

EVPL over MPLS-based Packet Transport Technologies



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Topics

- ◆ Ethernet Services
- ◆ Types of Transport Technology
- ◆ EVPLoMPLS-TP
- ◆ Benefits

Ethernet Services

◆ Ethernet Private Line (EPL)

- defined by ITU-T Recommendation G.8011.1
- is a point-to-point service between two demarcation points. The whole port is switched across a provider network
- provided over connection oriented server layer

◆ Ethernet Virtual Private Line (EVPL)

- defined by ITU-T Recommendation G.8011.2
- is a point-to-point service between two demarcation points; sets of VLANs are switched to multiple destinations
- provided over connection oriented or connectionless server layer

◆ Ethernet Virtual Private LAN (EVPLAN)

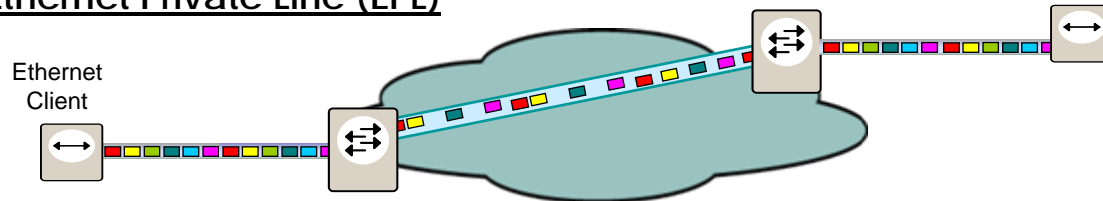
- defined by ITU-T Recommendation G.8011.3,
- is a multipoint-to-multipoint service between two or more demarcation points
- provided over connection oriented server layer

Ethernet Services

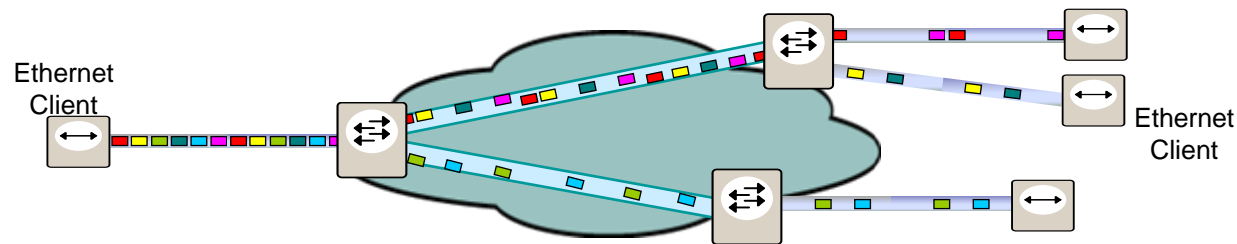
EPL/EVPL

The 2009 OIF Worldwide Interoperability Demonstration focused on a **reliable end-to-end** Ethernet connectivity and interoperability of **on-demand Ethernet Services** that are defined in the **EVPL models**.

Ethernet Private Line (EPL)



Ethernet Virtual Private Line (EVPL)



Types of Transport Technology

MPLS-TP

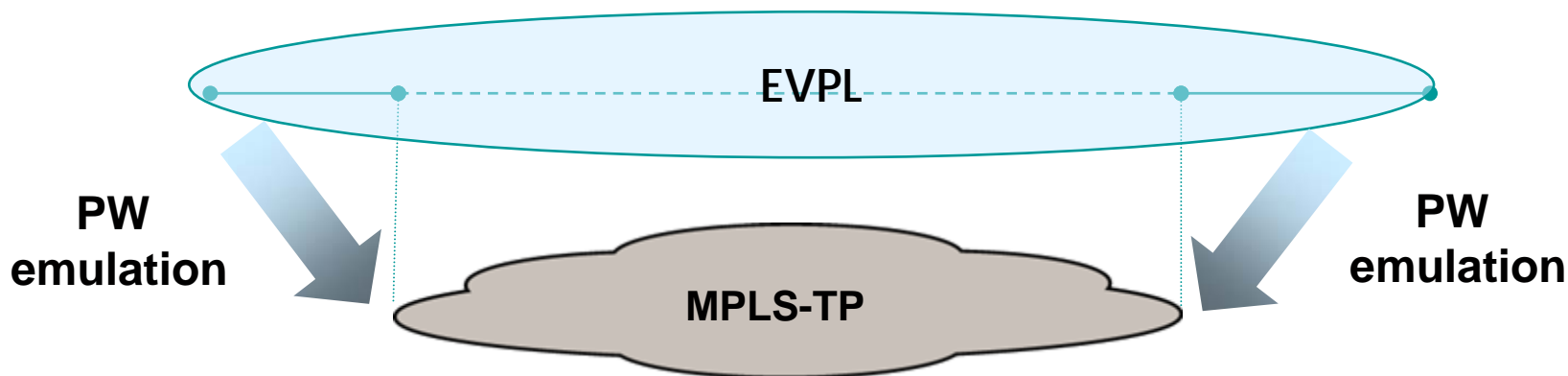
- SDH/SONET
 - Physical links : STM16, STM-64, STM-256
- OTN
 - Physical Links : OTU-1, OTU-2, OTU-3, OTU-4
- **MPLS-TP**
- PBB-TE

MPLS-TP combines the advantages of both connection-oriented and connectionless technologies, achieving the target of a reliable, predictable, service aware and fully manageable, traffic engineered packet switched network.

For Packet Transport Technology MPLS-TP fulfils the requirements for the transport of Ethernet services, in terms of – QoS, Reliability, OAM

Types of Transport Technology

MPLS-TP through PW technology

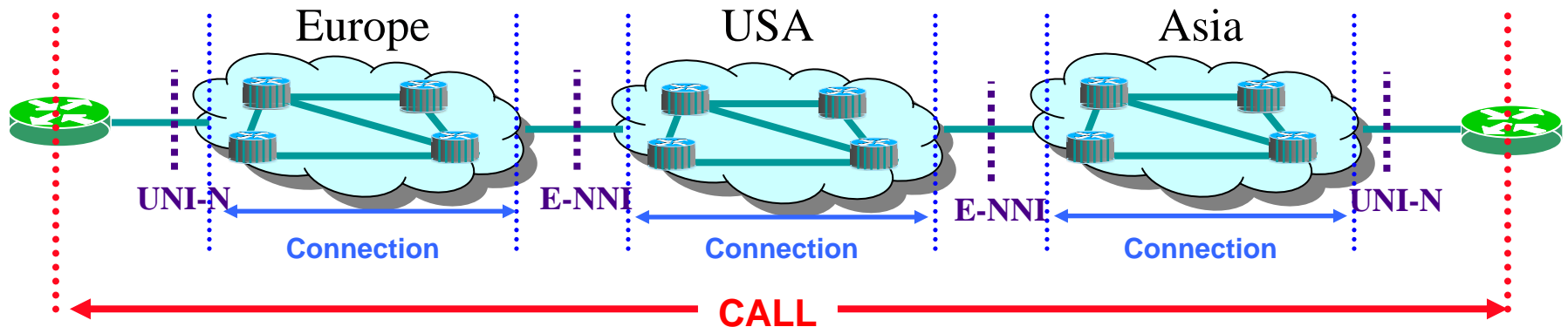


- ◆ What is a “Pseudo Wire” ?
 - A mechanism to emulate the essential attributes of a service
 - Required to carry *non-IP* traffic over a packet-switched network
- ◆ Ethernet encapsulation over PW is defined in RFC 4448
- ◆ Ethernet PW allows for the transport over MPLS-TP based Networks

EVPLoMPLS-TP

Equipment/technology Demonstrated

- Ericsson demonstrated the ability to set-up BoD (Bandwidth on Demand) connections across multi-vendor, multi-technology and multi-carrier domains in a truly global network.
- ◆ The first multi-vendor interoperability test of MPLS-TP pre-standard implementation was shown

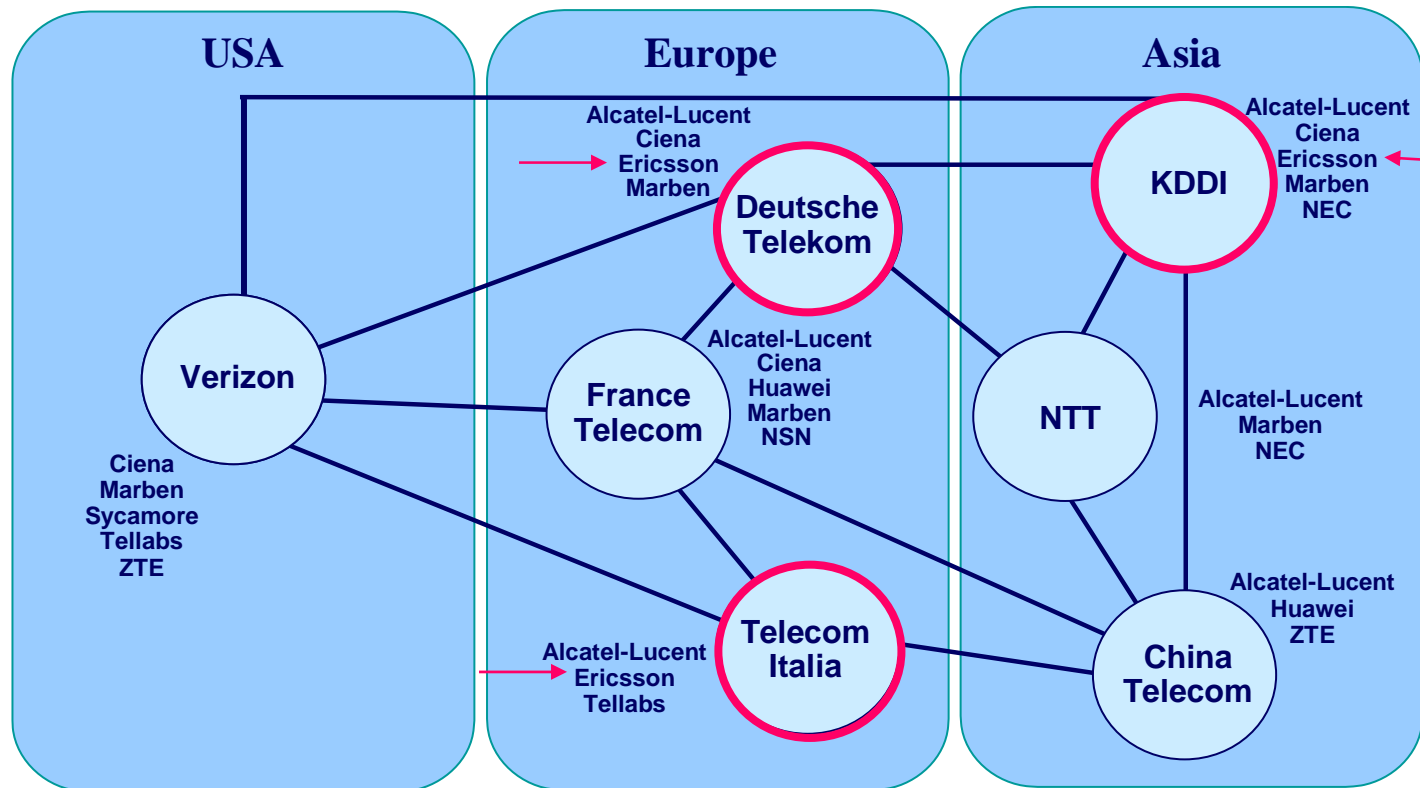


- ◆ UNI 2.0 Data plane was tested for EVPL services over MPLS-TP based packet transport network

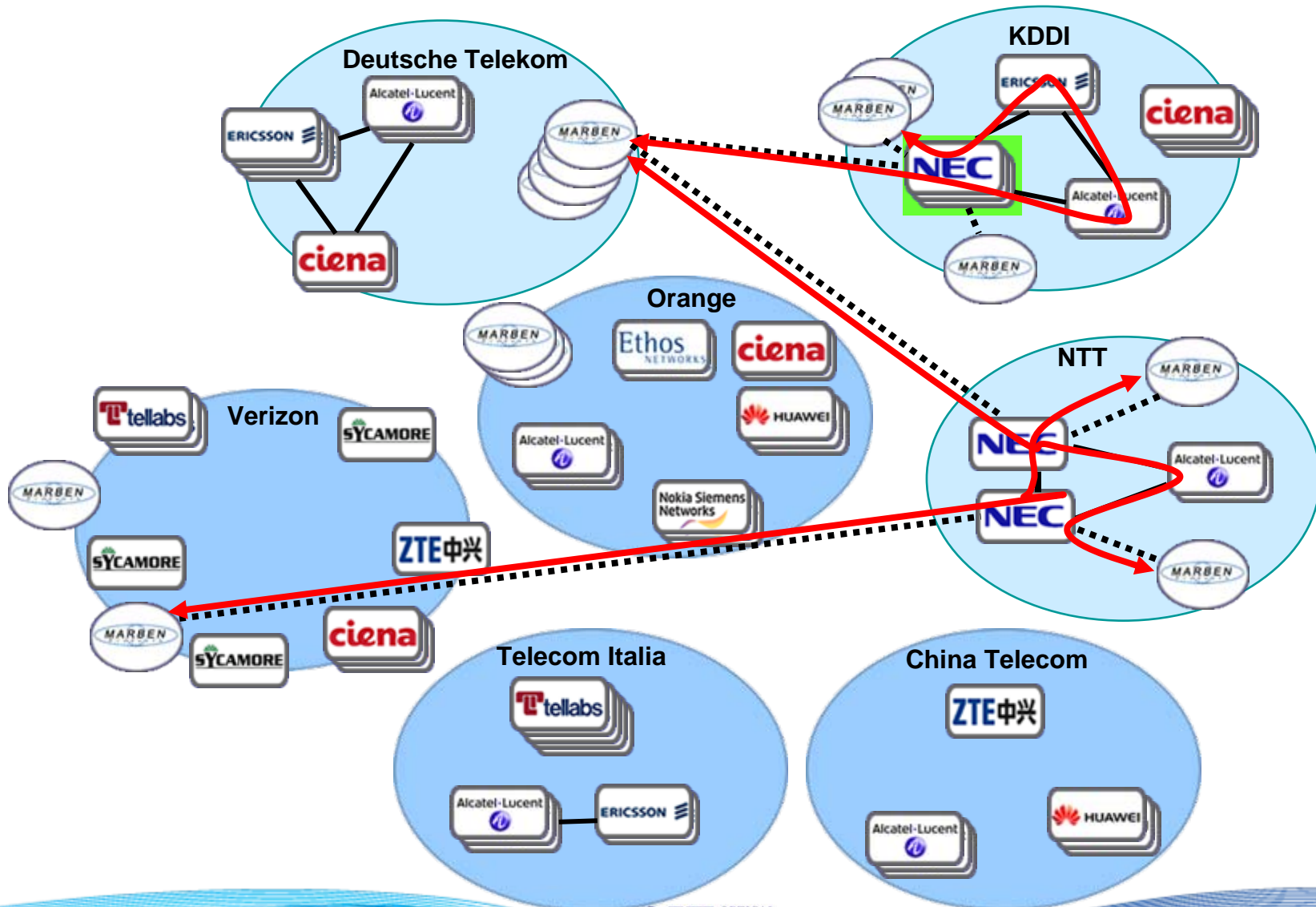
EVPLoMPLS-TP

Ericsson Role in the Demonstration

- ◆ Ericsson technology present in three sites (Asia and Europe)
- ◆ Interworking with other MPLS-TP vendors equipment in the demo was successfully achieved



EVPLoMPLS-TP *Demonstration Topology*



EVPLoMPLS-TP

MPLS-TP Tested Features

◆ MPLS-TP test was focused on

✓ Connectivity – data plane

- ◆ MPLS-TP forwarding plane based on standard MPLS data plane
- ◆ Static configuration and provisioning of MPLS-TP (LSP, PW)
- ◆ PW multiplexing into a single LSP

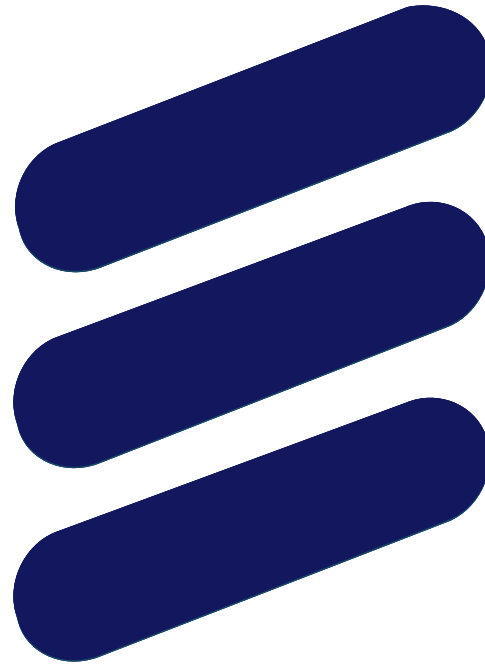
✓ End-to-end protection

- ◆ OAM tools used for LSP monitoring
 - OAM based on Ach label 13
 - BFD for continuity check (as option being discussed in IETF)
- ◆ LSP protection mechanisms
 - 1:1 LSP protection with < 50 ms protection switching
 - 1:1 protection with an APS protocol

Opportunities Enabled by Interoperability

Benefits for Network Users, Vendors and Carriers

- ◆ On-demand broadband service delivery on national and global scales;
- ◆ Bandwidth optimization – right-sizing network resources to the service, through packet transport network flexibility;
- ◆ High reliability for carrier-class performance;
- ◆ Vendor commitment to products that comply with **standards and interoperate** – a key carrier requirement for global coverage of network services and a catalyst for new services and solutions;
- ◆ Interoperability eases system integration of different vendor solutions and opens market opportunities for traditional and new **packet transport** technologies;



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