IBM GLOBAL SERVICES

B71

VSE / POWER - From Basic POWER to zVSE

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Basics

VSE/POWER

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VSE / POWER

What POWER does

- POWER is the spooler for the zVSE operating system it virtualizes Inout/Output so that many tasks can run concurrently within the zVSE system.

How it does it

- The zVSE supervisor can recognize which partitions are controlled by POWER and when IO is performed by a partition the IO device is POWER and not real hardware. POWER keeps all the IO information in a DATA file and metadata in a QUEUE file.

How to get POWER

- POWER is a VSE BASE product it is delivered and installed with zVSE.

Features

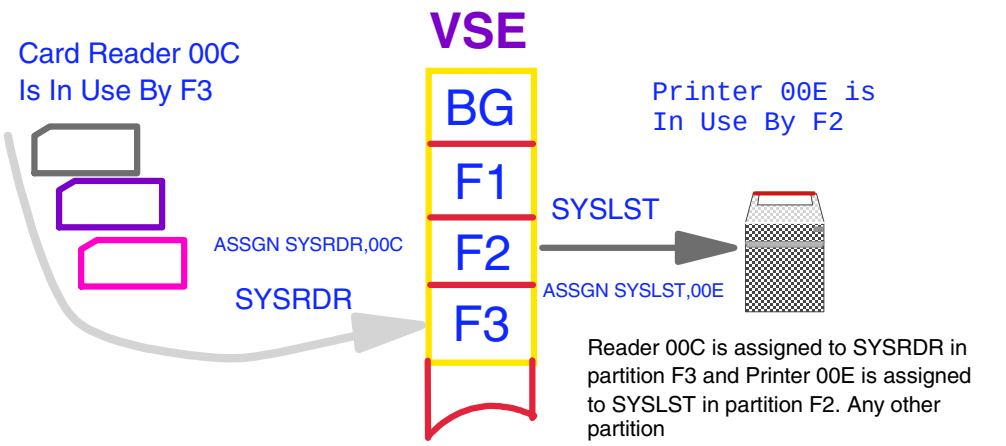
NJE - Network Job Entry allows sending Jobs, output, commands , and messages between various NJE Nodes.

RJE - Remote Job Entry allows Jobs to be entered from a remote terminal and the job output can be obtained at the remote terminal or the central site.

Shared Spooling - Up to nine zVSE systems can share Queue and Data files allowing for flexibility of where to run Jobs and where to attach IO.

VSE Without POWER

Before POWER was developed jobs had to be controlled manually. Cards were placed into a reader that was assigned to a partition, read by Job Control and output printed on an assigned printer. If any of these devices were in use by another partition than another partition had to wait.

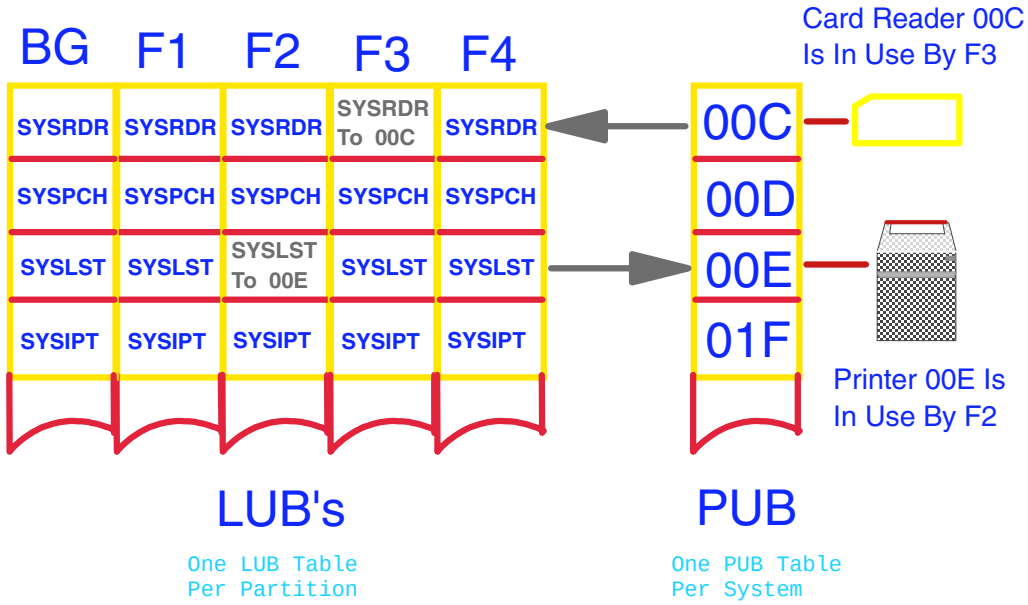


Reader 00C is assigned to SYSRDR in partition F3 and Printer 00E is assigned to SYSLST in partition F2. Any other partition
needing these devices must wait until they are available.

VSE Without POWER - Using I/O

With a LUB Table per partition and one PUB Table per system when F2 has 00E
assigned to its SYSLST if another partition tries to assign SYSLST they see:

1A60D UNIT CURRENTLY UNASSIGNABLE.



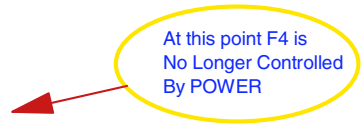
VSE Without POWER - Running A Job

We will run a job in F4 that will perform a LISTIO of the Background partition

```
// JOB LIOBG
// ASSGN SYSLST,00E
// LISTIO BG
/*
/&
```

For these examples zVSE 2.7 was run as a zVM guest machine.
The guest zVSE system has Card Reader 00C defined as a device type 2540R and Card Punch
00D as a 2540P. Printers 00E, 01E, and FEE as device type 1403. With 02E as a 3211 and 03E as a 3800.
We will take F4 away from POWER's control to show Job Control without POWER.

```
AR 0015 1I40I  READY
pstop f4
AR 0015 1C39I COMMAND PASSED TO VSE/POWER
F4 0001 1Q33I  STOPPED F4
F4-0004 1I00D  READY FOR COMMUNICATIONS.
```



VSE Without POWER - Running A Job

Job LIOBG has been loaded into the virtual Card Reader 00C.

Console log and commands

```
F4-0004 1I00D  READY FOR COMMUNICATIONS.
4 listio f4
F4 0004
F4 0004      *** PARTITION  F4 ***
F4 0004
F4 0004 I/O UNIT ASSGMNT CHNL UNIT MODE
F4 0004
F4 0004  SYSRDR            * UA *
F4 0004  SYSIPT            * UA *
F4 0004  SYSPCH            * UA *
F4 0004  SYSLST            * UA *
```

No assignments

Console log and commands.

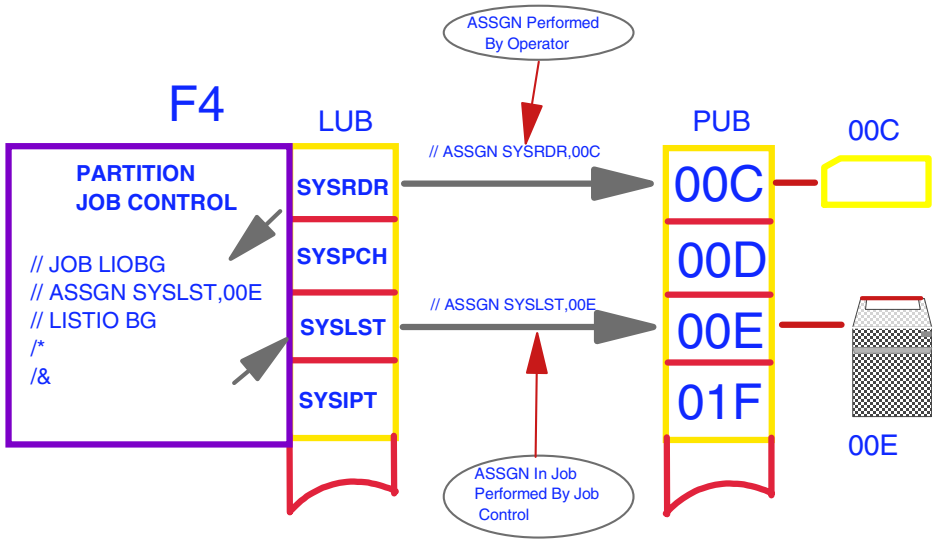
```
4
F4-0004 1C10D  PLEASE ASSIGN SYSRDR.
4 // assgn sysrdr,00c
F4-0004
F4-0004
4 listio sysrdr
F4 0004
F4 0004      *** PARTITION  F4 ***
F4 0004
F4 0004 I/O UNIT ASSGMNT CHNL UNIT MODE
F4 0004
F4 0004  SYSRDR  TEM       0   0C
F4 0004  SYSRDR  PER       * UA *
F4 0004
F4-0004
F4-0004
4
F4-0004 1C00A  ATTN. 00C
4
F4 000  // JOB LIOBG
        DATE 11/19/1999, CLO
F4 000  EOJ LIOBG  MAX.RETURN CODE=0000
        DATE 11/19/1999, CLOCK 16/31/49
F4-0004 1C10D  PLEASE ASSIGN SYSRDR.
```

A reply to F4 results In I/O To SYSRDR

Job has completed temporary assignment of SYSRDR released

VSE Without POWER - I/O

When I/O is started to the Card Reader 00C, the job is presented card-by-card to
job control in partition F4. The processing will continue until End-Of-Job is reached.



The successful conclusion will be the list of members in SYSLIB that have a
member type of 'A' printed on 00E.

VSE Without POWER - Usability

The Job to list library members was successfully processed but the problems working with such a system are many, such as...

Time spent waiting for I/O devices to free up

Difficult to use your data processing resources efficiently

Processing / Scheduling labor intensive

VSE/POWER

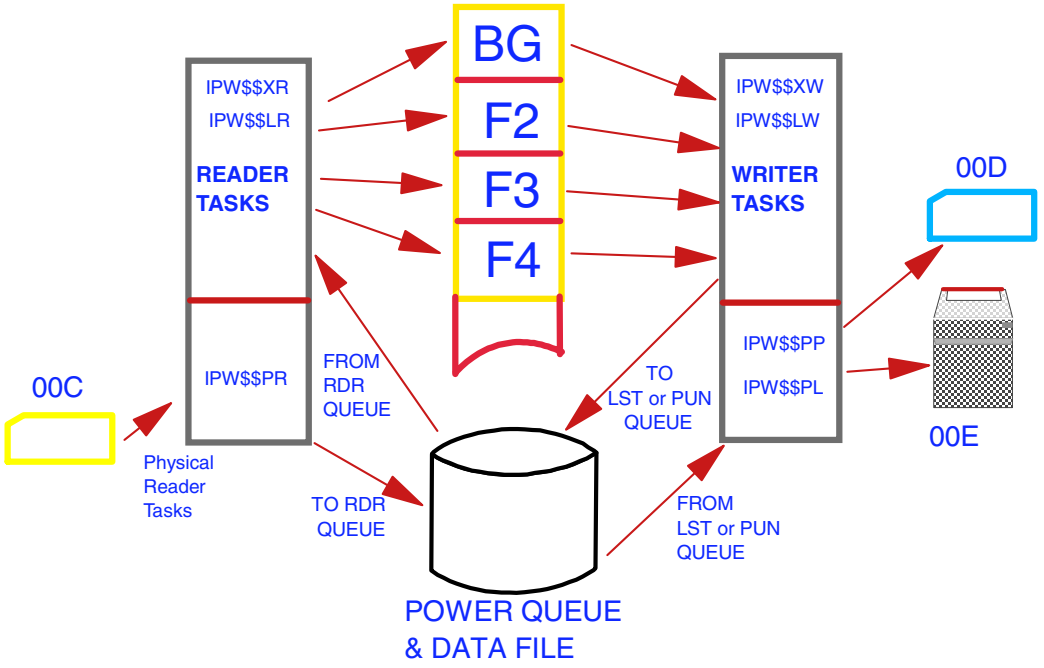
Priority **O**utput **W**riters, **E**xecution processors, and **R**eaders**s**

POWER will emulate I/O devices and provides...

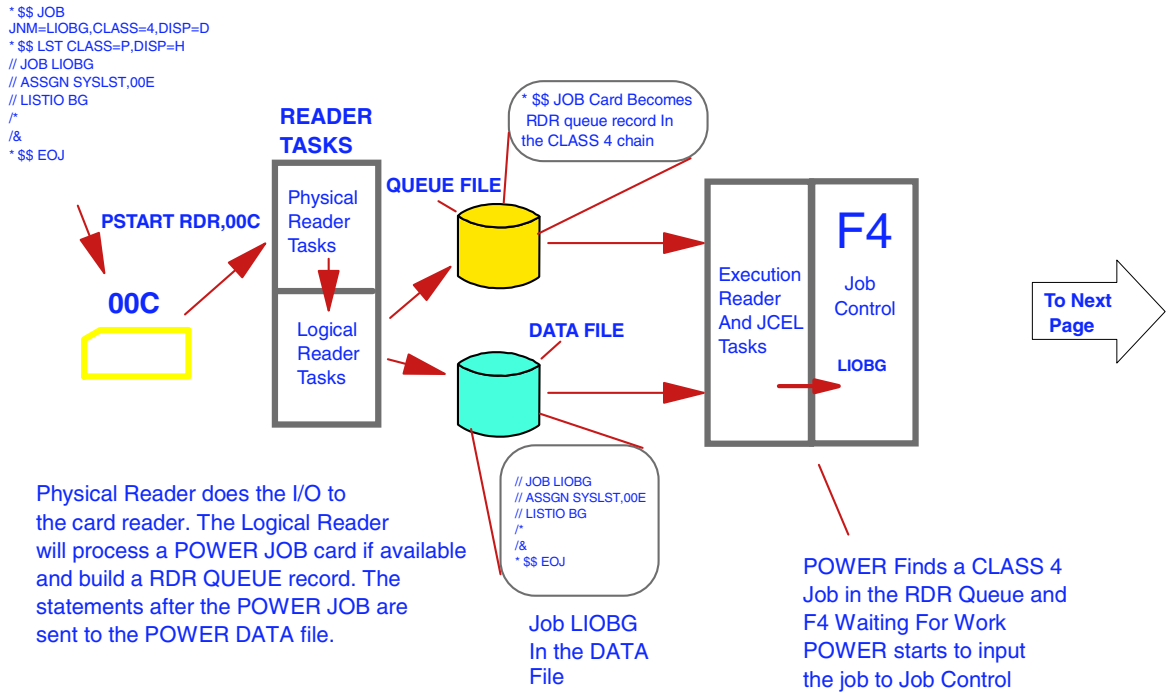
- A QUEUE & DATA file to hold job description information and data records.
- The ability to continually read jobs into its RDR queue and send output from its LST or PUN queues. There is also a XMT queue used by PNET.
- Additional JCL statements called JECL to control Input and Output job attributes.
- Each partition can assign a particular device address at the same time. BG, F3, F4 can each ASSGN SYSLST,00E and UNIT CURRENTLY UNASSIGNABLE. no longer occurs.

POWER

POWER now reads jobs from the reader and writes to printers and punches.
I/O for these devices from the partitions will now be routed to POWER who will handle the read or write request by accessing the QUEUE and DATA files.



Processing With POWER



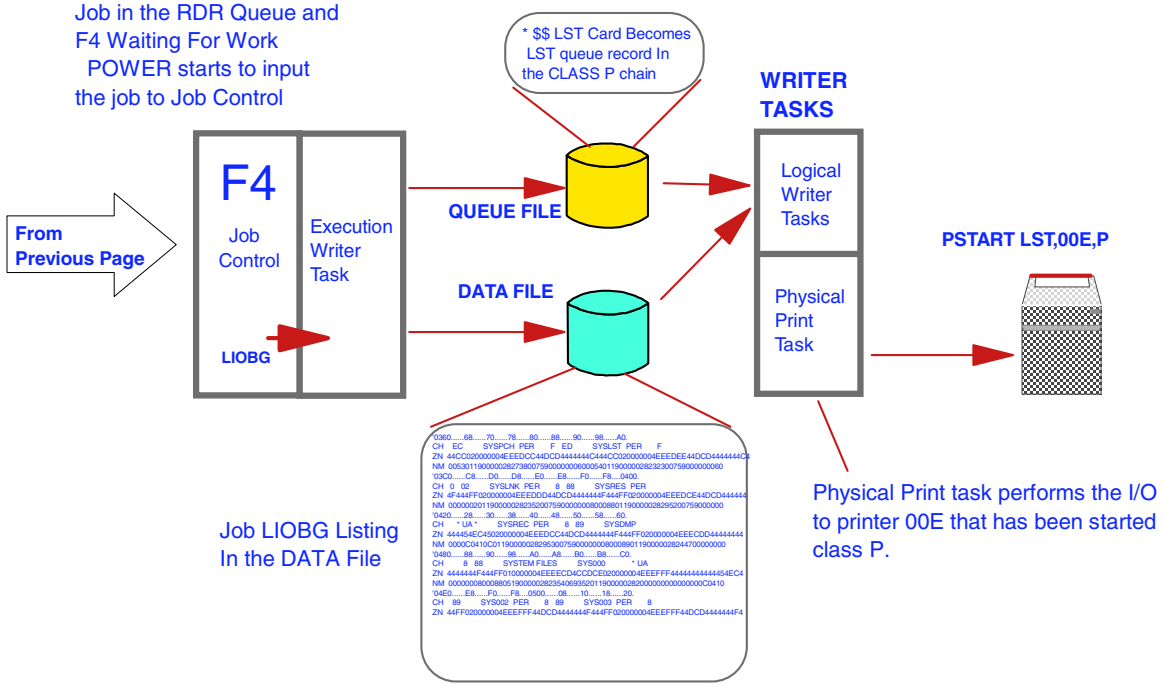
Physical Reader does the I/O to the card reader. The Logical Reader will process a POWER JOB card if available and build a RDR QUEUE record. The statements after the POWER JOB are sent to the POWER DATA file.

Job LIOBG In the DATA File

POWER Finds a CLASS 4 Job in the RDR Queue and F4 Waiting For Work POWER starts to input the job to Job Control

Processing With POWER

POWER Finds a CLASS 4 Job in the RDR Queue and F4 Waiting For Work
POWER starts to input the job to Job Control



Job LIOBG Listing In the DATA File

Physical Print task performs the I/O to printer 00E that has been started class P.

Startup

POWER Initiator PHASEs IPW$$IP, IPW$$I1 Through IPW$$I7, IPW$$IN Will Be Loaded And Executed. The Function Of The Individual Phases Are Documented In The **VSE/POWER DIAGNOSIS REFERENCE MANUAL**.

If POWER Is Required To Run In A Shared Address Space The ALLOC.PROC Must Be Changed For F1 Example: **ALLOC F1=1600K,S** There Are ALLOC PROC Skeletons In ICCF LIB 59.

If POWER Is In A Private Address Space The QUEUE Will Be Loaded Into Partition GETVIS. If You Want The QUEUE File Above-The-Line Be Sure That The Allocation Extends Beyond 16M.

Startup

POWER Macro

POWER Macro Parameters Are Transferred The Generation Table (GNB) Contained In Your POWER Phase. If You Have Multiple POWER Phases And A Problem Where Macro Changes Do Not Work....

MAP Command

```
AR 0015  SPACE AREA       V-SIZE   GETVIS   V-ADDR   UNUSED NAME
AR 0015    S   SUP         656K                0          $$A$SUPX
AR 0015    S   SVA-24      1684K    1692K    A4000      64K
AR 0015    0   BG V        1280K    4864K   400000   45056K
AR 0015    1   F1 V        1024K    1024K   400000       0K POWSTART
```

DSPLY Command

```
dsply f1,400000
AR 0015 E2E3C5E5 C5F14040 070D0000 0029CB16   *STEVE1  ........*
AR 0015 1I40I  READY
```

POWER's Phase Name
Be Sure It Is Correct

Startup - I/O Devices

POWSTRTB

If You Select Environment B (Large System) When Installing VSE/ESA A POWER Startup PROC Named PWRSTRTB Is Built. PWRSTRTB Tells POWER What Partition To Start, What Classes, What I/O Devices.

Section Of POWSTRTB

```
SET SJECL=YES
DEFINE L,CICSDATA,3F00,1,255,*
FORMAT=D,A
PSTART BG,A0I
READER=FEC
PRINTERS=00E,FEE,FEF,FFE
PUNCHES=FED
PSTART F2,L2
READER=FEC
PRINTERS=00E,FEE,FEF,FFE
PUNCHES=FED
PSTART F3,K3
READER=FEC
PRINTERS=00E,FEE,FEF,FFE
PUNCHES=FED
```

This Section Of POWSTRTB Is Called If A COLD Start Requested

PSTART For Partition BG, Accept Class A 0 I Jobs From The RDR Queue

Partitions Can Have 1 Reader And Up To 14 Printers And Punches

Startup MINI / BASIC /COLD

COLD STARTing The Queue And Data File.

Example: If Running A zVSE Guest The Command **ipl 888 loadparm ..pp** Will Cause The Following Messages To Be Displayed.

```
0I04I IPLDEV=X'888',VOLSER=DOSRES,CPUID=FF0465692003
0I03D ENTER SUPERVISOR PARAMETERS OR ASI PARAMETERS
```

You Can Change What IPL Or JCL PROCs To Use

```
BG 0000 IESI0214I SELECT STARTUP MODE FOR SYSTEM : MINI  BASIC COLD.
BG-0000 IESI0215A OR, IF NO CHANGE, ENTER: END .
```

Answer COLD Here To Cold Start POWER & CICS

Startup - MINI / BASIC

MINI START

Uses POWER Phase BSXPOWER Which Is A Basic Power Using Defaults
This Phase Is Equivalent To Skeleton SKPWRGEN In ICCF LIB 59. No Features
Turned On.

Will Define VSE Partitions BG, F1 - F5 & FB.

Uses Your Existing POWER QUEUE & DATA File

If You Have Changed DBLOCK, DBLKGRP, MINI With BSXPOWER Will Not
Initialize Correctly Due To DATA File Mismatch. With Shared Spooling Jobs
Will Have A SYSID And Can Not Be Released.

Startup - MINI / BASIC

BASIC START

Uses POWER Phase BSXPOWER Which Is A Basic Power Using Defaults
This Phase Is Equivalent To Skeleton SKPWRGEN In ICCF LIB 59. No Features Turned On.

Will Define VSE Partitions BG, F1 - F5 & FB.

Does **Not** Use Your Existing POWER QUEUE & DATA File, Uses These Extents On SYSWK1 ..

BSX.POWER.QUEUE.FILE
BSX.POWER.ACCOUNT.FILE
BSX.POWER.DATA.FILE

Does Not Start Your Jobs, Runs With VTAMBSX, CICSBSX.

Startup - Cold Start

WHEN...

POWER Is First Installed

There Is A Change To DBLK DBKGRP

A Severe Problem Make Warm Start Impossible

The QUEUE And DATA File

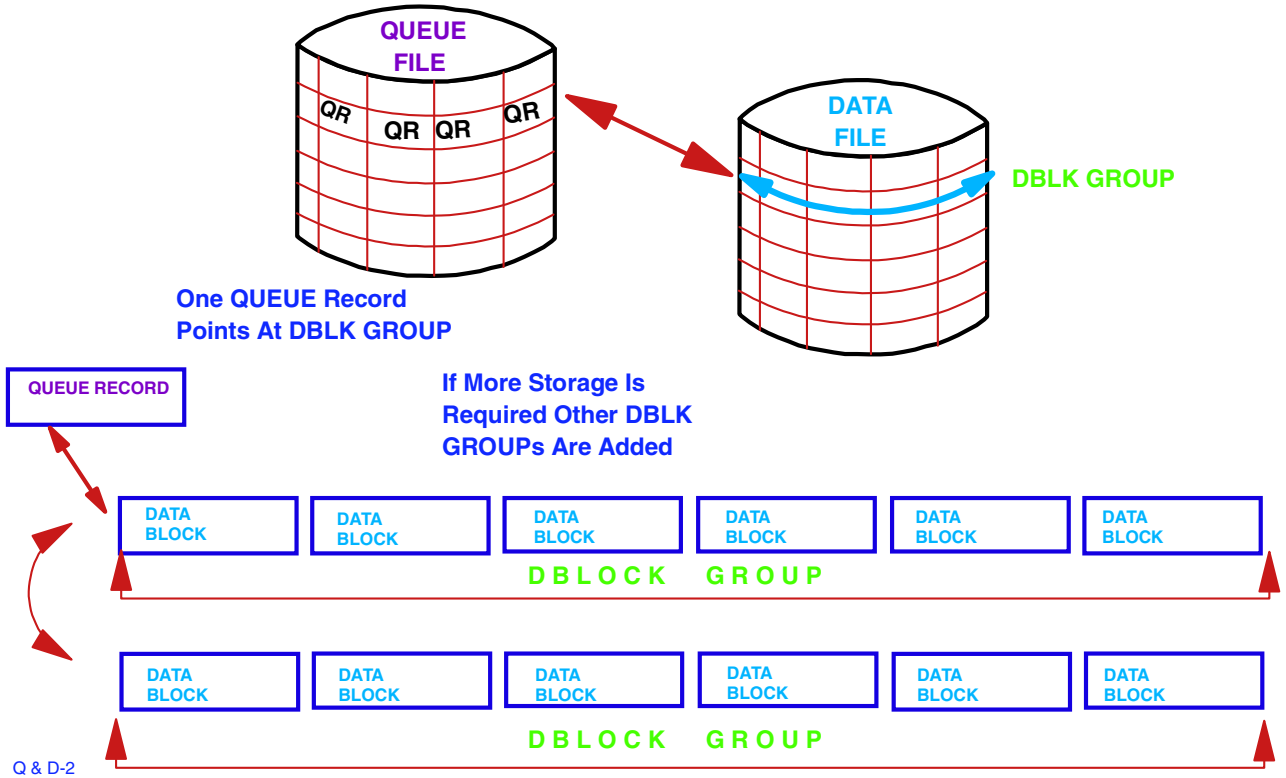
QUEUE File

Can reside in VIO or Partition GETVIS. POWER started In A Shared Partition Results In QUEUE File Loaded Into VIO. POWER Started In A Partition In Private Space Results In QUEUE Loaded Into Partition GETVIS.

DATA File

Holds Your Spooled Data In Data Block (DBLK). DASD Space Available Is Arranged Into Groups Of Data Blocks (DBLK GROUPs). No Matter How Many DBLK Groups There Are In A Job There Is Only One QUEUE Record. An Important Point To Remember Is That A DBLK GROUP Is Smallest Amount Of Data File That POWER Will Allocate To A Job.

QUEUE And DATA File Relationship



QUEUE & DATA File - Size Matters

POWER Will Default To QUEUE And DATA File Values Based Upon Your DASD Device Type. But The QUEUE And DATA File Size Can Be Tailored If Required, To More Efficiently Manage The Data Produced By Your System.

- Not Enough QUEUE File And You Run Out Of Storage (Queue Records).
- DBLKs Too Small And Your System Performs More I/O's To Complete A Job And Performance Suffers.
- DBLKs Too Large And You Will Waste DATA File And GETVIS During Job Execution, May Run Out Of Partition GETVIS.

QUEUE And DATA File - How Big ?

Assumptions: The QUEUE File And DATA File Are On 3390-3's

POWER Will Default To QUEUE And DATA File Values That Are Listed In Tables In The VSE/POWER ADMINISTRATION AND OPERATIONS Manual.

For 3390 DASD The **Default DBlock Size Is 7,548 Bytes**, The Default Queue Record Block Size Is 12,288 With 32 QUEUE Records Per Block And 4 Blocks Per Track.

Partial Output Of Command - D STATUS - Showing Defaults

```
1R46I  QUEUE FILE     IJQFILE
   TOTAL NUMBER OF TRACKS                                  7 TRACKS
   TOTAL NUMBER OF QUEUE RECORDS                         862 RECORDS
   NO. OF FREE Q-REC'S (INCL. 10 FOR CUSHION)            811 RECORDS
   MAX. NO. OF Q-REC'S USED IN PRESENT SESSION             52 RECORDS
   MAX. NO. OF Q-REC'S USED SINCE LAST COLDSTART         108 RECORDS
   NUMBER OF QUEUE RECORDS LOST DUE TO I/O ERROR           0 RECORDS
   QUEUE FILE STOR. COPY IN PART. GETVIS (TOTAL)         324 K-BYTES


 1R46I  DATA FILE      IJDFILE                            1 EXTENT
    TOTAL NUMBER OF TRACKS                             1920 TRACKS
    TOTAL NUMBER OF DBLK-GROUPS                        1680 GROUPS

 NO. OF FREE DBLK-GROUPS (INCL. 10 FOR CUSHION)        1629 GROUPS
 MAX. NO. OF DBLK-GPS USED SINCE LAST COLDSTART         134 GROUPS
 NO. OF DBLK-GPS LOST DUE TO I/O OR LOGIC ERROR           0 GROUPS
 DATA BLOCK GROUP SIZE                                    8 DBLKS
 DATA BLOCK SIZE                                       7548 BYTES
 SPOOL LIMIT PERCENTAGE                                  90 %
 DATA FILE DBLK GROUP TRACING                            ENABLED
```

QUEUE And DATA File - How Big ?

Basic Guidelines: There are some Recommendations To Follow In the **VSE/POWER ADMINISTRATION AND OPERATIONS** Manual Under PLANNING FOR VSE/POWER Estimating Disk Space For The VSE/POWER Spool Files.

- Some Items To Think About....

  The Number Of Jobs That May Be Queued At One Time

  How Much Data Do You Keep Stored On The Queue's ?

- The Number Of DBLK Groups Needed At One Time?

  Since The Smallest Unit Of DATA FILE Use Is A DBLK GROUP If
  For Example Your DBLK Size = 7548 Bytes And The DBLK GROUP=8.

  By Default Any Queue Entry Will Use At Least 7548 * 8 = 60384 Bytes

The Default Numbers

QUEUE File - By Default 3390 Results In 7 Tracks For The QUEUE File. With 4 Blocks For QUEUE Records Per Track With 32 QUEUE Records Per Block.	DATA File - By Default The 3390 Results In 1920 Tracks, 1680 DBLOCK GROUPs. Each DBLOCK GROUP Of 8 x 7548 Bytes = 60K.
7 Tracks x 4 Blocks/Track 28 Blocks - 1 For Master QR 27 Q Blocks x 32 QR / Block 864 QUEUE Records - 2 System Use 862 QUEUE Records	56664 Bytes/Track / 7548 Bytes/DBlock = 7 DBlock /Track 1920 Tracks X 7 = 13440 DBlks 13440 DBlks / 8 = 1680 DBlk Grps

QUEUE And DATA File - How Big ?

Some Data Gathering You Can Do.

Use The **D STATUS** Command It Will Show You What Your Values Are Today QUEUE Records, DBLK Groups And How Many Are/Were Used. **D STATUS,LST** Will Send Command Results To LST Queue.

Monitor Your Systems Output/Job Mix To See If There Is A Typical Job Output Or A Range Where Many List/Punch Jobs Would Fit.

The Command **D LST,FULL=YES** Will Command Show What Jobs Use More Than One DBLK GROUP With Your Present Settings. **PDISPLAY Q** Will Show Current Free QUEUE And DBLK GROUP Information.

Assume:

Your System With 3390-3 DASD. Today Your System Is Using QUEUE & DATA File Defaults. If The POWER MACRO Has DBLK=0 This Means Use The Default DBLK Size. If DBLKGP Is Not Specified The Default Is 8.

You Find That Your System Workload Produces Many Jobs With Output Of About 120,000 Bytes. (POWER Does Not Spool Trailing Blanks).

DBLOCK Sizes

Different Methods To Get About 120KB

DBLKGRP = 8

$$\frac{\text{120,000 Bytes}}{\text{7548 Bytes/DBlock}} = 15+ \text{ DBLOCKS} = 2 \text{ DBLOCK GROUPS}$$

$$\frac{\text{120,000 Bytes}}{\text{15,096 Bytes/DBlock}} = 7+ \text{ DBLOCKS} = 1 \text{ DBLOCK GROUP}$$

DBLKGRP = 3

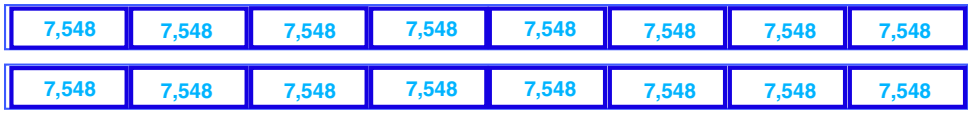
$$\frac{\text{120,000 Bytes}}{\text{56,600 Bytes/DBlock}} = 2+ \text{ DBLOCKS} = 1 \text{ DBLOCK GROUP}$$

DBLOCK Sizes

To Fit 120,000 Bytes

DBLKGRP = 8

7548 Bytes/DBlock X 2 DBLOCK GROUPS = 120,768 Bytes



15,096 Bytes/DBlock X 1 DBLOCK GROUPS = 120,768 Bytes

DBLKGRP = 3

56,600 Bytes/DBlock X 1 DBLOCK GROUPS = 169,800 Bytes

DBLOCK Sizes

During Job Processing...

When Full, Each DBLOCK Will Be Written To The DATA File.

POWER Partition GETVIS Is Required To Hold DBLOCKs When Tasks (TCBs) Are Reading Or Writing Data.

Resulting In ...

- The 7,548 Byte DBLOCKs, With Two, Eight DBLOCK Block Groups Per Job. Require The Most I/O's To Write 120KB.

- The 15,096 Byte DBLOCKs With One Eight DBLOCK Block Group Half The I/O, But Double The Required GETVIS.

- The 56,600 Byte DBLOCKs With A DBLKGRP Of Three Requires The Least I/O. But A Large Increase In GETVIS. With 20 - 30 Tasks Each Task Would Need 49KB More Than With 7,548 DBLOCKs.

QUEUE File

During Job Processing...

A Task Requires Partition GETVIS For A Queue Record, A Queue Record Is Under 400 Bytes.

At POWER Initialization...

If POWER Is In A Shared Partition A Copy Of The QUEUE File Is Loaded Into Virtual Storage (VIO) .

If POWER Is In A Non-Shared Partition The QUEUE File Will Load Into POWERs Partition GETVIS. If The Partition Extends Beyond The 16MB Line Some Or All Of The QUEUE File Can Reside In 31 Bit Partition GETVIS Freeing Up 24 Bit.

Considerations

A Large DBLOCK Decreases I/O's, Uses More Partition GETVIS

The QUEUE File Can Load Above-the-Line. If Running With Defaults This Will Get Back About 400KB Of 24 Bit Partition GETVIS.

The Default Values Might Work Well For Your System.

The Recommendations In The VSE/POWER ADMINISTRATION & OPERATIONS Manual Are Good And Have A Long History, Use The Manual.

The **D TASKS** Command Shows Number Of TCBs.

Use The **D STATUS** Command, There Is A Wealth Of Information Available.

POWER NJE & RJE

NJE - Network Job Entry

Support To Receive/Send Jobs And Job Output Between POWER, RSCS, JES.

RJE - Remote Job Entry

Support To Receive Jobs And Send Job Output From POWER To Certain Terminal Types.

Manuals

VSE/POWER Administration and Operations

Reference For POWER, PRMT And PLINE Macros.

VSE/POWER Remote Job Entry

Reference For RJE Commands , Supported Devices, Operations And Trouble Shooting..

VSE/POWER Networking

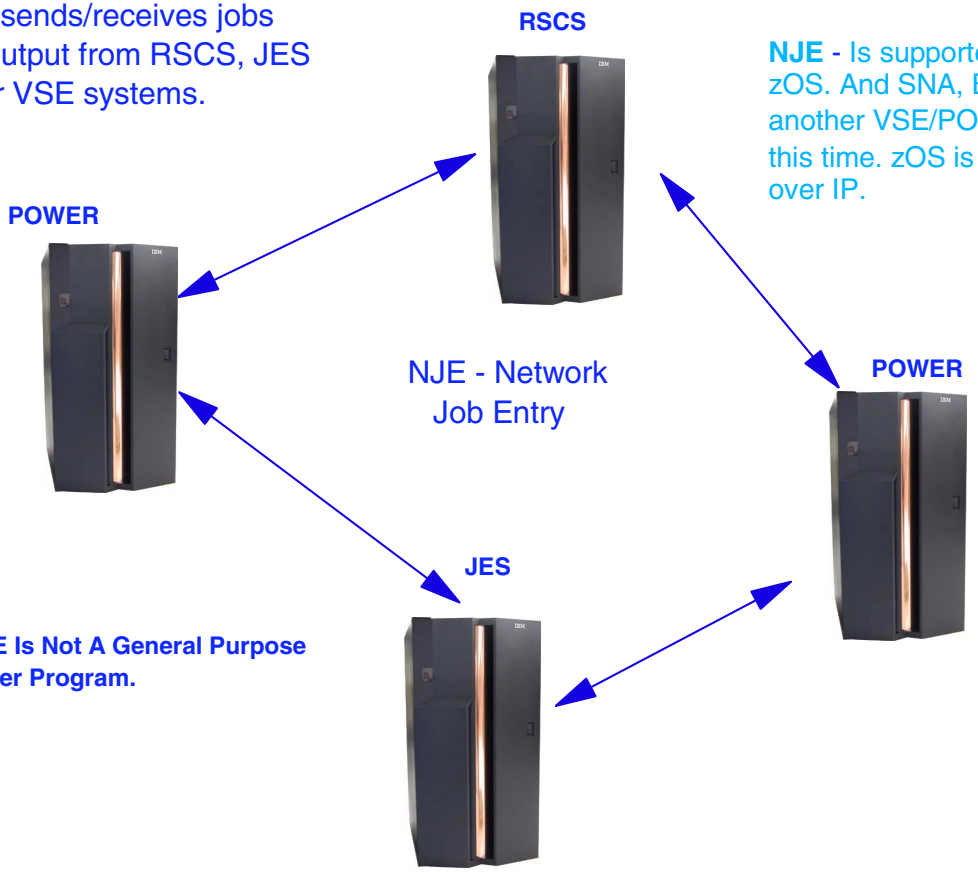
NJE Overview, Reference For PNET Job Exits, Usage And Trouble Shooting.

NJE - Network Job Entry

- NJE Is An Architecture Supported By zVSE, zVM, and zOS
- JHR, DSHR And JTR Sent Between Systems, Detailed Job Information Is Available To The Other Nodes. Job Name, Number, Device Type , FCB Names, Separator Page Information Etc...
- PNET Connections Supported By BSC, SNA and TCPIP many different topologoies including zVM Guest Lan QDIO/HIPER, and the HIPERESOCKETS ADAPTER
- Architecture Is Independent Of Product Internals. No Matter What Buffer Sizes, QUEUE Record Sizes Etc. Products Use Internally. The Defined NJE Architecture Allows Various Releases Of VSE/POWER, JES, RSCS To Communicate With Each Other.

PNET - POWER/Networking zVSE

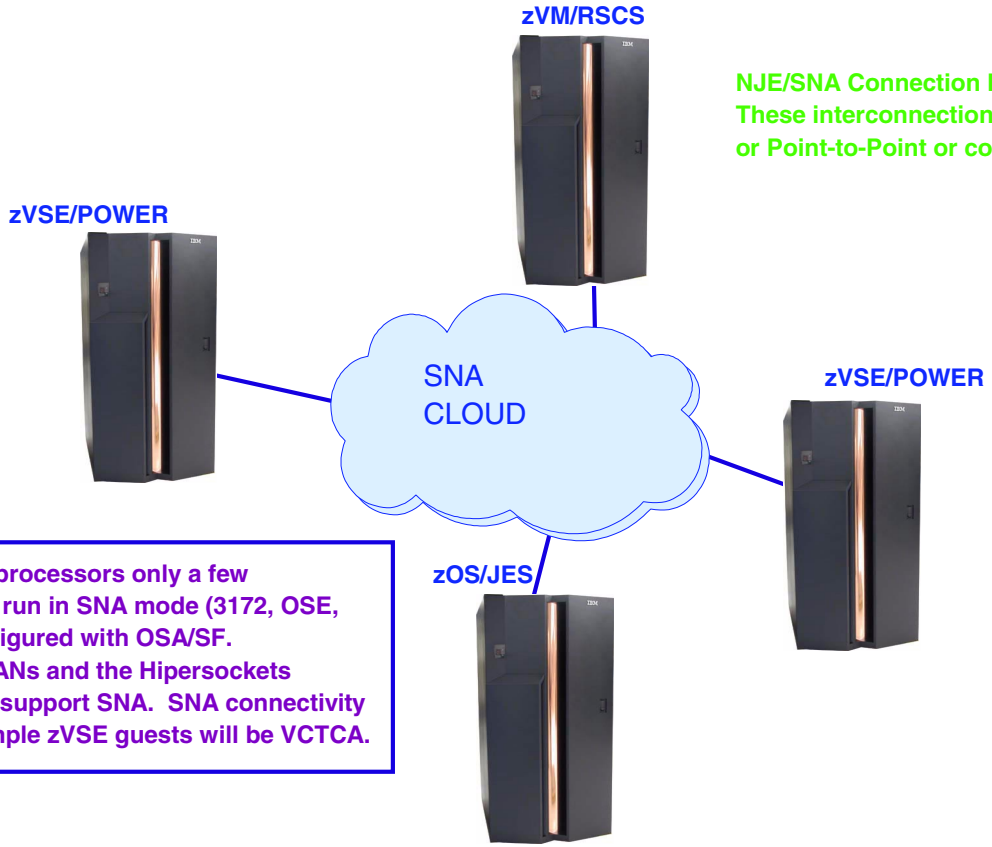
POWER sends/receives jobs and job output from RSCS, JES and other VSE systems.



NJE - Is supported via SNA, BSC to zOS. And SNA, BSC and TCPIP to another VSE/POWER or zVM/RSCS at this time. zOS is implementing NJE over IP.

NOTE: NJE Is Not A General Purpose File Transfer Program.

NJE/SNA

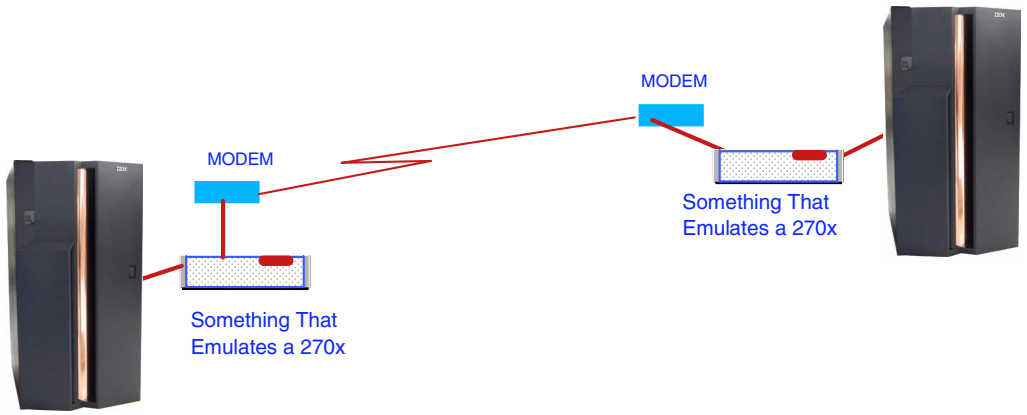


NJE/SNA Connection Example.
These interconnections can be LAN or Point-to-Point or combinations.

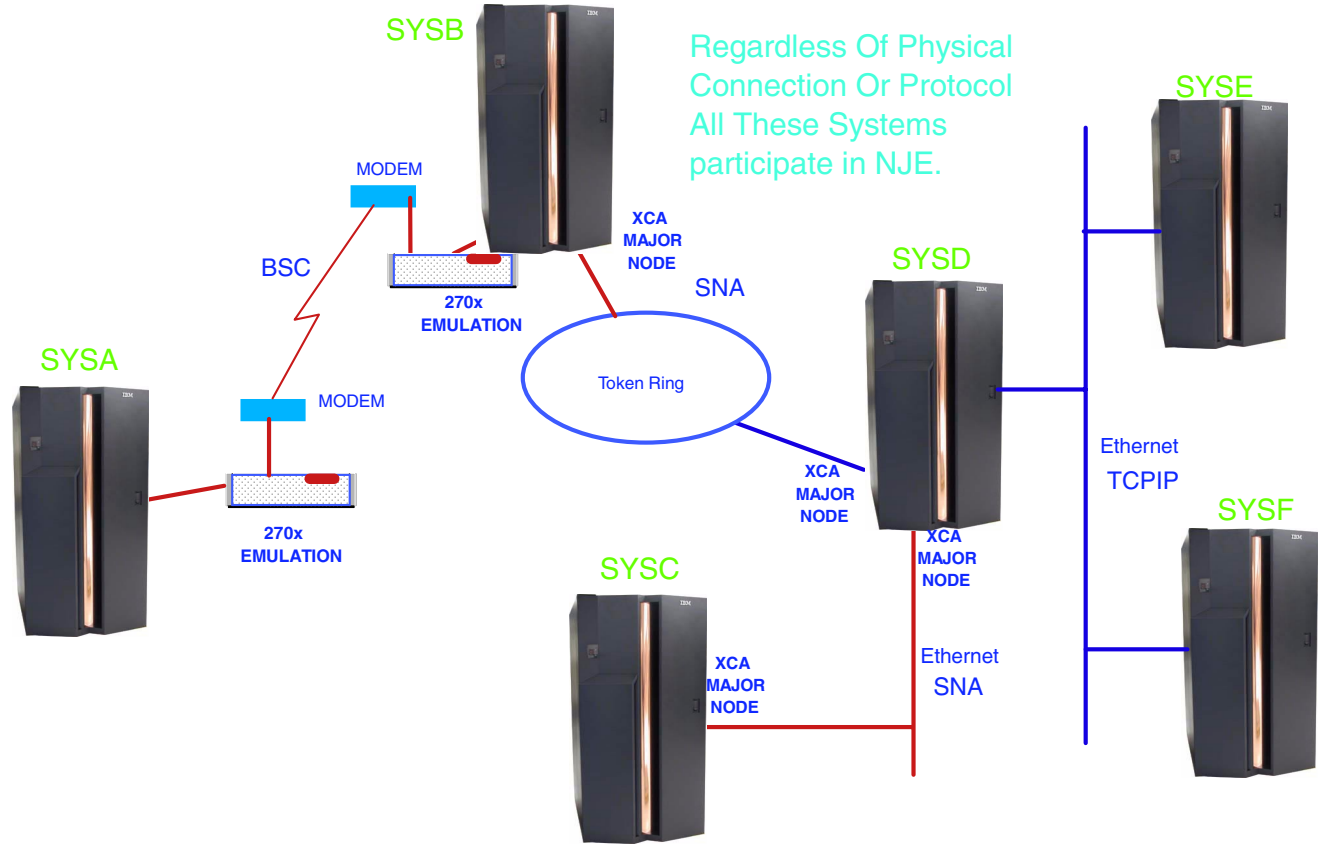
With the zSeries processors only a few OSA/E cards can run in SNA mode (3172, OSE, LCS) and be configured with OSA/SF.
The zVM guest LANs and the Hipersockets Adapter DO NOT support SNA. SNA connectivity between for example zVSE guests will be VCTCA.

NJE/BSC

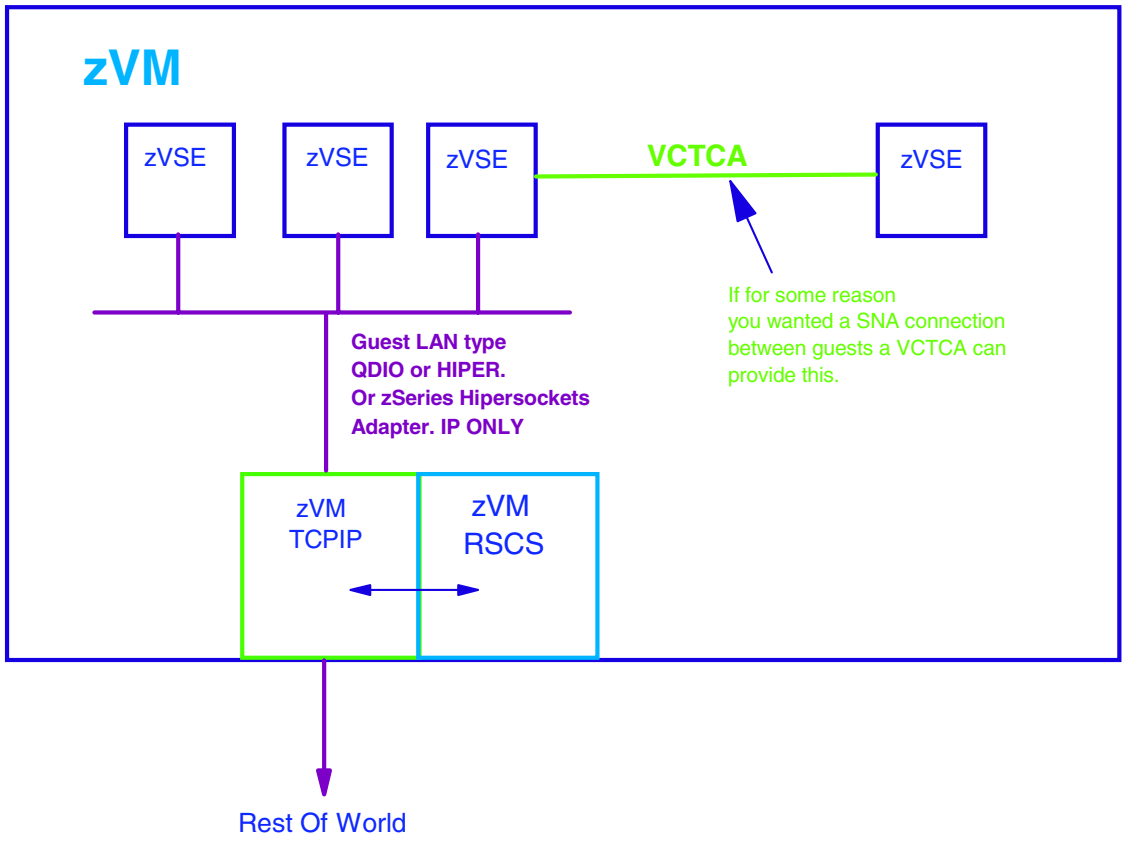
NJE/BSC Connection Example.
Inter System Connections Using
Controllers That Emulate A 270x
Telecommunications Controller.



NJE


SYSB
Regardless Of Physical
Connection Or Protocol
All These Systems
participate in NJE.
SYSE
MODEM
XCA
MAJOR
NODE
BSC
SNA
SYSD
270x
EMULATION
SYSA
Token Ring
MODEM
Ethernet
TCPIP
XCA
MAJOR
NODE
270x
EMULATION
XCA
MAJOR
NODE
SYSF
SYSC
XCA
MAJOR
NODE
Ethernet
SNA

NJE - zVM GUESTs



PNODE Macros

No APPLID - SYSA Is A
PNET BSC Node

LOCAL=YES means
that's my Node Name.

```
        PRINT NOGEN
PNETSYSA PNODE NODE=PWRSYSA,LOCAL=YES
        PNODE NODE=PWRSYSB,AUTH=NET,BUFSIZE=800
        PNODE NODE=PWRSYSD,AUTH=NET,BUFSIZE=800,ROUTE1=PWRSYSB
        PNODE NODE=PWRSYSE,AUTH=NET,BUFSIZE=800,ROUTE1=PWRSYSB
        END
```

APPLID - PWRSYSD Is A
PNET SNA Node

```
        PRINT NOGEN
PNETSYSB  PNODE NODE=PWRSYSB,APPLID=PWRSYSB,LOCAL=YES
        PNODE NODE=PWRSYSA,AUTH=NET,BUFSIZE=800
        PNODE NODE=PWRSYSD,AUTH=NET,BUFSIZE=800,APPLID=PWRSYSD
        PNODE NODE=PWRSYSE,AUTH=NET,ROUTE1=PWRSYSD
        END
```

Any Definition With
APPLID Identifies
A SNA Node.

```
        PRINT NOGEN
PNETSYSD  PNODE NODE=PWRSYSD,APPLID=PWRSYSD,LOCAL=YES
        PNODE NODE=PWRSYSB,AUTH=NET,BUFSIZE=800,APPLID=PWRSYSB
        PNODE NODE=PWRSYSA,AUTH=NET,BUFSIZE=800,ROUTE1=PWRSYSB
        PNODE NODE=PWRSYSE,AUTH=NET,BUFSIZE=800,APPLID=PWRSYSE
        END
```

An IP connection between
SYSF and SYSE

With No Direct Connection
Available ROUTE1=PWRSYSA
Tells Power To Send A File First
To PWRSYSB To Get To PWRSYSA

```
        PRINT NOGEN
PNETSYSF  PNODE NODE=PWRSYSF,IPHOSTADDR=10.10.10.2,LOCAL=YES
        PNODE NODE=PWRSYSE,AUTH=NET,IPHOSTAD=10.10.10.1
        END
```

These macros define the environment to zVSE

Shared Spooling Feature

- Allows POWER To Share QUEUE/DATA And Optionally The ACCOUNT File
- This Feature Is Included With POWER, It Is Not Additional Cost.

Manuals

VSE/POWER Administration and Operations

Shared Spooling Requirements

Shared Spooling: Startup Considerations Requirements

Shared Spool Considerations

Shared Spooling Feature

POWER Macro Options

SHARED= Tells POWER What Files To Share, Q&A, Q.

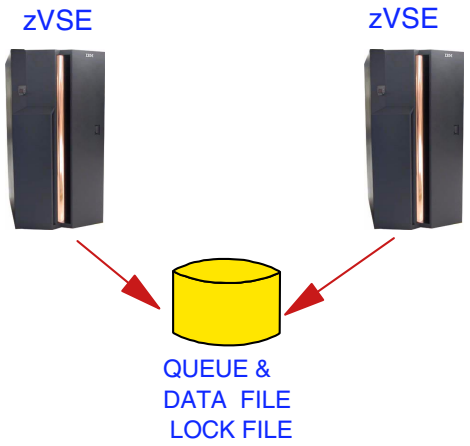
SYSID= Gives A Unique System Number To Each System Sharing The QUEUE File This Will Be Seen When Displaying The Queues.

TIME= Defines A POWERs Active/Idle/Polling Time For QUEUE Access.

VSE

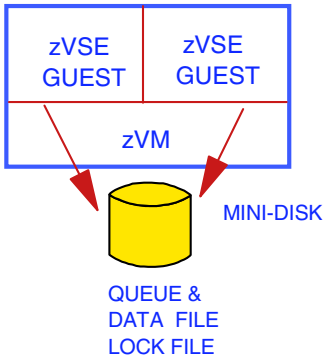
DLF A Lock File Will Be Required.

Shared Spooling Feature

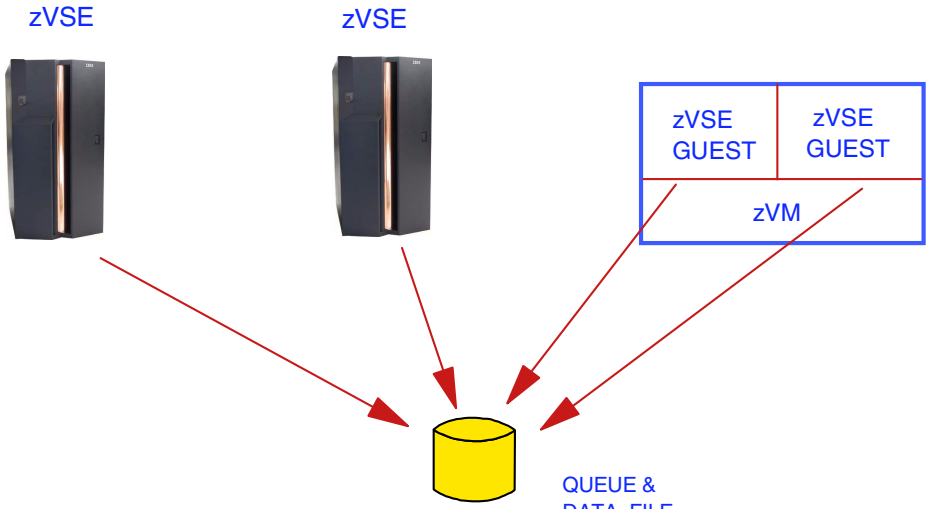


With Native VSE Machines Reserve/Release CCWs Control File Access.

With VSE Guest Machines And Mini-Disks, Specify Virtual Reserve/Release (MWV) In MDISK Statement. VM Controls File Access.

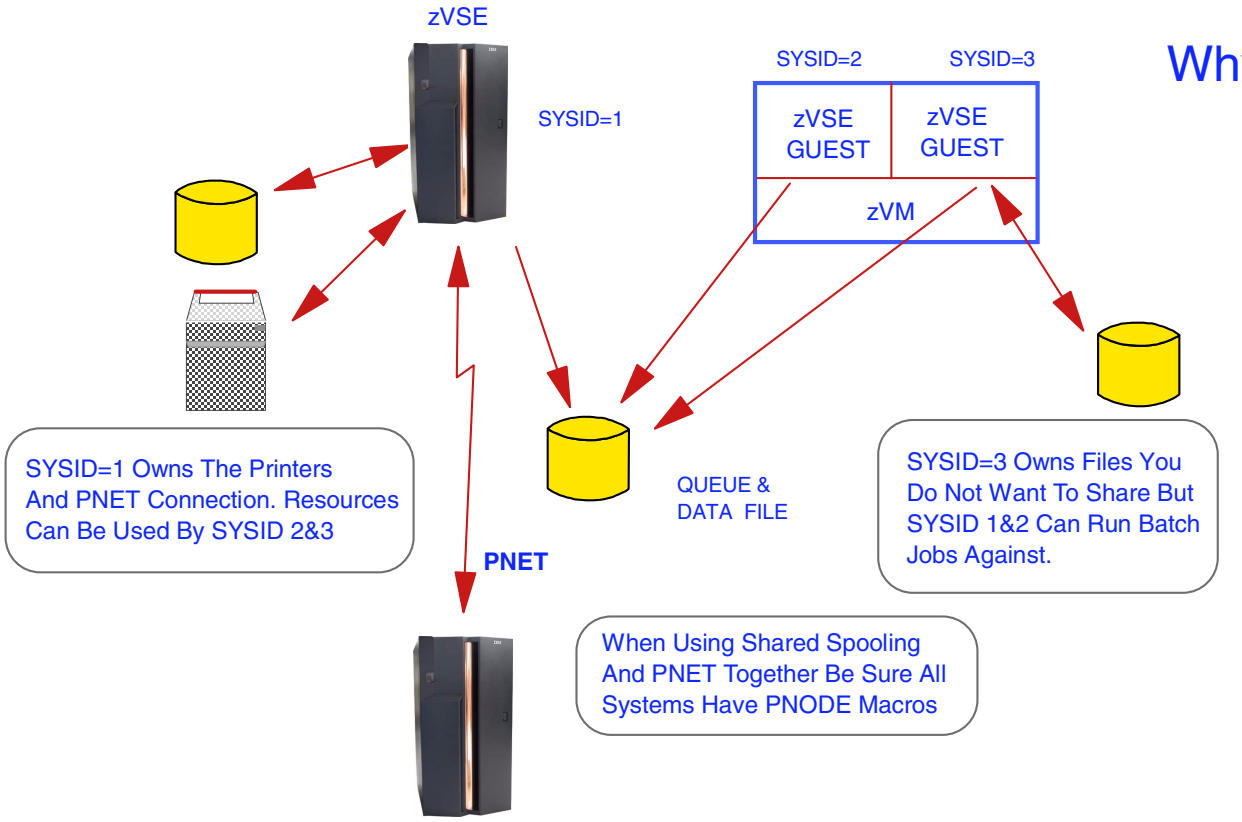


Shared Spooling Feature



Up To Nine VSE Systems
In Combinations Of Guests,
Standalone Can Share Q & D
And/Or A.

Shared Spooling Feature



Enhancements

There have been many enhancements to POWER since VSE 2.5 a few areas are:

- QUEUE Entries
- TCPIP/PNET
- SSL

QUEUE / DATA Enhancements

- Number of spool entries is now 100,000 (99,998) usable.

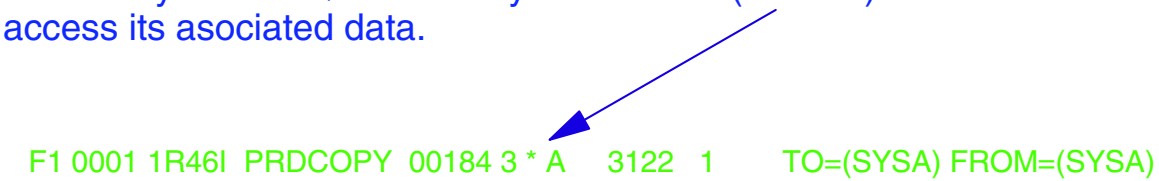
- Two new QUEUE, CRE and DEL

- QUEUE File reallocation at warm start

- DATA File reallocation at warm start

Access To Queue Entries

Previously once a QUEUE entry went active (DISP=*) no other task could access its asociated data.



After POWER 6.5 multiple tasks can GET-BROWSE (Read) a QUEUE entry using the Spool Access Support interface even if DISP=*.
If multiple jobs are accessing a QUEUE entry to be deleted, the entry is placed in a Deletion Queue until the last browser is complete then the
entry is deleted.

The PDISPLAY command has been enhanced to be able to display entries in delayed deletion status.

PDISPLAY DEL

PDISLPAY TOTAL

Access To Queue Entries

At times would be beneficail to be able to Browse a tasks data while the task is still spooling data.

After POWER 6.5 a tasks can GET-BROWSE (Read) a QUEUE entry using the Spool Access Support interface even if the task has not completed spooling data.

This allows access to in-creation QUEUE entries which can allow other jobs
that have to reference the data to begin executing sooner.

The PDISPLAY command has been enhanced to be able to display entries in-creation status.

PDISPLAY CRE

PDISLPAY TOTAL

Networking

NJE TCP

PNET VSE/POWER networking can be accomplished via TCPIP. This is available along with SNA and BSC.

SSL

Secure Socket Layer for data encrytion is available for use with PNET TCP when using *TCPIP For VSE.*

Down Time Reduction

The number of cases where a Cold Start of POWER is required is reduced to one in zVSE, if you change the DBLK or DBLKGRP.

- Warm start QUEUE File re-allocation.

- Warm start DATA File re-allocation

- Warm start PNET Name change.

The End

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