Master 2 research Internship
IoT discovery service for IoT applications

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2015-2016

Keywords Software engineering, Middleware, Internet of Things

1 Context

With the Internet of Things paradigm, smart objects are evolving from ambient objects, only accessible in the surrounding environment, to Internet objects, world wide accessible. In this perspective, it becomes possible to develop new types of mass market IoT based services in several domains such as domotic, health care, smart cities. However, because of the number of objects encompassed by IoT, their dynamicity and their world wide accessibility, the middleware community faces new challenges. Discovery of objects by IoT services is one of them.

2 Subject of the research internship

The subject of this research internship is the exploration of both discovery services for the IoT and the software engineering process to easily include discovery in the development of an IoT service.

Frameworks for developing IoT services are emerging (e.g., Eclipse IoT [1]), however, they don't include yet a discovery service, they use instead name or IP address of the object. With IPV6, every object may have its own IP address. Thus, IoT service basically could use object's IP address to interact with objects. However, is this the good level of abstraction to be used by applications to discover objects? Which higher level abstractions could be the appropriate alternatives to be used by IoT service designers (e.g., object type, geographical criteria, social criteria [2])? How to design a middleware to easily integrate discovery requests into an IoT service?

3 Work Plan

- State of the art regarding integration of IoT discovery in IoT service design
- Discussion and proposition of discovery abstractions
- Proposition of a middleware for the discovery of connected objects
- Evaluation of the proposition with regards to the facility of usage for software designers

4 Administrative information

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