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Network of the Future

Carrier Ethernet and software defined networking held center stage at the recent NetEvents Summit in Thailand

By Heena Jhingan

As the industry prepares to celebrate the 40th anniversary of Ethernet this year, NetEvents invited media and service providers to discuss the future of networking. At the two-day summit, the deliberations revolved around ways that will help the industry build a solid foundation for tomorrow's 4G networks, Carrier Ethernet as a backhaul option for operators, and what is on the cards in software defined networking (SDN).

A recent Forrester report finds that SDN will be the driving force behind many anticipated changes in the IT industry and will become the defining architectural abstraction over the next five years. As per IDC's Interop Las Vegas briefing, the SDN market could grow from just under $200 mn in 2013 to $2 bn by 2016.

In his opening address, **Rick Bauer, Managing Director, Technology, Open Networking Foundation (ONF)**, apprised the conference on why service providers should be considering SDN. Describing SDN as a phenomenal wave of change, he said, "The growing volumes of data transiting today's networks are driving a need for smarter networks, as well as the growth in the number of devices with IP addresses."

"Traditional networking cannot keep up with these needs," Bauer said. "It cannot support scale, performance and time to market. IP is promiscuous, designed for a tree hierarchy. It does not work for a micro-second architecture. The tree-like switch and router architecture does not work any more."

SDN is thus set to change how a large network installation works: there is no need to re-

program every switch. So to add new features, you do not replace a switch, you flash it with those new features, and this makes the network faster and more reliable.

He also stressed that OpenFlow will not be the only instance of SDN – and the ONF is not the only SDN body. "There will be lots of other protocols to take advantage of," he said.

In the following session, the panels debated if SDN could be fertile ground for a network applications store. Dustin Kehoe, Associate Research Director – Telecommunications, ANZ, IDC, opened the debate by pointing out that the networks today need to get to a point where they employ one admin for 500 servers or more. For him, SDN could help as it enables faster service provisioning.

 Kash Shaikh, Senior Director, Product & Technical Marketing, HP, said that his company's definition of SDN is the same as that of the Open Networking Foundation. There is confusion in the market, he said, but one benefit of SDN is a single point of control over the network. "Openness is key," he said, "and SDN is about delivering applications and solving business challenges."

He claimed HP was unique in selling a complete SDN solution. "We have customers already using SDN for public cloud provision. CERN is a customer and is developing its own load balancing applications," he added.

Of disaster, security & BYOD

Besides SDN, there were other trends such as disaster recover, security and BYOD that hogged attention at the conference. Following some data center disasters in the recent past, the industry is compelled to think of better disaster management strategies. Camille Mendler, Principal Analyst at Informa, said that in the context of the data center ecosystem, it is a matter of Darwin's theory where success is not about being the biggest or smartest, but being the most adaptable to change.

Ed Chapman, VP of Business Development and Alliances, Arista Networks, was of the view that virtualization allows better disaster recovery. "In a multi-tenant environment customers want dedicated resources," he said. The challenge is that virtualization means orchestration, but the end user needs to be unaware that this has happened, so VMs need to keep the same IP address.

Stressing that regulations in India mandate the adoption of disaster recovery, Nitin Jadhav, Associate VP, Trimax IT Infrastructure & Services, informed that most mid-tier customers were yet not taking it seriously, seeing it purely as a compliance issue.

The panel also discussed some certifications, including ISO 90001, ISO 20000 and ISO 9000, that were worth looking at for data centers. The panel also discussed data center

location, and whether it was smart to build data centers in geologically active areas. There was general agreement that you need to put the data close to users, and add mitigation for factors such as fault lines and volcanoes.

New technologies usher new security threats. The panelists suggested ways that industry could prepare for them.

Dustin Kehoe, Associate Research Director – Telecommunications ANZ, IDC, opened the discussion saying that cyber-criminalism is a great business because one can breach and steal in minutes and it will take others weeks or months to find out.He said that the motivation for breaches are now primarily financial, and this causes the most damage in terms of actual loss, as well as angering customers and suppliers. Yet, he said, only 20% of organizations have a security policy. In future, most attacks will be at the endpoint given the growth of BYOD. "There's no perimeter anymore," he said.

Dino Soepono, Director of Products, Asia Pacific, Citrix, informed that his company has been open to BYOD internally since 2008. "You need to define security policies that define which applications can access what data. We can sandbox applications so if a device is lost you can wipe or encrypt it," he said.

For Neeraj Khandelwal, Product Manager, Barracuda Networks, one of the challenges of BYOD is snooping tools that can access others' emails, and use "social engineering" to get you to a malware site. His solution has been to move solutions to the cloud so that all activity is redirected there, allowing access to compromised websites to be blocked.

"We work with enterprises who want to set up mobile device management programs," he said. "So we integrate application security, doing application analysis such as checking where the IP address is coming from, is it going through a proxy, etc." Organizations also need to prevent man-in-the-browser attacks. (Barracuda's solution injects JavaScript to prevent vulnerabilities such as keystroke logging.) The event came to a close with discussions around strategies by which wholesale carriers could boost their ARPUs.

Andrew Dodsworth, COO, BT Global Telecom Markets, said that the voice market is changing, with prices going down – a voice minute costs half a cent or less and has become commoditized, so margins are very thin. He noted, however, that mobile roaming remains very expensive as those minutes are not sold at commodity prices, so mobile operators are making very high margins there.

When asked how could the the cost of roaming be changed, Dodsworth said that when telcos lose too much market share, the opportunities are gone. "The outcome is that higher revenue customers use OTT services so the mobile operator becomes a bit carrier. High charges means lost revenues but mobile operators should instead be passing this problem onto OTT providers such as Skype." He concluded by citing the example of a hotel in Slovenia where international phone calls are free as they are passed over Skype.