E39

Exploiting IMS Tools in a Sysplex Environment

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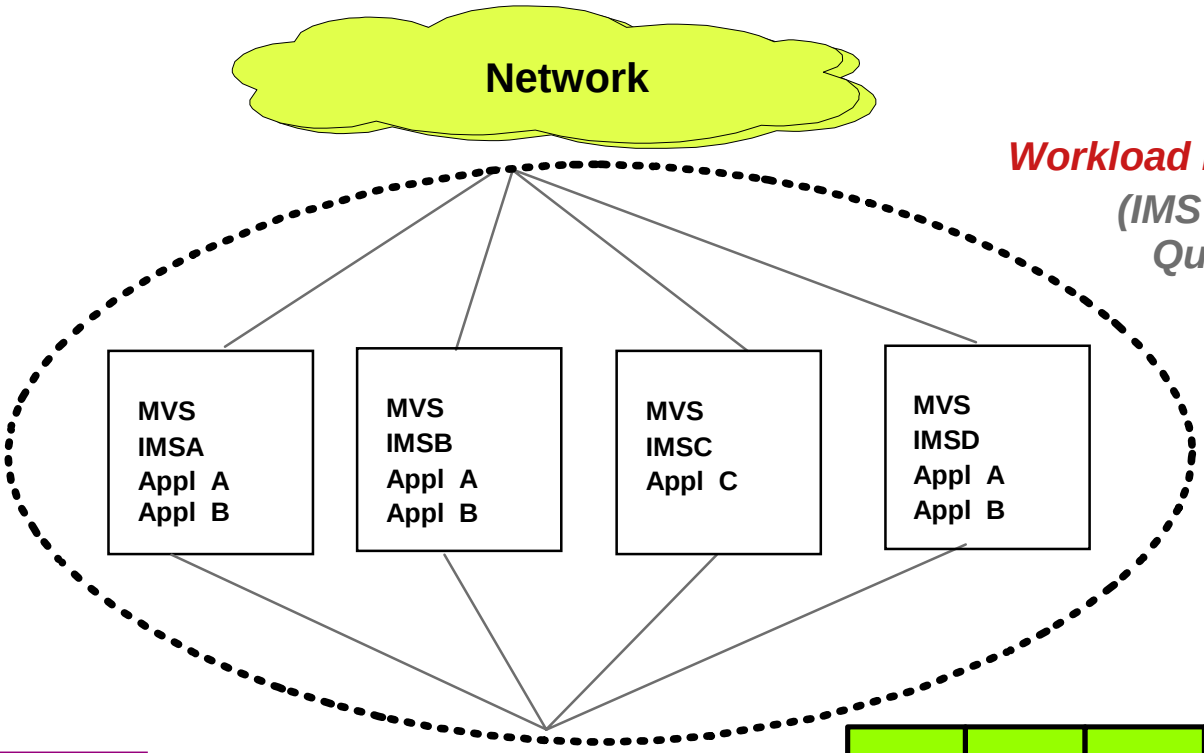
Agenda

- Parallel Sysplex Overview
- IMS Tools
  - IMS Queue Control Facility for z/OS
  - IMS High Performance System Generation Tools for z/OS
  - IMS Command Control Facility for z/OS
  - IMS Program Restart Facility for OS/390
- Summary

Parallel Sysplex Goals

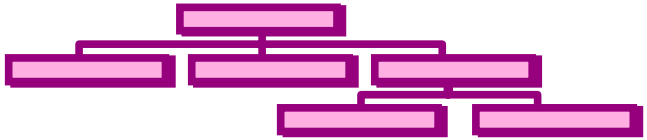
Single Image System

(VTAM Generic Resources, Operations)



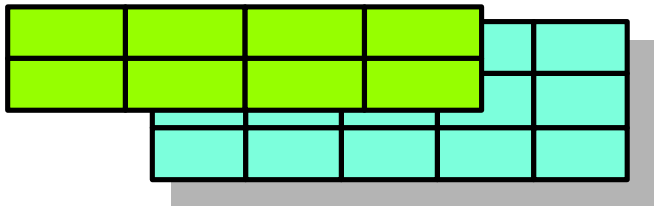
Workload Balancing

(IMS Shared Queues)



Data Sharing

(VSAM, OSAM, Fastpath)



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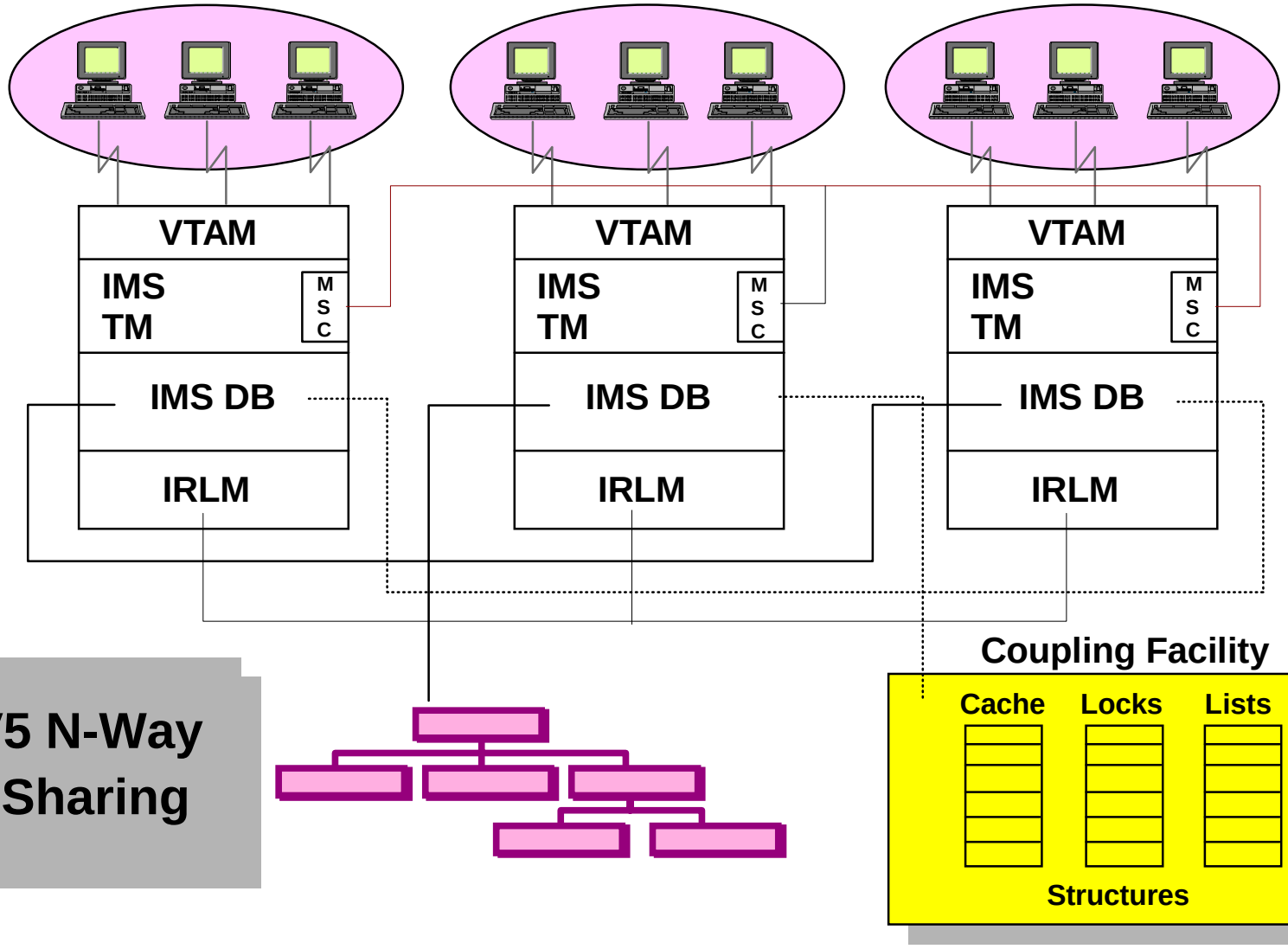
IMS V5.1 Parallel Sysplex

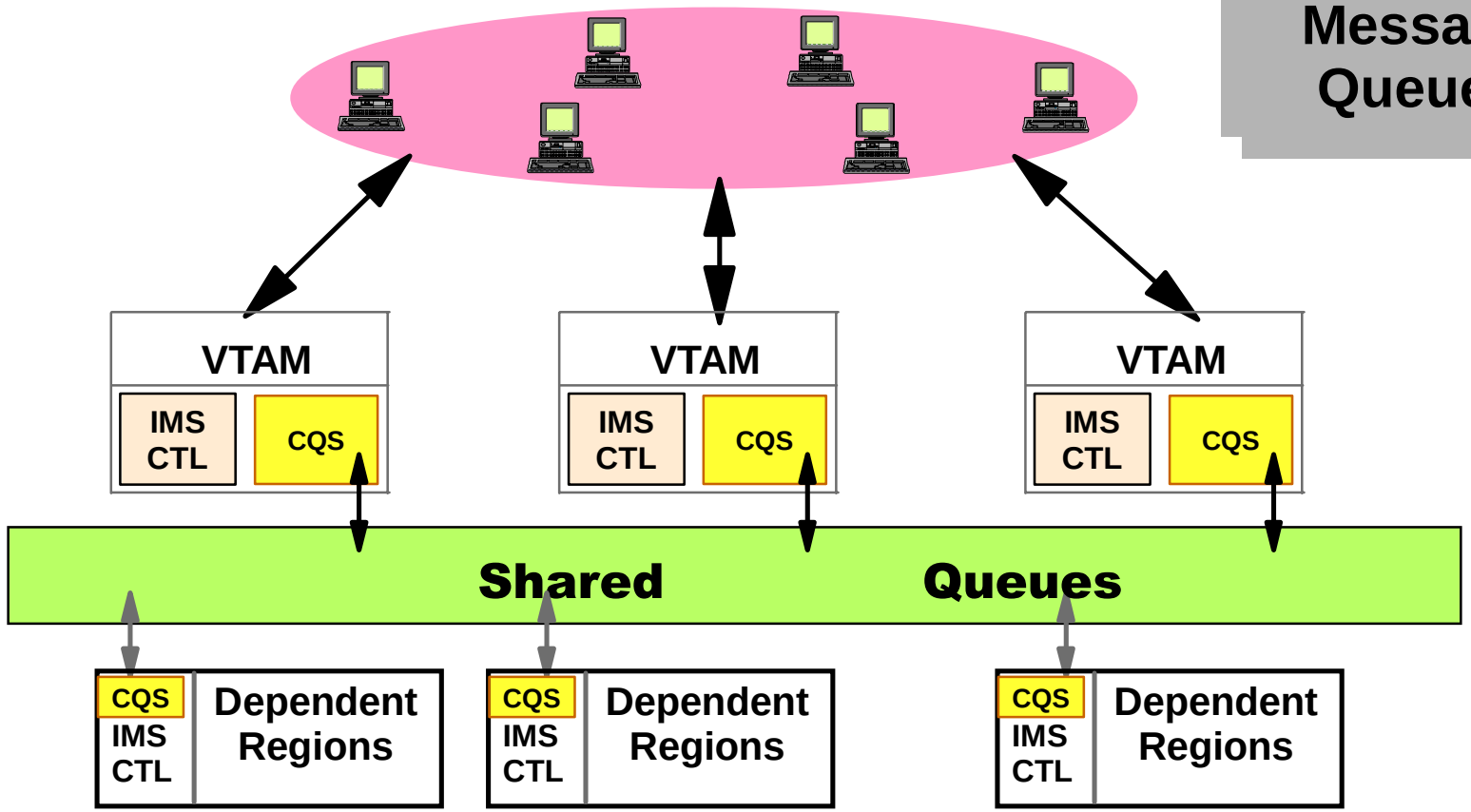


IMS V5 N-Way Data Sharing

IMS V6.1 Parallel Sysplex

- Automatic load balancing
- Enhanced queue manager techniques

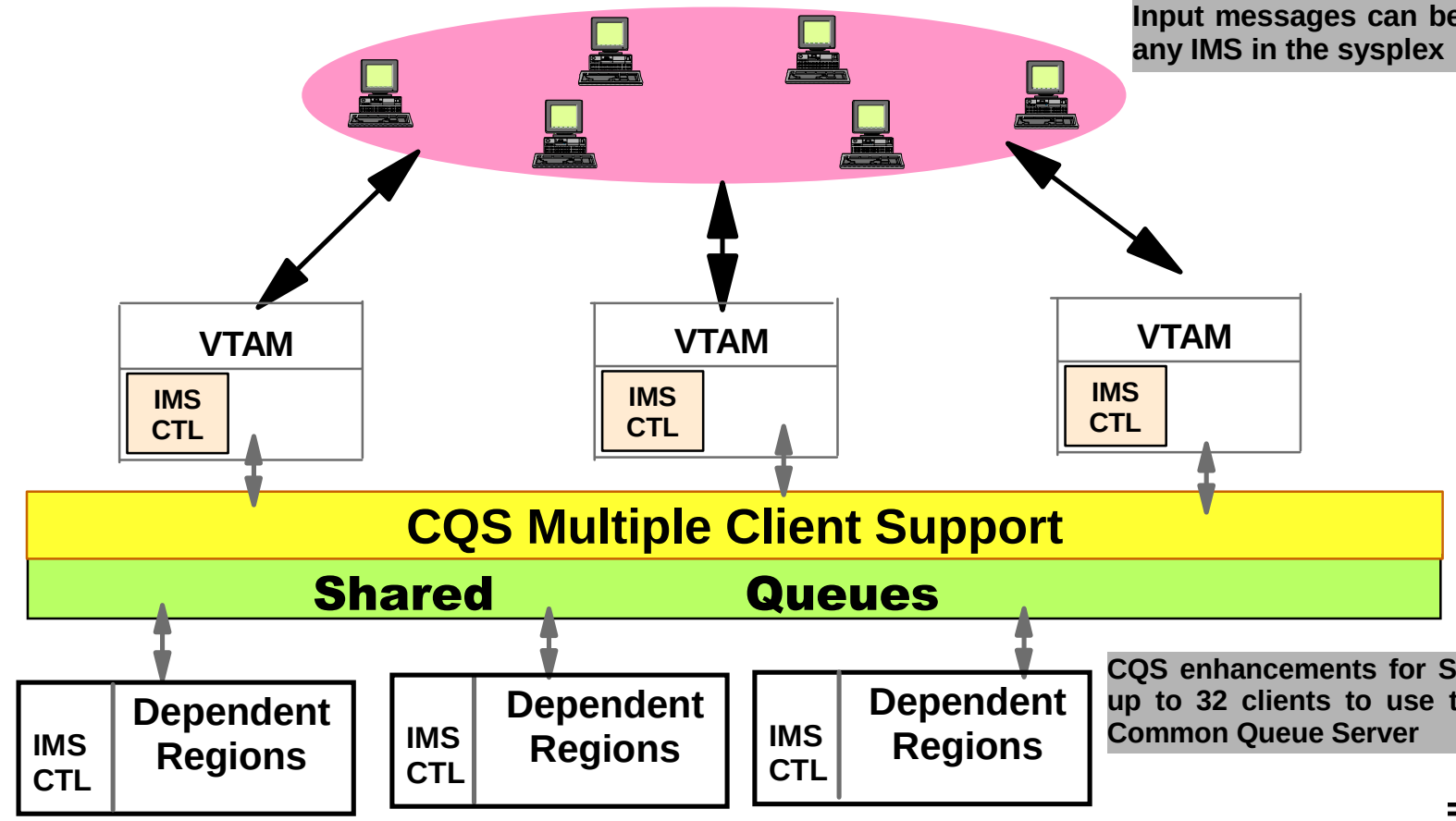
IMS V6.1 Shared Message Queues



IMS V7.1 Parallel Sysplex

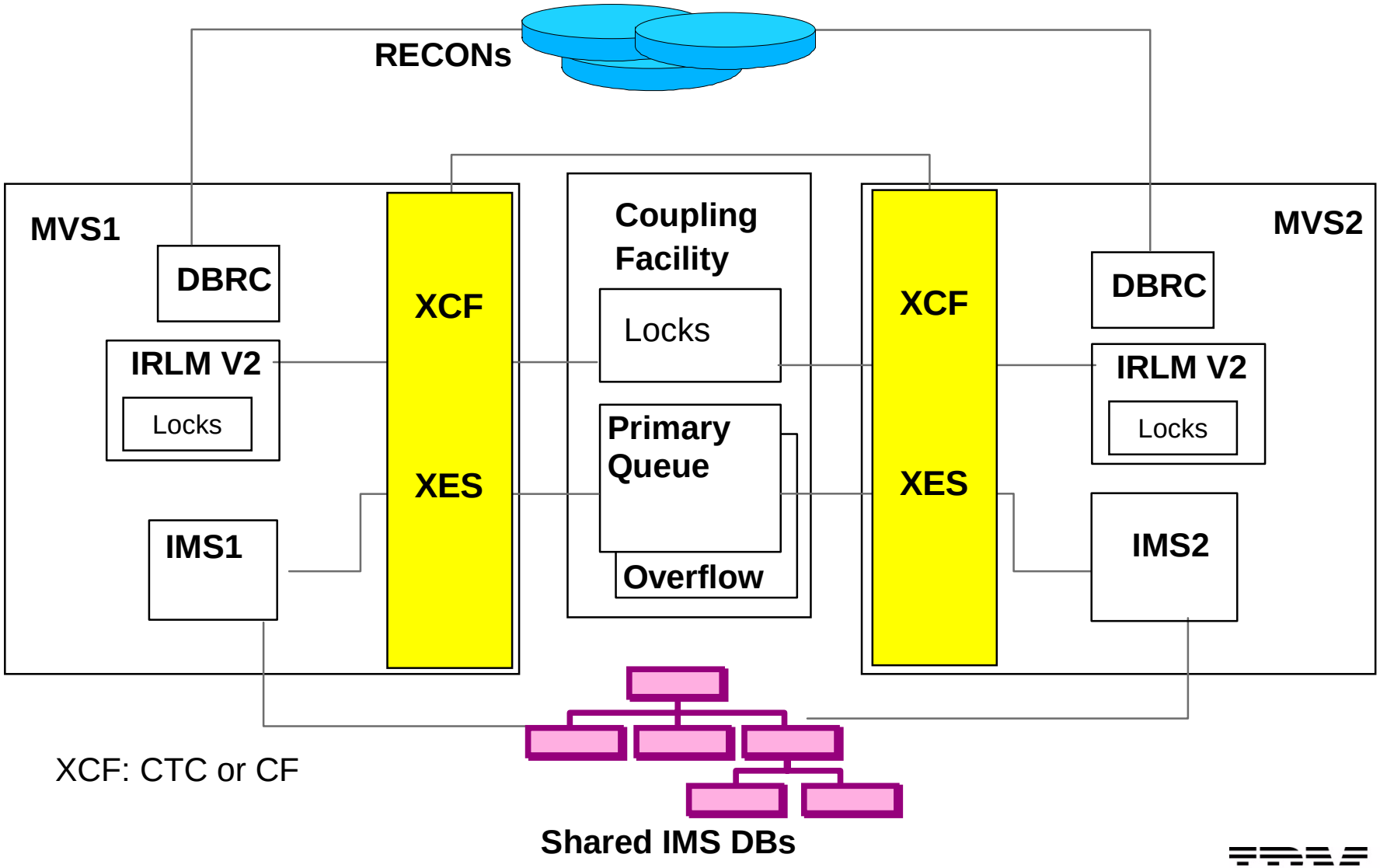
A new IMSWT = yyyyy parameter in DFSDCxxx identifies first 5 characters to use when auto scheduling the spool print utility facilitates the use of cloned IMS SYSGENs and PROCLIBs in a Parallel Sysplex environment

Asynchronous APPC/OTMA for SQ Input messages can be processed in any IMS in the sysplex



CQS enhancements for SQ allows up to 32 clients to use the same Common Queue Server

Sysplex Data Sharing



IMS Shared Queues

- **Cold Queue Introduced**
  - **IMS system retrieves message from SQ it is locked and remains locked until it is unlocked or deleted**
  - **Locked messages not available to other IMS systems for processing**
  - **If you cold start the IMS system after it locks messages on a SQ, those messages remain locked, and they are moved to the cold queue**

- **Considerations introduced by Shared Queue Environment**
  - **Cold Start no longer cleans queues**
    OLD, OLD mesages get older
  - **Cold Queue**
  - **Program Logic errors spread across multiple IMS systems**

IMS Tools

- **IMS Queue Control Facility for z/OS**
- **IMS High Performance System Generation Tools for z/OS**
- **IMS Command Control Facility for z/OS**
- **IMS Program Restart for OS/390**

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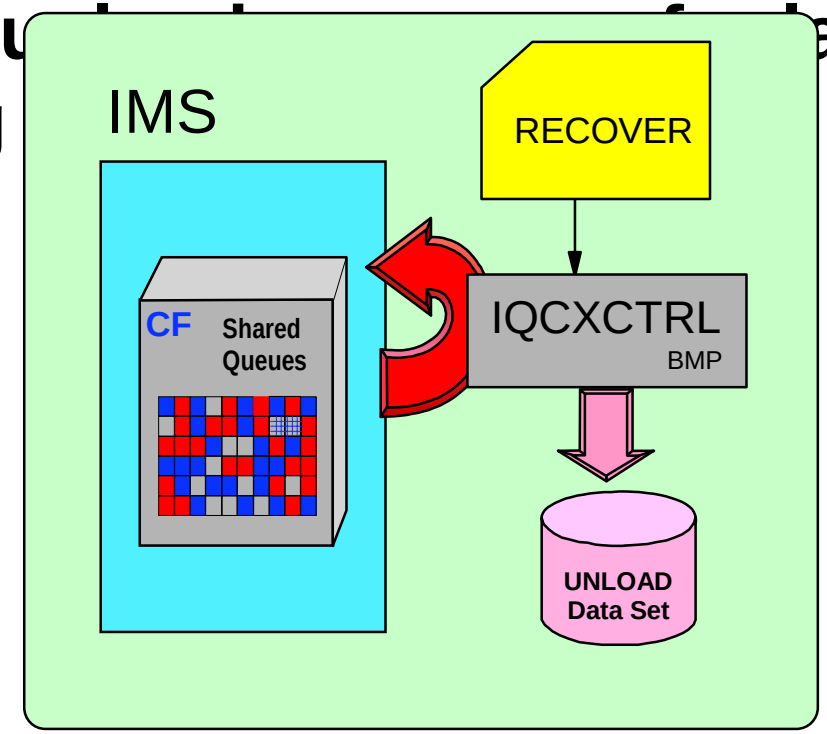
IMS Queue Control Facility
for z/OS

- **Shared Queues**
  - RECOVER
  - REPROCESS
  - BROWSE
  - QUERY
  - UNLOAD
  - LOAD
- **Local Queues**
  - RECOVERDM
  - RECOVERAB
  - REPROCESS
  - BROWSE
  - QUERY
  - UNLOAD
  - LOAD

IBM®

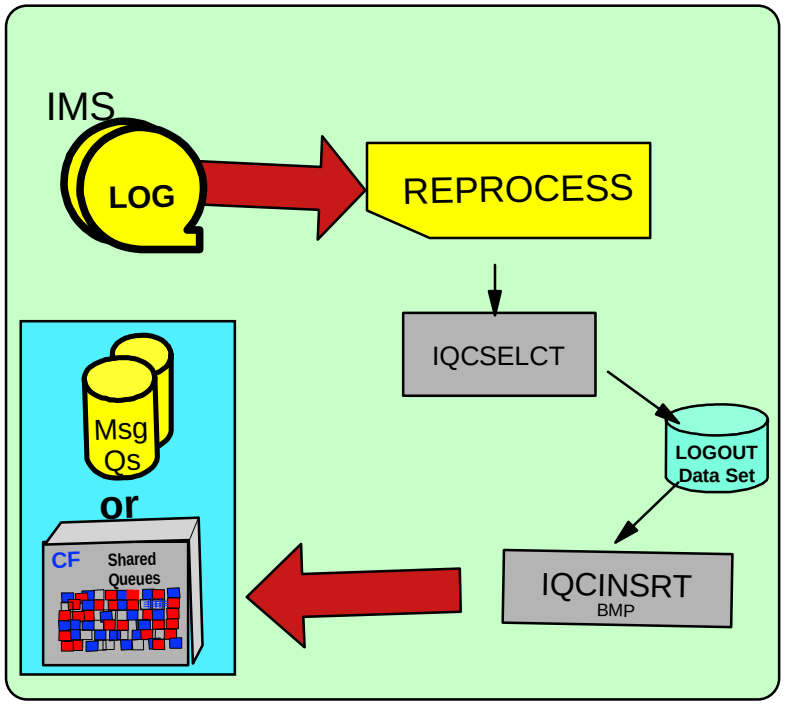
QCF Operational Functions
Shared Queues

- **RECOVER**
  - **Used after any unscheduled COLD start**
  - **delete & requeue messages from COLD queue**
  - **delete and u… …ater reloading**



QCF Functions

- **REPROCESS**
  - **IQCSELCT (Function=REPROCESS) reads the log (SLDS) from specified (or first) checkpoi**
  - **IQCINSRT requeues the selected messages**



QCF Queue Management

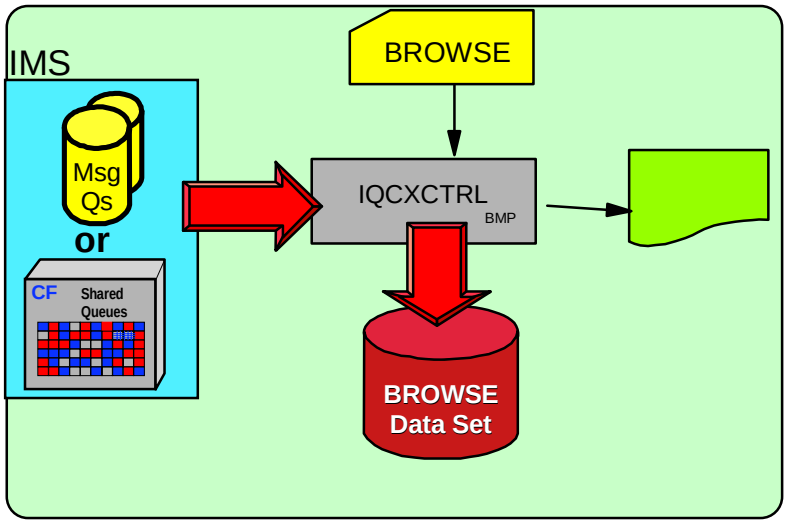
- **QUERY**
  - **Produces reports for each type of queue**
  - **Reports message counts and age of oldest and youngest message on each queue**

```
Page 2              IMS/ESA Queue Control Facility V1R2 (5697-E99)            System Date:2002.204
Report: Query002  Destinations Queried from SQ Global Tran Ready Queue        System Time:11.15.00
                                    Test of Query
Destination Primary AgedPrime Secondary AgedSecdy Oldest Message Time Newest Message Time Zone
___________ _______ _________ _________ _________ _________________ _________________ ______
APOL11            4         4         0         0  T=17:59:21.825345   T=17:59:53.453186  -07:00
TRAN21V0          4         4         0         0  T=17:59:17.032687   T=17:59:48.940935  -07:00
TRAN31B0          6         6         0         0  T=22:15:59.299100   T=17:59:46.315337  -07:00
V2MRP02           6         6         0         0  T=17:59:19.287844   T=17:59:51.275134  -07:00
         IQC3505I Total aged primary messages for this Queue:           18
         IQC3502I Total aged secondary messages for this Queue:          0
         IQC3506I Total primary messages for this Queue:                18
         IQC3504I Total secondary messages for this Queue:               0
         IQC3507I Total destinations for this Queue:                     4
```

QCF Queue Management

BROWSE

- Produces a set of reports showing message counts for selected destinations one of each queue type (MSC, LTERMs, APPC, OTMA and transactions)
  - Includes COLD Queue
- Optionally copies msgs to Browse Data Set which can be used by LOAD
- Messages remain on the queue

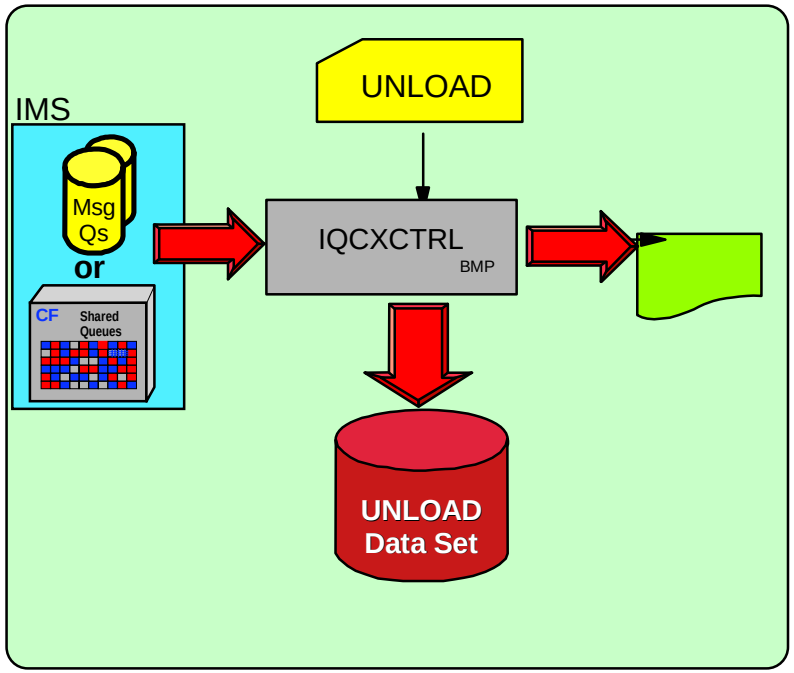



```
Page 5            IMS/ESA Queue Control Facility V1R2 (5697-E99)          System Date:2002.279
Report: Browse002 from Cold Queue LU6.2 Destination(LuName/TpName)        System Time:11.07.14
                                    Test of Browse
   Destination     Primary    Secondary     Destination     Primary     Secondary
   _______________ _________  _________     _______________ ___________ _________
   L62IMS1
     DFSASYNC              1          0
   L62MVS1
     DFSASYNC              2          0
     DFSCMD                2          0
          IQC4077I Total primary messages for this Queue:     5
          IQC4064I Total secondary messages for this Queue:   0
```

QCF Queue Management

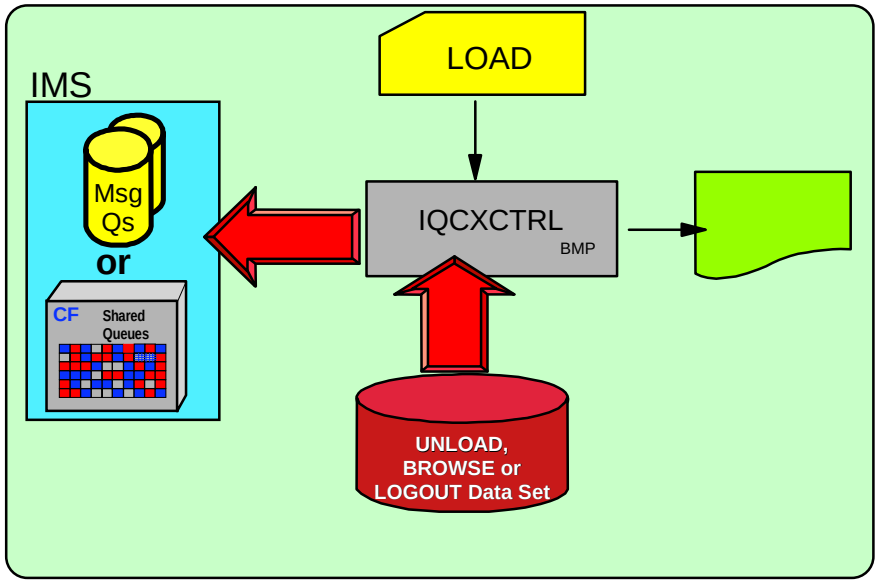
UNLOAD

- Moves selected msgs from Message Queues to an Unload Data Set
- Messages deleted from the queues
- Report Only option
- Produces report sets of unloaded messages one for each type of queue
- Does NOT unload COLD Queue use BROWSE or RECOVER to handle COLD Queue



QCF Queue Management

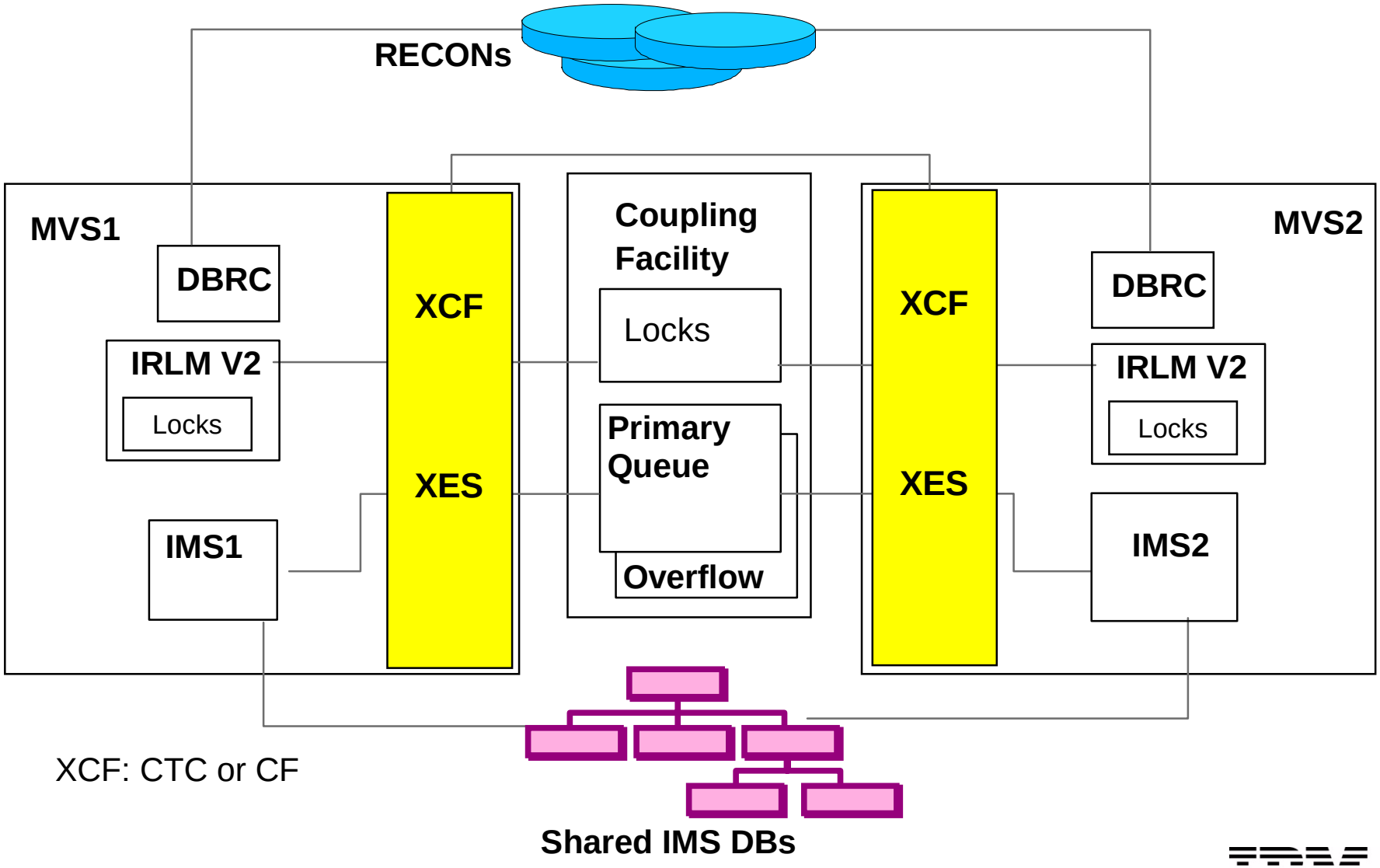
- **LOAD**
  - **Reads:**
    Unload Data Set
    Browse Data Set
    LOGOUT Data Set
  - **Requeues messages**



QCF Summary

- QCF provides functions for you to maintain and clean up the message queues:
  - BROWSE tells you how many messages are on the queues, including the cold queue. BROWSE can create a copy of messages.
  - QUERY tells you message age and the number of messages.
  - RECOVER deletes or requeues messages from the cold queue.
  - UNLOAD removes messages from the queues
  - LOAD inserts messages into the queues
- Install same in Shared & Non-Shared Queue IMS

Sysplex Data Sharing



IMS Parallel Sysplex

- Implementing IMS Parallel Sysplex
  - Merging IMS systems into a sysplex
- Maintaining IMS System Definitions
  - Sysgen changes
  - Control block comparison
- Parallel Sysplex Operational Considerations
  - Changes should be made across Sysplex
  - Multiple
    - system generations
    - executions of online change utility
    - /MODIFY PREPARE/COMMIT commands
    - /STA of changed resources

IMS High Performance Sysgen Tools for z/OS

- **Fast Sysgen**
  - A high-performance tool for doing a MODBLKS sysgen
  - Single step batch job
  - Online
- **Merge/Clone**
  - Reads MODBLKS of up to 64 IMS systems
    - Can recreate IMS Sysgen macro sources
  - Updates all MODBLKS so all definitions are identical
  - Automatically coordinates database ACCESS= and MSC SYSID values
  - CLONE option builds new IMS system
- **Sysgen Compare**
  - Compares two sets of MODBLKS and MATRIX modules
  - Reporting capability
    - Transaction affinity
    - PSBLIB/DBDLIB Analysis report

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IMS HP Sysgen Tools
Fast Sysgen

- **Function**
  - updates TRANSACT, APPLCTN, RTCODE, DATABASE macros
  - updates MODBLKS and MATRIX datasets
  - user specifies target libraries (active, inactive)
  - /MODIFY PREPARE MODBLKS FASTGEN
    modblks gen and online change done "concurrently"
- **Execution options for IMS MODBLKS sysgen**
  - online
  - single step batch job
- **Faster than MODBLKS or LGEN**
- **Uses far less CPU time**
- **Quickly builds MODBLKS & MATRIX data sets**

IMS HP Sysgen Tools
Fast Sysgen

Phase One

- Reads IMS sysgen macros
- Creates temporary internal sysgen definitions in storage

Phase Two

- Reads and Validates Security statements
- Creates temporary security definitions in storage

Phase Three

- Creates load modules in the MODBLKS and MATRIX data sets
- Volume reserve same as IMS sysgen and online change

IMS HP Sysgen Tools
Fast Sysgen

- **Fully compatible with IMS security generation processing**
  - **As part of FAST Sysgen**
  - **After FAST Sysgen completion**
- **Fast Sysgen processing creates the DFSISDBx module required by IMS security generation to produce MATRIX modules.**

IMS HP Sysgen Tools
Fast Sysgen in Batch

FGEN Parameters

- **SUFFIX=**
  Suffix of member name in PROCLIB containing Fast Sysgen control cards
  IOHPM000 if suffix=M

- **TARGET=**
  Specifies which MODBLKS and MATRIX data sets are to be updated

IOHPIMSP Proclib Member

```
*     IMS710 STAGE1 FAST SYSGEN SPECIFICATIONS :
*
     IMSGEN
 DDNAME=IOHGEN,MEMBER=NONE,PRINT=IMSGEN,LINES=60
     IMSRPT PRINT=IMSRPT,LINES=0
*
*     IMS710 SECURITY FAST SYSGEN SPECIFICATIONS :
*
     SECGEN
DDNAME=IOHSEC,MEMBER=NONE,PRINT=SECGEN,LINES=60
     SECRPT PRINT=SECRPT,LINES=0
```

FASTGEN Batch JCL

```
//FGEN     EXEC  PGM=IOHFGEN,REGION=1 24K,
//    PARM='SUFFIX=M ,TARGET=(S,A,B)'
//STEPLIB  DD    DSN=hlq.IOH11.SIOHLOAD,DISP=SHR
//         DD    DSN=IMS.RESLIB,DISP=SHR
.
.
//PROCLIB  DD    DSN=IMS.PROCLIB,DISP=SHR
//MODSTAT  DD    DSN=IMS.MODSTAT,DISP=SHR
//MODBLKS  DD    DSN=TEST.MODBLKS,DISP=SHR
//MODBLKSA DD    DSN=TEST.MODBLKSA,DISP=SHR
//MODBLKSB DD    DSN=TEST.MODBLKSB,DISP=SHR
//MATRIX   DD    DSN=TEST.MATRIX,DISP=SHR
//MATRIXA  DD    DSN=TEST.MATRIXA,DISP=SHR
//MATRIXB  DD    DSN=TEST.MATRIXB,DISP=SHR
//iohgen   DD    DSN=IMS.SYSTEM.MACROS,DISP=SHR
//         DD    DSN=IMS.APPL.GENDECKS,DISP=SHR
//iohsec   DD    DSN=IMS.SECURITY,DISP=SHR
```

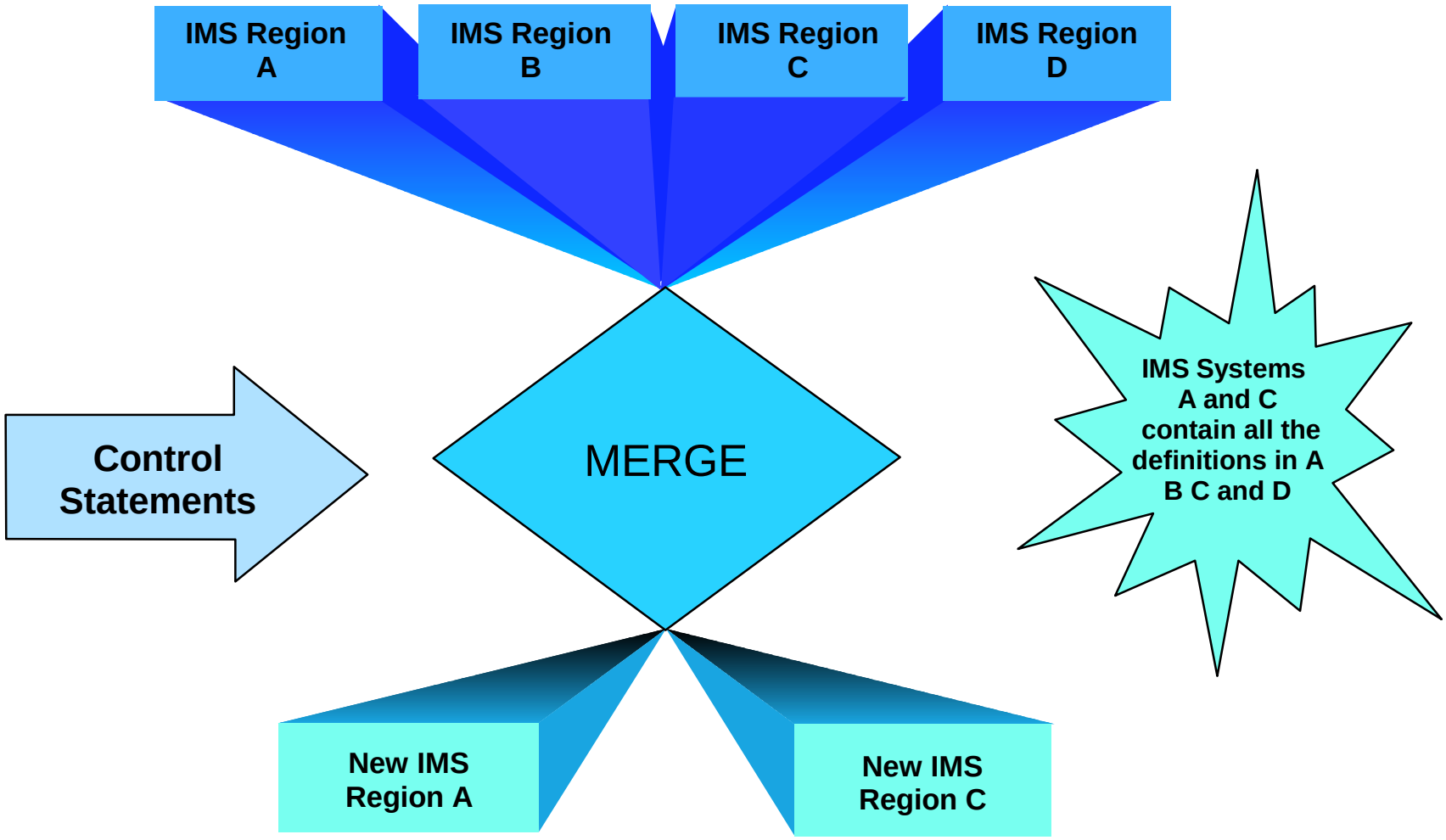
IMS HP Sysgen Tools
Online FAST SYSGEN

- **SCOPE**
  - **Only MODBLKS changes implemented by online change process**
  - **MODBLKS sysgen implements modification to following macros:**
    APPLCTN
    DATABASE
    RTCODE (only to add or delete route codes)
    TRANSACT

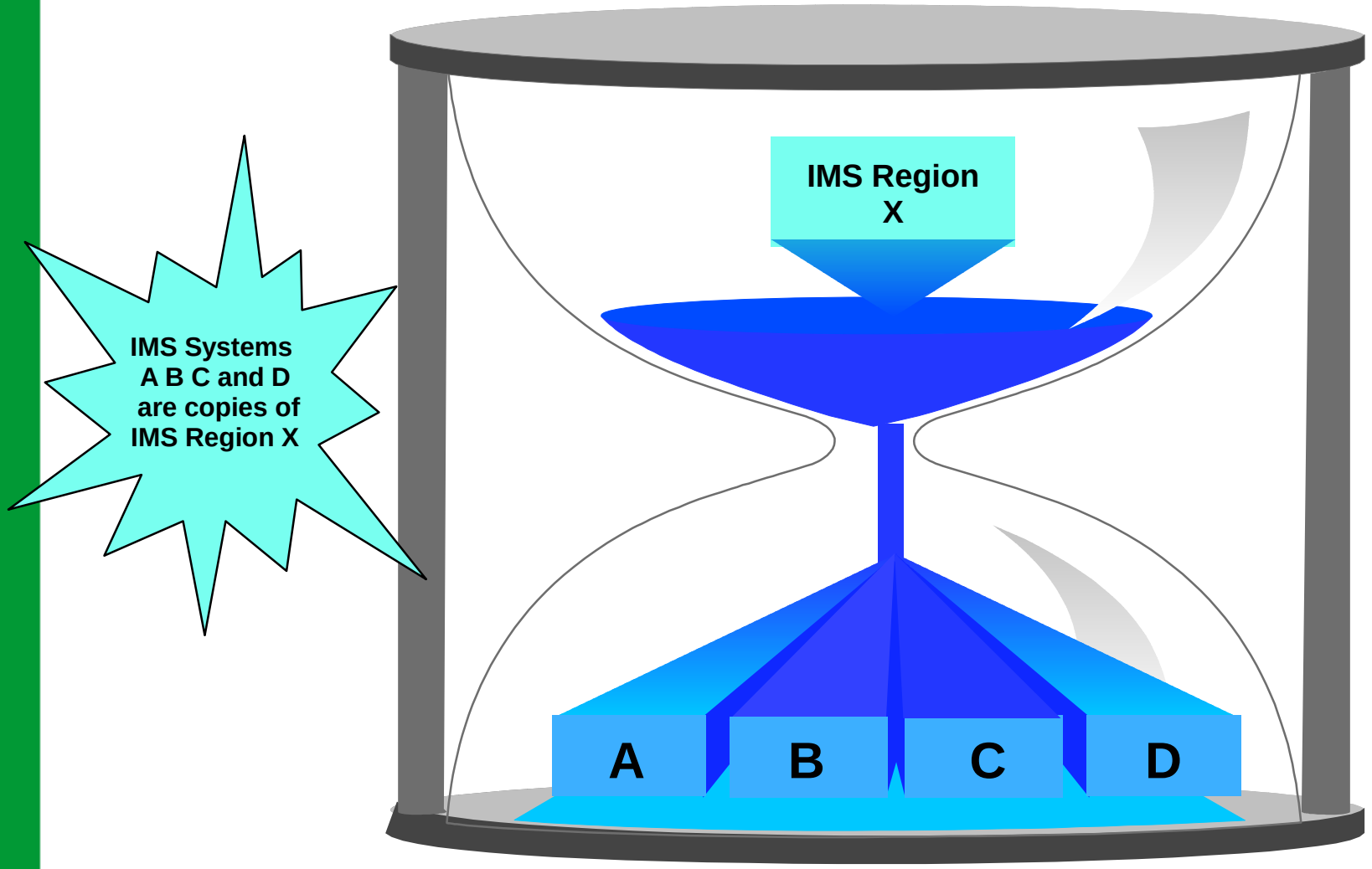
- **/MODIFY PREPARE MODBLKS FASTGEN**
  - **The inactive MODBLKS and MATRIX data sets are updated**
  - **The results is used for the traditional /MODIFY PREPARE command process**
  - **/MODIFY PREPARE command must be followed by /MODIFY COMMIT**

- **/DISPLAY MODIFY**
  - **FASTGEN IN PROGRESS specification**

IMS HP Sysgen Tools - Merge



IMS HP Sysgen Tools - Clone



IMS HP Sysgen Tools - Merge Clone

- **Creates IMS Sysgen source APPLCTN, TRANSACT and DATABASE macros**
  - **By reading IMS MODBLKS data sets and combining definitions of up to 64 connected IMS systems**
  - **Ensuring APPLCTN,TRANSACT and DATABASE macro definitions remain consistent across all IMS regions in a data sharing environment**
- **Automatic resolution of ACCESS= and SYSID= values**
  - **Uses PSB PROCOPT values and DATABASE ACCESS= specifications**
  - **For non-local transactions, the transaction request routed to another IMS system (via MSC) to an IMS system that meets the required database access requirements**
- **Transaction routing capability**
  - **By providing control cards to the Merge Clone program**

IMS HP Sysgen Tools - Compare

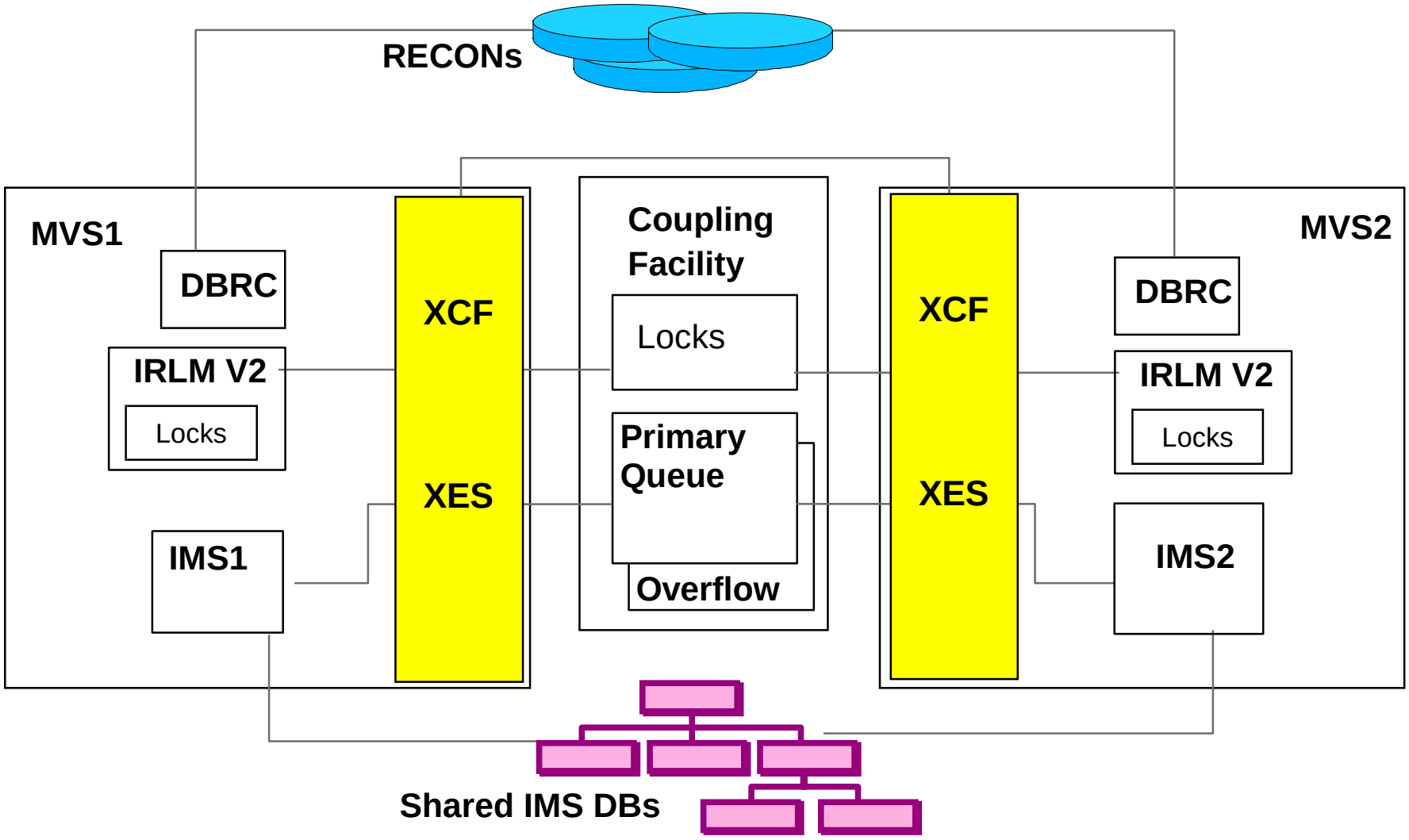
- **Compare two sets of MODBLKS and MATRIX data sets**
  - **Determine whether any differences exist**
  - **Identify resource definitions which differ**

- **Reports produced include:**
  - **MODBLKS Extraction Services**
    Lists number of Database, Applctn and Transact macros defined in each IMS region
  - **Transaction Affinity Input**
    Lists all User force routed transactions.
  - **Data Base Sharelvl(3)**
    Lists the Data Bases that will be set to ACCESS=UP in all IMS regions.
  - **Gen Definition Edit/Resolution**
    Lists discrepancies among the different members of the plex and identifies what options were chosen to resolve the conflicts
  - **PSBLIB/DBDLIB ANALYSIS**
    Report identifies the conflicts and error conditions encountered while analyzing the PSBLIB and DBDLIB members.
  - **IMS Stage1 Generation**
    Reports progress of IMS Stage1 macro generation and any error conditions.

IMS High Performance Sysgen Tools Summary

- **Fast Sysgen**
  - **A high-performance tool for doing a MODBLKS sysgen**
    - **Single step batch job**
    - **Online**
- **Merge/Clone**
  - **Merge up to 64 IMS systems**
    - **Ensures definitions are identical**
    - **Automatically coordinates database ACCESS= and MSC SYSID values**
  - **CLONE option builds new IMS system**
- **Sysgen Compare**
  - **Compares two sets of MODBLKS and MATRIX modules**
    - **Identifies discrepancies**

Sysplex Data Sharing

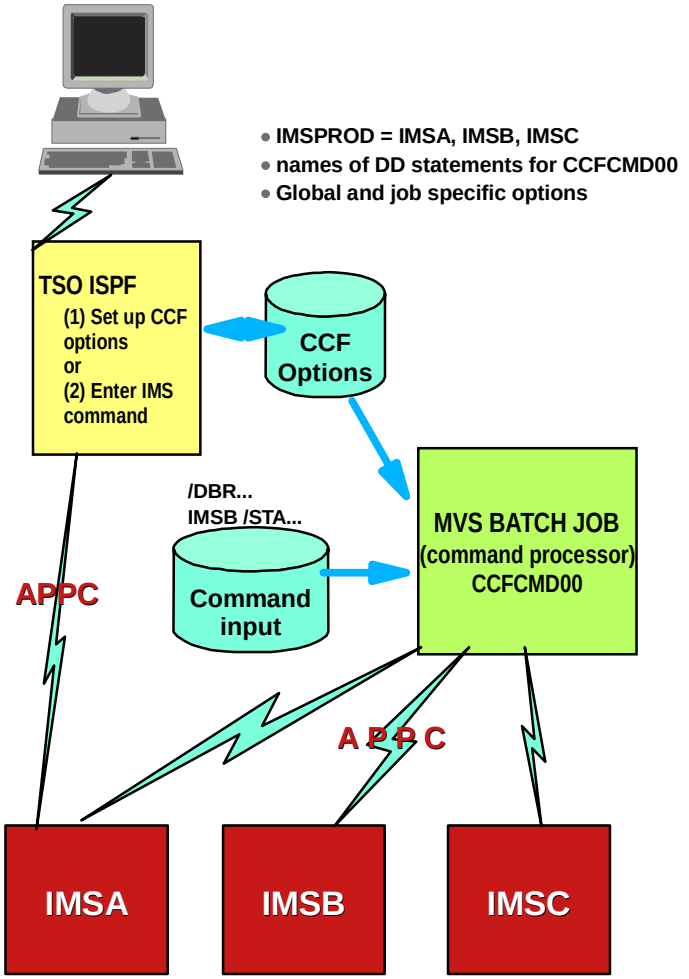


Parallel Sysplex Considerations

- Different DATABASE access options between IMS systems
- Online Change coordinated across the IMSPLEX
- Command execution across multiple systems
- Keeping the IMSPLEX Parallel
  - sysgen
  - security
  - online change

IMS Command Control Facility for z/OS

- Issue IMS commands to one or multiple IMS systems
  - Batch Processor
  - ISPF interface
- Verify successful command processing of database commands
  - /START
  - /STOP
  - /DBR
  - /DBD
- Retry failed commands
- Pre-supplied procedures



IMS CCF Batch Command Processor

- CCF Batch Processor
  - BMP
  - DL/I Batch
  - MVS Batch
- Supports all IMS regions
  - TM
  - DBCTL
  - DCCTL
- Commands may be issued for multiple IMS control regions
  - Up to 64
  - On any MVS image
  - Sysplex or non-sysplex
- Commands read from CCFSYSIN

All “user specified options” are defined in the CCF Options Dataset

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IMS CCF
Command Verification

- **/STA, /STO, /DBD and /DBR commands only**
- **Command Processing Analysis**
  - DFS0488I return code or simulated CCF0488I
  - Optional DBRC check verify if DB is open for UP
- **Optional Retry if command fails**
  - User defined number of retry and wait between attempts
- **Choose failure action based on type of failure**
  - abend with user-specified abend code
  - terminate with user-specified return code
  - issue WTOR to allow operator determined course of action (ignore, abend, retry)
- **Choose abend code and return code to be issued**
- **Global or specific job scope**

IMS CCF
Predefined Procedures

- CCF provides several canned procedures
  - Single Input Command
  - Several tasks performed by CCF
    - Batch Command Processor
- Dead Letter Queue cleanup
  - CCF can cleanup DLQ entries
  - /CCFDEADQ
    - Command Processor Input dataset
    - /DIS POOL QBUF
    - /DIS USER DEADQ
    - For each USER
      - /STO USER uuuu (based on output above)
      - /DEQ USER uuuu PURGE
      - /STA USER uuuu
      - /DIS POOL QBUF
- IMSPlex wide Online Change
  - CCF Online Change executed across multiple systems
  - Reduce the potential for out of sync conditions
  - /CCFMOD modtype
    - Option in Command Processor Input dataset
  - Commands issued:
    - /DIS MODIFY ALL
    - `/MOD PREPARE ttttttt
    - /DIS MODIFY ALL
      - checks for 'NO WORK PENDING'
    - /MOD COMMIT
    - /DIS MODIFY ALL
    - verify change took place

IMS CCF

Parallel Sysplex Considerations

- **Different Database access options**
  - **CCF can set the appropriate access**
    - **Use access as coded in command**
    - **Determine access from the IMS Sysgen**
    - **Use SHRLVL from DBRC Database definition**
  - **Method to return database to intended state**

IMS CCF - ISPF Interface

- CCF provides an ISPF interface to issue commands on an IMS subsystem interactively
- CCF can easily be customized to route commands to all IMS systems
  in a Data Sharing environment, a single IMS region or any combination
  of systems
- Lastly, CCF provides a seamless conversion from installation-defined command processors
  - Stub program that calls CCF command processor dynamically
  - Can be link-edited with same name as any processor
  - No JCL conversion needed

IMS CCF - Primary Menu


```
  Menu
------------------------------------------------------------------------------
                              CCF Primary Option Menu
Option ===> _____________________________________________________________

CCF VSAM Options Data Set:
   Data Set Name . . . IMSCCF.V1R1M0.OPTIONS_____________________________


1  Global     Specify Global Options
2  Job        Specify Job Options
3  IMS        Define IMS Systems
4  Group      Define CCF Group

C  CMD        Issue IMS Commands

X  Exit       Terminate Dialog
```

IMS CCF - Global Options


```
                                CCF Global Options
Command ===> _____________________________________________ Scroll ===> CSR

CCF Input DDNAME : CCFSYSIN                  Edit Global Options? (Y/N): N
CCF Output DDNAME: CCFLIST

Command Retry Options:
  Attempts ........... 03          Database CMD WTO? (Y/N) ...: N
  Interval (Sec) .... 005
                                   Abend/RC Failure Settings:  /START DB ACCESS
Valid DFS0488I Return Codes:         Abend Code .... 0000      3 1 Use SYSGEN
00 00 00 00 00 00 00 00 00 00        Return Code ... 0000        2 Use DBRC
00 00 00 00 00 00 00 00 00 00                                    3 As coded

 DBRC Failures:      APPC Failures:     DFS0488I Failures:  General Failures:
 2 1 ABEND           2 1 ABEND          2 1 ABEND           2 1 ABEND
   2 Return Code       2 Return Code      2 Return Code       2 Return Code
   3 Issue WTOR        3 Issue WTOR       3 Issue WTOR        3 Issue WTOR
   4 NODBRC            4 Ignore           4 Ignore            4 Ignore

APPC/STC TPName: CCF.CCFRRC00
```

Note: Job options are similar

IMS CCF - IMS Groups


```
--------------------------------------------------------------------------------
                              CCF Group IMSID List
Command ===> _____________________________________________ Scroll ===> CSR

CCF Group ............... CCFDEMO
Shared RECONs (Y/N) .... N

     IMS
     ----

                                                              More:      +

  1. IMSC
  2. IM1A
  3. ____
  4. ____
  5. ____
  6. ____
  7. ____
  8. ____
  9. ____
 10. ____
 11. ____
 12. ____
```


IMS CCF
ISPF command panel

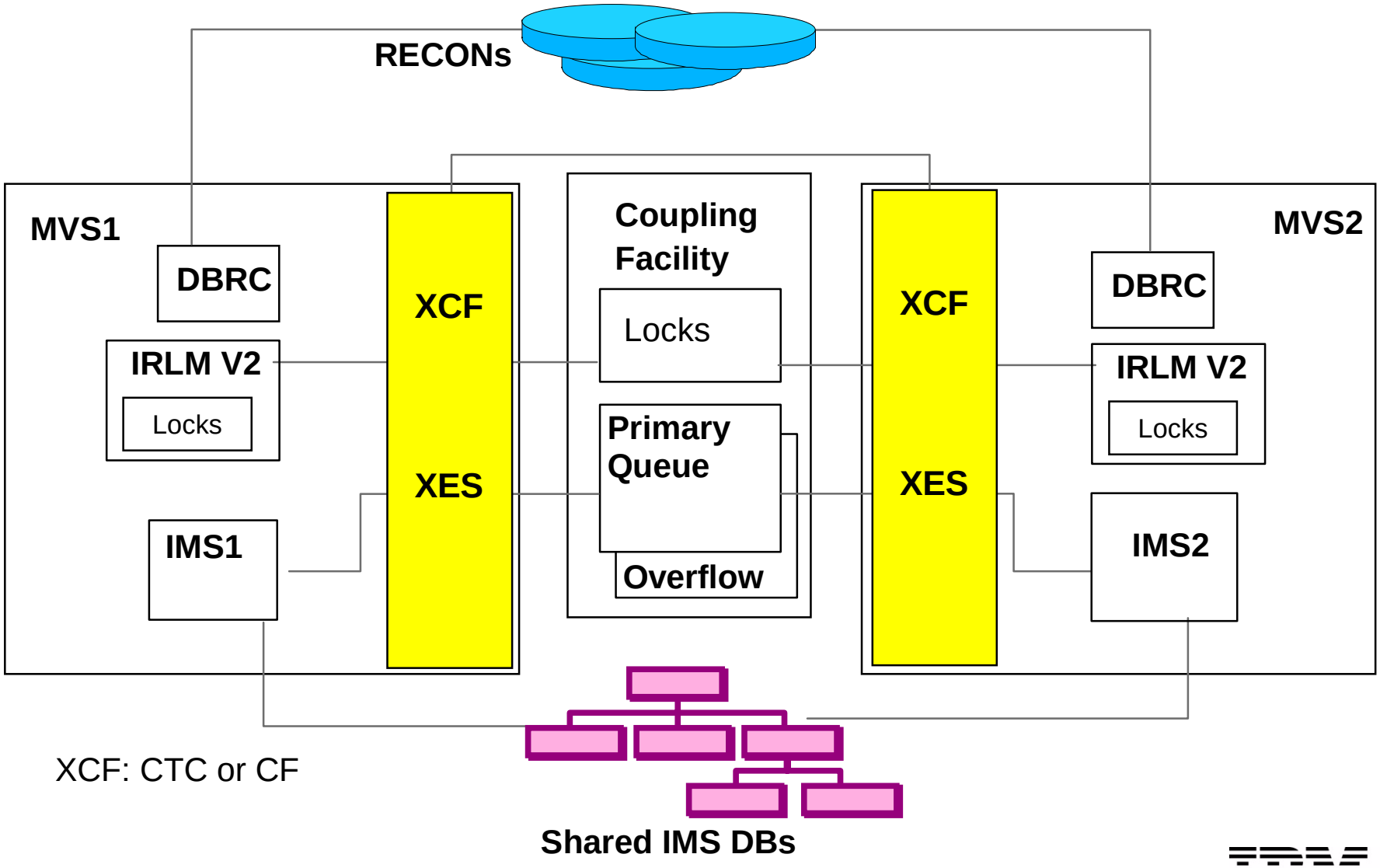

```
                                                                Row 1 to 15 of 27
--------------------------------------------------------------------------------
                              CCF IMS Command Panel
Option ===> ____________________________________________________ Scroll ===> CSR

IMSID: IM1A
Command:
/DIS STATUS DB
--------------------------------------------------------------------------------
    **DATABASE**
    CUSTDB    NOTOPEN
    CUSTSI    NOTOPEN
    DBFSAMD1  NOTINIT, NOTOPEN, STOPPED
    DBFSAMD2  NOTINIT, NOTOPEN, STOPPED
    DBFSAMD3  NOTINIT, NOTOPEN, STOPPED
    DBFSAMD4  NOTINIT, NOTOPEN, STOPPED
    DISTDB
    -AREADI01   VIR, PREO, PREL
    DI21PART  NOTINIT, NOTOPEN, STOPPED
    HISTDB    NOTOPEN
    ITEMDB    NOTOPEN
    -AREAIT01   VIR, NOTOPEN
    IVPDB1    NOTINIT, NOTOPEN, STOPPED
    IVPDB1I   NOTINIT, NOTOPEN, STOPPED
```

IMS CCF - Summary

- Batch or ISPF interface for IMS commands
  - Batch for commands within job streams
  - Online scrollable results
- Can issue commands to single IMS or GROUP
  - Groups are user defined
  - Could be datasharing group or any logical grouping
- Command completion verification
  - For DB commands
- Command retry
  - User controls
- Pre supplied procedures
  - Coordinated online change
  - Dead letter queue cleanup

Sysplex Data Sharing



IMS Extended Restart and Checkpoint Calls

- **A program might issue only one type of Checkpoint call.**
  - **MPPs and IFPs must use basic Checkpoint calls.**
    BMPs and batch programs can use either symbolic Checkpoint calls or basic Checkpoint calls.
  - **Symbolic Checkpoint calls do not support MVS files, if your program accesses MVS files, you must supply your own method of establishing checkpoints.**

IMS Program Restart Facility
for OS/390

- **Enhances IMS Extended Checkpoint/Restart**
  - **For stand-alone batch and BMP**
  - **Help to restart a job using correct checkpoint**
    - **Last verified CHKPID**
    - **Batch backout has to be done before restart!**
  - **ISPF Panels to administer abended jobs**
- **Enables restart**
  - **on any system in sysplex**
  - **without specifying a checkpoint Id**
  - **without overriding the JCL with the correct log data set name(s)**
- **Restart programs ending with non-zero return code**
- **Supply parameters for single or all jobs without JCL changes**
  - **LOCKMAX=, DBRC=,IRLM=, IRLMNM=**
  - **IMSGROUP=groupname + list of IMS ids in group**
- **Reduce overhead of applications taking excessive checkpoint**

IMS Program Restart Facility
for OS/390 - Functional Details

- **Each IMS system (or IMS group) has a single control dataset**
  - **Inclusion Options Data Set**
  - **Contains application and restart control parameters, which can be defined Globally and for specific Jobs, PSBs &/or programs**
    using wildcard characters if necessary

- **Each DL/I jobstep dynamically allocates a pair of tracking data sets**
  - **Checkpoint ID Tracking Datasets (CTDS)**
  - **Application checkpoint log records are copied into the CTDS**
    two datasets used alternately
  - **CTDSs deleted at normal program termination**
  - **CTDSs dynamically allocated when abended job is restarted**
    PRF retrieves the latest commited checkpoint Id and provides it to the IMS Extended Restart
  - **Naming Convention:**

```
<CTDSHLQ>.<jobname>.<imsid or imsgroup>.<psbname>.<pgmname>.CTA
<CTDSHLQ>.<jobname>.<imsid or imsgroup>.<psbname>.<pgmname>.CTB
```

IMS Program Restart Facility
for OS/390

- **DFSRRC00 has a PRF module linked with it**
  - enables PRF when used for any batch or BMP job
- **At application restart**
  - Original JCL is unchanged
  - Catalog is checked to see if CTDSs exist
  - Dynamically allocates original CTDSs
  - Retrieves last committed checkpoint
  - Checkpoint ID and data presented to XRST call

Inclusion Options Data Set
Other Options

- **Application specific options are coded with**
  - Keyword PGM or PSB or JOB in columns 1 - 3
  - name (pgm, psb, job) in columns 5 - 12
    use ***** to mean any character in this position
  - options in column 14 to 120
- **Other global or application specific options include**
  - CKPTID=NOMSGS (or NOMSG450/NOMSG681)
    to suppress MTO checkpoint messages
  - EXCLUDE to disable PRF
  - RCABEND=mmmm and RCERROR=nnnn
    force an abend if return code > mmmm
    but without internal /STOpping of BMP
    enable restart by PRF if return code > nnnn
- **Option to prevent a specific job from being automatically restarted**
  - AUTOXRST = FORCE / LAST / NO / YES
  - For LAST and FORCE, look at "Handling In-Doubt Checkpoints"
- **Option for controlling the bypassing of application checkpoints**
  - BCDINTVL , BCERRXT , BCREASN , BCRETRN , BCSTATUS, BCSTCLST
  - BYPCHKP = NO / YES

Bypassing Checkpoints

- **Prevent program from taking excessive checkpoints**
  - **BYPCHKP=YES BCDINTVL=hhmmssth**
    ignore CHKP if within this time period since last successful one
- **Use this feature with caution!**
  - **Do not use with BMPs that update DEDBs, or programs that use ROLB**
- **Associated options include**
  - **BCSTCLST=aabbcc..**
    list of status codes if present in any DB PCB will force CHKP call to be executed
    eg. BCSTCLST=GBFGFW
  - **BCERRXT, BCREASN, BCRETRN, BCSTSTUS**
    if you wish program to be told of a skipped CHKP
  - **TRACK=NO**
    allow checkpoint bypassing but disable PRF restart functions

IMS Program Restart Facility for OS/390 Miscellaneous Facilities

- **Checkpoint id in JCL will always be honoured**
  - **including “LAST”**
  - **will require use of OLDS or //IMSLOGR DD**
- **Adding //IMSLOGR DD (not DUMMY) will use log instead of CTDS**
- **User defined special checkpoint-ids passed in JCL CKPTID will disable use of Program Restart Facility and defined value to be substituted in its place**

  Example:
  CKPTID=NOXR in JCL can be set to indicate no use of PRF, and be replaced by CKPTID=NOMSGS
- **Disable PRF with use of DDNAME**

IMS Program Restart Facility for OS/390 Summary

- **Enables quick and easy restart of abended batch and BMP jobs without JCL changes on any IMS in an IMSplex**
- **Used to supply EXEC parameters without changing JCL**
- **Can avoid unnecessary checkpointing**
- **Visit our Web site for more details of this and other tools:**

  http://www-3.ibm.com/software/data/db2imstools/index.html

Exploiting IMS Tools in a Sysplex Environment

- **Shared Queues**
  - **IMS Queue Control Facility for z/OS**
- **IMS Sysplex Workload Administration**
  - **IMS High Performance System Generation Tools for z/OS**
- **IMS Sysplex Command Coordination**
  - **IMS Command Control Facility for z/OS**
- **IMS Sysplex Program Checkpoint Verification**
  - **IMS Program Restart Facilty for OS/390**

Acronyms

BMP	Batch Message Processing region
CCF	Command Conrol Facility
CF	Coupling Facility
CQS	Common Queue Server
CTDS	Checkpoint Tracking Data Set
HP	High Performance
PRF	IMS Program Restart Facilty
ISPF	Interactive System Programming Facility
SQ	Shared Queues
QCF	IMS Queue Control Facility
HPSGT	IMS HP System Generation Tools for z/OS
XRST	IMS Extended Checkpoint Restart

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Exploiting IMS Tools in a Sysplex Environment

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