



IPv6 Convergence Forum

Rapporteur Summary

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A summary...



- Some quotes
- A summary of reported issues
- Key messages

- Discussion...



- Hiroshi Esaki (Univ. Tokyo):
 - “IPv6 is not only for IT industries, but for all, through improving RoI.”



- Gabriella Paolini (audience/GARR):
 - “IPv6 is intended to do what IPv4 does, but better. GRIDS is an example.”



- Jonas Persson (Microsoft):
 - “Seamless Networking – IPv6 can reduce complexity, and you can save money by reducing it.”



- Patrick Grossetete (Cisco):
 - “IPv6 in India is intended to create new jobs, business opportunities & services, and we need to do the same in Europe.”



- Urich Reimers (BTU):
 - “Engineers are working in the migration to IPv6 – We are NOT sleeping, but only acting slowly.”



- Helmut Leopold (Telekom Austria):
 - “I believe tremendously on decreasing complexity to the customer.”



- Patrick Grossetete (Cisco):
 - “Don’t try to sell IPv6 to end-users. Applications must go IP agnostic.”



- Eivan Cerasi (Eurocontrol):
 - “IPv6 is IP, it’s not another protocol.”



- Emmanuel Varvarigos (GCTI):
 - “IPv6 technology is mature and can be deployed without the fear of possible network collapse.”

IPv6 developments



- Stable standards
- Many implementations
- Hardened interop tests
 - ETSI, TAHI, Go4IT, ...
- Proven testbeds
 - 6NET, INSC, ...
- EC-funded research
 - 14 European IST IPv6 projects from 2000-2005
- Widespread deployment in academic networks
 - GEANT, CERNET2, ...
- Microsoft enterprise network IPv6-enabled
- Vista IPv6 by default
- EC consultation
 - 260 replies in Feb'06
- Defence networks
 - US, France, Germany
- School networks
 - Greece, Portugal, ...
- Roadmaps
 - IPv6 TF, Austrian TF

Benefits



- **Strategic:**
 - Expanding the Internet
 - Global addressability
 - End-to-end transparency
 - Improved plug and play
 - Simpler application development (no NAT)
- **Better service support:**
 - Simplified multicast
 - Improved host and network mobility including media handover (MIP/NEMO)
 - Built-in IPsec allows end-to-end security
- **Reduced opex:**
 - Simpler service design
 - Easier installation
 - Less misconfigurations
 - Easier troubleshooting and management
 - More reconfigurable
 - Simplified network merger avoiding private IP clashes
- **Single, scalable platform for convergence**
 - Triple play (Cable/DSL)
 - Satellite delivery (DVB)

Opportunities



- Long-term strategy
 - KDDI, NTT, Microsoft
- Innovation
 - New services/applications
 - New revenue streams
- Business opportunities
 - ISP/ASP convergence
 - Cost reduction
 - Better long-term RoI
- Richer education
 - Sensors, GRIDs, etc
 - Removal of NAT to enable advanced school networks
- New delivery platforms:
 - High-speed DSL, DVB Phase II, WiMAX, satellite
- Networking billions of mobile, always-on devices
- New low-cost devices
 - PCs, handhelds, DVB-H
- The “PC in the lounge”
 - Growth in home networking
- Defence networks
 - Network centric warfare
- Seamless mobility
 - Info @ anytime, anyplace

Applications



- Peer-to-Peer
- Home networking
 - Seamless networking
- Digital IP-TV multicasting
 - Media players
- SIP-based VoIP
 - NTT 20,000 IPv6 terminals
- Online gaming
 - Bidirectional communication
- Supply chain
 - Tracking parcels, luggage
- Ad-hoc networks
 - e.g. disaster management
- Utility sectors (e.g. power)
 - “Community of interest” networks using Mobile IPv6
- Transport networks
 - Cars/telematics, aircraft, ...
- Environmental monitoring
 - Live E!
- Sensor networks
 - Modeling, education
- Public safety networks
 - U-2010, Search and rescue

Challenges



- Delivering transparent, hassle-free, low cost services for end users
 - Who don't care about IP
 - Slow uptake compared to other regions (Asia)
- Making money from IPv6?
- Lack of customer demand
- “IPv6 will happen one day whatever we do now”
- Business models - need economists not geeks
- Getting buy-in at all levels
- Sector education required
- Walled garden models favour status quo
- Driving research to commercial production
- Short-term higher opex during transition
- Asymmetric networks
 - Assumption of client-server
- Limited multicast usage
- IPv6 management/OSS
- Commodity CPEs

Next Steps?



- Show business models
 - Cost reduction, e.g. for content providers/ASPs
 - Affordable, with proportionate costs
- Define 'IPv6 capable' for public procurements
- Identify, stimulate and deliver new applications
- Promote development of IP agnostic applications
- Target immediate but realistic market needs
- Show best practice:
 - Greek schools experience
 - Phased, non-disruptive transition with cost analysis
 - NAP as a NAT replacement
- Supply industry bodies with guidance/roadmaps
 - Build up training capacity
- Document social aspects
 - Includes privacy issues
- Collaborate internationally
 - Consider UN IGF topics?
- Look at financial support?

Key messages (1)



- IPv6 is a mature technology with significant deployment experience worldwide
- IPv6 has clear technical advantages but these need to be translated to business advantages for various sectors
- IPv6 supported fully by Microsoft, with Vista preferring use of IPv6 by default

Key Messages (2)



- A wide range of IPv6 application scenarios is available to be exploited; green field applications can use IPv6 from the outset
- IPv6 networks can enrich educational experiences, with the right support and vision
- IPv6 enables convergence both between delivery platforms and between business sectors