IPv4

Adam Nuss
Teddy Oyphanith
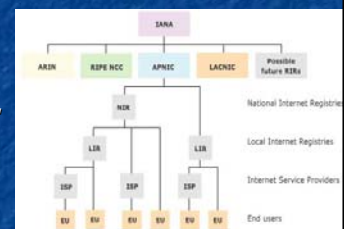

Introduction

- Ipv4 – What is it?

- Registering Addresses

- Benefits of Ipv4

IPv4 – What is it?

- Basic addressing system for the internet

- 32 bit dotted decimal notation

- Provides 4.2 billion unique addresses

Registering Addresses

- Internet Registries

- Regional, National, Local, and ISP

- IP Blocks

Registering Addresses – Cont.
Goals of Address Space

- Uniqueness

- Conservation

- Fairness

Benefits of Ipv4

- Already in Server and Client OS software
- Small header packet of 32 bits
- Ipv4 extensions DHCP and NAT let Ipv4 multiply its number of Address space
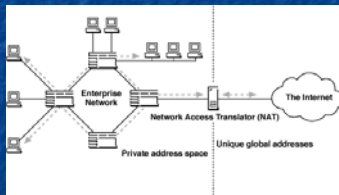
DHCP

- Dynamic Host Configuration Protocol

- IP conservation and reuse

NAT

- Network Address Translator

- One IP for multiple machines

- Security

NAT

Conclusion

- Not time for Ipv4 to be replaced by a newer addressing system
- New Extensions of Ipv4 help create new addresses to keep room for new end host's
- Don't replace something that is working great for the time being

IPv6 problems

- Cost

- Compatibility

- Why switch?

IPv6 Problems – Cost

- Hardware Upgrades

- Software Upgrades

IPv6 Problems - Compatibility

- IPv6 protocol does not support IPv4

- Coexist only through "double stack" and "tunneling"

IPv6 Problems – Why now?

- Why fix what isn't broken?

- Services provided by IPv6 exist in IPv4

IPv6 Feature or Function	IPv4 equivalent or workaround
Address space expansion: 128-bit address instead of 32-bit v4 address	Address pooling and reuse: Through DHCP and address translation
Auto-configuration of host: • Built in to IPv6	DHCP: comparable means for automated addressing of host in v4 environment
Quality and class of service: Header options provide bandwidth reservation for audio and video, which are sensitive to interference	Quality of service: Use bandwidth reservation protocol RSVP and real-time protocol RTCP
Security header: Option available in v6	Ipsec: Security protocol used in v6 is available for implementation in v4