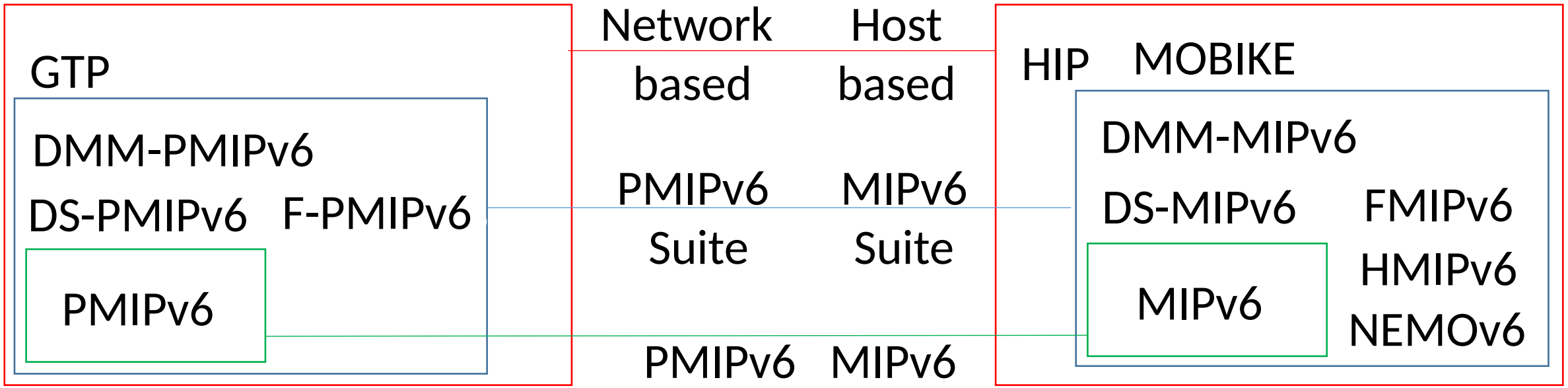
Mobility Capability Negotiation and Protocol Selection

draft-yan-dmm-man-05

Presenter: Zhiwei Yan

@IETF 106

Categories



- PMIPv6: the network-based mobility management protocol specified by RFC5213
- PMIPv6 Suite Protocols: extensions based on PMIPv6
- Network-based mobility management protocols: L3 mobility management protocols which have no functional requirements on the mobile node
- MIPv6: the host-based mobility management protocol specified by RFC6275
- MIPv6 Suite Protocols: extensions based on MIPv6
- Host-based mobility management protocols: L3 mobility management protocols which have functional requirements on the mobile node

Possible Cases

Host			Scenarios	Network		
Network based	PMIPv6 suit	PMIPv6	X	PMIPv6	PMIPv6 suit	Network based
		DS-PMIPv6		DS-PMIPv6		
		F-PMIPv6		F-PMIPv6		
		DMM-PMIPv6		DMM-PMIPv6		
	Others	GTP		GTP	Others	
Host based	MIPv6 suit	MIPv6	Which protocol will be used?	MIPv6	MIPv6 suit	Host based
		DS-MIPv6		DS-MIPv6		
		FMIPv6		FMIPv6		
		HMIPv6		HMIPv6		
		DMM-MIPv6		DMM-MIPv6		
		NEMOv6		NEMOv6		
	Others	HIP, MOBIKE		HIP, MOBIKE	Others	

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Principles

- Priority 1: Follow network ability
- Priority 2: Follow host preference
- Priority 3: Support the functional extensions
- Priority 4: Support the performance enhancements
- *In default: network based scheme if it can be supported*

- If the host prefers host-based protocols, a negotiation is executed to handover from network-based protocol to host-based protocol.
- After initial attachment, a profile will be generated in the management store to record the selected or preferred protocol of this host.
- When the handover happens, the network will check the selected or preferred protocol. But the network also needs to notify the host if the selected protocol cannot be supported herein.

Case Example

Host	Network

- Network based, Network based
  - PMIPv6 Suite, PMIPv6 Suite
    - PMIPv6, PMIPv6-------PMIPv6
    - PMIPv6, Extensions-PMIPv6------Extensions-PMIPv6 if no MN involvement, otherwise PMIPv6
    - Extensions-PMIPv6, PMIPv6------PMIPv6
    - Extensions-PMIPv6, Extensions-PMIPv6------Extensions-PMIPv6 if same, otherwise PMIPv6
  - PMIPv6 Suite, Other-N
    - PMIPv6, Other-N------Other-N if no MN involvement, otherwise failure
    - Extensions-PMIPv6, Other-N------Other-N if no MN involvement, otherwise failure
  - Other-N, PMIPv6 Suite
    - Other-N, PMIPv6------PMIPv6
    - Other-N, Extensions-PMIPv6------Extensions-PMIPv6 if no MN involvement, otherwise PMIPv6
  - Other-N, Other-N
    - Other-N if same, otherwise follow network ability

**Other-N: other network based solutions*

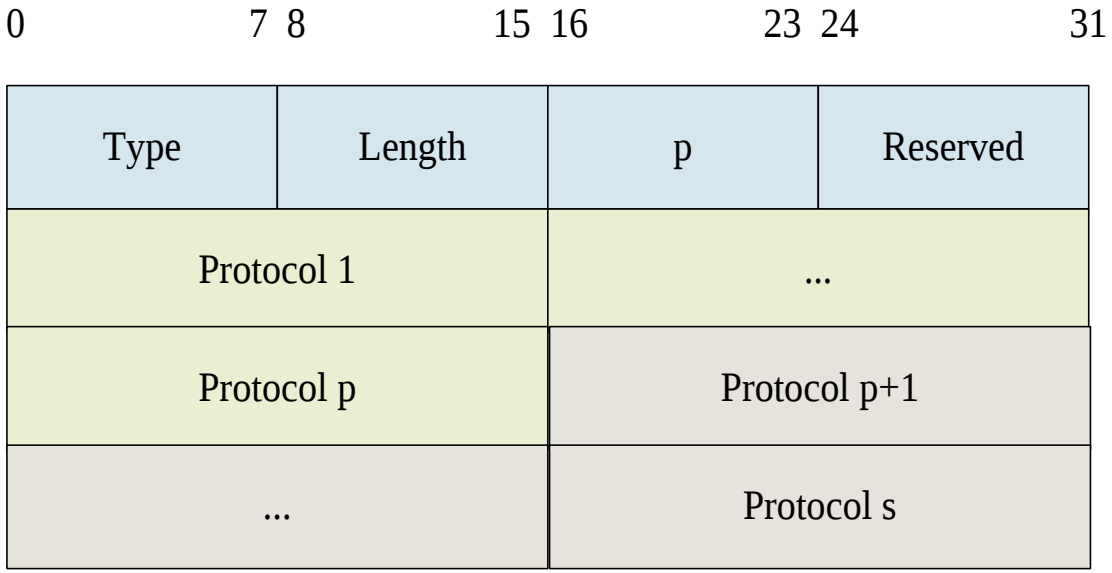
Possible solutions

- ICMPv6
- IEEE 802.21
- RADIUS/Diameter

- Host-initiated
- Network-initiated

Possible solution: ICMPv6 based

- A new option under ICMPv6 is proposed: Mobility Capability (MC) option with a corresponding “C” flag in the RS/RA messages



"Type" indicates that this option is of the type MC.

"p" is the number of preferred protocols.

"Protocol 1" to "Protocol s" is a list of s supported protocols, which can be selected.

Out of the s supported protocols, the first p protocols are ones preferred by the network and the terminal, listed in the order of preference.

Thank you for your attention~

Next Step?