Current Analysis Sample Reports

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Ericsson Bags Redback for $2.1 Billion

Analysts: R. Westfall, G. Hunt
Report Date: Dec 20, 2006
Markets: Broadband Infrastructure - Global

Summary

Event Summary

December 20, 2006 - Ericsson and Redback Networks have announced that they have signed a definitive agreement under which Ericsson will acquire Redback for USD 25.00 per share, or an aggregate price of approximately USD 1.9 billion. The offer represents a premium of 60 percent to Redback's [90-day] volume weighted average stock price.

Analytical Summary

• Current Perspective: Very positive on Ericsson's acquisition of Redback, because it ensures Ericsson will strategically command proven IP service edge technology within its own portfolio, thereby bolstering its overall portfolio within both the wireline and wireless realms and reduce its reliance on shifting alliances among IP service players for leveraging vital carrier routing technology into its overall carrier solution sets. By locking up Redback, Ericsson now owns the proven, battle-hardened carrier edge routing technology that is needed today and will prove even more crucial for scaling ongoing carrier efforts to deploy multi-play services that use and include applications and services such as IMS, mobility and IPTV.

• Vendor Importance: Very high to Ericsson and Redback, as Ericsson needed to lock up Redback's carrier routing technology to address its own in-house product portfolio gap within the carrier edge routing technology area and counter the ability of a couple of major infrastructure rivals to use integrated carrier routing to differentiate against Ericsson. Redback needed to merge with Ericsson to tap into Ericsson's vast global channels and strengthen its long-term competitive prospects as carriers increasingly view carrier routing platforms as integral elements within overall solution sets in both the wireline and wireless/mobile portions of their networks.

• Market Impact: Very high on the overall carrier routing realm, including the carrier IP edge router segment (i.e., BRAS and IP services edge technology areas), as Ericsson is a global infrastructure player competing within most of the major segments of the networking universe and Redback is already deployed in many of top-tier carriers on the planet (i.e., 15 out of 20 top wireline carriers) and commands double-digit market share within the BRAS segment, thereby obliging rivals to react instantly with product development and marketing responses of their own.

Perspective

Current Perspective: Very Positive

We are taking a very positive stance on Ericsson's $2.1 billion acquisition of Redback. For starters, the acquisition of Redback ensures Ericsson will strategically command proven carrier IP service edge technology

within its own portfolio, thereby bolstering its overall portfolio within both the wireline and wireless realms and reduce its reliance on shifting alliances among IP service players for leveraging vital carrier routing technology into its overall carrier solution sets. By locking up Redback, Ericsson now owns the proven, battle-hardened carrier edge routing technology that is needed today and will prove even more crucial for scaling ongoing carrier efforts to deploy multi-play services that use and include applications and services such as IMS, mobility and multimedia/IPTV more effectively.

The reasons for Ericsson taking over Redback are compelling and self-evident. For example, Redback has over 700 carrier customers in more than 80 countries and wields a brain trust of over 500 R&D engineers. Such intellectual capital will serve Ericsson well as it distributes Redback routing know-how into other parts of its portfolio. Also, 15 of the top 20 telephone carriers worldwide use Redback's technology, including broadband routers to manage IP-based data, voice and video services.

Furthermore, Ericsson and Redback have little to no product overlap within their respective product portfolios. As a result the merging of the companies should follow a reasonably smooth path. Ericsson can plausibly assert that, in contrast, the Alcatel-Lucent merger process will take more time and effort to complete due to obvious product line overlaps in areas such as broadband access. With the Nokia Siemens integration process on hold (until March 2007 at least) as the Siemens side resolves some alleged legal issues, Ericsson is in a position to take advantage of overall sales and marketing momentum over the next couple of quarters (i.e., H1 2007).

On the concern side, Ericsson still faces some notable competitive challenges. Even with the Redback acquisition, Ericsson still lacks key in-house digital content/video networking elements in areas such as multimedia platforms, IPTV middleware, VoD server and DVR/PRV technology that major rivals such as Cisco, Alcatel-Lucent, Nokia Siemens and Motorola will continue to use in their respective differentiation efforts against Ericsson, especially since a major Ericsson rationale for acquiring Redback is to address video applications such as IPTV more effectively. Further, Ericsson still must prove it can fully integrate, distribute and leverage Redback's carrier edge routing technology throughout its entire portfolio, including the wireline and wireless/mobile realms. Some rivals will invoke Ericsson's historical false start in acquiring carrier routing technology (i.e., the acquisition of Torrent) and Ericsson's ability to fully leverage the technology versus using partner carrier routing technology.

However Ericsson is in a position to counter such concerns deftly. In the area of multimedia/video networking Ericsson is already partnered with video stalwart Kasenna to address integration of solution sets such as IPTV solutions. In fact, from a third-party observer perspective, an Ericsson acquisition of Kasenna would make logical sense and could quickly catapult Ericsson past rival such as Nokia Siemens, Huawei and UTStarcom in terms of offering more comprehensive digital content/IPTV solution sets. Additionally, Ericsson's acquisition of Redback is light years removed from the Torrent acquisition effort and does not represent a tangible competitive issue, although Ericsson still must prove it can move the needle upward within market share counts of areas such as edge routing and BRAS now that it owns Redback.

Overall Ericsson is in a strong position to benefit significantly from the acquisition of Redback, as Redback's widely deployed and extensively proven carrier routing technology is exactly what the doctor ordered to bolster Ericsson's long-term competitive prospects with both its wireline and wireless/mobile solution sets. Redback currently represents the right size and price for Ericsson as the only other equivalent acquisition that would make sense - a theoretical takeover of Juniper - would have proven far more expensive and unwieldy due to factors such as Juniper's extensive enterprise portfolio and greater market cap.

Positives and Concerns

Competitive Positives

• Ericsson gains a leading IP edge routing and broadband remote access server (BRAS) platform to leverage in its offerings for mobile and fixed broadband networks. New IP-based services, such as VoIP, IPTV and video on demand rely heavily on an IP routing component, flexible subscriber management capabilities and rich QoS capabilities to ensure quality service delivery.

• Ericsson gains another key technology that it needed to enhance the strategic direction of its wireline and wireless solutions. The addition of Redback adds IP routing and subscriber management while the previous acquisition of Marconi expanded its access, optical and multi-service WAN portfolios. The acquisition is complementary since there is very little overlap between the existing Ericsson and Redback product lines.

• Redback gains a strong partner to take its SmartEdge technology to the next level as part of a Tier 1 equipment supplier. Redback has made significant market gains with its SMS and SmartEdge offerings, as evidenced by laying claim to 15 of the top 20 telephone carriers worldwide using its technology, including broadband routers to manage IP-based data, voice and video services.

• Ericsson gains a degree of equivalency with its competitor Alcatel-Lucent, which can offer strong mobile, optical and IP routing solutions for converged wireline/wireless networks. The move also reduces the reliance that Ericsson had on partners for key components of its solution sets – specifically Juniper for edge routers.

• Ericsson gains additional customer presence since Redback has over 700 carrier customers in more than 80 countries that offer growth potential for Ericsson gear. Many of the 700 customers may already be Ericsson customers but even then, the Ericsson presence will be enhanced since it impacts more of the network. Ericsson can also leverage Redback's North American presence to gain customer traction and market momentum in this important market.

• Ericsson gains the ability to leverage Redback's intellectual property and expertise to develop derived or purpose built IP-based solutions application such as intelligent access gateways, service gateways with deep packet inspection capabilities and other functions needed to support converged wireless/wireline networks.

Competitive Concerns

• Even with the Redback acquisition, Ericsson still lacks key in-house digital content/video networking elements in areas such as multimedia platforms, IPTV middleware, VoD server and DVR/PRV technology that major rivals such as Cisco, Alcatel-Lucent, Nokia Siemens and Motorola will continue to use in differentiation efforts against Ericsson, especially since a major Ericsson rationale for acquiring Redback is to address video applications such as IPTV more effectively.

• Ericsson still must prove it can fully integrate, distribute and leverage Redback's carrier edge routing technology throughout its entire portfolio, including the wireline and wireless/mobile realms. Some rivals will invoke Ericsson's historical false start in acquiring carrier routing technology (i.e., the acquisition of Torrent) and Ericsson's ability to leverage the technology fully versus using partner carrier routing technology.

• Redback has commitments to various equipment vendors who have used the SmartEdge and SMS for subscriber management and IP edge routing applications. Many of these relationships are with competitors of Ericsson who may now find it needed to supply them with products.

• There is always some risk that the transaction will not move forward, since the transaction will be slightly dilutive to Ericsson in 2007 (due to one-time costs associated with the transaction) and is subject to acceptance by shareholders and regulatory approvals, and is expected before the end of February 2007.

• Ericsson will need to assimilate the Redback assets into the company's product processes quickly in order to retain the intellectual property, which currently includes about 800 people, including 500 R&D engineers located in Silicon Valley. Ericsson will need to establish effective leadership councils and include the former Redback staff in the planning, development and marketing activities.

Recommended Actions

Recommended Vendor Actions

• Ericsson needs to continue stressing that the overall IP digital content/video networking market is still nascent, which gives Ericsson a sufficient time-to-market buffer to decide if owning more video networking elements in-house makes more long-term, strategic sense. Plus Ericsson commands a relationship with video stalwart Kasenna and the Redback acquisition arguably gives Ericsson the most essential element of scaling carrier video applications – proven carrier multi-service routing platforms.

• Ericsson can point to its recent success with integrating the Marconi assets into its own corporate structure and portfolio as proof Ericsson can effectively acquire new technologies and diversify its portfolio to include key, strategic technology areas. Further Redback's carrier routing technology is clearly proven and battle-hardened, whereas the Torrent technology was experimental and occurred during the far-removed Internet bubble era.

• Ericsson should continue its investment in IMS, and now armed with a strong IP routing portfolio, it plays well to the company's strengths as a vendor agnostic supplier of professional services and a company able to supply best of breed solutions to service providers. As such, Ericsson can now go toe-to-toe with Alcatel-Lucent, which has also made IMS a strategic focus and has a strong professional services organization.

• Ericsson should review its respective partnerships with companies such as Cisco, Juniper, ECI and Huawei following the Redback acquisition, as the deal further muddies the water with regard to the company's preferred partners in the carrier infrastructure space. When required, exit strategies beneficial to the customer should be the goal here.

• Ericsson should take advantage of the merger uncertainty surrounding its largest competitors—Alcatel-Lucent, Nokia and Siemens—as they go through the painful process of merging their businesses over the next several months/quarters. In this environment, Ericsson should quickly show its solution roadmaps based on the insertion of the Redback portfolio for IP edge applications and subscriber management and not fall prey to the integration chaos itself.

• Ericsson should leverage the market momentum established by Redback as a “best of breed” IP multiservice edge platform. Ericsson should work to broaden market traction in the carrier Ethernet and edge routing segments of the market. Redback maintains measurable market share in the BRAS segment according to the Synergy Research Group, which noted that as a result of growth in SMS revenue, owned 17.2 percent equipment revenue market share in the Q3 2006 BRAS segment.

Recommended Competitor Actions

• Major digital content/video networking rivals such as Cisco, Alcatel-Lucent, Nokia Siemens and Motorola need to continue emphasizing that Ericsson still cannot match their in-house multimedia/video networking assets in areas such as IPTV middleware, STB/PVRs, head-end, VoD and content security despite the acquisition of Redback. Thus Ericsson’s portfolio still trails their respective portfolios in an area Ericsson has identified as strategic.

• Carrier edge routing rivals such as Cisco, Juniper and Alcatel-Lucent need to point out that they already command sizable market share leads over Redback in key carrier routing segments such as the edge router (BRAS + Services Edge) and services edge router sectors and that Ericsson has a good deal to prove in terms of its ability to move the needle within the market share counts of such segments.

• Alcatel-Lucent needs to continue its integration process and go to market programs and avoid periods of stagnation that will enable competitors to snipe at product, innovation, and customer/market momentum. With Alcatel-Lucent settling on its strategic IP portfolio (the 7x50 series service router), the process of wireline and wireless integration can proceed quickly.

• Juniper should continue to support its relationships with Ericsson where it supplies IP edge and core routers as part of the overall solution delivered by Ericsson. Ericsson and Juniper should make certain that customers are not negatively impacted by the addition of Redback to the fold.

• ECI should tout its success in emerging markets with its integrated Access - IP – Optical portfolio. ECI should be well beyond integration issues resulting from its acquisition of Laurel Networks and be announcing expanded capabilities and new features in all product segments to capture emerging video-centric network wins.

• Siemens and Nokia need to resolve the remaining obstacle to their corporate marriage quickly, before Ericsson and Alcatel-Lucent begin their attacks on the market. Ericsson’s acquisition of Redback would appear to be much simpler than the merging of two equals, giving Ericsson the starting advantage.

Recommended End User / Customer Actions

• Carriers of all types need to reevaluate Ericsson’s wireline and wireless/mobile solution sets now that Ericsson can directly integrate Redback’s carrier routing technology with its vast portfolio holdings in the wireline/wireless realms. The Redback acquisition will likely enhance Ericsson’s overall solution set propositions well into the foreseeable future.

• Carriers now need to compare and contrast Ericsson’s carrier routing proposition and related wireline/wireless

solution sets more directly with rivals such as Cisco, Juniper and Alcatel-Lucent, as possession of the Redback carrier routing technology gives Ericsson instant credibility in areas such as BRAS, edge routing, multiservice edge routing and services edge routing.

• Carriers, especially current Redback customers, need to seek Ericsson's product integration and development roadmap for incorporating the Redback carrier routing technology into its overall portfolio. Especially intriguing is what Ericsson can do with Redback technology in areas such as IMS, mobility and multimedia/IPTV applications.

Company Advisor

Level 3

Business Network Services - U.S.

By D. Hold

Contents

Level 3

Analysts: D. Hold
Report Date: Aug 02, 2006
Markets: Business Network Services - U.S.

Company Description

Level 3 Communications (NASDAQ: LVLT), headquartered in Broomfield, CO, is a national and international facilities-based provider of fiber-optic transport and bandwidth services, as well as IP, dial-up, voice, and VoIP services. Level 3 was founded in 1985 as Kiewit Diversified Group, Inc. (KDG), a wholly-owned subsidiary of Peter Kiewit Sons', Inc. (PKS), a construction, mining, information services and communications company headquartered in Omaha, Nebraska. When KDG was established as an independent business with the name Level 3 and a NASDAQ listing in 1998, the carrier began construction of a new fiber optic network, including long-haul, international and metropolitan area components. That network was completed in 2001.

Level 3 began as a carrier's carrier, providing wholesale services exclusively. Although it has broadened its target markets to include large enterprises and the federal government, the majority of its revenues still come from service providers. Level 3's leading customers include the four largest ISPs, the six largest cable MSOs and four RBOCs, as well as cellular providers, PTTs, satellite companies, system integrators and more than 30 government agencies. The company is also making in roads into the fast-growing VoIP service provider market, winning several deals to provide the underlying infrastructure for both wireline and wireless carriers, and for cable providers including Adelphia, Charter Communications and Comcast. The company also provides bandwidth and data center services to DirecTV.

Level 3 is not profitable. The company lost $638 million on $3.6 billion in revenue in 2005, and had negative cash flow of $425 million. For Q2 2006, Level 3 posted total revenues of $1.53 billion, and a net loss of $201 million. Revenue is up strongly from $894 million in Q2 2005, reflecting the consolidation of WilTel. The carrier has taken on additional debt to fund acquisitions, and its total debt load now stands at $6.56 billion. The debt is partially offset by cash and equivalents of $1.568 billion on hand at the end of Q2, which reflects the addition of $1.118 billion raised through debt and equity offerings during the quarter.

Level 3 has expanded its business through a number of strategic acquisitions including Genuity in 2003 and WilTel in 2005. In 2006, Level 3 completed its acquisition of Progress Telecom and TelCove, and has announced agreements to acquire ICG Communications and Looking Glass Networks. At the time of the acquisition, WilTel had a contract with its largest customer, AT&T (SBC), to provide long haul voice and data services through 2009. Level 3 expects WilTel to provide $75-$90 million in positive cash flow (after integration costs) in 2006 and $125-$150 million in positive cash flow in 2007. In addition to these acquisitions, Level 3 has agreed to sell its wholly owned subsidiary, Software Spectrum, to Insight Enterprises, Inc. for $287 million in cash. The sale was announced in July 2006 and is expected to close in the third quarter of 2006.

Current Perspective

We are taking a slightly positive stance on Level 3 Communications, because Level 3 has leveraged its advanced optical network to build a strong suite of transport, IP and data, softswitch and VoIP offerings. The strength of the company's suite of services is evident by the fact that Level 3's customers include the four largest ISPs, the

six largest cable MSOs, four RBOCs, major cellular providers, as well as PTTs, satellite companies, system integrators, large enterprise customers and more than 30 government agencies. In addition, the company made a big, bold move by acquiring WilTel, whose healthy cash flows may alleviate some of the financial pressure on Level 3, as well as providing metro fiber in 40 U.S. cities. AT&T (the former SBC) was WilTel's largest customer, and the two companies had signed an agreement that extends services through 2009. The deal guarantees Level 3 a gross margin of $675 million on services provided, and the company will also receive a $50 million bonus if certain performance requirements are met. Meanwhile, the company has acquired no fewer than four providers of metro optical network services so far in 2006, which will increase its network reach to 23,300 route miles of fiber in 110 metropolitan markets and to 5,200 on-net buildings. Finally, the company has had some success in penetrating the largest players in the emerging market for IP telephony services.

On the other hand, Level 3 has never been profitable, nor is it cash flow positive--while the overall debt burden continues to rise to fund the acquisitions. Meanwhile, the carrier's core communications businesses — managed modem, Internet transit and optical transport — have been declining as end users shift from dial-up to broadband and bandwidth prices fall. The company is also overly dependent on a few large customers, such as AOL, that are reducing the services they purchase, while many of its leading long haul competitors, including AT&T, Verizon (MCI), Sprint and Qwest, as well as Broadwing and Global Crossing, are still around. There is a silver lining to this cloud, as overall traffic volume is rising and management reports that price declines for IP and transport services are finally beginning to moderate. It will be important to see if rising traffic volumes, price stabilization, and additional cash flows from the WilTel, Progress Telecom and the other acquisitions will allow the company to return to positive growth again in 2006.

Market/Sales Strategy

Level 3 offers IP, transport and softswitch, Internet access and colocation services in its North American and European markets. The carrier distinguishes itself from competitors with its all-optical all-IP/MPLS network. In 2005, Level 3 focused driving revenue growth through pricing discipline, rather than discounting. The carrier divested itself of its (i)Structure IT outsourcing business unit in December 2005, a unit that was not core to the company's strategy.Beginning in 2005, the company initiated a strategy of growth through acquisition. For example, the company extended its reach domestically and internationally, and helped to improve its cash flow, with the acquisition of WilTel (see "Level 3 to Pluck WilTel from Leucadia, November 1, 2005; and "Level 3 Completes WilTel Acquisition in Record Time," December 23, 2005). WilTel offered MPLS-enabled IP VPNs, Ethernet, frame relay, ATM, private line circuits, wavelength services, switched domestic and international voice, VoIP and video services to both wholesale and retail customers, although the majority of revenues came from providing long haul transport to one customer, SBC, now AT&T.The first half of 2006 was marked by a series of acquisitions of carriers with local metro optical facilities, including ICG, Progress Telecom (see "Level 3 Spends a Little to Gain a Lot," January 26, 2006), TelCove (see "Level 3 Crowns its Acquisition Spree with $1.2 Billion Telcove Purchase Plan," May 2, 2006), and Looking Glass Networks (see "Level 3 To Acquire Looking Glass Networks, Fifth Acquisition In Seven Months," June 8, 2006). These acquisitions will drive more revenue generating traffic onto Level 3's network while helping to cut costs by reducing the need to purchase off-net access and colocation services in the metro areas served by these carriers.

Level 3 sells directly and through partner OEM relationships. In its first few years of operation, Level 3 sold communication services via a direct sales force to Internet-focused businesses and service providers. As market conditions changed, Level 3 focused mainly on the top 300 to 400 global bandwidth users, a category that

includes carriers and service providers, but also some enterprises and government agencies with networks that have the operating characteristics of a carrier. Prior to the WilTel acquisition, enterprise customers accounted for less than 8% of total revenues, as the carrier's focus was primarily on the wholesale market. That ratio is changing as the acquired carriers tend to have a higher percentage of enterprise customers

Level 3 has divided its business into three segments: Communications, Information Services and Coal Mining. Strategically, Level 3 has aligned its Communications business by life cycle phases of Growth, Core and Mature, and incorporates different marketing and distribution strategies for each phase of the lifecycle. Growth products are wholesale and subscriber-oriented VoIP and IP VPN services. Core products include transport and Infrastructure services and IP and data products that will continue to provide Level 3 with revenues from dark fiber, private line, wavelength and colocation services for the foreseeable future. Mature services are Level 3's managed modem and DSL aggregation services, which are in a state of permanent decline.

Although the managed modem business has been impacted by a shift from dial-up Internet access to broadband DSL and cable modems, Level 3 appears to be committed to being the industry consolidator for dial-up Internet access. The company numbers AOL and EarthLink, among its largest customers, and it has taken over dial-up services from providers that are exiting the market. The long run goal is to gradually replace declining dial up revenues with growing VoIP revenues, and in 2005, the company signed agreements to provide VoIP services to the residential customers of AOL, EarthLink and United Online.

Strengths

• Level 3 operates an ultra-modern fiber optic network that consists of a 23,000 mile inter-city network linking 77 North American markets and 22 Western European markets. The carrier also operates metropolitan area fiber networks encircling 27 U.S. and nine European cities, from which customers can access the Level 3 backbone directly and recently upgraded its capacity on the Apollo submarine network from the U.S. to Europe.

• The WilTel acquisition brought to Level 3 a company that has exhibited consistent revenue growth and positive cash flow, while removing a major competitor. When all of the more recent acquisitions are completed, Level 3 will have approximately 23,300 route miles of fiber in 110 metropolitan markets and 5,200 on-net buildings.

• Level 3 has demonstrated the ability to repeatedly raise new debt to fund acquisitions and network investment, and also to refinance existing debt, shifting repayment obligations further out in the future. Although adding to the overall level of indebtedness, these financial maneuvers provide Level 3 with the resources it needs to expand and operate for several more years while it works to achieve profitability.

• Level 3 is well positioned to exploit the growth in IP telephony with its national IP backbone and extensive local reach. Level 3 has been able to meet FCC regulations for E-911 service for fixed applications, and it expects to meet requirements for nomadic applications in compliance with the FCC's timeline.

• Level 3's profitable Vyvx subsidiary counts all major media/entertainment companies as customers and delivers nearly 250,000 fiber and satellite video feeds each year. Vyvx has fiber connectivity to more than 100 professional sports venues across the country, as well as all major media centers (CNN, Fox News, ASBC, CBS, NBC, etc.). This business unit will enable Level 3 to tap in to the growing media and entertainment industry, thereby providing additional diversification of revenue sources.

Weaknesses

• Level 3 invested billions in a large scale fixed-asset network that cannot be redistributed or easily reoriented as market conditions change. In a market characterized by excess long-haul capacity, excess competition and depressed pricing, Level 3's top line revenues continued to decline in 2005, and expenses continued to exceed revenues. Level 3 must increase the volume of traffic on its network, while holding the line on pricing, to realize the cost benefits of its network.

• Unlike the CLEC market, many of the competing carriers haven't gone away. In addition to the traditional national providers (e.g., AT&T, Verizon (MCI), Sprint and Qwest), Broadwing and Global Crossing are major competitors that are still around to compete with Level 3. Too many players with too much network capacity are contributing to hyper-competition, depressing prices and profits.

• Level 3's current customer base is anything but diverse. Roughly 93% of the company's customers are carriers or other service providers, with two companies accounting for about a third of communications revenue, while enterprise accounts for less than 8%. WilTel, the company Level 3 has acquired, was even more concentrated, with 70% of 2005 revenues coming from a single customer, SBC, and that business will be coming to an end in a few years. The recent acquisitions of metro optical providers should help to provide more diversity of enterprise customers.

Recommended Competitor Actions

• AT&T and Verizon Business should be sure that customers are aware of how many metro area networks they own and how many buildings are connected to their own fiber. The integration of AT&T with SBC and MCI with Verizon significantly improved those carriers' local access in region, and Sprint has increased its number of metro area networks from 13 two years ago to 60 today.

• Large incumbent carriers such as AT&T, Verizon, Sprint and Qwest should point out that Level 3 is very limited in its ability to support legacy data services, including TDM private line, frame relay and ATM, which despite the growth of IP-VPNs, still account for the majority of carrier revenues. Traditional carriers should continue to support those legacy services while providing smooth migration paths to next-generation IP/MPLS and Ethernet services.

• Competing carriers that are profitable, or at least cash flow positive, can present themselves as safe, stable alternatives to Level 3, which continues to burn through cash at an unsustainable rate, while increasing its debt load to fund acquisitions.

• SBC/AT&T, Verizon/MCI and Sprint should emphasize their direct international presence, including the numbers of countries and cities they reach directly, as well as through partner relationships. Level 3's European fiber only serves nine cities, with another 13 served through connections with local PTTs.

Recommended End User/Customer Actions

• Clients with large data transport requirements should contact Level 3 for a quote. The company has upgraded

its trans-Atlantic cable to add an additional 300 Gbps, and may add another 300 Gbps in the future.

• Customers in need of more extensive international connectivity should probably move to the next company on their list. Level 3's European network is limited to nine cities, and the company had to sell its Asian presence. –International customers should note that Level 3 is gaining connectivity to Asia through WilTel's service for landing stations and subsea leases for Japan-US, Southern Cross, China-US and Pacific Crossing-1, but they still don't have a physical presence in Asian markets.

• Enterprise customers in need of not just IP VPNs but also a full complement of legacy data services, including frame relay, ATM, should probably look elsewhere, since Level 3 has discontinued marketing those services, and has also stopped marketing its (3)Flex Ethernet service.

Analysts: D. Hold
Report Date: Aug 02, 2006
Markets: Business Network Services - U.S.

Market	Current Perspective	Market Tier	Market Status	Momentum	Vision
Aggregate Ratings	Neutral/Positive	1st Tier	Established	Negative/Neutral	Neutral/Positive
Dedicated Internet Access	Positive	1st Tier	Established	Neutral/Positive	Neutral
Ethernet Services	Neutral	1st Tier	Established	Neutral	Neutral

Product Advisor

Cisco - MGX 8850/ MGX 8880

Carrier IP Telephony - U.S./Europe

By J. McGarvey

Contents

Cisco - MGX 8850/ MGX 8880

Analysts: J. McGarvey
Report Date: Jun 01, 2006
Markets: Carrier IP Telephony - U.S./Europe

Current Perspective

Cisco's MGX 8850/8880 Media Gateway remains threatening to competitors, but it is no longer a dominating force in the market. Cisco diversified the MGX product line in 2004 with the unannounced and limited introduction of the MGX 8880. (The full-featured MGX 8880 was launched as part of Cisco's IP-NGN Service Exchange Framework [SEF] launch in December 2005.) The MGX 8880 is essentially a voice-only version of its MGX 8850 media gateway. In the MGX 8880, Cisco has provided a new chassis that is three rack units smaller than the MGX 8850. The lower profile means that three systems can easily fit into a single rack (some configurations of the MGX 8850 require additional cooling and sometimes limit the service provider to only two systems per rack). The company has also removed 8850's Layer 2/data networking capabilities and enhanced the backplane. This latter improvement enables the MGX 8880 to offer 1:N redundancy instead of the 1:1 redundancy scheme of the MGX 8850. A further benefit of the MGX 8880 chassis is a superior pricing structure compared to the MGX 8850, which required customers to purchase data networking technology regardless of whether or not they needed it. Accordingly, Cisco is now offering the MGX 8880 to customers that are building greenfield voice networks, while the MGX 8850 will continue to be targeted at service providers with a mix of Layer 2 data traffic and packetized voice traffic. Standout features of both platforms are a 45 Gbps backplane capacity and the flexibility and protocol support that enables it to be deployed in wireline, wireless or cable networks. Cisco also offers 100% redundancy for every module and other components such as CPU and power supplies. On the downside, Cisco has lost market share to rivals such as Nortel, Sonus and, most recently, Tekelec over the past year or so. Cisco's percentage of ports sold in the overall media gateway market dropped more than 7% from 2003 (17.9%) to 2005 (11.3%), according to the Synergy Research Group. Cisco's position in the high-density media gateway market, though less imposing than it was a year or two ago, seems to have stabilized. In 2005, Cisco was responsible for 5.4% of all high density ports sold worldwide, according to Synergy. That's only a slight falloff from the 5.6% market share rating the company had recorded the previous year.

Strengths

• The MGX 8850/8880 is only one platform in a broad range of Cisco Gateway products, all controllable through a single call agent/softswitch using standard media control protocols, thereby allowing service providers to address various applications of different scale in a seamlessly controlled network.

• With the Telecom Italia deployment and other customer accounts, Cisco has shown that its media gateways can interoperate with third-party softswitch vendors of a carrier's choosing. At the same time, Cisco can still offer a single-vendor solution set with either the PGW 2200 or BTS 10200 softswitch in conjunction with the MGX 8850/8880, based on the specific customer's needs.

• The MGX 8000 family of media gateways are among the most flexible on the market. A market leader in terms of protocol and interface support, the MGX 8850/8880 is ready for deployment in wireline, wireless, or cable networks.

• To facilitate a lower-cost upgrade for existing customers, Cisco has provided a considerable amount of hardware module sharing between its older media gateway platforms and the MGX 8850/8880, as well as with smaller MGX 88xx systems, preserving a considerable portion of the initial CapEx outlay.

• With its 45 Gbps redundant switching capacity, the MGX 8850/8880 is built on a platform foundation that can scale to even greater densities than it currently supports without a forklift chassis upgrade. With the introduction of the Cisco Voice Switch Service Module (VXSM), for example, Cisco was able to increase overall DS0 density by several magnitudes.

• The MGX 8880 addresses one of the key redundancy options currently not available for MGX 8850, i.e. 1:N redundancy. While MGX 8850 systems have to be configured with 1:1 redundancy, the MGX 8880 platform supports 1:N redundancy, which significantly reduces the cost of deployment by limiting the investment in redundant modules.

Weaknesses

• Cisco's share of the overall media gateway and high-density gateway markets is shrinking. According to Synergy Research Group, Cisco accounted for 11.3% of all media gateway ports sold in 2005. That's a 3.5% decline from the 2004 and a 6.3% drop from the 17.9% share the company recorded in 2003. For high-density media gateways, Cisco sold about 5.4% of ports shipped in 2005, according to Synergy, a slight drop-off from the 5.6% the previous year.

• With a low market presence of its softswitch products, both BTS 10200 and PGW 2200, Cisco has limited opportunities for cross selling the MGX platform along with the softswitch. When it comes to being paired with third-party softswitches, the MGX platforms are faced with strong competition from leading vendors such as Nortel and Sonus.

• Cisco continues to risk attacks from competitors regarding the overlap between its MGX 88xx and AS 58xx series solutions, both of which provide media gateway functionality, but lack any sharing of modules.

• Though the introduction of the MGX 8880 addressed several deficiencies of the MGX 8850, existing MGX 8850 users must still deal with the fact that the platform's backplane will not support N:1 redundancy of service modules, forcing service providers to deploy service modules in pairs for full redundancy.

• Unlike the new MGX 8880, the MGX 8850 requires additional ventilation in high-capacity configurations, increasing the height of the system and reducing the number of systems that can fit into a single rack from three to two.

Buying Criteria

Channel Capacity

• The MGX 8850 supports both VoIP and VoATM, offering market leading capacities in both categories. When using the G.711 codec (uncompressed), port densities are 64,512 and 32,256 for unprotected and 1:1 protection mode, respectively. If compression is enabled (i.e., G.726 or G.729), the unprotected port density is 40,320, while 1:1 protected densities decrease slightly to 20,160. The MGX 8880 supports up to 40,320 G.711 and 28,224 compressed protected ports. Since up to three MGX 8880s can be installed in a single telco frame, per-frame protected VoIP densities can reach 120,960 and are greater than Nortel's Passport PVG, due to its limit of two systems per frame.

• The MGX platform offers substantial room for future capacity growth through upgradeable Voice Switch Service Modules. Each VXSM can support a two- or four-port OC3 or electrical interface for up to 48 T1s or E1s worth of G.711-, G.726-, G.729a- or G.723.1- -based voice calls. The existing VISM-PR card is supported on both the MGX 8850 and MGX 8880 and supports up to eight T1s or E1s worth of G.711-, G.726-, G.729a- or G.723.1-based voice calls. Interface redundancy on the OC-3 is 1+1, and on the electrical T1/E1, a 1:1 redundancy can be provided. The 8880, however, supports 1:N using a dedicated redundancy back card.

• The MGX 8850 stands with Nortel's Media Gateway 15000/20000 as the only two systems that can currently support both converged voice and data traffic, as they are both multi-service switching platforms.

• For TDM-only switching applications, such as Internet call diversion, the MGX 8850 supports up to 80,640 unprotected ports or 40,320 protected ports with 1:1 redundancy, per chassis, putting it behind only Alcatel and Lucent in this decreasingly important category. The MGX 8880 is able to support 64,512 protected ports using an 1:N redundancy scheme, second only to the Lucent Network Gateway.

Customer Traction

• Cisco's overall share of the media gateway market has been a bit of a roller coaster over the past three years. In terms of revenue, Cisco commanded 17.9% of the overall market in 2003. Market share declined to 14.8% in 2004 and to 11.3% in 2005, according to Synergy.

• In the high-density VoIP media gateway category, where the MGX platform resides, Cisco's share of the market, as measured in terms of ports sold, has stabilized over the past couple of years. Synergy Research plots Cisco as representing a 5.4% share of the market in 2005, compared to 5.6% in 2004.

• Cisco has captured several high-profile accounts in international markets. The premier account for the MGX 8850 is Telecom Italia, where it is being used to support the service provider's transit voice traffic. Nearly all of TI's domestic and international calls are being carried by the MGX 8850 infrastructure, representing more than 3 billion traffic minutes per year. Cisco's lagging sales of the MGX 8800 family may also be bolstered by a deployment win at BT, where the media gateway will be deployed – along with media gateways from Alcatel and Siemens – as part of BT's 21st Century Network project.

• Cisco's relationship with Italtel, which is partially owned by Cisco, has led to additional traction in Europe. In December 2004, Cisco and Italtel announced a new solution for FastWeb's VoIP network. The deployment, based on Italtel's iMSS Softswitch platform and Cisco MGX 8000 Series Media Gateways, serves as the connection point between FastWeb's broadband network for VoIP services and other operators' fixed and mobile networks.

• Cisco has also emerged as one of the leading media gateway suppliers in the North American cable market. The company has announced deployments at Time Warner Cable, its first production deployment of PacketCable technology, and Atlanet, where the MGX 8850 was deployed along with AS5x00 platforms. With majority of other media gateway vendors not yet PacketCable-compliant, Cisco can gain from its early standards compliance.

• Cisco claims a customer roster of greater than 30 carriers, including BT, Time Warner and Vonage.

Softswitch Strategy

• The MGX 8850/8880's offers diverse support of media gateway control protocols, including H.248, MGCP, and TGCP, which has led to interoperability with a number of third-party softswitches. For example, the Telecom Italia deployment is utilizing Italtel's iSSW softswitch. Cisco continues to offer two different internal softswitch solutions – the PGW 2200 and the BTS 10200. The Cisco BTS 10200 softswitch is the foundation for several voice solutions from Cisco, including Broadband Local Integrated Services Solutions (BLISS) for cable, metro Ethernet, and T1/E1, and the Cisco Voice Infrastructure and Applications (VIA) solution for wireline and wireless networks.

• Cisco's MGX platform is one of only two switches in the product category to achieve PacketCable qualification.

• Similar to all other companion softswitches in the category, the BTS 10200 can be deployed in support of Tandem Switching, Internet Offload, Class 5 Business Services and broadband Class 5 (i.e., DSL, cable, and high-speed IP) requirements. Support for voice VPNs is also provided, while third-party application/media servers are required for services such as Centrex IP, conferencing, and announcements.

• The reach of the MGX platform suffers slightly in that the BTS 10200 softswitch is targeted primarily at cable operators in the North American market. Cisco compensates for the narrow application of the BTS through partnerships with third-party softswitch supplies, such as Italtel, which offers a more general purpose softswitch.

• Unlike the Alcatel 7510 media gateway, the MGX platform does not support access-oriented signaling protocols such as GR-303 and V5.2. This deficiency limits the deployment of the MGX in the access portion of the network.

Equipment Partnerships

• Cisco has developed extensive partnership programs. Cisco's Service Provider Solutions Ecosystem Program is designed to allow service provider customers to leverage Cisco Service Provider Solutions Partners for combining best-of-breed products and services in order to deploy profitable services to their customers. The program has two partner types: Developers or Solution Enablers. Developers are those companies that develop hardware or software products that interoperate with Cisco products, while Solutions Enablers have complementary hardware or software products, but do no directly interface or interoperate with them. Partners within the program include vendors such as Agilent, Broadsoft, Cognitronics, comMATCH, Concord, Comverse, IP Unity, MIND CTI, Primal Solutions, SS8 Networks and Sylantro.

• Demonstrating a willingness to partner with competitive equipment suppliers to make inroads into new markets, Cisco in January 2003 announced an agreement under which Lucent will resell the MGX 8850 to its mobile service provider customers. Without an advanced wireless product portfolio or call control devices purpose built for the wireless realm, Cisco was wise to partner in order to expose the MGX to wireless network operators.

• Cisco has also leveraged partnerships to extend the geographical reach of the MGX platform. In December 2004, Cisco and Italtel expanded their strategic alliance to include more than 100 countries in Europe, the Middle East and Africa (EMEA) and announced joint development of Italtel-Cisco Business Voice Solutions that combine an architecture for hosted and managed IP services with a standards-compliant next-generation network platform.

Product Metrics

Metrics	Value
Data Interfaces	ATM: T1/E1, DS3, OC-3c, OC-12c, OC-48c; IP: OC-12c, 10/100, GigE and POS-OC12
PSTN Interfaces	T1/E1, DS3, and OC-3/STM-1
Gateway Control Protocols	H.248, MGCP, TGCP
Companion Softswitch	BTS 10200, PGW 2200
Packet Signaling Protocol	H.248, MGCP, TGCP, H.323, and SIP
PSTN Signaling Protocols	SS7 IMT, A/F-Links, ISDN PRI, DTMF, and CAS
Codecs Supported	G.711, G.723.1, G.726, G.729ab and G.Clear
Backplane Architecture	ATM
Total Capacity	PXM-1E: 1.2 Gbps; MGX 8880: PXM-45: 45 Gbps - both fully redundant
Card Slots/Chassis	32 single-height / 16 double-height
Slots for Common Equip.	2 double height for PXMs; 4 single-height for SRMs
Number of Universal Slots	24 single-height / 12 double-height
Chassis Dimensions	MGX 8850: 29.75 inches high (17 RU); MGX 8880: 24.5 inches high (14 RU)
Chassis Per 7' Rack	MGX 8850: 3 (2 in some configurations); MGX 8880: 3
Availability	MGX 8850: GA Q1 2001; MGX 8880: GA Q3 2004
Max DS-0s (circ-switched)	**Value**
Common Equip. Redundancy	80,640
with Redundancy, 1:N port	MGX 8850: N/A; MGX 8880: 64,512
with Redundancy, 1:1 port	40,320
Max DS-0s (VoIP or VToA)	**Value**

Common Equip. Redundancy	64,512
with Redundancy, 1:N port	MGX 8850: N/A; MGX 8880: 40,320
with Redundancy, 1:1 port	32,256
Max DS-0s (G.729a)	**Value**
Common Equip. Redundancy	40,320
with Redundancy, 1:N port	MGX 8850: N/A; MGX 8880: 28,224
with Redundancy, 1:1 port	20,160
Product Class Ratings	**Value**
Channel Cap	5
Cust Traction	3
Strategy	3

Market Advisor

Enterprise Switching

Enterprise Infrastructure - U.S./Europe

By S. Schuchart and J. Conover

Contents

Current Analysis

Enterprise Switching

Analysts: S. Schuchart, J. Conover
Report Date: Jun 30, 2006
Markets: Enterprise Infrastructure - U.S./Europe

Market Definition

The enterprise switching market is loosely divided into four separate segments. There is one axis between hardware form factors (fixed versus modular) and another axis on target application (backbone/data center versus wiring closet). Enterprises depend on modular switching solutions for all aspects of the enterprise network: in the enterprise core and data center, the distribution layer that lies between the core and wiring closet, and in the wiring closet itself. Modular solutions provide port diversity and density that fixed solutions simply cannot match. There are also new high-capacity modular solutions that only the largest of enterprises and institutions use for high-density and high-speed deployments. Modular solutions are generally much more expensive than their fixed cousins, especially in situations where density or flexibility are not required. Fixed-configuration "stackable" switches are typically cost-optimized and have limited port density, but some solutions offer high-end features such as 802.3af PoE, QoS, and multi-layer intelligence. Fixed configuration switches often do not have the port diversity that their modular cousins have. Port diversity means the availability of different port types, such as fiber ports, versus copper ports. Stackable switches have gotten better at offering port diversity, but they still cannot match their modular cousins. Generally, a stack of fixed configuration switches can be managed as a single virtual entity. Fixed configuration switches generally cannot be used to provision an entire large enterprise, but instead are mostly used out at the edge or departmental level as a low-cost alternative to modular products.

Market Review

• Converged Switching Features: With IP telephony on a rocket trajectory, enterprises are making educated buying decisions based on qualified IP telephony feature sets. Products must support advanced quality of service, PoE (802.3af), and intelligent or automatic phone to QoS profile mapping, particularly in those products aimed at wiring closet installation. The ability to provide Class 3 (15.4 Watts) PoE density is becoming a competitive differentiator, especially among fixed configuration switches.

• High-capacity Switch-Routers Arrive: All major infrastructure providers have announced 10 Gigabit switching solutions for existing platforms and most have announced or released next-generation solutions designed to deliver Terabit-plus switching capacity for next-generation backbones. These new high-capacity switch-routers bring a level of density previously unheard of in the data center or network core, providing up to four 10 Gigabit Ethernet ports per slot in a non-blocking wire-speed configuration and paving the way for next-generation networks built around Gigabit to the desktop with 10 Gigabit Ethernet uplinks from the wiring closet and aggregation layer. These products are also the mainstay of the high-performance computing market.

• IP Service Features: Many vendors have expanded their portfolios to include multiple new features, such as firewalls, IDS, rate limiting and shaping, enhanced accounting capabilities, SSL acceleration, Web switching, and improved security mechanisms including end-station authorization. These features serve as differentiators and customer selling points as part of an overall investment in enterprise infrastructure. In addition, these features are becoming increasingly important due to heightened awareness of security within the enterprise itself. Cisco and

Nortel have directly responded to this need with very high performance IP service blades for their modular switches. In addition to this, most vendors have partnered for or have introduced solutions to protect the network from end stations, which has become a major concern for the enterprise.

• Gigabit over Copper: Higher-density Gigabit over copper switching solutions are growing in the market, partially due to the proliferation of Gigabit ports on enterprise desktop systems. These products are driving down the price of traditional 10/100 solutions and setting the trend for future switching solutions that will be entirely 10/100/1000-based. The technology is cost-effective and attractive to large enterprises, particularly where new installations are concerned. Gigabit over copper is popular in the data center due to its lower cost and equivalent performance, and some enterprises also leverage high-end modular products in the wiring closet to drive massive densities of Gigabit over copper to the desktop. In addition, Gigabit over copper with PoE is an increasingly attractive option for customers with converged networks carrying voice and data.

• 10 Gigabit Ethernet: 10 Gigabit uplinks on stackable fixed configuration switches, particularly Gigabit switches, are becoming increasingly common as the core becomes 10 Gigabit-enabled. 10 Gigabit uplinks facilitate greater density and lower-cost implementations continue to push this trend. With ratification of the copper standard for 10 Gigabit Ethernet in June 2006, there will be a surge in copper-based 10 Gigabit Ethernet products at the end of the year and a subsequent increase in sales.

• What Is Old Is New Again: Competitors in the market are releasing new 10/100 switching solutions that encompass many of the features that their larger Gigabit Ethernet cousins have, such as 802.1X, better QoS, advanced Layer 3 features, and PoE. These new features represent customer demand at the lower end of the market and do not represent a reversal of the trend in the enterprise toward Gigabit Ethernet. New merchant silicon designs have made producing these high-feature 10/100 products relatively simple and vendors are taking advantage.

Near-Term Market Drivers

• 10 Gigabit Ethernet: With the new high-capacity switch routers able to provide high-density 10 Gigabit Ethernet in the core of the network. Competitors that have 10 Gigabit in the wiring closet as an uplink technology will have the unique opportunity to capitalize on the relative premium price of 10 Gigabit while delivering next-generation Gigabit-enabled solutions to their customers. This will drive sales of 10 Gigabit equipment in the network core to higher levels as customers see the advantages of a 10 Gigabit backbone. The near-term drivers are higher-density and lower-cost implementations, particularly with fixed configuration stackable switches and 10 Gigabit Ethernet over copper.

• Departmental and Data Center Security: Security is a top IT spending motivator for enterprises large and small. The ability to do large-scale firewalls, security, and access control is a value differentiator that will increasingly weigh in on customers' backbone purchasing habits. In addition, vendors with the ability to provide a complete security solution that integrates tightly with both the backbone and edge products will have an advantage in the marketplace.

• Converged Applications: Convergence on the LAN is happening today, and while much of the focus on convergence starts at the edge, the core of the LAN must be fully capable of supporting the QoS and policy defined at the edge of the network. Furthermore, while existing core infrastructure may be capable of supporting

converged applications, customers doing network-wide upgrades to support convergence are likely to reevaluate their data center and core deployments in a similar timeframe as their wiring closet infrastructure. This will mean advanced reliability features in the core of the network to ensure "dial tone" reliability and PoE in the wiring closets to support VoIP handsets at the end user desktop.

• Always-on Requirements: With converged networks comes an increased need for always-on networking – that is, 100% network availability. This is important both for emergency purposes and to guarantee business continuity. This sort of reliability starts at the core of the network with highly available solutions and robust network designs that have millisecond failover and recovery times. The prime driver for this level of reliability is VoIP implementations that are sensitive to latency and failure.

• User-aware Networking: The ability to authenticate users and assign those users to a specific network or class of service was enabled by 802.1X technology over the past two years. With the growth in wireless networks and increased security concerns in corporate and campus environments, the burden of providing strong authentication has fallen on the shoulders of the network infrastructure provider. Support for 802.1X and advanced authentication mechanisms will be a significant differentiator for equipment providers.

Long-Term Market Drivers

• Mass IP Telephony Adoption: IP telephony will continue to grow year after year, as enterprises and new business ventures replace or deploy new PBXs. The era of the traditional circuit-switched PBX is nearing its end, and the replacement technology will be some form of IP-based telephony. IP telephony will be the number one driver of wiring closet network upgrades, followed by Gigabit Ethernet for higher-performance desktop connections. This creates a semi-permanent demand for infrastructure upgrades, but also increases the requirements that vendors must satisfy to even be considered for a network deployment.

• Faster Pipes: Gigabit Ethernet is fast becoming the de facto desktop connection; 10 Gigabit uplinks will be essential in constructing an infrastructure that has the performance characteristics necessary to handle increased traffic loads. 10 Gigabit Ethernet cards for servers are beginning to appear on the market and this will further accelerate the need for 10 Gigabit Ethernet ports in the data center and network core.

• Stability and Commoditization: The market will be relatively stable in the long run compared to other networking technologies. The proliferation of Ethernet and other standards, plus the rise of easily available and cheap merchant silicon, has left the market moving toward commoditization with a vast amount of homogenous products.

• IP Services: As IP becomes the de facto protocol for storage and telephony, the demands placed on the network will continue to grow, and the dependence on these infrastructure components will grow tenfold. The necessity of a 100% available, non-stop architecture with complete fault tolerance will not be an option as enterprises plan and build next-generation networks in the future.

• Client Integrity: Standards for verifying and gating network access for the end user station are under constant change. Alliances by giants such as Microsoft and Cisco are an attempt to impose a standard on the market, but existing companies that already provide these services as well as other industry groups may not follow that lead.

• Continued Technology Evolution: Well outside of the scope of the networking market, the general technology market continues to evolve at a rapid pace. With the introduction of multi-Gigahertz processors and next-generation multimedia solutions for enterprise computing, the need for bigger, faster, better networking equipment will continue to grow. The networking market has always been partially driven by the application, and next-generation applications require more bandwidth and are more latency-productivity sensitive than ever before. These factors will help drive continued growth in the enterprise backbone networking market.

Analysts: S. Schuchart, J. Conover
Report Date: Jun 30, 2006
Markets: Enterprise Infrastructure - U.S./Europe

Company	Current Perspective	Tier	Status	Momentum	Vision
3Com - EI	Neutral	1st Tier	Established	Neutral	Neutral/Positive
Alcatel - EI	Neutral/Positive	2nd Tier	Established	Neutral/Positive	Neutral/Positive
Cisco - EI	Positive	1st Tier	Established	Positive	Neutral/Positive
Enterasys - EI	Positive	2nd Tier	Established	Positive	Positive
Extreme - EI	Positive	2nd Tier	Established	Positive	Positive
Force10 - EI	Neutral/Positive	3rd Tier	Emerging	Neutral/Positive	Neutral/Positive
Foundry Networks - EI	Positive	2nd Tier	Established	Positive	Positive
Nortel - EI	Neutral/Positive	1st Tier	Established	Neutral/Positive	Neutral
ProCurve Networking By Hewlett-Packard - EI	Positive	2nd Tier	Established	Neutral/Positive	Neutral/Positive