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: IPV6 Tunneling

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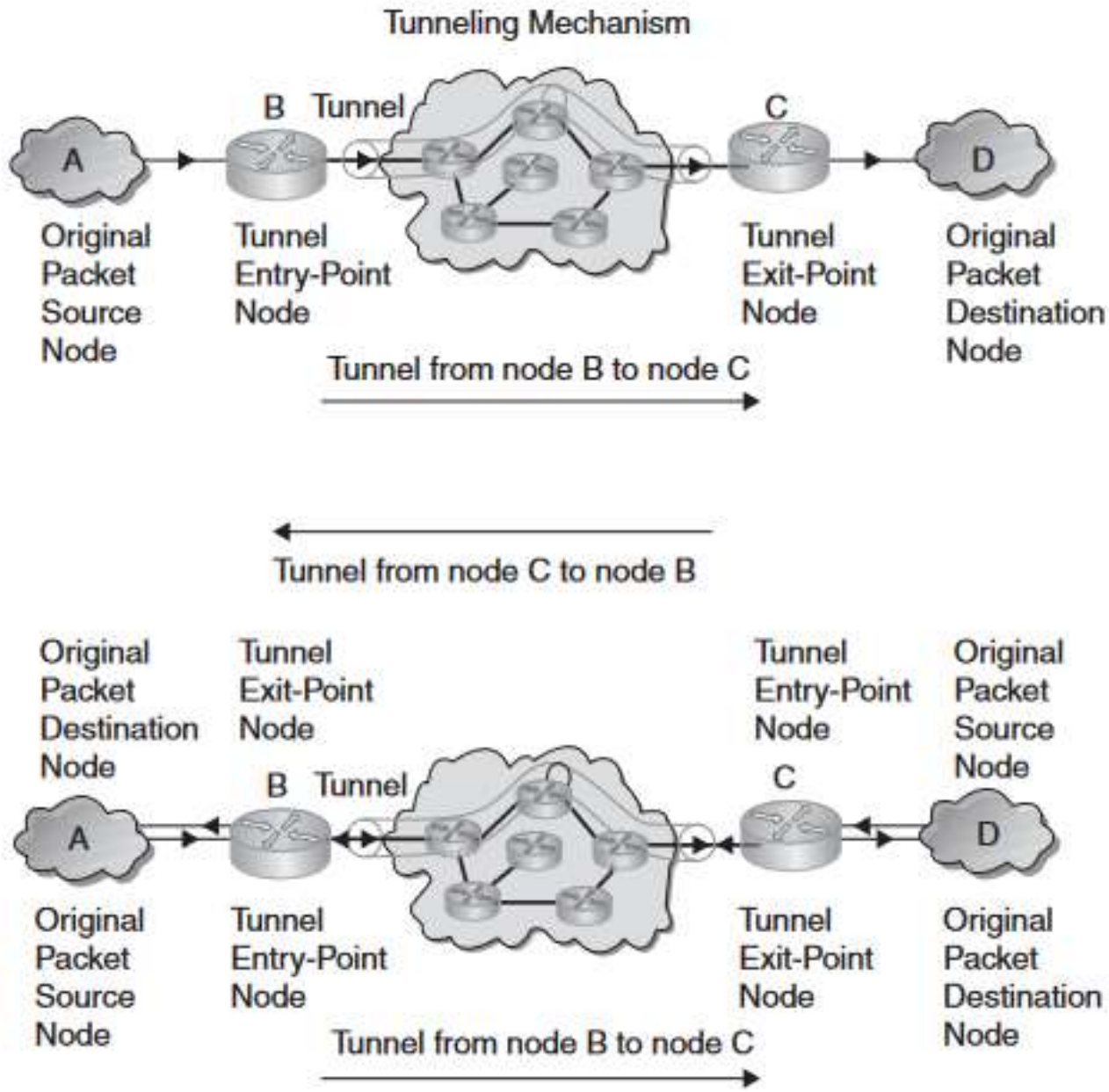
IPv6 Tunneling

- ✓ IPv6 tunnelling used in various settings
- ✓ MIPv6 tunnels payload packets between the **mobile node (MN)** and the **home agent (HA)** in both
- ✓ Directions
- ✓ “virtual link” between two IPv6 nodes for transmitting data packets as payloads of
- ✓ IPv6 packets
- ✓ virtual link - IPv6 tunnel,
- ✓ point-to-point link on which IPv6 acts like a link-layer protocol
- ✓ One node **encapsulates original packets** received from other nodes or from itself and forwards the resulting tunnel packets through the tunnel. The **other node decapsulates** the received tunnel packets and forwards the resulting original packets toward their destinations, possibly itself.

ENCAPSULATOR – ENTRY POINT , DECAPSULATOR – EXIT POINT


Tunneling Mechanism
B
Tunnel
C
A
D
Original Packet Source Node
Tunnel Entry-Point Node
Tunnel Exit-Point Node
Original Packet Destination Node
Tunnel from node B to node C
Tunnel from node C to node B
Original Packet Destination Node
Tunnel Exit-Point Node
Tunnel Entry-Point Node
Original Packet Source Node
B
Tunnel
C
A
D
Original Packet Source Node
Tunnel Entry-Point Node
Tunnel Exit-Point Node
Original Packet Destination Node
Tunnel from node B to node C

IPv6 TUNNELING

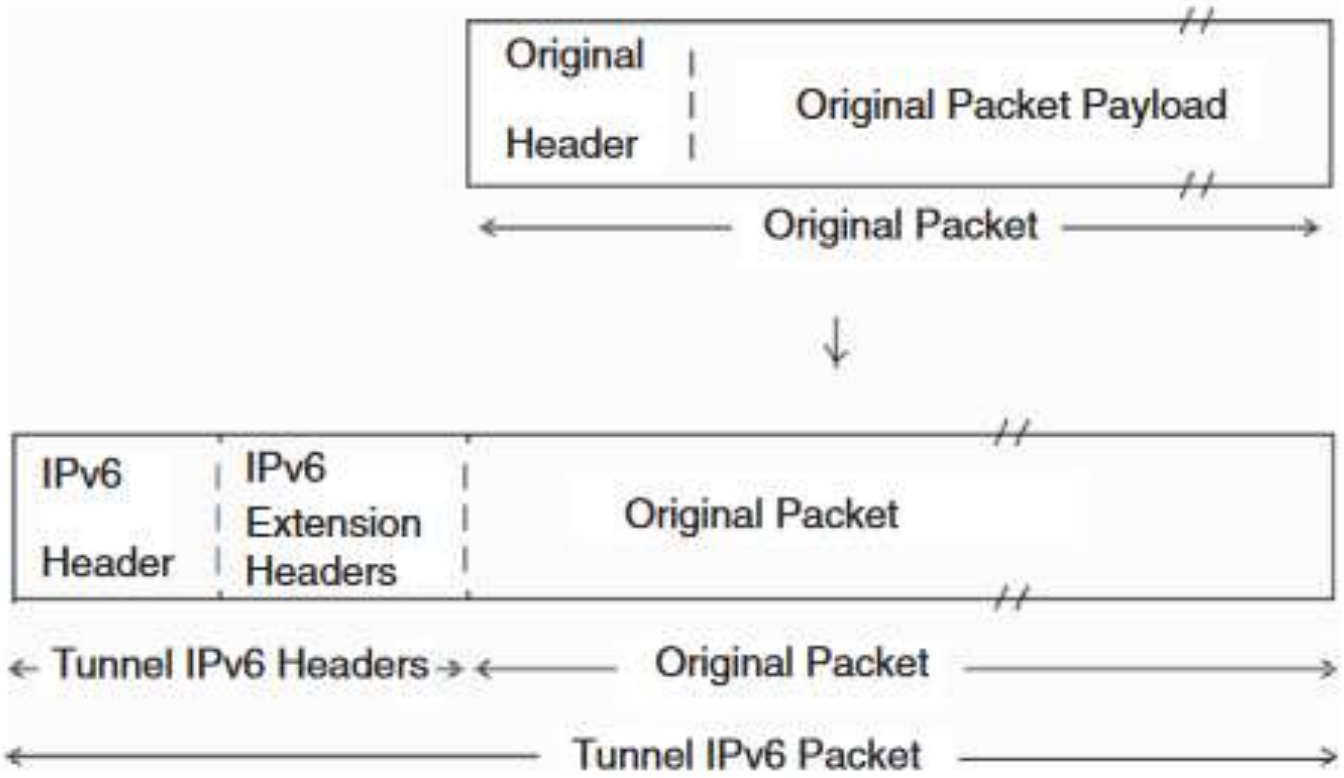


FIGURE 7.7 Encapsulating a packet.

3 steps * IPV6 Encapsulation, *IPV6 Processing , *IPV6 Decapsulation

IPV6 Encapsulation

IPv6 encapsulation entails prepending an IPv6 header to the original packet

The encapsulation takes place in an IPv6 tunnel entry-point node, as a result of an original packet being forwarded onto the virtual link represented by the tunnel.

The original packet is processed during forwarding according to the forwarding rules

At encapsulation, the **source field** of the tunnel IPv6 header is filled with an IPv6 address of the tunnel **entry-point node** and the **destination field** with an IPv6 address of the **tunnel exit point.**

IPV6 Processing

IPv6 intermediate processing by intermediate nodes in the tunnel processes the IPv6 tunnel packets according to the IPv6 protocol.

a tunnel hop-by-hop options extension header is processed by each receiving node in the tunnel

a tunnel routing extension header identifies the intermediate processing nodes

IPV6 Decapsulation

IPv6 decapsulation is the opposite process of encapsulation


Thank You!