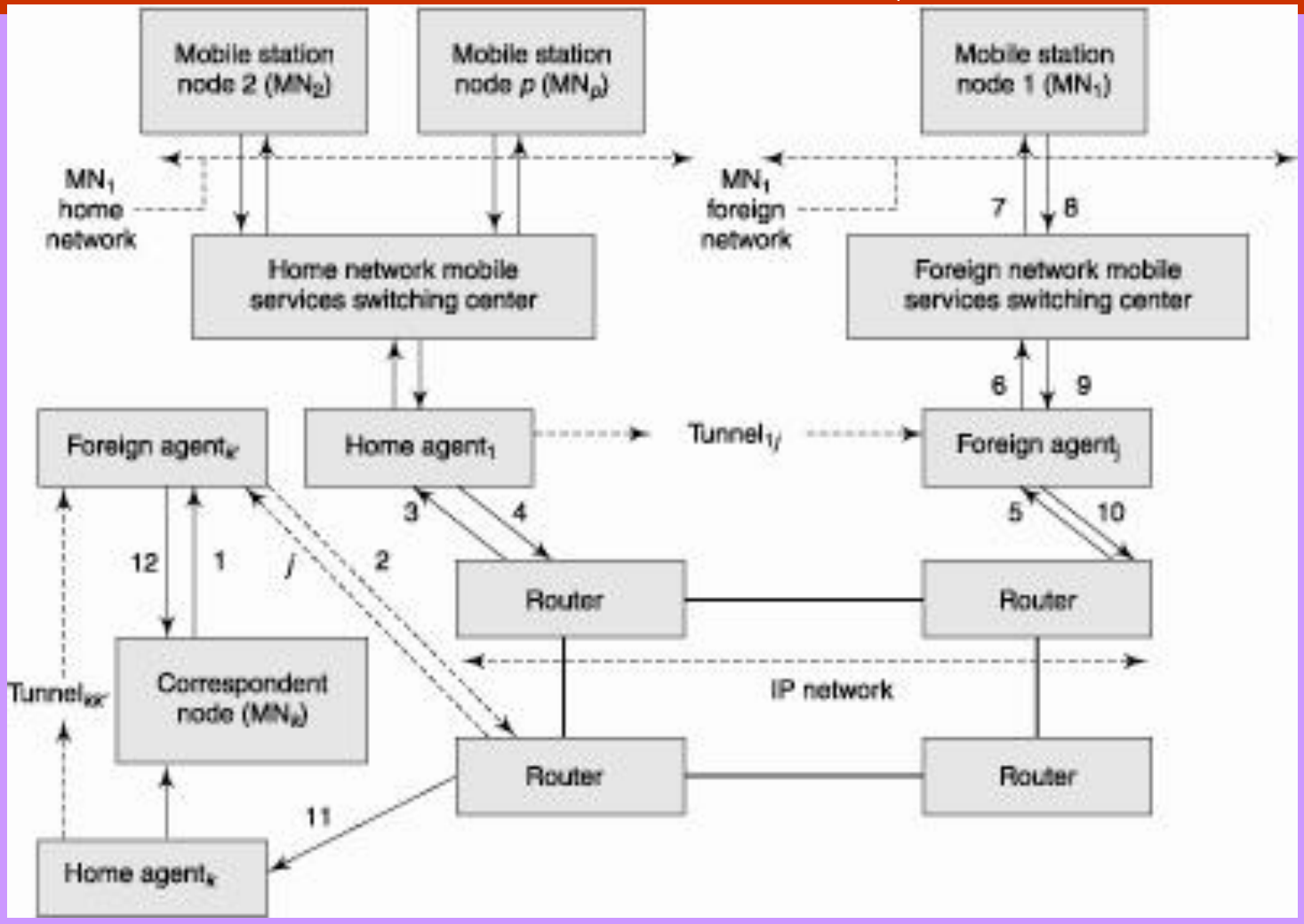
Mobile IP Network Layer

Lesson 07

Route Optimisation and Mobility Binding

CN (MN_K) corresponding with visiting MN_L



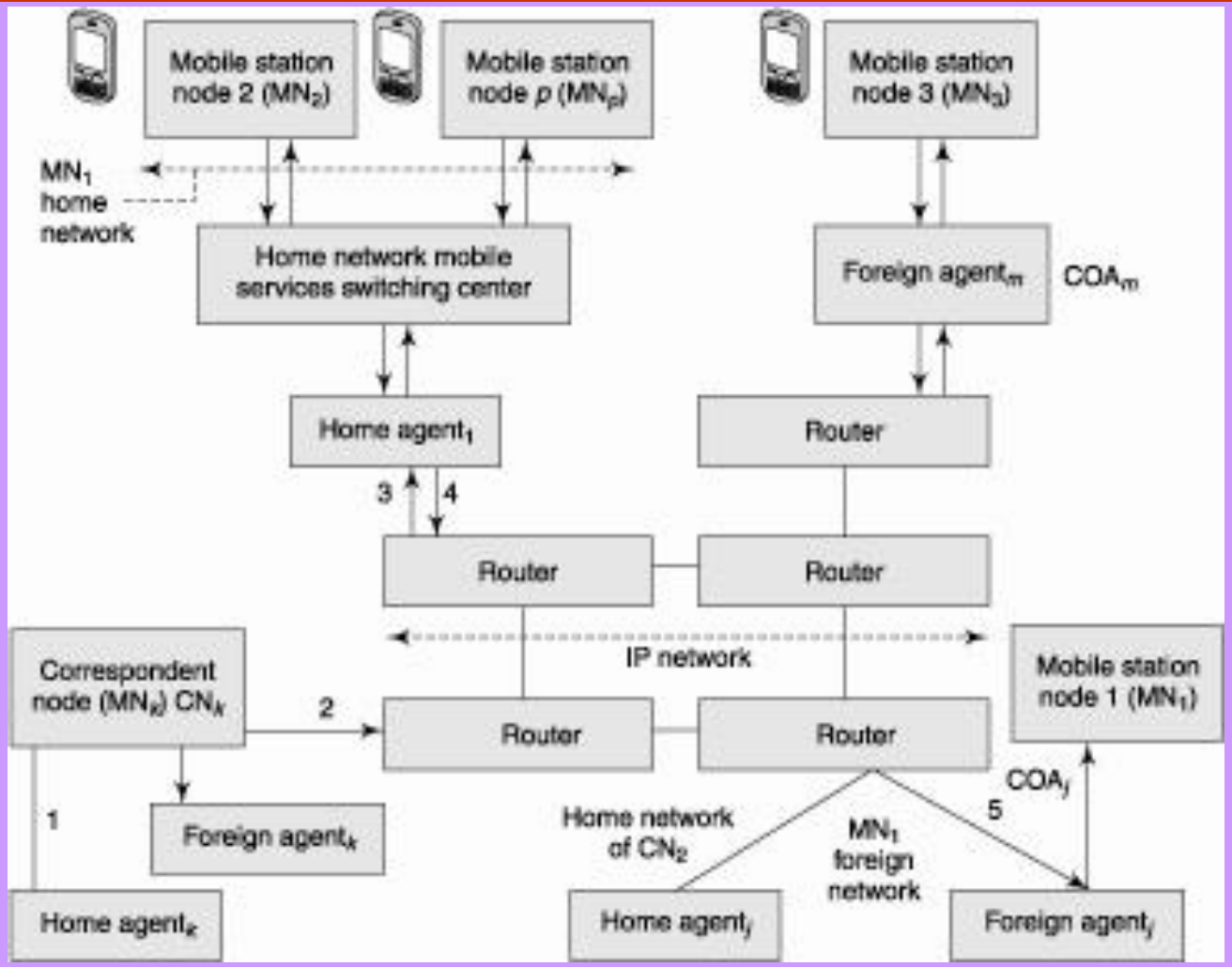
Mobile IP network employing home and foreign agents FA_k and FA_j

- Packet delivers to and from the MN_k at a foreign network with FA_k and MN1 at the foreign network with FA_j

Example

- Assume that MN_l visiting a foreign network which happens to be the home network of CN2
- CN2 is very close to CN

Packets make a triangular trip to reach from CN_K to MN_L



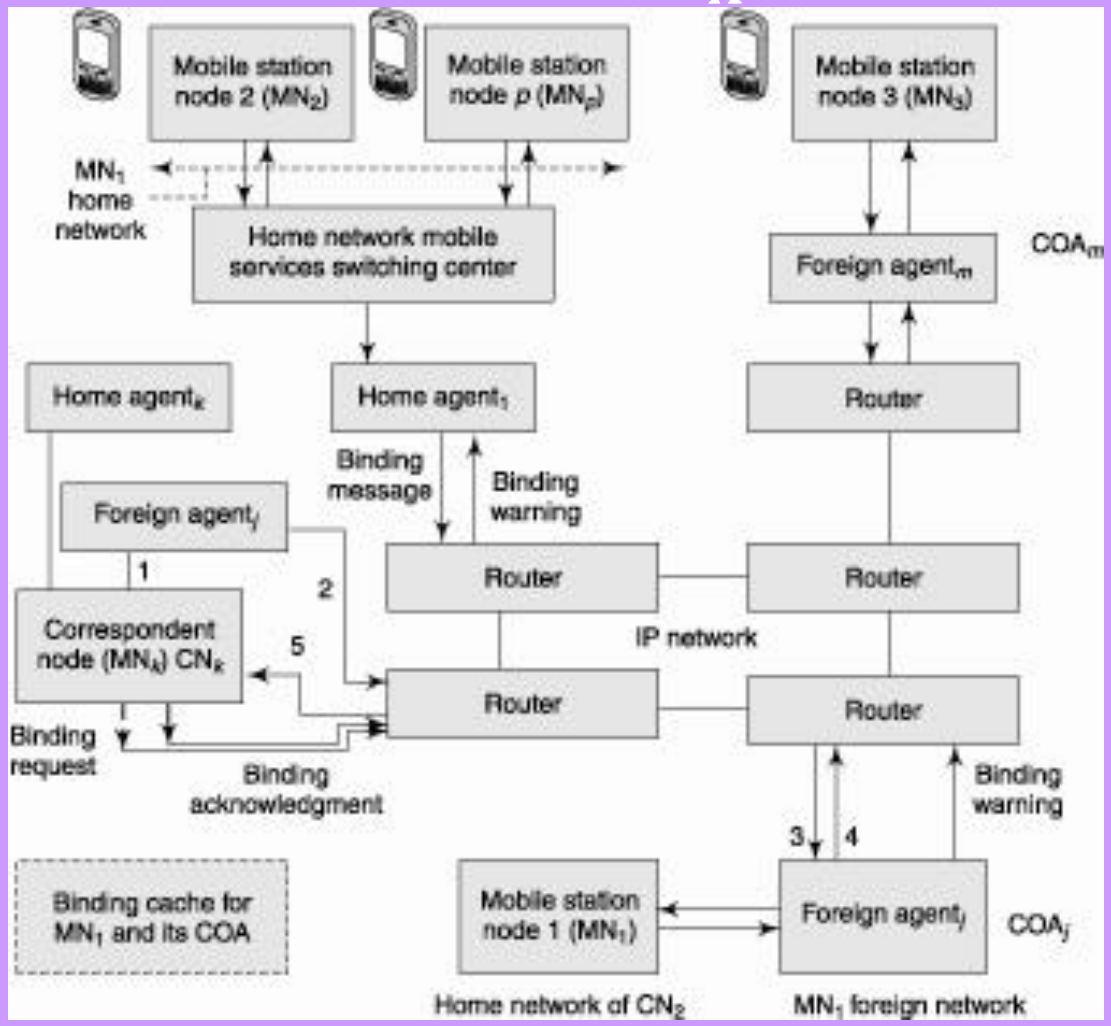
Triangular route

- Triangular route without mobility binding between COA_j and CN_k
- Also possible that F*Ak* and F*Aj* are identical

Optimization of route for the triangular routing example

- Can be made in case the MN_l opts to make its mobility known

Route optimization and path 1, 2, 3, 4, 5 after mobility binding of MN1 at COA_j with CN_K



Mobility binding Steps in the calling network

1. CN_k (fixed) or MN_k (mobile) network sends a mobility-binding request to HA_l
2. HA_l detects whether MN_l (for which binding request is made) has blocked external mobility binding requests

- If not, then HA_l sends the update for the mobility-binding message to the CN_k network
- External— does not include the

Mobility binding Steps in the calling network

3. Mobility binding message has the IP address of MN1 and the present COA (COA_j) of MN_l when on visit to a foreign network and registered with FA_j

Mobility binding Steps in the calling network

4. CNk issues an acknowledgement to HA_i on receiving the binding message.
5. CN2 network decapsulates the IP packet (this decapsulation would have been performed by FA_j through HA1 if MN1 had blocked external binding requests) and sends a

Warning sent to HA_L of MN_L

- Serves a purpose– HA_l sending the binding update to CN_k when MN_l moves to visit another foreign network or when it returns to the home network

Warning for binding

- A message to the effect that the new IP addresses of MN_l and CN_2 will decapsulate the encapsulated IP packets (from the moment that the warning is aired) instead of FA_j

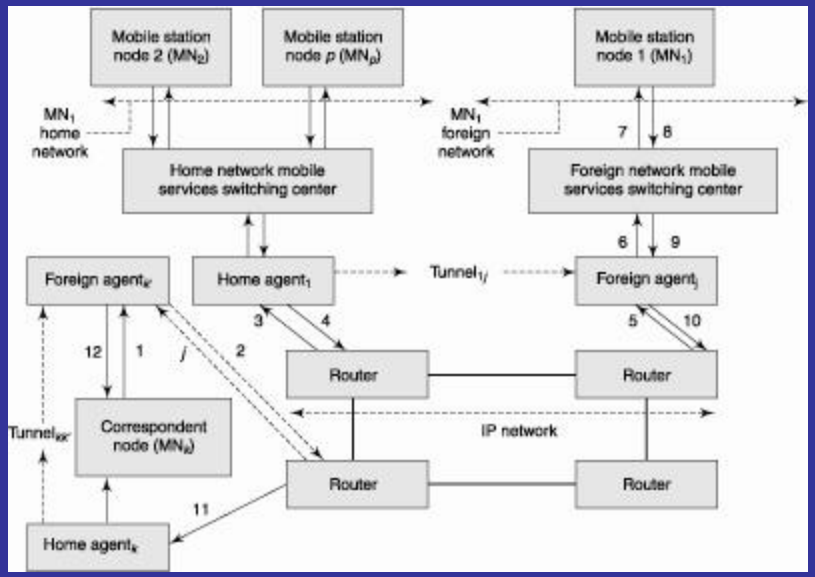
Smooth handover in Mobile IP protocol method of optimization

- FA_j sends a binding warning to CN_k when MN1 deregisters with it
- Lets CN_k initiate another binding request to HA_l of MN_l
- CN_k gets the new binding and COA_m address from HA_l in the binding cache

Tunnelling and forwarding of IP packets by encapsulation

- Paths 4 to 5

Data Frame in a Channel



Summary

- Triangular routing when MN_l visiting a foreign network happens to be the home network of CN2 which is close to CN
- Route optimization by Mobility binding protocol

End of Lesson 07

Route Optimisation and Mobility Binding