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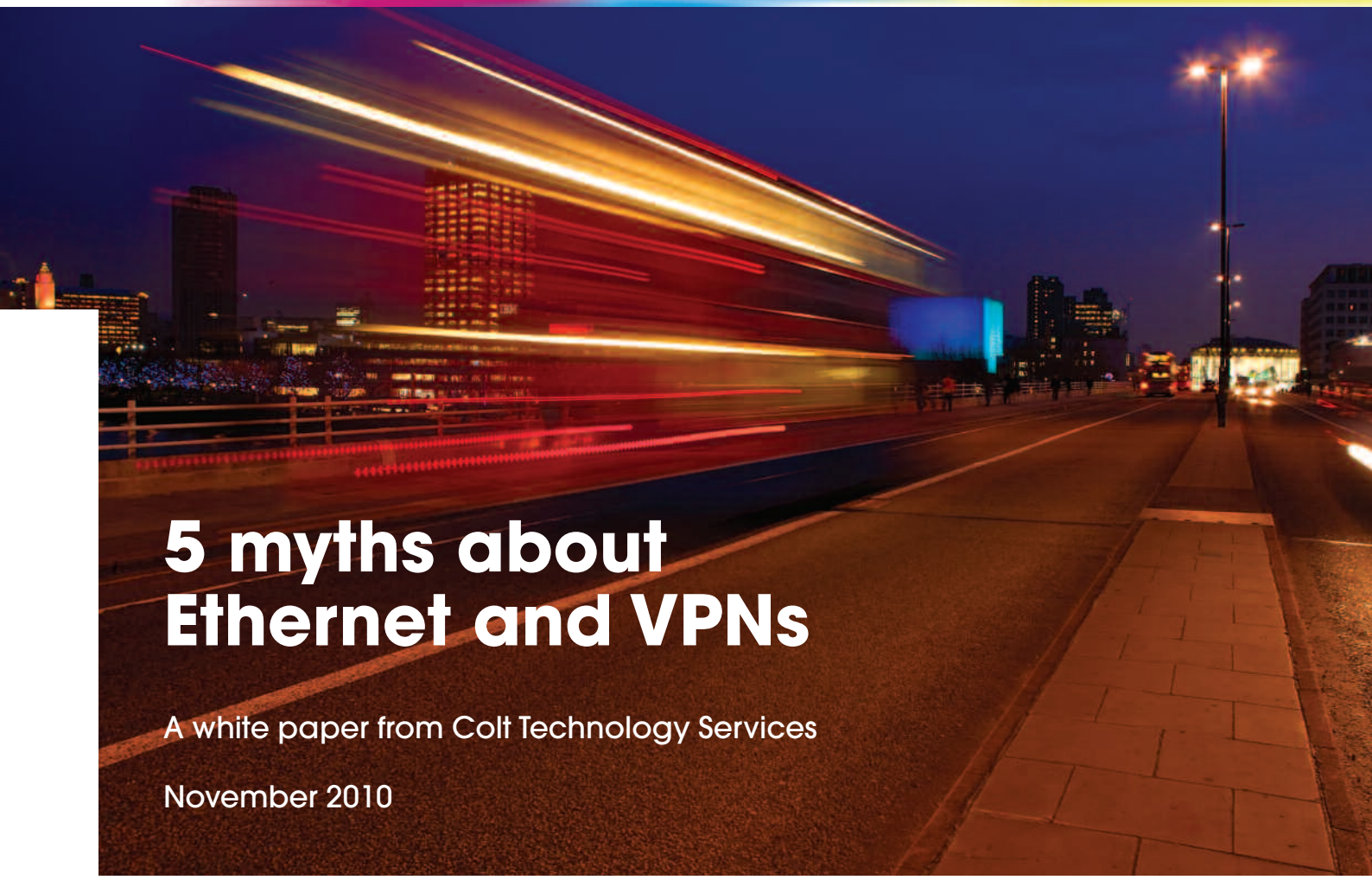

5 myths about Ethernet and VPNs

A white paper from Colt Technology Services

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The information delivery platform for European business

5 myths about Ethernet and VPNs

Myth 1: Ethernet is just a simple plug for my PC, not a networking solution.

Ethernet is just as much a business technology as it is a domestic one. In fact, it's the most widely used technology of its kind in the business world. Why? Because it's so simple and effective.

The Ethernet connection was invented to deliver simplicity. Back in the late 1960s Robert Metcalfe was working at the cutting-edge of computing and trying to finish a PhD at Harvard. He tried to persuade the college to link itself up to the Arpanet, a nascent network of computers that would, eventually, become the Internet. He told them he had a way of doing it really simply, but they laughed at him and said they'd hire a specialist company to do it. They didn't believe that joining this revolutionary new 'web' of computers could be simple.

Metcalfe did. He left Harvard and went to work at the famous Palo Alto Research Centre (PARC) and found himself, by 1972, surrounded by desktop computers that needed a way to connect to each other and swap information. "It was... a stroke of luck, being given the networking job in a building full of personal computers. This was a problem that had never before occurred in the history of the world."[1]

On May 22 1972 Metcalfe, and his colleague David Boggs coined the term 'Ethernet' to describe the simple connection that enabled those many computers to talk to each other. The name was based on an outdated scientific belief that had been disproved almost 200 years before: the 'luminiferous ether' which naturalists in the 18th century believed was an invisible medium through which light could travel.

Very quickly Ethernet became the key technology in connecting not only PCs but also servers, printers and other IT devices together enabling the creation of effective and simple to manage Local Area Networks (LANs). And when the technology became a built-in fixture all PCs and laptops it was obvious that Ethernet had conquered the world. It had done so because it worked and delivered simplicity.

In the end, all the best technologies are the ones that deliver simplicity, which in turn leads to lower costs and frees users to concentrate on their work. If technology gets in your way, then it's a bad. The beauty of Ethernet is that it is simple; it's the ultimate plug-and-play; everyone uses it (whether they realise it or not) and Ethernet connections are everywhere. It's a no brainer.

And in the corporate world, Ethernet allows you to connect thousands of devices in a seamless, issue-free LAN. Any organisation, however large or small they might be, can thrive in an online environment because of their Ethernet connections. The point is to build on that ubiquity and simplicity to deliver business-grade connectivity.

Myth 2: Ethernet isn't an appropriate technology to connect different enterprise sites or offices – it's just for the LAN.

It's true that Ethernet started out being used to build LANs, but it quickly evolved to be used to build WANs and is used to do so by organisations of all shapes and sizes.

As speeds grew in the 1980s and into the 1990s, going from 10Mbps to 100Mbps in just ten years, organisations began to think about using Ethernet for their Wide Area Networks so they could overcome the bottlenecks that plagued WANs due to the fact that LANs offered up to 100Mbps whilst WANs typically only achieve 2Mbps. The simplicity of Ethernet delivered advantages for the LAN because it was easy to set up and maintain and wasn't expensive so it seemed logical to achieve the same benefits when it came to building WANs, but many technical advisers told clients that only SDH technology over Fibre could deliver the superior resilience they were looking for.

But once a company like COLT began using Ethernet in 1996 to offer Point-to-Point connections in Metropolitan areas over dedicated fibre, enterprises began to take the technology seriously. By 2002 native Ethernet had become available, leveraging the SDH layer and in 2003 it was offered over copper for the lower speeds (up to 2Mbps) as well. In 2008 COLT deployed its native Ethernet next-generation network to deliver the same reliability that could be achieved using SDH. Ethernet became an accepted WAN technology and more and more business began to replace leased lines to achieve the connectivity they needed.

It also meant organisations could benefit from the added granularity that Ethernet offered. Simply, that means they didn't have to pay for bandwidth that they didn't use – only what they needed. Until that point companies were sold on a

[1] Quoted in 'Ethernet – a name for the ages'; by Cade Metz: the register.co.uk 13 March 2009

network's bandwidth capacity which, though impressive, wasn't actually required. Ethernet changed all that because it enables customers to scale up from 2Mbps to 1Gbps in convenient increments (which is what 'granularity' is) and then they could easily upgrade the power of their connection.

Those attributes have powered Ethernet's rise from a LAN technology to a global WAN enabler, and it now comes in a form known as 'Carrier Ethernet' which delivers speeds of up to 10Gbps and far beyond; speeds that are set to increase much further. Large businesses and organisations quickly decided that the simplicity and cost-effectiveness of Ethernet was made business sense, but medium enterprises are only just waking up to the potential of using Carrier Ethernet for their WANs as well as their LANs.

What they're realising is that the myth about Ethernet an exclusively LAN based solution is wrong. More and more people are acknowledging the fact that they don't need something complicated (and expensive) to create a WAN and connect computers across sites, cities and nations. Indeed, they're finding out that using Ethernet for the WAN is much less costly because there's no need for costly devices like routers to convert protocols as data moves from the LAN to the WAN.

Colt never believed that myth. Right from the start of the company's operation in the City of London, they realised that the simplicity of Ethernet was a powerful tool. It delivered the robust connectivity that a WAN required, and made expanding it very easy at the same time.

So, it's clear that Ethernet is perfect for the LAN and the WAN – it's a local and a global technology.

Myth 3: If you have more than a couple of sites then you need to build an IP-VPN.

Not true. You can use Ethernet VPNs to connect any number of sites – it's flexible and able to cope with complex and dispersed organisations and deliver the simplicity they need to operate seamlessly.

In the past technology specialists have usually advised organisations which need to connect multiple sites to build an IP-VPN (Internet Protocol – Virtual Private Network). They claim that it's the only efficient technology that allows for any-to-any connectivity (where 2 sites can directly exchange data without the need to transit via a third site). They also claim that it takes a lot of investment to achieve a network that's totally robust, secure and responsive.

But, what they fail to mention is that Carrier-grade Ethernet VPNs can deliver all those things – and more. In fact, real Carrier-grade Ethernet offers the same levels of robustness and quality of service that IP-VPN does only with more flexibility and scalability. It also delivers the same flexibility when it comes to delivering cost-effectively lower bandwidth sites using multiple copper pairs. It enables organisations to make the most of a VPN solution in a very simple way, and helps to cut costs and future-proof the network.

Again, it comes down the simplicity of Ethernet technology and its ubiquity. Colt-grade Ethernet is a powerful solution because it's based on their wholly owned and managed pan-European network that's dedicated to business use. You get uncontended bandwidth (you're not competing with domestic consumers over the same pipes) that offers low and stable latency which is ideal for real-time applications (your data travels speedily and securely without meeting obstacles on the way). Security is, of course, vital; traffic uses dedicated circuits that are not shared with any Internet traffic at all.

Colt has designed their next generation technology to be easily upgraded (at their end as well as yours). An Ethernet Private Network delivers far more bang-for-the-buck than an IP-VPN: make the most of LAN skills you already have in-house, offer transparency to Layer 3 protocols, you can easily achieve speeds up to 1Gbps; and cost less per Mbps.

Simplicity is the key point again; it results in lower costs over the long-term (TCO). Companies that use an IP-VPN have to co-manage their IP addressing layer with their service provider, which means they have to agree who uses which IP address and also worry about converting legacy applications and protocols that had only worked on the LAN. That requires skills, takes time and costs money.

An Ethernet VPN does away with that process altogether. It enables you to manage your network as if it were in just one single office, and support all your legacy protocols as if your entire network was a LAN.

Myth 4: Ethernet WAN services are only for organisations with multiple sites.

Ethernet WAN services deliver the same benefits of lower costs and simplicity whether you work in one place or many.

Many organisations believe that Ethernet and Virtual Private Networks are for multi-site organisations. But the fact is robust,

resilient and secure connections between an organisation and the outside world are vital in the 21st century. No business is an island in the 21st century. Companies need to interact and do business with suppliers, peers, stakeholders and customers. A fact made even more important by the move to 'cloud computing' that's sweeping the world.

Increasingly, organisations are outsourcing their IT needs to providers who have the processing power and data storage capacity they need. The economies of scale that large providers of those things can achieve means that the costs of software, processing, data storage and manipulation have come down dramatically.

It all happens in computers (banks of servers or virtualised computers linked together) that are far from your place of work (the cloud) but that are connected to you remotely. Cloud Services are growing rapidly and set to be worth of $100 billion a year by 2012[2] and that fact means that the kind of connection you choose is all the more vital.

It's important to understand that the 'Cloud' does not necessarily mean using the public Internet – far from it. Companies with the need for more privacy and security than others will choose a 'private Cloud' where they use an exclusive connection to a data centre. This is where Colt-grade Ethernet plays a key role: you need not just security but fast response rate (high speed, low latency and jitter).

As we've seen, Colt-grade Ethernet delivers the technical excellence you need to connect your office(s) to your servers and make the most of the 'Cloud' – and, again, because you're using business-grade internet you'll be able to think about outsourcing vital functions so that you can save on in-house costs in terms of hardware, manpower and software licences and so on.

Myth 5: Ethernet Virtual Private Networks are not as widely available as IP-VPNs.

Not true. There are a lot of very different types of organisations who are making the most of Ethernet VPNs (EVPNs) to create a seamless flow of information across multiple sites and borders.

IP-VPNs pre-dated Ethernet VPNs, but that's changed dramatically over the last few years. Many companies are now using Ethernet to create their VPNs, some with the help of Colt, which began the move to Ethernet VPN solutions in 2004, and now offers organisations of all kinds the chance to build an EVPN quickly, simply and securely.

Spain's **ABBA Hotels** decided that they would gain competitive advantage by using state-of-the-art technology for reliable connectivity to a single centralised secure data centre where all services common to the hotels are hosted. That would simplify and enable the monitoring of all communications processes efficiently. Ethernet was a key part of the solution and delivered a 10Mbps fibre optic connection to the Colt private cloud that weaves the whole chain together and ensures that their data (stored securely by Colt) is always available.

Intellectual property specialists **Marks & Clerk** realised that they had to approach their growing market as a unified entity despite the fact that they had a network of offices in the UK, North America and Europe. So, they created an Ethernet VPN (using a Colt EPN product) that delivered up to 1Gbps speeds, uncontended bandwidth, and secure data exchange protected by a robust back-up solution. The company experienced a simple and seamless migration to the new network which enabled them to focus on their key objectives.

Clifford Chance, one of the world's leading law firms, decided to simplify their telecommunications strategy and save money at the same time. They went for a network that enabled hard-working lawyers to exchange data and documents swiftly and securely in an intuitive way. Naturally, security and back-up were vital issues – it is, after all a law firm – and Colt's data centre capacity enabled Clifford Chance to work with confidence knowing that there were fail-safe measures in place to protect data and keep it available whatever might happen around the world.

There are many more examples of organisations, all with very different needs and numbers of offices (including those with just one), that have turned to Ethernet to achieve their key business objectives.

Don't let anyone tell you that Ethernet VPNs are not widely available: it's everywhere. It just depends how you make the most of a technology that delivers simplicity and seamless connectivity. Colt's business-grade Ethernet makes the most of its extensive wholly-owned and managed network that is only used by business organisations. In the end, that is what delivers the power, security and certainty you need. Ethernet opens it up for you so that you can generate wealth.

[2] 'Tech Firms Fight European Limits of Cloud Computing', New York Times 20th September 2010.

About Colt

Colt is Europe's information delivery platform, enabling its customers to share, process and store their vital business information. Colt provides major organisations, midsize businesses and wholesale customers with a powerful resource that combines network and IT infrastructure with expertise in IT managed services, networking and communication solutions. Colt operates a 13-country, 25,000km network that includes metropolitan area networks in 34 major European cities with direct fibre connections into 16,000 buildings and 19 Colt data centres.

For more information about Colt services for midsize business please visit **www.colt.net/business** or email **inbound@colt.net**