HEPiX
IPv6 Working Group

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Outline

- Background

- IPv4 and IPv6 address allocation

- HEPiX IPv6 Working Group starts

- HEP IPv6 status update

- Working Group plans

- Summary

Background

- IPv6 talks at Cornell HEPiX (Nov 2010)
  - And earlier HEPiX talks ...
- HEPiX Questionnaire on IPv6 (Sep 2010)
  - See my Cornell talk for details
- IPv6: National Networks are the most advanced
- Sites are not seeing any pressure (yet)
  - When will WLCG see IPv6-only sites?
- The problem areas
  - Applications (nobody looking at this)
  - Monitoring, System and Network tools, Security, etc.

IPv4 Addresses (Nov 2010)

- From Geoff Huston
  (*http://ipv4.potaroo.net*)

- **Projected IANA Unallocated Address Pool (global) Exhaustion: 09-Jun-2011**
  - Only 12/256 (/8) addresses are unallocated
  - < 5%

- **Projected RIR Unallocated Address Pool (regional) Exhaustion: 22-Jan-2012**
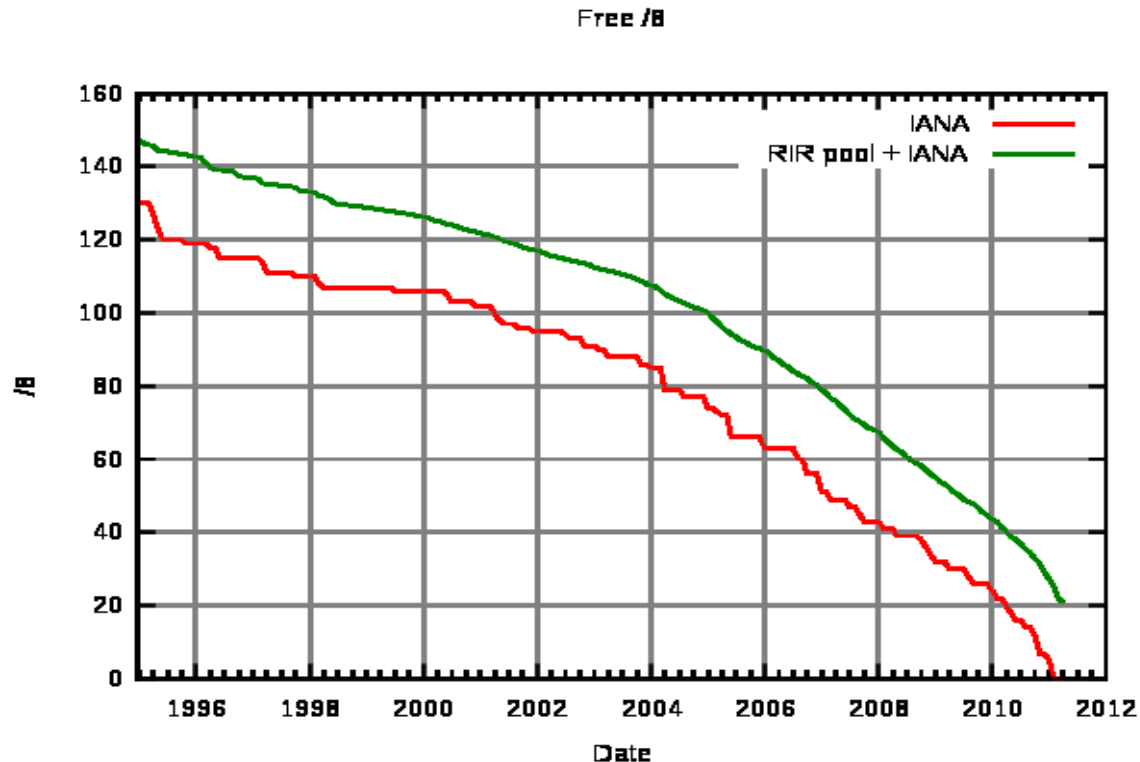
IPv4 Addresses (now)

- IANA allocated the last five /8 address blocks on 3 Feb 2011

- APNIC became the first RIR to run out of freely allocated IPv4 addresses
  - On 15 Apr 2011

- RIPE NCC expected to be next RIR
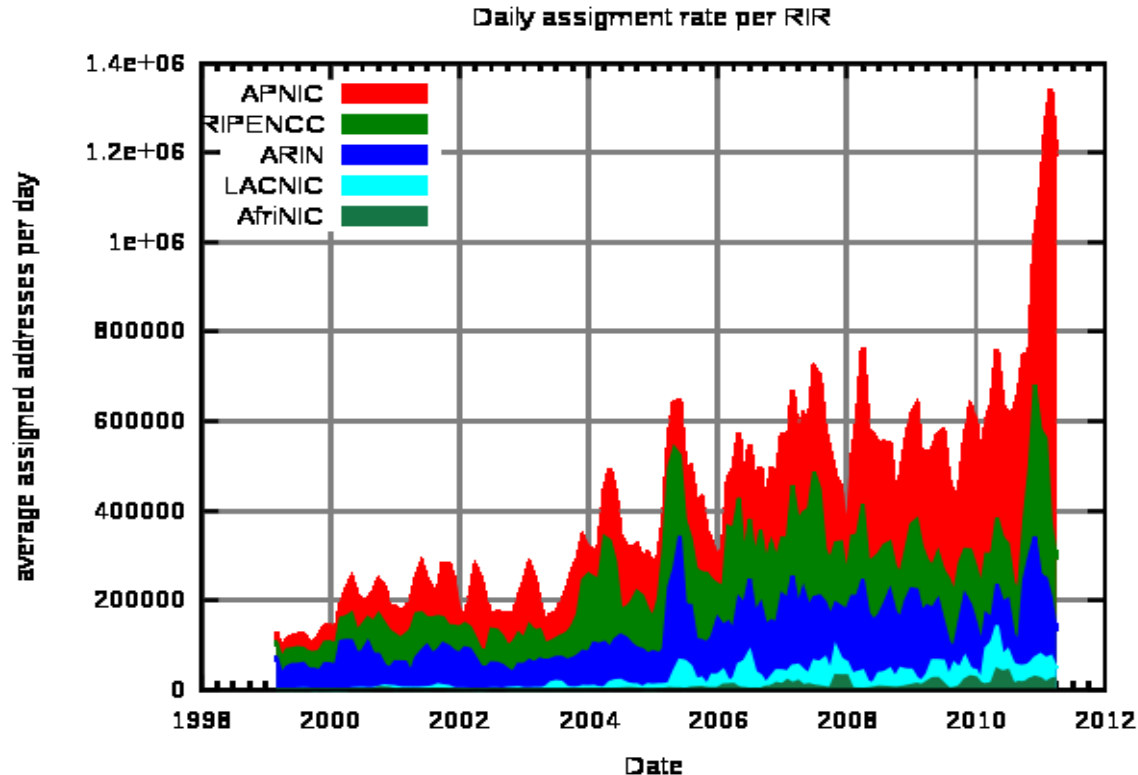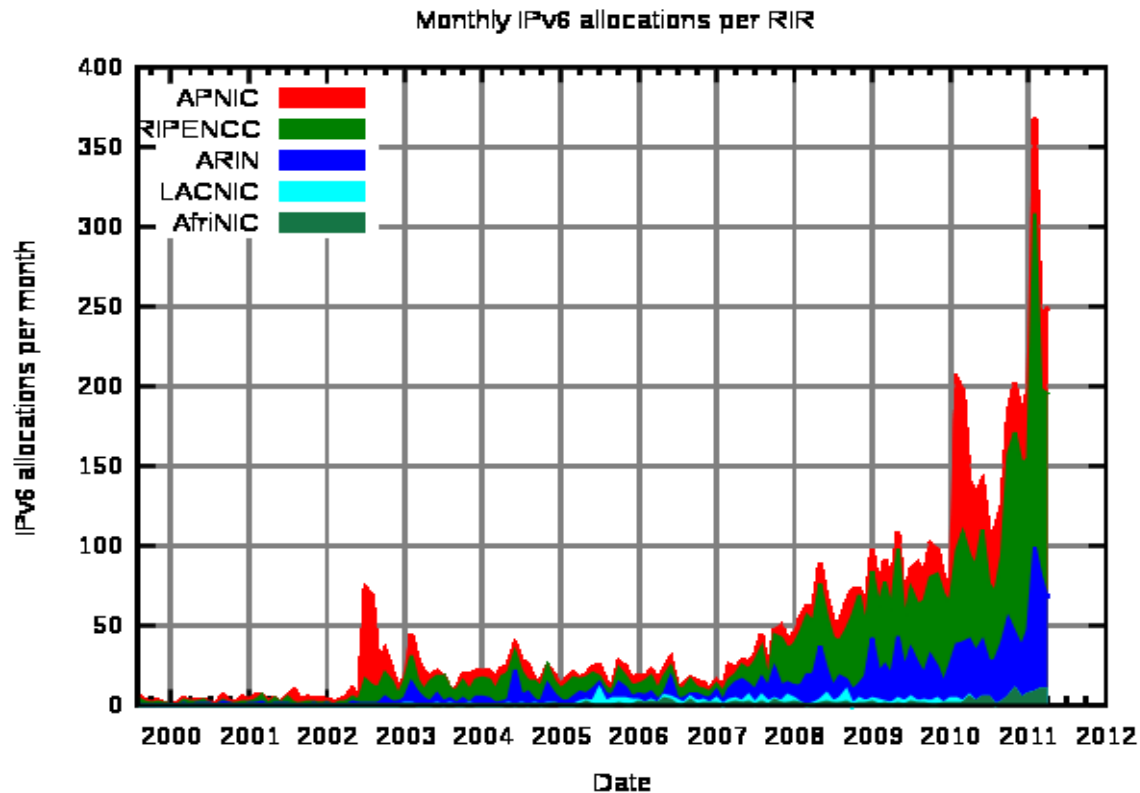 - Late 2011 or early 2012

IPv4 Free /8 blocks

http://en.wikipedia.org/wiki/File:Ipv4-exhaust.svg

IPv4 address assignment rate

http://en.wikipedia.org/wiki/File:Rir-rate.svg

IPv6 allocation rate

http://en.wikipedia.org/wiki/File:Rir-ipv6-allocation-rate.svg

HEPiX IPv6 WG

- Agreement at end of last year
- Work has now started
  - Members being identified
  - Email list configured
  - 1st meeting held last week
- Main agenda point was to discuss the mandate and plans

HEP IPv6 status update

- DESY
  - see Site report on Monday
  - Deploying IPv6 test networks
  - Soon allow applications testing
- CERN
  - planning now for network implementation
  - Testbed available in the summer
- No reports of work on HEP applications

IPv6 WG plans

- Do not duplicate other activities
- Very useful to share experiences and work together
- Need to expand membership of the WG
  - Today mainly network and WLCG Tier2 experts
  - Need to expand coverage and find other experts
    - Applications
    - Security
    - Middleware
    - Monitoring

IPv6 WG plans (2)

- During 2011
  - Deploy a distributed testbed
    - To allow tests of connectivity, applications, monitoring tools, etc.
  - Share experiences and collaborate
  - Survey of HEP applications IPv6 readiness
  - Survey of Monitoring and Management tools
  - Study of Security issues
  - Initial recommendations by end 2011
    - When/how do we migrate?

IPv6 WG plans (3)

- 2012

  - To be used for more testing

  - Making applications V6 ready

  - Planning and advice for migration and end system and firewall configuration

- LHC shutdown in 2013 is likely to be earliest date for wide deployment in WLCG

IPv6 WG plans (4)

- Need to plan for coping with IPv6-only sites (WN, Virtual machines, ...) should they appear
  - We do not know how soon this could happen
- Working group logistics
  - Mail list already exists
  - Wiki – at CERN
  - Indico – agenda pages (under HEPiX)
- Weekly phone/video meeting
- Sharing information and experiences
- F2F meeting in June at CERN (after the World IPv6 day on 8th June)

Summary

- HEPiX IPv6 working group has now started

- Looking for widening expertise and participation

- Volunteers welcome!