IPv6 Address Allocation for the Root DNS Servers

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Motivation

- **IPv6 (transport) ready Root DNS Servers**
  - Being discussed in
    - the Root DNS Server operators' community
    - RSSAC in ICANN
  - How and When
    - to be determined
- **Issue: What IPv6 addresses to be used?**
  - Those addresses are written into "root.cache" file
  - Distributed to virtually all DNS servers
  - Very difficult to change in a short time
    - May need at least several years

A Proposal for a Root DNS Server

- **Eligible for "regular" size allocation**
  - /32 at this moment
  - Effective for testing phase
    - Return the address if failed
- **Prefix may be used outside of AP region**
  - Accomodate "anycast" when/if applicable
  - At least one instance resides in AP region
- **Should not be used for other purposes**
- **Allocation fee**
  - We are happy if it will be exempted
- **RIPE/NCC has a similar program**
  - See RIPE-233

Considerations of a /32

☆ Good for traditional form of multihoming

- Most of the servers are on IX(es)
- Robustness is essential
- General IPv6 multihoming is still in discussion

☆ Micro Allocation

- Not suitable because it is not routable
  - Special rule in BGP filters may work
  - Loose access when failure of installation
- So "regular" space is appreciated
  - No common prefix for Root DNS Servers
  - Nothing special (other than alloc policy) is good

Considerations of a /32

☆ Maximum number of prefixes

- Initial Phase: up to 2
  - Packet size limitation (512byte)
- May grow up to 13
  - Current number of the Root DNS Servers
- Maximum (1280byte) number
  - 20 if each with an A and an AAAA
  - 28 if each with only an AAAA