MPOWER

Interoperability Services in the MPOWER Ambient Assistive Living Platform

Sten Hanke, Thomas Fuxreiter
Austrian Institute of Technology – AIT, Vienna, Austria

Marius Mikalsen, Ståle Walderhaug, Leendert Wienhofen
SINTEF ICT, Trondheim, Norway

MPOWER Consortium
Presentation Outline

- Why MPOWER?
- Introduction to MPOWER
- Where is interoperability in MPOWER?
- Interoperability Services
- …and more Services
- Use MPOWER
Why MPOWER?

- proprietary solutions in the AAL field
- non encapsulated and tailored solution in the AAL field
- different users / user groups / use cases and environments
- growing needs for adaptive solutions
MPOWER Objective and Approach

- Create a middleware platform that enables rapid development of novel smart house systems
- Service encapsulating through SOA architecture
- Use Model Driven Development
- Use Standards HL7, ISO, CEN
- Develop two Proof of Concept Applications
MPOWER Understanding of Interoperability
MPOWER Architecture

Application Layer

Business Process

Services

Service Components

Physical Layer

Message bus (Enterprise Service Bus)

Service discovery

OpenESB implementation

UDDI implementation

Applications using MPOWER services, e.g. smart house

Notification BPEL, Alarming BPEL etc.

Alarming service, Google health export Service, external-notification service

SIP bundles, Pics, email gateway

Sensors, databases

External systems

Google health, SMS providers, Calendar systems
MPOWER - UDDI registry Service

Service Broker (Registry)

Find
WSDL + UDDI

Service Requester
Web Service Client or another Web Service

Publish
WSDL + UDDI

Service Provider
Web Service + Service Description

Bind
MPOWER - Alarming and Notification Services
MPOWER – Voice / Video Communication Service

IST 034707 – Middleware Platform for eMPOWERing cognitive disabled and elderly
MPOWER – External Notification Service
MPOWER – Export Service

**MPOWER SYSTEM**

- Mpower Database
- CCR
  - CCR exported structure (XML)
- Processor
  - XML Schema Documents (static files)
    - e.g., CCR.xsd, CDA.xsd
- XSLT Stylesheets
  - e.g., HTML style, CDA style

**EXTERNAL SYSTEMS**

- various output formats
  - e.g., HTML, EHR, CDA, ...

m-power

IST 034707 – Middleware Platform for eMPOWERing cognitive disabled and elderly
MPOWER – Export Service Example
MPOWER – and…

- all Medical Information related services are using HLv3

- implementation of Sensor Adapter Framework using ISO / IEEE 11073 → Pulse Oxy Demonstrator

- all Services have described and open SOAP interfaces

- most Services and demo applications are web based

MPOWER project finished Juli 2009 with two working Point-of-Care demo applications including all services
Free-mpower – download all Services

- Free-mpower is hosted on SourceForge
  - Everyone can browse and acquire the
    - Source code
    - Basic documentation
    - Submit requests
    - Handbooks
    - Open Source Tool Chain
  - Current members choose who can join in
    - Current members = MPOWER partners
  - Members can:
    - Post code
    - Make documentation
    - Post pictures
AND MORE Services and documentation can be downloaded

- All MPOWER services are made open source, e.g.,
  - Security Services
  - Database management service (with init data)
  - Patient Manager
  - Calendar Services with reminder (HL7v3)
  - Patient Information Message Board Services (HL7v3)
  - Location Services
  - Frame Sensor Services (ISO / IEEE 11073)
  - Business Services: Alarm Notification

- Documentation
  - Services
  - Overall Architecture
Who can use and how

- Everyone can use
  - Short-term: student projects, proof of concept, rapid prototyping
  - Long-term: EU projects, commercial solutions, application provider

- Example
  - Install required tools: Netbeans bundle, Oracle
  - Download sources from SourceForge
  - Compile and Deploy
  - Use in your favourite IDE, e.g., Netbeans “Web Service Client” drag-and-drop

USE and ADD Services and let the framework grow
THANK YOU

- http://sourceforge.net/projects/free-mpower/
- http://www.mpower-project.eu
- Sten.Hanke@ait.ac.at