Company Assessment

Ericsson

Market: Transport and Routing Infrastructure
Service: Service Provider Infrastructure
Report Date: November 17, 2011

Rating Update:
Ericsson’s threat index has risen as a result of the first release of the new SSR 8000 family service aware edge routing and application platform, and the shipping status of the SPO 1460.

Solutions: Threatening
Ericsson’s solutions message is anchored by its “4th Generation IP Networking” mantra, which was formally launched in February at the Mobile World Congress 2011. Ericsson strives to make its solutions simple, smart and scalable, addressing fundamental issues facing mobile and fixed line operators as they build their next-generation transport and routing infrastructures. The new vision is supported by the company’s product and solution offerings such as the Smart Services Router 8000 (SSR 8000) family, whose first release in Q4 2011 demonstrates its commitment to high-scale IP edge routing. The Smart Packet (SP) portfolio (covering fiber, copper and microwave solutions), Smart Packet Optical (SPO) portfolio (formerly the OMS 1400) and its new IP Transport Network Management System, complete the product
lineup. The common software and management environment helps operators achieve efficiencies through common features and operations.

**Products/Roadmap: Threatening**

Ericsson’s “4th Generation IP” portfolio includes the SSR 8000 family router, designed to support the massive growth in IP traffic driven by mobile and fixed line services. The scalable 16 Tbps - 800 Gbps (half duplex) per slot router family will support applications such as traditional edge routing (Release 1, Q4 2011); plus mobile gateway, subscriber management, video caching, plus business and residential services. The MINI-LINK PT provides packet microwave support in a compact all-outdoor radio with high-capacity links; and the MINI-LINK SP delivers switched or routed gigabit Ethernet backhaul over fiber. The Smart Packet Optical (SPO) 1400 family (former OMS 1400) offers integrated functionality for mobile backhaul with integrated TDM, packet, and DWDM support. The higher scale provided SPO 1460 (now shipping) expands supported applications beyond mobile backhaul to include support for metro network convergence and connection-oriented MPLS-TP for resilient backhaul and optical transport services. All MINI-LINK platforms operate under Ericsson’s transport operating system and are managed by the IP Transport Management system, which provides a common software environment to deliver features across multiple transport media.

**Service/Support: Leader**

Ericsson claims more than 50,000 services professionals deployed in 175 countries. Services offered by the vendor include: customer support, consulting, network rollout, managed services, systems integration and operator employee education. Professional services Q2 2011 represented 71% of Global Services revenue, indicating a strong demand and consistent with trends reported in our Telecom Vendor Service (TVS) tracker. Growth of managed services is a clear indication of uptake for the higher-value services not tied to product revenue. Managed services deals last year totaled 54; this year saw the award of a seven-year managed services contract with Clearwire, a major North American service provider and Sprint partner and showing an uptake for Ericsson in the North American market. China Mobile, its largest deal ever, calls for 22,000 sites over a three-year period. Ericsson’s scale advantage has taken a hit, as Alcatel-Lucent and Nokia Siemens Networks each boast a similar reach. As these major competitors enter the services market, Ericsson’s traditional lack of share in fixed networks could become more pronounced.

**Strategy Execution: Threatening**

Ericsson’s overall market strategy is aimed at leveraging its mobile strength and focused on maintaining its wireless leadership status. Today, that strategy revolves around leveraging market leadership to push into new mobile opportunities (such as GSM-to-WCDMA, WCDMA-to-LTE and CDMA-to-TD-LTE) while assuring operators of the company’s stability and its solution soundness, including its transport and routing portfolio. The company focuses on major market opportunities, opting to ignore some of the more niche markets such as WiMAX and femtocells in the wireless domain, as well as one-off router/switch opportunities in the wireline space that could distract it from leading in its primary market. To enable its wireless successes to continue, Ericsson has invested in fundamental IP and optical technologies to make sure it has control and influence over the end-to-end solutions it delivers to its customers. Ericsson has continued its investment in microwave radios, a critical backhaul component that plays a strong role in many mobile networks. It has also continued to advance the state of the art in optical transport with the delivery of the SPO 1460 and the IP Transport management systems. On the IP routing side, Ericsson’s new SSR 8000 family will support operator challenges with respect to massive growth in IP traffic driven by mobile data, video and fixed line services.

**Momentum/Traction: Threatening**

Ericsson noted multiple achievements for H1 2011 with sales for packet core and IP edge. In Q1 2011, driven by continued growth in fixed and mobile broadband, sales for Broadband Network Gateways (BNGs) and Mobile Packet Backbone Networks (MPBNs), resulted in 28 BNG expansion
orders and five new customer wins. Continued growth in Q2 2011 for fixed and mobile broadband combined with over-the-top (OTT) services and resulted in 21 orders for BNG expansion and eight new contracts for IP/MPLS edge routing equipment. The SPO 1400 family momentum included a new deployment at a European service provider plus a significant win in India. The SPO portfolio is now deployed in EMEA, CALA and APAC, but not in North America. For microwave system achievements: it was selected to deliver broadband services to 65 communities in Alaska; awarded a multi-year agreement as a key supplier to Rogers for an end-to-end LTE network; with Digicel Pacific to provide mobile broadband solutions, using hybrid power to reduce power consumption costs; and with National Broadband Network, under a ten year agreement, to provide and manage an LTE network for fixed wireless broadband to end users in Australia.

**Current Perspective: Positive**

We are taking a positive stance on Ericsson in the carrier transport and routing markets because of the capabilities it brings to the market to support the growth being experienced in both fixed and wireless network infrastructures. Ericsson maintains a complete portfolio of IP routers/switches, microwave and optical gear to support mobile operators as they address the massive increases in subscriber density and network capacity. Recently, Ericsson has been active in expanding its carrier switching and routing portfolio. The launch of the SSR 8000 family counters a number of switching/routing competitors which have announced feature enhancements such as improved 10GigE density, 40G/100G Ethernet interfaces, IPv6 support roadmaps, and overarching NMS enhancements. Ericsson's technology leadership based on in-house R&D is demonstrated by the successful MINI-LINK portfolio, which claims a continuous flow of technology firsts, including: a 5 Gbps millimeter wave technology demonstration, a commercially available 512 QAM modulation solution, hitless adaptive modulation, 2+0 link protection, commercially available 42 GHz band, and Layer 1 radio link bonding.

The vendor also introduced the new LTE-ready MINI-LINK CN series of advanced and compact microwave links as well as the MINI-LINK SP series packet-only Ethernet gateway capabilities for point-to-point fiber backhaul with advanced add-on microwave capability. In addition, Ericsson demonstrated 400 Gbps over a single optical channel at Mobile World Congress 2011. The technology is derived from Ericsson's mobile research and could lead to more cost-effective implementations of both 400 Gbps and 1 Tbps. Several competitors have highlighted developments such as increased IP/optical integration solutions, Terabit-level OTN switching, and in the case of Cisco and Juniper, core MPLS switching solutions. Ericsson, in turn, has launched the SPO 1460 (initial release, 320 Gbps), which extends its popular SPO 1410 capabilities, touting future OTN/WDM capabilities along with significant reductions in power consumption. It has also launched expansions of the MINI-LINK portfolio with the new MINI-LINK PT packet-only series radios, clearly aimed at addressing the backhaul needs of emerging LTE and continued growth in 3G data services.

### Ratings

<table>
<thead>
<tr>
<th>Market</th>
<th>Perspective</th>
<th>Market Perception</th>
<th>Momentum</th>
<th>Vision</th>
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Company Assessment

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Strengths

• Ericsson's “4th Generation IP Networking” launch is a significant since it integrated multiple fixed line product groups under a common umbrella in its Silicon Valley, CA. location. This enables it to address multi-technology network transformation solutions that leverage IP, optical, microwave, access technologies, network management and Ericsson's broad services portfolio to improve synergies between the various components of an end-to-end solution.

• Ericsson's IP routing portfolio is comprised of SmartEdge series routers, to address multiservice edge routing and Ethernet access and aggregation applications, and the SM family, which can deliver convergence for wireless and wireline networks and reduce CapEx and OpEx by implementing a unified service-aware metro network. The addition of the SSR 8000 to the portfolio will provide Ericsson with the ability to scale its router solutions to meet growing traffic and subscriber demands, while collapsing multiple external network appliances into fewer devices, and provide further IP/optical integration.

• Ericsson's comprehensive optical product portfolio provides the foundation to serve the needs of both fixed and wireless network operators. The SPO 1400 series (formerly OMS 1400) product line, with next-generation packet optical transport and switching platforms that enable the delivery of advanced video and data services, enables Ericsson to expand current relationships within its wireless customer base and garner new deployments with fixed-line operators. Its Multihaul (MHL) 3000 DWDM system is a true multi-reach DWDM solution, providing scalable metro edge, metro core and backbone core transport under a single network management system.

• Ericsson's SPO 1410 is part of its triple play, network transformation and mobile backhaul solutions. The SPO 1410 has hit the mark in terms of delivering an attractive solution for enabling packet transport, and the higher-capacity SPO 1460 is positioned to enjoy similar success. The SPO 1400 family provides a small-footprint, low-power, high-density solution for the metro edge and metro networks, with Ethernet, TDM and WDM support. Ericsson reports contracts in more than ten countries and is participating in a large number of ongoing tests and trials.

• Ericsson's IP Transport Network Management System, part of the overall Ericsson OSS, offers and shows a clear commitment to provide integrated solutions aimed to reduce OpEx and CapEx, while enabling the efficient introduction of new generation services. The IP Transport NMS leverages the experiences from previous generation NMS capabilities, allowing smooth migration and enabling swift technology and service enhancements. The system is based on latest x86 HW and Linux OS, to reduce IT cost and maintenance. The system has been deployed by over 15 customers in ten countries.

• Ericsson's solutions for emerging technologies, such as LTE, are bolstered by close ties across all of its technology sectors, resulting in solutions that are optimized for end-to-end service delivery, flexibility and longevity. The MINI-LINK microwave family was recently expanded with an all-packet outdoor unit, the MINI-LINK PT, to provide high-capacity, packet-only transport, while the MINI-LINK TN series continues to transport native TDM traffic. The former SEA 10 and SEA 20 are now branded as MINI-LINK SP devices to provide Ethernet over fiber support at cell and aggregation sites.

Weaknesses

• Ericsson's North American market penetration is low relative to competitors such as Alcatel-Lucent, Ciena and Cisco. The relative lack of existing IP/MPLS and optical traction in North America threatens Ericsson's opportunity to benefit from the growing interest in packet-optimized network transformation. Consequently, it may miss its chance to establish credibility for its solution in the world's largest market, and one that has embraced this trend; the company's strong and visible Silicon Valley presence will help to mute this issue.
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Ericsson launched the SSR 8000 to the market to strengthen its ability to scale and meet the rapidly growing demands for 40G/100G interfaces and subscriber scale and to offer a single platform to support next-generation mobile core, DPI and other ancillary applications on a single platform. However, the move comes much later than similar releases from rivals Cisco and Juniper (ASR9000 and MX 3D, respectively). Ericsson will need to meet its delivery commitments and accomplish meaningful early deployments to combat the long-term competitive threats from its rivals.

**Recommended Actions**

**Recommended Vendor Actions**

- Ericsson should not only continue to leverage its leadership position in the wireless realm, but also push the depth of its portfolio and solutions to offer carriers which operate both wireless and fixed services potentially massive OpEx and CapEx savings through its end-to-end solutions. The vendor should tout this approach as a uniquely differentiated solution currently not available from other vendors. Ericsson also should leverage its new “4th Generation IP” messaging around its broad range of infrastructure solutions for mobile backhaul, multi-service edge, terabit routing (SSR 8000 series), IP RAN and mobile core networks.

- Ericsson needs to promote its IP services edge platform, and it should work to broaden market traction in the carrier Ethernet, edge routing (with the SSR 8000 release 1), and IPTV segments, in addition to intelligent traffic management via deep packet inspection (DPI) and heuristic analysis. Ericsson's focus on IPTV leverages IP routing technologies to deliver a strong IMS-based solution, which provides unique personalized features and will help to elevate its profile in North America. This profile is further enhanced through the acquisition of the former Nortel CDMA assets and the recent acquisition of Nortel multi-service switching assets.

- Ericsson should promote its packet transport portfolio that is specifically designed for packet evolution. It should highlight the MINI-LINK PT/TN, MINI-LINK SP and SPO 1400, which are powered by a common Ericsson Transport Operating System (ET-OS), to ensure maximum interoperability and feature parity across multiple network segments. Ericsson should point out that mobile backhaul networks that are built with these platforms will provide higher bandwidth and lower recurring lease costs, as well as 50ms protection and restoration of E-LINE and E-LAN services for reliable support of the backhaul of voice and other mission-critical data services.

- Ericsson should develop a marketing communications plan for its professional services offerings. While its managed services and technical services portfolios have achieved strong market visibility, Ericsson has been relatively quiet on its capabilities and traction in systems integration, network and technology consulting, and business consulting. For example, Ericsson should articulate its framework for IP transformation-related services.

**Recommended Competitor Actions**

- Alcatel-Lucent should stress its High Leverage Network vision and point out its strong position in the carrier network edge in the IPTV arena, its IMS and overall management and provisioning, its competitive edge in the North American infrastructure market and its IP edge market share lead. It should tout its recent leadership position with respect to IP/optical integration (CBT) and its 7750
SR-based Evolved Packet Core (EPC) solution, which is currently undergoing multiple field trials. Since the SSR 8000 family will present direct competition for its service router portfolio, it needs to highlight its ability to scale with the FP3-based network processor (release H2 2012), to counter the higher capacity of Ericsson's new platform, which will ultimately host all of Ericsson's mobile and fixed edge routing functionality.

- Huawei should highlight its progress in providing large-scale, IP-based and optical networks within China as well as recent progress in EMEA. Huawei should show how its SingleRAN, SingleMetro and SingleBackbone solutions save operators significant OpEx and CapEx. Huawei should especially contrast its SingleMetro platform against the new SSR 8000 family, feature by feature and leverage its recently obtained optical market share position to enter new markets.

- Cisco and Juniper should ensure that their IP router products continue to be supported by Ericsson's professional services teams and provide a higher value than those sourced through other partnership relationships. Both vendors should exploit the performance and scale gap that currently exists (until the Ericsson SSR 8000 is available and complete with all applications and services) between their 4 Tbps MX 3D Series and ASR9000 System portfolios, respectively.

- NSN should demonstrate customer traction with its Liquid Net architecture as well as its fully tested end-to-end carrier Ethernet solutions (CET 3.0. NSN should also tout the use of best of breed technologies in its solutions, using its recently announced microwave partnership with DragonWave as a clear example of providing a vendor/technology agnostic solution that best meets customer expectations.

**Recommended End-User/Customer Actions**

- Service providers should look closely at Ericsson's SPO 1460 converged metro transport solution for the flexibility and OpEx savings it can deliver. The platform can support up to 320G of packet switching and 60G of TDM traffic to evolve TDM-based metro networks to packet-based DWDM operations. The new model, which shares the same architecture as the SPO 1410, supports MPLS-TP and is slated to support OTN transport and switching, as well as ROADM capabilities. General availability was set for Q3 2011, and is now shipping to customers.

- Operators should evaluate Ericsson's microwave solutions to address growing bandwidth requirements, especially the extended MINI-LINK portfolio with modular (MINI-LINK TN), compact (MINI-LINK CN) and packet-only (MINI-LINK PT) models. These scalable all-IP solutions are capable of supporting 2G, 3G and 4G/LTE mobile services. Operators with earlier MINI-LINK systems can upgrade to the latest packet capabilities and save as much as 40-60% in CapEx. Operators should consider MINI-LINK Gigabit solutions, which are available in multiple configurations for consideration where high capacity links are required. Finally, E-band solutions will also be available to complement licensed bands for even higher-capacity short distance applications, such as deployment with hetnet, small cell mobile networking.

- Network operators anticipating near-term bandwidth bottlenecks should push Ericsson to provide details about its commercialization plans for 100G. While the vendor announced a 100G demonstration with DT using the MHL 3000, it did not provide details regarding the form factor for the 100G module or its general availability. If the 100G module tested fits into the existing MHL 3000 chassis, it could indicate that the vendor’s development is relatively mature and Ericsson may be close to a generally available solution.

- Incumbent fixed-line operators planning large-scale IP transformations need to vet Ericsson's services capabilities in handling the hard tasks of migrating customers from the legacy network to the next-generation platform. While Ericsson has announced multiple migration projects, very few have come in fixed-line networks, and none were with incumbents. To this end, incumbents need to press Ericsson for details regarding how it can bring as much to the table as Alcatel-Lucent, which has many more fixed line IP transformation projects. With the availability of the SSR 8000 family, Ericsson can...
more effectively compete in network transformations, regardless of their scope and scale.

• Service providers should engage with Ericsson on its 4th Generation IP Networking vision, and specifically with the IP Transport Network Management System (IPT-NMS). With the pressures to provide faster, more cost-effective services, complete end-to-end solutions that span multiple technologies are required in order to ensure service providers can rapidly deliver and manage new mobile and fixed line services across a common infrastructure. Since Ericsson currently plays in all aspects of mobile and fixed line technologies, its roadmap to add service elements to the SSR 8000 family, for example, should be straightforward, and not groundbreaking new applications for the vendor.

• Fixed-line operators should consider testing Ericsson’s new SSR 8000 family, which supports greater switching capacity, higher 10G density and 40G/100G Ethernet interfaces in light of drastically increasing edge bandwidth and projected subscriber density. The SSR 8000 family brings Ericsson edge solutions on par with its competitors such as Cisco, Juniper, Huawei, ZTE and Alcatel-Lucent regarding scale and performance enhancements for their respective IP edge service router portfolios.

### Overview

#### Ericsson: Company Description

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<tr>
<th>Company Name</th>
<th>LM Ericsson</th>
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<tr>
<td>Headquarters</td>
<td>HQ: Stockholm, Sweden; 17 regional HQs</td>
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<tr>
<td>Primary Markets</td>
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<td>Smart Service Router (SSR), SmartEdge multiservice IP routers, SM Ethernet service transport platform, SEA multi-access switches (SP), MINI-LINK microwave products (SP), OMS Series optical platforms (SPO), MHL WDM transport platforms, NETOP management platforms, OSS Navigator, Network IQ, ServiceOn Manager, IP transport manager</td>
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