

# In a changing marketplace: The Ethernet role

The marketplace is changing: Today's world is digital!

The marketplace is changing: Today's world is digital. Both consumer and enterprise customers are using more and more bandwidth-hungry applications. There are over 200 million active users accessing Facebook via mobile devices and over 30 billion pieces of content are shared each month. For financial enterprise customers, a one millisecond difference in trading applications can be worth up to \$100 million a year to a major brokerage firm. So, content is driving an explosion in traffic.

Operators need to ensure that they have bandwidth available to support these services and to enable customers to access it in a flexible and timely manner. To provide these value-added services, carriers need to drive a cultural transformation of their business models and technology framework.

The network is key to the flow of information and digital services, traditional bandwidth services no longer address the demands. Ethernet is the catalyst to enable customers to share, process, and store their vital data across an information delivery platform.

## The Ethernet success: Drivers

The Ethernet success drivers can be defined in only three words: cost, simplicity and control. Ethernet has proved to be more simple and scalable than other technology options:

### Cost effective

- Bandwidth available in incremental steps with payment only for the required bandwidth
- CPE and interface costs are lower than other traditional WAN technologies

### Flexibility and reach

- Range of Ethernet topologies optimised for customer's network: Point to point (Ethernet Private Line, EPL), Hub and Spoke (Ethernet Virtual Private Line, EVPL), Any to Any (E-LAN), Tree (E-Tree)
- Wide range of bandwidths in granular steps from 1Mbps up to 10Gbps
- Ethernet is available over fibre, copper and across operator boundaries via off net agreements

### Network simplification and flexibility

- Use of Ethernet across the network simplifies and consolidates infrastructure as the interfaces between the LAN and the WAN are seamless
- Customers can use existing LAN expertise without need for specialist WAN interfaces
- Ethernet CPEs support a wide range of speeds so bandwidth upgrades can be performed remotely and quickly to support business changes

## Three critical elements for information delivery platform



### Control

- Direct control over security, routing, network architecture and disaster recovery
- Ethernet can provide highly resilient services with protected paths and network equipment
- Reporting tools with traffic statistics enabling performance monitoring and accurate planning for growth
- Proactive fault notification and advanced Operations Administration and Maintenance (OAM) functionality

Ethernet services are the WAN technology of choice for enterprise customers as they allow bandwidth on-demand, rapid deployment of applications and sites, one technology across the IT infrastructure, end-to-end SLAs, better application performance due to lower latency and, last but not least, higher speeds.

However, Ethernet in Europe is still 'young' which leads to customers having to evaluate market offers in detail to select a 'top' supplier. Ethernet portfolios from service providers may vary in service type, geographic reach and service levels.

## Not all carrier Ethernet services are the same

Not all service providers deliver the same underlying technology or deliver the same levels of performance for carrier Ethernet services.

Most long-distance Ethernet services in use today are based on Ethernet over SDH (EoSDH) technology or circuit emulation over IP MPLS. Colt's investment in technology and route optimisation enables lower latency. As the paths are pre-defined and static, latency levels are always the same. This is critical for companies where speed is of the essence and who need to rely upon same service levels consistently. Colt is one of the few carriers to have a 'true' Layer 2 Ethernet platform which is connection-orientated with static worker and protection paths. This is vital for sensitive applications such as video which required repeatable services with low levels of jitter (variation in delay). Many other providers use EoSDH which typically introduces 1-5 milliseconds overhead per circuit due to encapsulation; or Layer 3 (IP MPLS) based Ethernet meaning that latency overhead can be variable and usually in the order of several milliseconds.

Colt's Ethernet-based Multi Service Platform (MSP) introduces minimal electronics latency and provides a reserved circuit path over the shortest physical route. With Colt the 'race' is won – Colt offers the lower latency routes within Europe... London-Frankfurt in 4.22ms or Brussels-Paris in 2.53ms.

Service level agreements (SLAs) for installation, availability and repair times vary widely, as do prices. Operators need to deliver strong SLAs in order to guarantee and satisfy enterprise customers' requirements. Business organisations expect to be provided with the appropriate quality and performance to support their critical applications. Operators need to deploy SLAs that detail commitments of bandwidth and performance, availability, as well as redundancy. Colt Ethernet services can be dual homed to deliver reliability and security with up 99.999% uptime guarantees, and constant and predictable low latency.

Geographic availability differs from provider to provider. Nevertheless the story is changing fast: New developments such as Ethernet Network-to-Network Interfaces (ENNIs) and Ethernet Exchanges enable operators to offer full coverage.

### Investment priorities in the context of Ethernet

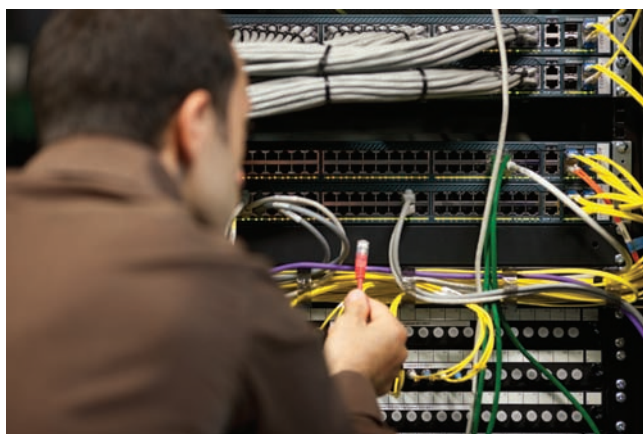
Operators need to define the correct investment priorities in the context of Ethernet.

Service providers must interconnect smarter to extend reach and depth. Taking advantage of upcoming Ethernet Exchanges that are set to proliferate during 2011, carriers can increase reach in a cost-effective manner, linking networks and business not only in traditionally strong telco markets such as the US and western Europe, but also in growing geographies such as eastern Europe, Asia and the Middle East.

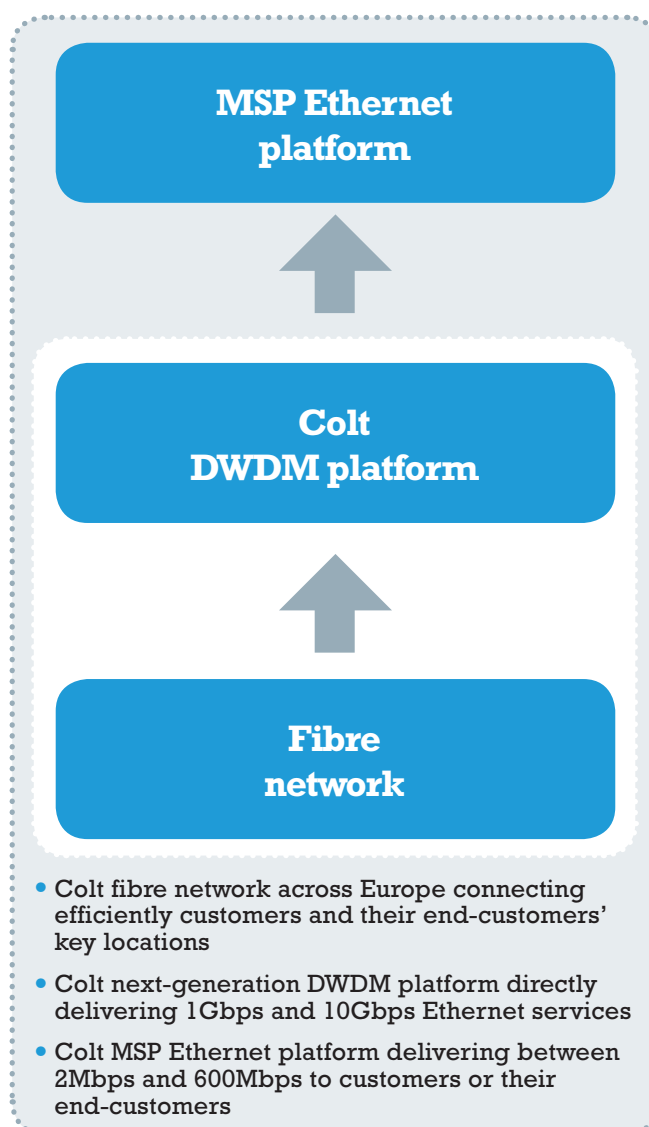
To drive transactional business, operators should exploit bilateral external NNIs for Ethernet and IP-based services. NNIs enable improved reach, reduced complexity and decreased time-to-market.

### Ethernet: Future progress

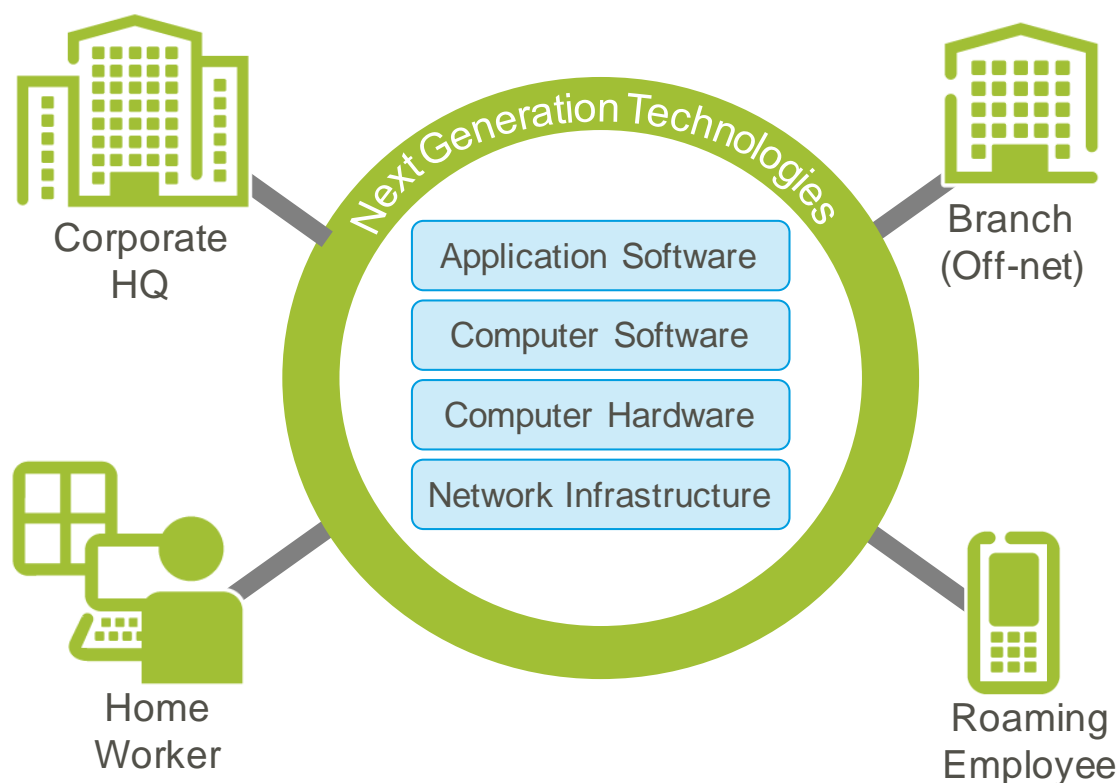
Further demand for Ethernet will come from the growth in managed services such as E-LAN based on VPLS provides access to data centres integrated with a customer's network. Ethernet is used throughout enterprise customer's core networks. Business customers are using Ethernet connections to operate back-up data centres as part of the same LAN or to replicate databases; and, for connections between data centres and headquarters buildings.



### A platform designed to reduce latency



## Information delivery platform




Cloud   Applications   Mobile Data   Collaboration   Security

**“Customers are looking for network and IT solutions from suppliers that are easy to do business with, where the technical service is complemented by tailored business processes for the pre-sales, delivery and service assurance phases.”**

Lutz Blank, VP Marketing for CCS, Colt

Ethernet and cloud is a powerful proposition offering customers: end-to-end SLAs, bandwidth and compute on demand. Operators need to combine networks and IT infrastructure with expertise in creating integrated managed services, networking and communications solutions.

To be a market consolidator, operators need to have the assets and capabilities at all layers to deliver the information delivery platform. Next-generation technologies (Ethernet, Multi Service Platforms) are key for service provision which is both operationally and commercially efficient.

The operator of the future needs to provide a seamless integration of network and computing, through a highly scalable and flexible platform that is able to deliver information on a pay as you consume basis. Services need to be universally accessible with the best-in-class customer experience and end-to-end SLAs. 

# colt

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