# What's New in DFSMShsm

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# Agenda

- **General**
  - CA Reclaim
  - Deduplication
  - EAV Support
  - Cross Memory
  - Reporting Enhancement
- **Migration**
  - ML1 support for data sets >64K tracks
  - Performance Improvement
- **Backup**
  - Data Set Backup RETAINDAYS
  - Dump Block Size
  - Dump Stacking Limit
  - Multitask Recovery from Dump Tapes
- **Fast Replication**
  - Deleted Data Sets Support
  - Copy Pool Recovery from Dump Tape
  - Fast Reverse Restore
  - Space Efficient
  - Preserve Mirror
- **Miscellaneous**

# General: V1R12
# CA Reclaim

- Necessity to reorganize the DFSMShsm CDSs impacts…
  - Availability – Must stop all DFSMShsm hosts
  - Performance – increased CI/CA splits afterwards
  - Integrity - Doing it incorrectly is a common cause for CDS breakage
- **VSAM** is providing a **CA (Control Area) Reclaim** function
  - Reclaims empty CAs that remain after all records are deleted
  - Common for DFSMShsm
    - Think Migration and Backup records written with time stamps
- What this means to DFSMShsm…
  - Significantly reduces the need for CDS reorgs
  - Significantly reduces the need for SDSP reorgs
  - Doesn't eliminate need to reorg
- Refer to Session 8054

# General
# Deduplication

- TS7680 ProtecTier Deduplication
  - Virtual Tape Library
  - Inline data deduplication
  - Replication – Only deduplicated data is transmitted
- DFSMShsm data
  - DFSMShsm 'wraps' blocks of native data with meta data, making all blocks unique
  - TS7680 has logic specific for DFSMShsm blocks so that it can deduplicate them
- Refer to session 8021

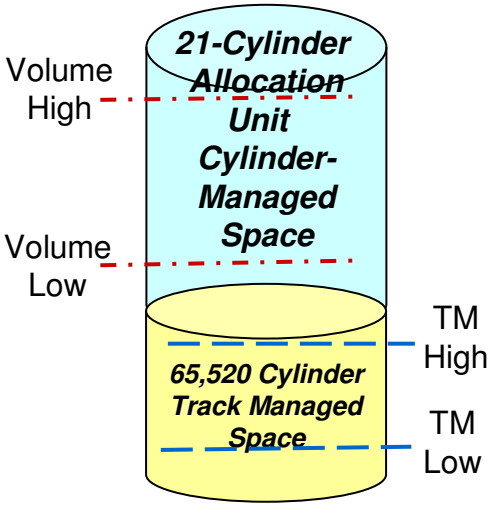
# General

## Extended Address Volumes

- **V1R11**
  - Support Extended Format nonVSAM
- **V1R12**
  - Support for all data set types
  - ★ ML1 / $ML2_{disk}$ and Backup volumes may now use all space

**SETSYS USECYLINDERMANAGEDSPACE(Y|N)**

! **DO NOT specify (Y) until ALL hosts are V1R12 or higher**



# General: V1R12
# DFSMSdss Cross Memory


More granular control of which functions use DFSMSdss Cross Memory

- All functions can be turned on or off using the existing

SETSYS DSSXMMODE(Y|N)…

or individual functions can be specified using

SETSYS DSSXMMODE(BACKUP(Y|N) CDSBACKUP(Y|N) DUMP(Y|N) MIGRATION(Y|N) RECOVERY(Y|N))

- Must be specified in ARCCMDxx member

# General: V1R10
## DFSMShsm Reporting

### Generate reports of DFSMShsm *functions* and *inventory* using DFSMSrmm Report Generator

- DFSMSrmm Report Generator is an easy-to-use ISPF application
  - Create and customize reports specific to your needs
  - *Available without a DFSMSrmm license*
    - New option on ISMF panel to create 'Storage Management' reports
  - Sample Reports shipped in SYS1.SAMPLIB
- Refer to Seattle Session 2466 for overview presentation

### DFSMShsm reporting based on

- DFSMShsm Function Statistics Record (FSR)
- DFSMShsm ABACKUP/ARECOVER Function Statistics Record (WWFSR)
- DFSMShsm Inventory (control data set) data via DCOLLECT

# General: V1R10

## DFSMShsm Reporting *(cont)*

### Sample Reports

| Name | Report Title | Report Type |
|---|---|---|
| ARCGAB01 | ABARS ABACKUP Statistics | ABARS |
| ARCGAR01 | ABARS ARECOVER Statistics | ABARS |
| ARCGDB01 | DCOLLECT BACKUP Data | DCOLLECT BACKUP |
| ARCGDD01 | DCOLLECT DASD CAPACITY PLANNING | DCOLLECT DASD CAPACITY |
| ARCGDM01 | DCOLLECT MIGRATION Data | DCOLLECT MIGRATION |
| ARCGDT01 | DCOLLECT TAPE CAPACITY PLANNING | DCOLLECT TAPE CAPACITY |
| ARCGS001 | DFSMShsm Statistics | DFSMShsm FSR-SMF Records |
| ARCGS002 | Backup Statistics | DFSMShsm FSR-SMF Records |
| ARCGS003 | Migration Statistics | DFSMShsm FSR-SMF Records |
| ARCGS004 | Recall Statistics | DFSMShsm FSR-SMF Records |
| ARCGS005 | Recover Statistics | DFSMShsm FSR-SMF Records |
| ARCGS006 | Volume Dump Statistics | DFSMShsm FSR-SMF Records |
| ARCGS007 | Restore from Dump Statistics | DFSMShsm FSR-SMF Records |
| ARCGS008 | FRBACKUP Statistics | DFSMShsm FSR-SMF Records |
| ARCGS009 | FRRECOV Statistics | DFSMShsm FSR-SMF Records |
| ARCGS010 | DFSMShsm Thrashing | DFSMShsm FSR-SMF Records |

# General: V1R10

## Migration Data Sample Report


**DCOLLECT MIGRATION DATA**

| MIG DATE | MIG TIME | DSN | 1ST SRC VOL | MIG SIZE (KB) | ORIG ALLOC (KB) |
|---|---|---|---|---|---|
| 2007158 | 14250634 | HSMATH0.SMS.VBGPS1 | SMS001 | **36848** | **37351** |
| 2007158 | 14250646 | HSMATH0.SMS.VSMALNA | SMS001 | **160** | **1660** |
| 2007158 | 14250661 | HSMATH0.SMS.VSMALNB | SMS001 | 160 | 1660 |
| 2007158 | 14250674 | HSMATH0.SMS.VSMALNC | SMS001 | 160 | 1660 |
| 2007158 | 14250686 | HSMATH0.SMS.VSMALND | SMS001 | 160 | 1660 |
| 2007158 | 14250698 | HSMATH0.SMS.VSMALNE | SMS001 | 160 | 1660 |
| 2007158 | 14250709 | HSMATH0.SMS.VSMALNF | SMS001 | 160 | 1660 |
| 2007158 | 14250718 | HSMATH0.SMS.VSMALNG | SMS001 | 160 | 1660 |
| 2007158 | 14250732 | HSMATH0.SMS.VSMALNH | SMS001 | 160 | 1660 |
| 2007158 | 14250742 | HSMATH0.SMS.VSMALNI | SMS001 | 160 | 1660 |
| 2007158 | 14250758 | HSMATH0.SMS1.PS.TEST0 | SMS001 | **16** | **55** |
| 2007158 | 14250751 | HSMATH0.SMS1.PS.TEST1 | SMS001 | 16 | 55 |
| 2007158 | 14250766 | HSMATH0.SMS2.PS.TEST2 | SMS001 | 16 | 55 |
| 2007158 | 14250776 | HSMATH0.SMS3.PS.TEST3 | SMS001 | 16 | 55 |
| 2007158 | 14250783 | HSMATH0.SMS4.PS.TEST4 | SMS001 | 16 | 55 |

Other fields included in the sample report:

- Number of tapes
- Expiration date
- SMS Class names

# General: V1R10

## Thrashing Sample Report

Migration Age of *zero* when data set is recalled

DFSMShsm Thrashing Report - 1 - 2008/02/04 15:06:18

| DSN | AGE | SIZE KB | MC NAME |
|---|---|---|---|
| **HSMATH0.SMS.VBGPS1** | **0000** | **36830** | **MCLASS1** |
| HSMATH0.SMS.VSMALNA | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNB | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNC | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALND | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNE | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNF | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNG | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNH | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS.VSMALNI | 0000 | 159 | MCLASS1 |
| HSMATH0.SMS1.PS.TEST0 | 0000 | 3 | MCLASS1 |
| HSMATH0.SMS1.PS.TEST1 | 0000 | 3 | MCLASS1 |
| HSMATH0.SMS2.PS.TEST2 | 0000 | 3 | MCLASS1 |

Other fields included in the sample report:

- Date; Elapsed time
- Target volume
- Return Code / Reason Code

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# Migration: V1R12
## Performance Improvement

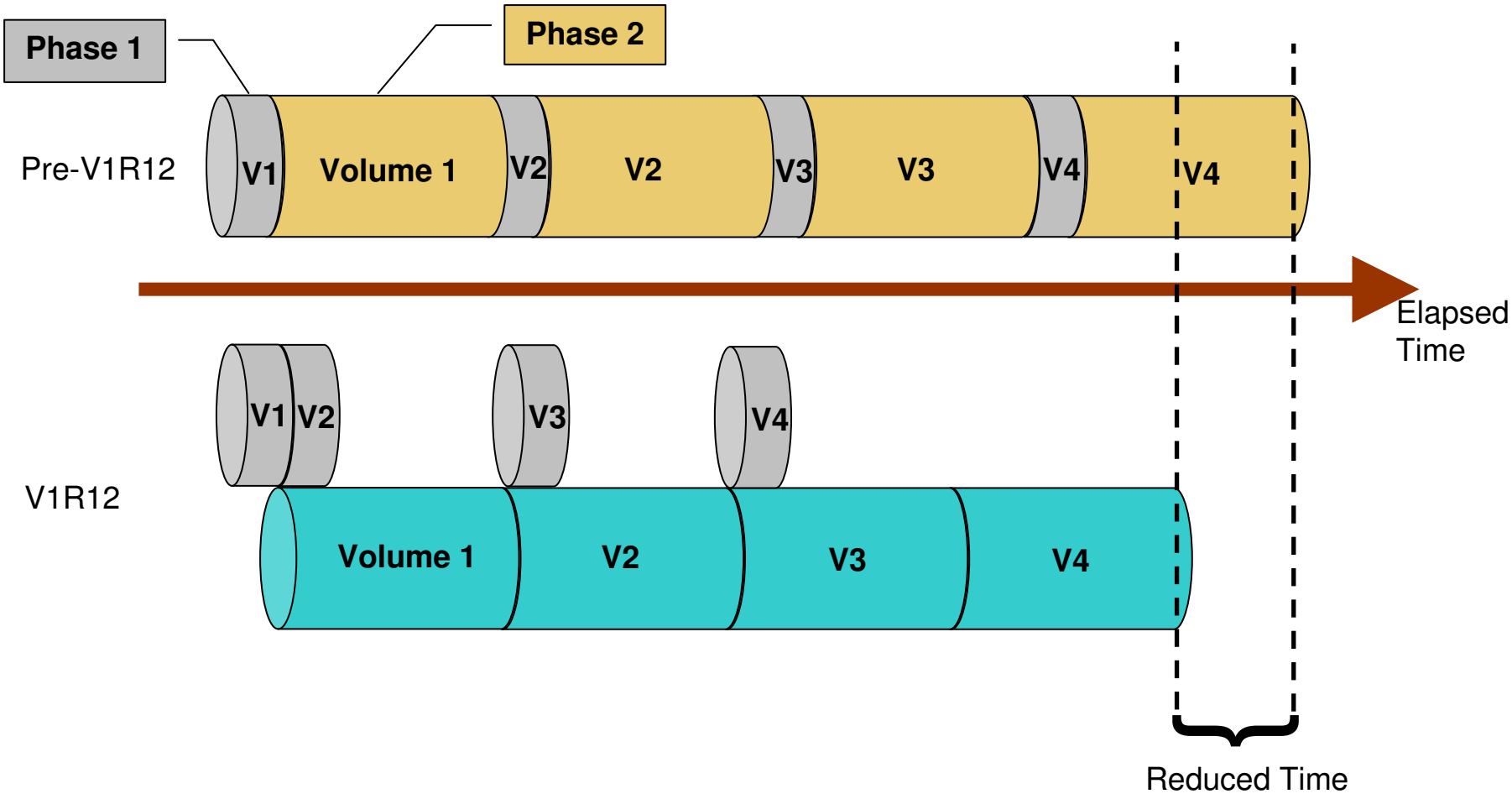
**To improve performance, two phases of volume migration process are overlapped**

- **Phase 1**
  - Obtain a list of all data sets on the volume
  - Process the data set list
    - Expire
    - Partial Release
    - Reconnect
    - Generate migration/extent reduction Queue
- **Phase 2**
  - Process Queue

- **New task started for Phase 2**
- **Phase 1 task continues to the next volume**

# Migration: V1R12

## Performance Improvement *(cont)*



# Migration: V1R12

## Performance Improvement *(cont)*

### Supported for Volume Level Space Management

- **Primary Space Management**
- **Interval Migration**
- **MIGRATE PRIMARY command (nonSMS volumes)**

# Migration: V1R11

## ML1 support for data > 64K tracks

### Data sets >64K tracks can migrate / backup to ML1 disk

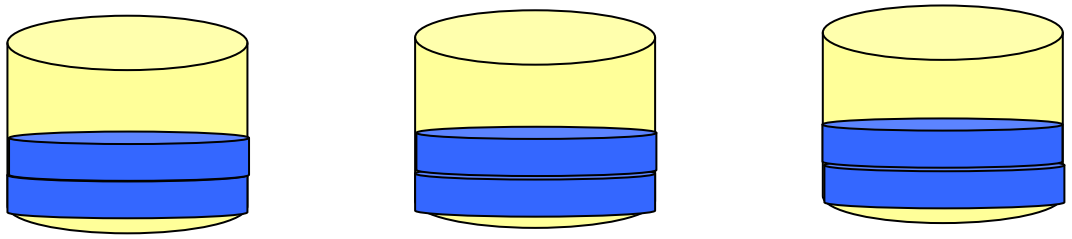
- Data sets larger than 58K tracks will target a Large Format physical sequential data set, which can be larger than 64K tracks
- ML2 disk is also supported

### Migration can target ML1 Overflow volumes

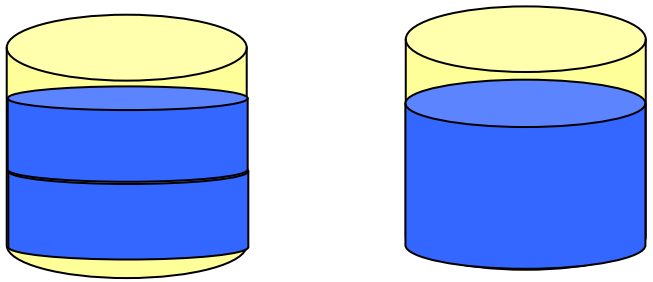
- Standard ML1 volumes would not have enough free space for large data sets
  - Migration data sets are still single volume
- ML1 Overflow volumes use a different algorithm for volume selection
  - Standard ML1 – Most Free Space
  - Overflow ML1 – Least Free Space that will contain data set
    - This maximizes the largest amount of free space

# Migration: V1R11
## ML1 support for data > 64K tracks

### Standard ML1 – Fill evenly



### Overflow ML1 – Least Free Space that is large enough



# Migration: V1R11
## ML1 support for data > 64K tracks

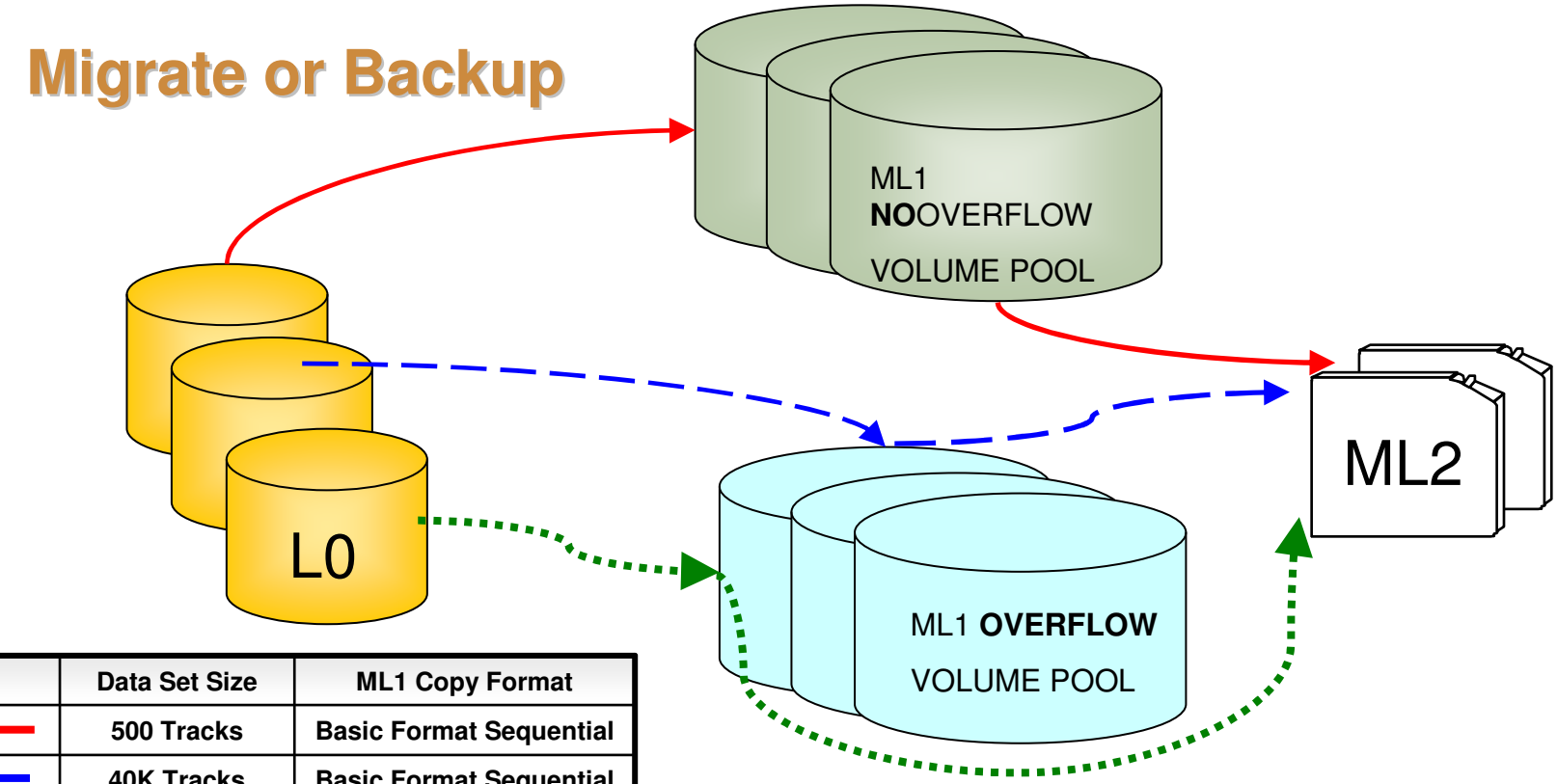
**SETSYS ML1OVERFLOW(DATASETSIZE(*dssize*) THRESHOLD(*threshold*))**

- **DATASETSIZE(*dssize*)** indicates the smallest data set size in K-Bytes that should target ML1 Overflow volumes.
  - Default value is 2000000 (about 36K tracks)
  - If space is unavailable on standard ML1 for smaller data, Overflow ML1 will be targeted, and visa versa
  - *dssize* should be less than average free space on standard ML1

- **THRESHOLD(*threshold*)** indicates the minimum *average* used space for all ML1 Overflow volumes before migration from ML1 Overflow volumes to ML2 begins
  - Standard ML1 begins this migration when *any* volume hits its threshold
  - Default value is 80%

# Migration: V1R11

## ML1 support for data > 64K tracks




| D/S | Data Set Size | ML1 Copy Format |
|---|---|---|
| ——— | 500 Tracks | Basic Format Sequential |
| – – – | 40K Tracks | Basic Format Sequential |
| ..... | 100K Tracks | Large Format Sequential |

# Migration: V1R11

## ML1 support for data > 64K tracks

### Coexistence

- Lower level releases will support
  - Recall, Recover and ARecover from ML1 Overflow volumes
  - Recall, Recover and ARecover of data sets >64K tracks on ML1

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# Backup: V1R11

## DS Backup RETAINDAYS

### Data set backup enhanced to enable a specific retention period to be assigned to a backup copy

- Specified Retention value overrides Management Class and SETSYS settings for retention
- Retention value can be used to keep a backup copy for a *shorter or longer* than normal period of time

### Data Set Backup Terminology

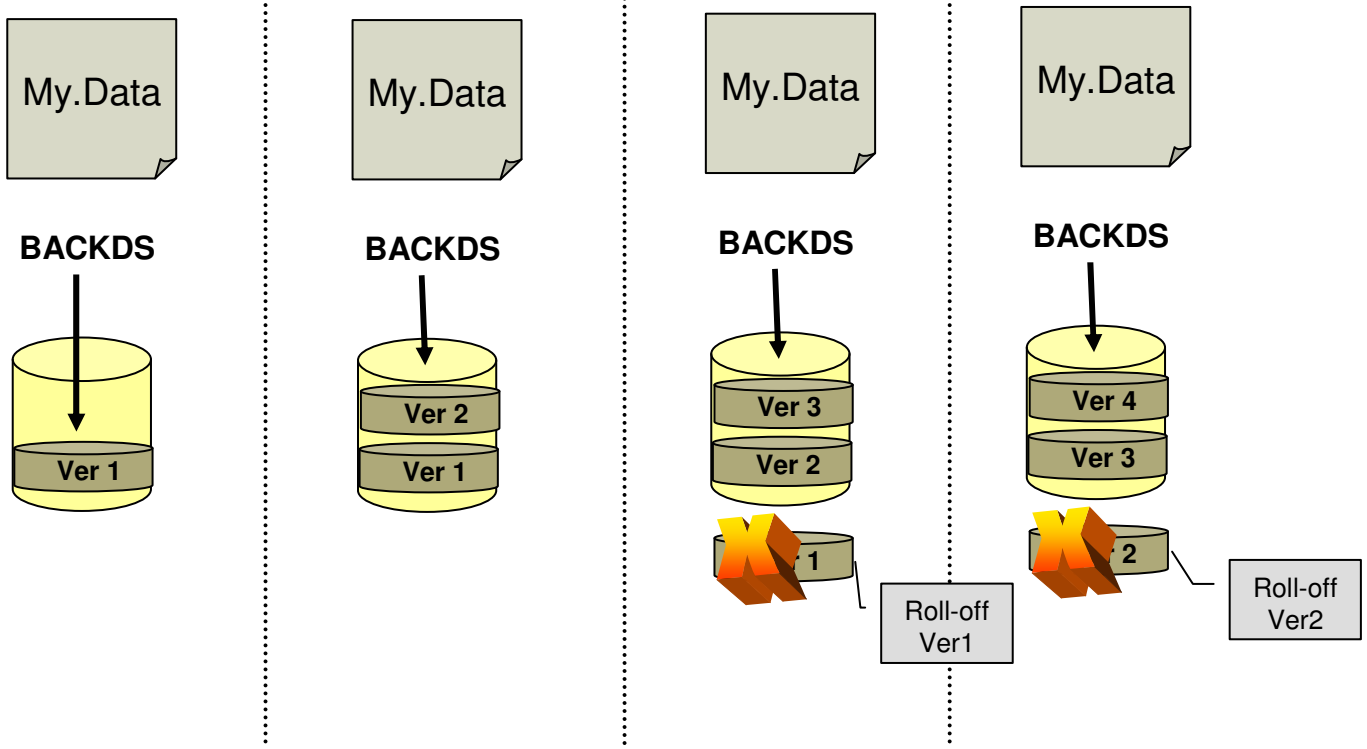
- **Management Class Retention Period:** The *maximum* number of days to maintain a backup copy
- **Active Copy:** A backup version that is within the maximum number of backup copies specified by the Management Class or SETSYS value
- **RETAINDAYS *(new)*:** The *minimum* number of days to maintain a backup copy. (This value takes precedence).
- **Retained Copy:** A backup copy that has rolled-off from being an active copy, but has not yet met its RETAINDAYS value

# Backup: V1R11

## DS Backup RETAINDAYS

### How it works today

- Maximum 2 Backup Copies

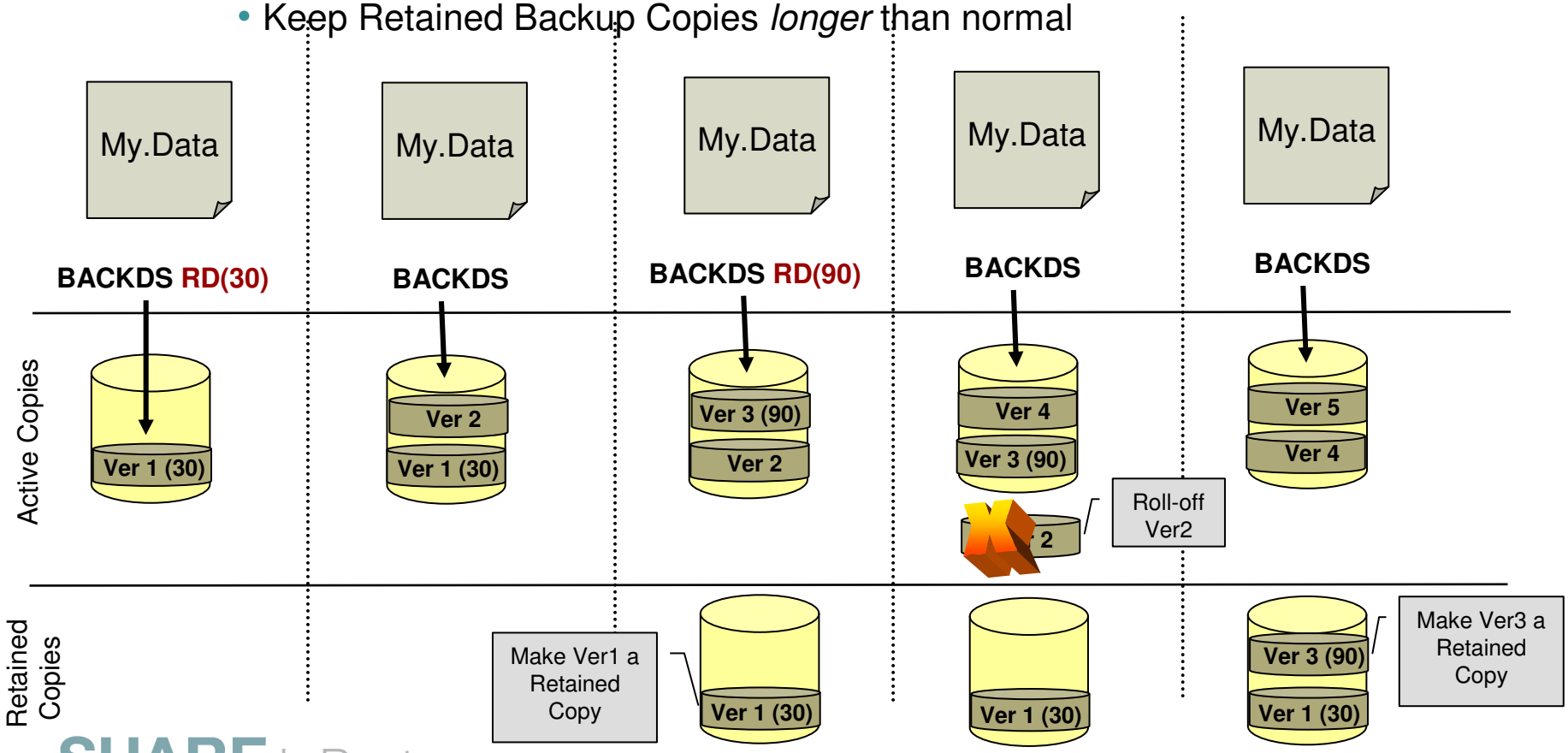


# Backup: V1R11

## DS Backup RETAINDAYS

### How it works with RETAINDAYS

- Maximum 2 Backup Copies
- Keep Retained Backup Copies *longer* than normal

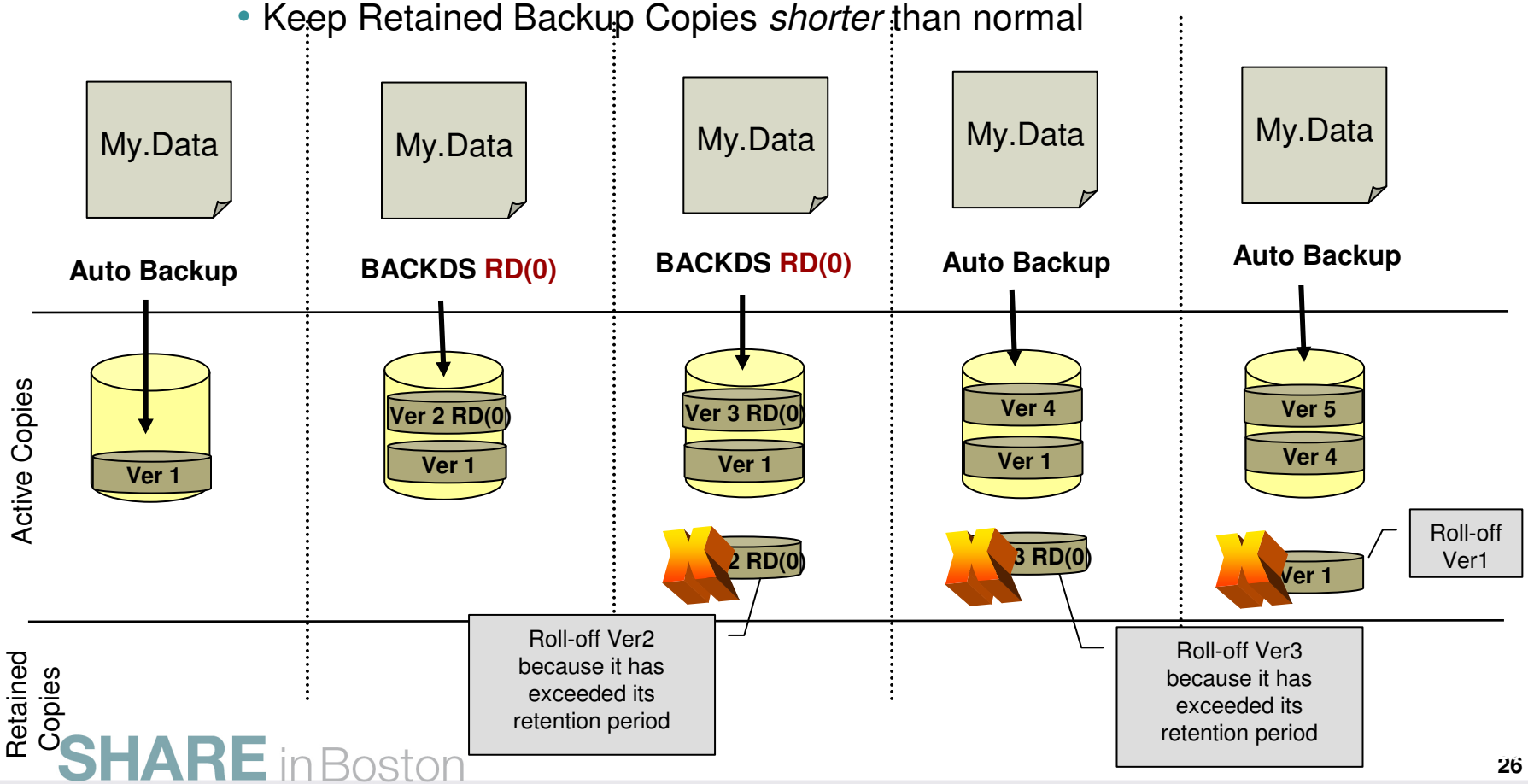


# Backup: V1R11

## DS Backup RETAINDAYS

### How it works with RETAINDAYS

- Maximum 2 Backup Copies
- Keep Retained Backup Copies *shorter* than normal



# Backup: V1R11

# DS Backup RETAINDAYS

## RETAINDAYS are examined during Roll-off and EXPIREBV

- **Roll-Off processing**
  - Roll-off processing occurs when the creation of a new backup copy causes the maximum number of ‘active copies’ to be exceeded
  - First, all ‘active copies’ (except the one that was just created) are examined to determine if any of them have met their RETAINDAYS value
    - If so, they are deleted
  - If the maximum number of ‘active copies’ has still been exceeded, then all excess versions are examined to determine if they have an unmet RETAINDAYS value
    - Versions with unmet RETAINDAYS values are converted to ‘retained copies’
      - Backup copy is no longer tracked by version number and is managed via another record internally to HSM
    - Otherwise, the excess versions rolls-off

★ **EXPIREBV**

- EXPIREBV *must be run* to expire ‘retained copies’ that have met their RETAINDAYS value

# Backup: V1R11

## DS Backup RETAINDAYS

### DFSMShsm can now maintain a *nearly unlimited* number of backup copies

- 'Active Copies' are still limited to 100 per data set
- 'Retained Copies' are nearly unlimited per data set
- New 'MCBR' record – Mirrors MCB record

### RETAINDAYS(*nnnnn*) can be specified on all Data Set Backup commands

- BACKDS
- HBACKDS
- ARCINBAK
- ARCHBACK

### RETAINDAYS Values

- Valid values:  0-50000 or 99999
- 99999 means 'Never Expire'

# Backup: V1R11

## DS Backup RETAINDAYS

### ‘Retained Copies’ can only be referenced by Date and Time

- Version number would not be unique
- Version and Generation not listed in LIST output
- Data Set Recover and BDELETE commands updated to accept TIME

### LIST

- By default, both ‘active’ and ‘retained’ backup copies will be listed
- SELECT option enables only ‘active’ or only versions with a RETAINDAYS value to be listed
  - Using SELECT(RETAINDAYS) enables you to view all of the backup copies for which a RETAINDAYS value has been specified

### New Facility Class Profiles:

- STGADMIN.ARC.ENDUSER.HBACKDS.RETAINDAYS
- STGADMIN.ARC.BACKDS.RETAINDAYS

# Backup: V1R12

## Full Volume Dump – Optimal Block Size

**DFSMSdss is enhancing DUMP and RESTORE to use the optimal block size for the tape device**

- Up to 256KB for newer devices

**DFSMShsm BACKVOL/FRBACKUP DUMP, AUTOMATIC DUMP and RECOVER/FRRECOV FROMDUMP will take advantage of this enhancement**

- If you use these functions, examine your setting for SETSYS DUMPIO(*n,m*)
- *n* indicates the number of tracks that DFSMSdss reads at a time for DUMP.
  - 1 is the default for 1 track
  - 4 specifies that a cylinder should be read – requires much more storage

# Backup: V1R12

## Multitask Recovery From Dump Tape

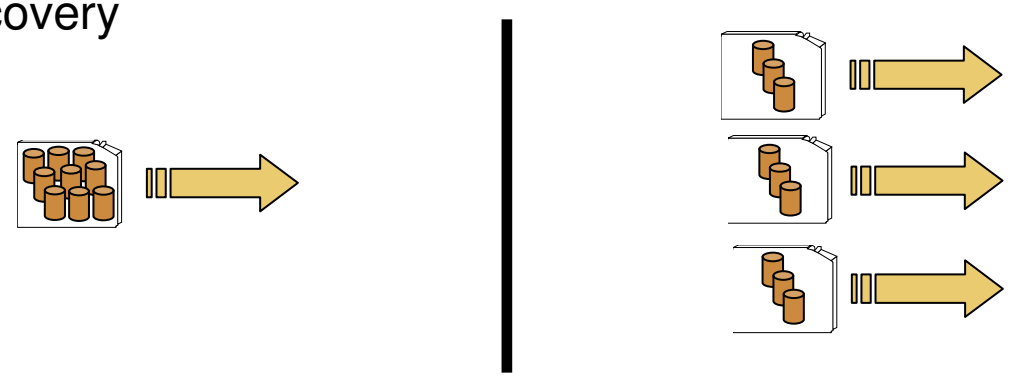
### Full Volume Recovery from Dump Tape enhanced to support multiple concurrent tasks

**SETSYS MAXDUMPRECOVERTASKS(*1-64*)**

★ Multiple concurrently queued volume recovery requests on the same tape will be processed with a single tape mount

### Stacking

• Use a stacking value that will enable you to maximize the parallelism of the recovery



# Backup: V1R12
# Dump Stacking

## Dump Stacking limit increased from 99 to 255

DEFINE DUMPCLASS(*class* STACK(***nnn***))

BACKVOL SGROUP(*sgroup*) DUMP(DCLASS(*class*) STACK(***nnn***))

## Coexistence

- Increased values can only be specified on V1R12
- Lower level releases will honor a Dump Class stack value > 99

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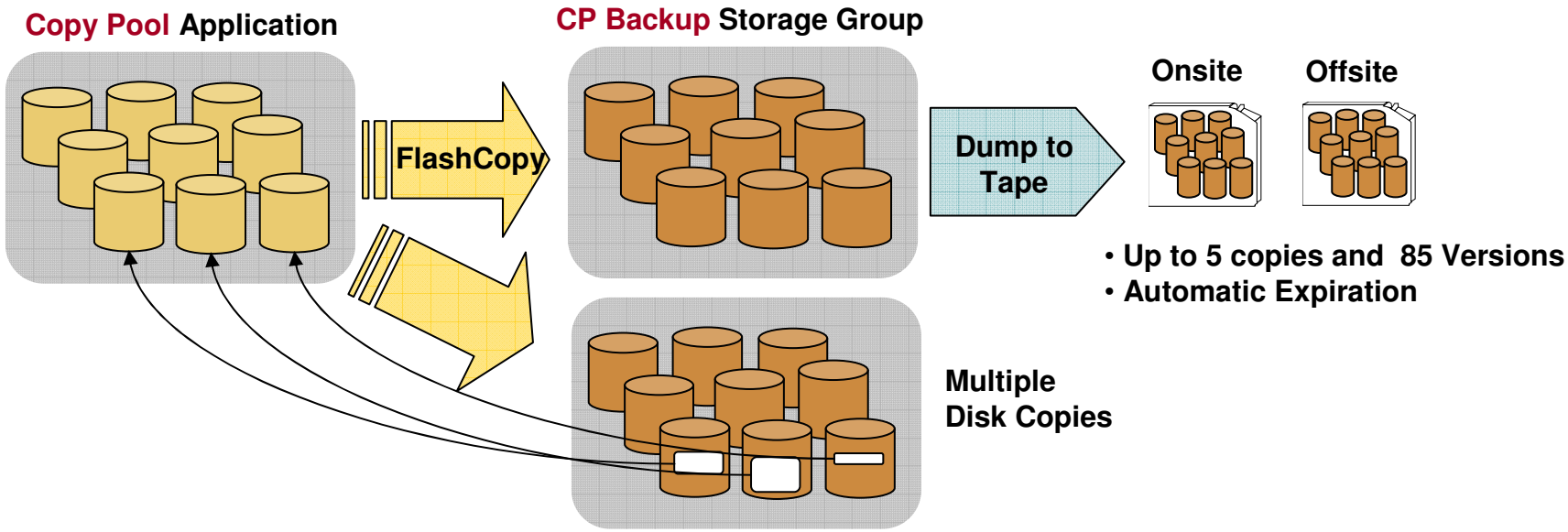
# Fast Replication
# Overview

## HSM function that manages Point-in-Time copies

- Combined with DB2 BACKUP SYSTEM, provides non-disruptive backup and recovery to any point in time for DB2 databases and subsystems (SAP)




★**Recovery at all levels from either disk or tape!**

- Entire copy pool, individual volumes and …
- Individual data sets

# Fast Replication: V1R11
## Data Set Recovery

### Data Set Recovery of moved and deleted data sets

- Prior to V1R11, data set recovery is only supported for data sets that are cataloged on the volumes they resided on at the time of the backup

★ With V1R11, support added for recovering data sets that have either been moved or deleted since the time of the backup

  - Recovery must be done back to the original volumes

# Fast Replication: V1R11
## Data Set Recovery

### Catalog information captured during FRBACKUP

- Up to 10 catalog names can be specified in copy pool definition
- During FRBACKUP, hsm captures the catalog information for every data set in the copy pool
- New 'Catalog Information Data Set' is created on ML1
  - ***BPREFIX*.HSMCSI.V*ver*.D*yyddd*.T*hhmmss*.C*numseq***
- 'CIDS' is maintained with the backup copy
- 'CIDS' used for recovery from both disk and tape

- Catalogs will be automatically unallocated before a copy pool recovery
  - This requires manual steps today

**LIST COPYPOOL(*cpname*) DATASETS will display every data set that is included in the backup version**

# Fast Replication: V1R11

## Data Set Recovery

### New Copy Pool Panel

```
  Panel  Utilities  Scroll  Help
------------------------------------------------------------------------------
DGTDCPP5                   COPY POOL DEFINE/ALTER                 Page 2 of 5
Command ===>

SCDS Name  . . : Y421252.MYSCDS
Copy Pool Name : COPYPL1

To DEFINE/ALTER Copy Pool, Specify:
Catalog Name ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________
             ==> _____________________________________________

  Capture catalog information for data set recovery . . N    (Y or N)
Use ENTER to Perform Verification; Use UP/DOWN Command to View next Panel;
Use HELP Command for Help; Use END Command to Save and Exit; CANCEL to Exit.
```

# Fast Replication: V1R12

## Copy Pool Recovery from Tape

### Copy Pool recovery from tape

- Prior to V1R12, an entire copy pool could only be recovered from disk
- DB2 or native DSS had to be used to recover from tape

### With this enhancement…

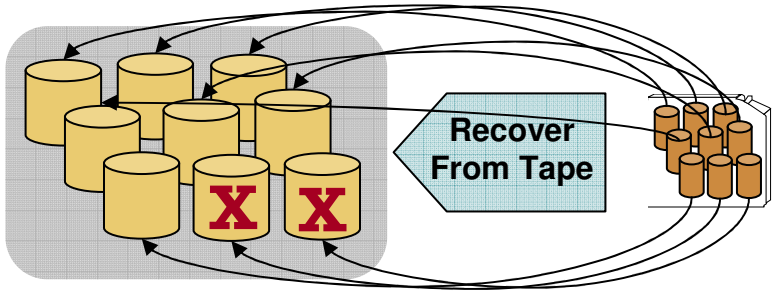
- DFSMShsm supports recovery of entire copy pool from tape
  - Made possible with the multitask recovery from dump tape support
  - Fast Replication tape copies are full-volume dump copies that represent the time that FlashCopy disk copy was created
- Enables solution to be used for Disaster Recovery
- Once again, stacking level of dump tapes may limit recovery parallelism

# Fast Replication: V1R12

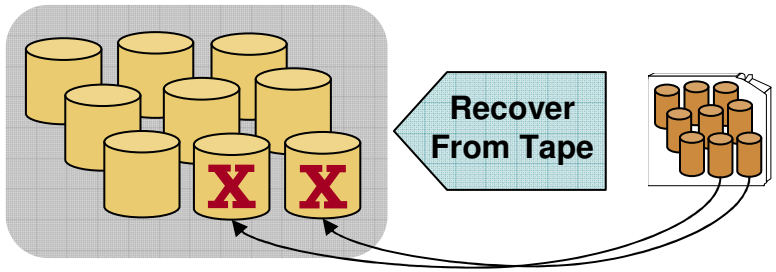
## Copy Pool Recovery from Tape

### Retry Logic

- If there is an error recovering one or more volumes…




- Correct the problem
- Reissue the FRRECOV command
- ★ DFSMShsm will only process those volumes that previously failed
- ★LIST COPYPOOL output indicates if a particular version recovery is resumable




RESUME(NO) option to retry all volumes

(YES) is the default

# Fast Replication: V1R12
## Copy Pool Recovery from Tape

### QUERY ACTIVE indicates the progress of the recovery…

**ARC1822I FRRECOV OF COPY POOL *cpname* FOR USER *userid*, REQUEST *request-number* ON HOST *host_id* IS IN PROGRESS: NOT PROCESSED = *xx*, TOTAL = *yy***

- TOTAL indicates the total number of volumes being recovered
- NOT PROCESSED indicates the number of volumes that have not yet been recovered

### Helpful messages

- ARC1802 will list overall return code when all volumes complete
- ARC1803 will summarize failed volumes with DFSMSdss message ids

### CANCEL REQUEST(*reqnum*)

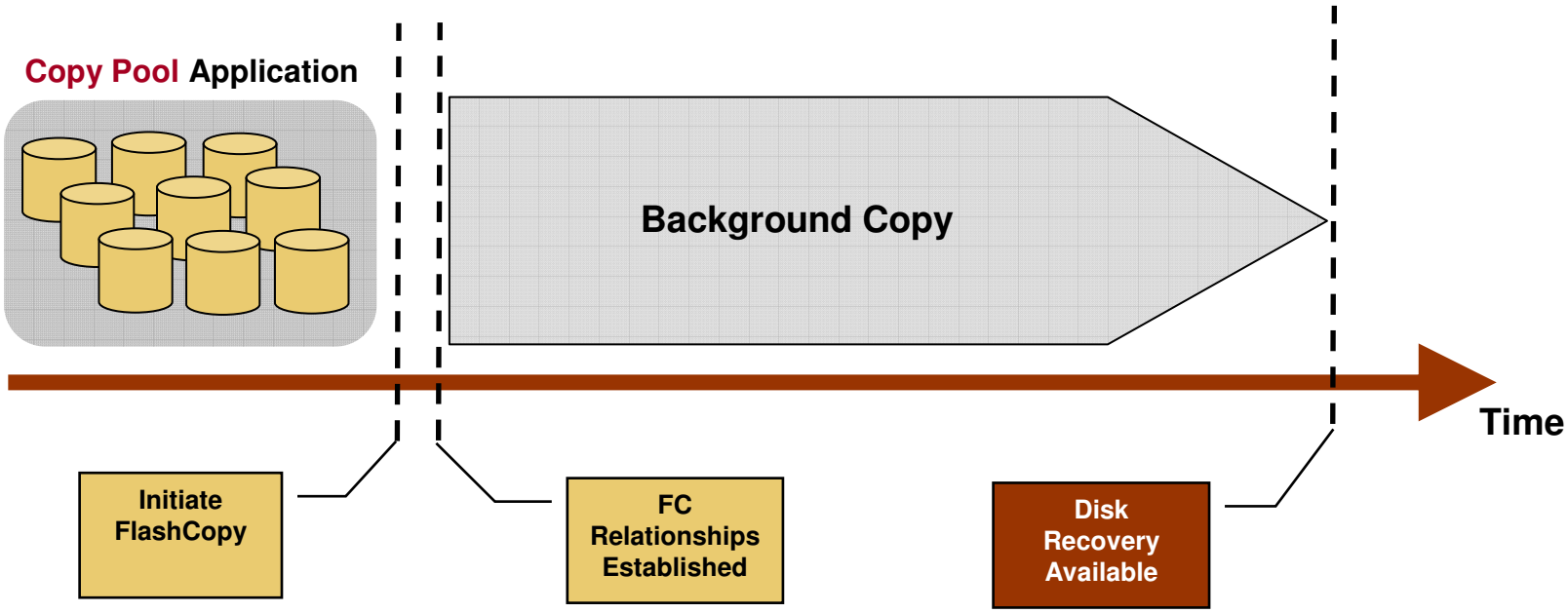
- All volumes being recovered will have the same request number
- A single CANCEL command will cancel all volumes

# Fast Replication: V1R12

## Fast Reverse Restore

### Prior to V1R12

- Disk recovery could not be performed until the physical background copy was complete (*hours* after the logical backup was created)
- Disk recovery from a NOCOPY version was not supported

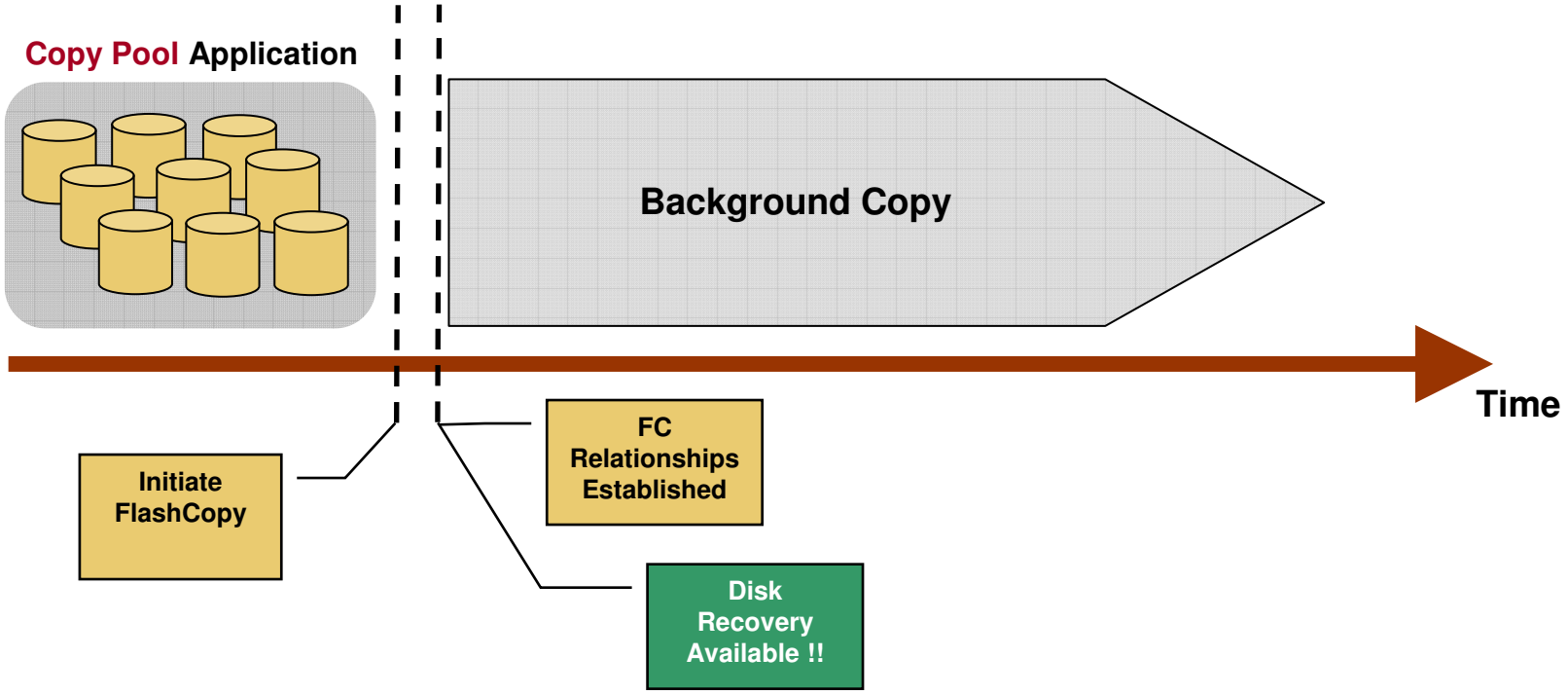


# Fast Replication: V1R12

## Fast Reverse Restore

### Fast Reverse Restore

- ★ Enables DFSMShsm to FlashBack for recovery even though the background copy has not completed
- ★ Enables recovery from NOCOPY versions



# Fast Replication: V1R12

## Fast Reverse Restore

### Restrictions

! Since the background copy does not complete, the backup is invalidated as part of the recovery

! Source volumes can't be in any other active relationships

! Only supported for recovery of entire copy pool

### Resume after failure

- If one or more volumes fail, similar to recovery from tape, just reissue the command and only the set of previously failed volumes is retried

# Fast Replication: V1R12

## Fast Reverse Restore

- New copy pool setting indicates if FRR is enabled for the copy pool
  - YES indicates that it is acceptable to recover a version before the background copy is complete and for the backup to become invalidated
- QUERY COPYPOOL indicates percent complete
  - Determine if you should just wait for background copy to complete

```
ARC1820I THE FOLLOWING VOLUMES IN COPY POOL CP1, VERSION 003,
         HAVE AN ACTIVE FLASHCOPY BACKGROUND COPY
ARC1820I (CONT.) SGNAME   FR-PRIMARY FR-BACKUP PCT-COMP
ARC1820I (CONT.) SGRP1    SRC01B     TGT01B     70
ARC1820I (CONT.) SGRP1    SRC02B     TGT02B     80
```

- FORCE keyword if the disk copy is currently being dumped to tape
  - Incomplete dump volumes will be discarded

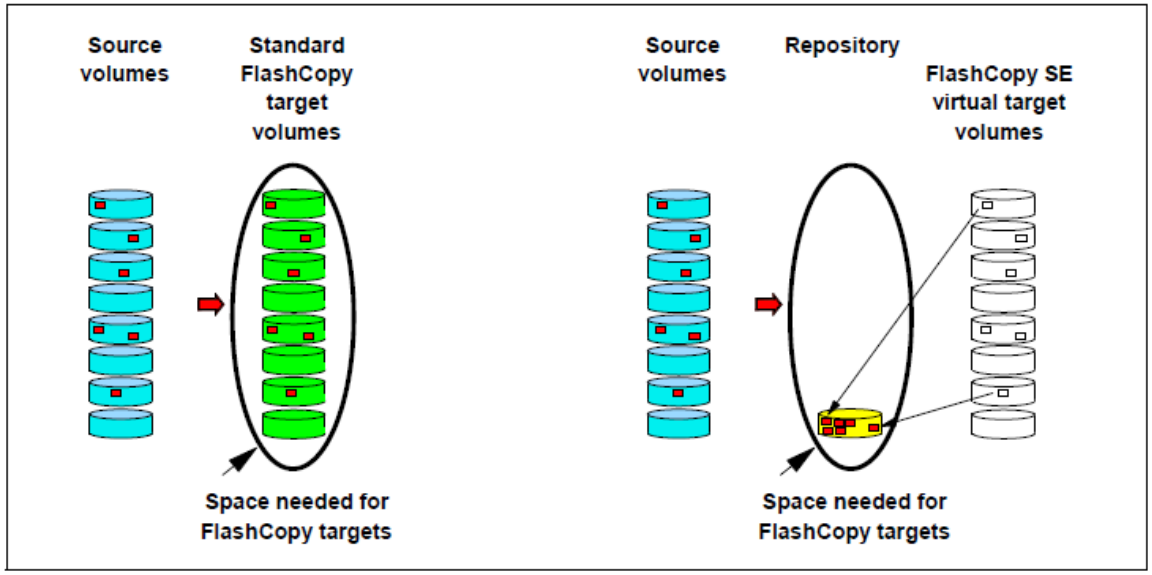
# Fast Replication: V1R12

## Fast Reverse Restore

- Hardware Dependencies
  - DS8000 series storage servers with the following **minimum** LMC:
    - 5.3.1.450
    - 5.4.21.540
    - 5.4.30.253
    - 6.5.0.220
- Software Dependencies
  - PK99337 ICKDSF – Support DFSMShsm invocation of INIT

# Fast Replication: OA30816

## Space Efficient Volumes



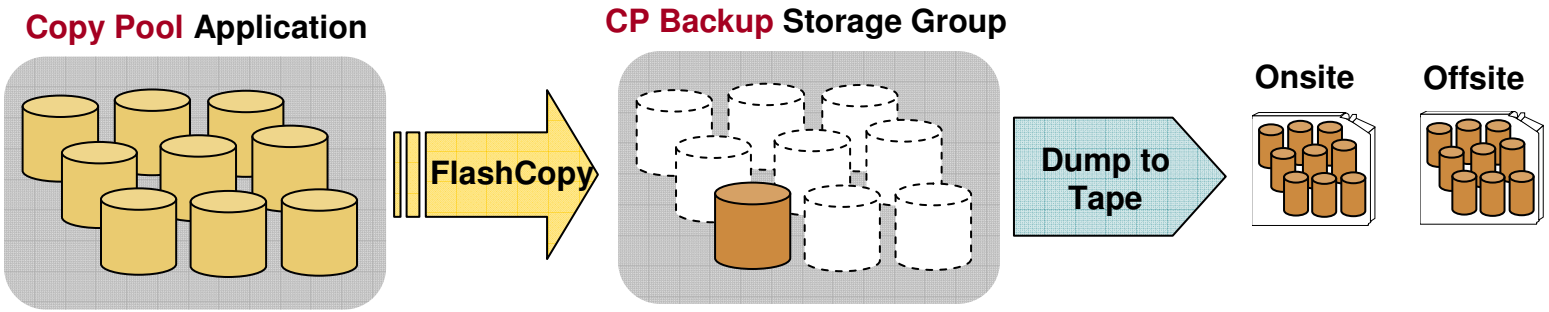

### Space Efficient Volumes

- Space Efficient volumes don't take physical space until the space is actually needed
- Only a fraction of the space is required for target volumes
  - ✓ License is required
- Valid when **NOCOPY** is the FlashCopy technique

# Fast Replication: OA30816
## Space Efficient FlashCopy

### HSM selects available Space Efficient target volumes when NOCOPY (VERSIONS=0) is selected

(V1R9 and higher)



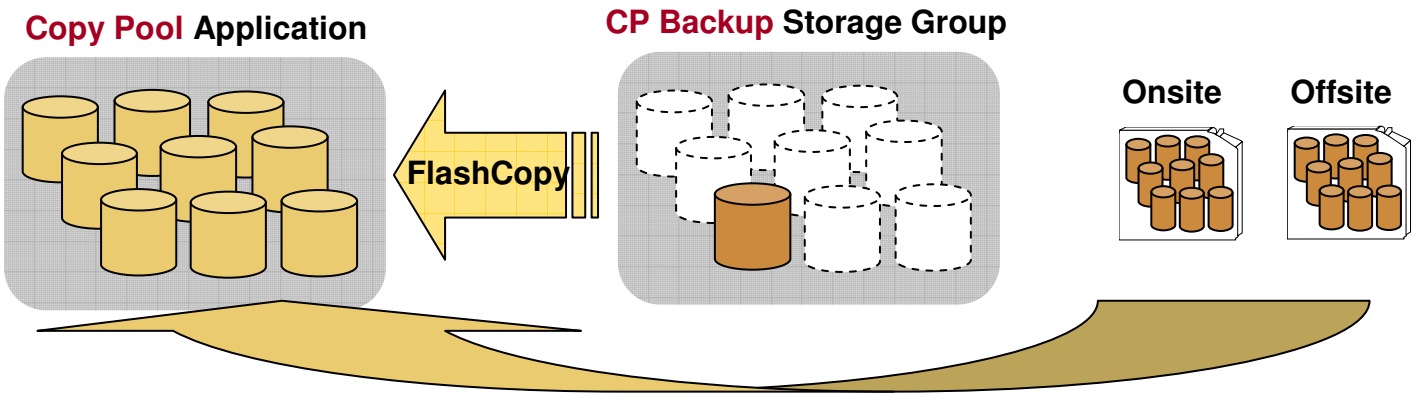

### Fully Provisioned

- 1 TByte copy pool needs 1 TByte of copy space

### Space Efficient Target Volumes

- ★1 TByte copy pool that changes <10% in-between copies only needs 100 GBytes of target space

# Fast Replication: V1R12
## Space Efficient FlashCopy

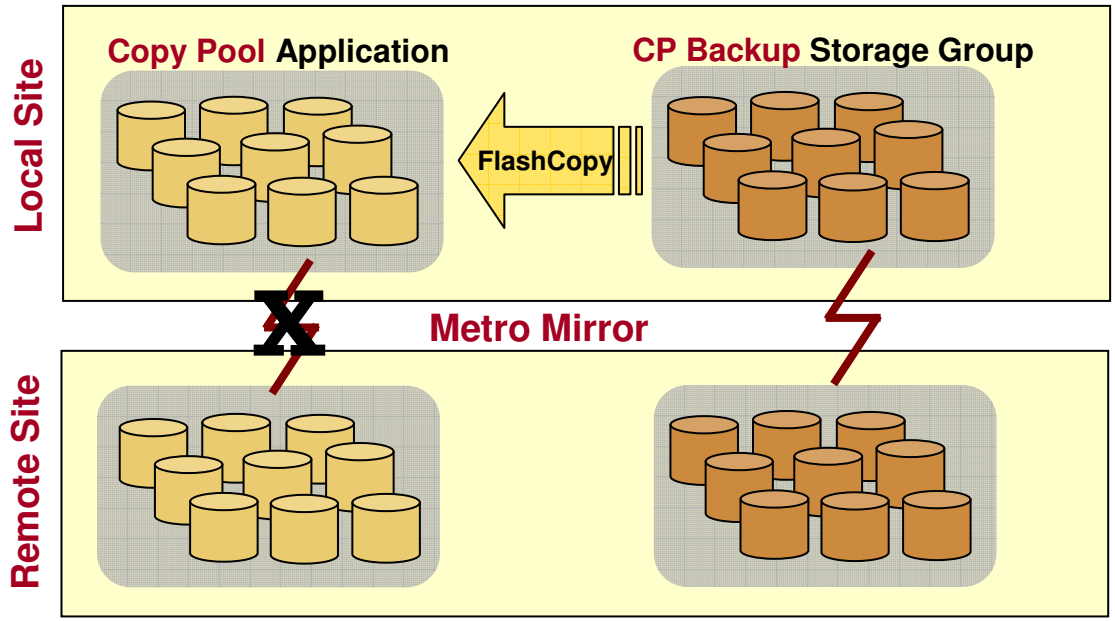



### With Fast Reverse Restore…

- In addition to being able to recover from tape, a disk recovery can be performed!

# Fast Replication: New Function APARs
## FlashCopy to PPRC Primary

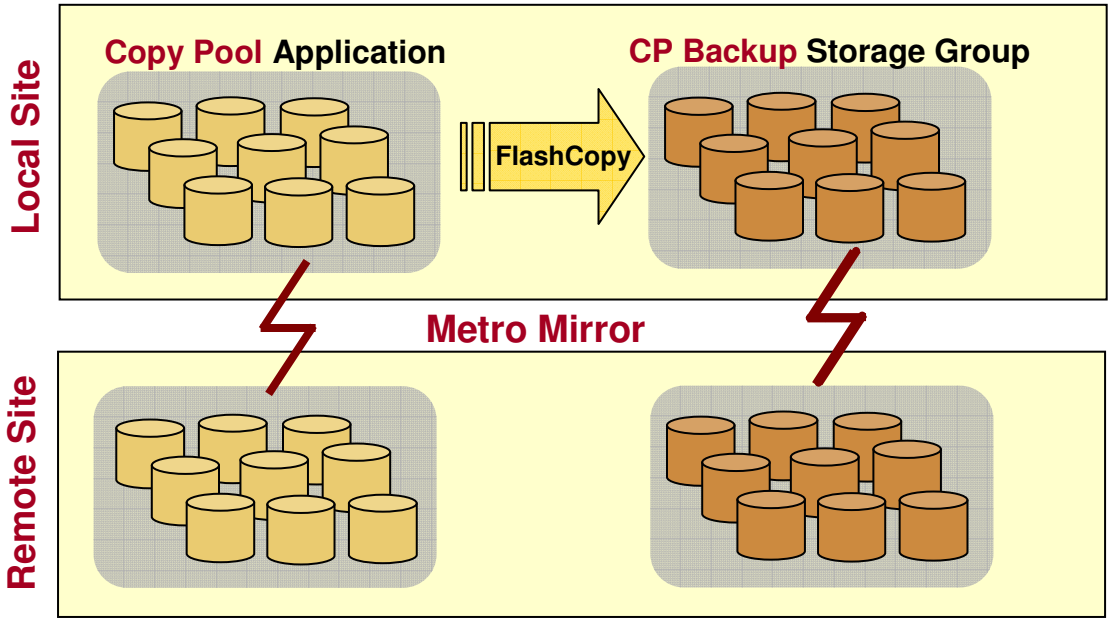
- Without new support, DFSMShsm does not support mirroring the copy pool target volumes
- This means that you have to break pairs before each FlashCopy and re-establish pairs after FlashCopy



# Fast Replication: New Function APARs
## FlashCopy to PPRC Primary *(Cont)*

### OA23849 (V1R9) – Enable FlashCopy to a PPRC Primary Volume

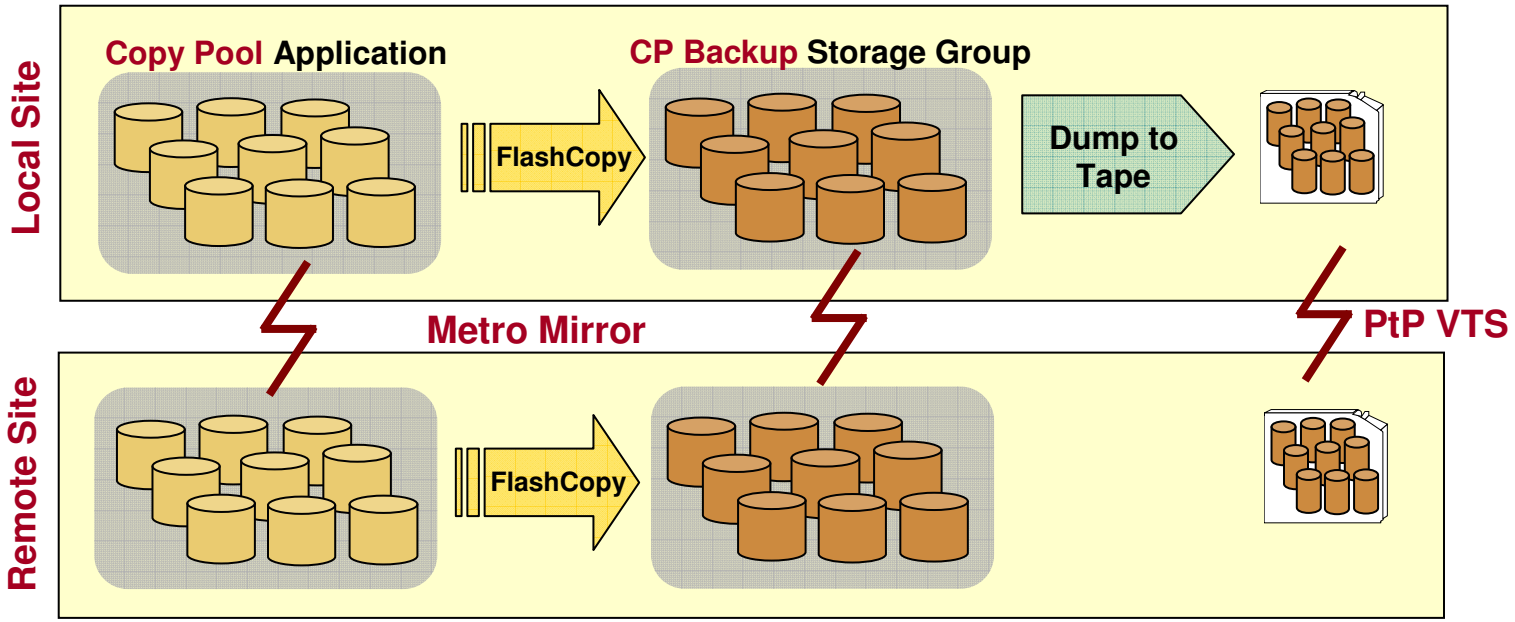
- Enables easier implementation of backup volumes at remote site *(Metro Mirror Only)*
- Pair is put into a *'Duplex Pending'* state until volumes re-synched
- Enabled for Recovery, but you generally don't want production volumes to go in a 'Duplex Pending' state



# Fast Replication: New Function APARs
## FlashCopy to PPRC Primary *(Cont)*

### OA24814 (V1R9) – Preserve Mirror Support SPE

- "Remote Pair FlashCopy" DS8000 Support
  - Technical Information section of announcement letter ENUS109-119, located at http://www-01.ibm.com/common/ssi
- FlashCopy to PPRC Primary volume *while maintaining Full Duplex*
- Function is RPQ (Request Price Quote)
- ! *Fast Reverse Restore cannot be used in this environment*



# Fast Replication: OA32494

## Volume Preferencing

### DFSMShsm will select target volumes in same cluster

- FlashCopy background copy is more efficient when the source and target are within the same DS8000 cluster
- When selecting target volumes, DFSMShsm will prefer target volumes in the same cluster as the source

- Pre-V1R12, enable with PATCH .FRGCB.+A BITS(....1...)
- V1R12, enabled by default

# Agenda

- General
  - CA Reclaim
  - Deduplication
  - EAV Support
  - Cross Memory
  - Reporting Enhancement
- Migration
  - ML1 support for data sets >64K tracks
  - Performance Improvement
- Backup
  - Data Set Backup RETAINDAYS
  - Dump Block Size
  - Dump Stacking Limit
  - Multitask Recovery from Dump Tapes
- Fast Replication
  - Deleted Data Sets Support
  - Copy Pool Recovery from Dump Tape
  - Fast Reverse Restore
  - Space Efficient
  - Preserve Mirror
- Miscellaneous

# Miscellaneous

## (V1R11) IEFBR14 DELETE will not recall a migrated data set before it is deleted

- Change made to IEFBR14

## (V1R12) DELETE GDG FORCE will not recall a migrated GDS before it is deleted

- Change made to Catalog
- ★ Share Requirement SSMVSS064933

# Miscellaneous

## (V1R12) GDG Serializaton

- For existing Migration, GDG base is serialized when migrating a generation
- Serialization scheme is changed to not require the GDG base to be serialized
  - Available later this year on V1R11 via OA24059

## (V1R12) 100% Threshold

- SMS allows value of 100 for High Threshold
- Primary Space Management and Interval Migration are unchanged
  - DFSMShsm rounds up values, so 99.1% and higher are considered 100%

## (V1R12) WTOR support

- Based on z/OS support, default responses have been established for DFSMShsm WTOR messages

# Summary

- Significant number of new and enhanced functions
  - Emphasis on addressing customer requirements
- Some critical new functions provided as “Development APARS”
- Expanded functionality of DFSMShsm Fast Replication Support
- These items demonstrate IBM’s commitment to continual improvement of the DFSMShsm product