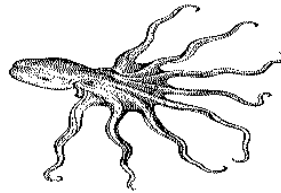




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WebSphere software

WebSphere V4.01 update



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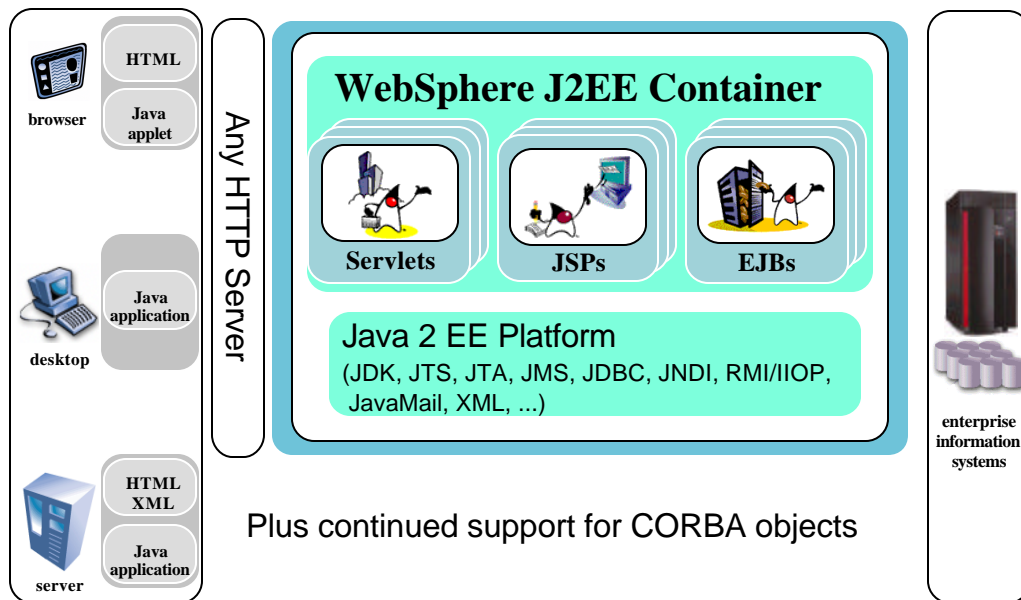
Objectives

- Overview
- Announcement, News, Hints
 - ▶ Configuration Option
 - ▶ HTTP Transport Handler
- Deployment Options
 - ▶ Possible Options
 - ▶ Workload Classification
- Application Migration Options
 - ▶ Configuration Option
 - ▶ WebContainer



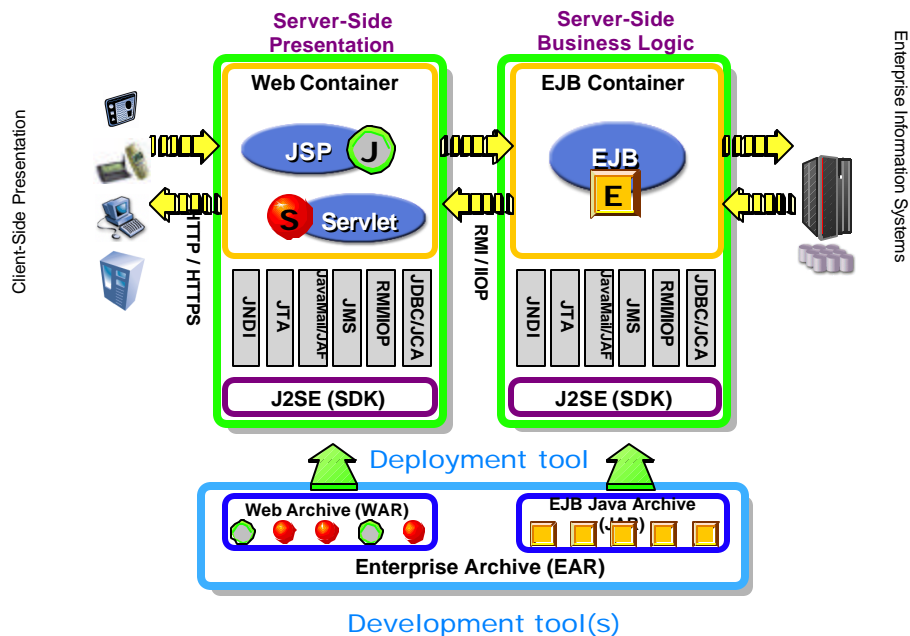
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WAS V4 for OS/390 and z/OS



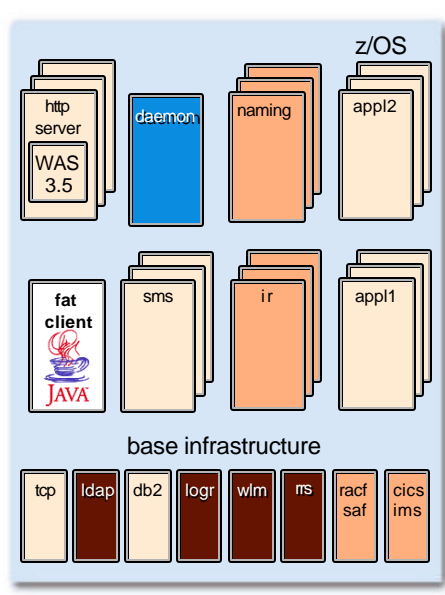
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J2EE architecture: server structure



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WAS/390 V4.0 System Structure



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Announcement News Hints

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Announcement



- ▶ WAS 4.01, announced 9/26 WAS 4.01, GA'd on 10/26 has completed the J2EE CTS (J2EE Compatibility Test Suite) which will very shortly be advertised on Sun's J2EE Compliance web page:
<http://java.sun.com/j2ee/compatibility.html>
 - ▶ A new configuration option offering more flexible implementation
 - ▶ Eliminates need for IBM HTTP Server for OS/390 in certain configurations, performance and deployment options within the new HTTP protocol handler
 - ▶ Java Messaging Service (JMS), JavaMail, and Client Container
 - ▶ Web services equivalent to those in the Version 4 distributed family of servers
 - ▶ Web services with SOAP and UDDI open standards support
 - ▶ Servlets, JavaServer Pages (JSPs)[™], and Enterprise JavaBeans (EJBs)[™] in compliance with J2EE specifications
 - ▶ Delivers our first implementation of Web Services technologies
 - ▶ Consistent with distributed WebSphere offerings



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J2EE APIs

Technology	Description	z/OS Delivery
Software Developer's Kit (SDK)	Java Virtual Machine base, with Java classes and basic routines required to execute Java applications. Java 2 Platform, Standard Edition (J2SE).	J2SE 1.3** V4
Servlets and Java Server Pages	Server applications that execute within a web application server that supports dynamic HTML generation.	Servlet 2.2, JSP 1.1 V4
Enterprise JavaBeans	Server transactional components that are reusable and provide portability across applications servers while implementing transaction services.	EJB 1.1 V4
Java Transaction Service / JTA	A distributed transaction management service and associated API based on CORBA's Object Transaction Service.	JTS/JTA 1.0 V4
Java Database Connectivity	JDBC database access API provides uniform access to relational databases such as DB2, Oracle, Sybase, and SQL Server.	JDBC 2.1 Core, 2.0 Ext DB2/390 V7
Java Messaging Service	JMS supports asynchronous communications using either a reliable queuing or publish/subscribe programming model.	JMS 1.0 V4.0.1, MQ, MQSI
Java Naming & Directory Interface	JNDI provides access to naming and directory services such as LDAP, Novell Directory Services, and CosNaming.	JNDI 1.2 V4
Remote Method Invocation / Internet Inter-ORB Protocol	RMI creates remote interfaces for Java-to-Java application communications. CORBA IIOP used for ORB (Object Request Broker) communications.	RMI-IIOP 1.0** V4
Java Interface Definition Language	Creates remote interfaces to support Java-to-CORBA application communications. Includes an IDL-to-Java compiler and an ORB.	JIDL V4
JavaMail	Provides a protocol-independent framework to build mail applications. Requires the JavaBeans Application Framework API.	JavaMail 1.1 V4.0.1
JavaBeans Application Framework	JAF provides standard services to determine the type of an arbitrary piece of data and activate an appropriate bean component to manipulate the data.	JAF 1.0 V4.0.1
Java Connectors	Provides schema mapping and persistence management to underlying procedural data systems -- including IMS, CICS, etc.	Beta*** for CICS & IMS Internet delivery



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The Configuration Option

WebSphere Application Server V4 for z/OS includes a new configuration option designed to provide even faster installation and time to productivity for customers who are not yet planning to utilize capabilities of the full Java programming model.

This option features minimum pre-requirements because it does not require the functions of LDAP, workload management goal or DB2 V7. (Please note that DB2 V5 is required.)

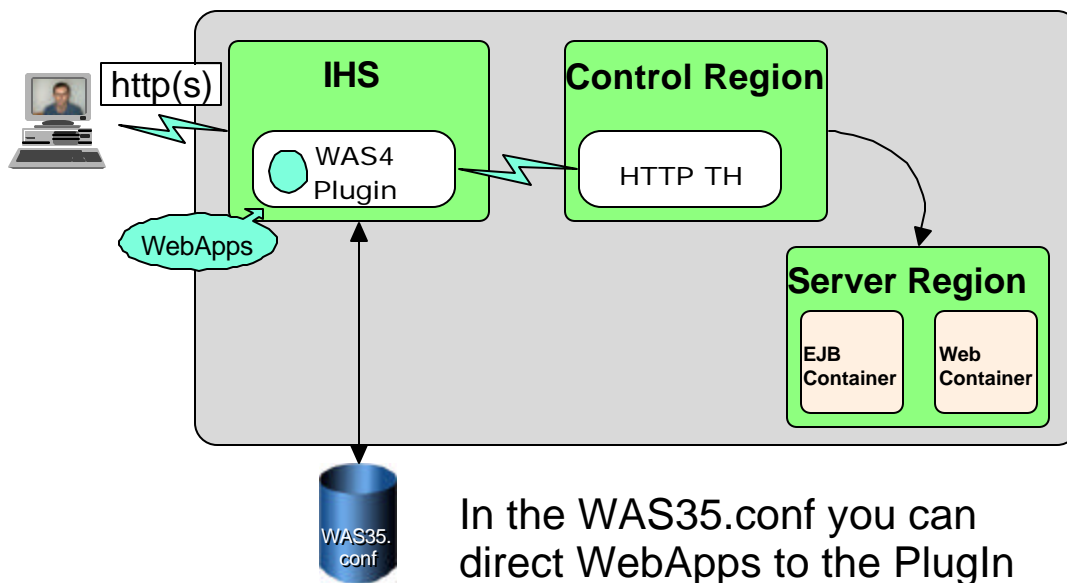
Customers can easily grow their applications to utilize the full transactional and administrative capabilities of the WebSphere for z/OS product when their business demands.

http://www-4.ibm.com/software/webservers/appserv/zos_os390/about.html



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The 'Configuration Option'



In the WAS35.conf you can direct WebApps to the Plugin or to the WebContainer



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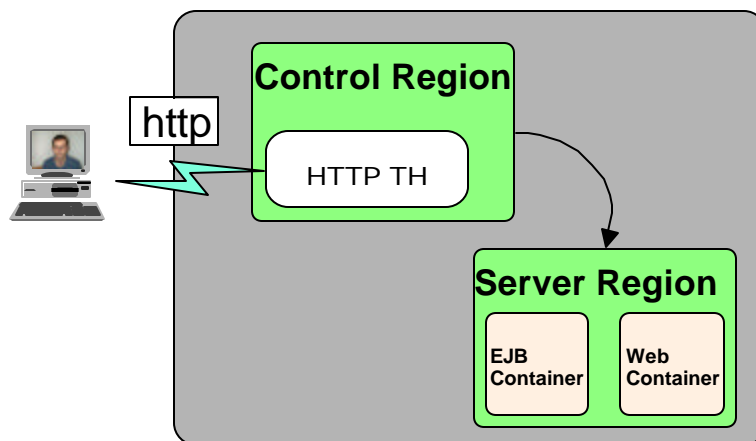
HTTP Transport Handler

- The HTTP Transport Handler currently does not support the following:
 - ▶ The authentication policy specified in your Web application's deployment descriptor. As an alternative, your security administrator can define a surrogate user ID under which all requests received will execute.
 - ▶ HTTPS. This limitation means that your installation cannot use SSL connections for inbound servlet requests.
- Documentation can be found in:
*WebSphere® Application Server V4.0.1 for z/OS and OS/390:
Assembling Java 2 Platform, Enterprise Edition (J2EE) Applications*



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The HTTP Transport Handler



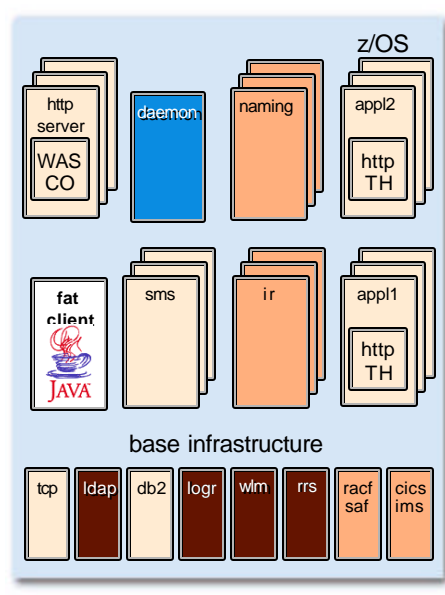
BBOC_HTTP_LISTEN_IP_ADDRESS=MyWebContainerIP
BBOC_HTTP_PORT=MyWebContainerPort

More than 3 million trade2 EJB-JDBC tx per
hour on 16 way zSeries



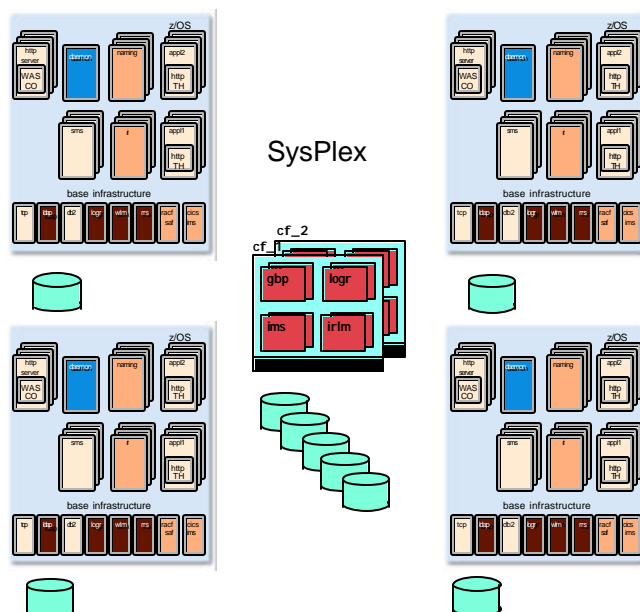
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The new WAS 4.01 System Structure



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WAS 390 Multi-System Structure



- Infrastructure
 - ▶ CFs
 - ▶ DB2 data sharing
 - ▶ IMS, CICS (VSAM) data sharing for replicated application servers.
- WAS/390
 - ▶ System servers replicated
 - ▶ Application servers may be replicated
 - ▶ Different WAS levels possible, not recommended today. PTF coming.
- Security
 - ▶ One RACF DB
- WLM based Workload Distribution:
 - ▶ Sysplex Distributor
 - ▶ WLM/DNS
 - ▶ Websphere Edge Server
 - ▶ Cisco MNLB

A WAS 'node' is a collection of WAS systems sharing work.



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WAS 4.01 Security Registry

The registry for WebSphere Application Server 4.01 on z/OS is SAF, which means RACF and similar products (ACF2, TopSecret).

While LDAP is used for an object directory (JNDI), it is today not available as a user registry.



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WAS 4.01 Installation Dialog

- There is a new installation dialog for WAS 4.01
 - PTF for WAS 4.0: PQ48858
 - DB2 database... create DB, binds, grants
 - WebSphere/LDAP ... directory services
 - HFS roots ... JDK home, ldap home, DB2 home, jdbc properties, ...
 - RACF administration ... groups, userids, permission, ...
 - PROCLIB updates ... Daemon, SM, naming, IR, server PROCs
 - PARMLIB updates ... IPCS, PROGxx for APF/Inklst
 - HFS files ... initial ENV file, shell scripts, ldap files
 - MSG data set updates (SYS1.MSGENU, SYS1.JPN)
 - Relevant logger, RRS, and TCP/IP data.
 - WebSphere IVP



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Deployment Options Workload Management

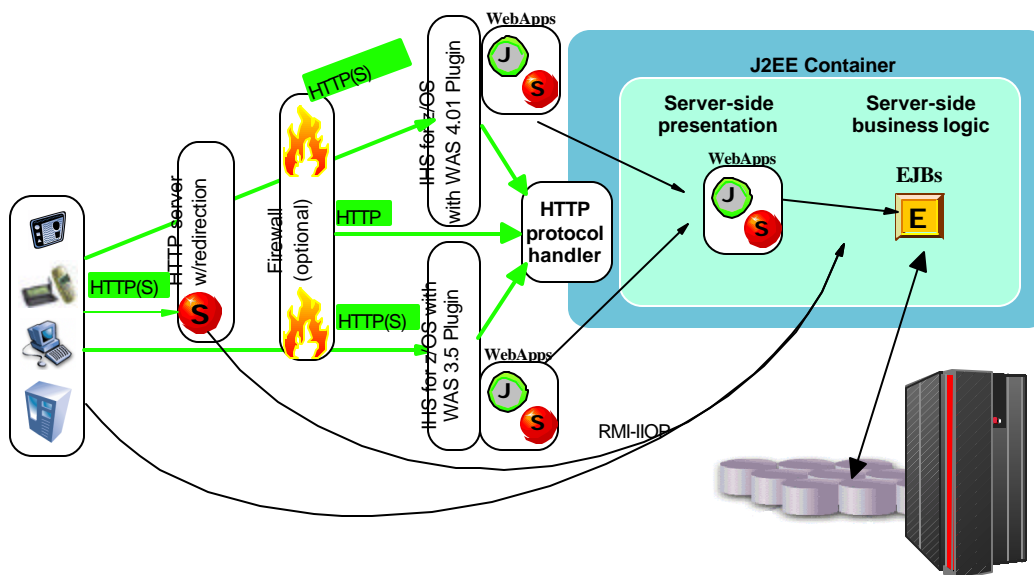
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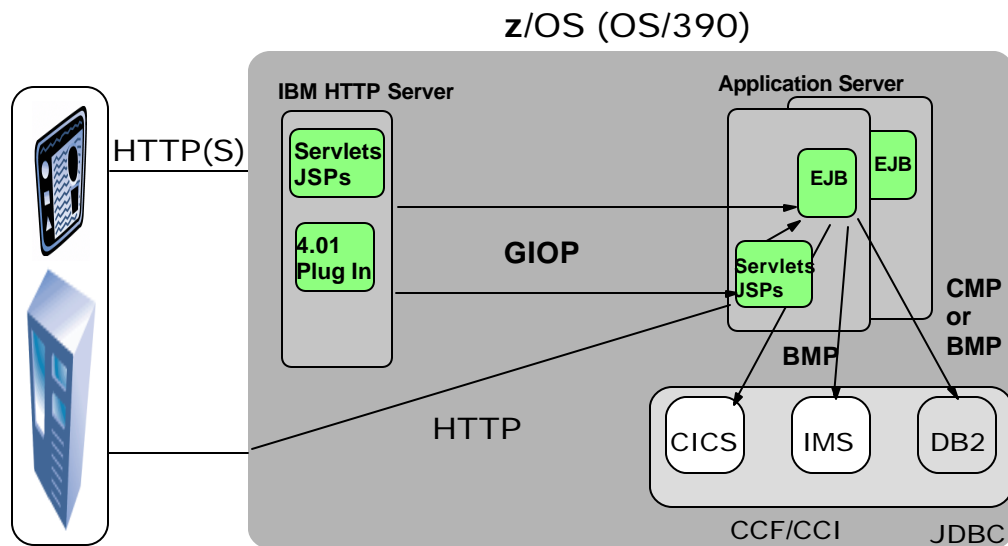


WAS V4.01 for z/OS topologies



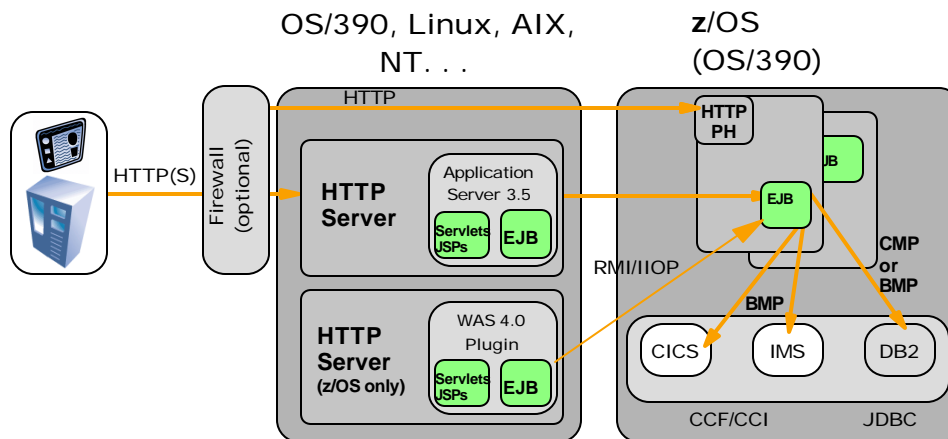
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WAS 4.01 Scenario Incoming http 2 EJB



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WAS 4.01 Scenario Classical 3 tier



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WLM Topics (still work in progress)

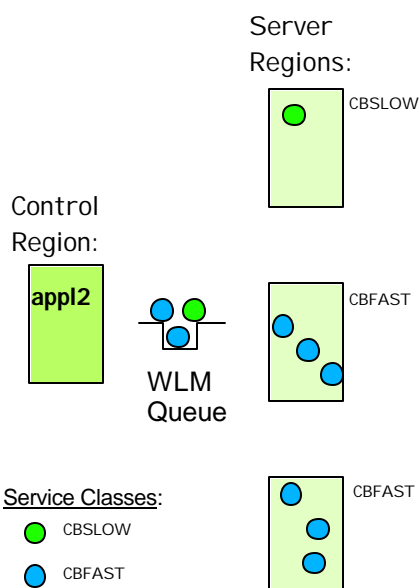
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Transaction Classification and Distribution CB rules

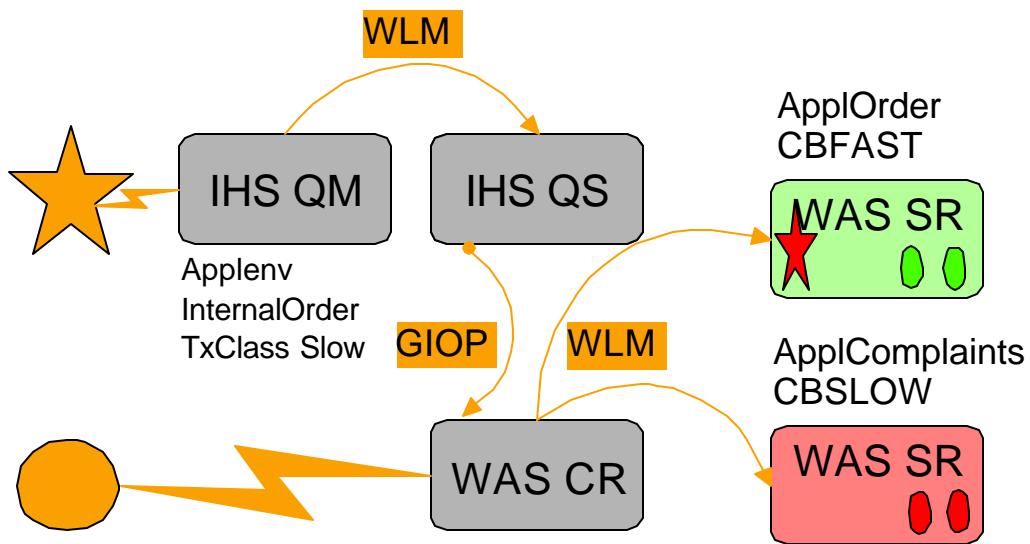


- WAS390 work is type: "CB"
- Control region classifies work by:
 - ▶ Server name
 - ▶ Userid
- Server regions process work queued by WLM
 - ▶ Application environments defined to WLM
 - ▶ Number of tasks depends on server configuration.
 - ▶ All work in a particular server address space is in same service class.
 - ▶ WLM starts & stops server address spaces as needed (and allowed).
- Workload classified using IWEB (IHS scalable) can run eg **FAST** in a **CBSLOW** region



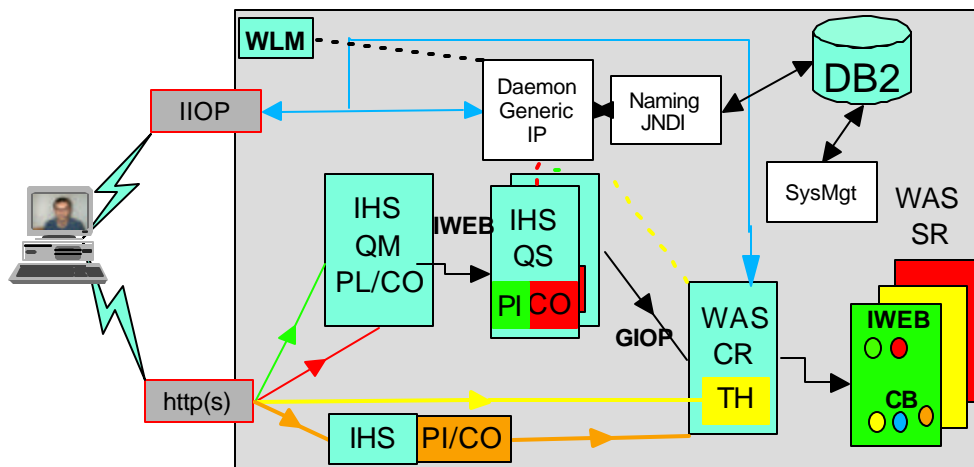
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CB & IWEB



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Single System Workload Classification



PI IHS WAS 4.01 PLUGIN
CO Configuration Option within Plugin
TH HTTP Transport Handler in Control Region



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[illegible]

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General:

IP traffic comes into the Sysplex. Using Sysplex Distributer, (active) SD will use WLM and Pagent to find the most appropriate target system for the request. OSA will prioritize IP traffic according to PAGENT rules.

An EJB application (external IIOP request from distributed or a local servlet/WebApp) request has to ask Daemon/Naming to find the appropriate Service (EJBHome). It will be directed by the daemon to an available application server, a local instance of WAS would be preferred.

If the request was local initiated (servlet, webapp) and gets directed to an local WAS instance it will use GIOP (General Inter-ORB Protocol).

All distributed requests uses IIOP, the client will ask z/OS namespace for EJB. JNDI returns indirect IOR (generic IP name for sysplex, DAEMON IP NAME, RESOLVE IP NAME).

After that the client asks (balancend via sysplex distributor / port 5555) the daemon for direct IOR.

Daemon checks WLM and returns direkte IOR (IP address of the OS Image running the applications server for that EJB)

Client can now adress the request to the appropriate application server control region, which will put it on a WLM-Q to be finished by the server region. will be honored in the WAS server region.



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Read again at /usr/home... Part 2

HTTP requests:

Orange, two flavours:

- IHS in standalone mode using the WAS 4.0 plugin.

No classification in IHS, will find use the default classification for the server region, is defined in CB rules (Type CN, Name). The plugin will do JNDI lookup, the orange dotted line was omitted for readability.

- IHS in standalone mode using the migration option. Only for WebApps, clients for EJB applications, will talk IIOP, classification using CB rules in WAS CR

Green, IHS in scalable mode using WAS 4.0 plugin. Workload will be classified to IWEB using Applenv configuration statements in IHS, the resulting QueueServer in charge will do lookup. When the request arrives at WAS the control region will honor the IWEB classification (that must be transported anyhow using GIOP/IIOP) and the ServerRegion will serve the request accordingly.

Red: IHS in scalable mode using WAS 4.0 plugin as the migration option. WebApplication will run in a 'WAS 3.5'-like environment. Can be only client to an EJB. IWEB classification will be honored in the WAS server region.

Yellow, http (no https) comes into the WAS CR, CB rules apply. WAS CR does all the lookups.

Not covered: client runs in a WebContainer (stateless session bean) within WAS 4.0

Not covered: client runs as a WebApp within WAS 3.5 or WAS 4.0 PlugIn



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Appendix EJB Lookup & Daemon

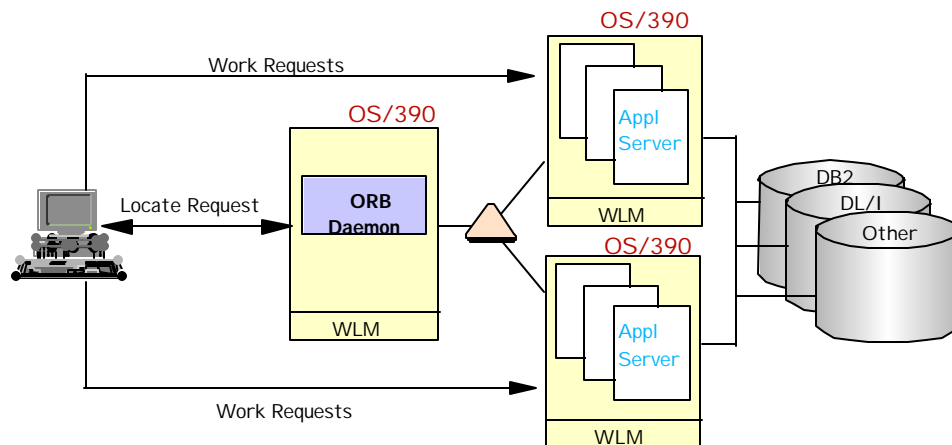
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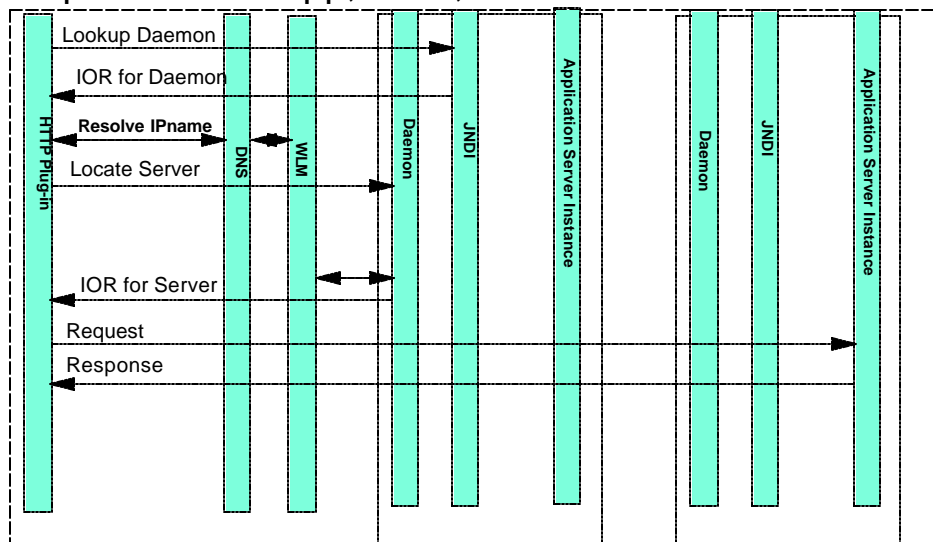


EJB Lookup & Daemon



Detail of WAS 4.0 invocation

...request for webapp, bean, servlet...



...Servlet invokes EJB

