Master Thesis

Interoperable Interface for IoT Devices

Keywords: Semantic, Internet of Things, Interoperability, Middleware.

Context:

SPARQL Event Processing Architecture (SEPA), which is shown in the figure presents a decentralized Web-based architecture designed to support the development of, distributed, dynamic, context-aware and interoperable services and applications. The architecture enables the detection and notification of changes over the Web of Data by means of a content-based publish-subscribe mechanism where the W3C SPARQL 1.1 Update and Query languages are fully supported and used respectively by publishers and subscribers. The architecture is built on top of the W3C SPARQL 1.1 Protocol and introduces the SPARQL 1.1 Secure Event protocol and the SPARQL 1.1 Subscribe Language as a means for conveying and expressing subscription requests and notifications. The reference implementation of the architecture offers to developers a design pattern for a modular, scalable and effective application development.

The idea is to develop a new NGSI-LD interface specification which is including ontology and semantic event processing and can be powered by SEPA. For more information, here is the useful links into an article:

https://www.researchgate.net/publication/324703465_Dynamic_linked_data_A_SPARQL_event_processing_architecture
https://www.etsi.org/deliver/etsi_gs/CIM/001_099/009/01.01.01_60/gs_CIM009v010101p.pdf

Your Tasks:

Implementation of interoperable interface

Profile:

- Programming skills: C++/ Java
- Knowledge about semantic web, ontology, RDF, SPARQL …

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