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Market Analysis:

Alcatel-Lucent Boosts TPSDA Architecture to Support Rich Multimedia Applications on the New Service Edge

Date: June 6, 2008

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Basis for topic:

What was announced:

Alcatel-Lucent today announced several new enhancements to its Triple Play Service Delivery Architecture (TPSDA) which pave the way for new, sophisticated and innovative multimedia services. The new feature functionality announced includes:

1) 100 Gbps (50 Gbps bidirectional throughput) slots with new IOM3-XP module
2) Application Assurance (AA-ISA) entry into new family of Service Adapters (ISA), including Application Assurance (AA-ISA)
3) A high scale MDA with Multiple Queues per Subscriber

Alcatel-Lucent's premise:

As service providers implement triple play services, the popularity of HD video has driven significant IPTV service capacity and density, and operators are faced with the challenge of finding their routers needing to support much greater unicast traffic in support of video on demand services. As these operators work to meet these challenges, their focus is now shifting to maximizing the return on investment, and to achieve that goal they want to build a network that will offer their subscribers a high quality of experience for an expanded portfolio of differentiated broadband content and applications.

Gaining that service differentiation requires not only scaling the network to handle the increasing capacity requirements, but also achieving policy management, and having strong network and service management tools.

The net change

The result of these announcements provides 1200 wire speed GE ports/rack for both the Alcatel-Lucent 7750 SR Multi-Service Edge Routers and Alcatel Lucent 7450 ESS Carrier Ethernet Switch Routers. The new High Scale MDA provides 8 queues for each of 20,000 subscribers (19.2 M total queues) per rack. And the AA-ISA gives Alcatel-Lucent more strength in application assurance and bandwidth management.

Opinion:

Alcatel-Lucent's announcements represent an investment to try and head off competitive "catch up" or "leapfrogging" of their TPSDA solution capabilities by competitors Cisco and Juniper. TPSDA already enjoys over 50 customers worldwide, including Alcatel's most prominent IPTV customers Telefónica de España (Spain) with over 500,000 subscribers, and AT&T with over 230,000 subscribers (as of December 2007). Telstra, Vodafone, Wind, and China Telecom have also helped build Alcatel-Lucent's strong traction in the market.

At the time of this announcement, Alcatel-Lucent has definitely achieved a strong advantage in terms of capacity and in GbE and 10 GbE densities. It has also enhanced its per-application bandwidth control and policy management capabilities, to maintain and expand its presence as a very formidable competitor in addressing IPTV and triple play services.

Alcatel-Lucent's 7750 SR multi-service edge router and 7450 ESS carrier Ethernet switch/router now have greater density. This announcement means that the 7750 SR at 1200 GE/rack offers over twice the density of wire speed GbE ports as does the Juniper M320, and over four times those offered by the Cisco XR12000. In terms of 10 GE ports, the 7750 SR as a result of this announcement will have over twice the density of the Juniper M320 and over five times that of the Cisco XR12000.

Alcatel's 7450 ESS Carrier Ethernet Switch Routers offer the same density as on the 7750 SR (1200 GE ports or 150 10 GE ports). That's about one-third greater GE density than the Juniper MX960, and over four times the GE density of the Cisco 7609…or about 10 GE density than the Juniper MX960, or five times the 10 GE density of the Cisco 7609.

Is the differentiation a big deal, and how sustainable is it? We have to think that Alcatel-Lucent is not the only major competitor in this space developing greater density, scalability, or manageability. And over time, any capacity upgrade tends to lose its differentiation value. But what Alcatel-Lucent has done is to be aggressive enough on the development curve to make catching up to its density, and particularly surpassing it, something that no rival has publicly committed to as yet.

We doubt from a technology perspective that any competitor is in a short-term position to leapfrog Alcatel-Lucent, and think it is very likely to retain its competitive advantage in the respect of capacity for awhile – maintaining differentiation. The IOM3-XP is based on Alcatel-Lucent's FP2 silicon we expect to provide competitive advantage for at least a year, and parity beyond that – particularly for the 7750 SRs. And Alcatel's 5670 Reporting & Analysis Manager (RAM) enhances the service value of the AA-ISA – with network management and policy management remaining a key strength for Alcatel-Lucent.

ISOCORE has also validated Alcatel-Lucent's TPSDA solution for mass deployment, which lends some credibility behind Alcatel-Lucent's positioning of having a scalable, resilient and flexible architecture and the capability to guarantee a secure network and to maintain subscriber SLAs.

There is no doubt that there is going to be a rejuvenation of carriers' fixed-line businesses. Building an IPTV network requires a cost-effective service delivery architecture with high subscriber scalability, high bandwidth throughput to the subscriber, and high concurrency is key to their competitiveness. And these networks have to support personalized, per subscriber services with diverse requirements. Service providers that want to be successful in this domain must build a network that will allow them to manage services and offer low over-subscription rates and support for real time high speed applications like gaming, video downloads, and VoIP as well as IPTV.

Alcatel-Lucent's announcement shows continuous innovation, the only potential drawback we can see is whether the promises of OpEx reduction will offset the cost of key features to the solution such as the common operating and management systems.

The majority of ALU's actual customers are probably in the position to expand their service footprint and service offerings in an attempt to capture more high-value revenues from advanced services. Features such as the addition of PPPoE termination and the HS-MDA module enable operators to offer application-specific services. With the ability to establish eight queues per subscriber and support multiple service types (and multiple applications within those service types), operators can begin to offer managed HSI, managed online gaming, and other P2P

services. The result is the potential to monetize these services further, and to establish a high quality of experience for subscribers. Service Providers could also be attracted by the opportunity to migrate away from legacy BRAS systems gaining a significant Opex savings.

Also Service providers with existing investments in separate network to handle high-speed Internet could be interested by this solution that could allow them to offer a managed HSI to provide greater customer satisfaction and increase revenues from a premium offer. In fact, support for PPPoE termination provides operators with a smooth migration path to place legacy high-speed Internet (HSI) services and corresponding revenues onto their next-generation networks. Treating P2P applications as managed applications would also offer a higher quality of experience for subscribers and entice content/application providers to pay to have their applications receive a level of SLA-based service.

In addition, over 200 service providers are using the Alcatel-Lucent IP product portfolio and are prime candidates to expand into the full TPSDA model as they begin to offer advanced multi-play services.

To resume, we think that this announcement has a high value for Alcatel-Lucent and for the whole Triple Play service delivery ecosystem. But, due to the complexity of the proposed solution, and the complexity of the different hardware and software feature, we are aware that Alcatel-Lucent will have to provide detailed support and marketing proposal to its different customers in order to be sure that the value proposal of its solution is well understood and accepted by customers.

As always, it is not enough to have the good solution in its hands, the sales department must strongly support the spreading of the knowledge built around this really attractive solution.

Background Analysis:

The announcement leverages the company's recent Release 6.1 enhancements (March, 2008) where Alcatel-Lucent introduced the new Services Edge with Terabit performance on industry-leading IP and Carrier Ethernet router portfolio, thanks to the FP2 silicon that enables 100 Gb/s slots with IOM3-XPs, and the Family of Integrated Service Adapters (ISAs), including Application Assurance (AA-ISA), creating new service value with a personalized, per-subscriber context.

Today's announcement is focused to position service routing enhancements in a TPSDA context. It unleashes TPSDA's service innovation, allows to deliver more HD IPTV and new, managed on-line services to consumers thanks to 1) High-Scale MDA (HS-MDA) that sets a new benchmark for queuing density, 2) the new Alcatel-

Lucent 5670 Reporting & Analysis Manager (RAM) that enhances the service value of the AA-ISA, 3) the PPPoE tunnel termination that helps to ensure a smooth migration of legacy HSI service revenues to the triple play network

Alcatel-Lucent's TPSDA 2.0 announcement addresses the next level of capabilities that service providers will need as they move from their initial triple play service rollouts toward higher subscriber penetrations, further next-generation network convergence, and higher capacity requirements based on high-bandwidth applications such as high-definition TV and streaming video.

Features such as the new High-Scale Media Dependent Adaptor (HS-MDA), released as part of TPSDA 2.0, allows a higher scaling with multiple queues per subscriber, delivering the equivalent of 19.2M queues per rack (20,000 subscribers with 8 queues each per HS-MDA), plus the recently introduced Application Assurance Integrated Service Adapter (AA-ISA) combine to deliver the scale and capacity for high-grain subscriber management support.

In addition, the inclusion of PPPoE termination enables service provides to phase out legacy BRAS systems and move their high-speed Internet (HSI) services to their next-generation networks and support them as managed P2P applications. With the ability to terminate PPPoE traffic directly on an Alcatel-Lucent service router, further investment in legacy broadband remote access servers (BRAS) can then be preserved.

Also the evolution of subscriber management sophistication and control from legacy HSI tunnels to application-aware, triple play policy management must be underlined. In fact, the evolution from the legacy BRAS that allows a per-subscriber tunnel, towards the TPSDA 1.0 architecture that allows a Multi-service per-subscriber, per-service management, and finally towards the TPSDA 2.0 architecture that allows a Multi-Application per-subscriber, per-service, per-application management is an important improvement for the Service Provider rentability of its network.

Alcatel-Lucent is introducing also the 5670 Reporting and Analysis Manager (RAM), which gathers statistics on flows and applications. With service providers focusing more and more on operational efficiency, the 5670 RAM provides the vehicle to deliver reports, which are relevant to the performance and state of the applications running on the network. The system works in concert with Alcatel-Lucent's other management platforms such as the 5620 SAM and 5750 SSC, as well as OSS applications developed through the company's connected partners program.

Notes on Competition:

Cisco is probably the principal IPTV solution rival. Cisco stresses its possession of in-house STB, CDS assets such as VoD vault and VoD streamer technology, and core routing assets as major differentiators against Alcatel-Lucent's IPTV solution proposition. The scalability of the Cisco CDS makes it uniquely capable of handling the video storage, personalization, and streaming requirements needed to meet subscribers' rising expectations.

NSN has developed a solid, well-established IPTV customer base, currently totaling more than 85 operator accounts. Belgacom, the incumbent operator in Belgium, is NSN's highest-profile and largest operator deployment, currently supporting more than 305,000 IPTV subscribers. Other notable customers include KPN in the Netherlands, several additional deployments in the EMEA region, as well as approximately 75 U.S. regional operator customers

Because of its relationship with **Nokia**, which possesses extensive experience at the sharp end of mobile voice and data network evolution, NSN is well-positioned to be a contender in the emerging mobile TV market, where Nokia has already leveraged its mobile infrastructure market leadership into corollary success in the still-nascent mobile TV sector (i.e., especially in the DVB-H space).

Ericsson's IPTV solution promotion efforts include the leveraging of the TANDBERG TV assets in combination with in-house complementary portfolio assets such as IP-based DSL, GPON/P2P Ethernet options, wireless and optical transport network elements, IMS/softswitch packages, mobile packet core, mobile TV and short-haul microwave radio assets. Ericsson stresses the company's leadership within the mobile TV segment and how mobile TV expertise can benefit its wireline IPTV proposition, especially within the area of emerging multi-play integration efforts Ericsson's possession of Redback's carrier edge routing/multiservice routing assets is effectively positioned to bolster Ericsson's overall IPTV solution integration and sales efforts. But Ericsson still must prove it can effectively synthesize its TT/IPTV-centric assets with complementary portfolio assets in areas such as broadband access, carrier VoIP/IMS, carrier routing, metro Ethernet, optical and network management into integrated high-profile IPTV solution wins. Thus far Ericsson has executed on acquiring the key pieces and achieving integration in some areas, but in terms of high-level IPTV wins Ericsson and TT have generated separate win announcements, and not integrated ones thus far.