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Automating the Wide Area Network

Why you need an SD-WAN: flexibility, agility, manageability, savings

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1   Time to rework the WAN

Infrastructure. The very word suggests static solidity. Much like roads and railways, hospitals and schools, WANs have traditionally been built to meet particular needs, and then developed only very slowly, over months or years. In common with their major infrastructure counterparts in wider society, WANs typically demand very significant investment, as well as long term commitment of financial and human resources.

Given such characteristics, it's not surprising that the focus in WAN infrastructure management has been much more on keeping services running than on swift response to business needs as they arise. That's in stark contrast to most other areas of IT. Over the past twenty years we've seen the rise of the Cloud, mobile devices, email, videoconferencing, all manner of offerings "as a service" and, underpinning it all, the Internet itself. The IT backdrop to business in the late 2010s is radically different to that of the late 1990s, when MPLS was introduced. But the WAN plods on, largely unchanged, out of sight and out of mind.

To be successful, businesses need to be nimble and agile, responding quickly as needs and opportunities change. With all aspects of business ever more dependent on IT services, it's time to retire the old, static, inflexible WAN infrastructure, replacing it with a responsive, agile and scalable business communications tool fit for today's needs.

2   A new networking paradigm

The expectations and demands placed on IT departments today are significantly higher than they were when MPLS was introduced and vastly more so than when the now ubiquitous hub-and-spoke model of the corporate WAN first started to gain traction.

Back then, the average office featured such technological marvels as fax machines, dot matrix printers and CRT computer screens. PCs boasted maybe 100MB (that's megabytes, not gigabytes) of hard disk storage, and perhaps 4MB of RAM. The mobile phone was something for stockbrokers, field sales execs and engineers, and all they could do with it was, well, phone people.

Like the consumer world, and in many ways driven by it, the corporate world and its technology demands have moved on, at a startling pace. MPLS and the traditional WAN, however, have remained stuck firmly in the 1990s.

That's in part because of traditional growth models, which, now as then, dictate that once a company reaches a certain size, an MPLS and hub and spoke WAN is the natural next step. Such technologies have in fact become a badge of honour, reflecting corporate maturity and success.

It's also in part due to vendors of these traditional technologies exploiting the complexity of contract end dates, which appear to necessitate extensive double spending should a customer decide to move away from them.

It is, however, amazing that large numbers of organisations continue to entrust critical business communications to such outdated, inflexible and expensive technology.
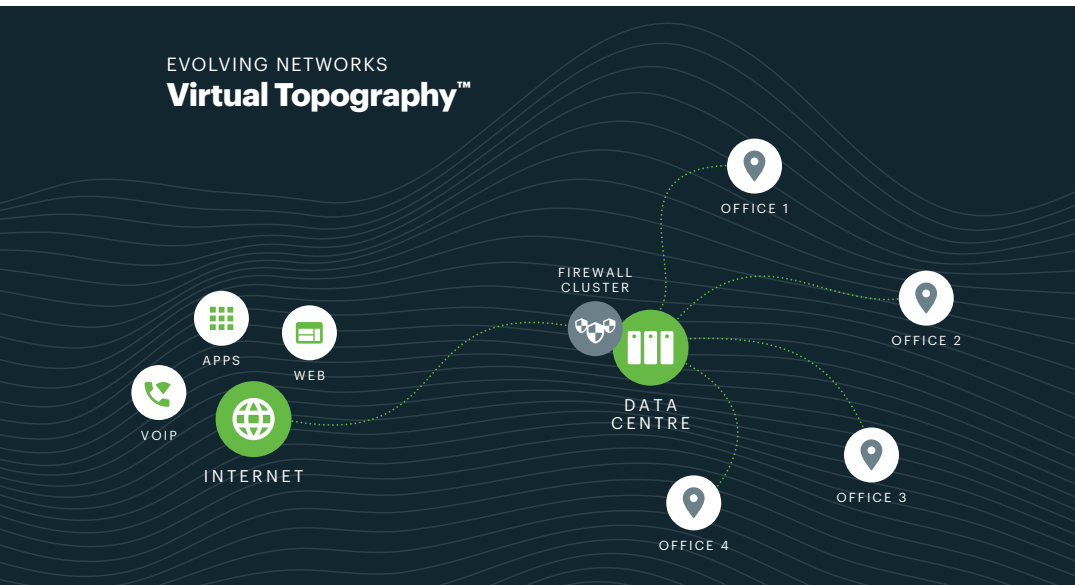
While in the past demands on IT would typically be framed in the context of what the existing infrastructure – essentially a fixed resource – could deliver, the expectation today is that IT will provide what the business demands, immediately, or at the very least with minimal delay. The WAN must deliver what is needed, rather than business making do with what the WAN can offer.

Current uncertainty in the social, political and economic arenas, likely to persist for some time, is compounding the challenge, making long-term and even medium-term forecasting and planning significantly more difficult now than in the past.

There must be a shift in focus

It is essential that the WAN is able to support the wider business as it seeks to react swiftly to opportunities and threats as they arise. To do this there must be a shift in focus, away from keeping a static infrastructure up and running, to delivering the services and resources required by the business. The WAN must deliver reliable connections between individuals and the applications they need to use – consistently, dependably, and wherever those individuals and applications may be.

EVOLVING NETWORKS
Virtual Topography™

APPS
WEB
VOIP
INTERNET
OFFICE 1
FIREWALL CLUSTER
DATA CENTRE
OFFICE 2
OFFICE 3
OFFICE 4

Increasingly that will include applications, data and other resources in the cloud. A typical business network might start out with locally hosted applications and low-bandwidth Internet connectivity. As it grows, applications are often centralised, increasing the importance of WAN connectivity. Today, though, there is a growing focus on Cloud services, tools and resources, with the result that WAN connectivity can be overtaken in importance by Internet connectivity.

In the traditional corporate network, applications sit in a datacentre, accessed over the WAN by users in various branch offices, with Internet access a separate matter. The

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The power of the INF software, linking sites to each other, to the internet, to the datacentre. Connecting users to their applications, wherever they are. And, crucially, able to flex and change at a moment's notice, enabling businesses to redesign their WAN on the fly

closed nature of traditional, MPLS-based WANs does not lend itself well to this growing need for high performance, high availability Internet access, hindering access to those increasingly important Cloud resources.

At the same time as addressing all these challenges, IT departments are expected to cut costs, delivering more for less.

Agility and flexibility

The corporate WAN must therefore evolve, from a pre-set structure that changes only very slowly, into a flexible, easily reconfigurable business tool that can be adapted and morphed to dynamically meet ever changing business needs. Agility and flexibility in the WAN, previously more or less irrelevant, are now essential.

Traditionally, a WAN has usually meant MPLS over leased lines. However, while offering some benefits, the MPLS and leased line approach is costly, slow to deploy, demands long-term commitment, and is inflexible and difficult to scale. It is a classic example of 20th century technology struggling to address 21st century challenges.

The 21st century WAN must not only provide the necessary bandwidth and quality, but also be resilient, agile and flexible enough to deliver against demands which change not only from month to month or week to week, but from day to day or even moment to moment.

3 The way forward

The answer is to address 21st century challenges with 21st century technology.

By applying the datacentre's Software Defined Networking principles to the WAN, a Software Defined WAN (SD-WAN) can be created, realising several significant benefits which address the challenges outlined above.

Key among these is dramatically enhanced flexibility. SD-WAN can manage diverse connection types, including the old WAN standard, fixed Ethernet, but also ADSL, FTTC, FTTP and 4G.. By intelligently managing traffic over multiple physical connections, SD-WAN makes high quality connectivity possible for sites where previously it was ruled out either on the grounds of cost, or of limited connection type availability. Every site can deliver the application performance required, irrespective of any connectivity limitations that may be in play.

By catering for a wide variety of underlying connection technologies, SD-WAN allows organisations to select and deploy the best available circuits for the needs of each site, as well as breaking free of the need to commit to expensive, lengthy, and inflexible leased line contracts.

The right WAN capability now, next year, and in five years' time

With SD-WAN, capacity and quality can be scaled quickly and easily, allowing the organisation to ensure it has the right WAN capability in place now, next year, and in five years' time, without having to over-spec expensive fixed connections to cover possible future needs.

The WAN is dynamically managed by software, allowing connectivity issues to be detected and packets rerouted automatically in the event of network failures. Typically users are completely unaware that any issue has arisen.

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The software-defined nature of SD-WAN allows for the swift, easy, and, critically, remote deployment of new connections, and reconfiguration of existing ones. With a traditional WAN, such changes almost always require manual configuration work, usually performed by an on-site engineer, with attendant costs and delays. SD-WAN facilitates the control, management and monitoring of connectivity at all locations on the WAN through a single, central GUI.

2.5 times less expensive

The savings in time, travel costs and engineering resources can be substantial. Indeed, according to Gartner analyst Andrew Lerner, SD-WANs can be some 2.5 times less expensive than comparable traditional WANs.

Looking beyond simple savings, the ability to make on the fly changes to the WAN through a central management suite also allows the organisation to act and react much more rapidly. From setting up entire new branches to allowing a particular team access to a specific application, network changes no longer need take weeks or months. The organisation can respond to customer demands, achieve regulatory compliance and capitalise on opportunities much more quickly than competitors relying on traditional WANs.

Immediate benefits can be secured

With Evolving Networks, the introduction of SD-WAN can be phased. SD-WAN connectivity can be rolled out to as many sites as desired, according to timescales that suit the business, and, in particular, contract end dates for existing connectivity. With the Intelligent Network Fabric (INF) not dependent on any specific underlying connectivity, immediate benefits can be secured by installing Evolving Networks EVX appliances to manage communications over the existing connections.

As each site's MPLS contract reaches end of term, the old connection can be retired, delivering immediate financial benefits, with the INF being underpinned by connectivity delivered via the Evolving Networks Access Network, delivering immediate functional and operational benefits. This approach completely removes the previously difficult issue of contract end dates – a key tool used by traditional WAN vendors to retain customers on outdated MPLS technology – making the transition from 1990s networking technology to a WAN fit for the 21st century a practical, manageable proposition.

4 SD-WAN and your organisation

SD-WAN can offer immense benefits to multi-site organisations.

Contact Evolving Networks to discover how our unique, intelligent SD-WAN fabric, can allow you to run high quality, high availability, high uptime connections at all your sites, irrespective of local connectivity restrictions, and with drastically reduced up-front and ongoing costs.

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Next in the series:
Why your SD-WAN will fail

The ability to make on the fly changes to the WAN through a central management suite also allows the organisation to act and react much more rapidly