

# アジアの先端研究ネットワーク における最近の課題

後藤 滋樹

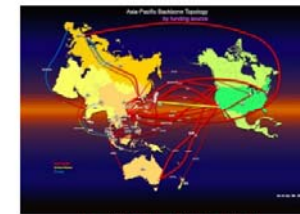
早稲田大学

# APANの動機

1996年3月 筑波

The necessity for high-end Internet for researchers in Asia Pacific region was recognized at APEC Symposium in Tsukuba, Japan in March 1996, and then Asia Pacific Advanced (APAN) was proposed at APII Test-bed Forum in Seoul, Korea in June 1996.

<http://www.apan.net/home/aboutapan/APAN.php>



[Download This Map in High Resolution]

## Welcome to APAN

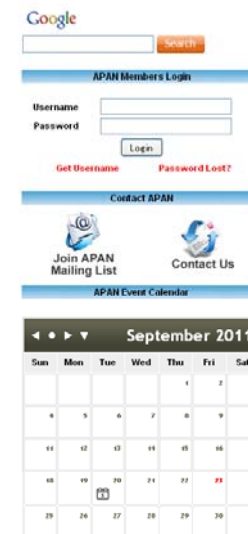
APAN (the Asia Pacific Advanced Network) refers to both the organisation representing its members, and to the backbone network that connects the research and education networks of its member countries/economies to each other and to other research networks around the world.

APAN Ltd is the not-for-profit Association that is the legal entity created to undertake the activities on behalf of APAN members. APAN members are the entities representing research and education network interests in the countries/economies of Asia and Oceania.

APAN coordinates developments and interactions among its members, and with peer international organisations, in both network technology and applications, and is a key driver in promoting and facilitating network-enabled research collaboration, knowledge discovery, telehealth, and natural disaster mitigation.

The Principal Objects of APAN (APAN's Charter) are set out at: <http://www.apan.net/home/aboutapan/objects.pdf>

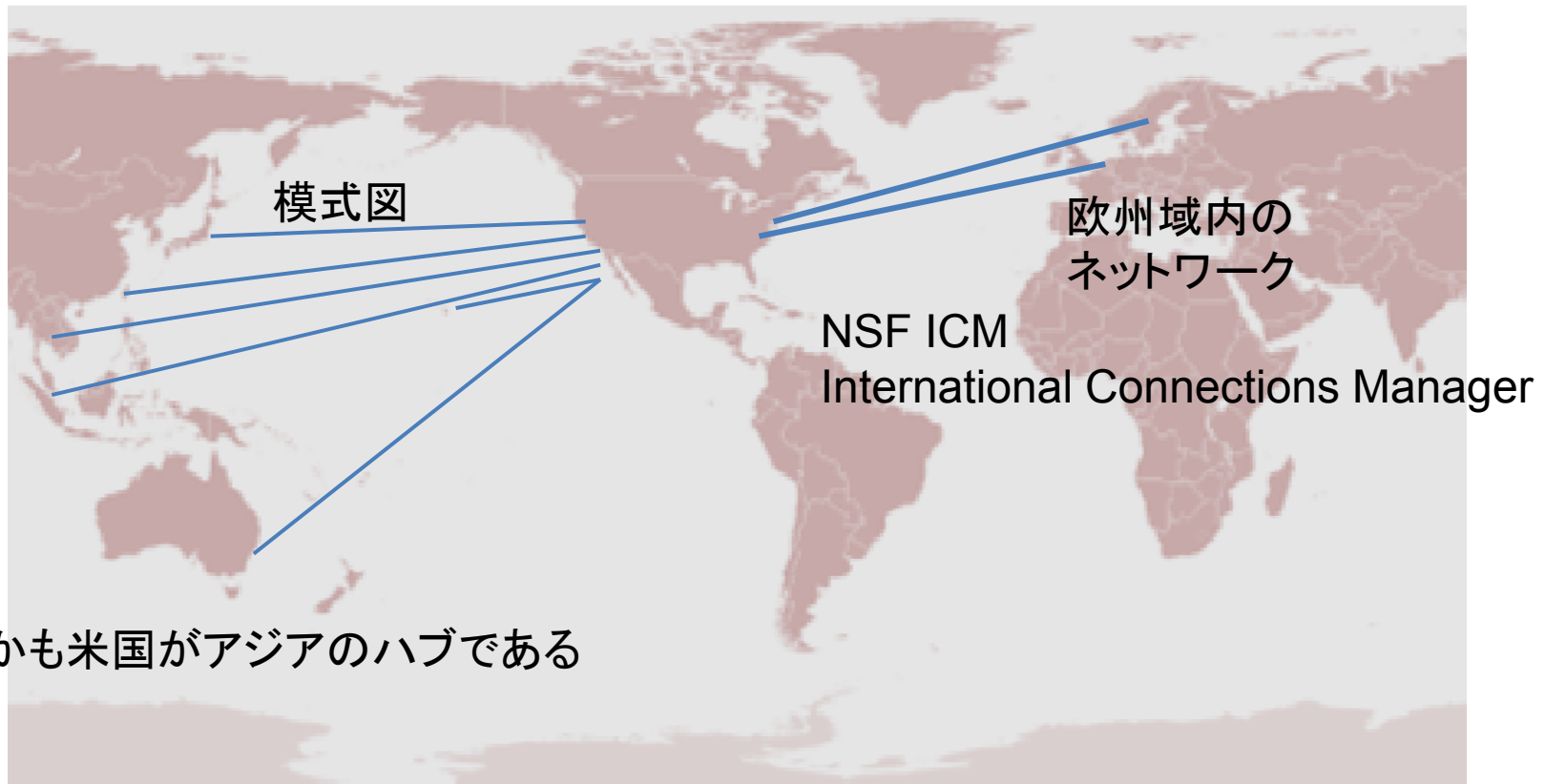
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※ 会場: 筑波第一ホテル,  
現在のオークラ フロンティアホテル つくば

# APANの動機(2)

## APAN以前のアジア太平洋の状況(模式図)



# 現在のAPAN



日米間の黄色の回線がAPANの発端となったTransPAC

# APAN New Delhi Meeting

22—26, AUG, 2011

会合案内 : <http://www.apan.net/meetings/India2011/>



Home	Program	Fellowship	Registration	Accommodation & Venue	Travel & Visa Information	Sponsorship	Call for Paper
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The 32nd New Delhi meeting will highlight tutorials, oral presentations and demonstrations covering advanced network technologies and applications. There will be plenty of opportunities to interact with researchers and practitioners from Asia Pacific and beyond during this meeting.

The programme spans network and application technologies, as well as case studies of advanced networking in areas such as:

- e-Research Area: Medical, High Definition TV, Middleware, e-Culture, Agriculture, Earth Monitoring and Earth System
- Technology: IPv6, Network Security, Future Internet Testbed
- and more...

For the APAN meeting schedule, please click [here](#).

For the live webcast of APAN 32 meeting , please click [here](#).



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プログラム : <http://www.apan.net/meetings/India2011/schedule.php>

# Future Internet Testbed WG

Chairman : James G. Williams, Shinji Shimojo

9000-9010 Welcoming remark (Shinji Shimojo)

0910-1040 Session 1: **FIT update**, Chair: DY Kim

1.1 GENI: Now going live across the US - Chip Elliot, GENI ( Remote )

1.2 Internet2's Network Development and Deployment Initiative (NDDI): A Large Scale Facility for Software Defined Network Development and Deployment - Robert P Vietzke, Internet2 ( Remote )

1.3 Network Virtualization Research in Japan - Aki Nakao, Japan ( Remote )

*Break*

1100-1230 Session 2: **FIT update 2**, Chair: Shinji Shimojo

2.1 Update on the FI Testbed Activities in Korea, - SunHee Yang, ETRI ( Remote )

2.2 MyFIRE - Increasing role of testbeds for research exploitation, - A Paventhan (ERNET)

2.3 Future Internet Testbed and Multi-Domain OpenFlow Management in TWAREN - Te-Lung Liu, NCHC, NARL ( Remote ) Slides

## *Lunch*

1400-1530 Session 3: **OpenFlow Deployments**, Chair: Eiji Kawai

3.1 Programmable Network Platform of activity in Industry - Yoshihiko Kanaumi

3.2 Researcher Infrastructure to Support FIT in Thailand and Recent Activities - Chalernpol Charnsripinyo

3.3 OFELIA-Pan-European OpenFlow Testbed - Dr. Hagen Woesner

3.4 OpenFlow@Korea: Linking OpenFlow Activities in Korea, - JongWon Kim (GIST, Korea)

## *Break*

1600-1730 **OpenFlow Hands-On Workshop**, Chair: Shinji Shimojo

4.1 Open and Programmable Networks" - Rajesh Kumar (Juniper)

4.2 Trema: A brief introduction and tutorial - Shuji Ishii, Eiji Kawai (NICT)

# Asia Future Internet Forum

Asia Future Internet Forum

AsiaFI

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## *What's New at AsiaFI?*

- 2011.11.12 [Asia Workshop on Future Internet Technology](#), Bangkok (in conjunction with AINTEC 2011)
- 2011.12.9 [AsiaFI Board Retreat](#), Tokyo
- 2012.3.19~21 NDN Hands-On Workshop (pending), Seoul
- 2012.8.27~31 (or 8.20~24) [AsiaFI School, Workshop, and Meetings](#), Kyoto
- 2013.1 [AsiaFI Meetings](#), Honolulu

## *What's New around the World?*

- 2011.8.29~9.2 [PURSUIT Summer School](#), Cambridge
- 2011.9.9 [First CCNx Community Meeting](#), Palo Alto
- 2011.9.12~14 CCNx Boot Camp, Palo Alto
- 2011.10.17 [FIST 2011](#), Vancouver (in conjunction with ICNP 2011)
- 2011.10.17-19 [Open Networking Summit](#), California
- 2011.10.17~20 [ICNP 2011](#), Vancouver
- 2011.10.24~28 [Future Internet Week](#), Poznan, Poland
- 2011.11.13~18 IRTF/IETF, Taipei
- 2011.11.15~17 [GENI Engineering Conference](#), Kansas City
- 2011.11.29~12.2 [Global Future Internet Summit \(GFI\)](#), Seoul
  - 11.29 CJK Future Internet Workshop
  - 11.30 Future Internet Tutorials
  - 12.2 Global Future Internet Summit
- 2011.12.6-9 [CoNext 2011](#), Tokyo
- 2012.3.25-30 [INFOCOM2012](#), Orlando

<http://www.asiafi.net/>



# Network Research Workshop

Opening (9:00~9:10) by APAN-NRW Chair (JongWon Kim, GIST, Korea)

Session #1 (9:10~10:40): **Programmable Networking**

(Session Chair: Eiji Kawai, NiCT, Japan)

1.1 "Planning and Implantation of NetFPGA Platform on Network Emulation Testbed," - Pang-Wei Tsai et al. (National Cheng Kung Univ., Taiwan)

1.2 "Toward Service-aware Flow Visualization over OpenFlow-based Programmable Networks," - Sungho Shin et al. (GIST, Korea).

1.3 "Wider Adaptation and Enhancement of OpenFlow," - Othman Othman M. M. et al. (Kyushu Univ., Japan).

1.4 "Distant Location Selection Using Genetic Algorithm for Live Migration Method in OpenFlow Networks," - Heru Sukoco et al. (Kyushu Univ., Japan).

1.5 "Scheme of Resource Optimization using VM Migration for Federated Cloud," - Yanjue Xu et al. (Tokyo Univ, Japan).

## Session #2 (11:00~12:30): **Network Security and Mobility**

(Session Chair: Koji Okamura, Kyushu Univ., Japan)

- 2.1 "The Design and Implementation of the Defender Cloud on TWAREN Backbone," - Ming-Chang Liang et al. (National Center for High-performance Computing, Taiwan).
- 2.2 "Analysis of Redirection Caused by Web-based Malware," - Yuta Takata (Waseda Univ., Japan) et al.
- 2.3 "LISP Mapping Resolution Impacts on Initiating Bidirectional End-to-End Communications," - Motoyuki Ohmori (Chikushi Jogakuen Univ., Japan) et al.
- 2.4 "Implementation of IEEE 802.21 based Media Independent Handover Services," - Ankith Agarwal et al. (Hyderabad, India).
- 2.5 "Experiences with SeaMo: A Vertical Handoff Implementation for Heterogeneous Wireless Networks," - Seema K. et al. (Indian Institute of Science, India).

### Session #3 (14:00~15:30): **Green Sensor Networking**

(Session Chair: Wang-Cheol Song, Jeju Univ., Korea)

- 3.1 "Effect of Selfish Behavior on Power Consumption in Mobile Ad hoc Network," - Hemang Kothari, Manish Chaturvedi (Nirma Univ, India).
- 3.2 "CAP (Coordinated Adaptive Power) Management Technique with Adaptive Threshold Policy for Wireless Sensor Nodes," - Gauri Joshi, Prabhat Ranjan (DAIICT, India).
- 3.3 "6PANview: A network monitoring system for the "Internet of Things", " - Lohith Y. S. et al. (Indian Institute of Science, India).
- 3.4 "Single Inventory Cycled Data Population in LEACH Cluster," - Chandan Maity et al. (C-DAC Noida, India).

### Session #4 (16:00~17:30): **Miscellaneous Topics**

(Session Chair: Kitamura Yasuichi, NiCT, Japan)

- 4.1 "The Earth System Grid Federation: Delivering globally accessible petascale data for CMIP5," - Dean N. Williams (Lawrence Livermore National Laboratory, USA) et al.
- 4.2 "An Efficient Alarm Notification Algorithm for Earthquake Early Warning System," - TingYun Chi (National Taiwan Univ., Taiwan) et al
- 4.3 "Deploying GPU-based Real-time DXT compression for Networked Visual Sharing," - Namgon L. Kim et al. (GIST, Korea).

# Proceedings of APAN

## PROCEEDINGS OF THE ASIA-PACIFIC ADVANCED NETWORK

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Track:

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**MEDICAL WORKSHOP**

Telemedicine on the Virtual Silk Highway: a project to improve pathology diagnosis PDF  
*Jacek Gajewski, Stella Atkins*

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**NETWORK ENGINEERING WORKSHOP**

Internet Protocol Version 6 (IPv6) - Internet Protocol Version 4 (IPv4) Network Address, Port & Protocol Translation And Multithreaded DNS-Application Gateway PDF  
*Abhinav Singh, Navpreet Singh, Pinay Bajpai*

RNP evaluation of alternative implementations for dynamic circuits PDF  
*Machado Iara, Michael Stanton, Tiago Salmito*

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**SENSOR NETWORK WORKSHOP**

Performance Analysis of Location Tracking System for Multiple Levels PDF  
*Norhidayu Shahila Abu Hassan, Sazzad Hossain, Nur Haliza Abd Wahab, Sharifah Hafizah Syed Ariffin, Liza Abd Latiff, Norhiela Fital, Mazlan Abbar, Choong Kheng Neng*

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**ECULTURE WORKSHOP**

Chronicling eCulture WG and Charting Future Activities and Publication PDF  
*Faridah Noor Mohd Noor*

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# Network Engineering Workshop

Organizing Co-chairs: Konishi (JP), Li (CN), Morgan (AU), Williams (US)

9:00-10:30 **NREN updates** (chair: Brent Sweeny)

#1-1 Won-hyuk Lee <livezone(AT)kisti.re.kr>, KREONET Updates

#1-2 Heechang JUNG <heechang(AT)nia.or.kr>, KOREN Updates

#1-3 Kenichiro Minomo <minomo(AT)nii.ac.jp>,  
SINET4 and the Great East Japan Earthquake

#1-4 Dipak Singh <deepak(AT)eis.ernet.in>,  
NKN and ERNET and how the venue for APAN is connected

#1-5 Kotaro Kataoka <kotaro(AT)wide.ad.jp>,  
Post-disaster Recovery Internet and DISANET Project

11:00-12:30 **Advanced Network Technologies** (Chair: Bruce Morgan)

#2-1 Koji OKAMURA <oka(AT)ec.kyushu-u.ac.jp>,  
IPv6 Traffic data of Kyushu University on World IPv6 Day

#2-2 Peng JIANG <pe-jiang(AT)kddilabs.jp>,  
Multi-vendor and Multi-homing LISP Deployment

#2-3 Youichiro Tahara <tahara(AT)ote.kddi.com>,  
Lessons Learned from LISP network migration

#2-4 Xing Li <xing(AT)cernet.edu.cn>, IPv6 Transition, When and How?

## *Lunch*

14:00-15:30 **Performance & Measurement** (Chair: Xing Li)

#3-1 Alan Whinery <whinery(AT)hawaii.edu>, Measurement Infrastructure with SXTransport/Translight/Pacific Wave

#3-2 Bruce Morgan <Bruce.Morgan(AT)aarnet.edu.au>, AARNET Measurement Infrastructure

#3-3 Takatoshi Ikeda <tk-ikeda(AT)kddilabs.jp>, Toward the greater use of perfSONAR and measurement tools

#3-4 John Hicks <jhicks(AT)iu.edu>, TP3/ACE project status update

#3-5 Wenshui Chen <chenws(AT)twgrid.org>, LHCOPNE Activity

16:00-17:30 **International Collaborations** (Chair: Jaehwa Lee)

#4-1 Kwangjong Cho <kjcho(AT)kisti.re.kr>, KREONET New Services

#4-2 Jin Tanaka <tanaka(AT)ote.kddi.com> and Katsuyuki Hasebe <hasebe(AT)nict.go.jp>, New DCN in JGN-X

#4-3 Brent Sweeny <sweeny(AT)indiana.edu>, New Transpac3 service & Cisco Telepresence

#4-4 David West <David.West(AT)dante.net>, Update on DANTE projects

# APAN members

## Primary Members

AARNet (AU), APAN-CN, APAN-JP, APAN-TH,  
ANF (KR), APAN-TW, ASTI (PH), HARNET (HK),  
LEARN (LK), NACESTI (VN), REANNZ (NZ),  
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## Associate Members

ITB, TransPac/Indiana U., Pacific Wave.

## Affiliate Members

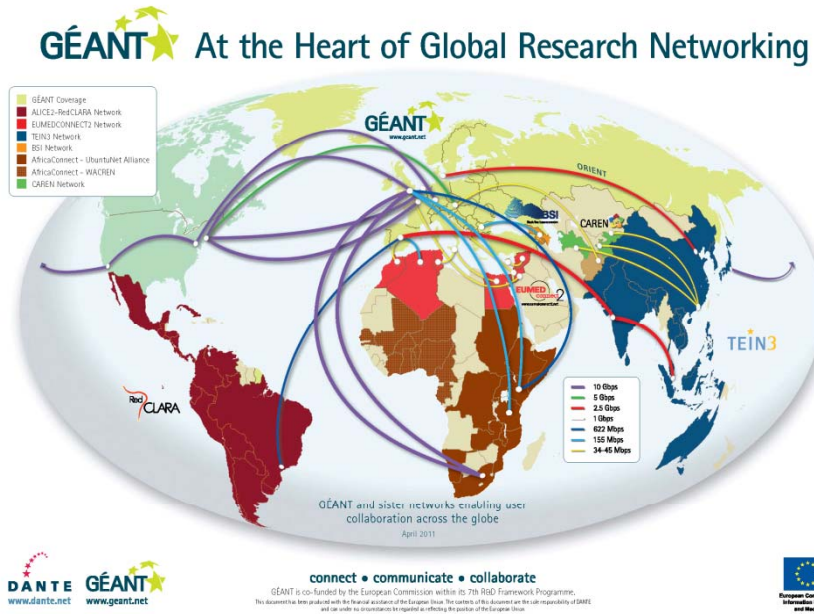
ACFA, APBioNet, APNIC, APNG, APRU, CGIAR, APAN-BD,  
IDRC, PRAGMA, National Grid Office (SG), NIIT, SDLEARN.

## Liaison Members

CANARIE, DANTE, TERENA, Internet2, CLARA.

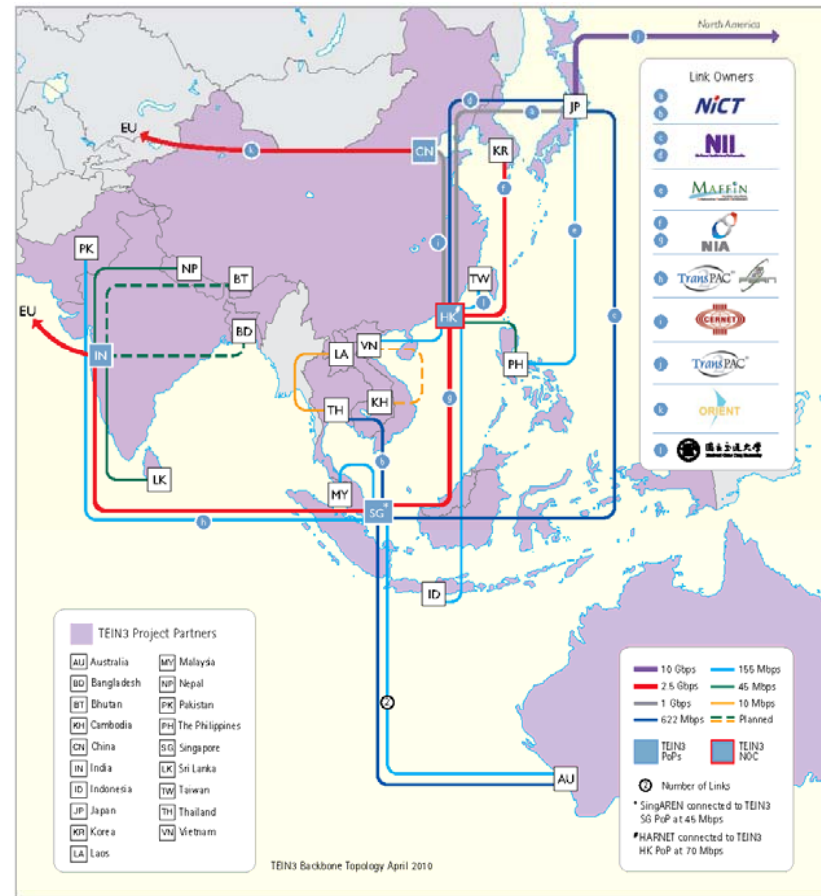
# TEIN

## 欧州の資金、現在はTEIN3、来年からTEIN4



April, 2011

<http://www.tein3.net/server/show/nav.2212>



April, 2010



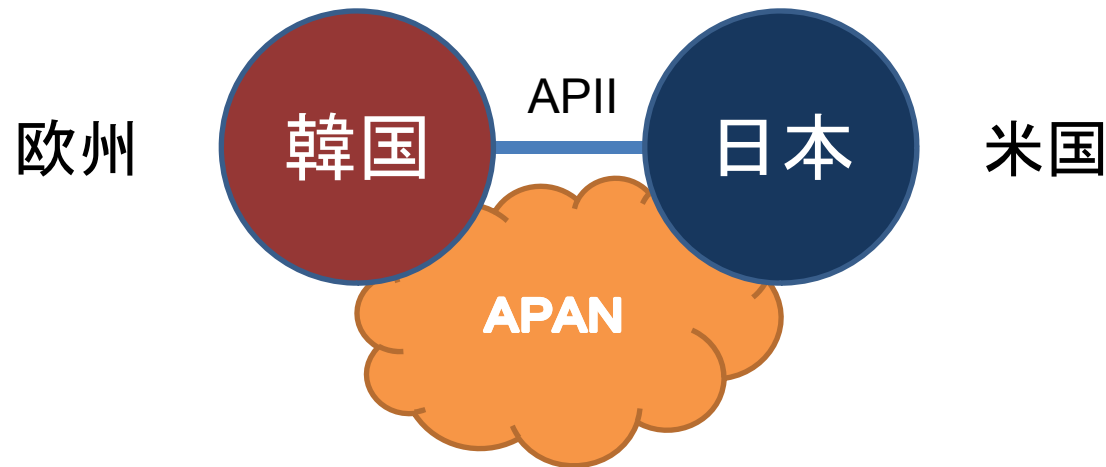
[www.tein3.net](http://www.tein3.net)





# TEINの運営

- 最初のTEIN(1)は韓国とフランスを接続  
韓国 金大中 大統領時代



- Linking Asia Pacific to Europe and beyond  
最初の欧州からの接続点の候補は  
マレーシア

# Beneficiary と Non-beneficiary

- 巧みな欧州の資金活用

beneficiary 欧州資金 80%, 現地国 20% (TEIN3)

欧州資金 50%, 現地国 50% (TEIN4)

non-beneficiary もパートナー(名称はともかく)

- 資金100%の援助が必ずしも歓迎されない現実  
20%の現地負担には苦勞するが決定後は安定

- 長期的な視点 vs. 短期的な視点

beneficiaryとしては現在の資金はありがたい

「大きな財布」効果

欧州資金がなくなっても全体がゼロにならない

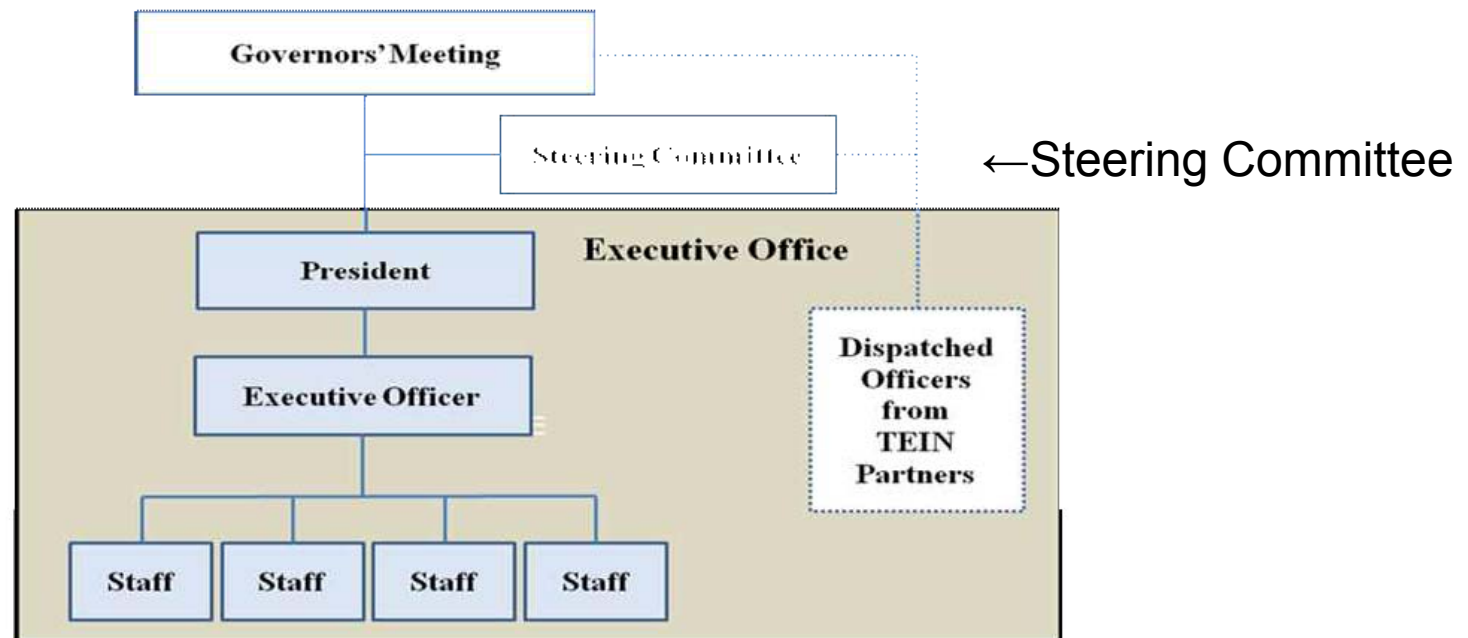
# TEIN4をめぐる議論

- TEINを運営する組織  
TEIN3はDANTE(欧州)  
TEIN4はアジア太平洋に委ねる予定
- 候補となった3つの案  
APAN  
AARNet(オーストラリア)  
TEIN\*CC(韓国提案)

# TEIN\*CCの準備状況

- ASEMにおいて国際的なendorseを得た
- 法的には韓国の国内団体（registration済）

[ TEIN Governance Structure ]



Executive Officer: Dr Byung Kyu Kim (NIA → TEIN\*CC)



Organized by Uninet and ThaiREN

**33<sup>rd</sup> APAN Meeting 2012**  
**Chiangmai, Thailand**  
**Feb 13 (Mon) - 17 (Fri), 2012**

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