



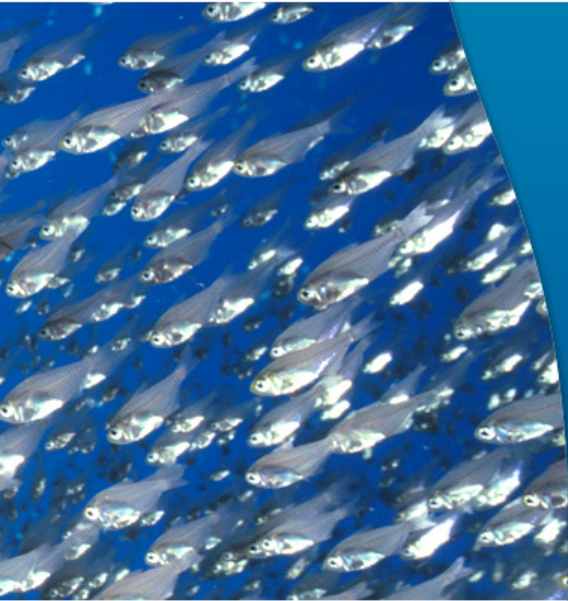
Management and Monitoring in GlassFish v3

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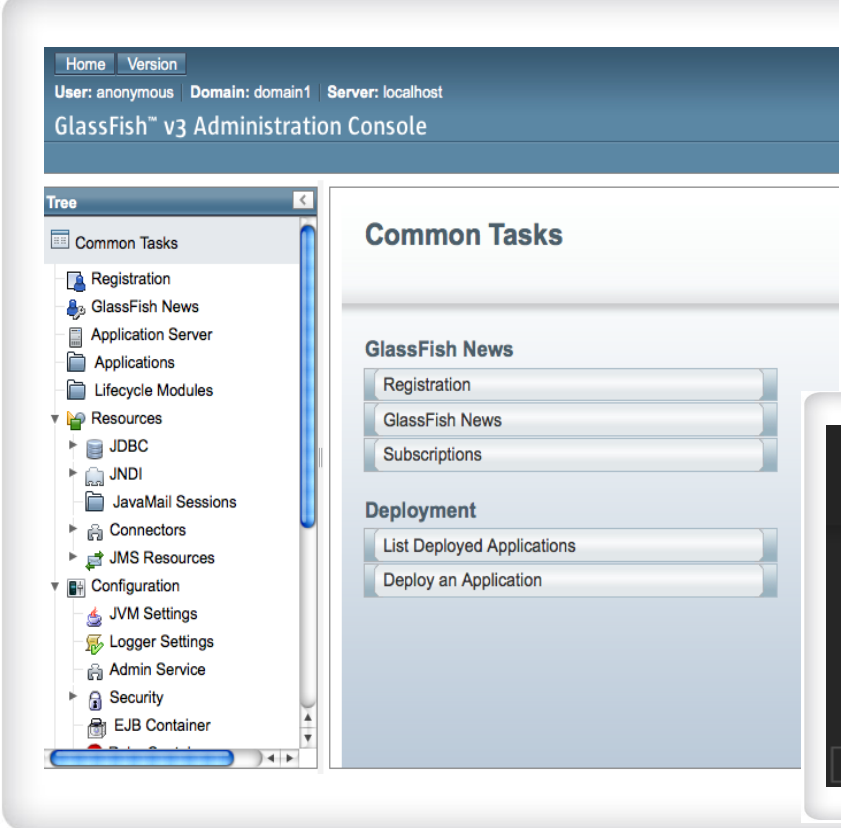
GlassFish v3 Management

GlassFish v3 Management

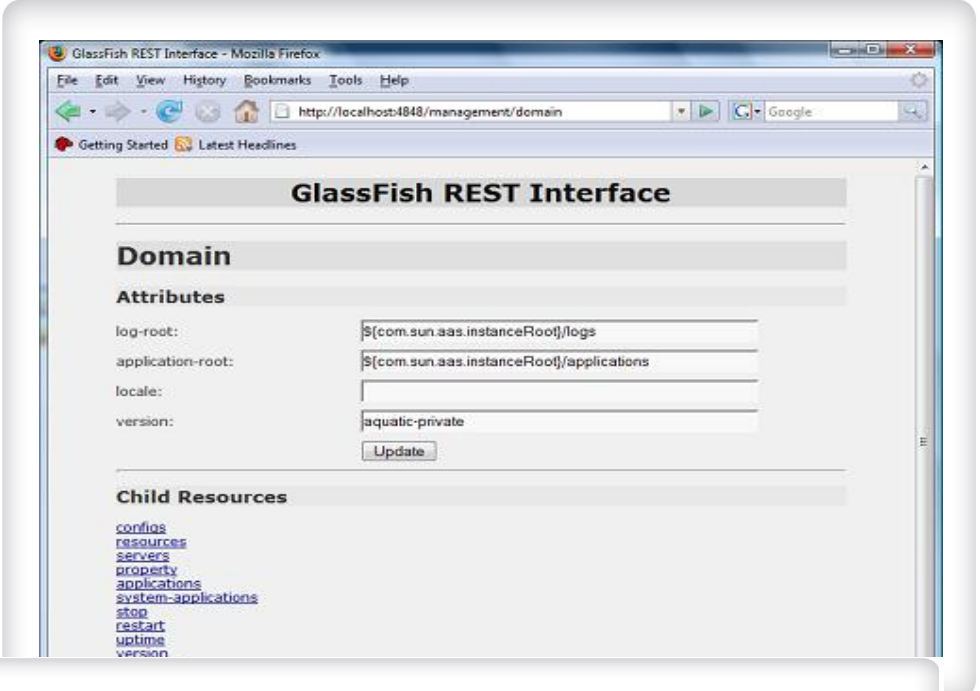
- User friendly, Pluggable and extensible administration
- Feature rich Admin Console (GUI)
- Easy to use Command Line Interface (CLI)
- Cloud friendly RESTful management and monitoring API
- Fully documented AMX API

GlassFish v3 Screen Snapshots

Java Management API
for GlassFish (AMX)



The screenshot shows the GlassFish v3 Administration Console. At the top, it displays 'User: anonymous', 'Domain: domain1', and 'Server: localhost'. Below this is the 'GlassFish™ v3 Administration Console' header. On the left is a 'Tree' view with categories like 'Common Tasks', 'Resources', 'Configuration', and 'EJB Container'. The main area shows 'Common Tasks' with buttons for 'Registration', 'GlassFish News', and 'Subscriptions'. Below that are 'GlassFish News' and 'Deployment' sections, each with buttons for 'List Deployed Applications' and 'Deploy an Application'.



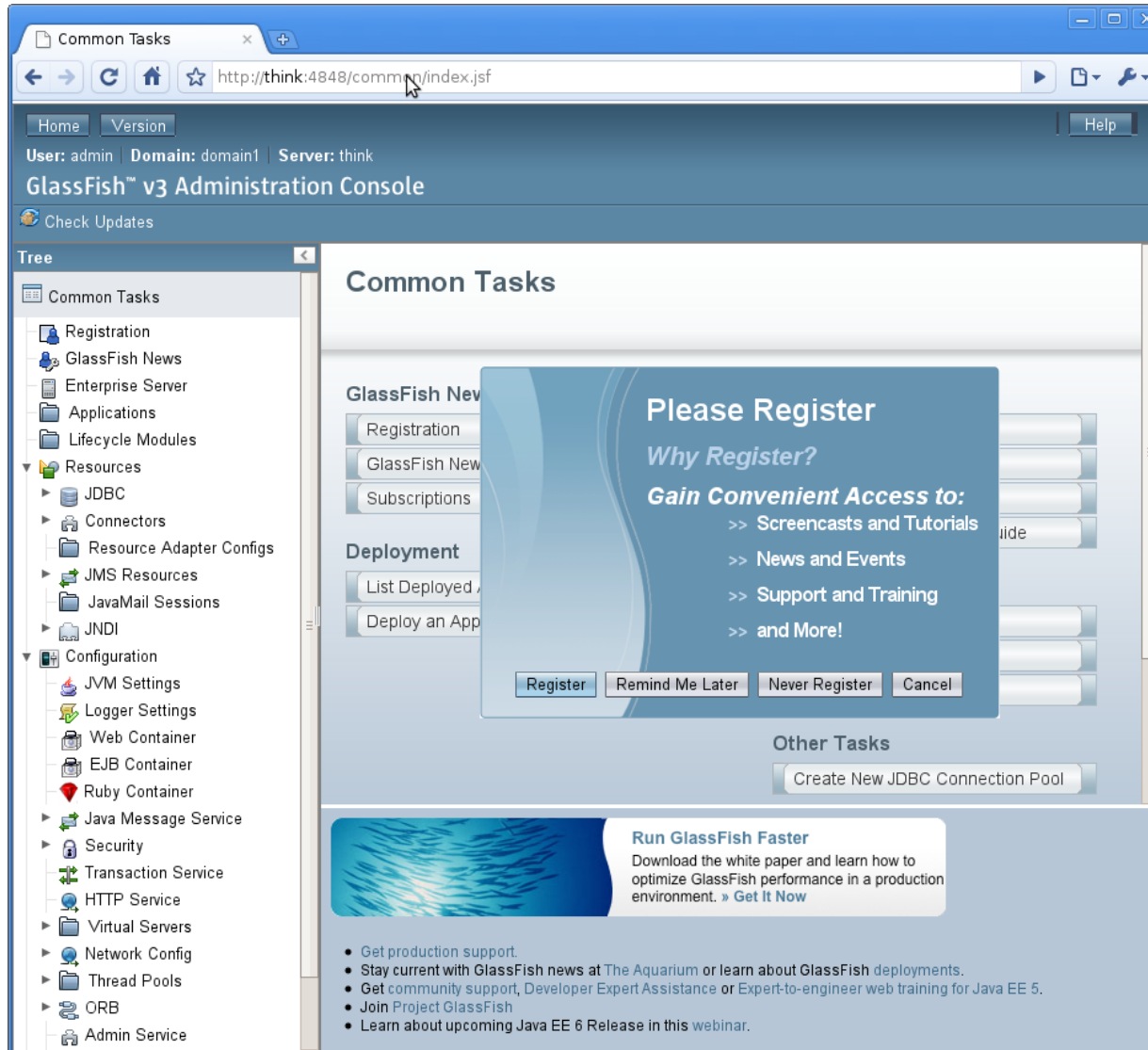
The screenshot shows a browser window titled 'GlassFish REST Interface - Mozilla Firefox' at the URL 'http://localhost:4848/management/domain'. The page content includes:

- GlassFish REST Interface** header
- Domain** section
- Attributes** section with input fields for:
 - log-root:
 - application-root:
 - locale:
 - version:
 An 'Update' button is located below the version field.
- Child Resources** section with a list of links:
 - [configs](#)
 - [resources](#)
 - [servers](#)
 - [property](#)
 - [applications](#)
 - [system-applications](#)
 - [stop](#)
 - [restart](#)
 - [uptime](#)
 - [version](#)

```

$ asadmin start-domain
Waiting for DAS to start.
Admin port for the domain: [4848].
Command start-domain executed successfully.
$ asadmin deploy hello.war
Command deploy executed successfully.
$
    
```

GlassFish v3 Admin Console



The screenshot shows the GlassFish v3 Administration Console interface. A modal dialog box titled "Please Register" is displayed in the center, asking the user to register. The dialog includes the text "Why Register?" and "Gain Convenient Access to:" followed by a list of benefits: "Screencasts and Tutorials", "News and Events", "Support and Training", and "and More!". At the bottom of the dialog are four buttons: "Register", "Remind Me Later", "Never Register", and "Cancel".

The background interface shows a navigation tree on the left with categories like "Registration", "GlassFish News", "Enterprise Server", "Applications", "Lifecycle Modules", "Resources", "JDBC", "Connectors", "Resource Adapter Configs", "JMS Resources", "JavaMail Sessions", "JNDI", "Configuration", "JVM Settings", "Logger Settings", "Web Container", "EJB Container", "Ruby Container", "Java Message Service", "Security", "Transaction Service", "HTTP Service", "Virtual Servers", "Network Config", "Thread Pools", "ORB", and "Admin Service". The main content area is titled "Common Tasks" and includes sections for "GlassFish News" (with buttons for Registration, News, and Subscriptions), "Deployment" (with buttons for List Deployed and Deploy an App), and "Other Tasks" (with a button for Create New JDBC Connection Pool). A footer section titled "Run GlassFish Faster" provides a link to a white paper and a list of resources.

Run GlassFish Faster
 Download the white paper and learn how to optimize GlassFish performance in a production environment. » [Get It Now](#)

- Get production support.
- Stay current with GlassFish news at The Aquarium or learn about GlassFish deployments.
- Get community support, Developer Expert Assistance or Expert-to-engineer web training for Java EE 5.
- Join Project GlassFish
- Learn about upcoming Java EE 6 Release in this webinar.

GlassFish v3 Admin Console

Some New Features:

- > Frameset removed / Ajax-based pages
- > Admin Console deploy on demand
- > Scripting Support
- > Server Restart
- > Enhanced Connection Pool UI
- > Grizzly Configuration
- > JMS Physical Destination Statistics
- > New Monitoring UI
- > New Help System

GlassFish v3 Admin Console

- Architecture
- Plugin /Integration Point
 - > Plugin add functionality to the console
 - > Based on OSGi
 - > Different types of Integration Points
 - Tree Nodes
 - Page-specific

Pluggable Console

Additional functionality appears when EJB (full) package is installed on top of EJB Lite

The screenshot displays the GlassFish v3 Administration Console interface. The main content area is titled "Enterprise Java Beans (EJB)" and contains several configuration sections:

- Session Store Location:** `$(com.sun.aas.instanceRoot)/session-store`. Description: Passivated bean and persistent HTTP session storage.
- Commit Option:**
 - Option B - Cache a ready instance between transactions. Description: The container caches a ready instance between transactions, but the container does not ensure that the instance has exclusive access to the state of the object in persistent storage; in this case, the container must synchronize the instance's state by invoking `ejbLoad` from persistent storage at the beginning of the next transaction.
 - Option C - Do not cache a ready instance between transactions. Description: The container does not cache a ready instance between transactions, but instead returns the instance to the pool of available instances after a transaction has completed.
- Pool Settings:**
 - Initial and Minimum Pool Size:** Number of beans. Description: Minimum and initial number of connections maintained in the pool.
 - Maximum Pool Size:** Number of beans. Description: Maximum number of connections that can be created to satisfy client requests.
 - Pool Resize Quantity:** Number of beans. Description: Number of connections to be removed when pool idle timeout expires.
 - Pool Idle Timeout:** Seconds.

Navigation tabs at the top of the main content area include "EJB Settings", "MDB Settings", and "EJB Admin Service". The "EJB Settings" tab is selected and circled in red. In the left-hand "Tree" view, the "EJB Container" is selected and circled in red. The "EJB Container" configuration page shows various sub-configuration options, with "ORB" and "IIO P Listeners" also circled in red.

Architecture Overview



GlassFish Admin Console

JavaServer Faces Pages

JSF
Components

JSFTemplating

Page Session
Events
Handlers
JSF Components
File Streamer

Custom Handlers

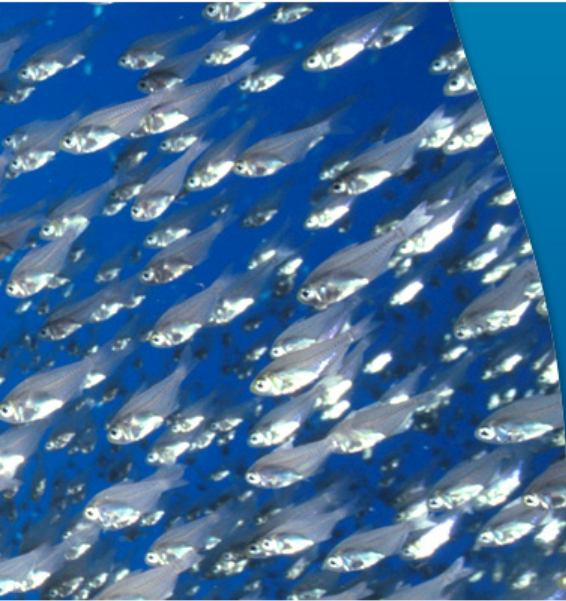
JSF2 Ajax

AMX/REST API

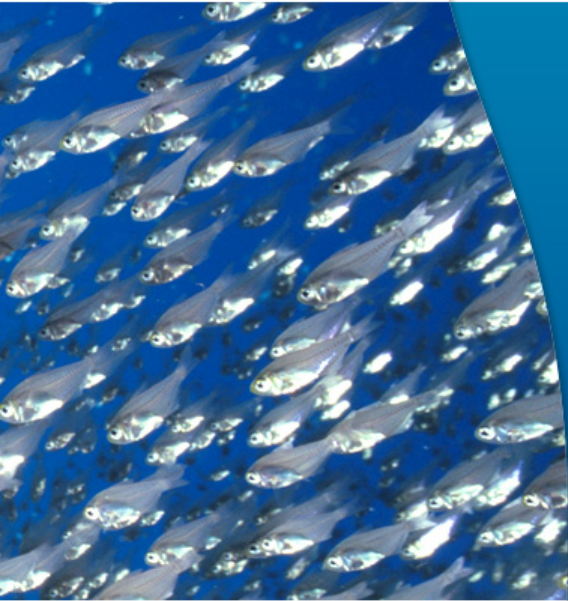
JavaServer Faces 2.0

GlassFish v3 Admin Console

- Ajax Architecture
- 3 Frames replaced by 3 content areas
 - > Each updated via Ajax
- Each area has its own form
 - > JSF “sees” these content area as distinct pages
- Custom JavaScript invokes/handles Ajax
 - > `admingui.ajax.loadPage()` (GET Requests)
 - > `admingui.ajax.postAjaxRequest()` (POST Requests)



Demo Admin Console



GlassFish v3 Monitoring

GlassFish v3 Monitoring

Topics

- Lightweight Probe based Architecture
- Ad hoc Monitoring in Production
- Client-Scripting (JavaScript)
- DTrace Integration on Solaris
- Extensibility/Pluggability
- Multi-Client support
- Client-Scripting Demo



GlassFish v3 Monitoring

Lightweight Probe based Architecture

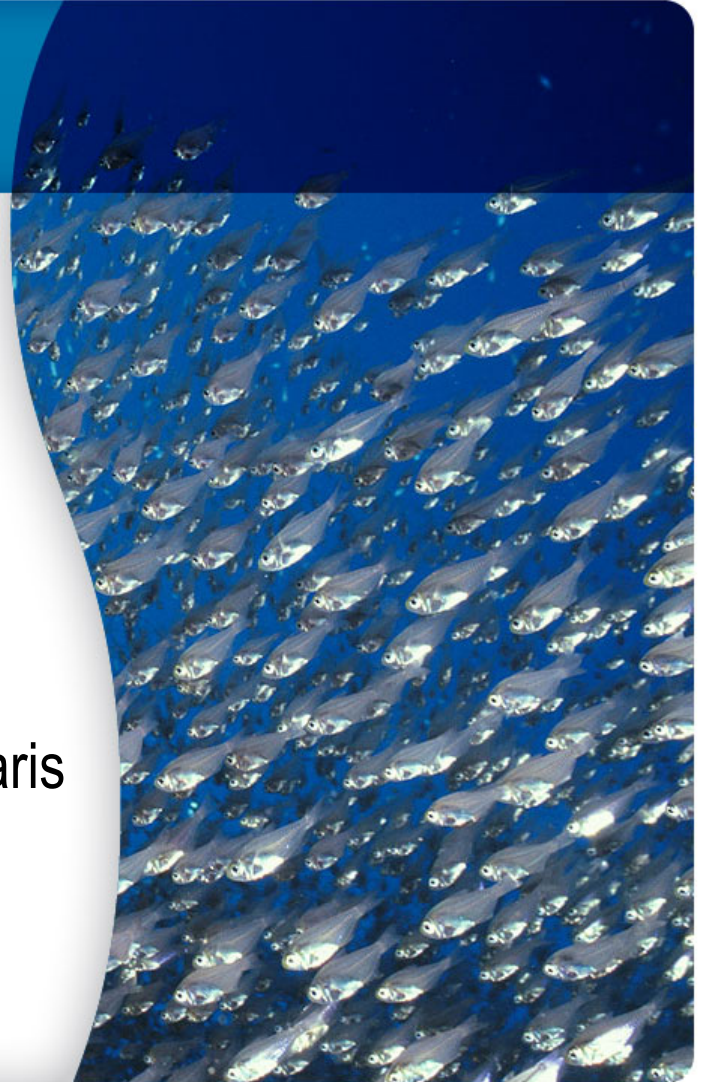
- No overhead when there is no monitoring
- Allows monitoring to be turned on in production environment with minimal impact
- Generate and listen to only interested Probes/Events



GlassFish v3 Monitoring

Ad hoc Monitoring in Production

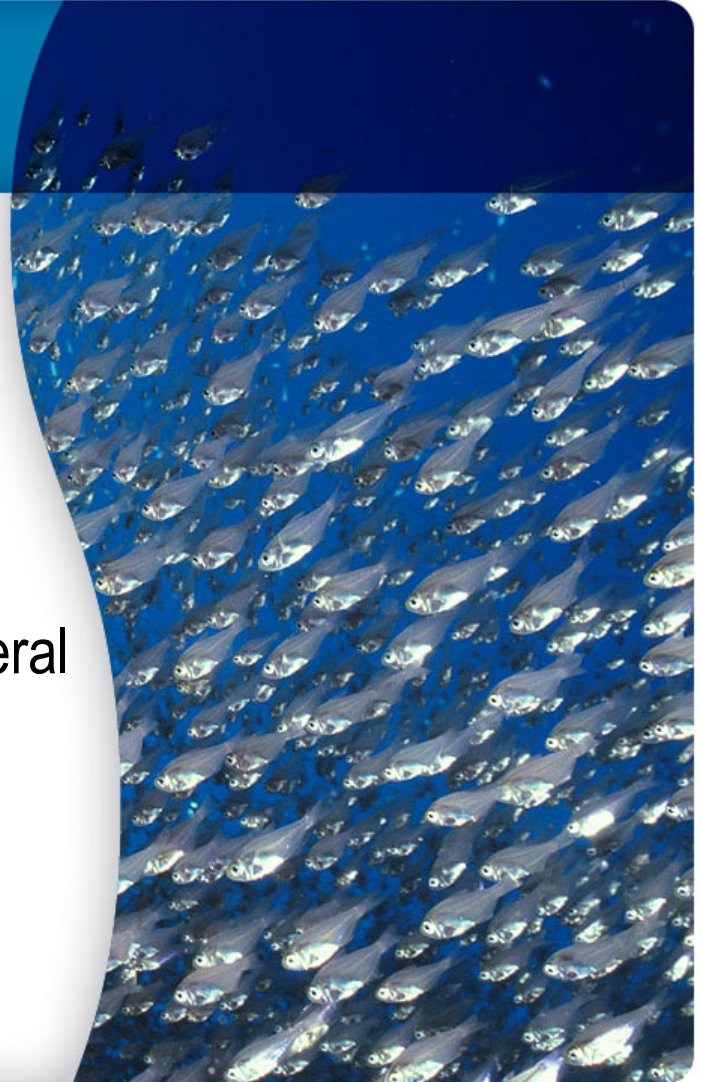
- Turn on Monitoring only when needed
- Ad hoc Monitoring similar to DTrace on Solaris
- Client scripting using Java Script
- Probes exposed through DTrace
- DTrace enables native integration on Solaris



GlassFish v3 Monitoring

Client-Scripting

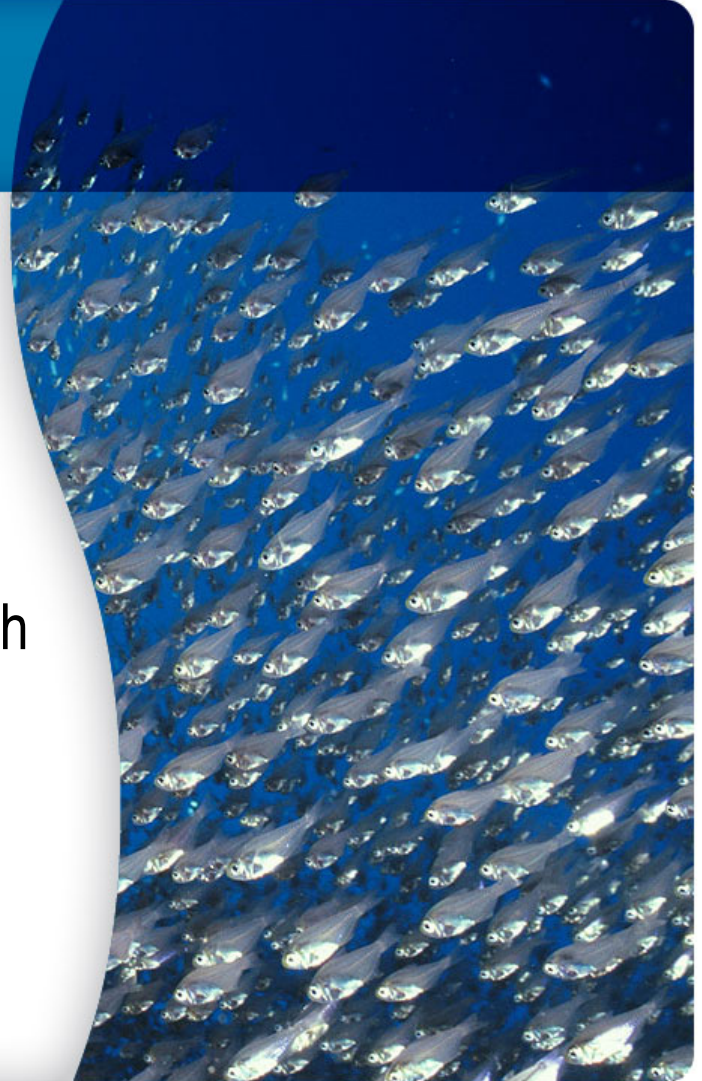
- List probes
- Write Javascript using the GlassFish API
- Start monitoring the probes of interest
- Several clients can exist
- Same script can contain listeners for several probes
- Enables call-flow tracing
- Fine grained monitoring



GlassFish v3 Monitoring

GlassFish DTrace probes

- Enables troubleshooting on production systems
- GlassFish probes are exposed through DTrace similar to OS probes
- Provides a uniform tracing experience with other products, ex. MYSQL
- Enables end to end tracing of Transaction/Request



GlassFish v3 Monitoring

Extensibility/Pluggability

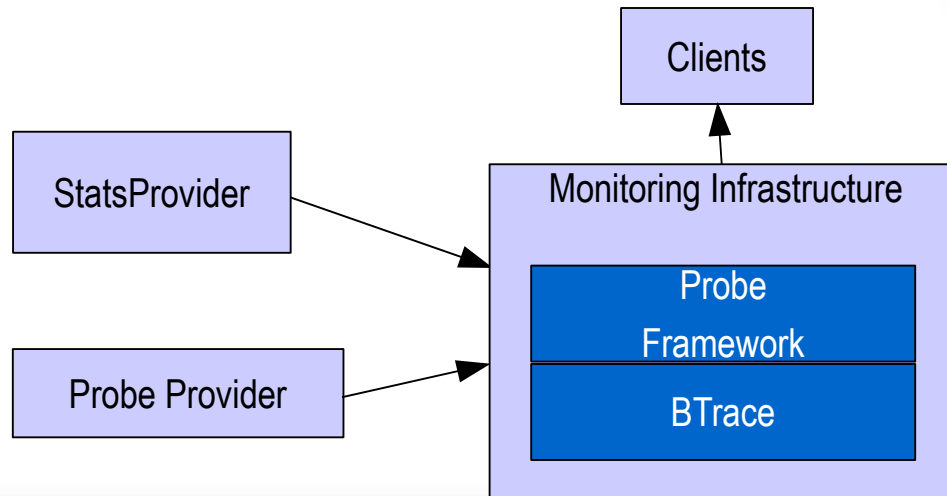
- Pluggability for external modules like Jruby
- Stand-alone applications
- Applications embedded in OSGi bundle
- Provides infrastructure for easier pluggability



GlassFish v3 Monitoring

Instrumentation

- Modules expose probes
 - > POJO with Annotations
 - > XML
- Modules register probe listeners



GlassFish v3 Monitoring

Probe Provider as POJO

```
@ProbeProvider(providername="glassfish", modulename="web")
Class JspProbeProvider {
    @Probe(name="jspLoadedEvent")
    public void jspLoadedEvent(
        @ProbeParam("jsp") String jsp) { }
}
```

Emitting the probe

```
JspProbeProvider jspProvider =
    new JspProbeProvider();
.....
jspProvider.jspLoadedEvent(jsp)
```

GlassFish v3 Monitoring

Probe Provider as XML

```
<probe-providers>
<probe-provider name="glassfish" module="web" >
  <probe name="jspLoadedEvent"
    <class>com.sun.enterprise.web.jsp.JspProbeEmitterImpl </
class>
    <method>jspLoaded</method>
    <signature>void (String)</signature>
    <probe-param type="String" name="jsp"/>
    <location>RETURN/ENTRY/EXCEPTION</location>
  </probe>
  ...
</probe-provider>
...
</probe-providers>
```

GlassFish v3 Monitoring

Stats Provider: Probe Listener

```
private RangeStatisticImpl jspCount;

@ManagedAttribute(id="jspcount")
@Description(JSP_COUNT_DESCRIPTION)
public RangeStatistic getJspCount() {
    return jspCount;
}

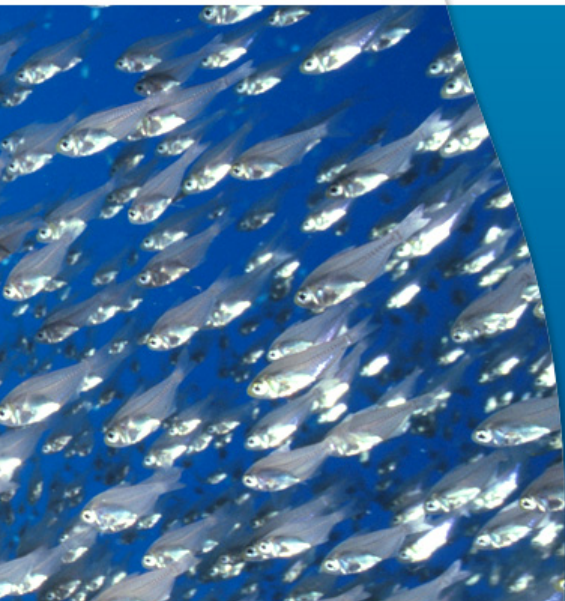
@ProbeListener("glassfish:web:jsp:jspLoadedEvent")
public void jspLoadedEvent(
    @ProbeParam("jsp") String appName) {
    jspCount.increment();
}
}
```

GlassFish v3 Monitoring

Multi-Client Support

- Command Line Interface (CLI)
 - > Dotted Names (list/get)
 - > Monitor similar to 'top' in UNIX
- Graphical User Interface (GUI)
- REST
- JMX/AMX
- DTrace
- Client Scripting (Java Script)





Demo

Client scripting

Resources

Java EE 6 and GlassFish v3

- Java EE 6 Home

java.sun.com/javaee

- Java EE 6 Downloads

java.sun.com/javaee/downloads

- Upcoming Training

java.sun.com/javaee/support/training

Java EE 6

- Sun GlassFish Enterprise Server v3 Home

www.sun.com/glassfishv3

- Community Page

glassfish.org

- The Aquarium Blog

blogs.sun.com/theaquarium

- White Papers/Webinars

<http://www.sun.com/glassfish/resources>

GlassFish



Q&A and Thank You!

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