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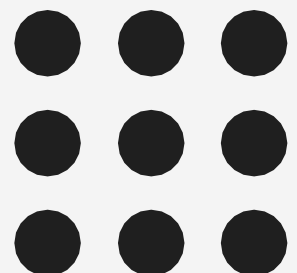
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Department of AI & DS

Course Name – Internet of Things & AI

III Year / V Semester



Functional view Specification

- The Functional View (FV) defines the functions of the IoT systems grouped into various Functional Groups (FGs).
- Each Functional Group either provides functionalities for interacting with instances of concepts defined in the Domain Model or provides information related to these concepts

The functional groups in a functional view include:

Device,
Communication,
Services,
Management,
Security, and
Application.

The functional view specification for home automation system is shown in the below figure:.

Step 7: Functional View Specification

- **Device:** An IoT system comprises of devices that provide **sensing, actuation, monitoring** and control functions.
- In the home automation system example, the device FG includes a single board mini-computer, a light sensor and a relay switch(actuator)



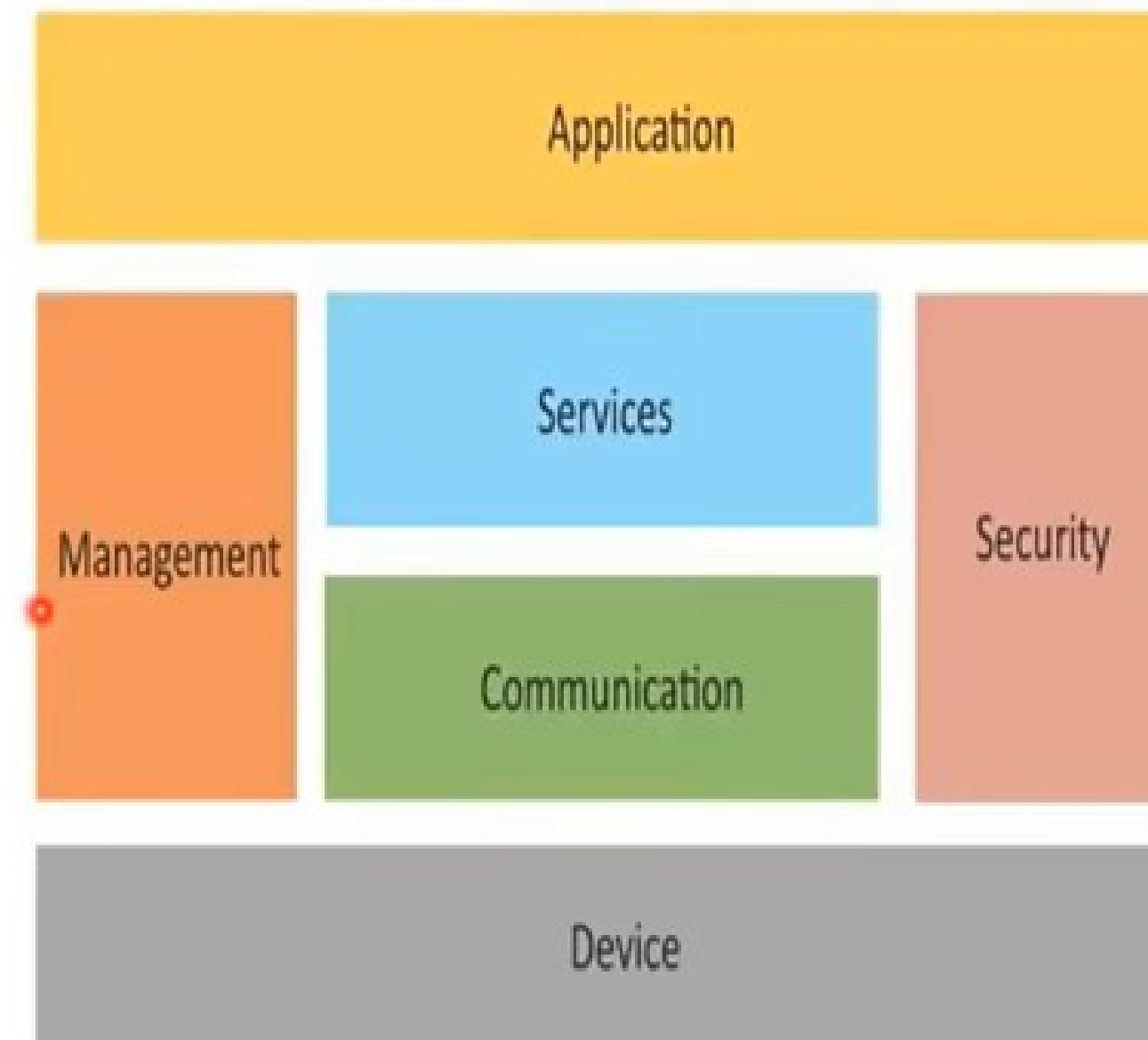
Functional blocks

- **Services:** services for device monitoring, device control service, data publishing services and services for device discovery.
- In the home automation example, there are two REST services (mode and state service) and one native service (controller service)

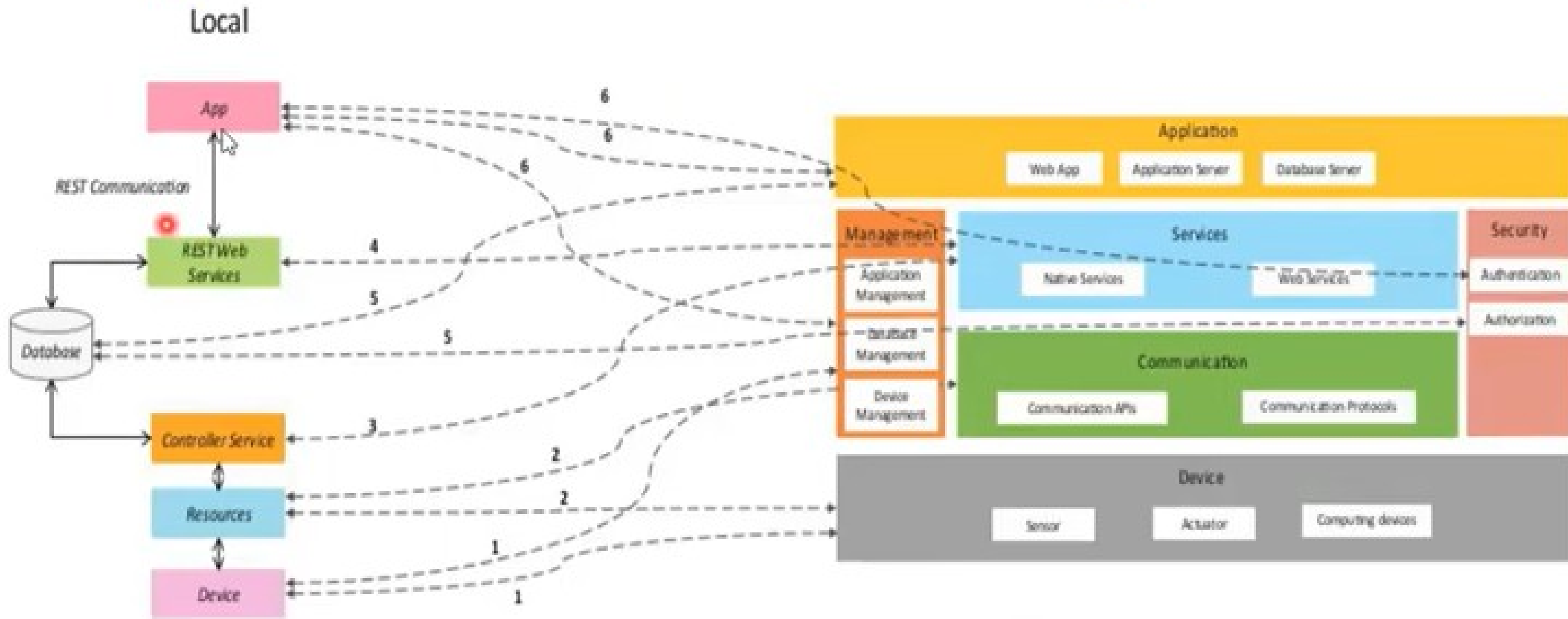


Functional blocks

- **Management:** this blocks provides **various functions to govern** the IoT system.
- It includes all functionalities that are needed to configure and manage the IoT System.



Step 7: Functional View Specification



1. IoT device maps to the Device FG (sensors, actuators devices, computing devices) and the Management FG (device management)

2. Resources map to the Device FG (on-device resource) and Communication FG (communication APIs and protocols)

3. Controller service maps to the Services FG (native service). Web Services map to Services FG (web services)

4. Web Services map to Services FG (web services)

5. Database maps to the Management FG (database management) and Security FG (database security)

6. Application maps to the Application FG (web application, application and database servers), Management FG (app management) and Security FG (app security)