



# ACCELERATED VALUE SEMINAR COMES TO YOU

## WebSphere Application Server for Domino Administrators

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Lotus Field Support Services

Content and images provided by the IBM Whitepaper: IBM WebSphere Application Server Introduction for Lotus

# WebSphere Application Server

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- What is WebSphere® Application Server?
- Key characteristics of WebSphere Application Server.
- What is Web 2.0?
- Where does WebSphere Application Server fit into the topology for Lotus products?
- What versions of WebSphere Application Server do each of the products run on?
- High level view of the WebSphere Application Server architecture.
- What is the Integrated Solutions Console?
- How do Lotus products that run on WebSphere Application Server make use of the IBM Integrated Solutions Console?



# What is WebSphere Application Server?

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- The term "**IBM WebSphere**" is a brand name that represents many products. IBM WebSphere Application Server is one of the many products in the IBM WebSphere brand and product family.
- IBM WebSphere Application Server (WAS), a software application server, is the flagship product within IBM's WebSphere brand.
- WAS is built using open standards such as Java Enterprise Edition, XML, and Web Services.



# What is WebSphere Application Server?

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- An application server that provides an infrastructure for running scalable, enterprise level Java based web applications and services.
- The applications can be as simple as basic web sites or as complex as enterprise wide transaction processing applications.
- The services include resource requirements, clustering, administration, security, performance, and transaction management.
- A platform for developing and deploying Web services and Enterprise JavaBeans.
- IBM's implementation of the Java Enterprise Edition (Java EE) platform.
- A key building block for Service-oriented Architecture (SOA) infrastructures.



# What is WebSphere Application Server?

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- **WebSphere Application Server** is often referred to as a "**foundation**". In this context, WebSphere Application Server provides:
  - A foundation for running many of the WebSphere applications, such as Lotus Connections, and many other 3rd party applications.
  - The foundation of IBM's SOA application infrastructure.



# What is WebSphere Application Server?

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- **WebSphere Application Server** is also referred to as "**middleware**". In this context, WebSphere Application Server is:
  - Middleware that connects clients, browsers and front end web servers to back-end systems such as databases.
  - Middleware that resides between the operating system and applications, and extends the functions of the operating system by integrating systems such as databases and transaction processors, and extending them to the Web.



# Key characteristics of WebSphere Application Server

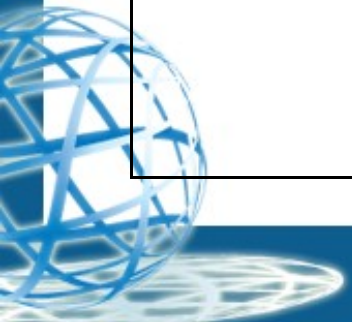
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WebSphere Application Server Edition	Key Characteristics
WebSphere Application Server Community Edition	<ul style="list-style-type: none"><li>• Separate product from the other editions</li><li>• Built on Apache Geronimo</li><li>• Designed to utilize innovations in open source community</li><li>• Supports standalone server environment</li><li>• Lightweight</li><li>• Free download</li></ul>
WebSphere Application Server Express®	<ul style="list-style-type: none"><li>• Supports standalone server environment</li><li>• Targets small and mid-size businesses</li><li>• Easy management of basic dynamic web sites</li><li>• Affordable</li></ul>



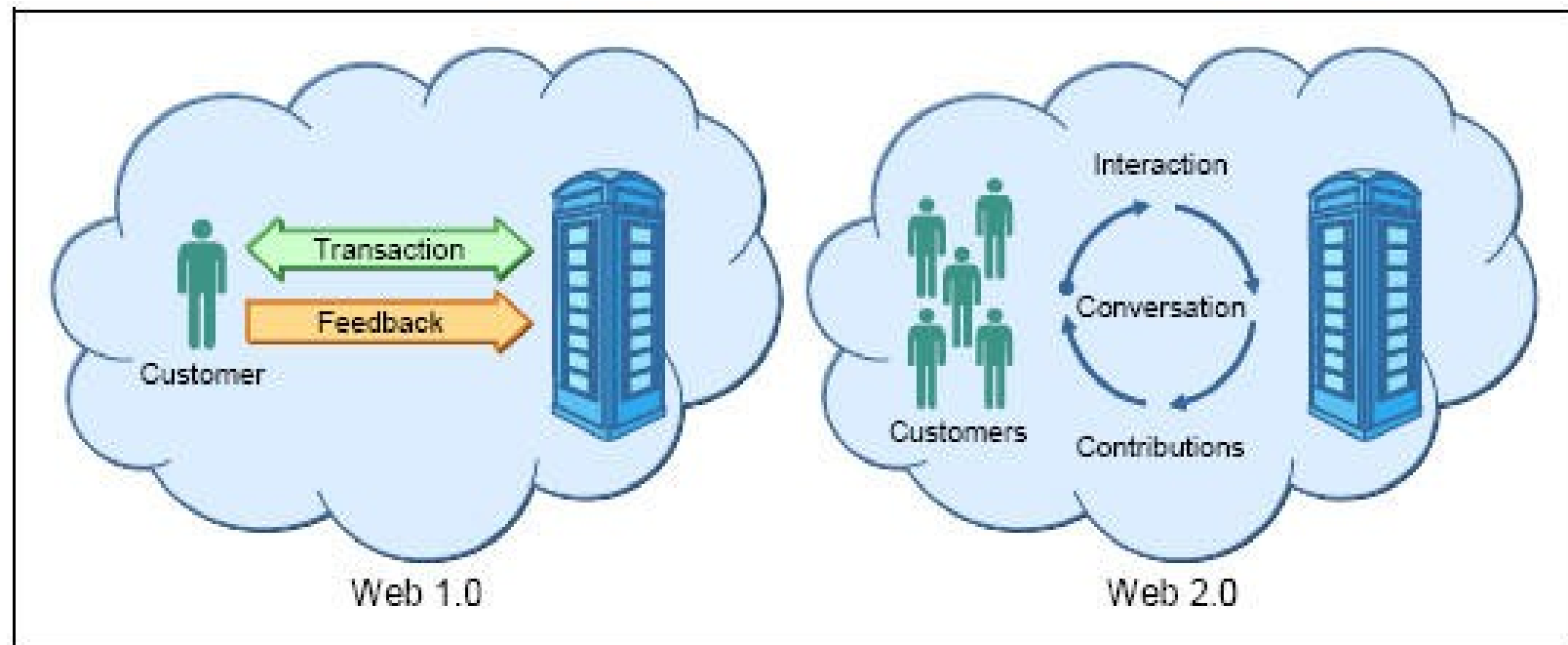
# Key characteristics of WebSphere Application Server

WebSphere Application Server Edition	Key Characteristics
WebSphere Application Server Base	<ul style="list-style-type: none"><li>• Supports standalone server environment</li><li>• Serves as the core Java EE, Web 2.0 and Web services application server.</li><li>• Secure, high performance transaction processing</li><li>• Optimized to ease administration in scalable, standalone server environment</li></ul>
WebSphere Application Server Network Deployment	<ul style="list-style-type: none"><li>• Built on top of the WebSphere Application Server base edition</li><li>• Advanced deployment services such as:<ul style="list-style-type: none"><li>– Advanced clustering</li><li>– Dynamic scalability</li><li>– High availability</li></ul></li><li>• Supports multiple, distributed servers as well as standalone servers</li><li>• Centralized administration of multiple servers</li><li>• Advanced management features for distributed configurations</li></ul>



# What is Web 2.0?

- As you explore various WebSphere Application Server resources, you will frequently see it referred to as a Web 2.0 application server.
- Web 1.0 refers to connecting computers and making technology more efficient for computers. Web 2.0 represents an evolving World Wide Web platform. Web 2.0 is about connecting people and making technology efficient for people.



# Why do you need to know WebSphere Application Server?

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- WebSphere Application Server (WAS) has become the predominate technology powering the latest and greatest collaboration products from IBM
- WebSphere Portal
- Lotus® Connections
- Quickr® for Portal
- Sametime®
  - Meeting Server
  - Proxy
  - Advanced
  - Gateway



# What are some of the benefits of WebSphere Application Server?

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- It provides a fast, reliable, available, secure and scalable environment that enables development and application efficiencies so that businesses can do more with fewer resources.
- Out-of-the-box security configurations and user registry, compliance with government standards, and stringent Web services security.
- Java EE 5 certification, EJB 3.0 support and Java Persistence API (JPA) and Java Development Kit (JDK) 6.0, which deliver simplified programming models for building reusable persistent objects.
- Session Initiation Protocol (SIP) servlets which simplify development with standardized support for interactive user sessions involving real-time multimedia elements such as voice, video, instant messaging and online games.
- Simplified infrastructure, flexible and effective application control and runtime efficiency so IT Administrators and developers can respond to evolving business needs with infrastructure and application intelligence.



# Why have some Lotus products moved from IBM Lotus Domino® to WebSphere Application Server?

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John P. Lamb, Michael Laskey and Gopal Indurkha explain in their book, IBM WebSphere and Lotus: Implementing Collaborative Solutions, which applications are best suited for Lotus Domino or WebSphere Application Server in the following way:

“At a high level, the type of application is an important factor in deciding on which platform to build. ... the strengths of Domino lie in collaborative applications.

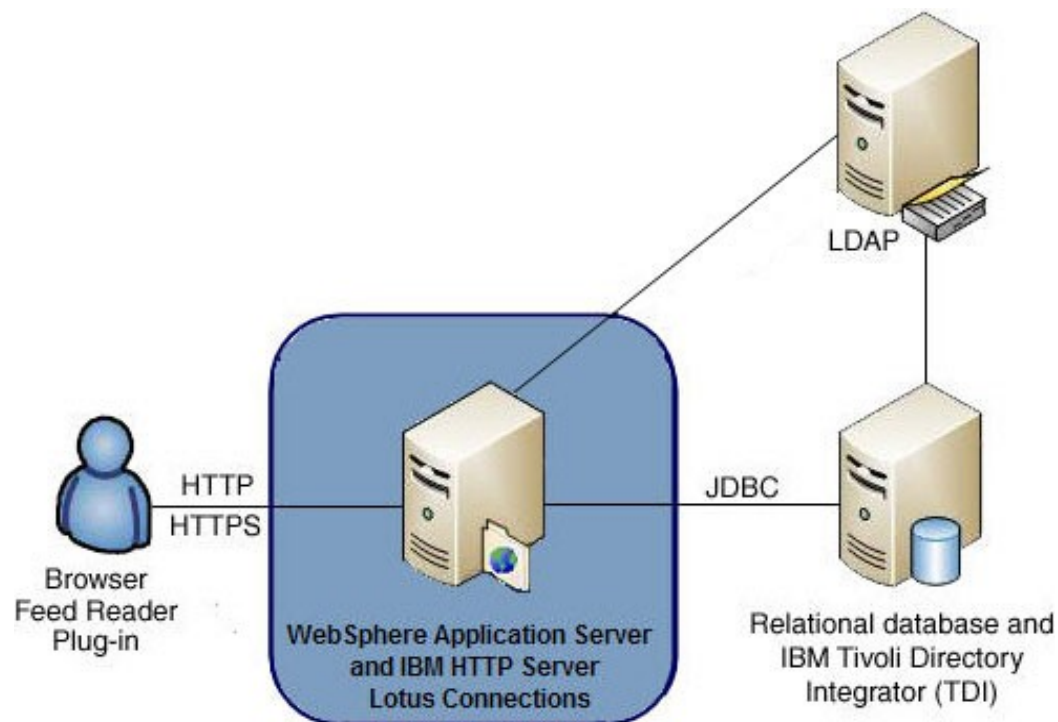
Domino is good at applications involving user interaction, providing a scalable document data store, rich content handling, and a robust security model.

WebSphere Application Server (WAS) is ideal for transactional applications, highly leveraging a relational data store, and providing enterprise-level J2EE application hosting.”



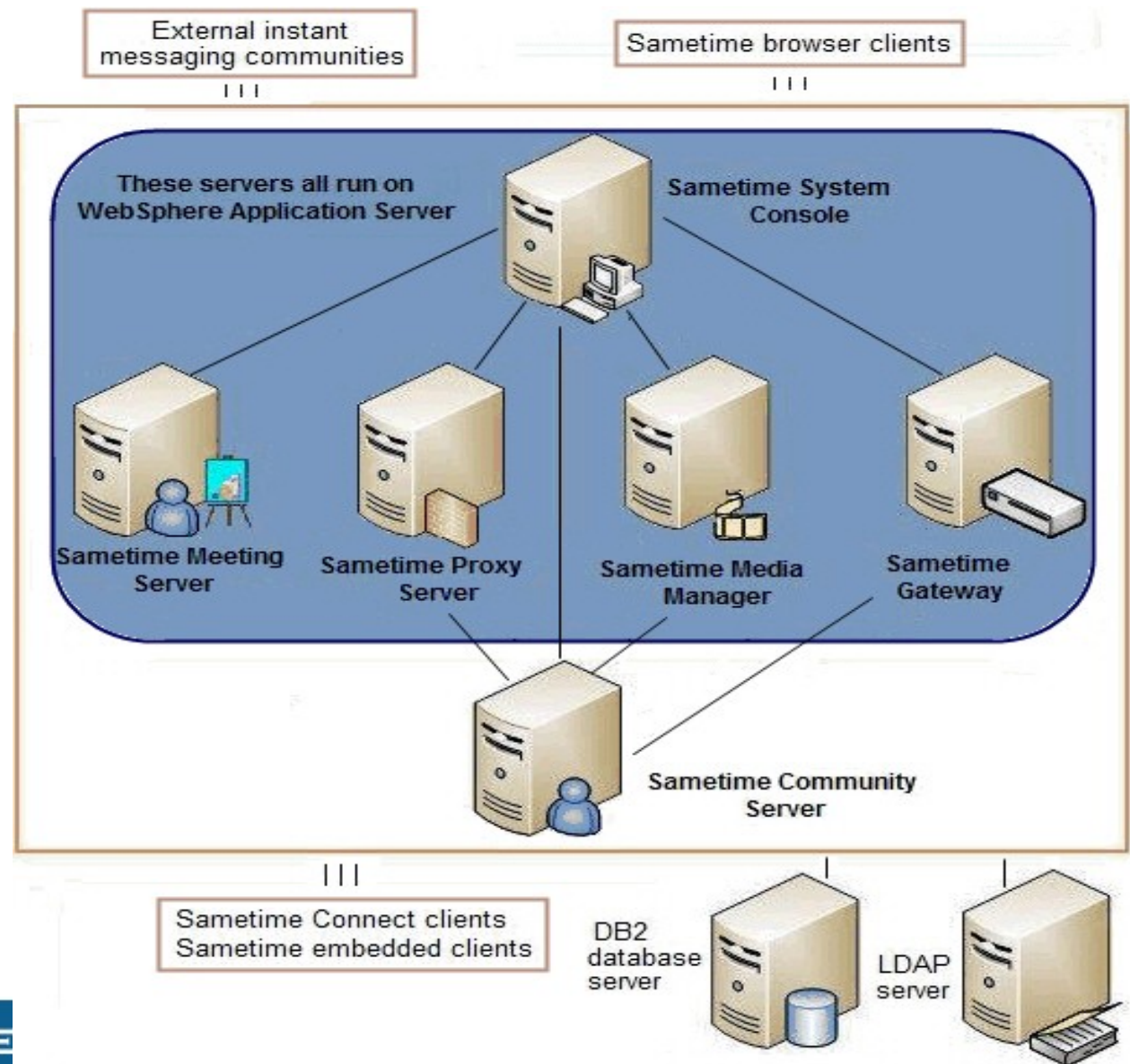
# Where does WebSphere Application Server fit into the topology for Lotus products?

- Lotus Connections



# Where does WebSphere Application Server fit into the topology for Lotus products?

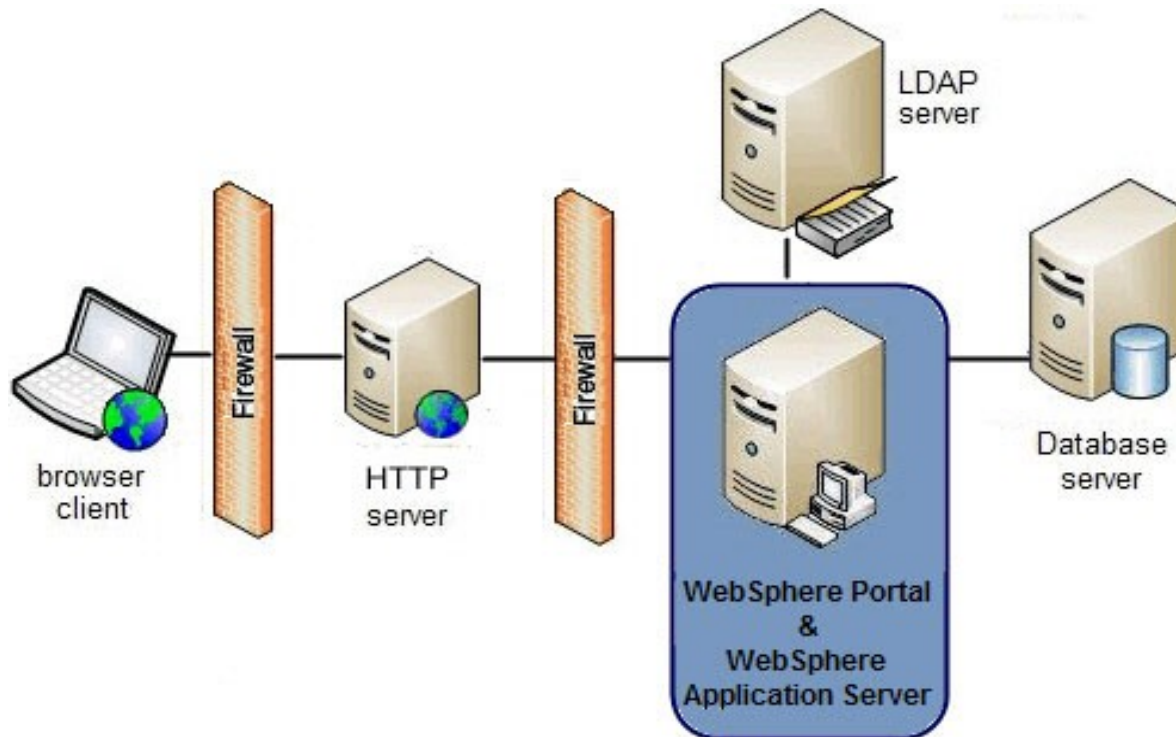
- Sametime



# Where does WebSphere Application Server fit into the topology for Lotus products?

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- WebSphere Portal



# What versions of WebSphere Application Server do each of the products run on?

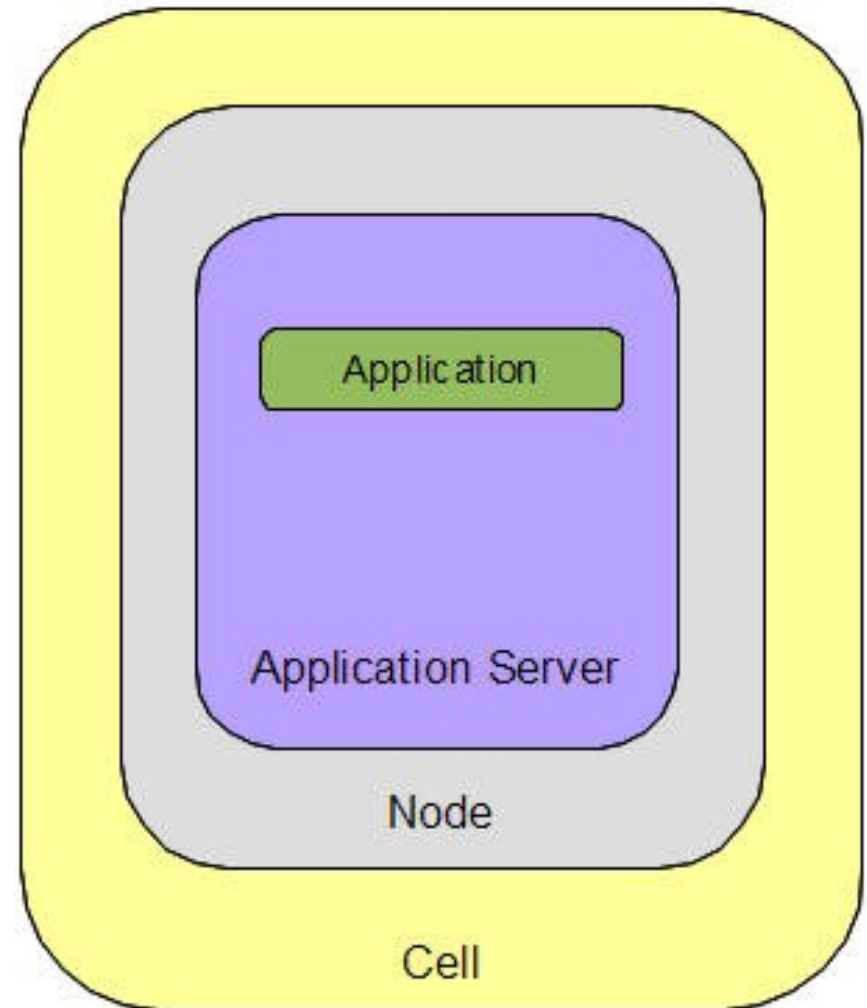
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Product	Supported version of WebSphere Application Server
Lotus Sametime 8.5	WebSphere Application Server 7.0.0.3 Network Deployment edition
Lotus Connections 2.5	WebSphere Application Server 6.1.0.23 or 6.1.0.29 Network Deployment edition
Lotus Connections 3.0	WAS ND 7.0.0.11
WebSphere Portal 6.1.0.3/6.1.5.0	WebSphere Application Server V7.0.0.5 or WebSphere Application Server V6.1.0.27 Network Deployment edition
Lotus Quickr 8.1.x services for WebSphere Portal	WebSphere Application Server V6.0.2.17 Network Deployment edition



# High level view of the WebSphere Application Server architecture

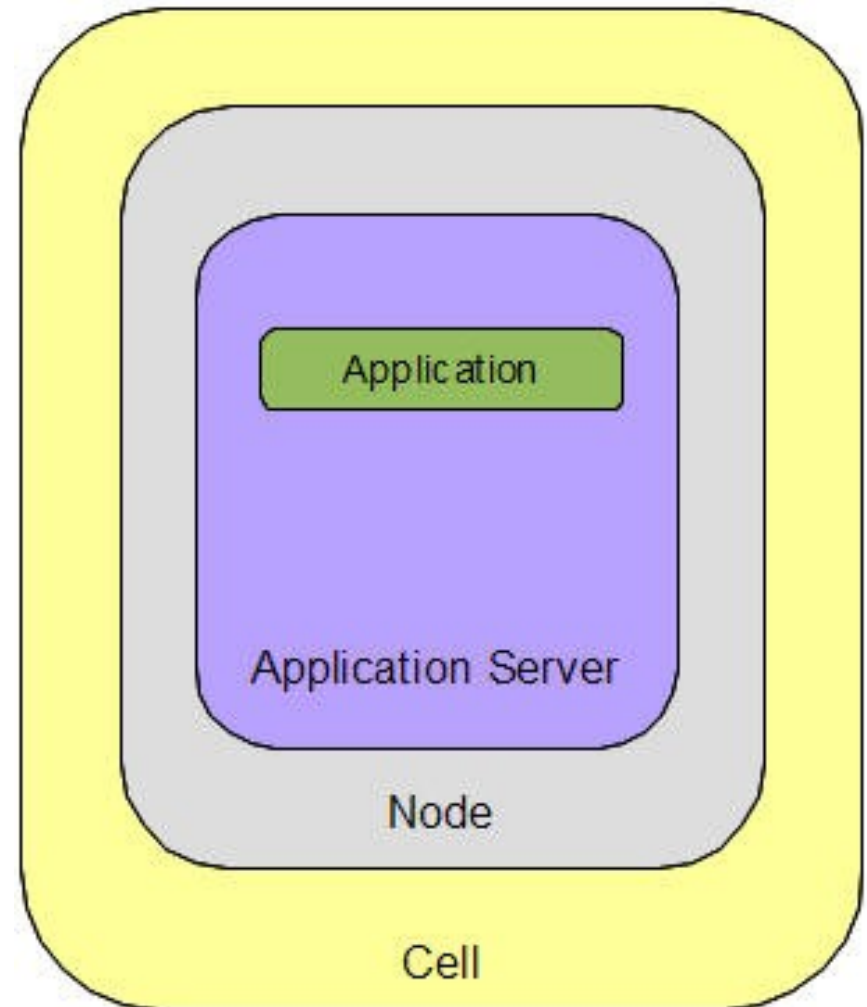
- **Application** in this model refers to a Java EE (J2EE) web application, comprised of an Enterprise ARchive (.EAR) file and/or Web Application ARchive (.WAR) files.
- **Application Server** is a process that hosts and runs one or more Java EE web application. Each application server runs in its own Java Virtual Machine (JVM).
- **Node** is an individual physical or virtual system/machine that contains an installation of WebSphere Application Server.
- **Cell** is a group of Nodes in an administrative domain.



# High level view of the WebSphere Application Server architecture

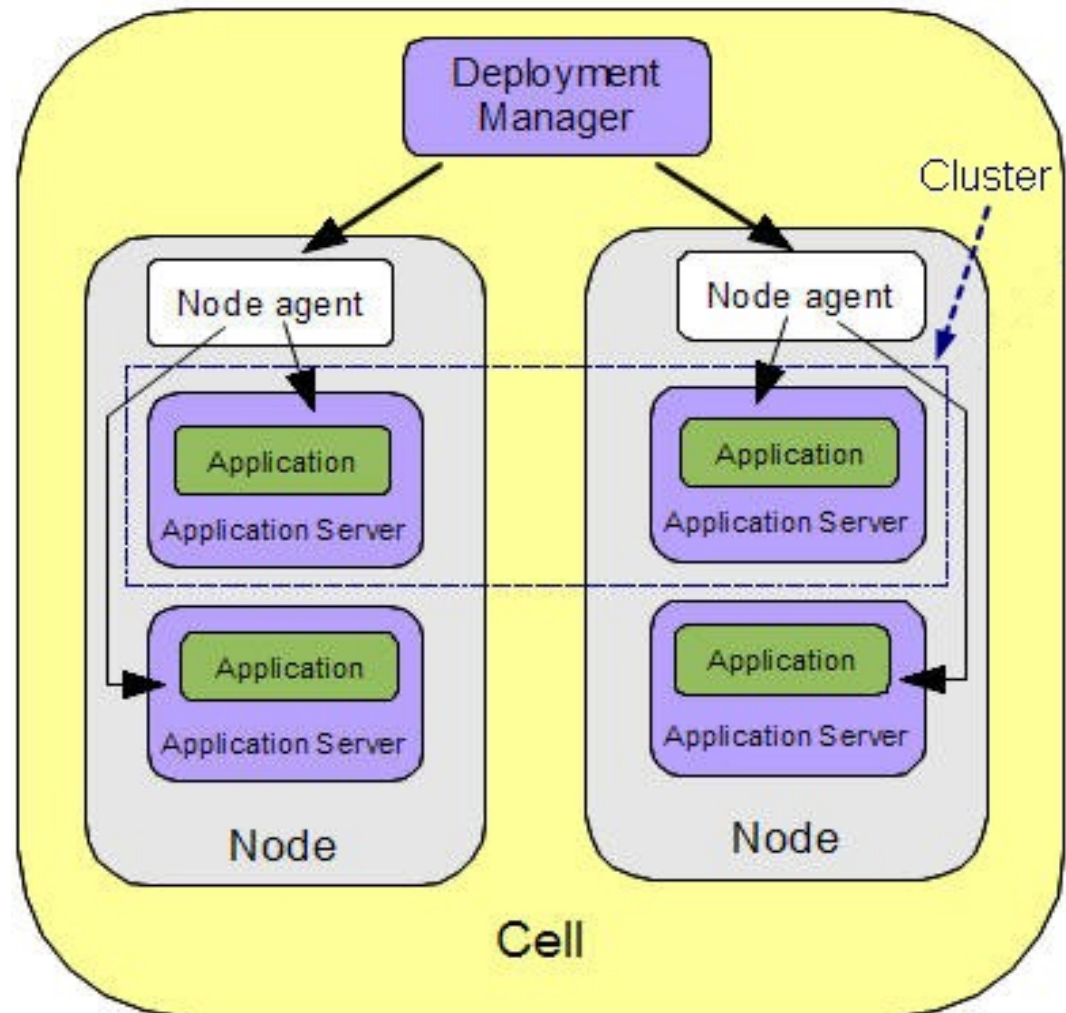
A few guidelines:

- An *Application Server* runs on only one *Node*.
- In the standalone configuration there is only one *Node*. The *Node* can contain multiple *Application Servers*, but the configuration files for each server are stored and maintained individually.
- With a standalone configuration, each application server acts as a unique entity.
- The WebSphere Application Server Express, Base, and Network Deployment editions all support the standalone configuration.



# High level view of the WebSphere Application Server architecture

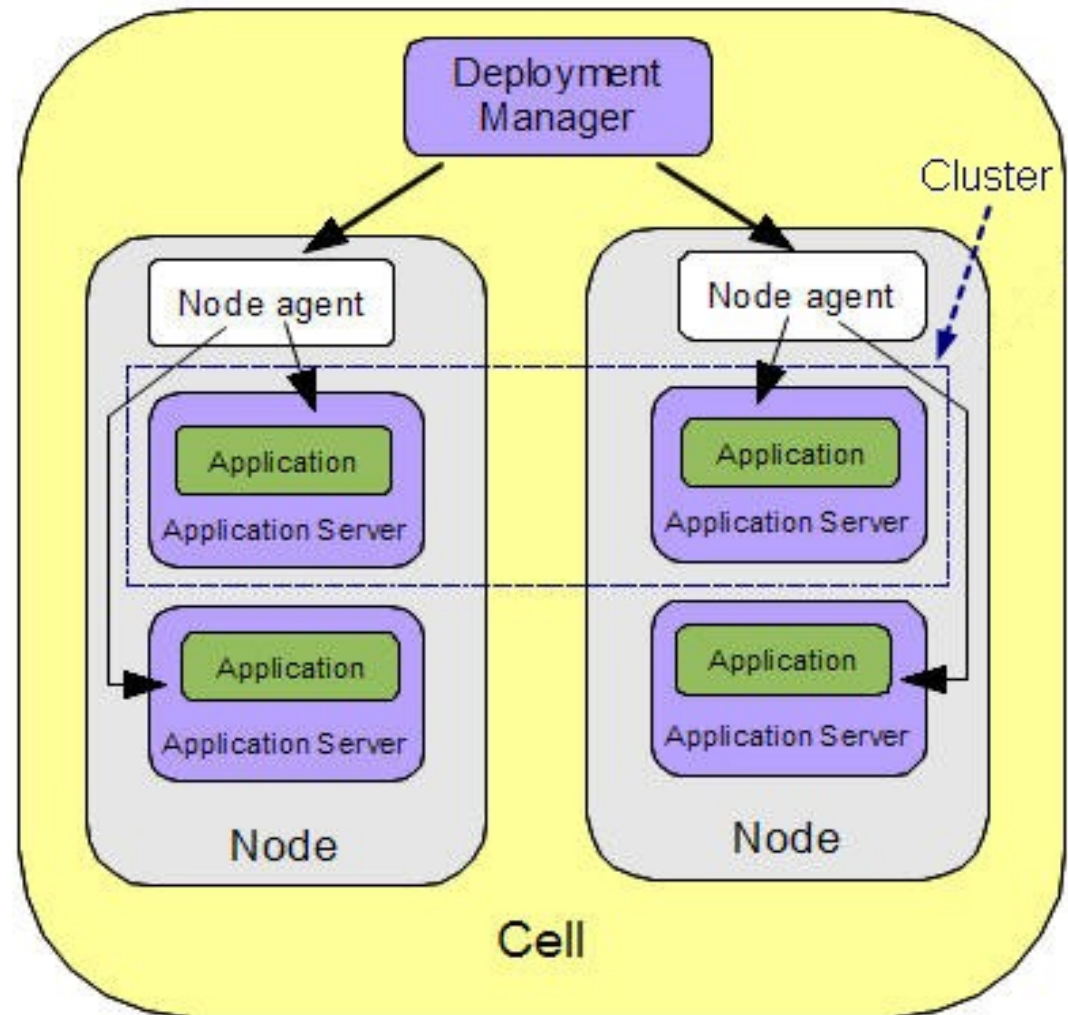
- **Deployment Manager** administers multiple nodes in a cell from a centralized location.
- **Node Agents** work with the Deployment Manager to perform administrative functions.
- **Cluster** is a group of application servers that are used for the same purpose / run the same applications.



# High level view of the WebSphere Application Server architecture

A few guidelines:

- The presence of the *Deployment Manager* in this diagram indicates this is a WebSphere Application Server Network Deployment (or higher).
- You can configure multiple *Nodes* and administer them centrally via the *Deployment Manager*.
- Each *Node* has a *Node Agent* that works with the *Deployment Manager* to manage administration processes.
- In the Network Deployment edition of WAS, a *Cell* can contain more than one *Node*.



# WebSphere Application Server Installation

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- The file system layout of WebSphere Application Server is split into 2 components:
  - First - set of shared read-only product static files or product binaries to be shared by any functional instance of the WebSphere product
  - Second - set of user data set of configurable files that are customized. This set of files are called WebSphere profile. Every installation of WebSphere will have at least one profile.
  - Think Domino partitioned servers



# Partitioned Domino Servers

Physical Machine (Or Virtual Machine if that's your style)

Domino Product Binaries

+

Domino Data  
Directory



Domino Server

+

Domino Data  
Directory



Domino Server

# WebSphere Profiles

Physical Machine (Or Virtual Machine if that's your style)

WebSphere Product Binaries

+

WebSphere  
Profile



Application Server  
or Deployment  
Manager

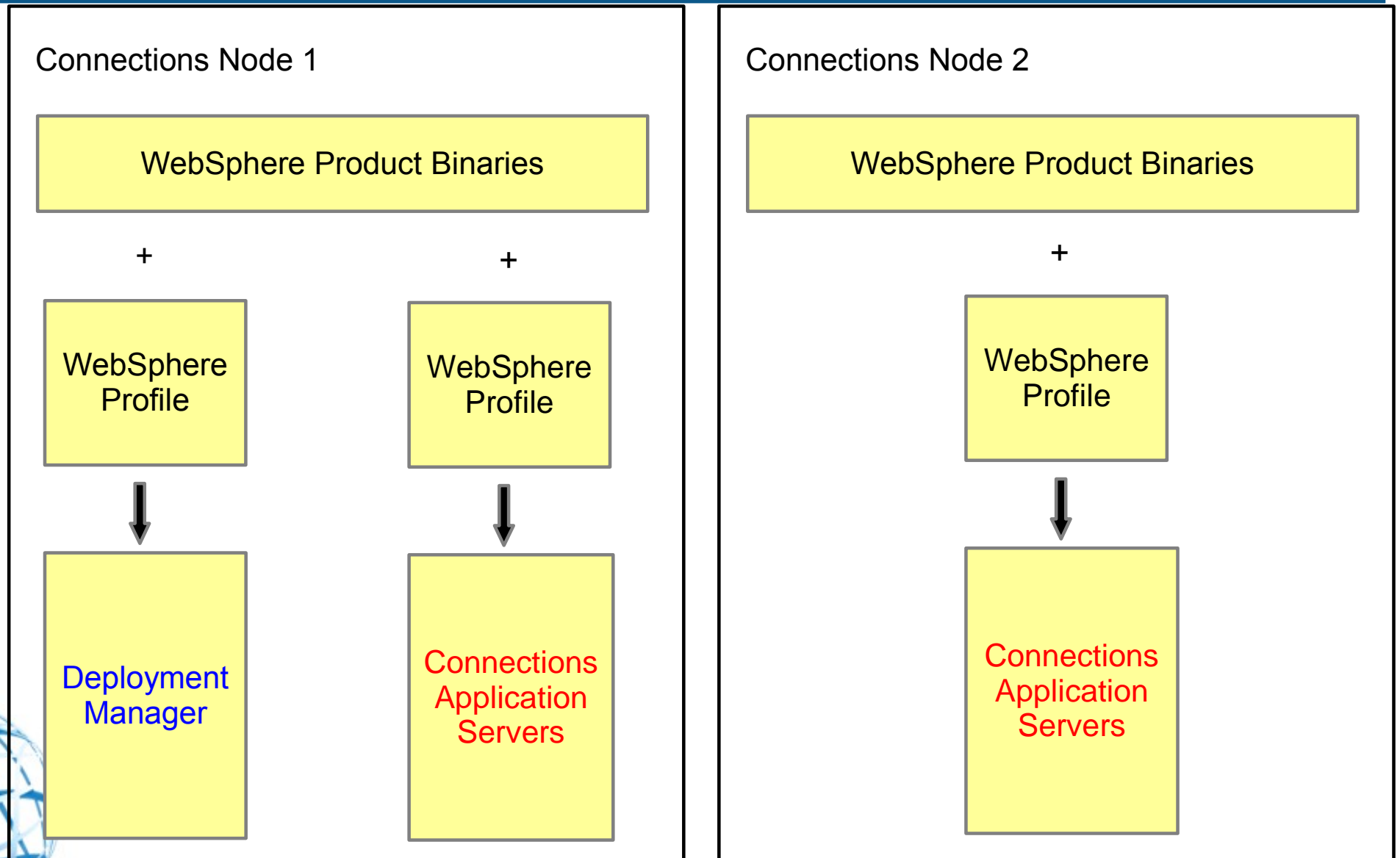
+

WebSphere  
Profile



Application Server  
or Deployment  
Manager

# Lotus Connections Network Deployment Example



# Sametime 8.5 Network Deployment Example

Sametime System Console and Meeting Server

WebSphere Product Binaries

+

+

+

+

STSCDMgrProfile

STSCAppProfile

STMDMProfile1

STMPNProfile1



ST System  
Console  
Deployment  
Manager

Sametime  
System  
Console

ST Meeting  
Server  
Deployment  
Manager

Sametime  
Meeting  
Server

# What is the IBM Integrated Solutions Console?

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- Integrated Solutions Console (ISC) provides a single, common interface for system administration. It provides the main platform on which IBM and non-IBM products can build administrative user interfaces as individual plug-ins to a common console framework.
- The ISC is a JAVA EE application running on WebSphere Application Server. No separate administrative client is required to be installed for WebSphere Application Server.



# How do Lotus products that run on WebSphere Application Server make use of the Integrated Solutions Console?

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## Lotus Sametime 8.5:

- The Lotus Sametime System Console is an extension of the Integrated Solutions Console and runs on the Lotus Sametime System Console server. When started, the Lotus Sametime System Console runs as a task in the WebSphere Application Server administrative console [which is the ISC].

## Lotus Connections 2.5/3.0:

- When working with Lotus Connections, the ISC is used only for certain configuration tasks, such as configuring JVM properties, single sign-on and administrative security.

## WebSphere Portal 6.1.0.3/6.1.5.0

- As with Lotus Connections, the ISC is also only used for certain configuration tasks when working with WebSphere Portal. For example, when an administrator needs to enable extended tracing for WebSphere Portal, this task is performed in the ISC.



## How do Lotus products that run on WebSphere Application Server make use of the Integrated Solutions Console?

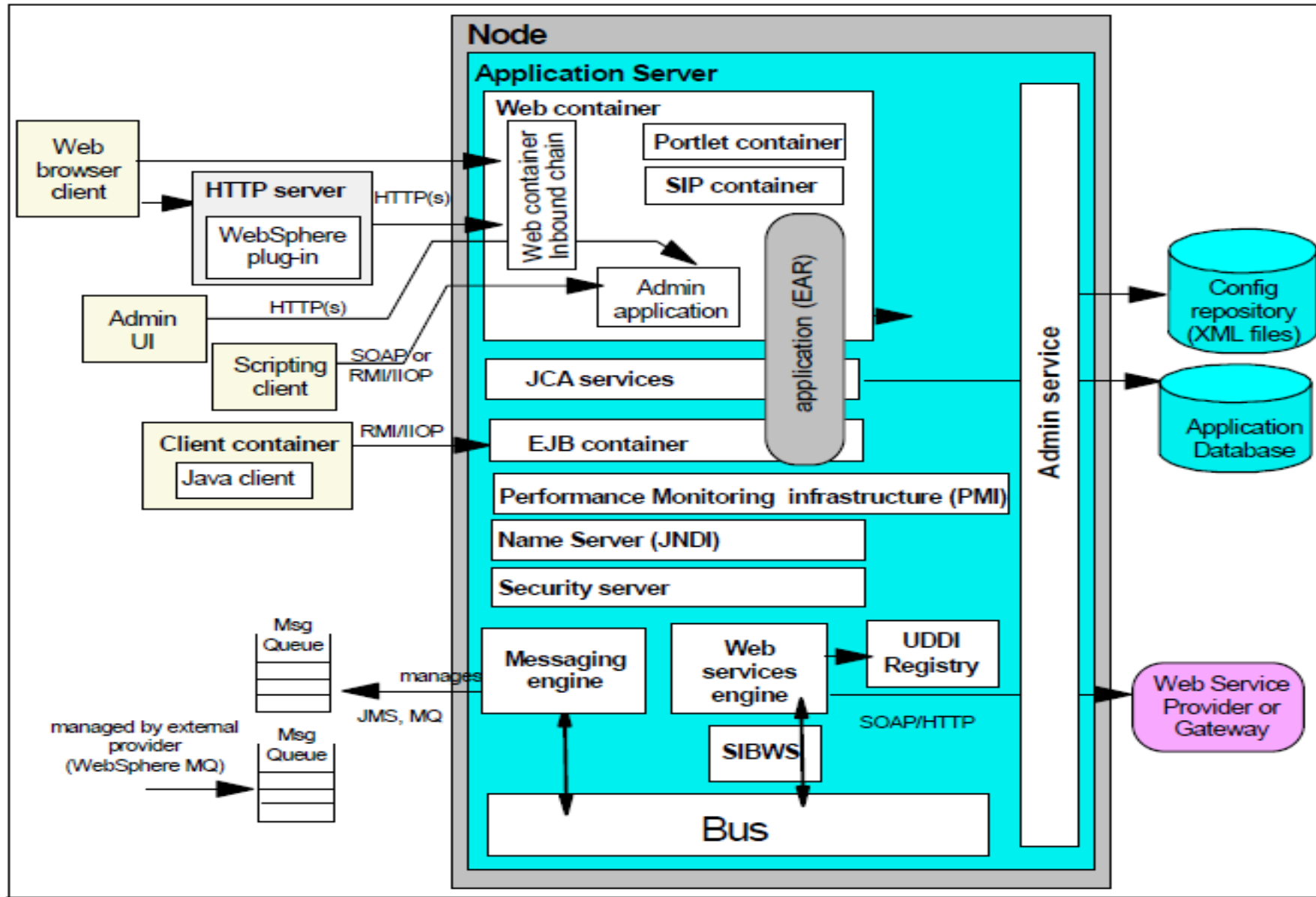
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### Lotus Quickr 8.1.x services for WebSphere Portal

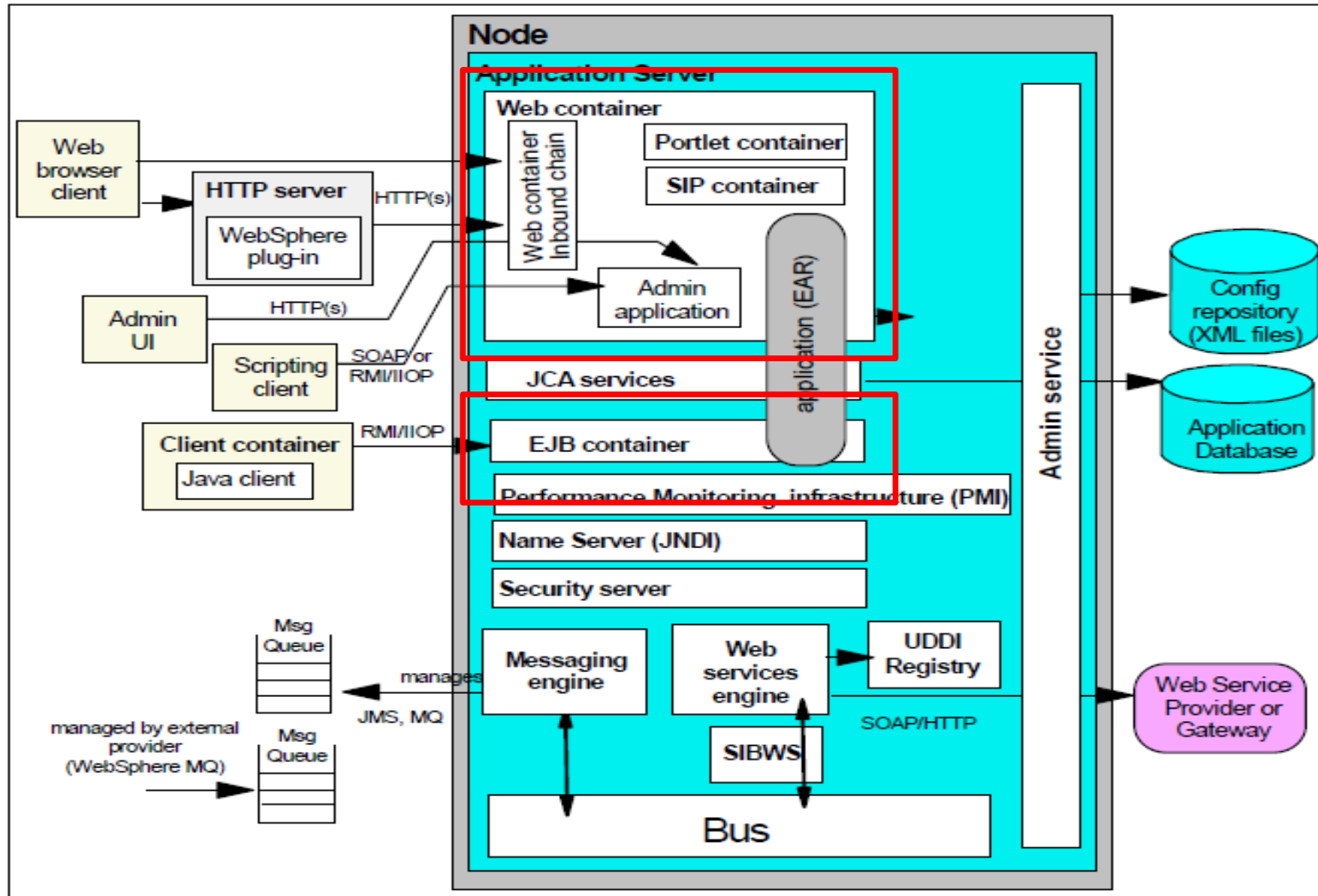
- As is true for Lotus Connections and WebSphere Portal, the ISC is also only used for certain troubleshooting or configuration tasks when working with Lotus Quickr. For example, when an administrator needs to troubleshoot an issue with the LTPA token, the WebSphere Application Server configuration settings may need to be changed using the ISC.



# So what's inside a WebSphere Application Server



# So what's inside a WebSphere Application Server



# Web Container

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- **Web Container = Domino Web Server (Just bigger and badder!)**
- Web container processes servlets, JSPs, and other types of server-side includes.
- Requests are received by the Web container through the Web container inbound transport chain.
- Although the Web container can serve static content, a more likely scenario is that you will use an external Web server to receive client requests and a Web server plug-in to forward requests for servlets to the Web container.
- **The Web Container is the component that most end users will have direct interaction. This piece has the most to do with running Connections.**



# Enterprise JavaBean (EJB) Container

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- EJB Container similar Domino IIOP Task in that it communicates over the RMI/ORB protocol.
- The Enterprise JavaBeans container provides all of the runtime services that are needed to deploy and manage enterprise beans.
- It is a server process that handles requests for both session and entity beans.
- The EJB Container handles mostly backend processes. In many cases applications running in the Web Container will store / retrieve information to / from beans running in the EJB Container.



# User Repository

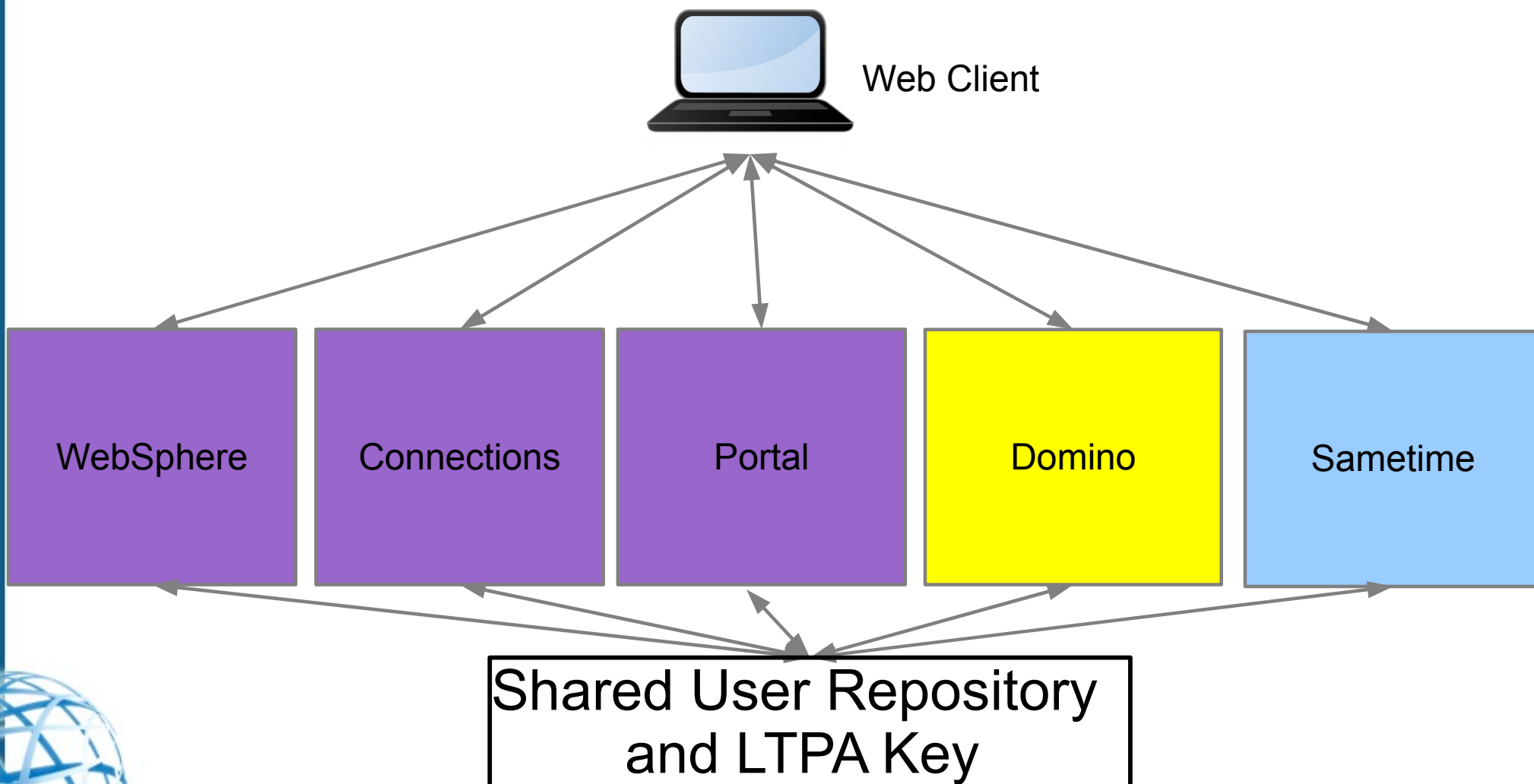
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- WebSphere does not have a built in user repository like Domino; therefore it will mainly be a consume of a LDAP directory.
- Federated repositories enables you to use multiple registry types together to form a single logical repository. **This should remind you of Domino Directory Assistance.**
- You can federate any of the registry types together, although configuring federated repository types from the administrative console is limited to LDAP and file-based registries.



# Seamless Integration with LTPA

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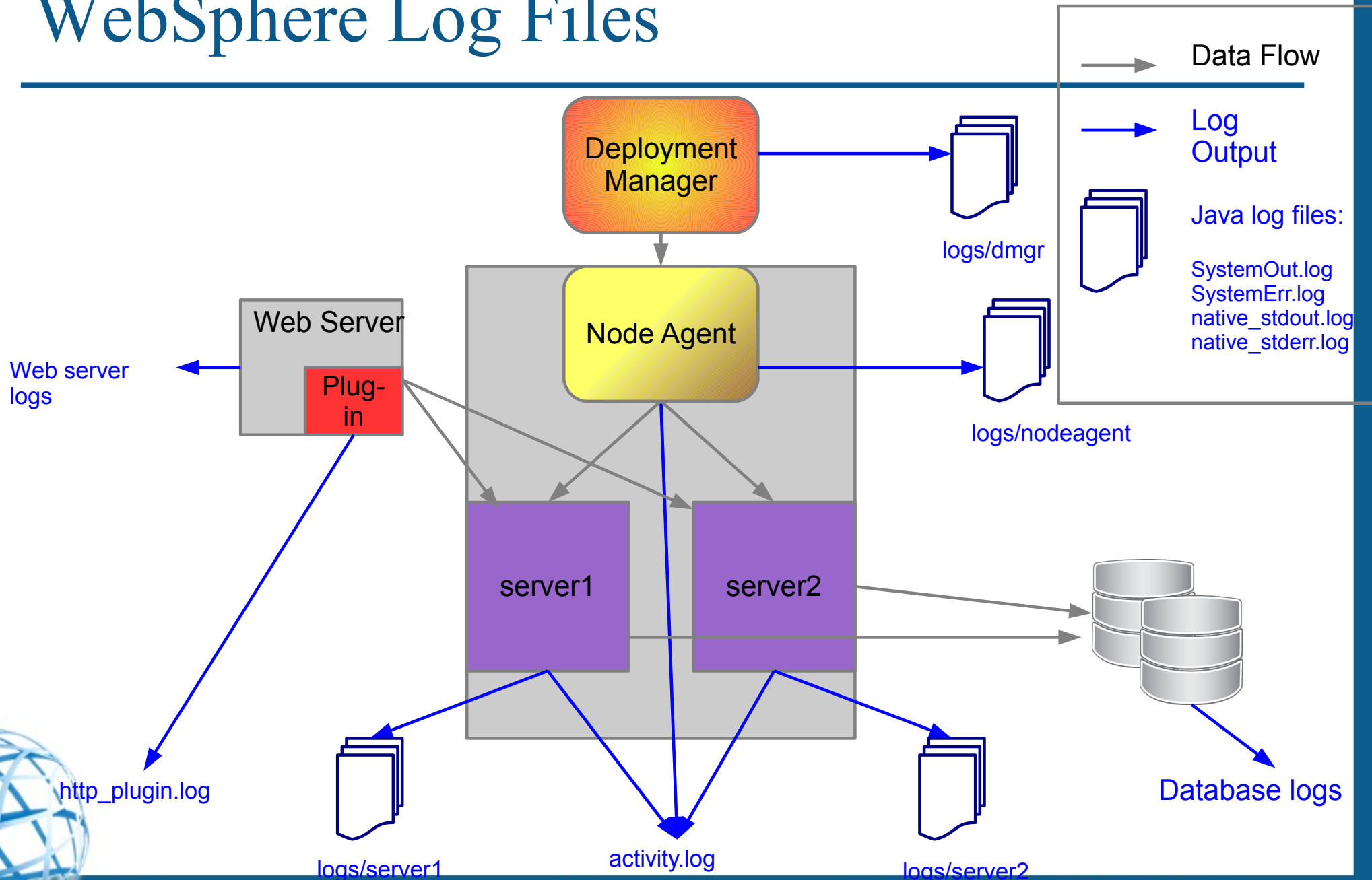
# Supported Database and JDBC Drivers

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- Supported Database and JDBC Drivers
  - List current list of supported databases and JDBC drivers for specific version of WebSphere can be found at:<http://www-1.ibm.com/support/docview.wss?rs=180&uid=swg27006921>
  - For a deep dive on JDBC please download the WebSphere Support Technical Exchange on Troubleshooting Database and Connection Pooling Problems - <http://www-01.ibm.com/support/docview.wss?rs=1045&uid=swg27009126>



# WebSphere Log Files



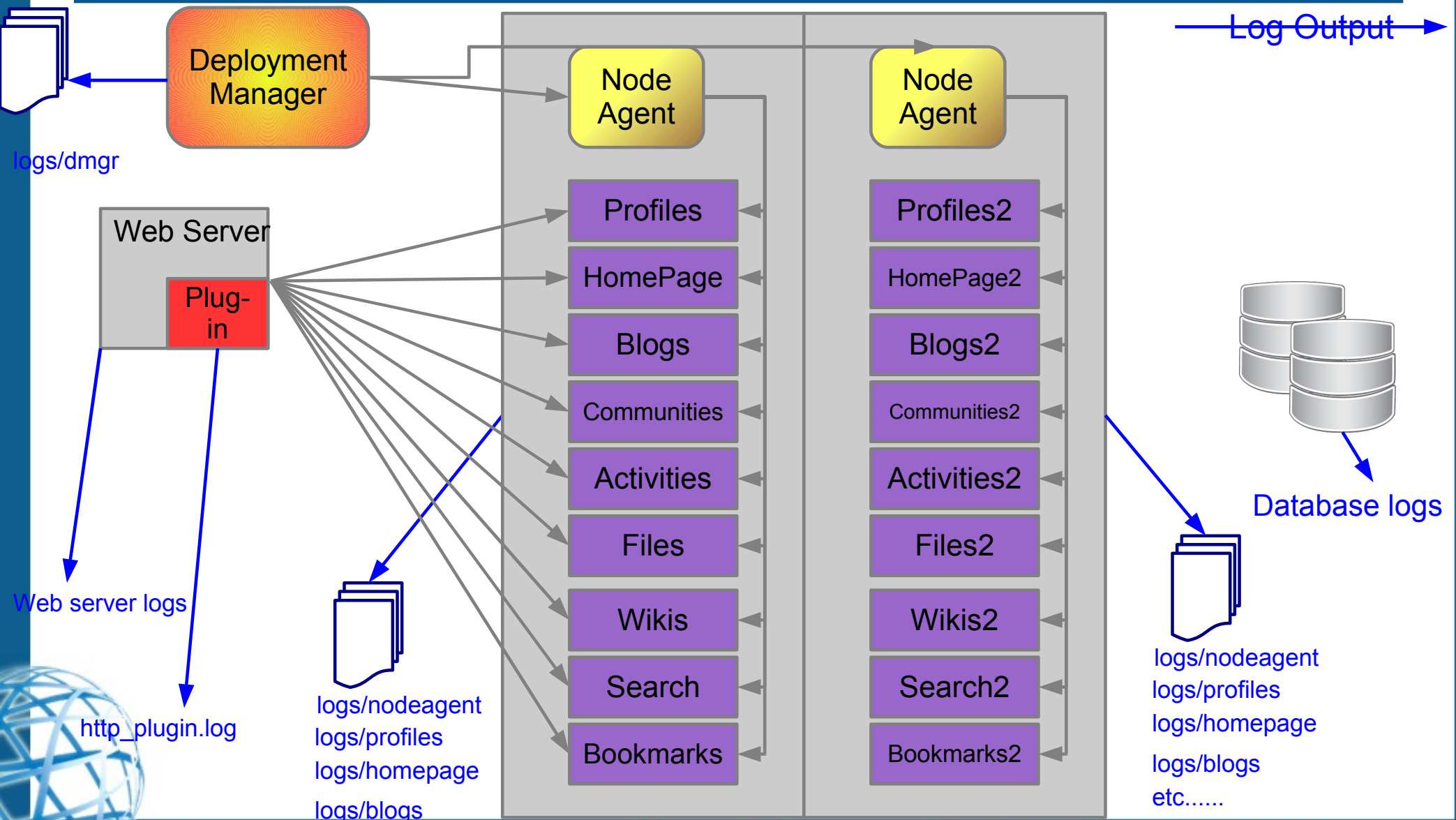
# Logging in a Connections Environment

— Data Flow —→

Node 1

Node 2

— Log Output —→



# WebSphere Educational Resources

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- IBM Education Assistant for WebSphere  
<http://publib.boulder.ibm.com/infocenter/ieduasst/v1r1m0/index.jsp>
- WebSphere Application Server V6.1 Problem Determination Guide -  
<http://www-01.ibm.com/support/docview.wss?uid=swg21418764>
- 1 hour course to demystify WebSphere Application Server for Lotus -  
[http://www-10.lotus.com/ldd/lqwiki.nsf/dx/1\\_hour\\_course\\_to\\_demystify\\_WebSphere\\_Application\\_Server\\_for\\_Lotus](http://www-10.lotus.com/ldd/lqwiki.nsf/dx/1_hour_course_to_demystify_WebSphere_Application_Server_for_Lotus)
- Overview of WebSphere Application Server terminology for Lotus Connections administrators - [http://www-10.lotus.com/ldd/lcwiki.nsf/dx/Overview\\_of\\_WebSphere\\_Application\\_Server\\_terminology\\_for\\_Lotus\\_Connections\\_administrators](http://www-10.lotus.com/ldd/lcwiki.nsf/dx/Overview_of_WebSphere_Application_Server_terminology_for_Lotus_Connections_administrators)





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