

Telstra Brings 'Network-as-a-Service' concepts to life in Asia and United States



End-User Experience

“Sonus enabled Telstra to deploy a solution that singlehandedly enabled our network to offer highly differentiated Cloud provisioning services and to do so at a fraction of the cost of our competitors.”

- Jim Fagan
President of Managed Services
Telstra

Historically, there's often been a serious disconnect between what the world's networks are able to deliver and the day-to-day realities faced by enterprise IT users. Dynamic innovation and rapid change in the IT environment have regularly challenged the more slow-moving world of network deployment and provisioning.

This has often left business customers struggling to get the capacity, speed of service, and responsiveness from their network service providers that they need to support their own mission-critical applications.

The continuing explosive growth in both Cloud-based services and data traffic generally are now putting even more pressure on network operators. In response, they have to try and adapt their own infrastructures, management systems, and business processes to keep pace with the wholesale metabolic acceleration that's happening simultaneously across multiple industry sectors and geographies.

This case study focuses on how one of the world's largest specialist network and data center providers—Telstra, which acquired Pacnet in 2015 in the Asia-Pacific region—has used technology and expertise from Sonus Networks to put the power to control and access bandwidth on-demand directly into the hands of its corporate, Cloud provider, and hybrid network customers. While Carrier Ethernet in the Asia-Pacific region is growing at approximately 24 percent annually, customers are also starting to demand much more flexibility in the ways that they purchase connectivity. They are no longer content to be locked into rigid contracts that leave them paying for bandwidth that they don't use or, alternatively, create bottlenecks and high penalties at times of critical need.

Leveraging the latest in Software-Defined Networking (SDN) technology, Telstra's PEN Platform (PEN) provides the ability to put the customer directly in charge of managing its own traffic requirements, with the flexibility, scalability, security, insight, and speed of provisioning demanded in such a fast-evolving part of the world. This gives Telstra a powerful differentiator in an increasingly crowded and competitive marketplace. Supported by Sonus, Telstra was able to create an elegant interconnected topology of assets, merging diverse connectivity and computing resources to create a single virtualized data center that spans half the



physical world. It also brings added resilience to network and computing services in a part of the world geographically vulnerable to natural disasters.

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Connectivity and computing power are the two essential utilities of the 21st-century enterprise. As access to energy and raw materials drove previous generations of traditional industry, so too do these two new technology assets now create wealth, innovation, and competitive advantage. With dependence and increasing usage, however, comes a significant problem for organizations that supply network and processing services: how to deliver the capacity and scale control that customers need to support business objectives.

Telstra—the background

Telstra's high-capacity submarine cable infrastructure stretches from India to the United States, making landfall at 19 different locations. It operates 24 data centers in China, India, Japan, Malaysia, Hong Kong, and Australia, supported by Network Operations Centers (NOCs) in Singapore, Sydney, and

Los Angeles. Direct ownership of most of its transmission capacity gives Telstra a distinct advantage over most of its competitors in this space.

For Jon Vestal, vice president of Product Architecture at Telstra, the journey towards delivering this vision of enhanced customer control and near-infinite service flexibility began in 2012.

Vestal commented, “Our core product team started then to look at ways in which we could build a true pan-Asian integrated network and data center platform and evolve towards a Network-as-a-Service model. While on one hand we obviously wanted to anticipate any competitor developments and protect our existing revenue streams, we also saw that new and exciting open and standards-based technology options were reaching enough maturity to become usable. We thought that these might allow us to implement efficient cross-connects across our whole infrastructure that would automatically respond to fast-changing application and traffic demands, without the need for slow and expensive manual intervention at the router level. There also seemed to be potential from these technologies to put much more control and flexibility directly into the hands of the user community who, in the past, has usually been confined to highly formal and heavily pre-defined relationships with connectivity suppliers. Just like any consumer, they were fed up with buying capacity they didn’t use, or having to pay exorbitant fees when they needed to exceed pre-assigned limits as business requirements suddenly changed.”

The project begins

Telstra’s engineering team began looking at different options available from many companies—new and old—emerging to bring these kinds of functionalities to the carrier and Cloud worlds. As Telstra’s Vestal remembers, “An initial meeting

was arranged between Jim Fagan, our president of Managed Services, and Karl May of Sonus Networks, and something clicked between them! At a second meeting between our two companies, that chemistry really took off, with more and more Sonus experts joining the discussion and suggesting even more ways that we could refine and improve on our original objectives.

“The project formally started in May 2013 when we began working closely with the two managers assigned to us—though we rapidly got the impression that the whole team at Sonus never actually slept. This commitment was invaluable in dealing with all the uncertainties that inevitably crop up in technology areas that are still relatively undefined, and where a lot of heat and noise is generated by companies trying to make conceptual land grabs with their proprietary solutions. While we were obviously helped by time zone differences, new functions discussed on a conference call one day would be implemented by the next. Since time-to-market is as critical for us as it is for our own customers, the ability to move quickly forward to offer a beta trial of Telstra’s PEN Platform by November 2013 was highly beneficial.

“It’s also important to remember that these service- and customer-enhancing technologies also had to be integrated with all the IT systems—both with us and also with our customers—that turn networks, applications and processing power into real exploitable business assets. While some work on these aspects is still underway, the necessary integration with OSS/ BSS functions on our side and with the GUIs and systems on the customers’ side proceeded smoothly.”

The launch

At the start of November 2013, Telstra launched its PEN Platform, operating initially as a beta test service, and the whole service finally went live on February 18, 2014. Now connecting users and their applications in data centers throughout Australia, China, India, Hong Kong, Japan, Singapore, and the United

States, Telstra’s PEN Platform allows customers to dynamically customize and configure networks based on performance and QoS requirements under a flexible pricing model and industry-leading SLAs. IT managers, for example, now have the capability and flexibility to create a truly APAC-wide and trans-Pacific virtual data center using the Sonus software infrastructure.

They can also uniquely route data flows on demand across links based on business metrics, such as latency and bandwidth requirements, instead of on technical routing metrics used by legacy networking solutions.

Telstra’s Jim Fagan noted that “Sonus Networks’ software enables our network to offer highly differentiated Cloud provisioning services to customers on demand, in minutes. As a result, Telstra’s PEN Platform has received so much interest in Asia markets that we elected to expand the offering to include the United States as well.”

Expanding on the customer’s perspective on this, Vestal adds, “It’s all too easy for carriers to operate in a vacuum, just supplying a standard range of largely unchanging services with little real differentiators between them and no real understanding of real-life customer issues. As we’ve met with customers over the last few months, their initial slightly skeptical response has been ‘Why do we need this?’ Once we explain what it is we’re exactly offering them, that skepticism is quickly replaced by excitement and they start enthusiastically generating use cases themselves. Some want the ability to pre-book bandwidth many months in advance at guaranteed prices; others want the absolute minimum of latency to handle trading applications; while yet other market segments find the freedom to turn bandwidth up and down at the click of a mouse an intensely compelling solution to their problems.”

The Service

By integrating Telstra's PEN Platform with the Sonus' VelloS® software, PEN-enabled data centers achieve superior utilization levels from its existing network links (both LAN and WAN). Today's need to over-provision links between data centers occurs because administrators simply do not have the level of control that they need. VelloS gives network administrators the ability to allocate within minutes, as opposed to days or weeks, how much bandwidth a particular application should be provisioned with through the network.

Furthermore, by leveraging Telstra's extensive network of data centers and subsea cable infrastructure, Telstra's PEN Platform offers customers access to major carriers and data centers and creates a virtualized cross-connected environment. It also extends enterprise-class data centers and private Clouds to any external Cloud vendors with its standards-based Sonus software, offering customers the flexibility to create a truly virtual standards-based Asia-Pacific and now trans-Pacific data center.

"Customers find the Telstra's PEN Platform interface and GUIs extremely easy to use," explains Vestal. "A quick walk-through of the functions and they're ready to go. There's a similar ease of use when it comes to linking into their own back office systems to assign charges internally to different departments, and we use standard APIs here to simplify integration with other business systems. This also means that you have a highly transparent end-to-end business model that greatly simplifies accounting and auditing."

The Future

Telstra's PEN Platform represents a future network design brought to life, where the user and the application—not the network equipment—determine precisely how important data and resources are moved from place to place to meet the demands of business. The complexity of inserting a packet at Point A and hoping that it reappears intact at Point B after randomly transiting any number of intervening devices is now unnecessary. This complexity, and the

non-deterministic nature of current networks, actually stands in the way of the type of innovation being brought to market by Telstra.

While Telstra's PEN Platform currently provides Cloud provisioning services and bandwidth control to users through Sonus' VelloS software, other extensions to the software, such as real-time analytics and connectivity remediation—via Sonus' FarSight application, Disaster Recovery-as-a-Service and Active-Active data mirroring—already exist as possible future services.

About Sonus Networks

Sonus enables and secures real-time communications so the world's leading service providers and enterprises can embrace the next generation of SIP and 4G/LTE solutions including VoIP, video, instant messaging, and online collaboration. With customers in more than 50 countries and nearly two decades of experience, Sonus offers a complete portfolio of hardware-based and virtualized Session Border Controllers (SBCs), Diameter Signaling Controllers (DSCs), Cloud Exchange Networking Platform, policy/routing servers, and media and signaling gateways. For more information, visit www.sonus.net or call 1-855-GO-SONUS. Sonus is a registered trademark of Sonus Networks, Inc. All other company and product names may be trademarks of the respective companies with which they are associated.

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