



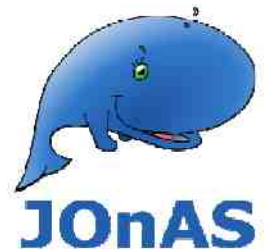
Architect of an Open World™

The JOnAS OW2 Java EE Framework

Mission critical and ambient computing applications support

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LIBERATE IT



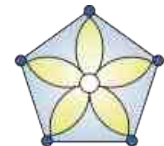
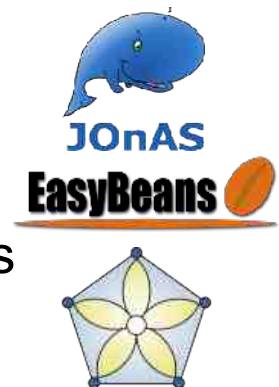
Java EE 5 certified !

- Long running work (JOnAS 5 started in 2003)
- First certified open source AS with fully OSGi architecture
 - 130 bundles, 50 services
- Main components in JOnAS 5.1 version
 - OSGi framework : [Apache Felix 1.4.1](#) + [iPOJO 1.2.0](#)
 - Servlet 2.5 : [Apache Tomcat 6.0.18](#)
 - JAX-WS 2.0 : [Apache CXF 2.0.9](#)
 - EJB 3.0 : [EasyBeans 1.1.0](#)
 - JPA 1.0 : [EclipseLink 1.0.1](#)



JOnAS World

- Open Source
 - International users and developers community
 - LGPL
- Three main OW2 projects
 - JOnAS: Java EE Application Server
 - EasyBeans: EJB3 container
 - JASMINe: Intelligent Administration of SOA platforms
- And other ones
 - JOTM, CAROL, CMI, SHELBIe



[http:// \[jonas | easybeans | jasmine \].ow2.org](http://[jonas|easybeans|jasmine].ow2.org)
[http:// \[carol | cmi | jotm | shelbie \].ow2.org](http://[carol|cmi|jotm|shelbie].ow2.org)



Bull

- Leader
- Support and services offer (Libre Energie)



France Telecom

- Intensive operational use of JOnAS
- Contribution on administration and versioning



Peking University, CVICSE

- Clustering, web services



INRIA

- Advanced administration



UJF

- OSGi



UNIFOR

- Clustering



SERLI

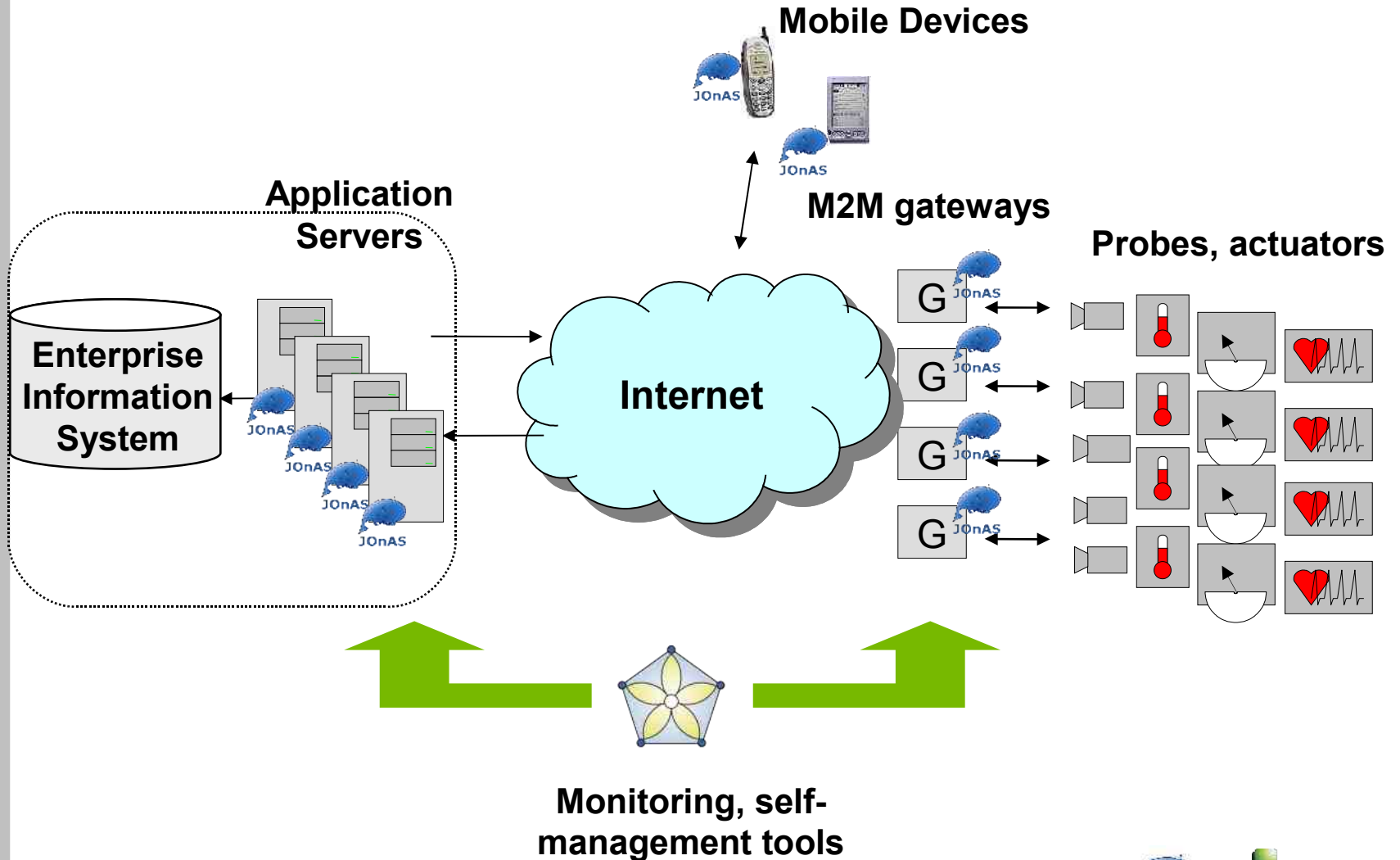
- Izpack installer, administration



Evolution of Application Server Usage

- Ubiquitous Applications, Ambient Computing
 - Computers, small, resource-constrained electronic devices
- Examples:
 - health care (sensor and personal communication devices), mobile, home, public services
 - M2M, Home Automation and RFID-based applications...
 - Telco and Internet mixed applications ->convergence between IMS, Web and Media service technologies

Evolution of Application Server Scope



New Requirements

- Dynamic & Autonomic service-oriented platform
- Embedded system domain
- Inter-domain interoperability
- Support flexibly adaptable distributed applications
- And still
 - Modularity, Flexibility & Extensibility
 - Technical services
 - Transaction, persistence, security, messaging, ...
 - Service continuity & high availability
 - Scalability
 - Administration & monitoring capabilities
 - Development tools



How JOnAS fits with these requirements ?

- Non-stop self-healing application server for mission critical applications, suitable for ambient computing
- Based on
 - Java EE-compliant **JOnAS** OSGi-based application server
 - **JASMINe** administration environment
 - EJB3-compliant **EasyBeans** lightweight container



OSGi architecture: common runtime

- Bridge the gap between the different parts of new generation applications : servers, edge, premise, devices
- Common paradigm
- Lightweight
- Remote management



Benefits
Eases skills mngt
Embeddable

OSGi architecture: mastering the complexity

- Bundles
 - Solves libraries conflicts issues
 - Hides implementation classes
- Dynamic reconfiguration
- Eases application update
- Pluggability for easier integration with existing software



Benefits
Modularity
Flexibility
Extensibility

OSGi architecture: SOA

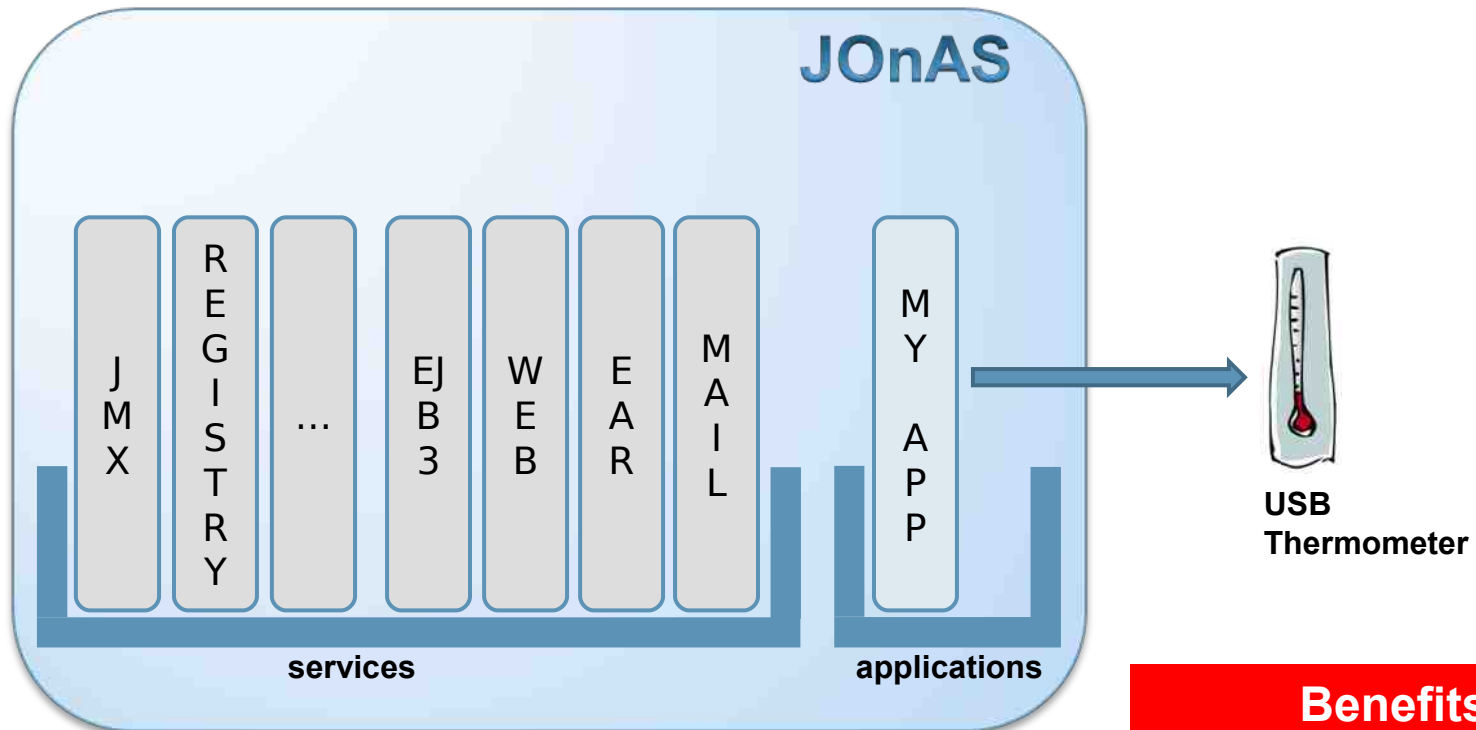
- Service oriented model for loosely coupling
 - Contract
 - publish/find/invoke
- Autonomic service dependency management
- Late binding for service morphing (context aware application)
- Service life cycle management at runtime
 - install/start/stop/uninstall



Benefits
Flexibility
Highly dynamic
Autonomic
Adaptable application

OSGi architecture: elastic platform

► *On-demand service loading/unloading regarding the application requirements*



Benefits
Reduced foot print
Scalability
Autonomic

EasyBeans: bridge Java EE™/ OSGi™

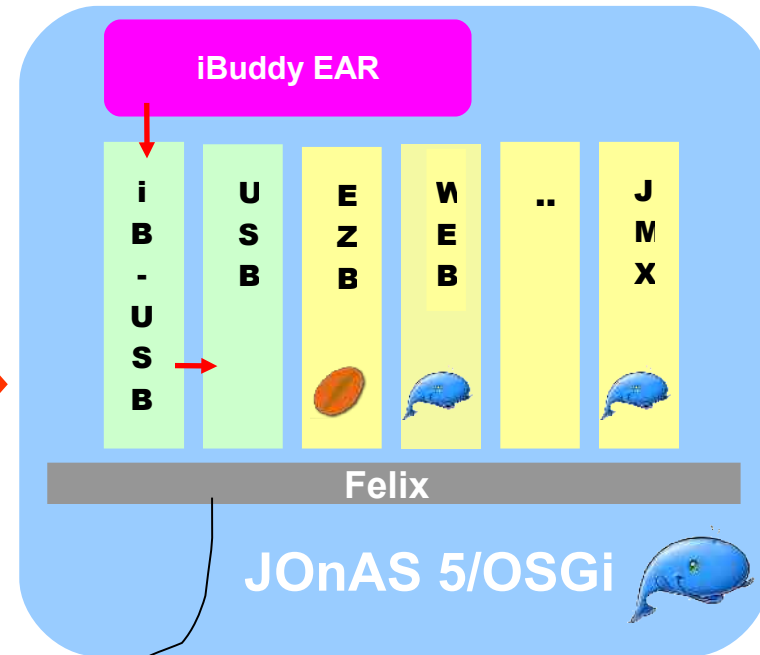
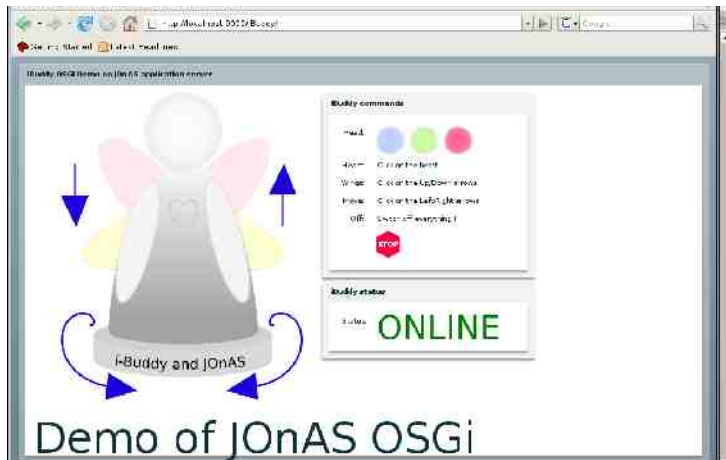
- Bidirectionnal gateway between Java EE™ and OSGi™ world
 - EJB™ 3.0 can use the BundleContext
 - Listen to OSGi™ events (framework, bundle, service)
 - Access to OSGi™ services

```
/*  
 * Bundle context that will be injected by the EZB container.  
 */  
@OSGiResource  
BundleContext bundleContext = null;
```

- EJB™ 3.0 supports OSGi service injection
- Exposes EJB3 business interfaces as OSGi services
 - Transparent access to EJB3 from OSGi applications
- Java EE technical services accessible to OSGi application

Benefits
Interoperability

Inter-domain interoperability use case



Embedded domain:

- Home automation / M2M
- RFID
- Sensors
- SOHO servers
- Video Games



usb

JOnAS/JASMINe: application upgrade

- Critical application with quick evolution cycle needs to do version upgrade without interruption of service / user sessions loss / over sizing the system
- Smooth & transparent migration
 - JOnAS Versioning service
 - Several versions of a same application co-running in a same JOnAS instance
 - Configurable request routing policy toward versions
 - Available for WebApp Tomcat, EJB2/EJB3
 - JASMINe JADORT Orchestration tool
 - Centralize upgrade from a single console (flex)
 - Provides log/rollback/error management features

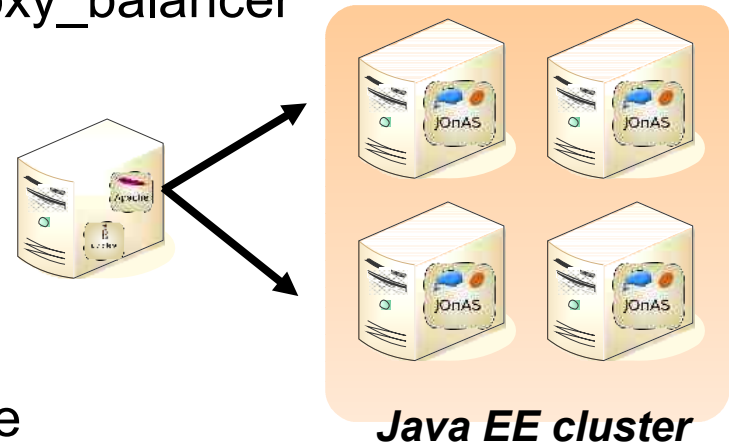
Benefits

Service continuity
Reduced admin costs



JOnAS: dynamic clustering

- Load-balancing and fail-over
 - Web application with mod_jk/mod_proxy_balancer
 - EJB2/EJB3 application with CMIv2
- Replication
 - Web application with tomcat
 - EJB2/EJB3 replication with HA Service
- Easy of use
 - Zeroconf at the client side
 - Control from the server side



Benefits
Scalability
High availability

JOnAS: clustering management

Easy Clustering: management of LB policy

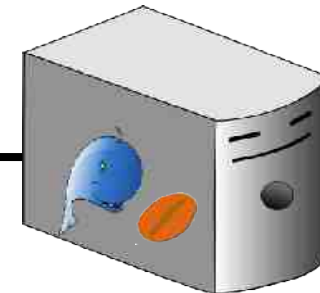


JOnAS Administration

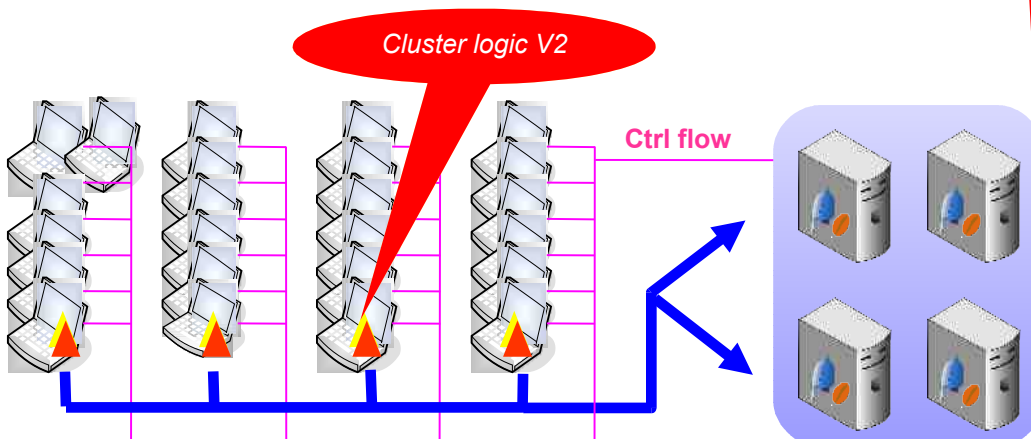
Domain (sampleCluster?Domain)
Server JOnAS (node1)

Properties	JMX Properties	CM	CM	Cluster
Global				
Name	org.ow2.easbeans.examples.democluster.State es: Bear_org.ow2			
Cluster name	test_cluster			
Interface	org.ow2.easbeans.examples.democluster.State es:Remote			
Deployer servers				
rmi://127.0.0.1:2022 rmi://127.0.0.1:2022				
Load balancing Infos				
Policy class	FirstAvailablePolicy			
Policy strategy	RoundRobinPolicy			
Pool infos	RoundRobinPolicy			
Min pool size	FirstAvailablePolicy			
Max pool size	-1			

Master node



Update Cluster logic

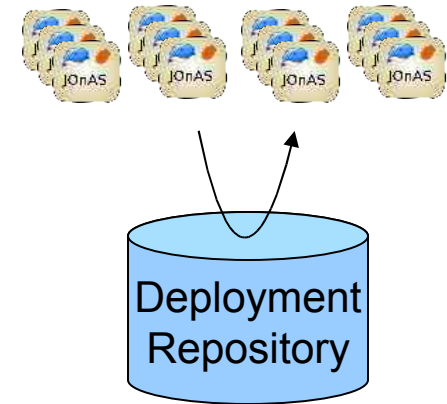


Benefits
Highly dynamic



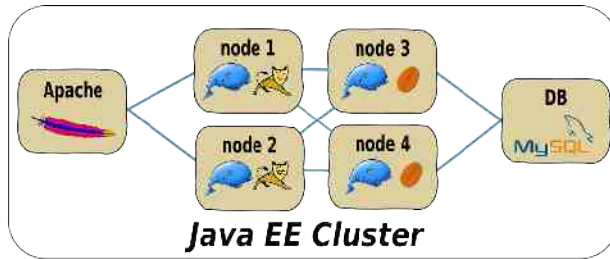
JOnAS deployment plan

- Goals
 - Get applications from remote repositories
 - Url, Maven, OBR
 - Schedule the applications startup
- XML file description
 - Repositories
 - Applications components
- Use case
 - Clustering or large scale deployment
 - Applications dependencies management (startup)
 - Continuous integration

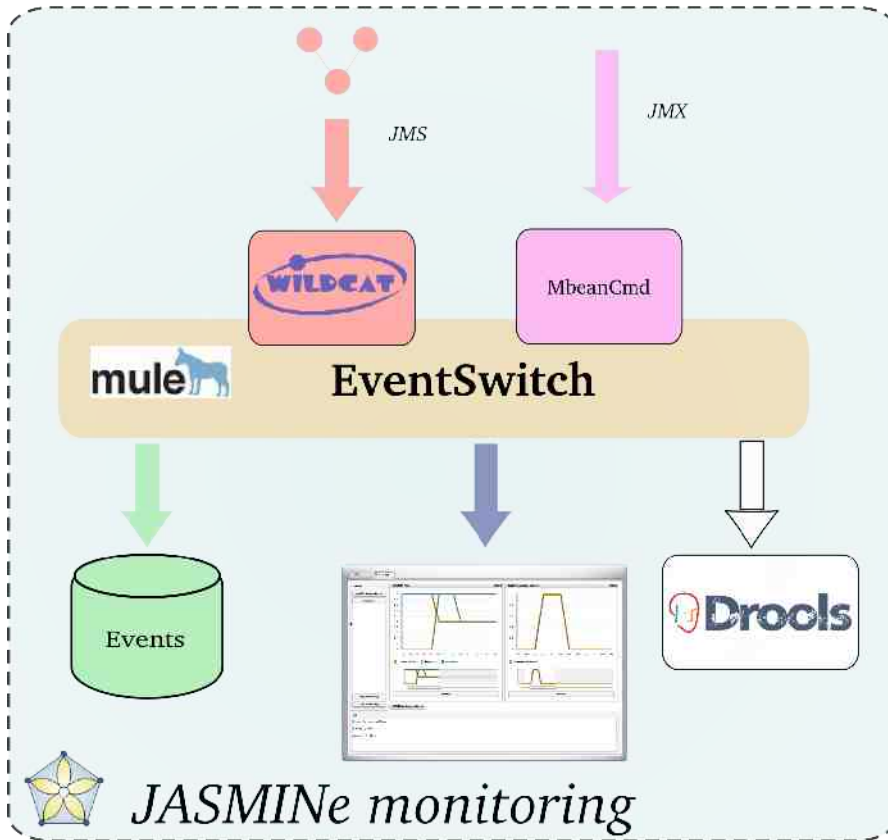


Benefits
Scalability
EoD

JASMINe Monitoring



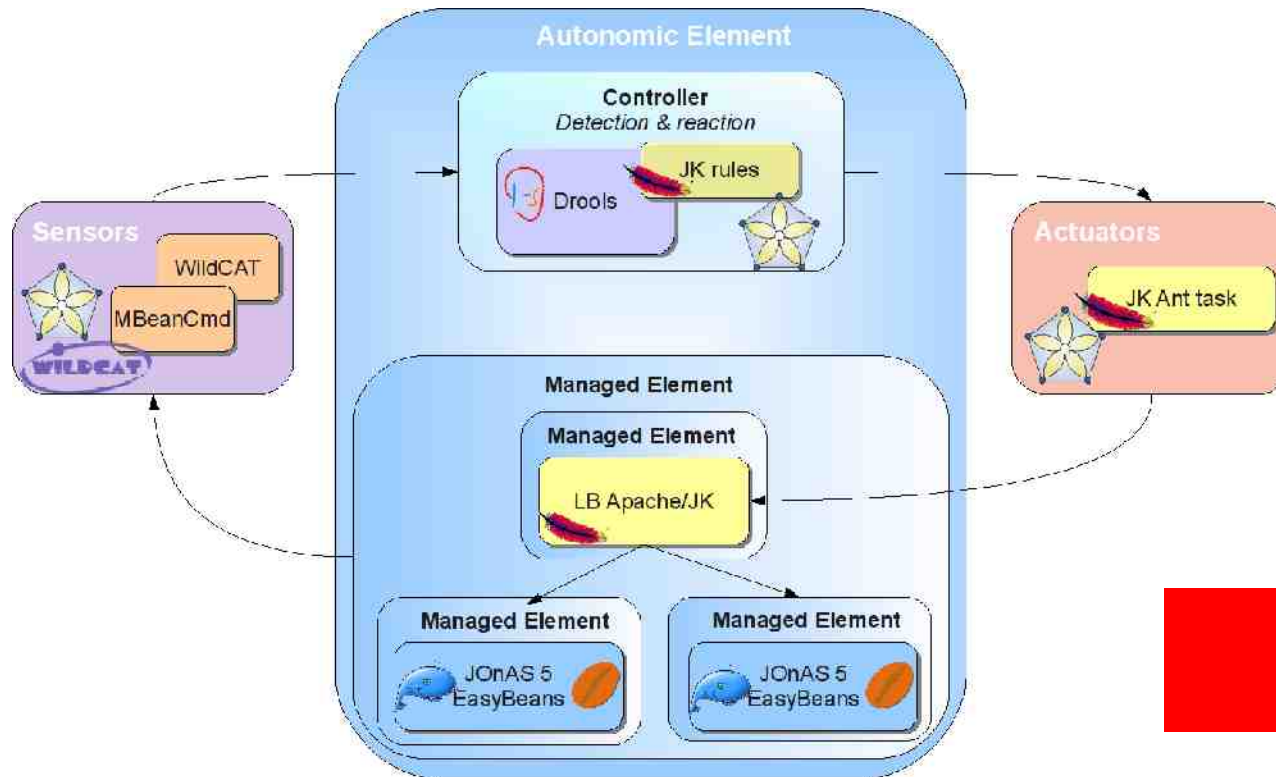
- Probes (JMX, OS)
- Distributed mediation layer
- Error detection with rules engine
- EoS console (flex)



Benefits
 Governance
 Reactivity
 Reduced admin costs

JASMINe Self-management (soon)

- Self-healing
- Self-optimization

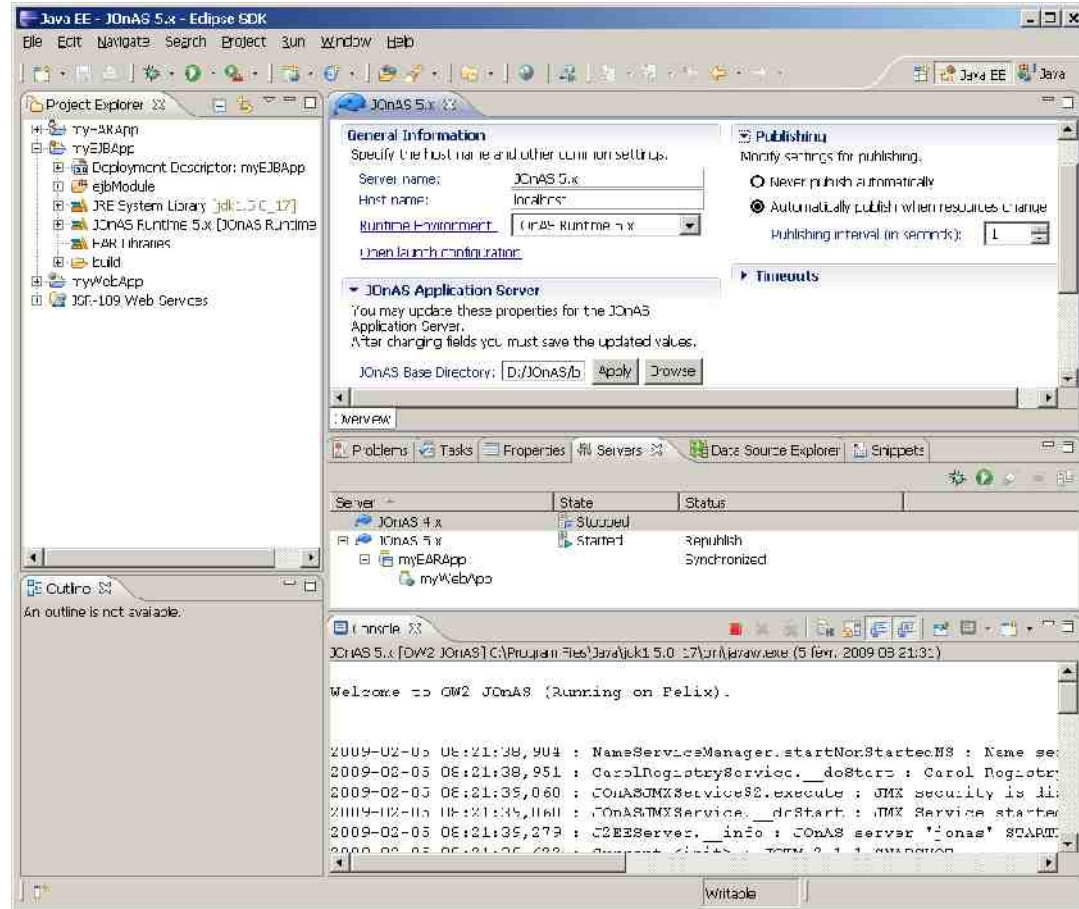


**Benefits
Autonomic**

JOnAS development

- Eclipse JOPE plugin
 - WTP based
- Cargo support
- Hot redeploy

**Benefits
EoD**



Try it !

OW2 | JOnAS | EasyBeans | JOTM | JASMINe

JOnAS

Java Open Application Server

OW2 Consortium

Project Demos References Services Documentation Downloads Community News Developers Wiki

What is JOnAS ?

JOnAS is a leading edge Open Source implementation by OW2 of the Java EE specification. The stable versions are J2EE 1.4 certified and latests 5.1 milestones are Java EE 5 certified. The License used by JOnAS is the LGPL.

Recent News

03.17.2009 :: JOnAS 5.1 M3 Certified
02.19.2009 :: JOnAS 5.1 M3 available
12.12.2008 :: JOnAS 5.1 M2 available
[Read More >>](#)

Innovative

The OW2 development community includes many academic institutes (Grenoble University, INRIA, LIFL, Peking University, UPM, ...) working with JOnAS; this fastens technology transfers and make JOnAS a top level product in term of technology innovation.

- JOnAS 5 is designed with an OSGi™ based services architecture to provide a dynamically adaptable application server
- JOnAS is implementing the full Java EE 5 execution stack and provides, with EasyBeans, an efficient, pluggable and easy to use EJB3 container
- a new OW2 project, named JASMINe, has just been created, co-led by Bull. This is a tool for deploying and monitoring JOnAS clusters; it will include self-management features

Read the [White Paper](#) for details about these aspects.

OW2 JOnAS 5.1 is Java EE 5 certified. [Download it here](#)

Enterprise Class

JOnAS is a mature project (started in 1999) and provides a wide range of features:

- JOnAS provides top level clustering management
- JOnAS high level Management features
- Integration to the Enterprise SI is enhanced
- Eclipse plugins (WTP...) make development easier
- Professional Support is available from Bull

Custom made vs

Meet the users needs: through a survey server generation architecture. In result application development. Taking into account the users needs.

Developments priority: the JOnAS development team is focused on the users needs.

connector, ...

defining the new application
ing system for simplifying

es.

jonas.ow2.org easybeans.ow2.org jasmine.ow2.org



Thank you for your attention

BULL

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