Intelligence Report

Cisco Gets a Needed Packet Core Capacity Boost with the ASR 5500 - Preps for Long-Term Differentiation with Capacity Elasticity

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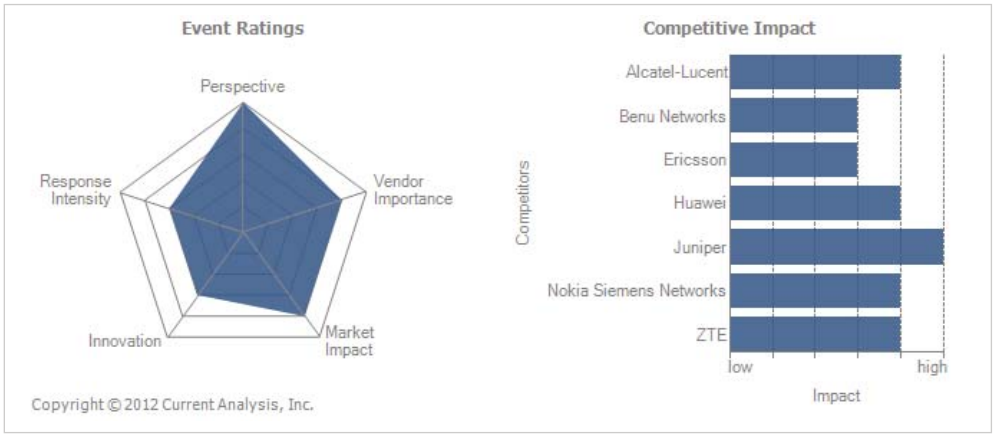
Event Summary

June 5, 2012 – Cisco announced the ASR 5500 mobile packet core platform. The ASR 5500 maintains the ASR 5000's support for in-line services, policy control and resource flexibility across access technologies and control vs. data plane. What's more, support is maintained for diverse gateway functionalities (SGW/PGW, GGSN, MME/SGSN, PDSN/HA). Cisco claims scalability, however, has been improved to support terabit performance and a ten-fold architectural increase in transaction processing and sessions.

Quick Take



Competitive Positives

- Delivers Cisco much needed packet core scalability boost
- Value proposition (and positioning) extends beyond scalability, playing to capacity "elasticity"
- Value proposition (and positioning) extends beyond scalability, playing to in-line services and policy
- Elasticity, in-line services and policy all speak to strengths of ASR 5000 as well
- Maintaining proprietary platform supports migration of proven ASR 5000 software
- New customer endorsements are encouraging

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Competitive Concerns

- Migration to a routing platform would have delivered R&D efficiencies for Cisco
- Migration to a routing platform would have delivered operations efficiencies for customers
- Two ASR 5500 chassis per rack limits deployment flexibility over ASR 5000
- Suggested cost savings from application flexibility will vary widely by operator
- Only one customer endorsement called out the ASR 5500 by name
- Claims that ASR 5000 is market leading in capacity and nobody else can support elasticity are misleading

Analytical Summary

• **Perspective:** Very positive on Cisco's ASR 5500 launch, because boosting the capacity of its mobile packet gateway platform makes sense as competitors bring new products to market and operators face new mobile broadband network challenges. Delivering a new platform that promises to exceed the scalability of competitors argues that Cisco understands the competitive environment and operator demands. Yet simply competing effectively and meeting customer demands are table stakes. Where Cisco set itself apart here is in its focus beyond scalability, a focus that includes capacity "elasticity," in-line services, and policy – all of which help to sell the virtues of the ASR 5000 as well and speak to the proven nature of these features. Of course, features and functions alone don't sell products. The marketing that Cisco dedicated to this effort (including new customer testimonials, a Webinar and sponsored TCO model), speaks to a well-executed launch as well as Cisco's commitment to the space.

• **Vendor Importance:** High to Cisco, because competitors have been releasing their own packet core upgrades and new platforms – and competing on scalability alone is a game no vendor can win for long. To keep up with competitors and address a potential capacity gap (particularly with throughput), Cisco needed a new platform to take over from the ASR 5000 as its flagship packet data gateway. To continue differentiating itself as competitors upgrade their own platforms, a focus on features beyond capacity (here, the ability to allocate capacity dynamically across various applications and technologies, as well as the control and bearer planes as well as applications) was needed.

• **Market Impact:** High on the mobile packet core market, because with one launch, Cisco managed to confirm its own commitment to the market (and mobility in general) and will likely revive several longstanding debates in the core. In particular, where Cisco built the ASR 5500 on a proprietary platform (i.e., not its routers), the question of what makes an optimal packet core platform remains. At the same time, Cisco's consistent marketing around the need for elastic capacity (around applications, technologies, and signaling vs. bearer traffic) should kick off new questions around how competitors measure the performance of their solutions and how operators need to think about engineering their networks.

Competitive Strengths and Weaknesses

Competitive Positives

• Cisco's ASR 5500 delivers a capacity boost over its ASR 5000 platform. Though Cisco might claim that the ASR 5000's scalability is marketing leading in some respects, competitors have surpassed it on key metrics like throughput and bearers. The benefits of flexible capacity

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allocation aside, performance improvements put it in a better position to compete.

• With a new platform, Cisco could have focused its ASR 5500 launch messaging on the performance enhancements and new scalability it brings. Instead, the vendor made "elastic" capacity a key focus – highlighting how the ASR 5500 supports constantly evolving traffic demands across different technologies, applications and signaling vs. bearer planes. Where it's inevitable that competitors will upgrade the performance of their platforms in time, a focus on elasticity gives Cisco a more sustainable differentiator.

• Along with elastic capacity, Cisco did not ignore the ASR 5500's support for in-line services and features such as IMS and policy control. The in-line service message has gotten somewhat muted over the years, as operators focused on ramping up scale, but it's still key to the broader "elasticity" message and ASR 5500 value proposition in terms of investment protection. PCRF and IMS support, likewise, tell a similar investment protection and flexibility story while highlighting continued support.

• Elasticity, in-line services, policy and IMS are not actually new innovations brought by the ASR 5500. All are available with (hallmarks, even) of the ASR 5000. Highlighting them helps with ongoing sales of the ASR 5000, a product that continues to support customers and won't be going away in the near-term.

• Choosing to build the follow-up to the ASR 5000 on a proprietary platform – backed by Starent's StarOS – was likely a difficult decision for Cisco given its deep routing assets. Yet while the case could be made for continuing to use a proprietary platform based on the need to support a mix of traffic types, it could also be made based simply on the fact that the ASR 5000's software has been proven out over the years and attempting to port it to other platforms would, doubtless, introduce its own liabilities.

• As always, customer endorsements are a nice addition to Cisco's product launch. To its credit, Cisco has spent the last year talking up ASR 5000 customers – getting the word out that it success in the PDSN space has been extended. Highlighting ASR 5000 and ASR 5500 customers points out that Cisco's packet core upgrades are based on a real understanding of customer demands as well as the fact that the ASR 5500 really is commercial.

Competitive Concerns

• While Cisco had good reasons for building the ASR 5500 on a proprietary platform, migrating it to one of its routing platforms (e.g., ASR 9000) would have brought the vendor R&D efficiencies. Even if moving StarOS to its routers would have been an endeavor, Cisco would have been left with fewer platforms to maintain and support in the long term.

• Outside of Cisco, customers too could have benefitted from the migration of packet data gateway functionality onto its routing platforms: operations efficiencies, training efficiencies, stocking efficiencies, etc. These efficiencies may be outweighed by the value of the ASR 5500 flexible capacity allocation, but they are nonetheless important for many operators.

• Three ASR 5000 chassis can be supported in a single rack. Two ASR 5500 chassis can be supported in a single rack. For operators looking to support distributed packet core architectures and put gateways closer to the RAN (and user), this is a move in the wrong direction. What's more, even though Cisco now refers to the "ASR 5000 Series," no information was given about future form factors.

• Cisco backed up its claims around the value of elastic capacity support by commissioning a report on the TCO savings that elasticity brings. In reality, any TCO savings claims will be impacted by the traffic profile and traffic demands an operator faces. For example, an M2M

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specialist who carries no other traffic may not need the same elasticity as an operator with a mix of feature phones, smartphones and tablets. To this end, the company's claims may not ring true for many operators.

• Again, customer endorsements add credibility to product launches. Unfortunately, while Cisco's announcement highlighted a number of customers, only one of them (Verizon Wireless) actually called the ASR 5000 by name. ASR 5500 customers will, no doubt, be named in time. It would have been nicer to see more of them accompany the introduction.

• Through its Webinar and ASR 5500 launch announcement, Cisco made a number of potentially misleading claims around its mobile packet core solutions. Claims that the ASR 5000 is market leading, for instance, may hold true around PGW/SGW attach-detach support or even PGW/SGW IP bearer support depending on how competitors architect their products. Yet, it's not broadly true, particularly for operator hot button metrics like throughput. At the same time, claims that the ASR 5500 is the only platform to support signaling, data, in-line services, policy and charging control ignores the fact that most competitors support some level of integrated services, signaling and data – whether or not allocation is as flexible.

Response & Recommendations

• Cisco needs to consider running the ASR 5500 through the EANTC testing it formerly submitted the ASR 5000 to. When those tests were run back in 2010, the goal was to prove out Cisco's performance claims and create some benchmarks for other vendors to compete against. Competitors, generally, did not take the bait. However, to prove its confidence in the ASR 5500, taking the new platform into the lab would be a good idea.

• Along with validating its ASR 5500 performance claims, Cisco needs to validate its claims around mobile broadband traffic elasticity. Cisco's not the only vendor to make these claims. However, beyond anecdote, only limited information on actual traffic variability has been presented. To make its case for the value of processing elasticity within the ASR 5500, Cisco needs some real world examples (multiple, really) which prove that network traffic really is elastic.

• On the proof point front, Cisco should look for any opportunity to prove how the ASR 5500 supports diverse traffic types within commercial networks. Assuming that an operator's traffic truly is elastic over time, Cisco's marketing around mobile packet core capacity balancing makes sense. While testing at EANTC would prove how well Cisco can adapt to evolving demands, real world proof points are always better.

• With the ASR 5500 being positioned as part of the broader ASR 5000 series, Cisco should consider the development of new, more compact form factors. The move from a three chassis per rack (ASR 5000) architecture to a two chassis per rack architecture (ASR 5500) would argue that Cisco isn't seeing a need for operators to distribute their packet core gear closer to the RAN. As operators move forward on small cell and WiFi launches, however, offloading traffic at the edge (or, embedding intelligence closer to the edge) is something that many have talked about and Cisco should be ready to support them.

• While the marketing around the ASR 5500 launch was generally stellar, there are still a number of messages which need to be cleaned up or expanded on. Management via Cisco Prime, for example, was briefly mentioned in the vendor's Webinar, but details on how Prime will extend to the ASR 5500 (planned for later this year) were limited. Likewise, while Cisco did well to make an ASR 5500 datasheet part of its announcement's supporting resources,

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the datasheet makes no reference to MME, SGSN or PDSN support – functionality which is available for the ASR 5000 and may be available for the ASR 5500 going forward. Cisco will want to make that potential support clear.

• All of Cisco's router-based mobile packet core competitors will want to go head-to-head against the vendor's claims about "elastic" capacity support. In calling out competitors for an inability to support flexible traffic demands, much of Cisco's messaging could be seen as a direct attack on vendors who use routers as the packet core platforms. These vendors need to point to the value of specialized platforms for bearer and control planes (i.e., the efficiencies that come with specialization) and their own support for application integration.

• Juniper needs to make a renewed marketing push on its Mobile Next packet core solution. Long anticipated, Juniper smartly focused on application integration and innovation support when it finally brought Mobile Next to market last year, in part because its scalability performance didn't always match or best competitors. As competitors upgrade their platforms, Juniper needs to update the market on Mobile Next. If capacity enhancements aren't imminent, an update on success with application partners or market momentum would help to keep the platform top of mind.

• NSN needs to outline its strategy for supporting scale in the mobile packet core. Leveraging a common ATCA platform for its Flexi NG (GGSN/PGW/SGW) and Flexi NS (SGSN/MME) products – along with various service layer components – NSN could mimic some of Cisco's claims around traffic flexibility. Yet where NSN's throughput and bearer support trail many competitors, it cannot match Cisco's performance claims. Whether the message, then, is supporting scale via multiple, easy to site gateways or via upcoming upgrades, NSN needs to tell its story more loudly.

Buyer Actions

• As new network technologies (like LTE and small cells) get launched and vendors bring new mobile packet core solutions to market, it's important for operators to take stock of the traffic patterns on their networks. In particular, Cisco has made a point of traffic being elastic over time across applications, technologies and signaling vs. bearer plane. The realities of this elasticity, however, will vary widely from operator to operator; every operator needs to know where they stand.

• Beyond the need for capacity flexibility, operators need to take stock of their need for packet core architecture flexibility. The ASR 5500 occupies a larger form factor than the ASR 5000. The difference between two chassis per rack and three chassis per rack isn't significant – it's not likely to change the way operators think about distributing these gateways closer to the network edge. Much smaller solutions, however, could change that dynamic. To determine if such solutions are needed, operators need to understand their own strategy and vision for packet core distribution.

• For several years, we've advocated for a common packet core traffic model against which vendors can compare their solutions – allowing for better, fairer comparisons. Traditionally, this was driven by differences in how traffic assumptions were made around packet sizing, usage profiles, DPI usage, etc. Adding in different assumptions around signaling and technology diversity and the needed for a common model is more important than ever. It's also something vendors will never develop on their own – making it something that operators need to push to get.

• Operators need to use the arrival of new packet core platforms from Cisco and its rivals to

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develop their strategies around the integration of WiFi and small cells into a common mobile packet core. As new technologies (new networks) it would be easy for operators to simply acquire new, dedicated, core solutions for small cell and WiFi applications. Beyond being wasteful, vendors like Cisco (and key competitors) should be "champing at the bit" to prove how they can support WiFi, small cells, 3G and 4G on a common core – virtually ensuring solid support (and favorable terms?) for potential showcase customers.