

Interoperability Topics in Next-Generation Transport Networks

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Interoperable Next-Generation Optical Network

Agenda

13:00 Introduction

Hans-Martin Foisel, *Deutsche Telekom , Germany*

Vishnu Shukla, *Verizon , United States*

13:30 OIF Worldwide Interoperability Demonstration 2005 - results and findings of the control plane interoperability test

Carlo Cavazzoni, *TILAB, Italy*

14:00 Service adaptation using GFP/VCAT/LCAS for Ethernet and SAN

Roman Egorov, *Verizon , United States*

14:30 Interconnection and Interoperability aspects in the European IST project "Multi-Partner European Test Beds for Research Networking", MUPBED

Jan Spaeth, *Marconi , Germany*

15:00 Coffee break

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Agenda (cont.)

- 15:30** **ASON – GMPLS domain interoperability topics from ITU-T perspective**
Jonathan Sadler, *Tellabs , United States*
- 16:00** **ASON – GMPLS interoperability topics from IETF perspective**
Lyndon Ong, *Ciena , United States*
- 16:30** **ASON – GMPLS interworking – practical implementation of interoperable solutions**
Tomohiro Otani, *KDDI R&D Laboratories Inc., Japan*
- 17:00** **Topics of control plane - management plane interworking**
Vishnu Shukla, *Verizon , United States*
- 17:30** **Demonstration of routing technologies for hierarchical ASON by simulations and emulation test beds**
Xiaoping Zheng, *Tsinghua University , Beijing , China*
- 18:00** **End**

**All presentations will be available
on the web page of the
IST project MUPBED**

www.ist-mupbed.org

Interoperable
Next-Generation Optical Networks
Introduction

Hans-Martin Foisel & Vishnu Shukla

Interoperable Next-Generation Optical Networks

Introduction

- ◆ **Need for optical network interoperability**
- ◆ **Issues with current optical networks**
- ◆ **Interoperability areas**
 - **Transport**
 - **Adaptation**
 - **Signaling & Control**
 - **Management**

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The needs

- ◆ **Emerging applications require high bandwidths and interconnection with multiple applications on the network**
- ◆ **Intelligent optical network is critical to many dynamic bandwidth services**
- ◆ **Standardized interworking between various network interfaces and interoperability among vendor's equipment/domains are crucial to provision end-to-end services and establish cost effective network evolution path**
 - **E.g.: In North America the ILEC, IXC boundaries are disappearing**
- ◆ **Current networks are based on multiple technologies and control solutions, standard and propriety, making inter-domain and inter-carrier interworking difficult**

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Expected benefits

- ◆ **Carriers can provision end-to-end dynamic bandwidth services**
- ◆ **Innovative emerging network technologies can be deployed at faster pace than with a single vendor solutions**
- ◆ **Cost effective selection of network elements, platforms and multi-vendor solutions**
- ◆ **Reduced operations overheads-simplified provisioning of new services**
- ◆ **Larger base of viable platform suppliers**
 - Capital cost control through competitive procurement
 - Greater depth of technologies and platforms available
 - Lower operations cost through simplification of network management

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Issues with current optical transport

- ◆ **Designed for voice traffic, needs to evolve to efficiently support data services**
- ◆ **Relatively static structure that does not easily address network churn**
- ◆ **Slow for provisioning of switched connection**
- ◆ **Connections setup via network management systems, only**

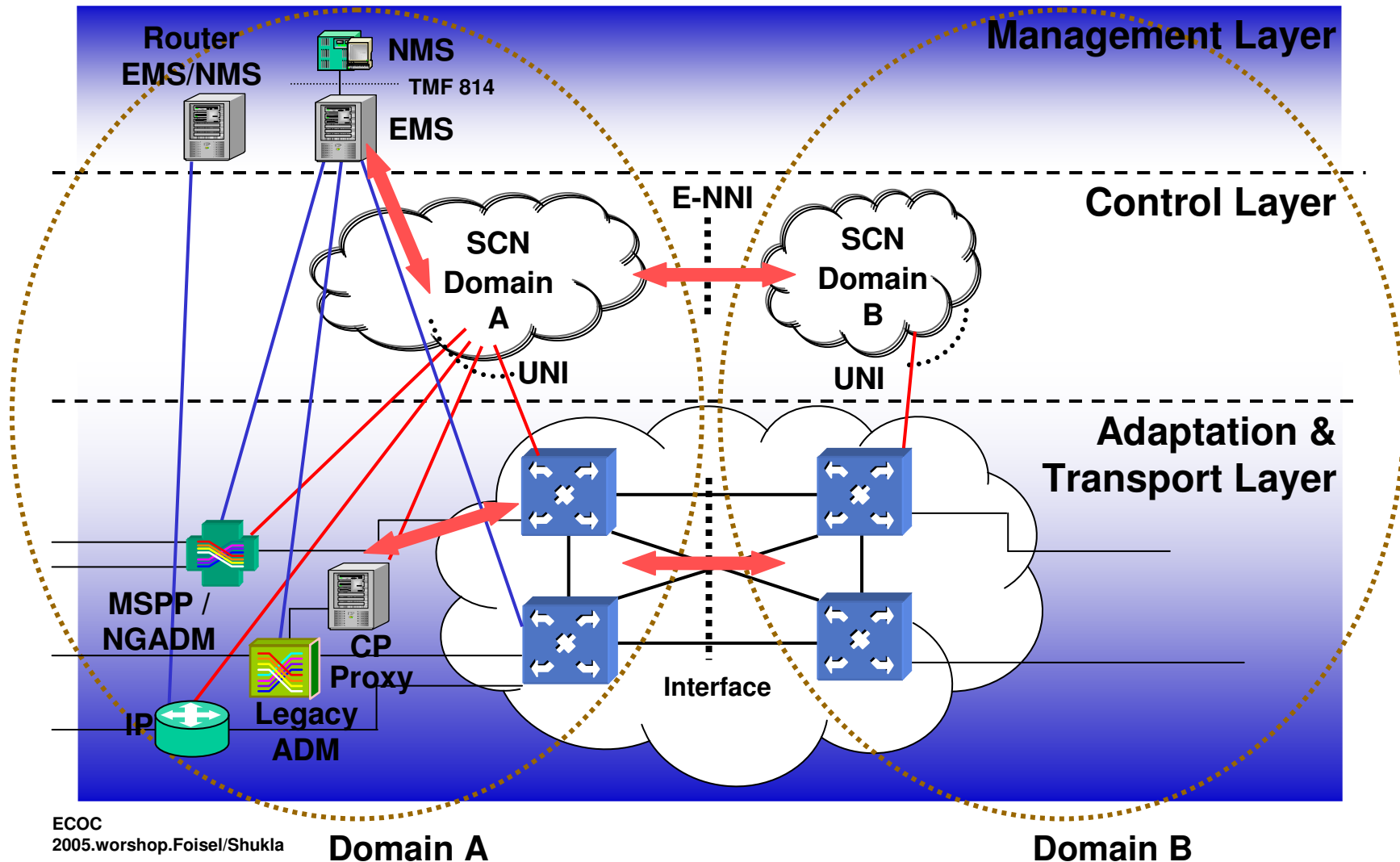
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Specific interfaces – interoperability areas

- ◆ **Transport Plane:** Physical interfaces for data transport
- ◆ **Control and Signaling:** Interfaces to support signaling and control of routes in the networks, within single domains but also across multiple domains
 - Transport network: Interfaces among different types of network domains
 - Client: Interfaces from transport networks to external client entities
- ◆ **Management and OSS:** Interfaces between the control plane and management plane

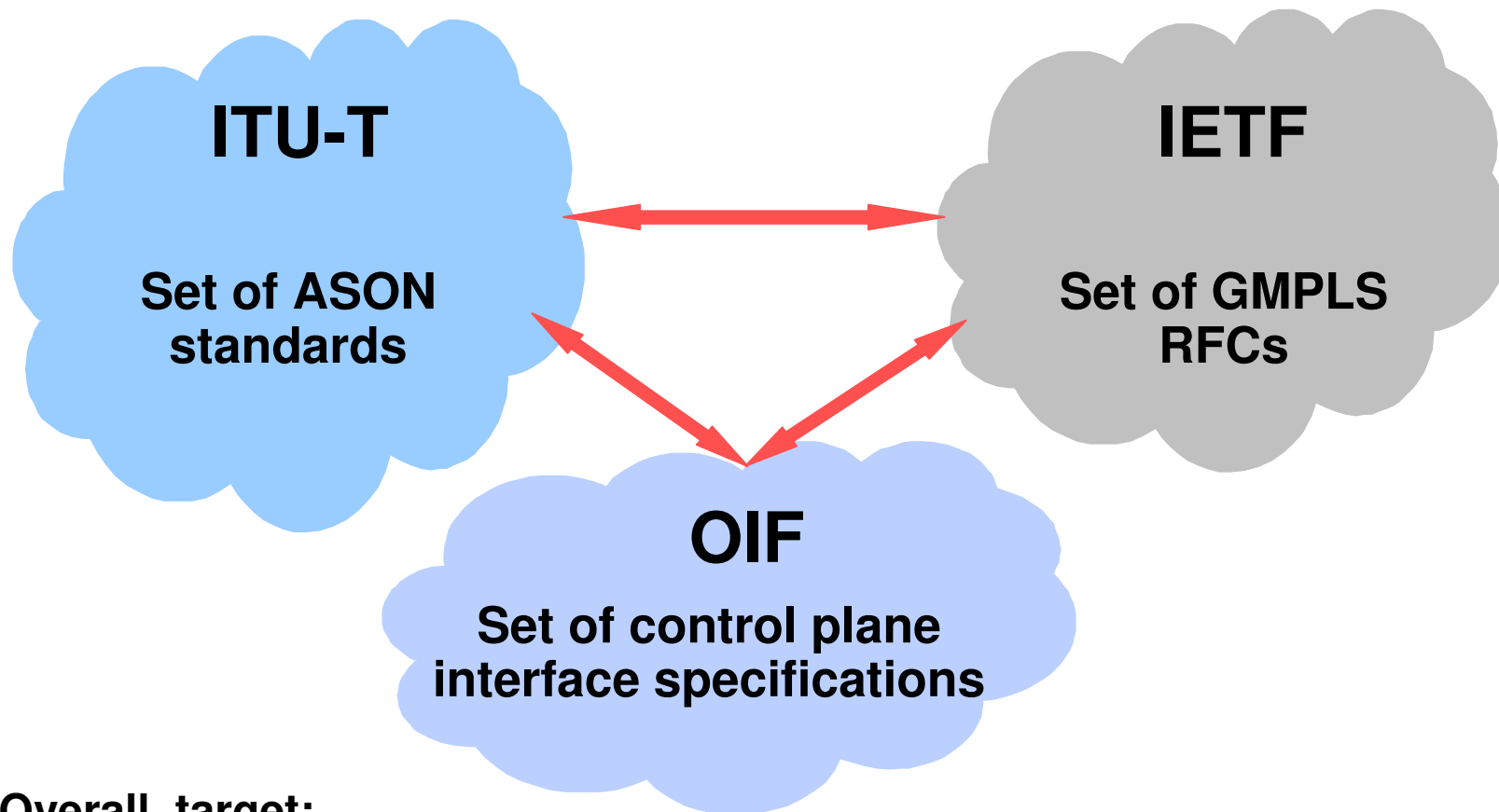
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Interoperability model



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Control plane specifications / standardizations



Overall target:

Complete one interoperable set of ASON/GMPLS standards and specification to foster the deployment of control plane enabled networks