ME6E-FP and ME6E-PR

draft-matsuhira-me6e-fp-00.txt
draft-matsuhira-me6e-pr-00.txt

Naoki Matsuhira

Fujitsu Limited

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What is ME6E

- Multiple Ethernet - IPv6 address mapping encapsulation
  - Ethernet over IPv6 encapsulation technology
  - break VLAN limitation (4095)
  - unicast routing basis, not emulate learning bridge
    - possible L2 unicast communication without L3 multicast routing
- ME6E-FP and ME6E-PR
  - both use same address / frame format
  - FP(Fixed Prefix) for own routing domain
  - PR(Prefix Resolution) for own / non own routing domain

ME6E Frame format and ME6 address

■ME6E Frame format

IPv6 header	Ethernet header	Payload

- Encapsulate Ethernet Frame with IPv6 header
- There is no Next header value represent "Ethernet"
  - Use EtherIP header ?
  - Request IANA to assign Next header value of "Ethernet"

■ ME6 address format (IPv6 address)

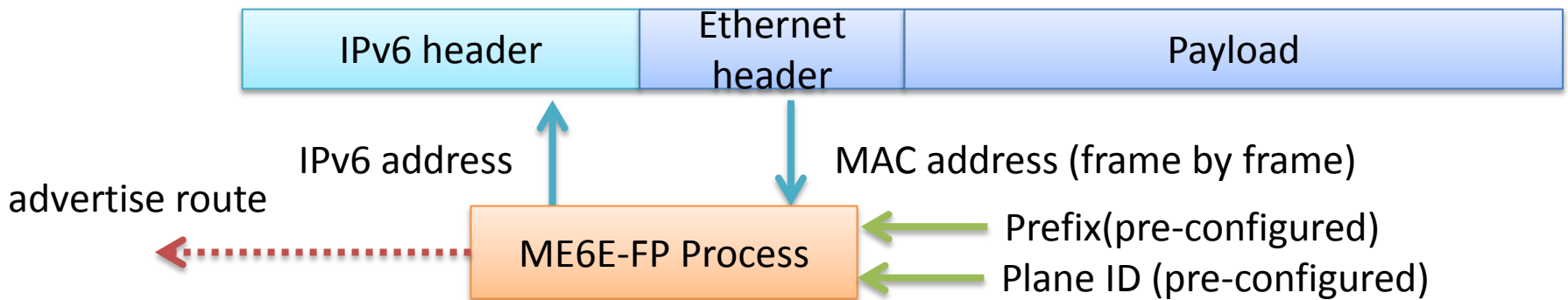| Prefix	Plane ID	MAC address

- Use both source and destination address
- Plane ID = VLAN-ID, tenant ID, VPN ID
  - 16bits Plane ID: 65535 (maybe not enough but better than 4095)
  - 32bits Plane ID: 4.3 billion (can forget limitation)
- How to resolve Prefix value?
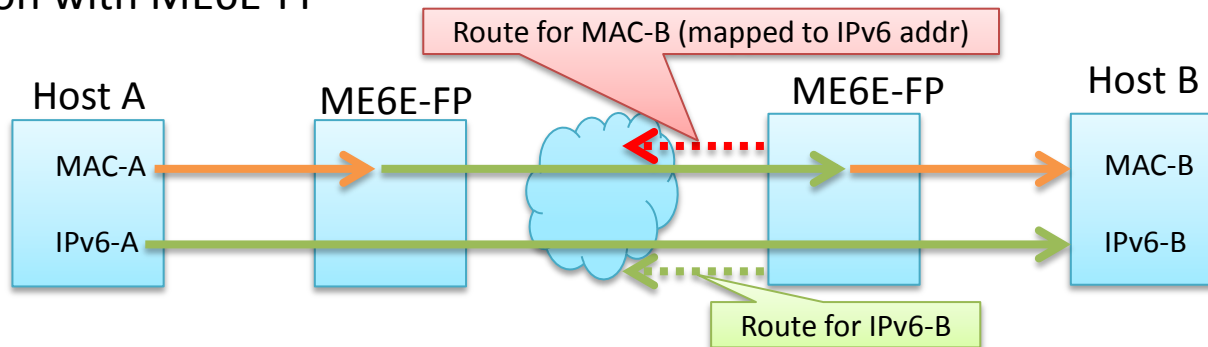 - ME6E-FP (fixed prefix) and ME6E-PR (prefix resolution)

ME6E-FP (fixed Prefix)

■ ME6 address format (IPv6 address)

Prefix	Plane ID	MAC address

■ ME6E-FP Processing

IPv6 header	Ethernet header	Payload

IPv6 address

advertise route

MAC address (frame by frame)

ME6E-FP Process

Prefix(pre-configured)

Plane ID (pre-configured)

■ Communication with ME6E-FP

Route for MAC-B (mapped to IPv6 addr)

Host A

ME6E-FP

ME6E-FP

Host B

MAC-A

MAC-B

IPv6-A

IPv6-B

Route for IPv6-B

ME6E-PR (Prefix Resolution)

■ ME6 address format (IPv6 address)

Prefix	Plane ID	MAC address

■ ME6E-PR Processing

IPv6 header	Ethernet header	Payload

IPv6 address   MAC address (frame by frame)

ME6E-PR Process ← Plane ID (pre-configured)

Prefix   Plane ID and MAC address

ME6E-PR table (pre-configure)

■ Communication with ME6E-PR

Host A   ME6E-PR   ME6E-PR   Host B

MAC-A   MAC-B

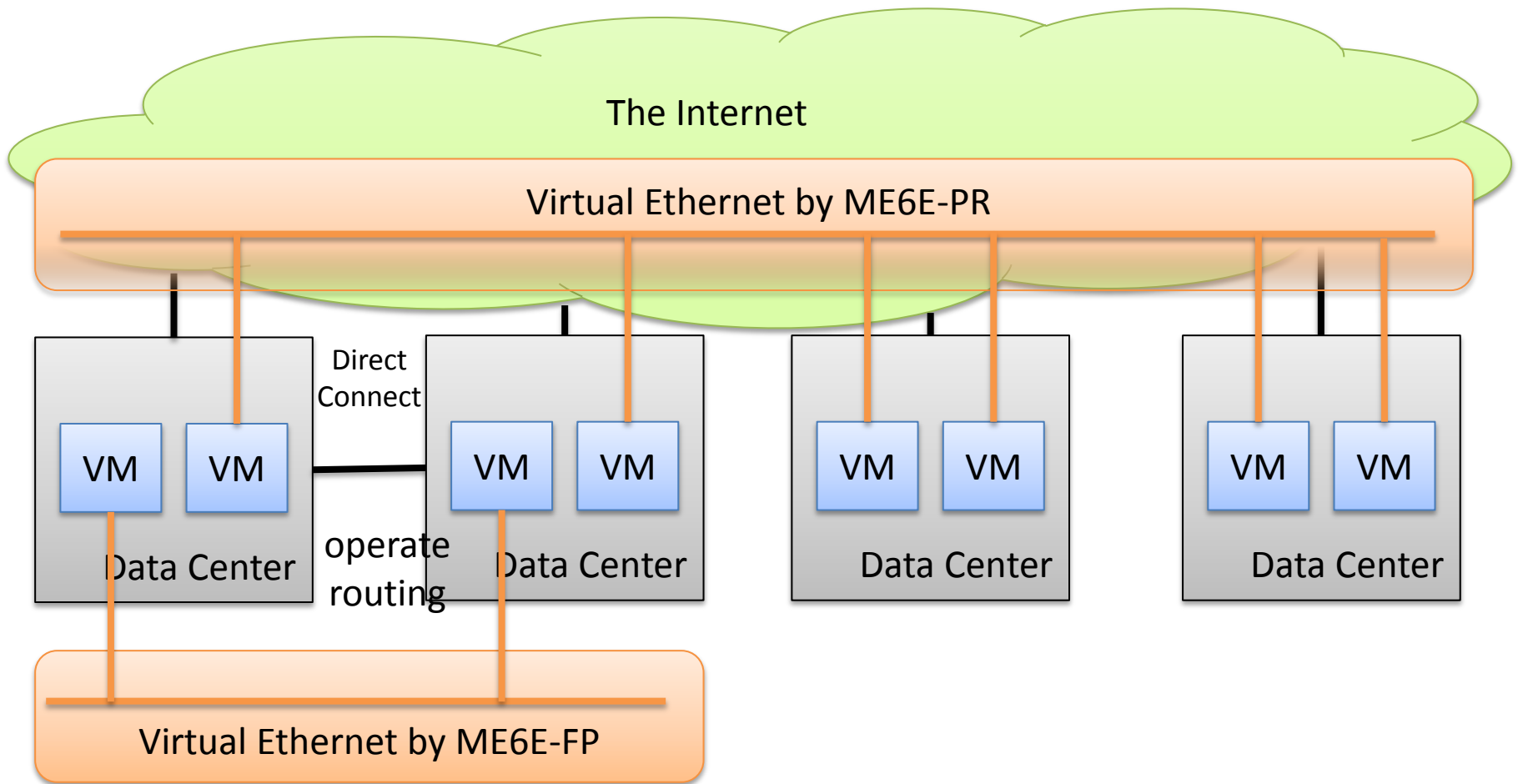IPv6-A   IPv6-B

ME6E-PR table

Route for IPv6-B
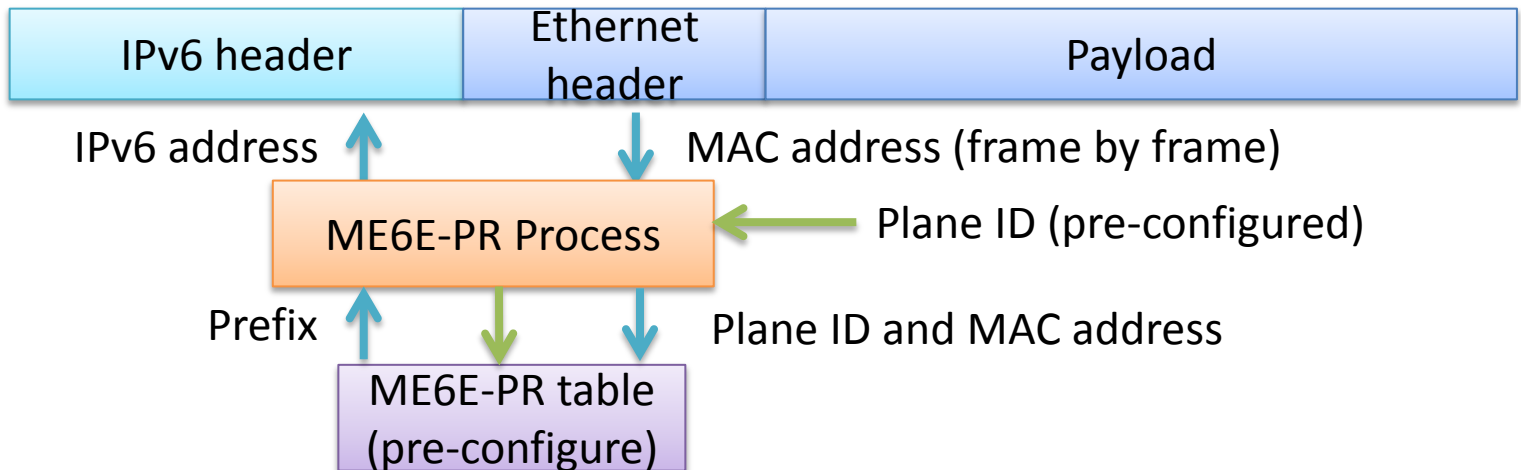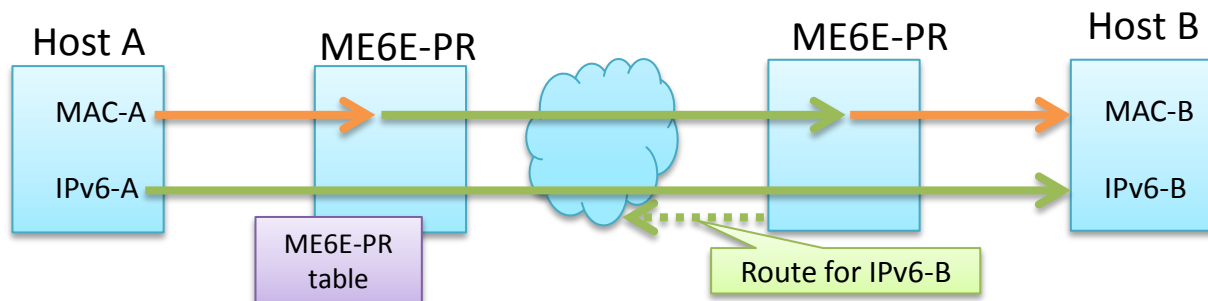
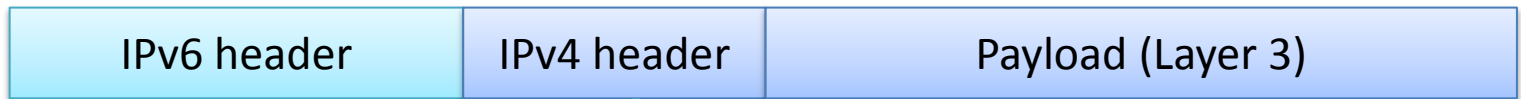# Applicability of ME6E-FP and ME6E-PR

Next Step

- Now preparing related I-Ds (coming soon)

- Interest ?

- adapt WG item ?

backup

SA46T vs ME6E

■SA46T

SA46T frame format

IPv6 header	IPv4 header	Payload (Layer 3)

IPv6 address

IPv4 address

SA46T Process ← Plane ID

SA46T address (IPv6)

Prefix	Plane ID	IPv4 address

■ME6E-FP   ME6E frame format

IPv6 Header	Ethernet Header	Payload (Layer 2)

IPv6 address

MAC address

ME6E-FP Process ← Plane ID

ME6 address (IPv6)

Prefix	Plane ID	MAC address