

# Status IPv6 in Korea

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# Why IPv6 in Korea?

- **Preparing IPv4 address depletion**
  - Assigned 70% of total IPv4 addresses(4.3 billion) from the world
  - Having used all the IPv4 addresses (41M) held in Korea
  - More IP addresses to be needed for the future IT services
- **Promoting IPv6 based New Services**
  - IPv6 based Home Network Service (more than 10 IP addresses at home will be necessary by 2010)
  - IPv6 Service over WiBro (2.3 GHz based Wireless Broadband Internet)
  - IPv6 based VoIP Service
  - IPv6 based Telematics Service, etc.
- **IT839 Strategy : A master plan for the IT industry, in an effort to gain more growth momentum from the IT sector in Korea**
  - Eight New Services : WiBro, DMB, Telematics, W- CDMA, etc.

# IPv6 Policy in Korea !

- **Development of IPv6 Equipment**
  - Accelerating to develop the IPv6 equipments for commercialization
  - Obtaining global competitiveness of the domestic IPv6 equipments to the market
- **Diffusion of IPv6 Application Services**
  - Accelerating to develop the IPv6 Application for common users
  - Providing various pilot services for the activation of IPv6
- **Facilitation of IPv6 Public and Commercial Network**
  - Plan to migrate the Public & Commercial Network with IPv6
  - High-speed & Advanced Network deployment through R&E network
- **National IPv6 Pilot Project : KOREA v6**

# Development of IPv6 Equipment

## IPv6 Home & Small Router(2004. 12.), Medium Access Routers (2005. 6.)

- Manufacturer : Samsung Electronics, LG Electronics, Mercury, Locus,



## IPv6 Solution Equipments (VPN, NMS : 2005. 9.)

- Manufacturer : Future Systems, S}Net, K- Sign, etc.



## IPv6 Translators (Dual Stack, NAT-PT : 2004. 6.)

- Manufacturer : iBiT, NeoTelecom, etc.



## Others

- IPv6 Camera, VoIPv6 Phone, etc.



# Development of IPv6 Equipment

- R&D Products by ETRI

- IPv6 Routers



- Smart IPv6 Transition Box

- IPv4/ IPv6 Translator



- IPv6 Ad-hoc Router

- Mobile Ad-hoc

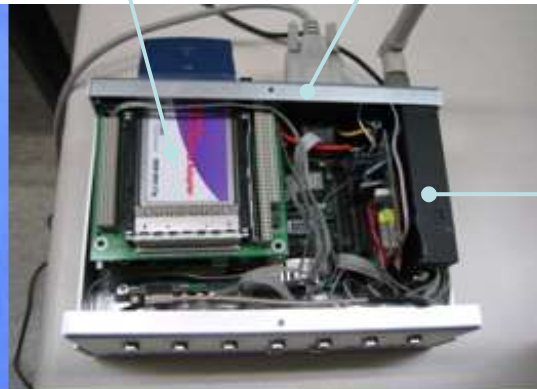
- Network Mobility



- IPv6 based CDMA/ WLAN Interworking

# Development of IPv6 Equipment

- Prototype of IPv6 based CDMA/ WLAN Interworking H/W module



GPS Interface

CDMA H/W module



IPv6 Wireless Mobile Router ETRI

# IPv6 Application Service Deployment

| Classification                                    | 2003                                | 2004   | 2005                                 | 2006   | 2007 |
|---|-------------------------------------|--|--------------------------------------|--|------|
| <b>IPv6 based P2P application</b>                 | IPv6 based P2P primary introduction | Providing IPv6 based P2P pilot service                 | Diffusion of IPv6 based P2P services |  |      |
| <b>IPv6 based home network</b>                    | IPv6 N/W camera test to deployment  | Deploying to the remote home-care application service  |                                      | Deploying to the remote health-care application services |      |
| <b>IPv6 based VoIP service</b>                    | WLAN + Wired Internet + PSTN        | - Hotspot pilot services<br>- Providing VoIPv6 service |                                      | Deployment of WiBro related service                      |      |
| <b>IPv6 based educational application service</b> |                                     | P2P based E-Learning primary deployment                |                                      | Deploying to the internet broadcast /remote lecture      |      |
| <b>IPv6 based e-government service</b>            |                                     | Providing End-to-End IPsec VPN service                 |                                      | Diffusion of service in public sector                    |      |

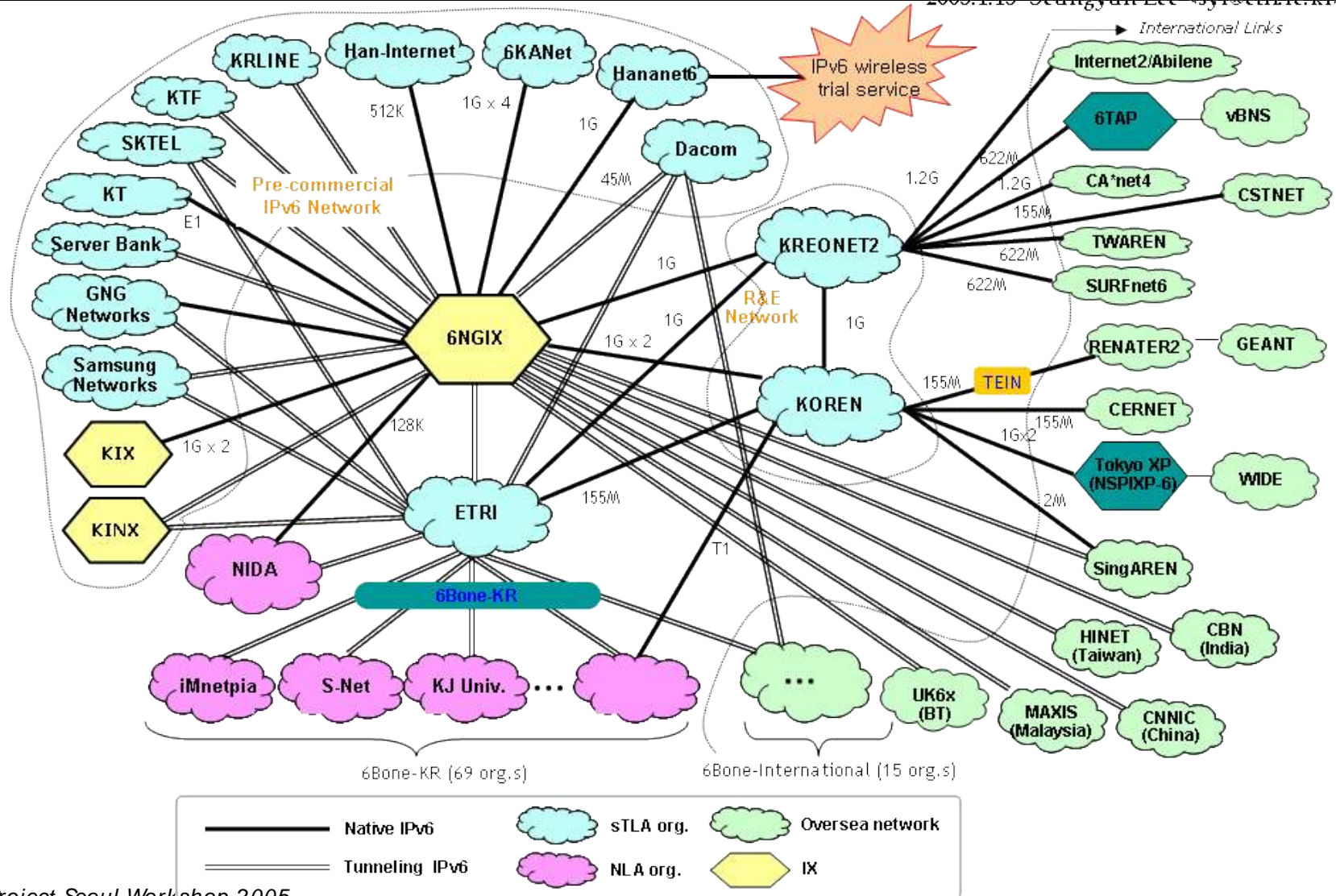


# IPv6 Network Deployment

- **Experimental IPv6 Network**
  - 6Bone- KR (since 1998) \*[www.6bone.ne.kr](http://www.6bone.ne.kr)
- **Research & Education IPv6 Network**
  - KOREN IPv6 Network (Since 1999)
  - KREONET2 IPv6 Network (Since 1999)
  - TEIN IPv6 Network (Since 2001)
  - *6GN (Gigabit IPv6 Infrastructure) (Since 2004)*
- **Commercial IPv6 Network & Trials**
  - Pre- Commercial IPv6 networks
  - KOREAv6 Pilot Project Network (Since 2004)
- **IPv6 Internet Exchange**
  - 6NGIX (IPv6 Next Generation Internet Exchange) (Since 2001)

# Korean IPv6 Network Status Map

2005.1.15 Seungyun Lee [43y1@etri.re.kr](mailto:43y1@etri.re.kr)



# Gigabit IPv6 Infrastructure : 6GN

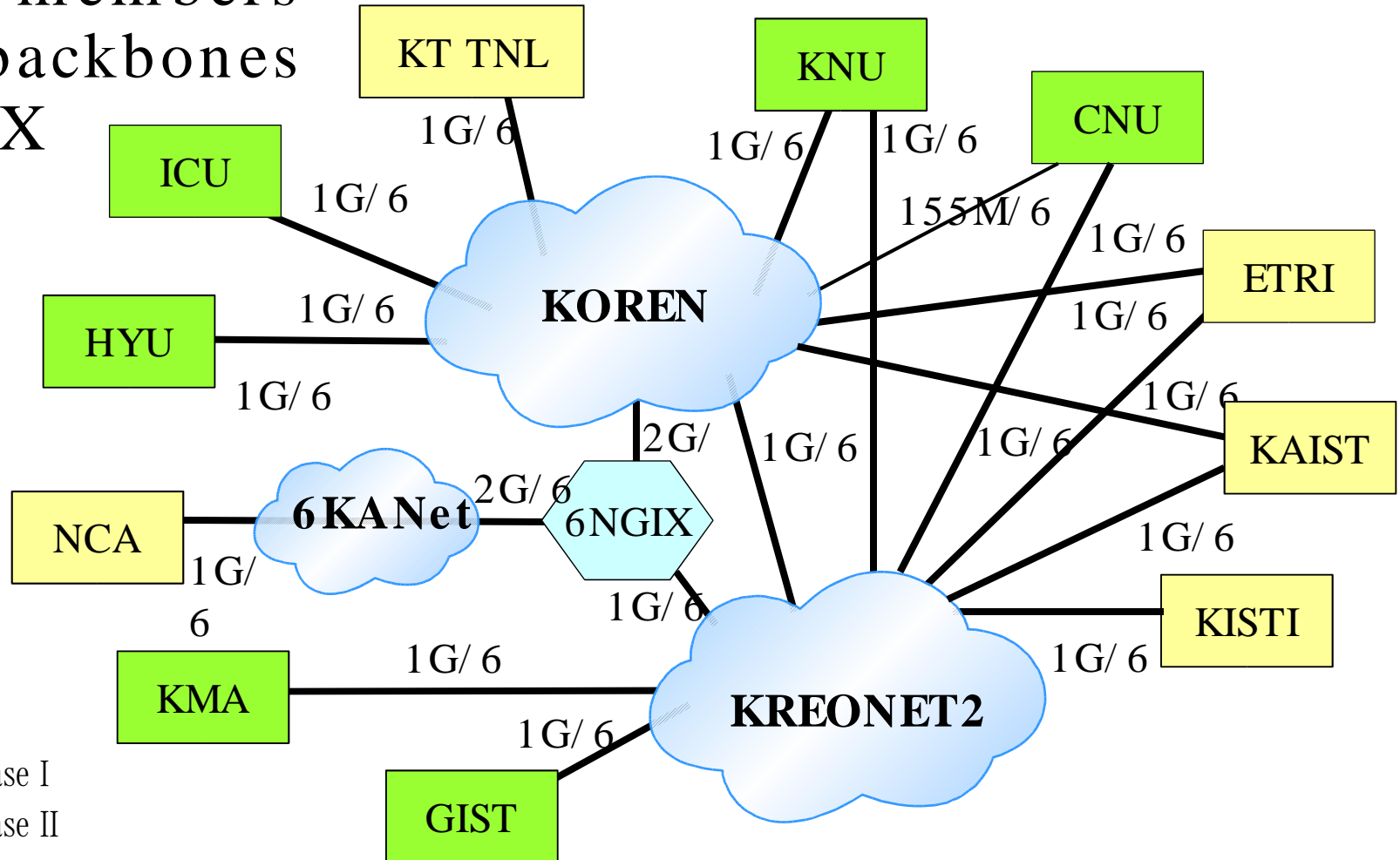
- Background
  - Needs of advanced IPv6-based network infrastructure
  - Fast adoption to advanced & high-speed IPv6 networking technologies such as Lambda networking
  - Needs of validate the various IPv6 services in advance
- Goals
  - Deployment of Native Gigabit IPv6 Service in Korea
  - Promotion & Facilitation of IPv6 networks and applications

*Toward the production level of IPv6 Service*

- Coordinated by **ANF IPv6 Task Force** in Korea (since 2004)
  - <http://www.anf.ne.kr/~ipv6/>

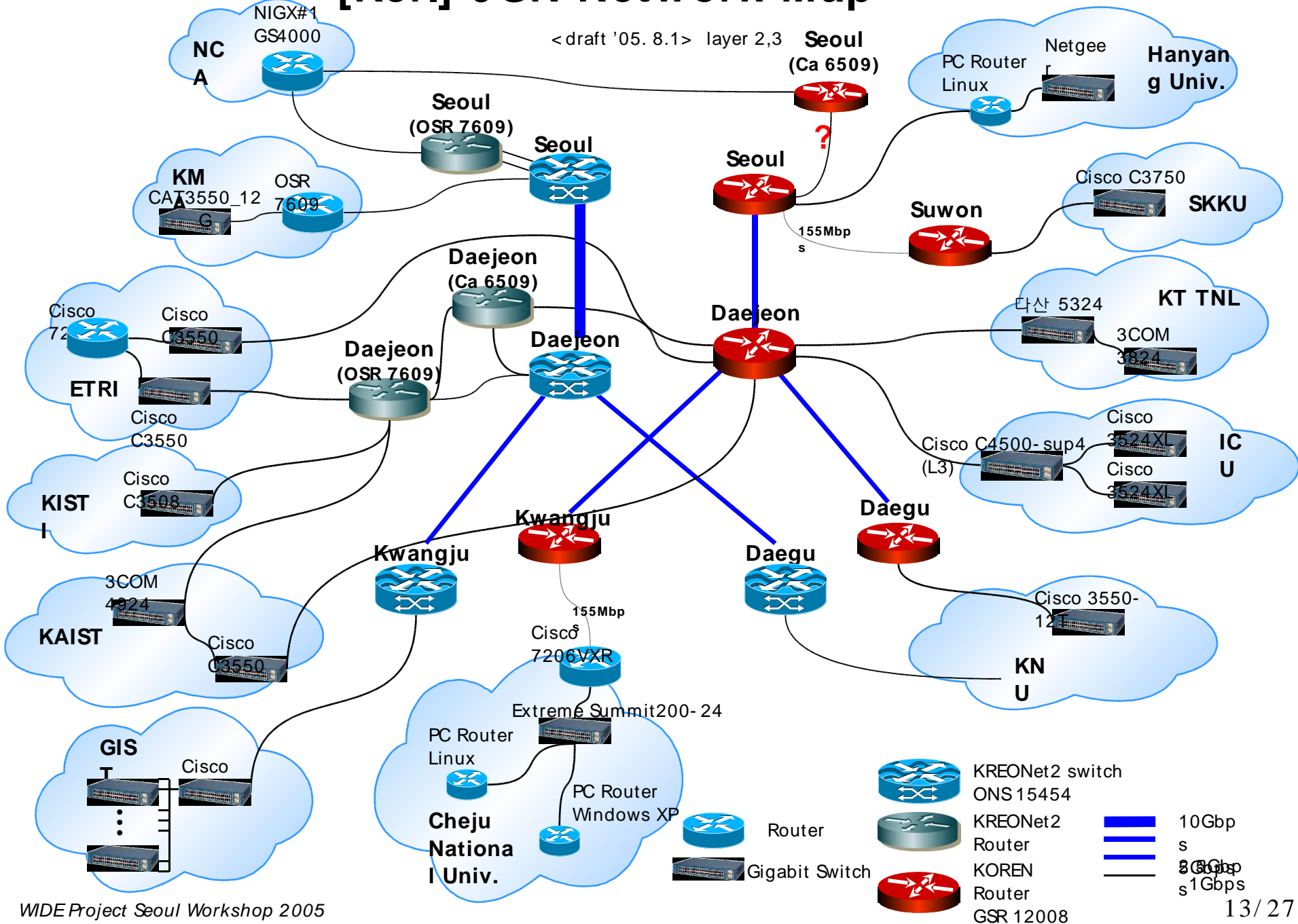
# Gigabit IPv6 Infrastructure : 6GN

- 11 members
- 2 backbones
- 1 IX

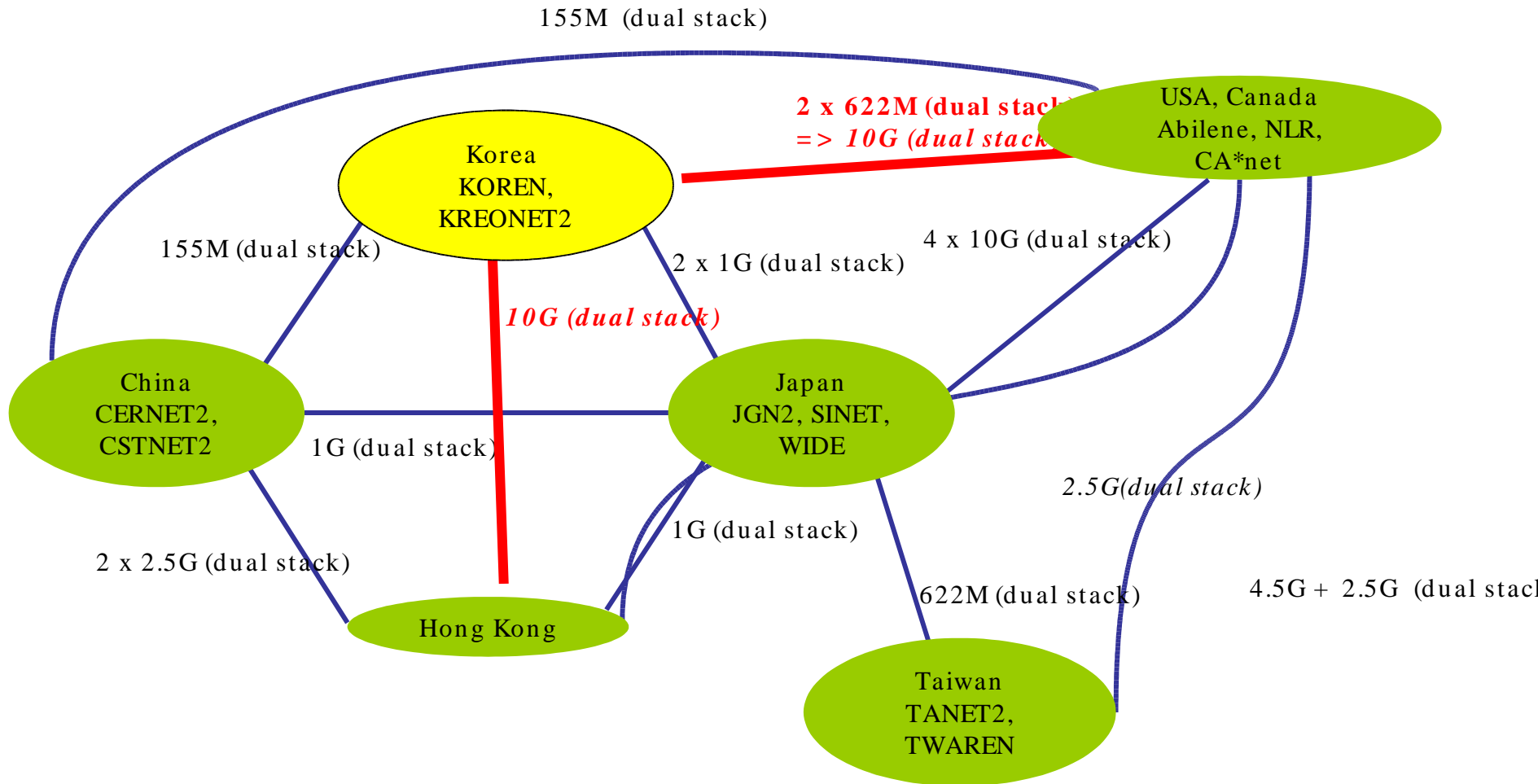


# [Ref.] 6GN Network Map

< draft '05. 8.1 > layer 2,3

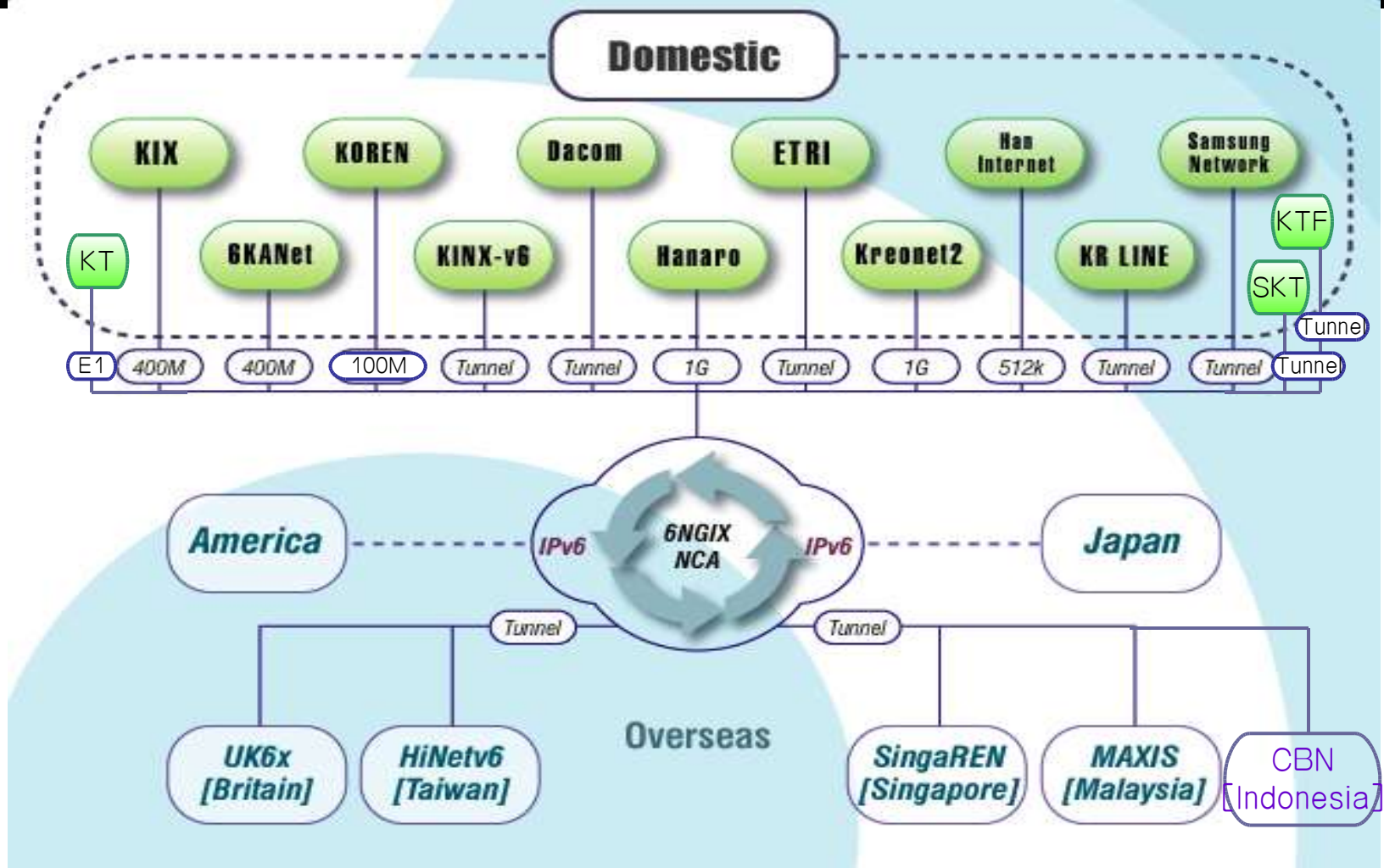


# Regional Gigabit IPv6 Network





# 6NGIX (IPv6 Next Generation Internet eXchange)



# KOREAv6 Project

- **Purposes**

- Define barriers to deployment of IPv6 services in such areas in home, office, campus, etc.
- Improve awareness of IPv6 service to the public

- **Key contents**

- Construct the national-wide IPv6 trial network
- Provide 10 trial services such as Eco System Monitoring, VoDv6, VoIPv6, Internet gateway service, etc.
- Test the stability and interoperability of 39 equipments such as routers, switches, VPN and so on

- **Outcomes**

- Retain operation skill of IPv4/IPv6 network with dual stack, NAT-PT
- Create a market of two-way services such as VoIPv6, Camerav6 etc.



# KOREA v 6 Project

- **Phase I (2004) Done**

- Construct the nation-wide IPv6 trial network
- Provide VoDv6, VoIPv6, IPv6 internet gateway service and
- Test 39 IPv6 equipment such as routers, switches, VPN etc.

- **Phase II (2005) Now**

- Applying IPv6 technologies to the 8 services of IT839 such as WiBro, VoIP, and Home network
- Expanding IPv6 network to the public sector
- Transition of existing IPv4 portal sites and applications into IPv6 based ones

- **Phase III (2006) Plan**

- Providing large-scale All-IPv6 services to users as far as the 8 services of IT 839
- Supporting the commercialization of IPv6 WiBro contents and applications
- Facilitating the massive use of IPv6 internet services in the public sector

# KOREA v 6 Project

- 2005 Trial Project List

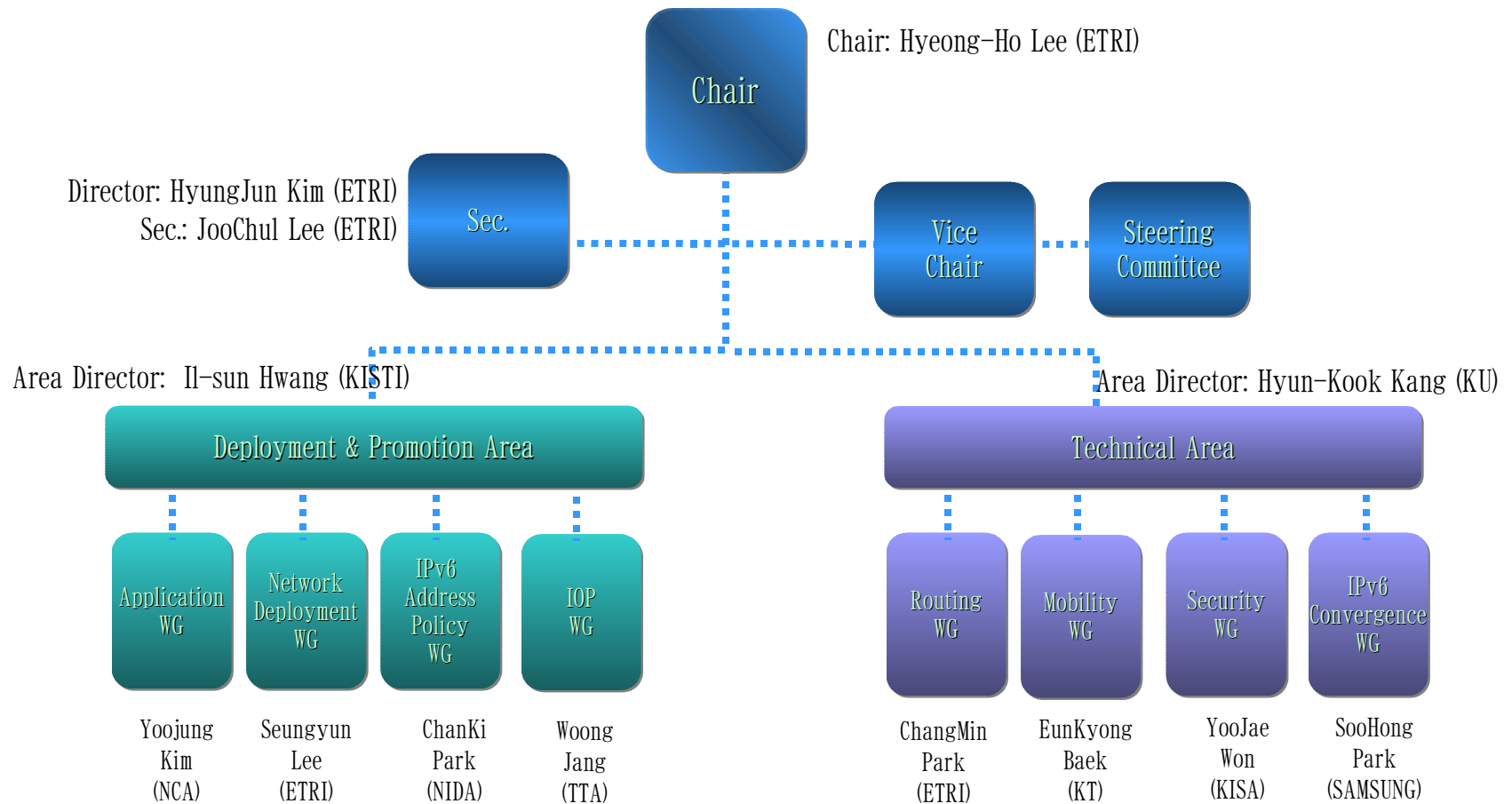
|  | Subject  | Period                    | Participants                         |
|--|--|---------------------------|--------------------------------------|
| Principal Projects   | VoIPv6 Services in Public Sector                   | 5.1~<br>11.31<br>(7M)     | Dacom                                |
|  | IPv6 based WiBro Applications and Contents         | 6.22<br>~<br>12.9<br>(6M) | KT                                   |
|  | IPv6 based Home Network Service                    |                           | Future Systems                       |
| IPv6 based Calamity & Disaster Prevention Management Service | Gangneung Information Technology                   |                           |                                      |
| High Definition Video Delivery Service                       | GIST   |                           |                                      |
| Public Offering Projects                                     | IPv6 based Medical Information Service at hospital | 6.22<br>~<br>12.9<br>(6M) | Wiz Information Technology Co.,Ltd.  |
|  | IPv6 Static Address Service using Tunnel Broker    |                           | Ubiquitous Media Technology Co., Ltd |

# IPv6 Forum Korea

- Initially launched on March, 2000 supported by government (<http://www.ipv6.or.kr/>)
- A consortium participating 84 member organizations
- President: Dr. Hyeong-Ho LEE (2005. 1~)
- Organizations:
  - Board
  - 2 Areas: 1) Deployment & Promotion Area  
2) Technical Area

# IPv6 Forum Korea

- 2005 Structure of IPv6 Forum Korea



# ANF (Advanced Network Forum)

- ANF is voluntarily nonprofit community for users of research & education network in Korea. (2003.2~ )
  - Activate the domestic Advanced Network
  - Participate the international Advanced Network activities
  - Representative of Korea for related international events
  - Contribute to development of Information and communication
  - \* Chair: Prof. DaeYoung Kim (CNU)
- ***IPv6 related Working Groups***
  - IPv6 Task Force (Chair: SeungYun Lee/ ETRI)
  - HDTV WG (Chair: Prof. JongWon Kim/ GIST)

More details: <http://www.anf.net.kr/>

# IPv6 Exhibition Hall

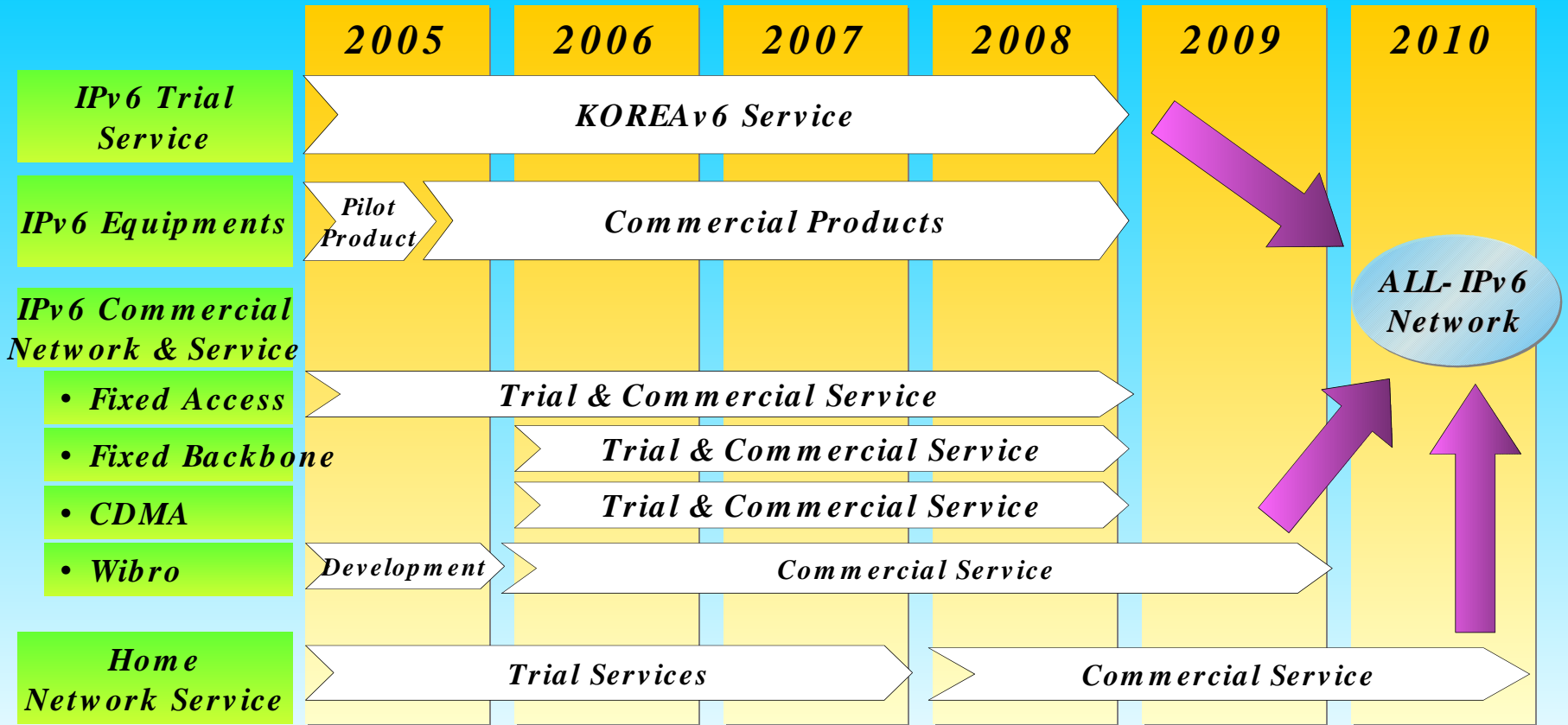
- **Ubiquitous Dream Exhibition (by MIC)**
  - Experiencing future LIFE STYLE, Show ubiquitous advanced technologies and skills:
  - 6 companies Participated (KT, Samsung, LG, SKT, KTF, LGT) (2004. 3 ~ )



- **KIESv6 (by NCA)**
  - Korea IPv6 Experience Sphere (2003. 10 ~ )
  - Provides IPv6 service experience space for the expansion of domestic IPv6 activities

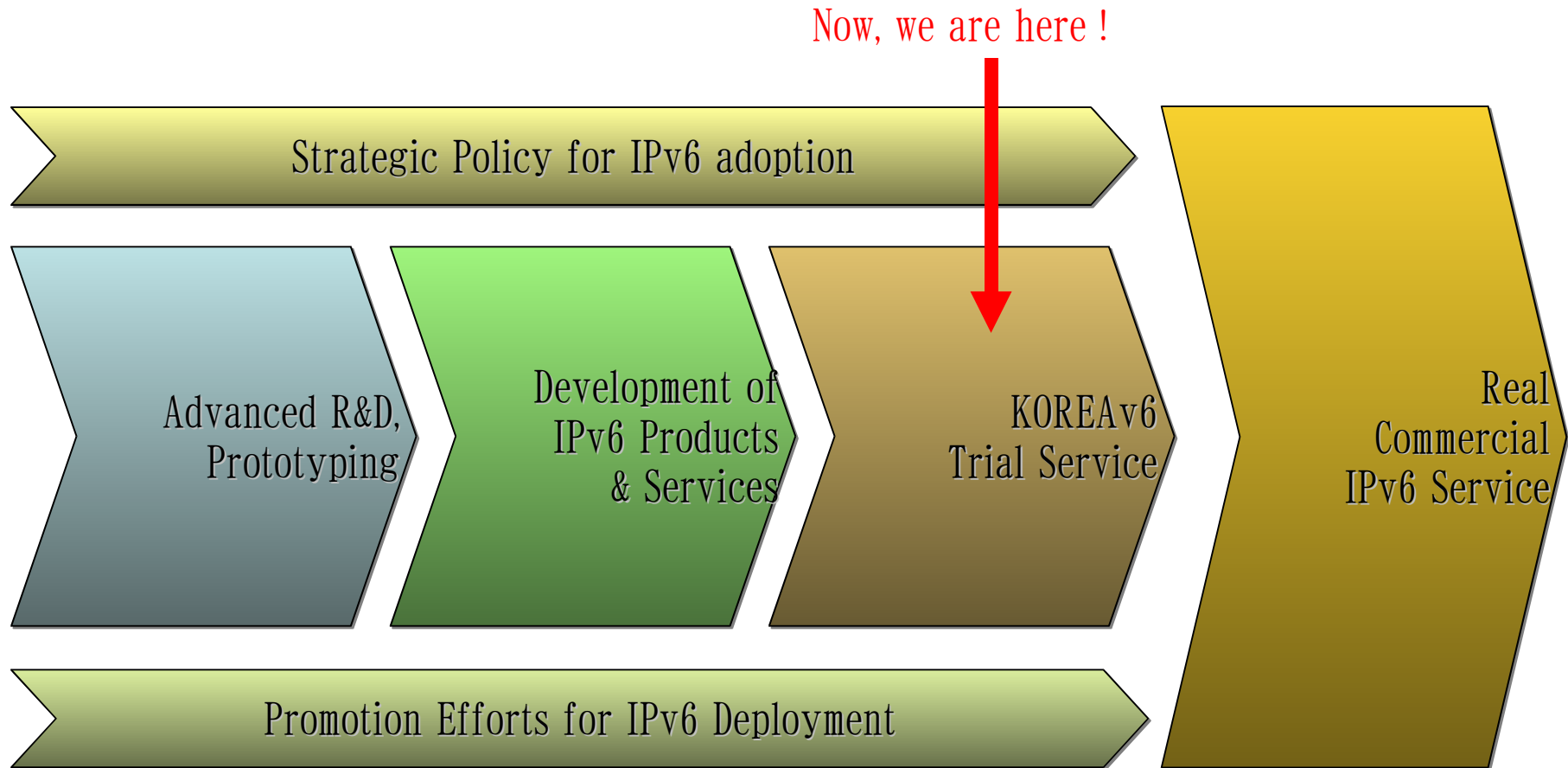


# Roadmap of IPv6 Adoption in Korea



\* IPv6 Adoption Roadmap (2005.3)

# IPv6 Driving Force in Korea





# [Ref.] Key Players of IPv6 in Korea

- Public Sector
  - Policy Maker: MIC
  - Promoter: NCA, NIDA, etc.
  - Testing & Certification: TTA
  - Advanced R&D: ETRI, Universities, etc.
  - Research Network Provider: NCA/ KT(KOREN), KISTI (KREONET2), ETRI(6Bone- KR), etc.
- Private Sector
  - Promoter: IPv6 Forum Korea, ANF(Advanced Network Forum)
  - Vendor: Samsung, LG, iBIT, Mercury, Locus, Dasan Networks, Lanbird, Future Systems, NeoTelecom, etc.
  - Solution Provider: S}Net, Future Systems, K-Sign, Wiz Information Technology, Wiznet, Modacom, etc.

# Conclusion Remarks

- **We Korea, have learned so much experiences for IPv6 adoption in various areas.**
  - *Big efforts have been made by the Government, Industries (Vendors, ISPs), and R&D sectors.*
- **New Vision of IPv6: A *Infrastructure in IT839 Strategy***
  - *Encouragement of IPv6 Market Forces by Government Policy.*
  - *Realizing the New IT World with IPv6.*
- **Now is the chance to make real IPv6 deployment !**
  - No more saying about “WHY?”, “WHEN?”
  - We should only concentrate on JUST “HOW?” & “WHERE?”  
both for Legacy Internet & Ubiquitous World

*Without adoption to the real world, nothing will be happened forever...*

Thank you for your attention

# QUESTION & ANSWER

## Contact Information

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