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Running SDN Over the WAN

SDN will be of limited benefit unless it can be extended into the WAN. Some vendors are working to make SD-WAN a reality.

By Arthur Cole | Posted Feb 13, 2015
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Enterprise executives are understandably eager to deploy SDN within the data center, but lately a growing chorus has been calling for deployment on the wide area first, particularly if the plan is to implement distributed, cloud-based architectures.

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The software defined wide area network (SD-WAN) is not a new concept, given that most carriers are on board with Network Functions Virtualization (NFV), the long haul equivalent to SDN. But as the drive for the end-to-end virtual data center ramps up, so too does the realization that abstract data architectures are only moderately useful if they don't extend beyond the data center walls.

At the very least, extreme scalability in the cloud and in the data center is a sure way to drive up connectivity costs without a similar capability on the WAN. Talari Networks recently bumped up its SD-WAN portfolio with a new version (4.2) of the Adaptive Private Networking (APN) platform, which enables proactive management of key parameters like network configuration and application policies. The system provides for on-demand adjustment of bandwidth, throughput and related functions without interruption of existing services, reaching into Internet, MPLS, wireless and other networks to provide a high degree of flexibility when matching application requirements to available resources.

Meanwhile, top networking platforms are adding SD-WAN capabilities as well. HP's Virtual Application Networks (VAN) controller recently upped its WAN optimization and orchestration capabilities through the ADARA Networks Comet and Hercules modules. Both systems are available through the HP SDN app store and are capable of extending control to L2/L3 SDN services while smoothing out many of the packet issues that arise when layering advanced network services on top of legacy TCP infrastructure. The package also provides for centralized management via a workflow-based user interface, along with auto-scaling and other intelligent services designed to maximize resource utilization and operational cost efficiency.

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The newest version of VMware's vCloud Air platform also gives a nod to SD-WAN operations, allowing the enterprise to implement an end-to-end virtual data environment on a single, albeit proprietary, platform. It does this by extending the NSX virtual networking platform into the WAN, where it can support up to 200 virtual LANS for applications and resources within the enterprise data center. This setup enables all of the features that standard NSX deployments offer, such as traffic isolation, user-defined security and related functions, as well as the Border Gateway Protocol (BGP) and Open Shortest Path First (OPSF) routing to help integrate public and private workloads in support of hybrid data environments.

And on the carrier level, AT&T has implemented SDN services on its IP-MPLS network to provide direct connectivity to a number of cloud platforms, including Microsoft Azure, Salesforce and Box. The company's NetBond service, which is billed as a "network enabled cloud," allows the enterprise to extend existing virtual private networks to the cloud provider, bypassing the public Internet for a more secure and seamless connection to applications, services and data resources. In this way, the enterprise is able to build upon legacy IP-MPLS architectures, rather than run a dedicated VPN whenever it needs a secure cloud connection.

I've written many times in the past about the need for the WAN to become more LAN-like as the enterprise gravitates toward geographically distributed architectures, and it is certainly easier to do this in software than hardware. Extending SDN into the wide area is a key step for the enterprise industry because it represents an expansion of native data environments and thus the ability to define its presence in the cloud rather than simply work with what is offered.

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Optimization can be a tricky thing, however, as conditions that are optimal for one application or data architecture are not necessarily right for another. It's a safe bet, then, that even with SDN on the WAN there will still be a lengthy trial-and-error period before long-term solutions begin to emerge.

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Arthur Cole covers networking and the data center for IT Business Edge. He has served as editor of numerous publications covering everything from audio/video production and distribution, multimedia and the Internet to video gaming.

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