



Enabling the Business-Based Internet of Things and Services

Semantic interoperability

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Peter Rosengren, CNet

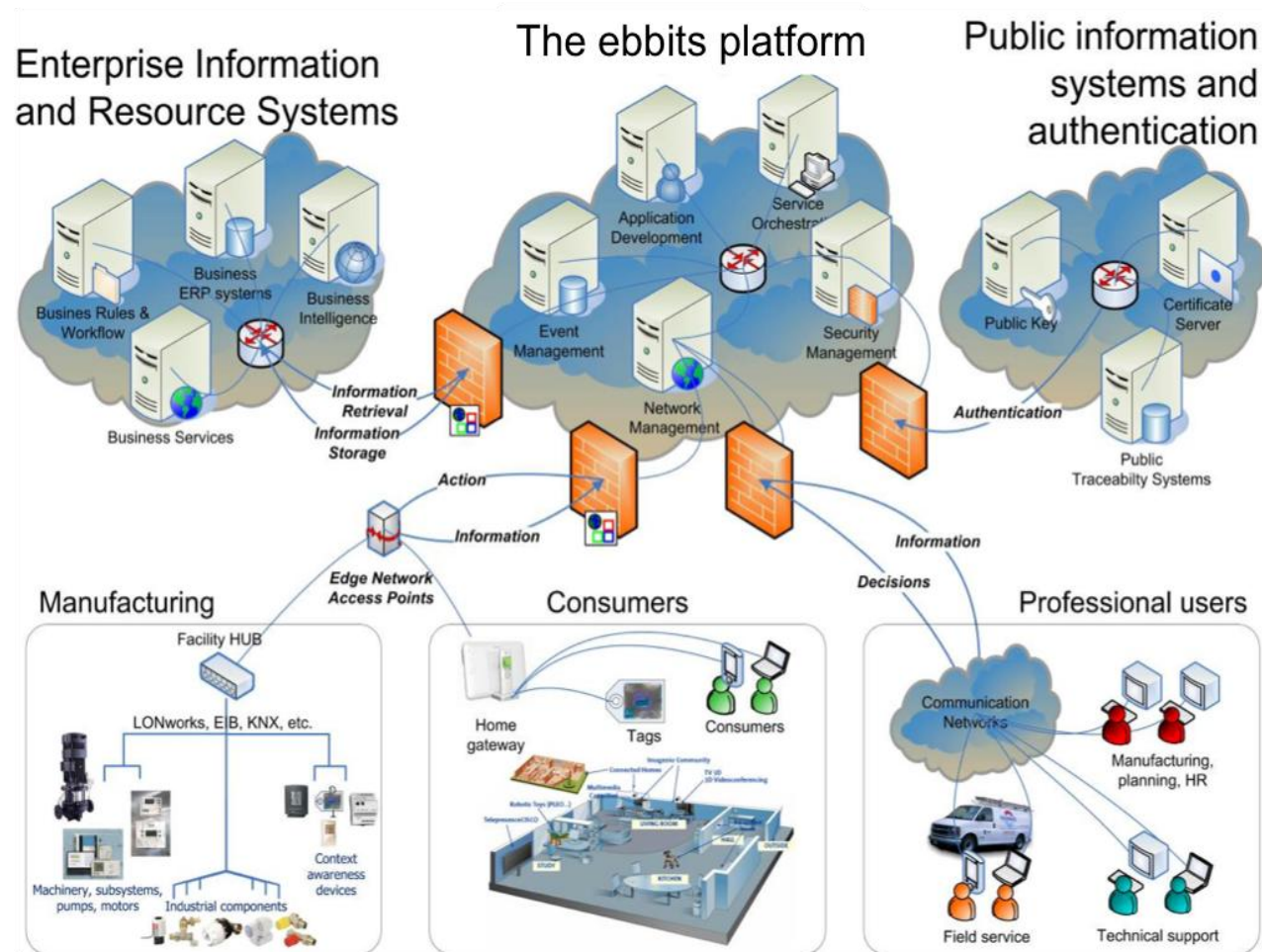
Technical Coordinator



European Commission
Information Society and Media



Enabling technologies for the Internet of Things and Services





Technical aim

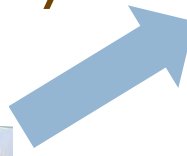
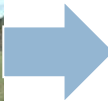


- Develop an IoPTS-based platform that allows enterprises to develop and deploy a new range of business applications
 - Everything is a service and can be integrated into enterprise systems
 - Physical world data will feed directly and seamlessly into mainstream business systems



Ebbits use cases

- Car manufacturing
 - Energy efficiency of manufacturing processes
 - Predictive maintenance
- Agriculture
 - Food traceability





Ebbits use of semantics

- Managing device heterogeneity
 - Device ontology to describe capabilities, services and interfaces
- Layered event management
 - Aggregating, filtering and transforming low-level events into high-level semantic events
- Reasoning over large amounts of hybrid data
 - Sensor streams, Linked Data, text
- Mapping and integrating device/sensor data into mainstream business system



Tools and technologies

▣ IoT modelling

- ▣ OWL-based ontologies (TopBraid+OWLIM)
 - Device
 - Events
 - Context
- ▣ Basis for interoperability between all components

▣ IoT Data Processing

- ▣ Distributed Rule-based approach – Drools and XSL-T

▣ IoT Semantic Data Management

- ▣ object relationships and models
- ▣ Triple Stores - BigOWLIM

▣ IoT Device/Sensor Interoperability

- ▣ Extended UPnP for metadata descriptions from devices
- ▣ JSON descriptions for Contiki-based sensors



Tools and technologies

- Relevant standard frameworks
 - ISA95 for manufacturing
 - OPC/OPC UA for industrial automation
 - ISO-standards for agricultural data exchanges
 - EPCGlobal for traceability



More information:

www.ebbits-project.eu