Telstra’s Symphony Initiative: Redefining the Enterprise Customer Experience with SDN/NFV
Summary

In brief

Ovum has seen the first pilot version of what could be the next generation of enterprise networking, based on software-defined networking (SDN) and network functions virtualization (NFV) from Telstra. Telecoms service providers are in an especially strong position in terms of their ability to bring these agile, dynamic, and programmable network services to the enterprise. Telstra's demonstration of its SDN/NFV platform in development, a project named the “Symphony Initiative,” provides the best case so far seen for a new range of customer-controlled managed services for the business and enterprise market.

In terms of the SDN/NFV platforms actually available today, Ovum believes that the Pacnet Enabled Network (PEN) Platform is probably the most advanced in the enterprise and wholesale sectors. Interestingly, PEN is now also in the Telstra stable as a result of the latter’s Pacnet acquisition. The two Telstra platforms demonstrate strong market leadership in the move to transform the customer experience and the types of service models that telcos offer to their business and enterprise customers.

Catalyst

Ovum has had previews of several SDN/NFV-based pilot services and “proof of concepts” from telecoms operators. So far, the most impressive has been Telstra’s program for a prospective suite of network services and applications for business and enterprise end users. The full set of end-to-end services will draw on SDN (software in the telco network control plane) and NFV (the combined sets of tools and technologies that produce a particular service such as applications acceleration) and put them in the hands of the enterprise user.

The important thing is that enterprises get ready to make the most of the potential benefits of SDN/NFV-based services, after first considering if these are appropriate for their type of business.

Ovum view

- **The time is right for SDN/NFV-based services.** IT infrastructures – from data center, storage, and compute to elements of the LAN – have been virtualized. Now enterprise customers are looking to virtualize the network services that support them, or at least to understand how they can virtualize network infrastructure.

- **SDN enhancements in telecoms operator networks have enabled some telcos to accelerate and simplify provisioning of their own bandwidth and data center resources.** Enterprise end users now want to extend this virtualized network infrastructure across their WAN, VPN, and security appliances.

- **NFV is aligned with cloud strategies and will maximize their benefits.** Virtualized network services are extensions of this IT transition and meet the need for integration with IT resources, including cloud services. Integrating network with IT infrastructure and apps is a compelling prospect for enterprises. Customer benefits start with having agile and dynamic network resources that align with their IT and cloud services strategies.
Enterprise users will get new services and a better experience of them. NFV-based services will produce a significant step forward in customer experience and service innovation in the enterprise user portfolio.

SDN/NFV-based services

Telstra’s Symphony Initiative

A new set of SDN/NFV-based services from Australian operator Telstra is in the works, provisionally called the Symphony Initiative. Strictly speaking, the Symphony Initiative is actually the project name for a cooperative development between Telstra and Cisco that was publically released at Cisco Live 2015 in Melbourne. Although Telstra’s SDN/NFV-based product suite is yet to be launched, Ovum’s observation from the demonstration is that this operator has the most complete set of service elements for an end-to-end suite of SDN/NFV-based enterprise services. These include SDN-based WAN provisioning and IaaS- and SaaS-based network and applications services such as virtual firewalls.

In addition, following its recent acquisition of Pacnet, Telstra also has in its portfolio the PEN solution, which Ovum believes is the most advanced and complete SDN/NFV-based product suite that is actually on the market today. PEN is already integrated into the Telstra business, as demonstrated by Telstra sales teams that are selling services on the PEN network today. It will be interesting to see how Telstra moves forward strategically given that it has the leading “in market” and “in development” SDN/NFV-based service platforms.

The value of SDN/NFV-based services

SDN and NFV came to prominence in 2012–13 as disruptive network technologies that could redefine the deployment, control, and maintenance of telecoms networks.

This year has seen a significant acceleration in SDN and NFV adoption by service providers such as AT&T, SK Telecom, and NTT. These telcos are looking to radically transform their network infrastructures to approximate the commodity hardware-based “hyperscale” data center model of cloud providers such as Amazon, Google, Microsoft, and Alibaba. None has yet brought SDN and NFV together in a way that would allow enterprise end users to provision network services, data center capacity, IT resources, enterprise applications, and billing and operations management as a fully interconnected set of services navigable in a dedicated user portal. However, NTT Com has launched virtualized CPE services, including data servers and firewalls, as a package of LAN services complementary to its global private SDN-based cloud interconnect service.

As recently as June 2015, telco service providers such as Masergy and SingTel have been joining the telco SDN/NFV lineup, announcing software-based routing and firewall functions and IP VPN and Internet-based network configuration and management tools. Interoute’s cloud accelerator offers a fast-track sales engagement in which virtual router and firewall can be included as part of a WAN optimization project.

However, Ovum believes that Telstra is leading the market in terms of advancing the business and enterprise customer experience through SDN/NFV-based solutions. This applies to both its system in development and what it already has on the market today. As a platform in development, Telstra’s
Symphony Initiative (as demonstrated) is the first to bring together all the elements of WAN, data center, and local enterprise services in an integrated provisioning and monitoring environment based on a user-dedicated portal.

Ovum’s view is that Telstra’s development will be groundbreaking. It will enhance the customer experience and clear customer benefits will flow from this self-service, flexible model with an extensive range of networking, cloud, and value-added service types.

Telstra’s PEN Platform is the most complete solution that is already on the market. It offers online, self-service ordering of data networks and value-added services with pay-on-demand pricing, instant online quoting, and services deployed in minutes for both enterprise and wholesale customers.

Evaluation

Background

By the end of 2014, most telcos had launched SDN upgrade programs for their networks and some (mainly Asia-Pacific) telcos had launched SDN/NFV services. AT&T’s User-Defined Network Cloud, KT’s Cloud Communications Center for radio resource allocation, and NTT Com’s Virtual Network Platform as a Service have all emphasized the deployment of network vendor technology in telco operations. However, none are end-user facing.

Initially launched in 2013, the Telstra PEN Platform stood out from the pack as a truly customer-facing platform for both enterprise and wholesale customers. Today Telstra’s plans for SDN/NFV-based enterprise cloud services, as shown by the Symphony Initiative demonstration, bring together for the first time network provisioning, data center resources, applications management, and user portal – all the services that are required to provide an end-to-end service.

Telstra’s continuing partnership with Cisco Systems is the key starting point for Telstra’s SDN/NFV-based service. Until the middle of 2015 the only SDN/NFV-based services designed for enterprise use had been effectively piloted by Cisco. Cisco has announced separate NFV trials with Deutsche Telekom, Telecom Italia, and Telstra. Deutsche Telekom is launching cloud VPN in Central and Eastern Europe; Telecom Italia is working on cloud managed services using Cisco’s Meraki wireless applications.

Products and services

Telstra’s Symphony Initiative portal as demonstrated

Telstra’s Symphony Initiative is a joint development project with Cisco Systems. It is intended to deliver a unified set of network, cloud, and managed services on demand across a Telstra enterprise services portal.

Ovum has viewed the demonstration portal that was shown in Cisco Live 2015 in Melbourne. The user will effectively manage all their services in one view, as shown in Figure 1, which is taken from the Telstra pilot demonstration.
Using the portal it is easy to see services already in operation (green dots) and those being provisioned (orange dots) at the sites of a retail chain of coffee shops in Sydney. In this default geographic view, the user can zoom in to any site to see which services have been deployed, usage and traffic loads, and managed premise equipment.

The user can also add sites and services via a simple sequence of clicks through drop-down menus for network connectivity (create a new IP VPN service or connect an existing IPVPN or data center), cloud services (e.g., AWS, Cisco or SoftLayer), security (e.g., managed firewall, intrusion prevention, DDoS), and collaboration (e.g., Box).

The user can switch to a topological view when adding sites and services and can toggle between the geographic and topological views to display and analyze usage costs for all services and sites. Telstra plans to add a business view, which will provide a full catalog of the virtual functions and applications available across the service.

**PEN Platform**

The ace up Telstra’s sleeve is PEN, an on-demand network provisioning platform based on SDN technologies that Telstra gained when it acquired Pacnet under a $697m merger agreement announced in December 2014 and completed April 2015.

PEN provides network services up to 100Gbps, including NFV tools from Telstra’s subsea cable systems. It is currently available at 26 points of presence (PoPs) across 14 cities in eight countries. It extends network virtualization to the subsea transport network, enabling high-speed capacity provisioning and automated fault restoration across its network systems. Together with its virtual appliances, PEN gives customers the power to orchestrate applications across multiple countries.
simultaneously, delivering virtualized network resources that customers can order and consume on demand.

Using the PEN portal the user can establish point-to-point connections between any PEN-enabled PoPs shown on the network map in Figure 2. Users can build the network flows within minutes based on bandwidth levels from 1Mbps to 100Gbps and choose from low, standard, or best-effort latency options. In addition, users can choose contracts for hourly, daily, weekly, monthly, or yearly terms based on their business needs.

**Figure 2: The Pacnet Enabled Network portal**

The portal will also show an immediate calculation of the cost of the network service based on the selected performance characteristics that customers intend to configure. Once confirmed, the network will take only a few minutes to deploy.

The PEN Platform road map includes more NFV-based services and a plan to provide more cloud endpoint options to customers. In addition, a marketplace or application store is also expected to be joined by technology vendors such as Cisco and Brocade. The product managers are also working on multi-language support, with Chinese and Japanese language support scheduled for launch in a few months.

**Ovum verdict**

From the business and enterprise point of view, services delivered on a fully functioning SDN/NFV-based platform must have five key elements to meet businesses’ commercial and technical operations requirements:

- Secure, adaptive, high-capacity global network infrastructure, the bedrock of the enterprise communications and trading supply chains.
- Cloud services interconnect, allowing the enterprise to move between private and public networking resources and create hybrid networked ICT resources.
- An applications store or marketplace of enterprise applications that can be policed by the enterprise network administrator and deployed on-demand for individual users.
User controls, typically through a dedicated portal that is shared by enterprise administrators and end users.

Managed service, a full managed networking environment into which all the above is wrapped.

From what Ovum has seen of the Symphony Initiative platform, Telstra is taking all these requirements into account in its planning for SDN/NFV-based services.

The all-important end user is yet to test the full operational features of the Symphony Initiative services – or those of other service providers’ offerings. However, Telstra’s services have a well-tested foundation in the PEN Platform, which is already on the market and providing users with services controls for bandwidth and data center infrastructure provisioning. The PEN Platform will be central to the provisioning of security, applications, and monitoring across the Telstra network.

Customer experience with SDN/NFV-based services

Ovum expects SDN/NFV-based services to give enterprise network managers and end users a sharper and more vivid experience of networked applications services. The Telstra Symphony Initiative demonstration is a well-crafted example of how this will look. We anticipate changes to the user experience to take six forms:

- **End-to-end resource management.** For the first time the user will have visibility and control of resources across the local enterprise network and IT through the global network and data centers, in a so-called “single pane of glass.”

- **Faster provisioning.** Ovum’s Enterprise Insights survey found that enterprise procurement and network management teams see speedier provisioning as one of the top benefits of SDN/NFV-based services. Current standard site setup or service delivery times are in the region of weeks or months – which is typical of many contracts we see. Those times will be reduced to less than one hour.

- **Applications experience.** In the proposed service, applications become the primary focus of attention because the NFV environment introduces applications performance monitoring on top of on-demand usage. Users will not just get a wider choice of applications; they will get a better appreciation of their use and effectiveness.

- **Flexibility in service options.** Users can take their services off-net to remote sites or to cloud service provider resources through potential SDN/NFV service providers’ interconnect arrangements.

- **Better cost management.** Pay-per-use and live-charging records will give managers who activate services accountability for their spending and the CFO more assurance about cost-management processes.

- **New service options.** Users want innovation; this has emerged strongly as a benefit factor for SDN/NFV-based services in Ovum’s enterprise surveys. They also want a best-practice approach from their service provider so that they can access the best applications even if those applications are not in the standard portfolio.
Business model and commercial strategy

Telstra’s track record in cloud services in Asia-Pacific means it has a strong starting point for user-managed enterprise services. The operator began its data center services virtualization program with T-Suite (SaaS) in 2009, building on partnerships with Cisco and VMware for technology and platforms, Microsoft for applications, and Accenture for enterprise integration.

The telco has extended its networks and applications portfolio into data management and unified communications, always keeping enterprise end-user controls in mind. Application Assured Networking, for example, allows enterprises to predefine performance metrics for selected applications and allocate bandwidth dynamically on-demand.

Telstra has always been consistent in developing new enterprise services as device- and access-agnostic. It therefore made sense that its most recent initiatives included a partnership with Cisco. This partnership, Cisco Spark, aims to develop a series of tools bundled into a single app that can be downloaded to phones, tablets, and personal computers. The toolbox can include a virtual room for meetings, chat, file exchange, whiteboarding, video sharing, and audio calls. Telstra will make Cisco Spark available over the Cisco Cloud Services platform.

Ovum verdict

Telstra’s framework for SDN/NFV-based services indicates that it has a business model for these services. Other telcos could adopt a similar model, taking into consideration some of the following factors:

- Service providers should be consulting and polling enterprise customers to make sure their upcoming SDN/NFV-based services are aimed at the right types of user. We anticipate variations between companies in different size segments, geographies, and even industry sectors.
- The good news for Telstra is that users in Asia-Pacific show a significantly higher appreciation of the potential operating efficiencies and end-user benefits of SDN/NFV-based services than users in Europe and the Americas. According to Ovum’s Enterprise Insights survey, 43% of Asia-Pacific enterprise users rate “improved cloud integration” a top-three benefit of NFV, compared to 36% in the rest of the world. That could reflect the immaturity and fragmented nature of traditional managed services in the region, but Ovum believes it also indicates that these users have had good experiences with and attach high importance to cloud-based services. NFV-based services can reinforce that success.
- Service providers that lack a road map for SDN/NFV-based services should get one. They will, at the very least, open a new customer base for managed services – enterprises that previously did not take such services from telco service providers.

Service providers should be considering how prospective SDN/NFV-based service customers want these services delivered. It may sound counterintuitive, especially given that some service providers are calling their newly unveiled NFV services “virtual CPE,” but some users may still want an access unit somewhere nearby, if only for reassurance. A white-box approach is not just for reassurance, though; it can provide an extra level of security, for example through the use of user identity and authorization swipe cards.
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What needs work

New services

Service providers might assume that self-service, flexible capacity management, and secure user controls are users’ main requirements of SDN/NFV-based services. In fact, that analysis might overlook a more important expectation among users: the ability to expose more new services and types of services. Ovum’s recent survey work has shown that enterprise respondents rate new services the top “must have” in an NFV solution. Service providers had expected security to be the most important feature of NFV and had put new services much further down the list.

This is not to say that security is not important, just that enterprise users expect it. Service providers will need to maintain their momentum in service innovation once their NFV services are live; this is not going to be a “file and forget” development program.

Pricing

Ovum does not believe that SDN/NFV-based services are just a TCO reduction offer. Although IT and cloud computing are widely done on a consumption or pay-per-use model, this is only one dimension of the ICT user requirement. It would not make sense to move the full end-to-end managed service to an opex-only model. The network will always require capex for the physical connections between countries, sites, and users; without some minimum customer contractual commitment there would be no incentive for a service provider to make the network investment.

However, we have already seen enough of hybrid networking adoption to be able to foresee a hybrid payments model, too. Many companies are starting to divide traffic between the private network, for which they pay their service provider a monthly recurring charge, and the public Internet across their WAN/VPN infrastructure (with the help of the same service provider). They will effectively share the benefits of the free breakout for that sixth class of service.

Vendor agreements

As the discussion on pricing might suggest, not everyone in the tech supply sector can be sure how their business might be affected. Some vendors are more ready to virtualize network functions than others. Cisco has been a leader—enthusiast, but we do not know if it will eventually be limited by its need to protect hardware-based revenues, which would affect the rate of new service innovation. Others that have been in the forefront of advanced networking technology, such as Riverbed and Ipanema, have made no move to NFV and perhaps never will. It may make more sense for them to deploy earnings in other new business areas.

From the enterprise point of view all of this reinforces the case for having an agreement with a managed service provider. This provider should have good visibility of the technology road map and be able to evaluate and moderate the technology choices between vendor and end user.

Customer impact

Like all telcos launching or planning SDN/NFV-based services, Telstra needs to consider the impact of such services on its relationships with its customers. If done well, SDN/NFV-based solutions could cement managed service partnerships with corporate users. However, some business owners may want to focus on new service activations and others may be more concerned with the benefits of consolidation – and not necessarily just for short-term reasons. SDN/NFV-based solutions could be a big piece of an overall business transformation jigsaw.

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Appendix

Further reading

*When Cloud and Network Converge: Cloud Services Interconnect*, TE0005-000727 (July 2015)

“Pacnet introduces a new and improved PEN service,” TE0005-000703 (April 2015)

“Pacnet and Infinera deploy first commercial optical transport SDN,” TE0006-001039 (March 2015)


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