**streamNetworks**
Connect Communicate Collaborate

Insight Guide into the Adoption of SD-WAN

This guide is firmly focused on the more pragmatic elements of dealing with legacy Wide Area Networks (WANs) and transitioning over to cloud-enabled, software defined and high-speed, wireless WANs. Technology that can be rapidly deployed to deliver cost savings, better connectivity and greater control.

Software-defined WAN (SD-WAN) is the future. This guide will enable you to assess your own position and understand whether you are ahead of the curve or falling behind in the implementation of new enterprise WAN architectures.
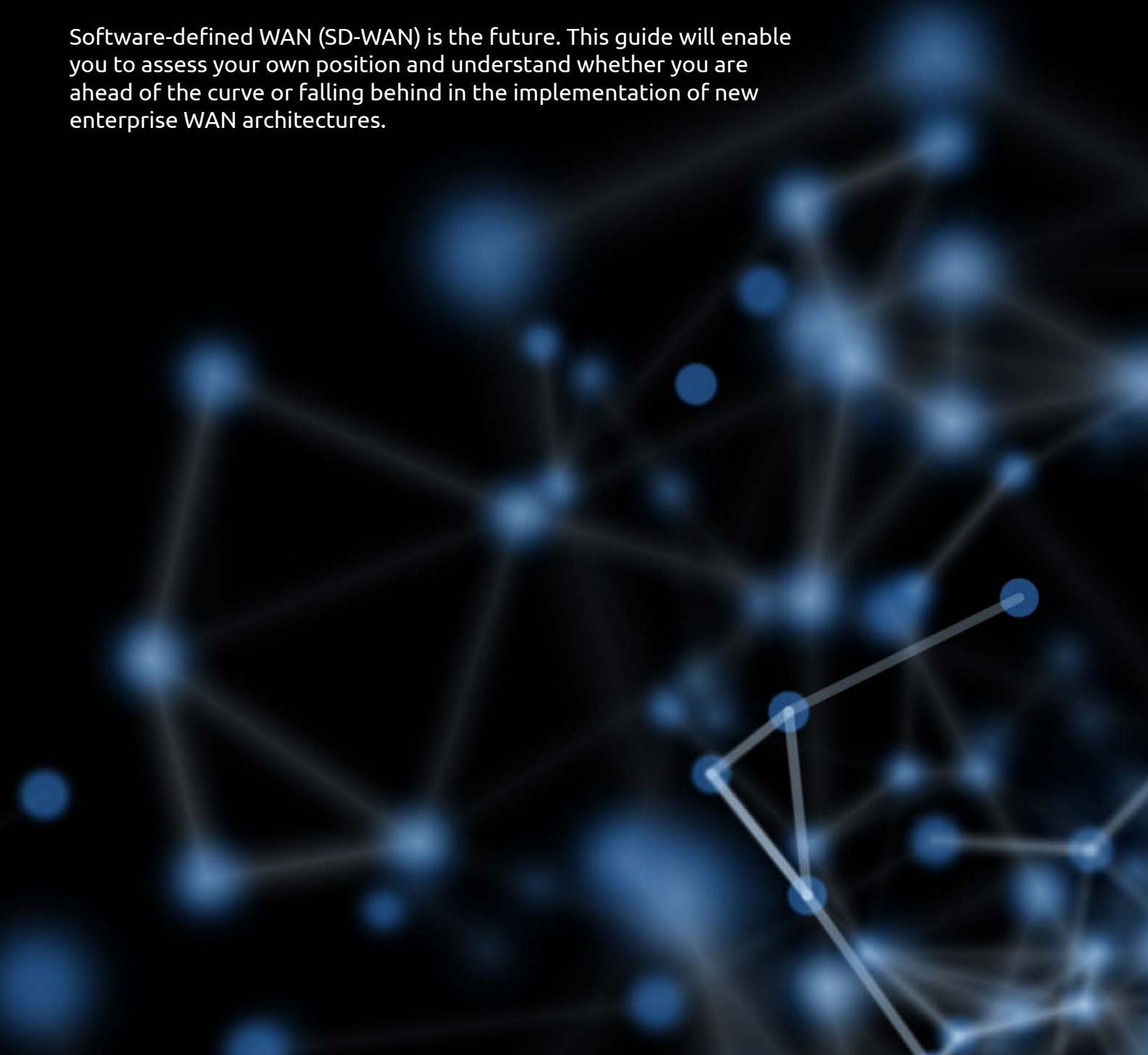
Why SD-WAN? Why now?

Businesses and organisations of all sizes are being challenged to extend their networks to more people, places and things than ever before. The rise of cloud, SaaS, mobile devices, and Internet of Things (IoT) technologies are forcing more network traffic over the public Internet and creating a greater dependency on high-speed wireless access.

As a result, IT organisations are extending and revamping their legacy WANs to address the demand for more bandwidth, mobility, agility, and security — all while reducing operational costs.

This shift is being felt in IT across virtually every industry.

What's becoming increasingly clear is that legacy WANs, which are predominately based on wired, hardware-defined and resource intensive infrastructures, can't keep pace with the rapidly changing needs of today's lean and agile connected enterprise.

So where exactly are we on this transformational journey from legacy WANs? There has been little change over the last twenty years so how do we get to the promised land of cloud-enabled, software-defined, and high-speed wireless communications-pervasive WANs that are equally adept at connecting people, places and things?

To shed some light on that question, Stream Networks has created this guide to software-defined WAN (SD-WAN).

The Definition

SD-WAN uses software based virtualisation that enables network based abstraction which results in simplification of network operations. Simply put, SD-WAN uses Cloud based software to allow IT and Business Managers to deploy and manage internet based connectivity.

The guide can act as a benchmark for IT teams to understand whether they're ahead of the curve, right on track or falling behind in the implementation of new enterprise WAN architectures.

How does it work?

Software Defined Networking is not new. Software Defined Networking and the technology behind it has been with us for a while and can be found in many different guises. Software Defined Networks virtualise resources to provide accelerated services delivery, better performance and improved availability by automating network deployment and management.

SD-WAN provides a software abstraction to create a network overlay and decouple network software services from underlying hardware WAN circuits. As a result of this new abstraction, IT managers have greater control and can manage networks easier than before.

SD-WAN uses SSL VPNs (in conjunction with GRE tunnels if you are using bonded technology) and allows networks to be managed from the Cloud. Instead of having to talk to your service provider every time you want a network change, SD-WAN allows you to log on to a controller within your provider's network, make the change yourself and deploy it across your whole WAN. Because the technology uses SSL VPN there is no need for complex site to site VPN tunnel set-up and management, instead the SD-WAN controller manages all the devices in your network.

OK, so why can't you do this on your existing set up?

+ Complexity - Legacy solutions require expensive subject-matter experts to provision, maintain, troubleshoot and deploy. New applications are then often delayed by months waiting for corresponding network challenges, or worse, not approved for fear of changing a complex network infrastructure.

+ Visibility and Security - As more traffic moves off the private network and over the Internet, maintaining both application and user performance and security becomes challenging as IT teams can't protect against what they can't see or control.

+ Flexibility - In an increasingly digital and competitive world, enterprises often need the ability to grow, seize new opportunities or shift directions quickly. Legacy WANs are complex and require long provisioning cycles, and their lack of

policy integration requires lengthy security reviews, especially when deploying security-sensitive applications like Point-of-Sale and Guest WiFi.

+ Cost - For organisations with distributed offices and mobile workforces and companies that work in particularly remote or rugged locations, provisioning wired connectivity can be expensive if not impossible; getting enough bandwidth to keep business moving during peak usage periods can be downright cost-prohibitive.

The go-to tool for Internet connectivity has been MPLS or IPSec Virtual Private Networks (VPNs). However, these have proven to be clunky, complex and frustrating for users. They also hamper productivity because they require repeated logins, are not always available on all of the user's devices, and often drop connections when the user is transitioning between WiFi and mobile connectivity. The most frustrating aspect for network administrators is to manage these aged technologies day-to-day, as they typically require meticulous, ongoing monitoring.

These challenges, among others, are fuelling the shift to incorporating high-speed wireless communications, software-defined technologies, and cloud managed wired and wireless WAN with virtualisation and integration of common network services, like security and DNS.

So what does SD-WAN bring to the table?

+ Rapid deployment - Quickly setup services such as bandwidth and firewall from a simple Control Panel application, eliminating the time and expense of sending engineers to site.

+ Cost savings versus MPLS - Enjoy secure and sophisticated WAN services at costs associated with entry level internet connections.

+ Elimination of expensive traffic weighting - Define and prioritise traffic over the network from a simple application.

+ Control of their network - Nobody knows your network as well as you, with SD-WAN you can control and administer the network to match your desires and needs.

+ Create a Hybrid Environment - If you aren't ready to truly overhaul your existing WAN/MPLS network, utilise Hybrid SD-WAN by migrating traffic and connections over time.

+ Enjoy new and advanced connectivity mediums - Wireless communication networks have been battle tested by consumer smartphones and tablets in a highly competitive market. This competition drove lower costs and improved performance, as a result, wireless communications are now high speed, robust and pervasive.

+ Bond Connectivity - Combine connectivity mediums such as 4G and DSL for resilience or if you are in a location where it's difficult/expensive to deploy Ethernet or fibre connectivity.

Next steps

To fast-track a conversation, simply click on the link below to send us an email and one of the team will call you back straight away.

[Please call me to discuss SD-WAN](#)

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About Stream

Stream Networks has been built for business use, enabling our customers to leverage the power of our 10Gb network capacity and benefit from our peering agreements by lowering costs and increasing bandwidth.

Our core is built using Cisco and Juniper to provide a fully meshed network between four key UK datacentres, at which point we extend our footprint with our peering agreements and connections into the major carriers. Our network is managed and monitored 24x7x365 to ensure your business stays connected.

With a significant capital investment in our high availability cloud infrastructure (which continues to grow each year), businesses are able to realise the benefits of moving computing to the cloud whilst knowing their data is secure, UK-based, and available 24x7x365. Based in our core UK datacentres, each cluster is designed to provide 100% uptime, and comprises the latest in replicated storage arrays, network capacity, and processing power, all built using vMWare's HA hypervisor.