Nuage Networks: Filling holes in software-defined networking with VSAP

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06 JUL 2015

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Network managers in both carrier and enterprise environments face many operational challenges in deploying software-defined networking (SDN). The management and control tools that have proliferated in support of established technologies do not, for the most part, exist when it comes to SDN and NFV. Nuage Networks is looking to improve the life of the network manager with the recent introduction of its Virtualized Services Assurance Platform. VSAP gives the network manager visibility into and correlation between the logical SDN overlay network and the physical underlay network, thereby simplifying network deployment, management and troubleshooting.

THE 451 TAKE

Massive gaps remain in the market when it comes to operationalizing SDN. One gaping hole is how to correlate what is happening in the underlay (physical) network and translate that to the virtualized world. By borrowing liberally from Mom and Dad (aka Alcatel-Lucent), Nuage has developed a very useful management tool in the Virtualized Service Assurance Platform, which introduces some of the checks and balances of incumbent network infrastructure to the Wild West of the software-defined network.

CONTEXT

Nuage Networks was launched by Alcatel-Lucent in April 2013 as a new venture focused on SDN and the cloud. Alcatel-Lucent is the sole source of funding for Nuage. The company is led by CEO Sunil Khandekar, who joined Alcatel through the 2003 acquisition of TiMetra Networks, the ultra-successful acquisition that paved the way for Alcatel-Lucent's presence in IP networking, where Khandekar was director of product management.

Sales are currently divided 50/50 enterprise/operator, shared equally between new cloud service providers and traditional telco service providers. Nuage reports that it currently has more than 20 customers that are past trial and proof of concept (PoC), and are moving into production. It reports an additional 75 companies currently involved in PoCs. Nuage is seeing good traction in North America, notably in financial services and healthcare, and in Europe in insurance and among cloud service providers. As we have seen with SDN implementations overall, Alcatel-Lucent reports Japan and South Korea as hot pockets of activity in an otherwise more relaxed APAC SDN market.

Alcatel-Lucent opted for a startup rather than incubating the SDN offering from within for two main reasons: Alcatel-Lucent was looking to lure the engineering talent that is attracted to startups, and was looking for pace and agility that cannot be coaxed out of a multibillion-dollar company. Nuage is a separately managed entity, left to make its own mistakes or revel in its successes. It is also, however, able to draw on Alcatel-Lucent technology, which is what the company has done with VSAP.

PRODUCTS

The VSAP is tightly integrated with the Nuage VSP, and correlates SDN services – the virtual 'overlay' network – with the physical IP infrastructure or 'underlay' network. In doing so, VSAP enables the following capabilities:

- A network map that is able to associate virtual elements with their corresponding physical location.
- Network events or problems can be correlated between the virtual and physical network environments.
- The operator is able to set alarms on both the physical and virtual networks, and is able to monitor paths in order to proactively identify potential problems anywhere in the physical and virtual network.

The VSAP is able to assist in root-cause and impact analysis by maintaining an event log that dynamically correlates network events and alarm history. This database is also able to maintain virtual objects as historical data, even when they are destroyed.

The VSAP uses standard protocols, such as ISIS, BGP, OSPF and SNMP, which in turn greatly assist in multi-vendor support. VSAP is able to monitor and troubleshoot the physical network of any vendor's equipment, provided the devices support standard protocols.

The capabilities do not sound trivial, and indeed, they are not. However, many have existed for more than a decade on Alcatel-Lucent IP networking equipment courtesy of the 5620 Service Aware Manager (SAM) and the 5650 Control Plane Assurance Manager (CPAM). As mentioned earlier, one of the benefits of being an Alcatel-Lucent spinoff is the ability to borrow liberally from Mom and Dad, and this is what Nuage has done with the VSAP, giving the SDN offering sophisticated monitoring and diagnostic capabilities that are likely to be years ahead of other SDN startups.

Due to its Alcatel-Lucent heritage, Nuage has been able to take VSAP quickly from announcement to PoC to trial. VSAP is not a stand-alone product; it augments Nuage. It is not there to replace the network management layer; it is there to help it. The VSAP is likely to be particularly attractive to carrier-based multi-tenancy networks – with a hundred customers, VSAP is able to show each how their virtual network maps to the physical.

COMPETITION

Nuage has based its competitive positioning on what we could call a 'plays well with others' strategy. It has an extensive partner ecosystem. It is a complete overlay solution, meaning it does not require a change in hardware – you can keep your existing routers. This enables it to compete with more router-centric offerings out of Juniper/Contrail and Cisco/ACI. It is hypervisor-agnostic, and can be attractive to enterprises and service providers looking to lower their costs through a move to OpenStack, making it competitive with VMware NSX. Its ability to traverse datacenters also continues to differentiate Nuage from enterprise-focused virtualized datacenter competitors, such as PLUMgrid and Midokura. Its use of established routing protocols, including BGP, gives it a familiar look and feel to datacenter operators.

SWOT ANALYSIS

STRENGTHS
VSAP brings to Nuage customers the very useful and differentiated ability to correlate the physical layer with the virtual layer, and the company brought the product to market without significant R&D expenditure.

WEAKNESSES
While it can impact many facets of SDN management, the VSAP is one tool. It is unlikely to pull sales, but it should help Nuage close them.

OPPORTUNITIES
SDN implementations are accelerating and expanding, and network operators in the enterprise and carriers are looking for sophisticated offerings on which to deploy services, not lab experiments. This is what Nuage is offering with VSAP, and should continue to develop with the help of Alcatel-Lucent.

THREATS
Nuage faces stiff competition in the SDN market, but its greatest challenge may be the impending sale of Alcatel-Lucent to Nokia. It is uncertain how the sale will impact Nuage, particularly given that Nokia has an aggressive SDN/NFV strategy of its own.