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Ethernet goes global, finally

Many predicted that Ethernet wouldn't survive the 1990's, but carriers around the world are deploying all Ethernet networks and Ovum predicts that Ethernet will be worth £15 billion (€19 billion) by 2012, growing at 20% a year.

The big question now is, "What is the most cost-effective way of deploying Ethernet without compromising bandwidth or service quality?"

One hurdle to deploying an end-to-end global Ethernet service is the incumbent mixture of network technologies, local and long-haul networks. Service providers have to interconnect with diverse transport networks and offer a range of Ethernet connectivity options, while maintaining bandwidth scalability and advanced service level agreements (SLAs). Also, as capacity is a finite, valuable resource on undersea networks, international carriers must find ways to maximise bandwidth efficiency.

As a result, global carriers are looking to move beyond their first-generation platforms to Ethernet platforms with more advanced service delivery features. Where native Ethernet is not available at competitive prices, some network providers are deploying a serial connection that terminates on a device within customers' premises to provide Ethernet hand-offs to their customers.

The installation of this simple solution allows customers to receive all the benefits of Ethernet, regardless of their access speed or circuitry type. Customers are no longer limited by the availability or high cost of native Ethernet circuits, nor are they subject to extended delivery timelines associated with Ethernet build-outs.

The way global Ethernet services are deployed involves the secure convergence of multiple VLANs (virtual local area networks) on the same circuit, whereby native Ethernet VLANs are bridged across serial connections and offer the flexibility of one-to-one, one-to-many or fully-meshed networks.

Customer connections should be able to support up to ten VLANs per site, with the ability to support Private Layer 2 VPLS (virtual private LAN service), Private Layer 3 and Public services within a single circuit. A WAN infrastructure should be designed to support customers' requirements and any applications they choose to run across it.

Furthermore, using a native MPLS (Multi Protocol Label Switching) core design allows for the provision of global SLAs that guarantee 100% in-sequence packet delivery for voice and video.

Current growth areas of this technology are mainly in Japan and America, with predictions estimating that these countries will account for nearly 59% of cumulative global revenues in 2012 [source: Ovum Research]. In the UK, cable companies are exhibiting solid growth and although fibre is still the physical access method of choice, Ethernet over copper and microwave will become a more viable and cost effective option, sustaining future growth.

Verizon Business, for example, claims it had over 13,000 Ethernet ports in service as of 2007, up from 5,000 the year before, and projects its Ethernet revenues to increase by 60-80% between 2007 and 2010.

However, Global Ethernet take-up in 2008 will not happen with the complete assimilation of all existing networks. Rather, we are finding new clients are beginning to take advantage of the lower costs, mainly through being able to use standardised communications devices (such as phones, DSL modems, cable modems and set-top boxes), since special equipment and port adaptors are not required.

Companies are naturally wary of new technology. It is up to international carriers and managed

service providers to deliver packet-based Quality of Service parameters with a global service level agreement for 100% packet delivery. At the same time, they must maximise bandwidth efficiency. Service providers have the technology – now they need to provide the foundation for companies to move to next generation Ethernet services.

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