

# Softwire Concentrator Discovery Using DHCP

draft-guo-softwire-sc-discovery-03

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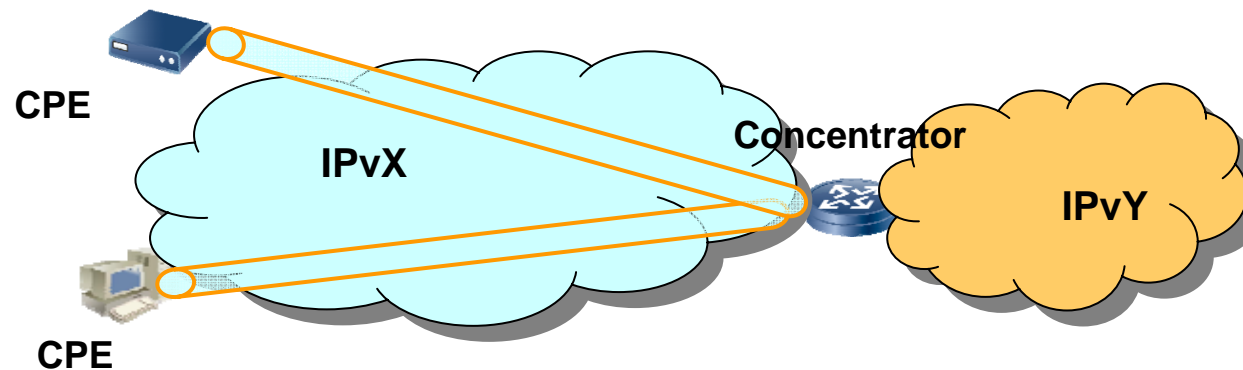
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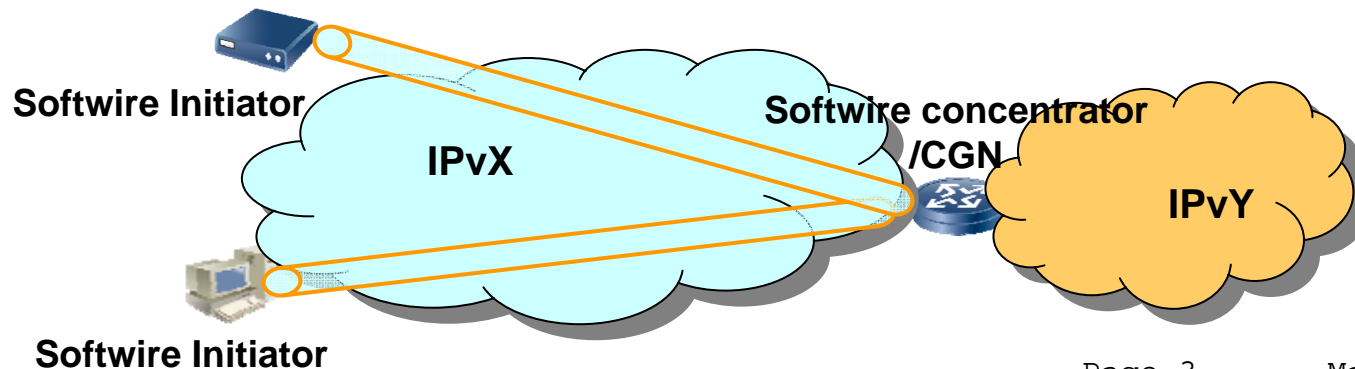
# SOFTWIRES Context

- Softwires WG is dealing with the general case of IPvX in IPvY tunnels to get from customers to tunnel end points across service provider networks.
- Typically the tunnel end point will be a concentrator, and possibly a translator, acting as a border device between protocol families.
- Customer premises equipment (CPE) has to establish its softwires (tunnels) to the appropriate concentrator.



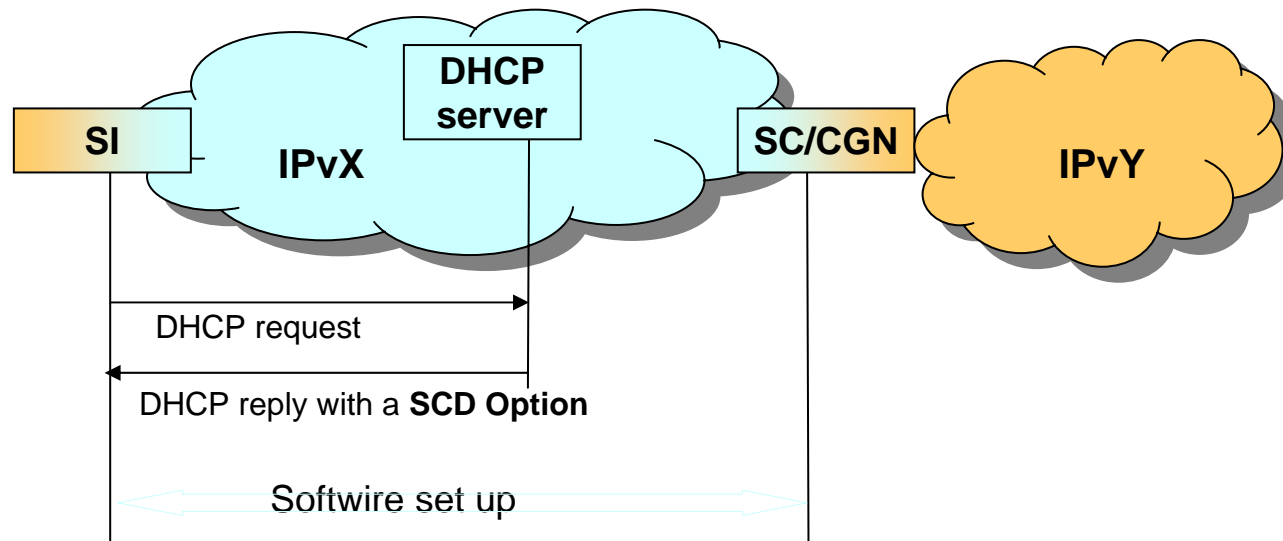
# Requirements

- Softwires WG has NOT defined the method to discover Softwire Concentrator in hub and spoke network.
- In order to establish a softwire successfully, users MUST know:
  - **IP(IPv6) address:** the locator of a softwire concentrator or CGN
  - **Tunnel Type:** since different ISPs may use different tunnel technologies, an ISP-independent CPE should support as many as possible potential tunnel technologies and be able to auto-discover which tunnel is in use. Even within a single ISP, different tunnel type may also use to differentiate customers, e.g., support of secured encapsulation for some customers and plain IP-in-IP encapsulation for others.
  - **Preference:** for scalability and stability purposes, customers may be assigned different/multiple softwire concentrators through the discovery mechanism.

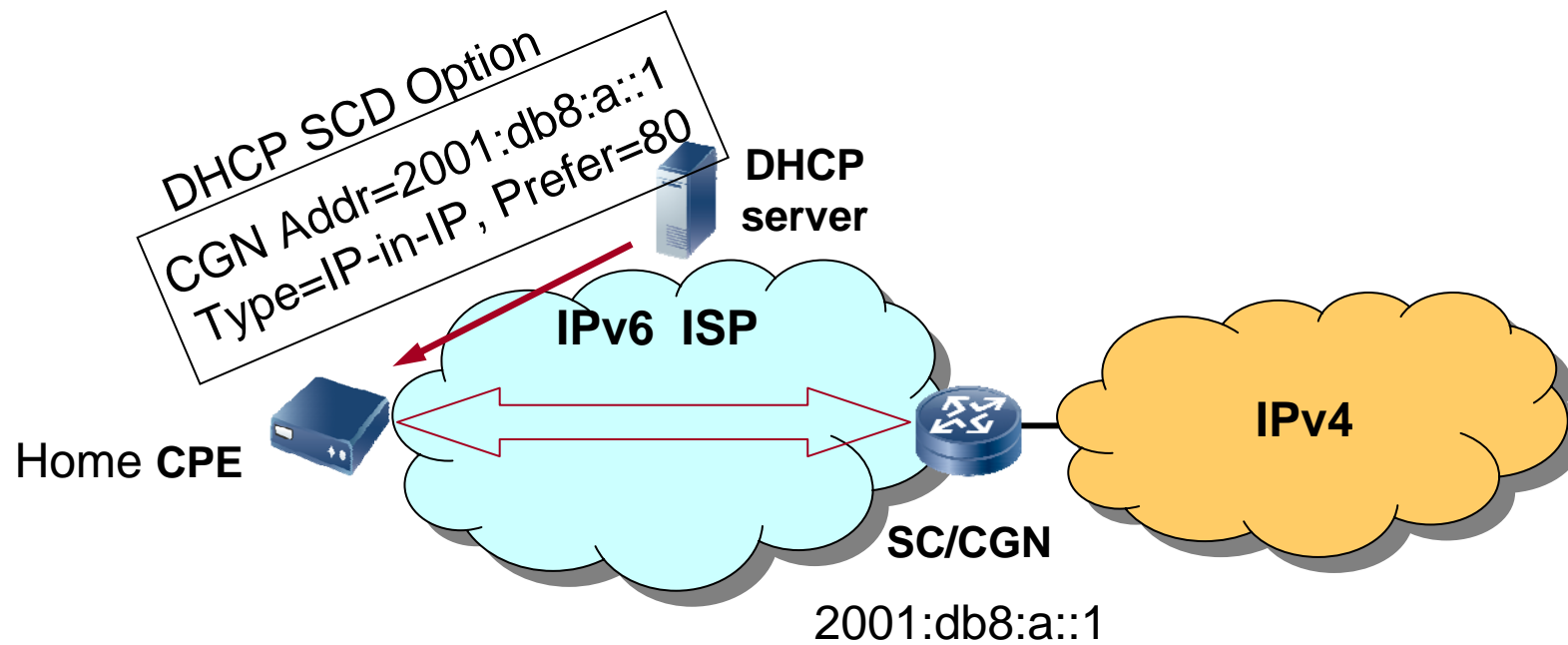


# A Generic Softwire Concentrator Discovery Using DHCP

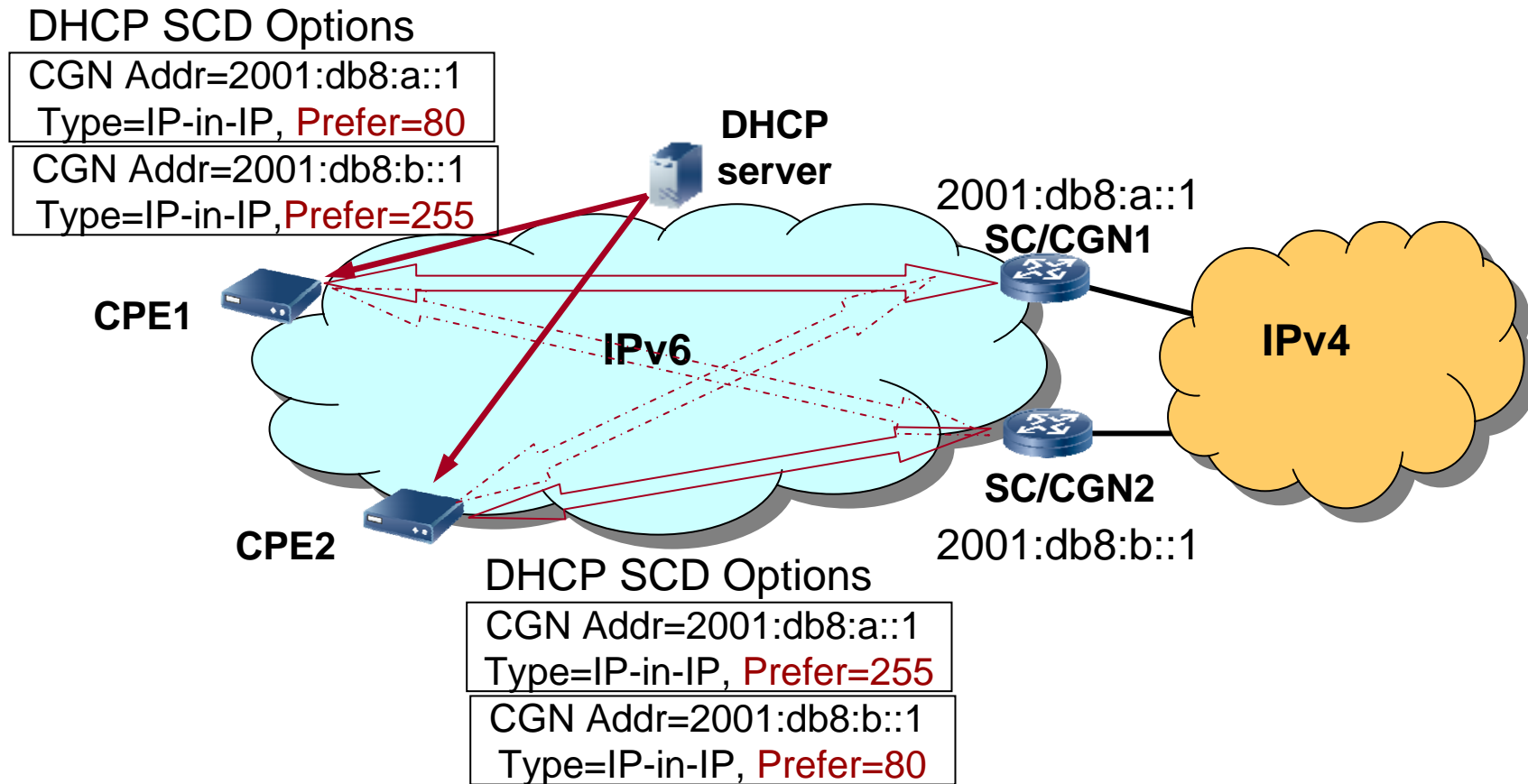
- DHCP(v6) option is extended to support discovery of a softwire concentrator or CGN, named SCD option.
- For load sharing or single-point failure recovery purposes, a DHCP reply message may carry more than one SCD options.



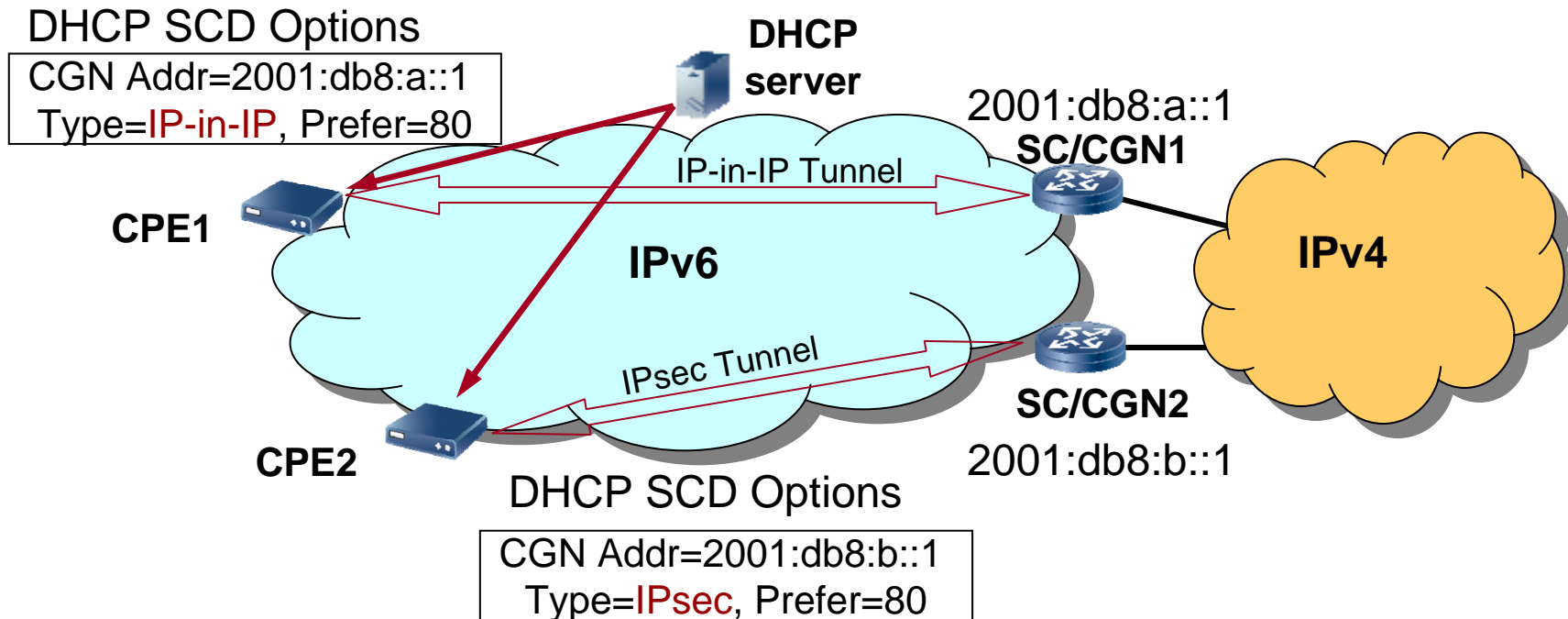
# An Example in DS-Lite Scenario



# Preference ----for load balance support

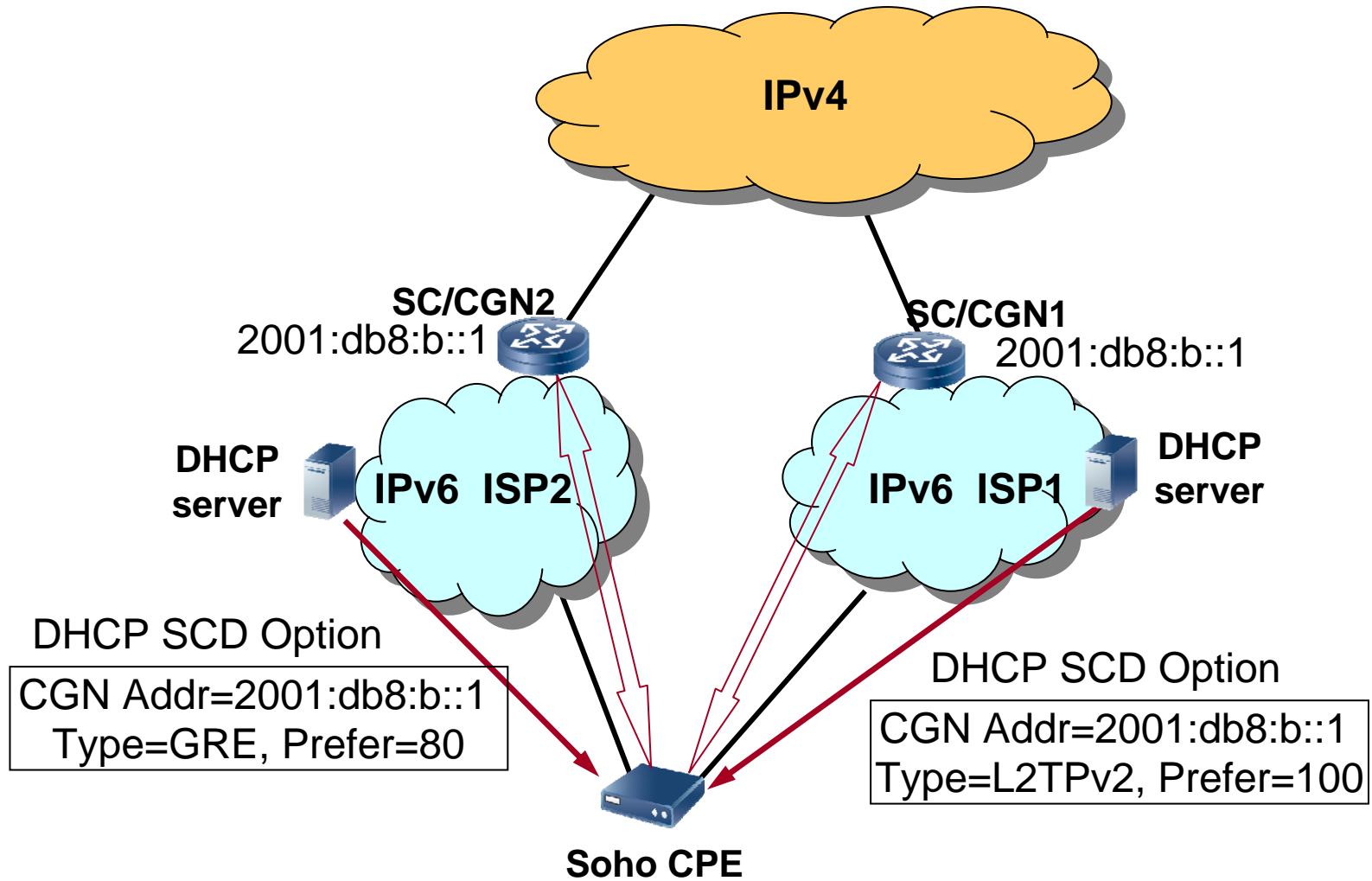


# Tunnel type ----for differentiating service



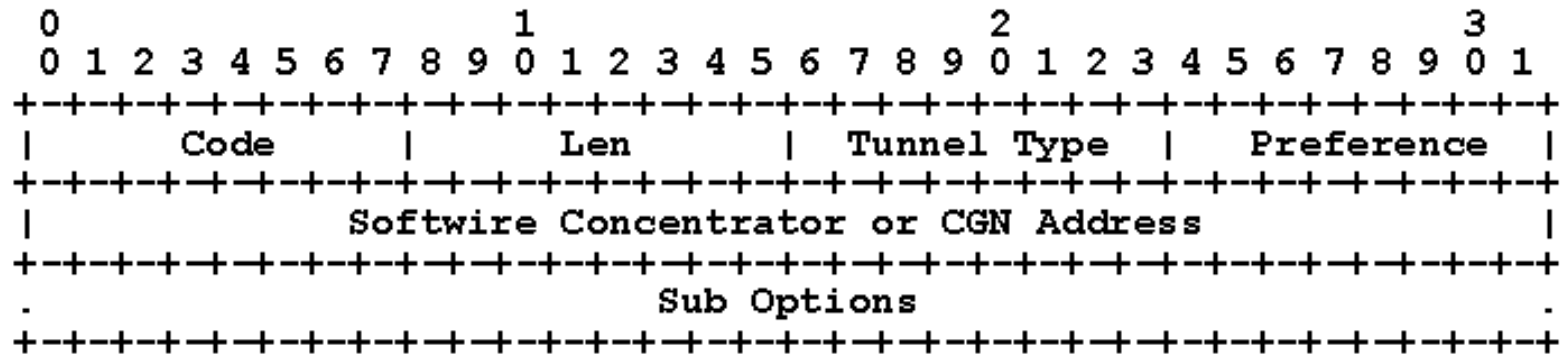
- According to user authentication, DHCP server may provide different SCs and correspondent tunnel types
- As illustration, SC/CGN2 provides the higher security tunnel for customers, like CPE2

# Two SC with different tunnel types





# Softwire Concentrator Discovery (SCD) Options – DHCPv4



**Software Concentrator or CGN Address** is used to establish tunnel

**Tunnel Type** supports different tunnel technologies for flexibility purpose

**Preference** is a suggestion for user to choose among multiple SCs

**Sub Options** is optional to configure the complementary tunnel information. In TLV style, Protocol Type, Prefix and GRE key are defined

SCD Option in DHCPv6 is carrying the similar information with IPv6 address instead of IPv4 address

- **Questions, clarifications?**