Telefónica I+D
OSGi Remote Management

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OSGi relevance on the Home Gateway world

- Telefonica is very interested in the management of home networks and devices. It’s a key issue to deploy advance services at home with reasonable costs.
  - Our point of access to the home today is the DSL modem/router. Soon it will be the device called Home Gateway.

- We believe in the OSGi platform as a key technology to deploy services at home…
  - …but many others operators doesn’t.

- Home Gateway Initiative experience:
  - Too expensive to put an OSGi stack on that kind of devices
  - The first release of the specification doesn’t include an OSGi framework

- Research projects experience:
  - There are some gateways in the market that includes and OSGi framework, together with DSL modem/router functionalities. But they are very constrained in resources.
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Home Gateway management issues

- Until now we have worked with open source or our own solutions:
  - Based on Web Services or JMX (Java management extensions).
- But we shouldn’t duplicate management infrastructure on the limited devices we have as OSGi enable Home Gateway:
  - They usually have a TR-069 client to be managed
  - The OSGi framework is not aware of this client (we couldn’t add management information)
- Some standardization could help to obtain products with OSGi integrated management through TR-069 protocol.
- Maybe someone is working on that out there, and we aren’t aware off… we would like to know about it.
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Other devices

- The Home Gateway is the most important device today for us
  - But our objective is to manage all the devices connected to the home networks.

- All kind of OSGi enable devices at home should be manageable too:
  - OSGi mobile devices already have their management solution through OMA-DM and the extension defined in the OSGi MEG.
  - Other devices could be manageable through TR-069 or OMA-DM.

- We are aware that other scenarios exists, and maybe solutions with JMX or other technologies could be required
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Other scenarios

- OSGi is being applied in several domains
- Each domain has own solution for remote management
  - Home Gateways: ADSL-Forum TR-069
  - Mobile Devices: OMA Device Management
  - Server: JMX (Java Management Extensions)
  - Desktop/RCP (Rich client platform): JMX
  - Vehicle: no standards (¿maybe to use mobile device solutions?)
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Short term

Independent operators

TR-069
OMA DM
???
JMX
JMX

Home gateway
Mobile device
Vehicle
Server
Desktop/RCP
Integrated operator

Adaptation Layer

TR-069

OMA DM

???

JMX

JMX

Home gateway

Mobile device

Vehicle

Server

Desktop/RCP
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Home scenario with integration of several OSGi devices

Server for ambient intelligent techs. (speech recognition, natural language, etc.)

Set Top Box as OSGi node

Home Gateway

Home networks

Internet

Vehicle

Mobile device

Integrated management
**Telefónica I+D Requirements**

- To define what should be managed for all kind of OSGi nodes:
  - Deployment, life cycle, configuration, log, events… (to study)

- To map this information to different domains:
  - OSGi MEG already have their solution for OMA-DM
  - We are specially interested on the TR-069 mapping

- Other general requirements:
  - transactions
  - security
  - scalability
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