

DHCP Based Configuration of Mobile Node from Home Network

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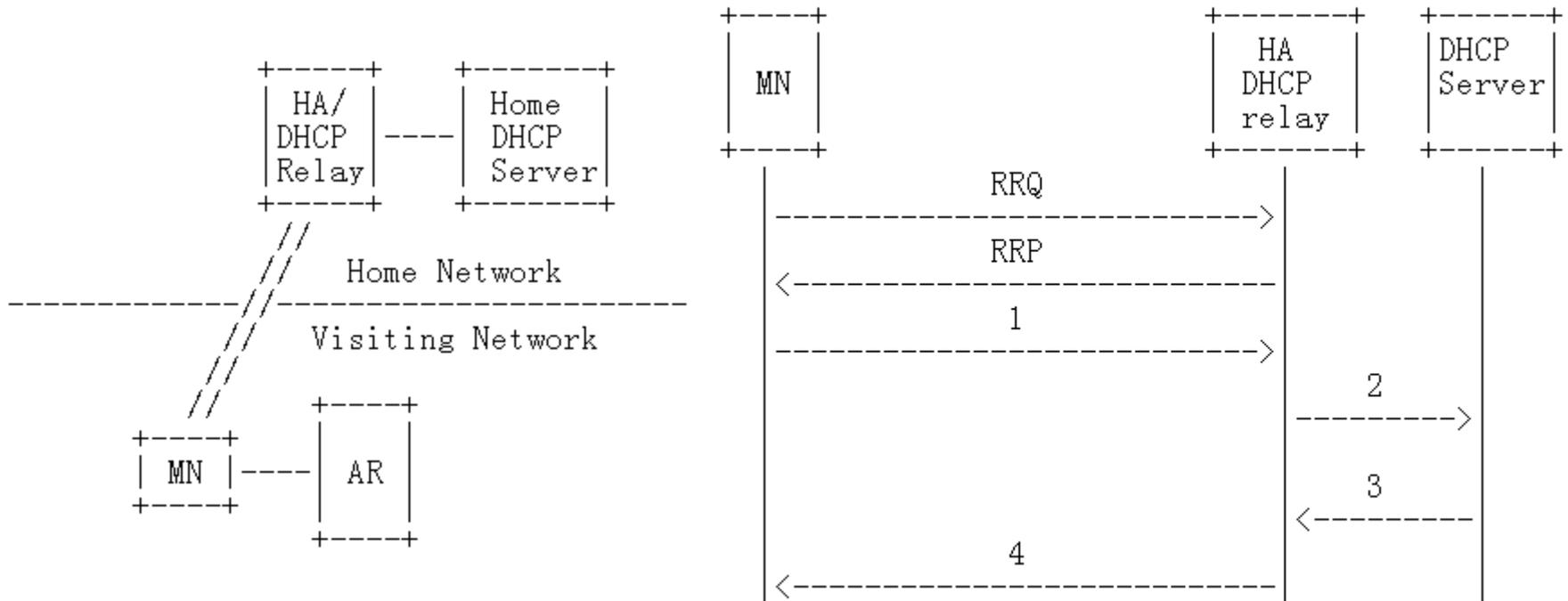
Basic Idea

- providing the host configuration parameters needed for network service from home network based on DHCPINFORM.
- Mobile IP specification could support DHCPINFORM broadcast or unicast message straightforwardly without any revision.
- Assumption : a mobile node has obtained a network address through some other means

Three Scenarios

- Co-CoA case
- FA-CoA Case
- Home DHCP server address known

MIP4 Co-CoA case and sequence



Message 1

IP fields (encapsulating header):

Source Address = mobile node's home address

Destination Address = home agent's address

Protocol field: 4 (IP in IP)

IP fields (original header):

Source Address = mobile node's home address

Destination Address = broadcast address

UDP Src Port: bootpc(68), Dst Port: bootps(67)

Bootstrap Protocol:
field:

ciaddr = mobile node's home address

chaddr = mobile node's MAC address

options:

option 53: DHCP Message Type = DHCPINFORM

option 61: Client Identifier = mobile node's MAC address

option 55: Parameter request List (Domain Name Server,... et al.)

Message 2

DHCPINFORM Packet format forwarded by the home agent:

IP fields:

Source Address = home agent's address

Destination Address = DHCP server's address

UDP Src Port: bootps(67), Dst Port: bootps(67)

Bootstrap Protocol:

field:

giaddr = home agent's address

Message 3

IP fields:

Source Address = DHCP server's address

Destination Address = home agent's address
(from 'giaddr' of DHCPINFORM)

UDP Src Port: bootps(67), Dst Port: bootps(67)

Bootstrap Protocol:

field:

op = BOOTREPLY

xid = same as "xid" field of DHCPINFORM message

ciaddr = mobile node's home address (from 'ciaddr' of DHCPINFORM)

giaddr = home agent's address (from 'giaddr' of DHCPINFORM)

chaddr = mobile node's MAC address (from 'chaddr' of DHCPINFORM)

options:

option 53: DHCP Message Type = DHCPACK

option 61: Server Identifier = DHCP server's MAC address

option 6: Domain Name Server

Message 4

DHCPACK Packet format forwarded by the home agent:

IP fields (encapsulating header):

Source Address = home agent's address

Destination Address = mobile node's care-of-address

Protocol field: 4 (IP in IP)

IP fields (original header):

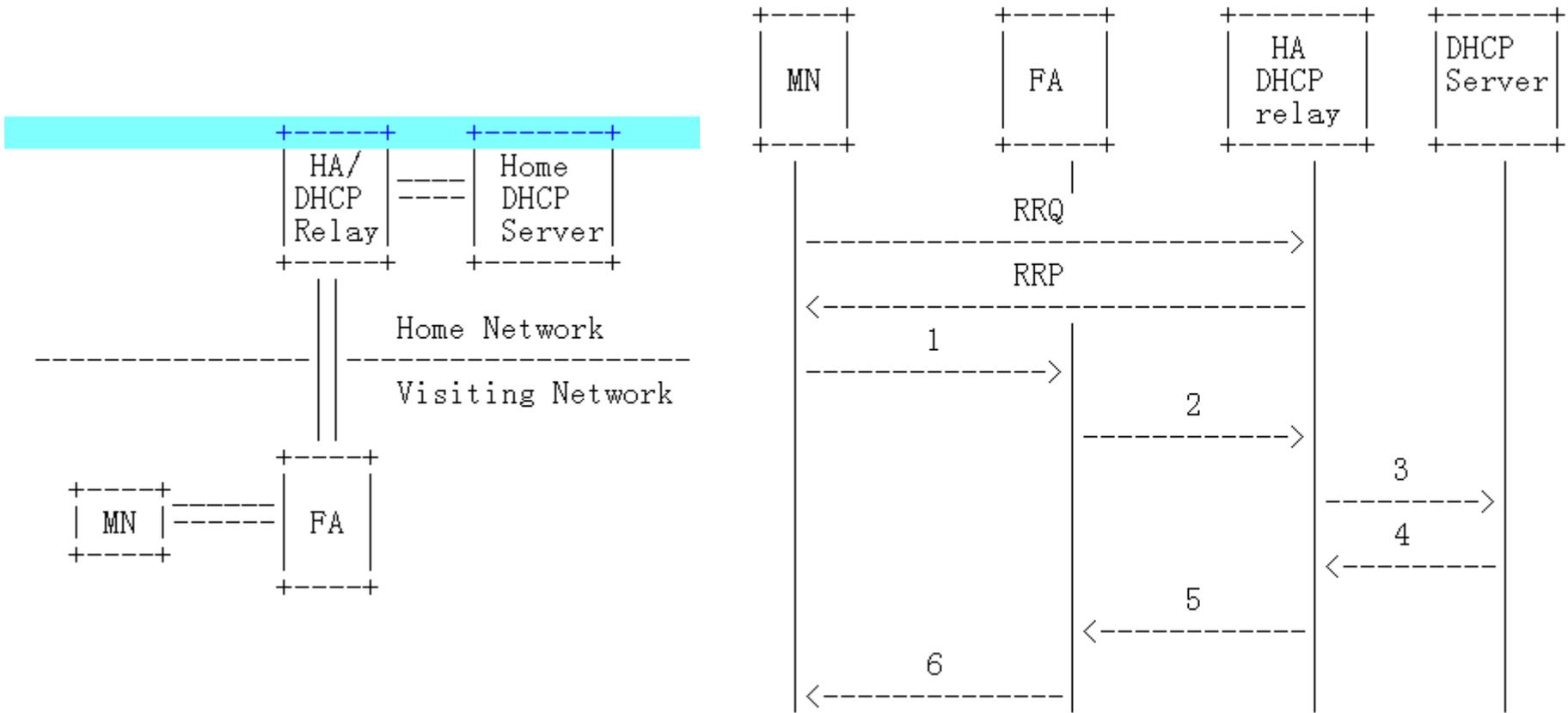
Source Address = DHCP server's address

Destination Address = mobile node's home address

UDP Src Port: bootps(67), Dst Port: bootpc(68)

Bootstrap Protocol

MIP4 FA-CoA case and sequence



Message 1

IP fields (encapsulating header):

Source Address = mobile node's home address

Destination Address = foreign agent's address

Protocol field: 4 (IP in IP)

IP fields (original header):

Source Address = mobile node's home address

Destination Address = broadcast address

UDP Src Port: bootpc(68), Dst Port: bootps(67)

Bootstrap Protocol:

field:

op = BOOTREQUEST

ciaddr = mobile node's home address

chaddr = mobile node's MAC address

options:

option 53: DHCP Message Type = DHCPINFORM

option 61: Client Identifier = mobile node's MAC address

Message 2

IP fields (encapsulating header):

Source Address = foreign agent's care-of-address

Destination Address = home agent's address

Protocol field: 4 (IP in IP)

IP fields (original header):

Source Address = mobile node's home address

Destination Address = broadcast address

UDP Src Port: bootpc(68), Dst Port: bootps(67)

Bootstrap Protocol

Message 3

IP fields:

Source Address = home agent's address

Destination Address = DHCP server's address

UDP Src Port: bootps(67), Dst Port: bootps(67)

Bootstrap Protocol:

field:

giaddr = home agent's address

Message 4

IP fields:

Source Address = DHCP server's address

Destination Address = home agent's address
(from 'giaddr' of DHCPINFORM)

UDP Src Port: bootps(67), Dst Port: bootps(67)

Bootstrap Protocol:

field:

op = BOOTREPLY

xid = same as "xid" field of DHCPINFORM message

ciaddr = mobile node's home address (from 'ciaddr' of DHCPINFORM)

giaddr = home agent's address (from 'giaddr' of DHCPINFORM)

chaddr = mobile node's MAC address (from 'chaddr' of DHCPINFORM)

options:

option 53: DHCP Message Type = DHCPACK

Message 5

IP fields (encapsulating header):

Source Address = home agent's address

Destination Address = foreign agent's care-of-address

Protocol field: 4 (IP in IP)

IP fields (original header):

Source Address = DHCP server's address

Destination Address = mobile node's home address

UDP Src Port: bootps(67), Dst Port: bootpc(68)

Bootstrap Protocol

Message 4

IP fields (encapsulating header):

Source Address = foreign agent's address

Destination Address = mobile node's home address

Protocol field: 4 (IP in IP)

IP fields (original header):

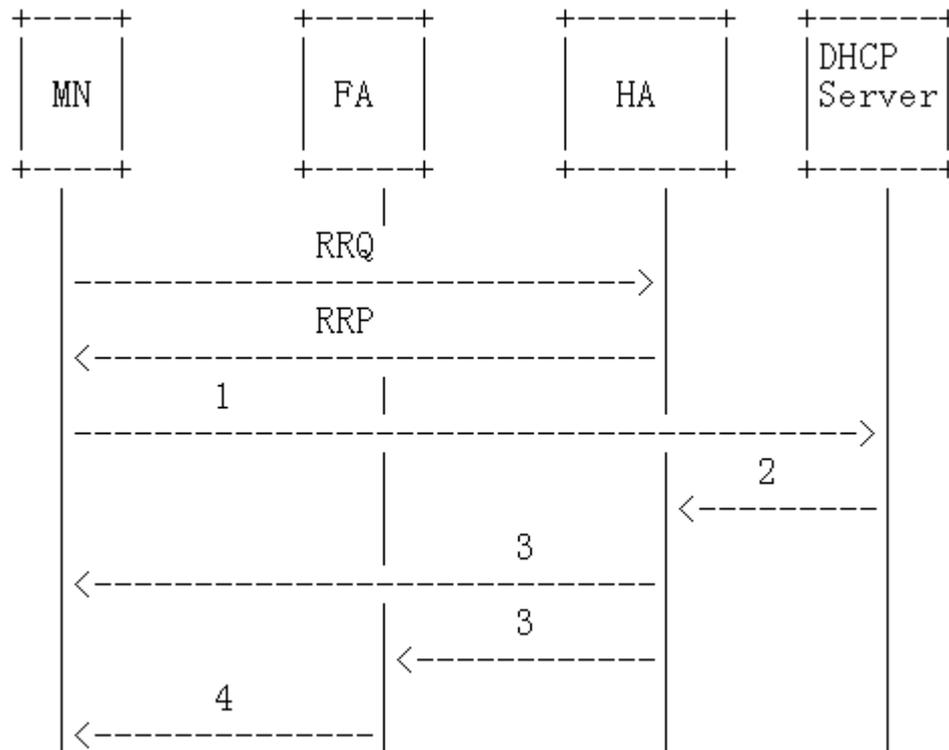
Source Address = DHCP server's address

Destination Address = mobile node's home address

UDP Src Port: bootps(67), Dst Port: bootpc(68)

Bootstrap Protocol

Home DHCP server address known



Message 1

IP fields:

Source Address = mobile node's home address

Destination Address = DHCP server's address

UDP Src Port: bootpc(68), Dst Port: bootps(67)

Bootstrap Protocol:

field:

ciaddr = mobile node's home address

chaddr = mobile node's MAC address

options:

option 53: DHCP Message Type = DHCPINFORM

Message 2

IP fields:

Source Address = DHCP server's address

Destination Address = mobile node's home address
(from 'ciaddr' of DHCPINFORM)

UDP Src Port: bootps(67), Dst Port: bootpc(68)

Bootstrap Protocol:

field:

ciaddr = mobile node's home address (from 'ciaddr' of DHCPINFORM)

chaddr = mobile node's MAC address (from 'chaddr' of DHCPINFORM)

options:

option 53: DHCP Message Type = DHCPACK

Message 3

IP fields:

Source Address = home agent's address

Destination Address = DHCP server's address

UDP Src Port: bootps(67), Dst Port: bootps(67)

Bootstrap Protocol:

field:

giaddr = home agent's address

Message 4

IP fields:

Source Address = DHCP server's address

Destination Address = home agent's address
(from 'giaddr' of DHCPINFORM)

UDP Src Port: bootps(67), Dst Port: bootps(67)

Bootstrap Protocol:

field:

op = BOOTREPLY

xid = same as "xid" field of DHCPINFORM message

ciaddr = mobile node's home address (from 'ciaddr' of DHCPINFORM)

giaddr = home agent's address (from 'giaddr' of DHCPINFORM)

chaddr = mobile node's MAC address (from 'chaddr' of DHCPINFORM)

options:

option 53: DHCP Message Type = DHCPACK

- Work item?