SD-WAN: A Branch Office, Remote Site Savior

By Kurt Marko

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Channel Partners™

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Table of Contents

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About the Author

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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: A Branch Office, Remote Site Savior

SD-WAN IS EXPLODING IN POPULARITY, FOR GOOD REASON. A NEW REPORT FROM DELL'ORO GROUP SAYS

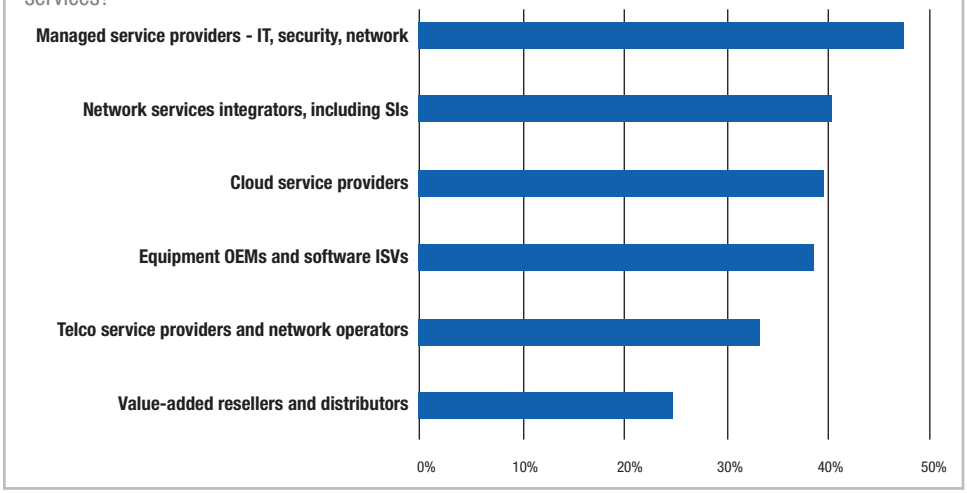
to expect 33 percent CAGR through 2021, when software-defined WAN revenue should reach $1.3 billion. IDC adds that while just 27 percent of midmarket and enterprise respondents had implemented SD-WAN in 2016, fully 92 percent had it on their road maps; the analyst firm estimates that SD-WAN products and services together will generate $6 billion in revenues by 2020. A separate IDC study lays out the top drivers: consistent security, price and reduced complexity.

What rosy market projections don't show is the rocky road that some customers will take to SD-WAN nirvana. It's a rare company without challenging remote sites, lingering MPLS contracts and specialized application or compliance requirements. This is where the channel adds value. IHS Markit's SD-WAN equipment and software market estimates track with Dell'Oro Group's and imply that most of the money will be made bundling a hybrid connectivity strategy with SD-WAN control and security.

Partners need a range of WAN connectivity options in their portfolios as well as value-added services, tools and expertise to help customers bundle multiple connection types — business broadband, T-carrier, MPLS and wireless, whether LTE or satellite — into links that are logically consolidated into a single virtual circuit and centrally managed with a consistent set of policies.

Enterprises Trust MSPs

How confident are you in the ability of the following service providers to deliver next-gen network services?



Source: Ovum

Customers are certainly feeling the remote-site pinch. One more analyst insight: A survey conducted by Enterprise Management Associates for Cisco shows that 82 percent of enterprises are increasing the number of WAN-connected sites, and 84 percent support more endpoints — PCs, tablets, mobile phones and IoT devices — at remote locations. Add the exploding use of cloud services, which makes it costly and challenging to scale legacy WAN topologies that tunnel all remote internet connections over a private MPLS circuit, and customers badly need hybrid WAN design alternatives.

Among EMA survey respondents augmenting WAN capacity, 74 percent plan to replace MPLS and other managed WAN services with the internet for primary network connectivity, while 96 percent are using wireless for primary WAN connectivity at some sites.

If you need a primer on the core technologies that comprise SD-WAN, download our Seller's Guide. In this Report, our focus is on using a hybrid WAN to provide business-class features, security and connectivity to locations where it's prohibitively expensive to deploy traditional circuits — a prime SD-WAN selling point.

3 Prime Uses for Mixed WAN

Don't limit your sales collateral to supporting branch offices. Yes, customers are pulling servers and storage out of branches and consolidating application and file access to centrally operated systems, and they need to ensure an office full of lawyers or accountants isn't sitting idle for hours since they can't access client records or communicate with colleagues. But also consider:

- **Retail sites** share many characteristics with branch offices, such as the need to access central databases and applications along with cloud services. However, they often have some important differences. Locations such as truck stops, convenience stores or golf courses can be in rural areas where business network services aren't available. They still need to securely connect to third-party credit

card, credit check and monitoring services to process payments, while often needing the ability to provide customers with a public hot spot. Ideally, each of these networks is logically separate and securely isolated from one another while sharing the same physical WAN links.

- **Construction, agriculture, mining, and oil and gas extraction sites** are often far from conventional business WAN coverage. Many have no wired service available whatsoever, yet they need access to enterprise data and applications. The digitization of most business processes, such as HR, finance and documentation, makes it impossible to operate without a WAN circuit, while the expense of servicing distant and often temporary locations means paying to install a custom wired circuit is a nonstarter.
- **Transient work locations** may have serious connectivity needs. You've undoubtedly seen ads using the stark white landscape of the Bonneville Salt Flats as a backdrop. Like many video sites, it's out in the middle of nowhere and only has cell service due to its proximity to Interstate 80. In such remote and transient situations, SD-WAN is the only feasible way of providing reliable, secure connectivity. Indeed, one colocation provider has published a solution guide tailored for remote media production.

While we're focused on remote sites, remember that there are central office and data center components involved in managing the configuration and security of virtual circuits while intelligently routing traffic over public networks. While VPNs over broadband circuits have traditionally been used to provide enterprise connections in hard-to-reach locales, they can be tedious to manage, particularly with intermittent connections, and many sites are beyond the reach of any wired network. With the spread of LTE, now available over 85 percent of the time in the United States at speeds averaging 15 Mbps, cellular networks have become a viable option for remote connectivity. In those spots where it's unavailable, providers like Hughes, ViaSat

Smart SD-WAN Bundles

The decision to deploy SD-WAN is seldom made in a vacuum. These efforts often accompany other strategic IT initiatives, particularly:

- Infrastructure consolidation from branch offices to central data centers
- Shifting in-house workloads to a public cloud service, whether IaaS or SaaS
- Unified communications and fixed/mobile convergence to consolidate voice (land and mobile), IM, audio/video conferencing and desktop sharing on a single data connection
- Business continuity by adding redundancy to remote site networks
- Shifting to cheaper, more agile alternatives to MPLS as contracts end

and others provide surprisingly fast data links; ViaSat says its new satellite will provide a minimum of 25 Mbps and up to 50 or 100 Mbps. It currently promises 18 Mbps downstream and 5 Mbps upstream. Many cruise lines now use SD-WAN with satellite uplinks to provide Wi-Fi networks for both the crew and guests.

Wireless connections might have solved the availability problem, but they still suffer from reliability, consistency and quality of service issues. Cell connections can stutter, and geosynchronous satellites add latency. On their own, neither provides the ability to control QoS, optimize TCP traffic, bond circuits into aggregated and load-balanced virtual networks, control transport security or centrally manage network policy. Hybrid WANs with SD-WAN management provide all of this and more.

Remember: What makes a hybrid WAN "software-defined" is the logical separation of network data and control. That means the network controller can be anywhere, including the cloud.

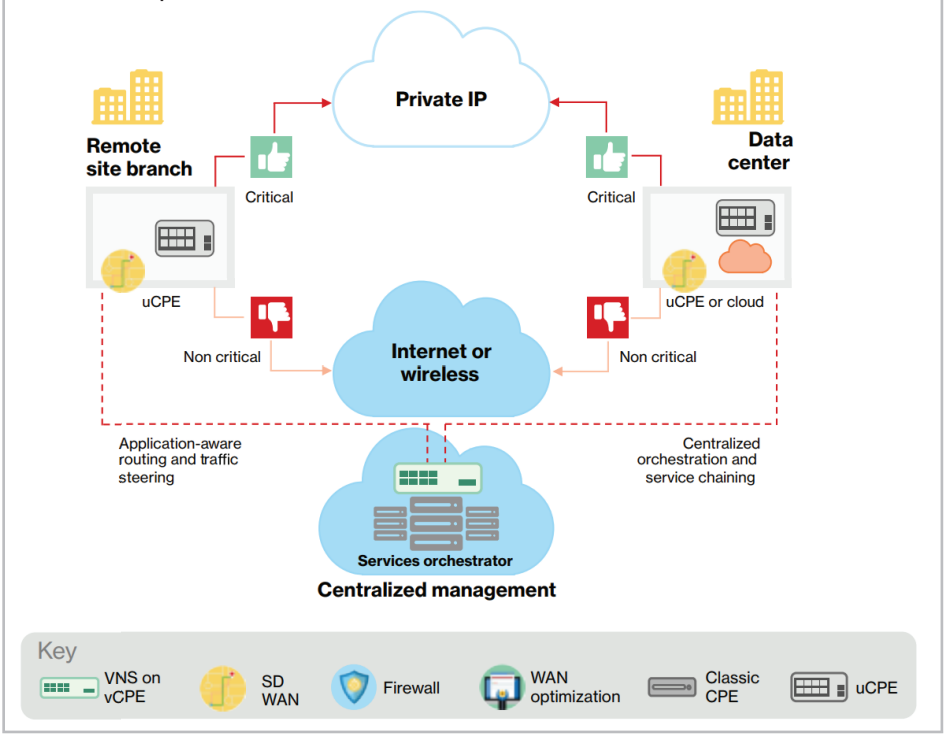
Customer and Partner Benefits

Aside from being able to create MPLS-class service over a collection of alternate circuits and much greater management flexibility, pairing heterogenous circuits and SD-WAN for remote site connectivity provides:

Zero-touch provisioning and administration: SD-WAN endpoints can be installed, activated and managed without rolling trucks to far-flung locations. With preconfigured hardware and central management software, all local employees need do is connect

Hybrid WANS: Complex but Powerful

Partners that can smartly route workloads over the proper connections can lower costs and increase performance for remote sites.



Source: Verizon

power and a network cable (or an LTE modem). Central control of all SD-WAN links allows IT to maintain consistent access, security and traffic prioritization policies across a heterogeneous set of WAN circuits without adding admin overhead.

Capacity to quickly scale: Unlike conventional MPLS service, broadband providers can typically increase capacity over the phone. Alternatively, customers can deploy a second or third provider, such as DSL and LTE, to supplement a primary cable or T-carrier circuit. With SD-WAN, these can quickly be aggregated into a larger virtual circuit that uses intelligent traffic routing policies to optimize the flows over each. For example, an organization might reserve a percentage of bandwidth on the primary circuit for VoIP traffic to ensure that employees always have good phone connections regardless of what else is traversing the WAN. Likewise, backup data can be set to low priority and transmitted without interfering with other traffic.

WAN management as a cloud service: Some carriers, often using products from VeloCloud, and specialized network-as-a-service providers such as Aryaka, Cato, Cradlepoint and Masergy offer, through partners, managed SD-WAN services using a global cloud backbone and multiple POPs for traffic routing and endpoint management. These typically use an inexpensive device that connects to the service over whatever broadband connections are available at a local site.

Security & Compliance

Hybrid WANs pose challenges for regulated companies. Partners should ensure the SD-WAN solution they use enables path selection to route data over the transport service that matches its security and performance requirements. In addition, look for:

- Application-aware routing with the ability to keep certain data and applications off the internet
- End-to-end AES-256 encryption and application segmentation capabilities
- The ability to establish uniform application QoS and security policies aligned with business needs, push them out to branch and remote sites, and ensure they're applied no matter the connectivity method
- The ability to work with existing security appliances, whether on-premises in the data center or remote site or in the cloud

Supplementary network services: Like any SDN, SD-WAN enables the insertion of application-layer virtual network services such as security, WAN optimization and content delivery; many of the aforementioned providers offer these as options. For example, Aryaka recently integrated a dynamic CDN into its SmartACCESS service that can significantly accelerate content staged at one of its POPs. Cradlepoint NetCloud enables mobile clients to establish VPN connections to the enterprise network using any public broadband connection, whether a hot spot or cellular.

The Role of the Channel

In a recent blog post, Andrew Lerner, vice president of research for enterprise networking at Gartner, stated that SD-WAN is going mainstream, with the consultancy estimating 6,000-plus paying SD-WAN customers with more than 4,000 production implementations. Lerner lists some challenges — functionality gaps, including 4G/LTE capability and IPv6 support; lingering hardware requirements; and added technical debt and complexity due to heterogeneous connections.

That's where the channel comes in. For partners with the skills to overcome these issues, SD-WAN can significantly expand the geographic reach and service depth of their network offerings. Furthermore, you can shield customers from the complexities of dealing with multiple carriers by bundling the charges into a comprehensive WAN service offering.

The most important partner benefit of SD-WAN is on the bottom line. The technology enables partners to deliver higher-margin network services to more customers and geographies with faster delivery and higher reliability at lower net cost with less overhead and more efficiency.

Selling Strategy: WANs Under Stress

Increasing use of public cloud is an important incentive for WAN updates because these services place added load on already busy circuits. A Gartner report finds that backhauled internet traffic represents 50 percent to 80 percent of overall traffic on MPLS networks, with the added traffic exacerbating end-user frustration with enterprise WANs. The same report notes that only 34 percent of business execs describe their WANs as "good enough," while between 13 percent and 16 percent, respectively, say that it's "too expensive" or "brittle and slow."