SD-WAN H1 2016 Market Update: Vendor Snapshots Show a Crowded, Competitive Field Attempting to Diversify

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Market Advisory Report

Analytical Summary

Key Takeaways

- The need for reliable, robust, managed WAN bandwidth will continue to increase as demand outpaces the costs of more bandwidth.

- All SD-WAN products share significant similarities in capabilities and features.

- Differentiation exists in the breadth of vendor ecosystems, the variety of deployment models, and flexible licensing plans.

- SD-WAN products will significantly reduce operational management and enhance connectivity over the WAN.

- There are many SD-WAN vendors less than three years old and some at least seven years old. Most of the activity has taken place in the last two years.

Summary

The SD-WAN market is quite crowded with numerous vendors, many startups, shipping products and more even more are entering the segment. The biggest issue facing any vendor offering SD-WAN products is differentiating from competitors. Every SD-WAN vendor emphasizes ease of use compared to alternatives such as VPNs and dynamic routing protocols, dynamic path control to optimize traffic among two or more WAN connections, and application classification in order to monitor performance and meet SLAs using policy-based management which simplifies daily operations. There are four key areas where product vendors can differentiate.

- **Vendor Integration Ecosystems Structures:** Application developer portals and APIs that are openly available will spur integration and remove a barrier for ISVs and customers alike while maintaining closed ecosystems will inhibit development.

- **Deployment Model Variety:** From physical to virtual appliances on-premises or in a cloud service, options will be attractive to end customers as well as service provider looking for a versatile technology solution.

- **Flexible Subscription-based Licensing:** This allows enterprise customers as well as

managed service providers to match expenses to demand and grants the ability to scale up or down along dimensions such as services, capacity, or number of locations as needed.

• **Composable Services:** Services that can be moved as needed are particularly attractive to service providers and large enterprises which act as service providers seeking the ability to optimize services in the WAN or office. In the following report, we briefly describe the competitive strengths and weaknesses of SD-WAN vendors and state our assessment of the vendors' positions in the market.

Perspective

If enterprises truly desire choice, the variety of SD-WAN products offers a fit for every niche. However, no single product contains all the features necessary to compete on every front, which is where the importance of integration and the partner ecosystem comes to the forefront. This list comprises the competitor landscape in SD-WAN.*

Cisco Systems
Rating: Very Strong
Description: Cisco doesn't have a dedicated SD-WAN product; rather, the company offers one use case of IWAN for SD-WAN capabilities which runs on a variety of ISR, vISR, ASR and CSR routersCisco recently announced the general availability of its APIC-EM controller with the IWAN application for policy management.

Competitive Strengths:
• IWAN uses technologies such as DMVPN, Performance Routing (PfR), and Application Visibility and Control (AVC) to build the SD-WAN.
• IWAN can be created using templates in Cisco Prime Infrastructure or the IWAN application on the APIC-EM controller.
• The APIs for APIC-EM are publically available, removing a hurdle for customers, partners, or any developer to enable integration.
• IWAN relies on widely deployed ISR 4000 and ASR 1000 routers and the CSR 1000v virtual router.

Competitive Concerns:
• IWAN is complicated to configure and deploy from the CLI and needs either the APIC-EM IWAN application or Prime Infrastructure to manage the configuration.
• The IWAN application requires an additional license, which can be purchased standalone or as part of the Cisco ONE Foundation WAN pack.
• ISR support in the APIC-EM IWAN is limited to newer models in the ISR 4000 family, with support for the widely deployed ISR G2 family on the roadmap.
• IWAN currently doesn't have any integrated, service chained network functions from partners making it difficult in a multi-vendor environment.

CloudGenix
Rating: Competitive
Description: CloudGenix ION aims to simplify enterprise WAN connectivity and includes integration APIs and L4-7 services. ION also uses passive application discovery to identify applications for performance enhancement, path selection, and detailed reporting

such as MOS scores for VoIP.

Competitive Strengths:
• Applies security, forwarding, and QoS policies based on passive application and sub-application (e.g., applications carried within HTTP) detection.
• CloudGenix claims ION can detect media codecs, even if the traffic is encrypted, and apply policy and monitor performance.
• CloudGenix promises to simplify WAN management and business policy controls.
Competitive Concerns:
• ION is similar to other SD-WAN vendors; without a clear differentiator, it is a 'me too' product.
• Passive application fingerprinting historically has not been close to 100% accurate; failing to integrate directly with UC&C suites like Lync is not forward thinking.
• Focusing messaging on terms like 'no routing protocols' and path selection is not particularly productive.

Glue Networks
Rating: Vulnerable
Description: Glue Networks differentiates itself by being an automation and management tool for Cisco IWAN routers with integration to Cisco IOS and the APIC Enterprise Module.

Competitive Strengths:
• Gluware provides inventory, zero-touch provisioning, and application-aware SDN for Cisco IWAN and recently showed integration with Citrix CloudBridge.
• Gluware Lab, Control, and the repository provide a closed-loop system where networks can be built and modeled before being pushed to production.
• Adapters are the integration point for third-party products to become part of the managed infrastructure and should provide a consistent experience.

Competitive Concerns:
• Glueware is currently only useful for Cisco shops, which leaves a large part of the market unaddressed.
• Glue relies on continued substandard IWAN management by Cisco, which is making headway with IWAN and the APIC-EM.
• Gluware is not an SDN WAN as much as it is an automation suite for various Cisco products; customers must have Cisco ASR and ISR routers deployed.

Nuage Networks
Rating: Strong
Description: Nuage's Virtual Network Services (VNS) is designed to support a large and diverse client population. Recent enhancements such as remote office support and a partnership with HP show Nuage has momentum in the SDN space.

Competitive Strengths:
• VNS runs on a variety of appliances, private and public cloud platforms and can extend out to the branch office.
• VNS supports up to 8,000 tenants per management instance, including co-management capabilities, which is a requirement for most MSPs.
• Nuage's Virtualized Services Assurance Platform provides a variety of reporting and troubleshooting tools aimed at simplifying operations.

• Nuage VNS integrates well with third-party products and networks with validated network function service insertion from partners.

Competitive Concerns:
• The NSG lacks granular security controls found in competitive products.
• The gateways currently don't have integrated 3G/4G/LTE connectivity on the appliance or via USB.
• The in-depth reporting from VSAP is an additional product to acquire and manage which adds to the overall system cost.

Silver Peak
Rating: Competitive
Description: Silver Peak is better known for its WAN optimization products, but its Unity Edge Connect, Unity Orchestrator, and Unity Boost are a solid option in the SD-WAN space, featuring optional WAN optimization and subscription pricing for enterprises and service providers.

Competitive Strengths:
• Silver Peak's subscription-based pricing will be attractive to companies seeking to cut capital costs, and it also has customizable billing options for service providers.
• Unity Boost, the WAN optimization option, is a relatively unique offering. It is priced by the amount of traffic 'boosted' and can be limited to specific types of traffic.
• Unity Edge Connect is offered on physical and virtual appliances available on many hypervisors and cloud services, which makes it particularly versatile.

Competitive Concerns:
• Silver Peak isn't well known in the SD-WAN space and will have to spend resources raising awareness and gaining mind share.
• Silver Peak currently doesn't have any integration APIs or SDKs available for customers to use; nor does it have a customer developer portal, which can slow adoption.

Talari
Rating: Strong
Description: Talari was an early entrant into what we now call SD-WAN, launching its first products in 2007. The product set is made up of the network controller, physical and virtual appliances, and a centralized management and reporting application called Aware. Talari uses its overlay network to transport and manage traffic between locations, and all available physical links, using a variety of physical and virtual appliances.

Competitive Strengths:
• Talari uses a variety of methods to ensure performance, such as per-packet load balancing, egress policing, flow control, and others while ensuring in-order packets on the other side.
• Appliances are offered in a variety of physical and virtual form factors as well as AWS images, allowing customers to interconnect clients and servers.
• With the exception of the T510, any appliance can be the network controller. Network controllers can be geographically distributed.
• In addition to its existing perpetual licensing, Talari recently added subscription pricing for one, two, and three years.

Competitive Concerns:
• Talari is very focused on WAN performance and uptime, which are becoming table stakes, while competitors are adding valuable services on top.
• Talari has a limited set of technology partners and integration capabilities, which undercuts its claim as a leading SD-WAN vendor.
• Cloud support is limited to AWS; it should expand to support other services.

VeloCloud
Rating: Strong
Description: VeloCloud is a startup SD-WAN vendor that offers hardware and virtual appliances; it also offers both cloud and on-premises management. VeloCloud is targeting service providers and enterprises with customizable portals and role-based access control.

Competitive Strengths:
• VeloCloud can improve application quality of service over the WAN using link load balancing, error correction, and path selection.
• VeloCloud Gateway is a unique, optional, service offering extending the SD-WAN to locations near existing cloud PaaS and SaaS services.
• Optional cloud-based management simplifies product deployment because customers don't have to install and maintain management servers.
• Multi-tenant management is well suited for managed service providers with the ability to offer a variety of management models to customers.
• VeloCloud shows a good ability to integrate with other products, such as cloud service insertion from zScaler and Websense, branch insertion with Citrix Netscaler, and Virtual Edge running Cisco's ISR.

Competitive Concerns:
• The VeloCloud gateways have limited physical WAN interface connections.
• Integration APIs are available to customers and partners only after signing an NDA, which will inhibit integration.
• VeloCloud currently doesn't have any validated integration with network or cloud orchestration systems nor OSS/BSS systems.

Versa Networks
Rating: Very Strong
Description: Versa Networks is a startup with three primary components, Versa Director, Versa FlexVNF, and Versa Analytics. All of the virtual network functions, such as SD-WAN, vCPE, and branch security, are components that can be deployed centrally to the provider edge or on-premises as needed. It is ideally suited for service providers and enterprises alike.

Competitive Strengths:
• Versa's architecture is versatile and supports multi-tenancy in the branch, vCPE, and controller, making it particularly useful for service providers and enterprises alike.
• The company emphasizes its rich integration capabilities using standardized protocols between nodes and REST APIs for integration with systems such as OSS/BSS, NFV orchestration, and cloud management.
• FlexVNF is software only and can be installed on a variety of x86 hardware to suit a customer's or provider's particular deployment requirements.

• Versa offers a number of advanced features and other network functions can be service chained extending the capabilities at the customer premises or provider network.

Competitive Concerns:
• Versa is a very new startup and hasn't yet proven to the market that the product works as claimed or that it will gain momentum despite some early wins with CenturyLink, Colt, Orange, and RCN.
• The company doesn't have any publically available APIs, which will impact the ability of non-traditional developers to integrate with the product.
• Versa doesn't offer its own cloud management service, putting it at a competitive disadvantage against others.

Viptela
Rating: Vulnerable
Description: Viptela components include the vManage management application, vSmart Controller (which coordinates vEdge routers), and vEdge routers (which focus on network provisioning simplicity). Viptela has integrated with F5 and Palo Alto for service insertion capabilities.

Competitive Strengths:
• Viptela uses deep-packet inspection to match traffic and send it to its next destination including service chaining to F5 or Palo Alto firewalls.
• vEdge routers use path control to ensure application service level agreements are met and to route around faults in the network.
• vManage and vSmart Controller maintain end-to-end network segmentation, ensuring traffic streams remain isolated from each other over an encrypted overlay.

Competitive Concerns:
• Viptela doesn't employ standards based IPsec which makes integration with other firewall/IPsec gateways and services like AWS hardware VPN in a VPC impossible.
• Viptela has limited WAN connectivity options supporting only Ethernet and PPPoW as well as 3G/4G/LTE on some models.

* Note: This roundup of vendors in the SD-WAN market does not include Arista, Avaya, Brocade, Dell, Extreme, HP, Huawei, IBM, Juniper, or VMware, since those vendors currently don't have a SD-WAN offering. While Riverbed doesn't have a SD-WAN offering, it did announce Project Tiger, though product won't be shipping until 2016. We dropped Certes as it doesn't fully conform to our definition of SD-WAN.

Near Term Drivers

• Application and vendor ecosystems as well as application integration capabilities in SD-WAN products will spur adoption of SD-WAN for both enterprise customers and service providers, because managing application traffic based on competing needs is a continual thorn in the side of IT and the ability to automate quality of experience is compelling.

• Existing L3 VPN products such as IPsec VPN are starting to be retired as capacity demands outstrip existing appliances' ability to keep up, making switching to a new and better technology easier than forcing early retirement for functional equipment.

• Service providers are looking for ways to add value to their services and to fight being relegated to plumbers providing pipes to customers. Managed SD-WAN is nicely aligned with managed services and fits neatly into service providers' network functions virtualization strategy. SD-WAN vendors are making their products attractive to service providers with APIs for OSS and BSS integration, function modularity, and flexible licensing models.

Competitor Response & Recommendations

• Hardware networking vendors adopting SDN technologies should acquire or partner with one or more SD-WAN vendors to enable inter-data center and interoffice SD-WAN to ensure they can deliver a robust and well-integrated offering. Integration between LAN, WAN, and SD-WAN management applications will further enhance the user experience and reduce friction in adoption.

• Vendors should set expectations for customers on the capabilities of SD-WAN, particularly in reference to performance for live VM migrations and storage replication, which require very low latency. SD-WAN won't address physically poor-performing WAN connections, resulting in high latencies. SD-WANs can differentiate on quality features such as path selection and QoS enforcement which can significantly enhance real-time applications such as voice, video, and desktop sharing by demonstrating the impacts.

• Many enterprises have adopted some form of L3 VPN, such as IPsec between locations. However, those VPN products are not designed for dynamic SDN and do not fit well with larger dynamism taking place in inter-data center and hybrid cloud deployments. SD-WAN vendors should point out that SD-WAN provides similar encryption technologies with built-in isolation and dynamic routing, more flexible policy provisioning, and far simpler operational management than traditional VPN products.

• Managed service providers (MSPs) and service providers (SPs) offering SD-WAN services are competing not only with other providers, but also with numerous networking vendors selling directly to the enterprise. Enterprises, particularly in North America, distrust the ability of MSPs and SPs to deliver timely services, which providers will have to address in the sales process. To compete effectively, providers will have to demonstrate that they can deliver better service, faster and less expensive than enterprises can do on their own.

• SD-WAN vendors have opportunities to differentiate their products from competitors by focusing on strategies that increase the number of integration partners that have joined in co-development by making APIs available and publically accessible so that more developers can integrate with the product and extend the value for all involved.

• SD-WAN vendors targeting service providers should build their product to be composable into small functional applications that can be moved from the core, provider edge, and customer premises. NFV style deployments won't work well with large, monolithic software products because of the compute resources needed. In addition, licensing models need to match the subscription-driven model service providers are adopting for customers.

Buyer Actions

• Regardless of whether SDN is implemented in the data center, customers should evaluate the use of SD-WAN to gain the operational benefits compared to traditional VPN products and service provider services, such as simpler operations, better integrated traffic management, built-in isolation, and the ability to flexibly design network paths.

• Enterprises can take advantage of the traffic optimizations SD-WAN offers while maintaining security controls using built-in firewalls and traffic separation. SD-WAN allows enterprises to provision their WAN topology largely independent of their physical WAN, such as allowing specific applications between sites without having to pass through a central hub. Traffic paths are defined by policy and also increase resiliency by dynamically updating routes through the SD-WAN.

• SD-WAN isn't worth the disruption of adding new products to a WAN strategy if the enterprise already has an effective VPN strategy in place and isn't looking at extending hybrid cloud to a cloud provider or between sites. However, for those looking at upgrading or replacing a current VPN strategy, some of the SD-WAN products may prove more useful.

• Enterprises should take advantage of built-in resilience and optimizations, such as dynamically sending traffic over two or more WAN links to balance load, and meet application performance requirements by monitoring application performance and sending traffic over the best WAN link. In addition, enterprises using cloud services can take advantage of some SDN products' built-in optimal routing of traffic to and from the cloud services.

• Enterprises seeking to reduce management overhead should evaluate MSP SD-WAN offerings, which are often underpinned using commercial products. SD-WAN products already reduce operational management for the entire device and location lifecycle, but MSPs can further add value by taking the deployment and infrastructure management off the customer's hands and presenting a portal for customer management.

This report is tagged to the following vendor(s):

Cisco , CloudGenix , Nuage Networks , Riverbed , Silver Peak , VeloCloud , Versa Networks , Viptela

This report is tagged to the following content areas:

Service: Enterprise IT and Services , Business Technology and Software
Market: Cloud Technology and Services , Data Center Technology , Enterprise Networking