VSE/VSAM 24 X 7

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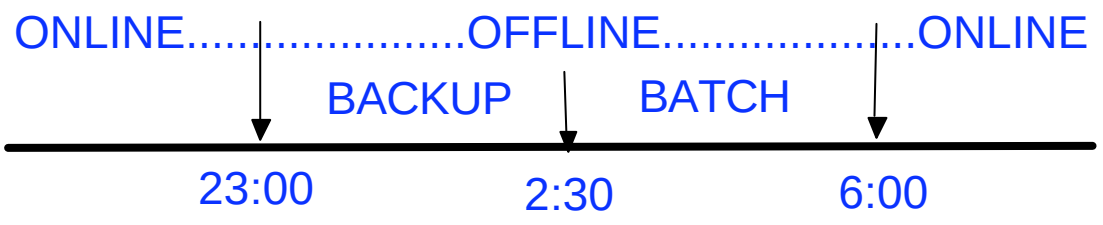
Batch-Windows ...

- ✘ inhibitors of online processing time
  - backup-window
  - batch-window



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✓ Eliminate the Backup-window

VSAM backup using
FlashCopy (ESS)
SnapShot (RVA)

What is "FlashCopy" and "SnapShot"?

- **The DASD architectures** *RAMAC Virtual Array Storage (RVA)* **and** *Shark (ESS)* **allow copy of DASD's with the utilities** *"SnapShot"* **respectively** *"FlashCopy"* .
- **The COPY process takes few seconds instead of hours !**
- **From OP system view the copy is a real copy of data.**
- **From the DASD controller view it is a virtual copy of data.**

VSAM-Restrictions in a VSE system

- Duplicate VOLIDs (DASD names) not allowed on a VSE System !
- Duplicate VSAM Catalog names not allowed on a VSE System !

Difficulties in using FlashCopy or SnapShot for VSAM Datasets

FlashCopy / SnapShot for VSAM Datasets would mean: .....

- .... duplicate VOLID'S and/or duplicate VSAM Catalog names on the system ....

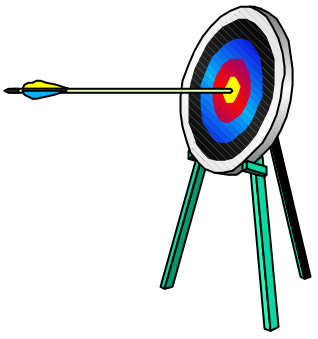
➡ unpredictable Results!

Difficulties in using FlashCopy or SnapShot for VSAM Datasets

- ..... or many changes required in the copied VSAM catalog regarding new VOLID'S (i.e. volume list for each dataset) and Catalog names.

- performance
- increased error risk
- possible lose of data

Support for FlashCopy / SnapShot for VSAM Datasets with VSE/ESA 2.5



1. IDCAMS SNAP Utility

2. IDCAMS "Synonym" BACKUP

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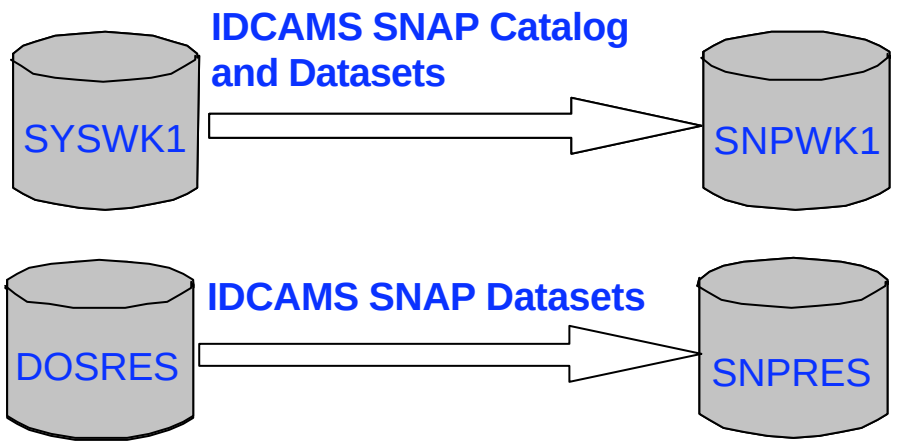
1. IDCAMS SNAP Utility Program

- IDCAMS SNAP makes copies of entire DASD volumes (VSAM catalog- and VSAM data- volumes).
- IDCAMS SNAP changes the names of the copied volumes (VOLID).
- After IDCAMS SNAP all copied volumes are **ONLINE** available for backup!

Step 1: IDCAMS SNAP - copy all DASD's and give new Volid's



After Step 1, the DASD's and catalogs copied are identical, but cannot be used.

Few seconds later:

- IDCAMS SNAP finished.
- Online applications can be restarted (CICS).
- The catalog and the datasets on the snaped (copied) volumes are identical with the original volumes

(only VOLID's are different),

➡ but the copied datasets can not be used, because .....

VSAM-Restrictions in a VSE system

- Duplicate VOLIDs (DASD names) not allowed on a VSE System !
  - SNAP changed the VOLID'S
- Duplicate VSAM Catalog names not allowed on a VSE System !

Step 2: IMPORT CONNECT a new catalog name

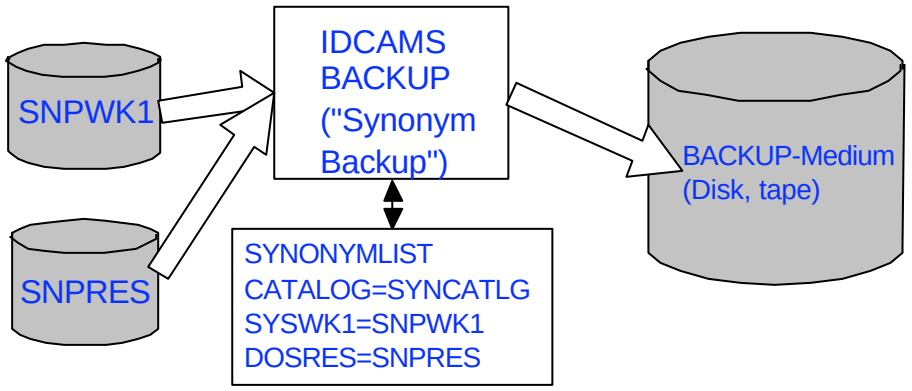
The catalog on the snaped volume needs a new name.

➡ **we simulate a new catalog name with IDCAMS IMPORT CONNECT ,**

➡ **a *synonym catalog name*.**

Step 3: Backup VSAM datasets from snapped volumes (the VSE system is online)

only "Synonym Backup" can read VSAM data from SNPWK1 and SNPRES !



After Step3: a "normal Backup medium" was created

What is "Synonym Backup"? (1)

- a synonym list is used, to redirect VSAM to the snaped volumes (with the synonym catalog name) and execute the BACKUP from the copied Datasets.

- VSAM controls the "synonym connection" to the snaped (renamed) catalog and datasets.

- Only "Synonym Backup" can read the VSAM datasets from the copied volumes.

What is "Synonym Backup"? (2)

- With the exception of using the new synonym list, the backup process is unchanged.

- That means, all functions of IDCAMS BACKUP can be used

- IDCAMS BACKUP produces a normal Backup-Medium for IDCAMS RESTORE.

Backup with synonym list

```
EXEC IDCAMS
 BACKUP ( ....................)    -
  SYNONYMLIST                       -
   (SOURCEVOLUMES(SYSWK1,DOSRES)    -
    TARGETVOLUMES(SNPWK1,SNPRES)    -
                                    -
    CATALOG(VSESP.USER.CATALOG)     -
    SYNCAT(VSESP.SNAP.CATALOG))
```


Sample job: SNAP AND VSAM BACKUP

```
// JOB SNAP AND BACKUP FROM SNAPPED VOLUMES
// ASSGN SYS005,180
// DLBL IJSYSUC,'VSESP.SNAP.CATALOG',,VSAM
// EXEC IDCAMS,SIZE=AUTO
 /* STEP 1: DO THE SNAPSHOT */                    -
  SNAP                                           -
    SOURCEVOLUMES(SYSWK1,DOSRES)                 -
    TARGETVOLUMES(SNPWK1,SNPRES)
 /* AFTER STEP 1 THE ONLINE SYSTEM MAY BE STARTED */
 /* STEP 2: SYNONYM NAME FOR THE SNAPPED CATALOG  */-
  IMPORT CONNECT OBJECTS((VSESP.SNAP.CATALOG      -
    VOLUMES(SNPWK1) DEVT(3390)))                 -
    CATALOG(VSAM.MASTER.CATALOG)
 /* STEP 3: BACKUP FROM SNAPPED VOLUMES */        -
  BACKUP (*)                                     -
     SYNONYMLIST(                                -
    SOURCEVOLUMES(SYSWK1,DOSRES)                 -
    TARGETVOLUMES(SNPWK1,SNPRES)                 -
    CATALOG(VSESP.USER.CATALOG)                  -
    SYNONYMCATALOG(VSESP.SNAP.CATALOG) )
/*
/&
```

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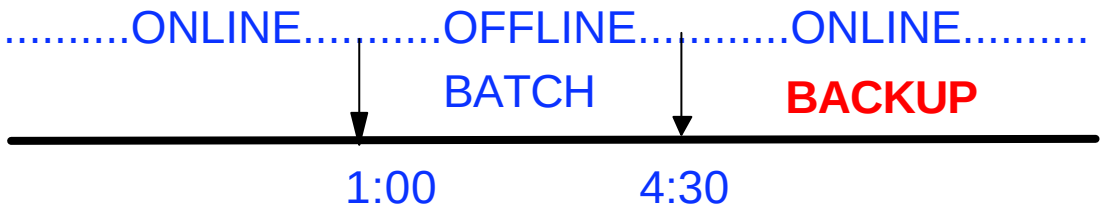
Conclusion FlashCopy/Snapshot

Steps for online VSAM Backup using FlashCopy/Snapshot

- Close online applications (shutdown CICS)
- FlashCopy the DASD's (datasets/databases, catalogs
  - eventually run batch job streams
- restart CICS and the online applications
- Backup your VSAM data during Production

VSAM Backup and Online system in paralel with VSE/ESA 2.5 and 2.6



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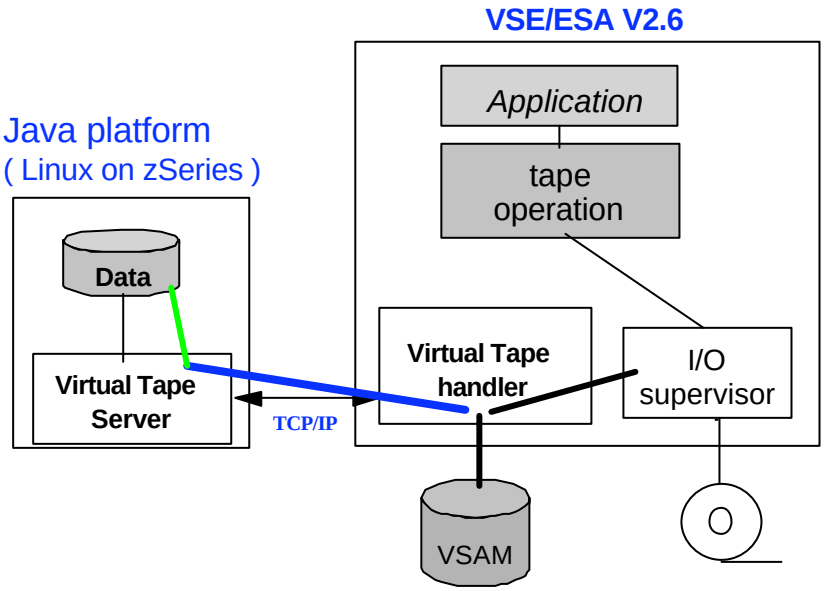
✓ Integrate VSE Backups in standard processes

Use of VSE/ESA 2.6 Virtual tape support to integrate VSE Backup media into general, automatic Backup processes

Virtual Tape support



- simulates a real tape (tape operation supported)
- transparent for applications

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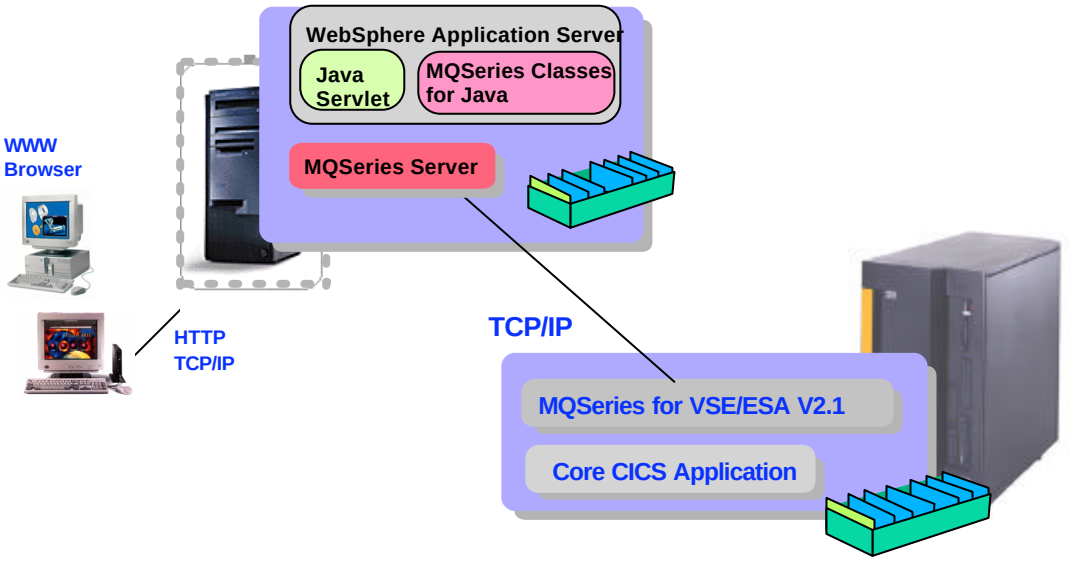
✓ Batch-window solutions

Use of MQ Series and
the new e-business connectors
to avoid Production downtime

Asynchroneous work with MQSeries



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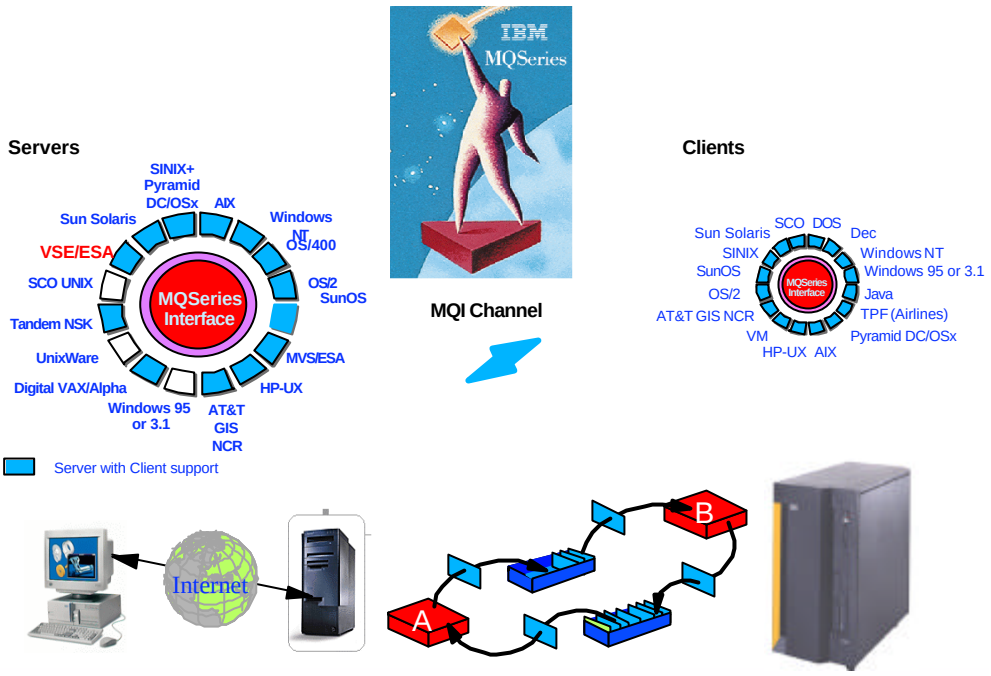
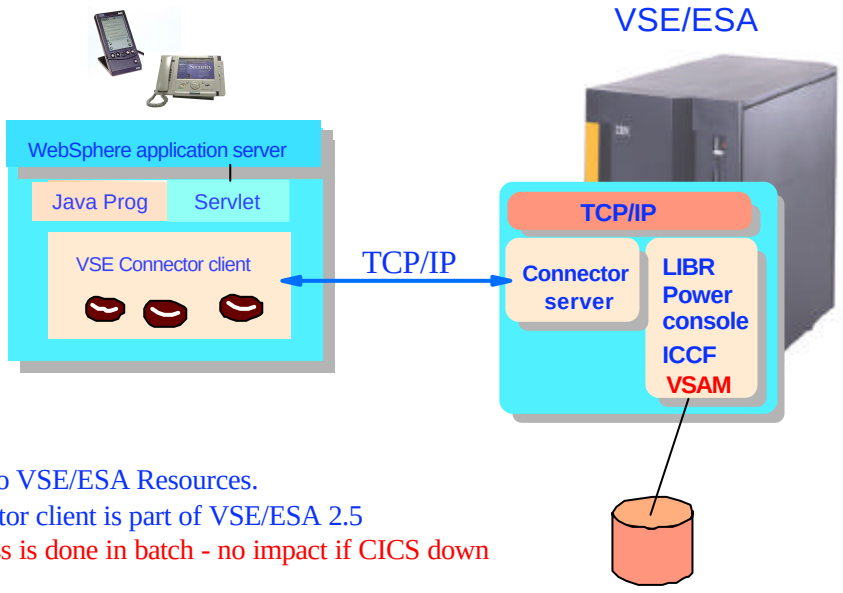
MQSeries and MQSeries Clients



Java-based Connector

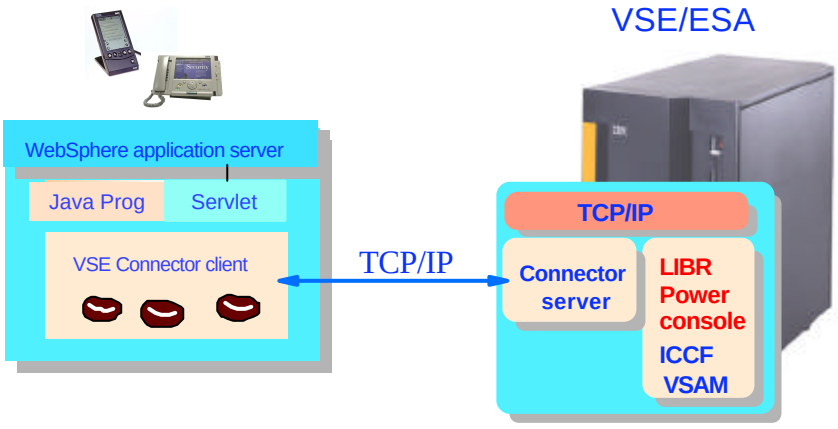


- Java access to VSE/ESA Resources.
- VSE Connector client is part of VSE/ESA 2.5
- VSAM access is done in batch - no impact if CICS down

✓ Automation and remote control

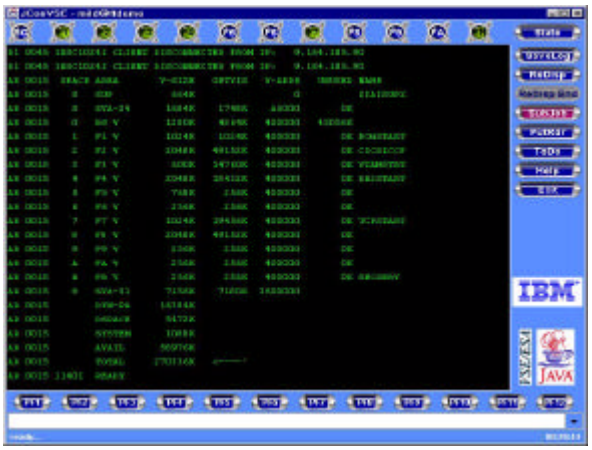
Use the new e-business connectors for automation and remote system management

Java-based Connector



- Java access to VSE/ESA Resources.
- VSE Connector client is part of VSE/ESA 2.5

Java-based Console support tool for VSE/ESA (JConVSE)



JConVSE Overview

The application reacts on VSE messages and has a time controlled component.

This solution helps you, automate the VSE environment and integrate the VSE system with other platforms such as Linux for zSeries.

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JConVSE Benefits

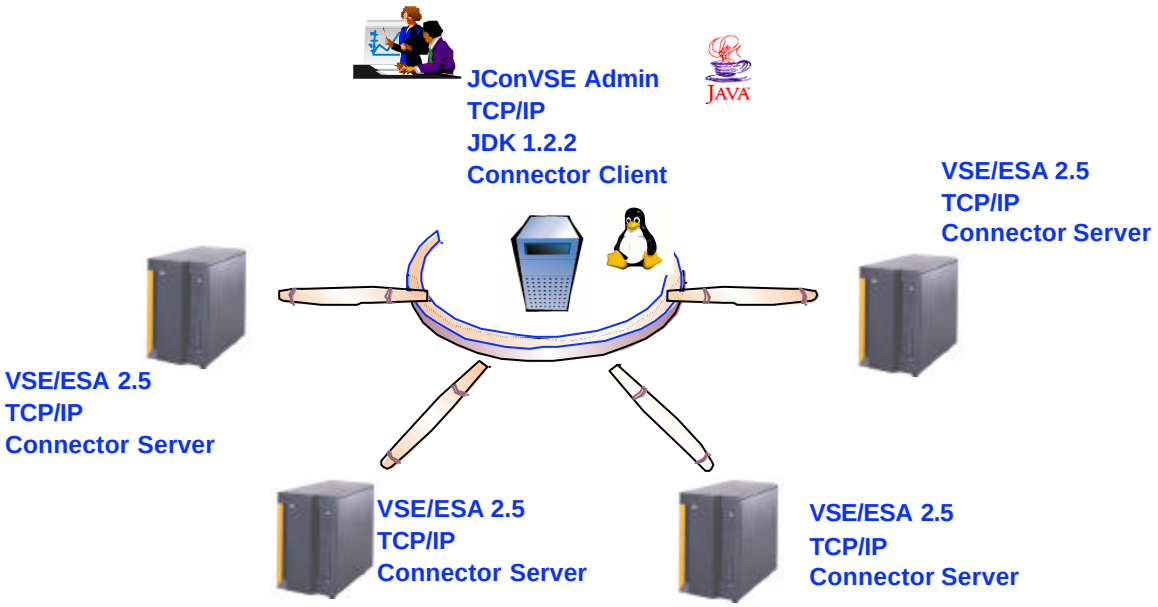
- Reduce your operating time
- Eliminates complex client software
- Easy to use
- Platform independence
- Protects the investment in mainframe-based systems

JConVSE major control

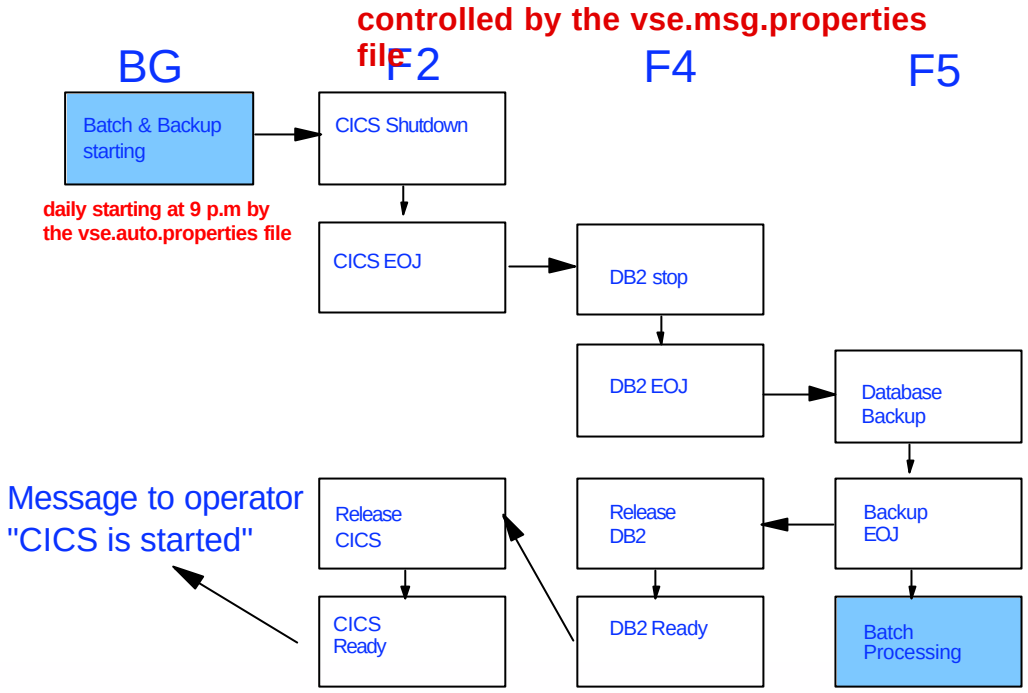
- **Message controlled**
- **Event controlled (on schedule)**

JConVSE Panel

JConVSE Installation



JConVSE Sample



JConVSE Properties Files

- **VSE.PROPERTIES** customize the VSE system
- **VSE.MSG.PROPERTIES** customize the messages
- **VSE.AUTO.PROPERTIES** customize the timed actions
- **VSE.MISC.PROPERTIES** customize the JConVSE panel

You can be as flexible as you want to be

JConVSE vse.msg.properties

```
# Starting Backup
msg.4=0000 // PAUSE BATCH WILL NOW RELEASED
msg.4.delay=10 s
msg.4.action=Vmsg f2

msg.5=0109
msg.5.action=V109 cemt p shut,i

msg.6=0002 EOJ
msg.6.delay=15 s
msg.6.action=Vmsg f4

msg.7=0004 ARI0062A SQLDS
msg.7.delay=5 s
msg.7.action=V4 sqlend quick
```


JConVSE vse.auto.properties

```
# Start Test CICS
action.1.cmd.1=msg f2
action.1.cmd.2=109 cemt p shut, i

# Starting Batch
action.2=Release Batch
action.2.days=1 2 3 4 5
action.2.time=18:0:00
action.2.cmds=1
action.2.cmd.1=r rdr,batchstr
```

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