Simplifying Proxy Shim6

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- Avoid special routing within site
- Avoid crypto addresses in hosts
Possible Simplification, for Discussion

1. Avoid special intra-site routing
   - Option 1: Address rewriting on site border
   - Option 2: Proxies on site border

2. Avoid use of crypto addresses in hosts
   - Option 1: 1-to-1 NAT’ing onto proxy’s CGA/HBA
   - Option 2: Mapping validation infrastructure
Complication 1: Special Intra-Site Routing

**Advantage**
- Little synchronization between proxies

**Drawbacks**
- Administration complexity
- Limited traffic engineering
- Router renumbering (due to routes to locator prefix)
- New addresses in site (due to fixed ULID prefix)
Avoid Special Intra-Site Routing: Prefix Rewriting

**Advantage**
- Little synchronization between proxies
- Less administration
- Higher flexibility for traffic engineering

**Drawbacks**
- Still router renumbering (due to routes to locator prefix)
- Still new addresses in site (due to fixed ULID prefix)
Avoid Special Intra-Site Routing: On-Path Proxies

Advantages
- No extra route/tunnel configuration
- No locator prefixes in site
- Full traffic engineering
- Reuse existing addresses

Drawbacks
- Higher requirements for synchronization
- Non-routability of ULID not visible in prefix
Complication 2: Cryptographic Addressing

- DHCP required
  - No Stateless Address Autoconfiguration
  - Coordination between Shim6 proxy and DHCP server

- Key sharing between proxies

- Ring signatures if host have CGA
No Crypto Addresses in Hosts: 1-to-1 NAT’ing

Advantage
- Independence of infrastructure

Disadvantage
- Stateful mapping
No Crypto Addresses in Hosts: Mapping Validation Infrastructure

Advantage
- Trivial prefix exchange only

Disadvantages
- Dependence of infrastructure
- New mapping validation mechanism