



CASE STUDY

Bulk Powders

Sports nutrition
specialist

November 2018

evolving.net.uk

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Quick facts

Sports nutrition manufacturer and online retailer headquartered in Colchester.

IT environment

- Head office with existing 50mbps leased line
- Satellite office in London with shared office space connection
- VPN connection between offices
- London Internet traffic routed through Colchester

Challenges

- Poor file transfer and VoIP performance over existing VPN
- Slow Internet transactions at Colchester and London
- Delay in delivery of Fibre circuit for new Poland facility
- Configuration and management complexities relating to VPN and firewall
- Rapid growth driving the need for swift, seamless office moves
- Lack of visibility of WAN traffic flows, hampering planning



The customer

Manufacturing in the UK and selling directly to the public, Bulk Powders is a specialist in sports nutrition products. The business has achieved substantial growth since beginning trading online in 2005, now filling a 16,000 square foot facility in Colchester

and a branch office in London.

The need

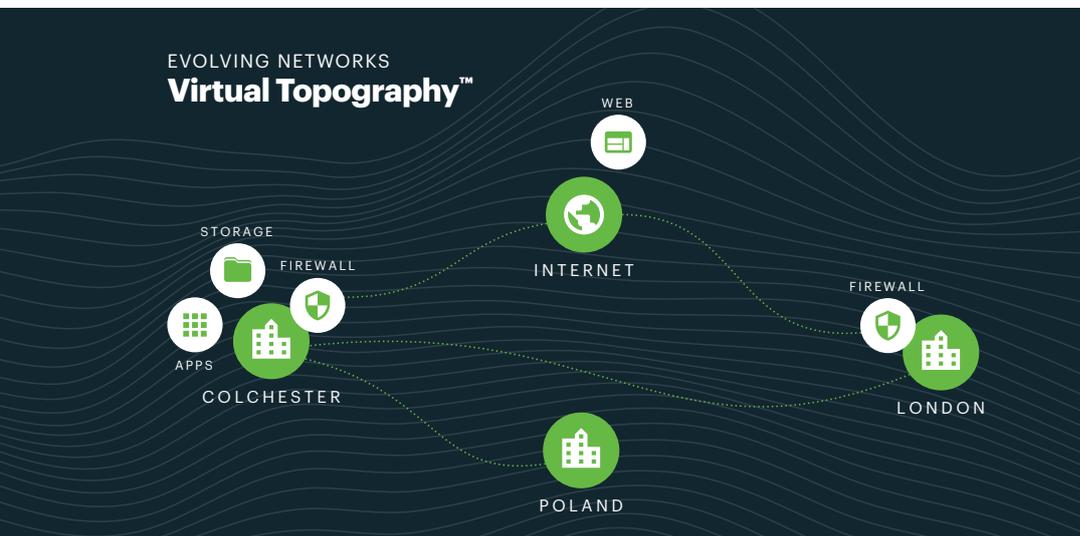
Bulk Powders has historically focused primarily on the UK market. The business has its head office, warehousing and manufacturing facilities in Colchester, and a second office in London. It is launching a new warehousing and manufacturing facility in Poland, the first of various international expansion opportunities.

The Colchester site connected to the Internet over a single 50Mbps leased line which was also used to provide a VPN to the London office. All traffic between the two sites, including large video files, inter-office VoIP calls traversed this VPN, meaning that even London users' internet access had to go across the leased line to the firewall in Colchester before travelling out of it again to get to the internet itself. Even London's voice calls to the outside world had to get to the ISDN lines at the Colchester site. 50Mbps with no QoS just couldn't cut it.

Bulk Powders initially approached Evolving Networks in October 2018, seeking help with VoIP call drop-outs and other performance problem with the VPN. The initial request was for the application of QoS to the VPN link to address the VoIP call issues.

In addition to unsatisfactory VoIP performance Bulk Powders also wrestled with various issues common to the vast majority of organisations using VPNs. Complex and labour-intensive to configure and manage, and generally unreliable, the company's VPN was responsible for a constant stream of unpredictable service outages, slow file transfers, lagging applications, and VoIP call jitter and drop-outs.

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Installing EVX appliances to every office, we quickly built a new and better network delivering resilient internet and site to site connectivity

Further complicating matters, the company had no clear view of WAN data flows, making decisions on connectivity development a matter of guesswork. For example, the company was aware that the 50Mbps leased line at Colchester was insufficient, but had no data with which to size the required upgrade – in common with most businesses, Bulk Powders lacked effective data flow monitoring.

The solution

Attempting to apply QoS to an already unreliable and unpredictable VPN would have been complex, fraught with risk, undertaken with no visibility of the data at hand, and without any guarantee of success. Evolving Networks therefore recommended replacing the VPN entirely with SD-WAN as a Service between Colchester and London.

Having implemented the SD-WAN and supplied managed firewalls to secure Internet breakouts at London and Colchester, immediately freeing Bulk Powders from various VPN and firewall management challenges, Evolving Networks began collating objective, quantified information on data flows at various points in the network.

The SD-WAN software allowed traffic routing policies to be revised using this information, with users in the London office accessing the internet directly, instead of via Colchester. This dramatically reduced the load on Colchester's existing leased line, allowing Evolving Networks to specify an FTTC line to expand the bandwidth available at the site, instead of the much more costly 500mbps leased line which Bulk Powders had been considering.

With the fibre Internet connection for the new Bulk Powders site in Poland delayed, Evolving Networks provided a Multipath Ethernet connection running over two temporary microwave radio circuits. This will serve the site until its new fibre circuit can be deployed. Traffic flow analysis then began there, as at Colchester.

Evolving Networks has also assisted with moving the Bulk Powders London office from one location in the city to another, within a challengingly tight time-frame, maintaining the existing external IP address to avoid disruption of third party services.

Immediately freeing Bulk Powders from various VPN and firewall management challenges

The methodology

VPN challenges

Evolving Networks supplied two EVX appliances – intelligent, versatile platforms able to host diverse Virtual Network Functions (VNF) – for each of the Colchester and London sites. They route data directly between the two sites via EVXcore devices within the Evolving Networks multi-VNO access network.

A High Availability SD-WAN as a Service has thus been established, replacing the problematic VPN. QoS was applied to protect the bandwidth required for high quality VoIP calls, which, while actually representing a small amount of data, must not be impacted by other network traffic.

The SD-WAN was later extended to the new facility in Poland by installing a pair of preconfigured EVX appliances there. On installation they automatically connected, via secure tunnels, to EVXcore devices in the Evolving Networks access network.

A high availability SD-WAN as a Service has thus been established, replacing the problematic VPN

Addressing a connectivity gap

The new facility in Poland presented a further challenge. Bulk Powders had taken the site on the understanding that it would come with a dedicated fibre Internet connection. This connection, as is often the case, was delayed, so Evolving Networks created a Multipath Ethernet connection running over two radio links, the SD-WAN running initially over this connection. When the fibre connection is delivered, moving the SD-WAN to it will be a simple matter of plugging it into the site's HA pair of EVX appliances, and then removing the radio links.

Traffic flow analysis



Accurate, up to date information on traffic flow across the WAN is an essential prerequisite to rapid, effective decision-making relating to the maintenance and development of the network. Evolving Networks EVXs not only allow traffic flows to be controlled, right down to the level of individual circuits and packets, but also, via the company's eView Live monitoring suite, provide clear, real-time visibility of those traffic flows.

This visibility was essential when it came to sizing the additional bandwidth required at Colchester. It was evident that expansion was required, with large video files being carried and only 50Mbps bandwidth in place (compared with 200Mbps in London) but exactly where, and to what degree, were unclear until the Evolving Networks SD-WAN as a Service was in place.

Analysis of the traffic flow intelligence provided by eView Live revealed peak demands at Colchester of around 120Mbps, so Evolving Networks proposed installing two 100Mbps leased lines to provide a high availability Multipath Ethernet connection with QoS, delivering an initial 200Mbps. This ability to gather real-world, real-time traffic flow data means that the need to markedly over provision bandwidth "to be on the safe side" can be safely consigned, along with troublesome VPNs, to the dustbin of history.

Routing decisions

Reliable traffic flow information also allows good decisions to be made, confidently, with respect to traffic routing.

For example, much of Bulk Powders' London traffic was originally routed across the VPN to Colchester. With hard data available from traffic flow analysis at the individual circuit and user levels, it was clear that routing London's Internet traffic through Colchester was sub-optimal. This traffic now goes straight out to the Internet from the London office's EVXs, while VoIP calls and file sharing with Colchester are routed across the SD-WAN between the two locations.

Such decisions can be taken without resorting to guesswork or assumptions because of eView Live's analysis of the traffic flow information gathered by the EVXs, which shows at any given time what traffic is flowing and where.

We're moving – tomorrow!

The London office move needed to be completed in a very tight time-frame – essentially just a couple of days during the week between Christmas and the New Year. Here the intelligence built into the EVXs and the Evolving Networks Intelligent Network Fabric (INF) paid huge dividends.

The results

EVX appliances

Evolving Networks EVX appliances are key components in an intelligent and flexible hardware and software infrastructure, able to operate as bandwidth aggregators, firewalls, routers, switches, or any number of these at once.

They work with the EVXcores in the Evolving Networks multi ISP access network to deliver a virtualised network – a direct parallel to the well-established concept of server virtualisation.

Evolving Networks has taken the high-tech virtualisation and redundancy concepts of the datacentre – server virtualisation, storage virtualisation, RAID and high-availability

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– and brought them to the world of Wide Area Networking, and to the network edge. A customer’s instance of connectivity can be overlaid on underlying physical circuits without being tied to them in any way. At last, the virtual network is here, flexible, scalable and manageable, addressing the complexities, frailties and rigidity of the hardware layer so that IT teams don’t have to.

This technology has benefited Bulk Powders in several ways

Faster and more reliable

File transfers between London and Colchester are faster and VoIP calls are rock solid, with high quality sound. Replacing Colchester’s old traffic-shaped circuit and rerouting London’s Internet traffic directly rather than via Colchester has improved user experience at both sites, with all Internet interactions running more responsively and reliably.

Seamless

As well as being completed exceedingly quickly, after only a very short preparation period, the London office move was executed entirely seamlessly, and from a connectivity standpoint, completely transparently.

From the perspective of the outside world, and in particular various third-party service providers, the new London office retained its existing external IP address, appearing on the Internet exactly as it had before the move, illustrating the power and simplicity of the Evolving Networks SD-WAN approach.

Low touch, low risk

Without the capabilities of the Evolving Networks INF, the London office move would have necessitated VPN and firewall reconfiguration for the new location’s connectivity and IP range. The external IP address would have changed, requiring liaison with various third-party software and cloud service providers. With Evolving Networks, the move was a near zero-risk, zero-hassle operation, despite being completed in a startlingly tight time-frame.

Meanwhile, at the new facility Poland, concerns over the delayed fibre connection were entirely allayed, there was no VPN to configure (or troubleshoot) and there were no firewall complexities to address. The EVXs self-configured, with detail tweaks being undertaken remotely by Evolving Networks engineers.

When the Poland facility’s fibre Internet connection is delivered and plugged into the site’s EVXs, this self-configuration capability will again prove its worth, obviating the need for engineer site visits, with associated downtime, disruption and cost.

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Why Evolving Networks?

Bulk Powders initially found Evolving Networks when searching online for providers who could help with QoS, in relation to the problems they were experiencing with VoIP calls to and from the London office. These were being impacted by large video file transfers over the company's existing VPN.

The concepts Evolving Networks proposed were new to them, so they researched the company, its capabilities and track record carefully before committing to the initial project to improve the London-Colchester connection.

On moving ahead, Bulk Powders were impressed with the careful approach taken by Evolving Networks, the company's technical expertise and its focus on proposing and delivering the best possible solution to each challenge, even when that meant a smaller sale. They were therefore keen to proceed with the other projects described in this case study.

Bulk Powders plans to use the Evolving Networks technology, capabilities and service in a second office move in London, and to support further international expansion.

What Bulk Powders say about Evolving Networks

"We asked Evolving Networks to put QoS on our old VPN, but thanks to their willingness to really understand where we were and where we're headed – both technically and commercially – they've done so much more for us. They've made a huge difference for Bulk Powders, and we're looking forward to having them alongside as we drive further international expansion."

Adam Gnifka
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