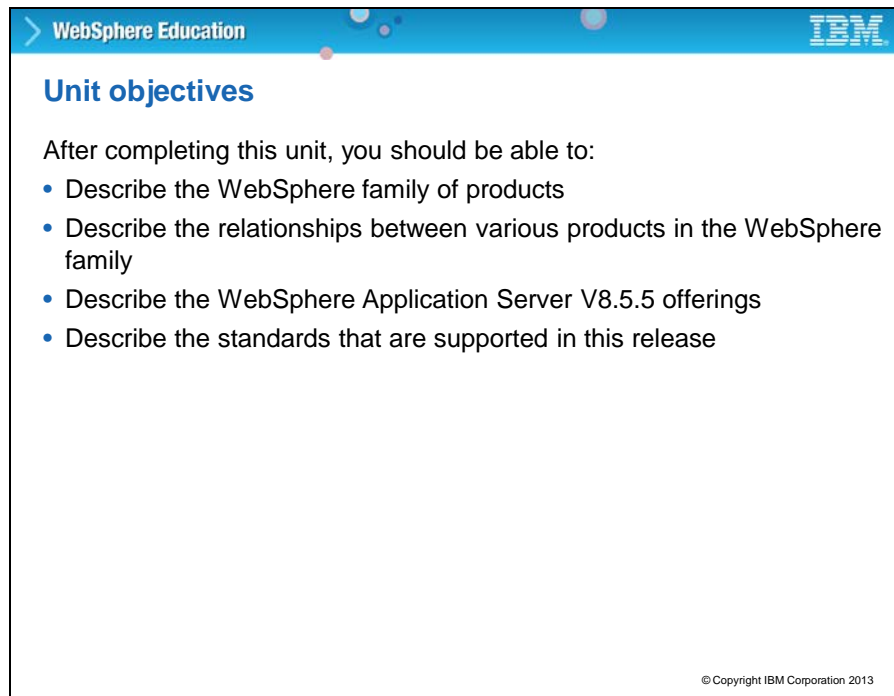


Slide 1

The slide features a blue header bar with the text "WebSphere Education" on the left and the "IBM." logo on the right. The main content area is white. In the center-right, the text "WebSphere product family overview" is displayed in a bold, black font. On the left side, there is a diagram consisting of several overlapping circles in light blue and green, with small colored dots (blue, green, purple, red) scattered within and around them. At the bottom of the slide, there is a small copyright notice: "© Copyright IBM Corporation 2013" and "Course materials may not be reproduced in whole or in part without the prior written permission of IBM." followed by a small "9.0" version number.

This unit describes the different products in the WebSphere family.

Slide 2

The slide features a blue header bar with the text 'WebSphere Education' on the left and the IBM logo on the right. Below the header, the title 'Unit objectives' is displayed in blue. The main content area contains a paragraph followed by a bulleted list of four objectives. A small copyright notice is located in the bottom right corner of the slide frame.

> WebSphere Education **IBM**

Unit objectives

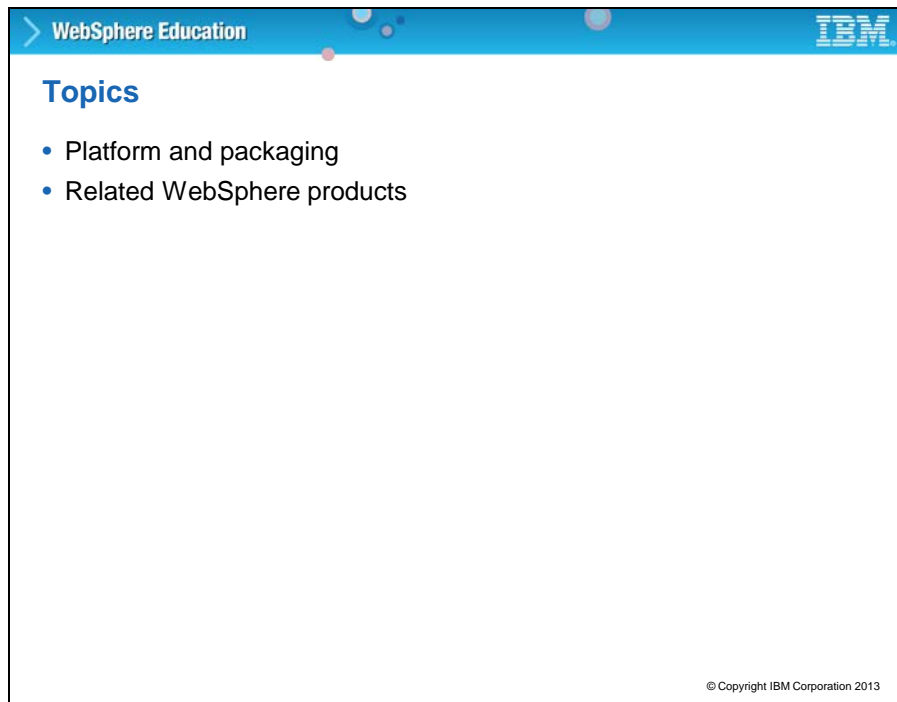
After completing this unit, you should be able to:

- Describe the WebSphere family of products
- Describe the relationships between various products in the WebSphere family
- Describe the WebSphere Application Server V8.5.5 offerings
- Describe the standards that are supported in this release

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After completing this unit, you should be able to describe the WebSphere family of products and the relationships between various products in the WebSphere family. You should be able to describe the WebSphere Application Server V8.5.5 offerings and the standards that are supported in this release.

Slide 3



The slide features a blue header bar with the text 'WebSphere Education' on the left and the IBM logo on the right. Below the header, the word 'Topics' is written in blue. A bulleted list follows, containing two items: 'Platform and packaging' and 'Related WebSphere products'. The slide is enclosed in a black border, and a small copyright notice is visible in the bottom right corner.

WebSphere Education

IBM

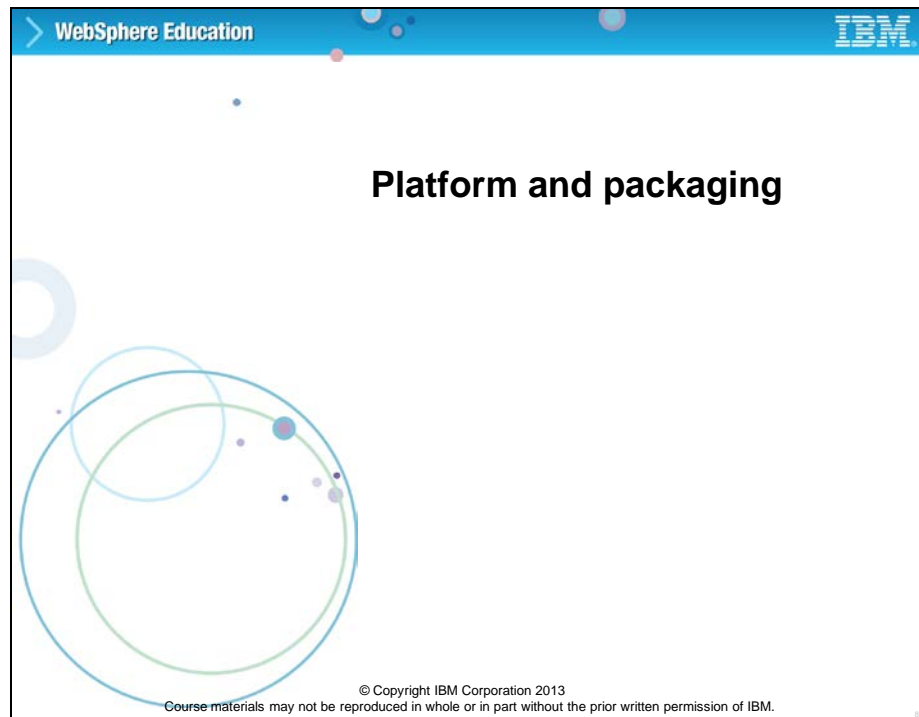
Topics

- Platform and packaging
- Related WebSphere products

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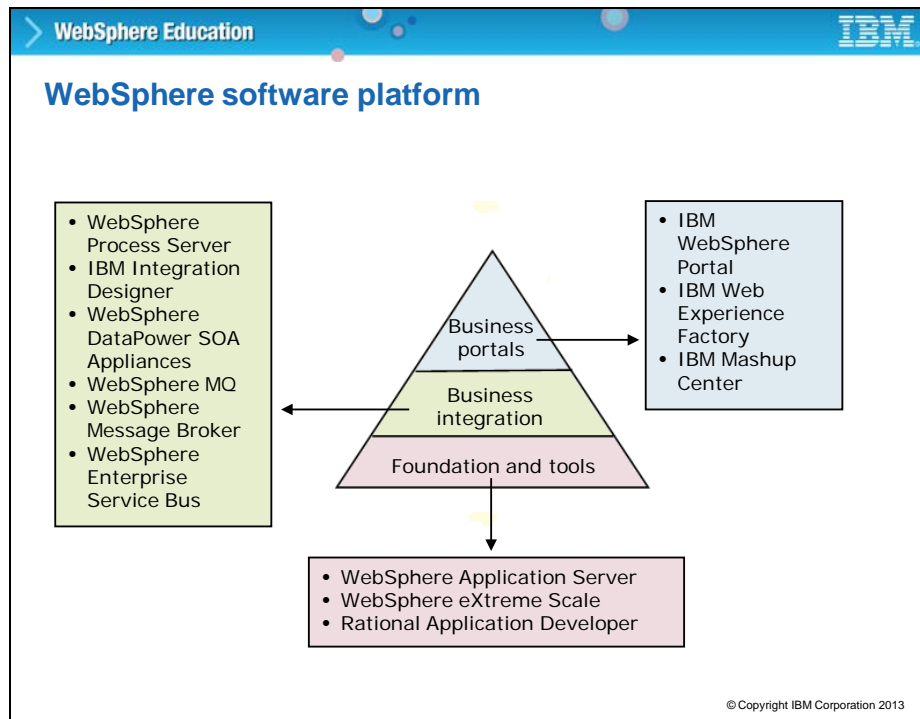
This unit consists of the following topics: platform and packaging and related WebSphere products.

Slide 4



This topic describes the major components of the WebSphere platform and how various editions are packaged.

Slide 5



The WebSphere software platform consists of multiple products. These products can be grouped into three categories: (1) foundation and tools, (2) business integration, and (3) business portals.

As shown in the graphic, these three categories build upon each other in the order listed.

WebSphere Application Server is the base product for all others that are listed in this slide.

Rational Application Developer is the primary Java development tool for all these products.

This diagram depicts the WebSphere software platform as a pyramid, with the foundation and tools at the bottom, business integration in the middle, and business portals at the top.

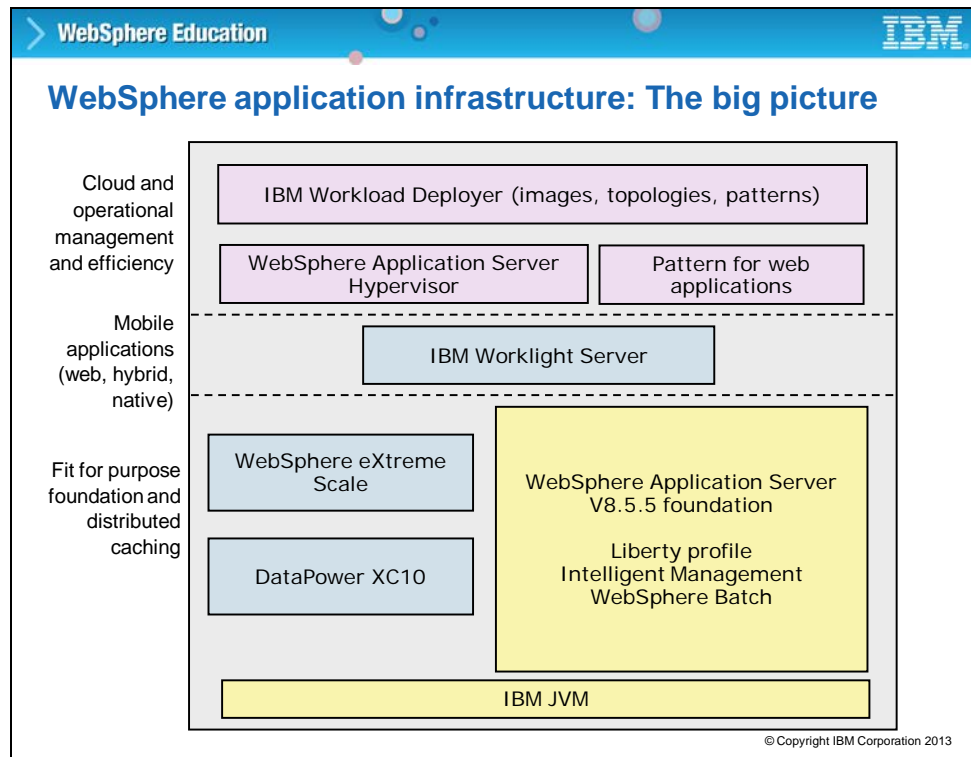
WebSphere Application Server falls into the foundation and tools category and is a prerequisite, or provides a base, for many of the other WebSphere products that are listed on the chart.

Foundation and tools provide a high-quality foundation to rapidly build and deploy applications for high-performance e-business on demand. For example, WebSphere Application Server, WebSphere eXtreme Scale, and Rational Application Developer fall into this category.

Business portals enhance customer, partner, employee, and supplier user experiences for optimal satisfaction. For example, WebSphere Portal and WebSphere Portlet Factory support this aspect of e-business on demand.

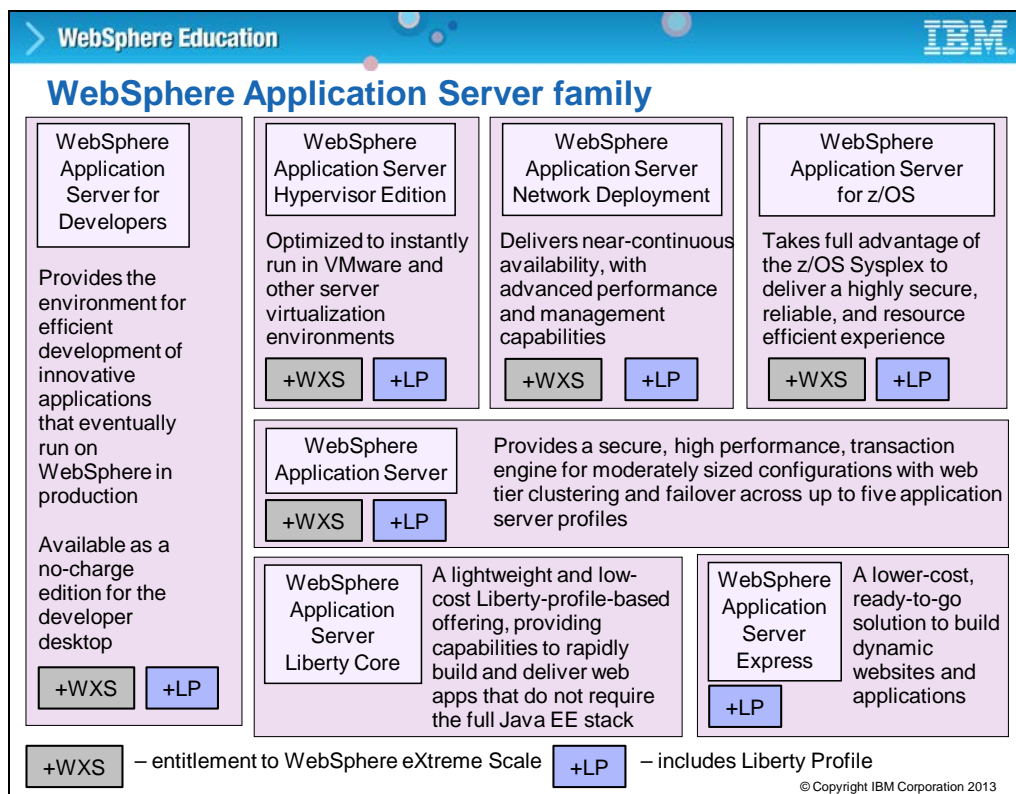
Business integration products integrate applications and automate business processes for operational efficiency and business flexibility. For example, WebSphere Business Integration Server, WebSphere Process Server, WebSphere Integration Developer, and many other projects fall into this category.

Slide 6



WebSphere Application Server Version 8.5.5 delivers the core foundational requirements for the rest of the WebSphere Application Server portfolio of products. Built upon the IBM Java virtual machine (JVM), the application server provides the foundation for the WebSphere portfolio, including IBM Workload Deployer, IBM Worklight Server, WebSphere eXtreme Scale, and the DataPower XC10 Appliance.

Slide 7



The WebSphere Application Server family provides offerings to fit your needs, which might range from lightweight developer desktop environments, to highly complex, and highly available enterprise environments. As more qualities of service are required in your environment, the WebSphere Application Server family of offerings continues to meet those requirements on a common code base.

This chart shows each of the different versions of WebSphere Application Server and how they relate to one another regarding customer needs and capabilities.

WebSphere Application Server Express is built on the common WebSphere Application Server code base. It also features reduced acquisition cost and enables fast deployment of a single application. The difference between this package and the WebSphere Application Server “base” edition is the license. Both editions are virtually the same, but “base” includes a license for unlimited processors. Express is limited to two processors. Both Express and base editions can support a stand-alone deployment.

WebSphere Application Network Deployment includes all the capabilities of the base edition, but also supports high transaction volume, scalability, clustering, high availability, failover, and more.

WebSphere Application Server for z/OS includes all the features of Network Deployment for the z/OS platform. This edition takes advantage of features in the z/OS platform.

WebSphere Application Server Liberty Core edition is a lightweight and dynamic offering that is targeted at web applications that do not require a full Java EE stack. Other Liberty editions, such as the Liberty Network Deployment edition, include more function.

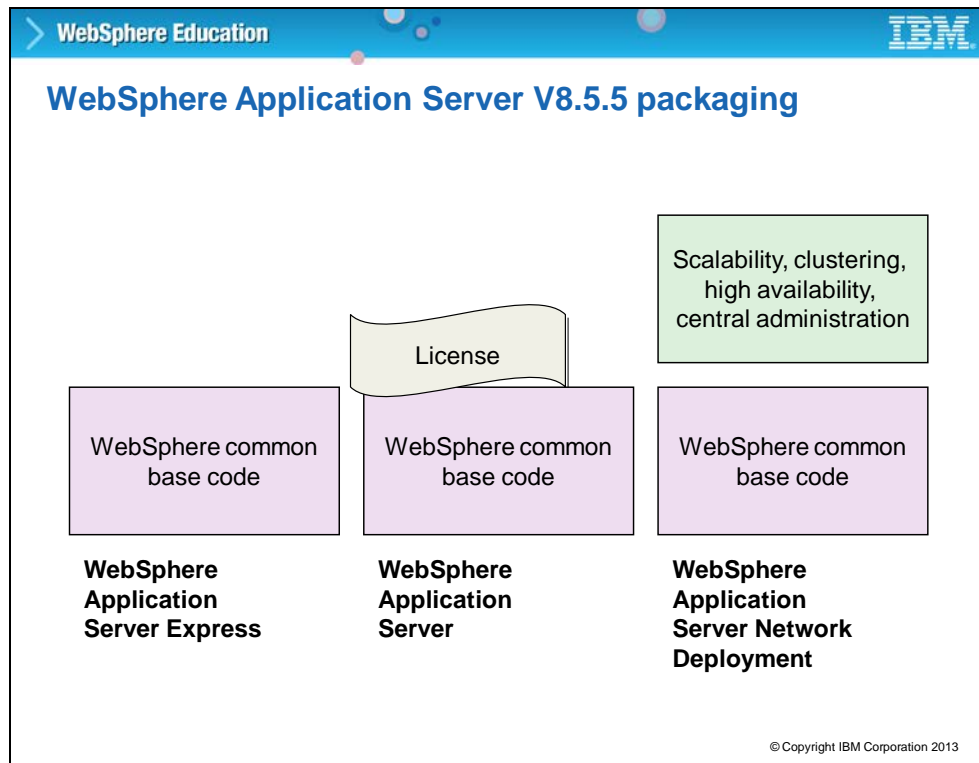
WebSphere Application Server for Developers is a no cost edition for developers.

WebSphere Application Server Hypervisor Edition is optimized to run in virtualized environments.

Each WebSphere Application Server edition also includes entitlement to use WebSphere eXtreme Scale function.

Each of these editions is described in more detail on the following slides.

Slide 8



The graphic on this slide compares the basic differences in packaging between the WebSphere Application Server Express, base, and Network Deployment editions. All three packages include the WebSphere common base code. The major difference between Express and base is the license. Express has a limited license for two processors; base has a license for unlimited processors. The Network Deployment product adds support for scalability, clustering, high availability, and central administration.

Slide 9

Product packaging comparison (1 of 2)

	WebSphere Application Server Express	WebSphere Application Server (base)	WebSphere Application Server Network Deployment
Core Application Server	Stand-alone node; two processors	Stand-alone node; unlimited processors	Multiple distributed nodes, with centralized administration
IBM HTTP Server web server plug-ins	✓	✓	✓
Application client, update installer, installation factory, migration tools, IBM Support Assistant	✓	✓	✓
Data Direct JDBC drivers	✓	✓	✓
Liberty profile	✓	✓	✓
Intelligent Management Pack			✓

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This chart summarizes the WebSphere Application Server V8.5 Express, base, and Network Deployment packages for production use, and provides a side-by-side comparison of some of the important features.

All three versions include the core application server, IBM HTTP Server, web server plug-ins, application client, Data Direct JDBC drivers, and the Liberty profile.

The Intelligent Management Pack is a new feature in Network Deployment.

The Express and base packages support deployment of a stand-alone node. In addition to a stand-alone node, the Network Deployment edition supports a managed or clustered multi-node environment with a central point of administration.

Slide 10

Product packaging comparison (2 of 2)

	WebSphere Application Server Express	WebSphere Application Server (base)	WebSphere Application Server Network Deployment
Batch processing	✓	✓	✓
Development and deployment tools	Rational Application Developer <i>Trial</i>	Rational Application Developer <i>Trial</i>	Rational Application Developer <i>Trial</i>
Database included in the package	DB2 Express (developmental use only)	DB2 Express (developmental use only)	DB2
Edge components			✓
IBM Tivoli Directory Server (LDAP server)			✓
Tivoli Access Manager Server			✓

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Batch processing is available in all three packages. DB2 Express is included with Express and base, while DB2 Workgroup Server is included with Network Deployment.

All three packages include a trial version of Rational Application Developer.

In addition, the Network Deployment edition also includes the Edge Components, IBM Tivoli Directory Server, and Tivoli Access Manager Server.

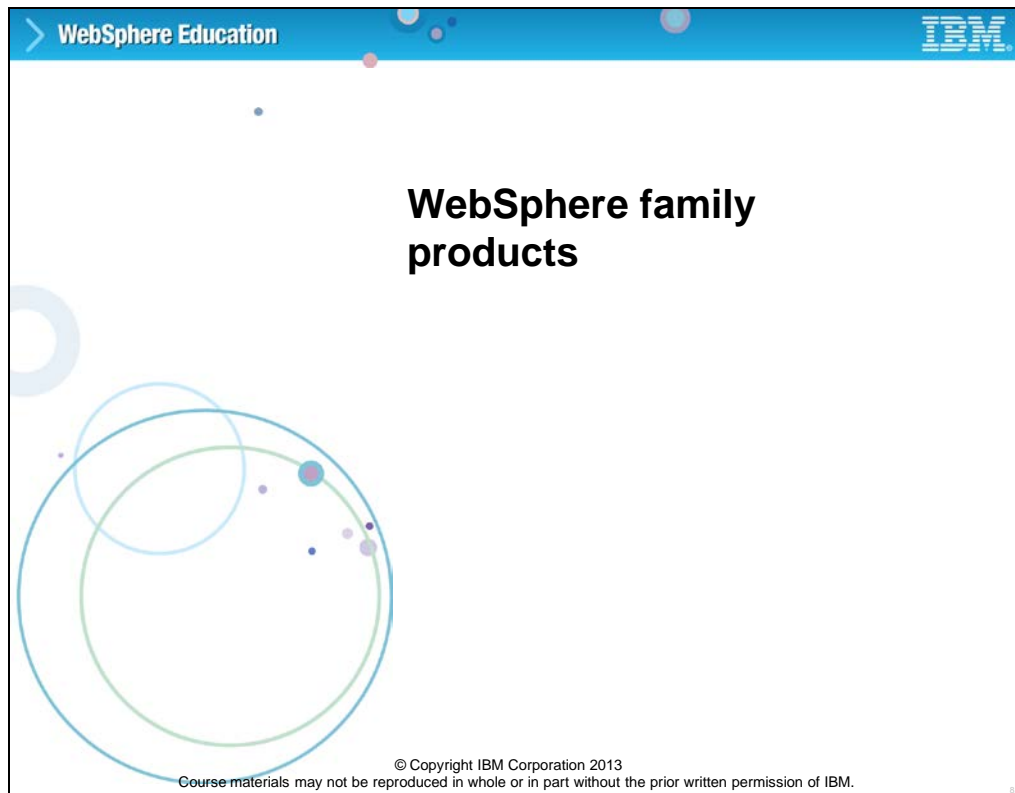
Slide 11

WebSphere Education		IBM
Specifications that are supported in V8.5.5		
Specification or API		
Java EE 6, 5, and J2EE 1.4, 1.3	Java SE 7	Servlet 3.0, 2.5, 2.4, 2.3
JSP 2.2, 2.1, 2.0	Portlet 2.0	SIP 1.1, 1.0
EJB 3.1, 3.0, 2.1, 2.0, 1.1	JDBC 4.1	JPA 2.0, 1.0
JAXB 2.2	JAX-RS 1.1	JAX-RPC 1.1
JAXP 1.2	JAXR 1.0	JAX-WS 2.2di
SAAJ 1.2, 1.3	JSF 2.0, 1.2	SOAP 1.1, 1.2
StAX 1.0	UDDI 3.0	XML schema 1.0
JCA 1.6	WS-AT 1.0, 1.1	WS-BA 1.0, 1.1
WS-COOR 1.0, 1.1	WSDL 1.1	JSR 109 1.2
SDO 1.0	JMS 1.1	JavaMail 1.4
Java 2 Security	JAAS 2.0	JACC 1.1
JCE 1.0	CertPath 1.1	WS-Security 1.0, 1.1
JAF 1.1	WS-I Attachments 1.0	WSIF
JNDI on Java SE 7	JTA 1.1	And more

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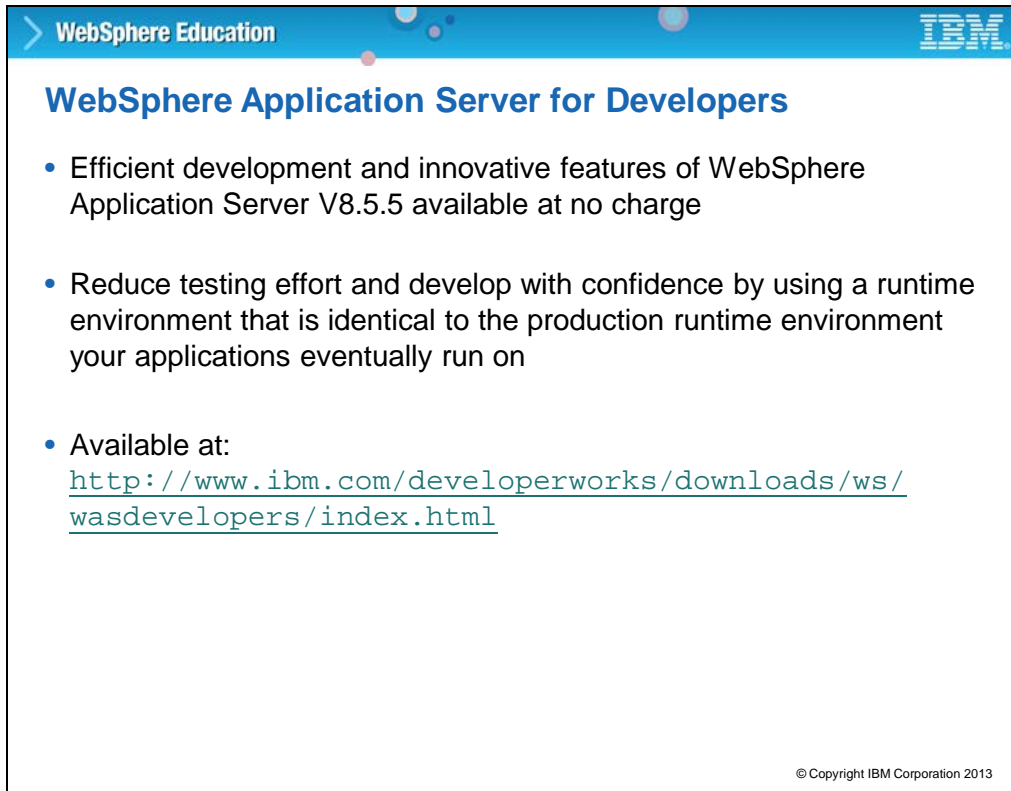
This chart lists some of the specifications and APIs supported in WebSphere Application Server V8.5.5. For a more exhaustive list of supported specifications and APIs, refer to the WebSphere information center.

Slide 12




Several different WebSphere products are described in this topic.

Slide 13



The slide features a blue header bar with the text 'WebSphere Education' on the left and the IBM logo on the right. The main content area is white with a blue title 'WebSphere Application Server for Developers'. Below the title is a bulleted list of three points. The third point includes a URL. At the bottom right of the slide, there is a small copyright notice.

> WebSphere Education 

WebSphere Application Server for Developers


- Efficient development and innovative features of WebSphere Application Server V8.5.5 available at no charge
- Reduce testing effort and develop with confidence by using a runtime environment that is identical to the production runtime environment your applications eventually run on
- Available at:
<http://www.ibm.com/developerworks/downloads/ws/wasdevelopers/index.html>

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WebSphere Application Server delivers a no-charge offering to enable quick and easy developer access to the application server that is built upon the same code base as the other WebSphere Application Server offerings.

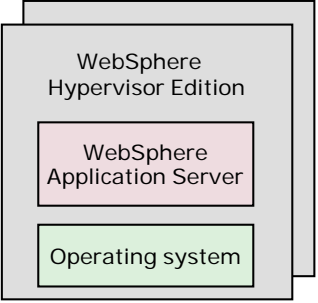
With WebSphere Application Server for Developers, a developer can test applications on a local desktop before moving the application into a production runtime environment. It includes the new Liberty profile, which is a lightweight, fast, and simplified runtime environment. The Liberty profile is designed for developers to improve their productivity and experience, and comprehensive support of open standards and programming models, including: Java EE 6, pluggable JDK Java 6 or Java 7, OSGi applications, Web 2.0 and Mobile Toolkit, Java Batch, XML, Service Component Architecture (SCA), Communications Enabled Applications (CEA), and Session Initiation Protocol (SIP). Use the no-charge WebSphere Application Server Developer Tools for Eclipse for V7.0, V8.0, Liberty Profile, and V8.5 that are a subset of Rational Application Developer plug-ins. You install them on top of your existing Eclipse environment.

Slide 14

> WebSphere Education


WebSphere Application Server Hypervisor Edition

- WebSphere Applications Server shipped ready to run on a hypervisor that is based on OVF standard (such as VMware ESX, PowerVM, z/VM)
 - No installation is required (run and choose a profile)
 - Single virtual image capable of supporting single servers or clusters
 - New images are released on quarterly update intervals
- Maintenance, support, and fixes through IBM for both WebSphere Application Server and operating system.
- Products support various combinations of:
 - VMware ESX, z/VM, and PowerVM hypervisors
 - Red Hat Enterprise Linux, SUSE Linux, AIX



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Previously, when customers wanted to use WebSphere Application Server in a virtualization context, they needed to build and own these images, which involved managing two parallel code paths (operating system and middleware). Now, IBM is building and supporting the entire virtual image.

A *virtual machine*, or *virtual image*, is a complete system platform that contains an operating system on which you can install any number of customized applications to create a complete virtual image. A virtual image requires less time and labor to set up because the operating system and applications are already installed and partially configured. Virtual images are ones that are run on a *hypervisor*, which is the virtualization technology that manages the state of virtual images. A hypervisor product can run on top of a host operating system, or the hypervisor can run as the operating system itself, such as VMware ESX. Some hypervisors also handle load balancing and failover.

Open Virtualization Format (OVF) specifies an open, secure, portable, and flexible format for the packaging and distribution of virtual machines. By deploying virtual images on VMware and other virtualization technologies, you can consolidate servers and streamline your environments. WebSphere Application Server Hypervisor Edition Version 8.5 can function either as a stand-alone server or with IBM Workload Deployer. Workload Deployer is a hardware appliance that provides access to software virtual images and patterns.

The virtual image can be used as a demonstration, a development system, or a simple quality assurance system. A single virtual image can also be a single production system for a small department.

Slide 15

The slide is titled "Mobile application development" and is part of the "WebSphere Education" series. It compares three development approaches:

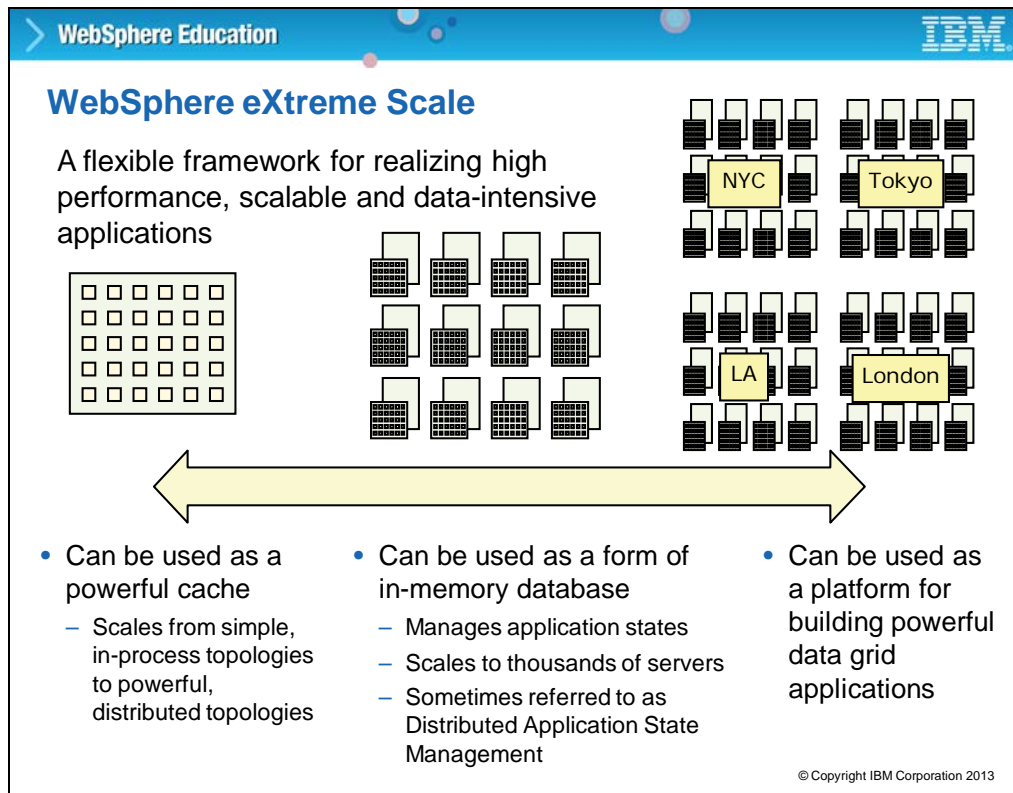
WebSphere Application Server	WebSphere + Web 2.0 and Mobile Toolkit	Worklight
Enterprise web applications <ul style="list-style-type: none"> • Java EE programming • Build, deploy, and manage Enterprise applications and services • Server-side and client-side development 	Mobile web app development that is based on standard web technologies: <ul style="list-style-type: none"> • Run applications in mobile browser • Based on HTML5, CSS3, and JavaScript • Native look and feel • Advanced mobile user interface components • Feature Pack for V6.1, V7, and V8 	Application delivery in various forms: <ul style="list-style-type: none"> • Hybrid application • Native • Install through app store • Access to native services
Desktop web applications	Mobile web applications	Mobile applications

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Worklight takes WebSphere Application Server Mobile Web applications to the next level. With WebSphere Application Server V8.5, the Web 2.0 and Mobile Feature Pack is now part of WebSphere Application Server. WebSphere developers can build and deploy reliable Mobile Web applications by using standards web technologies, such as HTML 5, CSS3, and JavaScript. Resulting applications are usable on various mobile platforms by using the web browser of the device. Supported platforms are iPhone OS, Android, and BlackBerry. User experience is close to each mobile operating system, and supports usual touch interactions.

Worklight extends those applications to make them deployable as hybrid or local applications. Other functions include access to local resources and functions (such as camera, GPS). Installation is done through a feature that is called App Stores.

Slide 16

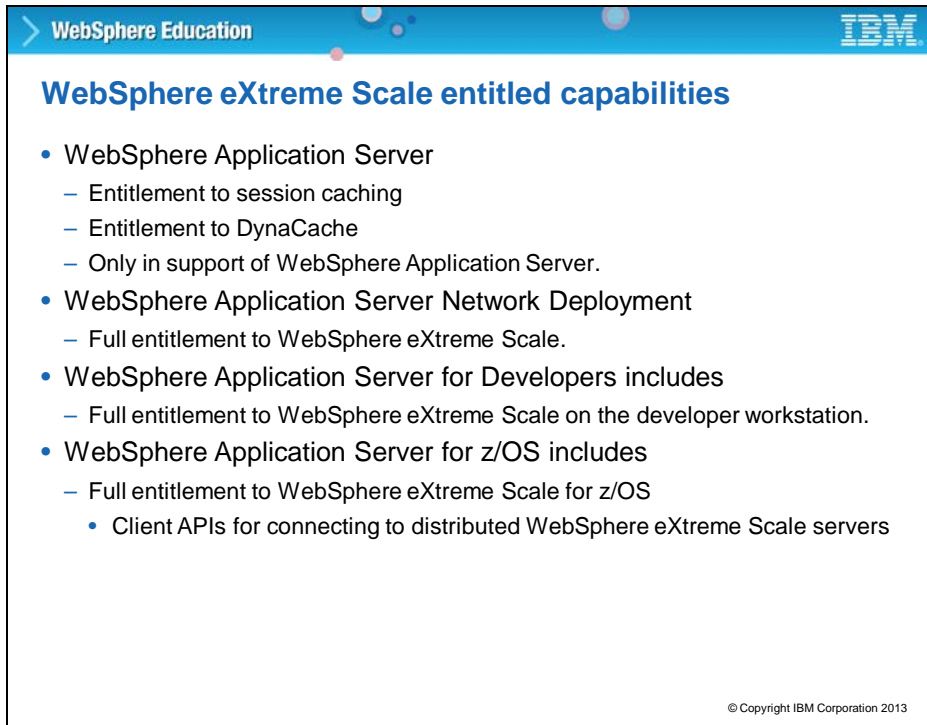


Applications and organizations can evolve as business needs and requirements change, which can require more scalability or the use of some of the other advanced features that eXtreme Scale provides.

What is IBM WebSphere eXtreme Scale? IBM WebSphere eXtreme Scale is a flexible framework for realizing high-performance, scalable, and data-intensive applications. It is a single map addressable space of virtualized JVM heap spaces. First, use of WebSphere eXtreme Scale is a power cache for your applications. WebSphere eXtreme Scale can move that collection of application caches into a grid that is highly available, elastic, and self-healing. Second, use of WebSphere eXtreme Scale is a form of in-memory database. Third, use of WebSphere eXtreme Scale is a form of redundancy across data centers.

WebSphere eXtreme Scale dynamically caches, partitions, replicates, and manages application data and business logic across multiple servers. WebSphere eXtreme Scale handles massive volumes of transaction processing with high efficiency and linear scalability, and provides qualities of service such as transactional integrity, high availability, and predictable response times. WebSphere eXtreme Scale can be used in different ways. It can be used as a powerful cache, as a form of an in-memory database processing space to manage application state, or as a platform for building powerful extreme transaction processing (XTP) applications.

Slide 17



The slide features a blue header bar with the text 'WebSphere Education' on the left and the IBM logo on the right. The main content area is white with a blue title 'WebSphere eXtreme Scale entitled capabilities'. Below the title is a bulleted list of capabilities. The list includes four main items, each with sub-points. The first item is 'WebSphere Application Server' with sub-points for session caching, DynaCache, and support for the Application Server. The second is 'WebSphere Application Server Network Deployment' with a sub-point for full entitlement to eXtreme Scale. The third is 'WebSphere Application Server for Developers includes' with a sub-point for full entitlement on the developer workstation. The fourth is 'WebSphere Application Server for z/OS includes' with sub-points for full entitlement for z/OS and client APIs for distributed servers. A small copyright notice is at the bottom right of the slide.

- WebSphere Application Server
 - Entitlement to session caching
 - Entitlement to DynaCache
 - Only in support of WebSphere Application Server.
- WebSphere Application Server Network Deployment
 - Full entitlement to WebSphere eXtreme Scale.
- WebSphere Application Server for Developers includes
 - Full entitlement to WebSphere eXtreme Scale on the developer workstation.
- WebSphere Application Server for z/OS includes
 - Full entitlement to WebSphere eXtreme Scale for z/OS
 - Client APIs for connecting to distributed WebSphere eXtreme Scale servers

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Each WebSphere Application Server edition also includes entitlement to use some WebSphere eXtreme Scale function. The Network Deployment edition allows full use of all WebSphere eXtreme Scale function, while the base edition allows for the use of WebSphere eXtreme Scale only for session caching or in support of DynaCache.

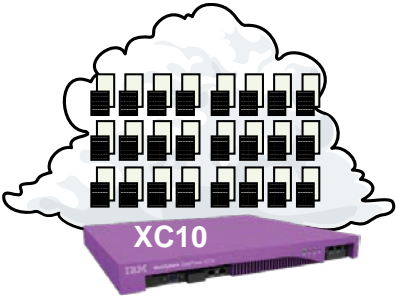
Slide 18

> WebSphere Education

WebSphere DataPower XC10 Appliance

- A purpose-built, easy-to-use appliance that is designed for simplified deployment at the caching tier of the enterprise application infrastructure
 - Designed for rapid, drop-in use with WebSphere Application Server, and other WebSphere family products
 - Physical hardware device capable of running one or more grids
 - Set of XC10 appliances can be grouped together for scalability

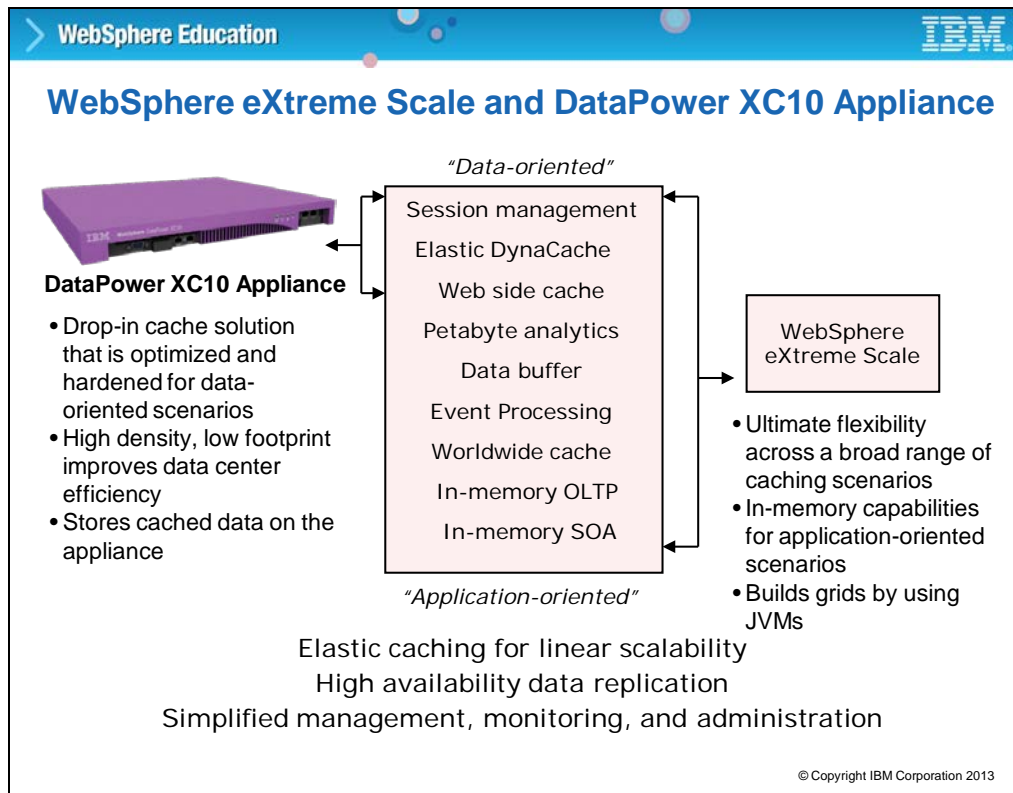
- Used for simple data-oriented scenarios
 - HTTP session replication
 - Elastic dynamic cache
 - Web side cache



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The IBM WebSphere DataPower XC10 is a purpose-built, easy-to-use appliance that is designed for simplified deployment at the caching tier of your enterprise application infrastructure. The DataPower XC10 is designed for rapid, "drop-in" use along with WebSphere Application Server and other WebSphere family products. It is based on the DataPower 9004 platform and contains 160 gigabytes of storage per unit. Because your data can be stored on the appliance in an in-memory grid, application caching functions can be handled quickly and can scale with consistent performance.

Slide 19



A combination of WebSphere eXtreme Scale and DataPower XC 10 Appliance can provide simple, data-oriented scenarios. Few code changes are necessary to adopt elastic caching in these scenarios.

Application-oriented scenarios require investment in new architectures.

XC10 focus is on simple, data-oriented caching scenarios where customers want to quickly and cost effectively scale their applications while improving performance. Data-oriented caching scenarios require few application code changes with XC10. No application code changes are required at all for WebSphere Session Management and extending Dynamic Caching. XC10 provides a large (160 GB) cache in a high-density, low footprint that allows you to save time, money, and rack space. Fault tolerance is built in, lowering your risk of data loss and providing continuous availability.

WebSphere eXtreme Scale provides the ultimate flexibility that supports a broad range of caching scenarios, which include caches where the data and application are co-located.

Slide 20

WebSphere Education

IBM Workload Deployer

- Secure, self-service cloud management hardware appliance
 - Fully programmable and can integrate into an existing management infrastructure
- Enables consistent and repeatable deployment of application environments that are based on patterns
 - Dispenses hardened WebSphere patterns into a pool or cloud of virtualized hardware that is running a supported hypervisor
- Includes all functions from WebSphere CloudBurst Appliance, plus new capabilities
 - Integrates with existing infrastructure through programmable REST APIs
 - More robust platform (more storage and compute power)

WebSphere CloudBurst Appliance V2.0
IBM Workload Deployer V3.1

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IBM Workload Deployer, previously known as IBM WebSphere CloudBurst Appliance, dispenses and manages IBM middleware to virtualized servers and private cloud-computing environments. Workload Deployer manages two styles of patterns.

The first style is "topology patterns," which are customizable patterns of IBM middleware that are packaged as "Hypervisor Edition" images. This familiar pattern was available since WebSphere CloudBurst V1.0, but is more dynamic in Workload Deployer V3.0. When IBM WebSphere Application Server Hypervisor Edition Intelligent Management Pack is enabled in a deployed environment, users might enable automated elasticity to allow patterns to grow and shrink without manual input.

The second style of pattern is "workload patterns," which contain all IT components that are needed to run a certain type of workload. This type of pattern is less customizable, but is designed to meet the needs of common use cases with little modification. As such, workload patterns offer a much more cost-effective way of deploying and managing suitable applications.

Slide 21

WebSphere Education

IBM Tivoli Composite Application Manager for WebSphere Application Server

- Data Collector available in WebSphere Application Server V8.5.5 as an extension offering (optional download and installation)
- IBM Tivoli Composite Application Manager for WebSphere Application Server provides more request-based response time and processor metrics
- Customer application code is not instrumented
- Simple upgrade from IBM Tivoli Composite Application Manager for WebSphere Application Server to IBM Tivoli Composite Application Manager for Application Diagnostics
- After upgrade IBM Tivoli Composite Application Manager data still visible in Tivoli Performance Viewer

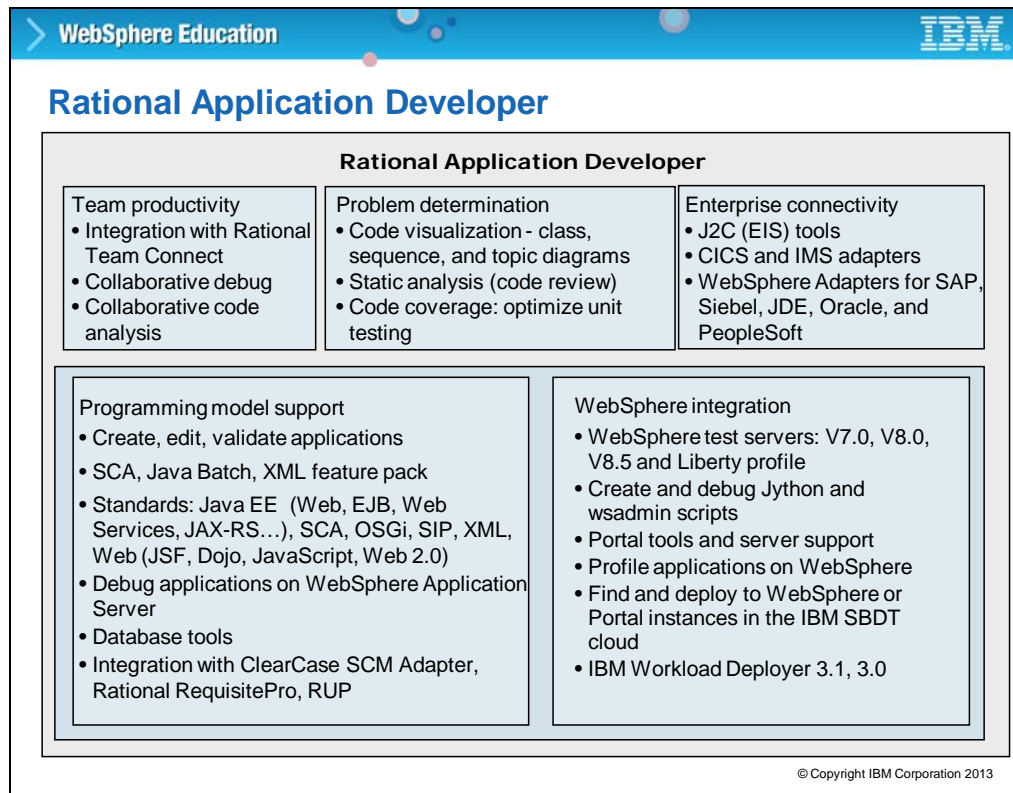
The screenshot shows the 'Tivoli Performance Viewer' console. It features a left-hand navigation pane with a tree structure containing categories like 'Summary', 'Settings', 'Summary Reports', and 'Performance Modules'. The main area displays a line graph at the top and a table of performance metrics below. A yellow box with the text 'IBM Tivoli Composite Application Manager' is overlaid on the table. The table has columns for 'Metric', 'Unit', 'Value', and 'Status'. It lists various metrics such as 'ResourceCount', 'AverageResponseTime', 'MaxResponseTime', 'MinResponseTime', 'AvgCPUUsage', 'MaxCPUUsage', and 'MinCPUUsage'.

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IBM Tivoli Composite Application Manager (ITCAM) for WebSphere Application Server is an optional component that you can install during the installation of WebSphere Application Server. ITCAM for WebSphere Application Server monitors the performance of WebSphere Application Server applications and provides real-time status information about the health of applications. You can view this data in the Tivoli Performance Viewer console in WebSphere Application Server.

The ITCAM for WebSphere Application Server component is composed of a Data Collector. After you install this component, configure the Data Collector to a WebSphere Application Server instance. The Data Collector runs within the same JVM as the application server and captures information about the running applications. This Data Collector configuration tool adds a Performance Monitoring Infrastructure (PMI) module in the application server. The data that ITCAM for WebSphere Application Server provides, augments the data from the application server through the existing PMI statistics.

Slide 22

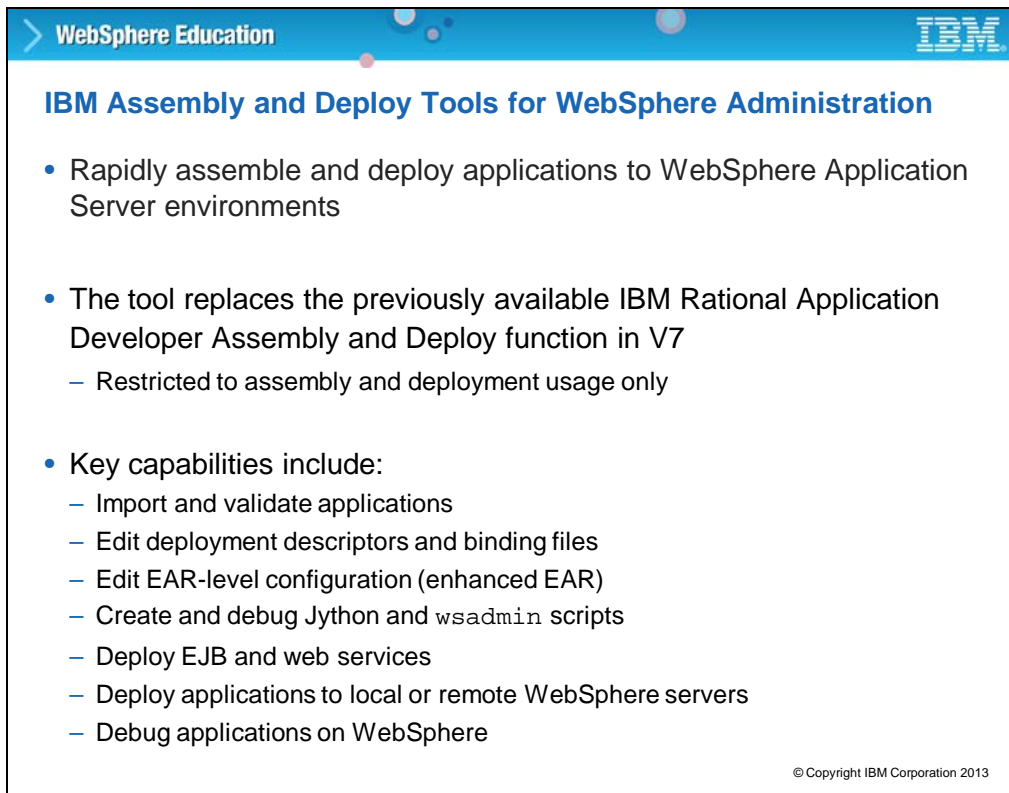


Rational Application Developer is the only tool that is needed to design, develop, and deploy your applications. It provides a development environment for building applications that run on WebSphere Application Server V8.5.


Rational Application Developer is a full suite of development, analysis and test, and deployment tools for rapidly implementing Java SE and EE, Portal, web and Web 2.0, web services, OSGi, and SOA applications.

Rational Application Developer is available in two editions: Rational Application Developer for WebSphere Software and Rational Application Developer Standard Edition for WebSphere Software. Standard Edition contains all the features of the full Rational Application Developer except for WebSphere adapter support, team development, code quality, testing and deployment, and code visualization.

Slide 23



The slide features a blue header bar with the text 'WebSphere Education' on the left and the IBM logo on the right. The main content area is white with a blue title and a bulleted list of features. A small copyright notice is at the bottom right of the slide.

WebSphere Education 

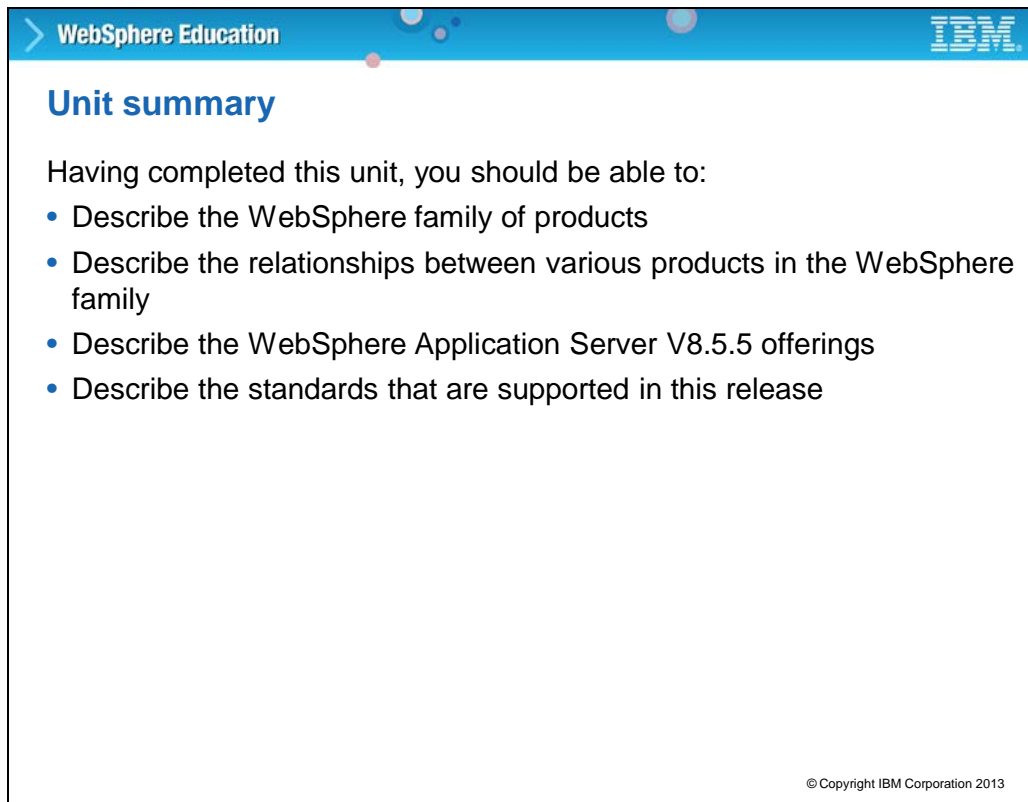
IBM Assembly and Deploy Tools for WebSphere Administration

- Rapidly assemble and deploy applications to WebSphere Application Server environments
- The tool replaces the previously available IBM Rational Application Developer Assembly and Deploy function in V7
 - Restricted to assembly and deployment usage only
- Key capabilities include:
 - Import and validate applications
 - Edit deployment descriptors and binding files
 - Edit EAR-level configuration (enhanced EAR)
 - Create and debug Jython and `wsadmin` scripts
 - Deploy EJB and web services
 - Deploy applications to local or remote WebSphere servers
 - Debug applications on WebSphere

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The application assembly and deployment tools, which are delivered together with the WebSphere Application Server Version 8.5 offering, is called the IBM Assembly and Deploy Tools for WebSphere Administration (or IADT). With IBM Assembly and Deploy Tools for WebSphere Administration, administrators can accomplish key assembly and deployment needs including editing of deployment artifacts, script development and testing, and application deployment and debugging. This tool is not intended for general application development; however it provides the tools for administrators to assemble and deploy web, Java, Java EE, and OSGi applications to WebSphere Application Server Version 8.5.

Slide 24

The slide features a blue header bar with a white right-pointing arrow, the text 'WebSphere Education', and the IBM logo on the right. The main content area is white with a blue title 'Unit summary'. Below the title, it states 'Having completed this unit, you should be able to:' followed by a bulleted list of four items. The footer contains the copyright notice '© Copyright IBM Corporation 2013'.

> WebSphere Education IBM

Unit summary

Having completed this unit, you should be able to:

- Describe the WebSphere family of products
- Describe the relationships between various products in the WebSphere family
- Describe the WebSphere Application Server V8.5.5 offerings
- Describe the standards that are supported in this release

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Having completed this unit, you should be able to describe the WebSphere family of products and the relationships between various products in the WebSphere family. You should be able to describe the WebSphere Application Server V8.5.5 offerings and the standards that are supported in this release.