E2E Committee Meeting

> Some Use Cases & Requirements

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E2E Committee Meeting

➢ JOnAS
  ➢ Java EE Application Server
  ➢ Open source (LGPL)
  ➢ J2EE 1.4 certified

➢ JOnAS 5
  ➢ Based on OSGi
    ➢ Modularity
    ➢ Dynamism
    ➢ Dependencies description
    ➢ Strict classloader rules
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➢ JADE
  ➢ Framework for building autonomous systems
    ➢ Self-management
    ➢ Self-repair
    ➢ Self-sizing
    ➢ Self-protect
  ➢ In memory System representation
    ➢ Casually connected
  ➢ OSGi first introduced for deployment help
    ➢ Now it's the base of the System
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➢ JASMI Ne
  ➢ Cluster management software
  ➢ Use JADE
  ➢ Provides a GUI for deployment
  ➢ Generates application configuration (JonAS, Apache, ...)
  ➢ Use probes to monitor the system
  ➢ Provides a management console
    ➢ Protocol independent (JMX/SOAP)
    ➢ Gateway discovery (DNS-SD)
Use Cases

Deployment
- Java EE Application Server deployment
- Java EE applications deployment
- "Offline" gateways deployment
- OBR Management API (write: add resources)

Configuration
- Remote configuration provisioning (Pull / Push)
- Dynamic reconfiguration (Update)
- On demand services (per application needs)

Management
- Remote gateway management
- Large scale Java EE servers management (Farms)
- Java EE Server Self-Management (Autonomous)
Use Cases / Deployment

- Java EE Application Server deployment
  - JOnAS 5 based on OSGi
    - Provides a set of Services (Deployers, Transaction, ...)
    - JOnAS Services deployable as bundles
  - Running OSGi gateway
  - Install JOnAS blocks on an empty infrastructure
Java EE Application deployment

- Java EE applications are converted into bundles by deployers
- On the fly conversion (locally modified only)
- May be placed in an OBR for re-use

Diagram:
- OBR
- TX
- EAR
- My App
- OSGi Gateway
Use Cases / Deployment

➢ “Offline” gateway deployment
  ➢ Context:
    ➢ Java EE servers farms or grids
    ➢ The minimal execution environment may not be installed
  ➢ Need a way to deploy remotely the gateway
    ➢ Binaries upload
    ➢ Gateway life-cycle support

![Diagram showing OSGi Gateway deployment with FTP/SSH access and host start/stop controls]
Use Cases / Deployment

➢ API for OBR management
  ➢ Current API focus on repository browsing and resource resolution
  ➢ JOnAS may need an API for OBR modifications
    ➢ Add a resource (EjbJars, Libs, ...)

![Diagram showing client and OBR components](image-url)
Use Cases

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Remote configuration provisioning (Pull / Push)

- Configuration provisioning is a hard task in a clustered environment
- JOnAS currently supports PUSH mode through JASMINe
  - Configuration is generated off-line
  - Uploaded to the host
  - Instance is started
- Not very scalable, no dynamism
Use Cases / Configuration

➢ Dynamic reconfiguration
  ➢ On code update, configuration properties may changes

Config Admin
Use Cases / Configuration

➢ On demand services
   ➢ Start with a minimal 'kernel'
   ➢ JOnAS Services are added/activated on demand
     ➢ Applications ask for a particular service
     ➢ Services are then installed/started
   ➢ JOnAS Services should be stopped/removed
     ➢ When no one are using them
     ➢ Reducing the memory footprint
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➢ Use Cases

➢ Deployment
  ➢ Java EE Application Server deployment
  ➢ Java EE applications deployment
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  ➢ OBR Management API (write: add resources)

➢ Configuration
  ➢ Remote configuration provisioning (Pull / Push)
  ➢ Dynamic reconfiguration (Update)
  ➢ On demand services (per application needs)

➢ Management
  ➢ Remote gateway management
  ➢ Large scale Java EE servers management (Farms)
  ➢ Java EE Server Self-Management (Autonomous)
Use Cases / Management

➢ Remote gateway management
  ➢ On-line/connected mode
  ➢ Protocol agnostic
    ➢ Protocol may change given the network configuration
    ➢ Firewalls, routers may force us to change the protocol
  ➢ Introspection API
    ➢ Browse Bundles, Services, ...
Use Cases / Management

➢ Large scale Java EE servers management (Farms)
  ➢ High numbers of managements targets
  ➢ Deployment plans introduced
  ➢ Strategies on failures/errors (retry, skip)
  ➢ Requirements
    ➢ Reliable (ACID ?)
    ➢ Secured
    ➢ Structured
Use Cases / Management

➢ Java EE Server Self-Management (Autonomous)
  ➢ Self-sizing
    ➢ Applications can be configured to better support a workload
    ➢ In a cluster, other instances may be started to share the load
  ➢ Related to dynamic reconfiguration
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