Sociable Objects Workshop

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Plan for Today

- Internet Follow-up
- Final Project Discussions
- ZigBee Stack
- Profiles Clusters Endpoints
- Fast, Cheap & Out of Control
- Workshop for final projects
- Readings & Assignments

Internet Follow-up

Final Project Discussions

ZigBee Stack

ZigBee Layer	Description
PHY	Defines the physical operation of the ZigBee device including receive sensitivity, channel rejection, output power, number of channels, chip modulation, and transmission rate specifications. Most ZigBee applications operate on the 2.4 GHz ISM band at a 250kbps data rate. See the IEEE 802.15.4 specification for details.
MAC	Manages RF data transactions between neighboring devices (point to point). The MAC includes services such as transmission retry and acknowledgment management, and collision avoidance techniques (CSMA-CA).
Network	Adds routing capabilities that allows RF data packets to traverse multiple devices (multiple "hops") to route data from source to destination (peer to peer).
APS (AF)	Application layer that defines various addressing objects including profiles, clusters, and endpoints.
ZDO	Application layer that provides device and service discovery features and advanced network management capabilities.

Profiles Clusters Endpoints

ZigBee Application Profiles

- collections of device descriptions and functionalities for a specific application
- public or private
- home automation
- smart energy profile
- RF4CE
- Green Power

ZigBee Clusters

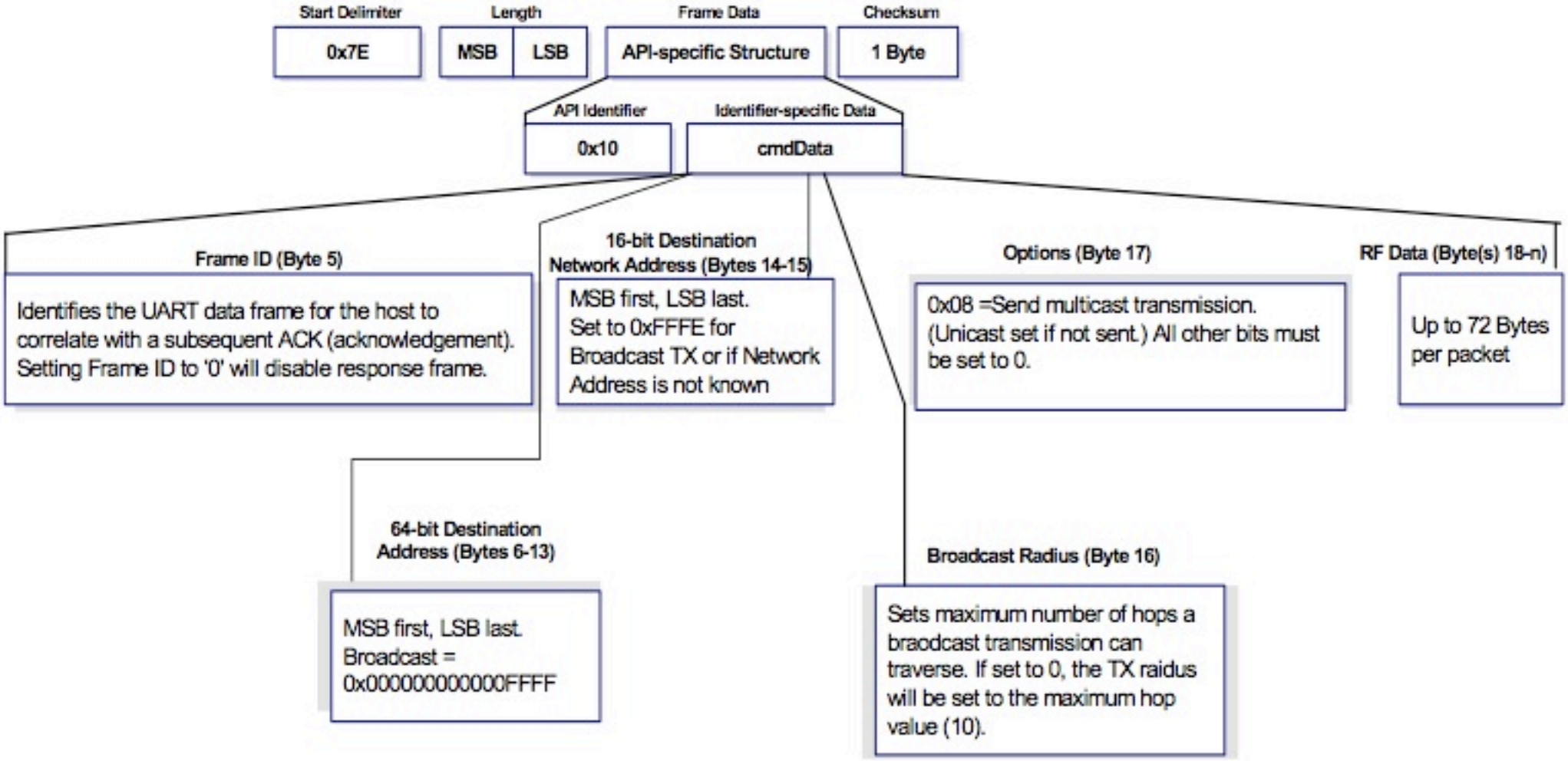
- subsets of application profiles
- define a function, service or action within a profile
  - level control
  - color control
  - thermostat messages

- two-byte cluster ID defines the message type

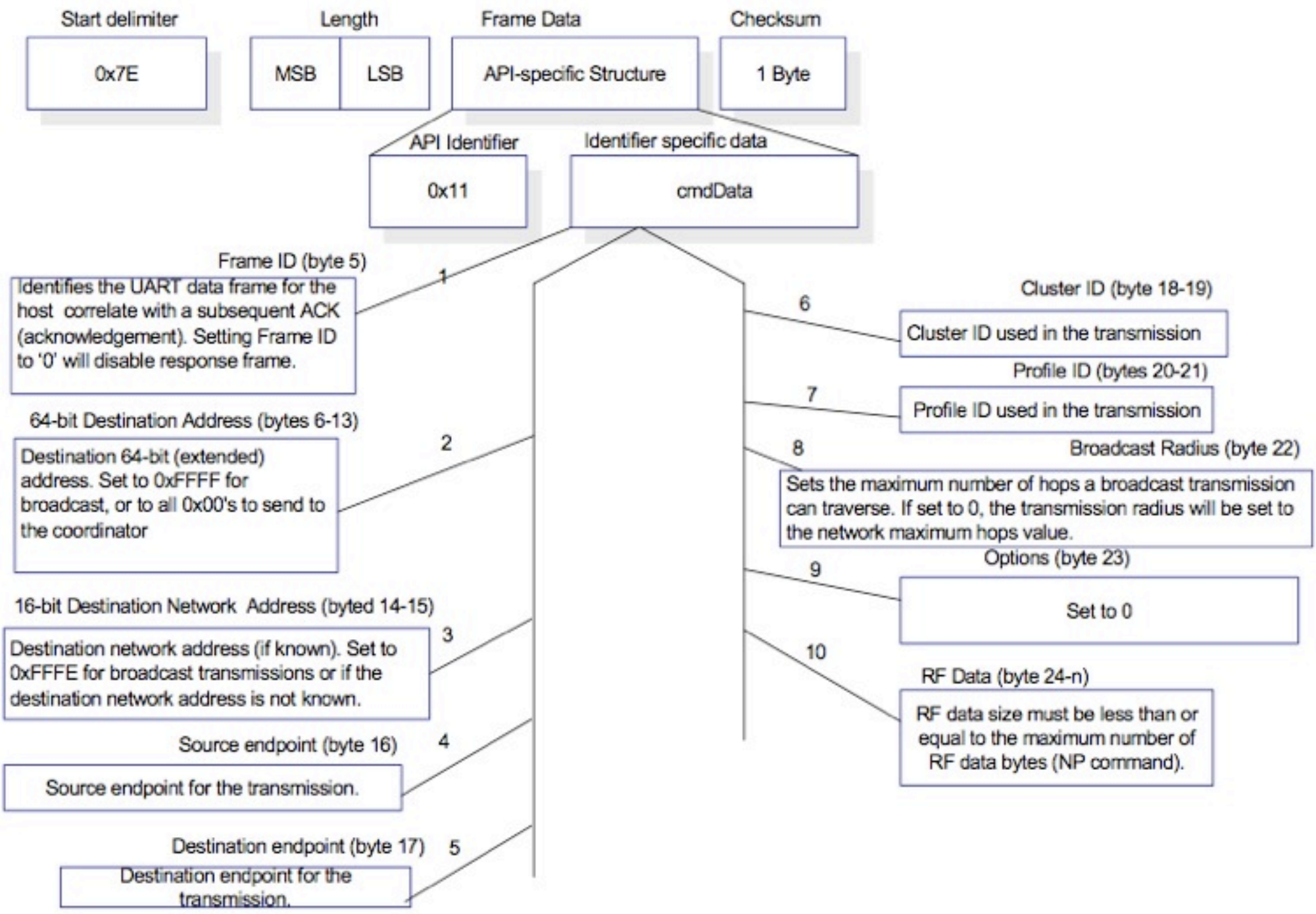
ZigBee Endpoints

- kind of like ports in TCP/IP
- define running application
- 1-byte address
- each endpoint is tied to an application profile

API Transmit Request



ZigBee Explicit API Transmit Request



Fast, Cheap & Out of Control

Final Project Workshop

Readings and Assignments

- Readings
  - ZigBee Stack and Application Layers, pp 21 -24

- Assignments
  - Final Project *make one!*