



Extended Service Binder

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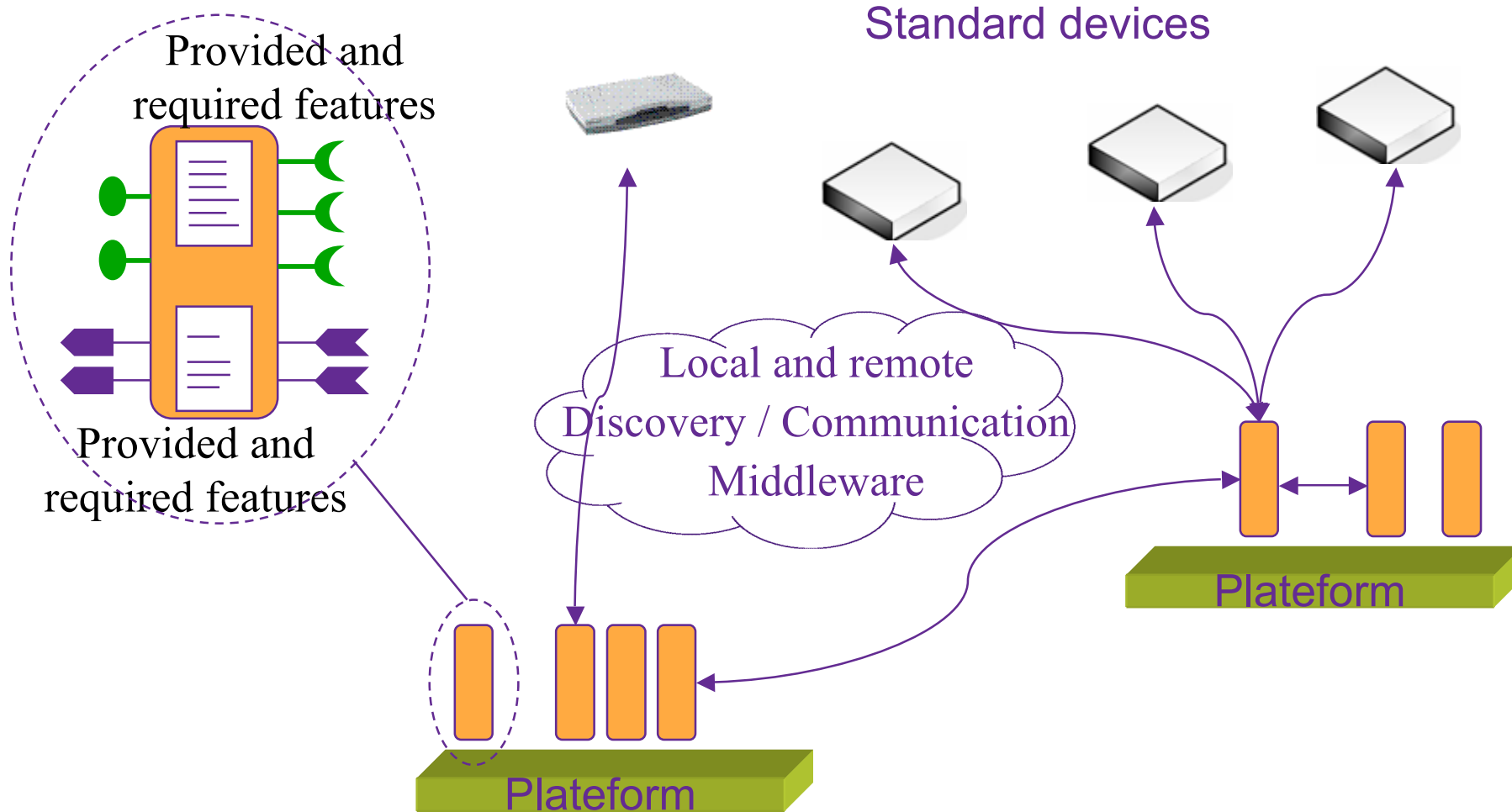
Pervasive Computing



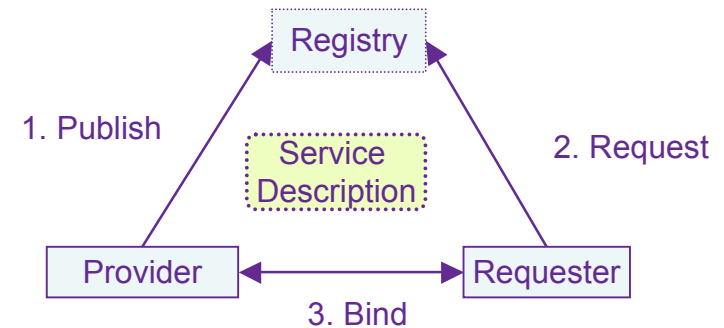
- S** Mark Weiser in the 90s
 - Q Numerous and numerous smart networked devices
 - Q Natural user interfaces
 - => Fading into the background (the factory metaphor)

- S** Interconnection and self-organisation
 - Q Device discovery and description
 - Q Distribution and mobility
 - Q Location-awareness and context-awareness

Our Vision



Software engineering



S Service orientation

- Q Service abstraction above a component implementation
- Q Service discovery with provider/requester/registry model

S Component orientation

- Q Clear architecture
- Q Separation of concerns

S Object orientation

- Q Clear intracomponent architecture
- Q Evolutivity

Service (or Device) Discovery



- S Addressing layer (e.g. DHCP, AutoIP)
- S Naming layer (e.g. DNS, mDNS)
- S Discovery layer (e.g. SSDP)
- S Description layer (e.g. WSDL)
- S Control layer (e.g. SOAP)
- S Eventing layer (ws-eventing)
- S High-level layers : Presentation, Security, QoS, etc.

An extended Service Binder



S Pervasive Service Oriented Middleware

- Q Adapt to dynamic service availability
- Q Make the use of local and distant services transparent
- Q Adapt to Service Discovery protocol multiplicity
- Q Context-aware binding (location, user activity)

S Technological choice and achievements

- Q OSGi – Service Binder (R4 Declarative Services)
- Q 1st extension: distribution with standard protocols (SLP-RMI/SOAP)
 - Architecture with plugins (generic interfaces)
 - theoretic adaptations to UPnP, DPWS, CORBA
- Q 2nd extension: dynamic service properties change
- Q 3rd extension: dynamic sorting and rebinding on a simple use case

Future work: Dynamic Service rebinding



S Semantic service matching and transparent adaptation

- Q Semantic Service Modeling
- Q Code generation for adapters

S Dynamic service rebinding mechanisms

- Q Towards a generic lifecycle
- Q Several policies for reconfiguration management

S Acknowledgements

QRNRT Pise



IST Amigo

