SNS COLLEGE OF TECHNOLOGY

Coimbatore-35

An Autonomous Institution

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECE308- WIRELESS TECHNOLOGIES FOR IOT

III ECE / VI SEMESTER

UNIT 2 – ARCHITECTURE AND DESIGN PRINCIPLES FOR IOT

TOPIC 4 –Internet connectivity

6LoWPAN Features

- IETF recommended methods for reassembly of fragments
- IPv6 and UDP (or ICMP) headers compression (6LoWPAN-hc adaptation layer)
- Neighbour discovery (6LoWPAN-nd adaptation layer) and supports mesh routing

Data Stack

- Uses 6LoWPAN protocol at adaptation layer
- Adaptation layer data stack transmits to IPv6 Internet layer
- Nodes having low speed and low power. For example, Wireless Personal Area Network (WPAN) nodes.

IPv6 over IEEE 802.15.4 standard network nodes

- Headers, security and Application data in a frame
- Total device node frame size = 127B .
- IPv6 header = 40B;
- UDP header = 8B;

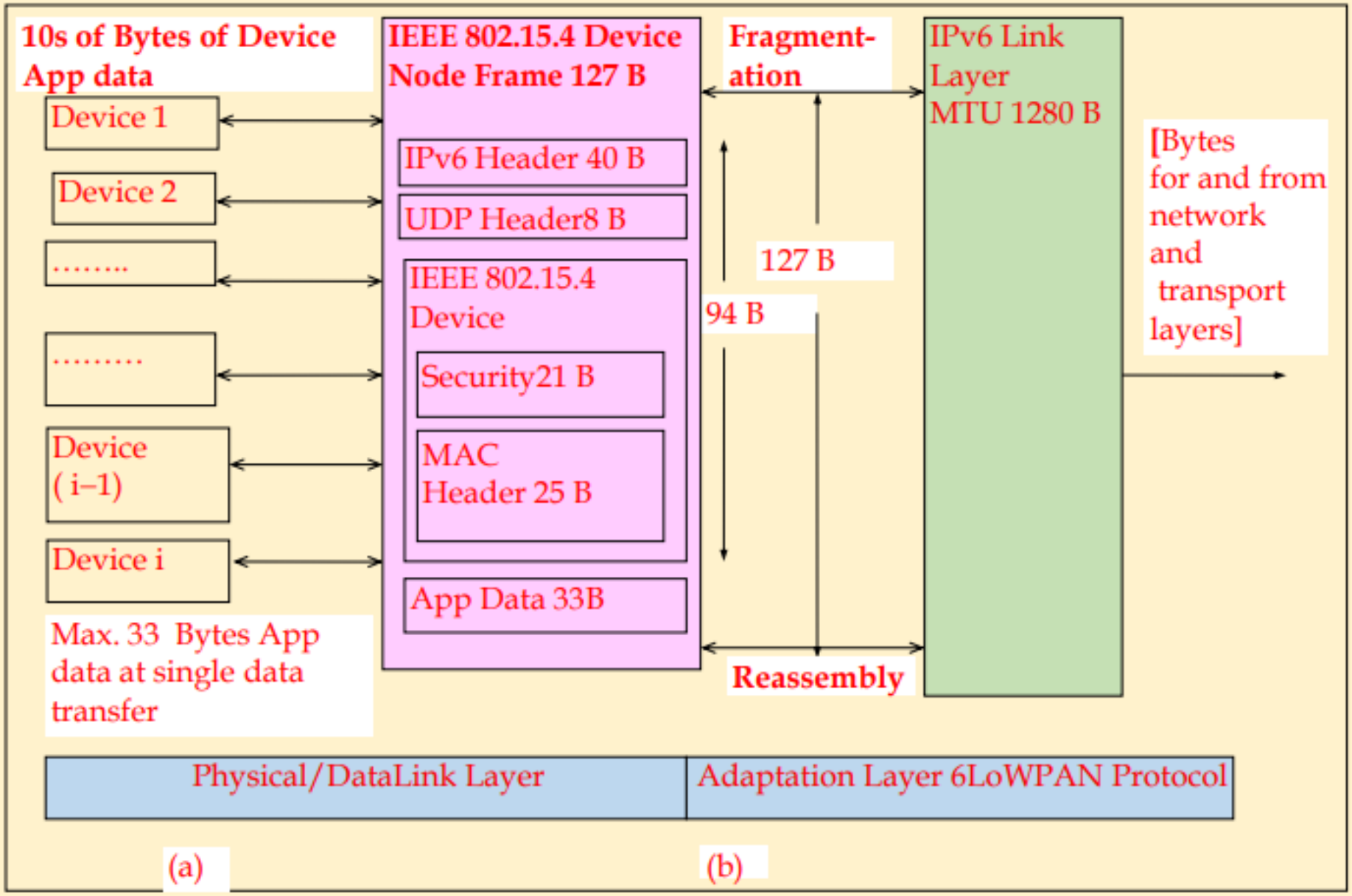

Fig. 4.5(a) Physical layer IEEE 802.15.4 network devices (b) Adaptation layer 6LoWPAN protocol 127 B fragmented frames reassembly into IPv6 maximum 1280 B or fragmentation of IPv6 MTU 1280B into 127 B frames for transfer to a device.

IPv6 over IEEE 802.15.4 standard network nodes

- Device node MAC (Media Access Control) = 25 B;
- AES-128 security = 21 B;
- Remaining Application data

IPv6 MTU at data link laye

- 1280 B fragments into frame of 127 B each for single transfer to a device node

IPv6 MTU (maximum transmission uni

- •Link layer = 1280 B
- •Link layer frame fragmentation needed in order to
- communicate frame of 127 B over IEEE 802.15.4
- nodes (device).

The frame MTU

- 1280B for transmission to network layer
- Fragments from frames from the device of 127 B each reassemble into IPv6 frame