Support for Mobile NHRP Devices

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Auto Configuration of NHRP Clients

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“Painful” Task

• Configuration of large number of Clients
  – Physical topology changes:
    • Clients Move & # Increases/Decreases
    • Servers Move/Disappear
  – Logical topology changes
    • LIS membership changes
    • New LISs are generated
  – LIS is very dynamic
Auto Configuration of NHRP Clients

• When we need it?
  – When NHS (NHRP Server) moves
  – When NHC (NHRP Client) moves
  – When LIS membership changes
  – (Always if NHRP supports more than one LIS)

• Why not Configuration Server?
  – Configuration server needs “Configuration” for all the above cases
Automatic Configuration for NHRP Devices

- A Terminal accesses ANY NHS via ATM anycast capability.
- An NHS forwards the NHRP Register packet towards the terminal’s home NHS if this packet is not originated by an terminal which this NHS serves.

Each terminal does not have to know actual ATM address of its NHS.
Support for Mobile NHRP Devices

• A Terminal accesses the home NHS or foreign NHS via **ATM anycast capability**.

• An NHS **forwards the NHRP Register packet towards the terminal’s home NHS** if this packet is not originated by an terminal which this NHS serves.
Fig. 1  One possible solution and problem when access an NHS by ANYCAST
Fig. 2  Proposed Scheme
Fig. 3  Automatic Configuration for joining multiple LISs
Fig. 4 Another Solution
Registration Forwarding

• Only “Registration Request” is forwarded via intermediate NHRP servers to the home server.

• But “Registration Reply” directly sent back to the source across the ATM networks
Authentication

• Since only the home NHRP Server should hold the secure authentication information for each terminal,
• the foreign NHRP server does not carry out Authentication extension for each “Registration Request”
• End-to-End Authentication Extension needed
Why we call “Mobile”?

• Virtual LAN based on LIS capability provides “Terminal Mobility” as well.

• M-NHRP = Logical ID (IP) + Location ID (ATM)
• Mobile IP = Logical ID (IP) + Location ID (IP)

• If we have auto-address registration mechanism everywhere in the same NBMA, we could easily extend LISs over inter- (building / campus / area) ATM nets.
Mobile IP or Mobile NHRP?

• “When you move and if you do not need to change your IP address, then use Mobile NHRP.

• When the terminal moves
  – Within the same NMBA, you can use the same IP, so you can use M-NHRP
  – Over the different NBMAs, you may need the different IP Address, then must use Mobile-IP
  – Outside ATM networks, you may need the different IP Address, then must use Mobile-IP