


JBoss Operations Network A Case Study


Darren Senel And Cameron Ingram
SR. Architects for Software
Development
PSCU Financial Services



Shared Vision. Shared Values.

Agenda


- Company intro – who are we and what do we do?
- Our development environment
- Statistics
- Past, Present, Future of Monitoring
- Real life example
- Discussion/questions – team Jeopardy (“I’ll take JBoss configuration for \$100, Alex”)



Shared Vision. Shared Values.

Introduction to PSCU-FS

- Business structure: Co-operative of over 500 “member-owner” Credit Unions
- Group Service Provider
- Services include:
 - 24x7x365 Contact Center for Debit and Credit Cards
 - Back office processing for cardholder disputes, fraud services
 - Electronic Bill Presentment of credit card statements
 - Electronic BillPay (partnership with CheckFree)



Shared Vision. Shared Values.

Introduction to PSCU-FS, Cont’d


- Company website: www.pscufs.com



Shared Vision. Shared Values.

Development Environment


- Java/EJB (JDK 1.4.2 moving to 5)
- Oracle 9i Database (moving to 10g) on Sun Solaris
- Open Source products/frameworks currently in use:
 - JBoss Application Server on Sun Solaris (and Windows), 3.2.7
 - Hibernate
 - Struts
 - SEAM (Evaluating)



Shared Vision. Shared Values.

Development Environment, Cont’d

- Open Source products/frameworks currently in use:
 - Eclipse (Java IDE)
 - MyEclipse (plug-in)
 - ANT
 - Apache/Tomcat
 - JUnit (internal testing)
 - Wiki (documentation framework)



Shared Vision. Shared Values.

JBoss Transaction Statistics

- 17 production JBoss servers (10 Solaris, 1 Linux, 6 Windows)
- 11 WebApps, 32 Stateless EJBs, 4 Stateful EJBs, 21 Web Services deployed
- “transaction” = request
 - Web server → JBoss app server → Web server
 - Does not consider service to service transactions



Shared Vision. Shared Values.

JBoss Transaction Statistics, Cont'd

- IVR – Credit Card Application
 - approx. 7 million consumer credit and debit calls in 2005; approx. 35 million JBoss transactions
- CallPro - Contact Center Software
 - 400+ Institutional customers
 - Approx. 2.8 million calls - 28 million JBoss transactions



Shared Vision. Shared Values.

JBoss Transaction Statistics, Cont'd

- InfoLink+ - Consumer credit card info and maintenance on the Web
 - world-wide usage
 - traffic pattern – spread across 24 hrs
 - 285 Institutional customers
 - March 2006 - 1.1 million visits - 455,000 unique visitors – 4.7 million requests
 - Trending: 55.2 million requests for 2006



Shared Vision. Shared Values.

JBoss Transaction Statistics, Cont'd

- DataExchange – XML interface for use by financial institutions to provide credit card data to their home banking sites
 - 15 institutional customers



Shared Vision. Shared Values.

History of JBoss Monitoring



Shared Vision. Shared Values.

“Devils In The Dust”

- No monitoring software – JBoss 3.0.3
 - Analyze log files
 - JBoss Forums
 - Manual checks using UNIX commands
 - top
 - prstat
 - df
 - Trial and error analysis
 - Slow resolutions times



Shared Vision. Shared Values.

“Dancing In The Dark”

- JMX-Console – JBoss 3.2.1
- Demo
- Web based view of important metrics
 - Raw view of microkernel
 - List of services (MBeans)
 - JDNI tree
 - Memory pool usage
 - Thread dump
 - EJB Metrics
- Still slow analysis and resolution times



Shared Vision. Shared Values.

“Born To Run”

- Web Console – JBoss 3.2.5
- Demo
- Web based with Java Applet
- Tree view of JMX Console (easier nav)
- Graphs of Mbean attributes
- EJB Metrics
 - Alerts
 - Snapshots
 - Now we’re talking!



Shared Vision. Shared Values.

“Glory Days”

- JON with Monitoring – JBoss 3.2.7
 - Why We Chose JON
 - Assists with business decisions
 - Measure application performance
 - Hardware limitations and requirements
 - Monitor multiple servers (Oracle, Apache etc.)
 - Pinpoints problems in infrastructure/code
 - Fast resolution times
 - Shift of responsibility



Shared Vision. Shared Values.

“Glory Days” , Cont’d

- Inventory (Demo)
 - Single point of entry for server diagnostics
 - Dashboard with server summary
 - Simple drill-down to components
- Administration (Demo)
 - Start/Stop servers
 - Deploy/Undeploy jars, wars and ears
 - Create JMS Destination and Datasource



Shared Vision. Shared Values.

“Glory Days” , Cont’d

- Monitoring (Demo)
 - Advanced Alerts
 - Baseline metric comparison
 - Metric data collected from multiple sources
 - Problem resources
 - EJB Metrics



Shared Vision. Shared Values.

“Glory Days” , Cont’d

- Near Future
 - Re-designed for plug ability
 - Provisioning
 - Auto update of software
 - More pre-packaged agents



Shared Vision. Shared Values.

Summary

- Lessons Learned
 - Monitoring is essential in a production environment
 - JMX-Console can do the basic job
 - Web-Console is a better option
 - JBoss ON is the way to go for serious monitoring



Shared Vision. Shared Values.

The LAST Slide

- Thanks for not sleeping
- Further Questions/Discussion?



Shared Vision. Shared Values.