Asia Pacific Network Information Centre

APNIC

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IPv6 Unique Local Addresses
Update on IETF Activity

Policy SIG

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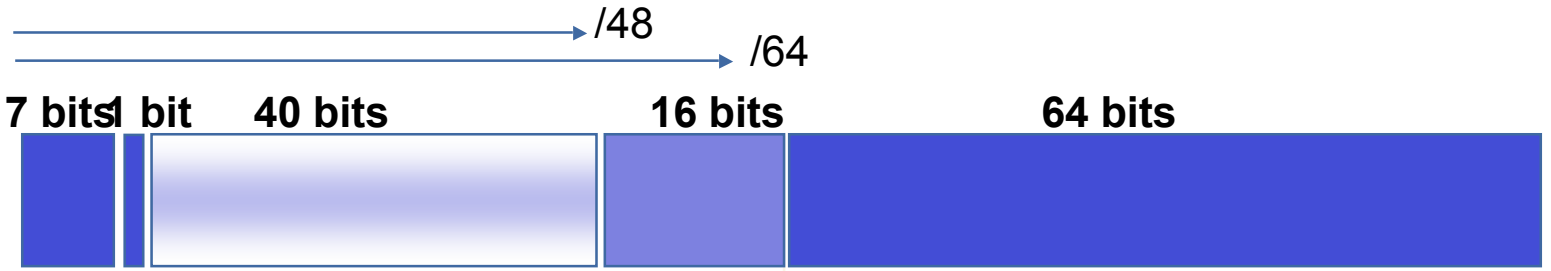
Unique Local Addresses

- "Local" Use instead of "Global " Use
  - Private addresses in terms of uniqueness
  - Global addresses in terms of uniqueness
- Objectives
  - Single address pool subdivided into /48 prefixes
  - Each prefix is intended to be probably unique
  - Not intended to be globally routed
    - Easily filtered at network "edges"
  - Is intended to be locally routed in context of various forms of private use
  - No hierarchical super-structure
  - Not provider-based addresses

IPv6 ULA Address structure



ULA Addresses

- Assignment type = 0
- Locally Defined Addresses: FD00::/8
  - Self selection of a prefix
  - No coordinated registration records maintained
  - Probably unique, but not definitely unique
  - No global AAAA or PTR DNS records

- Assignment type = 1
- To be defined: FC00::/8
  - Was originally defined as a set of prefixes to be assigned by a common registry function
  - Current specification refers to this as “may be defined later”

Locally-Assigned Local addresses

draft-ietf-ipv6-unique-local-addr-09.txt

- Specification of the unique* local address structure
- Specification of the self-selection prefix: FD00::/8
- Random self-selection of the unique* 40 bit identifier:
  trunc(MD5(local time . local EUI-64), 40bit)
- Address selection algorithm inferred as local preferred over global
- Requires split horizon (two-faced) DNS
- May also require non-authoritative synthesis of PTR records for local addresses
- Latest draft has additional aveats about leakage in to the public global routing tables

* almost unique!

Centrally-Assigned Local addresses

No longer under active consideration by the IETF IPv6 Working Group

Current Status

- Private Use addresses
  - Large pool divided into IDs of /48s
  - Use random selection to minimize selection collision of IDs
    - Option of using a registry to ensure uniqueness of global ID has currently been dropped from the proposal (although the option has been left open in the future)
  - Use in context of
    - Persistent local-context addresses (independent of provider-based addresses)
    - VPN-styled interconnection

Thank you

Questions?