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 – for IoT/M2M devices. UNITII ARCHITECTURE AND DESIGN

PRINCIPLES FOR IOT

TOPIC 2 –Internet Based Communication

Source-end network layer

- Communicate with IoT/M2M IoT Apps and Services layer
- Uses TCP/IP suite of Application protocols
- Connect through set of IP routers for sending data packets from an IP address

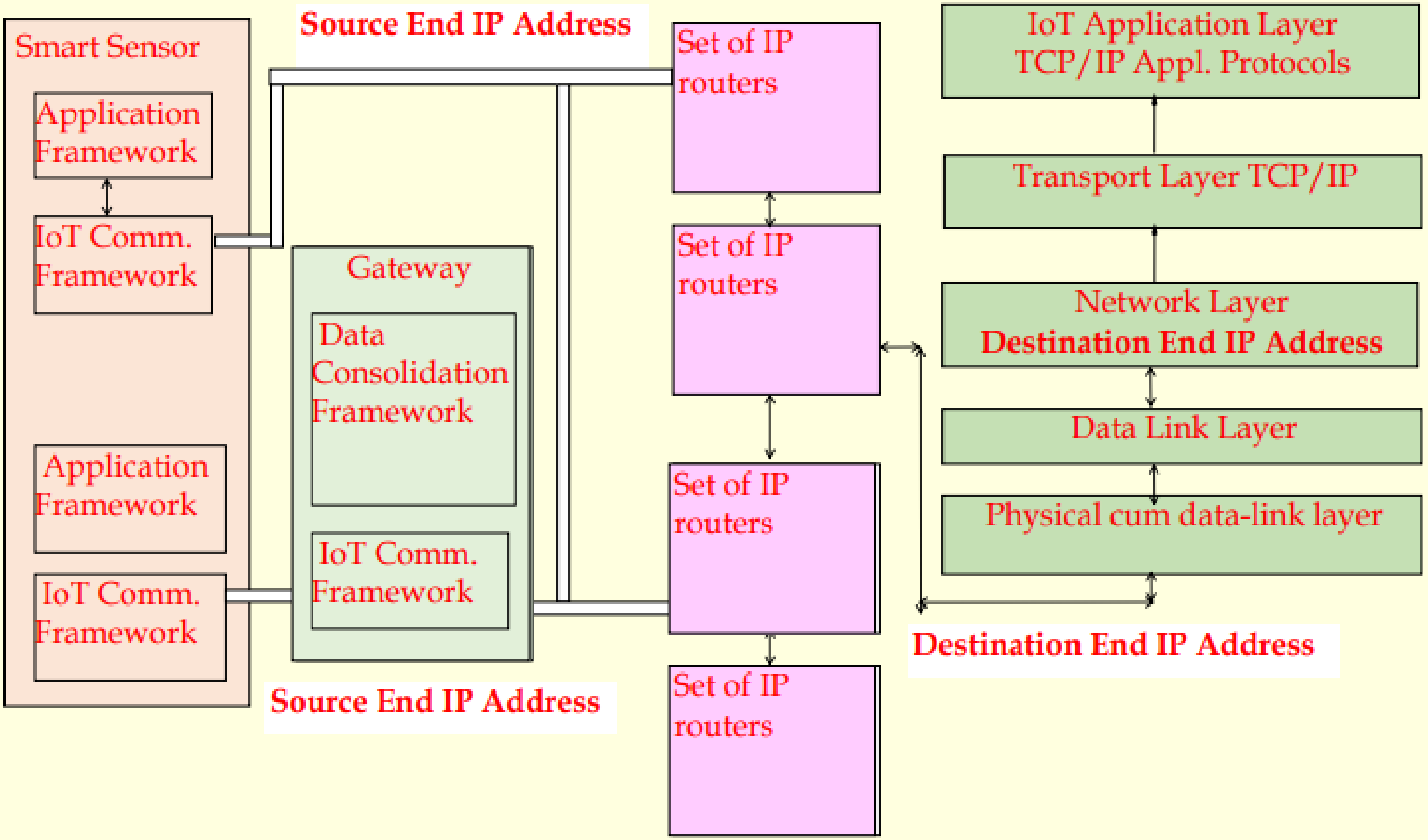

Fig. 4.1 Source end network layer connected through set of IP routers for data packets from an IP address and communicating with IoT/M2M IoT Apps and Services layer using TCP/IP suite of Application protocols

Source End IP Connectivity

- Use a source IP address
- Source end network layer connection through set of IP routers up to the destination IP address
- Smart Sensors IoT Communication framework and

Application framework connect to a gateway

Source End IP Connectivity

- Use a source IP address
- Source end network layer connection through set of IP routers up to the destination IP address
- Smart Sensors IoT Communication framework and Application framework connect to a gateway.
- The gateway has a data Consolidation/ enrichment/ transcoding Framework and IoT – IP communication framework
- The framework uses IP routers to destination which is identified by another IP address of destination

Internet Connectivity

- Internet connectivity is through a set of routers in a huge network of routers which carry data packets as per IP protocol from a source end to another and vice versa.
- A source sends data packets in IETF standardized formats to destination
- Each packet flows towards destination through set of router

Internet Communication

- Using layers between the Source Application layer and destination Application layer
- When data transmits from a layer i to next layer j the actions performed at each layer as per the protocol used for communication by that layer
- Each layer sends the data stack received from the previous upper layer plus sends a new header along with that stack, and thus creates a new stack after performing the actions specified at that layer

PDU (Protocol Data units)

- Each layer has a specific PDU
- A data segment (maximum 232 B per segment) from

L7 layer generates a TCP stream at the transport layer using TCP for transmission

- TCP stream received at transport layer consists of packets from internet layer of PDU maximum 232B.

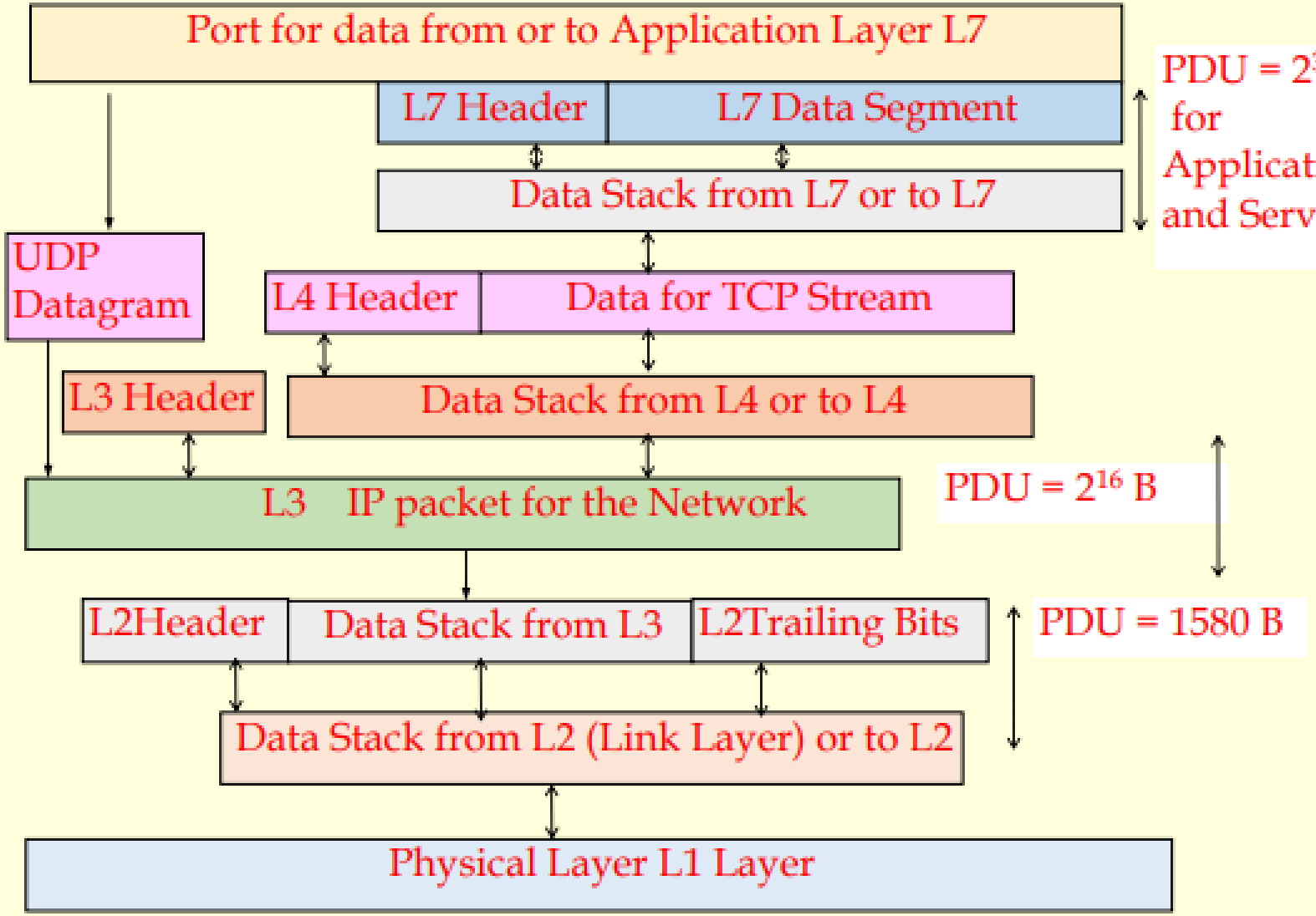

Fig. 4.2 TCI/IP suite four layers model generating data stack for the network, and for physical layer during Internet communication

Internet Communication

- Layerj will next specify the new parameters as per the protocol and creates new stack for next lower layer
- the process continues until data communicate over the network.

Upper Layers and Lower Layers

- Upper layers use the header words alone
- Lower layer, such as, data-link layer protocol, such as

Ethernet use trailing bits also, in addition to the header words.

Trailing bits- Usages can be as error-control bits and end-of-the frame indicating bits

Summary

- We learnt
- Uses of Source and Destination IP addresses
- Highest layer to lowest layer processing at source and headers added at higher layers and header plus trailing bits at lower layers
- Lower layer to highest layer processing at destination