Take Control of Your IMS Environment

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Tuesday, October 21, 2014

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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
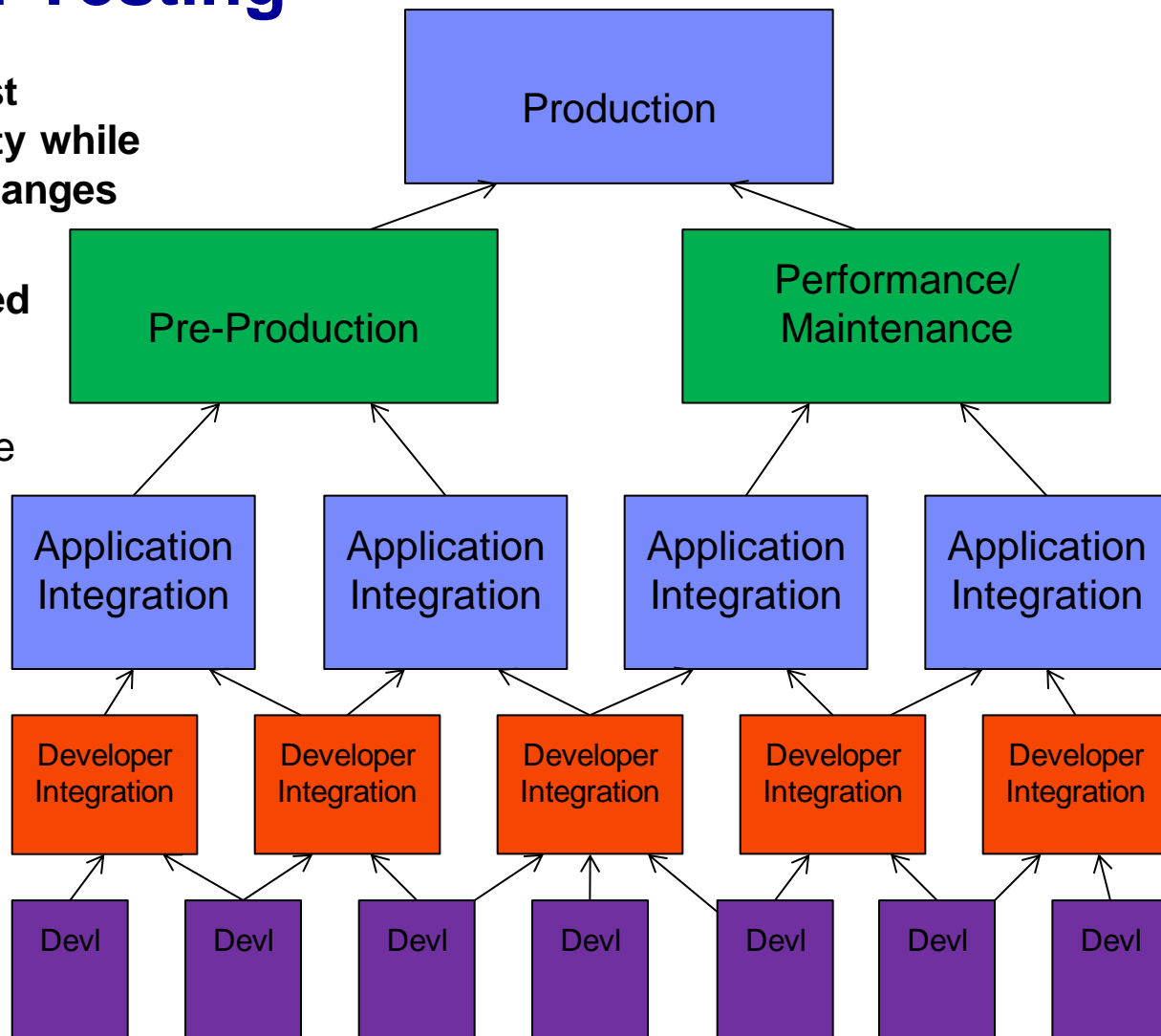
How do we keep test environments current?

Production

Pre-Production

Performance/ Maintenance

Application Integration

Application Integration

Application Integration

Application Integration

Developer Integration

Developer Integration

Developer Integration

Developer Integration

Developer Integration

Devl

Devl

Devl

Devl

Devl

Devl

Devl

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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

Find what you need to consider in your evaluation

CSL

PLEX1

IM1A

IM1B

HWS1

HWS2

IM2A

HWS3

PLEX2

IM2B

HWS4

IM2B

XCF

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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     IMSplex   VV.R   Description
 /       *          *        *         *      *
 ____    CACTHWS0   IMSCON             10.1
 ____    CDQ1SC     SCI      PLCDH      1.5
 _       DCH1OD     ODBM     PLCDH      1.2
 ____    DCJ1OD     ODBM     PLCDJ      1.2
 ____    DCJ1OM     OM       PLCDJ      1.5
 ____    DCJ2OD     ODBM     PLCDJ      1.2
 ____    DDH1OM     OM       PLDDH      1.6
 ____    DDJ1OD     ODBM     PLDDJ      1.3
 ____    DDJ1OM     OM       PLDDJ      1.6

  P      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
```
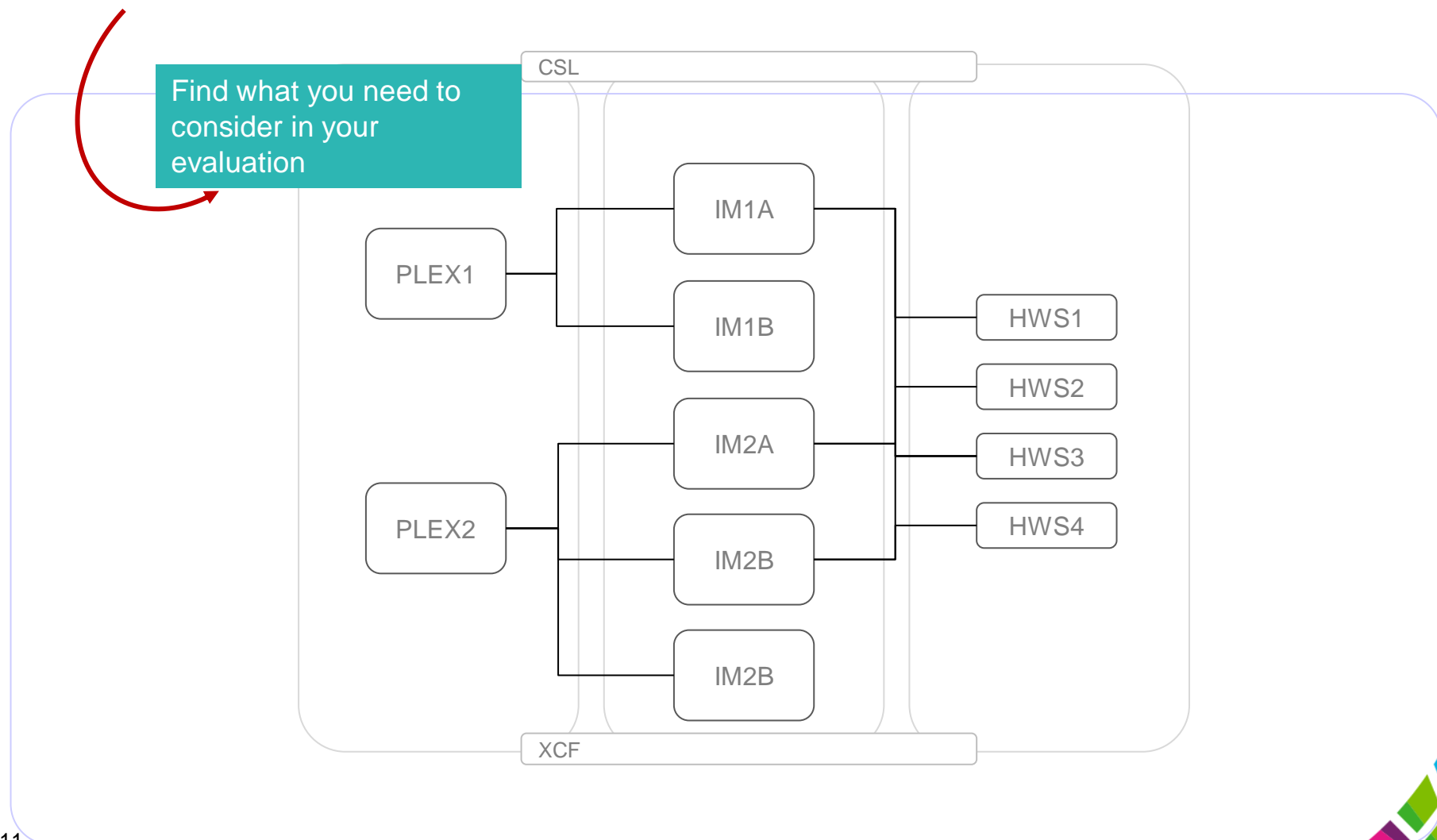
```
Command ===> _____ Scroll ===> CSR


IMSplex . . . . : 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
```

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

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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	IM0CIMS0	16M	3500	0C0	OCS0XDRG	32	00C	500	100	C	3000	4000	N	S	50M	500M	400	S	IM0CIMS0	4	8000
DFSPB01C	IM0CIMS1	16M	3000	0C0	OCS1XDRG	32	01C	300	100	C	3000	4000	N	S			400	S	IM0CIMS1	4	8000
DFSPB04C	IM0CIMS4	16M	3000	0C0	OCS4XDRG	32	04C	300	100	C	3000	4000	N	S			400	S	IM0CIMS4	4	8000
DFSPB05C	IM0CIMS5	16M	3000	0C0	OCS5XDRG	32	05C	300	100	C	3000	4000	N	S			400	S	IM0CIMS5	4	8000
DFSPB008	IMVHIMS0	16M		0HV	VHS0XDRG		008			8	7M	9000					990	S	IMVHIMS0		
DFSPB018	IMVHIMS1	16M		0HV	VHS1XDRG		018			8	7M	9000					990	S	IMVHIMS1		
DFSPB028	IMVHIMS2	16M		0HV	VHS2XDRG		028			8	7M	9000					800	S	IMVHIMS2		
DFSPB038	IMVHIMS3	16M		0HV	VHS3XDRG		038			8	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**

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

ICM Processes: updating resources using DRD

Package
- Bundle changes
- Schedule installation
- Protect changes

Edit
- Forms-based editor
- Search and filters
- Context sensitive help

Install
- Automates install
- Maintains audit
- Conditions resources

Audit/Backout
- Backout installation
- Report on install activity
- Main a log of activity

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

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

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
VIEW          IMPOT00.GPL.WORKSHOP.ICLOUDL(TAKEOUT0) - 01.08  Columns 00001 00072
Command ===>                                                            PAGE
000038    COMPARE +
000039          INPUT1(RG('IMPOT21_BASE')
000040              IMSID(ICDP
000041              DDNAME(REPOSITORY,OUTREPOS)), +
000042          INPUT2(RG('EMPTY_RG') +
000043              DDNAME(REPO
000044          UPDCP(NAME('IMPO_2 +
000045              IMSID(ICDP
000046              MATCH(INPUT1
000047              NOMATCH(INP          INPUT2(DELETE_RES)) +
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
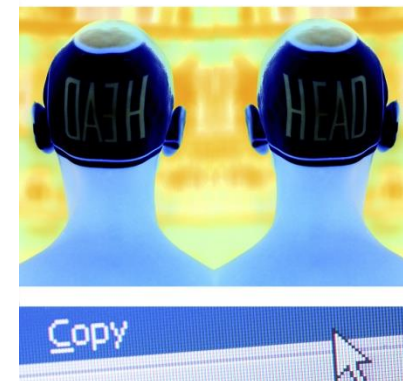
Traditional IMS System 'Cloning'

Production LPAR

Test LPAR

IMS001 User Catalogs	**Dump** →	**Restore** →	IMS001 User Catalogs
IMS002 IMS System Data Sets	**Dump** →	**Restore** →	IMS002 IMS System Data Sets
IMS003 Application Libraries	**Dump** →	**Restore** →	IMS003 Application Libraries
IMS004 RECON Data Sets	**Dump** →	**Restore** →	IMS004 RECON Data Sets
IMS005 Data Base Data Sets	**Dump** →	**Restore** →	IMS005 Data Base Data Sets
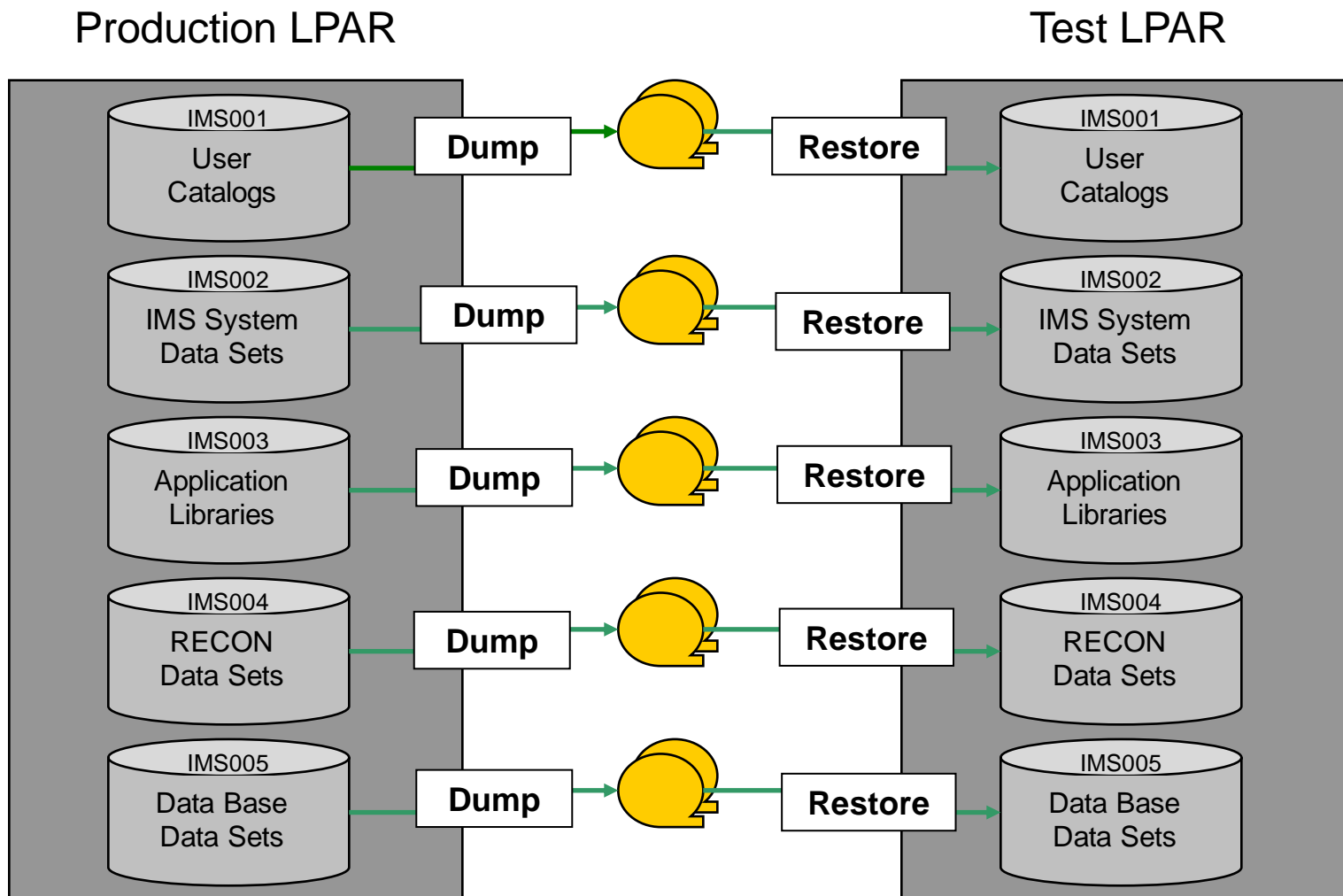
Traditional IMS Database 'Cloning'
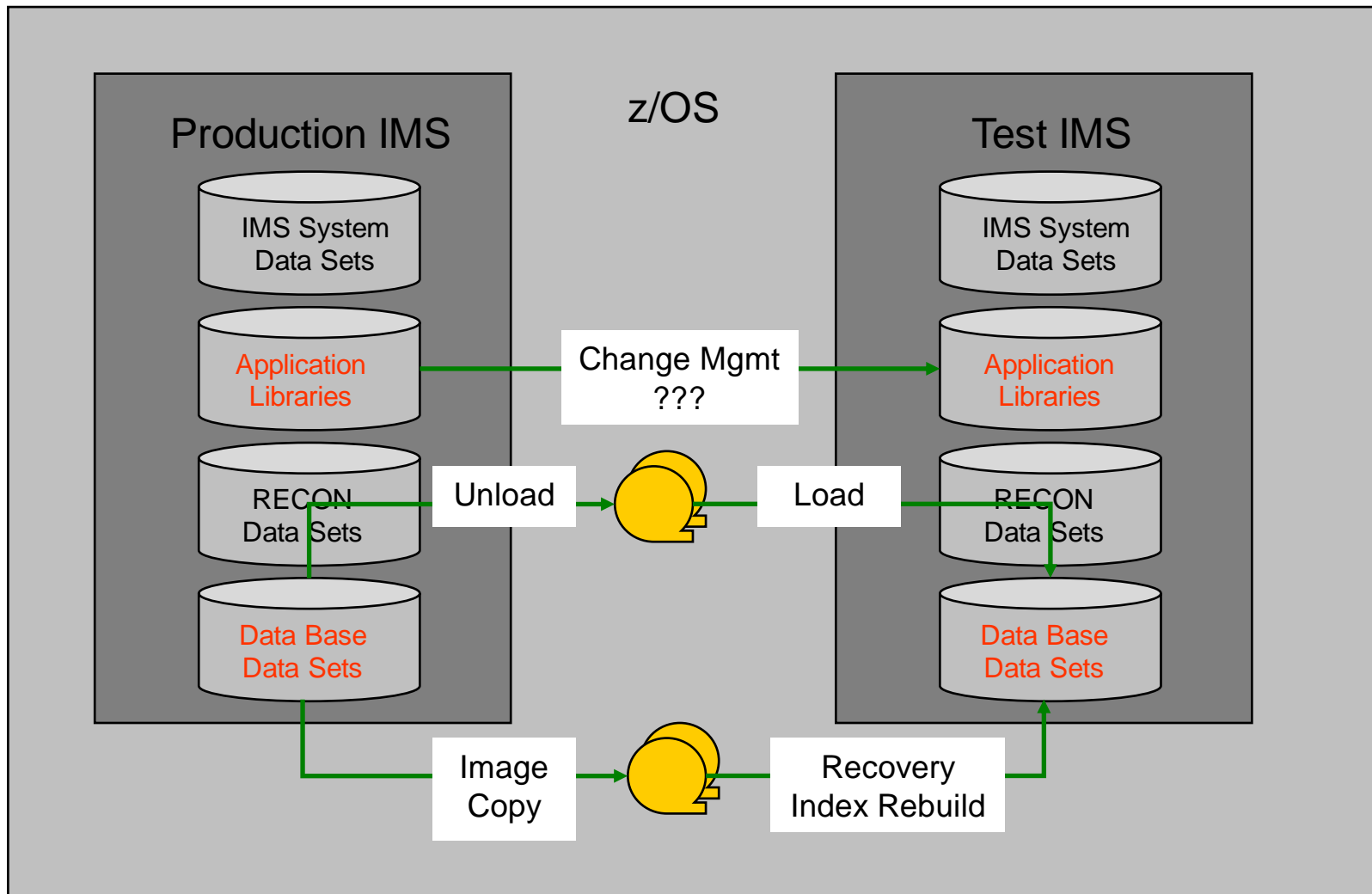
Volume Level Copy
Challenges to Data Access on the Same or Shared LPAR

- **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
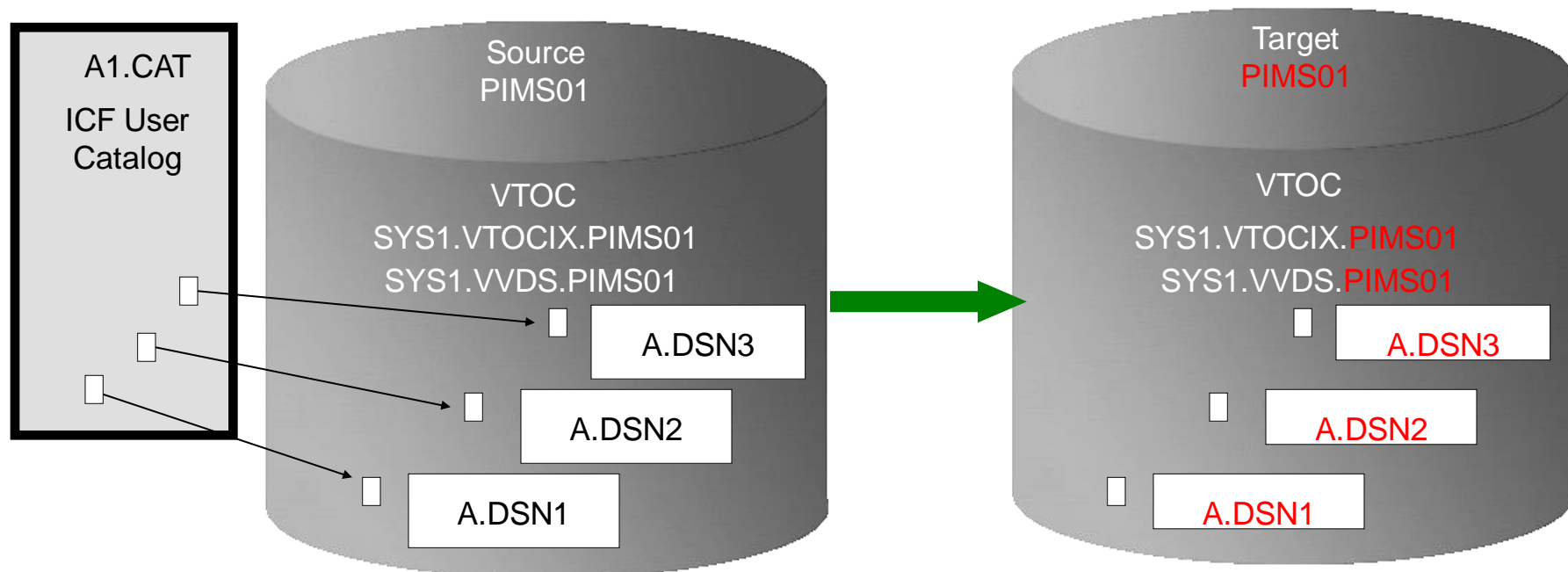
Result:

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

Source
PIMS01

A.CAT
ICF User
Catalog

VTOC
SYS1.VTOCIX.PIMS01
SYS1.VVDS.PIMS01

A.DSN3

A.DSN2

A.DSN1

Target
TIMS01

T.CAT
ICF User
Catalog

VTOC
SYS1.VTOCIX.TIMS01
SYS1.VVDS.TIMS01

T.DSN3

T.DSN2

T.DSN1

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

Production Database

DB2/IMS → DB2/IMS Clone

Database System and Storage Coordination

Source Database Volumes

Clone Database Volumes
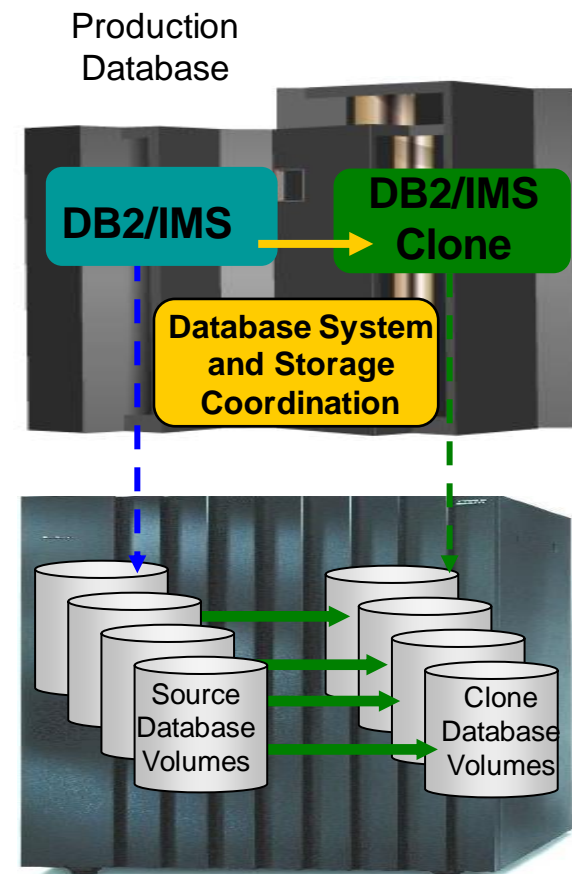
IMS System Cloning Steps

Production IMS 'Source'

Target IMS

IMS

IMS Clone
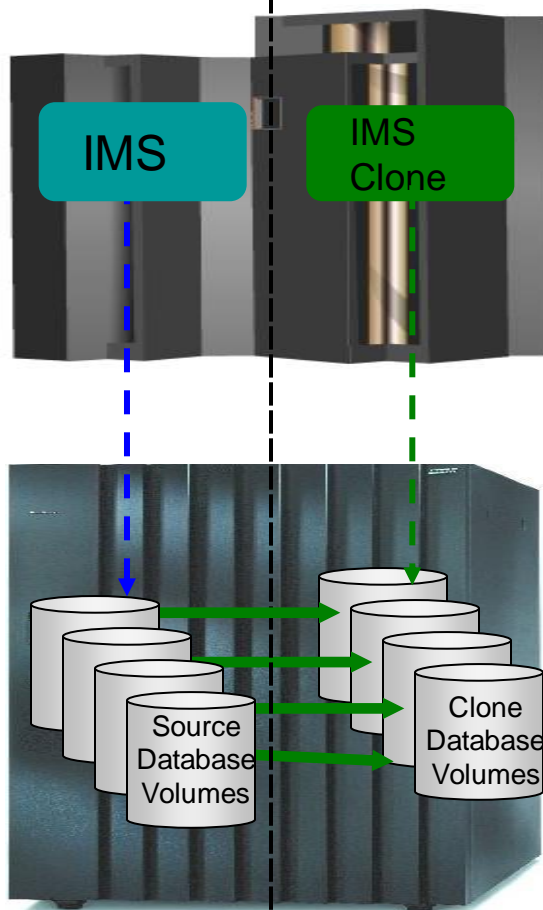
1 IMS volume selection

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

Source Database Volumes

Clone Database Volumes

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

```
             .─────────────────────────────────────────────────────.
                                  Copy IMS System                      <>
  C │  Command ===>                                                     GE

  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 +   Discovered IMS version
    │     Description . .
    │     IMSplex . . . . PLXNU +
    │     Reposito ·──────────────────── IMS Release ──────────────────.
    │                                                   Row 1 to 5 of 5
    │               Command ===> _____ Scroll ===> CSR
    .─────────────
       DDQ1RM    R │  Select IMS release then press Enter.
       DDQ1SC    S │
       DDQ2OD    O │     VV.R  Description
       HWSINST   I │  .   9.1  IMS  9.1.0
       HWSIXD3   I │  .  10.1  IMS 10.1.0
       HWSIXD4   I │  .  11.1  IMS 11.1.0      Target version (automates validation)
       HWSIXD6   I │  .  12.1  IMS 12.1.0
       HWS1      I │  S  13.1  IMS 13.1.0
  C    IADP      I │  ******************** Bottom of data ********************
       IBDH      I │
```

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Find Parameter changes needed for copied parameter members in target system

```
IMSplex . . . : PLXNU
Description . :
```

Adding support for the new features you want using Semantic search

```
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

```
   File  Edit  Edit_Settings  Help
─────────────────────────────────────────────────
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 chara                      │
│  .    IMSPLEX          Defines the IMSplex                           │
│  . *  ISC              Defines ISC link between                       │
│  .    MSC              Defines MSC link between IMS systems           │
│  .    ODACCESS         Communication between ODBM, DRDA clients       │
│  . *  RMTCICS          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 *************************** │
│                                                                      │
│                                                                    │ │
│                                                                      │
.──────────────────────────────────────────────────────────────────.
A00029 IMSPLEX=(MEMBER=ICMI0ODP,TMEMBER=PLXDP))
```

Add the new feature parameters using MODEL function

Highlights logical sections

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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**

Production Database

DB2/IMS

DB2/IMS Clone

Database System and Storage Coordination

Source Table Space or Database

Target Table Space or Database
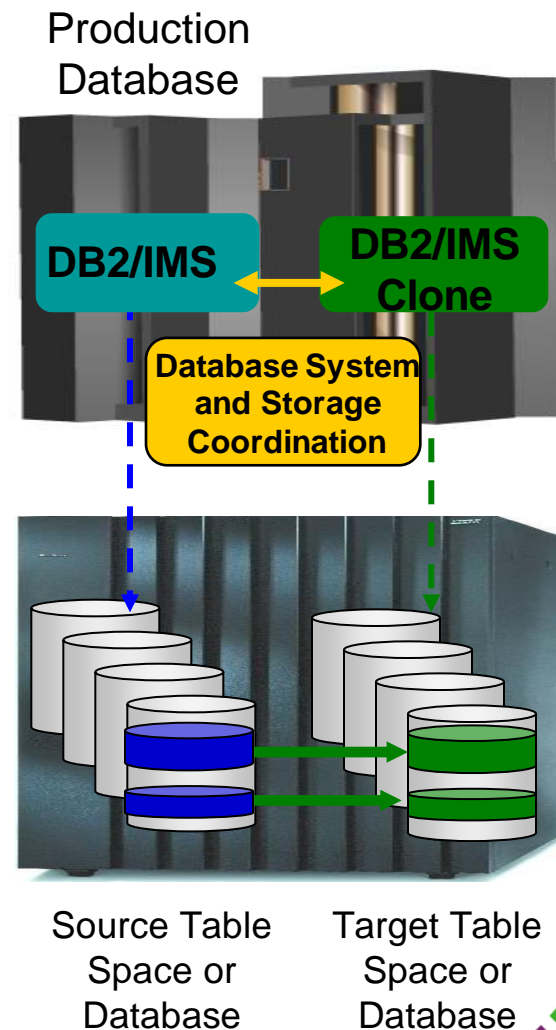
IMS Database Refresh Steps

Production IMS
'Source'

Target IMS

IMS

IMS Target

1 Define target IMS databases if they do not exist
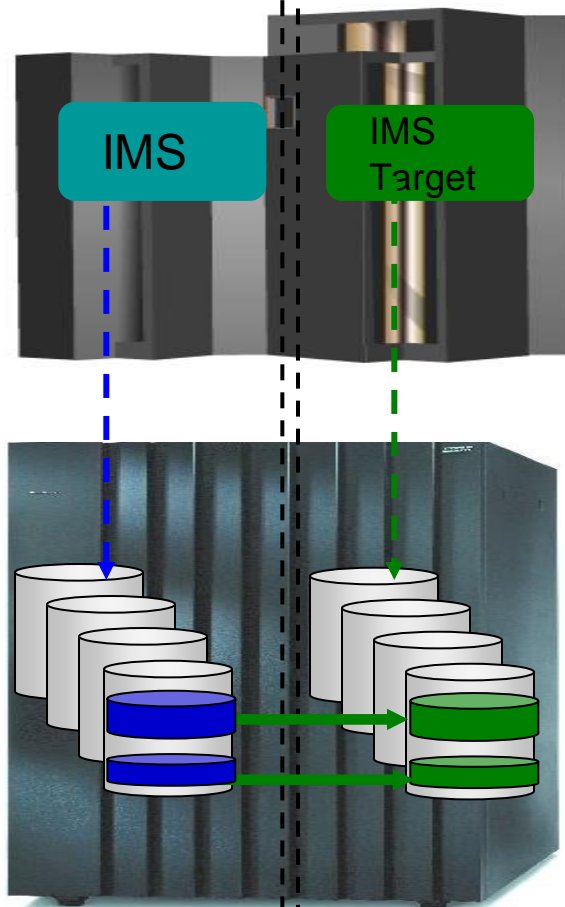
2 Database Selection

3 Compatibility Check

4 Stop Source and Target IMS databases

5 Data Set Copy Process

6 Start Source IMS databases

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

Questions?

More Info:

- **IBM DB2 and IMS Tools website:
  www.ibm.com/software/data/db2imstools/**

- **James Martin:
  james_martin@fundi.com.au**

- **Ron Bisceglia:
  RBisceglia@rocketsoftware.com**

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