
About KOREN

(Korea Advanced REsearch Network)

 August 2018

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1. KOREN in Brief (1)

KOREN (KORea advanced REsearch Network) is

an advanced and non-profit testbed network infrastructure, which provides high-quality broadband network to the industry, academia, and research institutions, enabling verification tests for future network related technologies and laying the groundwork for international joint research cooperation in the cutting-edge ICT field.



Strengthening research capacity
Firm foundation international research cooperation
Securing national technological competitiveness

**Establishment of high-capacity and high-quality research testbed
and internetworking with international research networks**



Industries

Test and verify
next-Generation network
and application technologies



Research Institutions

Provide infrastructure for
validation test
(sensors, wireless
environment, IP-USN, future
network, etc)



Universities

Support domestic and
international joint research on
information technologies and
applications



KOREN
KOREA ADVANCED RESEARCH NETWORK

NIA
NATIONAL INFORMATION
SOCIETY AGENCY

1. KOREN in Brief (2) - Governance Structure

Governance Structure

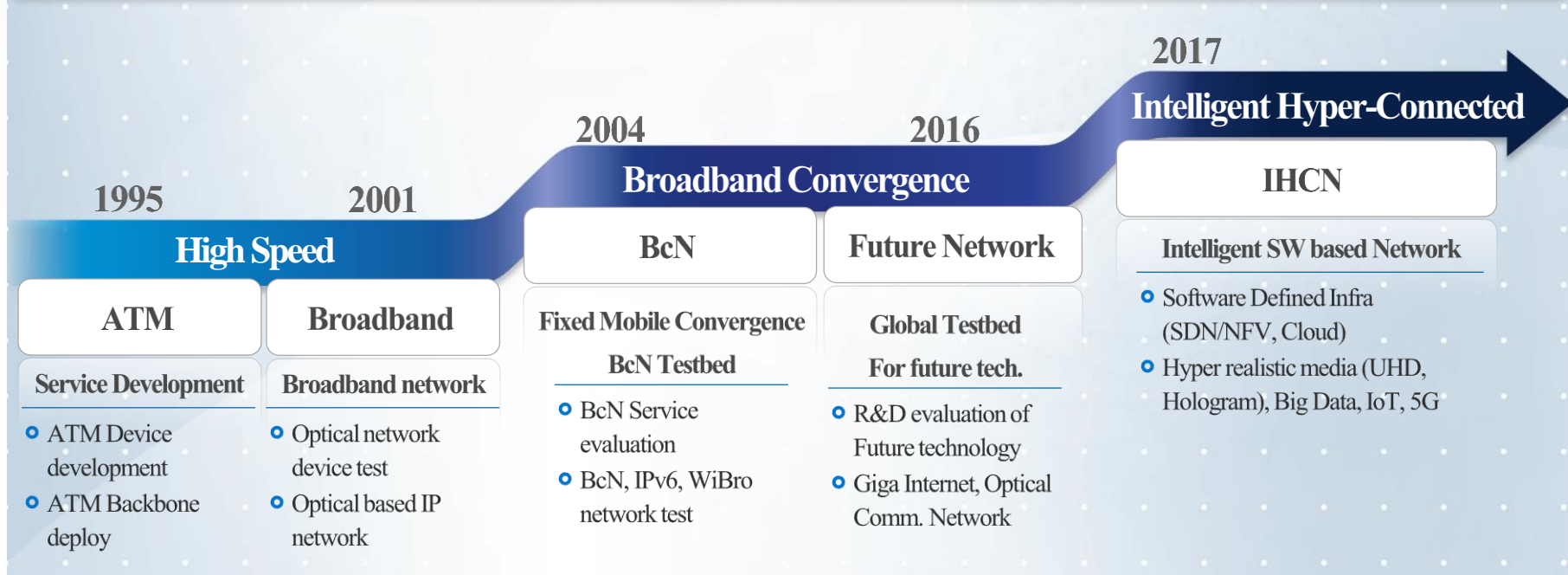
KOREN(Korea advanced REsearch Network)

- Ministry of Science and ICT (MSIT) is the main Government organization who is in charge of the overall policy for KOREN Project
- National Information Society Agency (NIA) is in charge of the overall management and operation, and do planning the KOREN Project in detail
- KT is the organization who participates in the KOREN Project, supports building the KOREN backbones and access links
- KOREN Committees give advices and comments on the overall KOREN Project

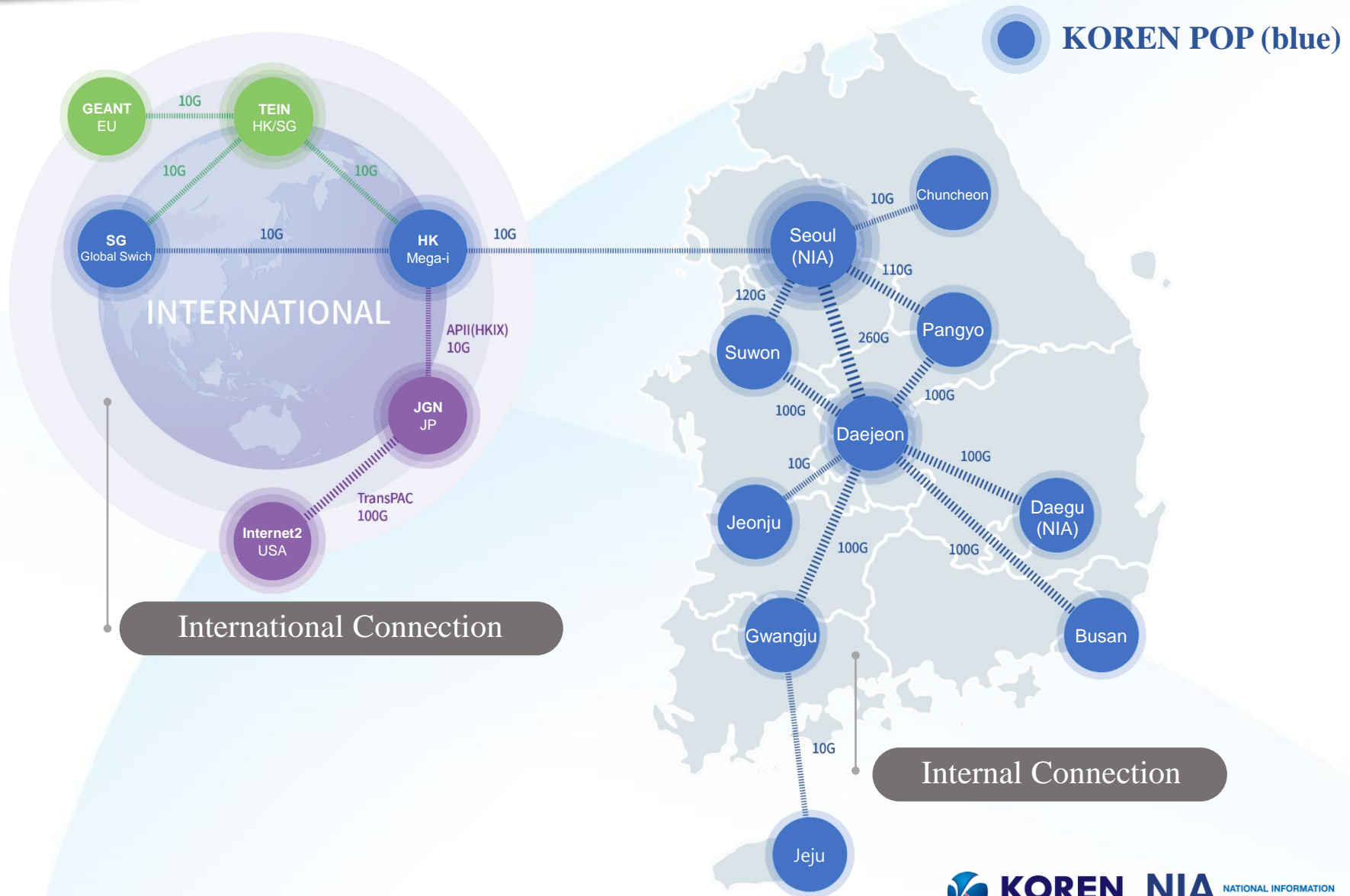
1. KOREN in Brief (3) - History

History

Since its initial deployment in 1995 for ATM network research, it has provided a broadband network testbed for domestic and international research activities to the industry, academia, and research institutions, enabling testing of future network technologies and supporting R&D on advanced applications.

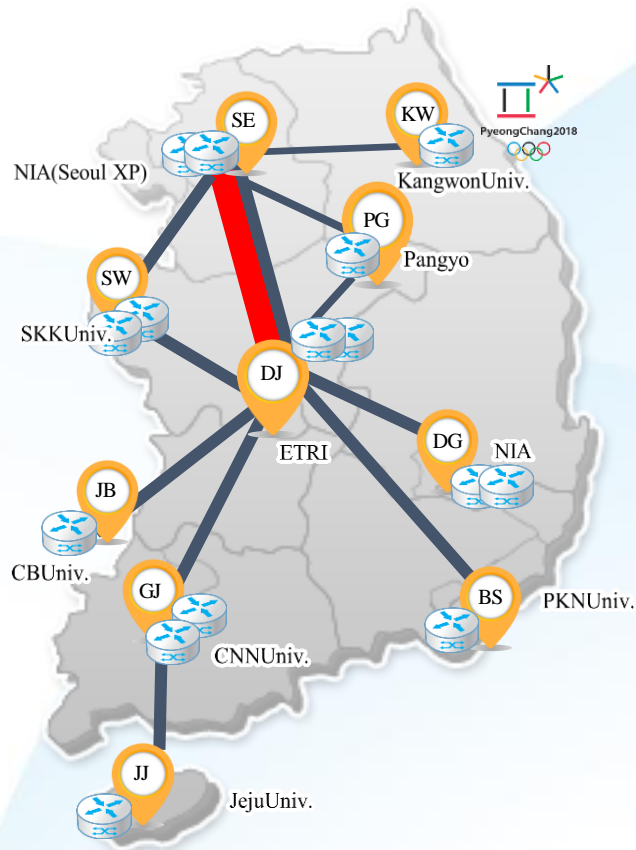


2. KOREN Network status



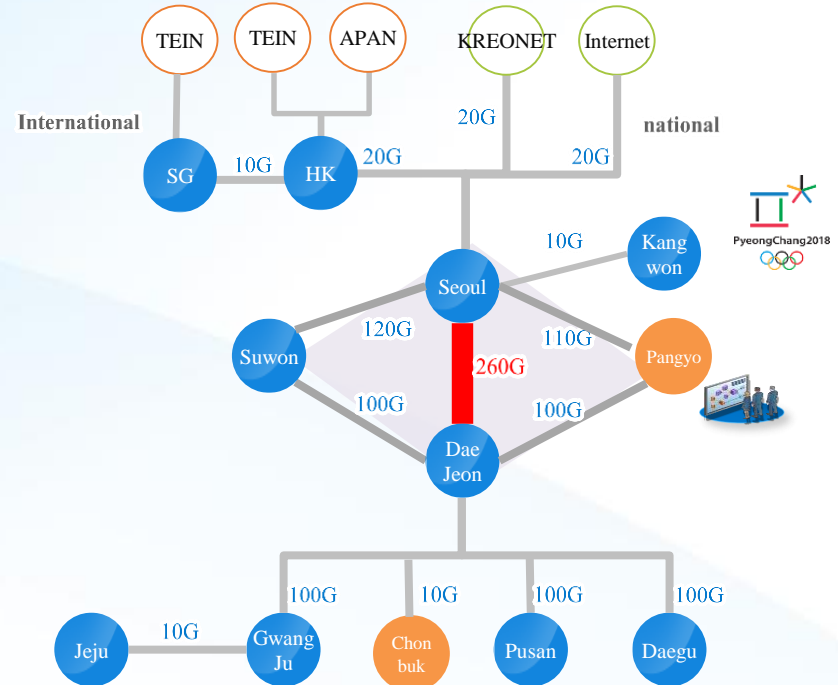
3. KOREN Domestic Backbone (1) - Topology

Backbone Topology



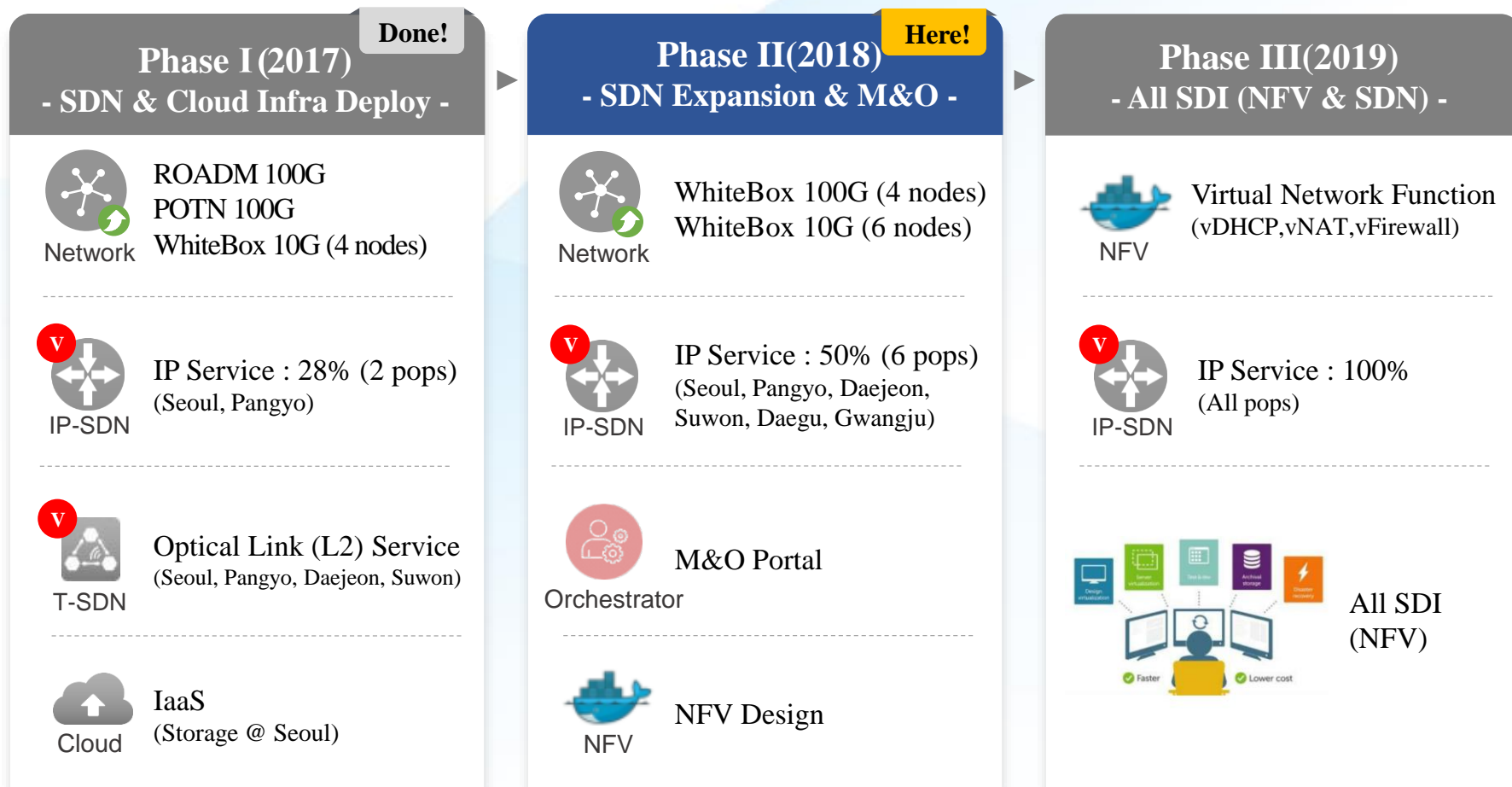
Backbone Capacity

Seoul~Daejeon Backbone 260G, Capital area 120G, Province 110G
International & KREONET, Commercial etc.. 10~20G



3. KOREN Domestic Backbone (2) - KOREN SDI Roadmap

KOREN network will be migrated to SDI in 3 years
KOREN users will use KOREN SDI service through one-click M&O portal

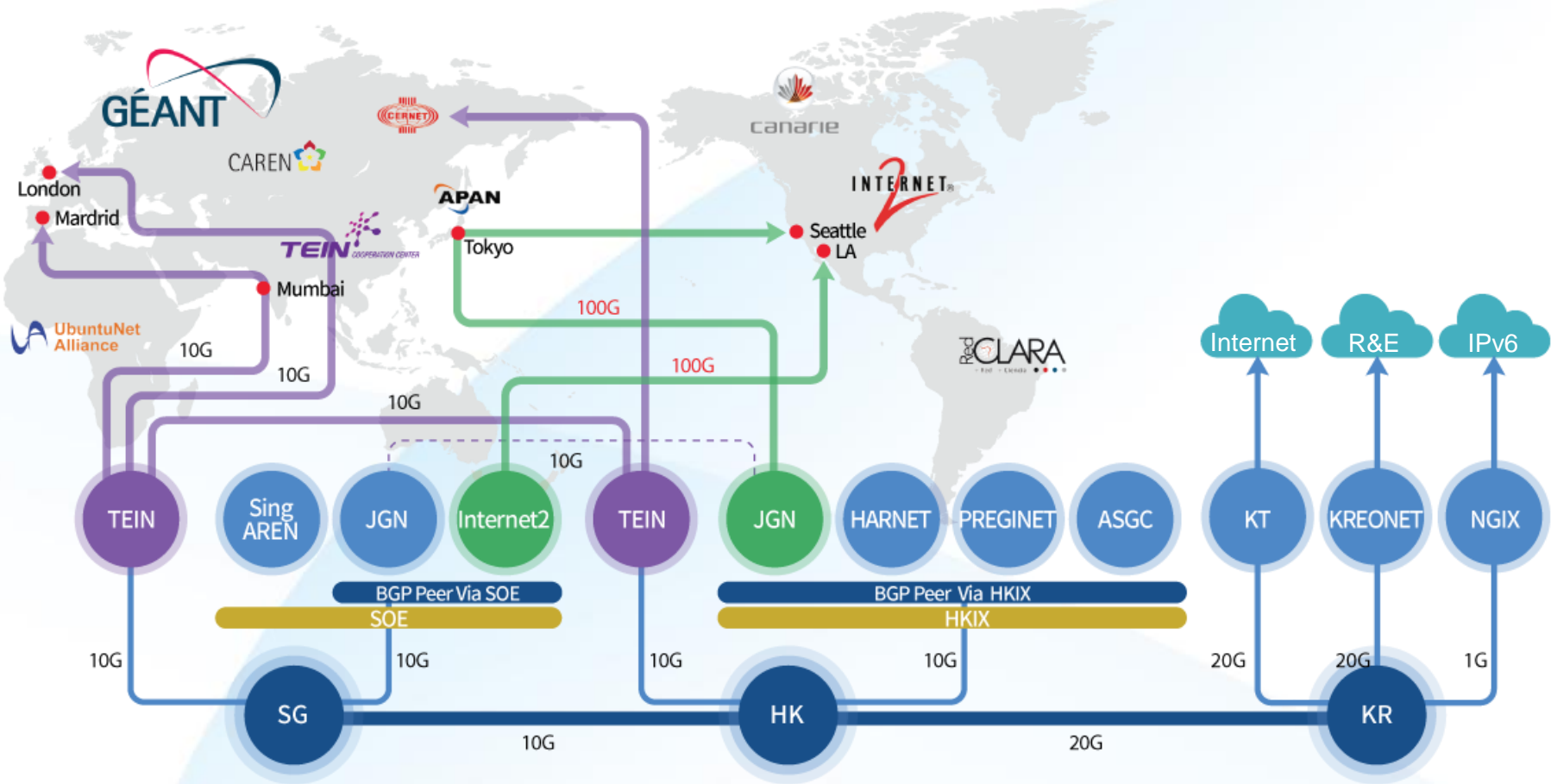


3. KOREN Domestic Backbone (3) - 79 Members

University : 29, Company : 18, Hospital : 12, Institute: 15, Research institute: 5

POP	Speed	Users
Seoul (34)	10G (6)	Korea Institute of Science and Technology Information, Korea University, Yonsei University Medical Center, Boramae Hospital, SP Technology, Kwangwoon University,
	1G (28)	TEIN-CC, Korea Association Network Industry, M2Soft, Saehacomms, National Cancer Center, Konkuk University, Korea Meteorological Administration, Seoul National University, Seoul National University Medical School, University of Seoul, Asan Medical Center, Soonchunhyang University Hospital, Anyang University, Yonsei University, INHA UNIVERSITY, Future System, Coweaver, Korea Institute of Science and Technology, Korea Advanced Institute of Science and Technology Seoul Campus, Hanyang University Hospital, Samsung Hospital, Gangnam Severance Hospital, INSoft, Naim networks, Deonet, Soongsil University, KTNF, Onesystems
Suwon (3)	1G (3)	Sungkyunkwan University, Korea Energy Agency, Kyunghee University,
Pangyo (11)	10G (6)	Gyeonggido Business & Science Accelerator, Bigdata center, Bundang Seoul National University Hospital, Bundang Seoul National University Hospital Healthcare Innovation Park, Korea Job World, Atto Research,
	1G (5)	Telecommunications Technology Association, Zaram Technology, Kul Cloud, Bundang Cha Hospital, Pangyo ICT Convergence Center
Chuncheon (2)	10G (1)	Kangwon National University
	1G (1)	Korea National Park Service
Daejeon (11)	10G (6)	Electronics and Telecommunications Research Institute in Daejeon, Korea Advanced Institute of Science and Technology, Fisys, Arum middle school, NET-Bridge, Yumitech
	1G (5)	National Industry Promotion Agency, Korea University Sejong Campus, Chungbuk National University, Space Geodetic Observation Center, Korea Health Industry Development Institute
Daegu (6)	10G (3)	Kyungpook National University, Daegu Gyeongbuk Institute of Science and Technology, Korea Brain Research Institute
	1G (3)	Daegu Technopark, Keimyung University, GUMI ELECTRONICS & INFORMATION TECHNOLOGY RESEARCH INSTITUTE,
Busan (4)	1G (4)	Pukyong National University, Friedrich-Alexander Universitat Erlangen-Nurnberg Busan Campus, Kyungnam University, Dongseo University
Jeonju (2)	10G (1)	Chonbuk National University
	1G (1)	Chonbuk National University Hospital
Gwangju (3)	10G (2)	Electronics and Telecommunications Research Institute in Gwangju, Gwangju Institute of Science and Technology
	1G (1)	Choonnam National University,
Jeju (3)	10G (1)	Jeju National University
	1G (2)	JEJU TECHNOPARK, Jeju Energy Corporation

4. KOREN International Connection (1) - Current Status



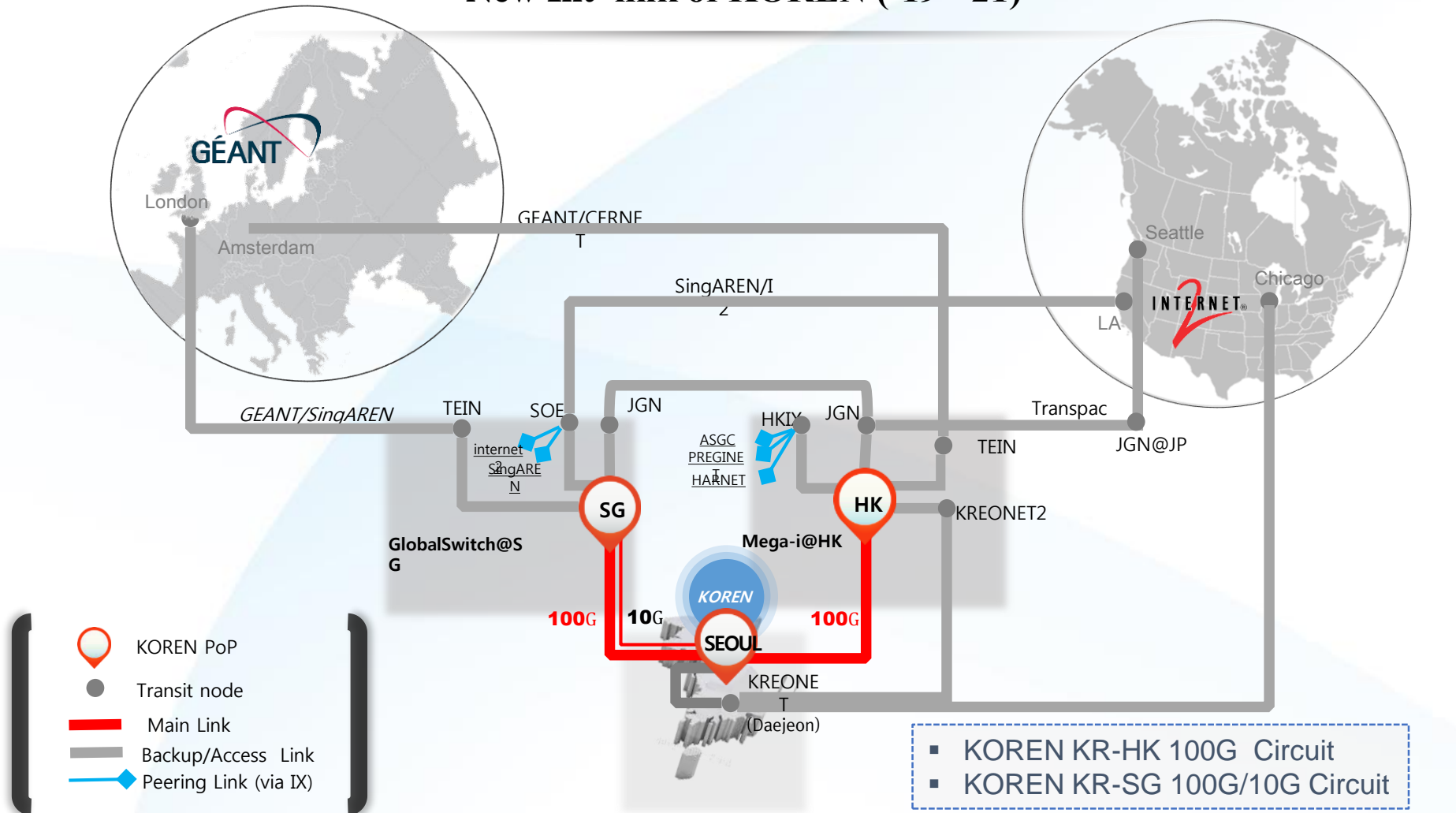
- SOE : SingAREN Open Exchange
- HKIX : HongKong Internet Exchange
- APAN : Asia Pacific Advanced Network
- TEIN : Trans Eurasia Information Network

- JGN : Japan Research Network
- SingAREN : Singapore Research Network
- Internet2 : US Research Network

- HARNET : Hong Kong Research Network
- PREGINET : Philippines Research Network
- ASGC : Taiwan Research Network

4. KOREN International Connection (2) – Future Plan

New Int' link of KOREN ('19~'21)



4. KOREN International Connection (3) - TEIN Partners



Connecting
Asia and Europe's
Research and Education
Communities

www.tein.asia

TEIN Project Partners

AF Afghanistan	ID Indonesia	NZ New Zealand
AU Australia	JP Japan	PK Pakistan
BD Bangladesh	KR Korea	PH Philippines
BT Bhutan	LA Laos	SG Singapore
KH Cambodia	MM Myanmar	LK Sri Lanka
CN China	MN Mongolia	TH Thailand
HK Hong Kong	MY Malaysia	TW Taiwan
IN India	NP Nepal	VN Vietnam

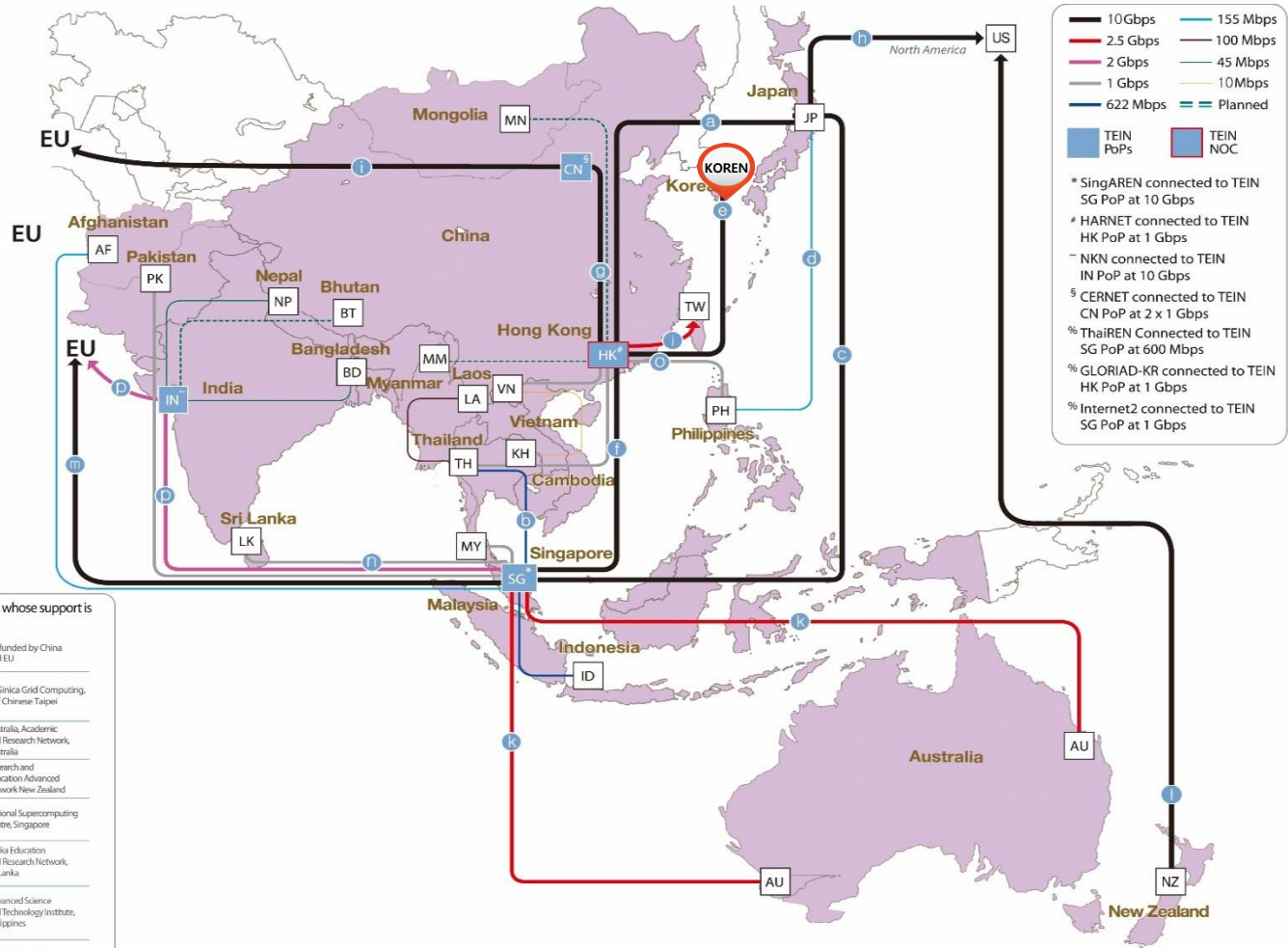
The following links are fully financed/co-financed by the link owners whose support is gratefully acknowledged

a National Institute of Information and Communications, Japan	i co-funded by China and EU
b National Institute of Information and Communications, Japan	j Academia Sinica Grid Computing, Republic of Chinese Taipei
c National Institute of Informatics, Japan	k Australia, Academic and Research Network, Australia
d Ministry of Agriculture, Forestry and Fisheries Research Network, Japan	l Research and Education Advanced Network New Zealand
e National Information Society Agency, South Korea	m National Supercomputing Centre, Singapore
f China Education and Research Network, China	n Lanka Education and Research Network, Sri Lanka
g China Science & Technology Network, China	o Advanced Science and Technology Institute, Philippines
h co-funded by Japan and the USA	p National Knowledge Network, India

As of January 2018



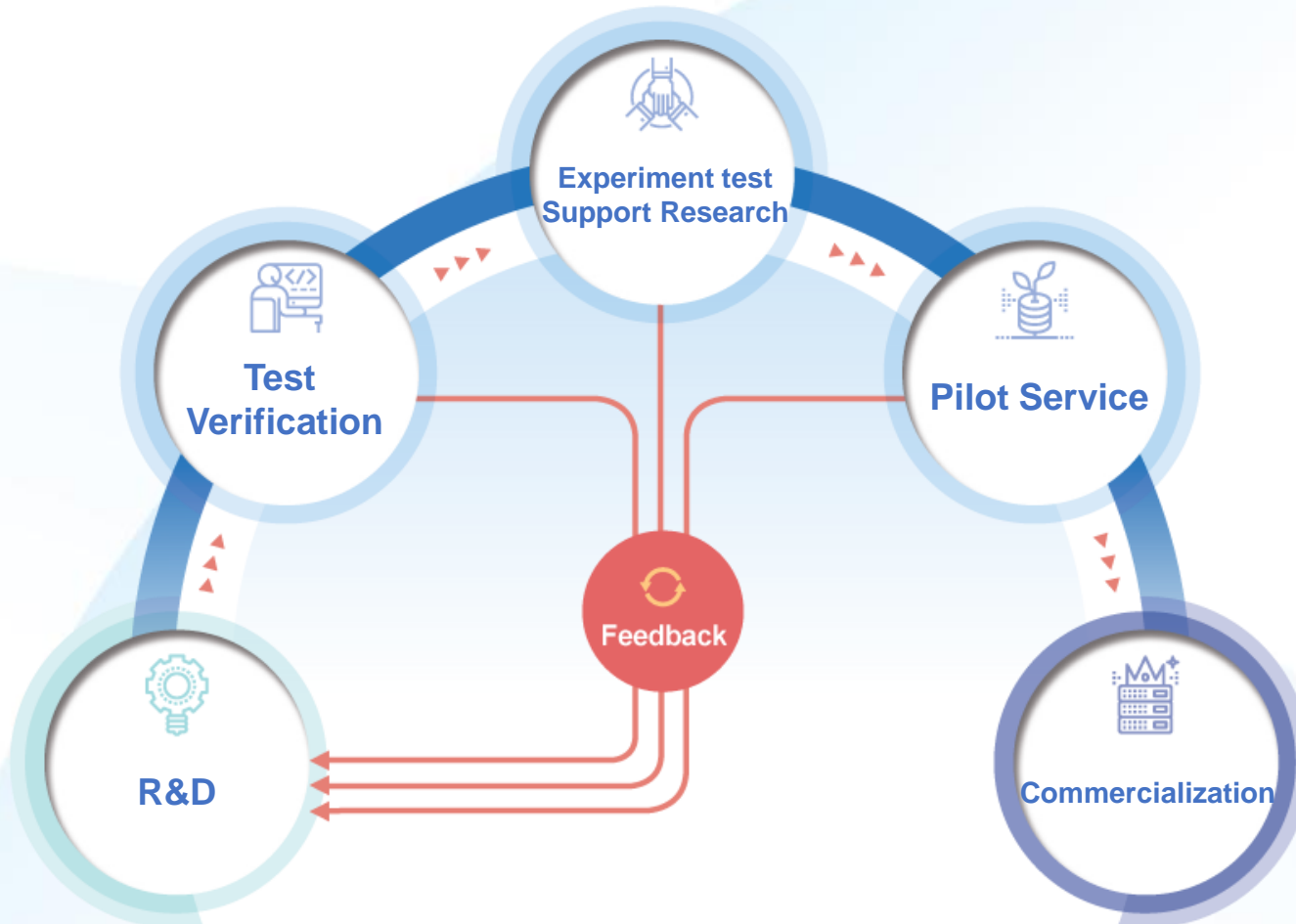
TEIN is co-funded by the European Commission through the Directorate-General for Development and Cooperation-EuropeAid



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5. KOREN Activities (1) – Verification test

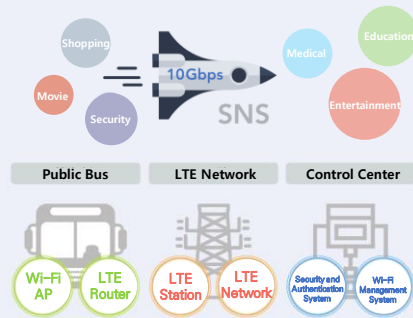
Support network equipment commercialization process



5. KOREN Activities (2) – Support future internet service

Support Government Project

10G Internet, Public Wi-Fi



Big Data



KOREN



Cloud



IoT (Internet of Things)

5. KOREN Activities (3) – Operation Service

NOC (Network Operation Center)

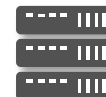
Network Resource Service

- PaaS : KOREN PaaS-TA
- Public Cloud : Openstack, VM
- Layer2, Layer3 (IPv4, IPv6)
- BGP, Multicast, MPLS etc
- Based on SDI
: E2E(VxLAN), POTN, Lambda, L2



Circuit Service

- Direct Circuit for User (All node)
- Dark Fiber
 - 4 Node available
 - Seoul, Daejeon, Suwon, Pangyo



Research Project Support

- IoT, Cloud, LTE etc
- Test bed infrastructure



Video Conference

- Tool : Tomms (<http://www.koren.kr>)
- Remote conference
- Medical demonstration



5. KOREN Activities (4) - AI Network Lab @ Pangyo

① Function Test (182 m²)

“ Providing test and verification such as function · performance, stability, security and compatibility to SDN/NFV, 5G mobile communication
Supporting national project function test such as 10 G Internet, Wi-Fi, etc
Target: Network-related SMEs, the 2nd Pangyo companies ”



② Education Training (90 m²)

“ Education training program which is related to future network technologies such as SDN/NFV, IoT network, 5G, etc.
Target: SMEs, graduate students, etc ”



“ Exhibits for information network history of high-speed network, broadband network, super-connected network and KOREN achievements, seminars ”

④ Exhibits and Seminars (139 m²)



“ KOREN operation and technical support for SW-based network, 40G dedicated network, Dark Fiber, etc. ”

③ Network Operation and Support (109 m²)

AI Network
Lab



Thank you



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