IPv6 Activities for National Deployment in Korea

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Outline

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

Profits!
Internet Advantages to users

- 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  ….
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 …
Government Policy

- 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 Kore 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

Phase I
(~2001)
- IPv4 Only
- Experimental IPv6 Network
- Validation
- Operation
- Promotion

Phase II
(2002~2005)
- IPv4 Ocean
- IPv4/IPv6 Translation Required
- IMT2000 Service
- Wireless LAN
- Home appliance

Phase III
(2006~2010)
- IPv6 Island
- Commercial IPv6 Service (wire/wireless)

Phase IV
(2011~)
- IPv6 Ocean
- IPv6 Only
- Complete native IPv6
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
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Providing IPv6 WebZin Service

- www.ipv6.or.kr/korean/webzin.htm
Global IPv6 Summit (July 2001, Seoul)

- 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)

- Opening

- Tutorial

- Panel

- Member delegates
IPv6 Forum Korea - Cont.

- **Is setting-up top level task force meeting**
  - ISPs, Manufacturers, IPv6 Forum Korea, Government officer

- **Is planning 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)**
IPv6 Network deployment

- **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
First Step

- **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 Topology Update (2001.9)

ETRI, AS3748

6Bone-KR Peering Statistics
International: 10
Domestic: 23
Total: 33
Second Step (+)

- **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

KOREN Topology

- Seoul
- Taejon
- Kwangju
- Pusan
- JAPAN
- SINAPORE
- EU
- CHINA
- USA

Backbone nodes
ATM Switch
GSR
AFTAP
2.5Gbps
155Mbps
TransEurasia Network (TEIN)

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

- with UCL, Dec. 11, 2001
- with SNU, Oct. 23, 2001

More information – http://www.6neat.net
Trial service plan - IPv6 Wireless LANs

For some regions
IPv6 Production Address in Korea

- **12 sTLA organizations** (*22% of APNIC allocation*)
- **APNIC** (whois.apnic.net) – 2002.2.16

3. DACOM-BORANET-20000908 2001:270::/35
6. KORNET-KRNIC-KR-20010102 2001:02B0::/35
6NGIX - Peering IPv6 sTLA org.

Last Updated: 2001. 11
IPv6 R & D Projects

■ 6TALK (ipv6TrAnsLator 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

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

Questions?