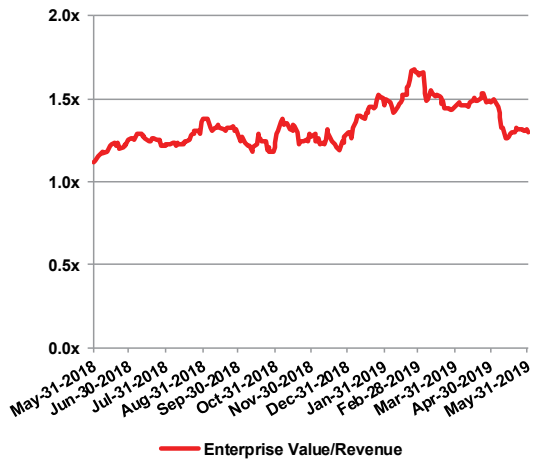
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|-----------------------------------|----------|---------|
| Wireline Access & Transport Index | 13.7% | -18.5% |
| ADTRAN | 12.4% | 4.4% |
| ADVA | 5.9% | -21.1% |
| BATM | 66.9% | -4.2% |
| Calix | -11.0% | -26.2% |
| CIENA | 51.6% | -18.1% |
| Communications Systems | -30.1% | 10.1% |
| Dasan Zhone Solutions | 27.6% | -5.4% |
| Infinera | -64.7% | -39.1% |
| Net Insight | -63.5% | -23.1% |

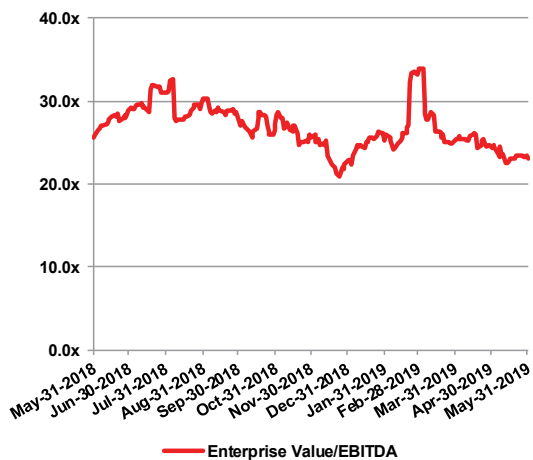
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------------------------|-----------|-----------|
| Wireline Access & Transport Index | 1.3x | 1.1x |
| ADTRAN | 1.2x | 1.0x |
| ADVA | 0.8x | 0.7x |
| BATM | 1.9x | 1.1x |
| Calix | 0.8x | 0.7x |
| CIENA | 1.6x | 1.2x |
| Communications Systems | 0.3x | 0.2x |
| Dasan Zhone Solutions | 1.1x | 0.8x |
| Infinera | 0.7x | 1.6x |
| Net Insight | 1.4x | 3.4x |

EBITDA Multiple Trends



Company EBITDA Multiples

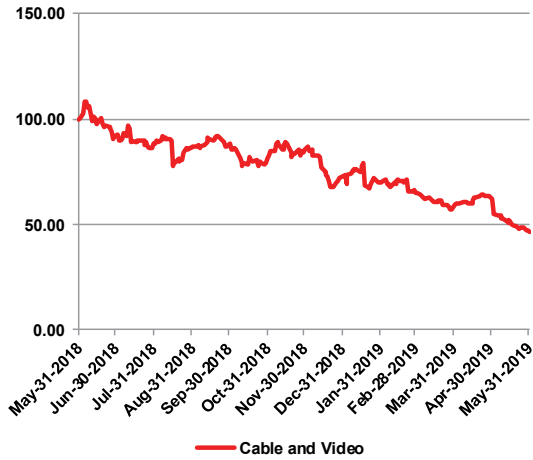
| | 5/31/2019 | 5/31/2018 |
|-----------------------------------|-----------|-----------|
| Wireline Access & Transport Index | 23.0x | 25.6x |
| ADTRAN | NM | 23.7x |
| ADVA | 10.4x | 11.4x |
| BATM | 98.9x | 57.4x |
| Calix | NM | NM |
| CIENA | 11.8x | 10.8x |
| Communications Systems | NM | NM |
| Dasan Zhone Solutions | 29.7x | 28.2x |
| Infinera | NM | NM |
| Net Insight | NM | 559.6x |

Source: Capital IQ

www.focusbankers.com/telecom Atlanta, GA • Los Angeles, CA • Washington, DC Metro

Sub Sector Analysis: Cable and Video

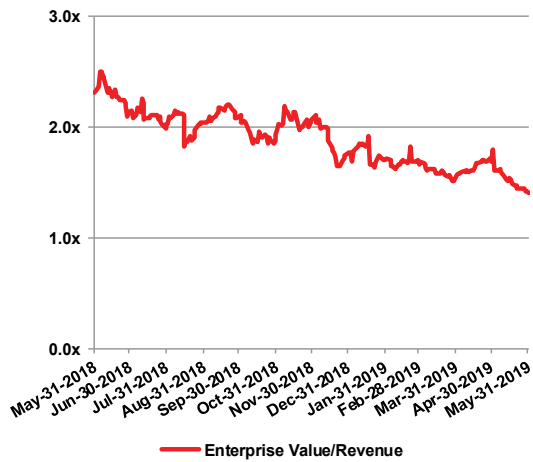
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|-----------------------|----------|---------|
| Cable and Video Index | -53.4% | -27.7% |
| Amino | -57.0% | 5.1% |
| Casa Systems | -70.7% | -44.8% |
| Harmonic | 35.6% | -5.4% |
| NetGem | -63.1% | -17.9% |
| SeaChange | -54.6% | -12.4% |

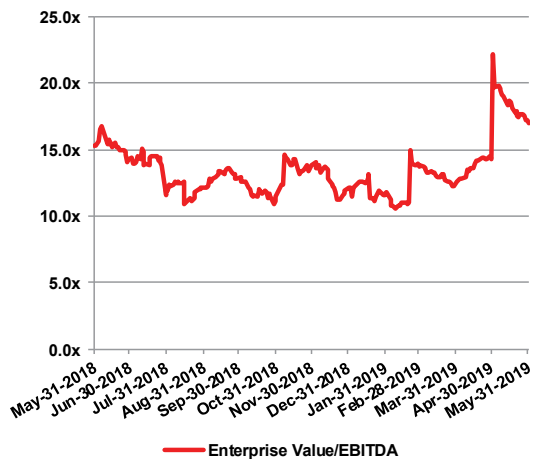
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------------|-----------|-----------|
| Cable and Video Index | 1.4x | 2.3x |
| Amino | 0.7x | 2.0x |
| Casa Systems | 2.1x | 4.3x |
| Harmonic | 1.4x | 1.1x |
| NetGem | 0.5x | 1.1x |
| SeaChange | 0.4x | 0.7x |

EBITDA Multiple Trends



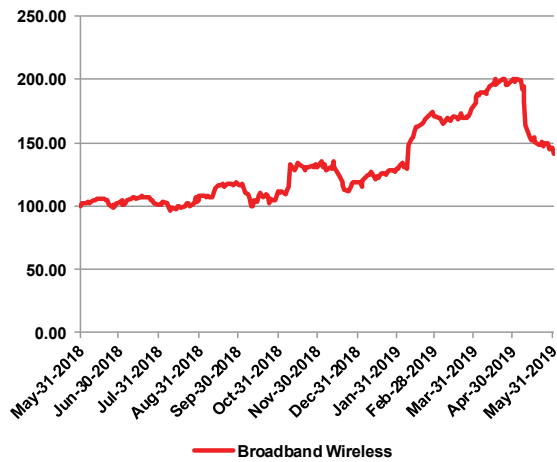
Company EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|-----------------------|-----------|-----------|
| Cable and Video Index | 17.0x | 15.3x |
| Amino | 7.6x | 25.0x |
| Casa Systems | 9.6x | 10.9x |
| Harmonic | 29.4x | NM |
| NetGem | 3.8x | 10.5x |
| SeaChange | NM | 28.1x |

Source: Capital IQ

Sub Sector Analysis: Broadband Wireless

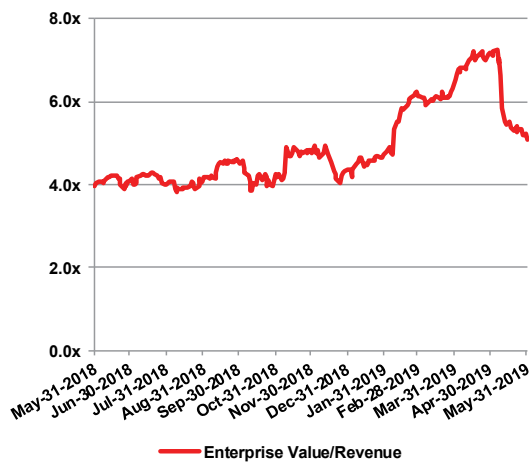
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|--------------------------|----------|---------|
| Broadband Wireless Index | 41.7% | -16.9% |
| Aviat Networks | -24.9% | -2.3% |
| Ceragon Networks | -19.7% | -27.5% |
| Redline Communications | -20.3% | -9.2% |
| Ubiquiti Networks | 45.7% | -16.7% |

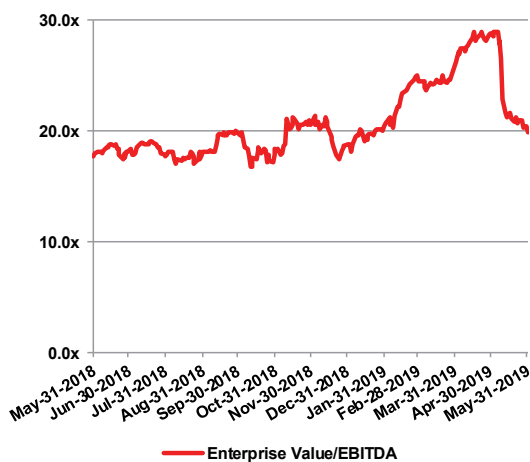
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|--------------------------|-----------|-----------|
| Broadband Wireless Index | 5.1x | 4.0x |
| Aviat Networks | 0.2x | 0.3x |
| Ceragon Networks | 0.6x | 0.7x |
| Redline Communications | 0.4x | 0.6x |
| Ubiquiti Networks | 7.5x | 6.1x |

EBITDA Multiple Trends



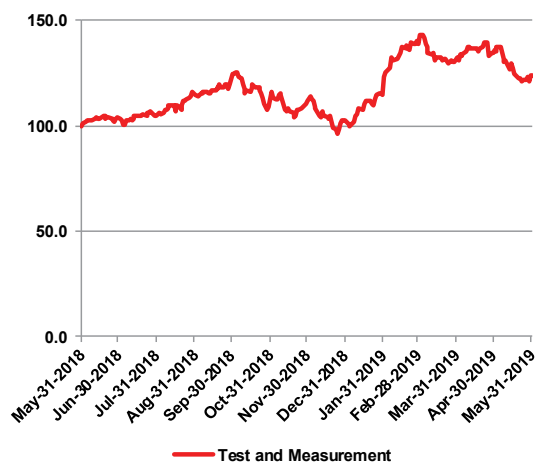
Company EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|--------------------------|-----------|-----------|
| Broadband Wireless Index | 19.9x | 17.6x |
| Aviat Networks | 6.6x | 13.8x |
| Ceragon Networks | 6.0x | 7.3x |
| Redline Communications | NM | NM |
| Ubiquiti Networks | 21.1x | 18.7x |

Source: Capital IQ

Sub Sector Analysis: Test and Measurement

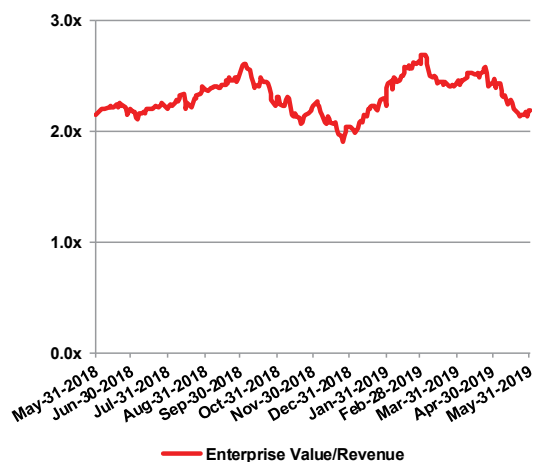
Twelve Month Index Returns



Company Returns

| | 12 Month | 3 Month |
|----------------------------|----------|---------|
| Test and Measurement Index | 24.1% | -10.5% |
| Anritsu | 19.2% | -19.1% |
| EXFO | 18.6% | 12.3% |
| Spirent | 28.8% | -0.6% |
| Viavi | 26.7% | -8.2% |

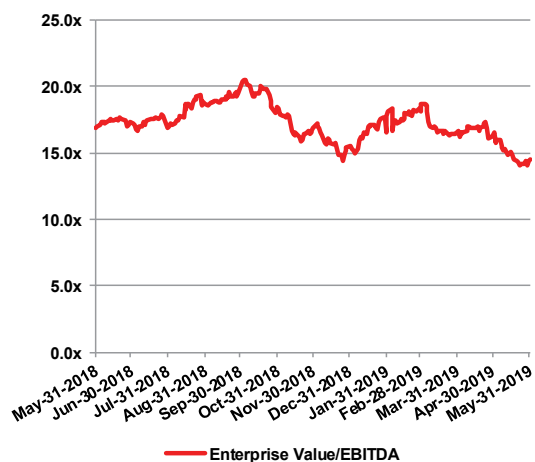
Revenue Multiple Trends



Company Revenue Multiples

| | 5/31/2019 | 5/31/2018 |
|----------------------------|-----------|-----------|
| Test and Measurement Index | 2.2x | 2.1x |
| Anritsu | 2.2x | 2.1x |
| EXFO | 0.8x | 0.7x |
| Spirent | 2.3x | 1.8x |
| Viavi | 2.6x | 2.7x |

EBITDA Multiple Trends



Company EBITDA Multiples

| | 5/31/2019 | 5/31/2018 |
|----------------------------|-----------|-----------|
| Test and Measurement Index | 14.5x | 16.8x |
| Anritsu | 13.7x | 18.7x |
| EXFO | 15.3x | 11.1x |
| Spirent | 12.4x | 10.8x |
| Viavi | 16.0x | 21.7x |

Source: Capital IQ

FOCUS Telecom Technology and Services Team



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