

Simplifying Proxy Shim6

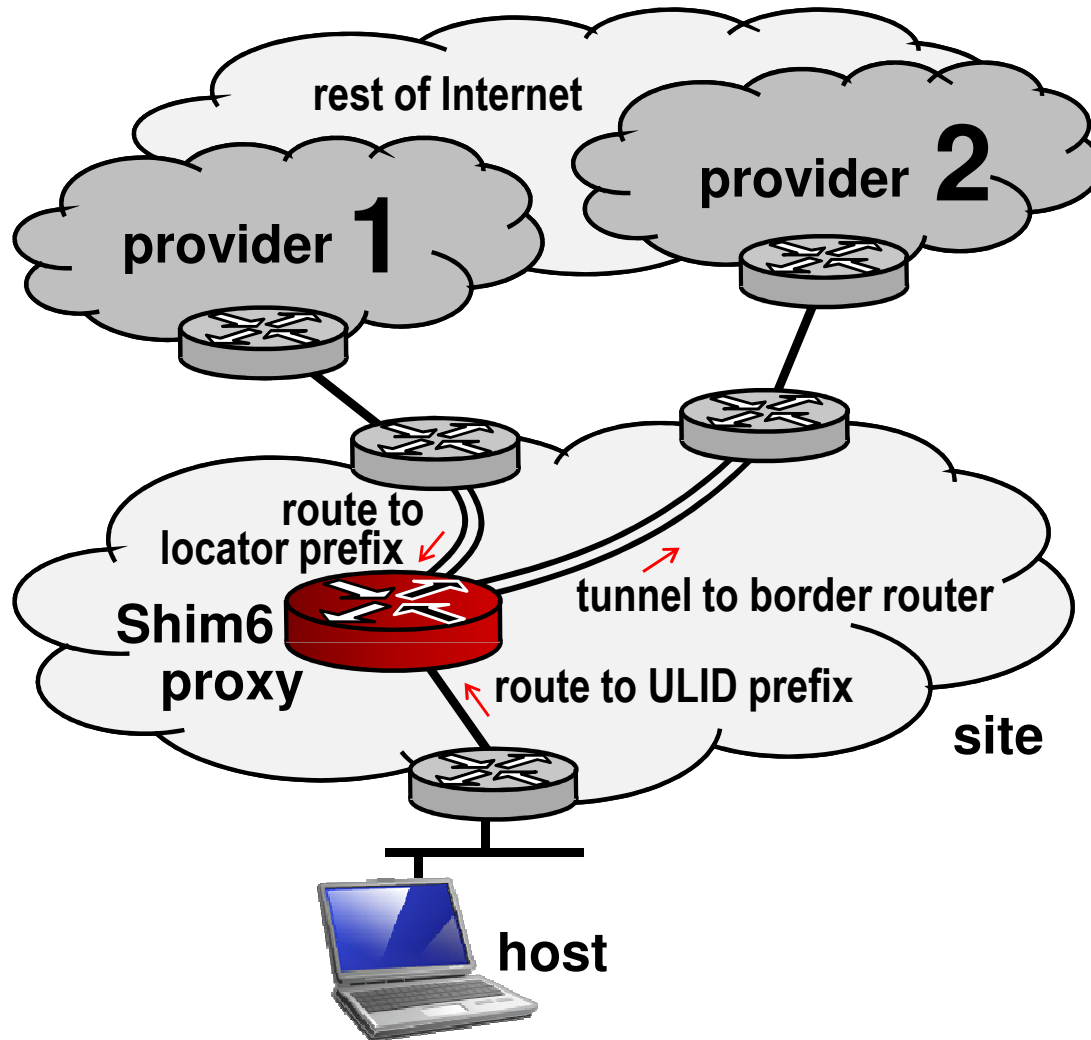
Erik Nordmark, Christian Vogt

- 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
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Complication 1: Special Intra-Site Routing



Advantage

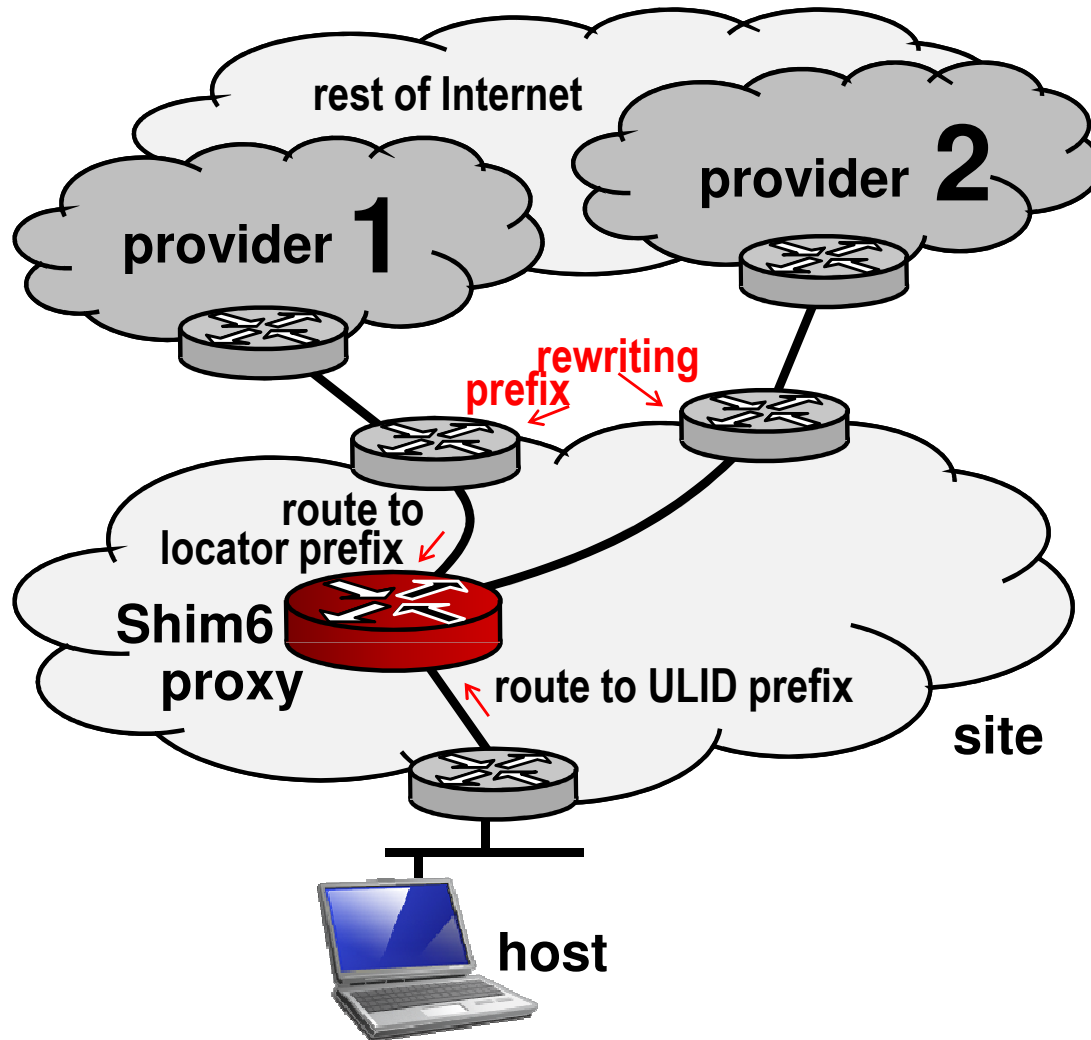
- Little synchronization between proxies

Drawbacks

- Administration complexity
- Limited traffic engineering
- Router renumbering (due to routes to locator prefix)
- New addresses in site (due to fixed ULID prefix)

arbitrary proxy placement in site

Avoid Special Intra-Site Routing: Prefix Rewriting



prefix rewriting instead tunneling

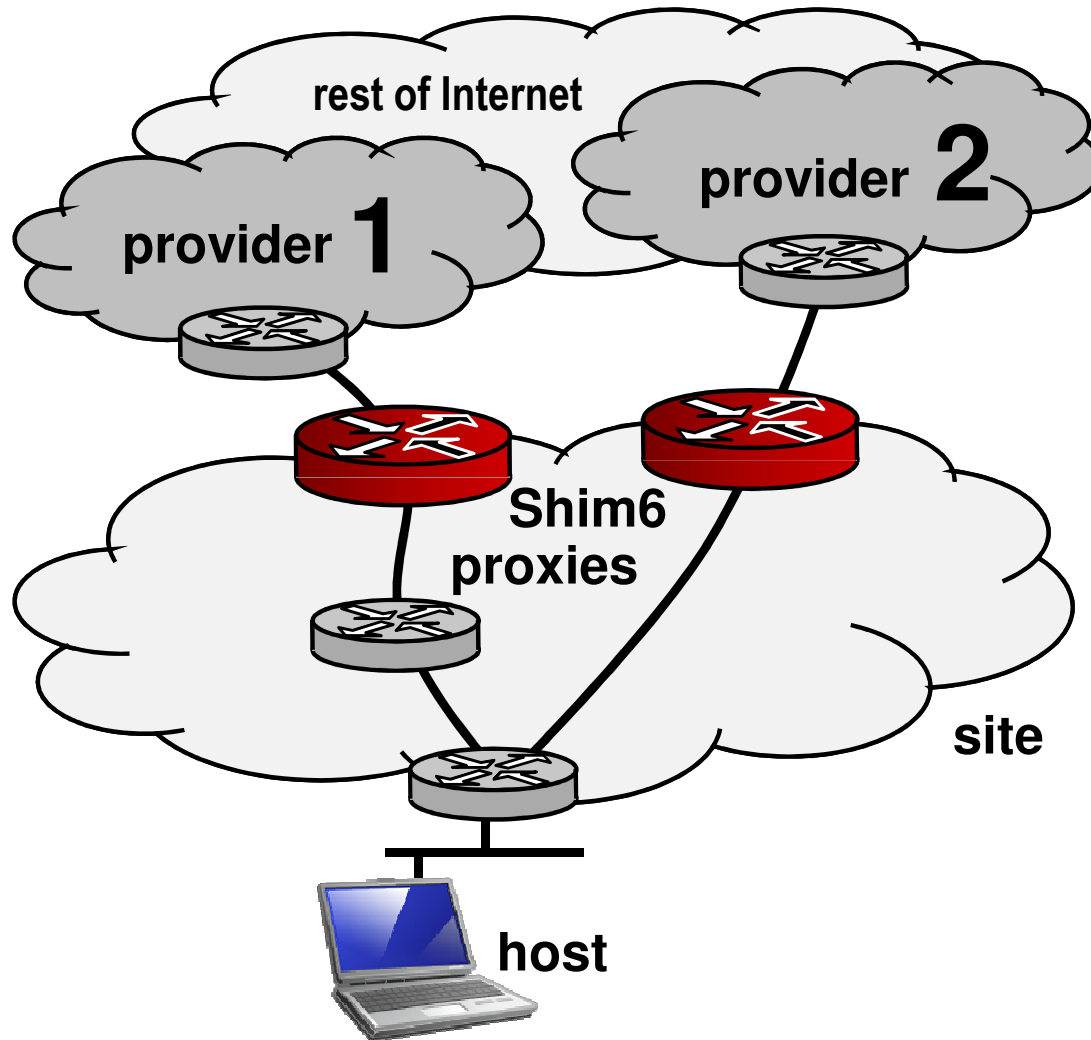
Advantage

- 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



proxy on each border link

Advantages

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

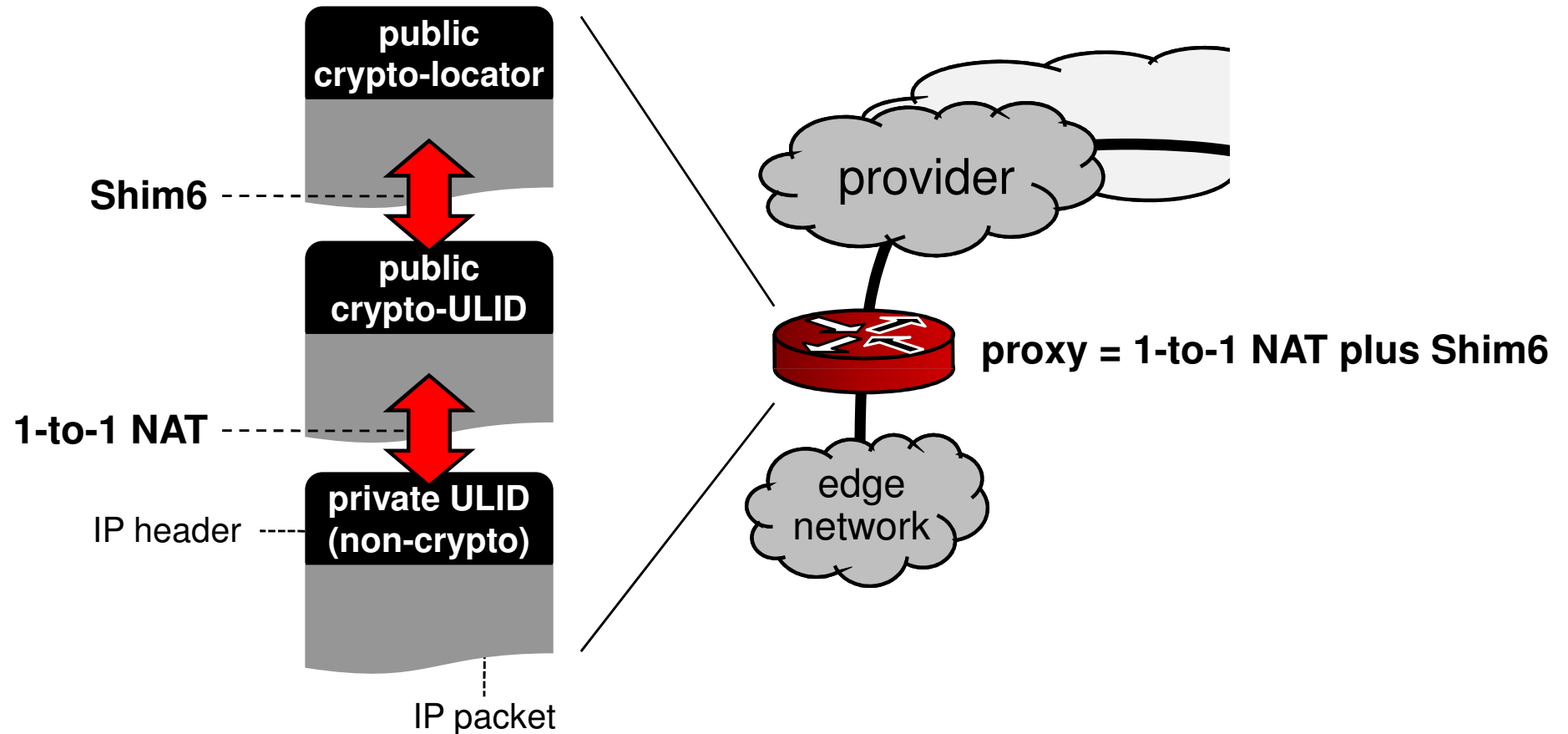
Drawbacks

- 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



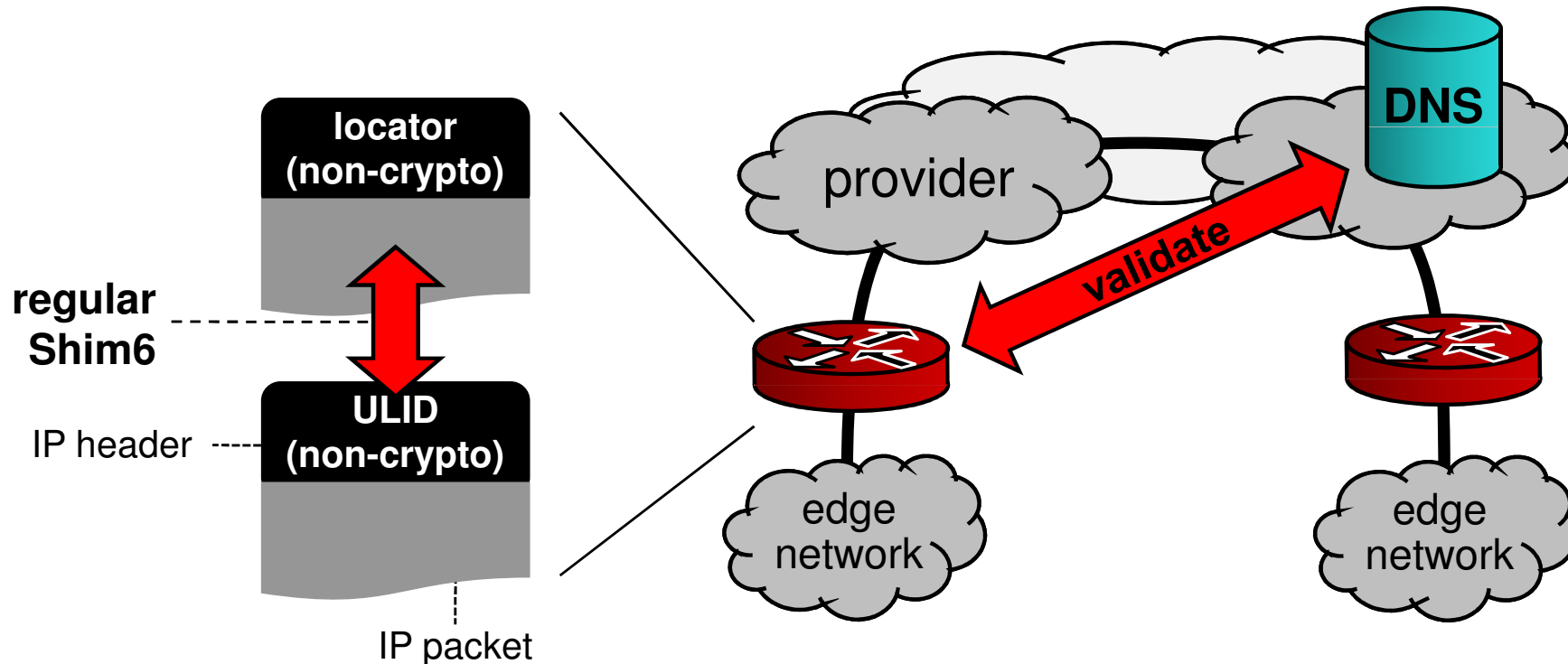
Advantage

- 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