

Mobile IPv6 (1/7)

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Introduction

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
 - 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 a fixed 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 with changes in location
- Applications 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
- Care-of-addresses have no knowledge of applications at mobile hosts – they only use the IP software of the mobile host and home agent

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Allocation of care-of addresses:

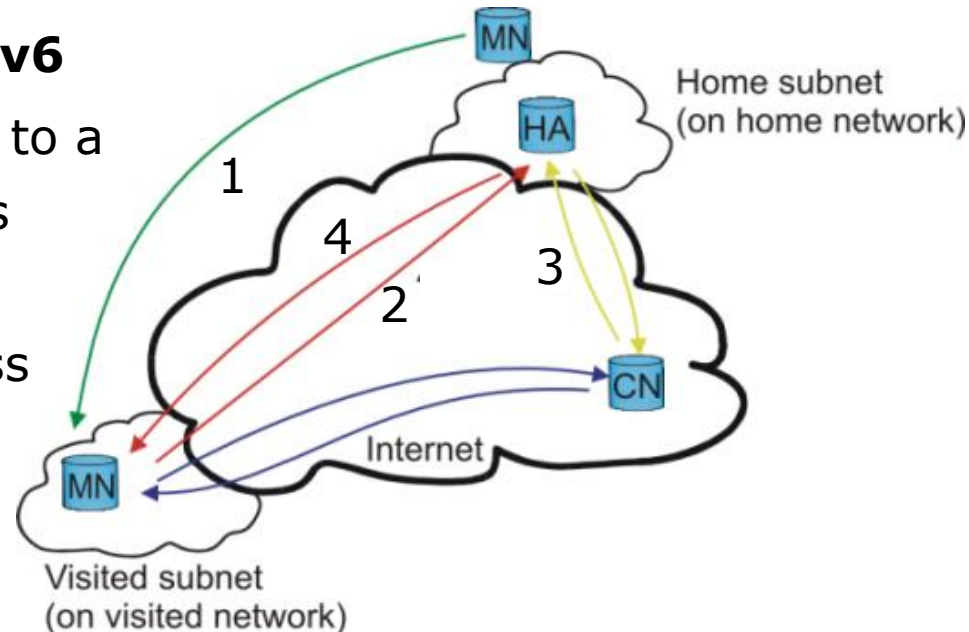
- Mobile host requests and receives care-of IP address in the guest network just like every other stationary computer there (e.g. via DHCP or autoconfiguration)
- Routers cannot distinguish between mobile and stationary hosts in the guest network
- Mobile guest computers carry out forwarding management 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) is moved 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)

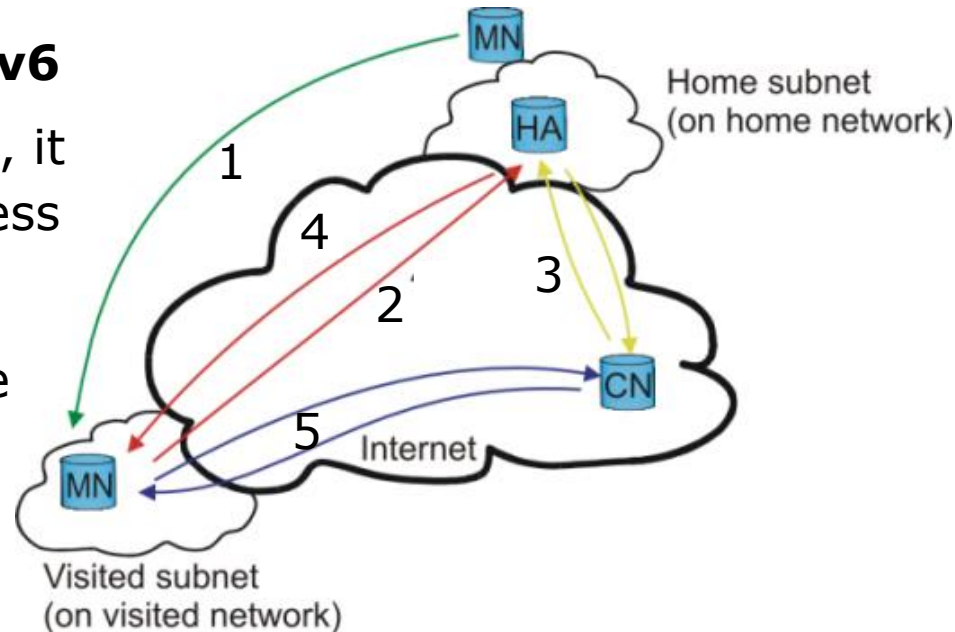


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Communication with Mobile IPv6

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