

Declarative Self-Management Framework using JMX™ Technology Infrastructure

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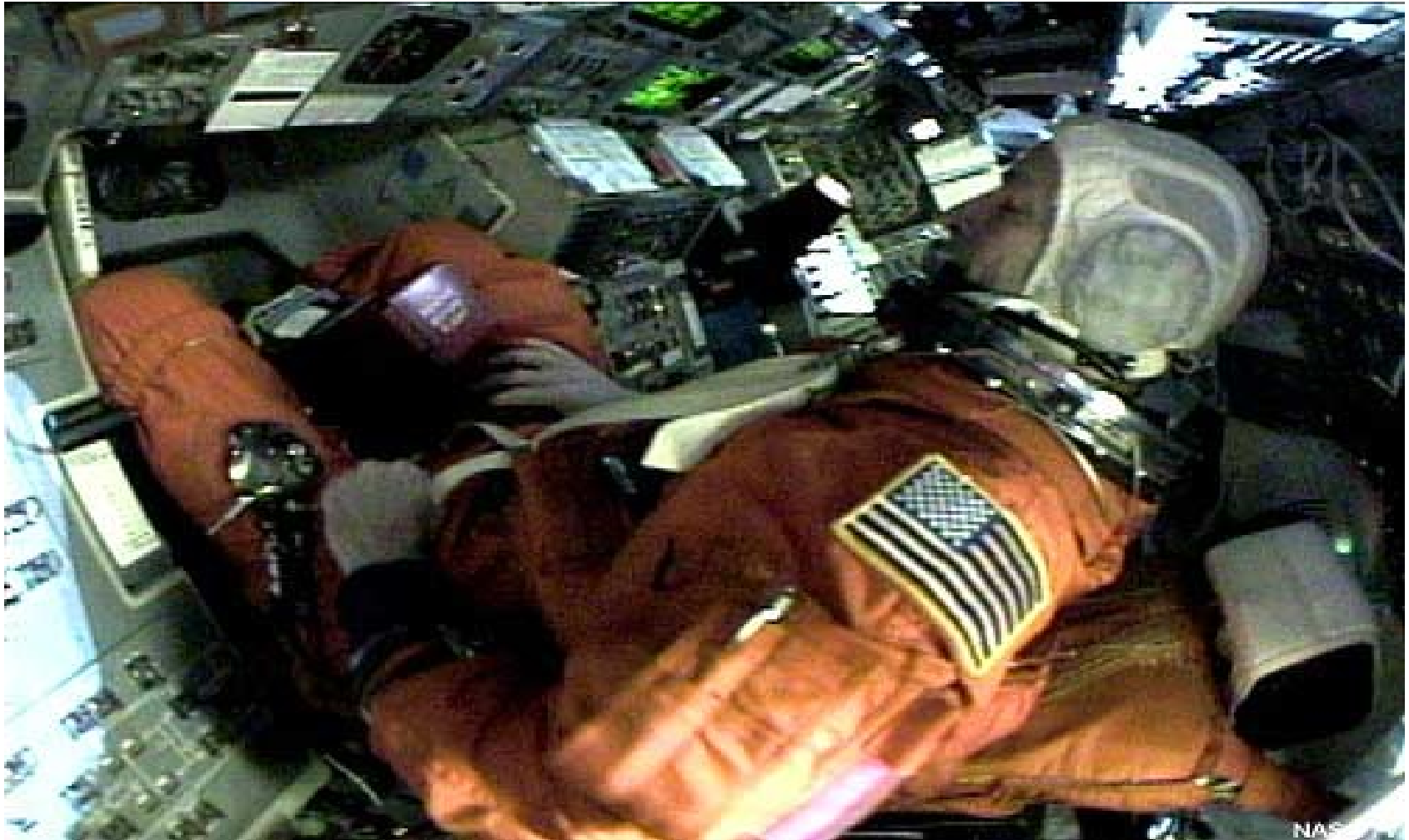
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Define and Implement an ***Easily Configurable*** Management Framework that can be ***Extended*** by Administrators to Manage Mundane and Involved GlassFish Management Tasks ***Effectively***

Agenda

- **Problem Space**
- Case Study: GlassFish Self-Management Framework
- Summary
- Demo
- Q&A



Application Server Management: Issues

- Several Configuration Parameters
 - Pools (EJB, JDBC, Thread), Caches etc.
- Dynamics of Load Characteristics
- There's no Best Configuration
- Using Resources Optimally is Hard

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Ideas and Constraints

- Based on Standard (JMX)
- Easy to Configure, Easy to Extend, Align (EE5)
- Minimally Intrusive
- Better Use of Instrumented Core
 - JVM is Monitorable
 - GlassFish Components are Monitorable
- Strive for Simplicity
 - JMX Notifications is the Key
- Integration with Tools (JConsole, Admin GUI)
- Realistic Goal
 - Self-Healing is a Research Topic
 - Human Administrators are Irreplaceable

Framework Emerged

- Link Asynchronous Events with Actions
 - Event is Emitted, Action is Triggered
- Action is *Deployed* by Administrator as an MBean
- An Event is Emitted Asynchronously
 - A Well-defined System Event
 - An Event *Deployed* as an MBean
- Introducing a Management Rule
 - Easily configurable (DEMO)
 - Editable, Persisted

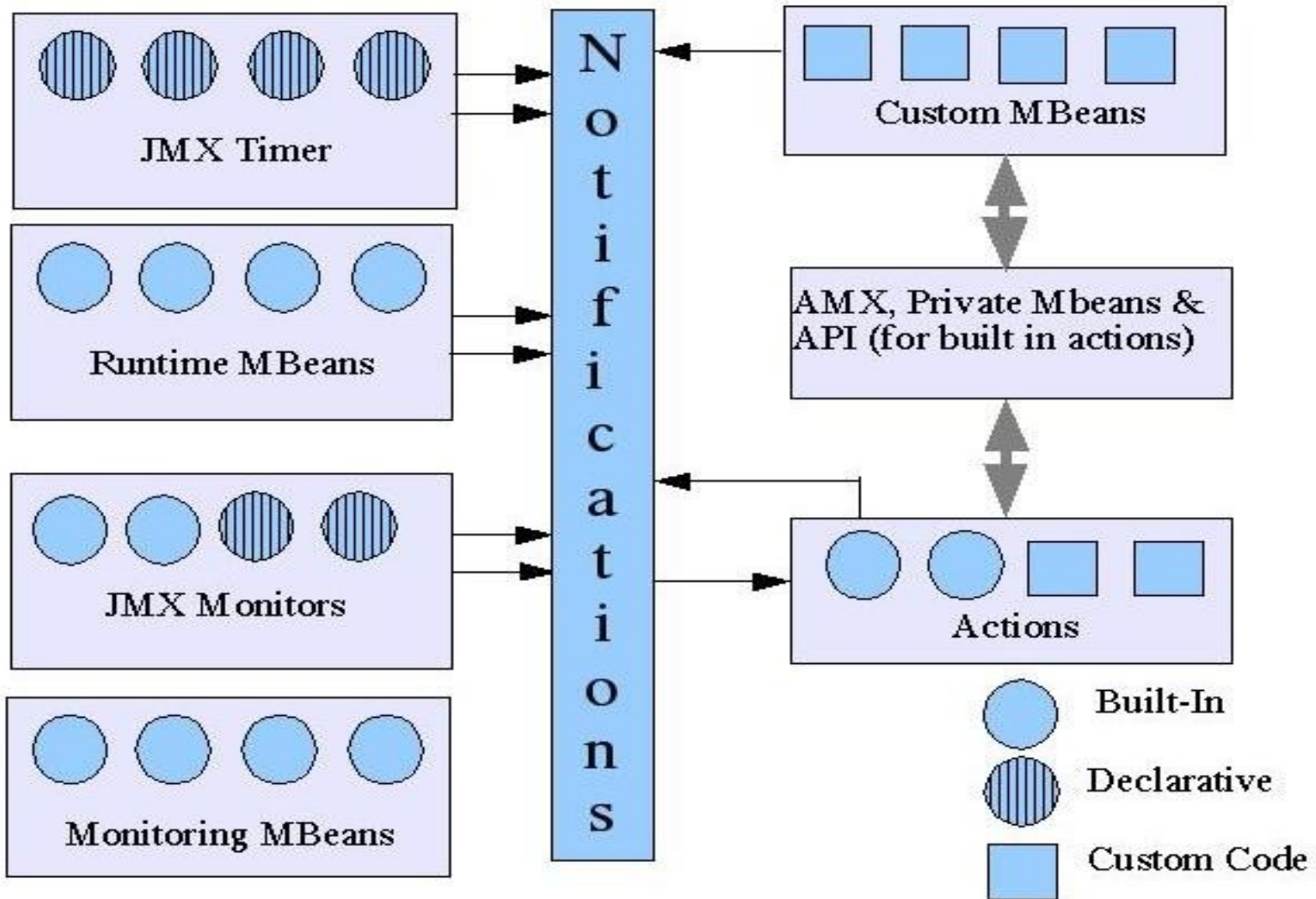
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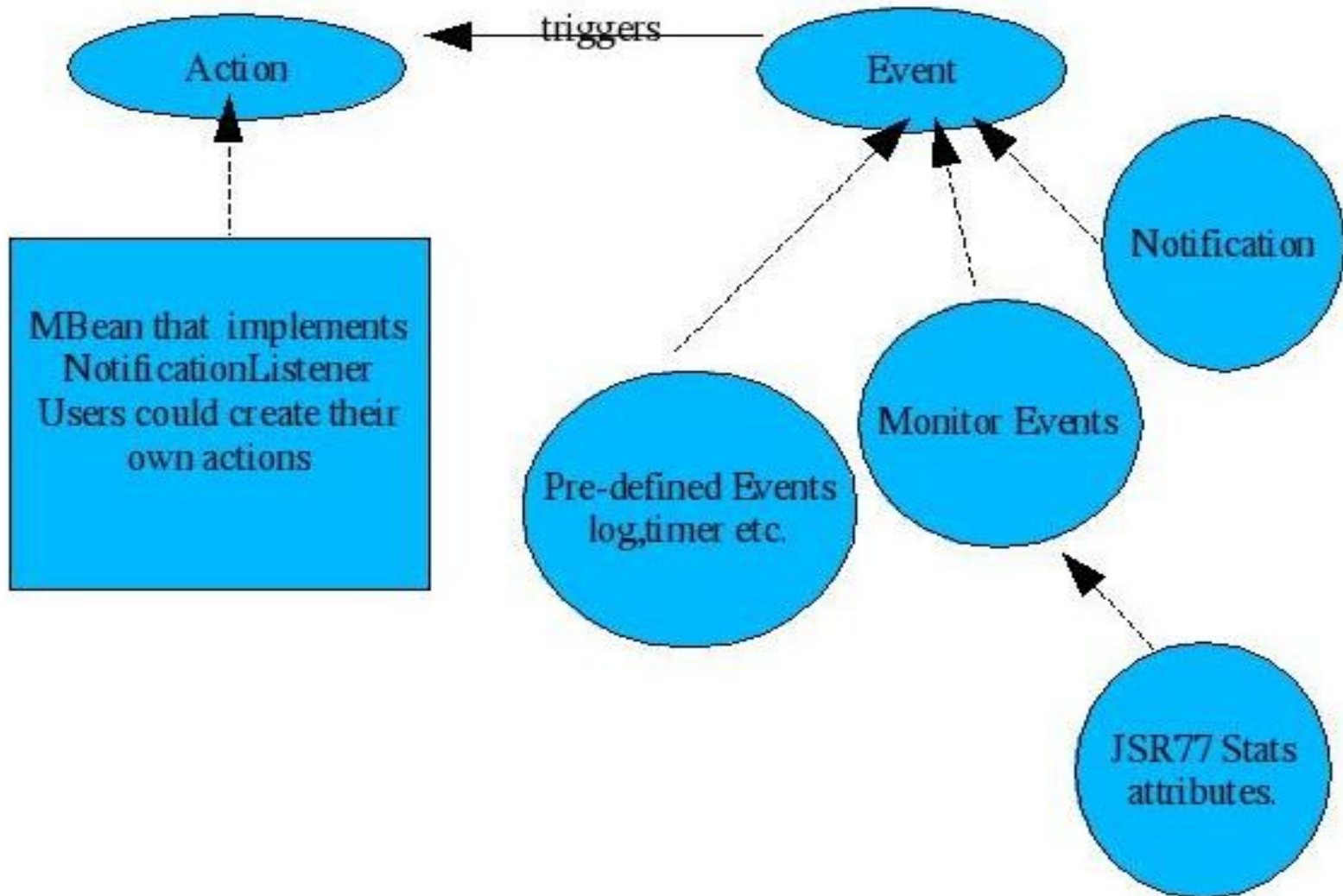
The Underpinnings

- Ability to Deploy an MBean
 - All *Standard* Types of MBeans are Deployable
 - Dynamic Deployment
 - Configuration Support for MBeans (Persistence)
- Rich Monitoring Support
 - Everything is Monitorable
- AMX and Dynamic Reconfiguration
 - Configure the Application Server, Dynamically.

Rules Subsystem Overview



Management Rule Components



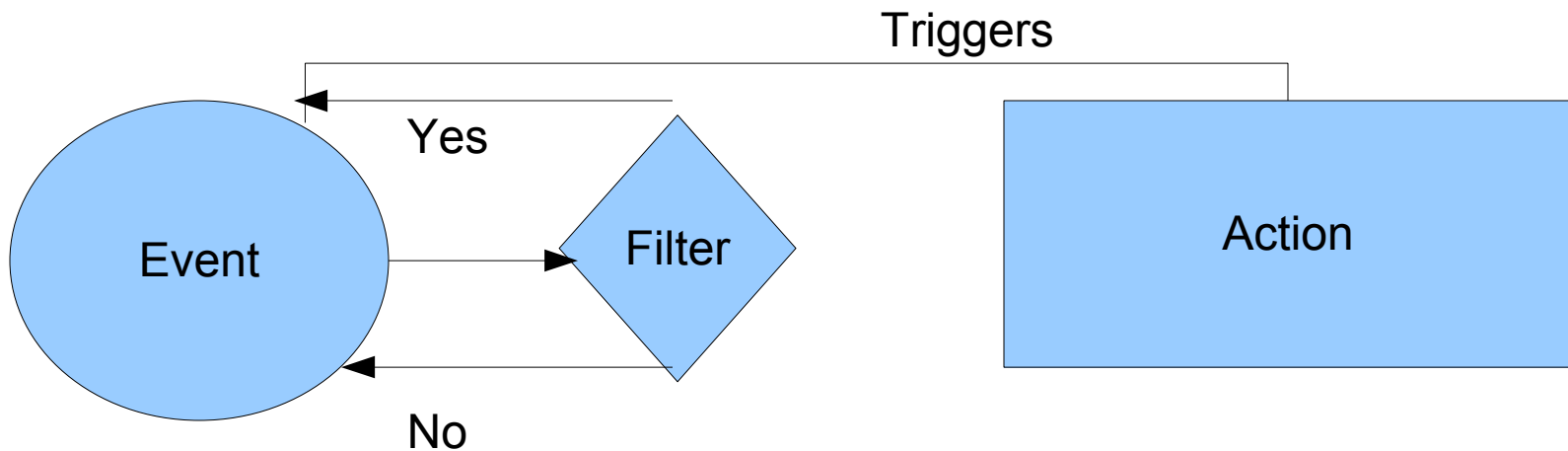
Source: Sun 2/06 – See website for latest stats

Events

- Events are NotificationEmitters
- Defined System Events
 - Log
 - Timer
 - Monitor
 - Lifecycle
 - Trace
- NotificationEmitter Deployed as an MBean
 - Extensible Event Dictionary

Event – Action Association

- Actions are Deployed as MBeans
- Smart Notification Filters
 - Based on Configuration of Rules



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Summary

- Problem Space:

Ease of Use, Timely Response, Extensibility

- Tools & Techniques:

Supporting Standards and Enabling Factors

- Case Study:

GlassFish Self-Management Framework

Demo

- LogEvent and MailAlert.
- Authentication Failure Alert.
- JMS Dead Message Queue Alert.
- JDBC Connection Pool Statistics.
- Memory Monitor.

Thank You

*Web Search:
GlassFish Self-Management*