

Using DHCP-PD to Allocate A Unique Prefix per Device

draft-ietf-v6ops-dhcp-pd-per-device

Lorenzo Colitti, Jen Linkova, Xiao Ma

v6ops, IETF117

Changes Since IETF116

Prefix Length

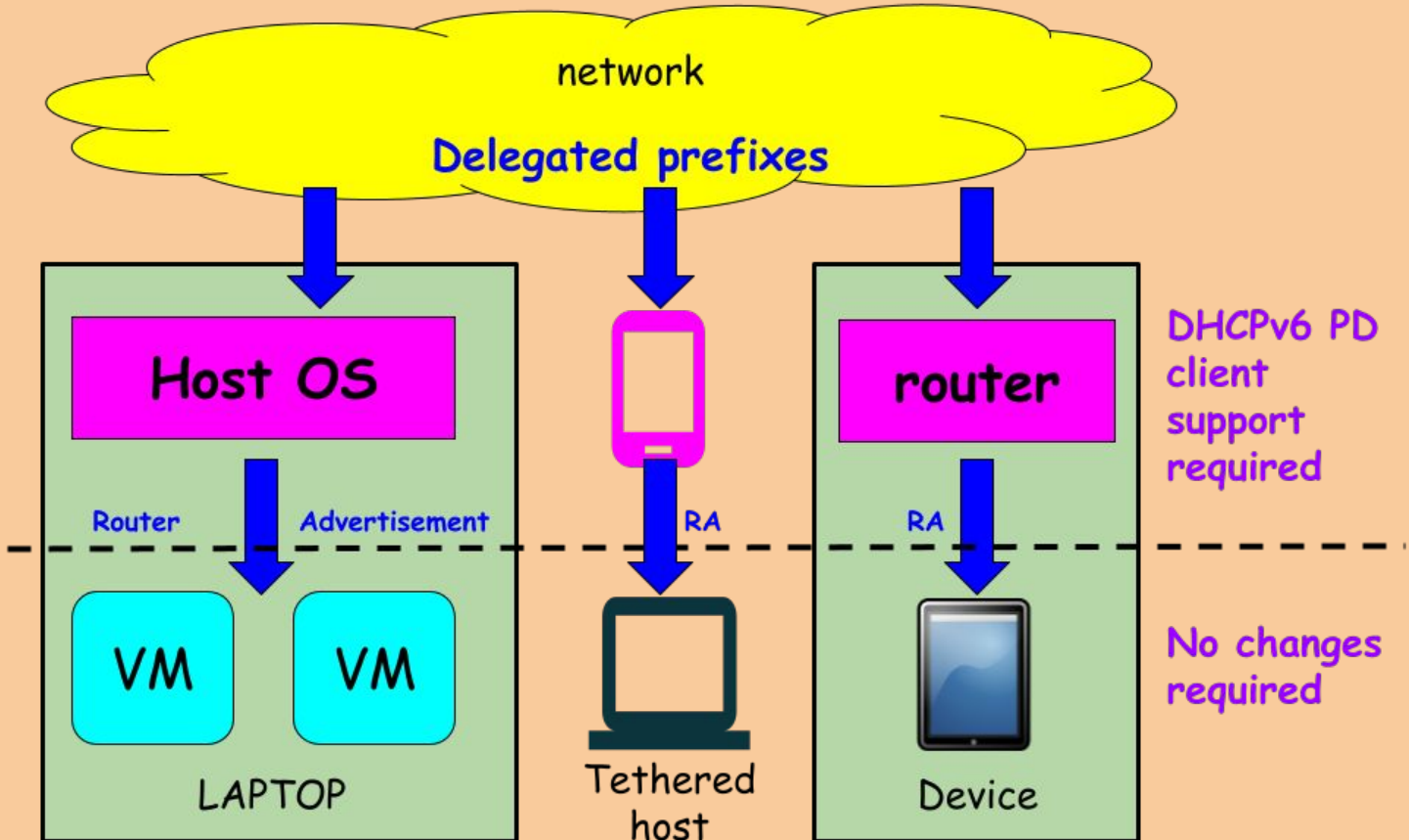
The document doesn't prescribe specific prefix length.

"The server MUST provide a prefix short enough for the client to assign addresses to its interfaces and connected systems via SLAAC"

Q: Why use SLAAC at all? As we developing a new system, let's do smth else!

A: The system running DHCPv6-PD client is not always the system using SLAAC

Why SLAAC?



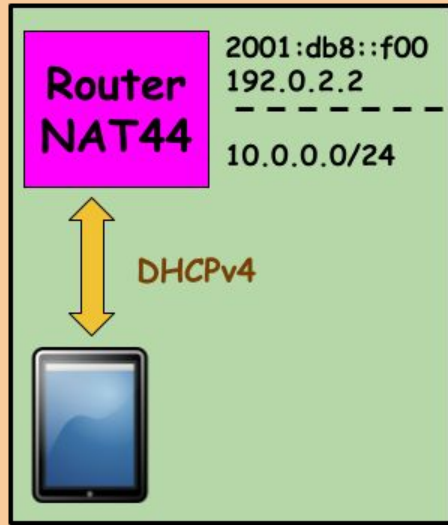
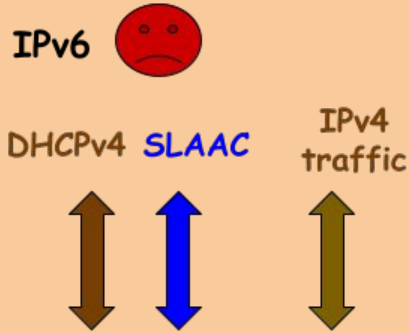
Concerns Raised: Routers as Endpoints

"This proposal allows endpoints to act as router. This might be undesirable from the network security policy"

Answer: In IPv4, devices can act as routers by using NAT.

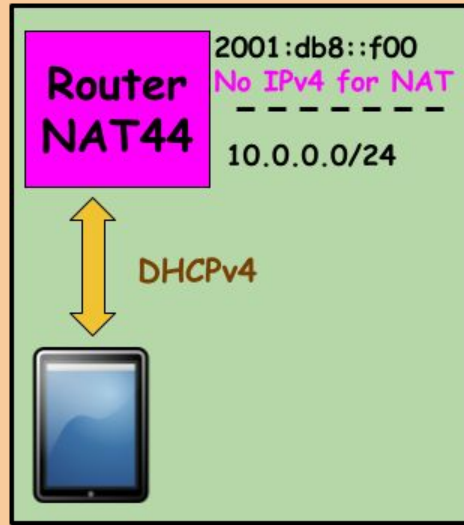
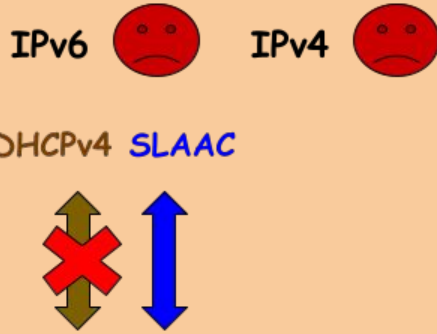
Those devices need connectivity in IPv6(-only) networks.

Dual-stack network



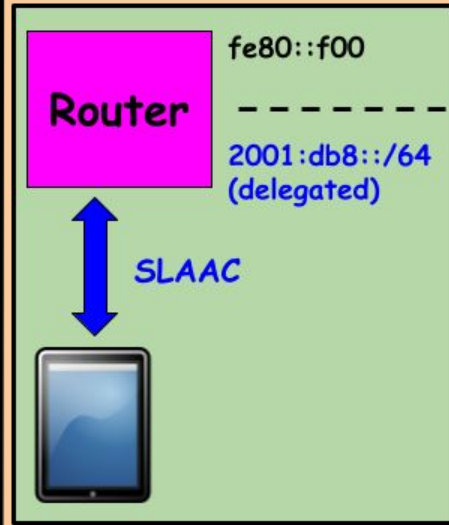
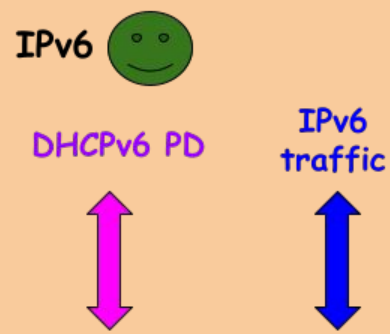
Endpoint

IPv6-only network



Endpoint

IPv6-only network with DHCPv6 PD



Endpoint

Routers as Endpoints (contd)

If the operator has full control over endpoints:

Device policy keeps DHCPv6 PD client disabled

Otherwise choose one:

- Break the device connectivity
- Keep IPv4 forever
- Force endpoint devices to use IPv6 NAT
- Enable DHCP PD

Concerns Raised: Hosts vs Routers

"Hosts do not need extend the connectivity downstream, and routers do not need this draft, they are using PD already"

- A line between "host" and "router" is blurred. The draft is now using the term "device" instead of "host".
- The draft is not only about devices sending DHCPv6 PD requests, but also about networks delegating prefixes.

DHCPv6 Bulk Leasequery

“To ensure that routes to the delegated prefixes are preserved even if a relay is rebooted or replaced, the operator **MUST** ensure that all relays in the network infrastructure support DHCPv6 Bulk Leasequery as defined in [RFC5460]. ”

On-link Communication

- If onlink peer2peer communication is prohibited:
 - using per-host prefix doesn't change traffic flows
- If peer2peer is allowed/desirable:
 - traffic will be hairpinned via the router
 - ICMPv6 redirects SHOULD be enabled on routers and hosts

Next Steps

Any open issues?

Ready for Working Group Last Call?