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How SDN Will Deliver on the Hybrid Cloud

Software-defined networking helps solve some of the operational complexity issues associated with the hybrid cloud.

By *Arthur Cole* | Posted Mar 15, 2017
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For the enterprise, the hybrid cloud is the holy grail of data infrastructure. Through a single management interface, operators can create resources in the local data center and in the public cloud and then deploy workloads wherever and however they desire.

In practice, however, hybrids are proving to be troublesome at best. The key issue is the need to maintain performance standards across disparate infrastructure so applications running at home can maintain proper sync with those on third-party clouds. In short, it requires a great deal of network flexibility just to achieve basic functionality across the hybrid cloud.

Fortunately, abstract networking offers flexibility in spades. With the proper automation stack in place, a virtual network can shift on a dime to enable the network services required of any given workload, and then shift back when the need has passed.

This drive to devise an optimal hybrid cloud networking solution is leading to a host of partnerships across the enterprise industry. Edgecore Networks and Adara Networks, two specialists in software and wide-area connectivity, recently joined forces to implement a software-defined networking (SDN) approach to advanced cloud architectures. The efforts combine Edgecore's leaf/spine data center fabric hardware with Adara's management, controller and analytics technology to address the numerous policy, security and performance issues that arise when extending data center environments across enterprise, carrier and mobile infrastructure. The platform provides Layer 2/3 orchestration and choreography, as well as 10 GbE and 100 GbE support for virtual private networks and MPLS/VPLS functionality.

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Carriers are tuning in to the need to provide SDN environments between remote cloud centers as well. As Nokia's Sasa Nijemcevic, points out on Pipeline, efforts are now centered on key functions like automated provisioning, service assurance and optimized resource consumption. This has the industry scrambling to shed their rigid, hardware-based infrastructure in favor of abstract architectures residing on commodity servers and powered by Linux or VMware virtual machines. This not only presents an enormous technical challenge, but it pushes greater operational responsibility to the enterprise, which must now oversee a unified network over wide-area infrastructure that is largely unfamiliar to the average IT technician.

In fact, this is leading some providers to bypass the carrier altogether to provide an integrated SDN module within their hybrid cloud service offering. Microsoft recently turned to Colt Technology Services to implement a dedicated cloud access feature on the Azure cloud, essentially providing a private non-IP-based connection to and from the enterprise. The service is deployed as part of Azure's ExpressRoute connectivity system, under which the Colt IQ Network platform can be used to define and deploy links to the cloud in real time and under a variety of pricing models. The service will initially rollout in Europe and Asia, with Colt expanding it to additional cloud providers sometime in the future.

Traditional data center networking vendors are also eager to extend support across hybrid infrastructure. Juniper recently upgraded its Unite framework with a new switch and improved management software aimed at unifying cloud deployments across campus, branch and data center resources. The system features a building-block approach to cloud deployment, allowing organizations to start small and add to the environment as needs demand. The latest expansion includes the 48-port QFX5100 switch that supports 40 and 100 GbE, as well as the latest version of Network Director for improved visualization and unified hardware/software coordination.

The enterprise has been talking about the hybrid cloud for so long that it is understandable that many organizations have soured on the idea because of its operational complexity. But a close look at efforts to date show that the main
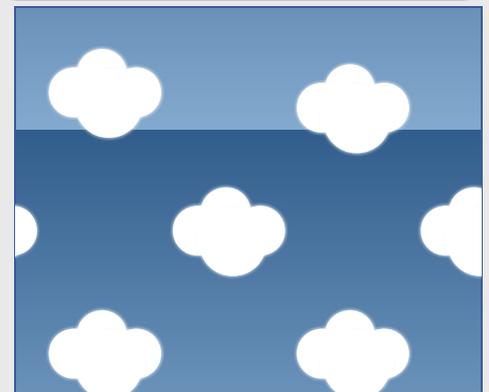
stumbling blocks are related to deploying fully virtual server and storage environments over networks that are still mired in physical dependencies.

With software-defined networks now in the running, the enterprise has the ability to deploy full data stacks in the abstract to enable the kind of portability required of a hybrid environment. There is still a lot of work to be done for this vision to become a reality, but at least all of the functional underpinnings of the hybrid cloud are finally available as real products, not theories to be worked out later.

Arthur Cole is a freelance journalist with more than 25 years' experience covering enterprise IT, telecommunications and other high-tech industries.

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