Discovering PREF64 in Router Advertisements

draft-ietf-6man-ra-pref64-00

L. Colitti, E. Kline, J. Linkova
Concerns Raised in the Adoption Call
There Are Three Other Solutions

- None of them are suitable for secure prefix discovery in SLAAC-only networks (e.g., cell networks)
  - DHCP - see “SLAAC-only”
  - PCP - requires PCP server and client support
  - RFC7050 - see “secure”
“Requires Updates/Configure Routers”

- Feature, not a bug: shares fate with routing
- Routers are upgraded to get new features and bug fixes
- Routers already configured with:
  - Prefixes
  - Timers
  - DNS
Let's Unify DHCPv6 and RA Options

- Beyond the scope of this draft :-)  
- Unlikely to gain consensus this decade?
Adding “Exclude-Set” for IPv4 Ranges

- Almost certainly not useful in IPv6-only networks
- Might be useful in a network that has NAT64 and IPv4
- Should be a separate RA option, to save space
Non-/96 PREF64 Support

- One use case was mentioned
- How shall we do that?
The Proposed Option Format

- 8 bits: Type
- 8 bits: Length
- 16 bits: Lifetime

128 bits: Prefix

96 bits: Total
Non-/96 PREF64 Support: #1

Diagram showing the structure of a 192-bit PREF64 block, divided into 8-bit Type, 8-bit Length, 16-bit Lifetime, 8-bit PrefLength, and 128-bit Reserved fields. The entire block is 192 bits, with 128 bits reserved for Prefix.
Non-/96 PREF64 Support: #2

- 128 bits
  - 8 bits: Type
  - 8 bits: Length
  - 16 bits: Lifetime
  - Optional: 96 bits
    - Prefix (96 or 128 bits)
      - (optional prefix bits 96-127, only used if Length > 2)
      - PrefLen
      - Reserved

192 bits
Non-/96 PREF64 Support: Option 3

Separate RA Option?

Use draft-troan-6man-universal-ra-option?
Changes Since Adoption

- Clarifying the use cases:
  - Local DNSSEC validation
  - 464xlat
  - IPv4 literals
  - Using external/trusted DNS server
  - Eliminating DNS64

- Clarifying multiple options in one RA case
Comments?