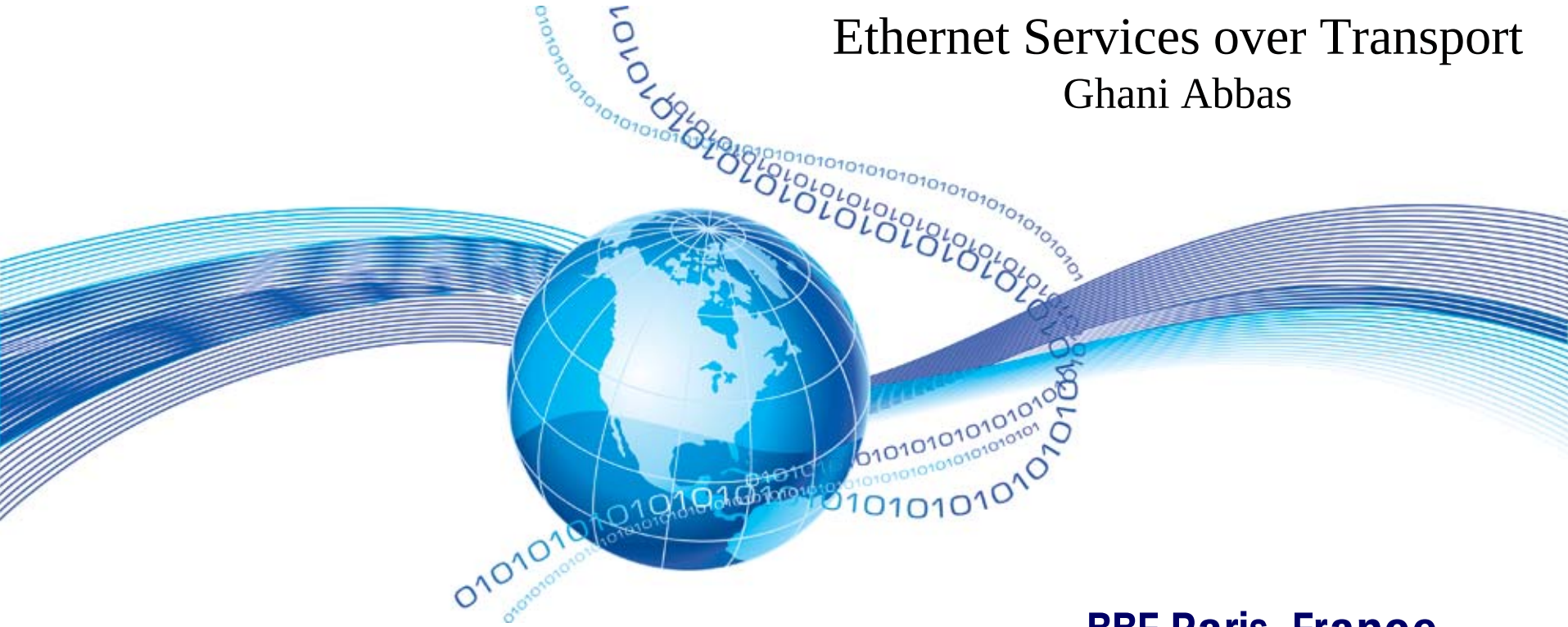
2009 OIF Worldwide Interoperability Demo
Enabling Broadband On-Demand Services

Ethernet Services over Transport

Ghani Abbas



BBF Paris, France

8th., Sept.,2009

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OIF OPTICAL INTERNETWORKING FORUM

Topics

- **OIF 2009 Demonstration Topology**
- **Types of transport technology**
- **Ethernet Services**
- **Benefits**

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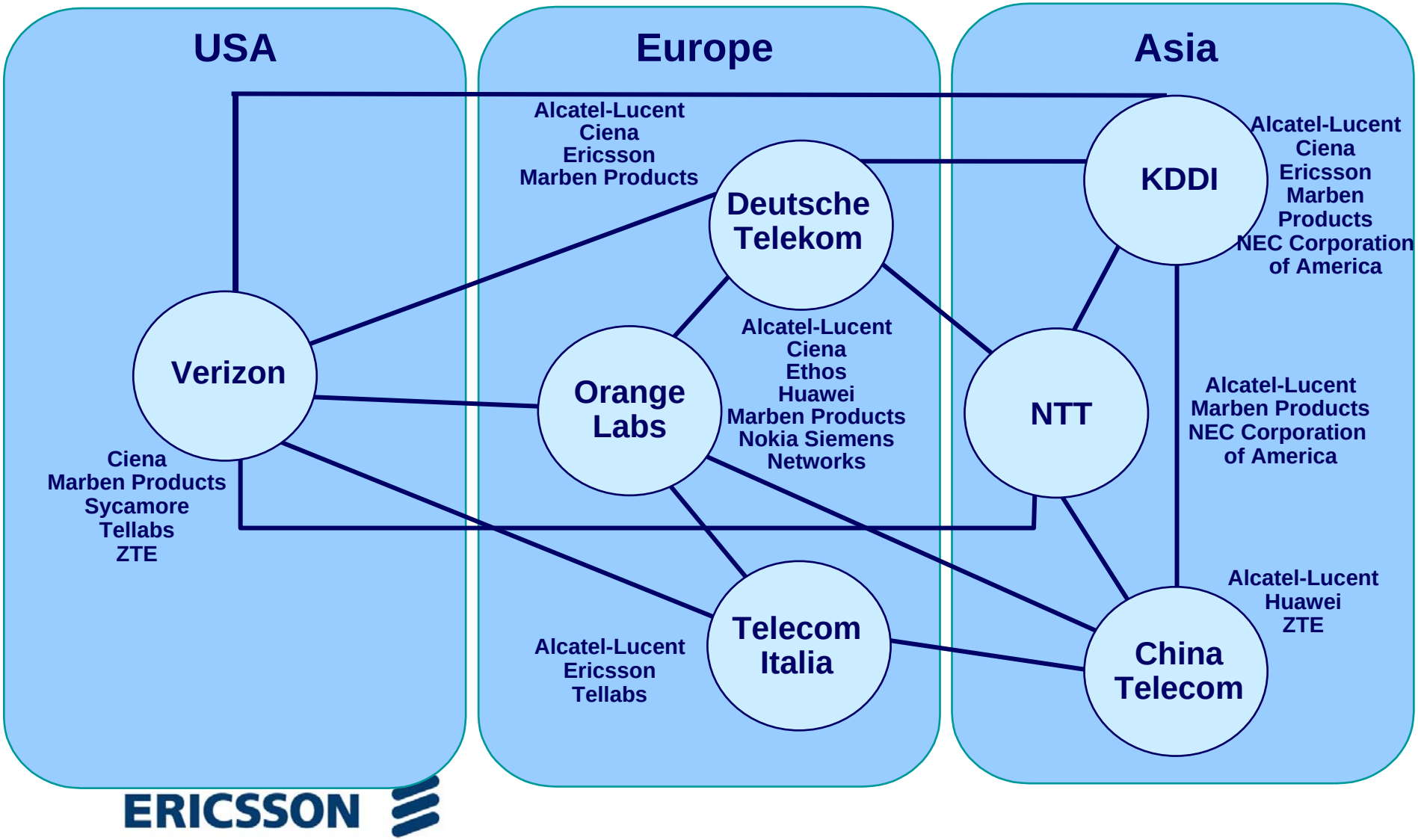
OIF 2009 Global Demonstration Topology



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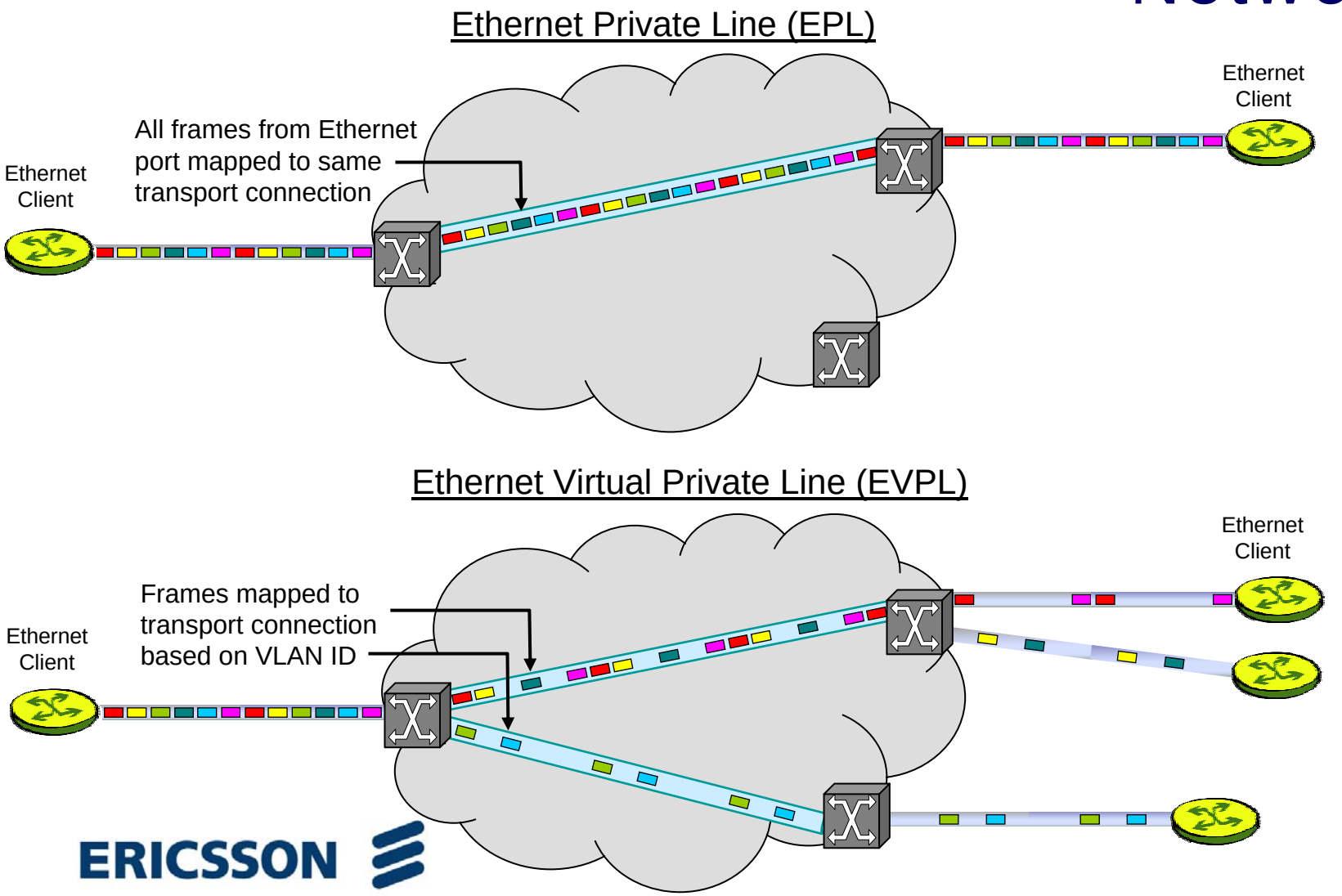
Types of Ethernet Services

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 model in ITU-T Recommendation G.8011.2.

o Ethernet Private Line (EPL), defined by ITU-T Recommendation G.8011.1, where a whole Ethernet port is switched across a provider network, and
o Ethernet Virtual Private Line (EVPL), defined by ITU-T Recommendation G.8011.2, where VLAN sets can be switched to multiple destinations.

Ethernet Services Over Transport Networks



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Types of Transport Technology

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

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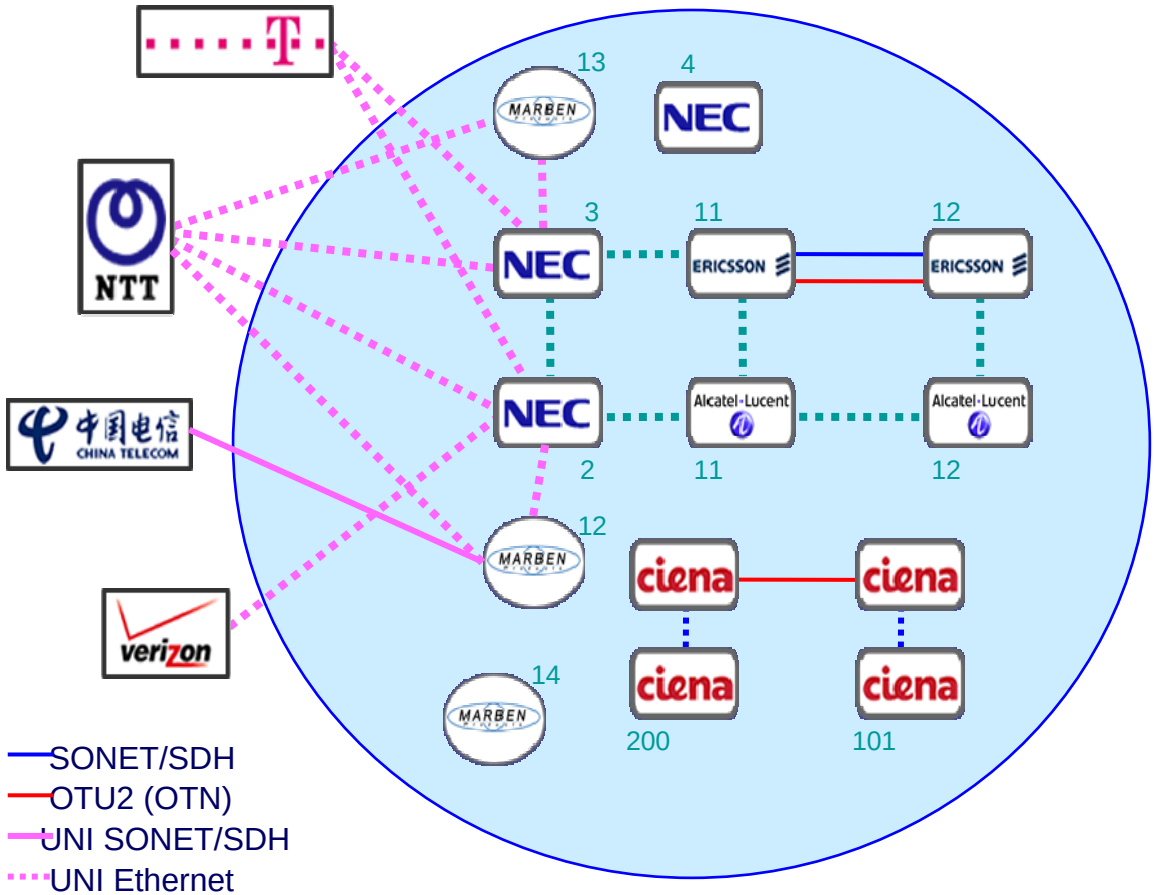
Multiple physical Links

Example of equipment interworking in KDDI Labs



- 1Gb Eth
  10Gb Eth
  EoSDH (STM16)
  OTU2 (OTN)

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EVPL Over Transport

- **Previous OIF interoperability demonstrations focused on EPL over SONET/SDH**
- **2009 interoperability demo focused on expanded services (EVPL) delivered over various transport technology:**
  - **TDM circuit-switched technologies**
    - **SONET/SDH – STSn and STMn virtual concatenation groups**
    - **OTN – ODUk/OTU containers for TDM switching**
  - **Connection-oriented packet-switched technologies**
    - **PBB-TE – scalable Ethernet transport over OTN**
    - **MPLS-based packet switching over OTN and SDH**
- **Adapting Ethernet over various transport technologies allows carriers to deliver broadband services using both legacy and emerging transport networks**

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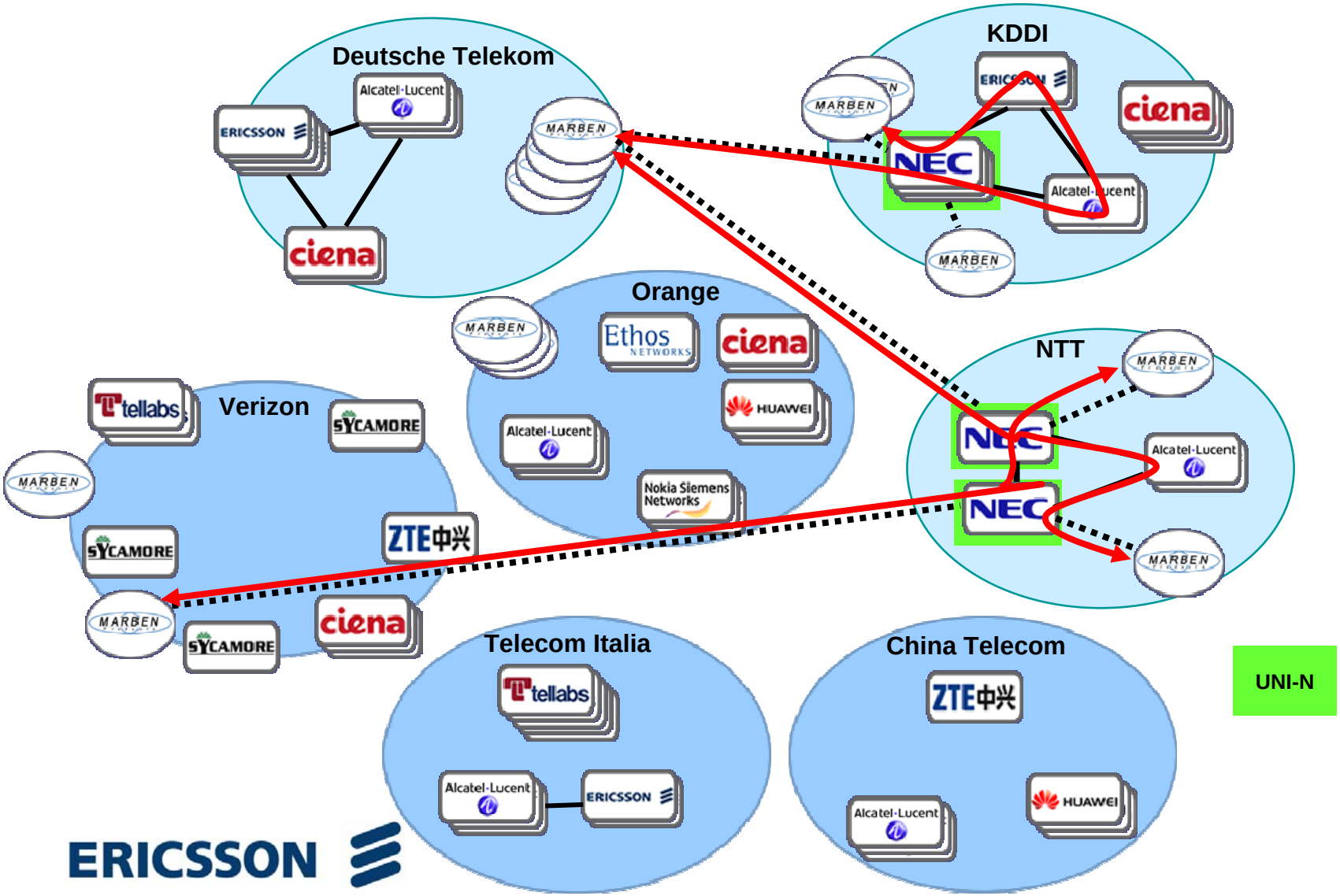
EVPLoMPLS Demonstration Topology



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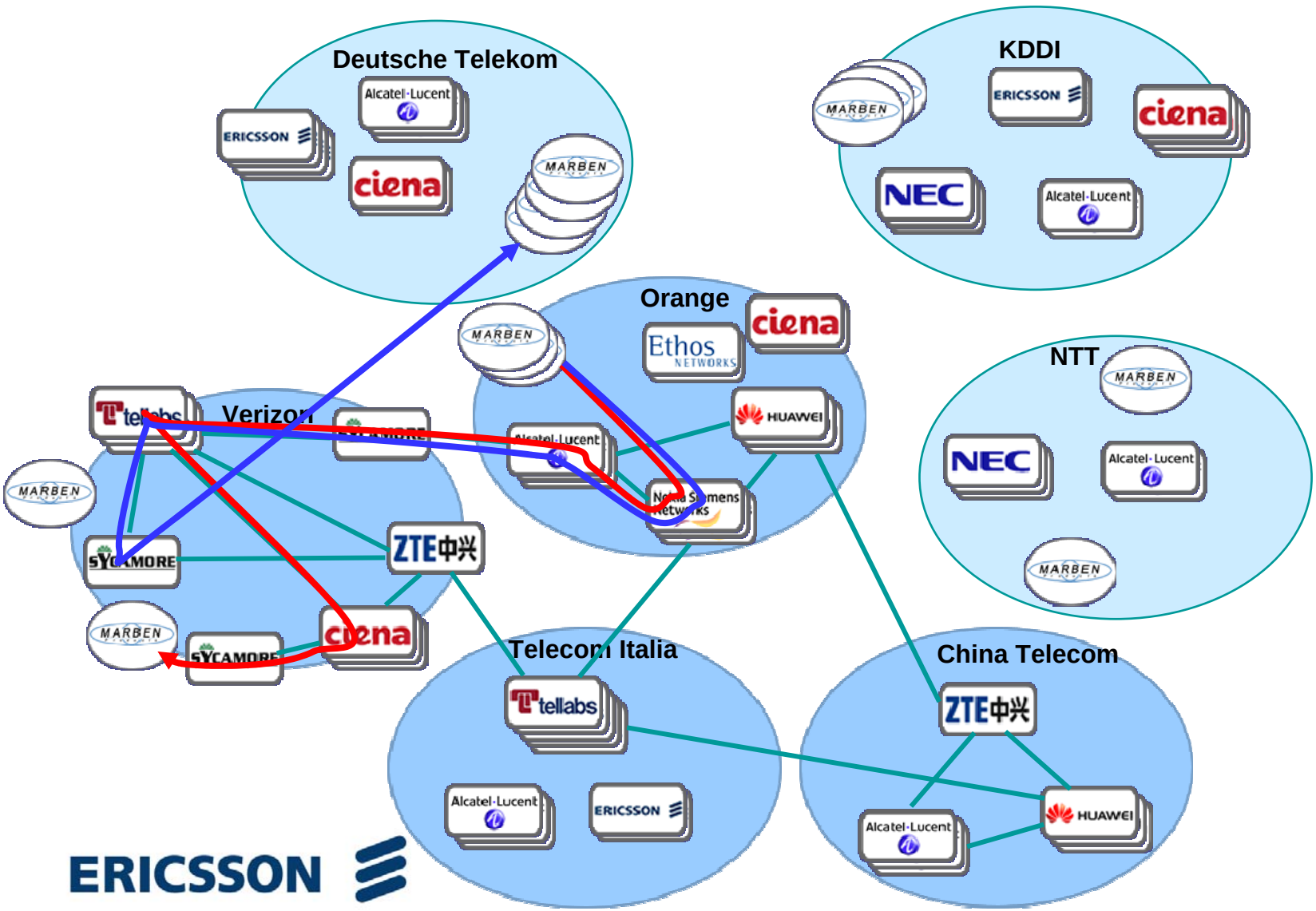
EVPLoS Demonstration Topology



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**
- **Global coverage of data services, based on SONET/SDH, OTN and packet transport networks**
- **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 Ethernet, SONET/SDH, OTN, packet transport and other equipment**

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