ETSI IoT Week 2022

Managing AI Services with oneM2M and Semantics

Przemysław Ratuszek

orange™

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Orange showcase focus

✓ Using oneM2M Semantics

- Using the Semantic Descriptors to describe devices and the services they offer.
- Mixing ‘pure SDT’ approach and ontology-based semantics.
- Using semantics to express device dependencies:
  - Service dependency (a device consumes a service offered by another one).
  - State dependency (a device measures a property controlled by another one).

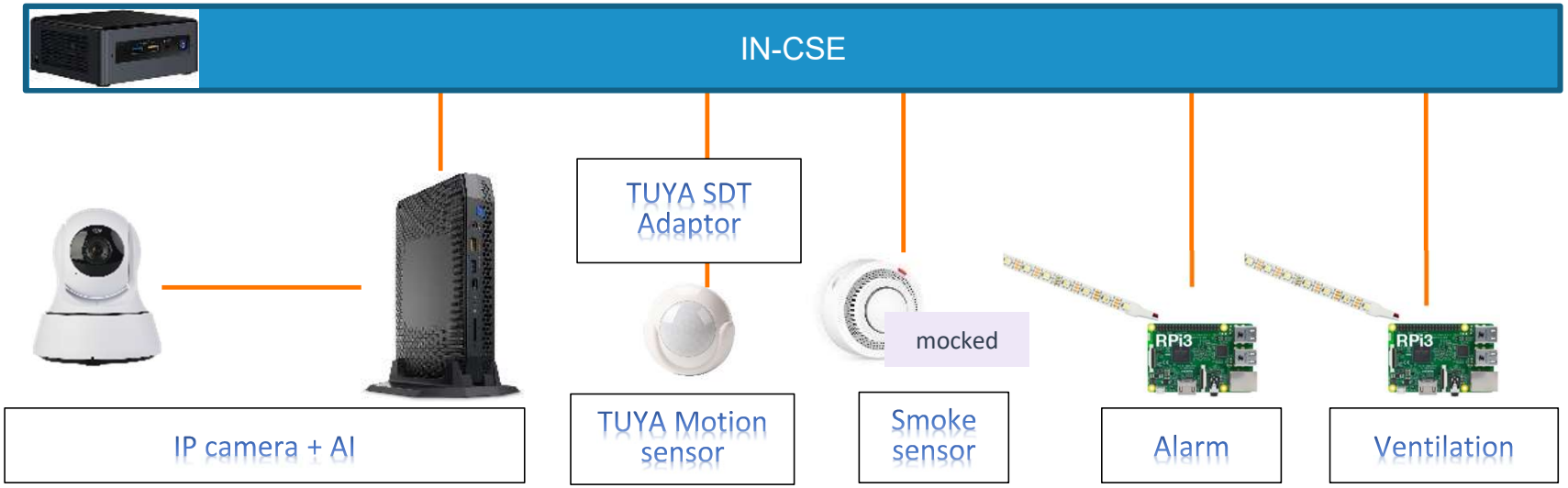
✓ Using oneM2M and SDT for AI based services

- Semantic descriptor as a way to extend SDT devices with AI data.
- Accessing the AI data related with SDT devices with the help of semantic queries.
- Using the AI image processing in SDT devices control.

✓ Semantic Management of IoT devices

- Using dynamic computations to add / remove dependencies between devices and services.
- Enrichment of the semantics through external triplestores (e.g. from a Building Information Model).

Orange Showcase Architecture



Showcase scenario

✓ Part 1 – oneM2M and AI

- Using oneM2M and AI to take automatic actions based on the number of persons present in a zone:
  - If the number of the persons in the restricted zone is not zero an alarm is triggered (the led strip changes the color to red), when the number of persons in the restricted zones goes back to zero the alarm is canceled (the led strip turns off)
  - Depending on the number of persons in the „green zone”, it increases or decreases the ventilation / air conditioning setting. The setting will be visualized through a led strip - number of lit up leds and their color will represent the fan speed setting.

✓ Part 2 – automatic reconfiguration using semantic reasoning

- Show how semantic descriptors can be used to build applications that are capable of „self repair”.
  - In the nominal case a oneM2M application provides an alarm service using a motion sensor, a smoke sensor and a light alarm.
  - To show the AE „self repair” capabilities we deliberately turn down the motion sensor and allow the application to find a substitute device (in this case the AI enriched camera) that proposes the same service and therefore will allow the application to continue running.

IoT Week 2022

Thank You

Przemysław Ratuszek
przemyslaw.ratuszek@orange.com