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WHITE PAPER

Why your SD-WAN will fail

The UK's broadband problems, and how we fix them

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1 SD-WAN in the United Kingdom

During the mid 2000s, a breakthrough was made with the application of Software Defined Networking (SDN) principles, previously exclusively the preserve of the datacentre, to the Wide Area Network (WAN).

The result was Software-Defined Wide Area Networking (SD-WAN) bringing a host of benefits to the WAN, including the ability to run enterprise-standard services over broadband access networks.

This was revolutionary. WAN infrastructures could be created substantially more rapidly and simply than before. Lengthy, expensive commitments to fixed circuits and MPLS were no longer a given for every WAN. Sites with limited connectivity options could be included in the company WAN. Management and development of the WAN became simpler. Faults could be traced and rectified more quickly. The list goes on.

The catch? Most off the shelf SD-WAN software originates on the West Coast of the USA. Written in America, by Americans, it has been designed for the North American market and for North American broadband connectivity: high quality, highly reliable, low latency, low jitter and expensive ADSL.

UK broadband is nothing like this, and the bottom line is that SD-WAN software designed for the North American infrastructure won't work with conventional UK connectivity. This white paper explores what Evolving Networks has done to address this issue.

2 The UK broadband infrastructure

America's broadband infrastructure is very stable.

Faults occur infrequently, and when they do, they are easily located and rectified. While the UK broadband market is more advanced than the North American market, our infrastructure technology is in many ways inferior to America's.

Driven by Ofcom's regulatory focus, UK ISPs focus on the headline bandwidth figures seen by consumers using online speed tests. Engineered for burst and packet queuing, their networks achieve good speed test results, but at the expense of consistency and quality. Faults rarely take circuits down completely but it is common for quality and bandwidth to be eroded gradually over a period of time, often simply by the volume of traffic being carried. The best network for speed tests isn't the best network for business.

One result of the UK market's greater maturity has been intense price competition between ISPs, and a "race to the bottom" on price, resulting in ISPs offering broadband at very low prices. This can only be made financially viable, though, by running a congested core network. As a result, while the UK's infrastructure is technologically mature, regulatory developments and highly competitive commodity pricing mean

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it must rely on an over-subscribed, overloaded core network, made to work only by throttling and other traffic shaping techniques.

SD-WAN relies on the ability to control data at the packet level, over virtual connections themselves tunnelled over physical circuits. Any throttling, congestion or de-prioritisation of packets by the ISP denies the SD-WAN software control over those packets, rendering it useless. As a result, while a key aim of SD-WAN is to deliver a consistent experience across all sites at all times, UK broadband can deliver exactly the opposite.

No man's land

Further compounding these issues, and as a direct result of them, UK ISPs typically have no visibility of traffic and line conditions beyond the local exchange, and in some cases not even as far as that. Connection quality and bandwidth in this No Man's Land between the exchange and the customer premises can gradually worsen without either the ISP or its customers, being aware.

In both the US and the UK ISPs want to sell connections and then "walk away" – in the US this is viable, but in the UK it isn't. Similarly, while in America it is entirely possible to buy broadband circuits and use off-the-shelf SD-WAN software to manage WAN communications over them, doing the same in the UK is doomed to failure.

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Such an approach would demand the deployment of software, hardware and technical resources to monitor and manage multiple ISPs, data centres, peering points and tail technologies. Furthermore, diverse tools for QoS and fail-over would be required, and the problem of the No Man's Land between the exchange and the customer premises would have to be resolved. For almost any organisation, this will be completely impractical, particularly in the light of the on-going pressures on IT departments to reduce expenditure.

3 Use SD-WAN designed for the UK

The good news is that UK businesses wishing to reap the significant benefits of SD-WAN do not need to relocate to America to do so.

SD-WAN software designed for the North American broadband network cannot cope with the UK's infrastructure. However, with the right software, designed and built from the ground up by UK network engineers to address and overcome the UK's broadband limitations, SD-WAN can run successfully here.

Addressing and overcoming those limitations is key to the Evolving Networks SDN platform and Intelligent Network Fabric (INF). The first of its kind in the UK, it constantly, intelligently monitors every connection, with visibility right up to the customer's premises – something no other provider can offer. When an issue is detected, traffic is dynamically re-routed around the problem, in real time and at the packet level. Meanwhile, the fault is automatically rectified, or flagged up for engineers' attention.

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The SDN platform and INF work together with the other aspects of the Evolving Networks ecosystem to deliver the packet-level control which is so essential to SD-WAN, irrespective of the quality of the underlying physical circuits. The result is a highly flexible, adaptable, scalable, enterprise-grade SD-WAN running over whatever connectivity may be in use at each location on the WAN.

Moving from a single vendor MPLS to multi-vendor SD-WAN means a multitude of suppliers, creating management overhead, and creating potential for support & diagnostic challenges

No other provider can offer anything like it

Over more than a decade, Evolving Networks has brought the technology of the datacentre to the WAN, building an ecosystem of interlocking platforms to automatically and intelligently monitor, manage, maintain, inform and orchestrate SD-WAN software. No other provider can offer anything like it – an unthrottled, uncongested, self-monitoring, self-healing network, essential to enterprise-grade SD-WAN.

4 SD-WAN and your organisation

Perhaps you have experimented with SD-WAN and seen poor results. Maybe you've looked into the technology and read negative reports. The bottom line is that without the SDN platform and the complete ecosystem of platforms that Evolving Networks has built, your SD-WAN will fail.

Contact Evolving Networks to find out more about how we can deliver high quality, high availability, high uptime connections across your WAN, irrespective of local connectivity restrictions, and with drastically reduced up-front and ongoing costs.

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Next in the series:
SD-WAN as a service

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