

Injection of Routing Information for DHCP PD

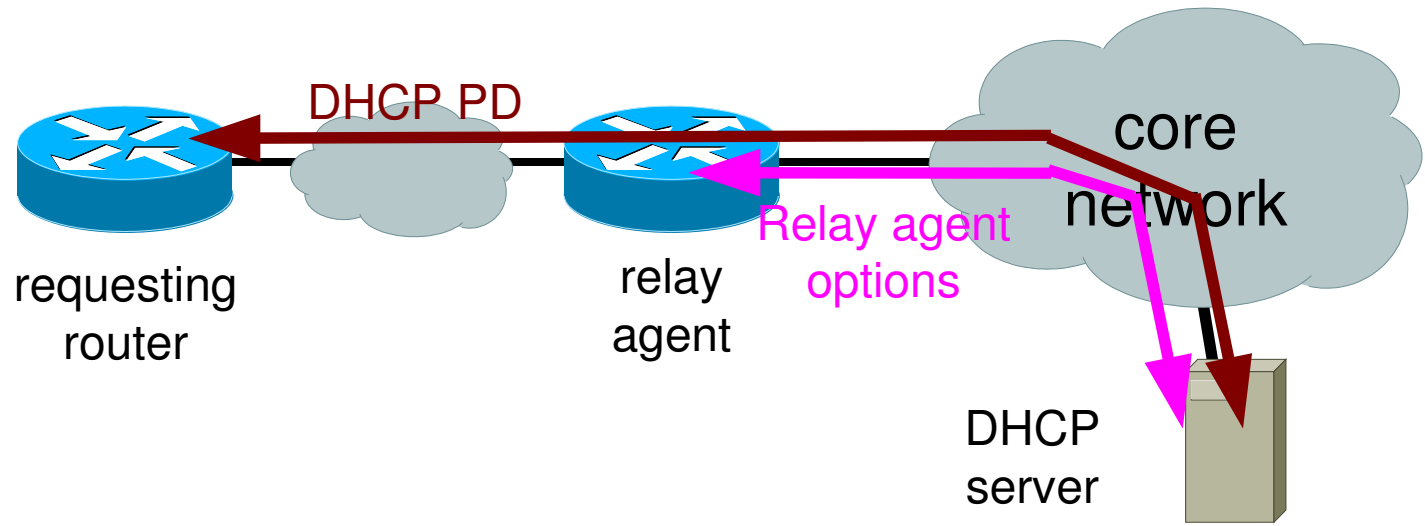
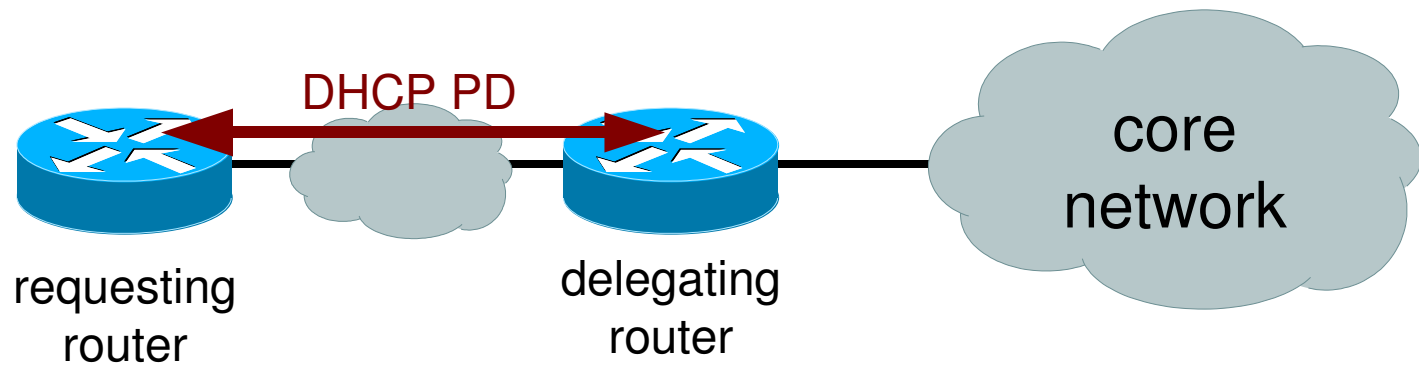
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DHCP PD

- Prefix Delegation (PD), defined in RFC 3633, assigns a prefix from a Delegating Router (DR) to a Requesting Router (RR)
- RFC 3633 specification requires DR and RR to be on the same link (no relay agent)
- DHCP PD users have expressed interest in centralized PD service

PD and Relay Agents

- IA_PD option carries PD information
- IA_PD options can be carried in DHCP messages forwarded by relay agents
- Routing information about PD prefixes needs to be injected into routing infrastructure
 - DR can do injection when on same link as RR
 - How does route injection happen with relay agents?



Alternatives

- RR participates in routing protocol
- Network element with relay agent injects route
 - Explicit DHCP relay agent message
 - DHCP message snooping
 - Out-of-band update from DHCP server
 - Static provisioning in network element with relay agent

Routing protocol

- RR participating in routing protocol requires RR be “trusted”:
 - identity of RR
 - contents of routing update from RR
 - RR has authority to make routing update
- Easiest if RR is in same admin domain; harder if RR is CPE

Relay agent option

- Server can explicitly inform network element with relay agent about prefix delegation (or route insertion?)
- Snooping might also work, although it provides less function
- Requires “pdquery” to restore state in router

Others

- Out-of-band communication: some other path to configure router; e.g., TELNET/CLI
- Static provisioning: prefix delegated on each link is pre-provisioned; router configuration must be synchronized with delegated prefixes