COCA

A SERVICE INFRASTRUCTURE FOR THE INTERNET OF THINGS BASED ON XMPP

*IT PLATFORM AND USE CASES FOR THE CONNECTED CAR DOMAIN (COCA)*

Goals

- Develop an open, reliable, flexible and highly dynamic service platform also adequate for business use cases
- Aggregate similar data streams to optimize data troughput
- Conceptually include mobile devices into platform architecture from the start for maximum compatibility
- Establish XMPP in the world of IoT

Research Topics

- Service-oriented XMPP
- Service level agreements
- Internet of Things
- Connected Car
- XMPP-based event routing middleware

CoCa
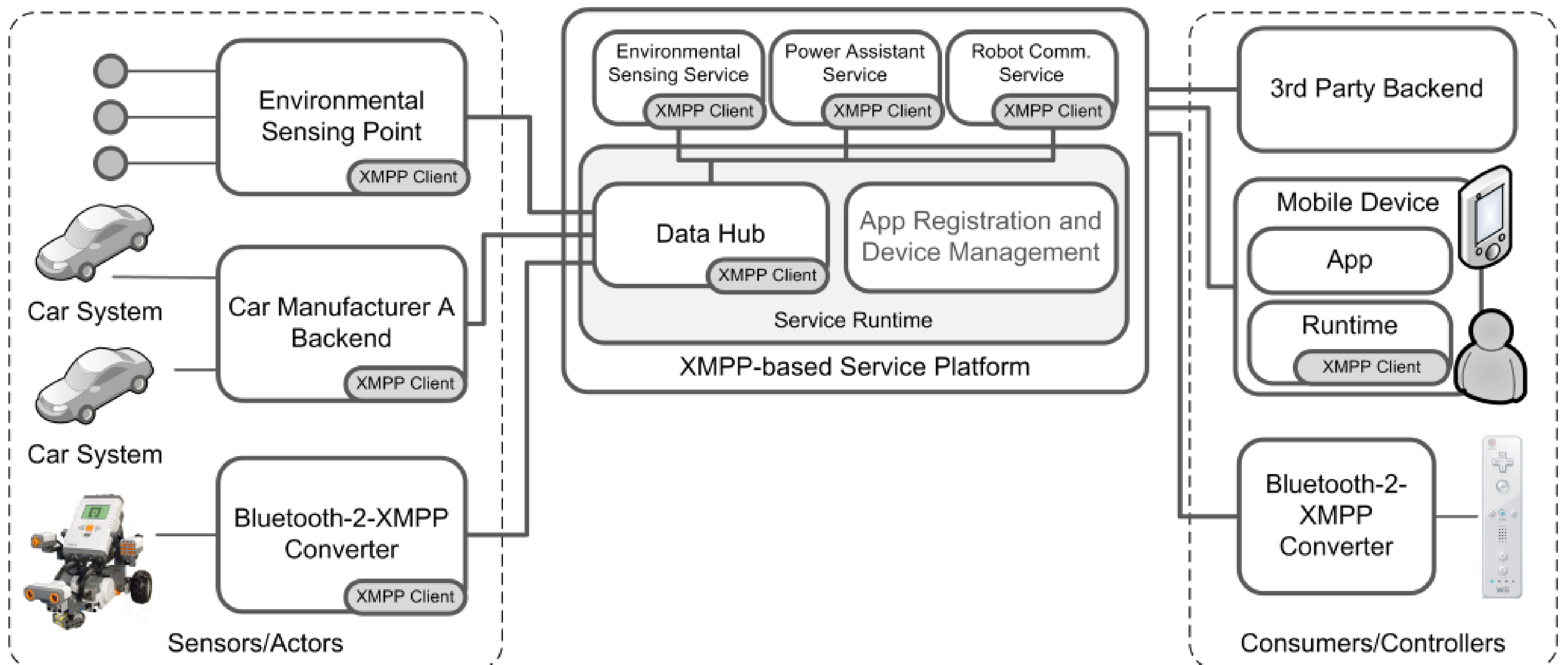
RemoteBot

- Configuration, remote control and monitoring for Lego Mindstorms robots via mobile devices
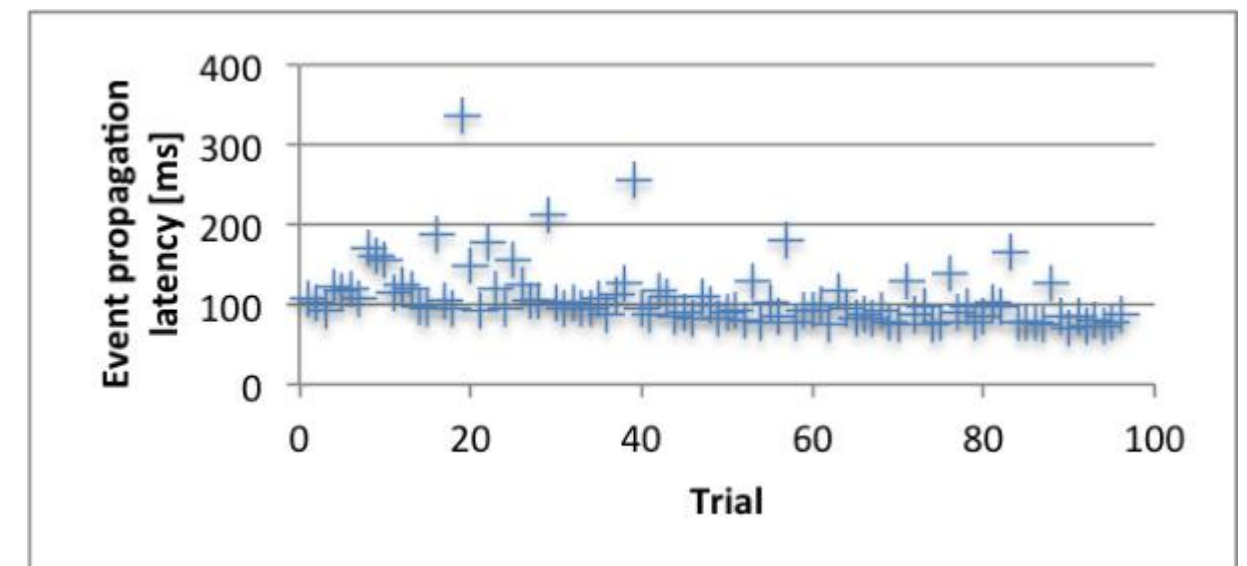

PowerAssistant

- Informs electric car drivers about nearby charging station offers
- Considers real-time car battery state and position
- Always up-to-date thanks to PUSH via XMPP

Evaluation: Latency

1 generator : 20 clients : 100 trials (1/s)

Mobilis

- Support for building and deploying services used by mobile apps
- Provide easy authentication and direct communication among all entities
- Convenient APIs for Android, Javascript and Java (Objective-C planned)
- Provides an emulation environment to test complex use cases
- Unified XML-based communication

XMPP

- eXtensible Messaging and Presence Protocol
- standardized and highly extensible communication protocol
- data exchange via bidirectional XML streams over TCP
- scalable due to federated architecture
- Service Discovery, Pub/Sub, Multi-User Chat, File Transfer

MOBILIS

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