Mobile-IP Basic

- **Mobile Host (MH)**
  - obtain care-of (C/O)address
    - foreign agent: router or BS that is willing to route
    - temporary IP (i.e. DHCP)
  - register with home agent

- **Home Agent (HA)**
  - maintain C/O address for MH away from home network
  - intercept packets for MH (proxy-ARP)
  - encapsulate and tunnel to C/O address

- **Foreign Agent (FA)**
  - Advertisement: (i.e. extending ICMP-router advertisement)
  - Decapsulate packet and deliver to MH
Route Optimization

• Binding
  • home address --> care-of address
  • life time: timeout

• Cache Agent
  • maintain location cache: direct tunneling
  • flush out or request update entries that timeout
  • binding update from HA: update cache
  • binding advise: request new binding from HA

• Home Agent
  • send binding update upon receiving normal IP for MH
  • back-off to prevent lack of cache agent at sender
Authentication

• Registration (MH to HA) message includes:
  • MD-5 checksum with pre-established shared secret
  • sequence number => prevent replay

• Binding Update (HA to CH) message:
  • nonce: random number used only once
  • trusted nodes along the path (IP trust level)

• MH - FA:
  • upon registration, establish shared key (clear text)
  • when move away, send binding update to old FA with MD-5 checksum
encap, tunnel

{registration} MD5

HA

FA

decap

MH

normal IP-routing

{binding request & update} nonce

optimized tunnel

{bind update} MD5

new FA

CH

$A

share secret