Semantic Policies for Service Access in Mobile supported Sensor Networks

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Outline

- Expectations: Technology developments
- Multimedia is everything
- Semantics for integration and more....

- The proximity, mobile and user dimensions
- Case study: Integrated TV and service world
- Policy-enforced access management
The complexity of technology

The speed of development

Do you remember: “There might be a need for 5 computers” (1943 Watson(?), 1951 Hartree)

Mobile: NMT, GSM, GPRS, EDGE, UMTS, 3G, HSDPA, SMS, EMS, MMS,... DVB-H,...
The Service Challenge
Mobile and Proximity Services

- Mobile services
  - services in the mobile
  - mobile network services
  - Internet services

- Proximity services
  - Payment
  - Access, Admittance
Have you heard these ones?

“Last year (2007) the world produced more transistors than rice corns”
- Hans Christian Haugli, CEO, Telenor R&I

“In three to five years we will interact with to 30-50 devices in our vicinity”
- Marie Austenstaa, Connected Objects, Telenor R&I
Mobile controlled sensor networks

Application scenario
- Body networks
- Home networks

Functionality of mobile phone
- Service aggregator
- Access controller
- Policy provider
Integrating the Mobile into a Semantic Web Services delivery

- A virtual mobile, representing the mobile and proximity services in the Internet service world

- An integrated service registry
Mobile and Web Service Architecture

Key functionalities

- The mobile phone as service aggregator,
- Semantic service profiles for devices,
- User profile ontology,
- Radio and application access (key distribution),
- Policy engine for advanced reasoning
Mobile Service Oriented Architecture

Request

Semantic layer

Mobile, Proximity, Sensor

Service Registry

Internet

Mobile, Proximity, Sensor services

Service

Mobile services: gSOAP, kSOA, JSR-172

Context: GUP, sensors

Device profiles: CC/PP, UAProf, WURFL

OWL + SWRL: rule execution
And some of the partners working on tomorrow's TV experience:
TV today and tomorrow

ITEA-WellCom.org

Semantic Policies

28. October 2008, Josef Noll
ITEA WellCom: Implementation examples

Current development

Service Providers use Expway Labkit implements DVB-H ESG
produces

represents

ESG-XML
-ScheduleEvent
-Content
-Service

gathers

uses/imports

UEVE ESG Manager

store

Expway ESG API

Query/Store

wellcom ontology:
http://purl.oclc.org/wellcom/esg.owl

HTML Documentation:
http://weblrsm.ensiiie.fr/wellcom/index.html

ETSI Specification: PDF

Web Browser

http

DVB-H ESG

Expway Labkit

Service Providers

ITNEK focus

STB
Policy-enforced access

Pol 1: $\neg \text{provide\_visitor\_age}$

Pol 2: $\neg \text{categorize\_visitor\_as\_child}$

Pol 3: $\neg \text{record\_CY\_content}$

$(\neg \text{watch\_CY\_content} \land \neg \text{record\_CY\_content})$
Conclusions

• “The last time we were connected by a wire was at birth!” [Motorola]

• The service world is wireless
  – Q: “what is if you loose your phone?”
  – A: “A real crisis in life!”

• Easy access to devices and services, dependent on the context of the user

• Challenges
  – get control of complexity
  – get people understanding what they are doing and us understanding people