

draft-wu-mip4-ether-00

MIP Extension for Ethernet Service Support

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Outline

- Why is the MIP extension for ethernet service support needed?
- Basic Rational for ethernet service support
- How to support ethernet service in the MIP scenarios?

Scenario 1: Switched Ethernet Access Network

- Different access networks share the same ethernet service provider
- Pure ethernet service support for the access networks.
- Interoperable implementations of various access networks in which Ethernet aggregation is used over IP-based tunnels for the data paths between the foreign agent in different access network and the home agent in the core network.

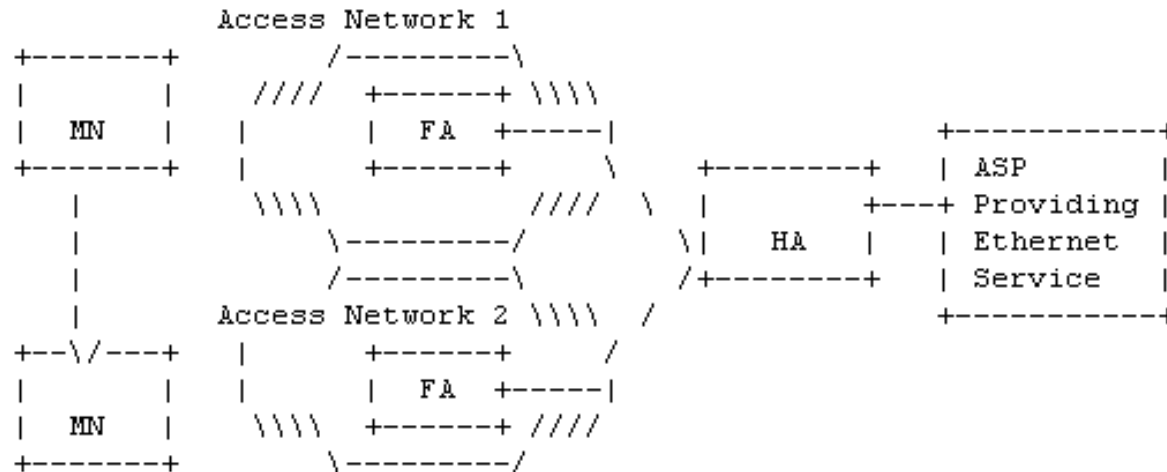


Figure 2 Switched Ethernet access network

Scenario2: Coexistence of services for the same access network

- The ASP provides ethernet service contains the bridging function for forwarding Ethernet frames between MN and the Ethernet Service provider
- The MSP provides IP service (e.g., Internet) delivered between the foreign agent and the home agent through the same access network.

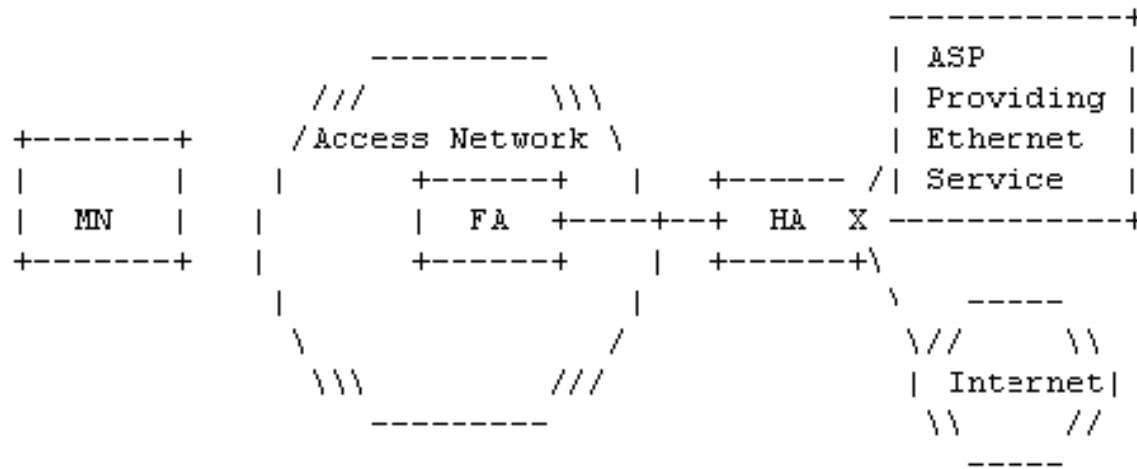


Figure 1 Coexistence of IP services and Ethernet services for the same access network

MIP Extension Rational for Ethernet Service Support

- Provide transparent layer 2 connectivity between the MN and the ethernet service provider
- The communication between the MN and the home agent needs to be modified to support Ethernet frame transport.

How to provide L2 connectivity between MN and ASP

- Mobile Node Consideration
- Foreign Agent Consideration
- Home Agent Consideration

Mobile Node Consideration(1)

- Authenticated for network access and authorized for the specific Ethernet service.
- Pre-provision a L2 connectivity for ethernet service between the MN and the FA.

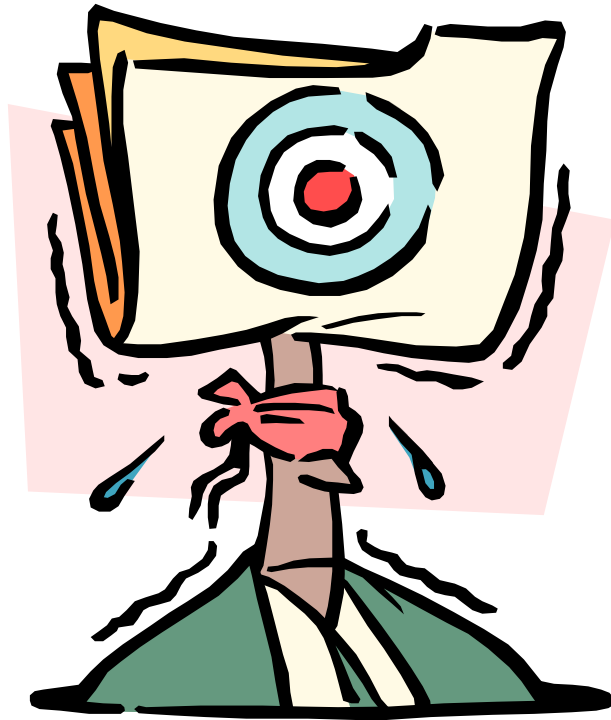
Foreign Agent Consideration(2)

- Extension to registration tables for the foreign Agent
 - MN's MAC address and GRE key will be included in the extended registration tables
- Foreign Agent Operation
 - Send binding registration with MN's Mac Address
 - Bind MN's MAC address, GRE key to the FA CoA in its own registration tables
 - Identify the MN to which the frame must be delivered

Home Agent Consideration(3)

- Extension to registration tables for the home Agent
 - MN's MAC address and GRE key will be included in the extended registration tables
- Home Agent Operation
 - Bind the MN's MAC address contained in the Ethernet extension to the FA CoA
 - Capturing the Ethernet frames on the home link destined to the registered MN's MAC address and forwarding those frames to the FA via GRE tunnel
 - Start tunneling the frames on the home link destined to the host MAC addresses behind MN with learnt host MAC address

Feedback?

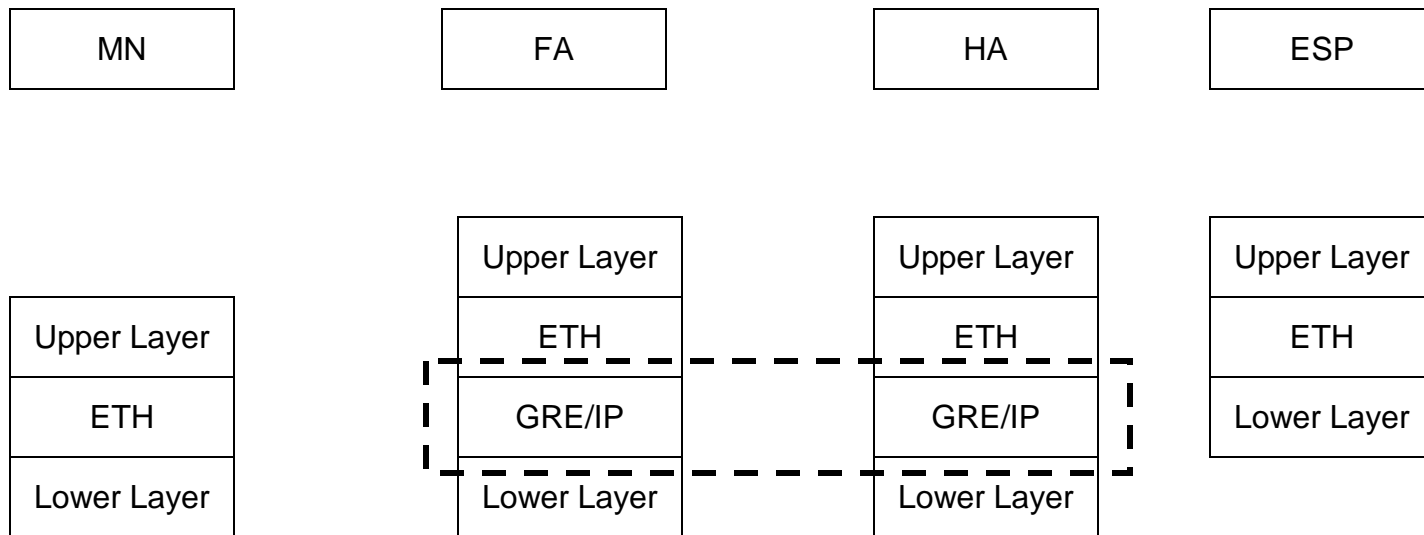


Questions

- Who is going to be a customer for this kind of technologies ?
- How the mobile user has a ethernet frame?
- Where this technology could be used ?
- Whether MIP4 Co-locate CoA mode can be considered to support ethernet service transport?

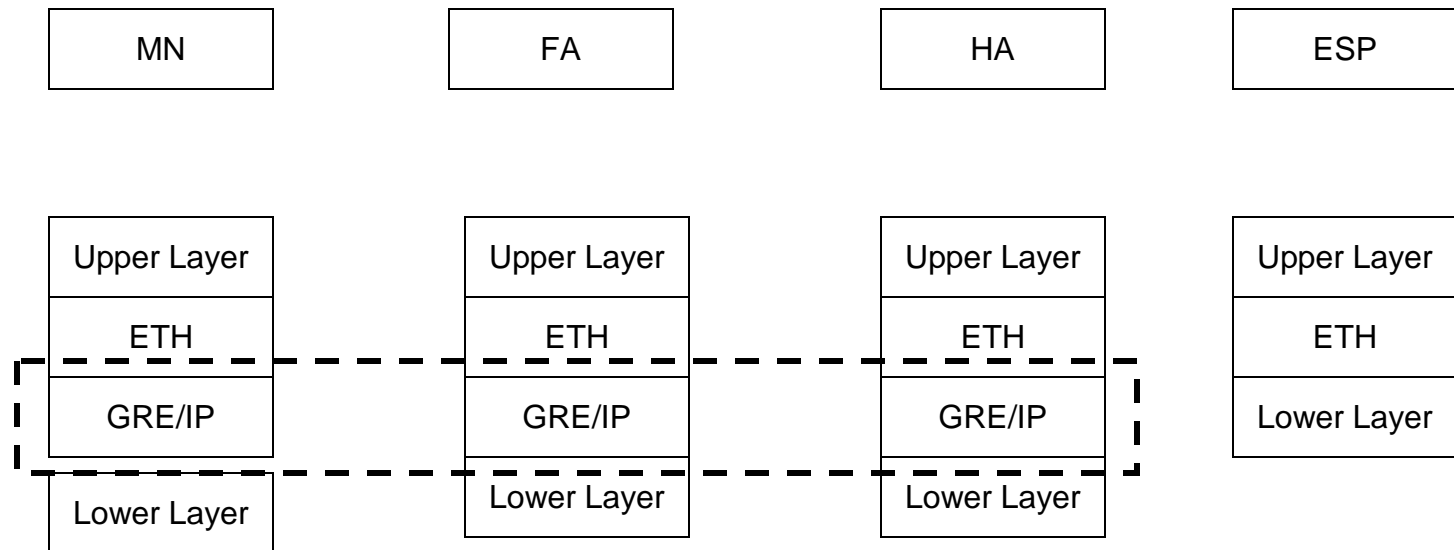
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Layered Model for the Scenario 1



ESP: Ethernet Service Provider

Layered Model for the Scenario2



ESP: Ethernet Service Provider

Open Issue:

Any other scenarios

- the two scenarios as described above are mainly based on Ether over MIP/PMIP
- Besides, some other scenarios can be considered here, e.g., MIP over Ethernet, MIP over PBB/PBT.