Whitepaper

Six expert tips to optimize performance with a switch to SD-WAN

expereo

Helping you achieve a successful network transformation

The past couple of years' upheaval has shown enterprises that nothing in business is certain. The need to mitigate unpredictability has accelerated digital transformation, the move to cloud computing, and cemented hybrid working. However, in terms of connectivity, MPLS has shown itself to be too expensive and inflexible to meet these demands. This is where SD-WAN comes in, designed to deliver the agility that today's enterprise networks need.

In all its guises, the cloud will play an even greater and more dominant role across the IT industry as enterprises pivot to a digital-first economy, according to IDC.* To ensure maximum value from the cloud, enterprises must choose the best connectivity model and service provider to meet their business requirements.

Internet connectivity, in most cases, satisfies this need as it is ubiquitous, accessible from almost anywhere, easy to set up, and cost-effective. However, as a public network, it has flaws in terms of latency, availability, and performance.

Software-Defined Wide Area Networking (SD-WAN) overcomes these challenges by leveraging any transport service, including the Internet, to connect users and applications from any location.

*IDC Futurescape Worldwide 2022 cloud predictions

Demystifying SD-WAN

SD-WAN is a way of using software to make WANs smarter and more agile. Traditional WANs use physical routers to connect remote users to applications hosted in data centers. SD-WAN basically separates the underlying network hardware from the management and control processes and makes them available as software. This makes for fast and easy configuration and provides centralized visibility of the entire network. Alongside the Internet, any transport type, including MPLS, cellular, and satellite, can be used.

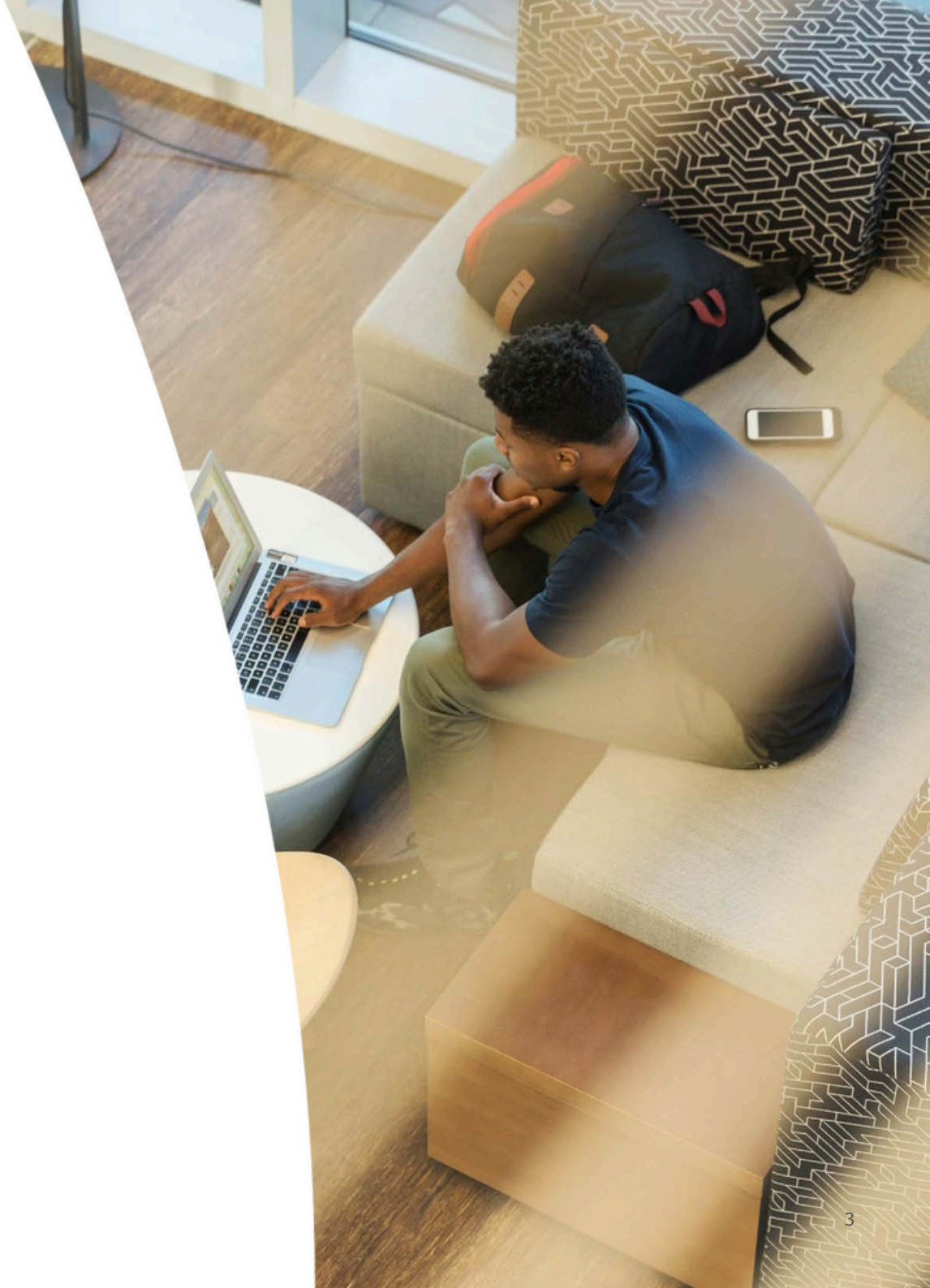
In addition, SD-WAN can aggregate last-mile services combining all the transport links into a single pipe to improve performance and resilience. Centrally managed, the WAN can be sliced to match application requirements. For example, high availability and low latency are vital for voice traffic. Traffic is automatically sent across the most appropriate link using pre-defined policies based on business rules.

SD-WAN can provide lower costs and greater bandwidth efficiencies, seamlessly on-ramping to the cloud while delivering a high level of security.

IDC European investments in public cloud

European spending on public cloud services will reach $113 billion in 2022 and double to $239 billion by 20268

*IDC European investments in public cloud



Welcome to the Intelligent Internet platform

Six tips for a seamless SD-WAN transformation

With 20+ years of experience creating high-performing Global Internet networks and extensive experience in deploying and managing SD-WAN networks, our experts suggest six tips for a successful network transformation.

1. Will it be necessary to retain MPLS?

The simple answer is you can choose. SD-WAN is transport agnostic, so if you want to retain MPLS, you can. This means that you can migrate to SD-WAN gradually. Alternatively, you can keep MPLS to support applications you retain in the data center, while running SD-WAN and using Internet connectivity for most sites.

If you cannot move directly away from MPLS right now, then consider a phased migration. MPLS connections can slowly be replaced by inexpensive Internet links, with both integrated into the same SD-WAN infrastructure, without any downtime or network deterioration.

To help you make the right network migration choices, Expereo runs a consultancy service to review your entire network and understand your business needs and the best technologies to address them. In addition, we provide support for every step of your MPLS migration.

2. Choose the right connectivity for each site

Enterprises will inevitably have multiple types of sites, be they head offices, branch offices, retail stores, or factories, which different connectivity demands. This needs to guide your choice of Internet service providers (ISP). The most appropriate connectivity for each site will depend on its function and location. Look at the applications necessary for daily operations in each location, where they are hosted, and the impact connectivity has on performance.

Next, look at what level of connectivity diversity you need to ensure business continuity. What impact will it have on your business if the site goes down? The minimum level of network diversity uses two different ISPs so that if one service goes down, you have another one to keep your organization running.

But for important sites, you might need to ensure that your ISPs use different points of presence (PoP) in case that fails. And the most business-critical sites will require completely different network paths into the site, such as Fixed Wireless Access, different last mile loops, and even mobile broadband as backup links.

With relationships with 3,600 ISPs in 190 countries, Expereo can help you make the right choices and manage these multiple providers on your behalf globally.

3. No two countries are the same when it comes to connecting

You will face additional connectivity challenges when your business is international and crosses borders. For example, performance issues are common in areas with patchy network coverage, such as South America or Africa. It may also be difficult to procure multiple reliable connections to the site, which leaves satellite as the only alternative in some cases.

And there are also many national regulatory issues.

For example, in China, where the three major telcos don’t have solid peering agreements, you may come up against latency problems and a disjointed user experience. In addition, any internet traffic will be affected by the Great Firewall of China, unless it is routed via an SD-WAN encrypted tunnel to a different site in another jurisdiction.

Expereo’s consultants can help you meet these requirements at the network design stage and build a high-performing global network.

4. Look to optimize inter-site traffic out

Deploying SD-WAN technology does not guarantee good connectivity between your global branches. SD-WAN ensures operational agility and visibility over your network, but no amount of bandwidth or automation can fully overcome underlay performance issues, especially regarding business-critical traffic.

Unfortunately, SD-WAN can't always mitigate latency issues that can affect inter-site traffic such as collaboration, but the solution does offer WAN optimization, which allows you to make the best use of limited bandwidth across the WAN link. This can be done via various techniques, including compression, caching, and deduplication. The latter eliminates repetitive data transfers for a more efficient data stream.

Other steps to enhancing performance include limiting the time employees can access bandwidth-hungry applications such as YouTube. Expereo can help you categorize traffic to ensure that business-critical applications have priority over the network.

5. Ensure you enhance your cloud links

Enterprises must deliver increasingly rich cloud applications to users in the fastest, most reliable, and most secure way possible. However, it is not a simple case of "lift and shift". For example, performance can be impacted depending on the user's location in relation to the data center. Without optimizing your cloud links, you may be disappointed in the results of your cloud investment.

Optimizing your cloud links ensures that business-critical applications are prioritized over other traffic, such as email. When it comes to routing traffic, however, the shortest route isn't necessarily the fastest. Internet routing relies on the BGP protocol.

BGP is designed to be simple and scalable, and is not smart enough to consider optimized routing. To overcome the limitations of BGP, add an optimization layer that can test and identify optimal routes over the Internet and override the default "lowest hop-count" BGP routes. Expereo's Enhanced Internet service has been developed to optimize BGP with performance and traffic analysis, detecting any abnormal routing scenarios in real-time and adjusting accordingly.

Our Enhanced Internet IP nodes are precisely mapped to the Data Center footprint of major cloud providers to maximize coverage and enable us to cater for the use cases and locations that your business needs us to deliver.

6. Does SD-WAN provide the same security as MPLS?

Security is a priority in every boardroom discussion today, especially with cyber-attacks on the rise. MPLS is partitioned from the public Internet and in essence acts as a virtual private network, which offers some protection, while SD-WAN protects traffic via encryption for site-to-site traffic across the public Internet. SD-WAN, however, usually needs an additional layer of security for Internet and public cloud traffic.

Expereo offers various solutions that provide cloud-based security to protect Internet traffic without impacting the user experience. They enable zero trust everywhere for all users, devices, servers, and IoT/OT regardless of location.

Zero trust shifts implicit access to explicit access per application based on continuous identity and context validation. Our security solutions also benefit from centralized management for enhanced visibility. And in many cases, they seamlessly integrate with SD-WAN to create a full SASE solution.

Expereo is the world's largest provider of managed networks, SD-WAN, SASE, and cloud connectivity solutions.

To find out more about how Expereo can help you to transition to SD-WAN, click the button below.

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