Internet Generations

1G
NCP
Pioneers
Email, FTP
Gov. Internet

2G
IPv4
Innovators
WWW
Public Internet

3G
IPv6
EveryOne
Everything
Wireless, Streaming
Media, Peer-2-Peer
Global Internet

TOURISTS

RESIDENTS
The Internet has met its enemy, and its name is QoS.

**UNEVEN DIFFUSION OF TECHNOLOGY**

**INTERNET USERS**—STILL A GLOBAL ENCLAVE

- USA 54%
- EU, JP 28%
- ROW < 3%
- WORLD 8%

**PHONE NETWORK**: 1.2 Billion -> 20%

**INTERNET USERS**: 0.5 Billion -> 8%

**INTERNET HOSTS**: 200 M Hosts -> 2%

**NO e2e**: NOBODY KNOWS!
Uneven Distribution of IPv4 Address Space

- ARIN: 74%
- RIPE NCC: 17%
- APNIC: 9%
IPv4 Address Space is Melting! So, is identity and therefore Security!
The IETF was divided over the Future of the Internet! 
Garage Mentality
Band-Aids & Short-term Fixes!
The Packet Switching Technology is Suffering!
Becoming Permanent Fixes!
Stovepipe Syndrome!

Current Future of the Internet!
The Future of the Internet
NAT EXPERTS created the NAT Roulette
Digital Divide
Instead of Digital Ubiquity
The Future of the Internet
NATs: Peeping Holes

Loss of End-2-End Transparency
Peer-2-Peer Species work better together!

Gnutelliums

SETI@home
The Search for Extraterrestrial Intelligence

Jabber Studio
Providing the Jabber community with space to work.
Imagine IPv4 had 128 bit Address Space

No second chance to fix the Internet!

Imagine NATs were Introduced in 1991

WWW

The WEB would have not been successful!
IPv6 Is Not Only Unlimited Address Space.

- QoS
- Flow Bits?
- Reliability
- Simplicity
- Flexible
- Renumbering
- Transition
- Tool Box
- Dynamic Routing
- Multicast v6
- e2e Security
- Autoconfiguration
- Plug & Ping
- Mobile IPv6
- End-2-end
- Transparency

STRING of Technology

PERLS
New End-user Boost! Everyone is On!
## v6 Roadmap Scenario

<table>
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<tr>
<th>IPv6 Deployment</th>
<th>Address Transparency</th>
<th>IPsec</th>
<th>FOG</th>
<th>Issues</th>
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<tbody>
<tr>
<td><strong>Scenario 1</strong></td>
<td><strong>Successful</strong></td>
<td><strong>e-2-e works</strong></td>
<td><strong>Clears!</strong></td>
<td><strong>Intranet, Proxies &amp; Firewalls may remain</strong></td>
</tr>
<tr>
<td><strong>Scenario 2</strong></td>
<td><strong>Complete Failure</strong></td>
<td><strong>Recycling IP Addresses</strong></td>
<td><strong>Limited</strong></td>
<td><strong>Generalised use of NAPT, RSIP?</strong></td>
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<td><strong>Exhaustion NAT-over-NAT</strong></td>
<td><strong>Broken</strong></td>
<td><strong>Permanet Thick Fog</strong></td>
<td><strong>NATs between even ISPs</strong></td>
<td></td>
</tr>
</tbody>
</table>
Yv4: The Y2K for Apps!
The New Internet

1969

2000

2001

2002

2003

2005

IP Evolution

1 billion +

Connected Devices

NCP

IPv4

IPv6

Email @

WWW

World Wide Wireless
INVENTING THE FUTURE