CARUSO –
Towards a Context-Sensitive Architecture for Unified Supervision and Control

Rolf Kistler, Stefan Knauth, Daniel Käslin, Alexander Klapproth
HTA Luzern - Lucerne University of Applied Sciences
CEESAR - Centre of Excellence for Embedded Systems Applied Research

Contact: Prof. A. Klapproth  alklapproth@hta.fhz.ch  +41 41 349 3512
Problem…

Dedicated, Unflexible, Proprietary…
Problem...continued

DLNA  CEA  CECED  UPnP  HAVi  CHAIN  DVB-MHP
ITopHome  TEAHA  Jini  OPC  IGRS  ECHONET
KNX  PeCo  AMIGO  DynAMITE  HGI  IEC61107  DLMS
BACnet (IP)  PUC  ZigBee  TCP/IP  OSGi  UPB  URC
LON  DALI  EnOcean  802.15.4  Homeplug  digitalStrom
(EIB)  (EHS)  Z-Wave  UWB  Ethernet
(BATI-BUS)  Z-Wave  MP-BUS  802.11  Wibree  IEEE1394
MP-BUS  DECT  Wibree  Bluetooth  KNX-RF  DSLhome
Vision

Home Users, Secretaries, Caretakers, Technicians...

- Building Automation
- Consumer Electronics
- Security & Safety
- TT & Telecommunication
- Energy Metering
- Appliances

CARUSO
Proposed System Architecture

Control Point

Control Point

Control Point

Control Server

Control Server

Services Server

Target Device

Target Device

Target Device

Peer-to-Peer Mode

Client-Server Mode

Peer-to-Peer

Proxy
- Gateway & Plug-Ins
- User Access Mgmt
- UI Server
- High-Level Service Engine

Proxy
- Gateway & Plug-Ins
- User Access Mgmt
- UI Server
- High-Level Service Engine

Internet

Peer-to-Peer Mode

Client-Server Mode
Current State

- **UPnP**
- **Mobile Client**
  - .net Compact Framework (Mobile DirectX API)
  - Considered Option JavaME
- **Control Server**
  - OSGi Framework
  - UPnP Proxy
  - Hot Plug-In Architecture
- **UI Server**
  - Dynamic interface generation UIDL
- **Services Server**
  - High Level Service Execution
Intelligent Home Lab

CARUSO

Indoor Localization

Building Networks

Ambient Awareness

ZigBee™
Thank you

See you at the poster!

Rolf Kistler, Alexander Klapproth
Lucerne University of Applied Sciences