

Source Address Selection Policy option for DHCPv6

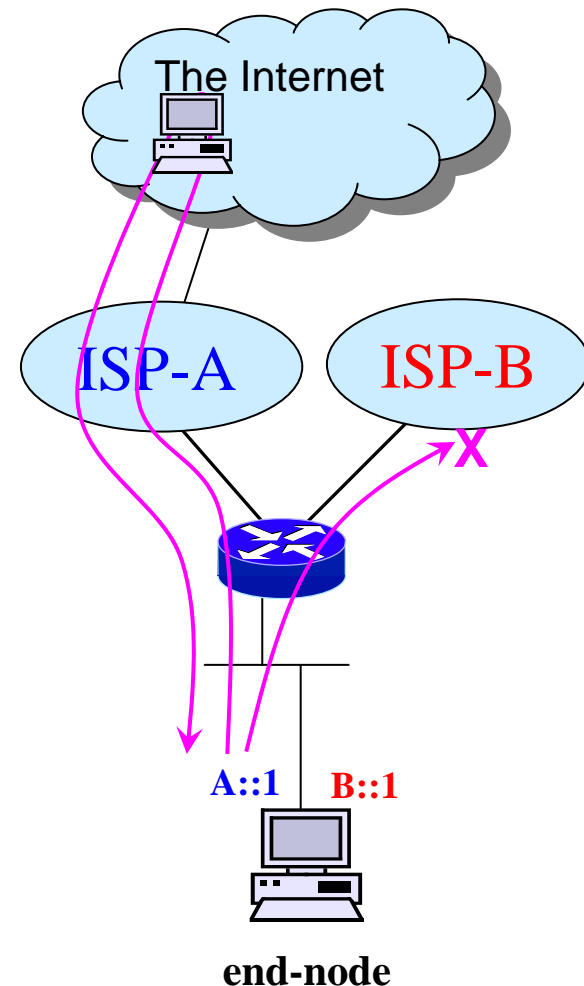
draft-hirotaka-dhc-source-address-selection-opt-00

IETF61 DHC WG

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Default Address Selection in IPv6

- An IPv6 node can have multiple IPv6 addresses on its interface
 - Each ISP assigns an address prefix to end user network in a multi-homing environment
- In multi-prefix environment, proper source address selection is necessary
 - Communication will fail if wrong source address is selected:
 - Ingress-filtering at up-stream routers
 - Multihoming between ISP and VPN

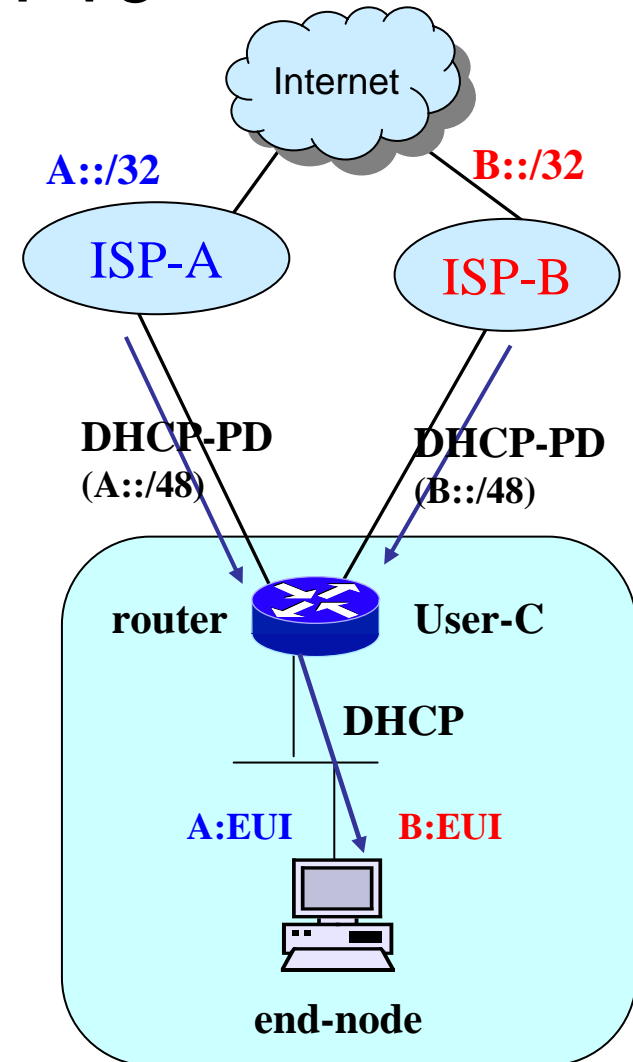


Source address selection policy distribution

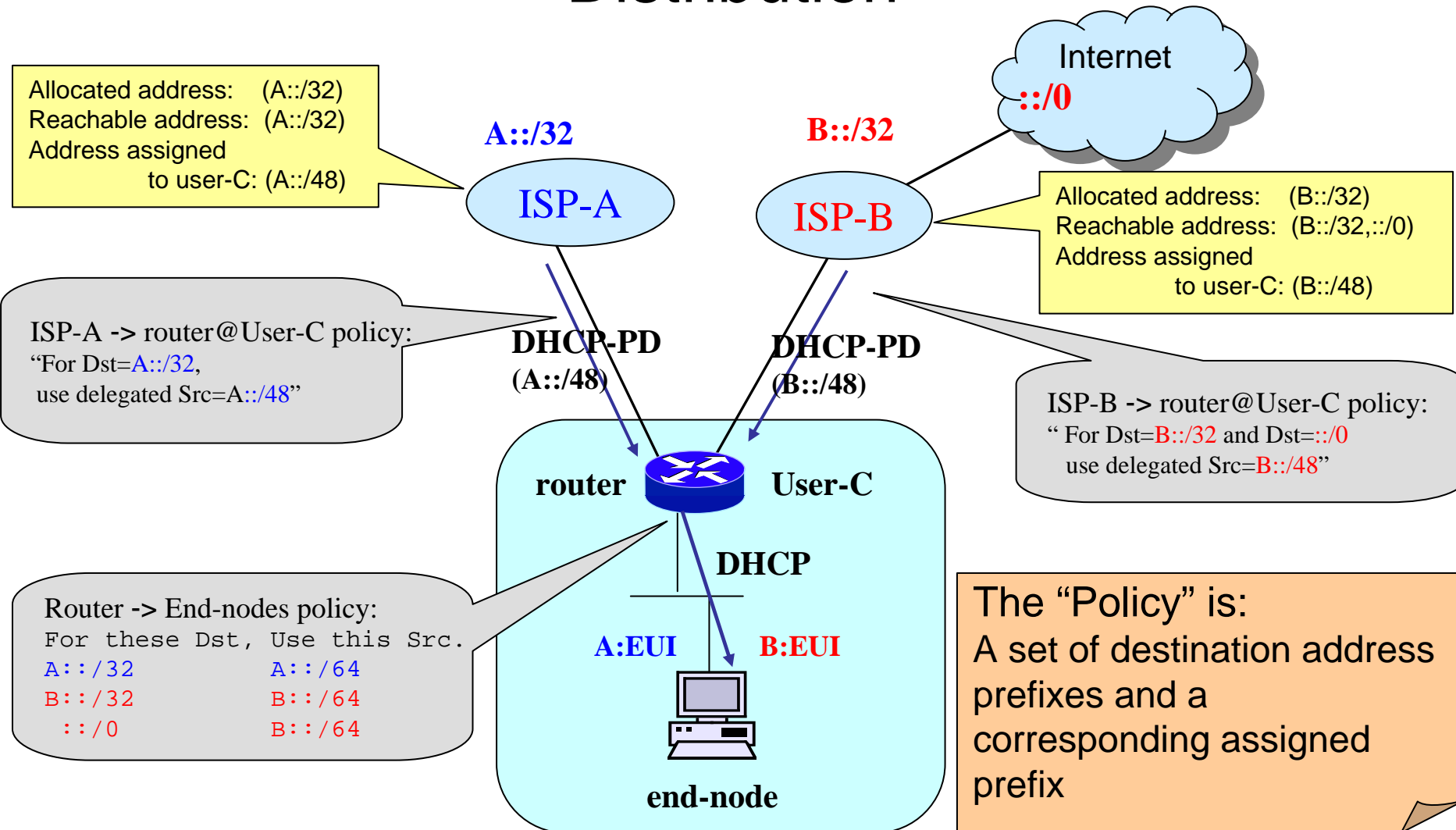
- RFC 3484 describes the address selection mechanism
 - Each IPv6 node can have policy table for address selection
 - The IPv6 node can select proper IPv6 source address corresponding to a destination prefix
- No protocol to distribute the policy
 - Need a mechanism to distribute address selection policy
 - Automatic policy distribution will be important in unmanaged networks (residential or SOHO)

Source Address Selection Policy Distribution using DHCPv6

- We'll propose a DHCPv6 option to distribute the policy
 - Define a new stateless DHCPv6 option for policy distribution
- Automatic policy distribution
 - from ISPs to a user site
 - with DHCPv6 prefix delegation mechanism (RFC3633)
 - Distribution to each nodes in the end-user network
 - Using DHCPv6 option

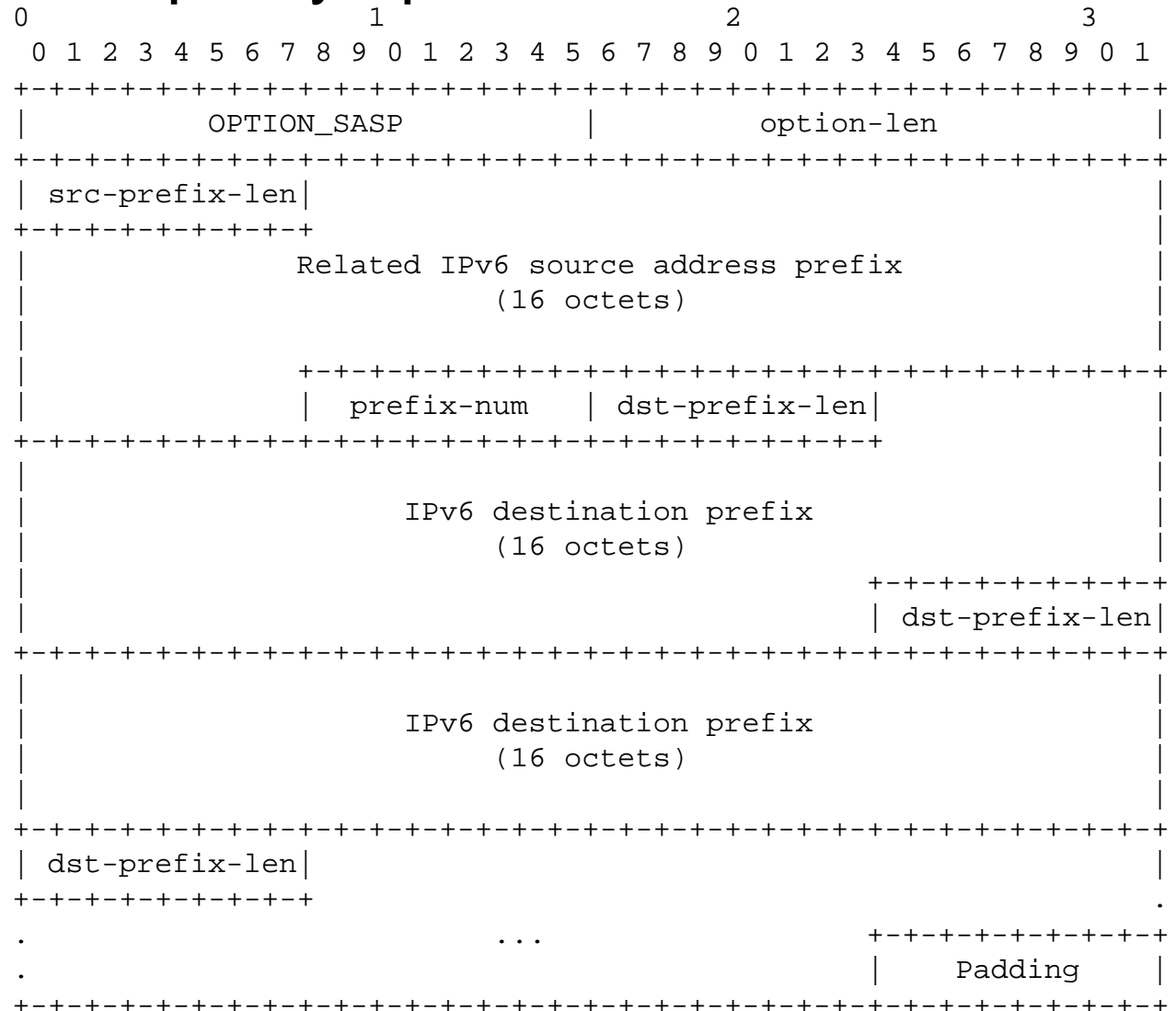


Example of Source Address Selection Policy Distribution



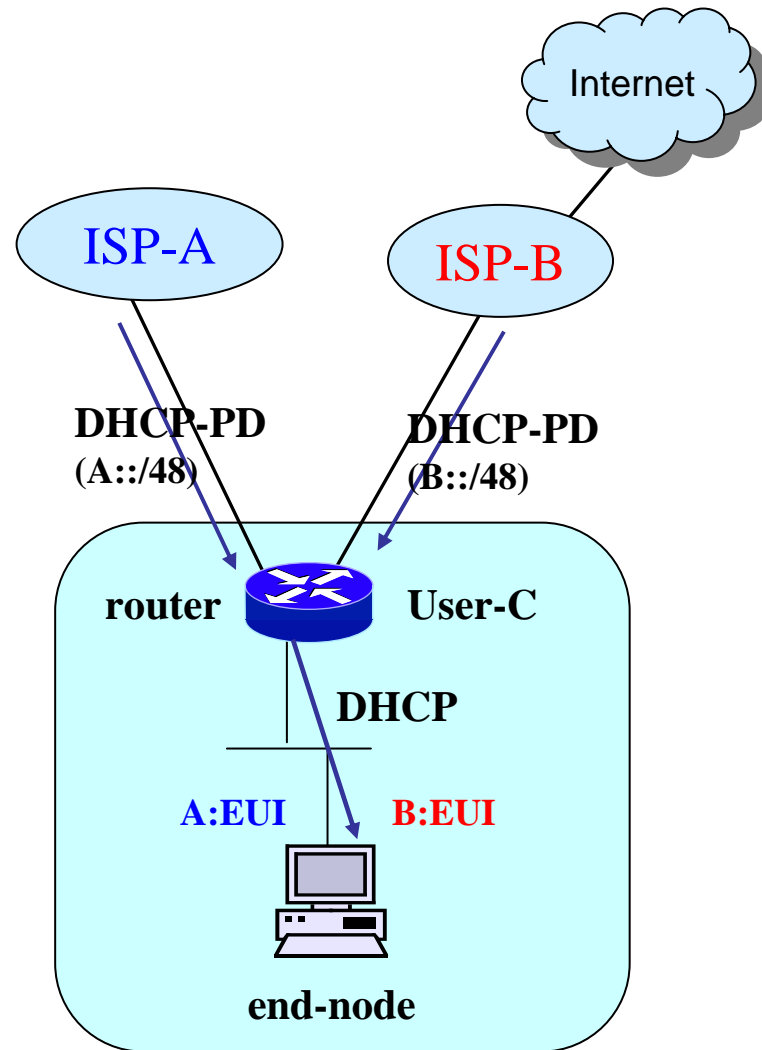
Proposed DHCPv6 Source address selection policy option

The “Policy” is:
A set of destination
address prefixes and
a corresponding
assigned prefix



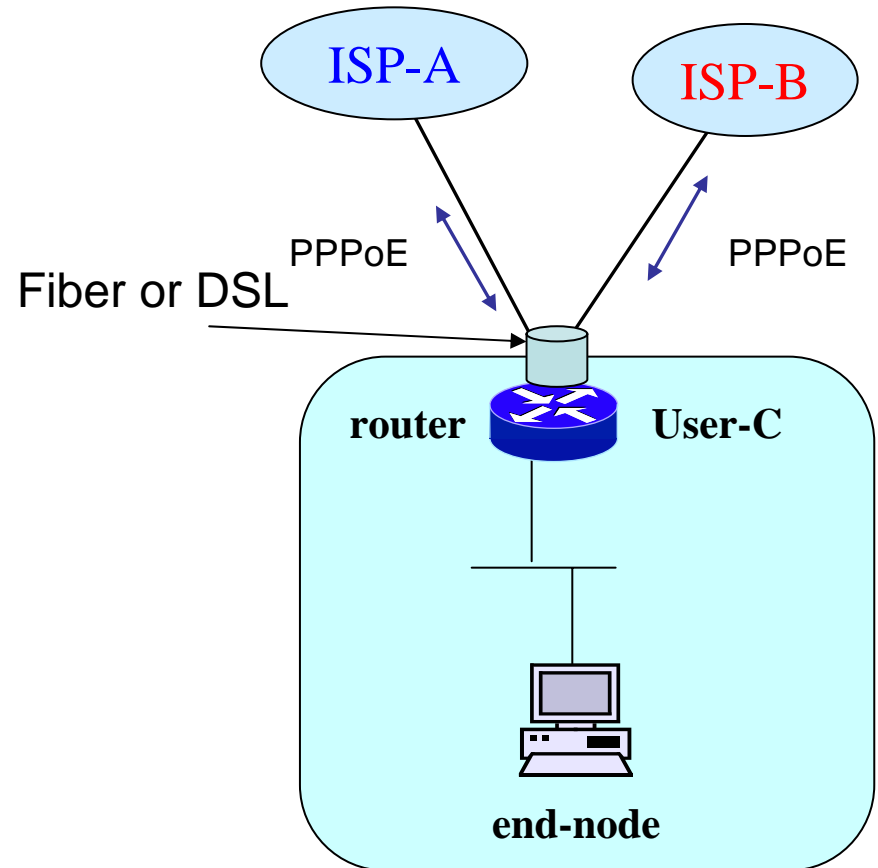
Issues

- Policy distribution mechanism from ISPs to a user site
 - Using a routing protocol
 - ISPs advertise their acceptable routes using a routing protocol, and the user router converts the routing information to the policy
 - We chose adding an DHCP-PD option because:
 - Have to change the semantics of routing entity (e.g. ripng program)
- Currently, we define a stateless DHCP option
 - We assume this option may also be used with stateless address autoconfiguration
 - The lifetime of the policy option should be bound to the corresponding address prefix



Residential User Network Structure

- Many ISPs use kinds of PPP with their service, so multiple connection will be easily implemented in their service.
 - 10 millions users actually use the multiple PPP session network in Japan
- L3 tunnel based network connection become popular
- To implement IPv6 in this environment, source address selection policy distribution mechanism is the key.



Summary

- We propose a new stateless DHCPv6 option for distributing source address selection policy
 - With this DHCPv6 option, all IPv6 nodes can have proper source address selection policy automatically in multi-prefix environment