Prefix Delegation in 4V6

draft-chen-softwire-4v6-pd-00

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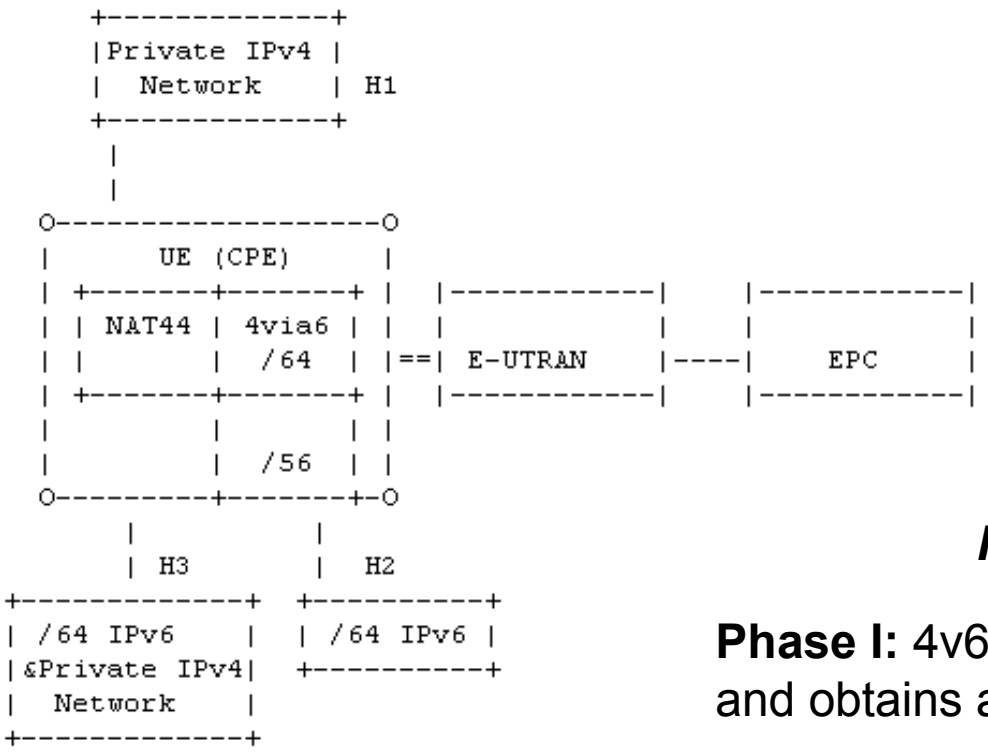
The goals

- Elaborating IPv6 prefix delegation scenario in mobile network environments
- Assigning flexible sizes of port-sets to allow:
  - Single shared IPv4 address
  - Single IPv4 address
  - Multiple IPv4 addresses (a IPv4 subnet)
  - Multiple shared IPv4 addresses

Scenario



Description

-UE/Handset acts as a CPE with wireless modem use 3GPP access as backhual. It's double stack capable.
-Three kinds of IP devices could connect to such UE (i.e. IPv4-only, IPv6-only and dual-stack)

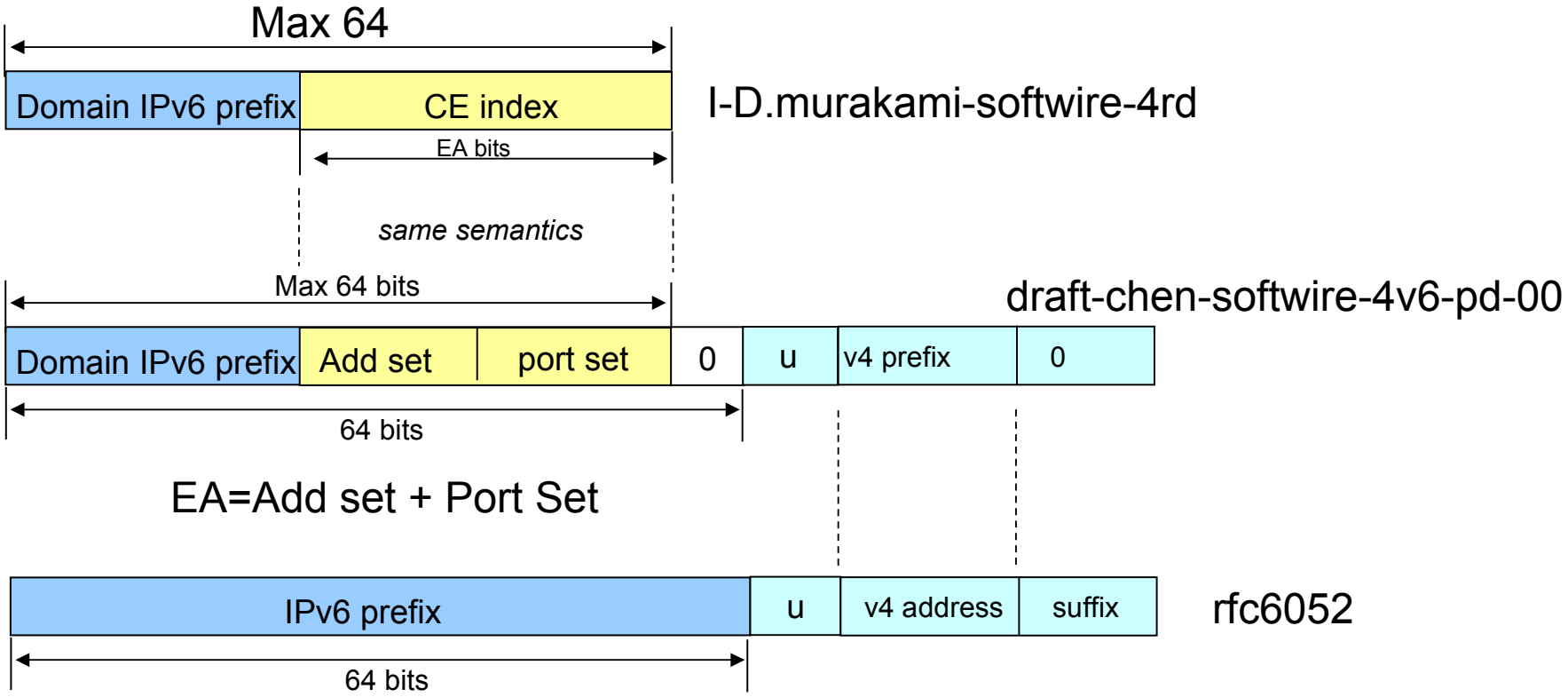
Procedures

Phase I: 4v6 UE attaches to a LTE network and obtains a **/64 prefix** or a **/64 4v6 prefix**

Phase II: 4v6 UE initiates prefix delegation

Address Structure

- **The draft DO NOT propose new mapping algorithm**
- **All the proposed is compatible with I-D.murakami-softwire-4rd and RFC6052**



Mapping Rules

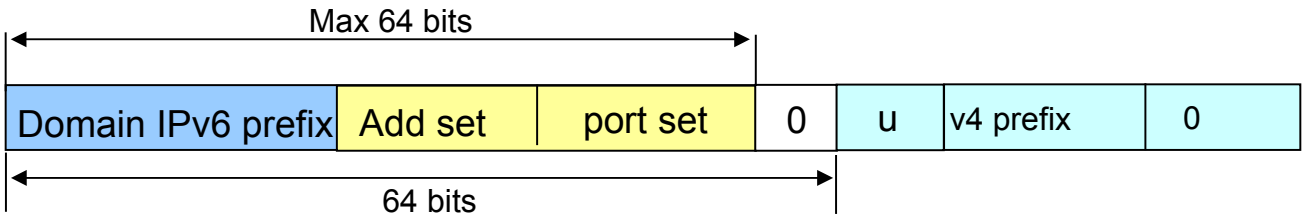
- Add-set would determine how many IPv4 address assigned to customers connecting a given CE.
- There is a delimiter bit where the boundary of prefix in Addr-set. The delimiter bit must be set to '1‘
- Example, operator assign a Class C Address (e.g. 200.1.1.0/24) for 4v6 domain

Case 1: single shared IPv4 address

200.1.1.xxxx xxxx1: port-set

Case 2: Four shared IPv4 addresses

200.1.1. xxxx x100 : port-set



Analysis

- Flexible Sizes of Port-Sets: Using **EA=Add set + Port Set** makes it flexible to using flexible sizes of port-sets to multiple IPv4 addresses
- UE/CPE behavior after PD
  - Generate IPv4 prefix and behave as 4v6 CE following
    - draft-murakami-softwire-4v6-translation-00
    - draft-murakami-softwire-4rd-00
  - Delegate IPv6 prefix with /64 to IPv6 nodes through e.g., SLAAC (excluding the /64 prefix: Domain IPv6 prefix + EA-bits + Domain IPv6 suffix +…)

Thanks