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Migrating to and Managing the EMC DLm with DTS Software DLm Control Center (DCC)

Session 11020

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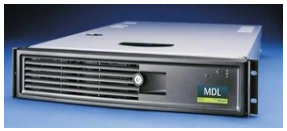
Agenda



- Issues in a DLm Environment
- DCC Interfaces to the DLm
  - TSO/ISPF, Console/Batch, GUI/Remote
  - Running backend scripts and reports
- DLm Log Monitoring
- Thresholds, Triggers, and Actions

Issues in a DLm Environment

- Tape drive allocation
- Volume Management
- Back-end Utilization and Reporting
- Event Monitoring
- Device Conversion

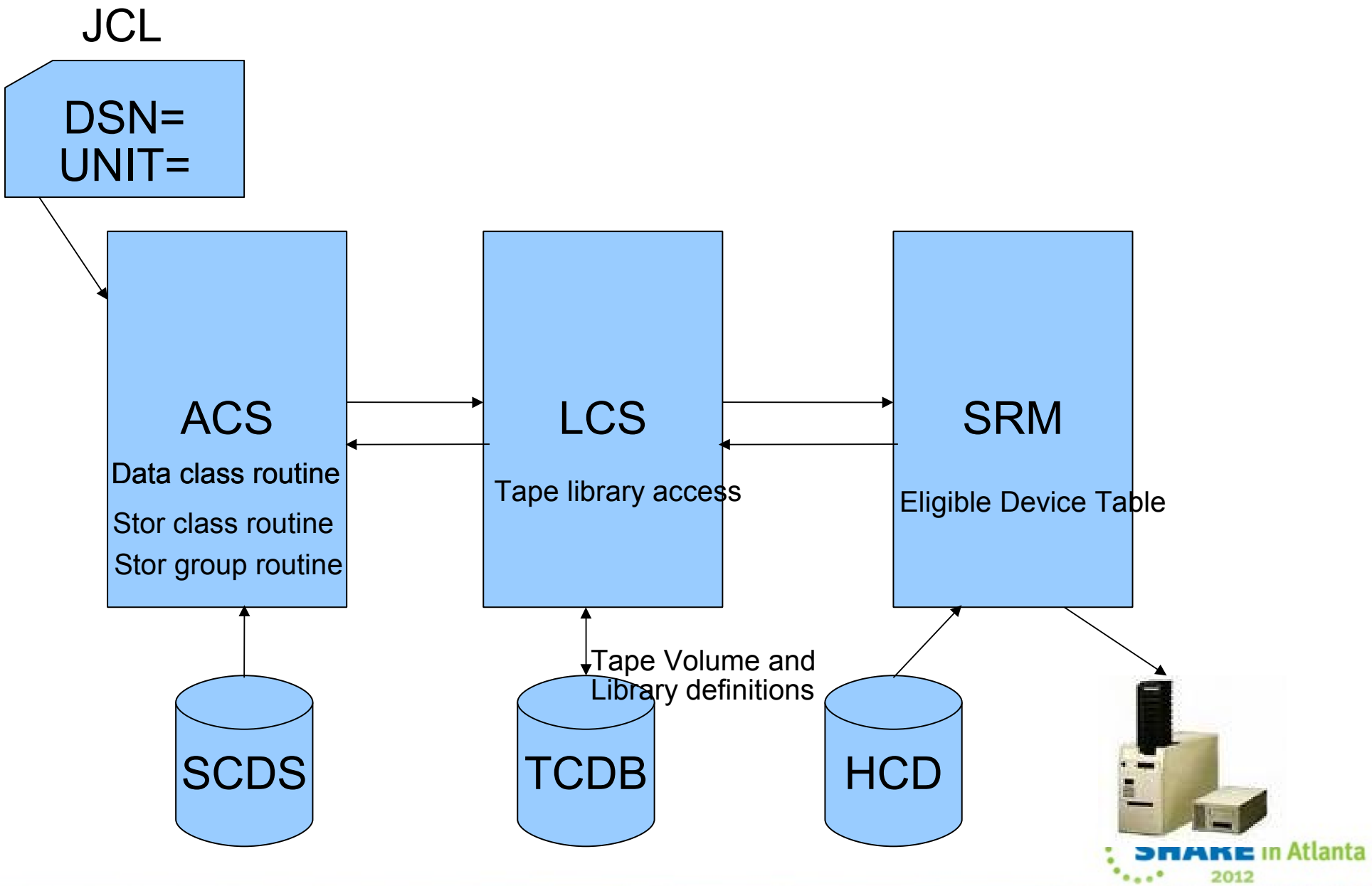
Tape Device Selection

- // UNIT=
  - Specifies a particular group of devices
    - Might contain both DLm and non-DLm
    - Leads to MOUNT errors
  - Can be used to direct allocation to DLm
    - If UIM installed or special esoteric used
    - Requires JCL changes and application changes
- Eligible Device List (EDL)
  - Built at allocation time
  - JCL parameters or catalog info
    - SMS class names, constructs, catalog unit type
    - UNIT, VOLSER, volcount, unitcount
  - Allocation selects desired device

SMS Managed Tape Requirements

- OAM active
- Devices defined as DLm in HCD
- ACS routines
  - STORCLAS
  - STORGRP
- Define
  - SMS constructs (tape SGs and Libs)
  - TCDB (Libraries and Volcats)
- Who's in charge?

Tape Device Selection with SMS



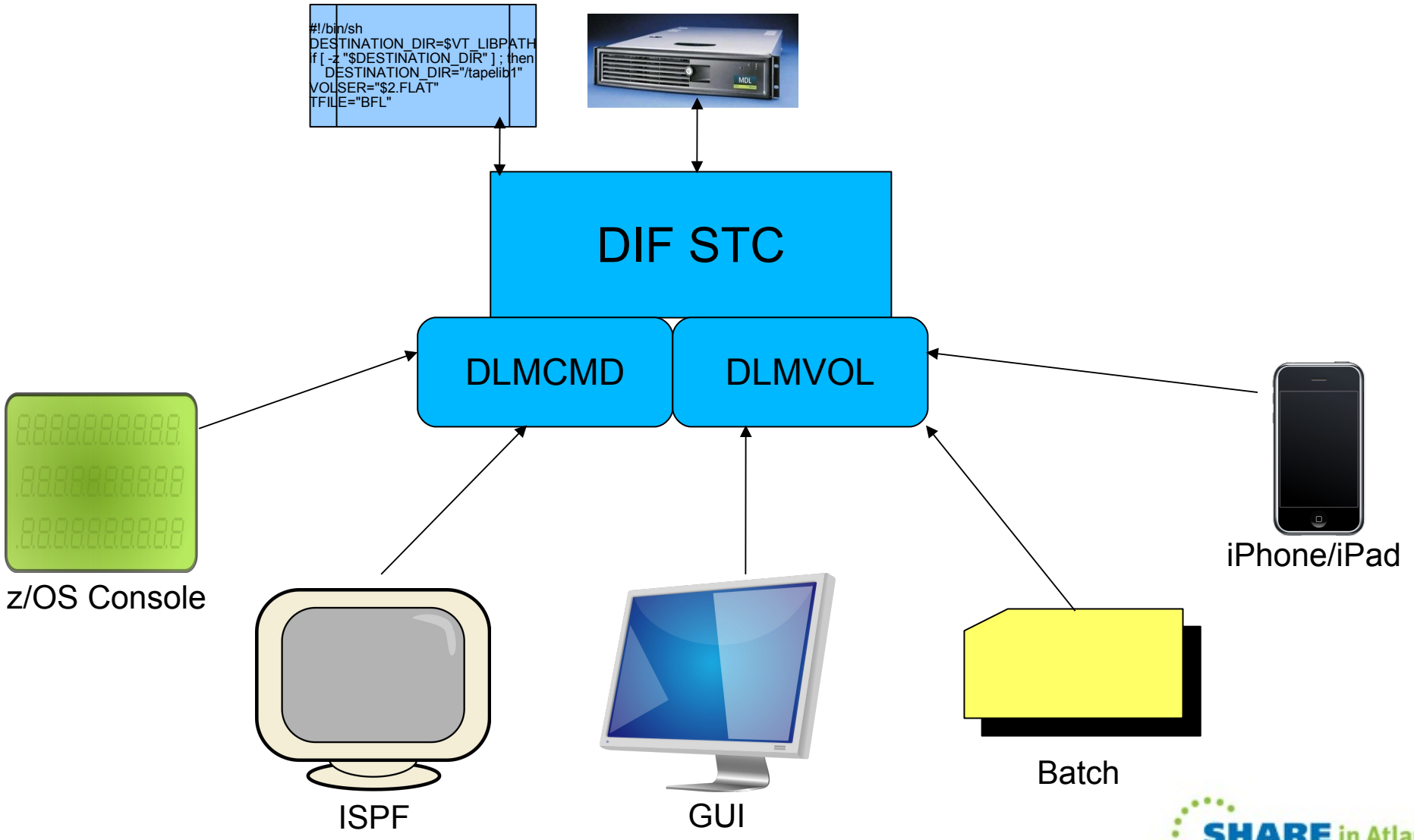
DLm Management with DCC
What Can I Do?

- View DLm Configuration
- Issue DLm Commands
- Obtaining DLm information
- Event and Log Monitoring
- Tape Volume Copying (Cloning)

DLm Management

- Allocation Steering
  - via the DCC Policy Rules
  - Define tape libraries in DLMPOOLS member
  - Define allocation rules in DLMRULES member
    - Assign 'scratch synonym' name
    - Assign tape pool
    - Enable DLMLIB= parameter in JCL
    - Break invalid UNIT affinity
    - and more

DCC Management Interfaces



Managing the DLM via DCC ISPF Interface

- View the DLm Configuration
  - Obtain library, device, and volume information
- Issue DLm, z/OS, DIF commands
  - mount/unmount, view, query
  - Issue Linux commands, run EMCxxx scripts
- Activity Logs
  - DLMCLONE audit
  - TCDB and RMM reports

Managing the DLM via DCC ISPF Interface

- Communicates with DIF
  - Via DLMCMD and DLMVOL
  - Via DLm scripts
- Library and Device Status and Commands
  - Select *Node*, *Library*, or *Device*
  - READY, REWIND, UNLOAD, QUIESCE ,etc.
  - Device info, drive list, path, mounted vol, etc.
  - Volume information
    - Scratch status, SMS status, etc.

DCC Scratch Exits

- DLMSCR Component
  - Automatically updates tape status in DLm
  - Uses CBRXLCS exits (RMM and MTL)
  - For CA-1
    - Uses TMSUX2S (security) exit
    - Use CA1 ATLTYPE=EMCDLM and ROBSCR option

Managing the DLm via DCC
Other Interfaces

Batch

- // EXEC PGM=DLMCMD
- // EXEC PGM=DLMVOL
- // EXEC PGM=DLMUTIL

TSO

- DLMCMD cmdtext
- DLMVOL volser

DIF STC

- F DIF,DLM CMD cmdtext
- F DIF,DLM VOL volser

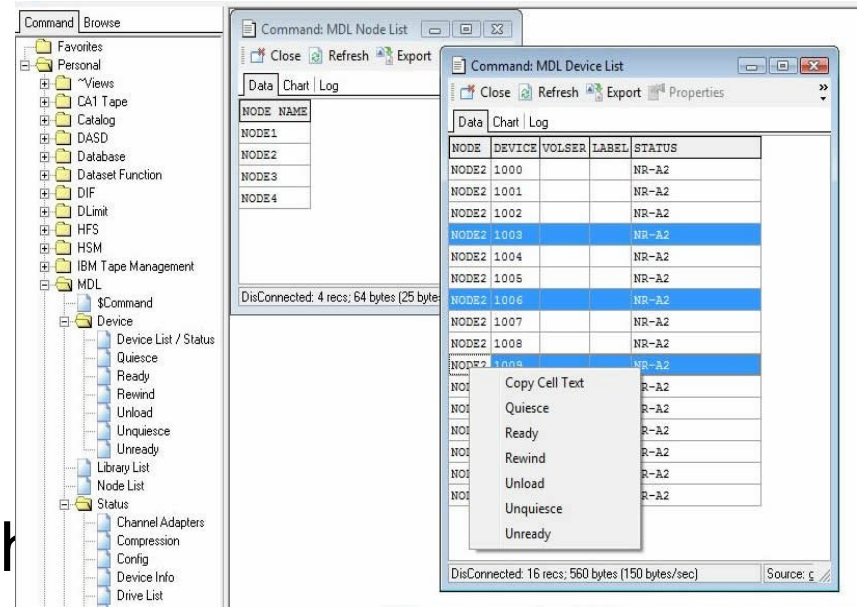
DLMUTIL
Control Statements

- Node Commands
- CMD – any DLm command
- MSG – write to DLm console log file

- Volume Commands (filterable by DATE and DSN)
- SCRATCH/UNSCRATCH – change scratch status
- ERASE – remove all but labels
- DELETE – remove erased scratch tape from DLm
- OBLITERATE – SCRATCH+ERASE+DELETE

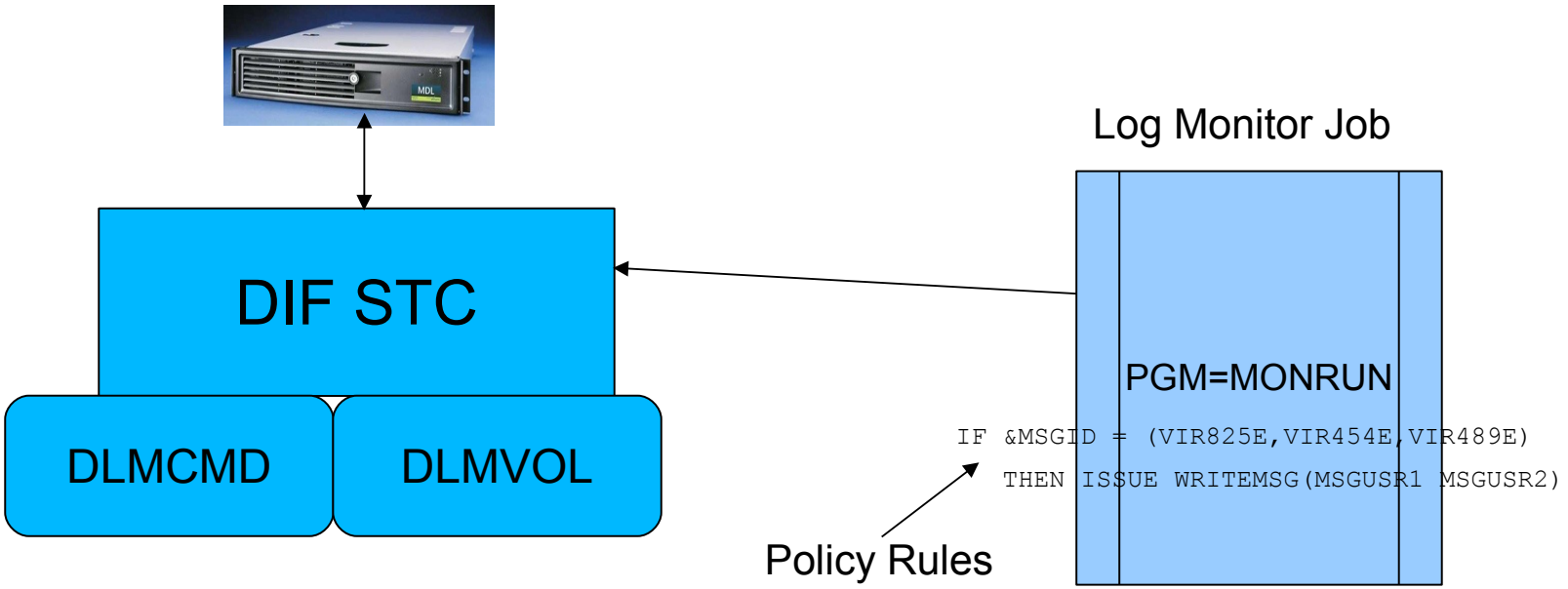
Managing the DLm via DCC Graphical Interfaces

- MONitor/Explorer GUI Application



- Apple iPh

Managing the DLM via DCC
Monitoring the DLm Activity Log



DCC Log and Event Monitoring

- DCC policy rules to:
  - Identify 'trigger' events
  - Take actions on specified events
    - Email, WTO(R), REXX exec, console command, et. al.
- Policy rules executed via
  - SNMP client under DIF, in real time
  - Batch DLMCMD vs. logs

Migrate by Volser or Dataset?

- By volser
  - Simple list of input volumes
  - Less complex auditing
  - Metadata requires updating if volser changes

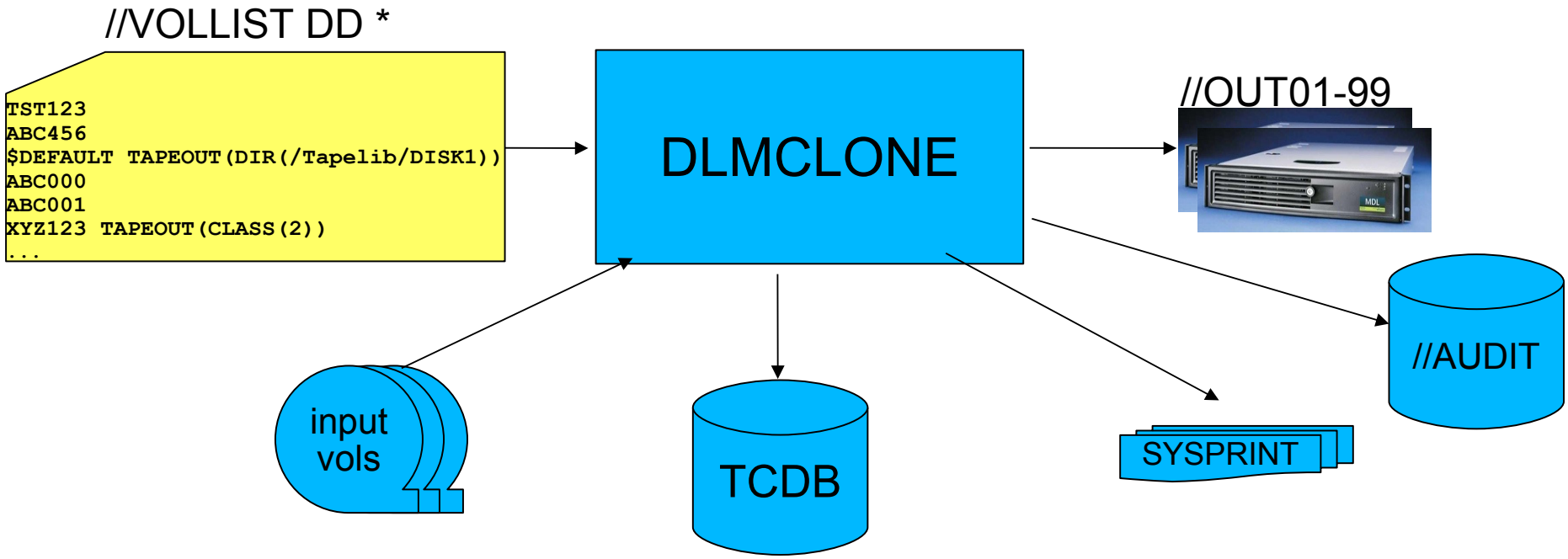
- By Dataset
  - List of datasets and associated volumes
  - More complex, possibly many mounts
  - Catalog and TMS entries updated with new volsers

  - Move in reverse order of expdt

Migrating to the DLm

- DLMCLONE Utility
  - "clones" tapes
    - Same VOLSER, same LABEL, same UNIT type
    - Updates the TCDB if necessary
    - *NO updates to TMS required!*
  - Restartable
  - Supply a list of volumes for DLMCLONE to copy

Migrating to the DLm




```
//COPYSTEP EXEC PGM=DLMCLONE,PARM='TAPEIN(UNIT(3490))'
//STEPLIB DD DSN=DTS.R51.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//AUDIT    DD DSN=DLM.CLONE.AUDIT.LOG,DISP=SHR
//OUT1 DD DISP=OLD,UNIT=(3490,,DEFER),DLMLIB=TAPELIB1,LABEL=(,BLP),VOL=SER=DUMMY1
//OUT2 DD DISP=OLD,UNIT=(3490,,DEFER),DLMLIB=TAPELIB1,LABEL=(,BLP),VOL=SER=DUMMY2
//OUT3 DD DISP=OLD,UNIT=(3490,,DEFER),DLMLIB=TAPELIB1,LABEL=(,BLP),VOL=SER=DUMMY3
//VOLLIST DD *
ABC101
ABC102
ABC103
ABC104
```

Input unit

input volsers

DLMCLONE Options/Control Stmts

- OPTION Parm
  - NL – copy NL tapes (using Linux scripts)
  - NOEOV – bypass check for EOV2 label
  - NORECOV – bypass ERP processing (set DCBIFIOE)
  - NOTCDB – do not update OAM TCDB
  - NOVERIFY – bypass checksum validation
  - TM(n) – define end-of-tape indicator

- STOP Command
- Stops all subtasks at end of current volume

DLMCLONE Options/Control Stmts

- TAPEIN Parms
  - COUNT(n) – no. of volumes to copy
  - LIST(ddname) – alternate ddname for VOLLIST
  - UNIT – input unit name

- TAPEOUT Parms (optional)
  - CLASS(n) – output DLm class for volumes
  - DIR(path) – output DLm path
  - - or allow DLMRULES to direct output allocation

DLMCLONE Activity Log

- Audit Trail
  - //AUDIT DD DSN=ksds.audit.file,DISP=SHR
  - Parms
    - AUDIT(DDNAME)
    - AUDIT(FORCE) – recopy already migrated volume

- View the Audit Log via ISPF or batch interface

DLMCLONE Restart Procedures

- Restart Process
  - Read AUDIT file and skip tapes in 'DONE' status
  - Query DLm and skip tapes already in library

- Identifying Incomplete Tapes
  - Cancellation Report – identify tapes in COPY status
  - DLMCLONE Sysprint – identify input tapes

  - Use DLMUTIL to remove partially copied tapes from Dlm
  - Use FORCE operand to recopy partially copied tapes

JES3 Support

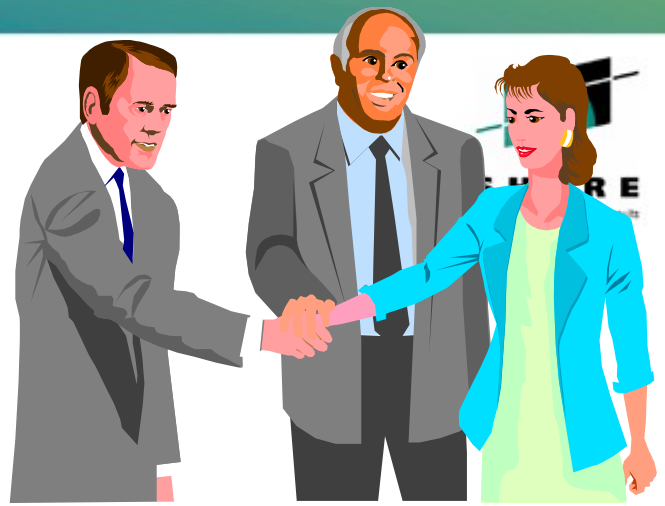
- DCC supports JES3 for:
  - Allocation Device Selection
  - Load Balancing
  - DLm Commands and Queries

- Sets appropriate UNIT esoteric via:
  - IATUX11 – for catalogued volume requests
  - IATUX06 – for specific volume requests

JES3 Support

- Checklist
  - Reserve devices for DCC command processing
  - Update JES3 init deck
  - Start JES3 with assembled user exits
  - Start DCC with appropriate DCCRULES/POOLS

Questions?



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