

Lecture 16

CS625: Advanced Computer Networks
Fall 2004

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<http://www.cse.iitk.ac.in/users/braman/courses/cs625-fall2004/outline.html>

Topic for Today

- TCP over wireless (from previous class)
 - Snoop clarifications
 - Asymmetric links
- Mobile-IP
- *Scribe for today?*

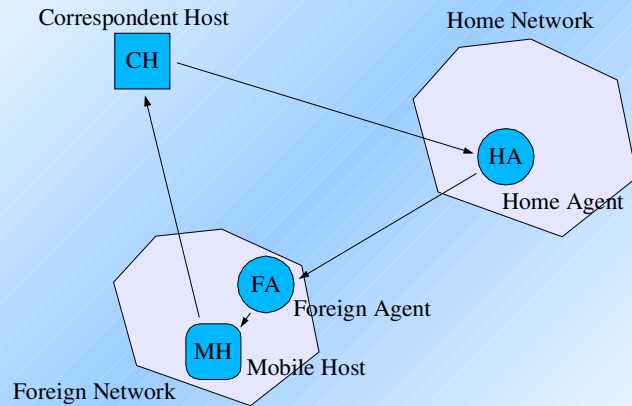
Mobile Hosts on the Internet

- Internet routing is tightly coupled with addressing
 - *Identity* and *location* are tightly coupled
 - Hierarchical routing and addressing
- How to separate identity from location?
 - Add a *level of indirection*

A Level of Indirection

- Location registry maintains current location of Mobile Host (MH)
 - That is, the current address
- Cannot change fixed hosts (immediately)
 - Cannot expect them to query the registry
- Also, the registry needs to scale
- Registry + Redirection in *home network*

Mobile-IP Architecture



Mobile-IP (continued)

- MH *discovers* FA, and *registers* to obtain a *care-of-address*
- MH *registers* with HA, updates the *mobility binding* at the HA
- Some implementation mechanisms:
 - Proxy-ARP in the Home Network by HA, for MH
 - Packet tunneling between HA and FA
 - *Encapsulation* using IP-in-IP, or
 - Loose-source routing

Security Considerations

- MH registering with HA
 - Needs to be authenticated, to prevent redirection attacks
 - Can use shared key to authenticate
 - Should protect against replay attacks
- *Cache Agent* at CH, to prevent triangle routing
 - CH has to be mobility aware
 - Binding at CA has to be authenticated
 - Sharing key between CH and HA is complicated
 - Authenticate using *nonce*

Hand-Off

- When MH moves from one FA to another
 - Latency involved
 - Notify previous FA immediately, OR
 - Simultaneous binding
- Binding update at old FA has to be authenticated
 - Can be done using authenticator established during period of registration with old FA
- **Next class:** Multicast (assigned reading)