

DHCPv6 class based prefix

(draft-bhandari-dhc-class-based-prefix-00)

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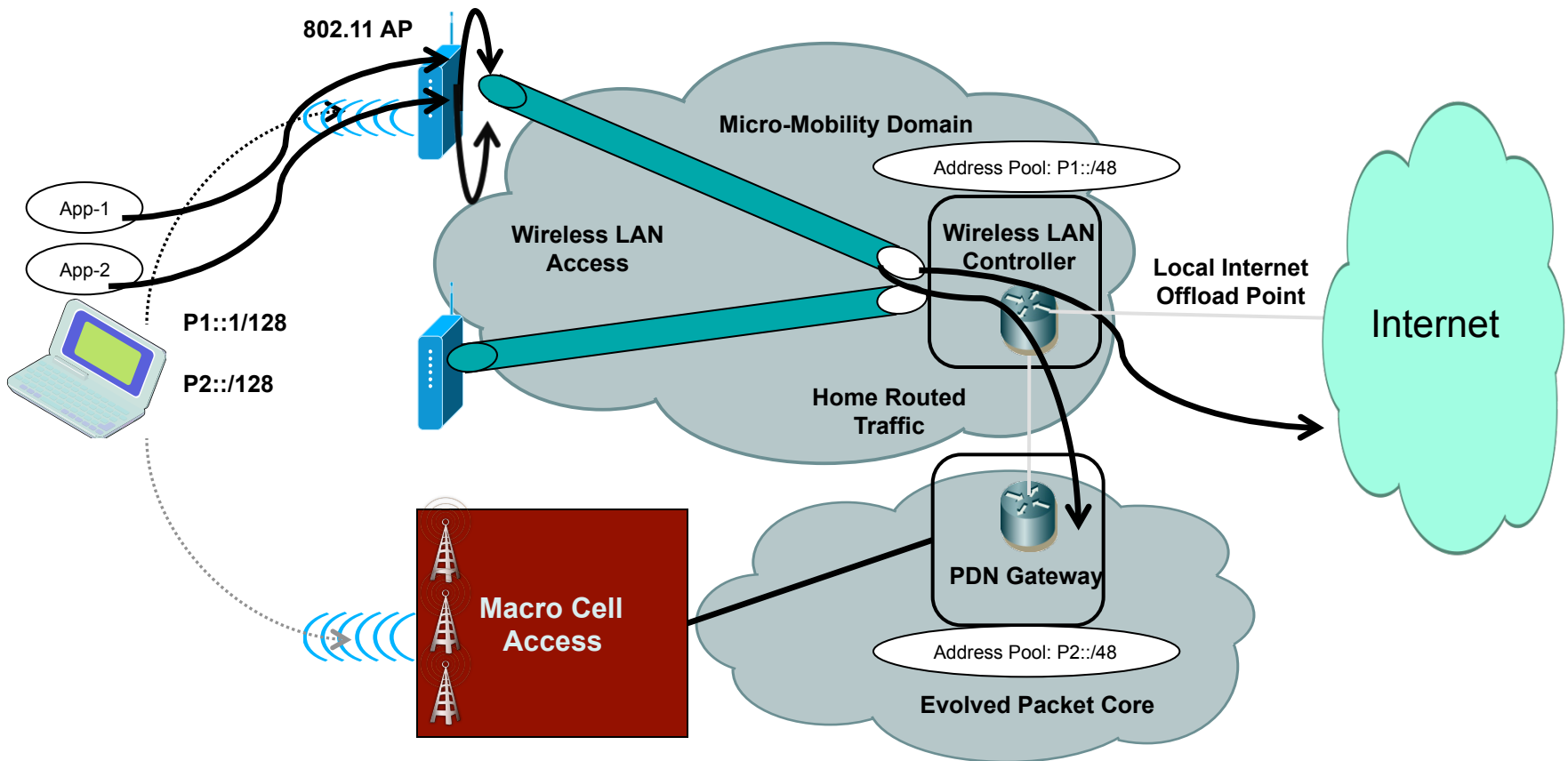
Motivation/Use cases

- **Mobile Network**

- Mobile gateway as a DHCPv6 PD client and a DHCPv6 Server serving DHCPV6 clients attached to it
- **Prefix with different properties.** Example: Prefix can be setup for –
 - **VEHICLE DIAGNOSTICS** - This prefix is intended for assigning the addresses to on-board vehicular computers built-in to the automobile. The routing for these prefixes is not beyond the vehicle's manufacturer.
 - **INTERNET ACCESS FOR END USERS** - This prefix is intended for assigning it to the end users in the vehicle for Internet access.
 - **PREFIX IS FROM LOCAL ACCESS NETWORK, NON-MOBILE PROPERTIES** - PREFIX IS FROM LOCAL ACCESS NETWORK, NON-MOBILE PROPERTIES with no mobility supported.
 - **GLOBAL HOME AGENT ASSIGNED, CHAINED MOBILITY** - This prefix is topologically anchored in the mobile node's home network. It has mobility properties.
 - **MANAGEMENT INTERFACES** - This prefix is intended for assigning them to the management interfaces of the network nodes in the vehicle.
 - **Low latency** suitable for Voice applications

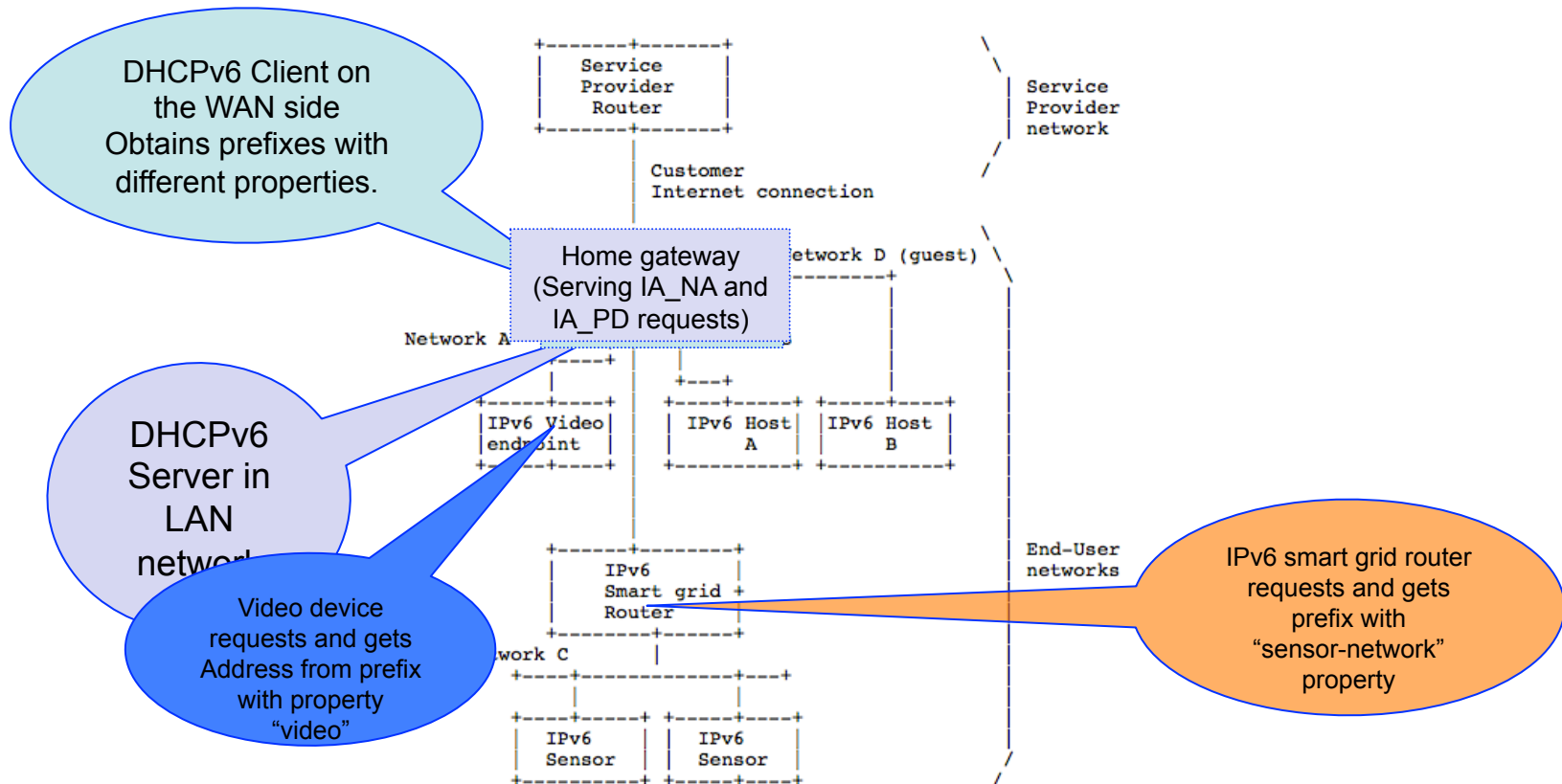
#1: WLAN-EPC Integrated Architecture

- For supporting offload function for certain traffic in chained mobility scenario, the UE needs to use the right source address for the right application flows, based on the offload requirements. The obtained address configuration can be from EPC or from the local domains.



#2: Home Network Scenarios

- **Home network**
 - Evolution of home networks to use IPv6 - IPv6 source address of the hosts used as a parameter for route decision and provide differentiated service for different classes of devices within a home network
 - Home gateway – As a DHCPv6 PD client to SP DHCPv6 Server and the DHCPv6 server for devices in home network
 - **Prefix with different properties.** Example Prefix setup for:
 - IP Television and Video devices – To enable source based routing of video traffic with its QoS demands
 - Guest users – SPs can provide guest users with limited access from home



Problem Statement

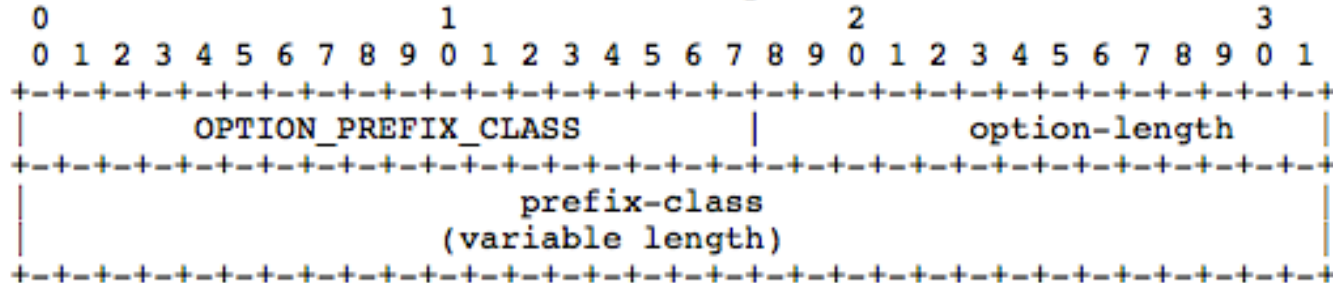
- DHCPv6 Server - can delegate longer prefixes and IA_NA assignments from shorter prefix learnt via DHCPv6 PD (RFC 3633)
 - Further delegation of a delegated prefix– DHCPv6 PD client assuming the role of DHCPv6 Server needs to delegate prefix or assign IA_NA based on prefix property.
- DHCPv6 PD Client – Can request for prefix with specific properties
- DHCPv6 IA_NA Client – Can request for IA_NA from a prefix range with specific properties

DHCPv6 Prefix delegation – DHCPv6 PD provides no semantics to request and associate prefix with specific properties today

Proposed Extension

- New DHCPv6 option to associate Prefix with its properties:

The format of the DHCPv6 Prefix Class option is shown below.



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option-code:   OPTION_PREFIX_CLASS (TBD)
option-length: length of prefix-class
prefix-class:  Prefix class (binary string).

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- DHCPv6 PD client – To include OPTION_PREFIX_CLASS in DHCPv6 Solicit message
- DHCPv6 IA_NA client – To include OPTION_PREFIX_CLASS in DHCPv6 Solicit message
- DHCPv6 Server to include OPTION_PREFIX_CLASS in:
 - OPTION_IAPREFIX option in Advertise messages for Prefix delegation
 - OPTION_IA_NA option in Advertise message for IA_NA assignment

Next Steps

- Authors appreciate feedback from the WG