

Mobile IP

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Overview

- What is Mobile IP?
- Challenges in Mobile IP
- Mobile IP
- Issues in Mobile IP
- References

What is Mobile IP?

- Portable IP – using a laptop in one place, carrying it to another place and using it in another
- Mobile IP – using the laptop as it is continuously connected to the Internet while moving from one place to another

Challenges in Mobile IP

- IP address is based on the network
- IP routing is based on the IP address
- TCP connection or a socket is a five-tuple based on the IP address

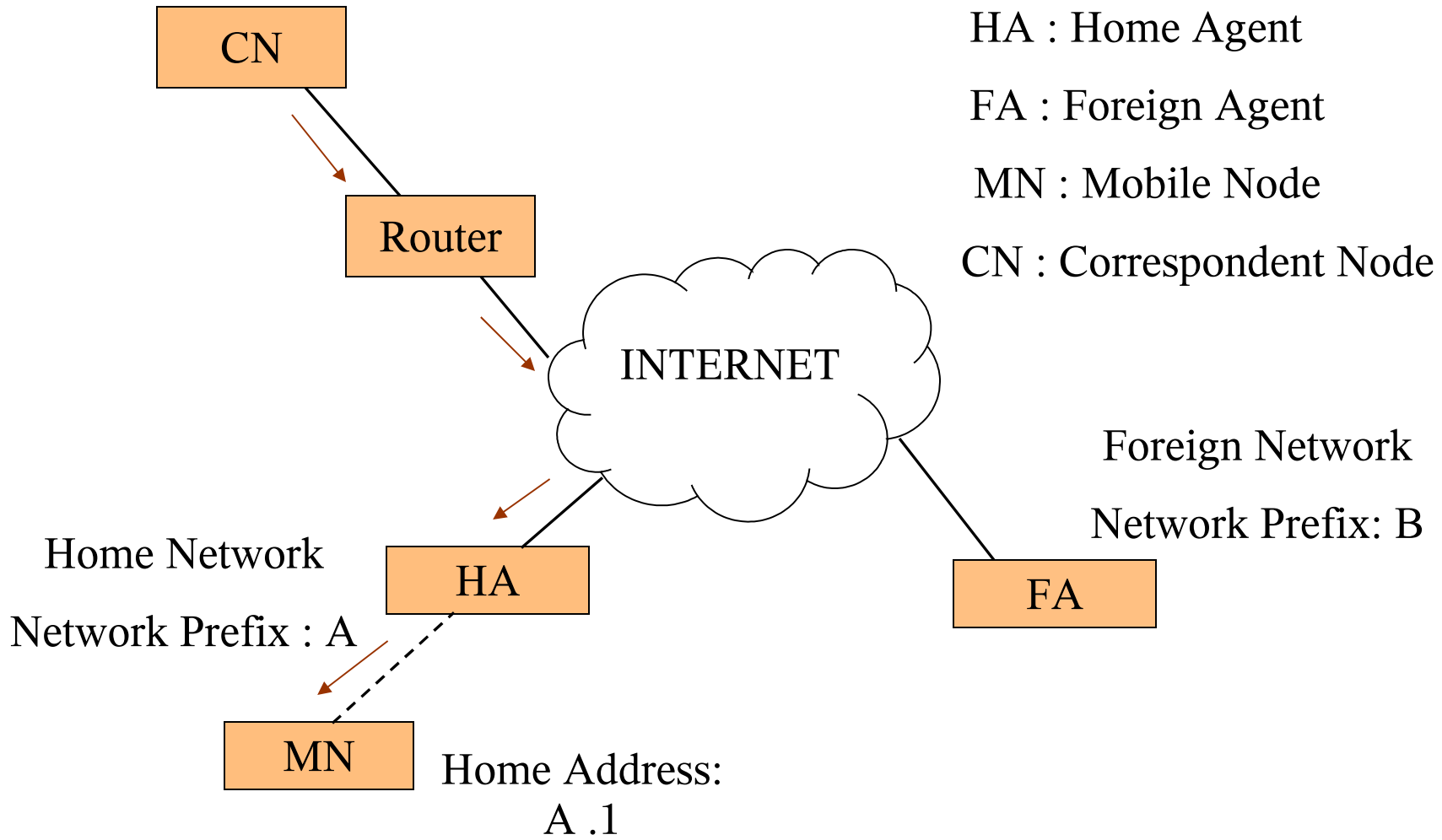
The above contradictory requirements of IP were reconciled by Charles Perkins in 1997 in what is considered one of the **Landmark** articles in communications.

Mobile IP - Terminology

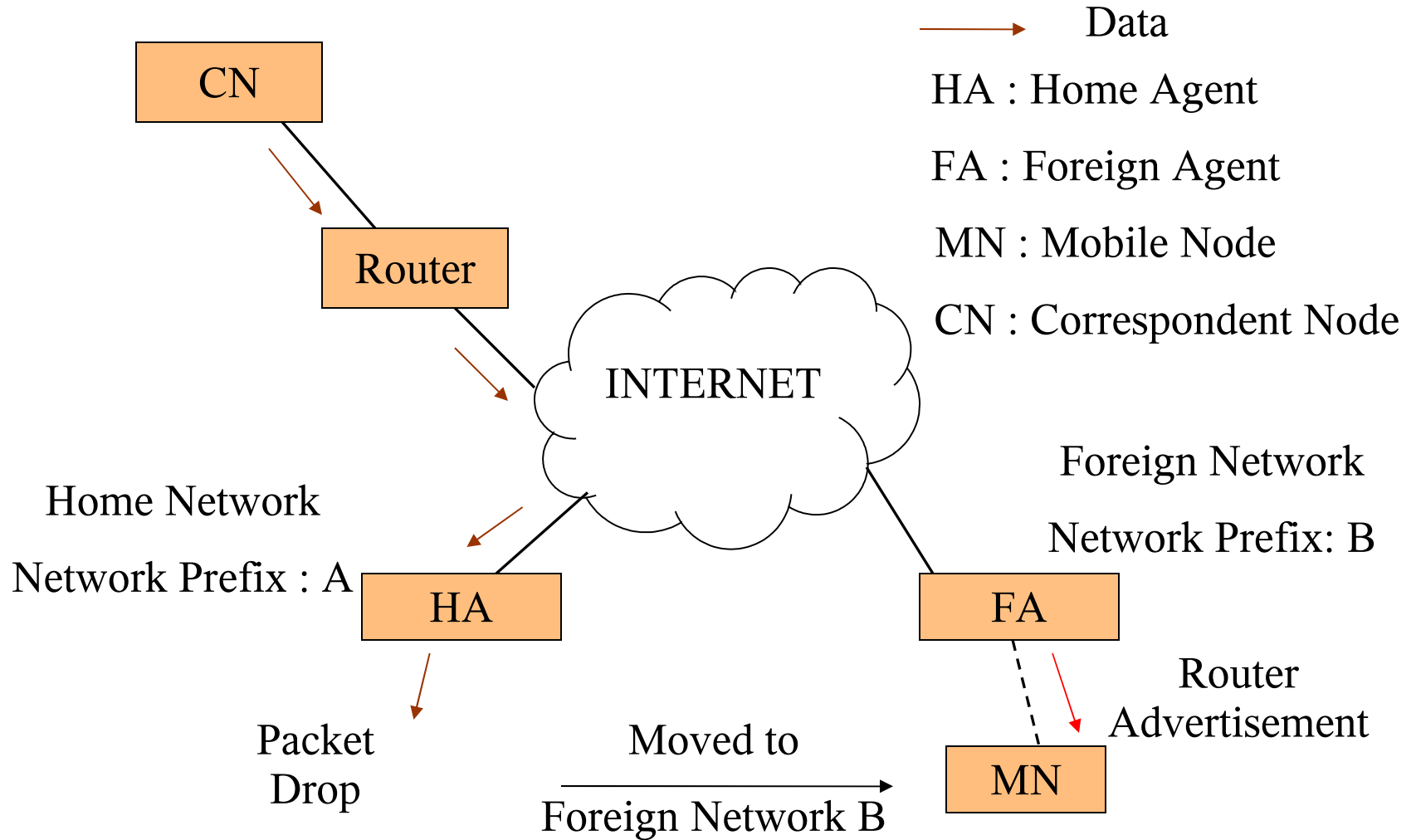
- Mobile Node
- Correspondent Node
- Home Agent/Foreign Agent or Mobility Agent
- Care-of-address
- Agent Advertisement
- Home or Foreign Network

Mobile IP

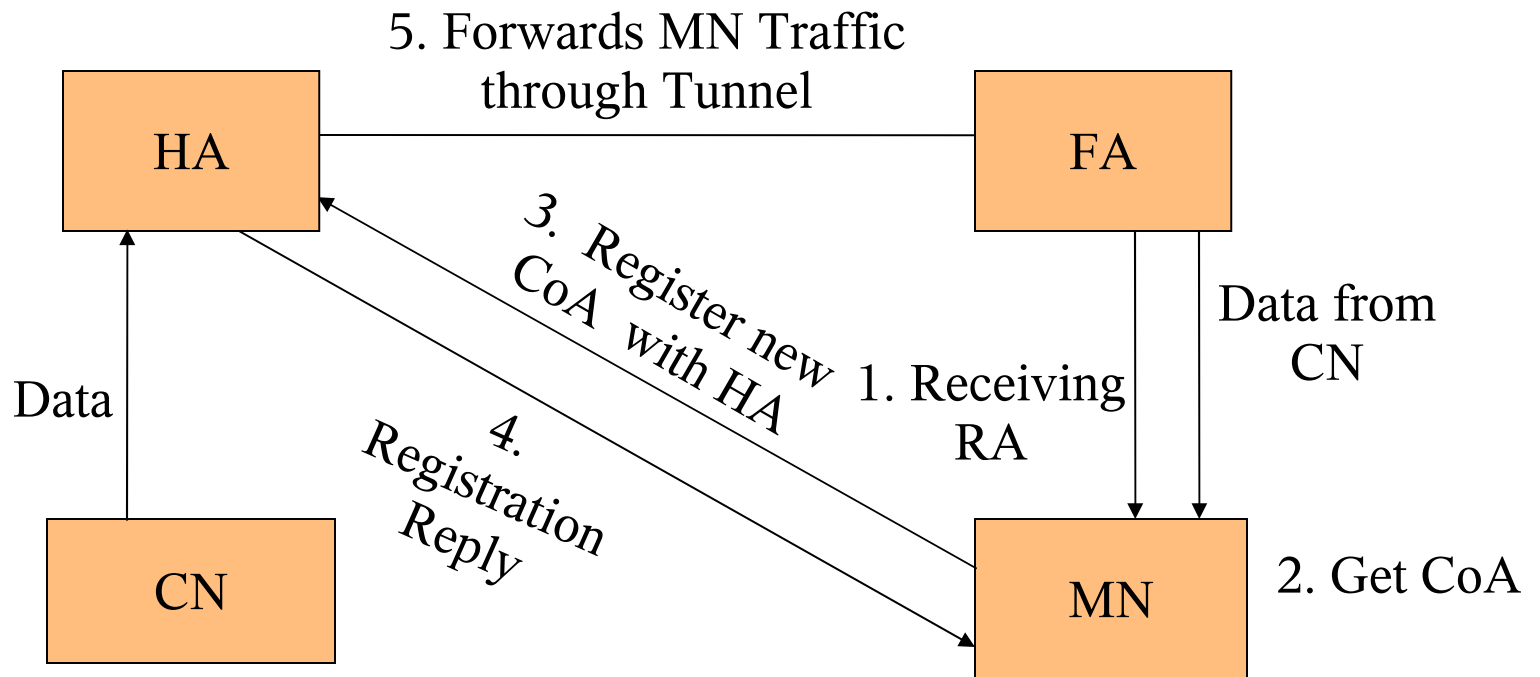
→ Data
HA : Home Agent
FA : Foreign Agent
MN : Mobile Node
CN : Correspondent Node



Mobile IP



Mobile IP



IP-in-IP Tunneling



Agent Advertisement

Type	Length	Sequence Number							
Lifetime		R	B	H	F	M	G	V	Reserved
Zero or more care-of-addressess ...									

Registration Request Format

Type	S	B	D	M	G	V	rsvd	Lifetime
Home Address								
Home Agent								
Care-of Address								
Identification								
Extensions...								

Registration Reply Format

Type	Code	Lifetime
	Home Address	
	Home Agent	
	Identification	
Extensions		

Issues in Mobile IP

- Triangular Routing – Use Route Optimization
- Ingress Filtering – Cannot be solved easily in Mobile IP but easily solved in Mobile IPv6
- Handoff Latency – Many different schemes to reduce Handoff Latency using L2 Triggers, Hierarchical Mobility Agents
- Security – How to determine that the home address and the care-of-address belong to the same machine

References

- *Mobile IP*, Charles Perkins, IEEE Communications Magazine, May 1997.
- *IP Mobility Support*, RFC 2002, <http://www.ietf.org/rfc/rfc2002.txt>, October 1996.
- *Mobile IPv6*, Hesham Soliman.
- *Network Mobility (NEMO) Basic Support Protocol*, RFC 3963, <http://www.ietf.org/rfc/rfc3963.txt>, January 2005.

Thank You