IPv4 Address Exhaustion

What is happening…?

•DOCK PALETTE

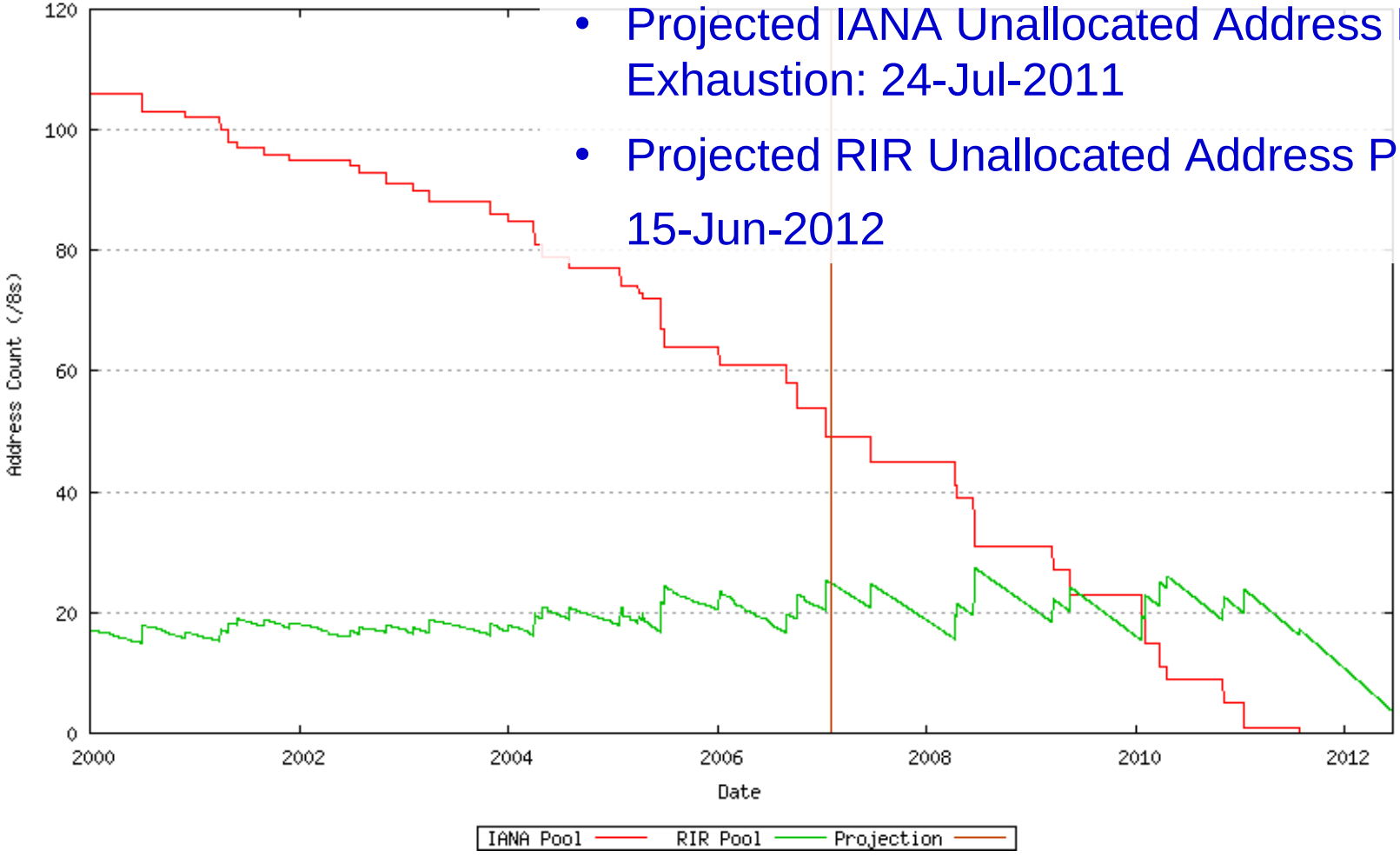
Overview

- Prognosis
- Preparing for the Future
  - IPv4
  - IPv6
  - 32 bit ASN

Estimated Time to Exhaustion v4

Status last Sunday:

- Projected IANA Unallocated Address Pool Exhaustion: 24-Jul-2011
- Projected RIR Unallocated Address Pool Exhaustion: 15-Jun-2012



Estimated Time to Exhaustion v6

Dealing with it – IPv4

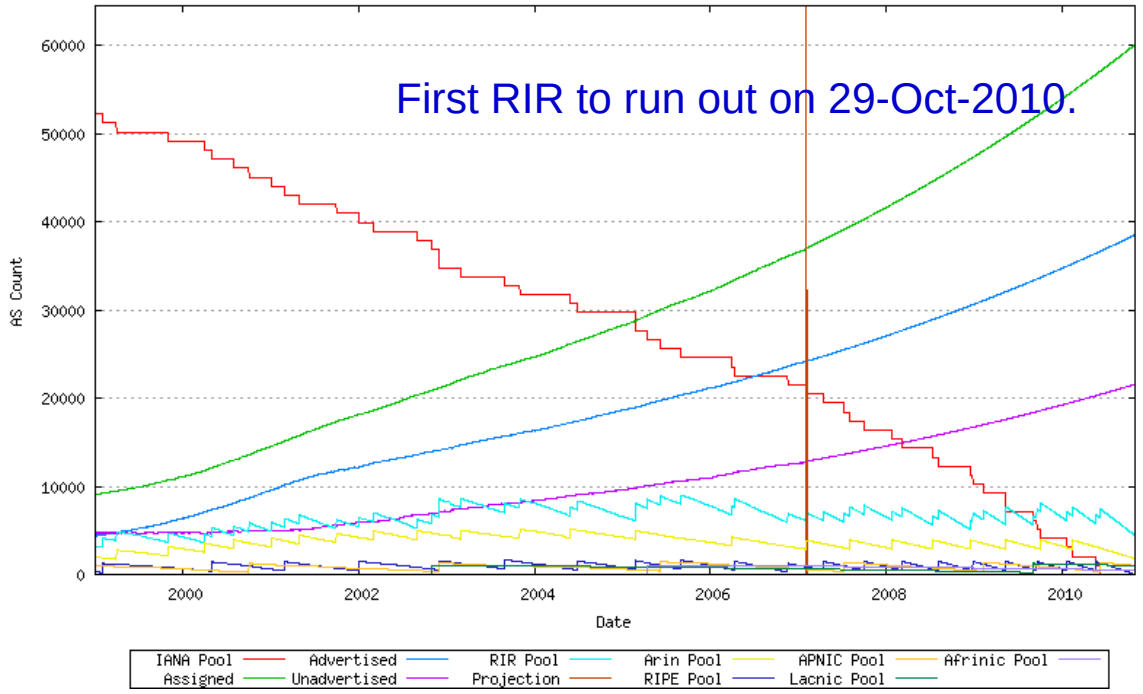
- Migrate to IPv6
- Future Policy Changes
  - Starting with RIPE Policy Proposal 2006-06
    - Allocation for twelve months' need (instead of 24)
- Reclamation?
- Alternative Models
  - Secure Routing calls for Certification
  - Certification may enable market
  - Market may facilitate "discovery" of unused numbers
  - Charge for address space usage (lease)
  - Continued / increased NAT

Making healthy choices – IPv6

- 128 bits are **not** infinite
- Technology change not on the horizon
- Useful lifetime?
  - Aiming for > 100 years
- Deal with it responsibly
- RIPE Policy proposal 2005-08
  - End site assignments minimal /64 (instead of /48)
  - /56 as efficiency measure (instead of /48)
  - HD ratio of 0.94 (instead of 0.8)

And nobody spoke of ASN

- What is an ASN
  - Autonomous System Number, 16 bit long
  - Identifies systems under one routing policy in BGP
- Problem definition
  - Running out 2010-1012
  - Fear not, 32 bit numbers are here
- RIPE Policy Proposal 2005-12
  - As of 2 Jan, 32 bit ASN are assigned on request



32 bit AS Numbers...
(Early Warning)

- 32 bit AS Number Policy (2005-12)
  - Work on preparation for 1 January 2007 is underway
  - Lots of systems affected

- 2007: RIPE NCC able to assign 32 bit AS Numbers (ASN32)
- 2009: Default will be an ASN32
- Get one and check how this will affect your systems
- Our experience: Changing a 16 bit number into a 32 bit number is a non-trivial operation that requires a lot more time than one would think.

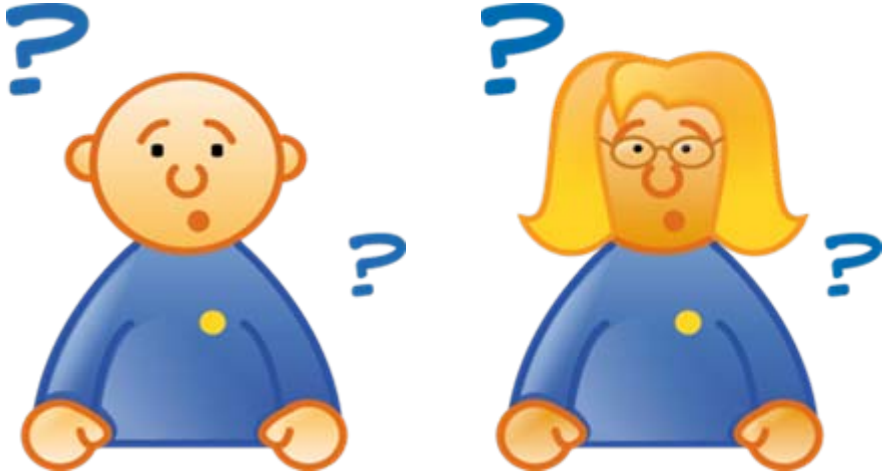
RIPE 54

7-11 May 2007

Tallinn
sounds good

Credits / Background

- Where did all those IPv6 addresses go?
  http://www.ripe.net/ripe/meetings/ripe-50/presentations/ripe50-plenary-wed-ipv6-roundtable-report.pdf
  http://www.potaroo.net/ispcol/2005-07/ipv6size.html
- RIPE Policy Proposal 2005-08 (IPv6 changes)
  http://www.ripe.net/ripe/policies/proposals/2005-08.html
- RIPE Policy Proposal 2005-12 (32bit ASN)
  http://www.ripe.net/ripe/policies/proposals/2005-12.html
- RIPE Policy Proposal 2006-06
  http://www.ripe.net/ripe/policies/proposals/2006-06.html
- www.potaroo.net



Questions?