Hierarchical Mobile IPv4/v6 and Fast Handoffs

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HMIPv4v6 and Fast Handoffs

- Support of delay-sensitive (real-time) services in domain
- Achieve local mobility using Mobile IP with extensions (Regional Registrations : no new “local” protocol)

Two parts to the I-D:

1) HMIPv4 (Regional) extensions
   - Fast Handoffs
   - Elimination of triangle routing within domain

2) HMIPv6
   - New Mobility Anchor Point (MAP) node
   - Fast Handoffs in HMIPv6
Fast Handoffs to achieve (near) seamless mobility at the IP-level

- Use Regional Registrations with Simultaneous bindings (to GFA or Intermediate Regional FAs)
- MN connects to single radio access point: receive “new” advertisements through “old” APs/RANs (→) and “Eager” to Register, “Lazy” to abandon
Reduced Triangle Routing in HMIPv4

- Elimination of triangle routing within hierarchical domain
- Use of “shortest route” through Regional FAs or through GFA
- Deregistration (also needed for Fast Handoffs)
Why HMIPv6 ?

• Fast Handoffs between Access routers or Different Access Networks (Important for Real time services)
• Reduced signalling messages to HA and CNs
• No new Protocol for IPv6 Mobility Management (only minor extensions to MIPv6)
• May be used for AAA (“Hierarchical Attendant”)
• Smooth Architectural Migration from HMIPv4
• NOTE: This is not an introduction of an FA in MIPv6
HMIPv6 Overview

- Movement is transparent to HA and CN
- MAPs can be located on different layers and used simultaneously

MN -> AR1/MAP2 -> MAP1

BU COA=MAP_Addr

HA -> MAP1

Home Reg
COA=MAP_Addr

MAP Reg
COA=MN_Addr

AR1/MAP2 -> CN

BU

AR2

AR3
MAP Discovery

MAP Option

MAP option is propagated on chosen interfaces via Router advertisement
Fast Handoff

- CN
- HA
- MAP
- AR1
- AR2
- AR3
- MN

1. MN sends AR2_rtr_adv to AR1.
2. MAP receives Bicast Request and sends Rtr_adv to AR2.

BU
Fast Handoff (cont.)

Diagram:
- CN
- HA
- AR1/MAP
- AR2
- AR3
- MN
- MAP

Arrows:
- MAP Reg COA=New_Addr
- MAP
- AR2
- AR3
- MN
- AR1/MAP
- HA
- CN