

Mobile Communication

Summer 2008

Matthias Frank, Peter Martini;
Christoph Barz, Christoph Fuchs, Lukas Pustina, Christian de Waal

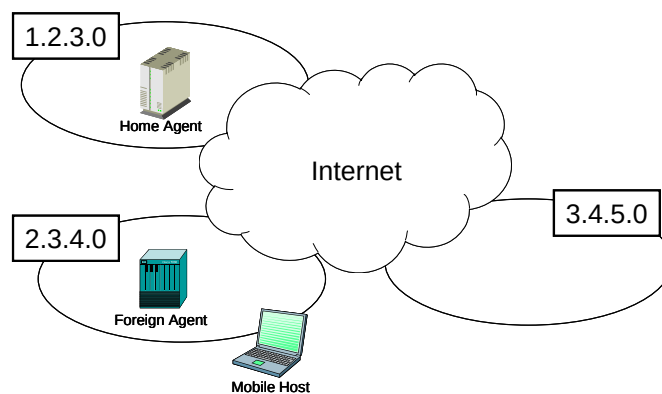
Assignment Sheet #2

Release date: April 22, 2008.

Discussion dates: Tuesday April 29, 2008

Exercise 3: (Mobile IPv4)

Mobile IPv4 is a network layer solution for host mobility, i.e. while changing its point of attachment towards the Internet, a mobile host is reachable via its home address. Furthermore, this solution is transparent to the transport and higher protocol layers.



In order to get aware of the involved entities and signaling, perform the following tasks:

- Sketch the signaling (= exchange of configuration messages) that must be performed when the Mobile Host (Home Address is 1.2.3.2) moves from its home network (Home Agent address is 1.2.3.1) to the visited network 2.3.4.0 containing the Foreign Agent with address 2.3.4.1.
- Sketch the signaling that must be performed when the Mobile Host moves further from network 2.3.4.0 to the network 3.4.5.0 where the mobile node gets the co-located care-of address 3.4.5.124.
- Sketch the signaling that must be performed when the Mobile Host returns back to its home network.

For a detailed description of Mobile IPv4 take a look at the Request for Comments 3344 (IETF).

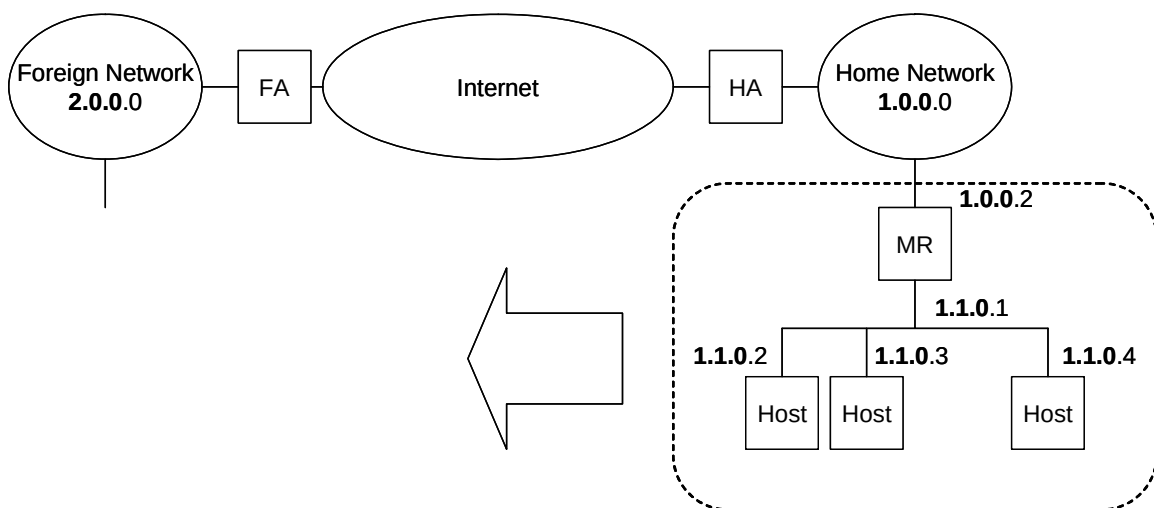
Exercise 4: (Mobile IP, Routing)

Two mobile nodes (with different home networks) visit the same foreign network and communicate with each other (using their permanent home IP addresses).

- Depict the differences between using Triangle Routing, Reverse Tunneling and Route Optimization in this scenario. Also think of combinations of these, i.e. the two mobile nodes use different schemes each.
- What are the differences in using a Foreign Agent care-of-address or a co-located care-of-address in this scenario?

Exercise 5: (Network Mobility)

In the lecture Mobile IP was presented for single mobile hosts. Think about a moving network (e.g. a plane, train or bus). The moving network is connected to other networks via one router (mobile router, MR).



- Think about challenges and solutions. You may find some hints at the meanwhile closed IETF WG: <http://www.ietf.org/html.charters/OLD/nemo-charter.html>

[Current developments and special topics in the field of network mobility can be found at <http://www.ietf.org/html.charters/mext-charter.html>]

- What happens when a mobile node (with its own home agent) wants to enter the mobile network as a visiting node? Depict the paths of data packets to and from an arbitrary corresponding node to the mobile node, highlight where and between which entities tunneling takes place.