



CA Datacom/AD Usage and Configuration

CTC 15 – AD – Thursday, April 28 2016

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Objectives

- Utilization of a Single CA Datacom/AD environment
- Using Shadow MUF for Continuous/High Availability
- Logging and Recovery Options for CA Datacom/AD environments
- Memory Resident Data Facility (MRDF) Considerations
- Buffer Management for CA Datacom/AD
- Performance Classes for CA Datacom/AD
- Data Storage Considerations for CA Datacom/AD
- Summary



Objective of Session

- Maximize utilization of your CA Datacom/AD environment
 - **Black Box** – CA Datacom/AD is considered an access method that's installed and knowledge of it by the client is minimal.
 - It will perform with minimal maintenance.
 - The product group provides documentation as to its requirements
 - **Client expectation**
 - Minimum maintenance (does not want to maintain another database)
 - Expects performance with less CPU utilization
 - Minimum DASD Consumption
 - Failure-proof environment
 - **CA Datacom/AD**
 - Can provide all this functionality and more.
 - It will have to be more than a black box



CA Products/Applications running CA Datacom/AD?

The only clients that are allowed to operate CA Datacom/AD are clients that have the following CA Software:

- CA 11
- CA 7
- CA APCDDS
- CA Chorus Software Manager
- CA Disk
- CA Ideal for DB2
- CA IMS Tools
- CA JARS
- CA Jobtrac
- CA NetMaster Reporting Facility
- CA PMA Chargeback
- CA Scheduler
- CCS ENF
- CCS Event Management
- Chorus Infrastructure
- CIA and Compliance Manager



CA Products/Applications using CA Datacom/AD?

The only clients that are allowed to operate CA Datacom/AD are clients that have the following CA Software:

AD Product	Database name (in Datadict)	DBID	DBIDs Reserved for Future	Comments
CA APCDDS	APC100	100		
CA-7/Report Balancing	APC100	100		Marketing re-package (APCDDS)
CA Scheduler/Report Balancer	APC100	100		Marketing re-package (APCDDS)
CA Jobtrac	HD0161	161-162	163-168	
CA Scheduler	CH430	430	431-439	
CA JARS	PMA490	490		JARS and PMA use same DBID
CA PMA/Chargeback	PMA490	490		JARS and PMA use same DBID
CA NetMaster	NM500	500	501-502	
CA-11	L7601	601	602	
CA IMS Toolkit	ITKREPDB	615		
CA Disk Backup and Restore	DMS650	650	651-699	
CCS for z/OS ENF	CAS9ENFD	700		
CCS for z/OS Event Manage.	EVENT-MANAGEMENT-DB	1011		
CA Workload Auto.CA7 Edition	CA770	770	771-779	
MSM	CAMSMDB	4000	4001-4002	
Chorus Infrastructure	TSF4003	4003	4004-4008	
Chorus Infrastructure	COP750	750		
Security Compliance Manager	CMG3500	3500	3500-3549	
Security Compliance DataMart	CMD3550	3550	3550-3574	
Security Compliance Warehous	CMW3575	3575	3575-3599	
Security CIA	CIA3600	3600	3600-3699	



Using a Single CA Datacom/AD Environment

- Datacom/AD is designed to be shared by many applications. CA ensures that DBIDs/AUTHIDs of using products to not conflict
 - Today some AD using products require their own AD MUF for operational, packaging, data organization or data sensitivity reasons
- What fewer environments would bring to a site
 - Fewer MUFs run the entire environment
 - Simpler procedures to run an environment
 - Fewer points of control
 - Follow CA's Best Practices
 - Consistent resource utilization
- Long-term, CA goal is to allow more products to share so number of instances of AD is reduced



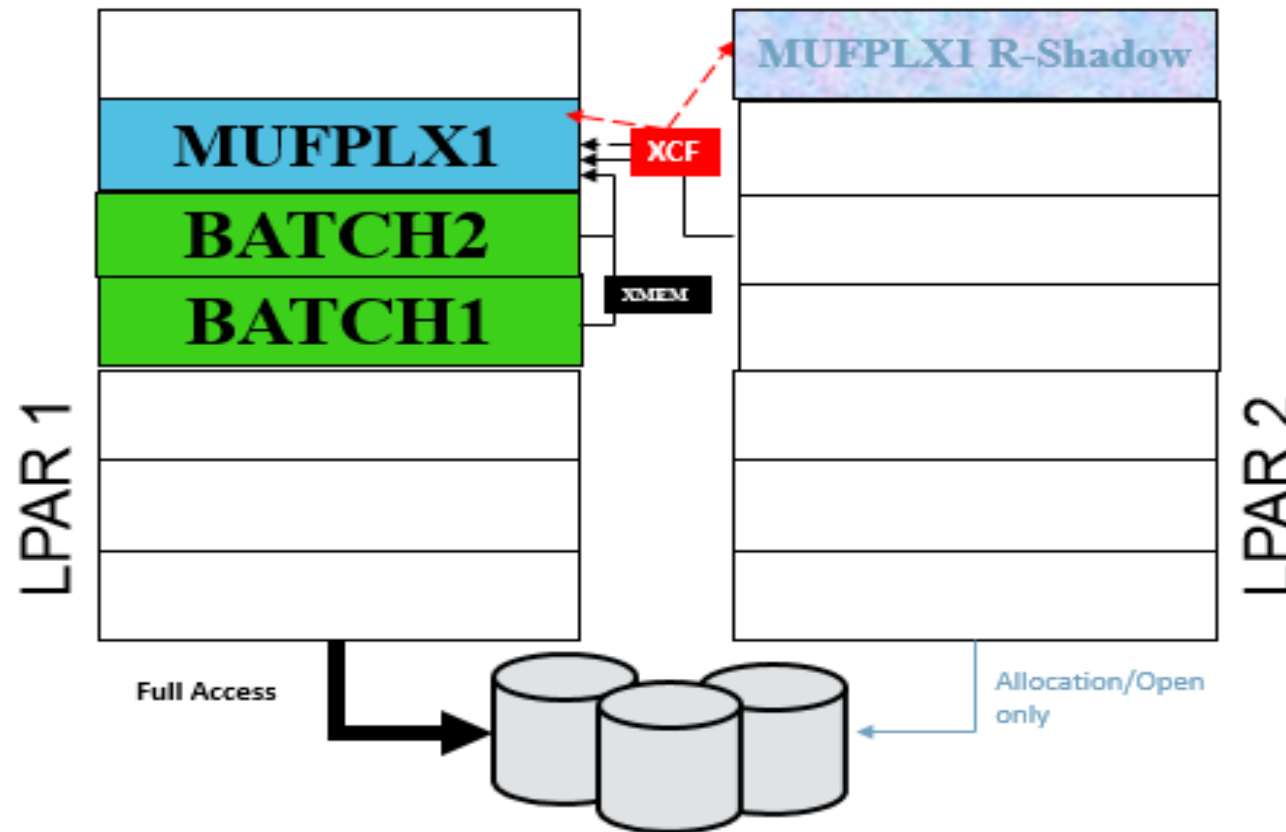
Using Shadow MUF for Continuous/High Availability

- Continuous/High Availability environment
 - Planned outages
 - Unplanned outages
 - 24x7 type processing
 - No down time
 - Seamless to the user community
 - Single LPAR/Sysplex support
 - Outside Sysplex support
- Support and Activation of Shadow MUF
 - Transparent to System
 - No extra resource consumption
 - All components are delivered with the current software
 - Parameter driven process



CA Datacom MUF Unplanned Outage Overview

Shadow MUFPLEX

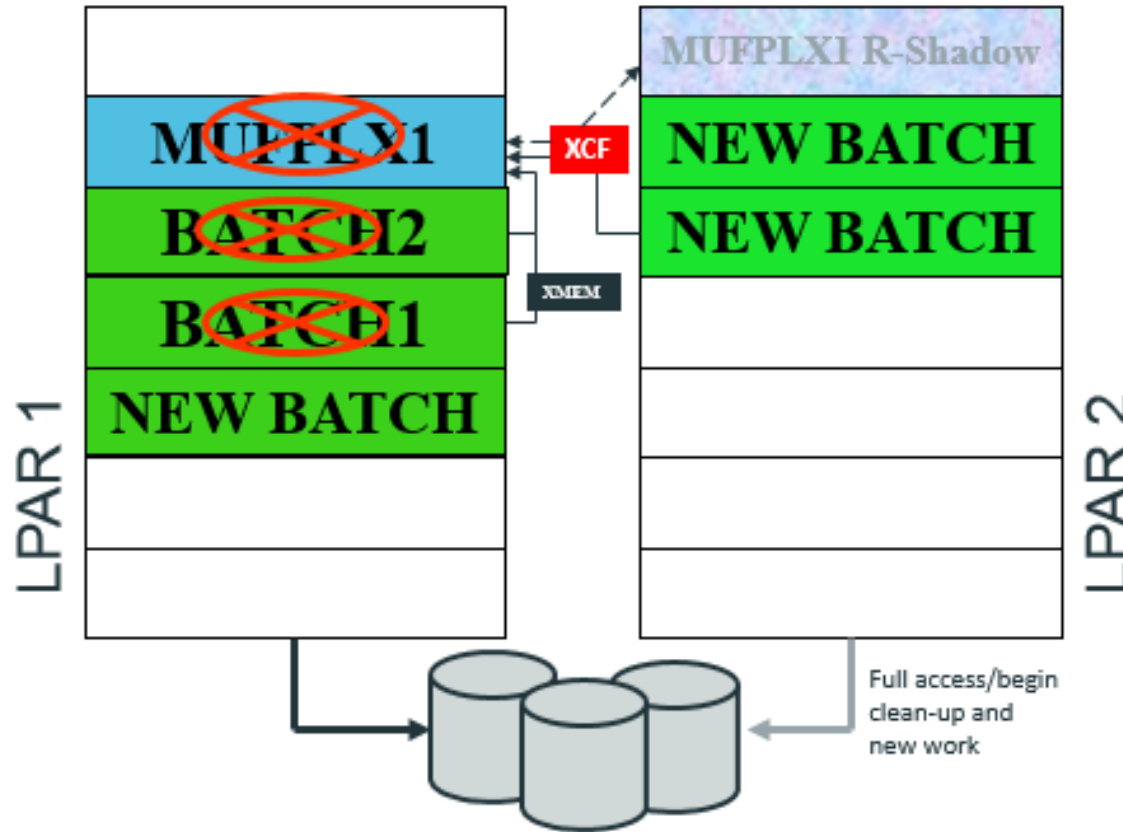


- Application regions use “access anywhere” to connect to primary MUF
- Shadow MUF is started (same or different LPAR)
- XCF is used to SYNC MUFs
- Shadow “watches” primary
- Shadow opens all MUF datasets, but **does not** do request processing



CA Datacom MUF Unplanned Outage Overview (cont'd)

Shadow MUFPLEX



- Primary MUF (MUFPLX1) fails
- Existing transactions notified of MUF failure
- Remote Shadow automatically detects failure
- Remote Shadow begins clean-up of failed MUF
- New requests can be told to "wait"
- Remote Shadow becomes MUFPLX1



Logging and Recovery Options For CA Datacom/AD Environments

■ Logging and Recovery Facilities

- Logging
- Transaction Backout
- Pipeline
- Spilling the Log (LXX) -> (RXX)
- Forced Checkpoint
- Forced Spill
- Restart
- Recovery
 - Forward
 - Backward



Logging and Recovery Options For CA Datacom/AD Environments (cont'd)

- Logging –
 - The logging and recovery system consists of the Log Area and the Recovery File
 - The Log Area (LXX) and the Recovery File (RXX) are used when recovering from a system failure or program malfunction
 - The Log Area (LXX) is a temporary storage for the maintenance transactions logged by applications programs
 - The Recovery File (RXX) permanently stores the log records after they have been written (spilled) from the LXX
- Transaction Backout –
 - Ensures that in the event of transactionabend, the DBMS reverses all updates
 - Requires that transactions be logged
 - Should always be used by online programs may be used by batch programs
 - Can be invoked by application programmer (in the code)
- Pipeline –
 - Pipelining is a write defer technique allowing CA Datacom/AD to update data blocks and Index Areas with as few physical writes as possible
 - For tables enabled with pipelining enabled
 - CA Datacom/AD records updates resulting from maintenance commands in memory, writing them only when it reaches the MUF startup option LOGPEND specification



Logging and Recovery Options For CA Datacom/AD environments (cont'd)

■ Forced Spill or Checkpoint –

- If the Log area is full, and the first record in the current sequence is not spillable, CA Datacom/AD marks the job(s) preventing a spill of the for force spilling
- Active logical units of work cannot be spilled
- If a spill is executed, MUF will checkpoint all active LUWs that are preventing the spill
- Secondary exclusive control are released for checkpointed records

■ Restart –

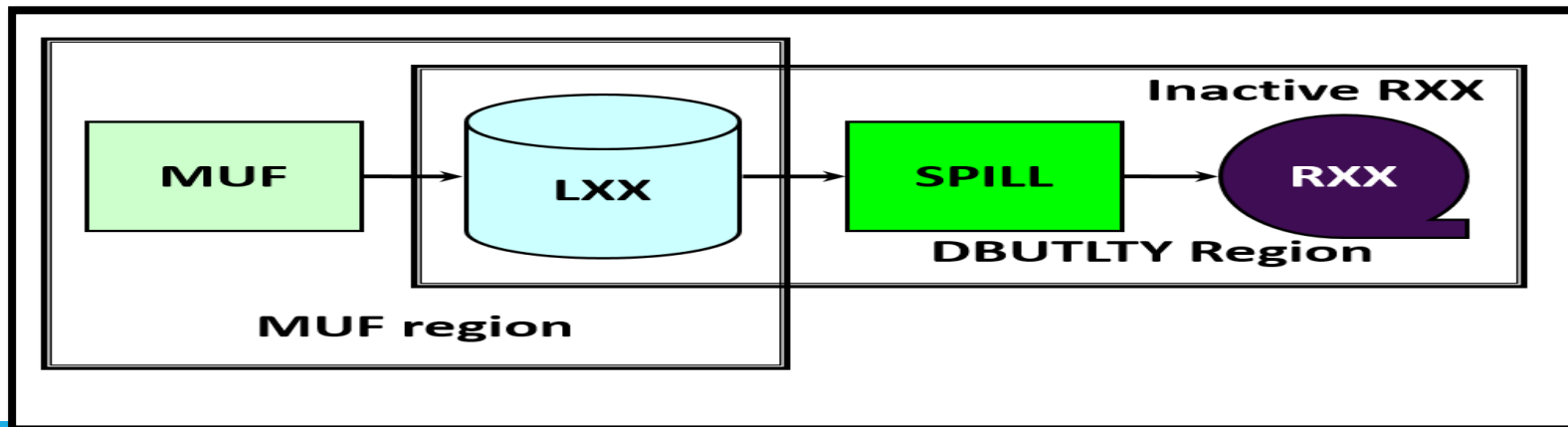
- Rolls forward incomplete requests
- Backs out incomplete logical units of work (LUWs)
- Databases not involved in the back out process are immediately available
- Resets LXX



Logging and Recovery Options For CA Datacom/AD Environments (cont'd)

■ Spilling –

- Once a job end/terminates, its records are eligible for spilling to the Recovery File (RXX)
 - Makes space available on the LXX
- All Spilling is done and controlled through the Multi-User Facility, which must be enabled to do the spill
- Log records posted to the LXX by jobs without transaction backout are eligible for spilling as soon as the request is complete, if the other log records in the block are spillable and there are no prior non-spillable log records



Logging and Recovery Options For CA Datacom/AD Environments (cont'd)

- Recovery –
 - Recovery from RXX only
 - Forward and Backward recovery available
 - Restore of backup required for Forward recovery
 - There are multiple options to select extent of recovery



Logging and Recovery Options For CA Datacom/AD Environments (cont'd)

*LOGGING	NO	DO NOT LOG OPEN/CLOSE WHEN NO MAINTENANCE
LOGPEND	500	LOG PEND
LOGPOOL	50	# OF LOG BUFFERS FOR ROLLBACK
LOGRCV	NEVER	LOG RECOVERY FILE AVAILABLE
LOGSPILL	30,090,25,10,1	LOG %FULL MSG,%FORCE CKP,%FORCE SPILL,



MUF Startup Options – Memory Resident Data Facility (MRDF)

The MUF startup options specify buffer pools for use by all CA Datacom/AD tasks running. The Multi-User Facility manages these buffers keeping the most recently used blocks in memory and reusing buffers containing blocks which have been referenced recently. In managing these buffers, the Multi-User Facility treats all blocks equally, maintaining only the most recently used blocks.

DATASPACE *nnnnM*

- DATASPACE 2048M
- Specifies the size of the data space that CA Datacom/AD creates for the Memory Resident Data Facility (MRDF)

VIRTUAL *area,size*

- VIRTUAL IXX006,50M
- VIRTUAL IXX017,256K
- VIRTUAL TTM017,2G
- Specifies an area to exist essentially only in memory. No DASD I/O is ever performed for a virtual area

COVERED *area,size,active/first,begin-blk*

- COVERED PAY00001,50%
- COVERED A0100781,110%
- COVERED 781,110%
- COVERED 36,90K,FIRST

Specifies an area is to remain in storage while the area is open. When CA Datacom/AD writes to a covered area, it writes to both the copy in memory and the DASD copy



MUF Startup Options – Memory Resident Data Facility (MRDF)(cont'd)

DATASPACE	2048M,YES	DATASPACE INSTEAD OF CSA
VIRTUAL	IXX006,5G	CBS TEMP INDEXE WORK AREA
VIRTUAL	IXX017,32K	TEMP WORK INDEX <-- ONLY EVER NEED 32K MAX
VIRTUAL	TTM017,2G	TEMP WORK AREA FOR SQL REQUESTS
COVERED	IXX002,110%	
COVERED	DD1002,110%	
COVERED	IXX015,110%	
COVERED	DDD015,110%	
COVERED	MSG015,110%	
COVERED	SIT015,110%	
COVERED	779,200%	



MUF Startup Options – Buffer Management

SYSPOOL *cxxno,ixxno,dxxno,ixxbfrsize,64-bit*

- SYSPOOL 20,1000,3000,,64
- Specifies the number of buffers for each of three system areas

DATAPOOL *data1n,data2n,data2no*

- DATAPOOL 8K,500,28K,12
- Specify the size and number of a first set and an optional second set of data buffers

FLEXPOOL *ixxno,dxxno,data2n,data2no*

- FLEXPOOL 10,100,100,100
- Specifies the number of buffers of each class to be built upon the Multi-User Facility startup as part of a flexible pool of IXX, DXX, and two sets of data buffers

CBS *dbid,buffer,maxsten,maxstio,maxage,heuristic-dbid*

- CBS 6,256K,0,0,16,1006
- Specifies parameters for the Compound Boolean Selection Facility



MUF Startup Options – Buffer management (cont'd)

SYSPOOL	20,30000,50000,8192,64	DEFAULT IS 64
FLEXPOOL	1000,1000,1000,100	BUFFERS FOR IXX,DXX,DATA,SECONDARY DATA
DATAPOOL	8K,20000,32767,0500	BUFFER SIZE, NO. OF BUFFERS
CBS	006,6000000,0,0,16,1006	CBS DBID,BFR(TSKS*1K),MXSTEN,MXSTIO



Performance and Storage Management For CA Datacom/AD

■ Performance Management

- Datacom/AD should be in the same performance group as the application that is accessing it
- Many times CA Datacom/AD needs to be in a higher performance group
- Performance needs to be gauged for weeks before making a determination

■ Storage Management

- CXX needs to be on separate DASD volume than the rest of the System Areas specifically the LXX
- Index Areas also need to be on different DASD volumes than the Data Areas



Summary:

- You now have a better understanding as to how CA Datacom/AD could be exploited.
 - Single environment
 - 24X7 support (Shadow MUF)
 - Logging and Recovery
 - Application performance (Buffer Management)
 - Storage management



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