Work Management for Independent ASP's

IBM @server iSeries

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Intro to Name Spaces

Names spaces for iSeries is a new function introduced with the release of OS/400 V5R2. Prior to OS/400 V5R1, the system supported up to 16 Auxiliary Storage Pools (ASPs) -- the System ASP and up to 15 user ASPs.

With OS/400 V5R1, the number of basic user ASPs was increased to 31 and Independent ASPs (IASPs) for IFS were introduced (maximum 67). IFS IASPs work the same way as basic user ASPs in that once made available to the system, all users have access to the data contained within the ASPs assuming they have the correct authority.

With OS/400 V5R2, user ASPs are now referred to as basic user ASPs, and ASPs 1-32 together are referred to as *SYSBAS. All data and objects within *SYSBAS are accessable to all users at all times. Customers must rely on OS/400 security to prevent users from accessing objects that they are not allowed to use. IFS IASPs continue to be accessible to all users once varied on.

Also with V5R2, the number of IASPs is increased to 223, and they can now include libraries although not all objects are supported in libraries contained in an IASP.

A IASP that contains libraries must be varied on in order for the libraries to be accessible. In addition, the IASP must also be explicitly associated with a job to allow the job to access its libraries. Thus, the concept of the "name space" -- the group of libraries accessible to a job.

Intro to Name Spaces

With V5R2, there are new IASP's which can contain OS/400 libraries. These IASP's are different from the previous type of ASP's as they are *not* available to users unless the job is explictily directed to use the IASP (this is referred to as adding the IASP into the job's namespace). Once a job has been directed to use a V5R2 IASP, then all normal OS/400 security rules apply.

Directing a job to use an IASP can be done in multiple ways

1. Use the new CL command SETASPGRP to direct a job to explictly use an IASP.

2. Use the new parameter INLASPGRP on the JOBD associated with the job to set the IASP when the job starts up.

3. On a SBMJOB, use the new parameter INLASPGRP to set the IASP for the job (default = *current)

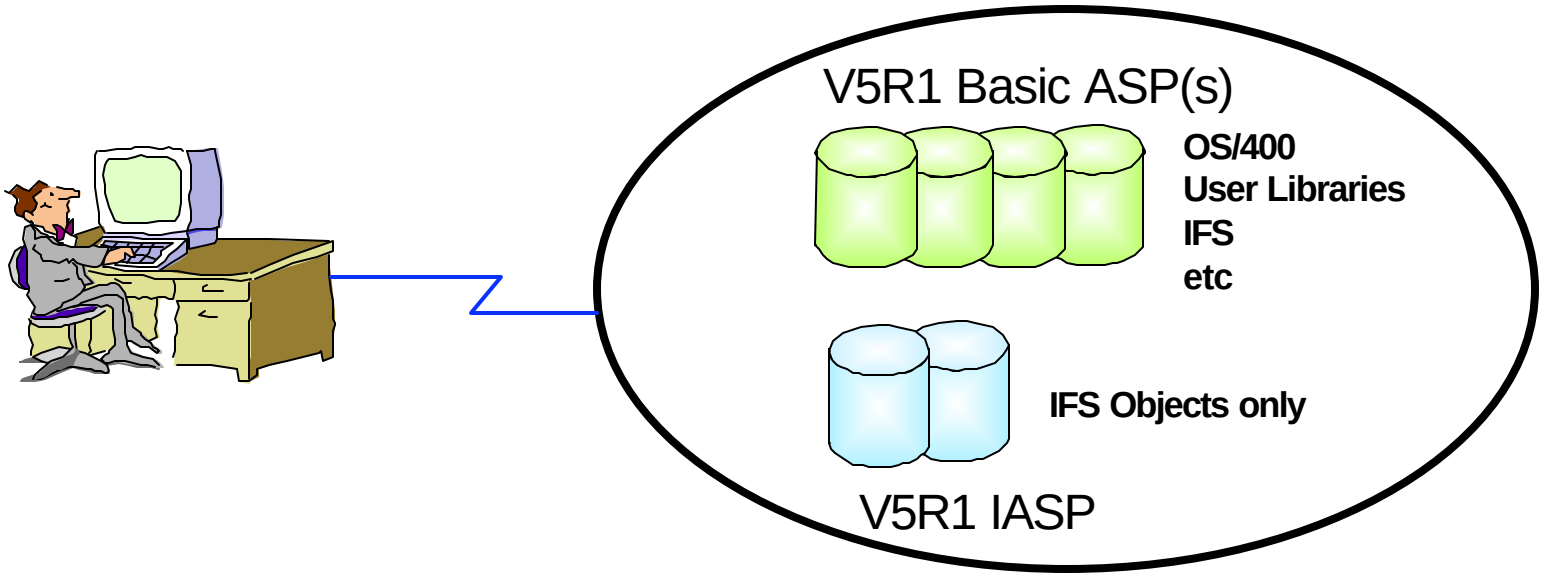
4. On a //BCHJOB, the ASPGRP is copied from the spool reader job; the INLASPGRP parameter in the job description is ignored.

4. Using the Java tool box, use the new option on the connect class to connect to the IASP

5. Note: The SBMJOBJS does NOT have an INLASPGRP parameter; the user would have to add a SETASPGRP command at the beginning of the job commands or within the job prior to first access to an IASP library.

Intro to Name Spaces

OS/400 V5R1 IASPs

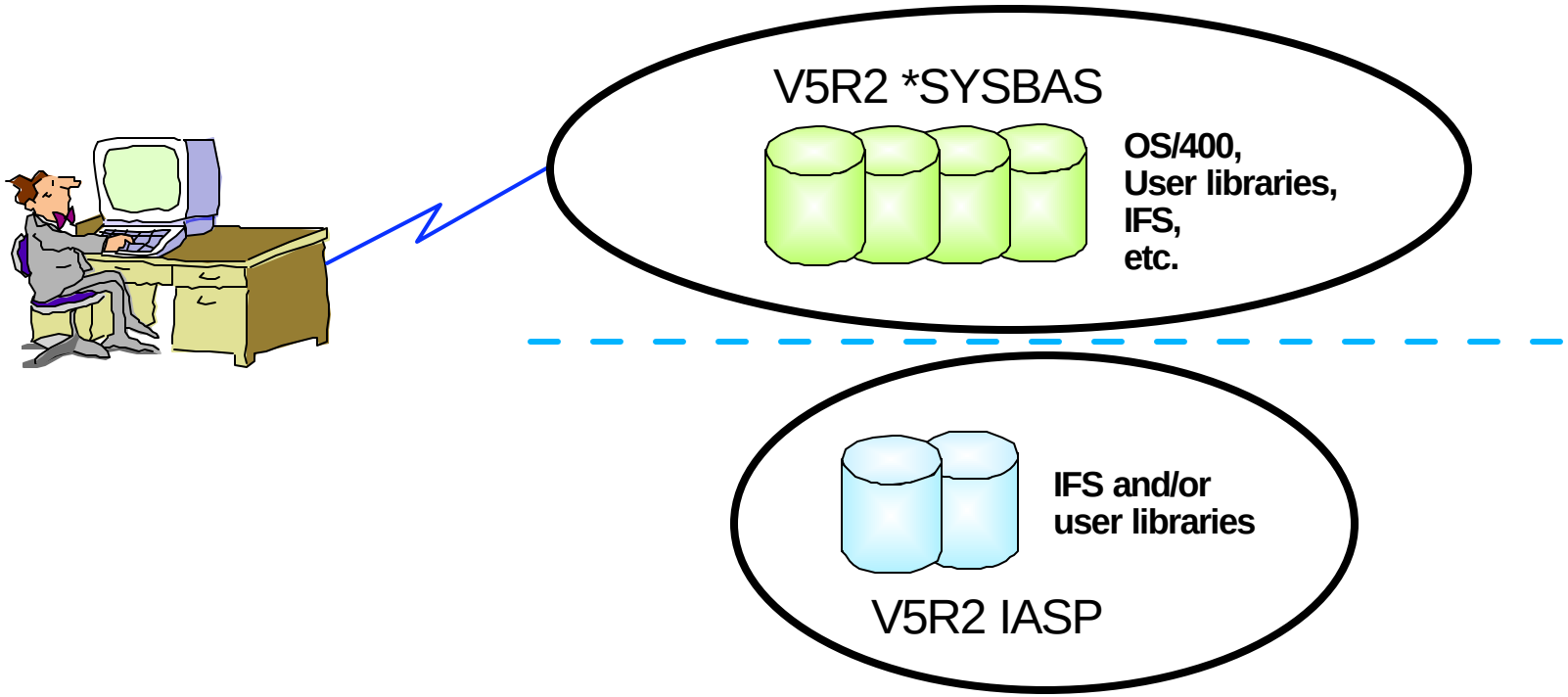


When users sign on with V5R1, all objects on the system* become available to them. The library list will be set using standard work management techniques like using the system values or manipulating the library list of the JOBD used.

Note: IFS IASPs are available only when varied on.

Intro to Name Spaces

OS/400 V5R2 IASPs

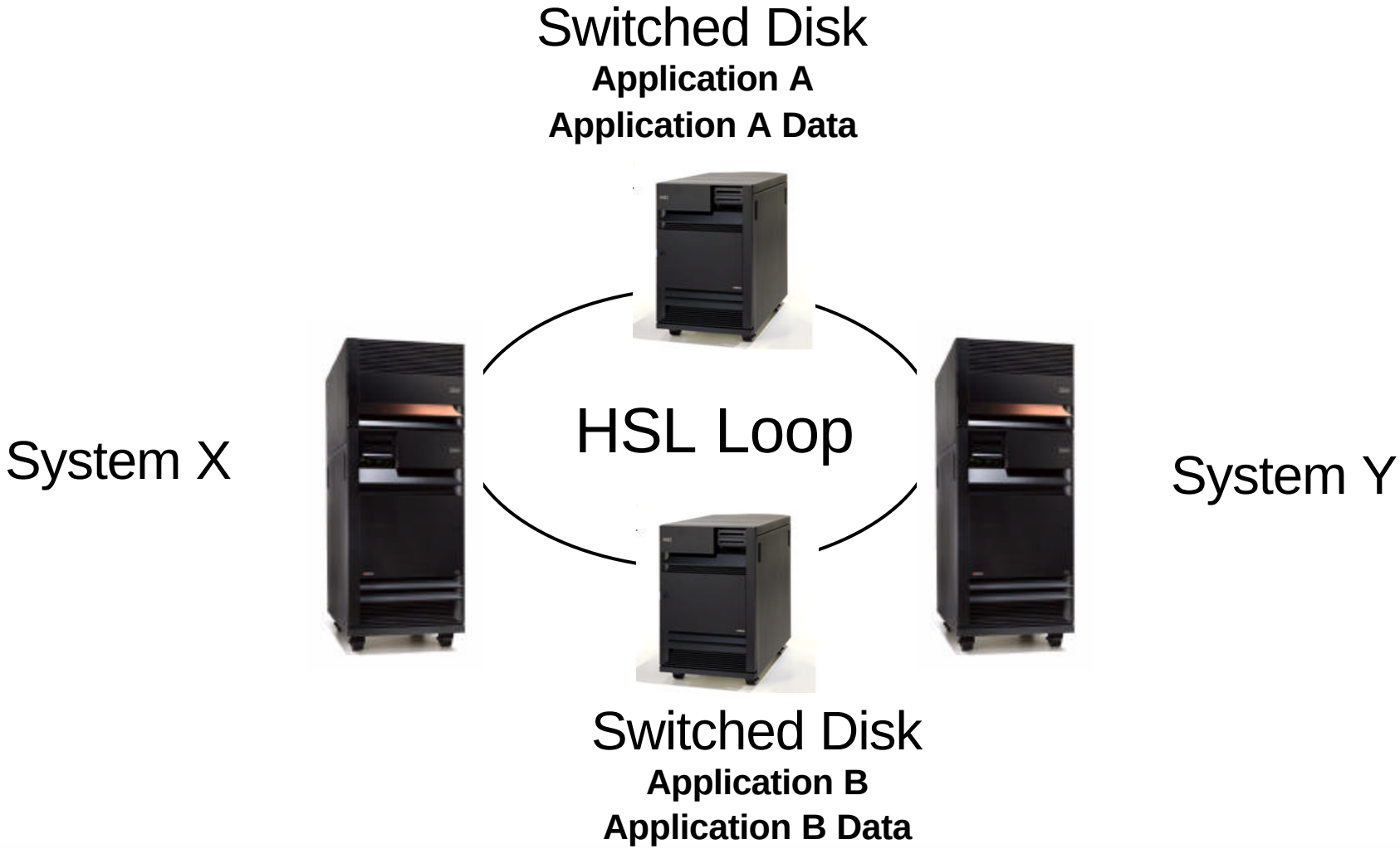


When users sign on with V5R2, all objects in *SYSBAS become available to themas well as all objects in IFS IASPs. Objects in a library IASP are available only if the IASP is explicitly associated with the job. The library list will be set using standard work management techniques like using the system values or manipulating the library list of the JOBD used.

Note: IASPs are available only when varied on.

Simple Switched Disk HA

Application and Database both residing on switched disk



Server Consolidation with IASP

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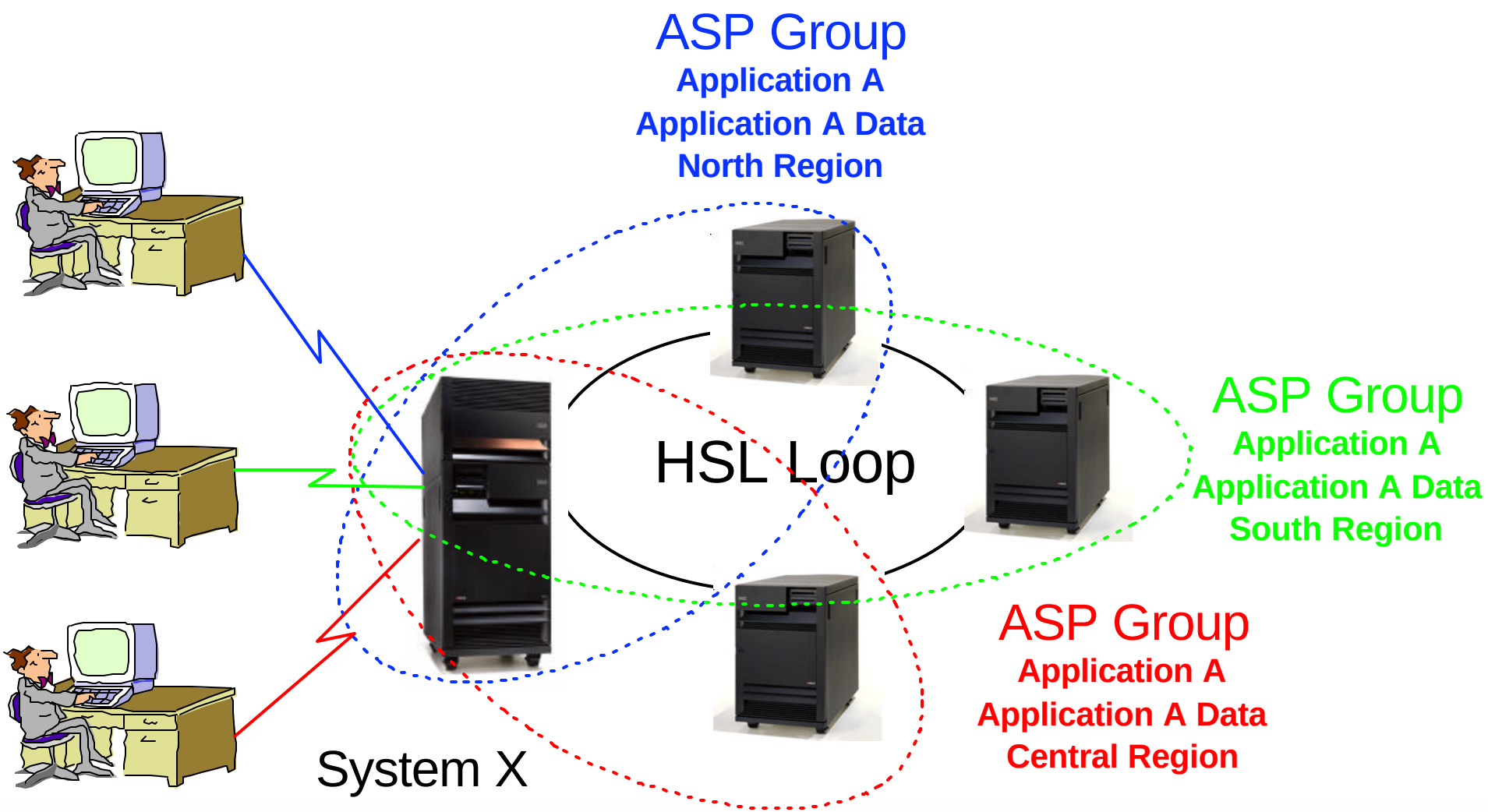
A separate instance of the Application with its data in each ASP Group



Namespaces

Name Space

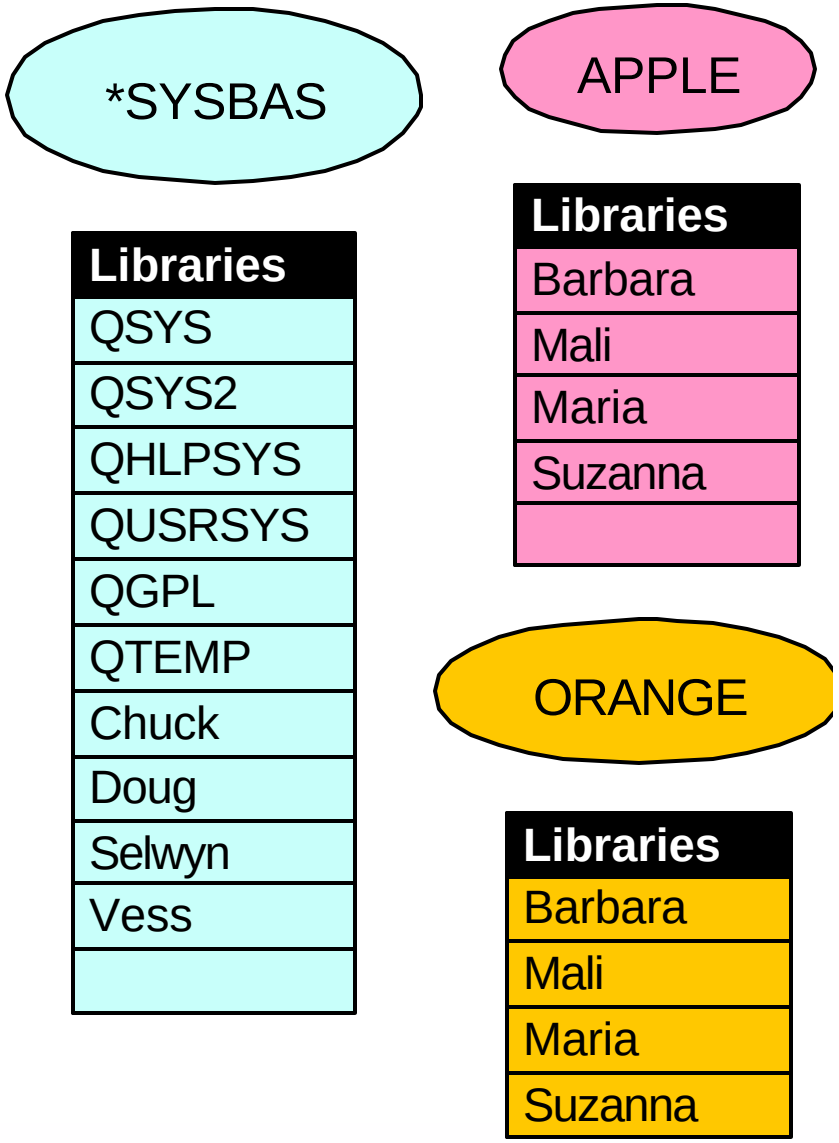
An ASP group consists of a primary IASP and zero or more secondary IASPs linked to it, referenced by the name of the primary.

Only one ASP group can be associated with a job at one time, so in this example, one could have a name space of:

- *SYSBAS only
- *SYSBAS + APPLE
- *SYSBAS + ORANGE

An ASP group can be associated with a job using:

- INLASPGRP parameter on *JOBD and SBMJOB
- Command SETASPGRP within the job



Namespaces

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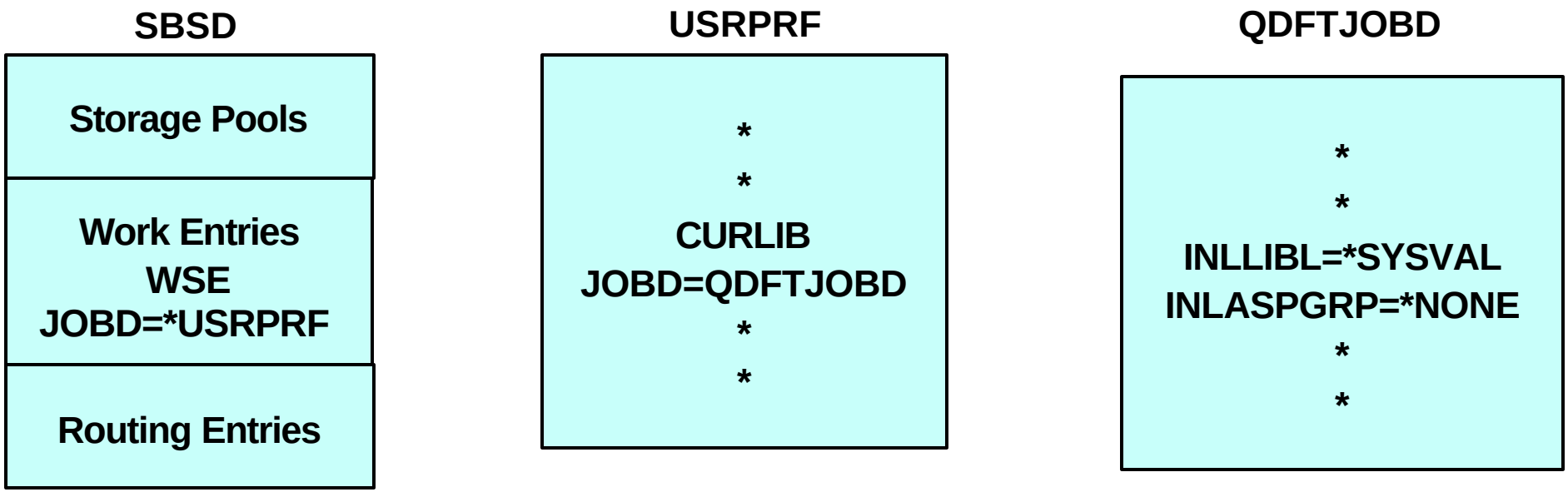
Work Management 101



1. Sign on at workstation
2. SBSD WSE points to JOBD which contains INLLIBL and INLASPGRP
3. INLASPGRP is processed first so libraries contained there can be included in INLLIBL and CURLIB
4. Libraries in INLLIBL and CURLIB must exist in the name space or the job will not start.

Namespaces

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Default WSE JOBD: *USRPRF
Default USRPRF:
CURLIB(*CRTDFT) [QGPL]
JOBD: QDFTJOBD
Default QDFTJOBD: INLLIBL(*SYSVAL)
[QUSRLIBL]

*SYSBAS

Libraries
QSYS
QSYS2
QHLPSYS
QUSRSYS
QGPL
QTEMP
Chuck
Doug
Selwyn
Vess

INLASPGRP(*NONE)

System Values

QSYSLIBL
QSYS
QSYS2
QHLPSYS
QUSRSYS

QUSRLIBL
QGPL
QTEMP

Job Library List

	Libraries
SYS	QSYS
SYS	QSYS2
SYS	QHLPSYS
SYS	QUSRSYS
USR	QGPL
USR	QTEMP

APPLE

Libraries
Barbara
Mali
Maria
Suzanna

ORANGE

Libraries
Barbara
Mali
Maria
Suzanna

Namespaces

SETASPGRP

ASPGRP	<name>
SYSLIBL	*CURSYSBAS or *SYSVAL
	*CURSYSBAS = Current system portion of the *LIBL
	*SYSVAL = System Value QSYSLIBL
CURLIB	*CURSYSBAS or *CURUSR or *CRTDFT
	*CURSYSBAS = Current CURLIB entry
	*CURUSR = CURLIB in the current *USRPRF
	*CRTDFT = QGPL
USRLIBL	*CURSYSBAS or *CURUSR or *SYSVAL or *NONE
	*CURSYSBAS = Current user portion of the *LIBL
	*CURUSR = INLLIBL in the *JOBD in the curent *USRPRF
	*SYSVAL = System Value QUSRLIBL
	*NONE = <no user libraries>

Accessing a name space

A job's name space and library list can be specified several different ways, depending upon the application design and the requirements of each user.

***JOBD per user (default)**
- ***USRPRF JOBD parameter (default QDFTJOBD)**

***JOBD per workstation type or name**
- **ADDWSE JOBD parameter (default *USRPRF)**

Initial program (default *NONE) could be used to:
- **SETASPGRP with CURLIB and possibly USRLIBL**
- **Perhaps ADDLIBLE for library in ASP group**

Initial menu (default MAIN) could be used to:
- **SETASPGRP with CURLIB and possibly USRLIBL**
- **Perhaps ADDLIBLE for library in ASP group**
- **when a specific menu option is selected.**

Namespaces

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Job Library list

Note: If job initiation includes an INLASPGRP, and the ASP group is not "Available" ...

```
                                Sign On
                                                System  . . . . . :   TEAMLPR3
                                                Subsystem . . . . :   QINTER
                                                Display . . . . . :   QPADEV0006

                User  . . . . . . . . . . . . . .   JSMITH
                Password  . . . . . . . . . . . .
                Program/procedure . . . . . . . .
                Menu  . . . . . . . . . . . . . .
                Current library . . . . . . . . .


CPF1128 Current library MARIA not found
CPF1113 Library in initial library list not found
CPF110A Auxiliary storage pool group ORANGE not available.
```

Note: You will receive only one of these messages. If the current library is in the ASP group, you will see CPF1128. If only an INLLIBL library is in the ASP group, you will see CPF1113. If neither CURLIB nor INLLIBL libraries are in the ASP group, you will see CPF110A.

Namespaces

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Job Library list

Since it is vital that all libraries included in QSYSLIBL or QUSRLIBL always be accessible, they are allowed to be chosen only from *SYSBAS.

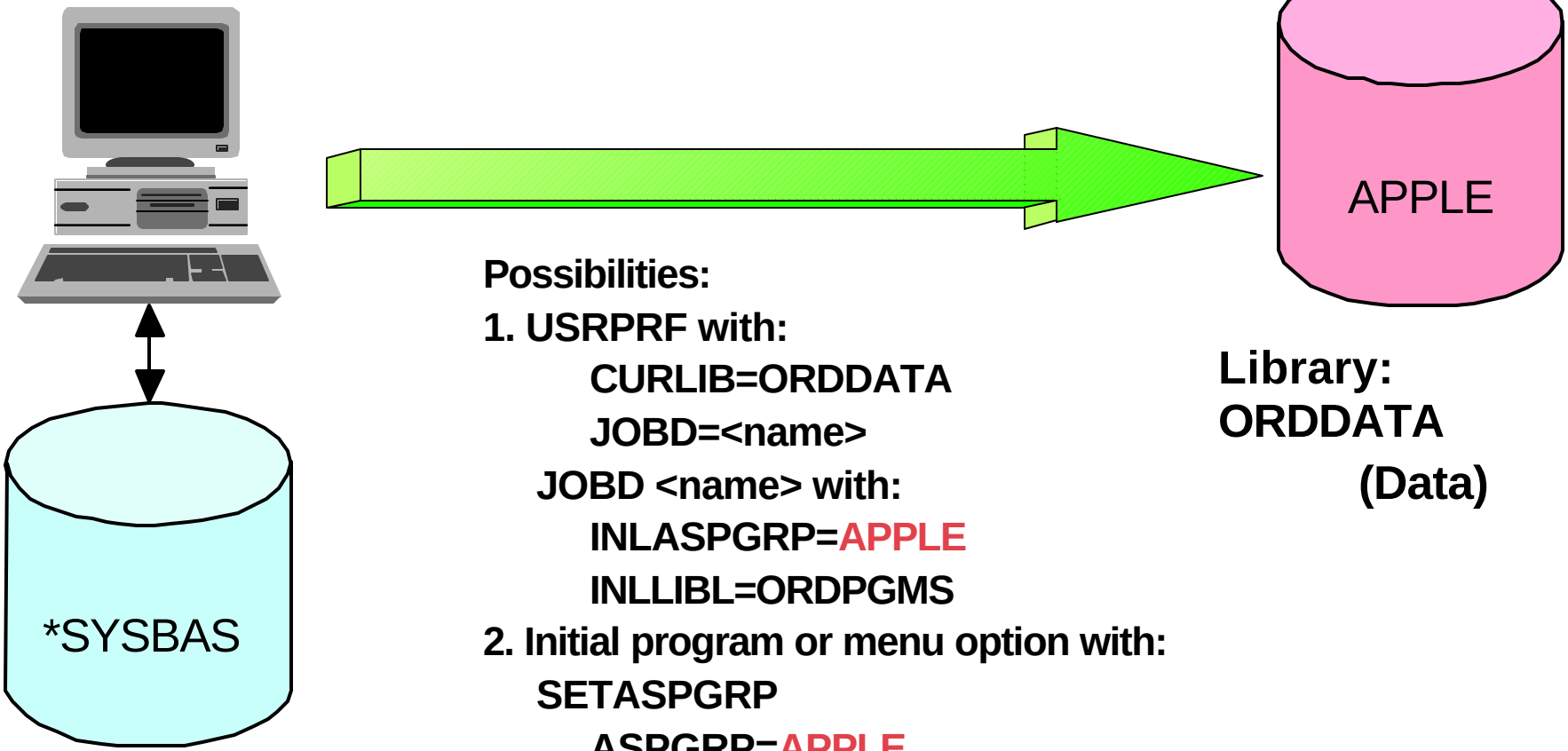
```
                        Additional Message Information

 Message ID . . . . . :   CPF1812       Severity . . . . . :   30
 Message type . . . . . :   Diagnostic
 Date sent  . . . . . :   05/08/02      Time sent  . . . . . :
09:29:03

 Message . . . . :   Object XXX not found for system value QSYSLIBL.
 Cause . . . . . :   Object XXX was not found.  Possible causes are:
 -- The object does not exist.
 -- The object exists but is in an independent auxiliary storage pool
(ASP).
    For system value QSYSLIBL, the object must be in the system ASP or in
a
    basic user ASP.
```

Namespaces

Example
Programs in *SYSBAS, data in ASP group
Environment set by *USRPRF



Possibilities:
1. USRPRF with:
CURLIB=ORDDATA
JOBD=<name>
JOBD <name> with:
INLASPGRP=APPLE
INLLIBL=ORDPGMS
2. Initial program or menu option with:
SETASPGRP
ASPGRP=APPLE
CURLIB=ORDDATA
USRLIBL=ORDPGMS

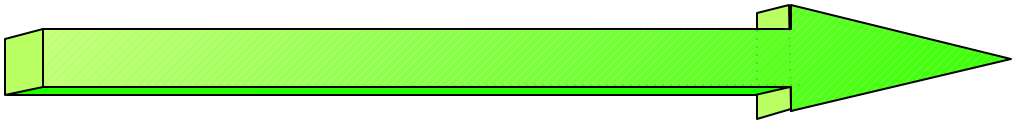
Library: ORDDATA (Data)

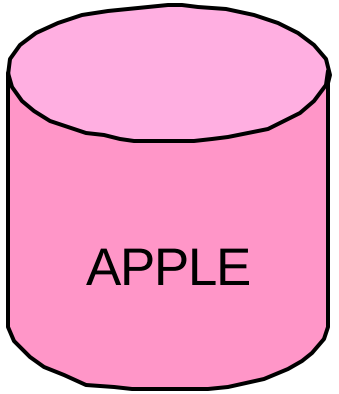
Library: ORDPGMS (Programs)

Namespaces

User 1

Example
Application 1 in ASP group
Application 2 in ASP group
Environment set by *USRPRF





Library: ORDLIB
(Programs)
(Data)

WSE
JOBD=*USRPRF

USRPRF for User 1
JOBD=ORDENTRY
CURLIB=ORDLIB

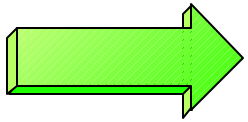
JOBD ORDENTRY
INLASPGRP=APPLE

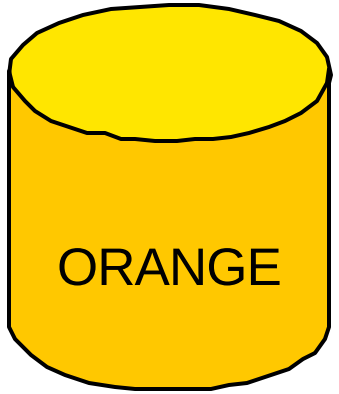
User 2

WSE
JOBD=*USRPRF

USRPRF for User 2
JOBD=MANUFACT
CURLIB=MFGLIB

JOBD MANUFACT
INLASPGRP=ORANGE





Library: MFGLIB
(Programs)
(Data)

Duplicate Libraries

Duplicate library names can exist in *SYSBAS and a "Varied off" IASP, but when an attempt is made to vary on the IASP . . .

```
                        Additional Message Information

 Message ID . . . . . :   CPDB8EB       Severity . . . . . :   30
 Message type . . . . . :   Diagnostic
 Date sent  . . . . . :   05/15/02      Time sent  . . . . . :
10:47:30

 Message . . . . :   Library SELWYN exists in *SYSBAS and ASP device APPLE.
 Cause . . . . . :   Auxiliary storage pool (ASP) device APPLE cannot be
varied
   on to an available status because the ASP contains a library named SELWYN
   and a library by the same name already exists in the system ASP or a
basic
   user ASP (*SYSBAS).
```

You can use RNMOBJ on either library or DLTLIB on the library in *SYSBAS to eliminate the problem but you must then vary off and vary on the IASP.

Namespaces

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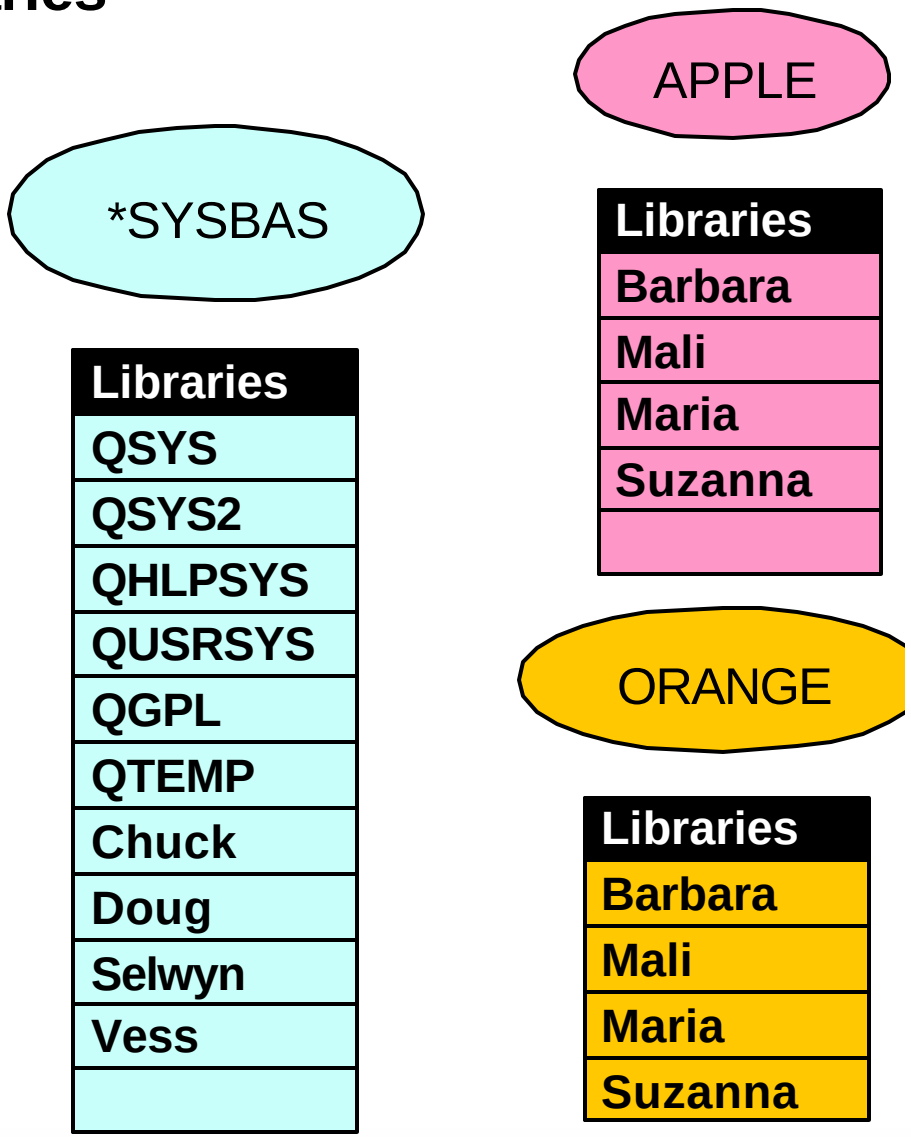
Duplicate Libraries



Duplicate library names are allowed in different ASP groups.

Namespaces

DLTUSRPRF

Delete User Profile (DLTUSRPRF) has an option to delete objects owned by the profile. All owned objects in the job's name space and "Available" IASPs will be deleted.

Owned objects in "Not available" IASPs will not be deleted. When the "Not available" IASP is varied on, an existence check is made for the owning user profiles for all objects in the IASP, and user profiles not found are recreated, with STATUS(*DISABLED) and PWD(*NONE).

Namespaces

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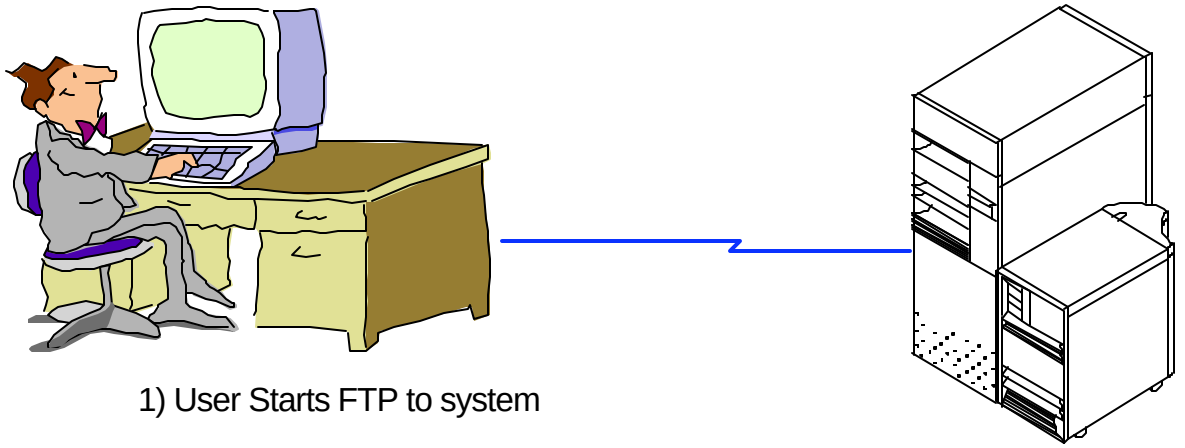
FTP Connections



1) User Starts FTP to system

2) FTP connection is started in sbs QSYSWRK.

3) Job environment is setup based on jobd of user profile

4) FTP exit program is called if one is registered

Notes:

- **Use the "quote rcmd xxxxx" to set the name space for jobs that can not have the JOBD set the name space**
- **Using an exit program to set the current library or current directory will work only if the jobd set the IASP group, otherwise the FTP will be rejected.**
- **If the JOBD has an INLASPGRP set and the ASP is varied off, the ftp connect will be rejected.**