UPnP Based OSGi Remote Execution Environment

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Why Remote Execution?

- Resource constrained Devices might want to process their bundles to support extra functionality
- Devices need to remotely manage lifecycle of their applications (from inside home or outside)
- A remote execution environment can offer standard service execution environment for limited devices
- Devices can be made future proof by using OSGi service platform
Remote Execution Functionalities

- Presence of OSGi Platform in the Network (Announcement)
- Publishing OSGi capabilities
  - Available services
  - Exported Packages
  - System Policies
  - Bundle Information
- Bundle Lifecycle Management
  - Installation of bundles
  - Start/Stop of bundles
  - Updating of bundles
  - Uninstallation of bundles
- Exchange Execution Result
Why UPnP based?

- Built on Internet standards and technologies such as TCP/IP, HTTP, XML
- Provides Automatic discovery and device control
- Widely accepted technology in current home networking domain (DLNA, IGRS etc.)
- UPnP is already included in the existing OSGi specification
- Alignment with UPnP is a request from Service Operator
UPnP Based OSGi Remote Execution Service

Application Server

OSGi Service Platform

Remote Execution Services

Device Application

Connected Device

UPnP CD

UPnP CP

exposes

manages lifecycle

communication

knows location of

OSGi Service Platform as UPnP connected Device
Security issues
- Prevention of malicious device/device applications from accessing OSGi platform
- Authentication and authorization of devices (and application) needs to be done
- Make use of the system policy to limit access to OSGi platform

Alignment to Remote management from outside home