SD-WAN: CHANNEL SELLER'S GUIDE

By Kurt Marko

OCTOBER 2016 | US$25 | S071016

Channel Partners™

SD-WAN: CHANNEL SELLER'S GUIDE

By Kurt Marko

OCTOBER 2016 | US$25 | S071016

Channel Partners™

TABLE OF CONTENTS

Channel Partners™

ABOUT THE AUTHOR

linkedin.com/in/krmarko
@krmarko

KURT MARKO is an IT industry analyst, consultant and regular contributor to a number of technology publications, pursuing his passion for communications after a varied career that has spanned virtually the entire high-tech food chain from chips to systems. Upon graduating from Stanford University with bachelor's and master's degrees in electrical engineering, Marko spent several years as a semiconductor device physicist, doing process design, modeling and testing. He then joined AT&T Bell Laboratories as a memory chip designer and CAD and simulation developer. Moving to Hewlett-Packard, he started in the laser printer R&D lab doing electrophotography development, for which he earned a patent, but his love of computers eventually led him to join HP's nascent technical IT group. Marko spent 15 years as an IT engineer and was a lead architect for several enterprisewide infrastructure projects at HP, including the Windows domain infrastructure, remote access service, Exchange email infrastructure and managed web services.

SD-WAN: CHANNEL SELLER'S GUIDE

AS A STRATEGIC TECHNOLOGY ADVISER, YOU NEED TO PROVIDE PRODUCT GUIDANCE AND SERVICE DELIVERY FOR critical infrastructure up and down the stack. And for today's uber-connected digital businesses, nothing is more critical than networking.

These services are also one of customers' biggest line items, with one survey showing that respondents spend more than 40 percent of their IT budgets on network-related bills. IDC estimates that WAN expenses make up 15 percent of IT spending.

And, the demand driving that spending isn't shrinking anytime soon. Aryaka's 2015 State of the Global Enterprise WAN survey showed global traffic grew at a mean rate of 236 percent in 2014, with North America's rate up 190 percent. We'll bet that the 2016 report shows even bigger jumps in 2015.

This dramatic increase in network traffic is attributable to two factors: More mobile devices are in use by both customers and employees, along with a range of Internet of Things (IoT) sensors on the horizon. And cloud use is up, particularly software-as-a-service (SaaS) applications, like Salesforce and Microsoft Office 365, and infrastructure-as-a-service (IaaS) resources, largely in Amazon Web Services (AWS) and Azure.

Together these have reshaped traffic patterns to the point that, without the use of direct-connect cloud networks, which we detail in this report, most business traffic now traverses the public internet.

Make the Case: SD-WAN

THE PROBLEM The carrier network services traditionally used to provide WAN connectivity haven't kept up with the exploding need for capacity and flexibility — certainly not at a price that most organizations can afford.

WHO'S BUYING? Geographically distributed organizations with limited networking expertise and complicated requirements, like lots of retail sites, are fully on board. But enterprises are very interested, too, and this tech is a natural for SMBs looking to grow.

SELLING POINTS It's hard to justify a five-figure monthly bill for a modest-capacity MPLS circuit when home office workers pay the equivalent of a dollar per Mbps per month.

However the complexity inherent in designing and operating dependable, secure WANs using a mix of public internet and private circuits calls for channel partners' expertise.

S071016/1

We have wide availability of inexpensive, high-performance broadband networks. Now the question is, how do you ensure manageability, security and quality of service?

The answer, more and more often, is a software-defined WAN (SD-WAN).

KEY SD-WAN FEATURES & DIFFERENTIATORS

SD-WAN is the combination of virtual network overlays using multiple physical interconnects — consumer broadband, enterprise MPLS or carrier LTE — with central, software-based management and control. There can be one or more logical networks within an organization.

SD-WANs can combine multiple physical circuits, including those of marginal or variable quality, like wireless connections, into a logical network with enterprise-class quality, reliability, security and features.

Like a virtual private network (VPN), SD-WAN can turn a public link into a private network; however, it adds many additional features to improve reliability, performance and manageability.

Core elements of SD-WAN include:

- Use of any type of WAN circuit, including cable broadband, carrier Ethernet, traditional MPLS and wireless LTE, as part of a virtual network overlay.
- Capability of bonding multiple circuits into a single logical network with support for virtual routing and forwarding (VRF) and dynamic routing on both LAN and WAN interfaces. This allows control of private network routing policies even when using shared public routable networks like cable broadband.
- Ability to prioritize, weight and load balance different circuits into a virtual network with dynamic path selection that depends on each link's performance and current traffic. The SD-WAN controller will automatically direct traffic to the best, least-congested link and failover in real time in the event of link failure or degradation.
- Central control, management and security policy enforcement with the ability to automatically provision new endpoints into an SD-WAN without local admin support, aka "zero-touch provisioning." Branch sites can be added in minutes. Network monitoring and reporting are also included by means of a central dashboard.
- Optimization of physical link transmissions and Transmission Control Protocol (TCP) to improve performance and reliability, aka "path conditioning." This feature often uses a forward error correction (FEC) algorithm that can reconstruct lost packets and thus minimize performance-sapping TCP retransmissions.
- Inclusion of traditional WAN optimization features such as data compression, deduplication, caching, traffic shaping, latency optimization (for example, automatic window size adjustments and Layer 3 congestion control) and selective acknowledgments for chatty protocols that can be applied bidirectionally, at either ingress or egress. Also includes application- or protocol-specific optimizations, such as video acceleration.
- Ability to insert other network services, such as firewalls, web proxies and content filters, in the virtual network path as virtual appliances running on the SD-WAN edge device.

- Quality of service (QoS) features, such as protocol/application classification and prioritization, policy enforcement and bandwidth limits that work with dynamic path selection to ensure that high-priority, real-time traffic has priority and uses the link with the lowest latency and jitter.
- Use of encryption, typically via Internet Protocol Security (IPSec) tunnels, to provide private network security over untrusted physical connections.

Optionally, service automation and customization via representational state transfer (REST) APIs.

By logically separating network data and control, SD-WANs resemble other SDN applications, notably virtual network overlays. A benefit of separating data and network control is to allow the SD-WAN controller to be either an on-premises system or a cloud-based service.

Get Edgy

Gartner recently issued guidance on what to look for in a customer edge device. Currently, the consultancy sees a wide variety of models, including off-the-shelf x86 platforms, fully integrated appliances, integrated appliances with virtualization capabilities and wide-area-located gateway services.

Some expectations:

- Very small, thin devices with only basic functionality will be suitable for smaller branch offices, while larger branch offices and data centers demand devices supporting a wide range of functionality.
- Devices will embed virtualization (for flexible functional deployment scenarios) within the edge device. This needs to be tied to the carriers' network function virtualization (NFV) plans.
- Devices will support WAN service termination so that carriers can deploy these edge devices as part of their managed WAN services.
- Devices must support external cloud connectivity functionality and mobile device connectivity.
- Devices must seamlessly support connectivity between SD-WAN and non-SD-WAN sites.

Abstracting the network data and control planes into logical layers also enables SD-WAN implementations to use a variety of endpoints, including low-cost, purpose-built hardware or software appliances. Indeed, entry-level hardware endpoints resemble consumer broadband routers and can be just as inexpensive, starting at $100.

Finally, most SD-WAN providers also either operate or support running virtual appliances at major cloud services like AWS and Azure, which allows private SD-WANs to terminate on shared public infrastructure.

DECISIONS, DECISIONS

SD-WAN is an emerging and dynamic market, which means that there's little uniformity in features, deployment models or terminology. While the above list of core features is exhaustive, you'll find a wide variance in which items each product supports and how vendors implement functionality.

Such variety unfortunately means that, without guidance, buyers can quickly succumb to "paralysis by analysis" while looking for the optimal implementation and stressing out over subtle technical differences.

For example, products differ in how they make path selection and failover decisions. Some may classify link quality during setup and route high-priority applications or network flows to the nominally best path, regardless of how that link is behaving at any given time. Others may use real-time packet-level monitoring on all paths to quickly identify performance problems and provide near-instantaneous failover to backup links. That allows voice and video traffic to continue streaming without so much as a hiccup.

Just remember: You can deliver the core benefits of SD-WAN — the ability to turn consumer-grade broadband circuits into a viable MPLS alternative; to scale capacity by adding circuits, not changing existing services; to improve reliability by adding carrier diversity; and to simplify management through a centralized portal — regardless of the product. So don't get bogged down in feature spec sheets.

PARTNER CONSIDERATIONS

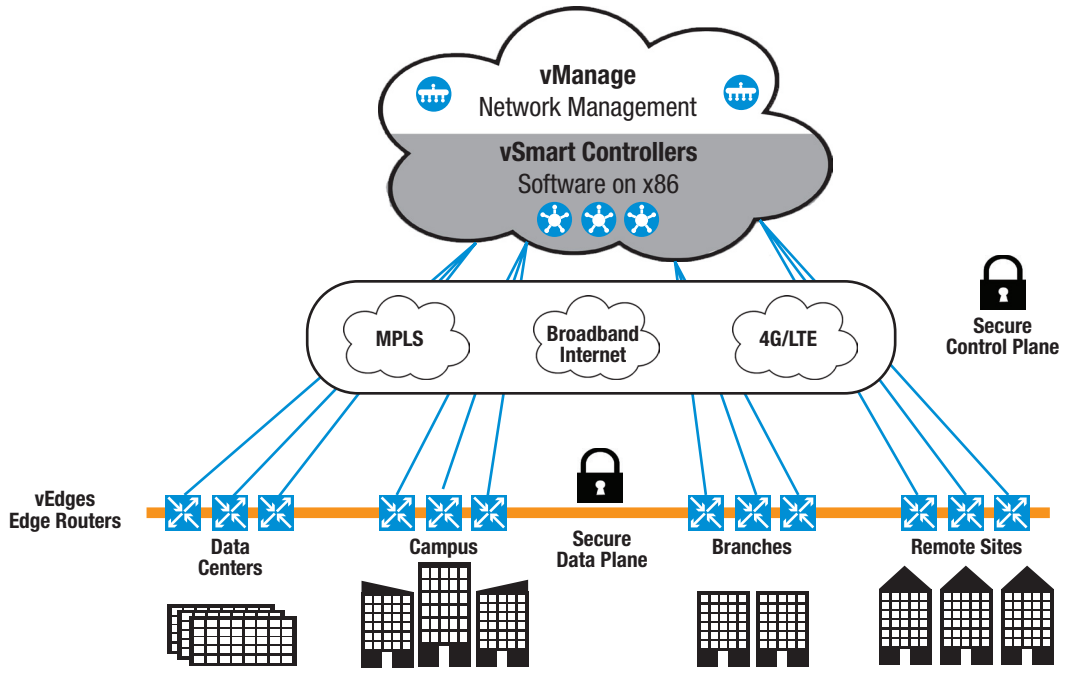
What we have today is a vibrant — even somewhat chaotic — SD-WAN market made up of smaller, pure-play entrants; WAN optimization specialists repurposing and extending their technologies; and established network equipment vendors looking to maintain market share.

Fortunately for partners, the most significant distinctions among SD-WAN products aren't technical, but in deployment and sales structures.

Many vendors use a SaaS model by operating a cloud-based management and policy controller, while others provide on-premises software (typically as a virtual appliance) for DIY deployments. Some vendors, like TELoIP, provide a white-box service and unlabeled appliance that partners can brand and bundle into their own service portfolios; customers don't know (or care) who provides the underlying SD-WAN product.

SD-WAN vendors also sell to carriers and ISPs that offer SD-WAN as a packaged service. For example, CenturyLink's SD-WAN plan includes contracts with Charter Communications, Cox Communications, Time Warner and Comcast to resell their broadband services. VeloCloud Networks recently signed agreements with AT&T, EarthLink, TelePacific and Sprint to provide the technology for managed SD-WAN services.

Typical SD-WAN Architecture



Source: Viptela

Olen Scott, vice president of partner channels at EarthLink, says his company was looking for ways to exploit internet connectivity yet provide a private network experience for its customers. Scott calls SD-WAN, "the great enabler for broadband in the enterprise" that allows organizations to replace "skinny T-1s with high-capacity, affordable bandwidth."

Scott says he doesn't see channel demand for white labeling since it requires partners to have the personnel and expertise to handle front-line support. Instead, he says partners and enterprises want to buy SD-WAN as a service with minimal upfront investment and outsourced infrastructure management. That may be so, but if white labeling is of interest, deep support may well be provided by the SD-WAN vendor, so don't write that option off.

MARKET REALITIES

Why is SD-WAN taking off like a rocket? Increasing business use of the cloud, whether for SaaS applications or IaaS servers and storage, along with a "mobile-first" outlook by both employees and customers, have dramatically changed network traffic patterns. In fact, Cisco says that in 2015, PCs accounted for 53 percent of total IP traffic, but by 2020, PCs will account for only 29 percent of traffic. Smartphones will account for 30 percent of total IP traffic in 2020, up from 8 percent in 2015. Other estimates conclude that between 40 percent and 80 percent of external enterprise network traffic originates from or goes to the public internet, with the remainder traversing private WANs.

This shift, coupled with an explosion in overall WAN traffic, is fueling demand for SD-WAN. Cisco says IP WAN will grow at a compound annual growth rate of 6 percent, compared with 21 percent for fixed business internet and 47 percent for mobile business internet.

IDC projects that 70 percent of enterprises will use SD-WAN by the end of next year and that the SD-WAN market will grow to $6 billion in sales by 2020. While that's still a small fraction of the trillion-plus-dollar market for communications services, it's going to be a bigger deal for some verticals.

Gartner estimates that 500 to 1,000 organizations are deploying SD-WAN now. Most are large, distributed enterprises in North America; the technology is particularly popular in retail and financial services. Like IDC, Gartner expects very rapid growth, with SD-WAN sales doubling in each of the next three years, with 30 percent of enterprises using SD-WAN by the end of 2019.

Growth like that makes for a compelling business opportunity for partners. Indeed, Scott says that before EarthLink's SD-WAN service officially released in late October, he already had a deal pipeline in the millions of dollars. Opportunities for 50- to 100-location implementations come in daily.

MAKE THE SALE

One thing most customers know all too well: The price and performance of traditional data circuits have not kept up with their needs.

Sure, it's possible to get customers gigabit-per-second Ethernet service in most metro areas, at least at major office and retail locations. But it will cost a fortune. Compare that with business broadband links that can scale from 100 Mbps to 1 Gbps (for details, see our report on DOCSIS 3.1, the technology enabling widespread gigabit cable services) paired with SD-WAN service — the same speed at a fraction of the price.

But cost savings aren't the only selling point, even as compelling as they are.

A recent IDC survey found that consistent security and reduced complexity are just as important as price in motivating customers to consider SD-WAN. As IT moves applications and infrastructure to the cloud, the ability to centrally control network access policies over encrypted links is a compelling benefit and one that you should stress to customers, given the current threat versus cybersecurity talent landscape.

An underappreciated benefit of SD-WAN is the ease and speed of deploying new capacity using broadband circuits versus the snail's pace of getting a new T-carrier service. Even though customers might be locked into a long-term carrier contract, Scott says SD-WAN allows customers to rapidly increase capacity and improve reliability while piloting the service by, for example, adding a second broadband link to an existing T-1 instead of undertaking a time-consuming circuit upgrade.

Hint: He says showing network reliability by streaming video over an SD-WAN and pulling the plug on one of the interfaces while the stream doesn't miss a beat is a killer demo that often closes the sale.

DELIVER THE GOODS

Partners have a variety of ways to deliver SD-WAN, with decreasing levels of investment, staffing and expertise:

- A mostly DIY service in which the partner works directly with an SD-WAN vendor like Cisco, Citrix or SilverPeak to deploy endpoints (either branded or white box using someone like TELoIP). The partner either operates or rents the controller software and is the front-line point of customer support.
- A hybrid in which the partner uses a pure-play network-as-a-service provider like Aryaka, CloudGenix, VeloCloud or Viptela. The provider manages the controller, with the partner providing device provisioning and service management.
- A reseller relationship with a carrier or ISP to provide SD-WAN that the partner builds into its portfolio and bundles with other services. The carrier handles all aspects of SD-WAN management.

Partners who don't want to make the investment required to white-box an SD-WAN product and would rather work as distribution agents for larger network service providers can still wrap value-added services around the base SD-WAN product. For example, consider bundling and managing broadband, telco or wireless network provisioning and billing; adding network security and monitoring services; or bundling network applications, such as VoIP or videoconferencing.

EarthLink's program requires that partners complete on-site training; however, that entitles partners to financial incentives, sales resources and service demo kits (a small number of limited accounts used for client demos and testing). Similarly, Silver Peak, Talari, VeloCloud and others have channel programs that provide sales tools, training, support, product demos and co-sponsorship opportunities.

Regardless of the model, most SD-WAN vendors, ISPs or network-as-a-service providers have partner programs that facilitate both sales and service implementation.

In fact, SD-WAN could be a boon for cable companies that have seen resistance from business customers reluctant to use broadband. Our 2016 Cablecos & The Channel: State of the Market survey shows cable companies are increasing their market share in the commercial accounts business, and SD-WAN should help that trend accelerate.

RECOMMENDATIONS

SD-WAN offers partners an opportunity to add compelling, high-value services with recurring revenue. The cost and reliability benefits and low-overhead provisioning and management make SD-WAN an easy sell to clients, while cloud-based controllers and zero-touch endpoints mean partners can incorporate SD-WAN without significant capital or personnel investments.

As a software-defined service, SD-WAN is extensible and provides upsell opportunities for other network services, such as security, content management and remote access VPNs.

Now that you understand the technology and business prospects, map your strategy:

- Investigate SD-WAN options from your existing strategic network equipment and service vendors. Most have either launched a service or are partnering to do so. For those looking to provide a fully branded and managed service, consider turnkey products with strong partner programs from SD-WAN specialists like Aryaka, CloudGenix, Talari, TELoIP and VeloCloud.

- Identify two or more cable broadband providers in each of your service areas with offerings appropriate for SD-WAN. Also investigate data plans for wireless carriers you work with to ascertain the feasibility and cost of wireless LTE backup circuits in some situations, such as retail, remote construction sites and agriculture. Find a plan for provisioning LTE for backup in this report.
- Don't evaluate just the features in any SD-WAN offering. Focus on the pricing and service model and how it can be wrapped into your service portfolio. For example, although broadband carriers are introducing their own SD-WAN services, you may want to maximize flexibility by wrapping a stand-alone SD-WAN product and cloud management SaaS application with network services that you procure for customers into a comprehensive MPLS-like network service.

The greater your network design, management and procurement expertise, the more customization and integration you can do on your SD-WAN service. And that spells higher margins and greater stickiness.

Related Reports

Cablecos & The Channel: State of the Market 2016

Channel Partners' sixth annual survey of channel partners' interest in — and challenges with — selling cableco telecommunications services to businesses revealed some interesting shifts. This Report provides full year-over-year comparisons of partners' perceptions of and experiences with cable business telecom services.

DOCSIS 3.1: Enter the Gigasphere

There's never been a networking need that couldn't be satisfied with more bandwidth, and the cable industry is ready to oblige with gigabit fiber networks via a significant technology upgrade. This Report examines why DOCSIS 3.1 is the answer for truly widespread gigabit service.

5 Business Needs Where Fiber Is a Must-Have

This Report looks at five application categories where fiber is essential in obtaining the necessary speed, performance and reliability for businesses to optimize application performance and employee productivity — and that represent a significant growth market for partners who can deliver those applications on top of a fiber deployment.

Private Direct Connects: Fast Lane to Cloud

Using cloud services for business once meant traffic jams as critical packets competed with Netflix movies and cat videos. No longer. Private Ethernet connections from Amazon Web Services, Microsoft Azure and others let you build an "express lane" and put customer traffic in hyperdrive.