

Deploy A Real, Seamless IPv6 Ready Platform

Linux Networking [IPv4/IPv6] Co-maintainer
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IPv6 -Internet Protocol version 6-

- Standardized by IETF (1994)
 - Scalability, performance, extensibility, privacy, security
- Supported by various network devices and softwares
 - Commercial services by xSP available
 - Practical stage as the standard for connecting “everything”
- Linux
 - Pedro Roque implementation in 2.1 (1996)
 - EXPERIMENTAL
 - USAGI/WIDE Project (2000-)

Current Status of IPv6 in Linux (1)

- IPv6 Ready(*): Basic functions work just fine!
 - IPv6
 - ICMPv6
 - Neighbor Discovery
 - Default Router Preference And More-Specific Routes
 - Stateless Address Autoconfiguration
 - w/ Privacy Extensions
 - IPsec
 - AH/ESP/IPcomp
 - APIs
 - Basic / Advanced
 - Netfilter
 - connection tracking

*: Phase-1 (host, router): 2.6.11-rc2 / Phase-2 (host, end-node): 2.6.15

Current Status of IPv6 in Linux (2)

- Advanced Routing: 2.6.19?
 - Policy routing / multiple tables
 - Extracted from Mobile IPv6 work (below)
- Mobile IPv6: 2.6.19 or 20?
 - Collaboration between Go-Core Project (Helsinki University of Technology) and USAGI/WIDE Project

Misc. things in the wild:

- HIP (Host Identity Protocol)
- SHIM6
- XCAST

Current Status of IPv6 in Linux (3)

- Distributors ship their products with IPv6 module and basic tools
 - "::1" on your PC?
 - ping6 / traceroute commands?
- They usually offer IPv6-enabled user-space applications
 - Is this enough?!
 - Probably not...

Status of IPv6 Applications

- Web
 - Server
 - Apache, thttpd
 - Client
 - Mozilla (incl. Firefox)
- Mail
 - SMTP
 - sendmail
 - POP3/IMAP4
 - Courier/Courier-imap
 - MUA
 - Thunderbird

Status of IPv6 Applications(2)

- FTP
 - vsftpd
- DNS
 - bind

Status of IPv6 Applications(3)

- IPv6-ready applications are ready for practical use.
- Is it enough?!
 - No, we cannot force people to migrate their applications
 - postfix
 - squid
 - proftpd
 - pure-ftpd
 - ...
 - We should not ask people to apply an extra patch to support IPv6

Virtualizations

- Many “virtualization” technologies available:
 - Qemu
 - PearPC
 - VMware
 - Virtual PC
 - Xen
 - coLinux
 - Usermode Linux
- Are they really compatible with IPv6?
 - Keys
 - Multicast
 - Interface ID

Administration / Configuration

- Can we administrate / configure IPv4/IPv6 seamlessly?
 - configuration files
 - IPv6 without enabling IPv4?
 - many IPv6 addresses on a single interface?
 - administration tool
 - incl. "properties" window

Documentation / Promotion

- Obsolete, or even not well promoted...
 - manpage: `ipv6(7)`, `icmpv6(7)`
 - web

-> Rumor: IPv6 is harmful

Linux Is IPv6 Ready

- Certification of IPv6 Ready Logo
 - 2.6.11-rc2: Phase-1 (Host, Router)
 - 2.6.15: Phase-2 (Host + IPsec End-node)
- No longer EXPERIMENTAL
 - 2.6.12-rc1
- Mobile IPv6 will be merged soon
 - 2.6.19: multiple tables / policy routing
 - 2.6.19-20
- Various possibility in the IPv6 world
 - HIP, SHIM6, XCAST, ...
- Further Challenges
 - To establish user-friendly system for IPv6
 - To promote documents and know-hows

Way Forward?

Open Mike