

# Take Control of Your IMS Environment

**Ron Bisceglia and James Martin**

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# Agenda

- **The value of testing**
- **Challenges to providing good test environments**
- **Managing your test environments**
- **Refreshing your test environments**
- **Some futures**
- **Summary**

# What Causes Outages

Based on extensive feedback from clients, we estimate that, on average, unplanned application downtime is caused: 20 percent of the time by hardware (e.g., server and network), OSs, environmental factors (e.g., heating, cooling and power failures) and disasters; **40 percent of the time by application failures including "bugs," performance issues or changes to applications that cause problems (including the application code itself or layered software on which the application is dependent)**; and 40 percent of the time by operator errors, including not performing a required operations task or performing a task incorrectly (e.g., changes made to infrastructure components that result in problems and incur unexpected downtime).

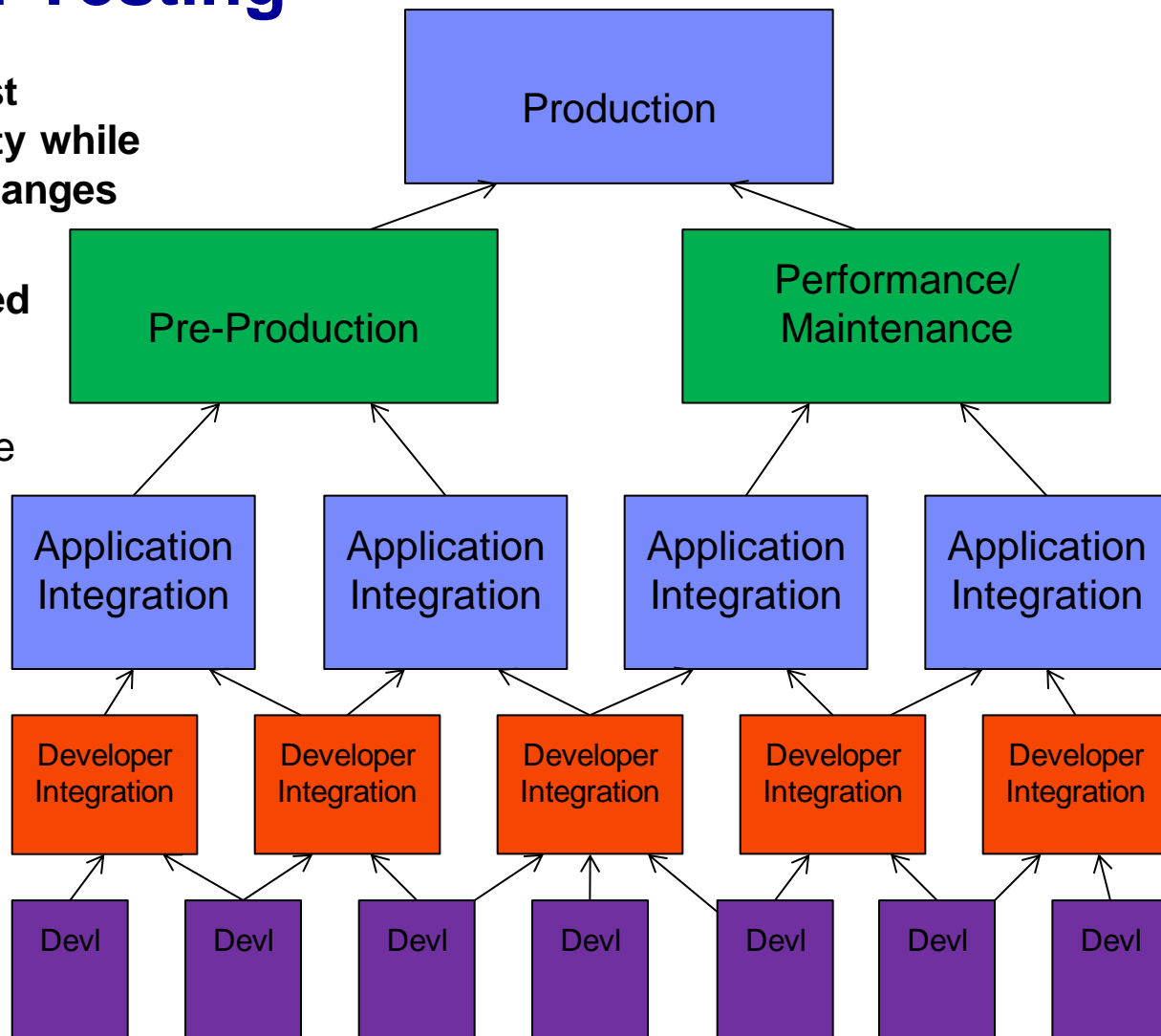
Thus, approximately **80 percent** of unplanned downtime is **caused by people and process issues**, while the remainder is caused by technology failures and disasters. Improving availability requires a different strategy and set of investment choices for each of the three unplanned downtime categories.” -- **Gartner Group**

# Why is Test Data Management Important?

- **Improving business critical applications**
  - Improve application reliability
  - Increase functionality
  - Shorten time to market
  - Reduce development and testing costs
- **Sharing resources and skills for development and testing**
  - Setting up a test environment usually involves:
    - Systems programmer
    - DBA
    - Application developer
    - Tester
  - Test databases are typically shared
- **Meeting technical requirements**
  - Application testing done in a production replica
  - Technical changes tested before production implementation
- **Meeting regulatory requirements**
  - Protection of personal or sensitivity data

# Various Levels of Testing

- Testing environments must support production stability while allowing for application changes
- Different testing levels need different environments
  - Environmental functionality/maintenance
  - Amount of data
  - Privacy
  - Other application dependencies



*How do we keep test environments current?*

# Creating and Maintaining Test Environments

- **Creating test environments requires a lot of host resources**
  - Running Volume copies
  - Running the UNLOAD/RELOAD, IMAGE/RECOVERY or dataset copies
  
- **Cloning is a complicated process**
  - Putting up a brand new IMS system environment
    - New PROCLIBs and JOBS with all new names
    - All new sysgens, RECONS, MDA members
    - Constantly comparing libraries to insure a quality copy process
  - Copying databases
    - UNLOAD/RELOAD jobs possible outage for source databases
    - IMAGE/RECOVERY jobs possible pointer error on target or source outage
  
- **The cloned environment must be maintained!**





# Managing your IMS systems

## IMS Configuration Manager can help

- **A structured process for managing IMS systems, their resources, and parameters**
- **A version agnostic approach to introducing changes**
- **Near-instant discovery of all the IMS systems and their parameter configuration**
- **Intelligent reporting on IMS parameters and resources**
- **Graphical user interface for managing systems**

# Auto discovery of IMS Systems

*IMS Configuration maps an entire IMS topology in seconds*

Empty member list

```

File Help
-----
                                System Member List
Command ==> _____ Scroll ==> PAGE

Enter NEW to create a new Member

/   Name      Type      IMSplex  VV.R  Description
/   *         *         *        *    *
***** Bottom of data *****

```

```

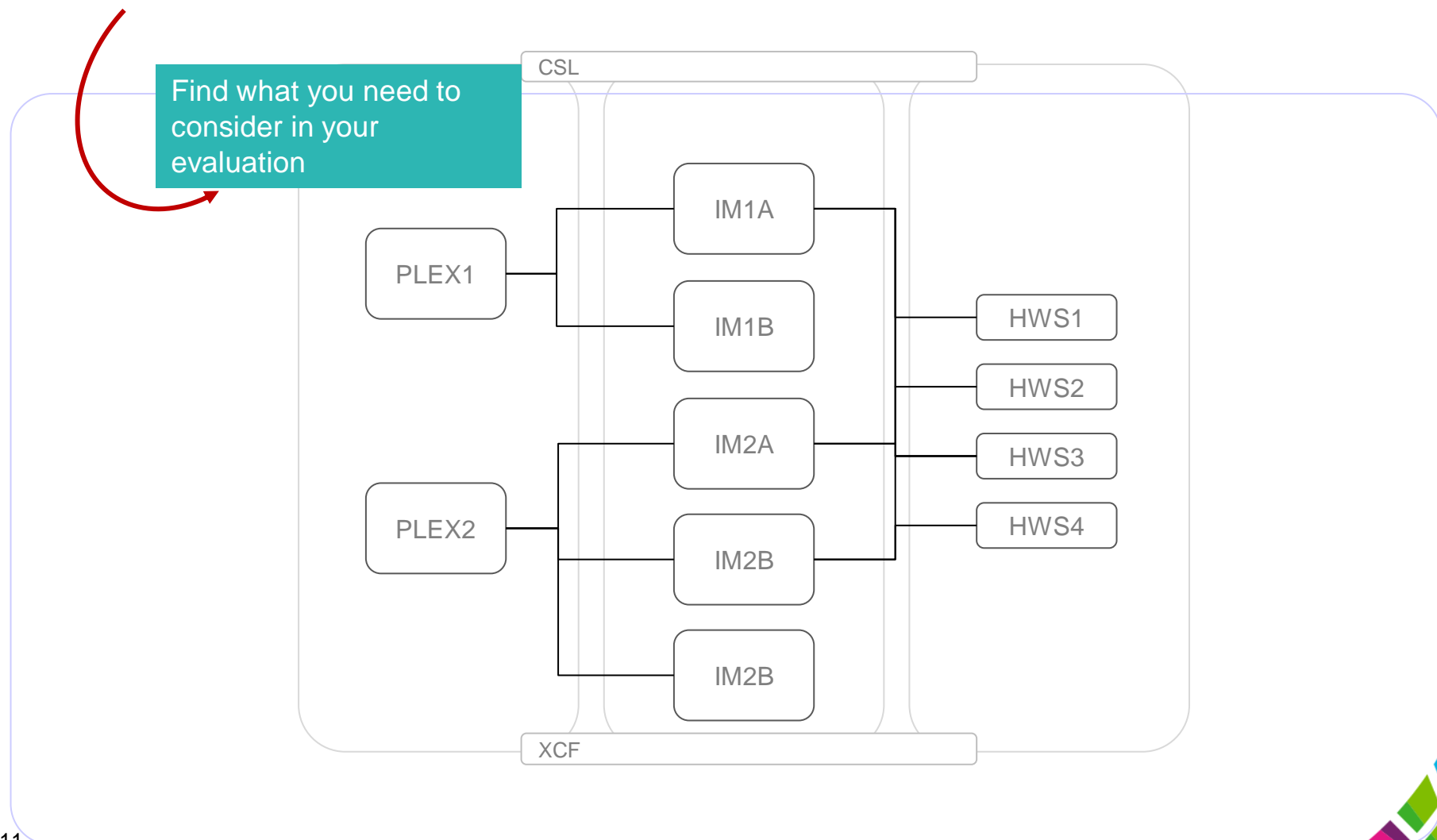
VIEW      GPL210.DEVT.SGPLSAMP(GPLDSCVR) - 01.25
Command ==> _____
***** Top of Data *****
000001 //GPLDSCVR JOB ,CLASS=A,NOTIFY=&SYSUID
000002 //GPLUTIL EXEC PGM=GPLUTIL
000003 //STEPLIB DD DISP=SHR,DSN=<HLQ.V2R1M0.SGPLLINK>
000004 // DD DISP=SHR,DSN=<HLQ.VnRnMn.SDFSRESL>
000005 //SYSIN DD *
000006 *
000007 DISCOVER TO(REPOSITORY,GPLREPOS)
000008 /*
000009 //GPLREPOS DD DISP=SHR,
000010 // DSN=<HLQ.V2R1M0.REPOSTRY>
000011 //SYSPRINT DD SYSOUT=*
000012 //
***** Bottom of Data *****

```

+ Discovery job

# Review the results of IMS Systems Topology Mapping

- Identify IMSplexes, IMS systems, and IMS Connect across all LPARs



# Complete IMS topology

File Help

System Member List

Row 1 of 103 More: <>

Command ==> \_\_\_\_\_ Scroll ==> PAGE

Enter NEW to create a new Member

Name	Type	IMSpIex	VV.R	Description
*	*	*	*	*
CACTHWS0	IMSCON		10.1	
CDQ1SC	SCI	PLCDH	1.5	
DCH10D	ODBM	PLCDH	1.2	
DCJ10D	ODBM	PLCDJ	1.2	
DCJ10M	OM	PLCDJ	1.5	
DCJ20D	ODBM	PLCDJ	1.2	
DDH10M	OM	PLDDH	1.6	
DDJ10D	ODBM	PLDDJ	1.3	
DDJ10M	OM	PLDDJ	1.6	
<b>P</b> IBDP	IMS	PLXDP	11.1	
IBDR	IMS	PLBDP	11.1	
ICDH	IMS	PLCDH	12.1	
ICDJ	IMS	PLCDJ	12.1	
ICDP	IMS	PLXDP	12.1	
ICDQ	IMS	PLDDQ	12.1	
ICDR	IMS	PLCDP	12.1	
ICMIC00	IMSCON	+3	12.1	
ICMIC01	IMSCON		12.1	
ICMIC02	IMSCON	PLXDP	13.1	



Command ==> \_\_\_\_\_ Scroll ==> CSR

IMSpIex . . . : PLXDP

Search . . \_\_\_\_\_

	System	Prompt	Description
-	IMS		
+	IBDP		
+	IDDP		
-	IMSCON		
+	ICMIC00		
-	ICMIC02		
	HWSCFG02		
	BPECFG11		
	HWSEXIT1		
-	ODBM		
-	S3XDPOD		
	CSLDIPS3		
	CSLDCPS3		
	BPECFPLP		
-	OM		
-	S1XDPOM		
	CSLOIPS1		
	BPECFPLP		
-	RM		
+	S1XDPRM		
+	S3XDPRM		
-	SCI		
+	S1XDPSC		
+	S3XDPSC		
-	REPO		
-	S1XDPRP		
	FRPCFGS1		
	BPECFPLP		

MBRLIST..ALL..ALL

Type: MBRLIST

Show: ALL

IMSpIex	IMSID	MemberName	DataSetName	Libr..	Size	CreateDate	ChangeTimestamp	ChangeUserID	MemberType	Mes
IPOCX	OCS0	CQSIP0C0	GPL210.QADATA.MAY2013.CSLPROC.04PREZ	1	9	2013-03-07	2013-05-01-07.31.47	NXU2	CQSIP	
IPOCX	OCS0	CQSSG0C0	GPL210.QADATA.MAY2013.CSLPROC.04PREZ	1	14	2013-03-07	2013-05-01-08.07.23	NXU	CQSSG	
IPOCX	OCS0	DFSCG0C0	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	7	2013-03-07	2013-05-01-07.05.26	NXU	DFSCG	
IPOCX	OCS0	DFSDC00C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	10	2013-03-07	2013-03-07-12.45.03	AXW	DFSDC	
IPOCX	OCS0	DFSDSCMC	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	66	2013-03-07	2013-03-07-12.45.04	AXW	DFSDSCM	
IPOCX	OCS0	DFSDSCTC	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	40	2013-03-07	2013-03-07-12.45.04	AXW	DFSDSCT	
IPOCX	OCS0	DFSPB00C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	101	2013-03-07	2013-05-01-08.07.23	NXU	DFSPB	
IPOCX	OCS0	DFSSPM0C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	5	2013-03-07	2013-03-07-12.45.05	AXW	DFSSPM	
IPOCX	OCS0	DFSSQ00C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	1	2013-03-07	2013-05-01-08.07.23	NXU	DFSSQ	
IPOCX	OCS0	DFSVSMCT	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	15	2013-03-07	2013-03-07-12.45.06	AXW	DFSVSM	
IPOCX	OCS0	DFSYDTC	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	30	2013-03-07	2013-05-01-08.07.23	NXU	DFSYDT	
IPOCX	OCS0	OCS00CD0	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	2	2013-03-07	2013-05-01-08.19.54	NXU2	SSM	
IPOCX	OCS1	CQSIP0C0	GPL210.QADATA.MAY2013.CSLPROC.04PREZ	1	9	2013-03-07	2013-05-01-07.31.47	NXU2	CQSIP	
IPOCX	OCS1	CQSSG0C0	GPL210.QADATA.MAY2013.CSLPROC.04PREZ	1	14	2013-03-07	2013-05-01-08.07.23	NXU	CQSSG	
IPOCX	OCS1	DFSCG0C0	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	7	2013-03-07	2013-05-01-07.05.26	NXU	DFSCG	
IPOCX	OCS1	DFSDC01C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	10	2013-03-07	2013-03-07-12.45.03	AXW	DFSDC	
IPOCX	OCS1	DFSDSCMC	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	66	2013-03-07	2013-03-07-12.45.04	AXW	DFSDSCM	
IPOCX	OCS1	DFSDSCTC	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	40	2013-03-07	2013-03-07-12.45.04	AXW	DFSDSCT	
IPOCX	OCS1	DFSPB01C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	99	2013-03-07	2013-05-01-08.07.23	NXU	DFSPB	
IPOCX	OCS1	DFSSPM0C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	5	2013-03-07	2013-03-07-12.45.05	AXW	DFSSPM	
IPOCX	OCS1	DFSSQ01C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	1	2013-03-07	2013-05-01-08.07.23	NXU	DFSSQ	
IPOCX	OCS1	DFSVSM0C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	15	2013-03-07	2013-03-07-12.45.06	AXW	DFSVSM	
IPOCX	OCS1	DFSYDTC	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	30	2013-03-07	2013-05-01-08.07.23	NXU	DFSYDT	
IPOCX	OCS1	DFSSM01C	GPL210.QADATA.MAY2013.SYSPROC.04PREZ	2	2	2013-03-07	2013-05-01-08.20.09	NXU2	SSM	

Compare ...

**Show Configuration**

Hide Blank Columns

Show all Columns

List all <active> parameter members across your enterprise and drill-down to parameter values

Compare configuration across all plexes to make sure you are using the best system configuration for evaluation

Compare ...

Show Configuration

Hide Blank Columns

Show all Columns

MemberName	APPLID1	CPLOG	CSAPSB	CSLG	DBRCNM	DBWP	DC	DLIPSB	DMB	DSCT	FBP	FRE	IRLM	LSO	LUMC	LUMP	MAXPST	OTMAASY	OTMANM	PIINCR	PIMAX
DFSPB00M	IMABIMS0	500K	4500K	0BA	ABS0XDRG	32	00M	15M	400	M	7M	1200	Y	S			990	S	IMABIMS0	4	2000
DFSPB01M	IMABIMS1	500K	4500K	0BA	ABS1XDRG	32	01M	15M	400	M	7M	1200	Y	S			990	S	IMABIMS1	4	2000
DFSPB02M	IMABIMS2	500K	4500K	0BA	ABS2XDRG	32	02M	15M	400	M	7M	1200	Y	S			990	S	IMABIMS2	4	2000
DFSPB03M	IMABIMS3	500K	4500K	0BA	ABS3XDRG	32	03M	15M	400	M	7M	1200	Y	S			990	S	IMABIMS3	4	2000
DFSPB00H	IMHSIMS0	16M	2000	0SH	HSS0XDRG	28	00H	6000	400	H	400	1000	N	S			800		IMHSIMS0	4	2000
DFSPB01H	IMHSIMS1	16M	2000	0SH	HSS1XDRG	28	01H	6000	400	H	400	1000	N	S			800		IMHSIMS1	4	2000
DFSPB00C	IMOCIMS0	16M	3500	0C0	OCS0XDRG	32	00C	500	100	C	3000	4000	N	S	50M	500M	400	S	IMOCIMS0	4	8000
DFSPB01C	IMOCIMS1	16M	3000	0C0	OCS1XDRG	32	01C	300	100	C	3000	4000	N	S			400	S	IMOCIMS1	4	8000
DFSPB04C	IMOCIMS4	16M	3000	0C0	OCS4XDRG	32	04C	300	100	C	3000	4000	N	S			400	S	IMOCIMS4	4	8000
DFSPB05C	IMOCIMS5	16M	3000	0C0	OCS5XDRG	32	05C	300	100	C	3000	4000	N	S			400	S	IMOCIMS5	4	8000
DFSPB008	IMVHIMS0	16M		0HV	VHS0XDRG		008				7M	9000					990	S	IMVHIMS0		
DFSPB018	IMVHIMS1	16M		0HV	VHS1XDRG		018				7M	9000					990	S	IMVHIMS1		
DFSPB028	IMVHIMS2	16M		0HV	VHS2XDRG		028				7M	9000					800	S	IMVHIMS2		
DFSPB038	IMVHIMS3	16M		0HV	VHS3XDRG		038				7M	9000					800	S	IMVHIMS3		

Only show differences; only highlight significant differences



# Centralized management of IMS systems

- Map IMS topology
- Analyze PROCLIB parameters across global sites
- Run CSL commands
- Manage MODBLK resources
- Search, filter, compare, and export results to spreadsheet applications
- Provides tight integration with IMS Connect Extensions GUI
- Works with z/OS Explorer, IMS Explorer, CICS Explorer, and Rational offerings

The screenshot displays the IMS Connect Extensions GUI with several key features highlighted by green callouts:

- IMS command submission:** A window showing the submission of an IMS command: `QUERY PGM NAME(*) SHOWALL STATUS(STATUS)`.
- Resource Management:** A menu for database resources, including options like Database - Detail, Routing Codes - Summary, and Transactions - Summary.
- Intelligent diffs:** A table view comparing two database configurations, highlighting differences in parameters.
- Enterprise parameter management:** A detailed table of IMS system parameters across various member names and sites.

MemberName	APPLID1	CPLOG	CSAPSB	CSLG	DBRCNM	DBVPP	DC	DLPBS	DMB	DSCT	FBP	FRE	IRLM	LSO	LUMC	LUMP	MAXPST	OTMAASY	OTMANN	PINCR	PMAX
DFSPB00M	IMABMS0	500K	4500K	0BA	ABSXDGRG	32	00M	15M	400	M	7M	1200	Y	S			990	S	IMABMS0	4	2000
DFSPB01M	IMABMS1	500K	4500K	0BA	ABS1XDGRG	32	01M	15M	400	M	7M	1200	Y	S			990	S	IMABMS1	4	2000
DFSPB02M	IMABMS2	500K	4500K	0BA	ABS2XDGRG	32	02M	15M	400	M	7M	1200	Y	S			990	S	IMABMS2	4	2000
DFSPB03M	IMABMS3	500K	4500K	0BA	ABS3XDGRG	32	03M	15M	400	M	7M	1200	Y	S			990	S	IMABMS3	4	2000
DFSPB00H	MHSMS0	16M	2000	0SH	HSSXDGRG	28	00H	6000	400	H	400	1000	N	S			800	S	MHSMS0	4	2000
DFSPB01H	MHSMS1	16M	2000	0SH	HSS1XDGRG	28	01H	6000	400	H	400	1000	N	S			800	S	MHSMS1	4	2000
DFSPB00C	MOCMS0	16M	3500	0CC	OCSXDGRG	32	00C	500	100	C	3000	4000	N	S	50M	500M	400	S	MOCMS0	4	8000
DFSPB01C	MOCMS1	16M	3000	0CC	OCS1XDGRG	32	01C	300	100	C	3000	4000	N	S			400	S	MOCMS1	4	8000
DFSPB04C	MOCMS4	16M	3000	0CC	OCS4XDGRG	32	04C	300	100	C	3000	4000	N	S			400	S	MOCMS4	4	8000
DFSPB05C	MOCMS5	16M	3000	0CC	OCS5XDGRG	32	05C	300	100	C	3000	4000	N	S			400	S	MOCMS5	4	8000
DFSPB008	MVHMS0	16M		0HV	VHSXDGRG		008		8		7M	9000					990	S	MVHMS0		
DFSPB018	MVHMS1	16M		0HV	VHS1XDGRG		018		8		7M	9000					990	S	MVHMS1		
DFSPB028	MVHMS2	16M		0HV	VHS2XDGRG		028		8		7M	9000					800	S	MVHMS2		
DFSPB038	MVHMS3	16M		0HV	VHS3XDGRG		038		8		7M	9000					800	S	MVHMS3		

Connection Server - PLXDP [IMSplex] @ DP [Repository] @ PLXDP [Connection Server] (FTS1:30111) - IBM Tools Base Connection Server

File Edit Navigate Project Commands Window Help

Connection Server Resource

Navigation

<All Source Types>

Navigation

- All Sources
  - IMS
  - IMSplex
    - IPOCX
    - IPABX
    - IPHSX
    - IPVHX
    - PLXDA
    - PLXDP**
    - IADP
    - IBDP
    - ICDP

My group

Compare All Sources IPOCX [IMSplex] PLXDP [IMSplex] »4

QUERY IMSF

<Locate value>

<Find value>

Command: QUERY IMSPLEX SHOW(ALL)

IMSplex	MbrName	CC	Member	JobName	Type	Subtype	Version	OSName	Status
CSLPLXDP	S1XDPOM	0	CDP3CQS	PLXDPCQS	CQS		1.8.0	FTS3	READY,ACTIVE
CSLPLXDP	S1XDPOM	0	ACMEPLX	FUDREA	AOP	FUDSRVR	1.4.0	FTS1	ACTIVE
CSLPLXDP	S1XDPOM	0	S1XDPOM	PLXDPOM	OM		1.6.0	FTS1	READY,ACTIVE
CSLPLXDP	S1XDPOM	0	S1XDPRP	PLXDPRS	REPO		1.2.0	FTS1	READY,ACTIVE
CSLPLXDP	S1XDPOM	0	ICDP	ICDPCTL	IMS	DBDC	12.1.0	FTS1	READY,ACTIVE
CSLPLXDP	S1XDPOM	0	IBDPBRC	IBDPBRC	DBRC	001	11.1.0	FTS1	READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0							READY,ACTIVE
CSLPLXDP	S1XDPOM	0	S1XDPOM	PLXDPOM	OM		1.6.0	FTS1	READY,ACTIVE
CSLPLXDP	S1XDPOM	0	FUDDEMO	DAMSRVR	AOP	FUDSRVR	1.4.0	FTS1	ACTIVE
CSLPLXDP	S1XDPOM	0	S1XDPSI	PLXDPSI	SCI		1.6.0	FTS1	READY,ACTIVE

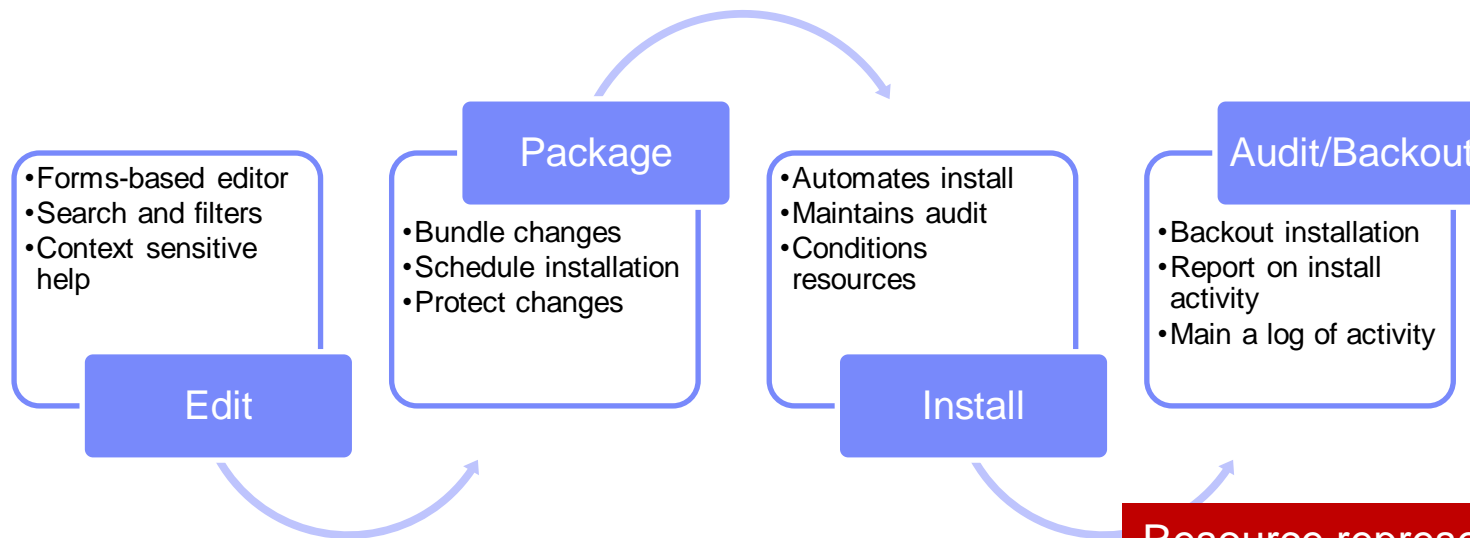
03/05/2013 12:10:13 PM; 1 of 17

Resources Parameters Commands

Console

You can submit type II commands and then analyze, filter, or export the output

# ICM Processes: updating resources using DRD



Resource representation a superset of all IMS versions

Update process dynamically evaluates the appropriate commands for a given version

Supports updates to PLEXes containing multiple IMS versions

A traditional GEN process can be used in parallel

Batch processes can also be used to identify differences for changes from external sources. Change packages can be created from the difference

```

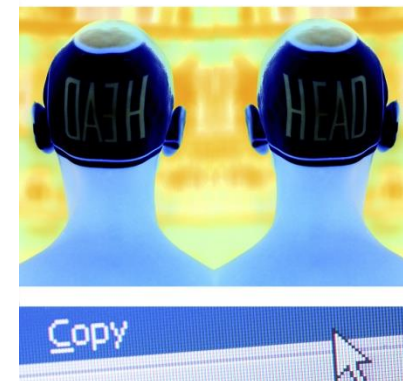
File Edit Edit_Settings Men Utilities Compilers Test Help
VIEW IMPOT00.GPL.WORKSHOP.
Command ==>
000038 COMPARE +
000039 INPUT1(RG('IMPOT
000040 IMSID(ICDP
000041 DDNAME(REPOSITOR1,OUTREPOS)), +
000042 INPUT2(RG('EMPTY
000043 DDNAME(REP
000044 UPDCP(NAME('IMPO
000045 IMSID(ICDP
000046 MATCH(INPU
000047 NOMATCH(IN
000048 UPDREPOS(I
000049 /*
000050 //
*****
  
```



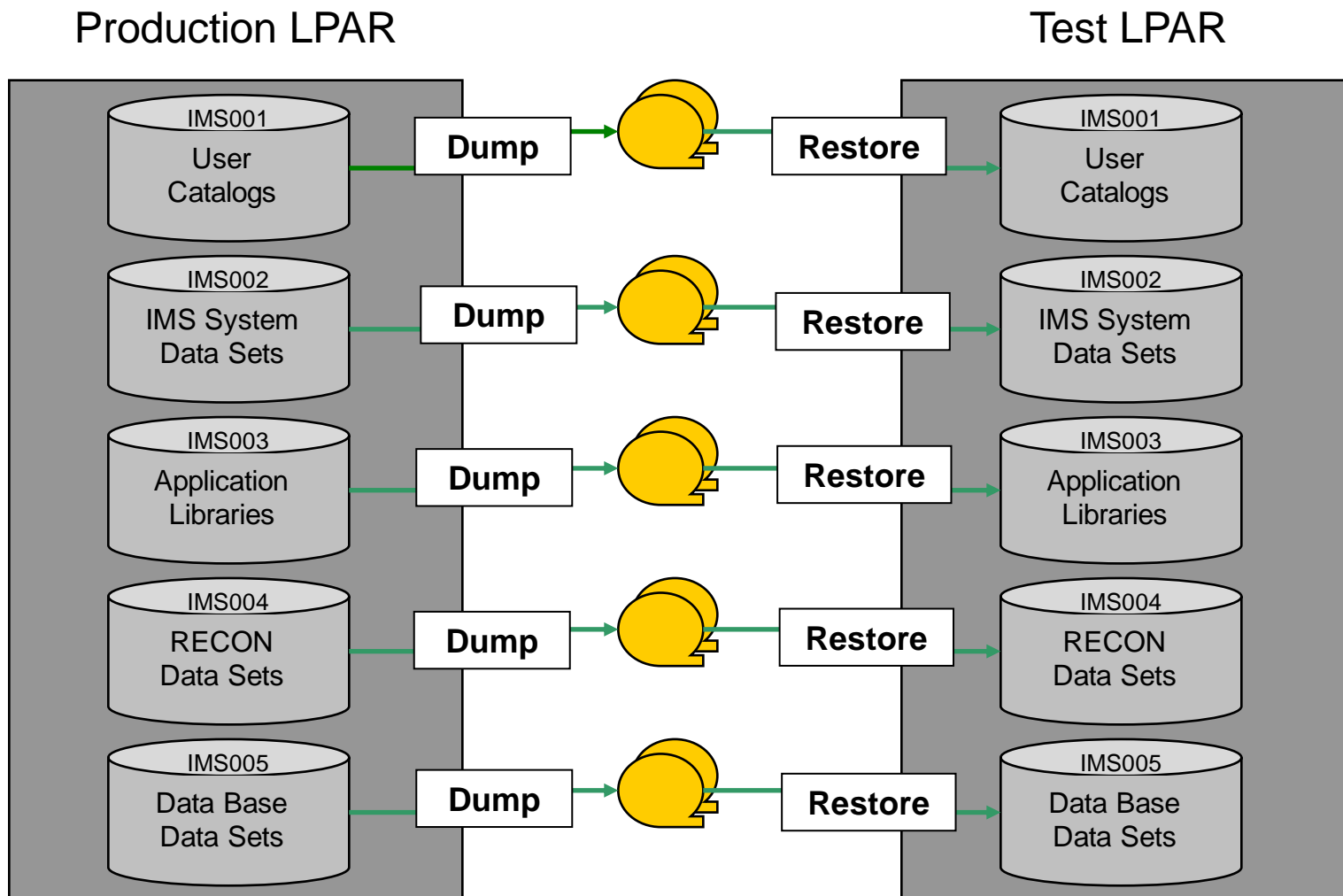
# Refreshing IMS Systems

# Cloning Terminology

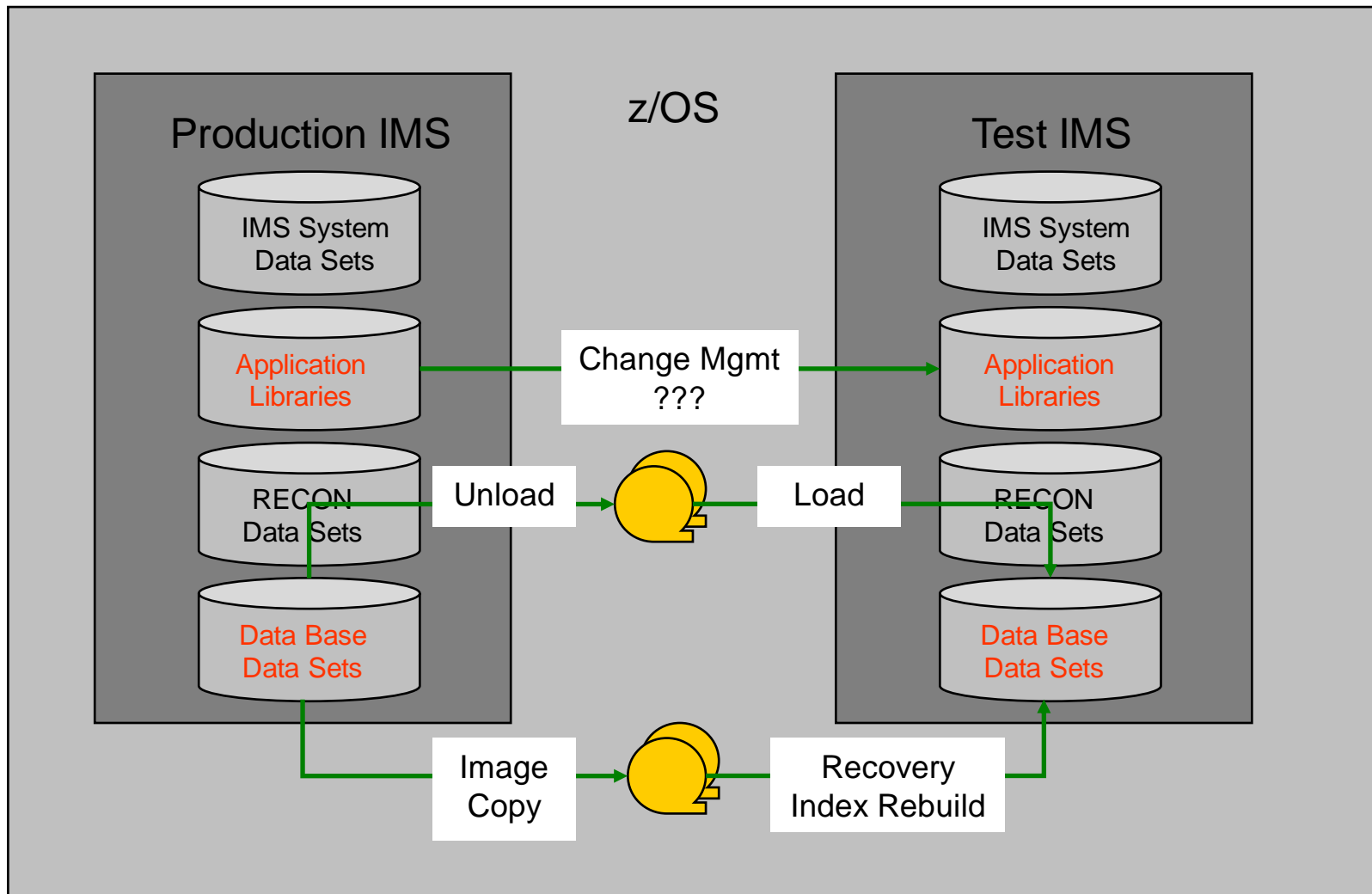
- **A clone is an exact but independent replica**
  - Clone a DB2 or IMS system by volume
  - Clone a table space or database by data set
- **DB2/IMS system cloning and table space/database refresh**
  - The act of replicating the data, making the replica accessible, and then using the replica in lieu of the original data
- **System cloning automation**
  - Clones a complete DB2 or IMS system including all its databases
- **DB2 table and index space and IMS database refresh**
  - Refreshes specific DB2 table and index spaces or IMS databases



# Traditional IMS System 'Cloning'



# Traditional IMS Database 'Cloning'



# Volume Level Copy

## Challenges to Data Access on the Same or Shared LPAR

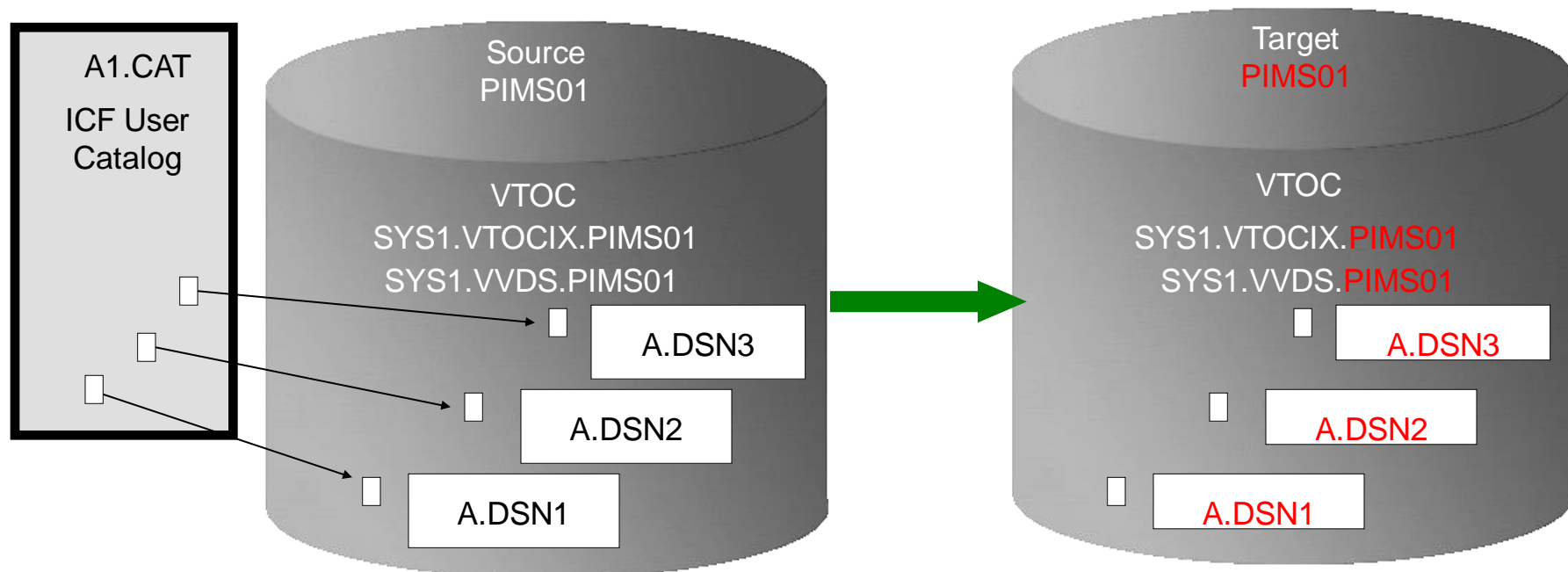
- **DB2 or IMS system cloning is best done using volume replication**
  - Data set copy goes through source and target data set allocation and deallocation for each data set
  - Consistency groups only supported at volume level
- **Volume data is replicated fast and easy but...**
  - How do you access the cloned data?
- **Inherent Problems:**
  - VOLSERS may have the same volume names as the source
  - Volume VTOC, VTOCIX and VVDS would reference the source VOLSERS
  - Data set names are the same on source and target volumes





# Challenges to Data Access

## Data Set Name and Cataloging Issues



### Result:

1. Volser will be same as source so target volume will be offline
2. VTOCIX and VVDS reflect source volser
3. Data sets on the volume are copied, but keep their original name
4. Only the source data sets are cataloged; even if the catalog is on the cloned volumes, it isn't connected to the system's master catalog

# Storage Aware Database Tools

## Solve Data Access Challenges

### ▪ DB2 system or IMS system cloning by volume

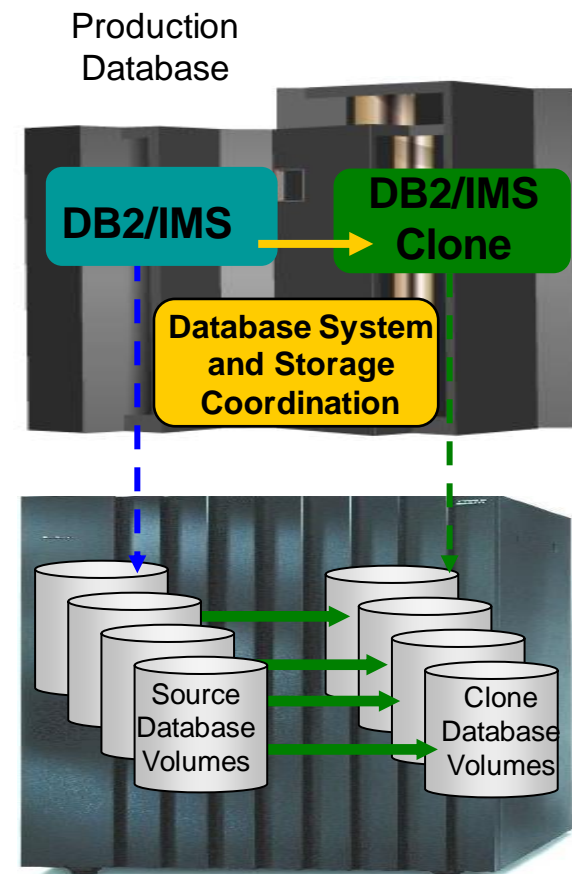
- Changes the target volume identifiers if they are the same as the source
- Renames the VTOC, VTOCIX, and VVDS to match the target volume
- Renames and catalogs all data sets to a new HLQ
- Updates the DB2 or IMS metadata
- Makes data accessible on the same or shared LPAR



# IMS or DB2 Cloning Tool

## System Cloning Automation

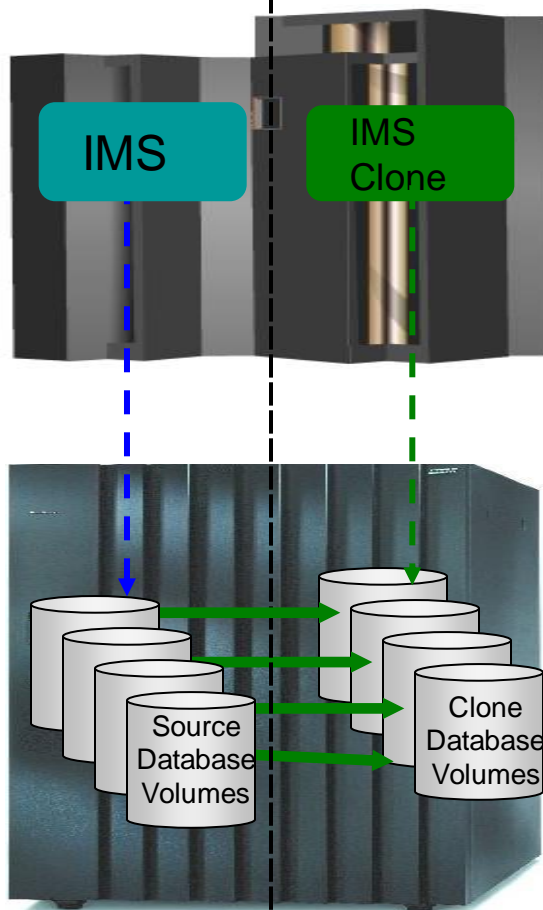
- **Performs automated cloning of DB2 or IMS systems**
- **Data is copied using storage-based volume level fast-replication**
- **Performs rapid volume reconditioning and data set renaming on cloned volumes to solve the data access challenges**
  - Target volumes retain their target volume label
  - Renames the VTOC, VTOCIX, and VVDS to match the target volume
  - Renames and catalogs all data sets to a new HLQ
- **Adjusts target DB2 system to accommodate and accept the cloned data**
  - DB2 catalog, directory, BSDS, active / archive Log
  - Makes data accessible on the same or shared LPAR
- **Adjusts target IMS to accommodate and accept the cloned data**
  - IMS RECONS, PROCLIB, JOBS, JCL, MDA members



# IMS System Cloning Steps

Production IMS  
'Source'

Target IMS



- 1 IMS volume selection
- 2 A. Suspend IMS  
B. Consistency Group
- 3 Volume copy
- 4 Resume IMS if 2A

- 5 Rename data sets and catalogue
- 6 Update cloned IMS meta data
- 7 Start cloned IMS

# Target IMS System (Clone) Updates

## ▪ RECONS data sets

- Data set names, IMS subsystem IDs, and VOLSERS are updated in the following RECON records: header record, database data set records, online log records, and back-out records
- Optionally, the following RECON records can be updated if they were on volumes that were cloned:
  - Image copy records, change accumulation records
  - System log data set (SLDS) records
  - Recovery log data set (RLDS) records

## ▪ IMS PROCLIB and JOBS and user JCL libraries

- New values for IMSID, VOLSERS, and data set names in the JCL members within these libraries

## ▪ MDA members for databases and system data sets

- RECON data sets
- Online Log data sets (OLDS)
- Write-ahead data sets (WADS)

# Updating test system resources with ICM

```

C          Copy IMS System
Command ==>

E Press PF3 or EXIT to copy the IMS system. PF12 or Cancel to cancel.

Source
/  Name . . . . : IADP      Version . . : 10.1
  Description . :
  IMSplex . . . : PLXNU

Target
  Name . . . . . ICDP      Version . . . 10.1 +
  Description . :
  IMSplex . . . . PLXNU +
  Reposito _____ IMS Release _____

Command ==> _____ Row 1 to 5 of 5
                          Scroll ==> CSR

DDQ1RM  R
DDQ1SC  S
DDQ20D  O
HWSINST I
HWSIXD3 I
HWSIXD4 I
HWSIXD6 I
HWS1    I
C  IADP  I
  IBDH  I

          V.V.R Description
          .  9.1  IMS  9.1.0
          . 10.1  IMS 10.1.0
          . 11.1  IMS 11.1.0
          . 12.1  IMS 12.1.0
          S 13.1  IMS 13.1.0
          ***** Bottom of data *****
  
```

Discovered IMS version

Target version (automates validation)

IMSPlex Active Members

Row 5 of 56

Command ==> \_\_\_\_\_ Scroll ==> CSR

IMSPlex . . . : PLXNU  
Description . . :

Search . . V13 **Intelligent search for what is new in target**

	System	Prompt	Description
-	IMSCON		
+	ICMIC00		
-	ICMIC02		
	HWSCFG02		
	CICSAPPL=...		The Applid of the remote CICS system
	CICSNETID=...		The Netork ID of the remote CICS system
...			
	PORT=(ID=30330,KEEP		
	PORT=(ID=30330,KEEP		
...			
	IMSPLEX (MEMBER=ICM		

**Insert new parameters straight into the right members**

-	BPECFG11		
	CONDSRB=...		Conditional zIIP SRB option

-	ODBM		
-	S3XDPOD		
	CSLDPCS3		
	SOD=...		Output class for snap dumps
	** <SECTION=GLOBAL_DATASTORE_CONFIGURATION>		
	** <SECTION=LOCAL_DATASTORE_CONFIGURATION>		
	** <SECTION=GLOBAL_DATASTORE_CONFIGURATION>		

**What is needed for CSL address spaces**

# Find Parameter changes needed for copied parameter members in target system

Navigation | IDDP [IMS] | PLXDP [IMSplex]

DFSDF..REPOSITORY..ALL

Type: DFSDF Show: REPOSITORY

IMSplex	SystemName	SystemType	MemberName	TYPE	MemberType	Message	Version	ProclibDsn
PLXDP	IBDP	IMS	DFSDFPS1		DFSDF		11.1.0	IBDP.VB10.PROCLIB
PLXDP	ICDP	IMS	DFSDFPS1	IMSRSC	DFSDF		12.1.0	ICDP.VC10.PROCLIB
PLXDP	IDDP	IMS	DFSDFPS3	IMSRSC	DFSDF	W-Parameter warnings	11.1.0	REA.PLXDP.PROCLIB

Line	Source
10	RMENV=Y
11	MODBLKS=DYN /* TURN ON DRD */
12	ACBSHR=N
13	/*****
14	<SECTION=DYNAMIC_RESOURCES>
15	AUTOIMPORT=AUTO
16	AUTOEXPORT=AUTO
17	DCLWA=Y
18	IMPORTERR=CONTINUE /* DONT ABEND IF IMPORT ERROR */
19	RDDSEERR=NOIMPORT /* DONT ABEND IF RDDDS ERROR */
20	RDDSDSN=(IDDP.VD10.RDDSO1,
21	IDDP.VD10.RDDSO2,
22	IDDP.VD10.RDDSO3)
23	REPOERR=NOIMPORT /* DONT ABEND CONTINUE TO INIT */
	Position 9: Parameter/Value is for a future IMS release: REPOERR
24	<SECTION=SHARED_QUEUES>
25	CQS=PLXDPCQS,
26	CQSSN=CDP3,
27	EMHQ=QEMHPLKDP,
28	MSGQ=QMSGPLKDP,
29	SQGROUP=CQPLP,
30	WAITRBLD=N
31	<SECTION=REPOSITORY>
	Position 10: Parameter/Value is for a future IMS release: SECTION-header identifier
32	REPOSITORY=(TYPE=IMSRSC)
	Position 18: Parameter/Value is for a future IMS release: TYPE



# Adding support for the new features you want using Semantic search

IMSplex . . . : PLXNU  
Description . . :

Search . . ISC

## Intelligent search for new feature

/ System	Prompt	Description
- _ ICDP		
- _ DFSDC000		
- _ ISCTCPIP=...		Defines an LU 6.1 via TCPIP link
- _ RCVYSTSN=...		STSN recovery? Yes or No
-----		
...		
- _ DFSDSCT0		
- _ AUTLID=...		ISC other system half session qualifier
- _ LCLICON=...		Local ICON that IMS communicates with via
-----		
- _ DFSHSB00		
- _ LNK		Timing values for ISC link surveillance
- _ SWITCH		Switch if a surveillance mechanism trigger
-----		
+ _ IDDP		
- _ IMSCON		
- _ ICMIC00		
- _ HWSCFG00		
- _ CICSAPPL=...		The Applid of the remote CICS system
- _ CICSNETID=...		The Netork ID of the remote CICS system
...		
- _ RESVSOC=...		The number of send sockets reserved for th
- _ RMTCICS=...		Defines a TCP/IP connection to a remote IB
- _ HWS (ID=ICMIC00,		Identifier
...		

## Finds IMS Connect as well as IMS

## Shows all parameters that are impacted



Add the new feature parameters using MODEL function

```

EDIT          GPL000.QAAUTO.HWS.PROCLIB(HWSCFG00
Command ==> MODEL
CHECK  Validate the member syntax
MODEL  Insert a new parameter with syntax assistance
HELP   Press F1 to request parameter sensitive help
***** ***** Top of Data *****
000001 *-----*
000002 * - HWS CONFIGURATION MEMBER FOR ICMIC00
000003 *-----*
000004 HWS (ID=ICMIC00,

```

Select a parameter

Row 1 to 11 of 11

Command ==> \_\_\_\_\_

Select one or more parameters then press EXIT.

Parameter	Description
. ADAPTER	Characteristics of adapters used
. DATASTORE	Defines connections to IMS systems
. HWS	Defines IMS Connect characteristics
. IMSPLEX	Defines the IMSplex
. * ISC	Defines ISC link between IMS systems
. MSC	Defines MSC link between IMS systems
. ODACCESS	Communication between ODBM, DRDA clients
. * RMTICICS	Defines a TCP/IP connection to a remote IBM CIC
. RMTIMSCON	Defines a TCP/IP connection to a remote IMS Con
. RUNOPTS	Language Environment (LE) runtime options
. TCPIP	Defines IMS Connect characteristics
***** Bottom of data *****	

Highlights logical sections

```
A00029 IMSPLEX=(MEMBER=ICMI00DP,TMEMBER=PLXDP))
```

## Update System Resource Definitions

- **Update definitions to new release specification**
  - Create Stage 1 out if Systems generation used
- **Activate DRD in evaluation IMS if needed**
  - Create System RDDS if DRD restart used for cold start
  - Import RDDS to IMS Repository to use Repository for cold start
- **If DRD active, resources can be changed using DRD if changes are needed**



# Refreshing Applications

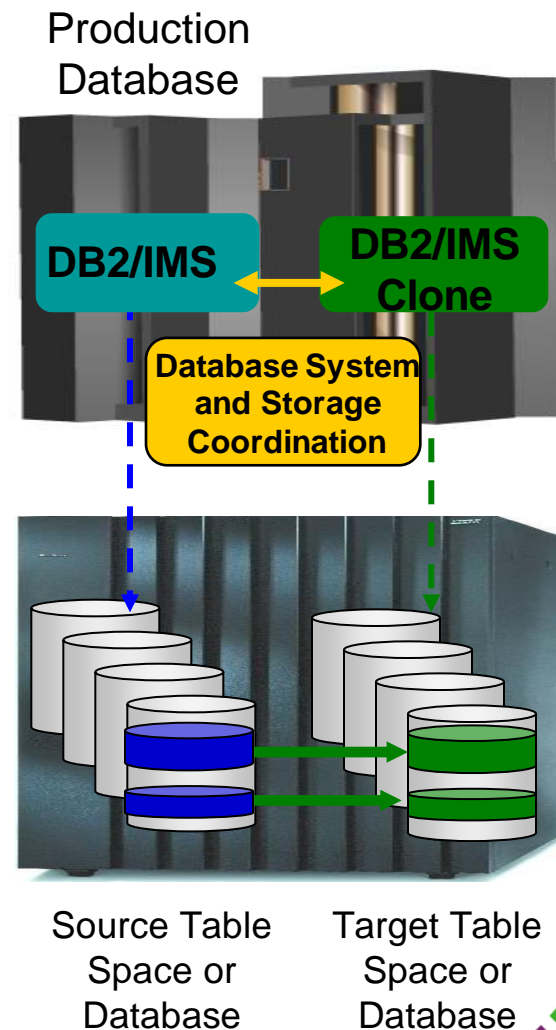
# Application Components

- **Transactions**
- **Programs**
- **Database Definitions**
- **Data**

# IMS or DB2 Cloning Tool

## Database or Tablespace Refresh Automation

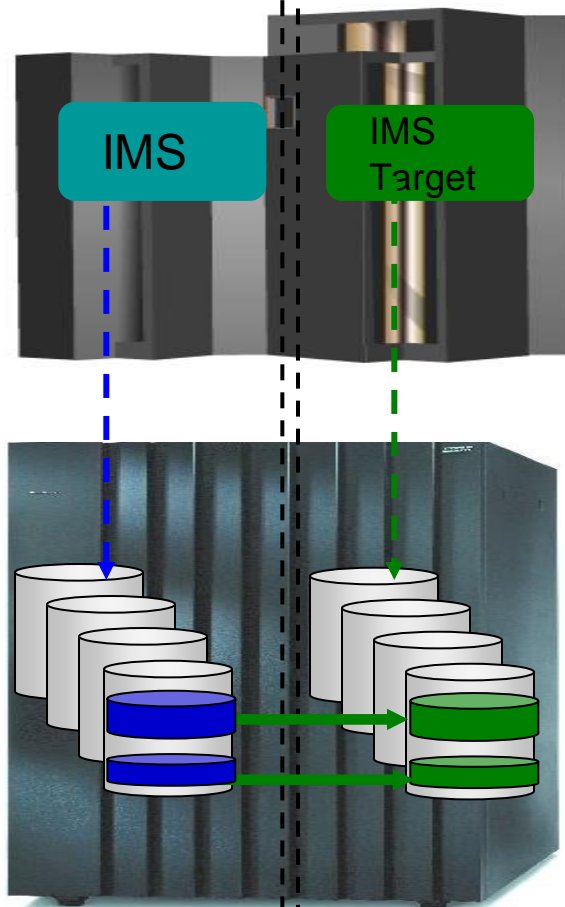
- **Performs automated DB2 table and index space or IMS database refresh operations**
  - DB2 RI relationships, LOBS, and Identity columns
  - XML on DB2 V9 or greater
  - IMS logically related
  - IMS DB support (FF, HALDB, DEDB)
- **Verifies source target database compatibility**
- **DB2/IMS data copied using storage-based dataset fast-replication**
  - Data can be cloned while online or offline
  - Slow copy mechanism can be used
- **Performs object ID translations and target DB2 system meta-data**
- **Updates DBRC information for target IMS databases**



# IMS Database Refresh Steps

Production IMS  
'Source'

Target IMS



- 2 Database Selection
- 3 Compatibility Check
- 4 Stop Source and Target IMS databases
- 5 Data Set Copy Process
- 6 Start Source IMS databases

- 1 Define target IMS databases if they do not exist
- 7 Update DBRC for Target Databases
- 8 Start Target Databases

# Additional Features

- **Shared ISPF user interface**
  - Allows DBAs, System Programmers to setup environments and controls
  - Non-technical users can generate job steps to perform system cloning or tablespace and database refresh operations
- **Dynamically define new tablespace or databases**
  - DDL or IMS ACB, RECON, MDA copied from source
- **Fuzzy copy with log apply**
  - No outage to source tablespaces or databases
  - Target tablespaces and databases brought to a consistent state
- **Data masking**
  - Allows columns (DB2) or fields in a segment (IMS) to be scrambled
  - Performed during tablespace or database refresh



# Futures



# ICM Future: Intelligent Search for Cloning Support

Description . . :

Search . . CLONING

System	Prompt	Description
/ IMS		
- ICDQ		
- DFSCGDQ1	*Edit	
- IMSPLEX=PLDDQ,		/* IMSPLEX NAME (CSLPLDDQ)
- DFSPBDQ1		
- CSLG=DQ1,		CSL global member suffix (DFSCGxxx)
- SHAREDQ=DQ1,		Shared Msg Q PROCLIB member suffix (DFSSQx
- APPLID1=,		VTAM applid of active IMS system
- APPLID2=,		VTAM applid of XRF alternate system
- APPLID3=,		VTAM applid of RSR tracking system
- DBRCNM=ICDQDBRC,		DBRC procedure name in IMS proclib
- DLINM=ICDQDLIS,		DL/I PROCLIB member name
- PRDR=ICDQRDR,		IMSRDR PROCLIB member name
- IDDQ		
- DFSCGDQ1		
- IMSPLEX=PLDDQ,		
- DFSPBDQ1		
- CSLG=DQ1,		CSL global member suffix (DFSCGxxx)
- SHAREDQ=DQ1,		Shared Msg Q PROCLIB member suffix (DFSSQx
- DBRCNM=IDDQDBRC,		DBRC procedure name in IMS proclib
- DLINM=IDDQDLIS,		DL/I PROCLIB member name
- PRDR=IDDQRDR,		IMSRDR PROCLIB member name

Shows all parameters that need to be changed in the cloned system

Helps clone CSL address spaces as well

# Provisioning IMS Services

- **Create new IMS from a single UI**
  - One-time setup for new IMS System
    - Define parmlib members
      - IMS Connect, Shared Queues, CSL, DBRCNM, DLINM, PRDR, etc.
    - Create new IMS.JOBS members
    - Create new JES PROC members
  - SAF rules
  - Copy data with minimal impact to source environment
- **Create new application from a single UI**
  - Application components
    - Transactions, programs, databases, security
  - Copy, mask, subset data

## Summary

- **IMS Configuration Manager provides a guided approach for:**
  - Creating an inventory of your environment
  - Identifying areas of improvement
  - Validating parameters
  - Introducing resource changes in a version-agnostic process
- **IMS Cloning Tool can provided quick, repeatable solutions for:**
  - Refreshing entire IMS environment
  - Refreshing or creating databases or applications
- **Good test management practices are:**
  - Difficult to implement
  - Difficult to maintain
  - Invaluable to companies



## More Info:

- **IBM DB2 and IMS Tools website:**  
[www.ibm.com/software/data/db2imstools/](http://www.ibm.com/software/data/db2imstools/)
- **James Martin:**  
[james\\_martin@fundi.com.au](mailto:james_martin@fundi.com.au)
- **Ron Bisceglia:**  
[RBisceglia@rocketsoftware.com](mailto:RBisceglia@rocketsoftware.com)



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