

IPv6: Internet Addresses Forever

Internet Governance Forum

16 November 2009

Overview

- Motivation for IPv6
- IP Address Status
- IP Address management
- The Next Step: IPv6
- Conclusions

The “Narrow Waist”

Applications

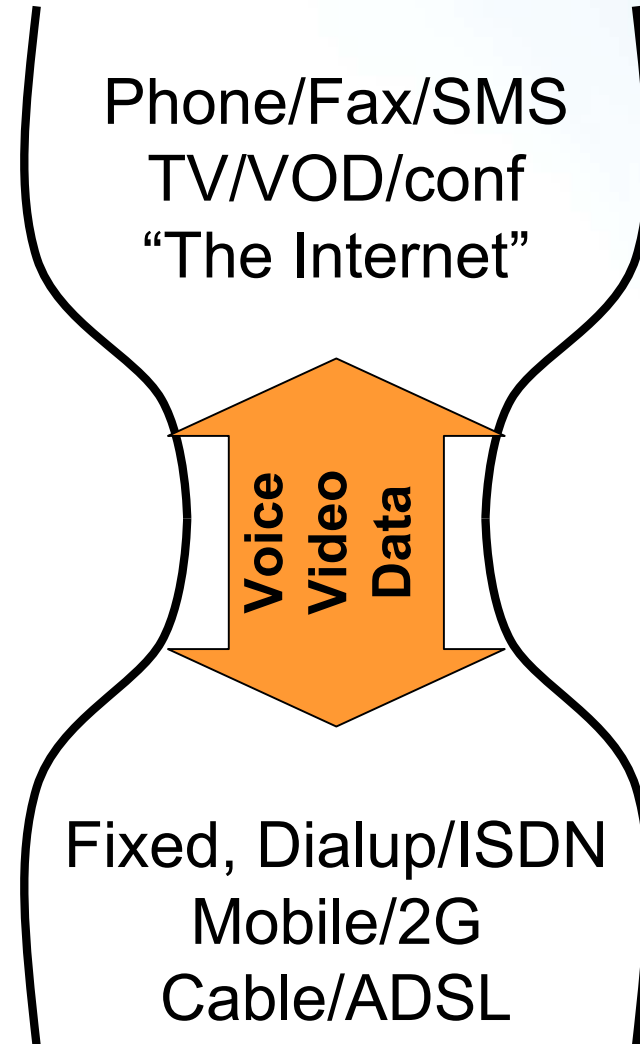
Phone/Fax/SMS
TV/VOD/conf
“The Internet”

Network

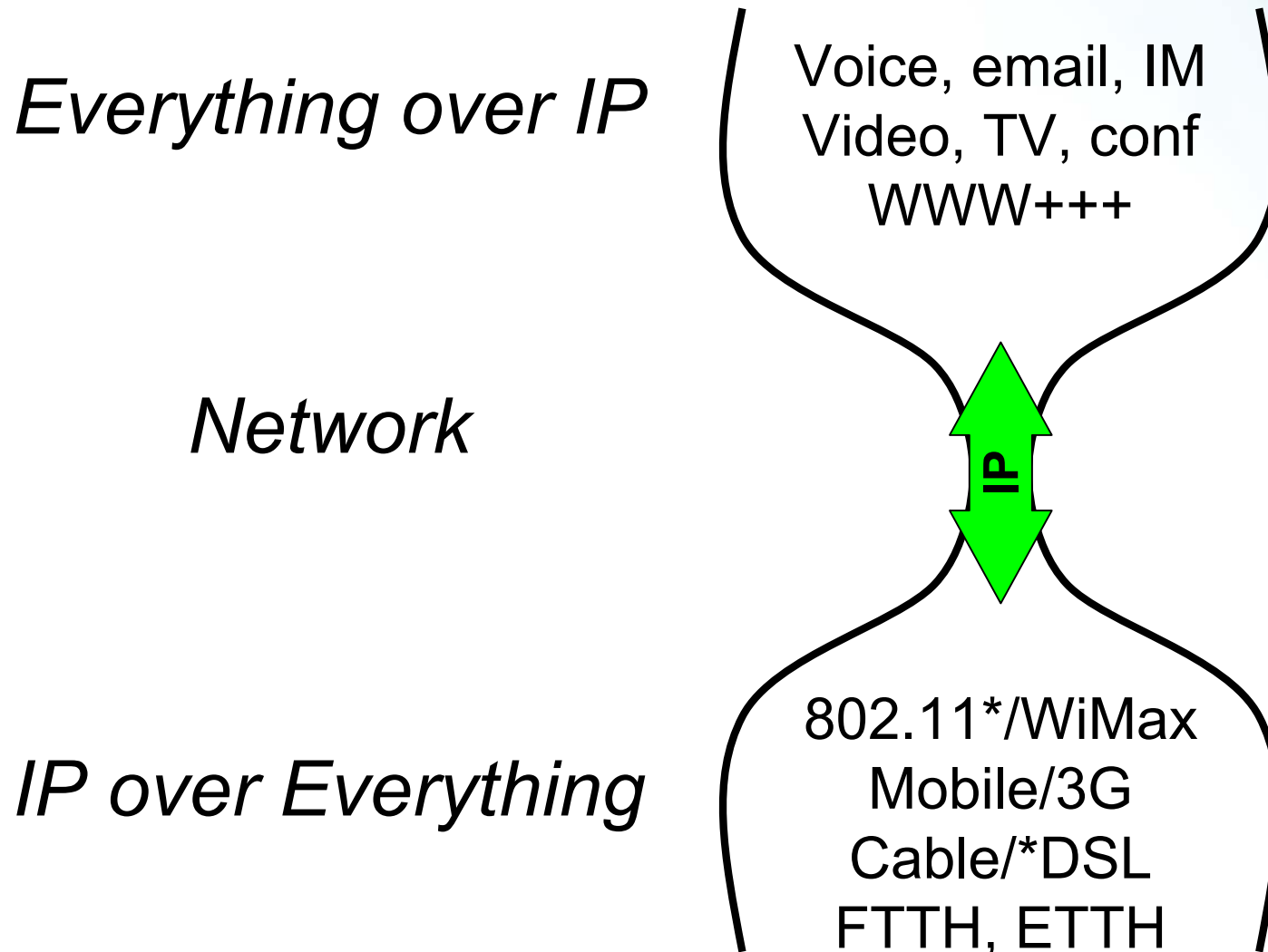
Voice
Video
Data

Infrastructure

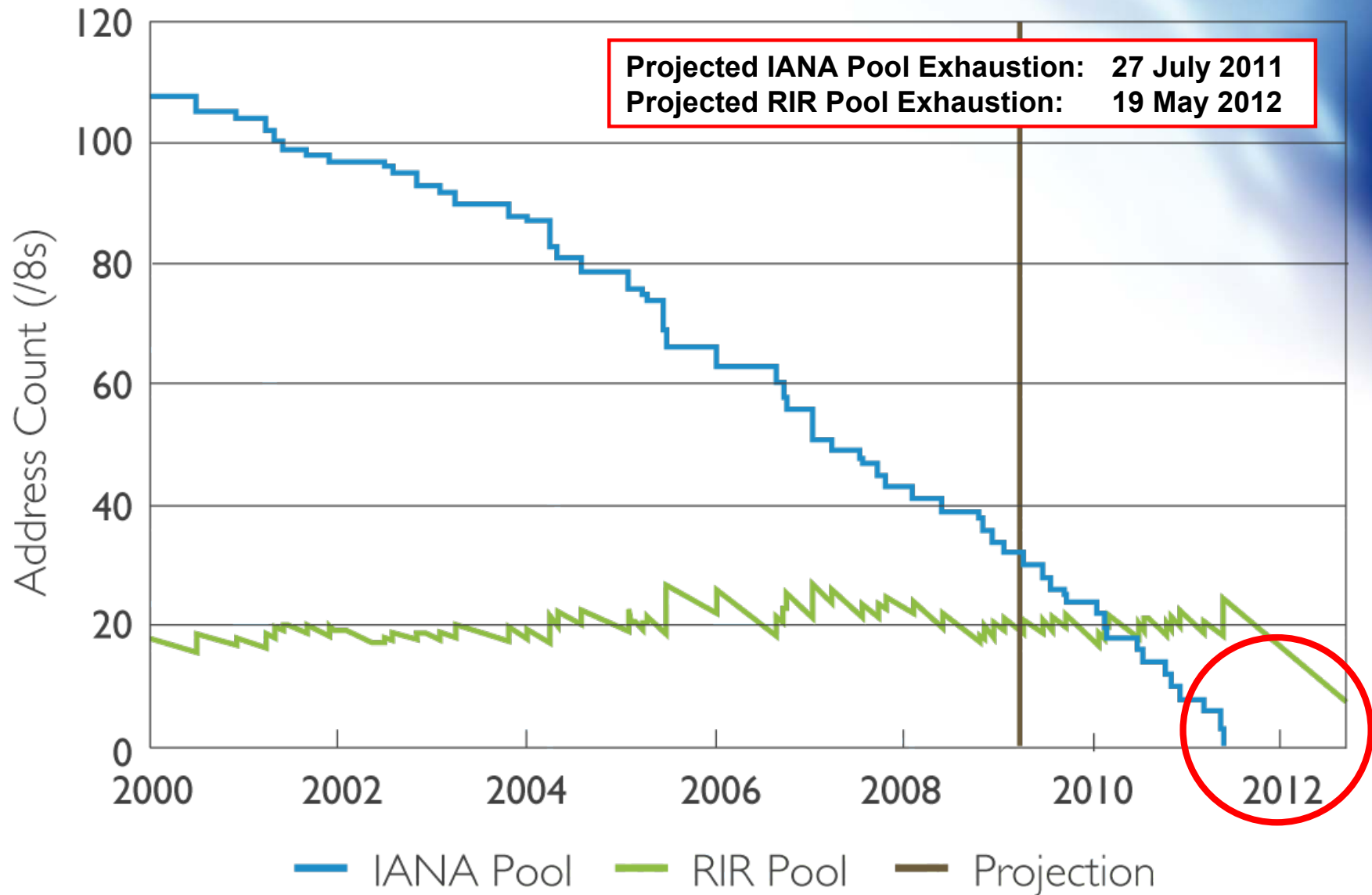
Fixed, Dialup/ISDN
Mobile/2G
Cable/ADSL



The “Narrow Waist” – Tomorrow



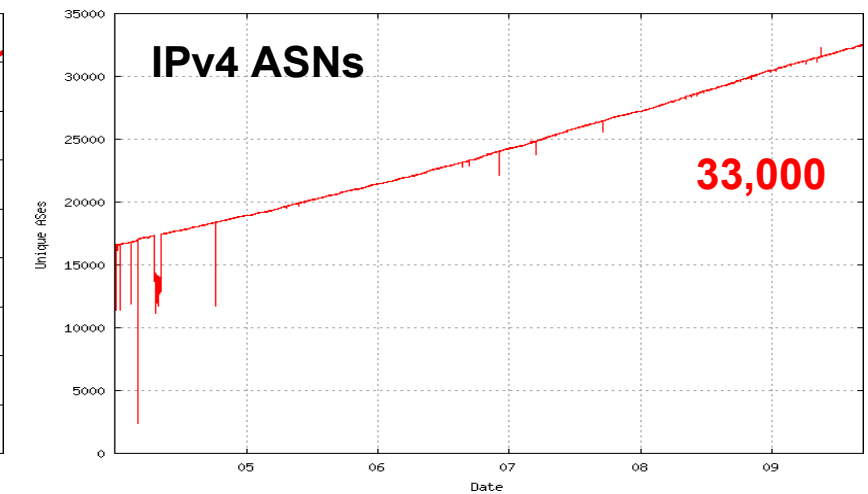
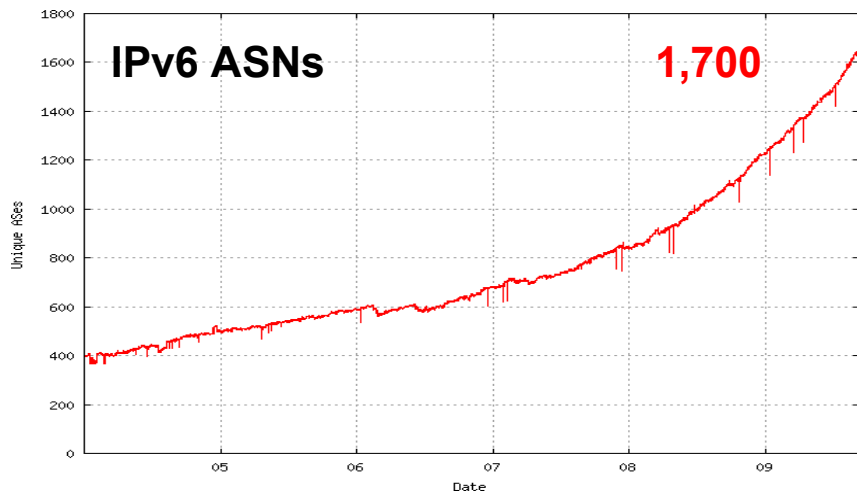
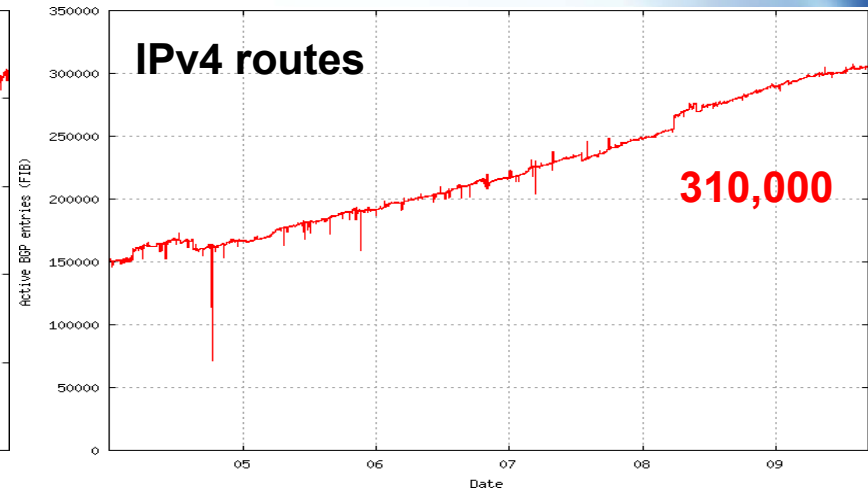
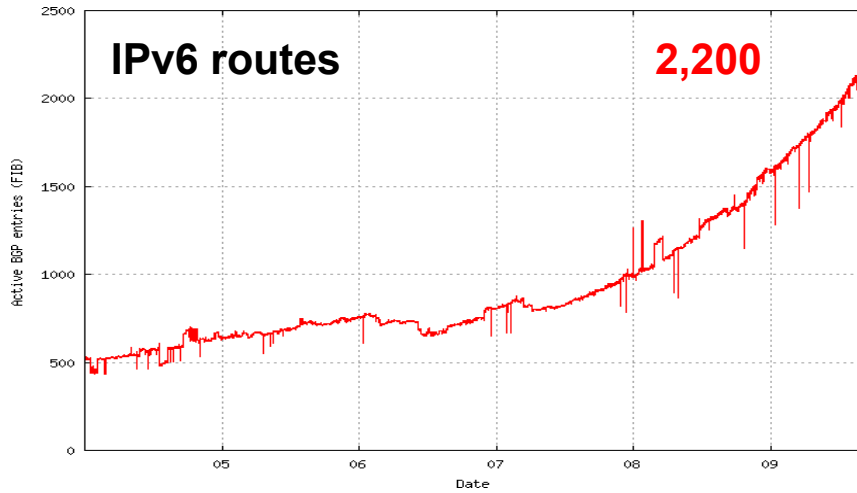
IPv4 Consumption: Projection



A quick summary

- IPv4 addresses are a finite resource
 - Only about 10% remain
- But the demand for IP addresses will keep growing
 - More devices are requiring IP addresses
 - IP addresses are a pre-requisite for broadband penetration
- The remaining 10% is not large enough to support such demand
- ***IPv6 is the only solution !***

IPv6 deployment



How are IP Addresses Managed?

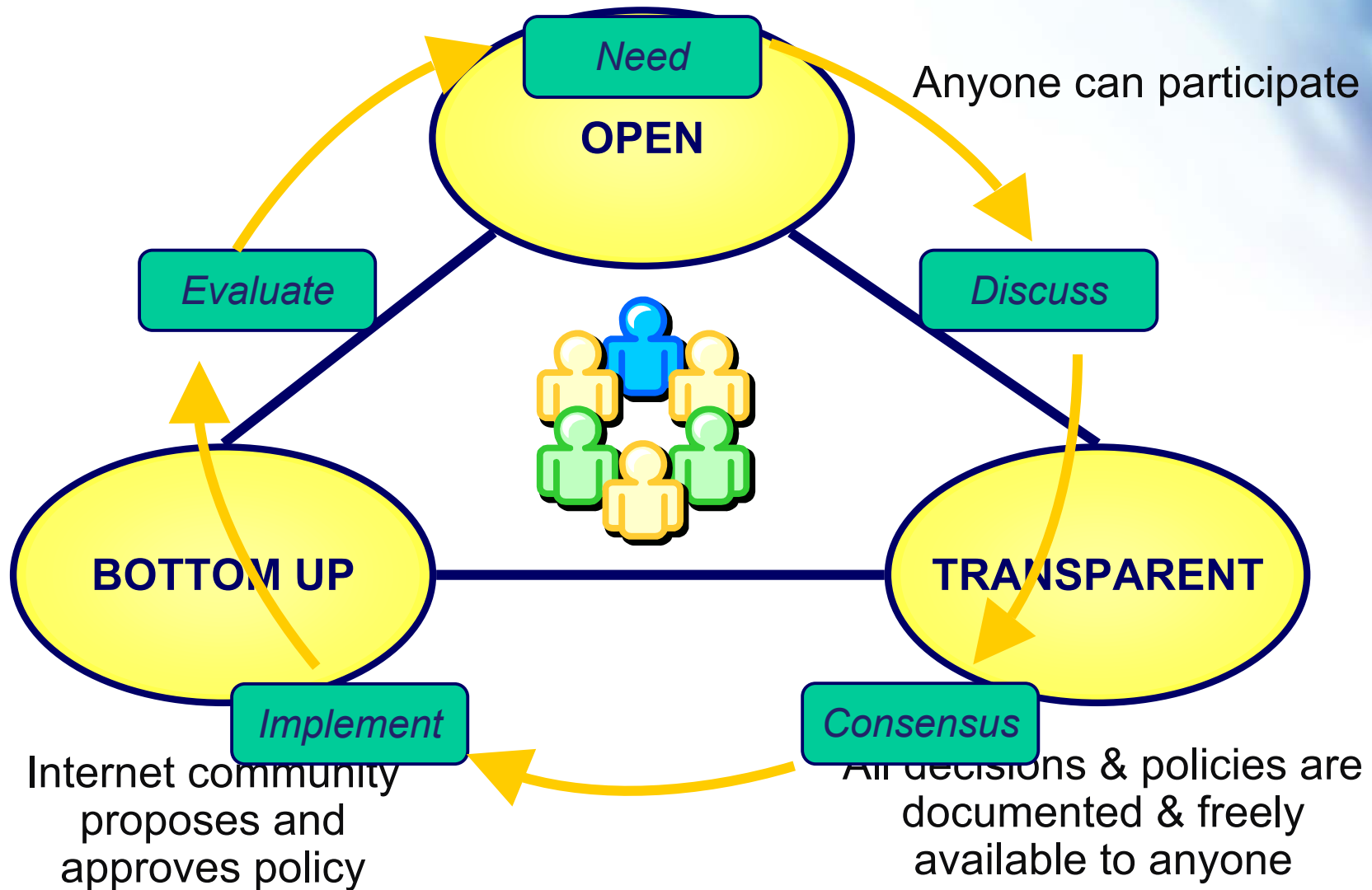
- Regional Internet address Registries
 - Open membership-based industry bodies
 - Non-profit, neutral, and independent
 - Allocation, registration and other services
 - Other services as required
- First established in early 1990s
 - Voluntarily by consensus of community
 - To ensure responsible address management, according to technical and administrative needs
 - To support Internet development
- In the “Internet tradition”
 - Consensus-based, open, and transparent

Regional Internet Registries



1992: "...it is [now] desirable to consider delegating the registration function to an organization in each of those geographic areas." (RFC 1338)

Open Policy Processes





http://www.nro.net



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news and announcements

[3 September 2009]

[APNIC Announces NRO NC Appointment](#)

[28 July 2009]

[NRO NC Call for Nominations - ARIN Region](#)

[27 July 2009]

[NRO Declaration on RPKI](#)

[22 July 2009]

[NRO NC Call for Nominations - RIPE NCC Service Region](#)

[15 June 2009]

[The NRO's Contribution to the OECD's Working Party on Communication and Infrastructure and Services Policy's \(CISP\) Session on IPv6 Deployment](#)

[5 June 2009]

[The NRO's Comments Submitted to the United States Department of Commerce, National Telecommunications and Information Administration's \(NTIA\) Notice of Inquiry \(NOI\)](#)

[20 May 2009]

[NRO Response to TSB 'Questionnaire on IPv6 Address Allocation and Encouraging the Deployment of IPv6'](#)

[18 May 2009]

[NRO Response to the National Advanced IPv6 Centre of Excellence \(NAv6\) Survey](#)

- [NAv6 response to NRO comments on the survey](#)

[MORE NEWS](#)

what is the nro?

Formed by the [Regional Internet Registries](#) to formalise their co-operative efforts, the NRO exists to protect the unallocated Number Resource pool, to promote and protect the bottom-up policy development process, and to act as a focal point for Internet community input into the RIR system. [\[more\]](#)

quick reference points

- › [NRO Memorandum of Understanding](#)
- › [NRO FAQ](#)
- › [ASO Memorandum of Understanding](#)
- › [ASO Memorandum of Understanding FAQ](#)
- › [ASO Web Site](#)
- › [RIRs and other Internet bodies](#)
- › [Getting Internet Number Resources](#)
- › [Training Programs of the RIRs](#)

activities in internet governance

[NRO at ITU Telecom World 2006, Hong Kong](#)

[NRO and the Internet Governance Forum \(IGF\)](#)

[Activities at the World Summit on the Information Society \(WSIS\) - 2003-2005](#)

[NRO Comments to NTIA on ICANN](#)



Where are we now

- IPv6 addresses are easy to obtain
 - Policies are established and stable
 - Minimal barriers to allocations
 - No reservations, but supply is huge
- IPv6 deployment strongly encouraged
 - Increasing promotion and awareness
 - Technical training and support
- Readiness is increasing and deployment is underway

Government Responses

- Promote IPv6
 - To ISP and telco Industries
 - Encourage IPv6 readiness if not deployment
 - Opportunity to “leapfrog” to latest technology
- Specify IPv6
 - Government equipment procurement
 - Network servers and services
 - Public infrastructure deployments
- Require IPv6
 - To the extent possible (cf digital TV)

The IPv4 revolution

- The 1990's – a new world of...
 - Cheaper bandwidth, switching
 - Lower operational costs
 - The PC revolution, funded by users
- The Internet boom
 - The dumb (and cheap) network
 - Technical and business innovation at the edges
 - Many compelling business cases for new services and innovation

An IPv6 revolution...

- The 2010's – a new world of...
 - Commodity Internet: Broadband, mobile, always-on
 - Massive reduction in cost of consumer electronics
 - A network-ready society
- An IPv6 boom?
 - One unified ubiquitous pervasive network
 - 2–3 orders of magnitude larger than today
 - “Internet for Everything”
 - Bringing online the “Next 6 Billion”
- *Let's get ready for IPv6 !*

Thanks

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