

ETHER/LIGHT data sheet

Simple, fast, reliable, affordable, inter-site Ethernet connectivity.

Key Features:

- Ethernet technology: Fast, familiar, cost effective
- Any to any connectivity provides best performance and value
- Protected network paths underpin reliability & performance
- Multicast support enables voice and video broadcasting
- Multiple QoS levels guarantee key application performance
- Ethernet VLANs provide private circuit class data security
- Copper and Fibre connectivity options make ETHER/LIGHT cost effective for a wide range of site requirements
- Circuit emulation makes expensive E1 private circuits between sites unnecessary
- Ethernet between sites simplifies IP routing and subsequent moves, adds and changes (MACs).
- Secure user groups supported with multiple VLANs

Associated Services:

- Internet connectivity
- Managed Firewall
- Performance reporting and monitoring



Vtesse ETHER/LIGHT is a secure, private, managed Virtual LAN service designed to provide **Ethernet connectivity** between IT resources on customer premises. ETHER/LIGHT uses Vtesse's own UK national fibre network ensuring the highest levels of service availability, support and integrity. Fibre optic and copper circuits are used to deliver service to customer sites at speeds from **2Mbit/sec to 10Gbit**.

Service Overview

ETHER/LIGHT is a 4th generation Ethernet multi-site connectivity service. ETHER/LIGHT leapfrogs the complexity and overheads of 2nd generation MPLS services in favour of the simplicity and efficiency of "pure Ethernet". Furthermore, by implementing ETHER/LIGHT directly on the Optical Network Layer, we reduce network overhead which in turn improves performance (lower latency and jitter), lowers cost and increases service availability.

Services are designed to be compatible with Metro Ethernet Forum (MEF) standards and include definitions for **Point to Point**, **Point to Multipoint** and **Any to Any** services.

ETHER/LIGHT supports a broad range of connectivity options, including private fibre, LAN Extension and EFM ("Ethernet First Mile" over copper) services.

Ethernet Virtual LANs (VLANs)

Secure connectivity between sites is enabled through the use of Ethernet VLANs.

By supporting **QinQ** technology and by preserving customer VLAN tags, each site may be a member of multiple VLANs, enabling multiple, secure, communities of interest to be defined between customer sites, by each customer.

Bandwidth at each customer site is scalable up to the maximum speed of that site's access circuit enabling rapid changes to be made to accommodate changing customer needs.

ETHER/LIGHT private line services provide **Circuit Emulation** functionality, enabling cost effective emulation of SDH E1 circuits, eliminating the need for existing inter-site E1 private circuits.

Service Protection

Services are protected from physical failure of network equipment and routes by using **fast re-routing** (sub 50 milliseconds) technology making ETHER/LIGHT a suitable transport for voice, video and data applications.

Standard Classes of Service (CoS)

4 standard QoS profiles are defined. All employ **traffic prioritisation** mechanisms to ensure that in the event of contention, key applications receive the prioritisation they need. ETHER/LIGHT QoS classes may be mapped directly to customer's IP Classes of Service, facilitating predictable application performance at all levels of the Enterprise.

The ETHER/LIGHT Service Level Agreement defines latency, jitter and frame loss targets for each service class.

The 4 Classes of Service are mapped onto specific Ethernet Virtual Connections (EVC). A customer access circuit may contain multiple EVCs.

EVCs determine available bandwidth and are configured to define Committed Information Rate, Excess Information Rate, Committed Burst Size and Excess Burst Size attributes, according to customer requirements.

ETHER/LIGHT

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National Ethernet Services

Service Types:

- **EPL/EVPL:** Ethernet (Virtual) Private Line
- **ELAN/EVPLAN:** Ethernet (Virtual Private) LAN (Multipoint to multipoint)
- **EPTREE/EVPTREE:** Ethernet (Virtual) Private Tree – (Leaf to root)

Connectivity:

- **EVC:** Ethernet Virtual Connections provide customer connectivity to VLANs (MEF 10.1)
- “Private” circuits have a 1:1 port to EVC ratio.
- “Virtual Private” circuits have a 1:many port to EVC ratio.
- Full Unicast and Multicast support

Bandwidth:

- EFM services: 2,4,6,8,10,20,30,40Mb
- LES10 services: 4,6,8,10Mb
- LES100 services: 10,25,50,75,100Mbit
- LES1000 services: 100,250,500,750,1000Mbit
- Private Fibre Services: 1-10Gbit

Service Availability:

- Pop To PoP 99.99%
- Via LAN extension service 99.95%
- Via diverse LAN extension service 99.99%
- Via EFM service 99.95%
- Via private fibre service, up to 99.95%



ETHER/LIGHT Connectivity Options

The map above illustrates the location of Vtesse ETHER/LIGHT Points of Presence.

LAN Extension Service Access

LES access allows transparent delivery of all Vtesse ETHER/LIGHT service types and QoS classes at speeds from **10Mbit up to 1Gbit** per site.

Provisioned using dedicated fibre pairs between customer premises and Vtesse PoP locations and then terminated on the customer site with an Ethernet interface that provides both service management and customer connectivity, LES access is the recommended access method for larger administrative locations.

10 and 100Mbit LAN extension service access is available to customer sites within a 25 Km radial distance of a suitable Vtesse PoP. Gigabit services may be extended to sites within a 35Km radius.

Fibre LES services may be protected using fail-over to diversely provisioned LES services or to less expensive EFM copper services.

Direct Fibre Access

For service connectivity up to 10Gbit, Direct Fibre Access is provisioned with Vtesse provided private Dark Fibre.

Direct Fibre Access is the recommended connectivity service for data centre installations.

Service diversity (routes and PoPs) is an option for all such circuits providing for service availability guarantees up to 99.999%.

Diversity may also be provided using alternative technology (lower SLA) access services.

Actual service speeds will be determined by access switch port speed settings. Bandwidths **up to 10Gbit** are available. Customer premise interfaces are selected to allow transparent delivery of all Vtesse ETHER/LIGHT service types and QoS classes.

Direct Fibre Access connectivity to ETHER/LIGHT is available within many UK telehotel and commercial data centre facilities.

Ethernet First Mile Access

“Ethernet First Mile” (EFM) access provides an effective alternative to many fibre based 10 and 100Mbit services.

EFM services are provisioned to customer premises using multiple pairs of copper circuits. These “bonded” copper circuits provide Ethernet connectivity from 2Mbit up to a maximum of 40Mbit.

EFM service coverage is constantly expanding and should be national by the end of 2010.

EFM supports a subset of ETHER/LIGHT QoS classes and service types and is suitable for smaller premises with less demanding service needs.

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