

## WS3004 – WebSphere Application Server V6.1 Advanced Administration and Performance Tuning

### Course Synopsis

<b>Duration:</b>	Five (5) days.
<b>Audience:</b>	This is an intermediate level training course geared for project and organizational stakeholders such as WebSphere administrators, testing and QA teams, application architects and developers, and others that have an interest or need to address performance relative to web applications being deployed into WebSphere installations.
<b>Prerequisites:</b>	Attending students should have an understanding of Web technology and administration skills for a Web server (for example, Apache or IBM HTTP Server) is useful.
<b>Delivery Method:</b>	Instructor led, Hands-on workshops

### Brief Description

WebSphere Application Server v6.1 (WAS 6.1) Advanced Administration and Performance Tuning is a hands-on, lab-intensive WebSphere application server performance tuning course geared for project and organizational stakeholders such as WebSphere administrators, testing and QA teams, application architects and developers, and others that have an interest or need to address performance relative to web applications being deployed into WebSphere 6.1 installations.

WebSphere Application Server V6.1 (WAS 6.1) is IBM's high-performance and extremely scalable transaction engine for dynamic e-business applications. WAS 6.1 provides a service-oriented infrastructure that supports the emerging practices and technologies related to Service-Oriented Architectures and Web Services.

WebSphere Application Server v6.1 (WAS 6.1) Advanced Administration and Performance Tuning provides an in depth look at all aspects of performance and tuning WebSphere 6.1 installations. The course begins with a general look at performance issues and monitoring, and then dives into the specifics of WebSphere itself, providing you with the knowledge and experience to immediately begin the process of tuning your WebSphere installations.

Working in a hands-on lab intensive environment, guided by our experienced WebSphere subject matter experts, students explore:

- WebSphere 6.1 Architecture and Administration
- Understanding Performance Issues
- Basics of Performance Tuning, Monitoring, and Testing
- Working with WebSphere Performance Monitoring Tools
- WebSphere Performance Monitoring Guidelines
- Recognizing, Diagnosing, and Solving WebSphere Performance Issues
- Tuning WebSphere, its environment, and WebSphere Applications
- Understanding and Working with WebSphere Queues and Caches
- WebSphere's Workload Management Relative to Performance
- WebSphere 7 at a high level

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### Experiential Learning Hands-on Labs

This class is “technology-centric”, designed to train attendees in essential administration skills, coupling the most current, effective techniques with the soundest admin practices.

This course provides multiple challenge labs for students to work through during the class. Throughout the course, students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review. Multiple detailed lab exercises are laced throughout the course, designed to reinforce fundamental skills and concepts learned in the lessons.

At the end of each lesson, developers will be tested with a set of review questions to ensure that he/she has fully understands that topic.

### Course Objectives What You'll Learn

Upon successful completion of this course, the student will be able to:

- Use WebSphere tooling to setup and monitor for performance issues
- Diagnose the root causes for performance issues
- Identify, design, and implement appropriate solutions to performance problems
- Test a WebSphere installation before and after measures are taken to determine effectiveness
- Use JMS and the Service Integration Bus (SIB) that are used to support service-oriented applications
- Work with WAS 6.1, JMS, and messaging
- Trace and troubleshoot applications
- Install and configure the IBM WAS V6.1 Network Deployment Edition and federate existing Base instances into the cell.
- Adjust, test, and monitoring work load management in a clustered environment.
- Plan for session data management in a clustered environment.

Throughout the course, students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review.

### Topics Covered

#### **I. Foundation for Improved Performance**

- WebSphere 6.1 Architecture Review
- WebSphere 6.1 Administration Review
- Exercise: Working With WebSphere
- Basics of Performance Tuning
- Exercise: Characterizing a Web Site
- Basics of Performance Monitoring
- Architecting for Performance
- Testing for Performance
- Exercise: Examining J2EE Applications

#### **II. WebSphere Performance Monitoring**

- WebSphere Performance Testing Tools
- Exercise: Working with Testing Tools
- WebSphere Performance Monitoring Tools

- Exercise: Working with Tools
- WebSphere Performance Monitoring Guidelines
- Recognizing and Diagnosing Performance Issues
- Exercise: Diagnosing Performance Problems

#### **III. WebSphere Performance Tuning**

- WebSphere Queues and Caches
- Tuning WebSphere
- Exercise: Tuning WebSphere
- Tuning the Environment
- Exercise: Tuning the Environment
- Tuning WebSphere Applications
- Exercise: Tuning Applications
- WebSphere 7 Overview

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Topics  
Covered Continued

### **IV. Working with WAS and JMS**

- Introduction to JMS & Messaging Architecture
- Administering JMS Servers / Services
- JMS Administration
- Service Integration Bus Overview
- Bus Members and Messaging Engines
- MDB Architecture Within WAS 6.1
- Server Configuration

### **V. Advanced Administration**

- Distributed Administration
- Administrative Agents
- Command Line Administration
- WebSphere Administrative Scripting
- WSAdmin Scripting Utility
- Managing Nodes
- Managing Application Servers and Clusters
- Managing and Working with Profiles

### **VI. WebSphere Troubleshooting**

- Tools for Troubleshooting
- JVM Logs, Process & Service Logs
- Using the Log Analyzer
- Configuring Diagnostic Trace
- Diagnostic Trace Settings
- JNDI Name Space Dump Output
- Collector Tool
- FFDC

### **VII. WebSphere Application Server 7 Architecture**

- System Runtime Architecture
- System Administrative Architecture
- System Runtime Architecture - Multiple Servers
- System Administrative Architecture - Multiple Servers
- Intelligent provisioning of services and containers
- Enterprise Integration
- WebSphere Security Services and Domains
- Working with an Administrative Security Domain
- Assembling Secured Applications
- Working with Application Security Domains
- Auditing

### **VIII. WebSphere Network Deployment Architecture**

- Network Deployment Runtime Architecture
- Network Deployment Administrative Architecture
- Managing Multi-server Environments
- Cell planning
- Installing WAS Network Deployment

### **IX. Cell and HTTP Server Management**

- Configuring Cells
- Working with Nodes in a Cell
- Working with Profiles
- Managing HTTP Servers
- WebSphere Clustering
- Replication of Session Data
- Database Session Replication
- Internal WebSphere Replication

### **X. Workload Management**

- Configuration for WLM
- Session Affinity
- Process Affinity
- WLM Structure
- Transaction Affinity in WLM