Exploiting E-C-A Rules for Defining and Processing Context-Aware Messages

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Outline

- Motivation
- Approach
- Example Push Messages
- E-C-A Rules within CAIPS
- CAIPS Rule Engine
- Rule Wizard
- Conclusion & Future Work
Motivation

- **Changing customer needs**
  - customer (tourists) expects ubiquitous access to relevant information during all trip phases
  - information has to be accessible anytime and anywhere

- **Problems arising**
  - information overload
  - information retrieval effort
Approach

- CAIPS actively provides information to the customer (via SMS, E-MAIL, MMS etc.)

- Tailored messages: provide right (personalized) information, within the right situation (context)

  - User’s Context:
    - user master-data: e.g. gender
    - environment: e.g. weather
    - travel-profile: e.g. business traveler
    - time
Example Push Messages

- Tourists are provided with detailed information about sights they are approaching.
- Tourists are actively informed about suitable indoor events because of bad weather forecast.
- Tourists are actively informed about alternative music events when their concert is postponed or cancelled.
Rules within CAIPS

Two stakeholders within CAIPS:
- Application Operator (message supplier)
- Customer (tourist)

Key requirements when designing CAIPS:
- Req. 1: Extendibility
- Req. 2: Ease-of-Use
Rules within CAIPS

Tourism-Expert creates (using graphical editor) a message-type which is specified by the E-C-A Rule. The rule sends a message of type "Good Morning Message" at 9 A.M. for tourists in "Orlando". The message specifies the event, condition, and action. The operator sends the message to the demand-side (tourist) who subscribes for messages of a specific type (e.g., weather update). The context of the tourist (weather, location, travel) is matched with the context specified by the event and condition definition of the E-C-A rule. The tourist's preferred message content is specified and this is used to tailor the message content.
CAIPS Rule-Engine

- Based on:
  - Event-Notification Services
  - Standard query languages

CAIPS quantity analysis:
- Rules: 5-10 Rules
- “Facts”: ca. 40 User, ca. 4000 tourism-products, hourly weather-forecast for 9 cities
- Events:
  - Time based events: 6
  - Location based events (coming up): ca. 200
Conclusion & Future Work

- Tourists are provided with **tailored** messages related to their context
- The messages (i.e. the message types) are created in a poor **declarative way** by the application-operator
- E-C-A rules are utilized to define **message types (design-time)** and send **message instances (run-time)**
- CAIPS Rule-Engine is based on **event-notification services** and **standard query-languages**
- Message content is created using **recommender systems**

- **Further planned CAIPS implementations:**
  - UEFA European Championship 2008
  - Dolomiti Superski
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Thank you!