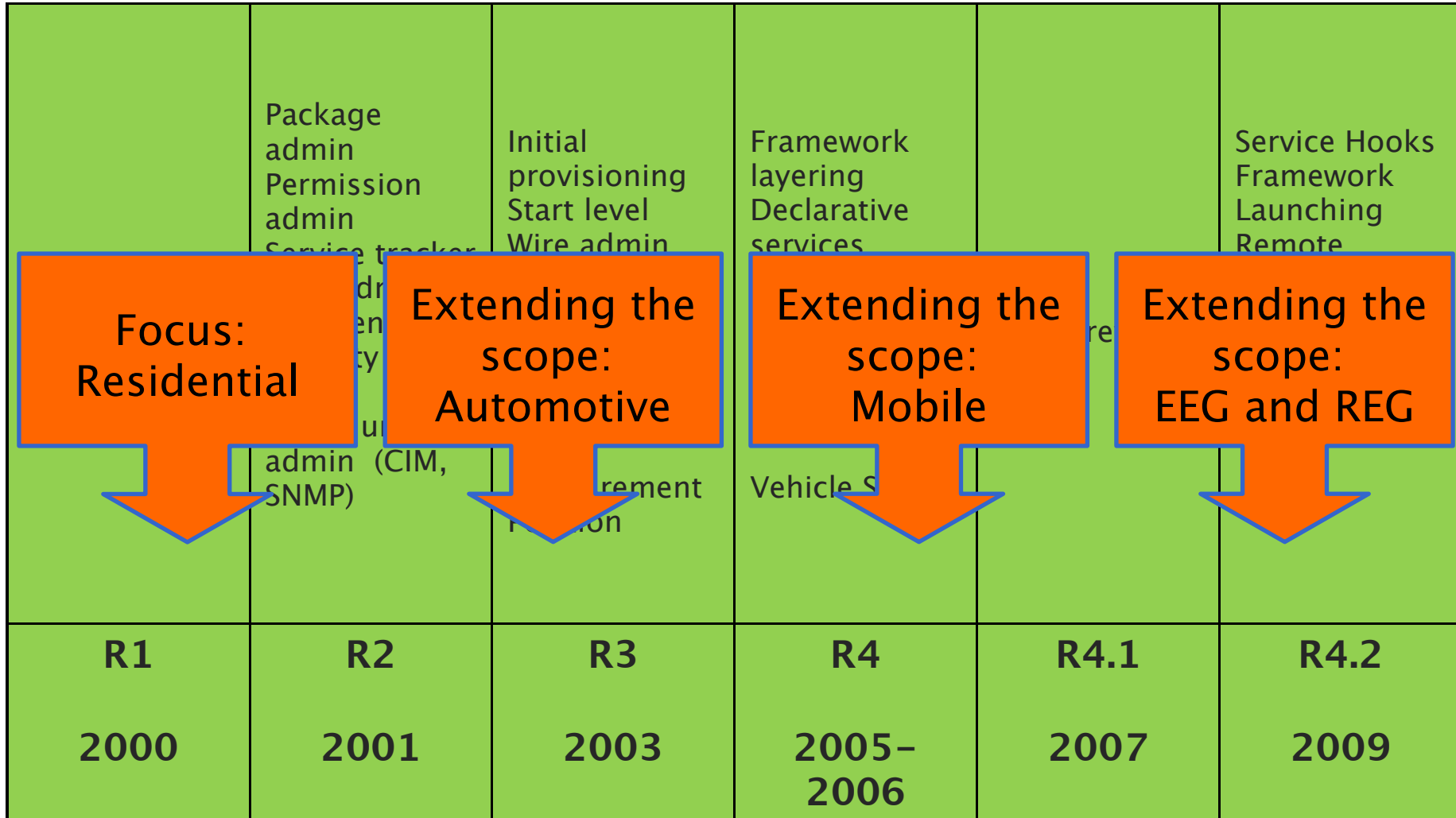




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Using OSGi for the Realization of Home Automation Systems

OSGi Evolution



The residential area is currently one of the most promising application fields of OSGi. Why?

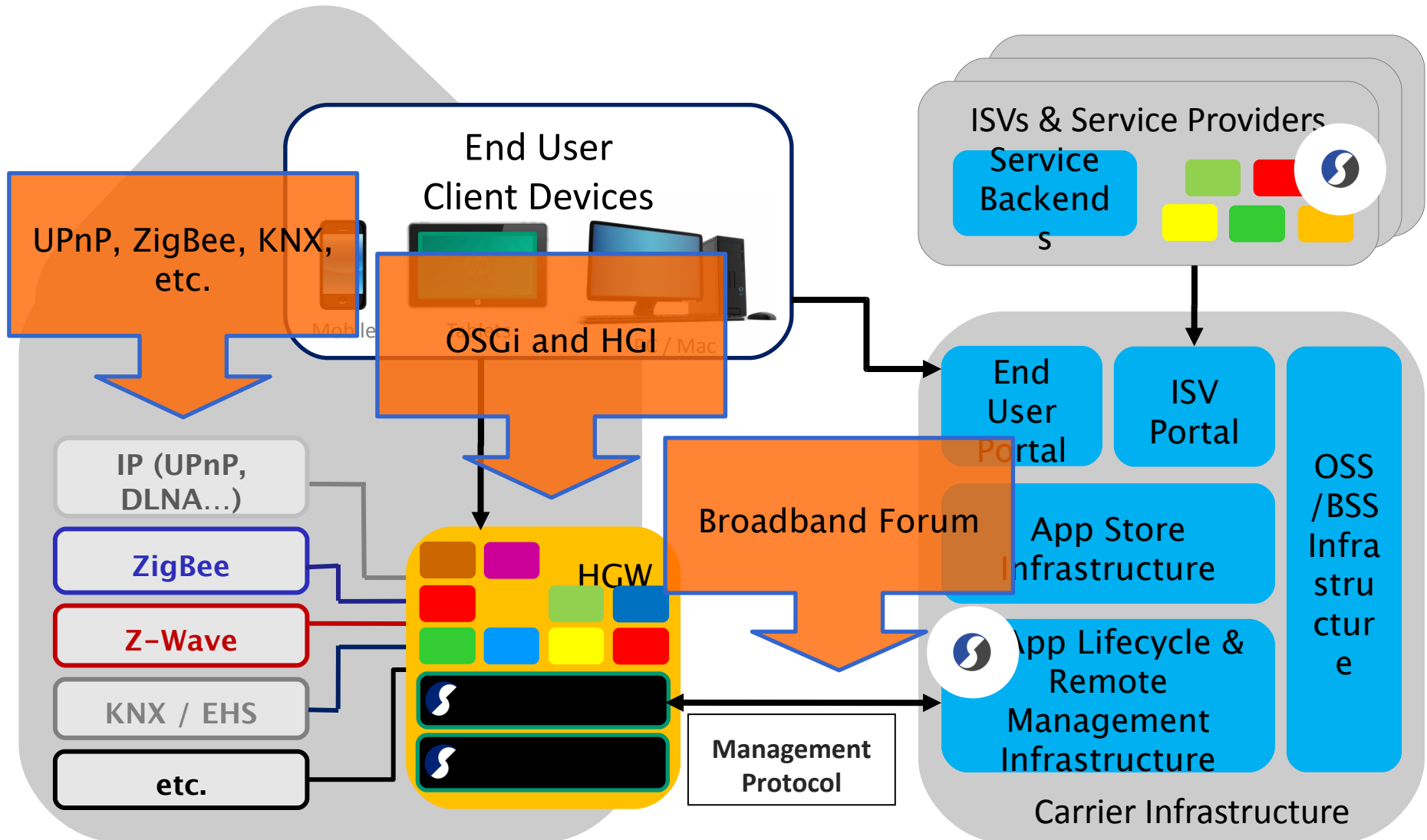
Technical Reasons

- The benefits of Java (acceptance, safe programming, multi platform, multi language, etc.)
- The dynamic module system for Java™ (reduced complexity, reusability, dynamic, isolation)
- Availability of OSGi implementations (mature, well tested, also such with clear embedded focus)
- Many useful services needed in residential boxes are specified and implemented
- Various residential protocols such as Zigbee, ZWave, UPnP, KXN, etc. are supported
- SDKs and other convenient development tools available

Strategic Reasons

- Many Telcos are very interested to open their broadband boxes for additional services
- Well coordinated efforts of several standardization organizations (OSGiA, BBF, HGI, UPnP)
- OSGi considered the most suitable Execution Environment
- Convergence processes (e.g. FMC). Chances for using a unified service platform
- OSGi provides improved manageability of the residential boxes

Reference Architecture



Home Application Examples

Home Security

- Intrusion Alarm
- Home Monitoring
- Fire Alarm & Protection
- Attendance Simulation
- Door Entry Authorization
- Panic Assistance

Home Automation

- Home appliance control
- Automation appliance control (heating, blinds)
- Facilities Control System
- Energy Metering

Family Care

- Internet Usage Tracker
- Child / Elder Monitoring
- Health Data Transmission
- Pet Feeder
- Ambient Assisted Living

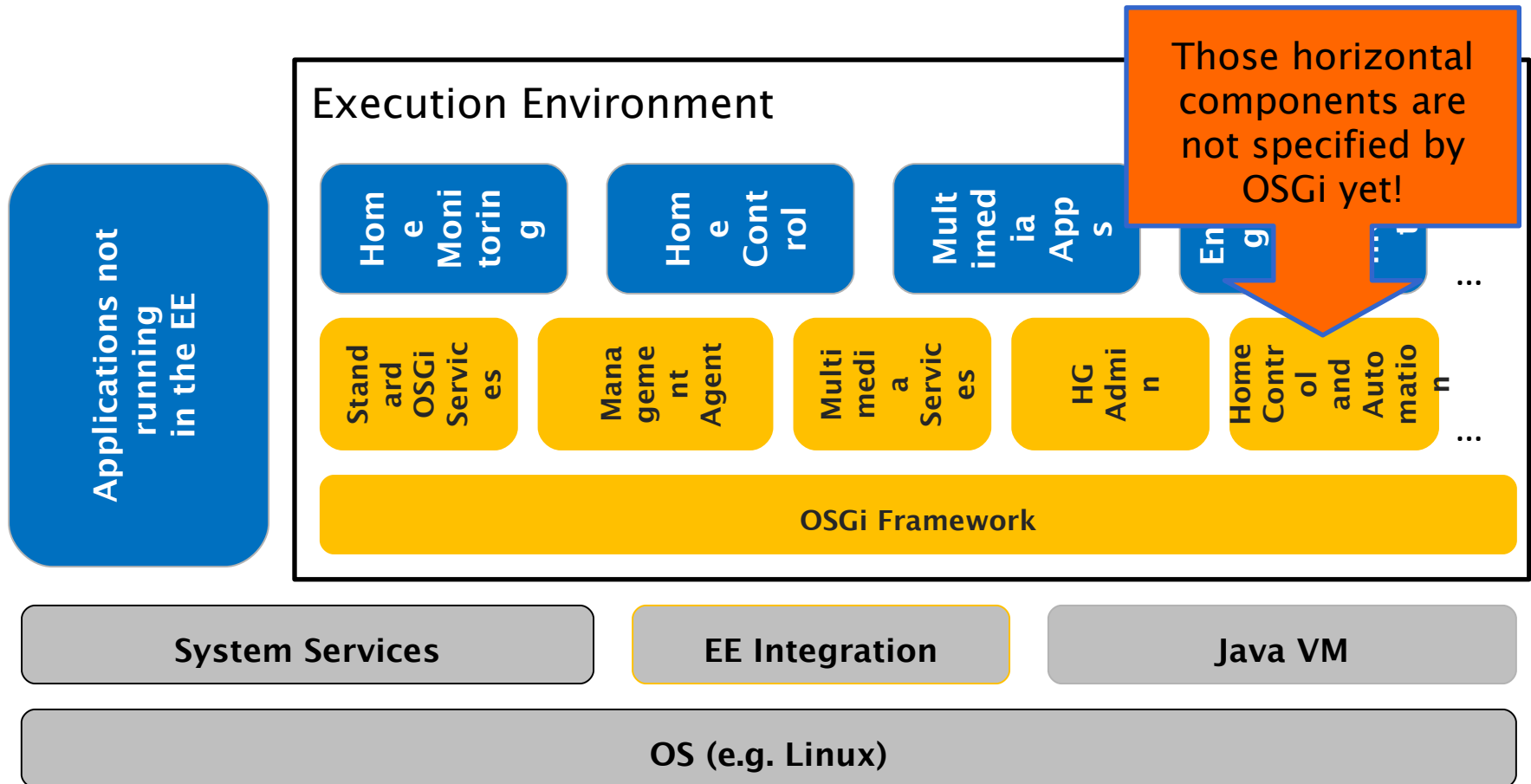
Infotainment

- Multimedia Content
- A/V on Demand
- Network Gaming
- Social Networking
- Education Services

Other Services

- Location Based Services
- Digital Photo Frame
- Conferencing
- VoIP & Multimedia

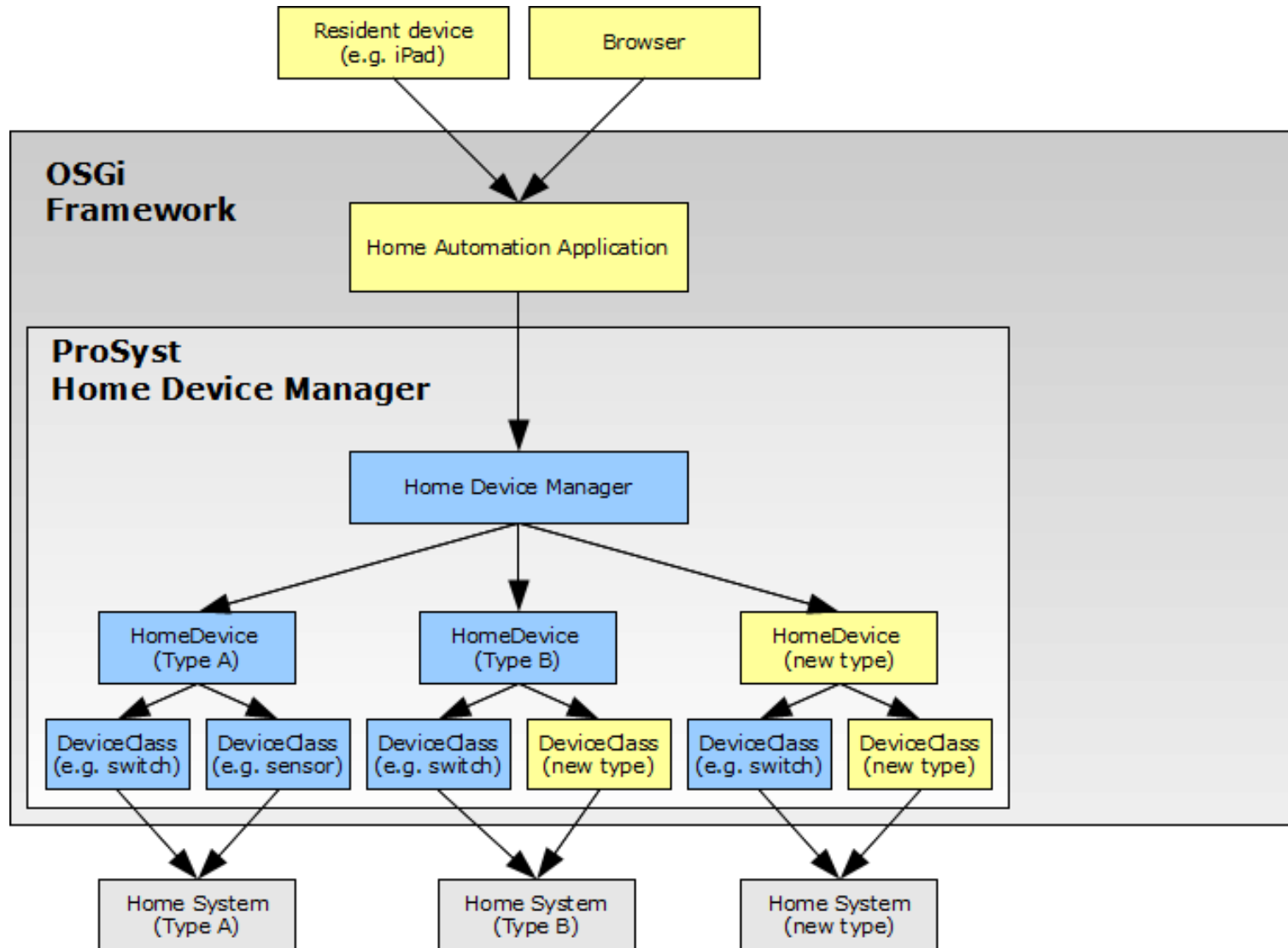
Using OSGi as EE in HG



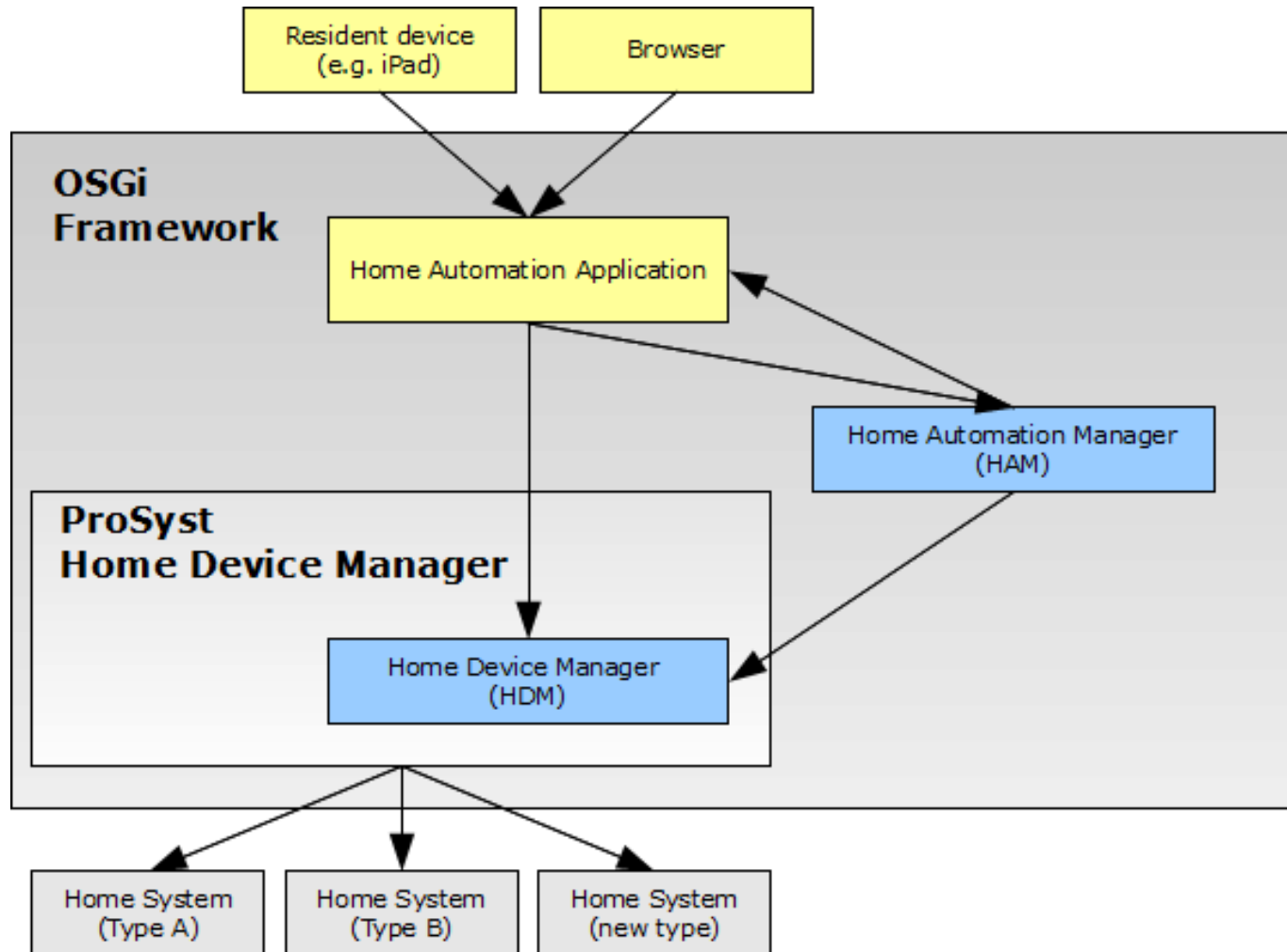
Important Design Issues

- How to abstract the device layer?
 - Interfaces
 - Device ontology
- How to realize the automation layer?
- How to export the provided device interfaces (for GUI, remote management, ... distributed services, etc.)
- How to handle the configuration?

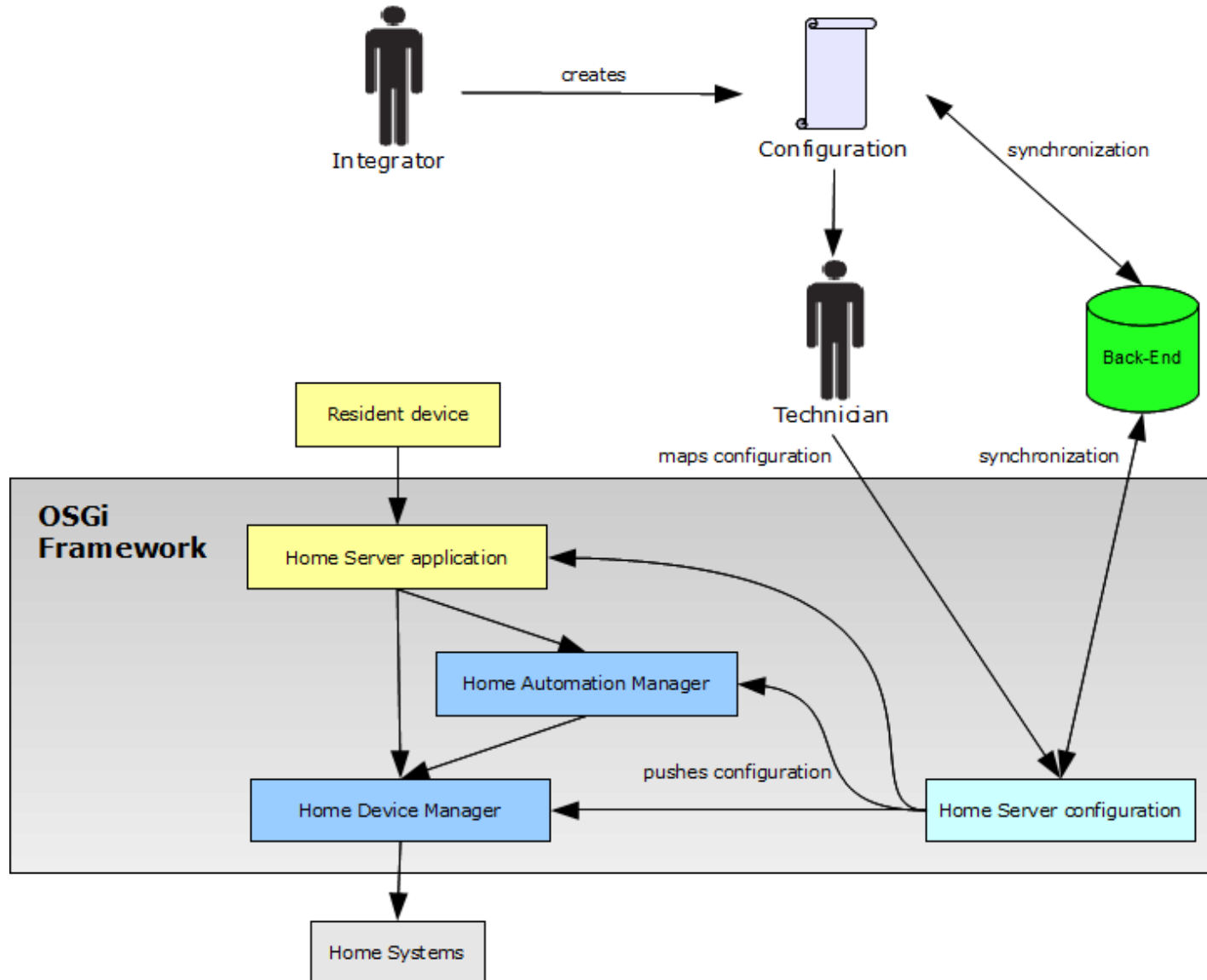
Home Device Manager



Home Automation Manager



Configuration Management



Summary

- There is a strong case for using OSGi as enabler for providing residential services/applications
- This development is supported by the progress at several standardization efforts
- There are commercially available software products which can facilitate and significantly simplify the usage of OSGi in this area

Thank you!



www.prosyst.com

Dr. Dimitar Valtchev
d.valtchev@prosyst.com