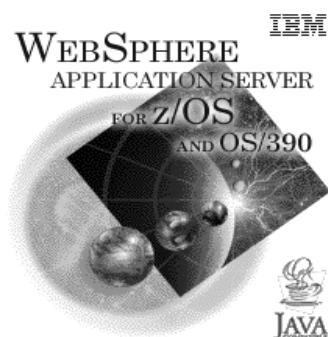


WebSphere for z/OS

Overview



Agenda

- **Understand WebSphere for z/OS System Structure**
 - ▶ Infrastructure Requirements
 - ▶ WebSphere for z/OS Servers
 - ▶ Lab Environment - OS/390 System & Workstations
- **Discovery Lab**

Hardware Prerequisites

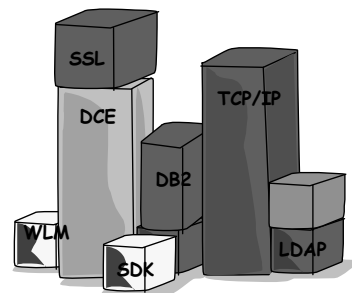
■ WebSphere for z/OS requires:

- ▶ Processors that support OS/390 V2R8
 - zSeries, Multiprise, 9672 G2 and up
- ▶ Strongly recommended:
 - IEEE floating point hardware
 - G5 or later
- ▶ IP network attachment
 - for connectivity to servers



Software Prerequisites

- ▶ OS/390 R8 or higher (R10 or z/OS recommended), including:
 - Security Server (RACF or equivalent)
 - TCP/IP
 - LDAP server
 - FTP server
 - UNIX System Services with HFS
 - RRS
 - System Logger
 - WLM Goal Mode
 - Language Environment (LE)
 - IBM Java 2 SDK 1.3 or higher
- ▶ **DB2 Version 7.1**
 - JDBC V.2 driver



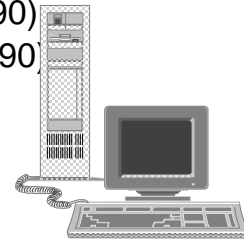
Workstation Recommendations

■ Hardware: the faster & bigger, the better!

- ▶ Intel Pentium II Processor 400 Mhz or faster
- ▶ Memory: 512 Mb RAM, or more
- ▶ Disk: 10-20 Gb
- ▶ Display: 1024 x 768, Mouse, Keyboard...

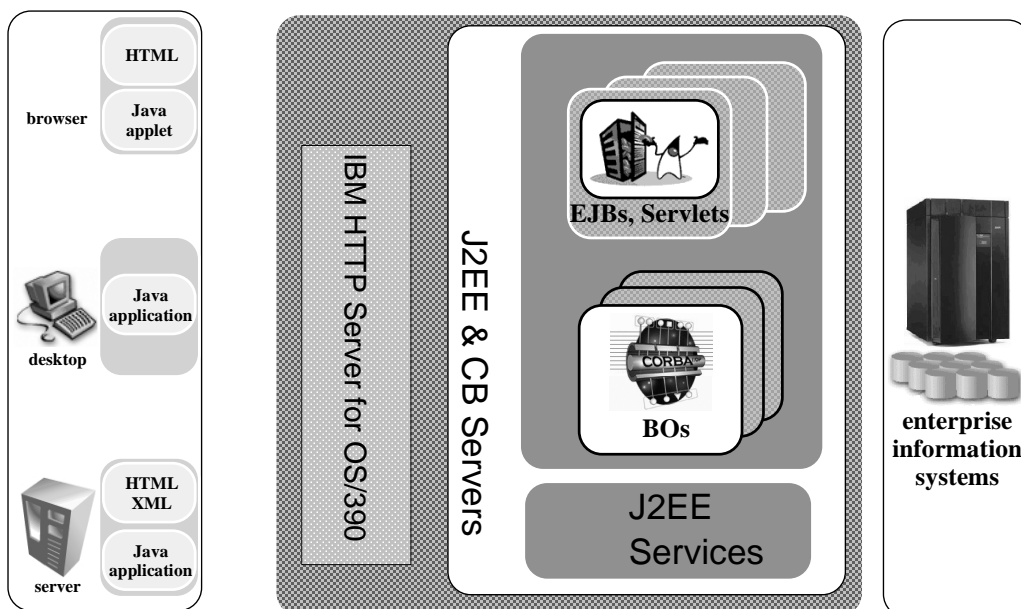
■ Software:

- ▶ Windows NT4 (SP4), or Windows 2000
- ▶ TCP/IP for communications
- ▶ Web Browser: Netscape Navigator 4.7, or Internet Explorer 5.0
- ▶ JRE 1.3 (IBM SDK 1.3 included with most packages)
- ▶ Application Assembly Tool (delivered with WAS/390)
- ▶ Systems Management EUI (delivered with WAS/390)



WebSphere for z/OS

"WebSphere Application Server v 4.01 for z/OS and OS/390"



Connector Support



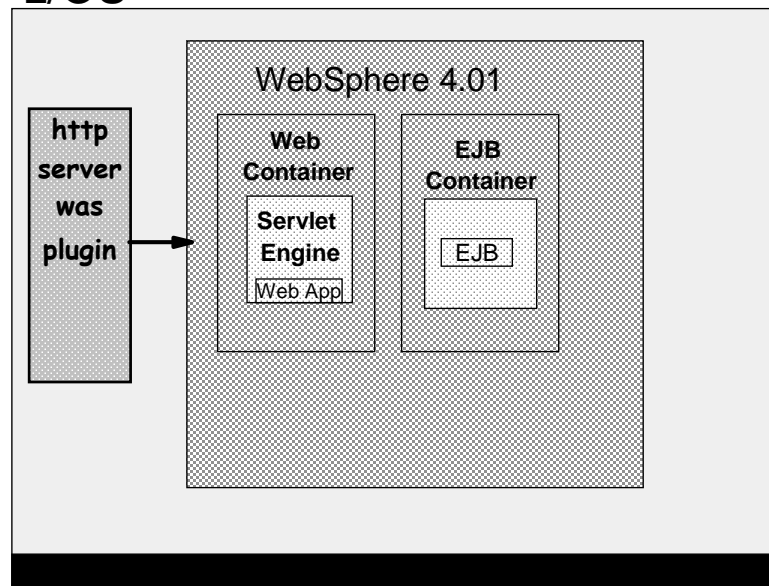
Here are the software requirements to connect J2EE applications to relational data base and transactional subsystems using WebSphere V4.01 for z/OS.

Connection	Product	Tooling	Subsystem level
DB2 - JDBC	JDBC 2.0	VAJ 3.5.3	DB2 7.1
CICS - EXCI	CTG 4.02	VAJ 4.0	CICS TS 1.3
IMS Connect	IMS Connector 1.2.2	VAJ 4.0	IMS V6.1
MQSeries (JMS)	MQ Connector	VAJ 4.0	WebSphere MQ MQ Series 5.2

- You can still use other connections such as CCF from a servlet, but they are not managed within the scope of the J2EE transaction.

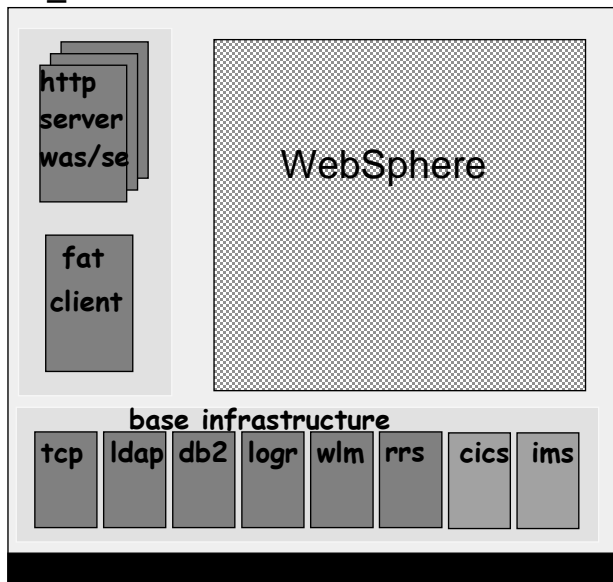
WebSphere Run Time

z/OS



System Infrastructure

mvs_a



■ Infrastructure

- ▶ LDAP
- ▶ DB2
- ▶ WLM goal mode
- ▶ RRS (LOGR)
- ▶ TCPIP

■ WAS 390

■ Supporting Transaction Mgrs

- ▶ CICS TS 1.3
 - Must be local to WAS
- ▶ IMS 6.1
 - Local or Remote
- ▶ MQSeries 5.2

■ Users - local

- ▶ fat C++ clients
- ▶ Servlets / JAVA clients

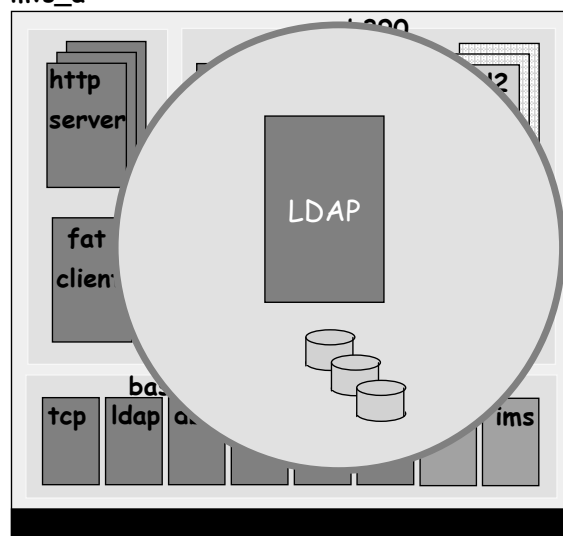
■ Users - remote (not shown)

■ Security

- ▶ RACF

Why LDAP?

mvs_a



■ LDAP used for WAS Naming & JNDI

- ▶ LDAP server is needed
- ▶ JNDI access J2EE servers

■ Keep Name Space for JNDI Separate from corporate LDAP

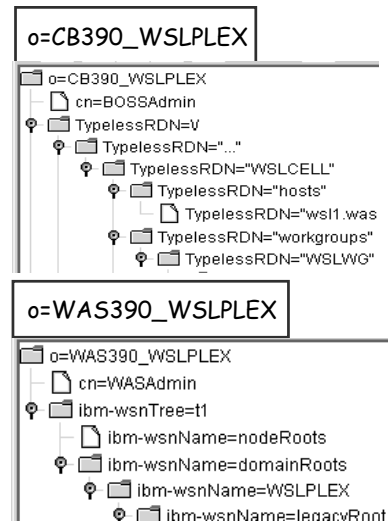
LDAP Structure

■ LDAP Directories organized in "Trees"

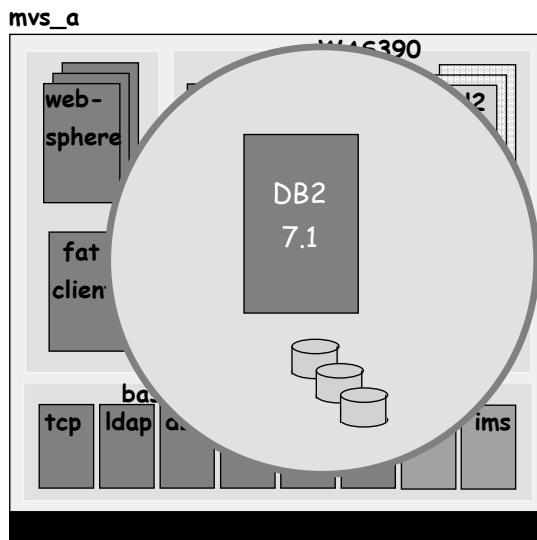
- Top of (inverted) tree is "Root Node" or "Naming Context"
- e.g., o=IBM,c=US,ou=WSC

■ WebSphere Namespace has two "Trees":

- ▶ COSNaming for CORBA servers
 - Default: o=BOSS, c=US
 - Our system: o=CB390_WSLPLEX
- ▶ WsnName tree for J2EE components
 - Default: o=WASNaming, c=US
 - Our system: o=WAS390_WSLPLEX



Why DB2 7.1?



■ DB2 7.1 Required for:

- ▶ WAS 390 Configuration and State data (90+ tables)
- ▶ LDAP data
- ▶ RRS enabled

■ JDBC 2.0 driver

- ▶ J2EE containers
- ▶ Local Trans for JTA

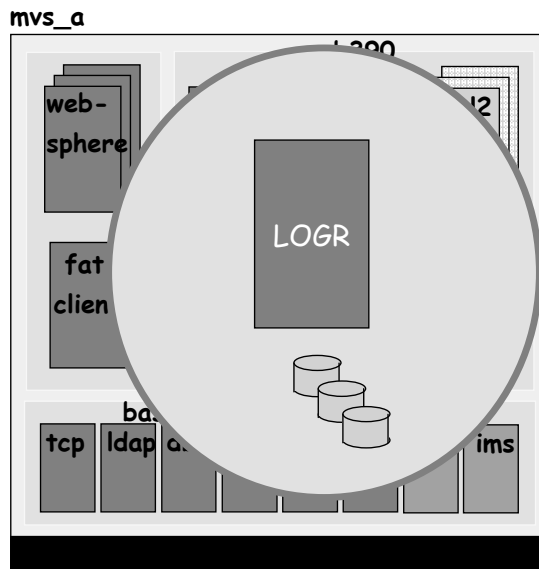
■ DB2 also backs:

- ▶ Session state for JSPs & servlets

■ Multiple DB2 subsystems allowed in a system.

- ▶ Your data need not be converted to DB2 7.1
 - data sharing
 - DDF

Why LOGR?



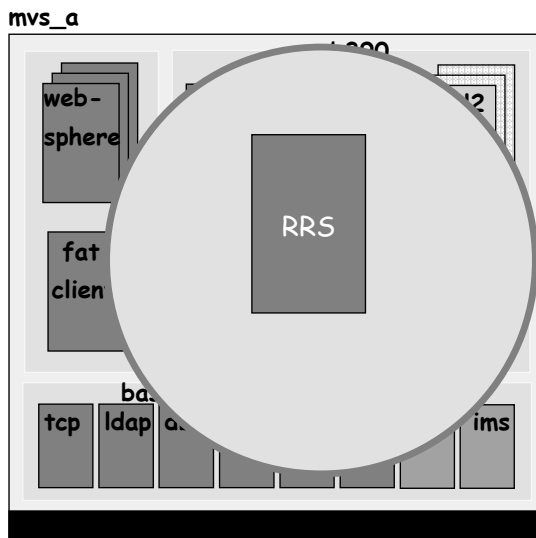
■ LOGR services required for merged logstreams

- ▶ WebSphere
- ▶ RRS
- ▶ RRSAF to DB2
- ▶ (CICS, IMS, etc.)

■ DASD vs. Coupling Facility:

- ▶ DASD okay for sandbox & monoplex
- ▶ CF required for:
 - Best performance
 - Multi-system logs

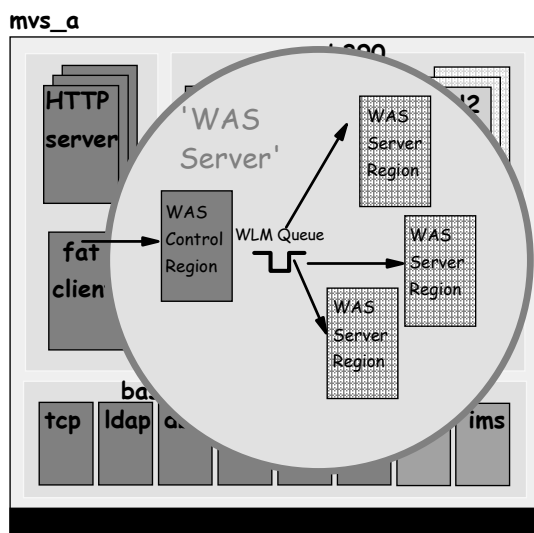
Why RRS?



■ Required for 2-phase commit:

- ▶ Supports multiple resource managers:
 - WebSphere, DB2, IMS,
 - CICS, APPC, MQ

Why WLM Goal Mode?



■ Control Region

- ▶ Receives request
- ▶ Classifies request
- ▶ Queues Request

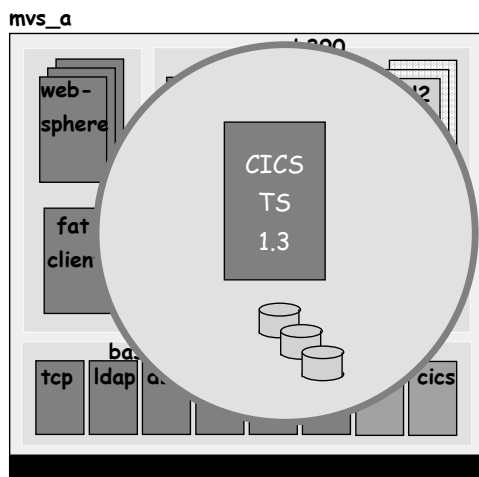
■ WLM

- ▶ Manages queued requests
- ▶ Starts/stops Server Regions as necessary
- ▶ Monitors system resources
- ▶ Manages to installation goals

■ Server Region

- ▶ Selects work for given Service Class
- ▶ Application code executes here.

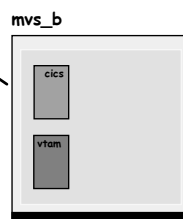
Access to CICS resources



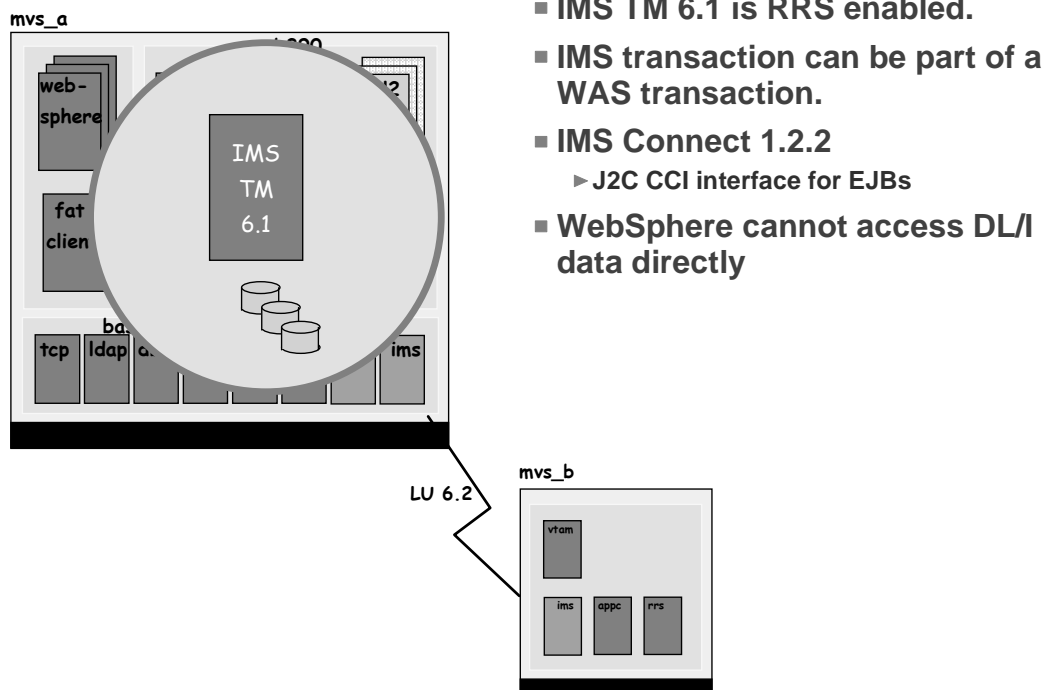
- CICS TS 1.3 is RRS enabled.
- CICS TS 1.3 required on each image running WAS
- CICS transaction can be part of a WAS transaction.

■ Access to a Remote CICS:

- ▶ Local CICS with target CICS defined as remote
- ▶ Connectivity between the two systems
 - ISC (SNA) if both systems are not in the sysplex
 - XCF/MRO if both systems in the same sysplex



Access to IMS resources

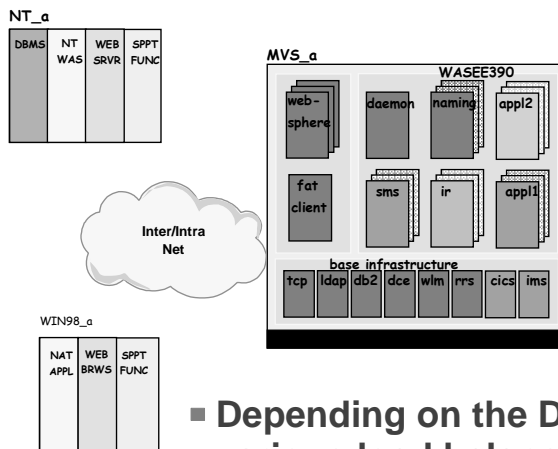


- **IMS TM 6.1 is RRS enabled.**
- **IMS transaction can be part of a WAS transaction.**
- **IMS Connect 1.2.2**
 - ▶ J2C CCI interface for EJBs
- **WebSphere cannot access DL/I data directly**

MQSeries

- **MQSeries V5.2 used to support JMS**
- **Java Messaging Service (JMS) is a standard API for messaging that supports reliable point-to-point messaging.**

TCP/IP Requirement



- **WebSphere supports multiple TCP/IP stacks**
 - ▶ Allow sessions from any stack
 - ▶ Bind to a specific stack
- **WebSphere supports generic IP name registration with WLM**
 - ▶ Can be used with DNS/WLM
- **Clients must have a way of finding the WebSphere for z/OS system.**
- **Depending on the DNS/host file structure various load balancing options can be used:**
 - ▶ DNS/WLM
 - ▶ Sysplex Distributor (Rel. 10)
 - ▶ Network Dispatcher, CISCO/MNLB, WebSphere Edge Server
 - ▶ Round Robin DNS

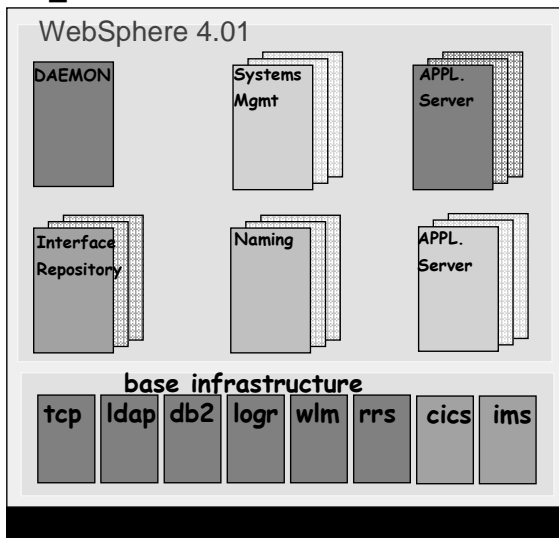
Ports Used By WebSphere



- **Daemon uses semi-well known port 5555 (default)**
 - ▶ Once chosen it is forever
 - ▶ Fence off to prevent other address spaces from acquiring
 - ▶ In multi-system environment, specify each daemon id
 - ▶ SSL port for Daemon default = 5556
- **Systems management uses well known port 900**
 - ▶ Registered - no other address space should obtain the port
 - ▶ Define in TCPIP Profile to prevent other servers from using.
- **LDAP server**
 - ▶ Default LDAP port: 389
 - ▶ We use port 1389

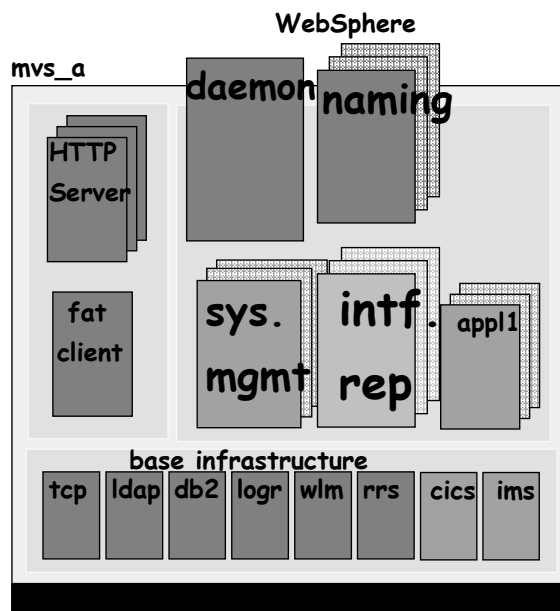
WebSphere Structure

mvs_a



- ▶ Consists of four system servers
- ▶ Any number of application servers
- ▶ Each server consists of:
 - 1 control region
 - multiple server regions (except for the DAEMON)

WebSphere "System Servers"



- **Daemon**
 - ▶ WASDMN
 - ▶ Started first, it then starts SMS, Naming, & IR
 - ▶ Initial contact point
- **Systems Management**
 - ▶ WASSMS
 - ▶ Manages configuration data
- **Naming**
 - ▶ WASNM
 - ▶ Provides names for object references
- **IR**
 - ▶ WASIR
 - ▶ Interface Repository

Application Servers

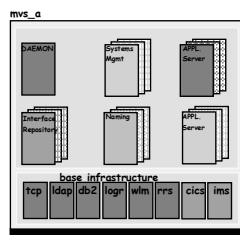
■ Server - Set of applications and their resource associations

- ▶ workload managed using an "Application Environment" whose name is the same as the server name
- ▶ May be replicated
- ▶ Server properties include
 - UserID definitions for Control and Server regions
 - Started Proc name for the Control region
 - Security requirements
 - Environment variables

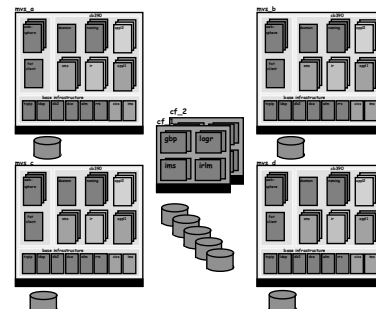
WebSphere Node

A 'WebSphere node' is:

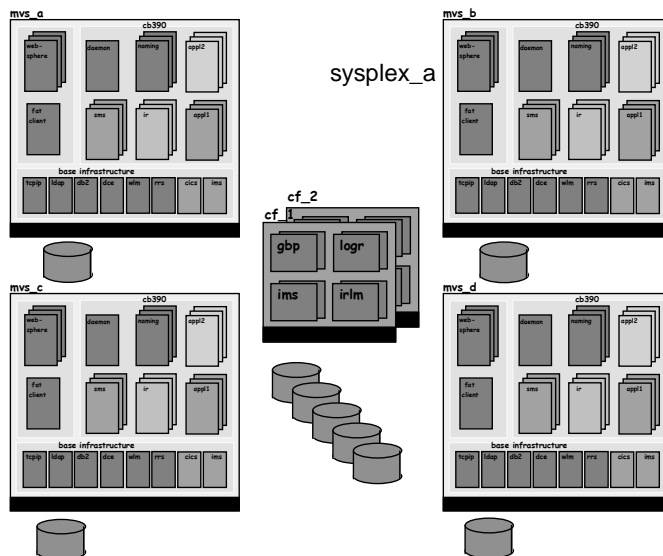
- a single system (Monoplex) running WebSphere or a collection of WebSphere systems in a SYSPLEX sharing work
- a single administrative domain
 - one HFS and one set of DB2 tables containing configuration information
- a single logical endpoint from the clients perspective
- managed as one environment by WLM



OR



Multi-System Structure



■ Infrastructure

- ▶ CFS
- ▶ DB2 data sharing
- ▶ IMS, CICS (VSAM) data sharing for replicated application servers.
- ▶ TCPIP DNS or Network Dispatcher

■ WAS 390

- ▶ System servers replicated
- ▶ Application servers may be replicated.

■ Supporting Transaction Mgrs

- ▶ CICS Must have a local instance
- ▶ IMS Connect local client

■ Security

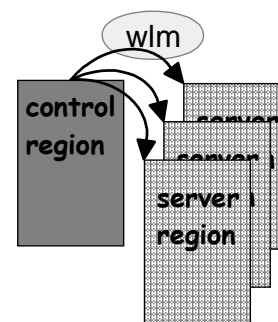
- ▶ One RACF DB

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

Server Instances

■ Server Instance - a functional unit that actually runs server & application code on a system.

- ▶ Consists a *control region* and its' associated *server regions*
 - multiple instances are simply replicas (additional sets of control region and server regions) running the same set of applications and having the same properties
 - Server instances within a server are identical, properties and applications are defined at the server level
 - each instance must have a unique name defined using SMS EUI
 - server instances can reside on the same z/OS system or on different z/OS systems within the SYSPLEX.

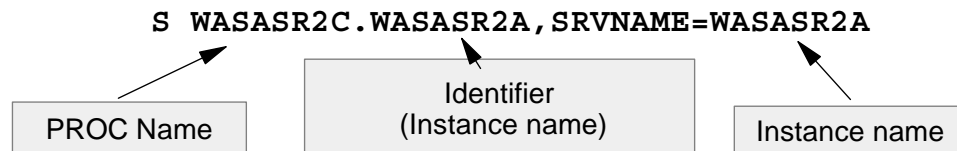


Server Instances (continued)

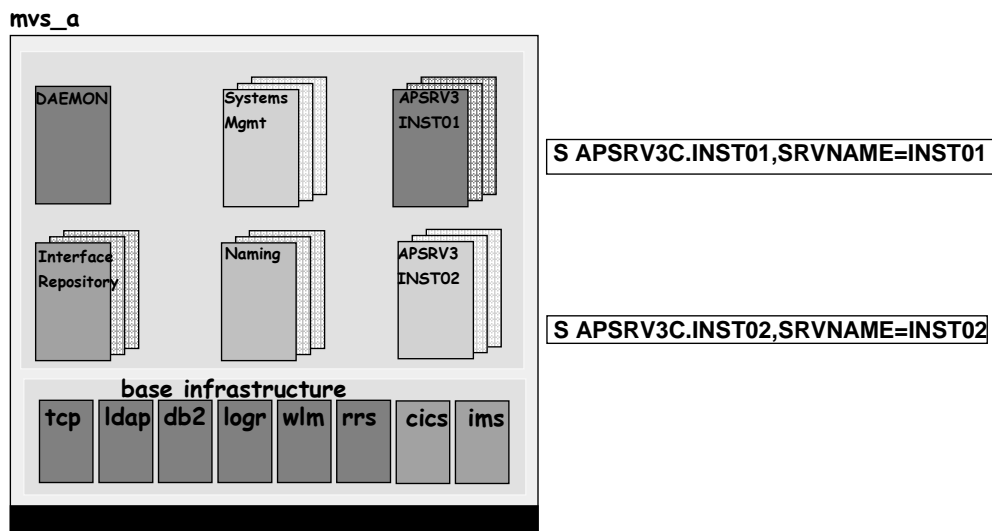
- **Server Instances are started using the control region PROC, name defined in the Server Properties.**
 - ▶ The instance name must be specified on the start command using the symbolic parameter

SRVNAME=

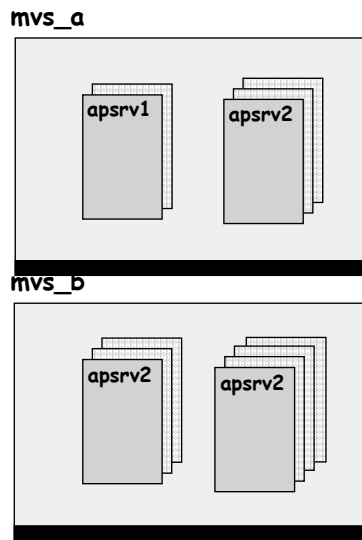
- ▶ You should also specify an identifier (instance name) on the start command



Servers and Server Instances



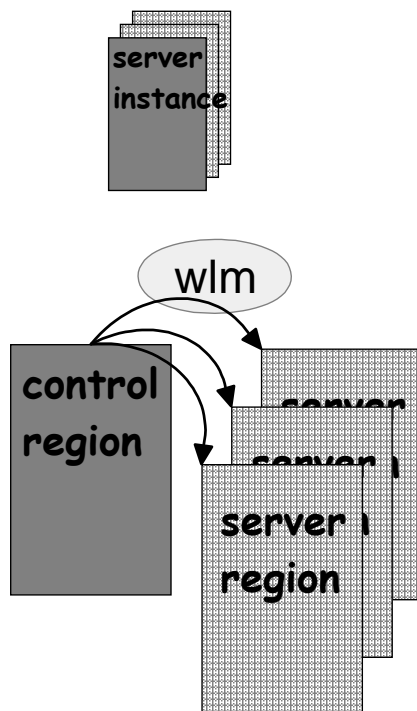
Replicated Servers



- **Application Servers**
 - ▶ Replicated as multiple "Server Instances"
 - ▶ On one system, or on multiple systems
 - ▶ Provides availability and scale
- **Each Server Instance has:**
 - ▶ a single Control Region, and
 - ▶ one or more Server Regions
- **WLM controls the # of Server Regions**
 - ▶ Can be limited by installation.
 - ▶ Can isolate transactions by server region
 - ▶ WLM segregates work based upon service requirements

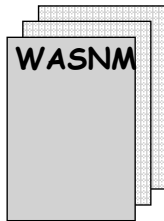
→ Replicated server instances allow workload balancing across a sysplex
 → clients address them as a single server

WebSphere Server Instance Structure



- **Server Instance**
 - ▶ Control Region
 - ▶ zero, one, or many Server Regions
- **Control Region**
 - ▶ Trusted/Authorized/Integrity
 - ▶ No Application Code
 - ▶ Communications Endpoint
 - ▶ Workload Classification and Routing
- **Server Region**
 - ▶ Transaction/User Isolation
 - ▶ Application Code
 - ▶ Backend Data Attachments
 - ▶ Started and Managed by WLM

WLM Application Environments



- Application Environments are the WLM mechanism for handling each WAS/390 server (application and infrastructure).

- ▶ Server Proc name specified to WLM
- ▶ IWMSSNM value used for server region to know which server instance it attaches

Application Environment name = Server name

```

Application-Environment  Notes  Options  Help
-----
                                Modify an Application Environment

Command ===> _____

Application Environment Name . : WASNM
Description . . . . . Naming Server
Subsystem Type . . . . . CB
Procedure Name . . . . . WASNMS
Start Parameters . . . . . IWMSSNM=&IWMSSNM

Limit on starting server address spaces for a subsystem instance:
1  1. No limit
   2. Single address space per system
   3. Single address space per sysplex
  
```

Control & Server Region Procs...

■ Control Region Proc:

```

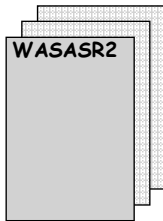
//WASNMC PROC SRVNAME='NAMING01',PARMS='',
//      CBCONFIG='/WebSphere390/WAS401'
//  SET RELPATH='controlinfo/envfile'
//WASNMC EXEC PGM=BBOCTL,REGION=0M,
//  PARM='/ -ORBsrvname &SRVNAME &PARMS'
//BBOENV DD PATH='&CBCONFIG/&RELPATH/&SYSPLEX/&SRVNAME/current.env'
//CEEDUMP DD SYSOUT=*,SPIN=UNALLOC,FREE=CLOSE
//SYSOUT DD SYSOUT=*,SPIN=UNALLOC,FREE=CLOSE
//SYSPRINT DD SYSOUT=*,SPIN=UNALLOC,FREE=CLOSE
  
```

■ Server Region Proc:

```

//WASNMS PROC IWMSSNM='NAMING01',PARMS='-ORBsrvname ',
//      CBCONFIG='/WebSphere390/WAS401'
//  SET LDAP='SYS1.LDAP'
//  SET LDAPPATH='etc/ldap'
//  SET RELPATH='controlinfo/envfile'
//WASNMS EXEC PGM=BBOSR,REGION=0M,TIME=NOLIMIT,
//  PARM='/ &PARMS &IWMSSNM'
//STEPLIB DD DISP=SHR,DSN=&LDAP..SGLDLNK
//BBOENV DD PATH='&CBCONFIG/&RELPATH/&SYSPLEX/&IWMSSNM/current.env'
//DSNAOINI DD PATH='&CBCONFIG/&SYSPLEX/&LDAPPATH/&SYSNAME..dsnaoini'
//CEEDUMP DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
  
```


Application Environments ...



- **Display:** D WLM,APPLENV=WASASR2 | *
- **Activate:** V WLM,APPLENV=WASASR2,RESUME
- **Quiesce:** V WLM,APPLENV=WASASR2,QUIESCE
 - ▶ Three failures in 5 minutes also stop the AE.
- **Application Environment state is sysplex wide.**

```
-D WLM,APPLENV=WASASR2
IWM029I 09.16.40 WLM DISPLAY 092
APPLICATION ENVIRONMENT NAME      STATE      STATE DATA
WASASR2                          AVAILABLE
ATTRIBUTES: PROC=WASASR2S  SUBSYSTEM TYPE: CB

-D WLM,APPLENV=*
IWM029I 09.17.13 WLM DISPLAY 098
APPLICATION ENVIRONMENT NAME      STATE      STATE DATA
WASASR2                          AVAILABLE
WASNM                            AVAILABLE
WASIR                            AVAILABLE
WASSMS                           AVAILABLE
...
```

The Configuration HFS

- **Shared R/W among all the systems in the sysplex**
 - ▶ Contains
 - Server configuration, environment files, jvm properties files, etc.
 - Application code (i.e., EJB and WebApp code)
 - ▶ File and directory ownership:
 - File system userid: WASSMSS (Systems Management Server)
 - File system groupid: WASCFG1 (Configuration group)
 - Correct file permissions on directory structure. (Be careful when making changes by hand)
 - ▶ HFS is mounted at
 - Mount point: /WebSphere390/WAS401
 - Internal file structure is fixed.

Access to HFS files

■ Servers

- Must be able to read its environment file (i.e., current.env)
- Must be able to access its executables, jar files, etc.
- Must be able to access runtime libraries, jar files, etc.

■ Installers

- Must be able to define and populate server specific directories
- Be connected to WASCFG1 (configuration) group

■ RACF list of groups checking must be active

Configuration HFS

■ Major Directories

► Build process creates directory structure:

- /WebSphere390/WAS401/controlinfo/envfile/<plex_name>/
- /WebSphere390/WAS401/<plex_name>/initial/configuration.env
- /WebSphere390/WAS401/working/
- /WebSphere390/WAS401/<plex_name>/etc/ldap/
- /WebSphere390/WAS401/apps/

► Each Server instance (i.e., NAMING01) has its own directory

- /WebSphere390/WAS401/controlinfo/envfile/<plex_name>/<server_instance_name>

– Contains:

- current.env
- jvm.properties
- webcontainer.conf

- Directory and current.env created/maintained by Admin Services during server installation/modification

► Each application will live in its own directory

- /WebSphere390/WAS401/apps/<generic_server_name>

► LDAP config files (for LDAP server, naming and interface repository servers)

- Contained in /WebSphere390/WAS401/<plex_name>/etc/ldap
- have &SYSNAME qualified file names (i.e., SYSA.dsnaoini)

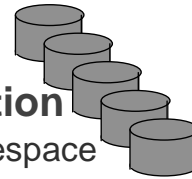
HFS Structure

```

/WebSphere390/WAS401/
|
+-- apps
|   |
|   +-- WASASR2
|
+-- controlinfo
|   |
|   +-- envfile
|       |
|       +-- WSLPLEX
|           |
|           +-- WASASR2A
|               |
|               +-- current.env
|           +-- DAEMON01
|               |
|               +-- current.env
|           +-- INTFRP01
|               |
|               +-- current.env
|           +-- NAMING01
|               |
|               +-- current.env
|           +-- SYSMGT01
|
+-- WSLPLEX
|   |
|   +-- etc
|       |
|       +-- ldap
|           |
|           +-- WG31.bboldif.cb
|           +-- WG31.bboslpad.conf
|           +-- WG31.dsnaoini
|
+-- initial
    |
    +-- configuration.env
    +-- configuration.xml
  
```

System Management Data Base

- **WebSphere is a large DB2 application**
 - ▶ Over 90 Tablespaces - one table to a tablespace
- **The WebSphere Runtime uses DB2 to:**
 - ▶ Manage server configuration
 - ▶ Passivate stateful session beans BBO.STATEFUL_BEANS
 - ▶ Contain LDAP resident information



LDAP Name Space Access

■ NameSpace

- ▶ The ldapserver, naming server and interface repository server (e.g. BBOLDAP, BBOIRS and BBONMS) must have:
 - DBADMIN access to the underlying DB2 data bases
 - and execute authority on the plans/packages to access the data within ldap on behalf of clients
- ▶ All WebSphere administrators must have an aclentry allowing object add/delete.
- ▶ Client access to entries in the name space is controlled by LDAP ACLs
 - All 'anonymous' clients must have read access.
- ▶ Naming and Interface repository are provided the correct principal and credentials via environment variables.
- ▶ Use ldap utilities to maintain the acl list.

WAS Tree Initialization

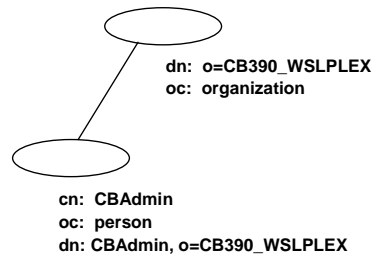
bboldif.cb

```
dn: o=WAS390_WSLPLEX
o: WAS_ROOT
objectclass: organization
description: WAS Naming over LDAP Name Tree Root
userPassword: secret
ownersource: o=WAS390_WSLPLEX
entryowner: access-id:cn=WASAdmin, o=WAS390_WSLPLEX
aclpropagate: TRUE
ownerpropagate: TRUE
aclsource: o=WAS390_WSLPLEX
aclentry: access-id:cn=WASAdmin,o=WAS390_WSLPLEX:normal:rwsc:object:ad
aclentry: access-id:WASADM1:normal:rwsc:object:ad
aclentry: access-id:WASSMSC:normal:rwsc:object:ad
aclentry: group:CN=ANYBODY:normal:rsc

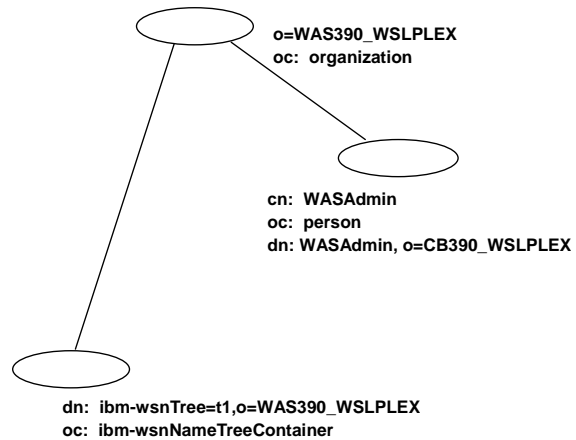
dn: cn=WASAdmin,o=WAS390_WSLPLEX
objectclass: person
cn: WASAdmin
sn: WAS40
userPassword: secret
dn: ibm-wsnTree=t1,o=WAS390_WSLPLEX
objectclass: ibm-wsnNameTreeContainer
ibm-wsnTree: t1
```

LDAP Tree

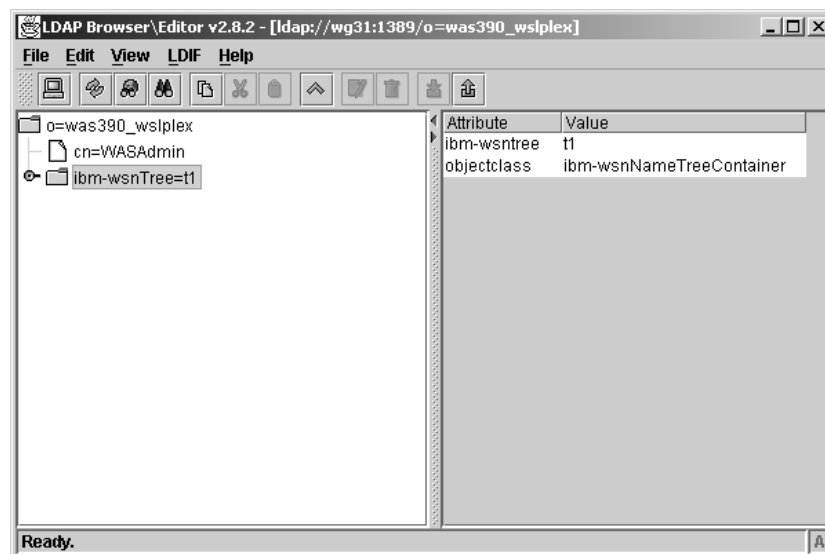
CORBA naming



J2EE naming



WAS Naming Tree



LDAP Tree



Security

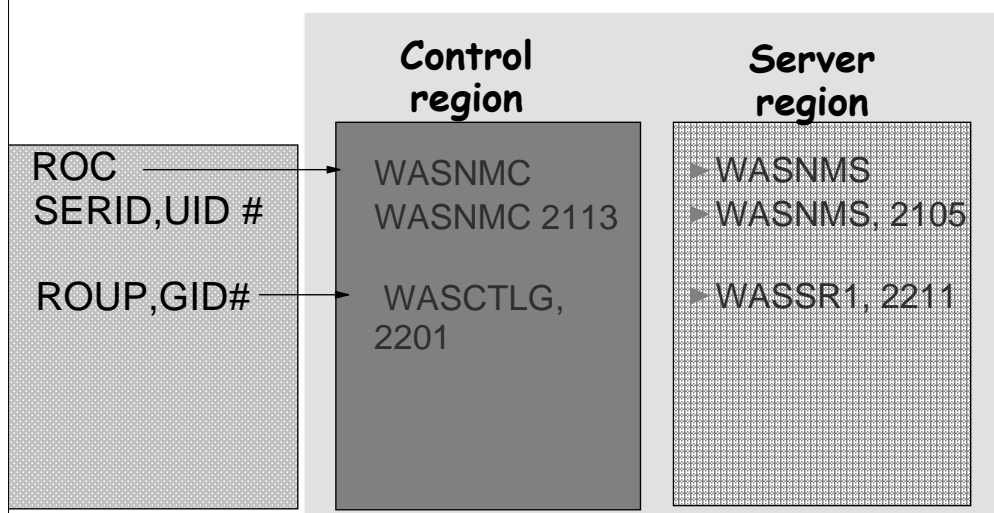
- **Need to authorize servers to infrastructure services**
 - ▶ MVS constructs
 - ▶ Data base managers
 - ▶ Transaction Managers
- **Distinguish between Control Regions vs. Server Regions**
- **Ability to authorize users to:**
 - ▶ Servers and objects within servers
 - ▶ EJBs
 - ▶ Methods within EJBs
 - ▶ Other transaction managers
- **Ability to differentiate between**
 - ▶ local users and remote users
 - ▶ Authenticated users and un-Authenticated users

Names & UserIDs

- **For each Server**
 - Generic Name
 - Instance Name
- **For each Region(control/server)**
 - Procedure Name
 - User ID, UID
 - Group ID, GID

Naming server example ...

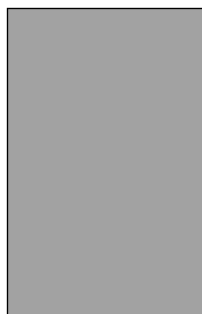
- **Generic name:** WASNM
- **Instance name:** NAMING01



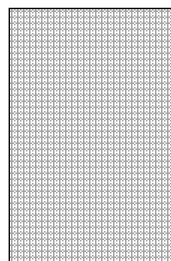
RACF Profiles

WASASR2

WASASR2C



WASASR2S



► Control Region

STARTED Class

- profile: <proc_name>.*
- assigns userid/group

◆ unique userid/uid

- All control regions belong to the same GROUP (i.e. WASCTLG)

- All belong to a common configuration group (i.e. WASCFG1)

- **RACF List of Groups option must be enabled**

– LOGSTRM

- profile: <logstream_name>
- update access to write

- Access to appropriate DB2 packages and data bases.

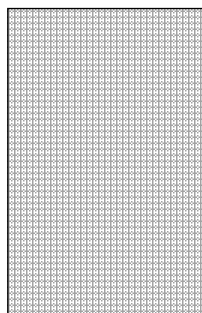
RACF Profiles

WASASR2

WASASR2C



WASASR2S



► Server Region

– STARTED Class

- profile: <proc_name>.*
- assigns userid/group

◆ unique userid/uid

- ApplicationServer regions generally belong to unique GROUPs but connected to a common group (WASCFG1)

- Runtime servers all belong to same group (WASSR1)

– SERVER Class

- profile: CB.*.server_name

– LOGSTRM

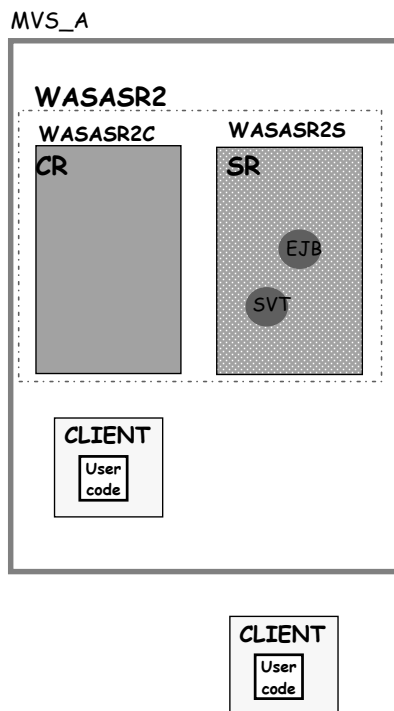
- profile: logstream_name
- update access to write

– Surrogat Class access to CICS

- profile: *.DFHEXCI

- Access to appropriate DB2 packages and data bases

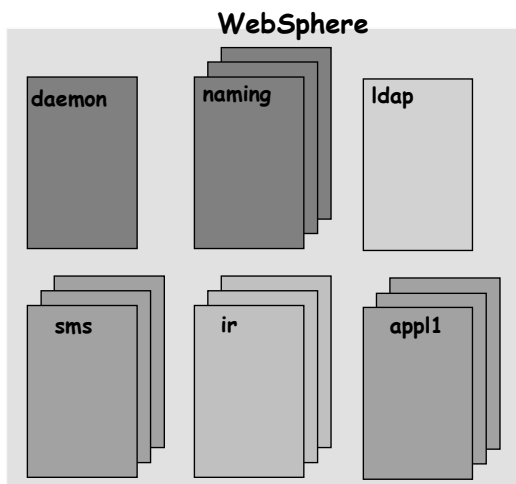
Access to J2EE Servers



► Client

- Access to server
 - CBIND class
 - profile; CB.BIND.<server_name>
 - READ access
- Access to objects in server
 - CBIND class
 - profile: CB.<server_name>
 - READ access
- Access to methods on objects
 - EJBROLES class / GEJBROLES
 - profile: <any valid string>
 - Read Access
- Access to DB2
 - User packages and tables
- Access to IMS/CICS transactions

OPERCMDS



► daemon

- Starts, stops, cancels system servers
 - sms control region
 - naming control region
 - ir control region
- ID Requires update access to profile
 - MVS.START.**
 - MVS.MODIFY.**
 - MVS.CANCEL.**

► sms

- Starts, stops, cancels application servers
 - appl1
 - appl2
 - ...
- ID Requires update access to profile
 - MVS.START.**
 - MVS.MODIFY.**
 - MVS.CANCEL.**

A Naming Convention

Assuming a naming convention where:

AP is the prefix for application servers

The next 4 characters uniquely identify the application set

The last 2 characters identify either a

- group name
- user name
- instance name
- PROC name

For our example, **SRV3** is the unique application name

- *Create group for APSRV3 servers.*
- *Define userIDs for APSRV3 Control and Server Regions*
- Define guest userIDs
- *Assign userIDs to the started tasks.*
- *Connect CR and SR userIDs to the CB configuration group.*
- *Give Servers update access to logstream*
- *Defining CBIND profiles using generic server name*
- *Defining SERVER profiles*

RACF Commands

```

/* Creating group for APSRV3 servers.
ADDGROUP APSRV3G OMVS(GID(2311))
ADDGROUP APSRV3P OMVS(GID(2312))
/* Adding users for APSRV3 Control and Server Regions
ADDUSER APSRV3C DFLTGRP(WASCTL1) OMVS(UID(2307) HOME(/tmp) PROGRAM(/bin/sh))
ADDUSER APSRV3S DFLTGRP(APSRV3G) OMVS(UID(2310) HOME(/tmp) PROGRAM(/bin/sh))
ADDUSER APSRV3D DFLTGRP(APSRV3P) OMVS(UID(2313) HOME(/tmp) PROGRAM(/bin/sh))
ADDUSER APSRV3I DFLTGRP(APSRV3P) OMVS(UID(2316) HOME(/tmp) PROGRAM(/bin/sh))
/* Assigning userids to started tasks.
RDEFINE STARTED APSRV3C.* STDATA(USER(APSRV3C) GROUP(WASCTL1))
RDEFINE STARTED APSRV3S.* STDATA(USER(APSRV3S) GROUP(APSRV3G))
SETROPTS RACLIST(STARTED) GENERIC(STARTED) REFRESH
/* Connecting CR and SR userids to the CB configuration group.
CONNECT APSRV3C group(WASCFG1)
CONNECT APSRV3S group(WASCFG1)
/* Give Server update access to logstream
PERMIT WAS.ERROR.LOG CLASS(LOGSTRM) ID(APSRV3G) ACCESS(UPDATE)
/* Defining CBIND CB.BIND.generic_server.
RDEFINE CBIND CB.BIND.APSRV3 UACC(READ)
PERMIT CB.BIND.APSRV3 CLASS(CBIND) ID(WASCTL1) ACCESS(CONTROL)
/* Defining CBIND CB.generic_server for servers
RDEFINE CBIND CB.APSRV3 UACC(READ)
SETROPTS RACLIST(CBIND) GENERIC(CBIND) REFRESH
/* Defining SERVER CB.server_instance.generic_server.
RDEFINE SERVER CB.*.APSRV3 UACC(NONE)
PERMIT CB.*.APSRV3 CLASS(SERVER) ID(APSRV3S) ACC(READ)
SETROPTS RACLIST(SERVER) GENERIC(SERVER) REFRESH

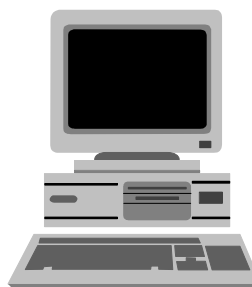
```

Lab Environment . . .

Workstation Setup

■ Software:

- ▶ Windows 2000 SPk 1
 - WebSphere for z/OS
 - Administration
 - Operations
 - Application Assembly
 - PCOM (3270 emul.)
 - FTPclient, IE, Netscape, Acrobat Reader, WinZip.....



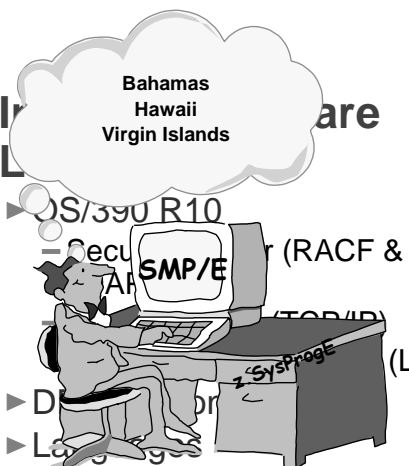
z/OS System Configuration

- **z/OS guests under VM**
- **All systems have the same name:**
 - ▶ wg31.washington.ibm.com
 - ▶ IP addresses are different: (verify: 'ping wg31')
 - Team 1: 9.82.56.151
 - Team 2: 9.82.56.152
 - Team 3: 9.82.56.153
 - Team 4: 9.82.56.154
 - Team 5: 9.82.56.155
 - Team 6: 9.82.56.156
 - Team 7: 9.82.56.157
 - Team 8: 9.82.56.158
 - Team 9: 9.82.56.159
 - Team10: 9.82.56.160
- **Workstations find WG31 via hosts file.**
 - ▶ C_drive\WINNT\System32\drivers\etc\hosts
 - 9.82.56.xxx wg31.washington.ibm.com wg31

z/OS System Configuration

- **Monoplex**
- **No DB2 datasharing**
- **No CF required**
- **DASD only logging.**
- **No TCPIP connection balancing needed**
- **No DNS**

Software Already Installed

- 
- **IBM Software**
 - ▶ OS/390 R10
 - Security (RACF & APF)
 - ▶ Database products (DB2)
 - Sysprog (LE)
 - ▶ Language products
 - JAVA SDK 1.3
 - VA Java for OS/390
 - ▶ Service applied to all products

■ SMP/E installation is complete:

- ▶ Target libraries in: WAS401.WAS.**
- ▶ HFS libraries in: /usr/lpp/WebSphere401/
- ▶ See Program Directory for directions.

Lab Environment . . .

- **Configuration information:**
- **Libraries in LPA and LNKLIST**
 - ▶ Including LE, DB2 and LDAP
- **TCPIP is configured**
- **Parmlib updated for WAS:**
 - ▶ APF list updated incl. LNKLIST
 - ▶ PROGRAM control
 - ▶ SCHEDxx
 - ▶ BPXPRMxx
 - ▶ CTIBBO00

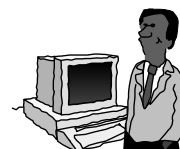
User IDs

Your TSO User IDs (already defined)

- ▶ **USER1** - RACF "Special" - Systems Programming work
 - connected to the configuration group (WASCFG1)
 - Use this ID for most of your installation tasks
- ▶ **USER2** - Application Development, Operations
- ▶ **SYSADM1** - SYSADM authority & UID=0
 - use only for specific activities as required.

■ WebSphere User IDs (already defined)

- ▶ System Servers (daemon, naming, systems management, ...)
- ▶ Administrators & Operators
- ▶ Application Servers
- ▶ Clients



Questions?

