

Strategy for Successful IPv6 Trial and Deployment

Kishik Park

kipark@etri.re.kr

President / IPv6 Forum Korea



Contents

- **Prologue**
- **Current Status Around the World**
- **Problems for the IPv6 Deployment**
- **IPv6 Deployment Strategy**
- **Epilogue**



Prologue

- IPv6 is already old stuff in the view point of a Internet protocol since the mid of 90's.
- IPv6 is no more technology issue.
- So many IPv6 testbeds in the world
- People needs to connect the world with anything, anywhere, at anytime.
- Now, it is time to permeate and pervade the IPv6 in full swing !

Current Status Around the World

- Technology



- Core IPv6 Protocol Standards are being developed.

- IETF's IPv6, v6ops, Multi6, SEND WGs

- We have already IPv6 in various platforms.

- Microsoft XP and .NET Server 2003
 - Apple MacOS X 10.2, Linux and BSD, Sun Solaris
 - IBM, HP, Symbian OS7, etc.
 - Cisco, Juniper, Hitachi routers support IPv6



Current Status Around the World

- Network Deployment
 - North America: I2, CANARIE, MOONv6
 - VBNs, Abilene, CA*Net, etc
 - Europe: EC-IST projects
 - 6INIT, 6NET, Euro6IX, GEANT, etc
 - Asia: APAN, KOREN, JGN, CERNET
 - Commercial IPv6 services has launched by NTT, IJ.
 - Recent China IPv6 deployment activities



Current Status Around the World

- Service & Application
 - Basic and legacy applications are quite many enough.
 - Mostly porting-level applications for existing IPv4 apps.
 - But, real IPv6-based applications are quite few
 - IPv6 applications need to be differentiated from IPv4 apps.



Current Status Around the World

- Promotion
 - Many efforts are being made and going on.
 - IPv6 Forum, National IPv6 Forums
 - IPv6 Promotion Council, China IPv6 Council
 - European IPv6 Task Force, North American IPv6 Task Force, UK IPv6 TF, Swiss IPv6 TF, etc.
 - Launching of APAN IPv6 Task Force (2003.12)
 - Goal is to deploy **the IPv6 service up to 10%** of the research and education (R&E) network in Asia-Pacific region.

Current Status Around the World

- Worldwide IPv6 Promotion Activities



Problems for the IPv6 Deployment

- Technology
 - Not sufficient yet: Network Mobility, Ad-hoc, DNS, etc.
 - More and new technical efforts need to be made
 - Need to be integrated for a new IPv6-based service
- Network deployment
 - So far, there were research & project oriented networks.
 - Are those real production-level network?

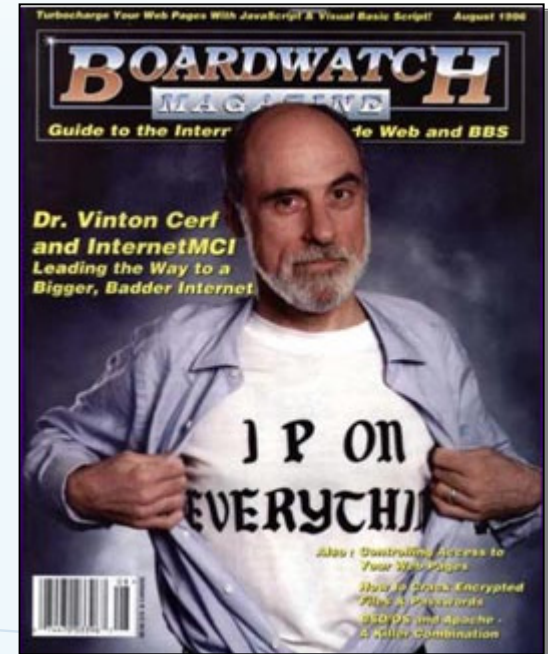
Problems for the IPv6 Deployment

- Service & Application
 - Need to be more than legacy
 - Lack of value-added IPv6 applications
 - Differentiated IPv6-based application and its business model
- Promotion
 - Quite active in some region, but not global so far.
 - Educational aspect need to be more emphasized for potential users (Human inertia).

Why Deployment Efforts

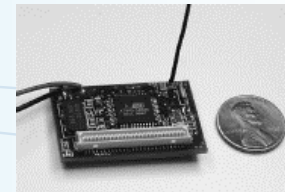
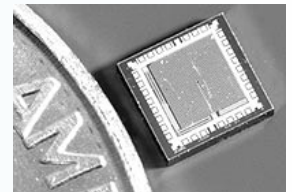
- *The value of IPv6 can be realized only if the deployment effort is broadly based on a global scale. Part of the IPv6 Task Force effort needs to be devoted to fostering IPv6 understanding wherever the Internet has gone, and beyond that to places where it can go with the help of the much-expanded IPv6 address space.*

- Dr. Vinton Cerf



IPv6 Deployment Strategy

- Technological Perspectives
 - More and new technical efforts need to be made
 - Technological combination/Integration can make new IPv6-based Services & Businesses.
 - Mobility (3G), P2P technology
 - Automation technology (Home, Factory, etc.)
 - Sensor Networking technology (RFID, etc.)
 - Context-aware Computing technology
 - Military & Space Science
 - Automobile
 - etc.
 - IPv6 is a technology enabler for establishing global UBIQUITOUS environment.



IPv6 Deployment Strategy

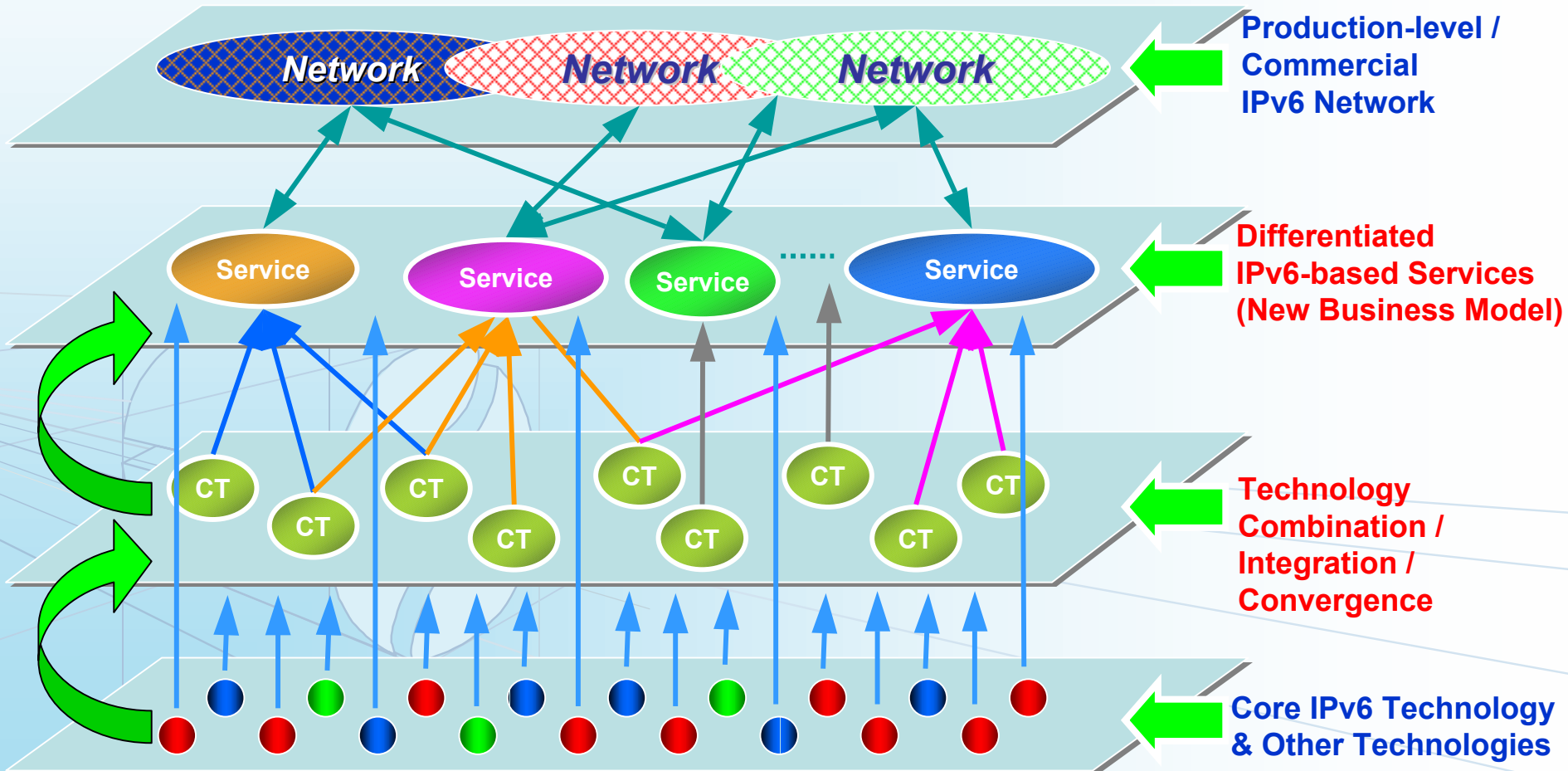
- Network Deployment Perspectives
 - No more Testbeds
 - Moving to Production-level & Commercial IPv6 networks from Testbeds.
 - Encouraging ISPs through possible incentives
 - Establishing some IPv6 Native network
 - Providing some merit for the operation of IPv6 network by new business models, institutional arrangements, etc...
 - Providing an efficient way to coexist with IPv4 Internet

IPv6 Deployment Strategy

- Service & Application Perspectives
 - New service features may be much more than we are thinking of now.
 - Technological combination / integration / convergence can make new IPv6-based Services and Applications.
 - In the long run, it would evolve to a global UBIQUITOUS environment.
 - New IPv6 services and applications should be developed / introduced from USERS' point of view.
 - P2P, Grid, Home Networking, Game
 - Security, Mobility (Host, Network), Multi-homing
 - RFID, Sensor Networking, WLAN, HPI, xDLS

IPv6 Deployment Strategy

- Framework for New IPv6 Service



Epilogue

- For Successful IPv6 Deployment,
 - **Technology Combination / Integration / Convergence for IPv6 deployment**
 - Focus on differentiated IPv6 features
 - **Moving to Production-level & Commercial IPv6 networks from Testbeds**
 - No More Testbeds
 - **Toward a global UBIQUITOUS environment through IPv6**
 - **Global Promotion & Education of IPv6**
- ⇒ *IPv6 will be an infra technology for the Global UBIQUITOUS age.*



Thank you

Dr. Kishik Park <kipark@etri.re.kr>
President, IPv6 Forum Korea

Vice President of ETRI



Electronics and Telecommunications
Research Institute