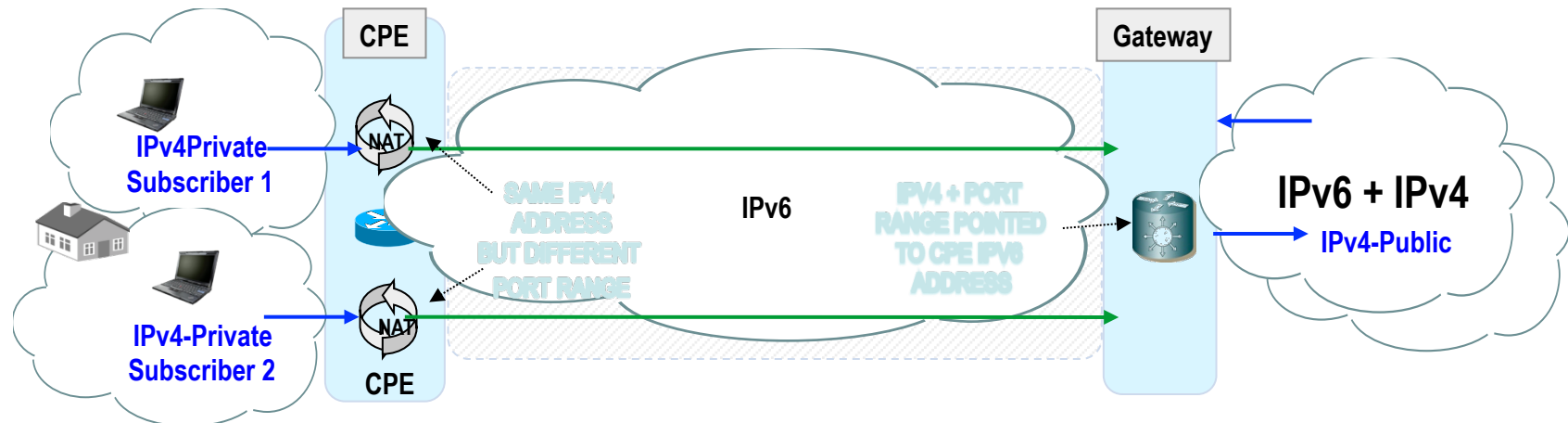


DHCPv6 Options for
configuration of Software Address
and Port Mapped Clients
(draft-ietf-softwire-map-dhcp-04)

2013-07-30

S46 Architecture



1. CPE is provisioned with IPv4 address and port range for NAT44 operation
 2. IPv4 traffic is transported across regular IPv6 in the S46 domain.
 3. Gateway is configured with or algorithmically derives the CPE IPv6 address for a given IPv4 + Port index
- Softwire A+P based solutions follow this architecture.

DHCPv6 S46 Usage Summary

	L46	MAP-E	MAP-T
IPv6 CPE Prefix	Provisioned: E.g. DHCPv6-PD	Provisioned. E.g. DHCPv6-PD	Provisioned: E.g. DHCPv6-PD
IPv4 address on CPE	Provisioned: S46 Brule Option	Provisioned: Variable combination of IPv6 prefix and S46 Brule option	Provisioned: Variable combination of IPv6 prefix and S46 Brule option
CPE Port range	Derived from S46 Port Params Option	Derived from EA-bits or S46 Port Params Option	Derived from EA-bits or S46 Port Params Option
Default S46 Gateway	IPv6 Address. Found via RFC6334 or (optional) S46 Frule Option	IPv6 Address. Found via RFC6334 or (optional) S46 FRule	IPv6 Prefix. Found via S46 Frule
Mesh Mode	n/a	Determined via S46 Frule	Determined via S46 Frule
Transport	Default (or inferred from Default S46 Gateway setting)	Default (or inferred from Default S46 Gateway setting)	Default (or inferred from Default S46 Gateway setting)

Main changes since last draft

- Change of option names to S46
 - Applicability beyond MAP
- Removed “Default Rule”
 - For Lw46/MAP-E/MAP-T allow other means of obtaining the S46 gateway address eg RFC6334
 - Capability to discover S46 gateway is retained via S46 Frule option.

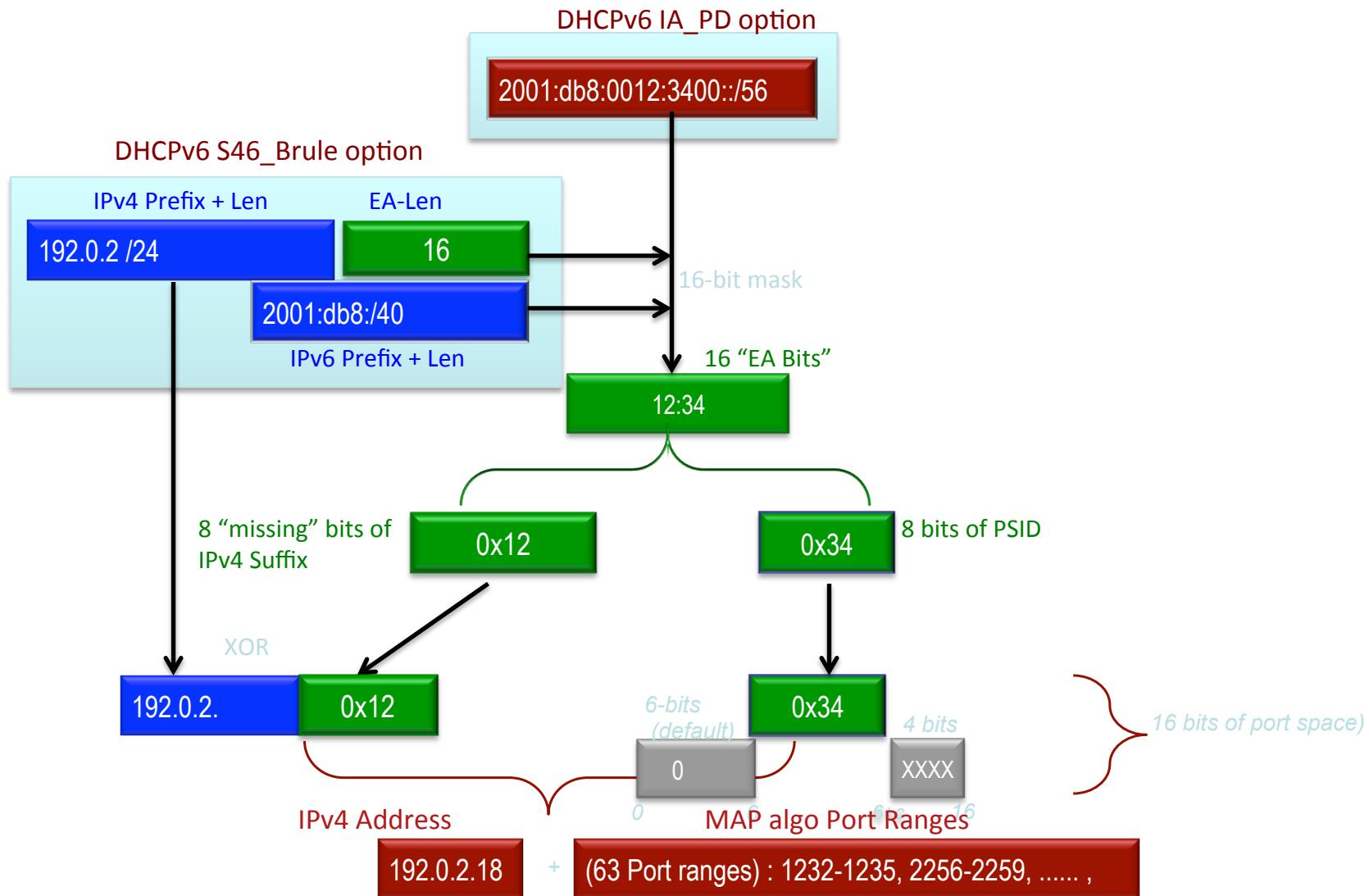
Main changes since last draft

- Removed flags
 - Feedback from WG. Reduced option clutter
 - This however required changes to create the S46 Brule and Frule Options
- S46 Brule Option:
 - Conveys IPv4 address and (optionally) source Port index or simply port-subnet or port
 - Conveys IPv6 prefix “scope” towards S46 domain; set to 0 if not in use
 - Conveys embedded address bit length – set to 0 if not in use

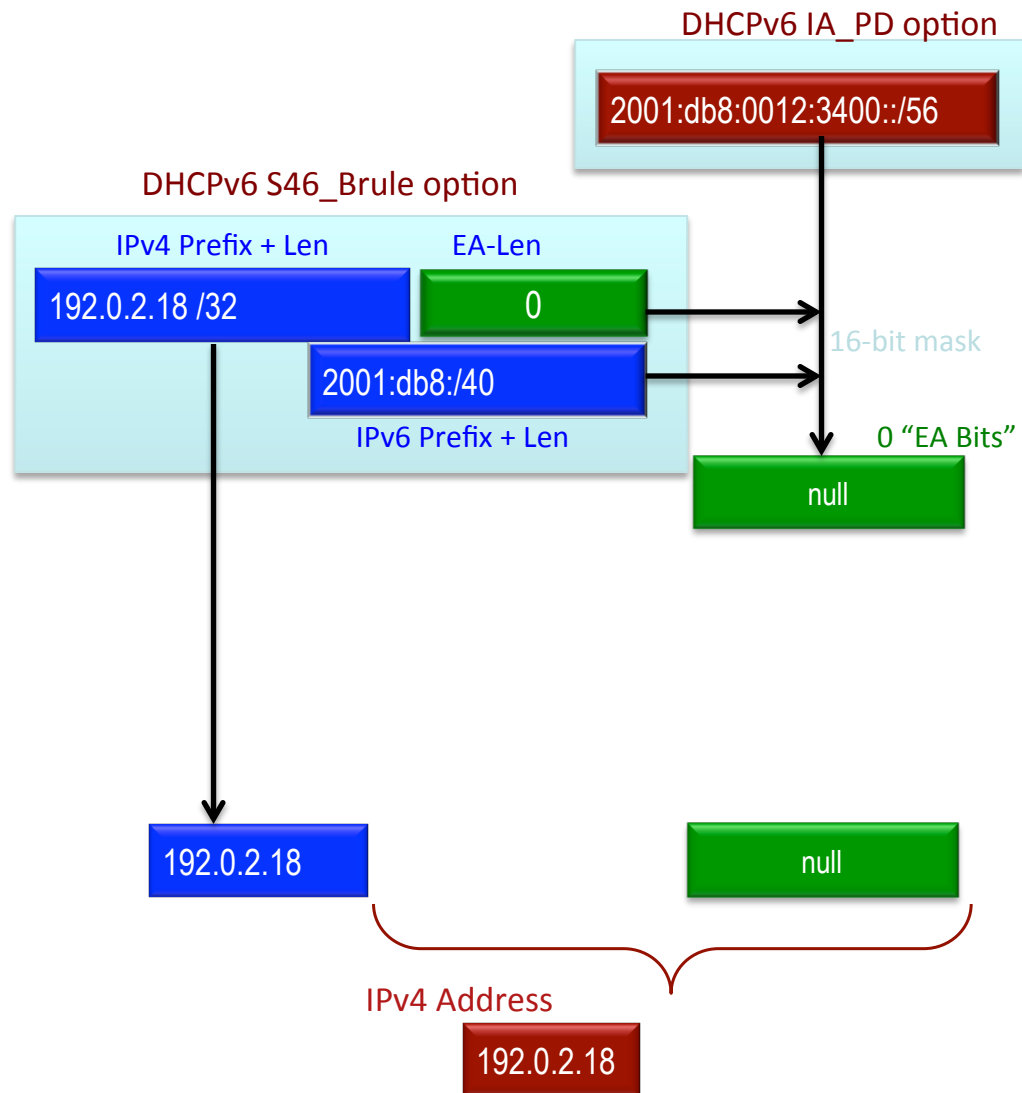
Main changes since last draft

- S46 Frule Option:
 - Can convey ANY IPv6 prefix (/X) or address of a S46 gateway for a 0/0 IPv4 prefix.
 - /128 = Encapsulate. /X = Translate
 - Can convey “IPv4 route” and IPv6 prefix for “mesh mode”, eg 192.0.2/24 2001:db8/56
- S46 Port Parameters Option:
 - Can convey a destination port index or simply port-subnet or port
 - Suitable for MAP and Lw46 “port subnet” encoding.
- Cleanup and additional explanation regarding DHCPv6 items incl. stateless use.

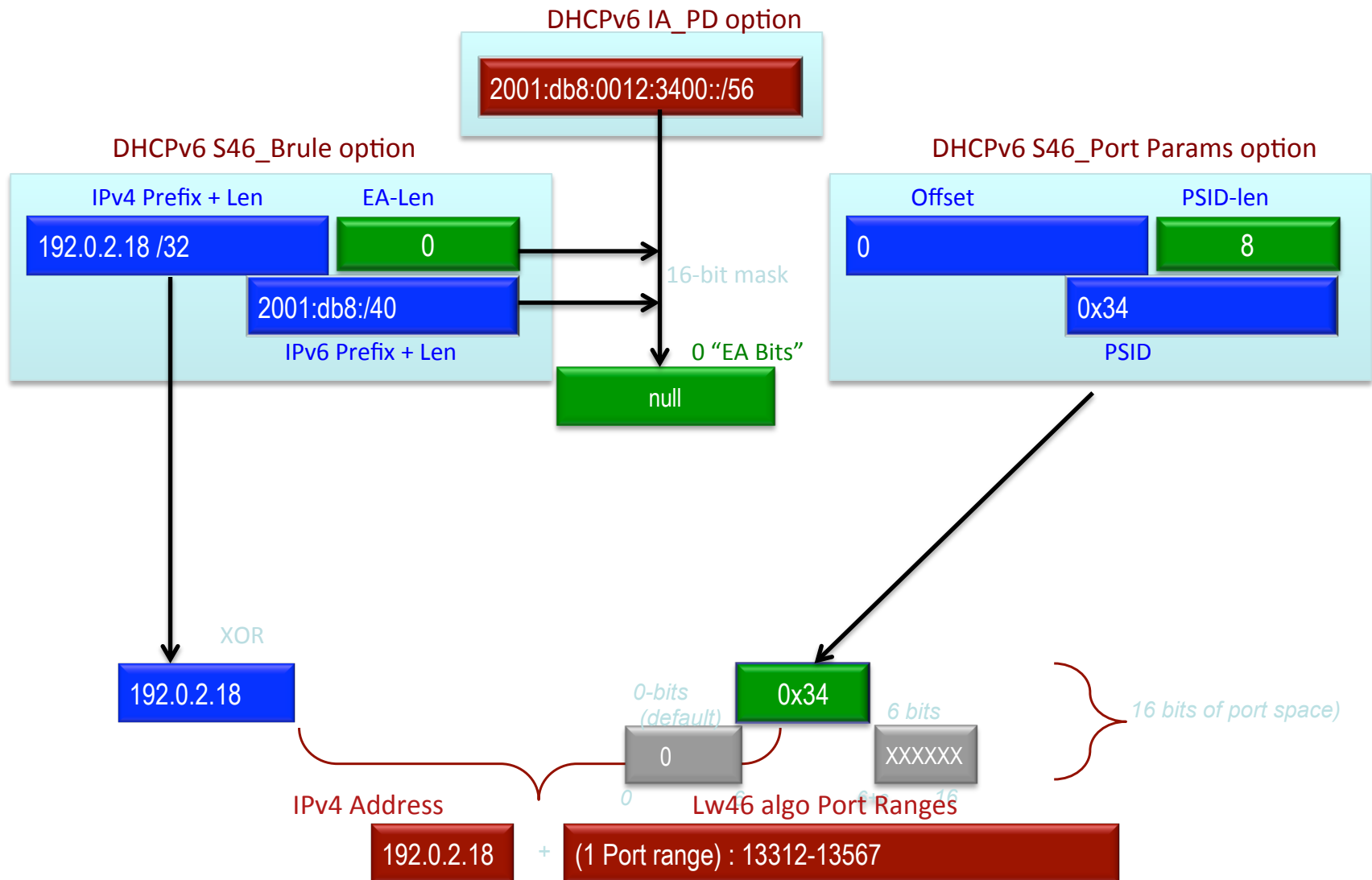
Example: Deriving IPv4 address + port range from the S46 option *with* address embedding



Example: Deriving IPv4 address from the S46 option *without* address embedding



Example: Deriving IPv4 address + port range from the S46 option *without* address embedding



Next steps

- Address any feedback
- WG Last call