




**universAAL –
Technical Highlights**

saied.tazari@igd.fraunhofer.de

5. AAL Kongress - Workshop 1 Berlin 23.Jan.2012

Outline

- Project Intro
- The universAAL Reference Model for AAL
- Thinking in terms of Building Blocks
- Operation Support
- New Developments



5. AAL Kongress - Workshop 1 Berlin 23.Jan.2012

universAAL at a Glance

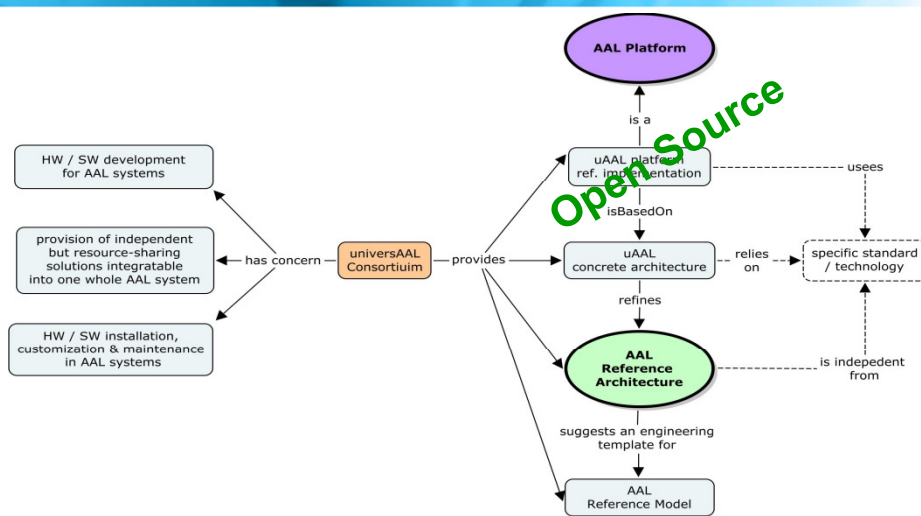
- UNIVERSal open platform and reference Specification for Ambient Assisted Living
 - Mission: produce an open platform that provides a standardized approach making it technically feasible and economically viable to develop AAL solutions
 - Under Call FP7-ICT-2009-4, objective 7.1b
 - Consortium: 19-20 Organizations, 11-12 countries
 - Budget ca. 15M€, Funding ca. 11M€
 - Coordinated by SINTEF, Norway



5. AAL Kongress - Workshop 1

Berlin 23.Jan.2012

Basic concerns & targets



5. AAL Kongress - Workshop 1

Berlin 23.Jan.2012

The spirit of the call FP7-ICT-2009-4, objective 7.1b

- ❑ A last funding chance for just one more platform project
- ❑ Consolidate the state-of-the-art
- ❑ A real open cross-application PLATFORM approach
 - Health
 - Home automation
 - Entertainment
 - Energy efficiency
 - .
 - .
 - & even the unknown applications of future
- The operating system of smart environments



5. AAL Kongress - Workshop 1

Berlin 23.Jan.2012

The spirit of the universAAL DoW

- ❑ Our immediate users are the manufacturers, developers, and deployers
 - Don't optimize for just specific solutions
- ❑ Build on work already done and avoid redo AFAP
 - Fill the gaps in the chain from development to deployment to use



5. AAL Kongress - Workshop 1

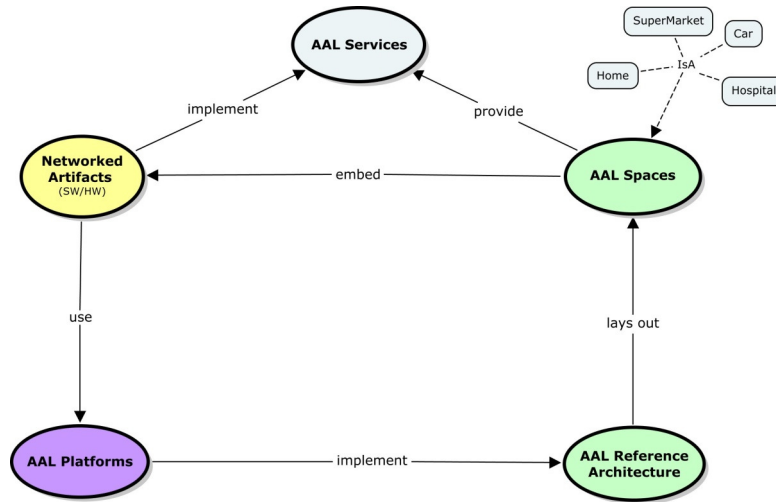
Berlin 23.Jan.2012

Widen the extent of reuse as much as possible

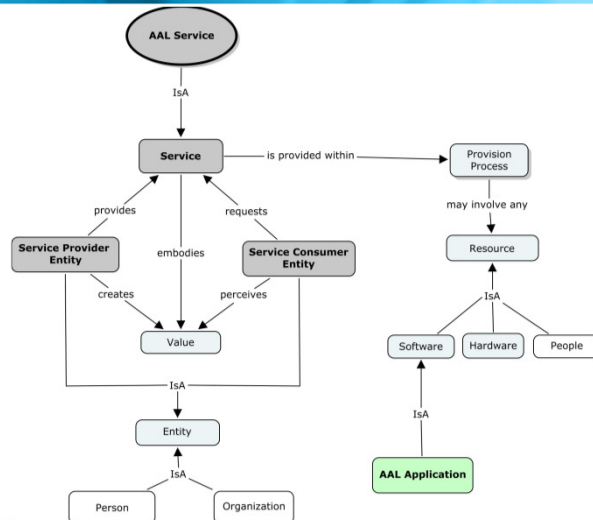
- ❑ Reuse in
 - Scenario & use case definitions
 - Requirements
 - Architectural design
 - Implementation
 - Select more recent platform-oriented projects that had good reviews
 - Invite some key partners from those projects
- ❑ Don't lose sight of relevant standards

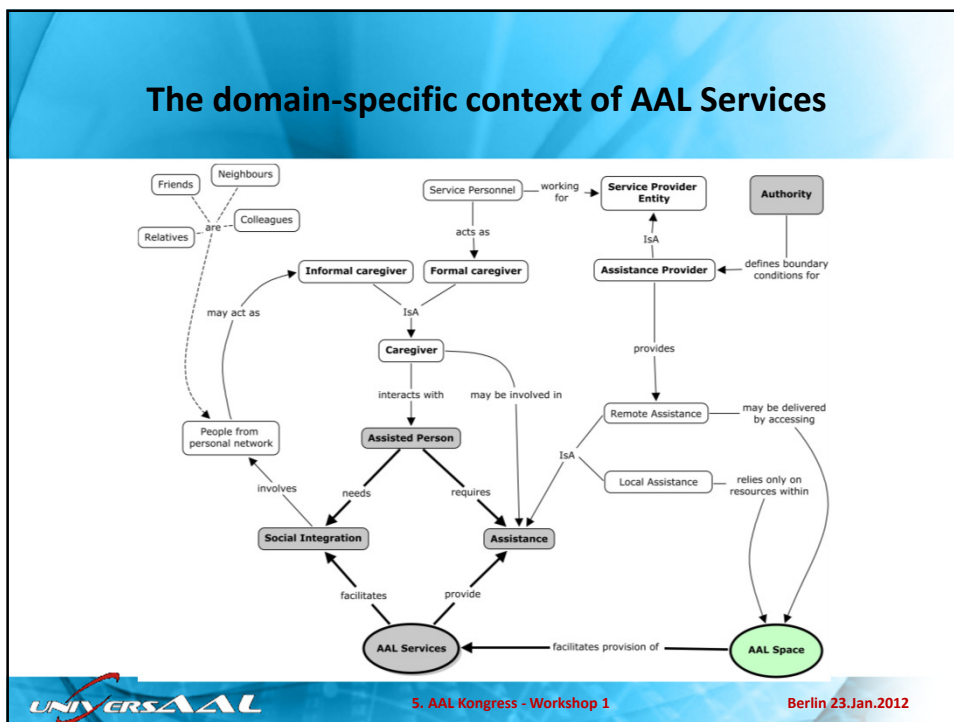
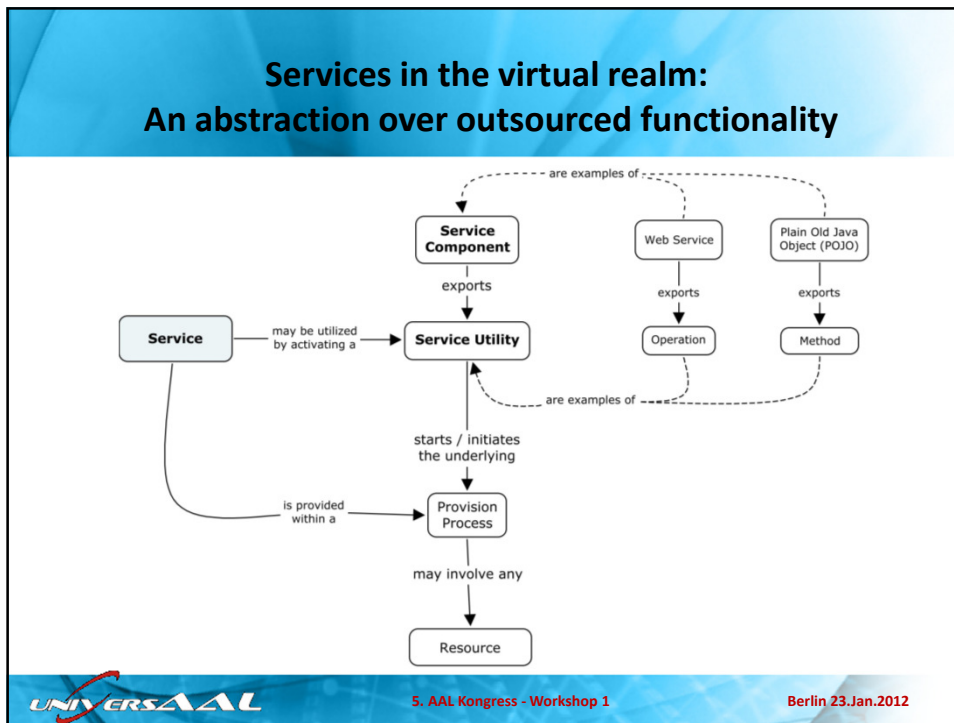
The universAAL Reference Model for AAL

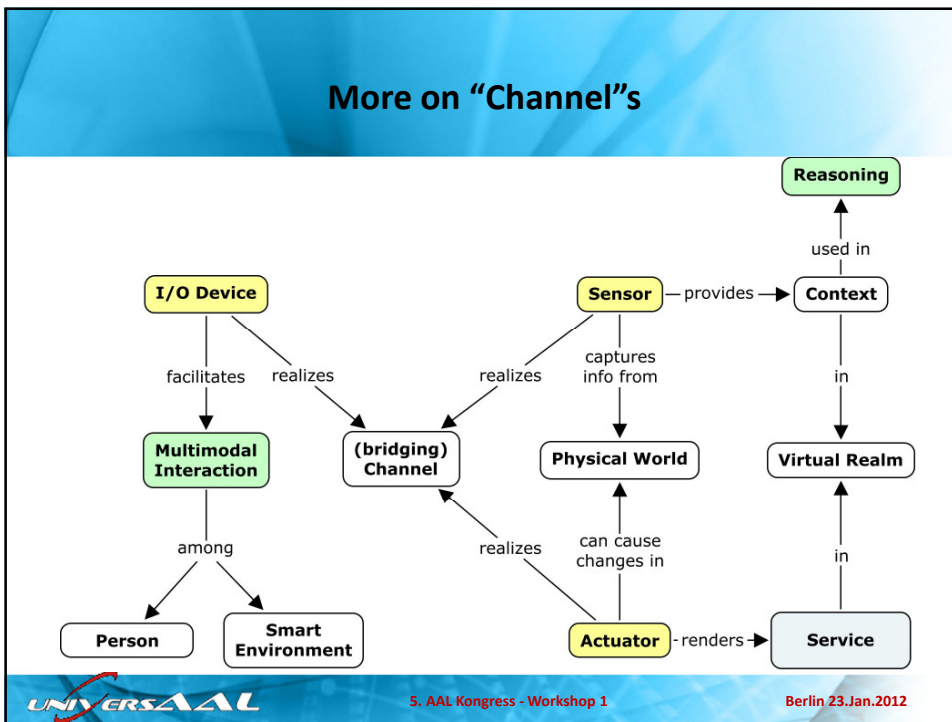
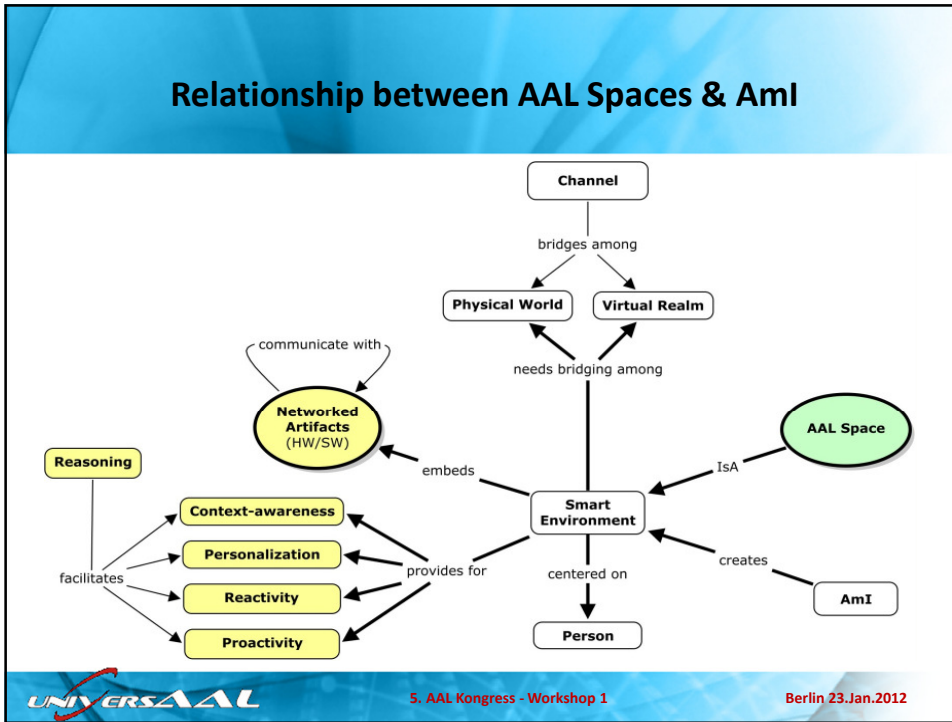
The Root Map: An understanding of AAL Systems

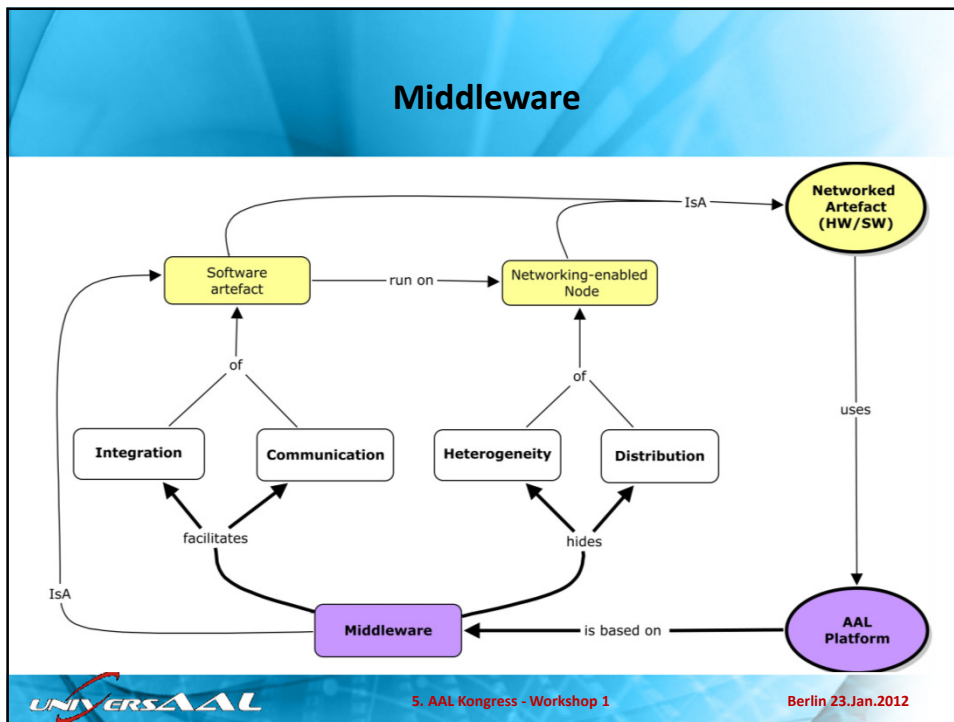
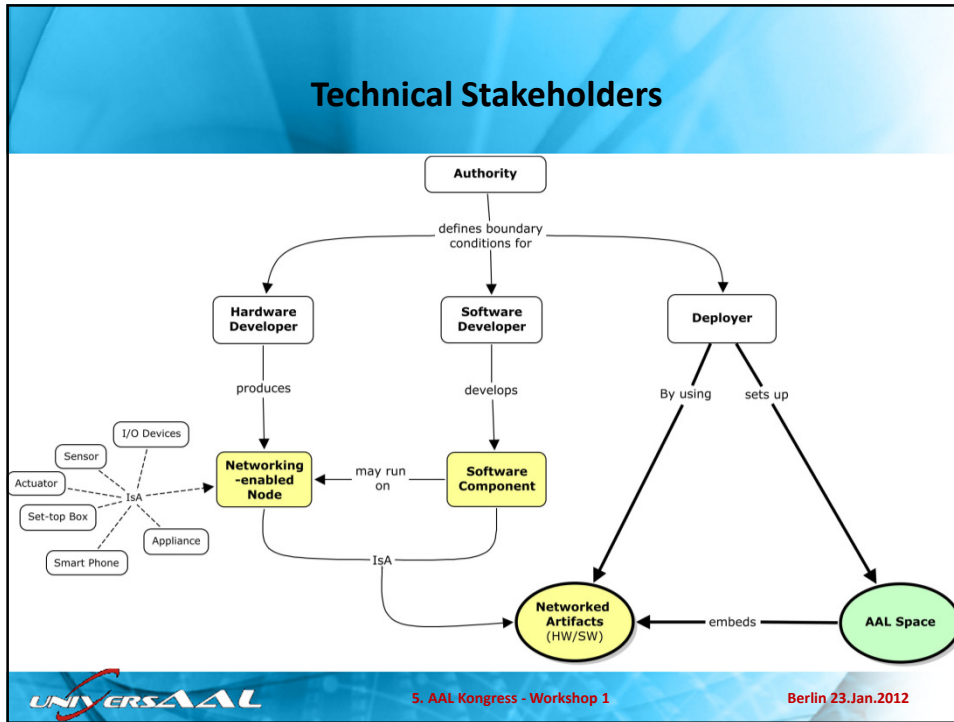


An AAL Service is a Service









AAL Application

↑
connected with
one or many

interacting with
each other

↓
Compliant to

↓
Compliant to

More in: universAAL Deliverable D1.3

Or

Tazari, Mohammad Reza; Furfari, Francesco; Fides Valero, Álvaro; Hanke, Sten; Höftberger, Oliver; Kehagias, Dionisis; Mosmondor, Miran; Wichert, Reiner; Wolf, Peter: **The universAAL Reference Model for AAL**. In: Augusto, Carlos (Ed.) u.a.: [Handbook of Ambient Assisted Living](#) : Technology for Healthcare, Rehabilitation and Well-being. Amsterdam; Berlin: IOS Press, 2012, pp. 612-625

Programming Language Platforms
(.Net, Java, OSGi, ...)

Modules

5. AAL Kongress - Workshop 1

Berlin 23. Jan. 2012

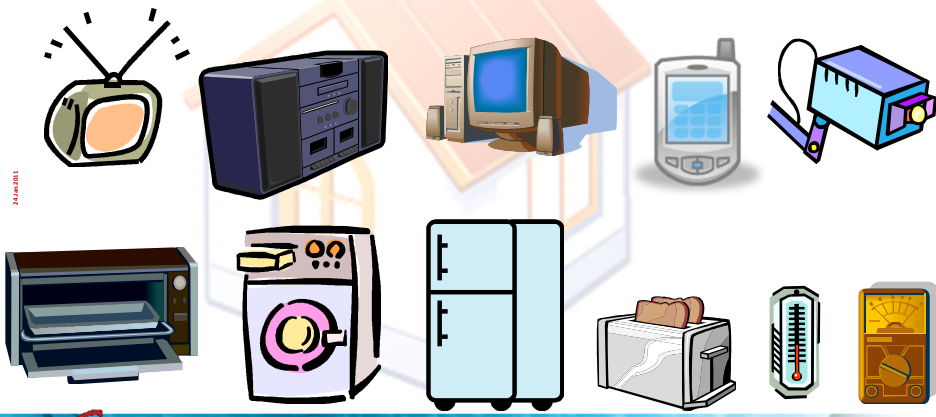
Analysis Of Challenges


5. AAL Kongress - Workshop 1

Berlin 23. Jan. 2012

AAL Spaces: smart environments providing AAL Services


The challenge – running applications on multiple heterogeneous devices





5. AAL Kongress - Workshop 1
Berlin 23. Jan. 2012

The Interoperability Challenge

- ❑ Independent development / production
- ❑ Ability to exchange data & functionality
 - Networking protocol
 - Access protocols
 - Data representation
- ❑ Several application domains
- ❑ Several standards per app domain
- ❑ Several application profiles per standard
- ❑ What to do, when all relevant (like in AAL)

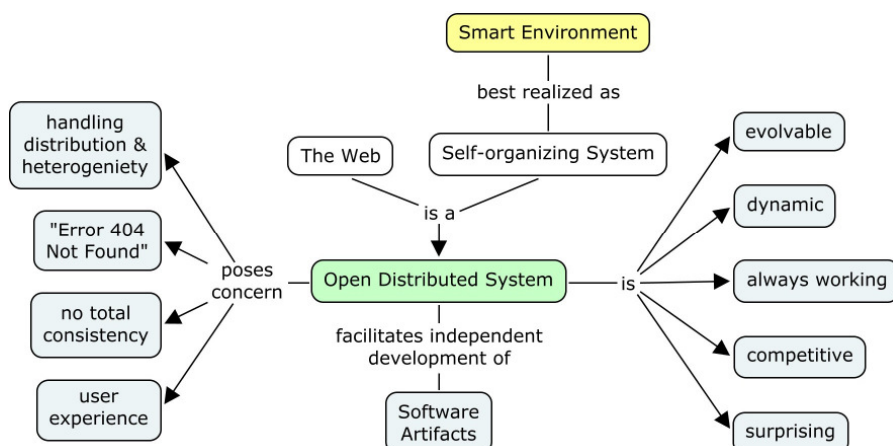


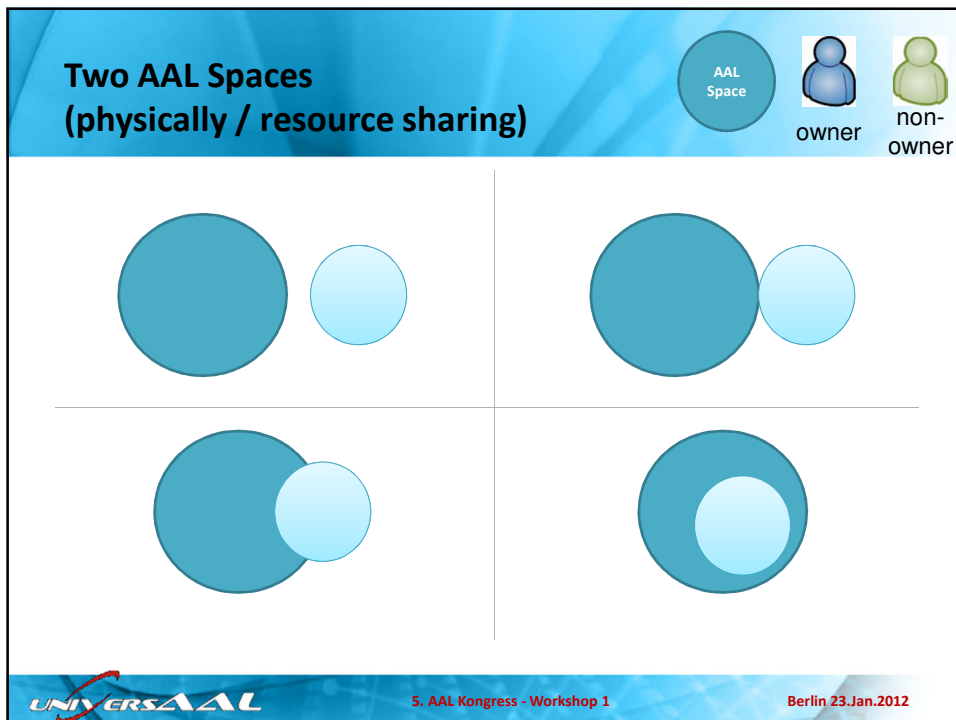
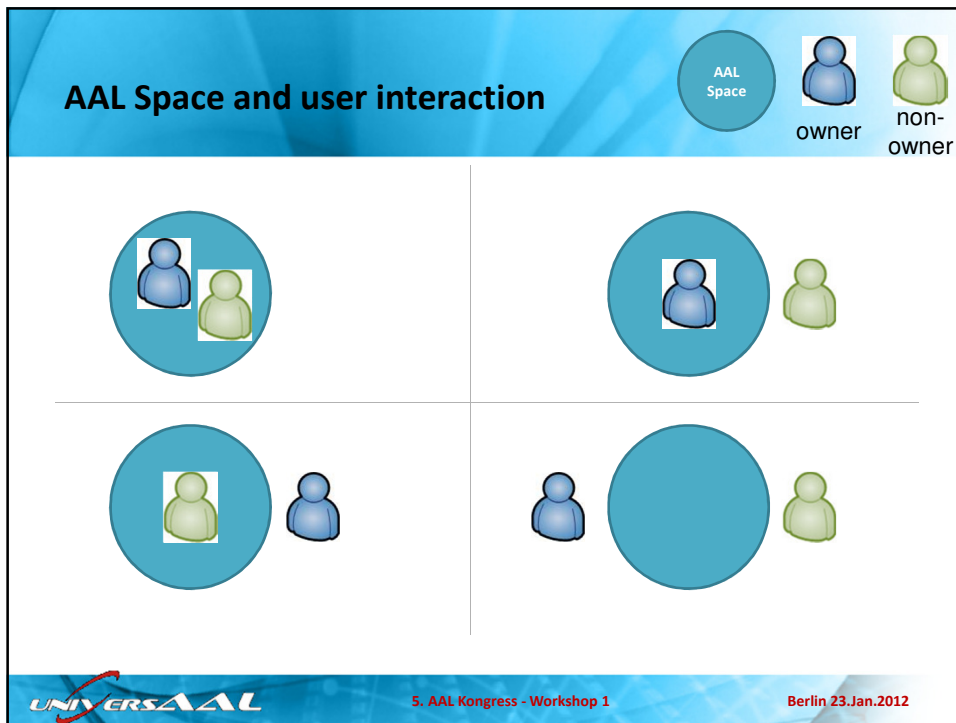

5. AAL Kongress - Workshop 1
Berlin 23. Jan. 2012

Possible answer to interoperability challenges


- ❑ A main protocol for networking & communication, optimally based on a single solution for data representation
 - “AAL” components versus legacy components
- ❑ Integration of legacy components through adapters
 - Networking level: protocol-specific gateways
 - Access methods and data representation: component-specific wrappers
- ❑ Such solutions are called middleware solutions
- ❑ A good reference: <http://sardes.inrialpes.fr/~krakowia/MW-Book/>

Open Distributed Systems: The ecosystem challenge

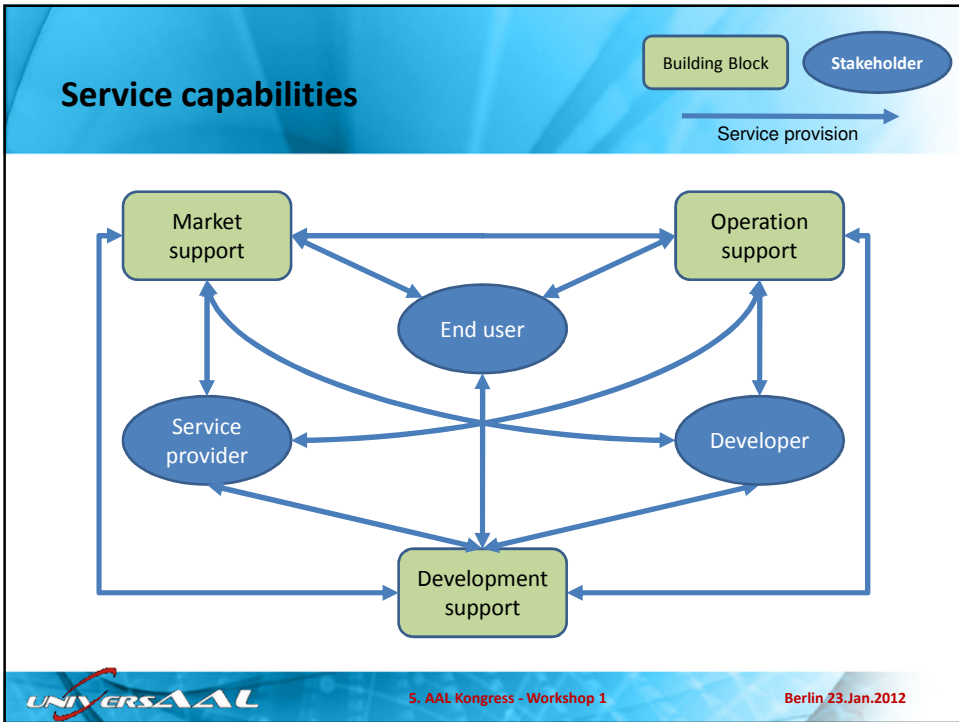


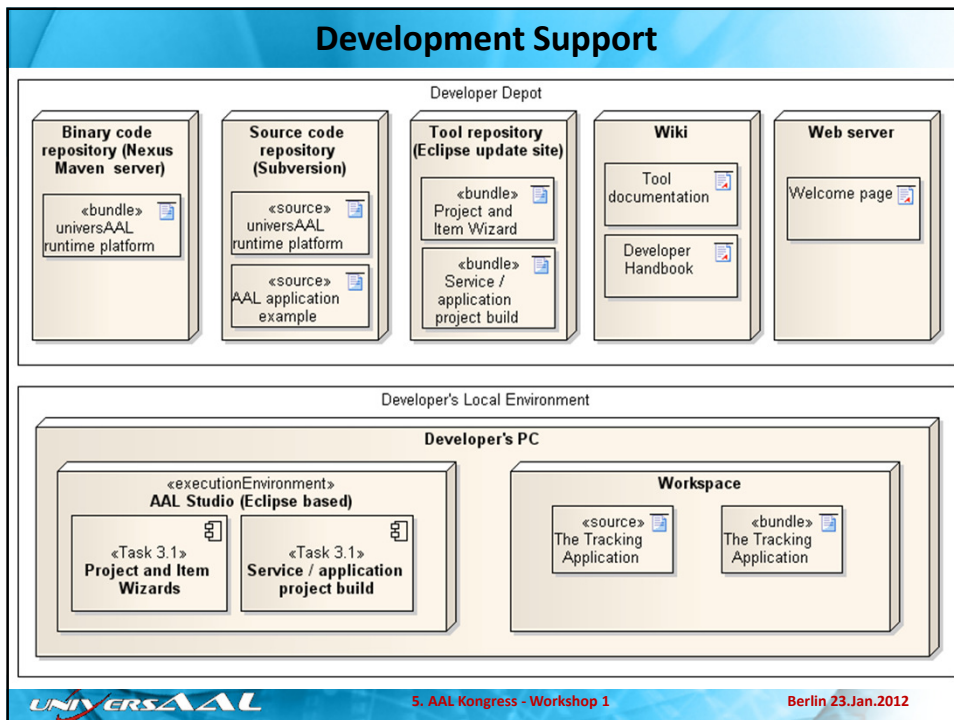
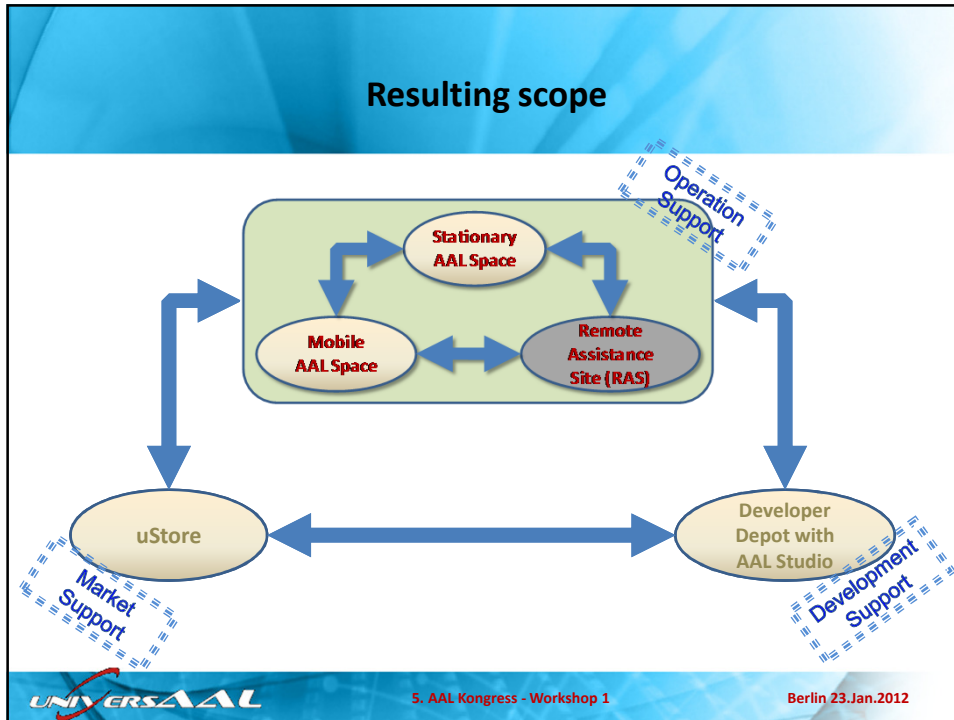


Thinking in terms of building blocks

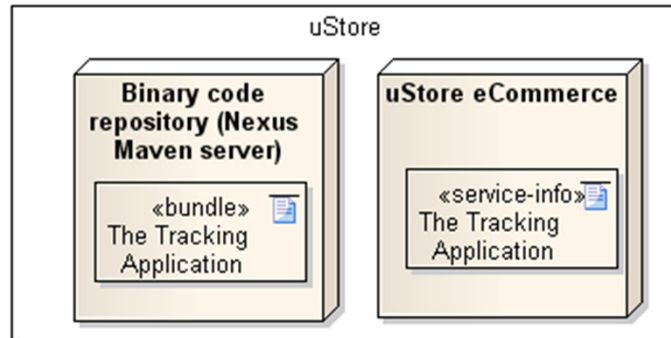


5. AAL Kongress - Workshop 1 Berlin 23.Jan.2012

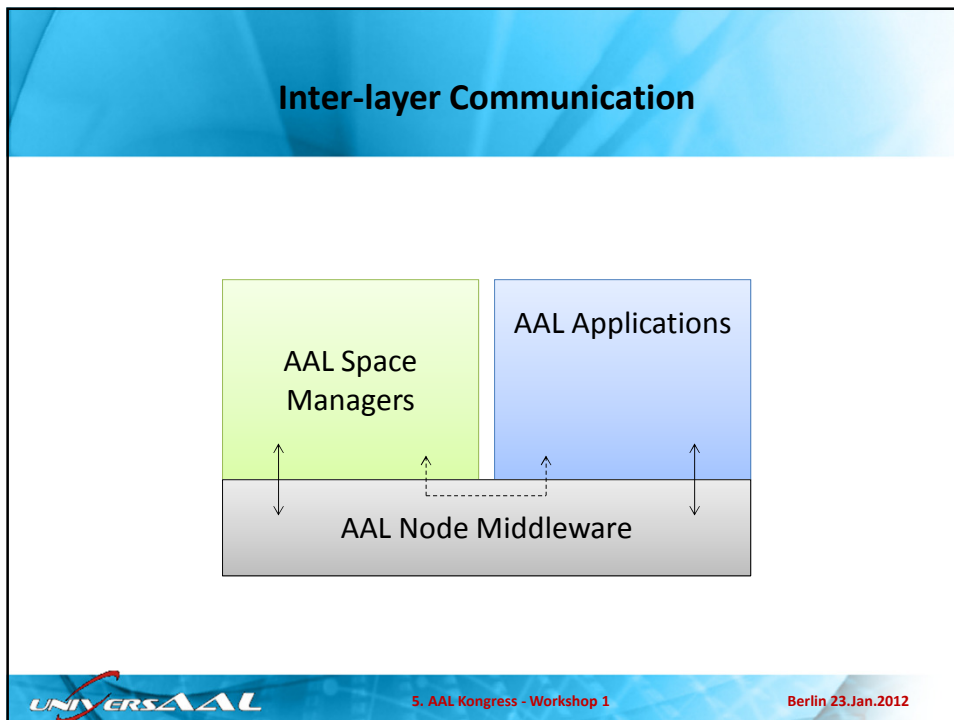
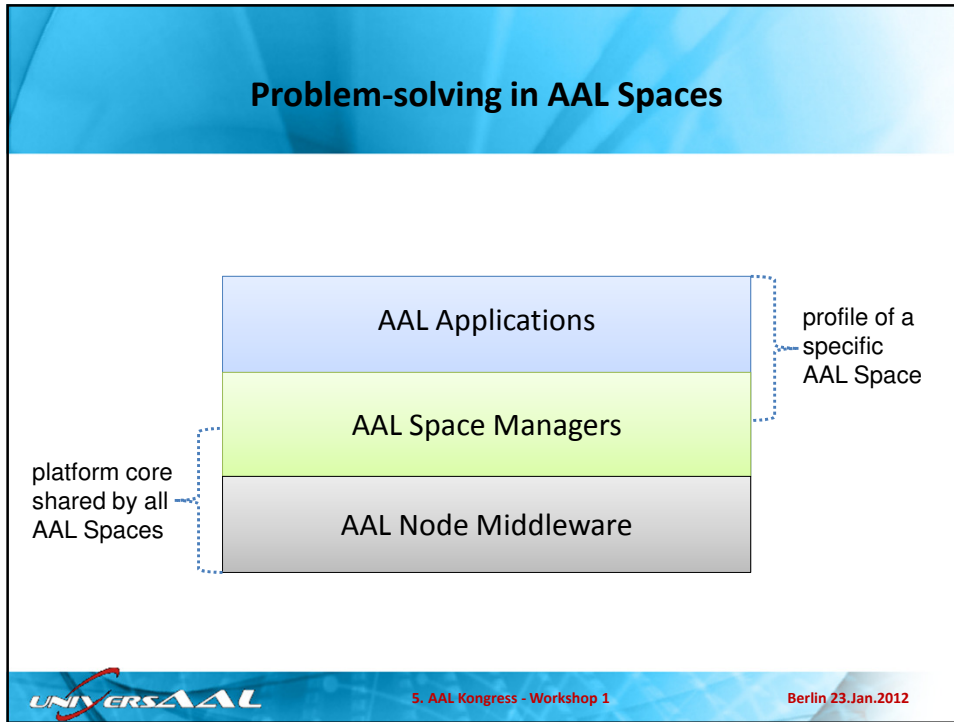


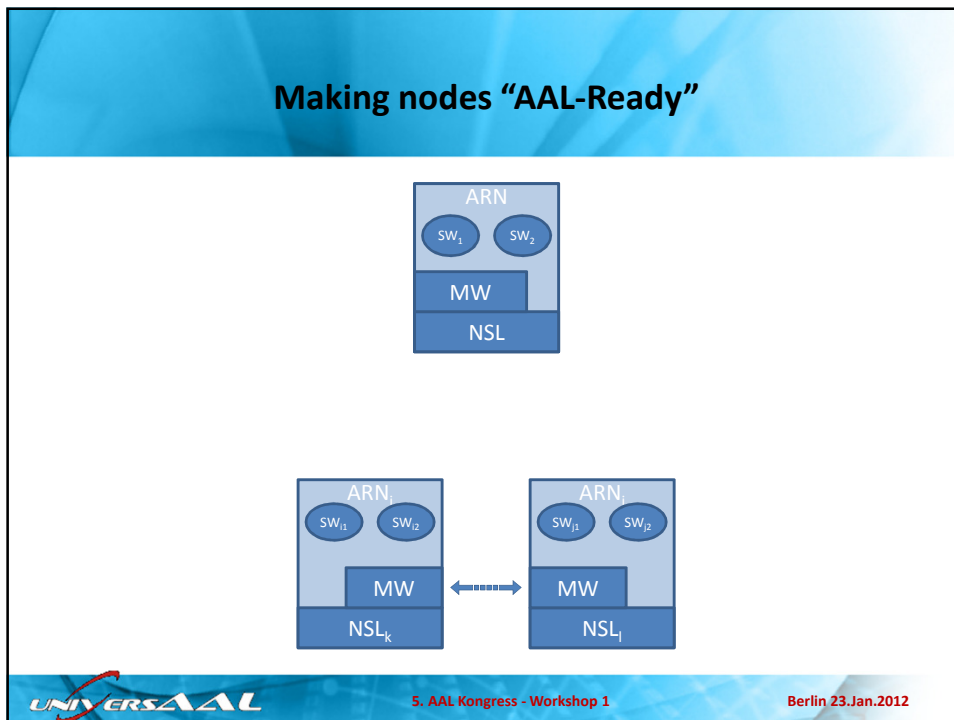
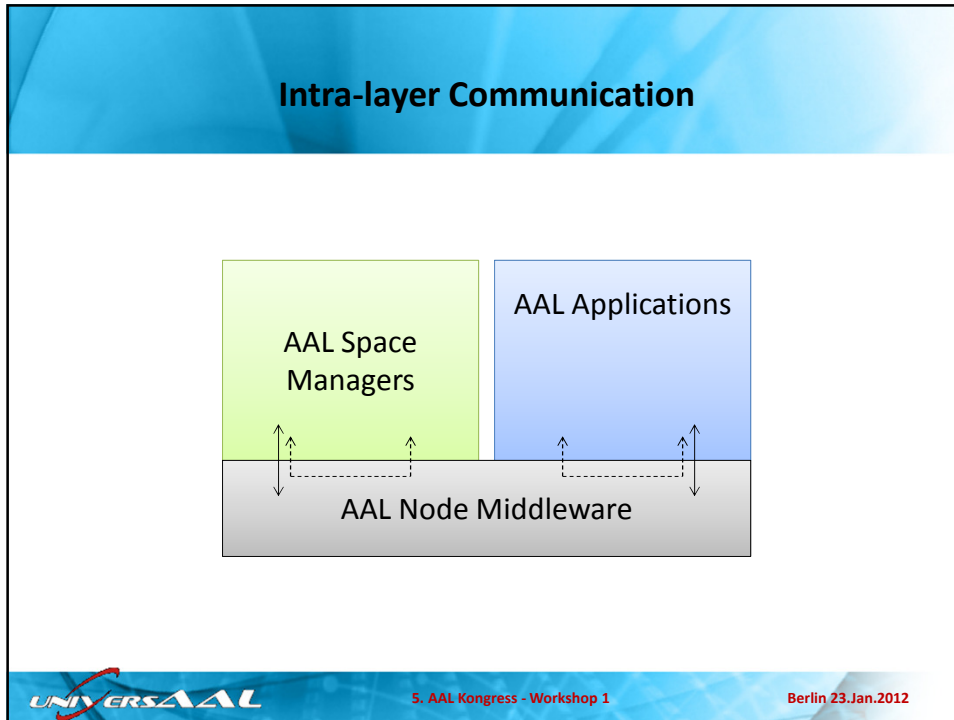


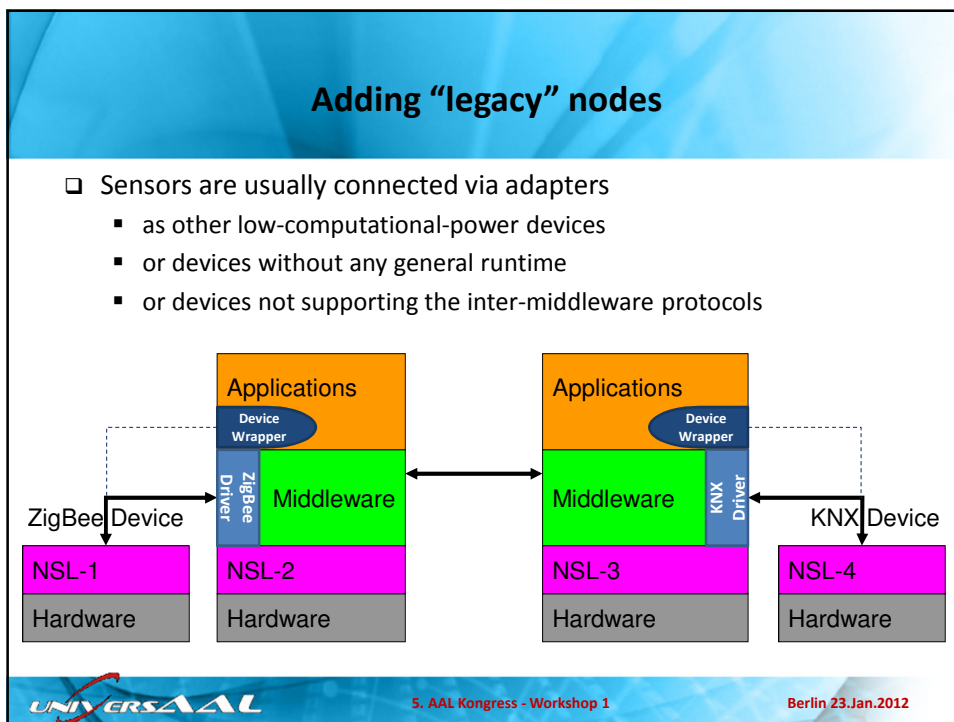
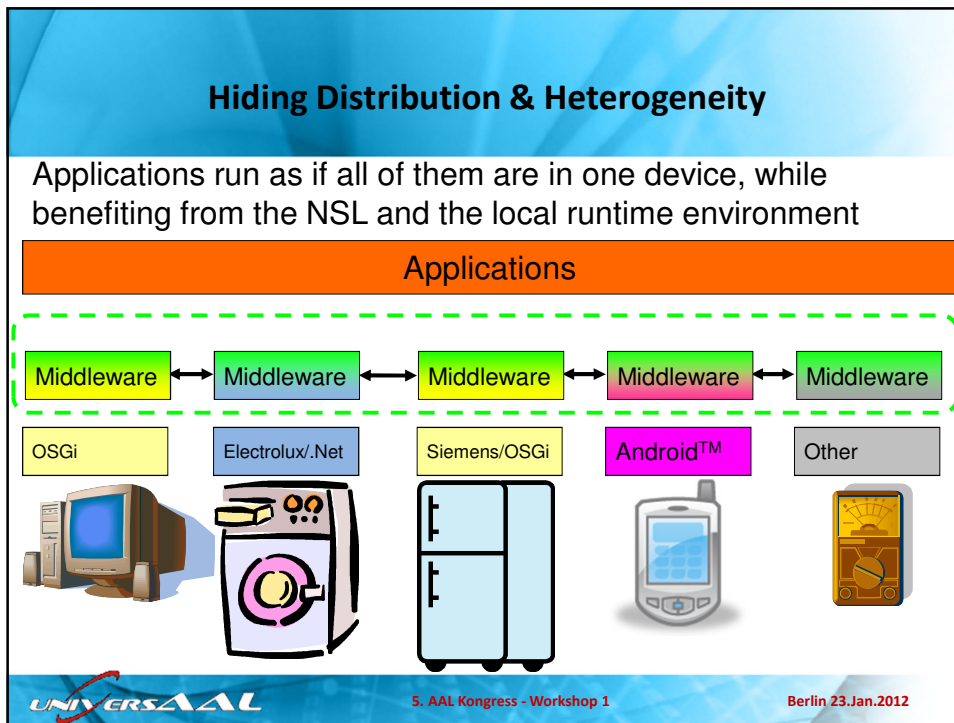
Market Support



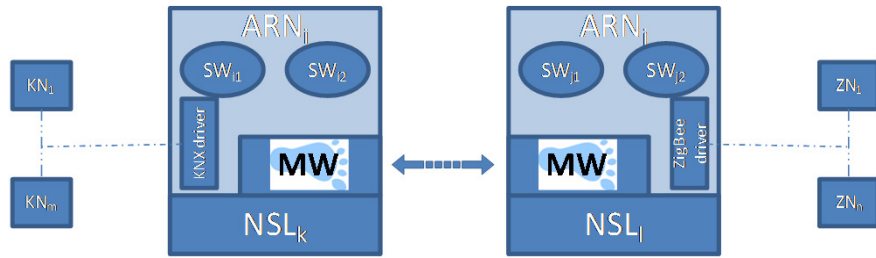
Operation Support



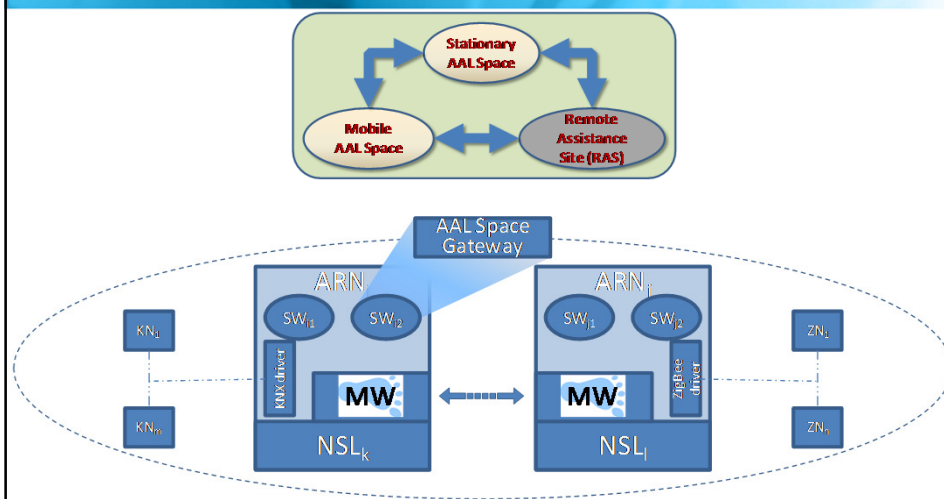


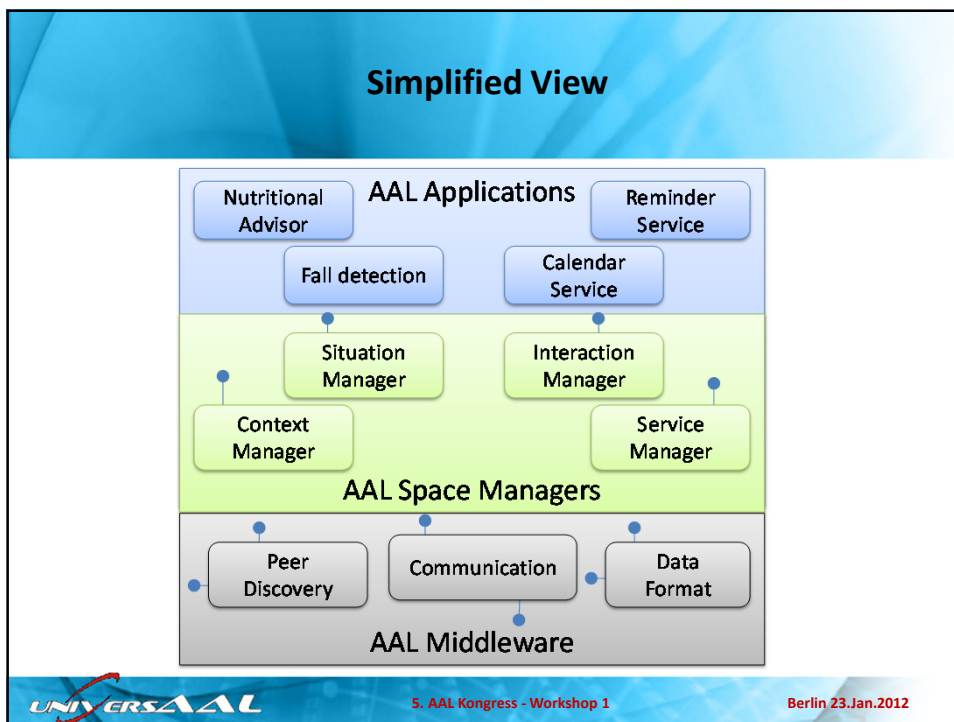
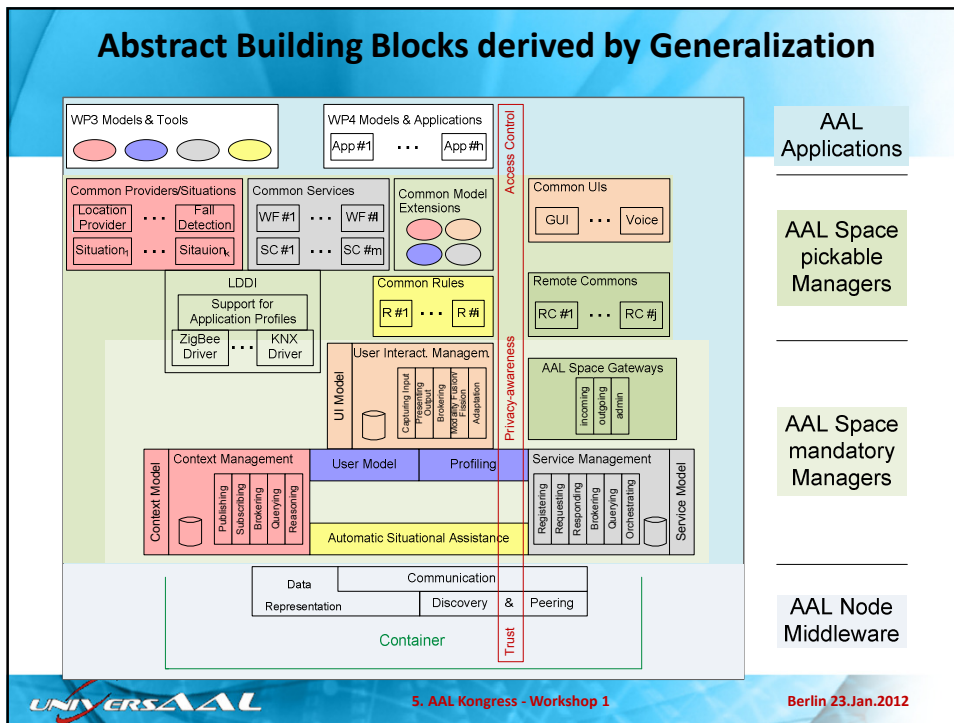


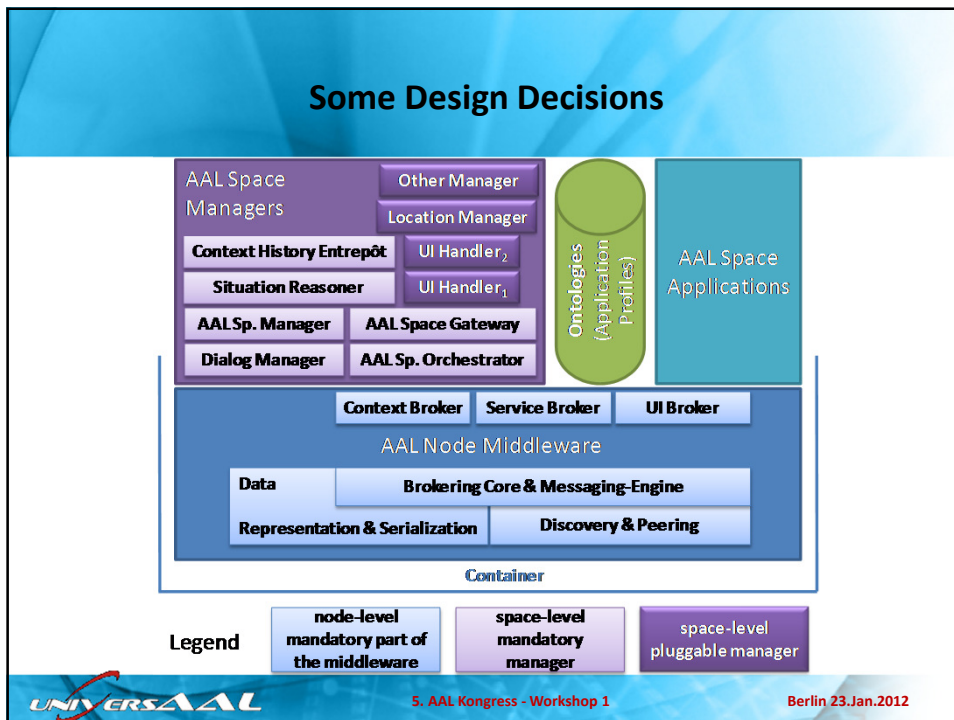
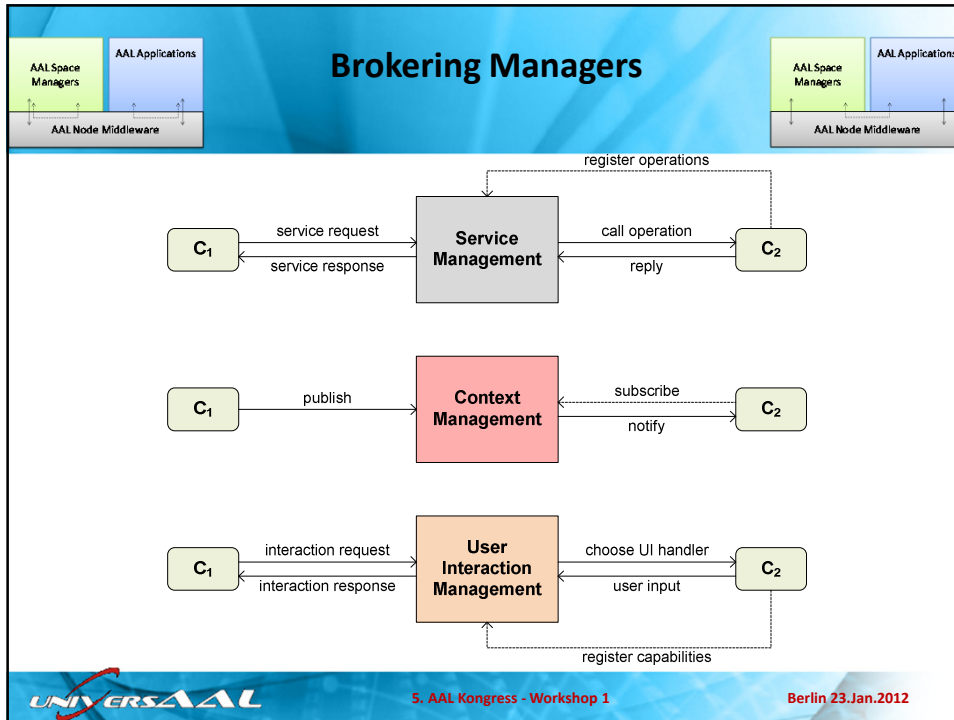
An abstract view on distribution within AAL Spaces



Adding Remote Interoperability



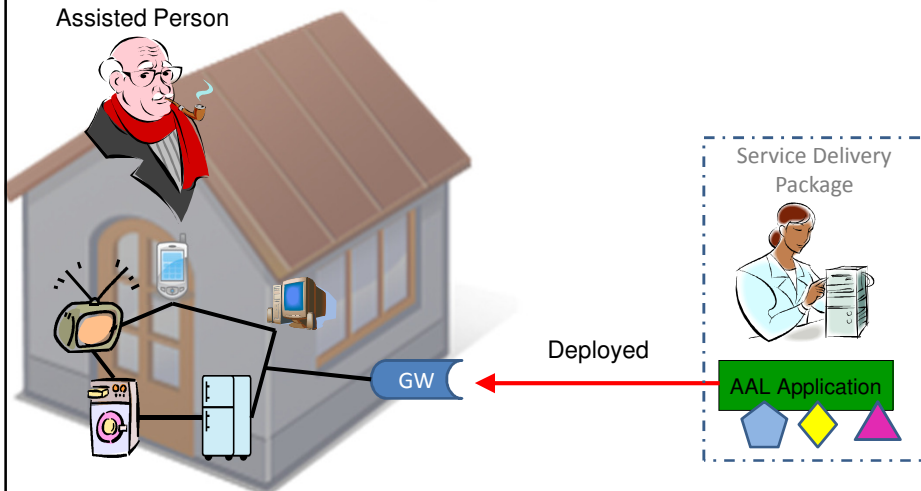


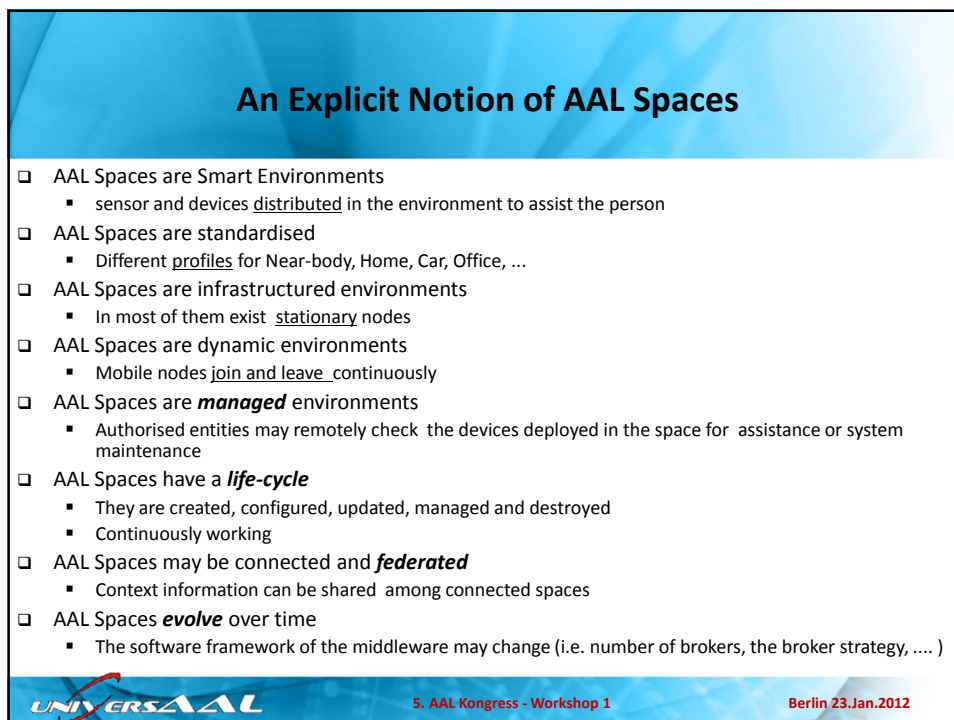
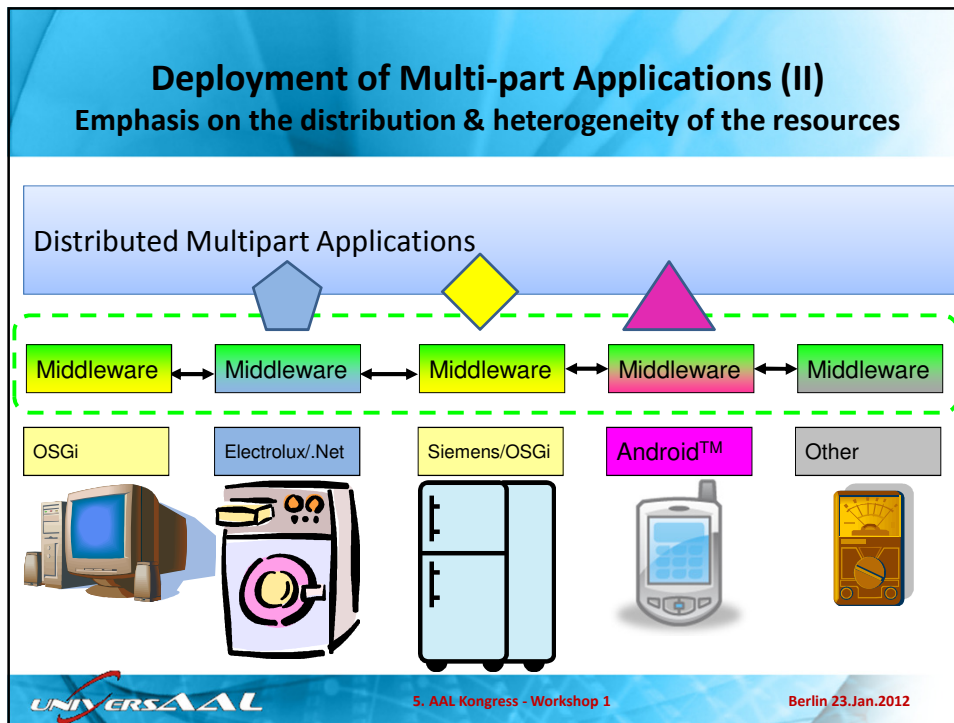


New Developments

Deployment of Multi-part Applications (I)

Assisted Person





AAL Space Profiles (Near-body, Home, Car, Office, ...)

- ❑ Profile standardization to deal with:
 - **Industrial production of devices/services** implementing specific features of the AAL Spaces
 - Context awareness server, Localization subsystem, service provisioning, healthcare devices, ...
 - Define the ontologies that such devices/services must be aware of when working in specific spaces
 - Support for AAL Application developers: know what is installed (mandatory) and what might be available in such spaces
 - For industry -- Identify precise markets and product opportunities
 - For developers -- Simplify the development target
 - For installers -- clarify what should be installed , how and where
 - For users -- Defines a clear user experience



5. AAL Kongress - Workshop 1

Berlin 23.Jan.2012

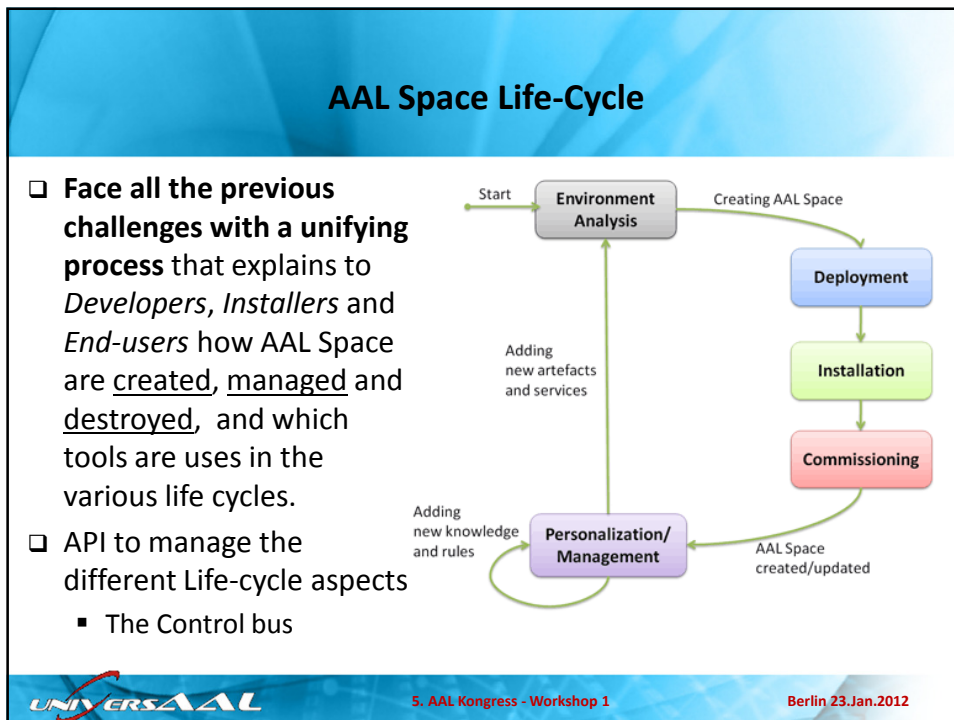
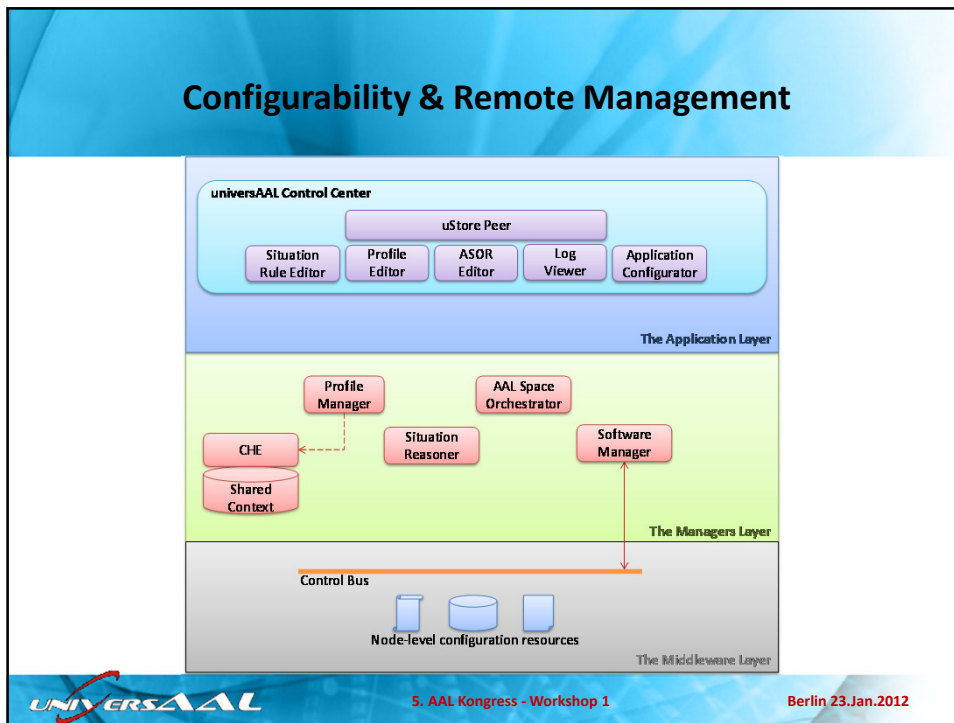
Configurability & Remote Management

- ❑ Remote management of the devices belonging to the AAL Space is a sort of remote assistance
- ❑ Scenario involving Controlled Flats is a business case requiring such facility
- ❑ OSGi platform offers some facilities for a single runtime instance, we need to face the problem for distributed resources of the Home Networks
 - Locate, check and update software in different hosts
 - Scalability – management of many remote Home Space
- ❑ Real case scenarios have NAT routers hiding the resources in the Home Network(s) -- Get ready for IPv6 !



5. AAL Kongress - Workshop 1

Berlin 23.Jan.2012



Thanks!

saied.tazari@igd.fraunhofer.de

- www.universaal.org, esp.
 - all deliverables immediately after release
 - Newsletters, publicity material, comic
- depot.universaal.org, the entry point for developers (reachable also through the home page)
 - Getting started developing AAL applications
 - Learning more about the platform & contributing to the development of the platform
- forge.universaal.org (reachable also through the Developer Depot) with
 - source codes, Javadocs, & Wiki Pages
 - forum discussions

