



Kei-han-na Info-Communication Open Laboratory Overview

Kei-han-na Kansai Science City is located at the borders of Kyoto, Osaka, and Nara prefectures in Japanese Kansai area.

Kei-han-na Info-Communication Open Laboratory was established in 2003 in the heart of Kei-han-na area with the objective of carrying out research and development-based studies of info-communication technologies.



Kei-han-na Info-Communication Open Laboratory



Equipped with state-of-the-art research facilities based on the most advanced network technologies.

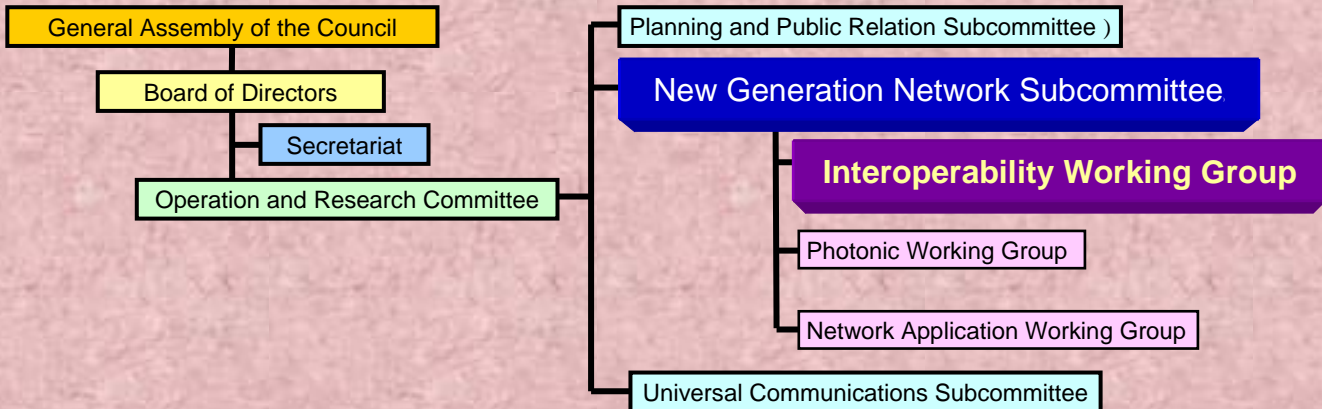
- GMPLS Interoperability Testing Facilities
- Distributed Virtual Network Experiment Facilities
- OTN Testing Facilities
- JGN2 Connection

- Ethernet Connection Service (L2 Service), IP Connection Service (L3 Service) are provided in all the access points. OXC Connection Service, 10Gbps Connection Service and Optical Testbed Service (dark fibers) are also provided at certain access points.

Organization:

Research Promotion Council of Kei-han-na Info-Communication Open Laboratory

- Established to promote research and development through collaborations between industry, academia and governmental institutions effective use of the Keihanna Info-Communication Open Laboratory



New Generation Network Subcommittee Interoperability Working Group

Interoperability



Working Group 2.0

Major activities

Project Code Project Name of the Research and Development

PJ21. 10GbE-LANPHY over OTN Interoperability

PJ22. GMPLS E-NNI technology & all-optical network control technology

PJ23. New generation 100GE transfer / connection / control technology

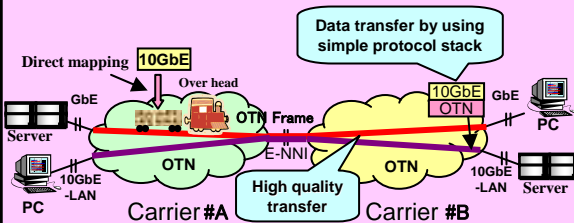
Experiments

- 10GE-LANPHY over OTN testing with overseas carriers and vendors: PJ21
- GMPLS control of the GbE connection testing between carriers: PJ22

10GbE-LANPHY direct mapping technology over OTN

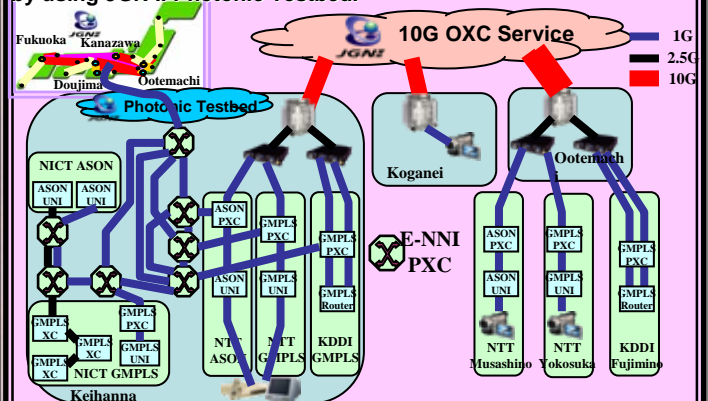
■ "OTN (Optical Transport Network)" has been standardized at ITU-T as the next generation network architecture to realize "per wavelength" transfer functionality. The OTN frame has been designed to well adapt IP data transfer.

■ It has enabled to provide simple and high quality transfer services by accommodating 10GbE signals directly into OTN without digital communication network devices such as SDH devices.



E-NNI ASON/GMPLS wide area interworking experiment

■ NTT (Musashino, Yokosuka, Keihanna), KDDI Labs (Fujimino, Keihanna), and NICT (Koganei, Keihanna) were connected by using JGN II. In addition, they were connected to GMPLS network by using JGN II Photonic Testbed.



Conference Presentations

- **June 2006 iPOP 2006**
"Kei-han-na interoperability demonstrations on interworking of inter-carrier ASON/GMPLS network domains"
- **July 2006 OIF Workshop**
"Inter-Carrier ASON/GMPLS Network Domains Interworking Trial in Kei-han-na Open Lab"
- **Sep. 2006 APOC (Korea)**
"Interoperability Activities for Photonic Networks in Japan"
- **Sep. 2006 ECOC Workshop**
"Field Trial of Signaling Interworking of Multi-Carrier ASON/GMPLS Network Domains"
- **Oct. 2006 MPLS2006 (Washington D.C.)**
"Issues on GMPLS Inter-carrier E-NNI and a Prototype Node based on Linux"

Standardization Activities

- Three contributions for ITU-T SG15, two of which are Japan contributions
- Contributed to the documentation of **G.Sup43 "Transport of IEEE 10G Base-R in Optical Transport Networks (OTN)"** in Oct. 2006

Members

- Chair: Naoaki Yamanaka (Keio University)
 Sub chairs: Masatoshi Suzuki (KDDI LABS)
 Takeshi Akaike (NTT)
 Satoru Okamoto (Keio University)
 Members: NTT, KDDI Labs, NEC, HITACHI, Fujitsu, Mitsubishi Electric, Anritsu, Keio University, Oita University, NICT

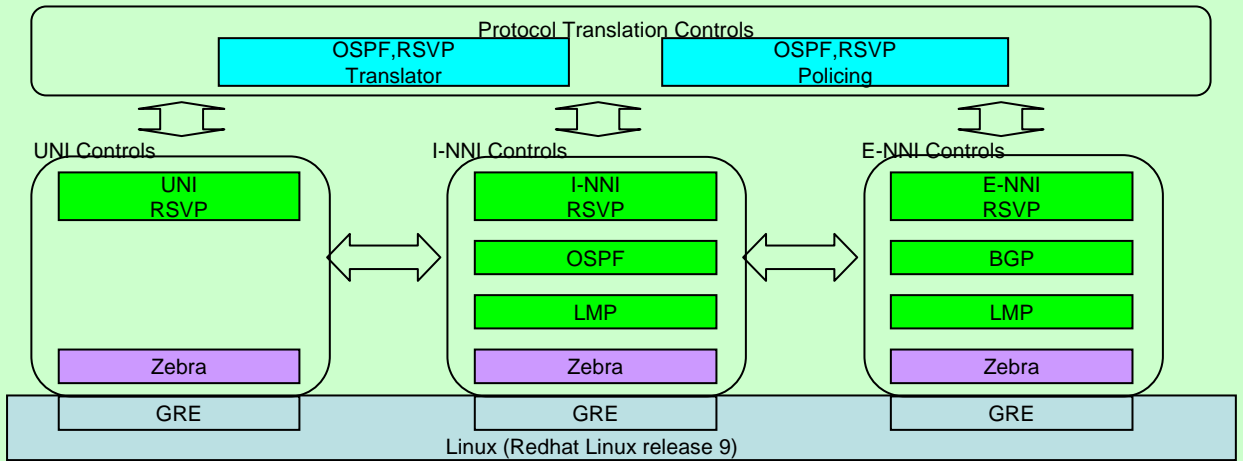
E-NNI Prototype and Demonstration Network



Features

- Message translation for interoperability
- Model conversion for ASON/IETF architecture
- EGP routing protocol with extended BGP for TE
- Hardware control for L2SW, OXC and GSMP capable switches

Function blocks



Demo network

