

# Adaptation layer cum Gateway and the device management functions

## ‘Adaptation’ layer 2

- Includes a Gateway between adaptation layer and network layer
- Gateway enables communication between devices network and web server/cloud.

IoT  
or M2M  
Area  
Net-work

1. Data Management
2. Data Enrichment and Consolidation
3. Transcoding
4. Privacy,
5. Security,
6. Integration, Compaction and Fusion
7. Device Management

Physical/Data Link  
Layer

Adaptation  
Layer

Chapter-2 L04 "Internet of Things", Raj Kumar  
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**Fig. 2.7 IoT or M2M Gateway**

# Gateway

- Communication gateway: one which enables the devices to communicate and network with the web using distinct protocols
- Uses message transport protocols at physical device end and web communication protocols for the Internet.

# Adaptation layer Gateway Functions

- Examples: device management,
- data privacy,
- data security,
- data enrichment,
- data consolidation,
- Data transformation and
- IoT communication frameworks

# Data Source and Data Destination

- Each device and each device resource assigned an ID for specifying the data source
- Data destination **Addressing**
- Header fields add the destination address

# Data Characteristics, formats and Structures

- Taken into account when communication to next layer
- **Formatting:**
- XML, JSON, TLV formats
- MIME type file for Internet

# Device Management Functions

- Provisioning for the device ID or address,
- Device activation, and
- Device configuring. .

# Device Configuring

- Managing device parameters and settings,
- Device registration,
- Device de-registration,
- Device attaching, (enabled to communicate) and
- Device detaching (disabled to communicate)

# Device management Functions

- Accepting subscription for its resources
- Fault management: Course of actions and guidelines to be followed in case of a fault

# Data and Structure

- **Structure:** ways for arranging the data bytes in sequences of maximum sizes = PDU (Protocol Data Unit in bytes) for a layer.

# Gateway functions for device management (DM)

- Forwarding function when DM server and device can interact without reformatting or structuring
- Does protocol conversion when device
- DM server using distinct protocols

# Gateway functions for device management

- Does proxy function in case the an intermediate pre-fetch required in lossy environment or network environment needs

# Summary

We learnt

- Adaptation cum Gateway layer functions
- Device Management
- Provisioning for the device ID or address

# Summary

- Device activation, and
- Device configuring

End of Lesson 2 on  
Adaptation layer cum Gateway and  
the device management functions