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JBoss in the Trenches

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Welcome to JBoss in the Trenches!

In this session, you'll learn about the best ways to configure and manage JBoss.

Why are these the best?

Configure and manage JBoss?



Agenda

- Introduction
- Versioning, Slimming, Architecture
- Deployments, Movement through Environments, Logging, Security, and Messaging
- Performance Tuning, High Availability, Monitoring, Management
- Summary
- QA



Disclaimer!

This presentation assumes you have a large, enterprise environment with an infinite amount of:

- **Time**
- **Money**
- **Resources**



Wait a second... Then why am I here?

No one has infinite time, resources and money!

Large or small, stick around because you'll learn:

- What makes successful shops successful
- Guidelines and ideals you should work toward
- Iterative Approach:
 - **Plan → Execute → Analyze → Repeat**



These recommendations are obvious!

- You may already be doing a lot of these things!
- Many of you do some of these things, few of you do all of these things.



Why we do the things we do...

- **Automation**
- **Security**
- **Performance**
- **Redundancy**
- **Monitoring**



JBoss Versions

What version are you running?

```
11:16:03,001 INFO [ConnectionFactoryBindingService] Bound connection pool
11:16:03,703 INFO [TomcatDeployer] deploy, ctxPath=/jmx-console,
11:16:04,014 INFO [Http11Protocol] Starting Coyote HTTP/1.1 on h
11:16:04,055 INFO [AjpProtocol] Starting Coyote AJP/1.3 on ajp-0
11:16:04,080 INFO [Server] JBoss (MX MicroKernel) [4.3.0.GA_CP07
```

JBOSS_HOME/lib/jboss-system.jar/META-INF/MANIFEST.MF:

```
Implementation-Vendor-Id: http://www.jboss.org
Implementation-Version: 4.3.0.GA_CP07
Implementation-Vendor: TBOAG, Inc
```

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JBoss Versions

Enterprise Application Platform VS. Community Versions of JBoss

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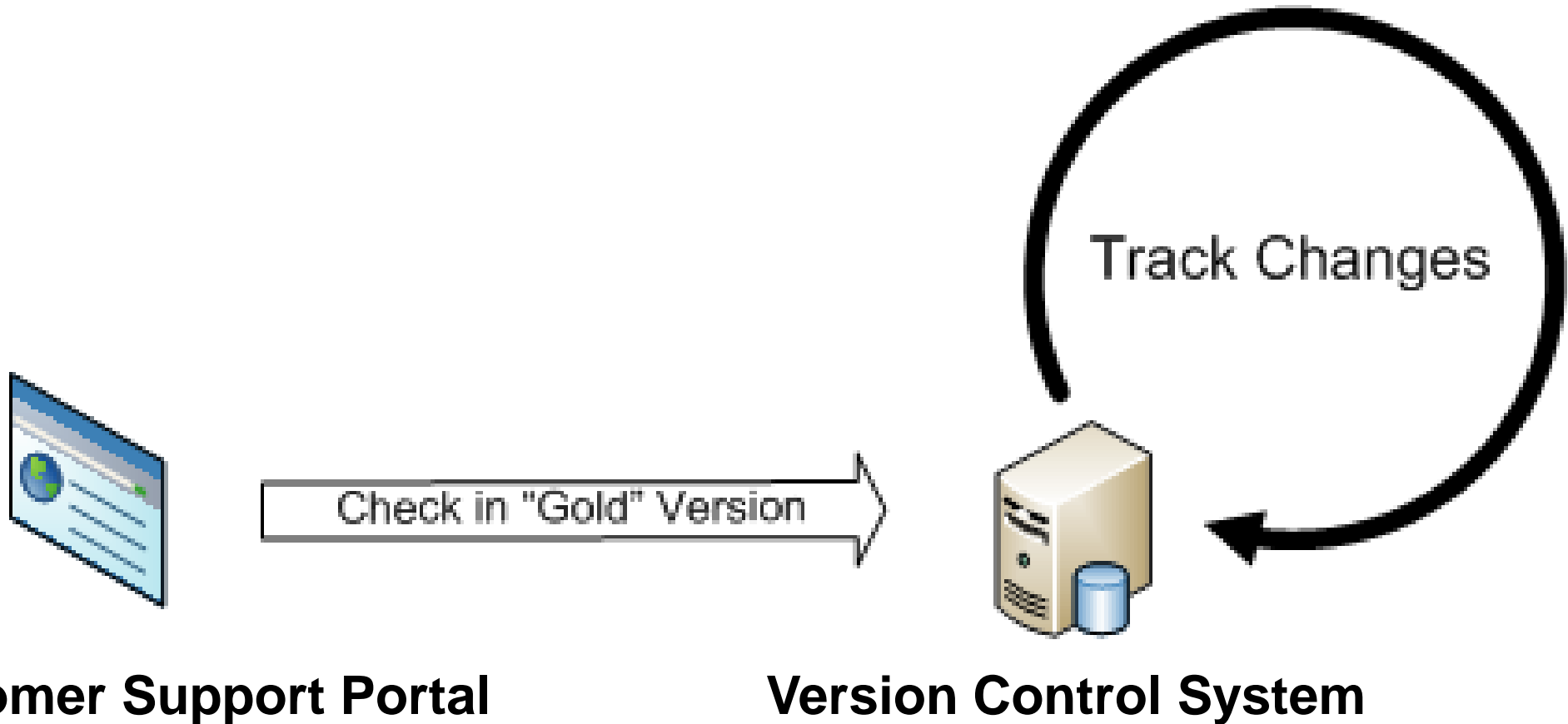


JBoss Versioning

- Store “Gold Version” (freshly downloaded, MD5 sum verified) in a Version Control System (VCS)
- Commit all configuration changes to VCS
- Automate!



JBoss Versioning



JBoss Cumulative Patches (CP)

- Best to be on latest and greatest
 - BUT... check release notes for relevance
- Best way to apply a CP:
 - Capture environment-specific configurations
 - Downloaded latest full EAP + CP
 - Create new “gold version in VCS
 - Apply environment-specific changes

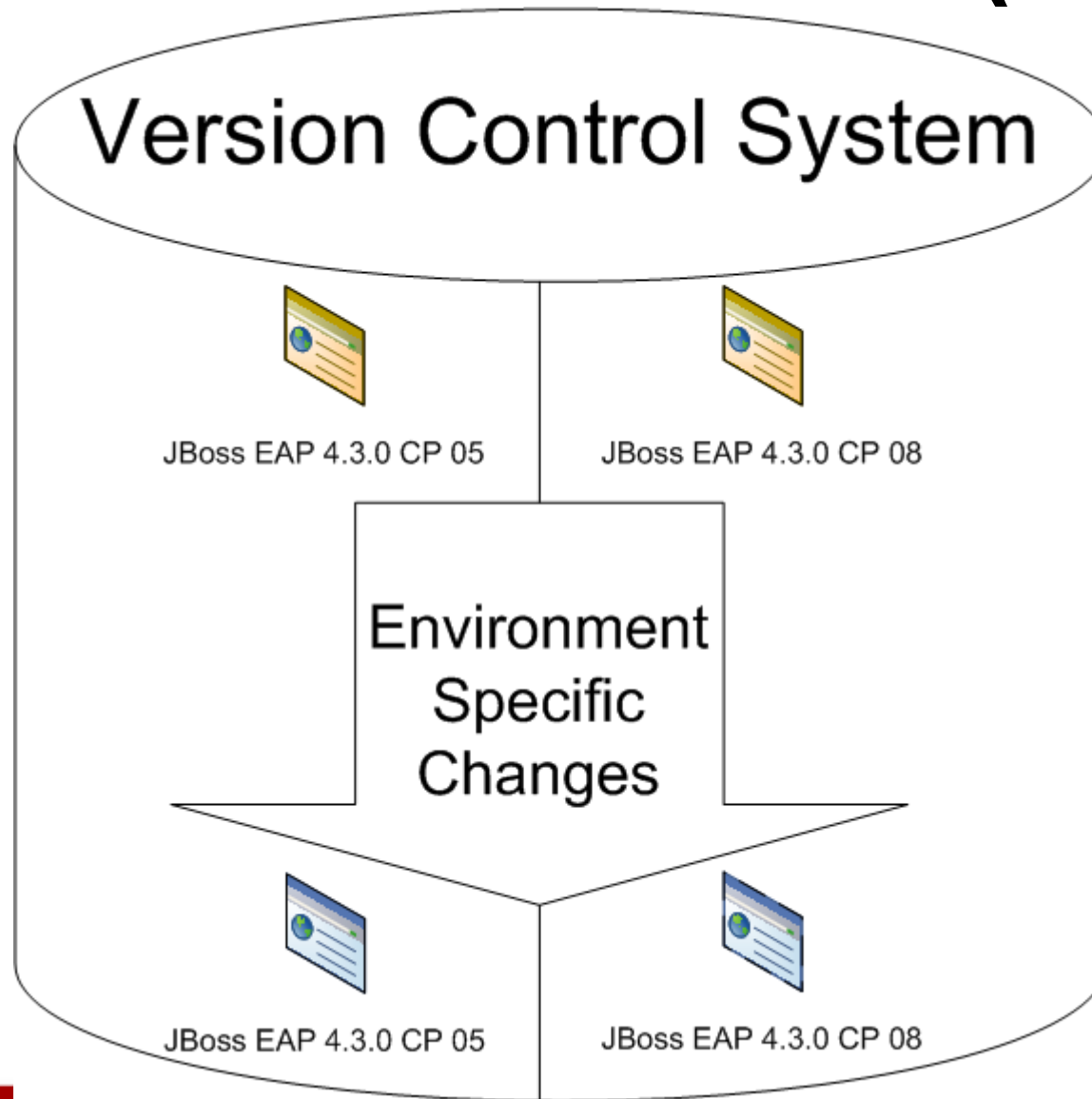


JBoss Cumulative Patches (CP)

- To apply CP, you can also:
 1. Apply the patch manually
 2. Utilize JBoss Operations Network to replace your .jar files.



JBoss Cumulative Patches (CP)



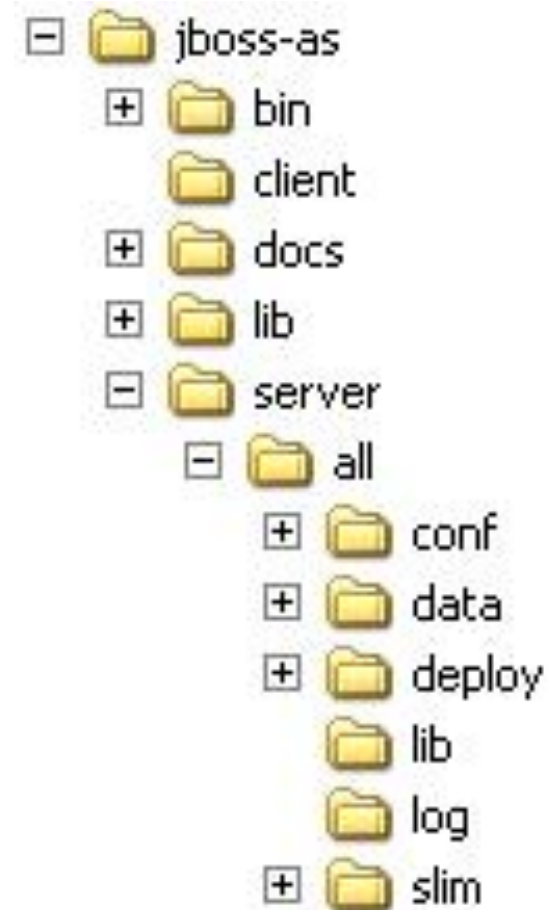
JBoss Slimming

- Lighter is better! Get rid of unused services!
- **Improve Performance**
 - Using less memory + resources boosts performance
 - Faster startup time
- **More Security**
 - Hard to hack an unused service or port!



JBoss Slimming Process

- Create “slim” folder outside of deploy
- Place unused .jars and service.xml files there.
- What gets removed?
 - Check the JBoss.org wiki
 - Very application dependent.
- Remember, use VCS for this process!



**Questions?
Comments?
Suggestions?**

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Running Multiple JBoss Instances on One Server

Sometimes, no luxury of running one JBoss instance per box..

Usually, less is better

- Less IO on file system
- Less CPU Slicing
- Less file locking



Running Multiple JBoss Instances on One Server

If you must, you can either:

- Bind to different IPs on the box (**recommended**)
- Bind to same IP,
 - Use Service Binding Manager to manage ports



Application Environments



Development



QA



Integration



Staging



Production

- Ideally, no shared resources
 - E.g., front end load-balancers, web servers, databases, other integration systems
- Ideally, staging (and perf. test) mimic production



Automated Deployment to Environments

1. Check out latest configuration from VCS
2. Apply environment specific changes
3. Deploy to environment

Ideally, you have script or tool to automate this

- No manual changes ever! *
- Ideally, a tool provides an audit trail

* Except the “lowest” development environment



Movement Through Environments

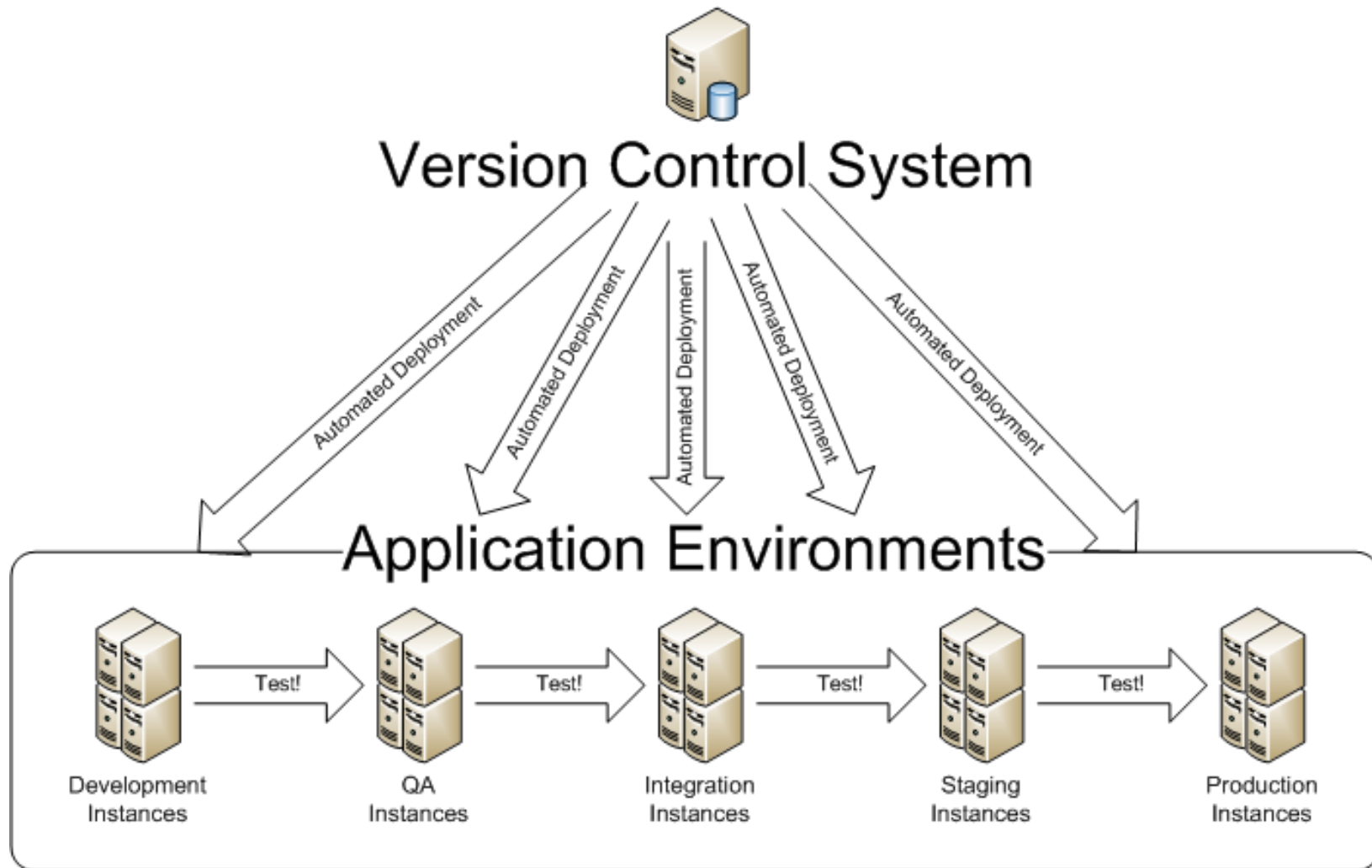
For both JBoss configurations and application code:

- No manual changes ever! *
- Criticality of using auto-deploy from VCS
- Test in each environment before promotion!

* Except the “lowest” development environment



Movement Through Environments



Logging

- Different setting for different environments
- Less verbose as environments get closer to production
- Define robust log rolling policies
- If necessary, back up historic logs



Messaging

- JBoss Messaging implements the JMS 1.1 spec, and then some
- JBoss Messaging is great
 - Performs well
 - Lots of features
 - E.g. Message ordering, clustered destinations, seamless failover
- But, using some of these additional features (outside JMS spec) will have a negative impact on performance



Security

- Secure JMX invokers
- Secure consoles and remove in production
- Eliminate clear text passwords in files:
 - Datasources
 - LoginModules
 - Tomcat Connectors

```
jboss-5.1.0.GA $ java -cp client/jboss-logging-  
spi.jar:common/lib/jbosssx.jar  
org.jboss.resource.security.SecureIdentityLoginModule password
```



Security

- Remove unused services and ports
- Use “jboss” user that owns JBoss folders and files - run.sh must be run by this user



**Questions?
Comments?
Suggestions?**

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Performance + HA Testing

- Peace of mind
- Plan the test, test the plan (stick to it!)
- Enterprise monitoring must be in place
- First, establish target performance profile
- Then, establish a baseline



Performance + HA Testing

- When testing, BE SCIENTIFIC
- Do NOT forget endurance testing
- Don't NOT forget failover scenario testing
- Remember, use VCS for all changes



Performance + HA Testing

- HA architecture must consider:
 - Front end load balancers
 - Webservers
 - Application servers
 - Databases
 - Other integration points
- Consider all failure scenarios to achieve HA



JBoss Clustering for HA

- JBoss Clustering
 - Doesn't usually improve performance, in fact, it's usually the opposite (caching notwithstanding)
- Different clustering approaches:
 - Session sharing and tomcat clustering for web applications
 - Stateless session bean clustering
 - Stateful EJB3 entity beans



Monitoring

- Necessary in any load testing and production environment
- Plethora of tools exist
- Must be able to monitor:
 - OS level health including CPU usage, swap space
 - Active threads on application server
 - Front end http/ajp web connector threads
 - Database connection pools
 - JVM Metrics such as memory usage and GCs



Management

- Alerts, Alarms, and Automated Actions (oh my!)
- Must define plan for operations management
- Need a documented process flow for all possible environment issues
- User roles/permissions for given management tool or access to servers.



Conclusion

- Today, we have discussed ideal principles
- Illustrative of a widely tested, proven approach
- Consistency and repeatability
- Time + effort = efficiency + agility + reliability



Questions?
Comments?
Suggestions?

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<http://rkmallik.com/trenches.pdf>



Thank You!

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