



Internet of Services 2009
Working Group: Future Internet Assembly

Research Challenges: Device & Access Technologies

David McKitterick
PERSIST (INTEL)

Functional Requirements (1/2):



Visionary

- Device independent internet access ([FAST](#), [PERSIST](#))
- Seamless ubiquitous access ([FAST](#), [PERSIST](#))
- Payment ([FAST](#))
- Portals ([FAST](#), [SOA4ALL](#))
- Extended interface usage ([PERSIST](#))
- Device adaptability ([FAST](#), [PERSIST](#))
- User, terminal and session mobility ([FAST](#))
- Cognitive networks ([PERSIST](#))
- Abstraction of user interface ([FAST](#))
- Emotion oriented user interfaces ([FAST](#))

Functional Requirements (2/2):

Incremental

- Cheap devices ([PERSIST](#))
- Easiness of Use and Configuration ([FAST](#), [PERSIST](#))
- Ubiquitous connectivity ([PERSIST](#))
- Integrated devices ([PERSIST](#))
- Integrated services into the device ([FAST](#))
- Virtualization & Trusted Computing ([PERSIST](#))
- Devices taking care about privacy of the user ([FAST](#), [PERSIST](#))
- Navigation ([FAST](#))
- Connectivity management ([PERSIST](#))
- Extended interactivity with the device ([FAST](#))
- Interoperability ([FAST](#), [PERSIST](#))
- Distributed intelligence ([FAST](#), [PERSIST](#), [SOA4ALL](#))
- Security and Privacy of communications ([PERSIST](#))
- Advanced radio interfaces and mobile solutions ([PERSIST](#))
- Advanced connectivity ([PERSIST](#))

Research Challenges: Device & Access Technologies

- Topic Suggestions From Prague:
 - ***Mobile Services (SOA4ALL):*** *Extending services beyond traditional Web access devices (computers) to mobile devices*
 - ***Webtop (SOA4ALL):*** *Ubiquitous multi-device access to a personalized web desktop*

Research Challenges: Device & Access Technologies



- *Based on FI Functional Requirements (1/2)*

- *Device Adaptability:*

- *How to enable devices to work together and not as individual (isolated) devices*
 - *Can automatic mediation be used to adapt data between incompatible devices?*

- *Extended Interface Usage:*

- *How to specify an interface that can adapt depending on the capabilities of the devices present.*
 - *Transferring between Multi-modal Interfaces*
 - *Context Aware Interfacing*

Research Challenges: Device & Access Technologies



- *Based on FI Functional Requirements (2/2)*
 - *Seamless Ubiquitous Access:*
 - *Specifying a common API or abstractions for access that can accommodate general aspects (e.g. security, QoS) in a technology independent way*
 - *Ubiquitous Connectivity:*
 - *Seamless network connections & transfers over multiple wireless technologies*
 - *User, Terminal & Session Mobility:*
 - *Maintain a user's experience across different terminals within one or many sessions*

Research Challenges: Device & Access Technologies



- *Other Research Challenges:*
 - *Information Representation*
 - *Power Consumption*
 - *Device Platform Interoperability*
 - *Access to Sensor Information*
 - *Environment Augmentation*

Thank you