



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35.

An Autonomous Institution

COURSE NAME : Internet of Things

III YEAR/ V SEMESTER

UNIT – IV IPv6 TECHNOLOGIES FOR THE IoT
Topic: Mobile IPV6 *Technologies*

Dr.K.Sangeetha

HoD

Department of Computer Science and Engineering



MIPv6 specifies a protocol that allows nodes to remain reachable while moving around in the IPv6 Internet.

An entity that implements the MIPv6 protocol is a MIPv6 entity. There **are three types of entities** defined in the MIPv6 protocol

Mobile node (MN): A node that can change its point of attachment from one link to another while still being reachable via its home address

Correspondent node (CN): A peer node with which an MN is communicating. The CN may be either mobile or stationary. A CN does not necessarily require MIPv6 support, but it does require IPv6

Home agent (HA): A router on an MN's home link with which the MN has registered its current care-of address (CoA) described below. While the MN is away from home, the HA intercepts packets on the home link destined to the MN's home address, encapsulates them, and routes them to the MN's CoA



If an MN is not currently attached to its home network the MN is said to be “**away from home.**”

Each MN is identified by its home address (which we also call stationary home address), regardless of its current point of attachment to the remote network

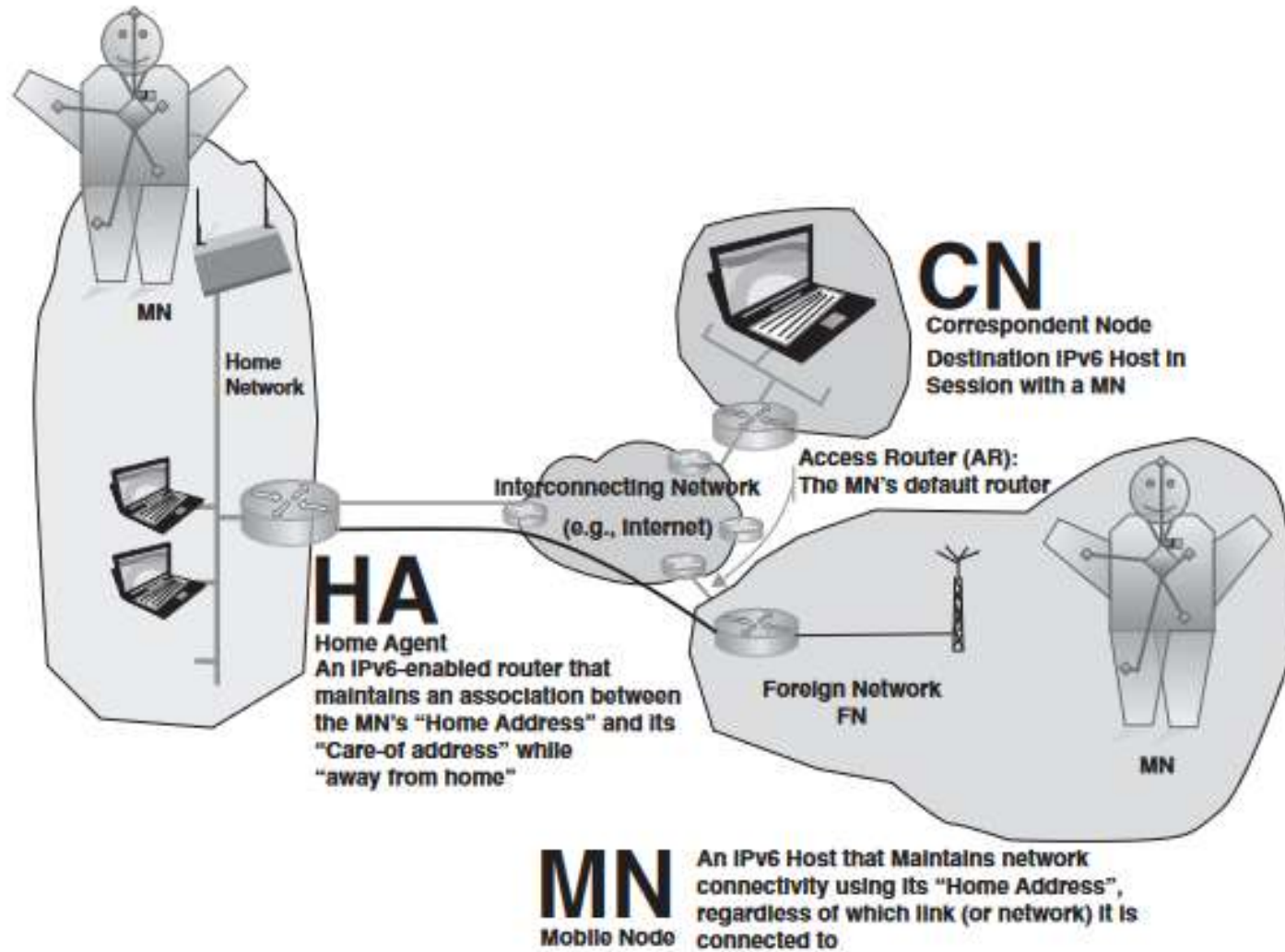
While situated away from its home, on a foreign link an MN is also associated with an “in-care-of- address” known, in fact, as care-of address, or CoA, which provides information about the MN’s current location.

The CoA changes depending on the current location of the MN

The CoA is used for routing (i.e., delivering) IPv6 packets addressed to an MN’s home address; packets sent to the MN’s home address are transparently routed to the MN via its current CoA

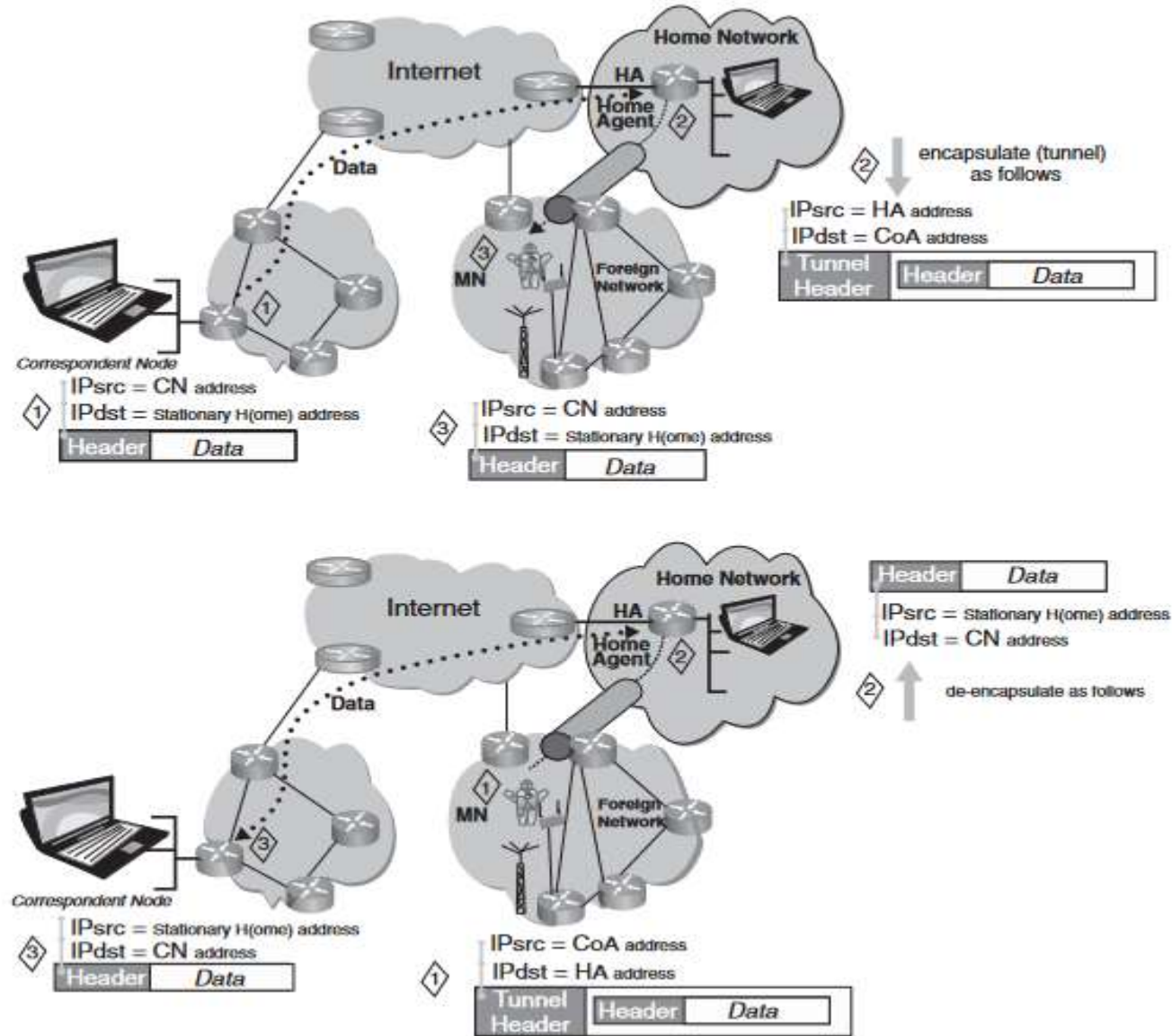
The MIPv6 protocol enables IPv6 nodes to cache the binding of an MN’s home address with its CoA

MIPv6 operations involve movement detection, IP address configuration, and location update.



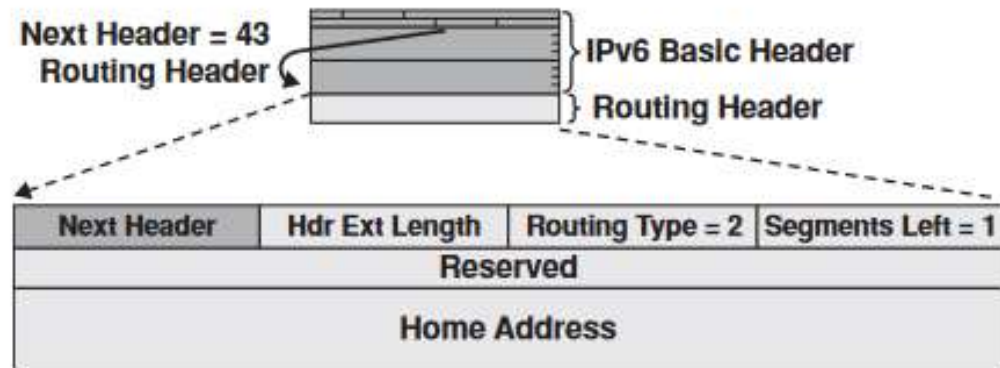


HA Tunneling





- 1) Establishes new extension header, specifically the mobility
- 2) Adds a new routing header type header
- 3) Adds a new destination option





HA address discovery (HAAD) is an important mechanism.

MIPv6 introduces four new Internet control message protocol version 6 (ICMPv6) messages to support its processes.

Two of the new ICMPv6 messages are employed in the dynamic home agent address discovery (DHAAD) process

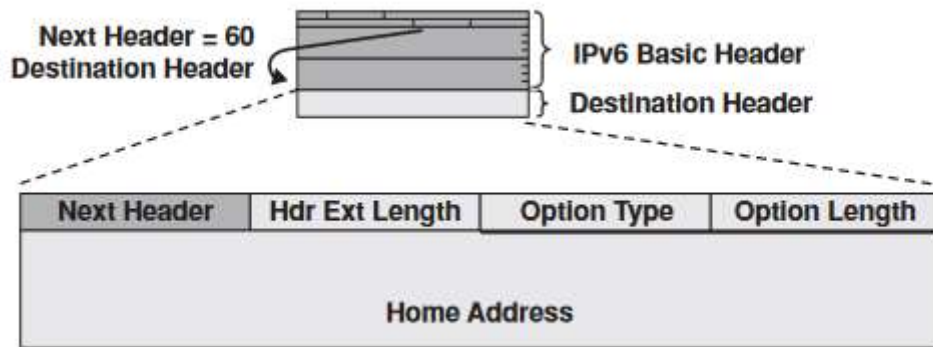
HAAD request
HAAD Reply

The **other two ICMPv6** are used for renumbering and mobile configuration mechanisms; these messages support
(i) mobile prefix solicitation and
(ii) mobile prefix advertisement

The utilization of these four ICMPv6 messages plus the neighbor discovery protocol (NDP) makes MIPv6 independent of the underlying (layer 2) networking technology.



- (i) a new advertisement interval option format;
- (ii) a new HA information option format; and
- (iii) changes to sending router advertisements



Communications with MNs takes place in two way

Bidirectional tunneling.
Direct routing

