Context-Aware Infrastructures for Mobile Services

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Overview

- Context
- Services
- Context-aware service discovery and orchestration
- Scenario
Context

Context (Dey):
Context is any information that can be used to characterize the situation of an entity. An entity is a person, place or object that is considered relevant to the interaction between a user and an application, including the user and application themselves.

Context-Awareness:
A system is context-aware if it uses context to provide relevant information and/or services to the user, where relevancy depends on the user’s task.

That’s much more than getting data from physical sensors!
- Exchange server, Summer School Schedule
- Users’ habits
Services

Small set of specialized functions
- reinventing something new?
- Web-services
  - HTTP, XML, SOAP -> transport, data, function invocation
  - WSDL -> service description
  - UDDI -> service discovery

What for?
- Context
  - Information on users’ situation, Summer School Schedule
- User information
  - Personal data, User Preferences, Single Sign-In
- Information services
  - Time tables, Floor plan
Service Discovery/Orchestration

Discovery in environment with mobile entities
- Many queries -> publish/subscribe characteristics
- Context-aware queries -> nearby services
- Quality of services -> refresh period, quality of results

Orchestration/Usage of services
- Plug together for powerful applications
- Is there need to do this context-aware?
- Standardized interfaces
Scenario

Reminder

- Generic application can be used anywhere
- Uses several context sources
  - Exchange
  - Location
  - Time
- Uses several services
  - Looks for local public transport timetables (bus, tram, subway)
  - Mapping service
Scenario

2. Darmstadt
Alexanderstraße/TU
Darmstadt Luisenplatz

Mo.05.08. ab 16:06 00:04
an 16:10
Scenario

Benefits
- Context aware reminder.

Problems
- Service Interface
  - One interface for all public transport information services world wide...
- Context Representation
  - Current location -> time table input format
  - Time table output format -> reminder format
Literature


Thank you for your attention!

Feedback welcome!