

# **Support for Mobile NHRP Devices**

NEC & CiTR

# **Auto Configuration of NHRP Clients**

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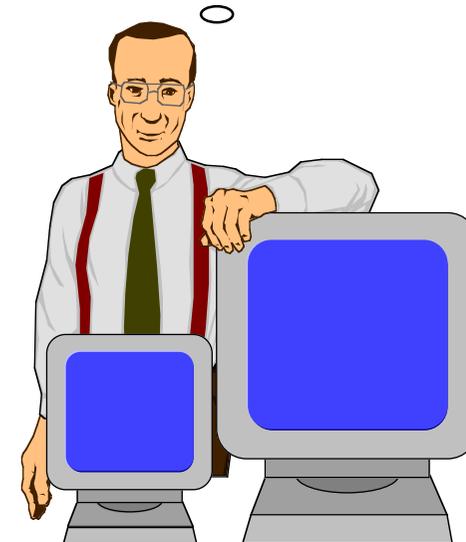
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# “Painful” Task

- 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



**Configuration**

# 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.

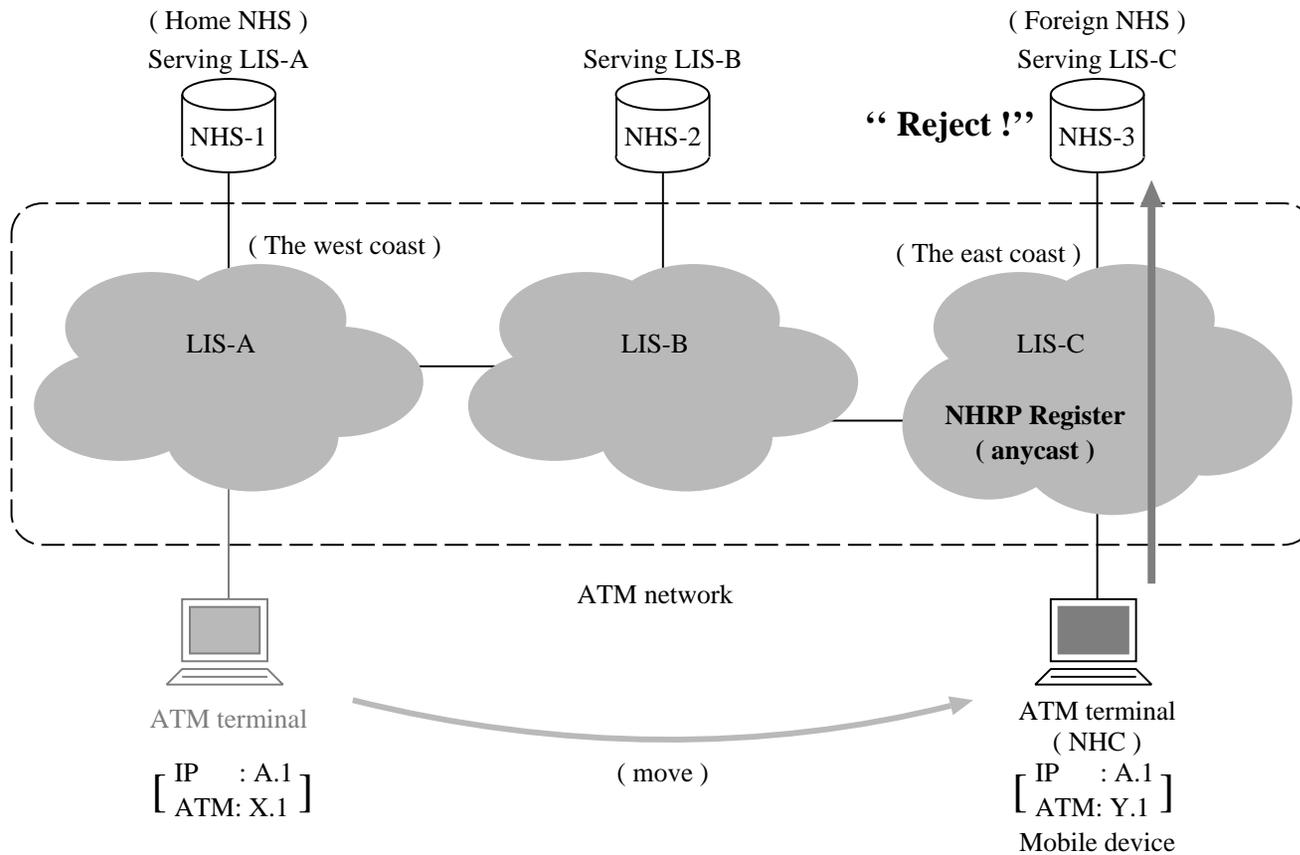


Fig. 1 One possible solution and problem when access an NHS by ANYCAST

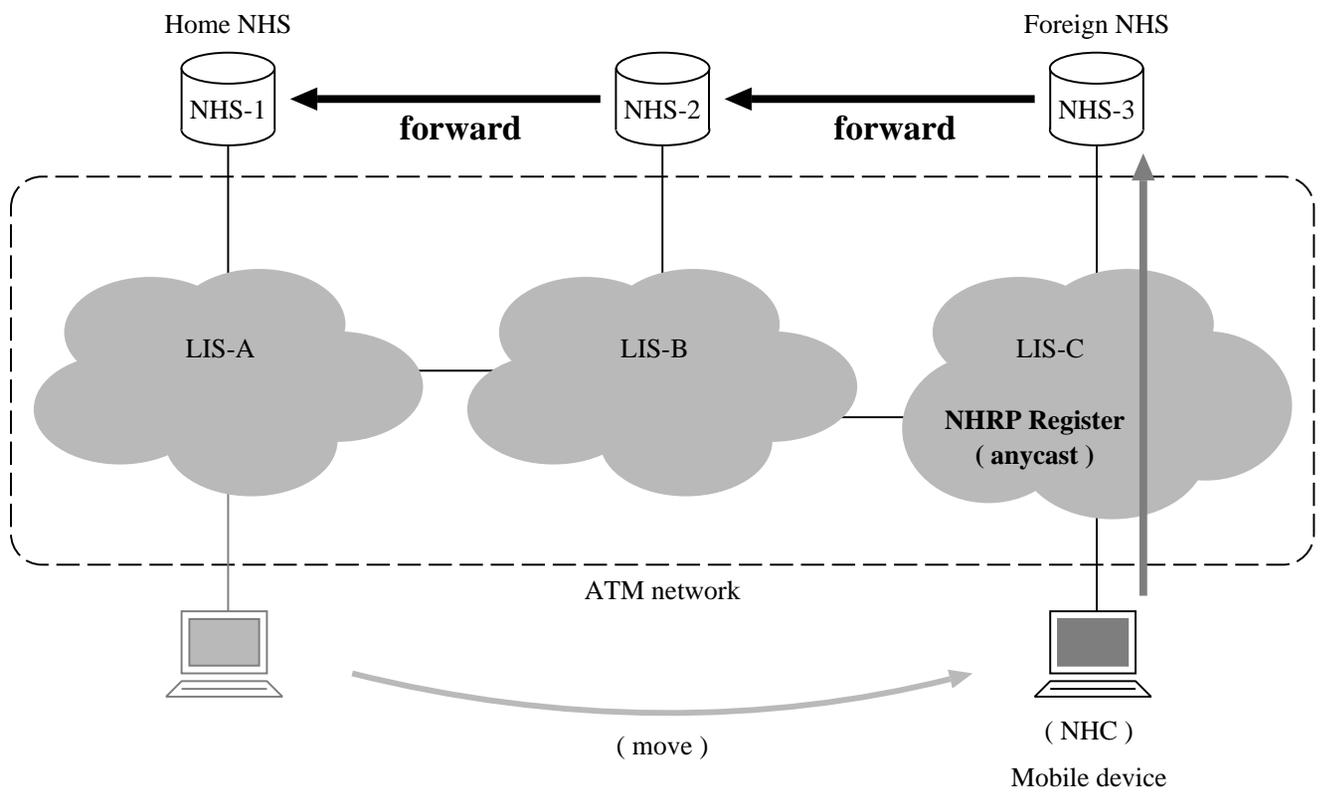


Fig. 2 Proposed Scheme

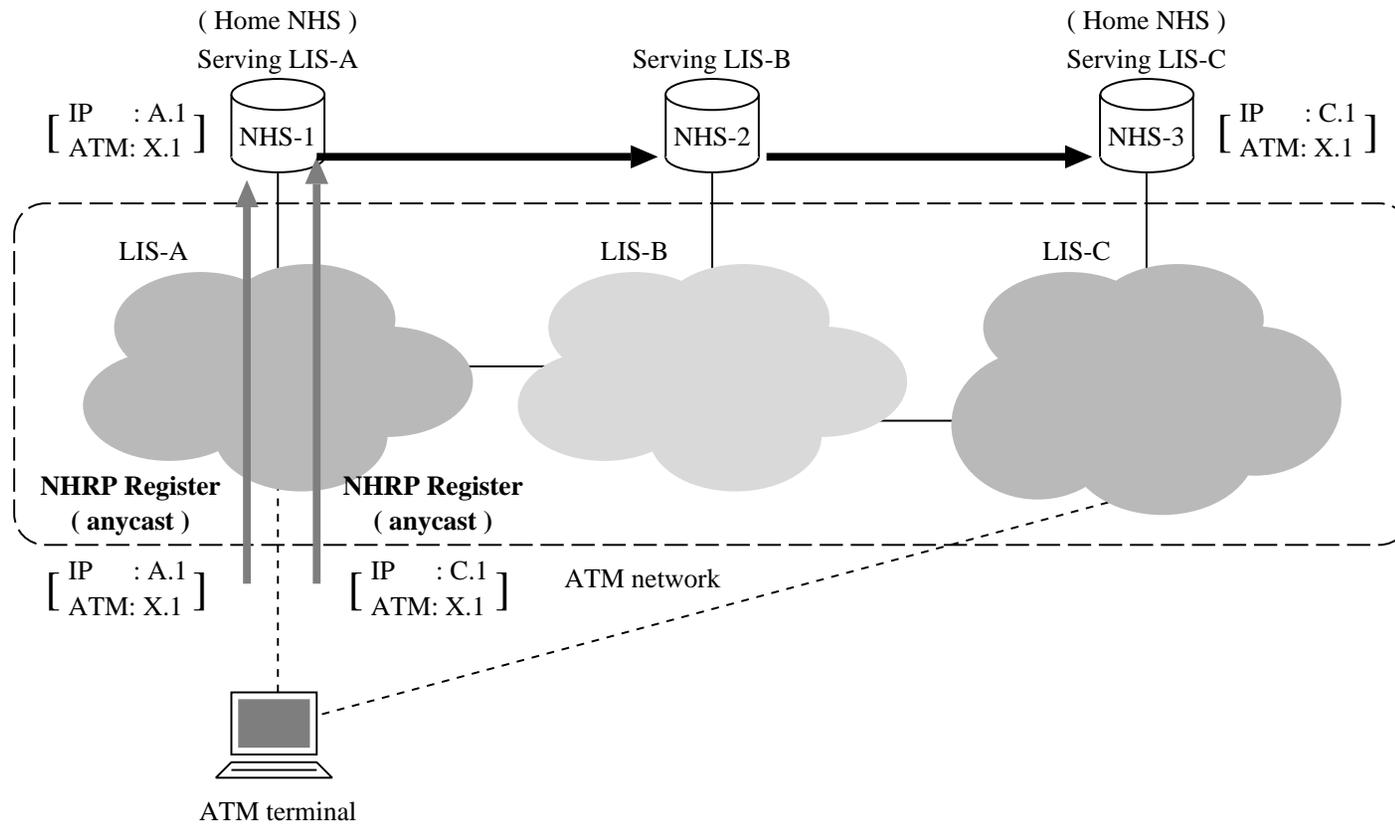


Fig. 3 Automatic Configuration for joining multiple LISs

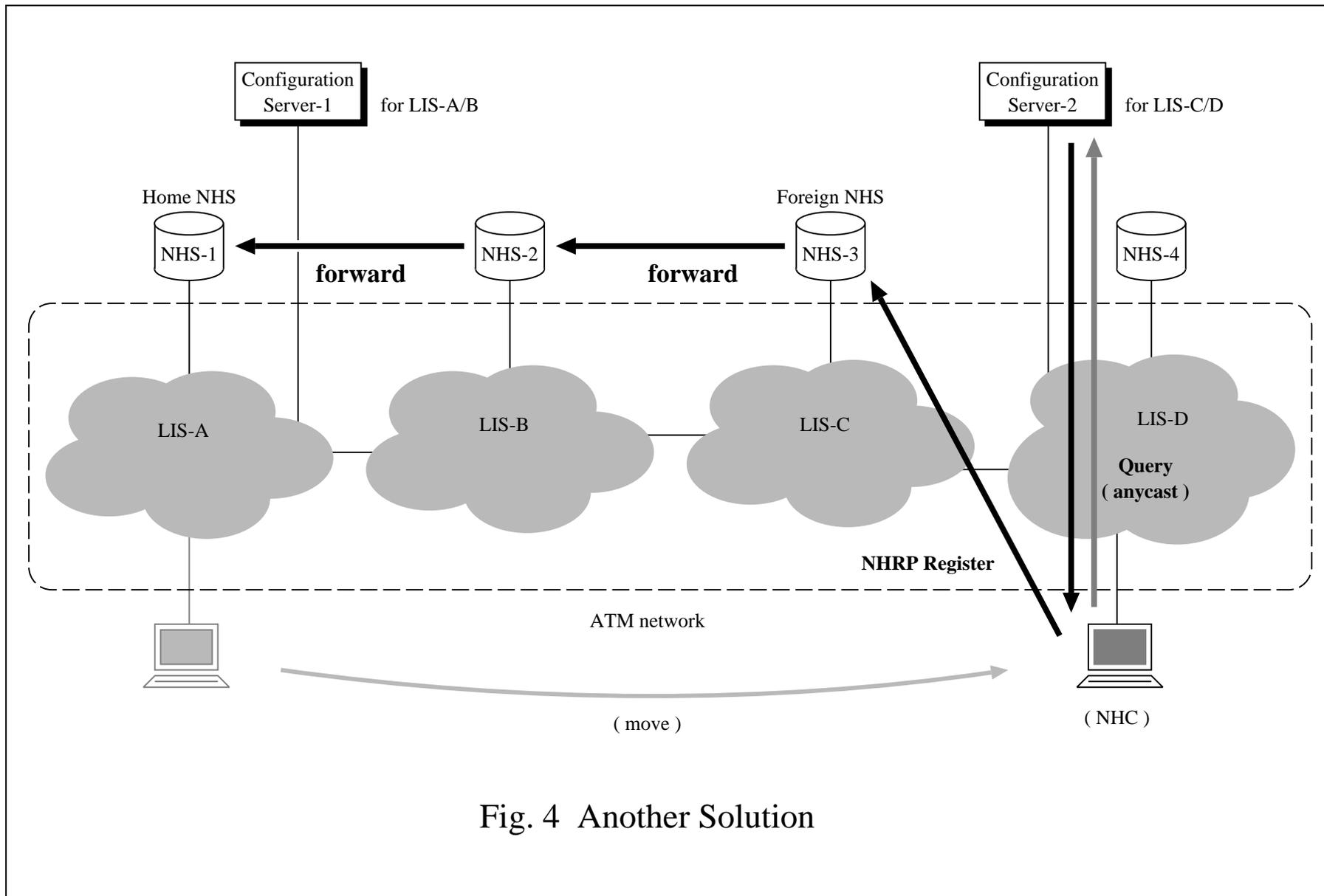


Fig. 4 Another Solution

# 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 NBMAAs, 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**