



IPv6 Activities for National Deployment in Korea

Yong-Jin Kim
IPv6 Forum Korea, President

- *Why IPv6 ?*
- *Internet status of Korea*
- *Difficulties in IPv6 Deployment*
- *IPv6 activities*
 - Government Policy
 - Promotion
 - Network deployment and trial service
 - Technology development
 - Standardization & Cooperation

Profits !

Internet Advantages to users

4

- ***Fast !***
- ***Convenient !***
- ***Cheap !***

ex) Ticket reservation
Internet shopping

Why IPv6 for User ?

■ *IPv6 makes **keep the IPv4 advantages** in every our life with more additions*

- > Convenient use of Internet
- > Always-on
- > Secure Internet of all scale
- > Mobile Internet
- > QoS guaranteed or Premium service

Why IPv6 for ISPs & venders?

6

- *ISP can get more benefits by generation of new businesses and by more subscribers using IPv6*

Why IPv6 for Nation ?

- *To be a leading country in the information society based on IP*
- *Make a welfare society through IPv6*

=> So, each country has enough reasons why it strategically drives the deployment of IPv6

Internet Status of Korea

■ *Tremendous Growth of Internet*

- 28 million of Internet users (2002. 1)
 - ⇒ about 60% of population
- 8 million of subscribers of new high-speed Internet service (2002. 12)
 - ⇒ xDSL, CATV subscribers
- 94 ISPs (Currently IPv4-based services)

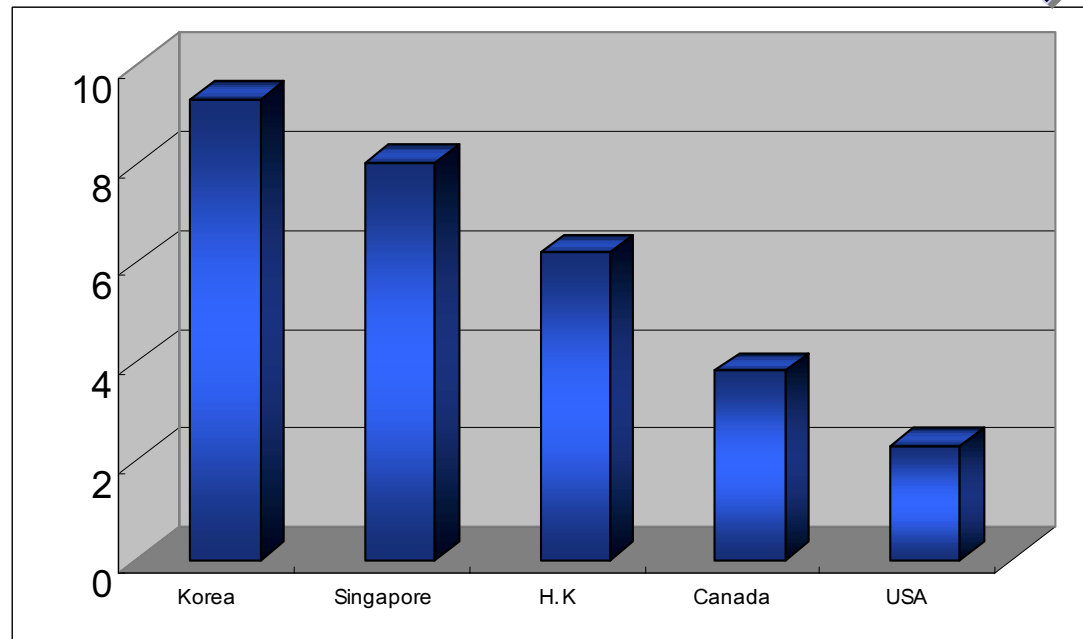
■ *OECD(May 2001) : “Korea is the first to realize the highest high-speed internet access penetration rate in the world OECD 30 member countries”.*

■ *ITU(Sep.) : “Korea ranked top in the penetration rate of High speed Internet”.*

- Especially ITU pinpoint government-driven policy and unique residential pattern as key success factors of Korean Internet.

■ *Increasing of New Demands*

- e.g., **Wireless Internet, Home appliance, Public Wireless LAN**
- *Having a Big potential for the New Internet*



(Fig.) High speed Internet Users per 100 person

Difficulties

- *IPv4 is a big success story in Korea and in the world:*
 - The transition should consider the co-existence of IPv4 and IPv6
- *ISPs have no confidence with the IPv6*
 - No confidence with IPv6 technology
 - No special business model
- *IPv6 deployment "has" a chicken and egg problem.*

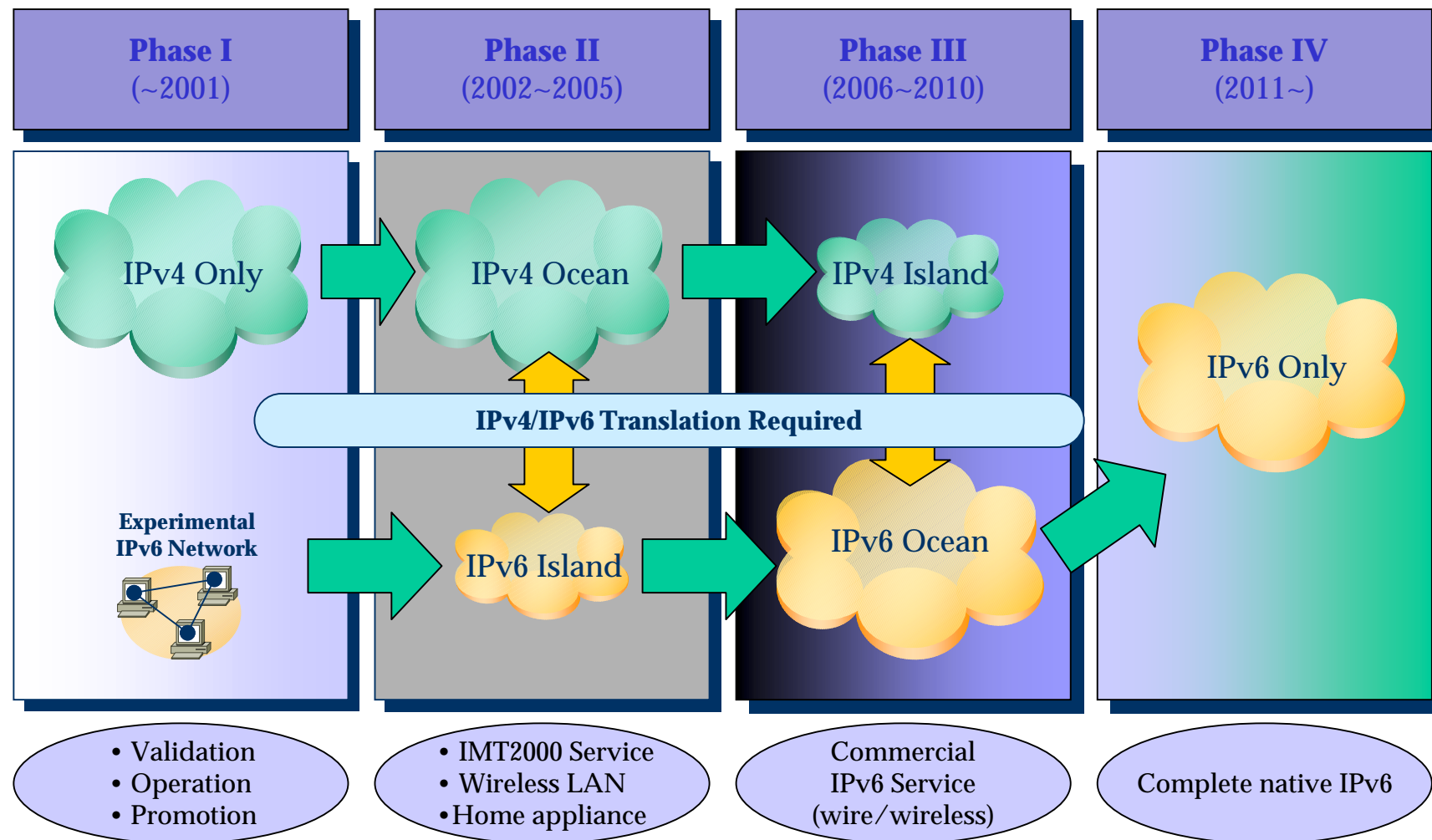
IPv6 Activities in Korea

- ◆ *Government Policy*
- ◆ *IPv6 Forum Korea*
- ◆ *Network deployment and trial service*
- ◆ *R & D Projects*
- ◆ *Standardization & International Cooperation*
- ◆ *Business Trial*
 - ◆ *ISPs, Manufactures ...*

- *Minister of Information and Communication officially declared the strong intention of IPv6 adoption (Feb. 2001)*
- *Initiated several IPv6 related projects since Feb. 2000*
 - IPv6 routers, IPv4/IPv6 translators, IPv6 Applications
- *Sponsored the setup of IPv6 forum Korea for promotion on March 2000*
- *Funding to develop IPv6-applied high speed Internet equipments*
 - It will include routers, IMT2000 terminals and information home appliances by investing 46.8 billion won of government budget and 36.8 billion won of private fund, a total of **83.6 billion won (us\$ 83 M) until 2003.**

Transition Roadmap

13



■ *Is preparing the Next step*

○ Special law/benefits for ISPs, manufactures

- *Mandates new ISP adopts IPv6*
- *Mandates the incorporation of IPv6 into all new systems*
- *Tax reduction*
- *Government organizations buy IPv6 products*

IPv6 Forum Korea



- *Launched at March 17, 2000 sponsored by government*
- *A consortium participating 61 member organizations for IPv6 from industrial bodies, research Institutes, Universities, etc*
- *Mission and Role*
 - Promote IPv6 in Korea
- *In addition,*
 - The center of IPv6 deployment in Korea
 - Give inputs to policy making in Korea
 - Discuss IPv6 standardization issues and strategy
 - Conference for promotion (e.g. Global IPv6 Summit)
 - Publishing text book, and webzin for IPv6
 - Education program

Publication of IPv6 Textbook (in Korean)

16

■ Contents

- 제 1 장 개요
- 제 2 장 차세대인터넷 프로토콜, IPv6
- 제 3 장 IPv6 어드레싱 및 라우팅 기술
- 제 4 장 IPv6 전송기술
- 제 5 장 IPv6 전환기술
- 제 6 장 IPv6 관련 주요기술
- 제 7 장 IPv6 시스템 구축 기술
- 제 8 장 결론

부록

- A. IPv6 API
- B. IPv6 지원 소프트웨어 및 하드웨어



■ Contents

- I. IPv6 개요
- II. 거버넌스
- III. IPv6 응용
- IV. IPv6 망
- V. IPv6 관련 장비 개발
- VI. IPv6 무선 인터넷
- VII. IPv6 발전 전망

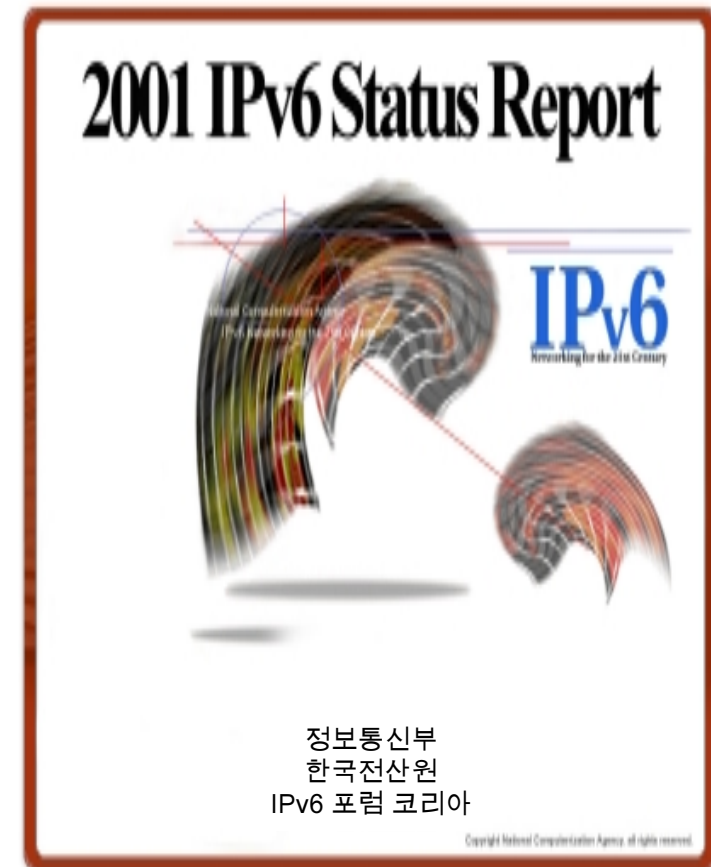
<첨부 1> 참고문헌

<첨부 2> 전 세계 IPv6교환노드 정보

<첨부 3> IPv6 연구 단체 현황

<첨부 4> 약어표

<첨부 5> 집필자



Providing IPv6 WebZin Service

18

■ www.ipv6.or.kr/korean/webzin.htm



Global IPv6 Summit (July 2001, Seoul)

19

■ *Global IPv6 Summit (Banquet)*



■ Global IPv6 Summit Conference



■ OneWorld WG Kick-off Meeting



■ Kyushu-Pusan Gigabit Link Meeting



Member's workshop (10. 10 -12 2001, Jeju)

20

■ Opening



■ Tutorial



■ Panel



■ Member delegates



- *Is setting-up top level task force meeting*
 - ISPs, Manufacturers, IPv6 Forum Korea, Government officer
- *Is planing to propose Asian IPv6 task force*
 - For cooperation between Asian countries
 - To discuss political issues as well as technical issues
- *2002 Global IPv6 Summit in Korea at July 11 – 12 (at the previous week of IETF meeting in Japan)*

- *First step : Deployment of experimental IPv6 islands for each organization (e.g. 6Bone)*
 - Operation and testing experience
- **Second step : Deployment of native IPv6 Application Testbed**
 - Application trials
 - Home network, IPv6 based wireless LAN etc.
- *Third step : Deployment of IPv6 Commercial networks considering the co-existence and interworking with IPv4*

■ *6Bone in Korea since 1996*

- www.6bone.ne.kr

■ *Experimental and Tunneling IPv6 Network (over IPv4)*

- 30+ organizations has involved in 6Bone-KR

■ *2 pTLAs*

- ETRI/KR, 3ffe:2e00::/24 (98/5)

- APAN-KR, 3ffe:8040::/28 (99/7)

6Bone-KR Peering Statistics

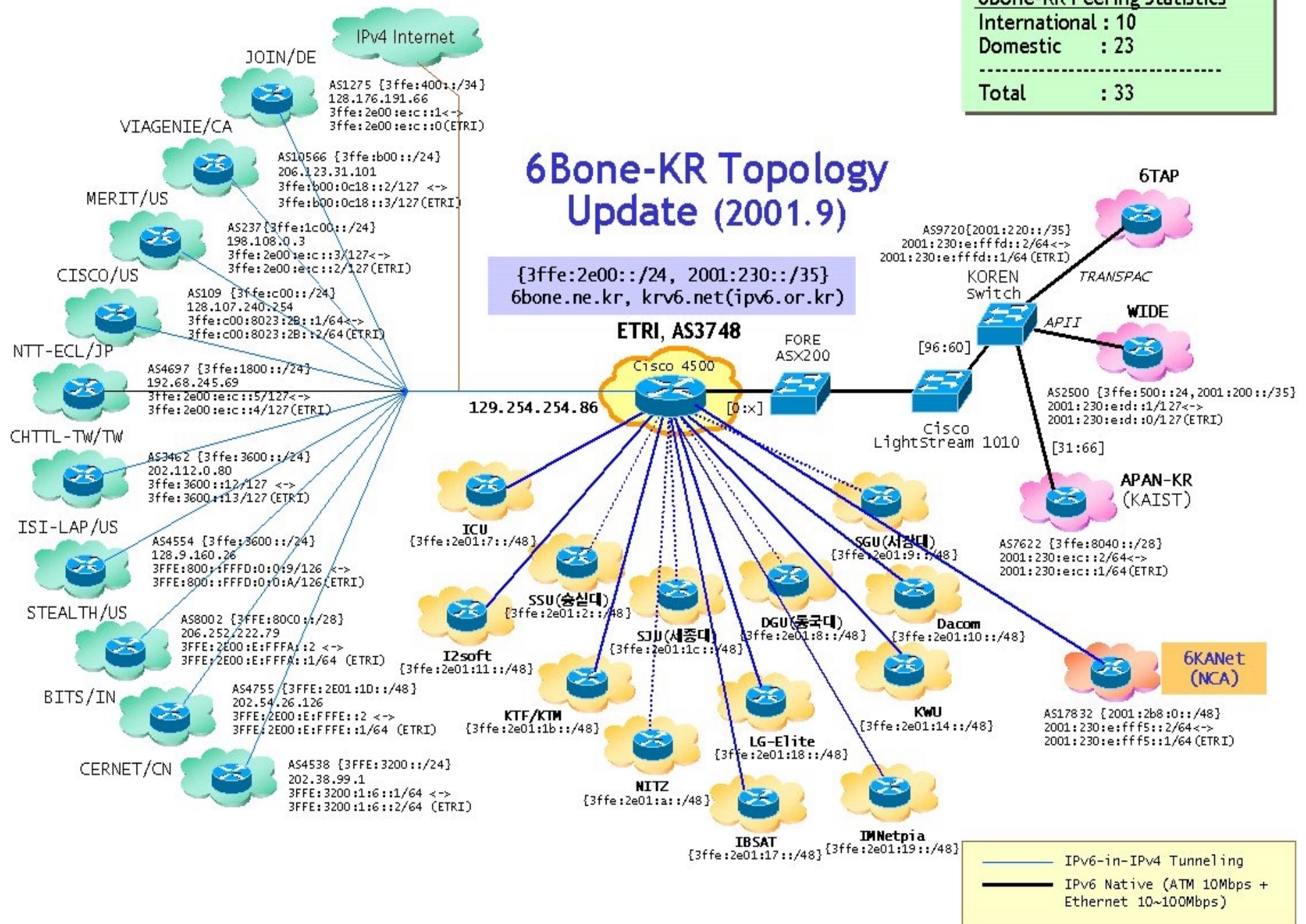
International : 10

Domestic : 23

Total : 33

6Bone-KR Topology Update (2001.9)

{3ffe:2e00::/24, 2001:230::/35}
6bone.ne.kr, krv6.net(ipv6.or.kr)

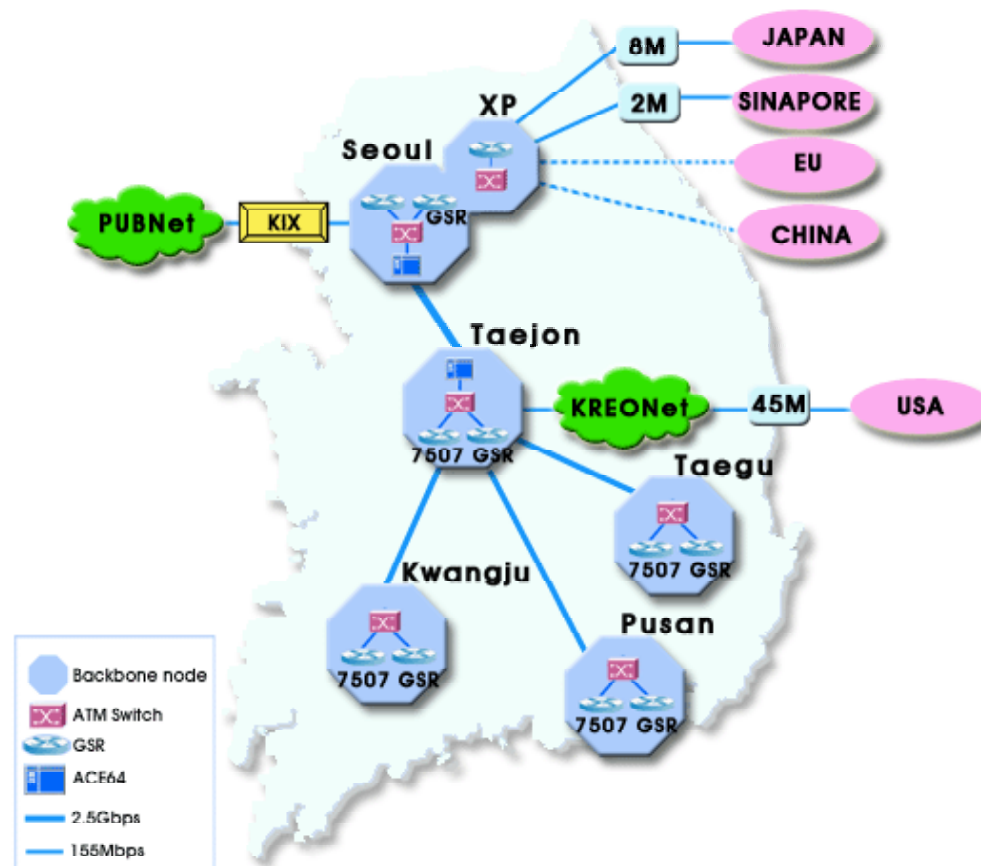


- *KOREN(KOrea Research and Education Network) for Native IPv6 Network Connectivities*
- *TransEurasia Networks*
- *IPv6 Trials ...*
 - Public Wireless LAN
 - Home networking and information Appliance
- *6NGIX*

KOREN Network Topology

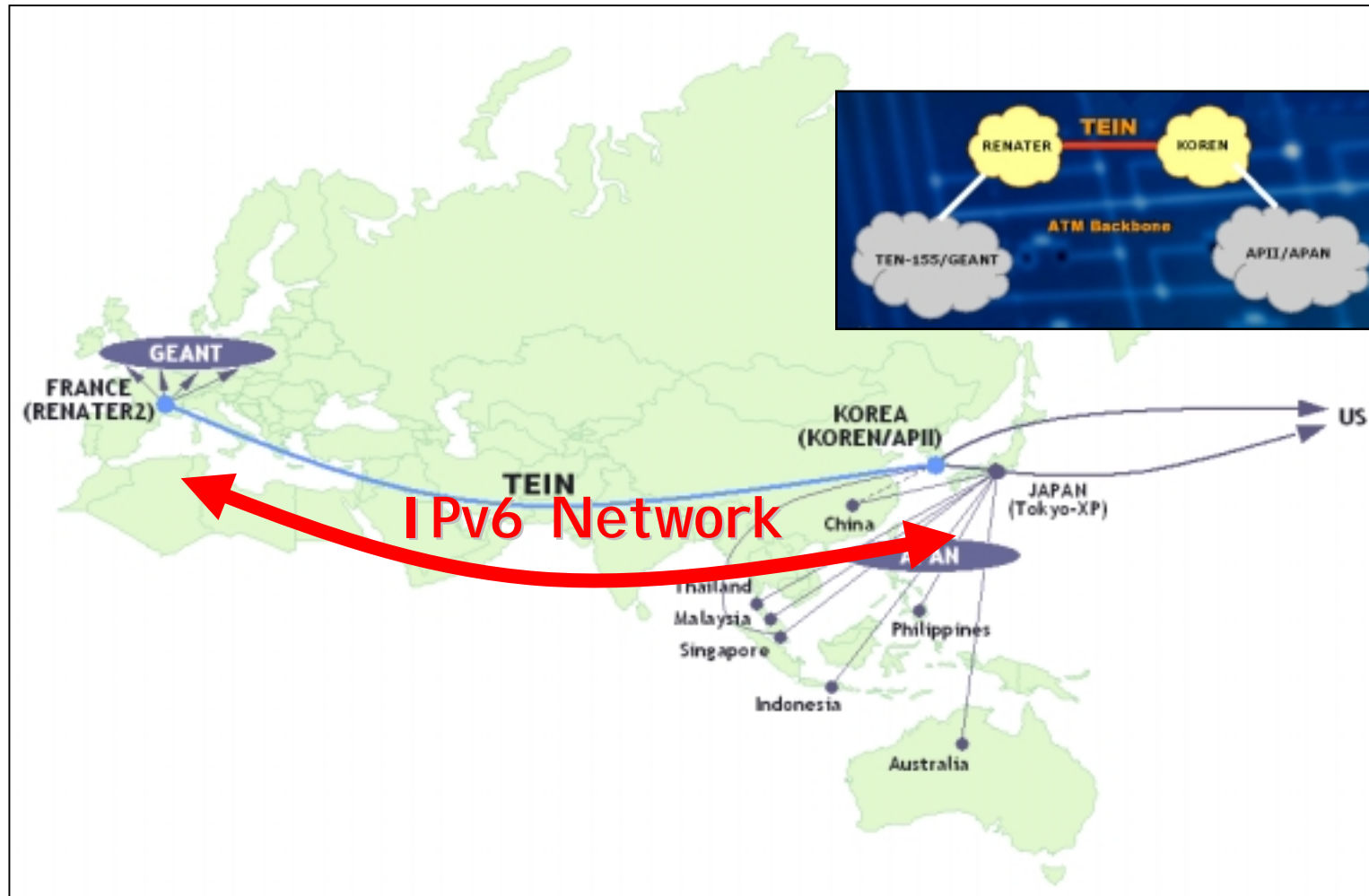
26

KOREN Topology



TransEurasia Network (TEIN)

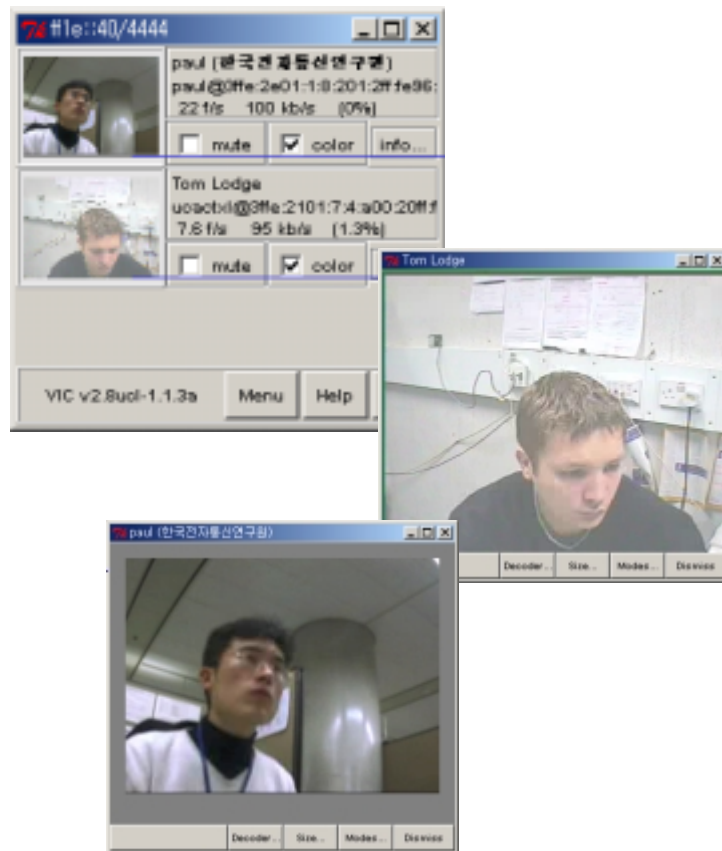
27



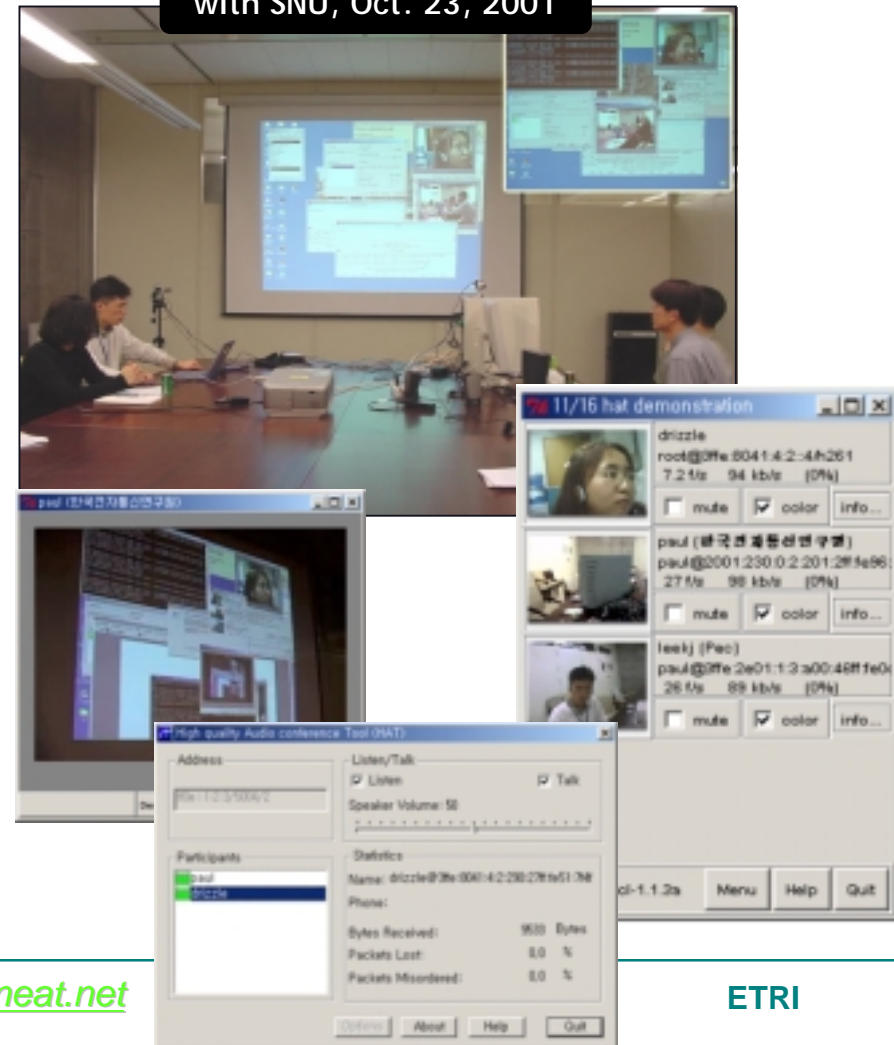
IPv6 Multicast services over TEIN (ETRI-UCL-SNU)

28

with UCL, Dec. 11, 2001



with SNU, Oct. 23, 2001



More information – <http://www.6neat.net>

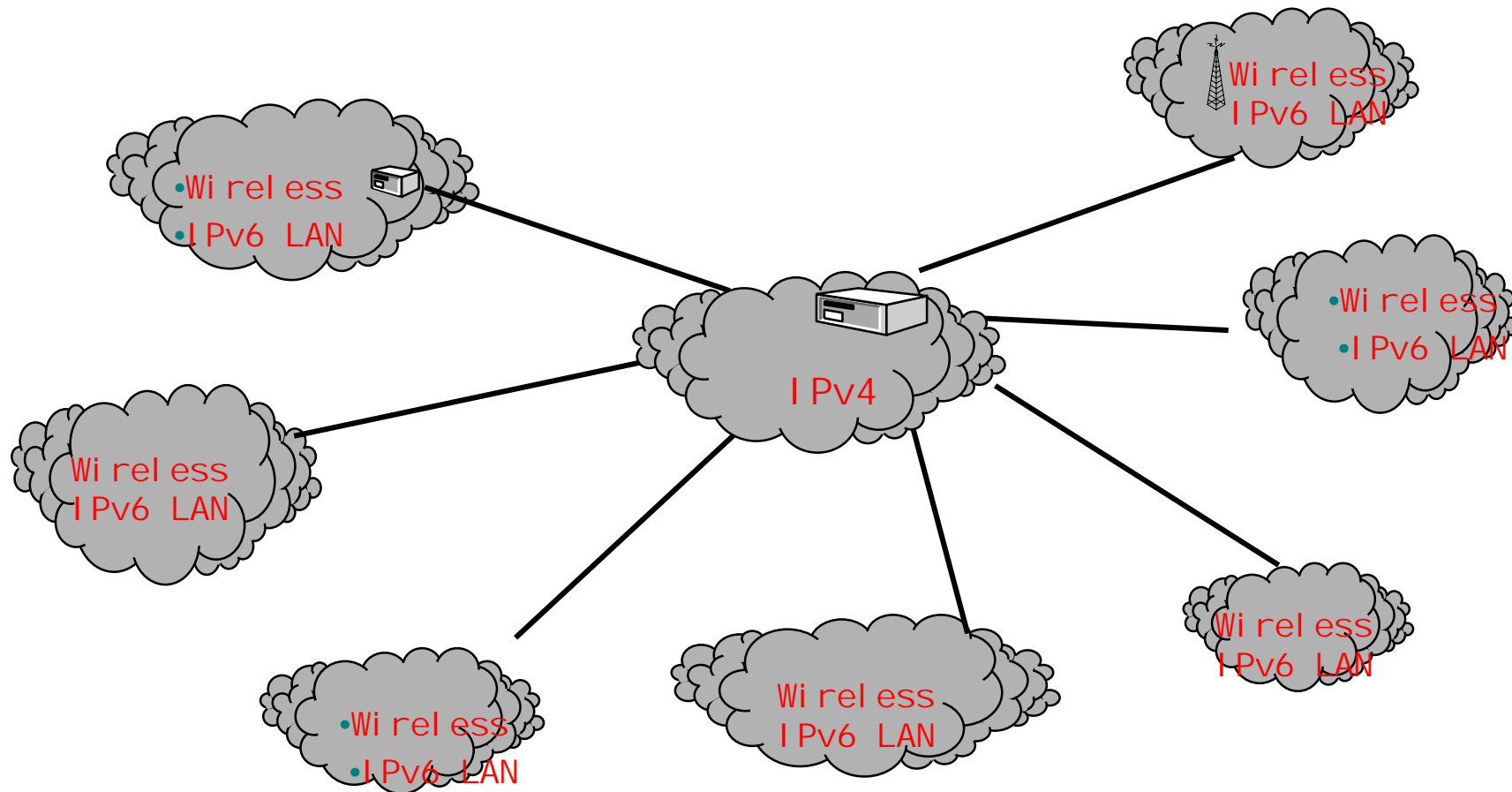
ETRI

Trial service plan - IPv6 Wireless LANs

29



For some regions



IPv6 Production Address in Korea

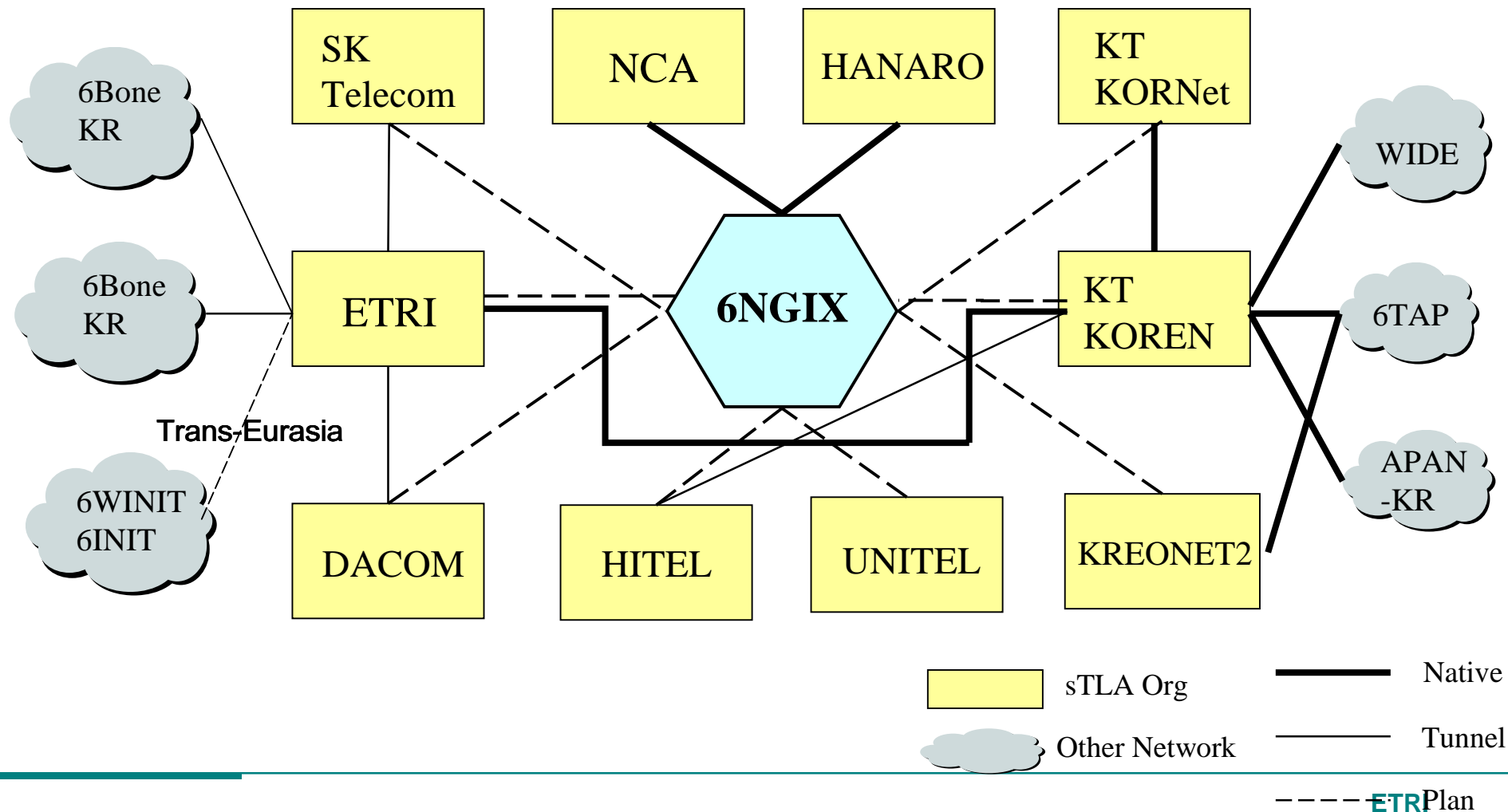
- **12 sTLA organizations (*22% of APNIC allocation)**
- **APNIC (whois.apnic.net) – 2002. 2. 16**

1.	KT-KR-19991006	2001:0220::/35
2.	ETRI-KRNIC-KR-19991124	2001:230::/35
3.	DACOM-BORANET-20000908	2001:270::/35
4.	KOLNET-KRNIC-KR-20000927	2001:280::/35
5.	HANANET-KRNIC-KR-20001030	2001:290::/35
6.	KORNET-KRNIC-KR-20010102	2001:02B0::/35
7.	NGINET-KRNIC-KR-20010115	2001:02B8::/35
8.	SKTELECOMNET-KRNIC-KR-20010406	2001:02D8::/35
9.	UNITEL-KRNIC-KR-20010920	2001:0330::/35
10.	KREONET2-KRNIC-KR-20010823	2001:0320::/35
11.	THRUNET-KRNIC-KR-20011218	2001:0378::/35
12.	HANINTERNET-KRNIC-KR-20020207	2001:0390::/35

6NGIX - Peering IPv6 sTLA org.

31

Last Updated : 2001. 11



IPv6 R & D Projects

■ 6TALK (*ipv6 TrAnsLator of Krv6:*)

⇒ www.6talk.net

⇒ *Developing the IPv6 transition strategies and translation technologies*

■ 6ANTS (www.6ants.net)

⇒ *Developing the IPv6-based Auto-configuration Networking Technologies*

■ 6NEAT(www.6neat.net)

⇒ *Developing the IPv6 network infrastructure and IPv6 Applications*

■ Other projects

⇒ *IPv6 Routers*

⇒ *IPv6 Applications*

Standardization Activities

- ◆ *Actively involved in IETF since March 2001*
 - ◆ Ngtrans WG for transition technology
 - ◆ *BIA*
 - ◆ *DSTM extension*
 - ◆ *Application Transition*
 - ◆ *More Drafts in the Future*
 - ◆ IPng WG, Zeroconf WG, Mobile IP WG etc
 - ◆ *Multicast address*

International Cooperation

34

- *Participating to 6WINIT project as a partner*
- *Plan to join to 6NET project*



Thank You !

Questions ?