



Intelligent and decentralized Applications on constrained objects using Semantic Web technologies for Sustainable Agriculture and Smart Buildings

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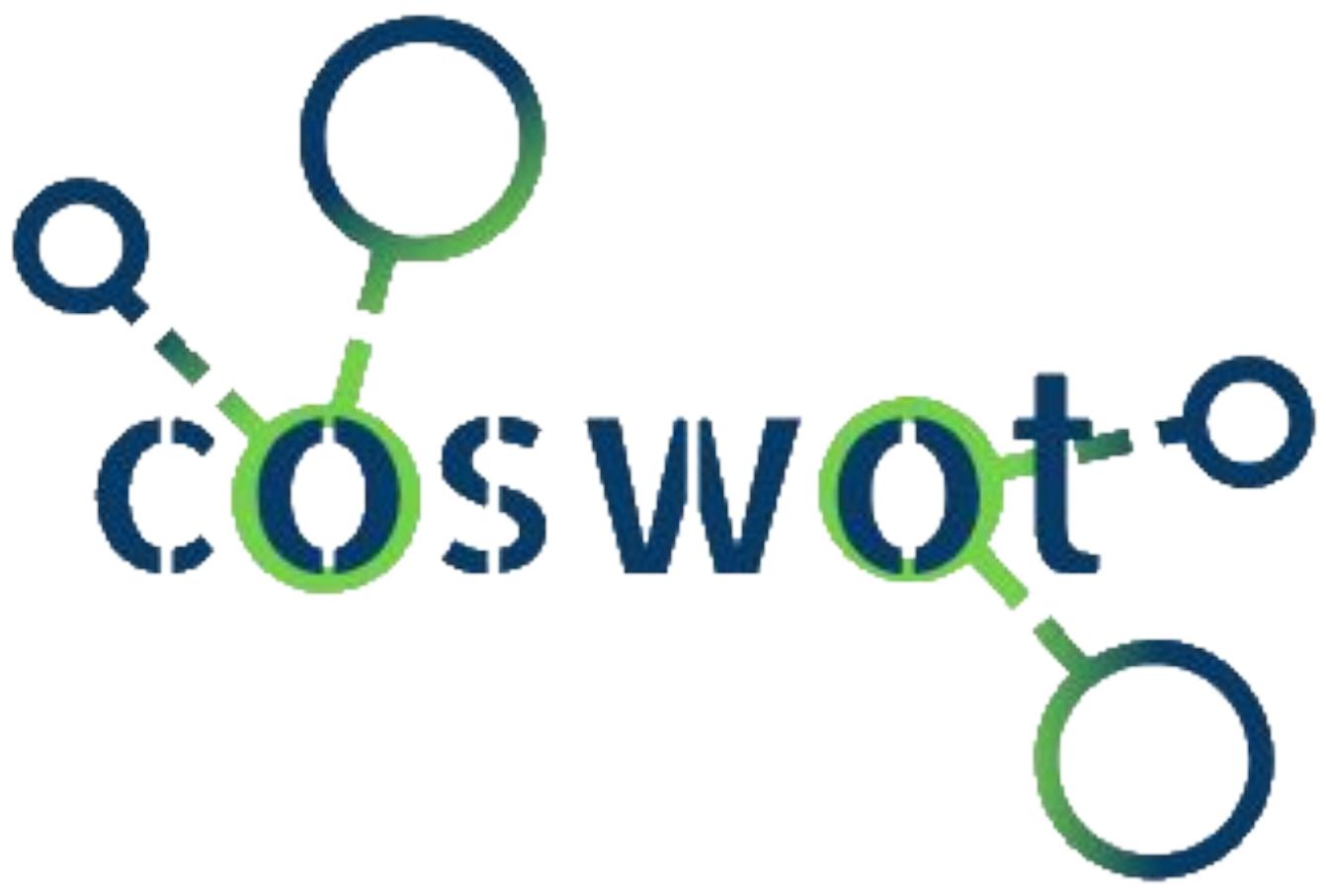
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Constrained Semantic Web of Things

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Problems

- Internet of Things (IoT) connects physical devices
- Heterogeneous devices with various capabilities
- How to build collaboration between devices to propose new services ?
- How to break down manufacturers' silos?

Goal

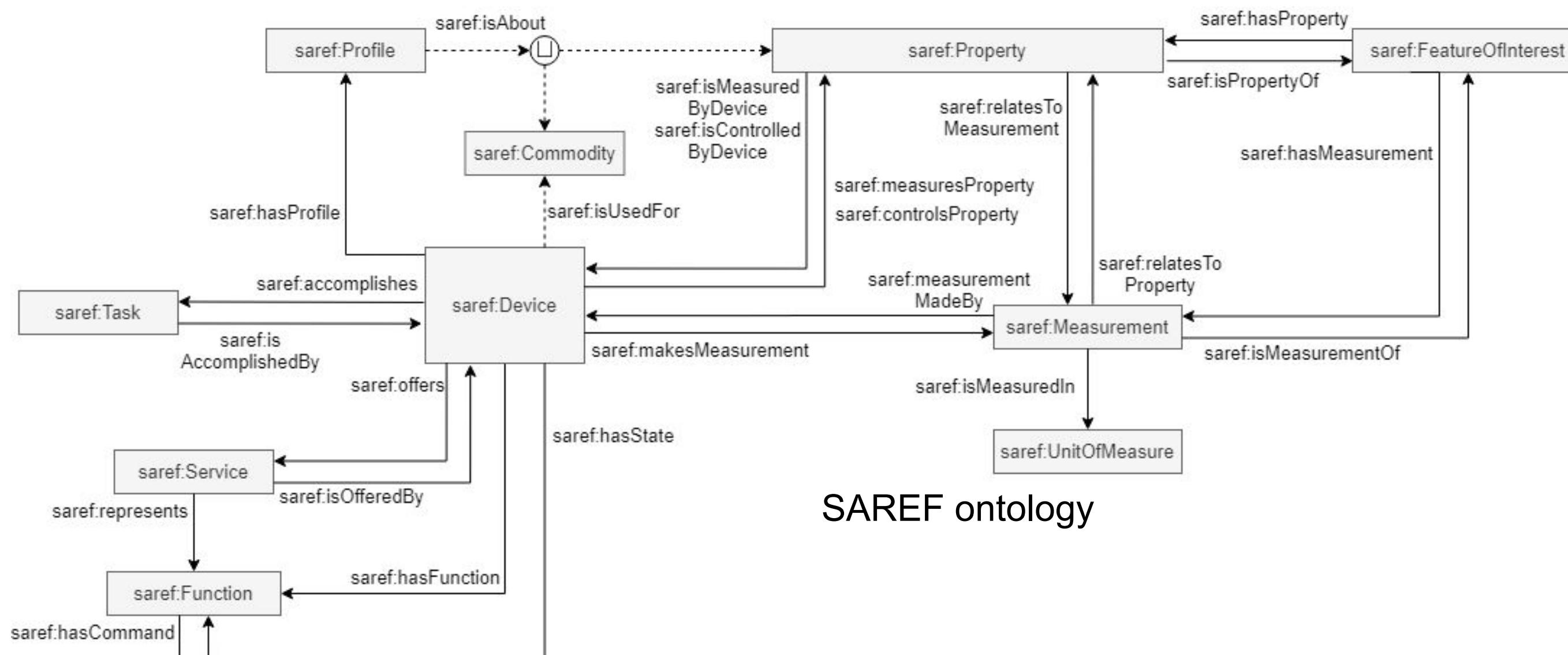
- The Web of Things (WoT) integrates Web standards with physical devices
- Build a WoT platform to enable the development and execution of intelligent and decentralised smart applications despite the heterogeneity of devices.

Constrained Objects

- Embedded reasoning
- Limited CPU, Memory, Network, resources...

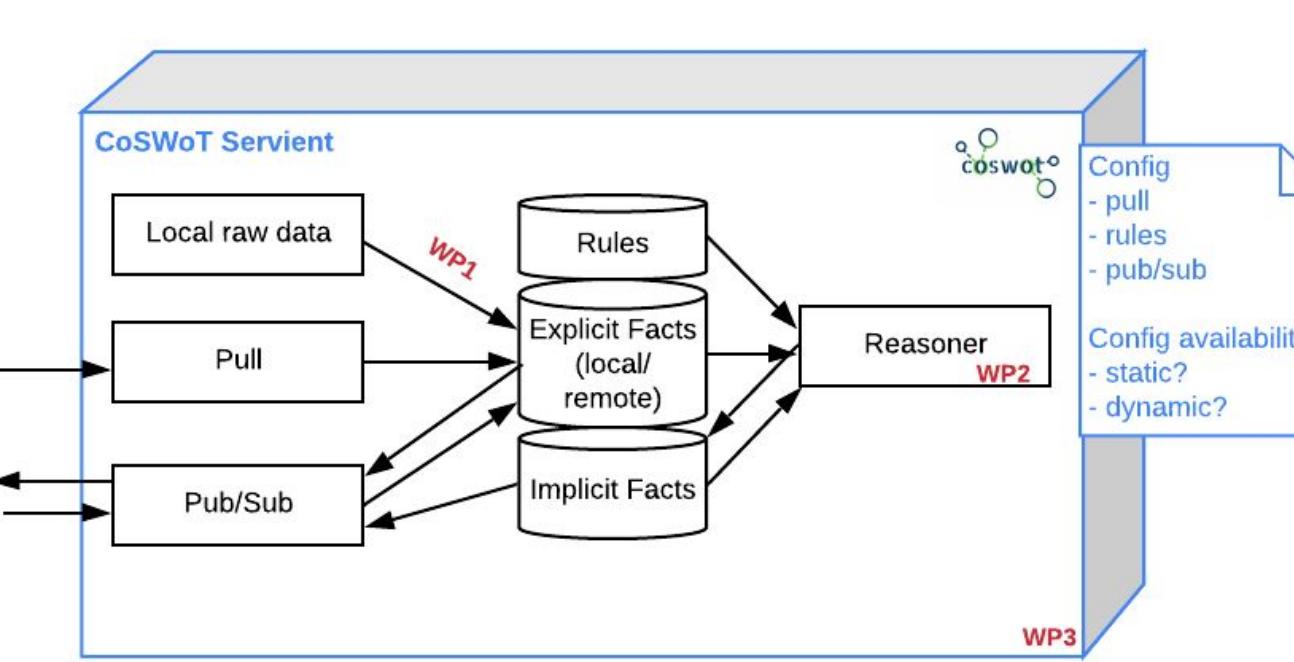


Semantic Web technologies for Interoperability



Network of ontologies:

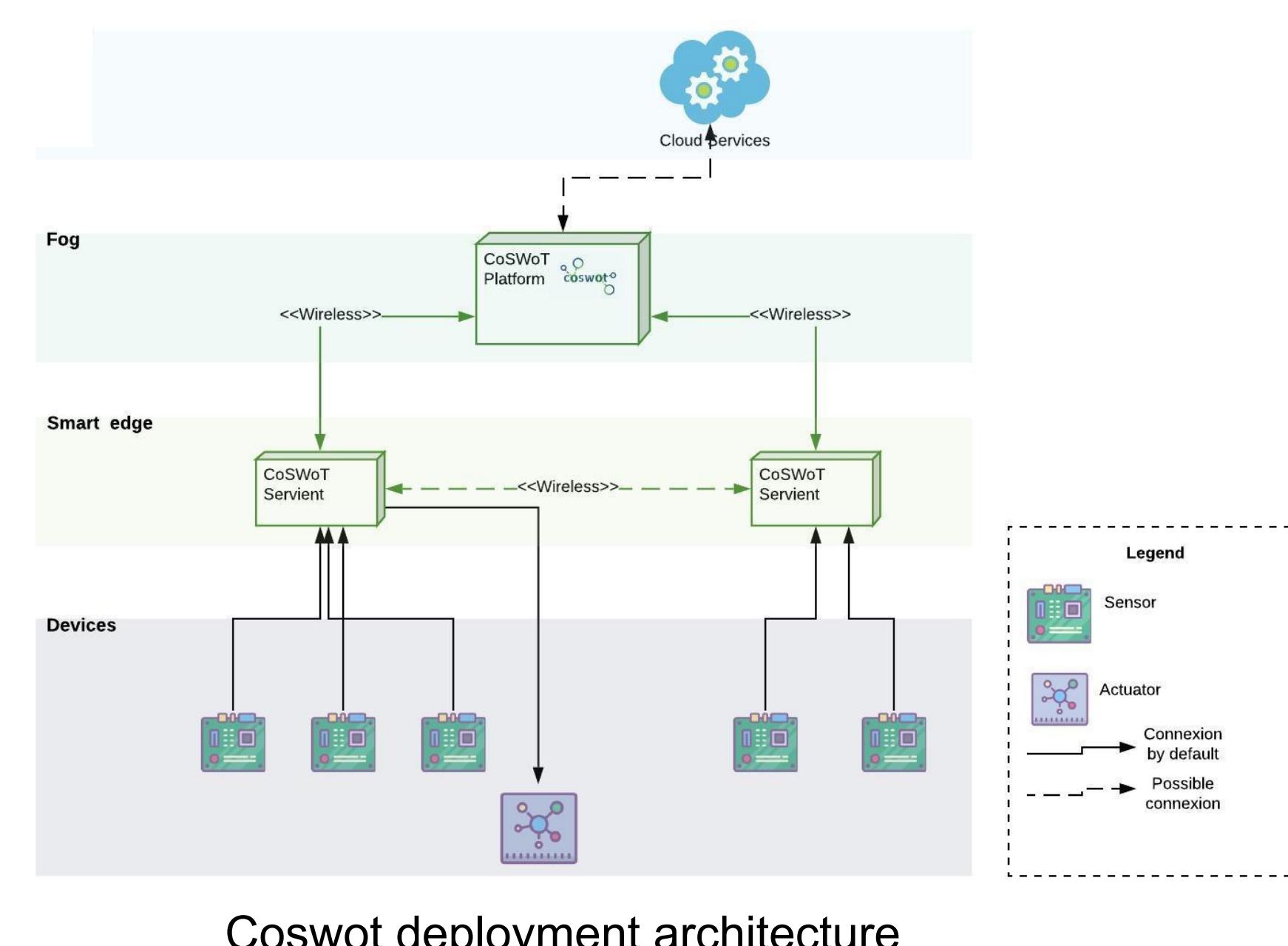
- Sensor Ontologies: SSN/SOSA, SAREF, CASO...
- Web of Thing ontologies: Thing Description, oneM2M...
- Domain ontologies: SAREF4BLDG, SAREF4AGRI, IRRIG...



WoT servient functionalities

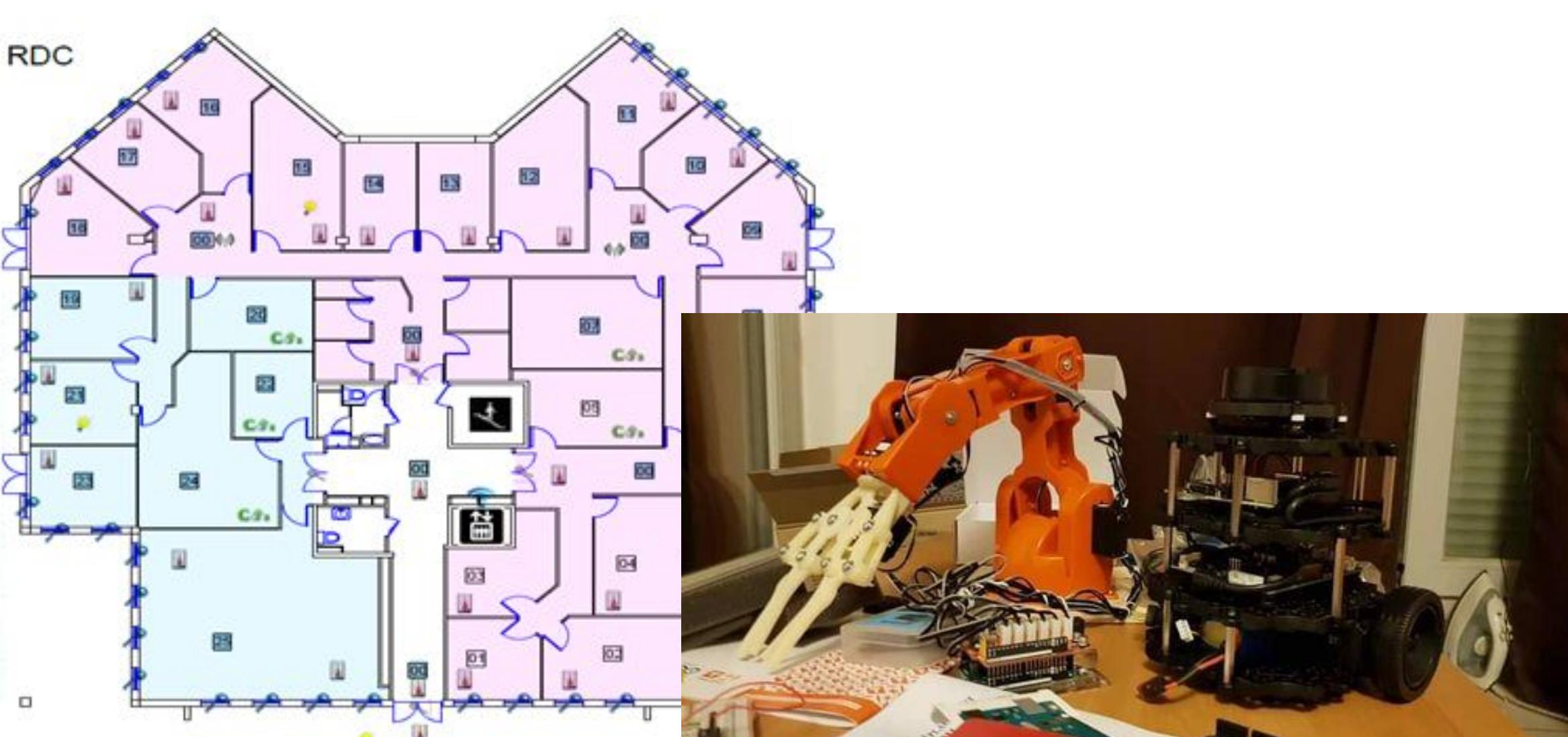
Decentralized architecture

- Distributed reasoning
- Processing data close to source (Fog/Edge Computing)
- WoT Servient: first class citizen of our architecture



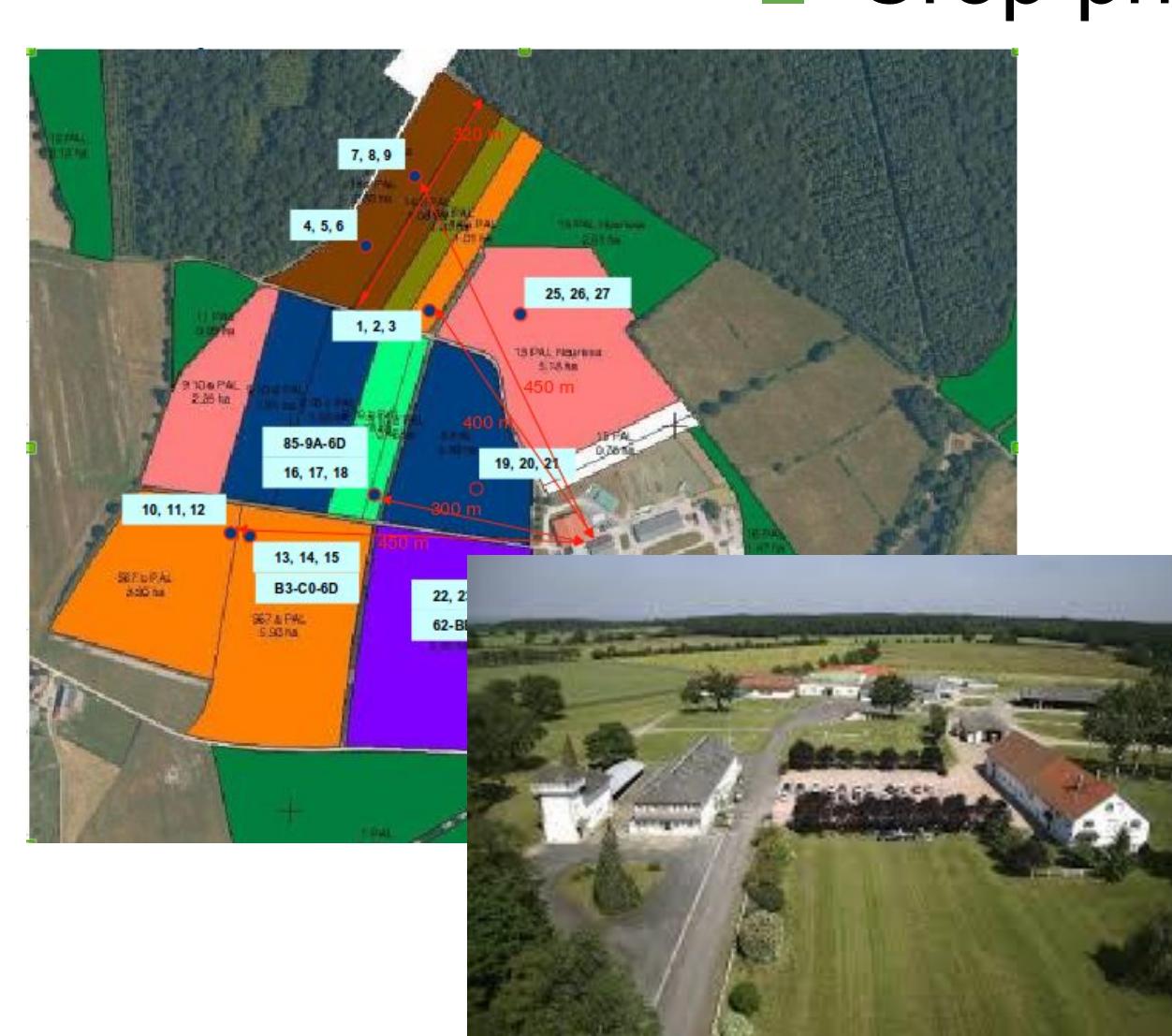
Smart Building Use Case

- User comfort and safety
- Personal data reports
- Management of room ventilation (COVID)



Smart Agriculture Use Case

- Automatic irrigation based on weather station
- Field access management for robots
- Crop phenological stage detection



Acknowledgements

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