

Mobile IPv6 (1/7)

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Mobile computing stands for systems and communication networks with mobile end systems, e.g. wireless radio-operated networks and systems (WLANs, different mobile phone networks, ...)

With **internetworking in IPv4** mobility is

- no problem as long as local network is not left, but
- a major problem as soon as local network is left
 - C
 - Change of IP address by the host who has moved creates an avalanche of necessary changes in applications and routers ...

Therefore, in **internetworking with IPv6**, the protocol mobile IP previously designed for IPv4 is an integral component: **Mobile IPv6**

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Basic idea

Every mobile end device receives **two IP addresses** simultaneously:

- Primary IP address
 - **Home address**
- Secondary IP address
 - **Care-of address**

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Primary IP address – Home Address

- Stationary IP address of the mobile host in its local home network
- Always remains unchanged, even when location is changed
- Applications running on the mobile host only use primary IP address

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Secondary IP address – Care-of Address

- Only temporarily valid
- Changes with every location change and is only valid as long as the host remains in a certain guest network
- Mobile host receives secondary IP address upon registration in new network and communicates it promptly to a specific agent - **home agent** (generally a router) - in the home network
- Home agent forwards all of the data packets sent to the primary IP address of the host to its secondary IP address via **IP-to-IP** encapsulation
- Applications at mobile hosts have no knowledge of care-of-addresses – they only use primary address of the mobile host and the service of the home agent

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Allocation of Care-of Addresses:

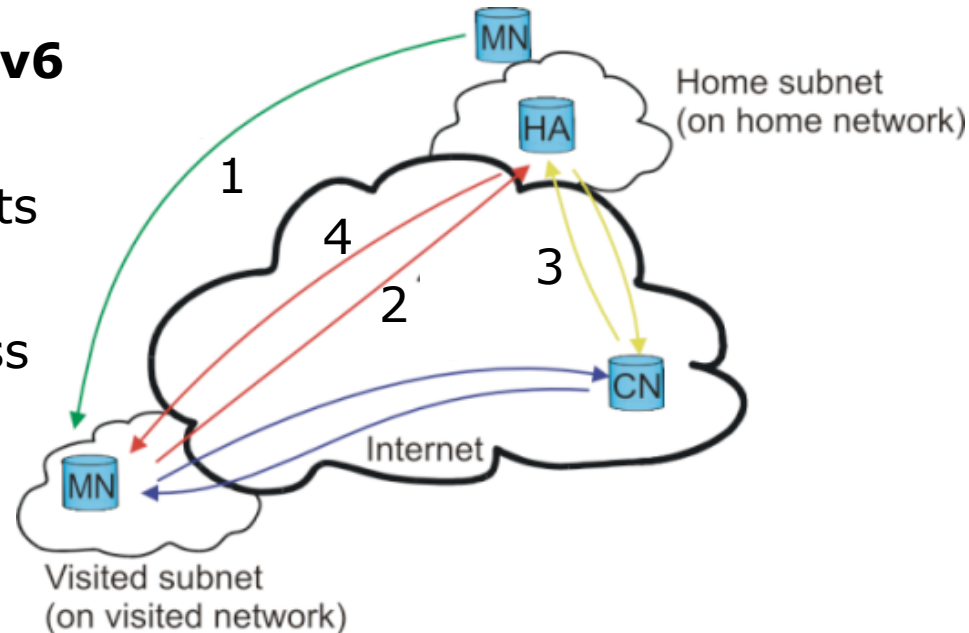
- Mobile host requests and receives care-of IP address in the guest network just like every other stationary computer there, e.g. via DHCP or autoconfiguration
- Routers cannot distinguish between mobile and stationary hosts in the guest network
- Mobile guest computers carry out forwarding management on their own – low protocol layers operate with care-of address and applications with primary address

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Communication with Mobile IPv6

1. "Mobile Node" (MN) moves to a foreign network and requests a care-of address there
2. MN conveys its care-of address to its home agent (HA). The HA acknowledges receipt
3. A communication partner (correspondent node, CN) wishes to contact the MN. The HA intercepts this message
4. HA tunnels the CN message to the care-of address of the MN (IP-to-IP encapsulation)

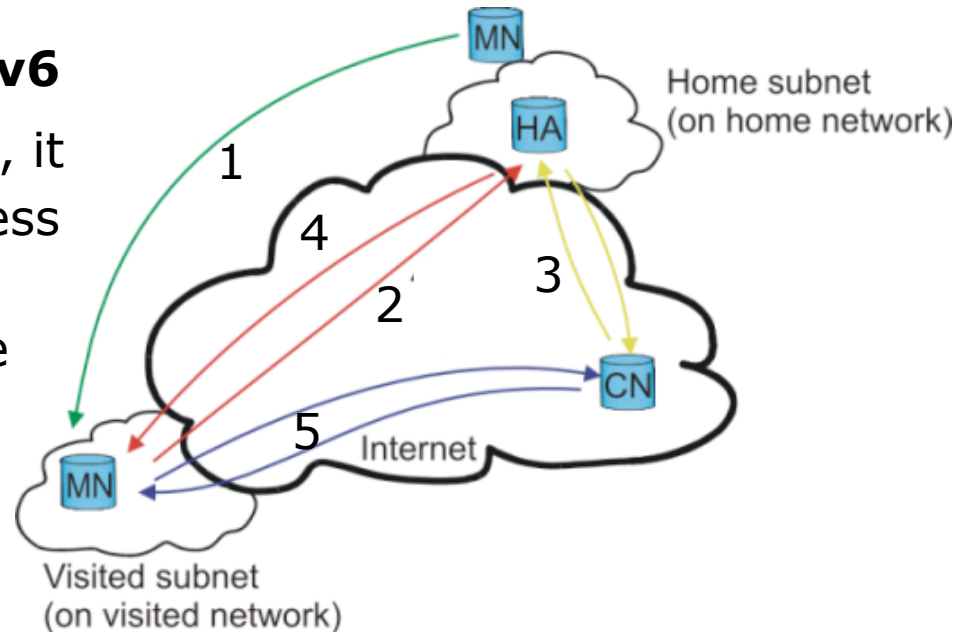


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Communication with Mobile IPv6

5. When the MN answers the CN, it gives its current care-of address by way of a routing header. The CN can now communicate directly with the MN



When the MN leaves the foreign network, it releases its care-of address again, notifying its HA of this action