

Prefix Assignment Algorithm

draft-ietf-homenet-prefix-assignment-01

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Prefix Deprecation Mechanism

- If we 'lose' an upstream Delegated Prefix
 - Upstream link failure, ISP failure.
 - Preferred Lifetime = 0.
 - Valid Lifetime = $\min(2 \text{ hours}, \text{Previous Valid Lifetime})$.
 - Because RFC 7084 (and SLAAC).
- If removed by administrator (e.g. DHCPv6 Reconfigure)
 - Deprecate the prefix (Send with zero lifetimes).
- Do not make new assignment for Delegated Prefixes with zero Preferred Lifetime.
 - Unless no other IPv6 prefix is available (with non-zero preferred lifetime).
 - Unless configuration states otherwise.

Clarification about ULA prefixes

ULA Delegated Prefixes

- DHCPv6 PD
- Static Configuration
- Netconf
- ...

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Spontaneously Generated ULA Prefix

- Created when needed.

- Can have many

- One or zero.

- Always on.

- Suppressed if another ULA Delegated Prefix exists.

ULA Generation Requirements

- ULA *spontaneous generation* follows these rules.

If a **ULA prefix** is available:

- **MUST NOT generate one.**
- **MUST** deprecate advertised one (if any).

Else if a **global IPv6 prefix** is available:

- **MAY generate one.**
- **SHOULD** not deprecate the advertised one.

Else:

- **SHOULD generate one.**
- **SHOULD NOT** deprecate the advertised one.

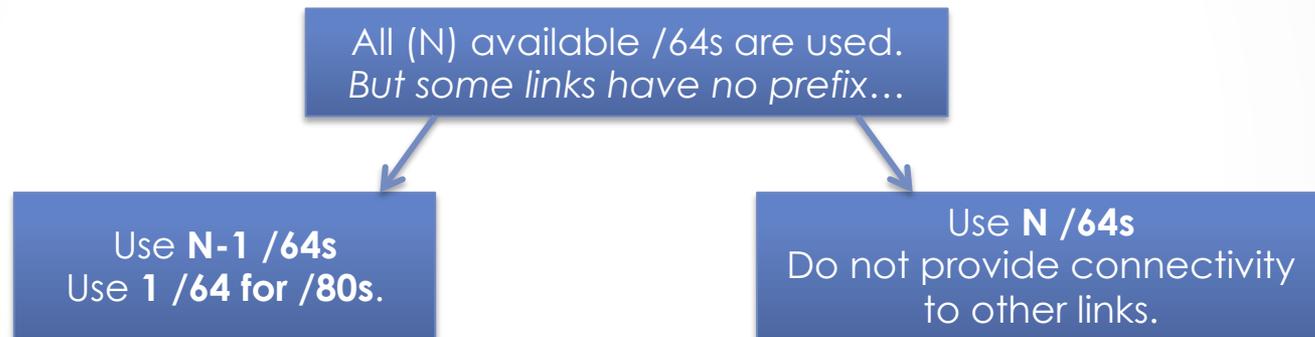
Spontaneously Generated ULA Prefix during Splits and Joins

- When networks join:
 - **At most one** spontaneously generated ULA must be kept.
- When a network splits:
 - Prevent same ULA in multiple home networks ?
 - -01 makes a proposal for that.

YES	NO
Only originator renew lifetimes + take ownership when lifetime drops under 10 minutes.	Anyone can renew the ULA lifetime.
Other routers use the same ULA but do not renew lifetimes.	Reuse the same prefix if originator disappears.
Adds some complexity	Simpler

Clarification about prefix length

- The Prefix Assignment Algorithm is:
 - IP version agnostic
 - Prefix length agnostic.
- But Homenet can provide recommendations.



- Current OpenWrt implementation (www.homewrt.org)
- Could assign link priority for the 64s.
- ISPs should provide a /56. But...
 - Recursive delegation (DHCPv6 sub-delegation).
 - Internet Tethering
 - VPNs
 - Small service providers (Electricity companies, streaming service, ...).

Draft split proposal

- The draft contains homenet-specific considerations.
- HNCP defines PA TLVs, but it should be generic too.

ietf-homenet-hncp



- Generic Flooding
Mechanism

ietf-homenet-prefix-assignment



- Generic
Prefix assignment

New draft ?
- PA TLV definition
- ULA + IPv4 generation
- Configuration
consideration

Implementation approach

- Current draft defines the basic algorithm.
- Implementation ended-up with the definition of rules.
 - Keep current prefix
 - Accept neighbor's assignment
 - Generate a new prefix
 - Look-up in stable storage
 - Takeover in prefix scarcity situations
 - Manual prefix configuration
 - Deterministic prefix generation
- Should we change the algorithm definition by integrating this rule concept ?



Mandatory

Optimization

Configuration

Thank you