



# PoC Projects

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# Smart City: GovTech Singapore

## Person Density/Fever Mapping

- Use of AI and thermal cameras for health monitoring; pandemic management



## City Dashboard

- Collection and visualization of data to support decision making

## Transportation

- Fleet management, mapping, routing; both logistics (deliveries) and people

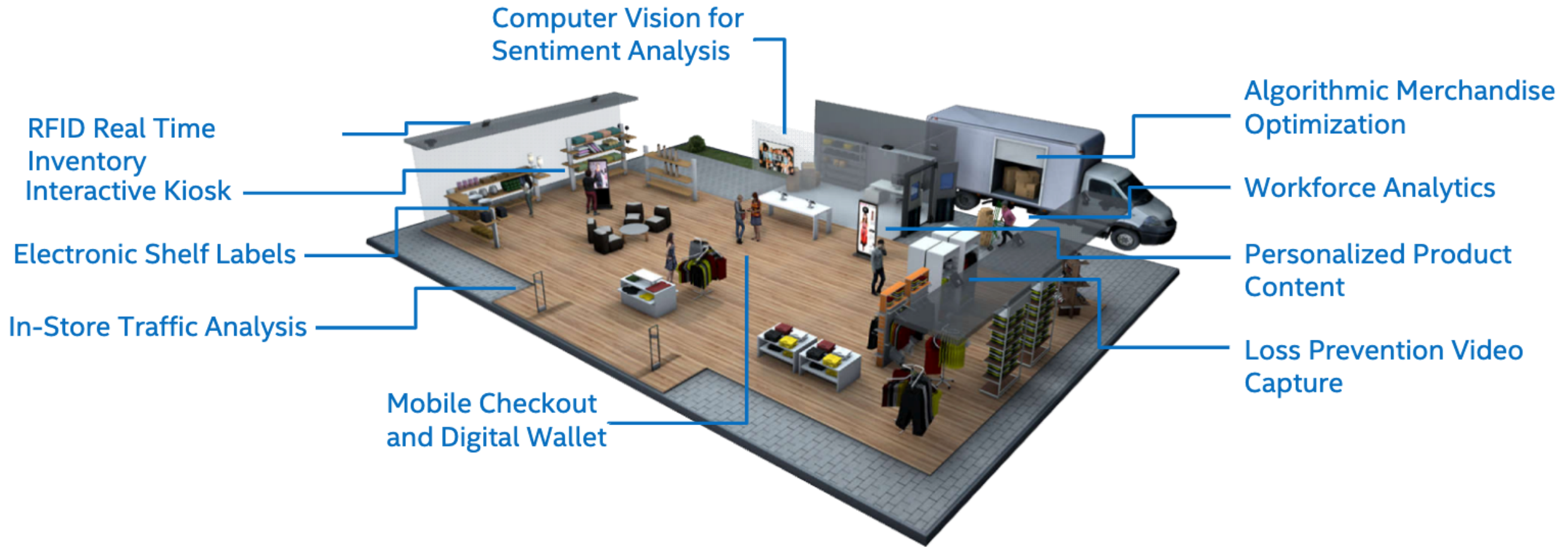
## Robotics

- Security patrols, parks, sensor placement, mapping, coordinated land and air swarms

## Geolocation

- Component of most of the other use cases; both static and dynamic (portable)

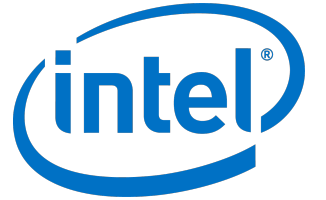
# Retail: Intel ORI/EdgeX/Conexxus



# Retail PoC Collaboration



- Intel's Open Retail Initiative (ORI)
- EdgeX Foundry
- Connexus
- W3C Web of Things



# Retail Scenario: Buying an Ice Cream



Camera captures image and sensor detects freezer door opening

Camera

Freezer Door  
Sensor

Data analytics identifies person and product

Person  
identification

Person  
tracking

Product  
identification

Alert based on location and behavior

To counter:

Associate facing alert:  
Customer waiting

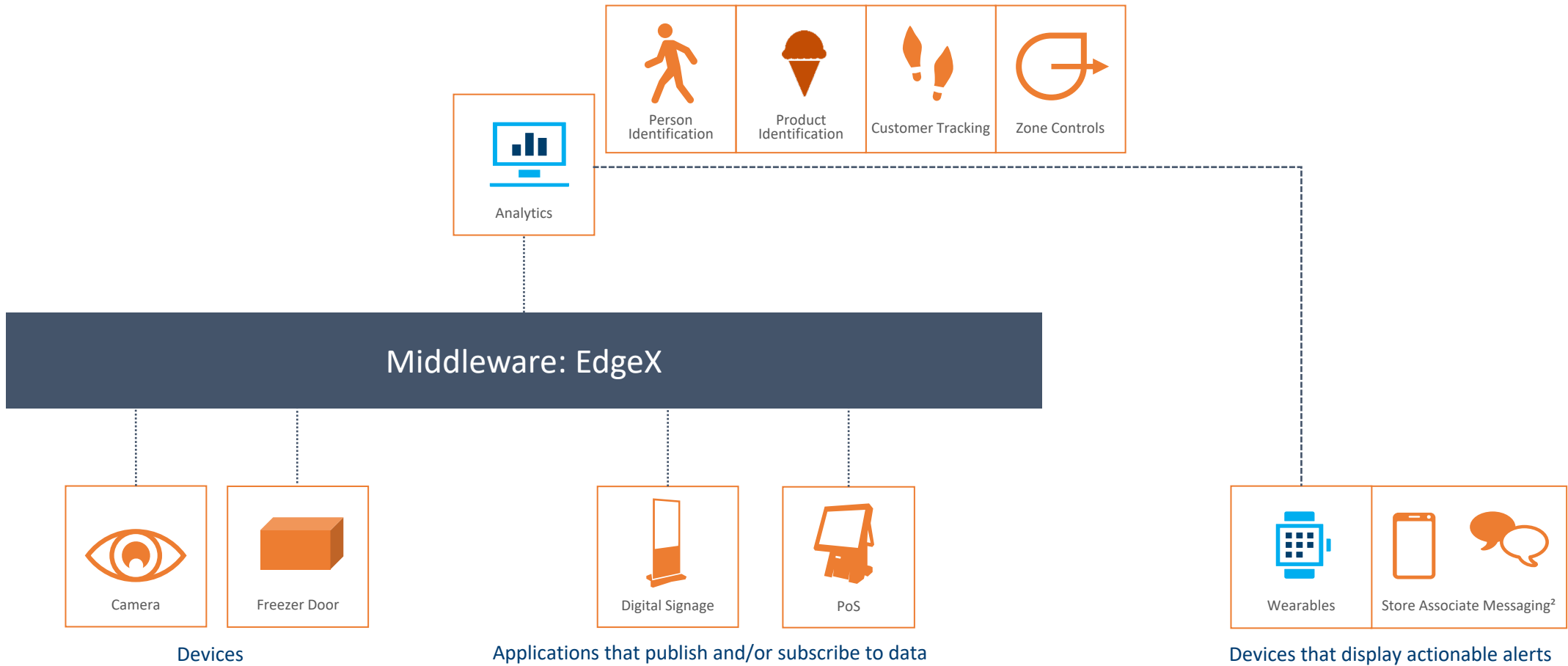
Customer facing alert:  
Price display

To door:

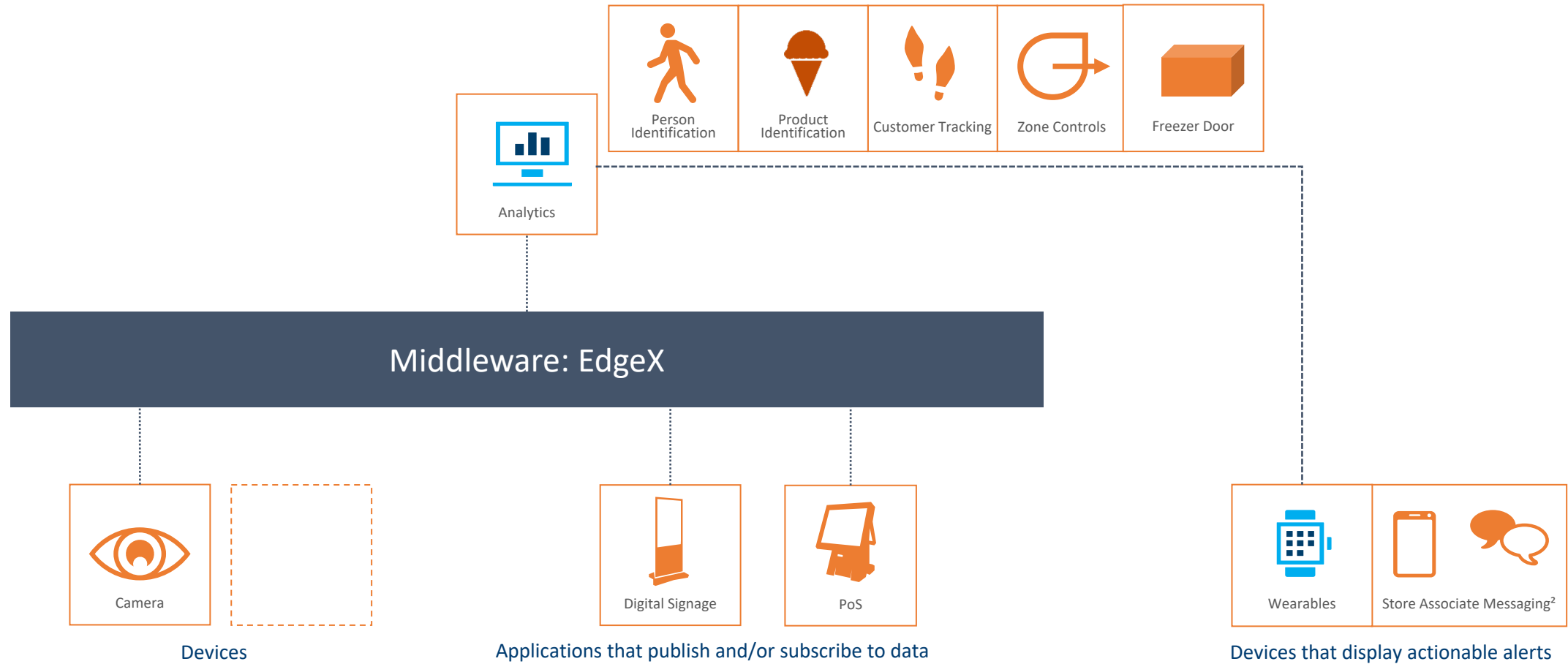
Associate facing alert:  
Zone violation

Customer facing alert: Door  
“reminder” display

# High Level Diagram of Implementation



# Adaptation: Replace Real with Virtual Device



# Showcase Need for End-User Programming

## Adaptation to Available Devices

- In order to consolidate services, devices need to be shared
- Services developed in a “siloed” fashion assuming exclusive access to devices cannot be consolidated
- Services may have to adapt to (or be adapted to) substitute devices

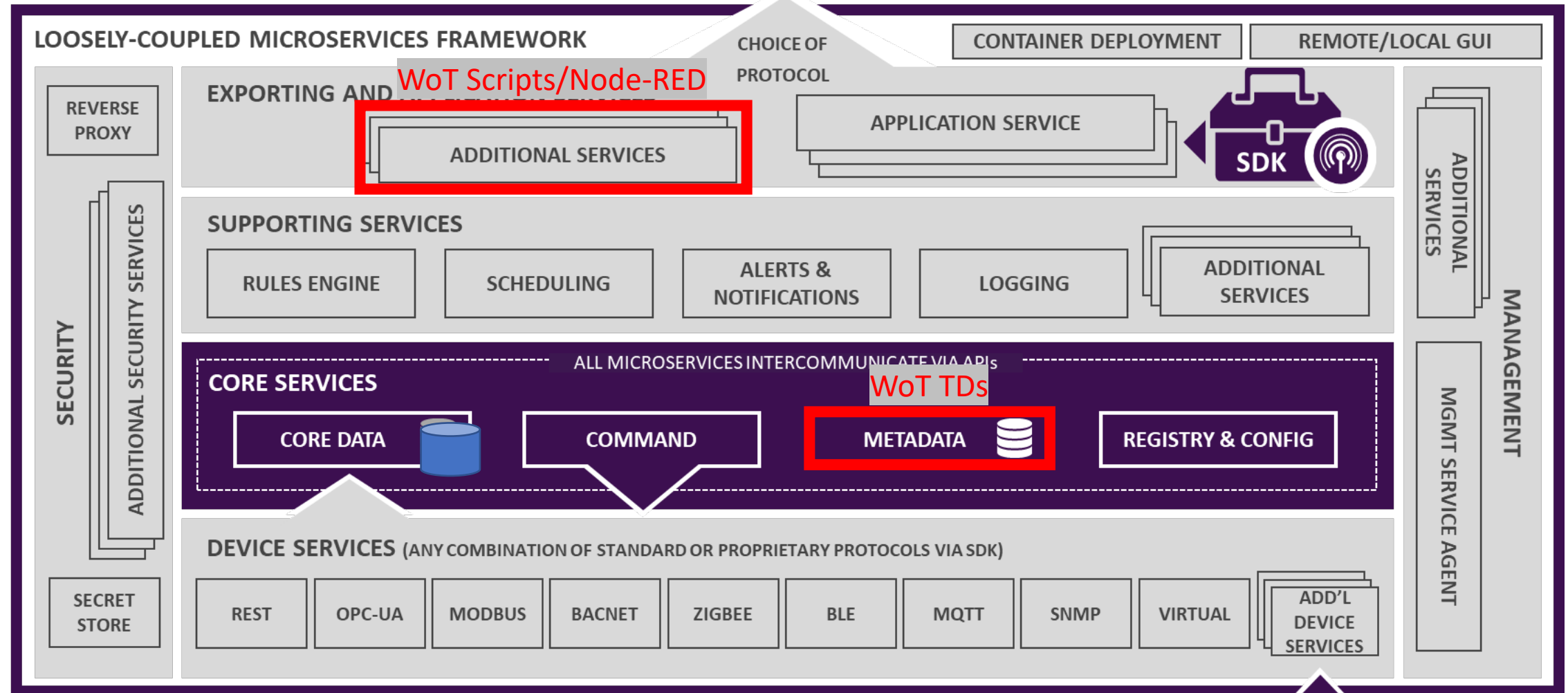
## Rapid/Easy Development

- Adapting services to a given environment may require some “end-user programming”
- This should be as simple as possible
- Tools should support device and service connection, substitution, and sharing





"NORTHBOUND" INFRASTRUCTURE AND APPLICATIONS



2020-06-23

"SOUTHBOUND" DEVICES, SENSORS AND ACTUATORS



# Planned WoT/EdgeX Integration

1. Generate WoT Thing Description metadata for all EdgeX Device services
  - Including semantic tagging using One Data Model
2. Generate WoT Thing Description metadata for select EdgeX Analytics services
  - Computer vision services
3. Prototype a Thing Directory service supporting semantic search
  - To run in parallel with existing EdgeX metadata service
  - Existing EdgeX discovery process would act as “Introduction” layer – WoT Discovery prototype
4. **Support Rapid Orchestration Development**
  - Using WoT Scripting API and node-wot
  - Using node-gen to generate Node-RED modules
5. Stand up Retail use case examples that integrate IoT and Analytics:
  - Loss detection video analytics triggered by an IoT door sensor
  - Digital shelf signage/RFID and weight-based inventory control/item identification
  - Customized marketing content based on video analytics

# Other PoCs and Deployments