The RIPE NCC

IP Addresses and more

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Agenda

• Introduction to the RIPE NCC
• The Global Internet Registry System
• IP Addresses
  – IPv4 and IPv6
  – Allocating and revoking addresses
  – Dynamic versus static addresses
• What can we do for you!
RIPE NCC

- Not-for-profit, independent association
  - Neutral and impartial
  - Established in 1992 in Amsterdam
  - Provides open community platform
- One of five Regional Internet Registries (RIRs)
- 7,800+ members in 76 countries
  - Bottom-up, industry self-regulation
- Does not make policies
  - Facilitates open policy development process
The RIPE NCC’s Main Tasks

• One of five RIRs
  – Services Europe, Middle East, parts of Central Asia
  – Allocates Internet numbers (NOT names)
    – IPv4, IPv6, Autonomous System Numbers
• RIPE Database (public registry)
• Secretariat for the RIPE community
• Many other activities
  – K-root, training, measuring infrastructure, ENUM, information dissemination, outreach, ...
The Global Internet Registry System
IP Address Distribution (IPv4 and IPv6)

IANA

Regional Internet Registry

Local Internet Registry

End User

RIPE NCC

ISPs, Telcos, etc.
Who Makes the Rules?

- The RIPE community proposes, discusses and accepts the policies that govern Internet resource allocation and assignment in the RIPE region.

- Policies are developed bottom-up:
  - Using the RIPE Policy Development Process (PDP)
  - During RIPE Meetings
  - On RIPE Mailing Lists

- The RIPE NCC does not accept or reject policies.
IPv4 vs. IPv6 Addresses

- Rice on chessboard...
- IPv4 (32 biy) = half a chessboard, India’s 2005 rice production.
- The 64th field on the board would have to hold an amount of rice that equals Mount Everest
- IPv6 = TWO chessboards (128 fields)...)
Status of IPv4 Address Space

• In Feb. 2011, IANA handed last IPv4 addresses from its pool to the RIRs
• In April 2011, one RIR (APNIC) started allocating from its last /8
• The RIPE NCC still has IPv4 addresses
  – Business as usual
  – Until we reach last /8
Status of IPv6 Address Space

• RIPE NCC started allocating IPv6 in the 1990s
• 50% of the RIPE NCC membership has IPv6
  – but only a small portion is deploying it and providing services to customers
• RIRs do outreach and training to promote IPv6
  – IPv6 is free of charge and easy to request
• You can help promote IPv6!
  – Important for continued economic growth!
IPv6 Adoption Status (RIPE Region)

- [http://ripeness.ripe.net](http://ripeness.ripe.net)
Address Allocation & Revocation

- RIPE NCC allocates according to Community Policies
- RIPE NCC can revoke address space
  - According to strict and community agreed procedures
  - Need a Dutch court order otherwise
  - ... and it may be counter-productive for LEA purposes
- But we do not control routing!
  - We cannot guarantee addresses are not being used anymore
Static vs Dynamic Addressing vs NAT

- **Static:** one address per device
- **Dynamic:** multiple devices share address space
  - Easy configuration
  - Allows “overbooking” of addresses if not all devices are online at the same time
  - One address per device at a given time
- **Network Address Translation (NAT)**
  - Multiple devices *appear* to share one address
  - “Public addresses” vs “private addresses”
What we can do for you

- Information
- Training
- Expertise
- Statistics
- Internet analysis tools
- Neutral source of reliable and trusted data
Questions?