LIRs' IPv6 Address Space Needs

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Overview

- Why?
- Current situation
- Methodology
- Numbers
- Questions

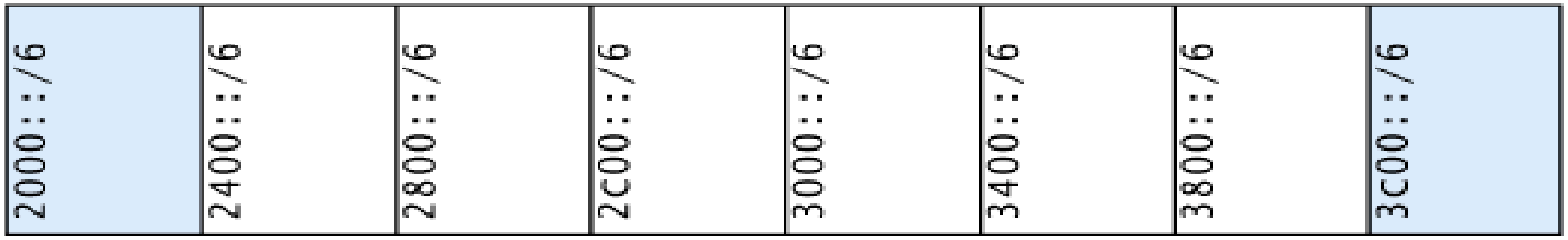
Why?

- IPv6 in initial deployment stage
  - Allocation rate increasing
- 3 IPv6 allocations from IANA to RIPE NCC in 2003
- First /27 allocation to LIR
- How much IPv6 space will LIRs need?

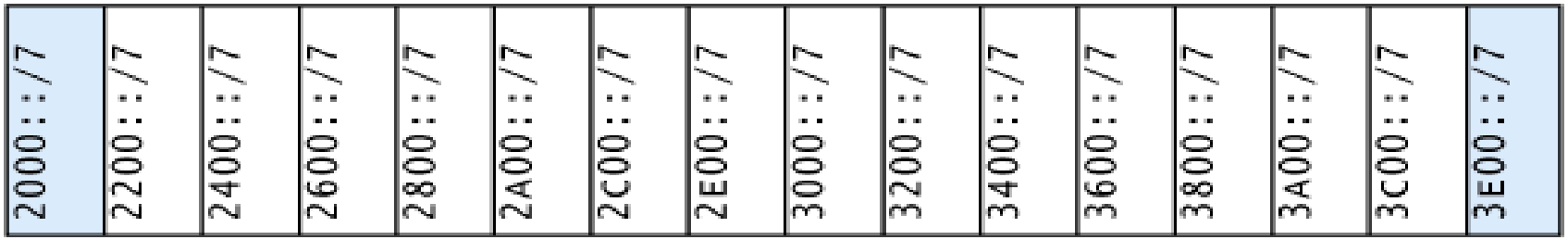
Current situation

- /32 minimum allocations for LIRs
- RIPE NCC reserves 3 bits
- /23 allocations to RIRs from IANA
- 302 allocations made by RIPE NCC by 24 Feb 2004

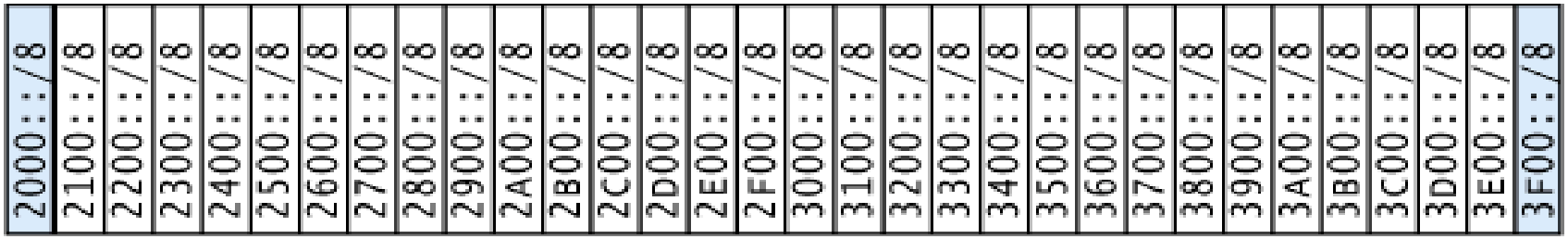
IPv6 Unicast Address Space



Current IPv6 Unicast /6's. 2000::/6 and 3C00::/6 have been allocated from.



Current IPv6 Unicast /7's. 2000::/7 and 3E00::/7 have been allocated from.



Current IPv6 Unicast /8's. 2000::/8 and 3F00::/8 have been allocated from.

Hard to Predict the Future

- Indication needed, not hard numbers
- Currently large address space requests for broadband/always-on connectivity
- More growth in broadband connectivity predicted
- Broadband providers do IPv6 now

Assumptions

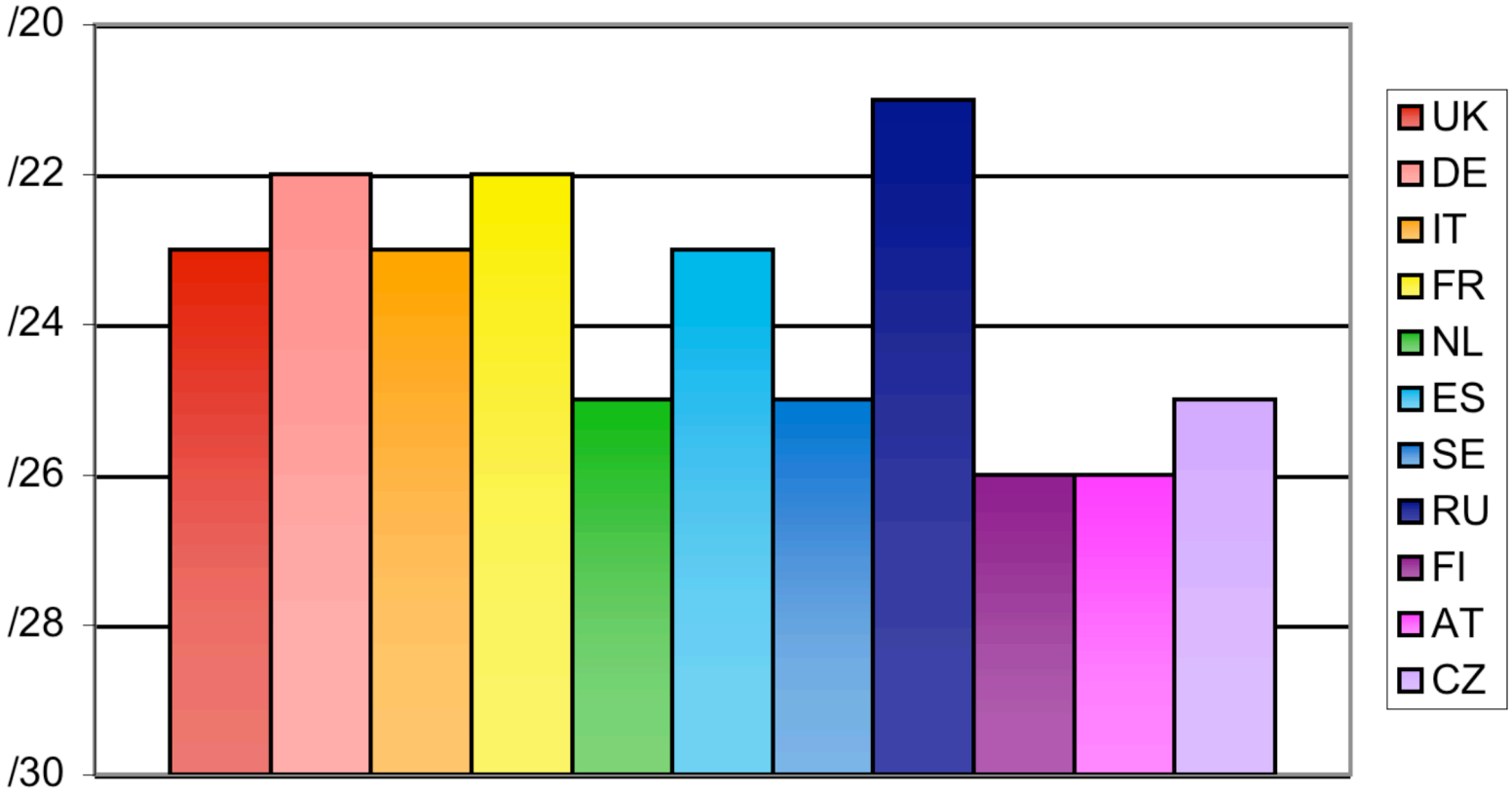
- IPv6 will be ubiquitous
- Broadband/always-on connectivity will be dual-stacked
  - /48 per connection
- Broadband/always-on connections for households will be common

Methodology

- Top countries for IPv4 and IPv6 usage
  - 11 countries (out of 90 In the RIPE NCC service region)
    - 2327 LIRs (out of 3488 RIPE NCC members)
- Estimates based on number of households
    - From UN statistics
  - For different percentages of always-on connectivity
    - Based loosely on ITU statistics
  - Assuming even spread of customers over LIRs
- Allocation size deduced from customer numbers and HD ratio

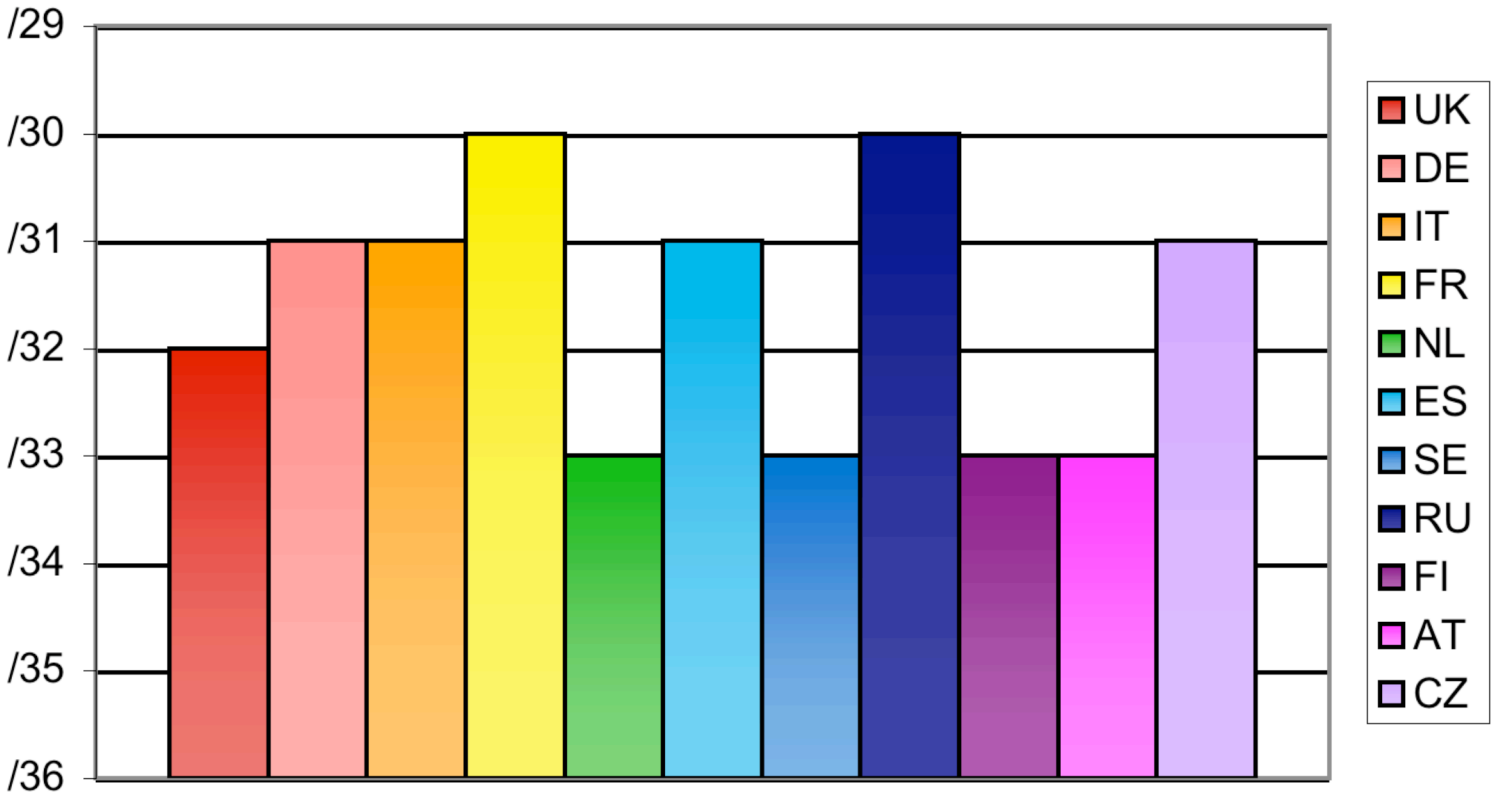
10% Broadband/Always-on Penetration

Usage Per Country



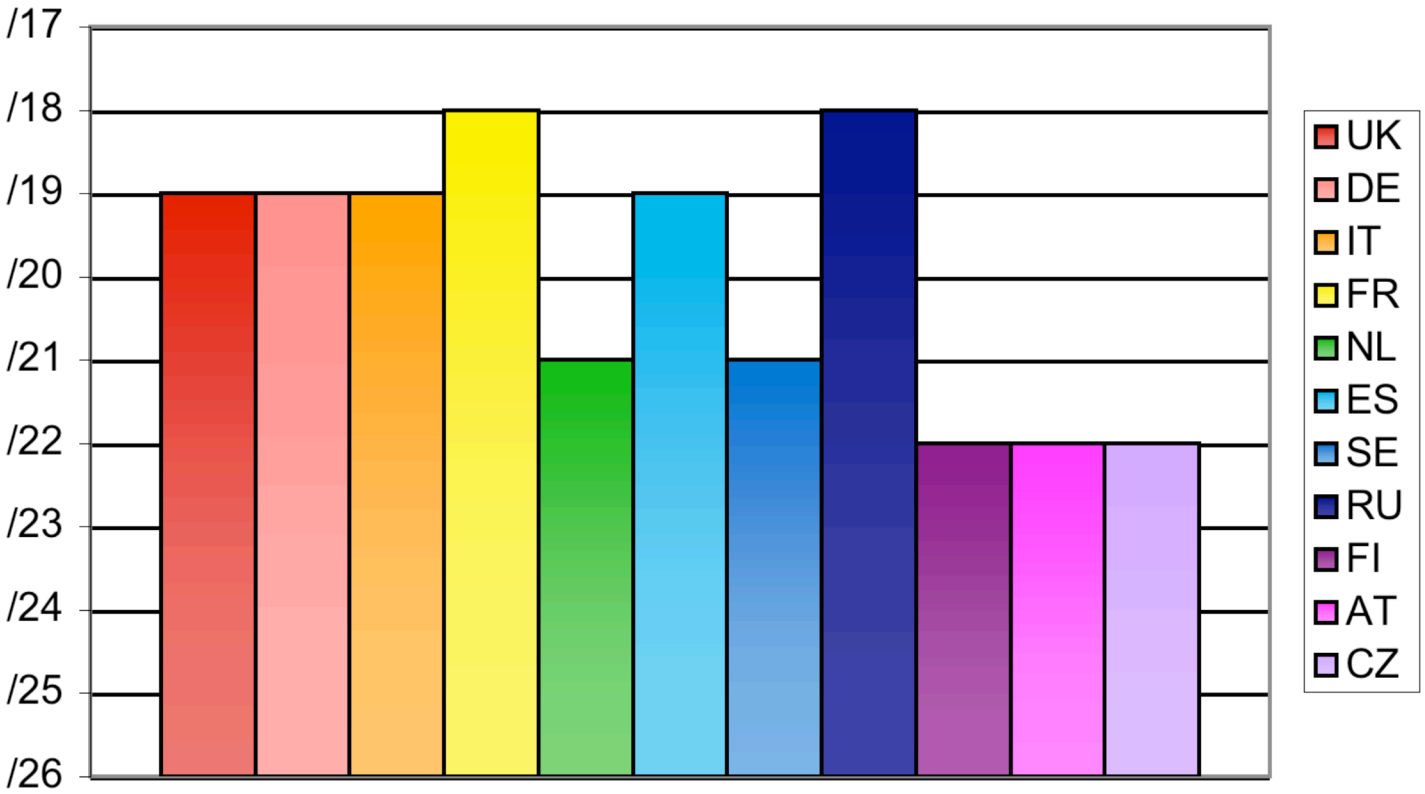
10% Broadband/Always-on Penetration

Average Allocation Size



70% Broadband/Always-on Penetration

Usage Per Country



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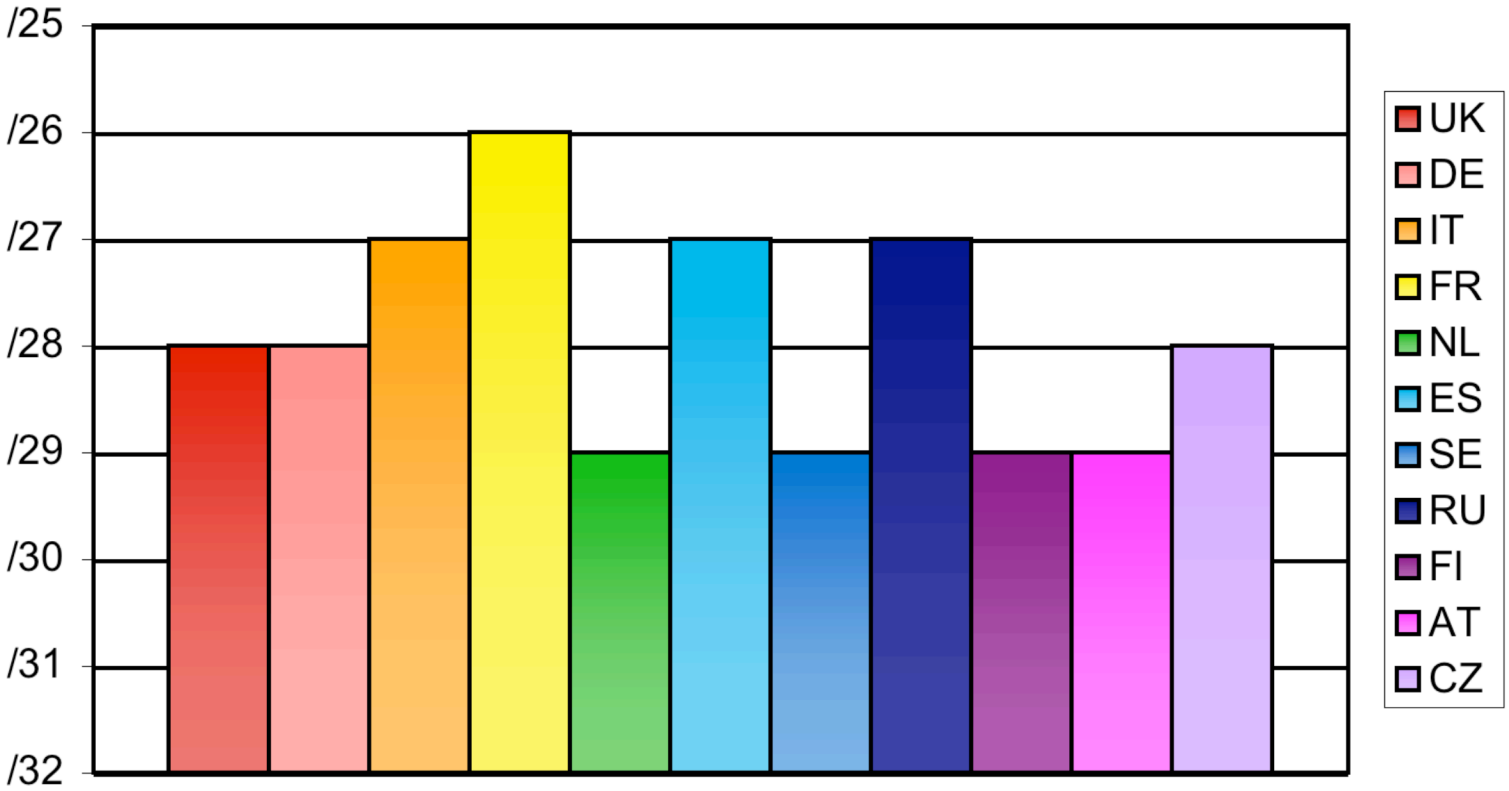
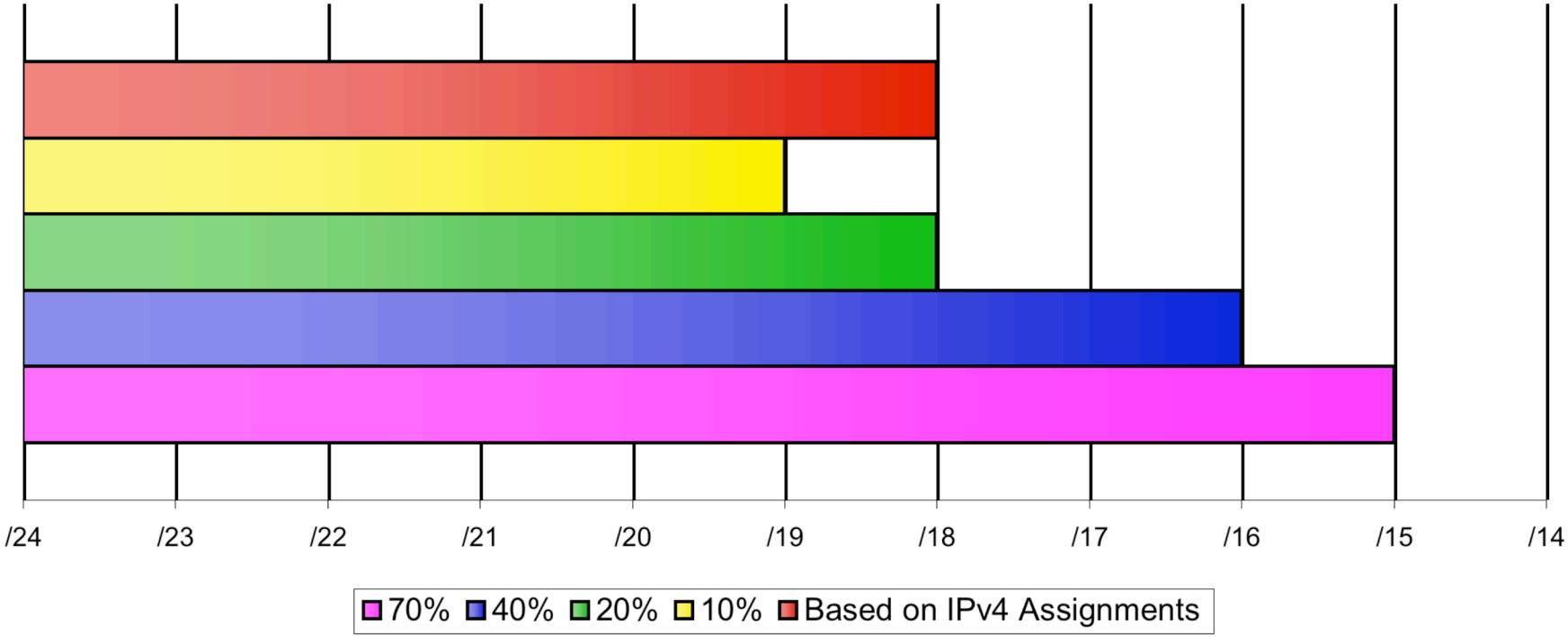


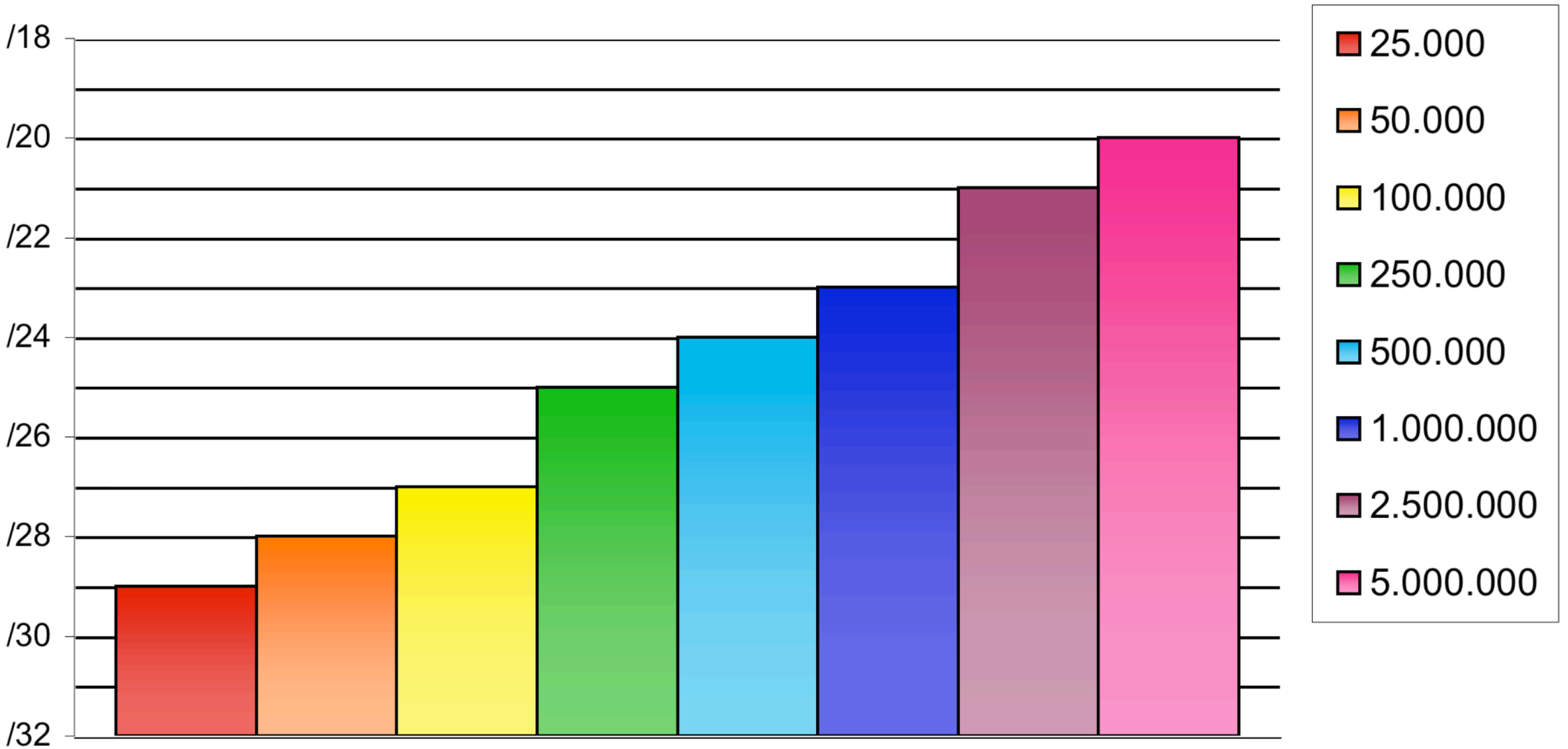
Total Address Space Used



LIR allocation size

- Most customers qualify for /48 assignments
- HD Ratio favours larger LIRs

LIR Allocation Size



Findings

- Total usage between /19 and /15
  - In 11 countries
  - Only broadband/always-on
- Average allocation size from /33 to /26
  - Based on even spread of customers between LIRs
- LIR Allocation can be (much) bigger!
  - based on customers qualifying for /48

Questions

- How many years should RIRs allocate for?
- How many years should RIRs have space for?
- How much growth in LIRs' allocations should be allowed for?

Thank You