

APII Update – KOREN –

APII Workshop 2012
2012. 10.29.

Sanggyun KIM
KOREN/NIA

NIA overview

- **Founded in 1987**

- Support ICT Enablement of National Agencies' Local Autonomies and Development of Policies for the Information Society
(Framework Act on Informatization Promotion)

- **Public Agency**

- Statutory Agency (belonging to Ministry of Public Administration and Security)
 - Assist Ministry of Public Administration and Security and Korea Communications Commission

- **Leading e-Gov, research infra, and IT consulting**

- Accelerated realization of an advanced ICT-based society
- Lead the integration of society through Informatization
- Lead the global knowledge society



KOREN overview

■ KOREA advanced REsearch Network

- Deploy convergence communication and future network testbed
 - Promotion through sharing research results based on collaborative relationship among academia, industry and government
 - Provide Future internet research environments (DCN, OF)
- Up to 60Gbps Backbone Capacity & 1/10Gbps User Connections
- 60-Gigabit Member institutes (mainly for research & development)

■ APII/TEIN4

- (APII) Asia Pacific Information Infrastructure (KR-JP)
 - 10Gbps between KR and JP (Advanced Applications and Collaborative Networks)
 - KOREN/APII/JGN-X participate in Global Lambda Integrated Facility (GLIF)
- (TEIN4) Trans Eurasia Information Network (KR-Asia-EU)
 - 10G between KR-HK , and HK -SG , now under preparation
 - Advanced Applications and Collaborative Networks within Asia and EU countries



KOREN Update in 2012

■ Backbone upgrade

- 60G environment for testing network equipment capability
 - 10~20G backbone is deployed nationwide
 - Additional 40G environment between Seoul and Daejeon
 - POINTS and FIRST facilities in place for the experiment
 - MPLS-TP & ROADM Integrated System – Multi-layer Optical Network Ctrl Platform
- Mesh environment deployment
 - Resource for testing based on network topology
 - 1G based separate mesh connection deployed.

■ Projects

- (Domestic) Mobile, CPS, Clouds, Overlay
 - 9 Awarded projects are on-going now.
 - Focus on future internet related issues
- (TEIN related) eTEIN KOREN Project
 - SDN, IPTV and Tele-medical collaboration projects
 - Co-work with Southeast Asia Countries.



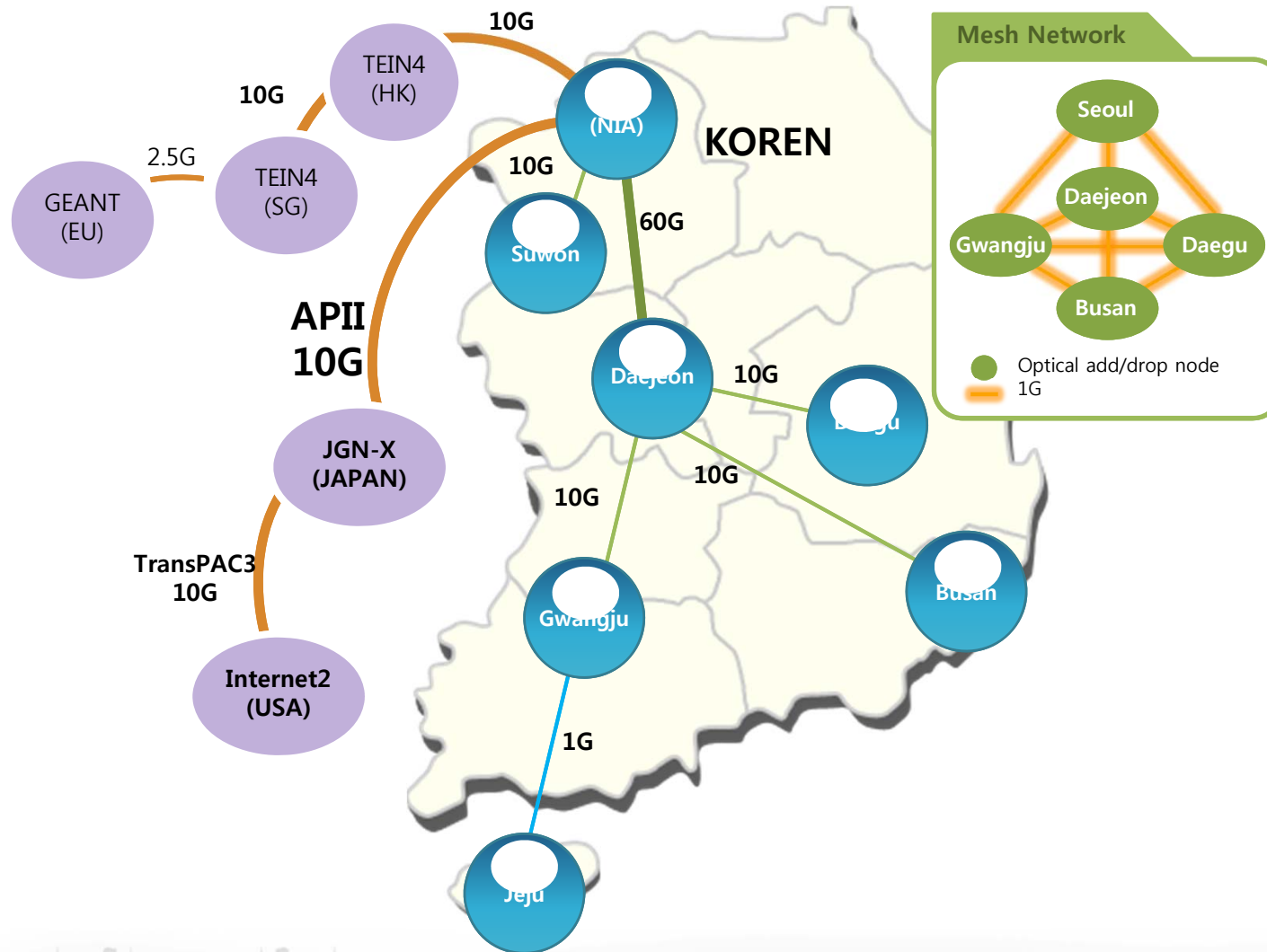
KOREN Update in 2012

- **New APII link preparation is underway.**
 - New link for Seoul-Tokyo is now under bidding.
 - Will deploy new link by end of this year
 - 10GE circuit from Seoul(NIA KOREN POP) to Tokyo(JGN-X POP)
 - Other policy issues will be discussed

- **New TEIN link upgrade is being proceeded**
 - New Carrier will be decided soon
 - Current KR-HK-SG 2.5G link will be upgraded as 10G
 - Will be started around Dec. 2012.
 - 10GE link from Seoul to Singapore via Hongkong.
 - Considered APII's Alternative backup.

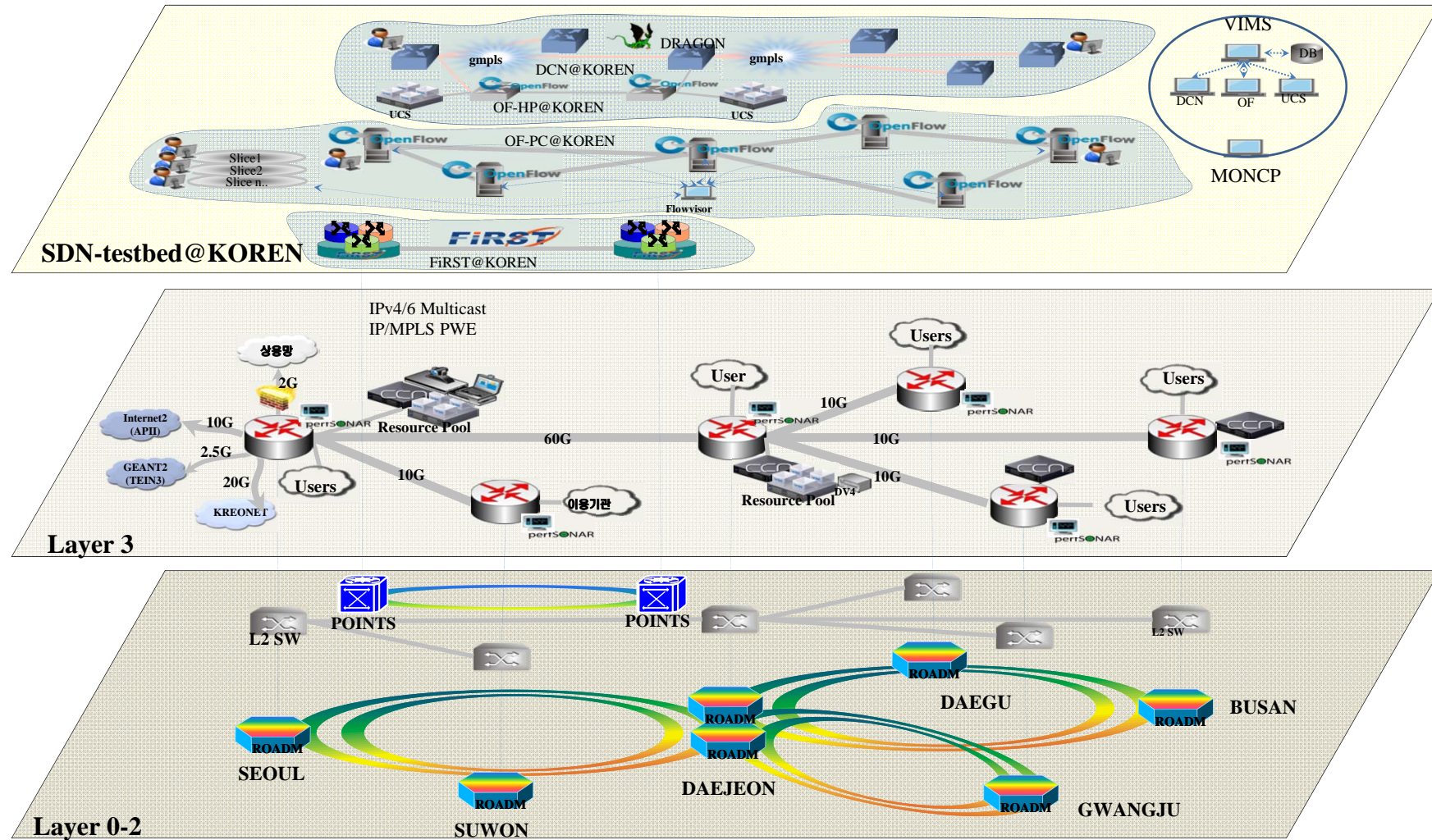


Backbone



2013. Jan. (expected)

FI Testbed in KOREN



Collaboration with ETRI

■ Test & verification Center for next generation network(April)

- Deploy environment testing & verifying research output for commercialization of R&D projects.
- Locate KOREN based test environment in ETRI
- Co-work with R&D Projects partners
- Support test of commercial equipment
 - Issue test result report.



■ Activities

- Select potential test objects (candidate projects)
- Plan test schedule with developing testing procedure
- Share test equipment with research community(industry, university, and research institutes)

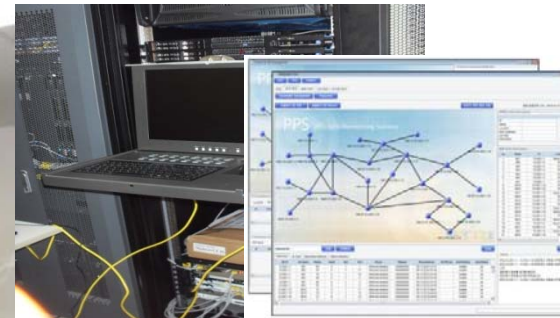


Collaboration with ETRI

- POINTS(Packet Optical Integrated Network Transport System)
Field Trial Tests



Test for functions and performance of MPLS-TP over ROADM integrated System



MONCP



POINTS #1
SEOUL POP



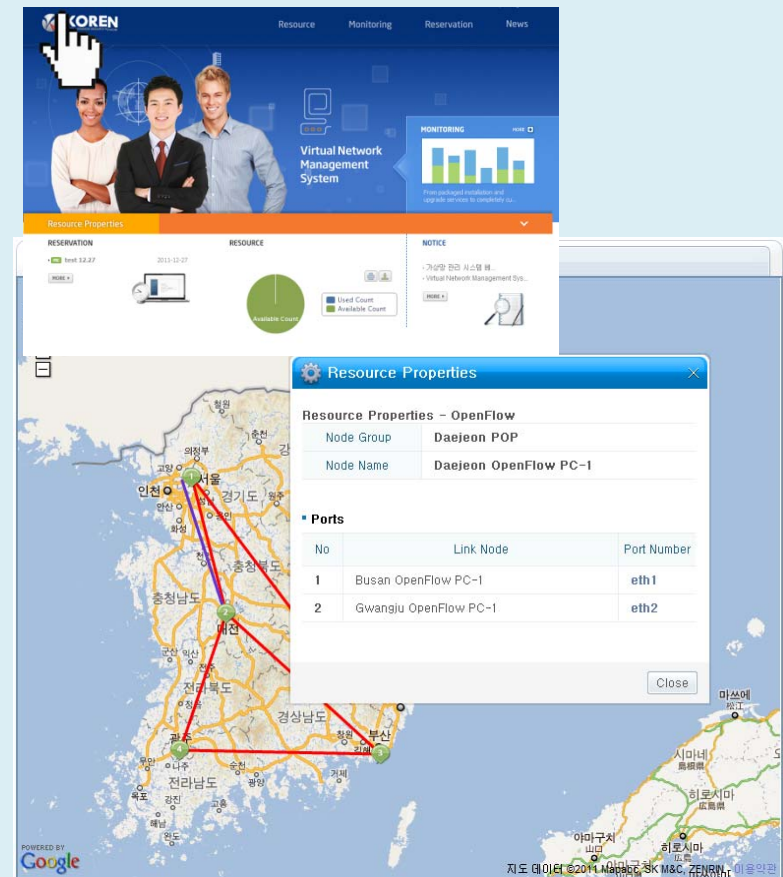
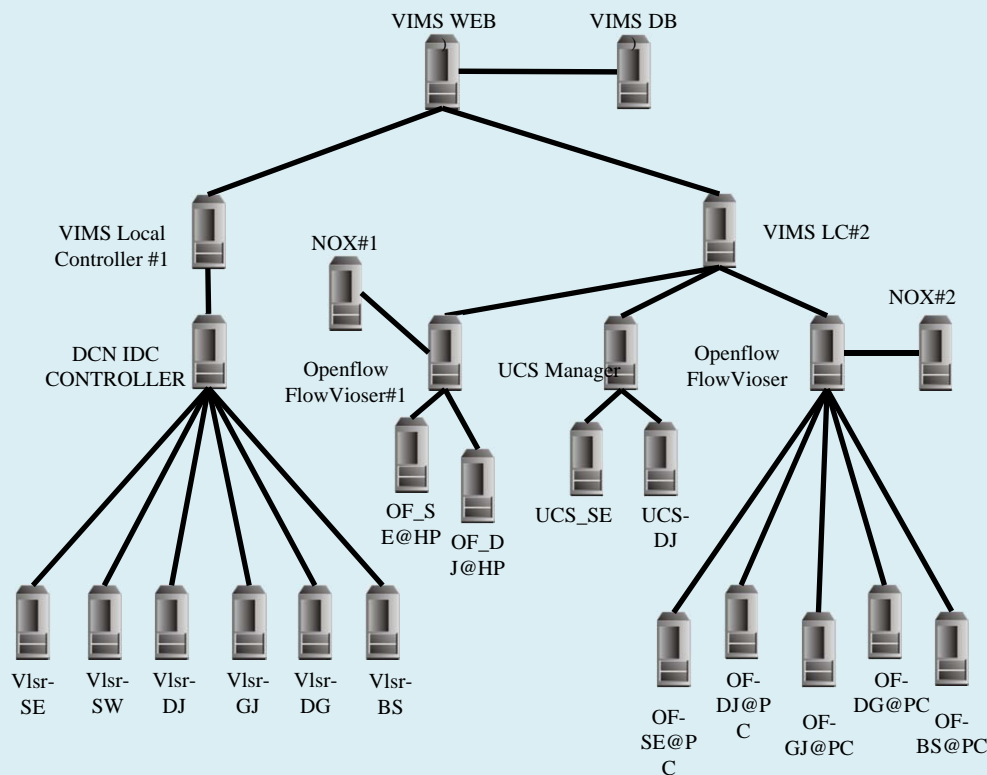
POINTS #2
DAEJEON POP

260Km



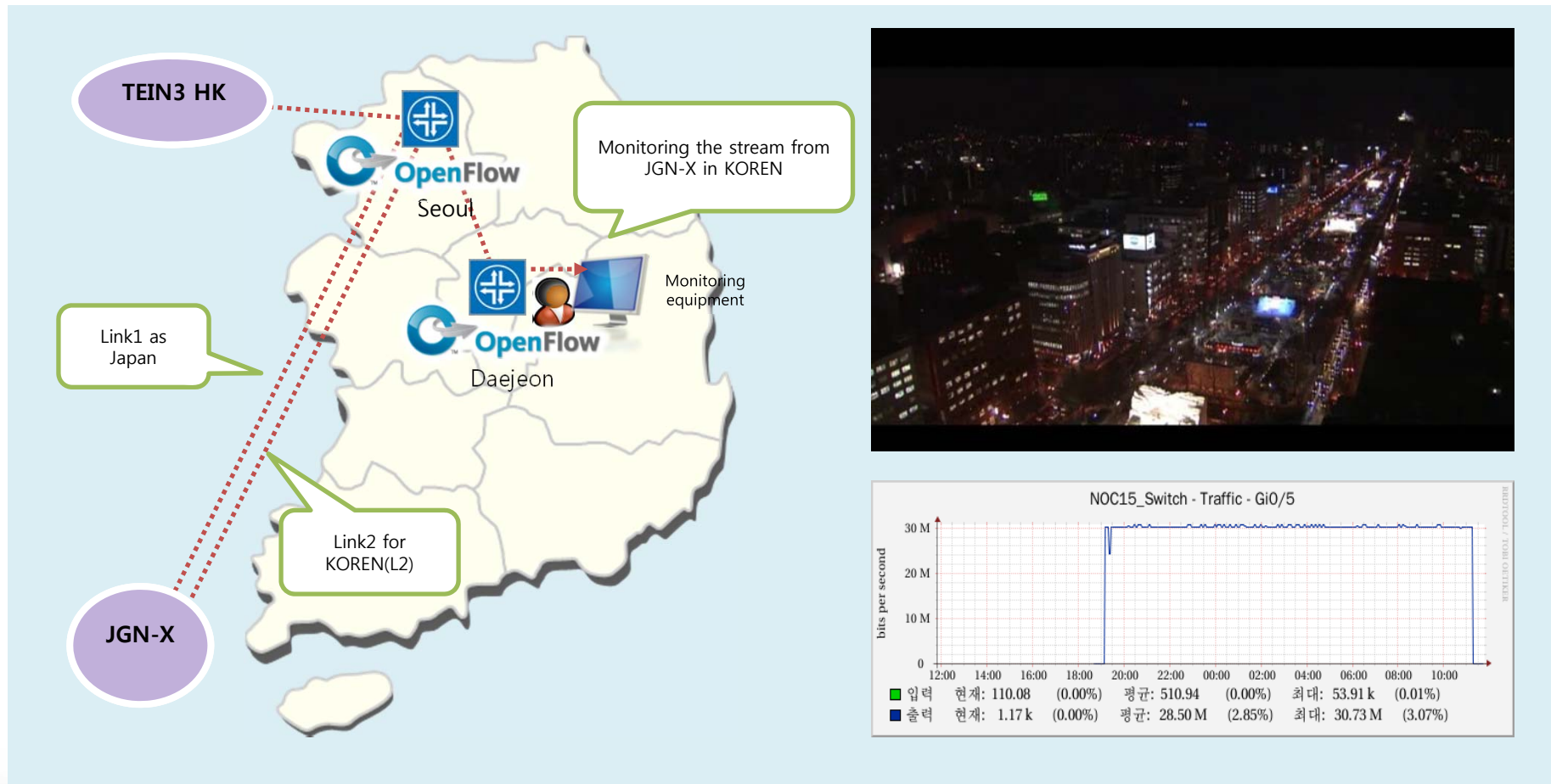
Virtual-net. Integrated Management System

Development & Deployment of VIMS



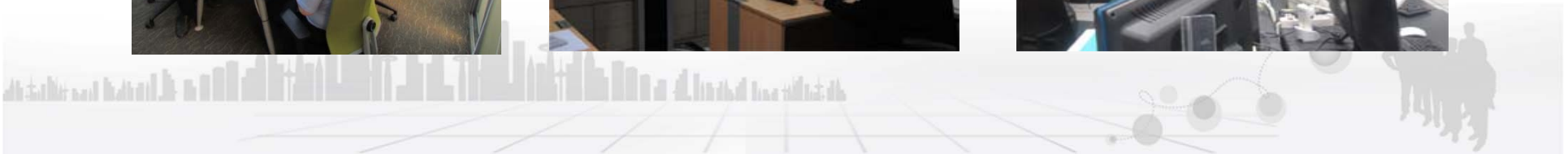
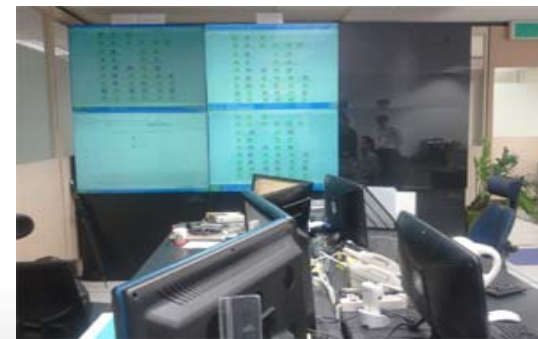
Sapporo Snow Festival relay demo

- Snow festival Real-time video on Openflow over APII



Other Testbeds

- **M2M testbed (co-work with KCA)**
 - Deploy M2M testbed for pilot service
 - Provide testing and developing toolkit and service platform
 - Connect with KOREN to M2M support center and co-work for collaboration research
- **Cloud environment (co-work with KCSA)**
 - Providing virtual resources to researchers(individual, univ. , industry)
 - Over 300 computing nodes are providing cloud infrastructure and virtual resources
 - Enhancing resources with connecting KOREN



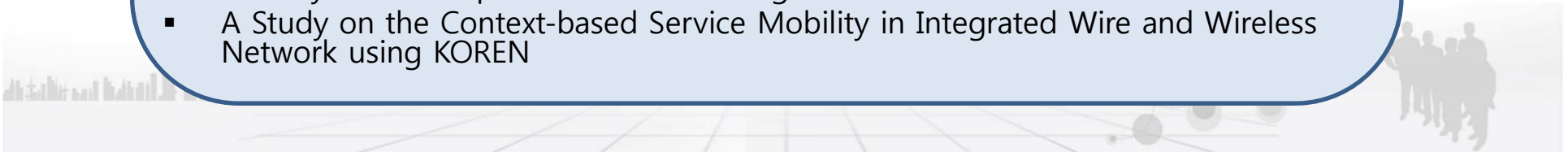
Funded Projects

▪ Global Collaboration

- Infrastructure Deployment of Openflow-based SDN
- Study on Global Open IPTV Service
- Research of Global Telemedicine

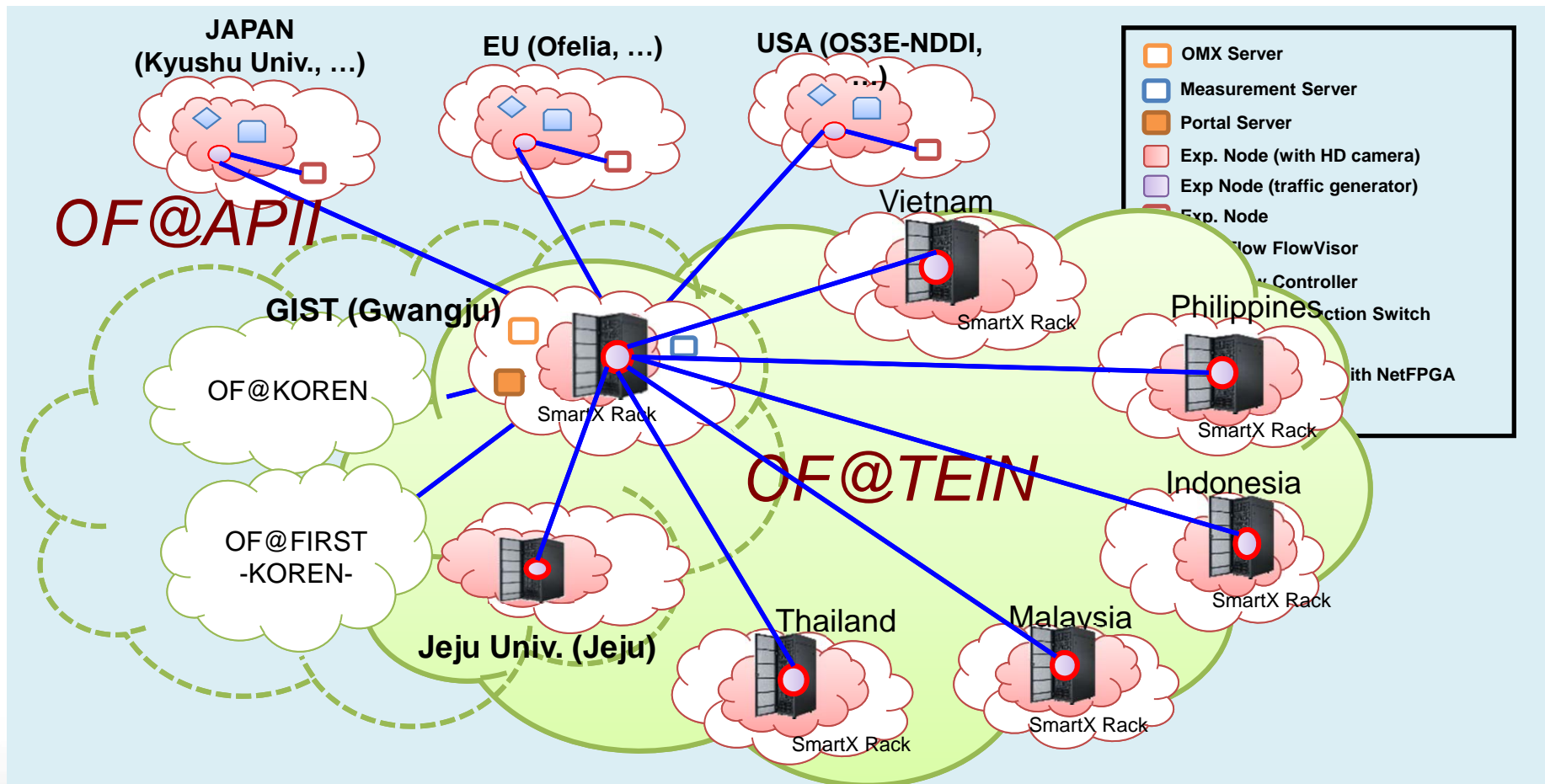
▪ Other Research projects

- A Study of virtualization control architectures for mobile networks
- A research on IoT Framework based on CPS
- A Study on virtualization security modeling in public cloud environments
- 100GE over OTU4 Test
- Overlay Contents Routing Test
- The Resource description & auto-configuration methods for the life cycle management of SDN
- Energy-efficient data gathering scheme using a data collector in mobile sensors
- A study of IPv6 implementation in HEP grid environment
- A Study on the Context-based Service Mobility in Integrated Wire and Wireless Network using KOREN



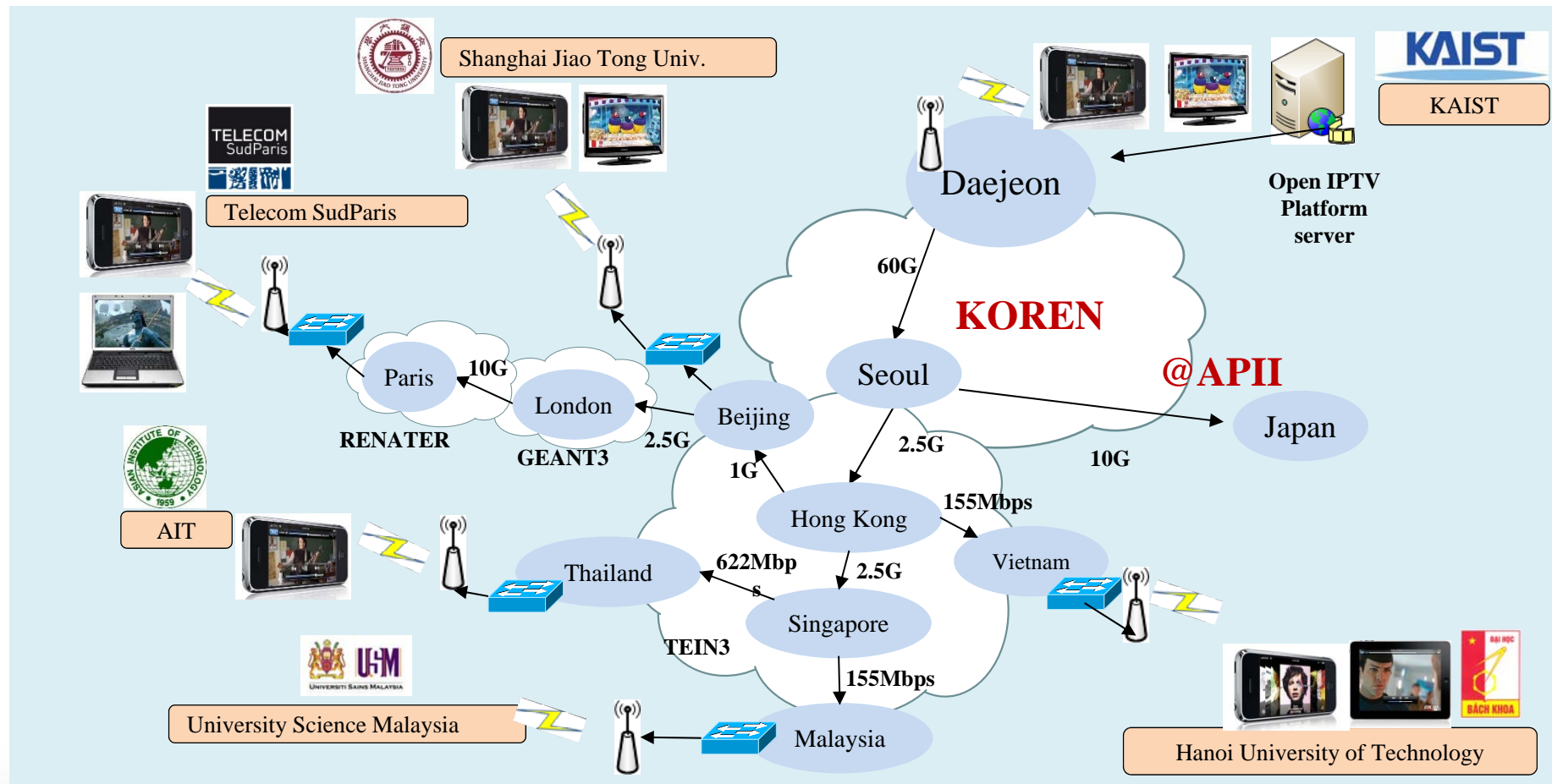
Global Research Projects

- SDN/Openflow R&D (KOREN, JP and ASEAN countries)



Global Research Projects

- Open Web IPTV R&D (KOREN, China, Japan & ASEAN)



Global Research Projects

- Medical Tele-Collaboration (9 Asian Countries)
 - Live Surgery, Tele-education, Tele-conference

MTC = SHARE + COLLABORATION + INNOVATION



MEDICAL TELE-COLLABORATION AMONG TEIN MEMBERS
2012.7.05 ~ 2012.12.31
SEOUL NATIONAL UNIVERSITY BUNDANG HOSPITAL

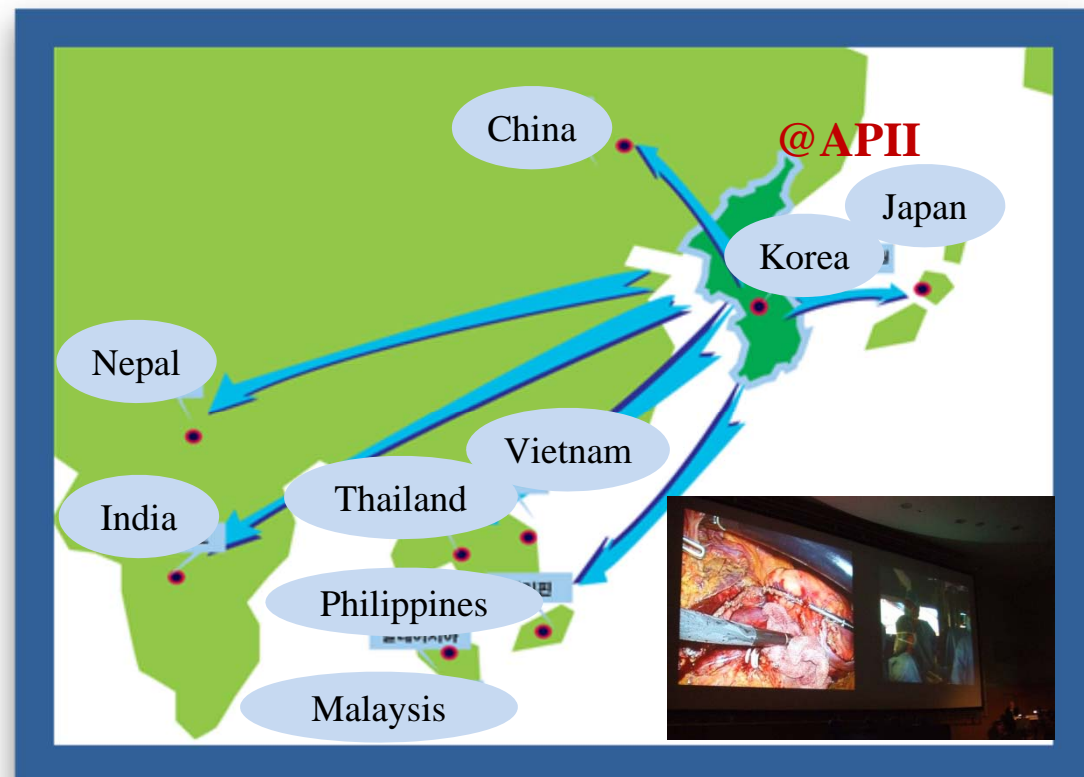
MTC PROJECT

9 ASIAN TEIN COUNTRIES

LIVE SURGERY
TELE-EDUCATION
TELE-COMMUNICATION

1) HEPATO PANCREATO BILIARY SURGERY
2) STOMACH CANCER SURGERY
3) COLORECTAL CANCER SURGERY
4) BLOOD VESSEL SURGERY
5) BREAST CANCER SURGERY
6) PEDIATRIC SURGERY
7) THYROID SURGERY
8) OBSTETRIC SURGERY
9) OBESITY

CHINA
INDIA
INDONESIA
JAPAN
MALAYSIA
NEPAL
PHILIPPINES
THAILAND
VIETNAM



Plans

- Enhance co-work ICT R&D Program
 - WDM PON, 100G within ROADM, smart node system
 - Research for DTN, name based delivery network, Openflow
- Backbone Restructuring & FI Infra enhancement
 - Enable flexible environment for future internet research
 - Making stable existing facilities(DCN, OF and so on)
 - Co-work with OF@Korea (FIF Testbed WG)
- Participating Various Service Provisioning Projects
 - Giga Internet, M2M, Clouds and etc.
- Promote R&D Resources for SME
 - providing test environment for verifying new service
 - computing(Cloud) , M2M(Sensors), networking resources
- Efforts on developing collaboration issues with JP





Thank you

ありがとうございます。

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