

IMS: A New Perspective

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Introducing IMS 14

- Provides easier application deployment and management
- Supports ever-growing transaction and data volumes
- Enables broader dynamic change of IMS configuration and resources, providing greater agility while reducing planned outages
- IMS 14 Quality Partnership Program (QPP) started December 12, 2014
- [IMS 14 QPP Announcement](#)



Agenda

IMS Database

IMS Transaction Connectivity

Enabling Change without planned outages

Improving External Subsystem Connections



IMS Database

The core of your business



Growing your Full Function Databases

- High Availability Large Database (HALDB) enables independent partitions for your full function database allowing growth greater than 40 terabytes
 - Supports OSAM and VSAM
- Use HALDB Online Reorganization to reorganize partitions without an application outage
- Allow database growth by supporting 8GB OSAM for HALDBs
 - You can choose either 8GB OSAM HALDB or the use of Online Reorganization for each database
- Reduce 24-bit storage usage for OSAM Database control blocks
 - OSAM DEB extension moved into 31-bit storage
- **Why this is important**
 - IMS 14 provides increased scalability for OSAM databases

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Growing your Fast Path Data Entry Databases

- IMS 11 introduced a 64-bit buffer manager to take the guess work out of defining Data Entry Database (DEDDB) buffer pools
 - IMS manages the subpools automatically
 - Multiple subpool sizes are used based on the database
- High Speed Reorganization (HSRE) and High Speed Sequential Processing (HSSP) buffers can now use 64-bit storage

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- **Why this is important**
 - Reduces need for 31-bit common storage (ECSA)
 - Allows the HSSP and HSRE utilities to run against UOWs with a very large number of segments



Now is the time to enable the IMS Catalog

See
Sessions
C01, B05,
B06, C15,
D01

- What is it used for?
 - Trusted IMS metadata information
 - Comprehensive view of IMS database metadata (including application metadata)
 - Managed by IMS with standard access patterns (JDBC/SQL)
 - Offers metadata discovery and exchange via IMS Open Database and the IMS Explorer for Development
 - Enables broad IMS integration into the IBM and non-IBM portfolio of tools
- Use the IMS Catalog as the source for all program and database schemas
 - IMS loads resource information from the catalog
 - ACBLIB is no longer used or needed by IMS
 - IMS runtime can use either Catalog or ACBLIB for all definitions

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▪ Why this is important

- Removes the external need for PSBGEN, DBDGEN, and ACBGEN



Defining IMS Databases with Agility

- Enable application programs to use different versions of the same physical database with Database Versioning
- Change the structure of an HALDB without a DB outage using HALDB ALTER
- Change the physical attributes of a DEDB Area without a DB outage using DEDB ALTER
- Use Data Definition Language (DDL) to make database schema changes
 - No longer need to use system definition and generation to introduce new programs and databases
- **Why this is important**
 - Support the use of industry standard DDL
 - DDL-authoring tools are prevalent in the market

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IMS Transaction Connectivity

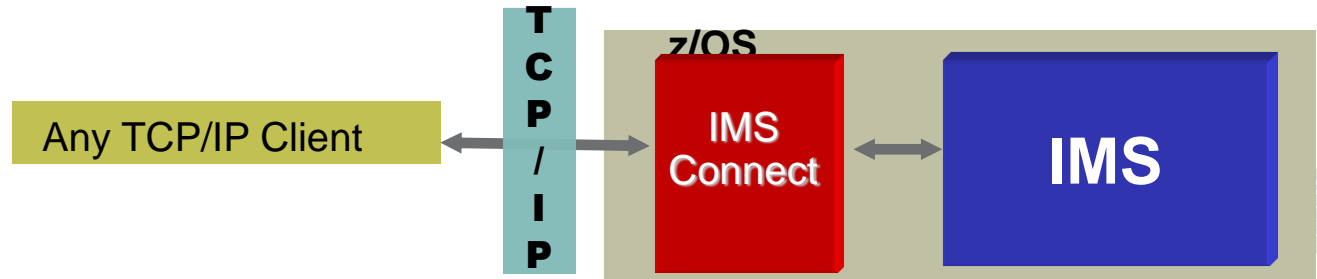
Driving your workload into IMS



IMS Connect: The key to IMS

- IMS Connect is the TCP/IP Gateway for IMS enabling
 - IMS Mobile Feature Pack and zOS Connect
 - IMS TM inbound transactions and outbound messages from IMS applications
 - IMS to IMS, WebSphere Application Server, IMS Soap Gateway, DataPower using Open Transaction Manager Access (OTMA)
 - IMS to IMS through Multiple Systems Coupling (MSC)
 - IMS TM to CICS through InterSystems Communications (ISC)
 - Direct IMS Database access through Open Database
 - System Management using IBM Management Console for IMS or IMS Operations Manager
- IMS Connect is a component of IMS and executes in a z/OS address space

See Sessions A01, A02, A03, D03



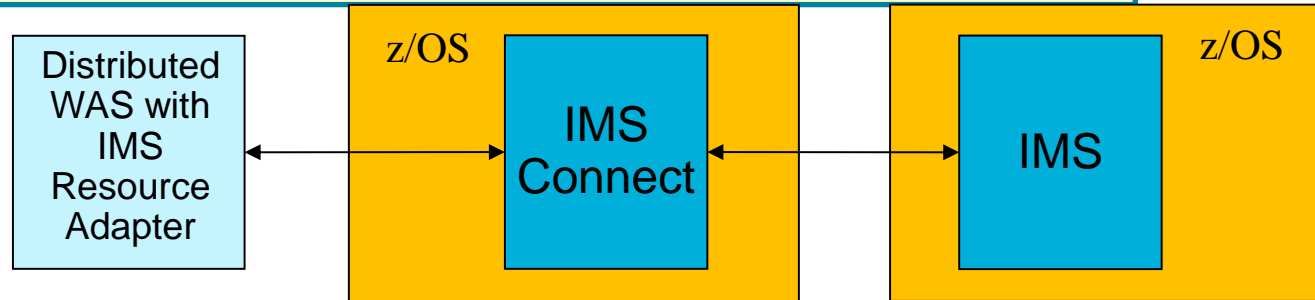
Enabling Cascaded Transactions

- Distributed global transactions can combine IMS transactions with other workload requests (WAS, CICS, DB2 requests) into one unit of recovery
- Resource Recovery Services (RRS) coordinates the syncpoint processing for global transactions
- **Allow a Global Transaction using the IMS TM Resource Adapter to be spread across IMS Connect and an IMS Control region that reside on different LPARs**
 - For those transactions that require 2-phase commit (SYNCLVL=SYNCPT)

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▪ Why this is important

- Increases flexibility and workload balancing of IMS across LPARs
- Increases availability by allowing IMS Connect to route to another LPAR



Better storage management for OTMA Descriptors

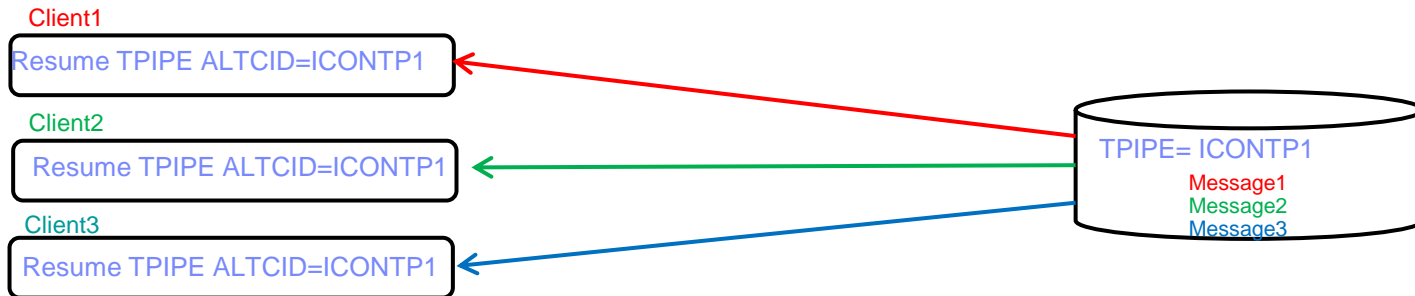
- Open Transaction Manager Access (OTMA) allows IMS to send/receive transaction messages to/from TCP/IP clients such as IMS Connect through transaction pipes
- Many enhancements have been made over the last several releases due to the growing use of TCP/IP for IMS transactions
- Member descriptors provide information about a specific OTMA client
- Destination descriptors define destinations for messages that are routed through OTMA.
- **Improve storage management for OTMA descriptors**
 - Eliminate fixed storage allocation at startup
 - Can increase limits using DFSOTMA member descriptor
- **Why this is important**
 - Reduces ECSA storage usage if fewer descriptors are needed than current limits

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Improving scalability for OTMA Transaction Pipes

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- Allow multiple active Resume TPIPEs for a single TPIPE
 - TPIPEs sending CM0 output require ACK before next message can be sent
 - Multiple IMS Applications issuing ICAL to a single TPIPE
- **Why this is important**
 - Potential reduction in application wait time for synchronous callout to an external server
 - Potential throughput improvement for asynchronous message delivery
 - Provide additional Resume TPIPEs for failover; throughput or workload balancing



Improving OTMA transaction management

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- **Several enhancements for security and usability**
 - Provide automatic refresh of cached userids when they are changed in RACF
 - Enable connection authorization for OTMA clients using RACF without having to enable transaction and command security
 - Allow user specified limits for the save area prefix allocation for OTMA clients to help with dispatching during busy periods
 - Enable the conversation identifier to be shown on a QUERY OTMATI (OTMA Instance) command to allow conversations to be released with the /EXIT CONV command
- **Why this is important**
 - Removes performance bottleneck for peak loads
 - Improves storage usage



Better ISC VTAM ERP message handling

- InterSystem Communications (ISC) enables communication for IMS TM – IMS TM and IMS TM - CICS
- **Improve availability of ISC sessions on VTAM® connections** through a new option that keeps the ISC VTAM session active after receiving an error recovery procedure (ERP) message.

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- **Why this is important**
 - Provides higher connectivity for ISC users



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Enabling Change without Planned Outages

Improving availability



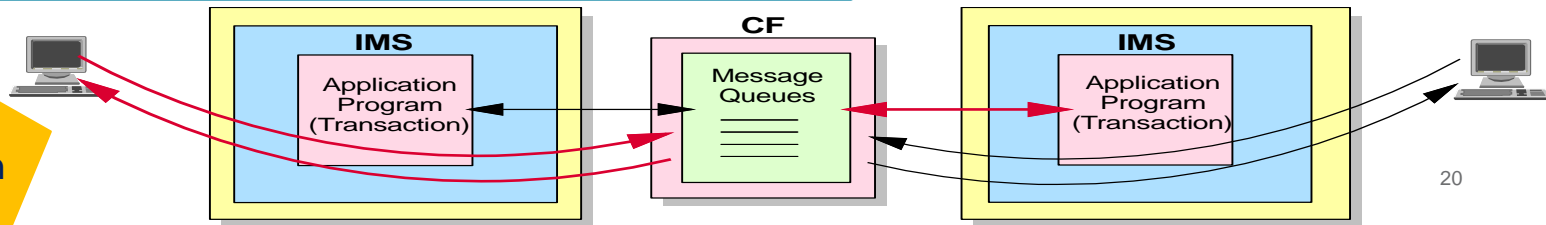
Sharing the IMS Message Queues

- Allows multiple IMS systems to share messages on a single set of queues in a parallel sysplex
- Uses the Common Queue Server to manage the queues residing on a Coupling Facility
- Improves workload distribution, increases availability and can easily add capacity
 - Allows an IMS to be taken down for maintenance without an application outage
- Provide information to the Queue Space Notification exit, DFSQSSP0, to indicate how much of the message queue structure is used
 - Allows Tools to take actions to avoid structure overflow and structure full conditions
- Remove BMP-inserted transaction message restriction for SQ “local-first” processing

Why this is important

- Can improve availability and reduce cost

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Dynamically defining resources without an IMS outage

- Improve the availability of the IMS online environment by dynamically defining certain types of resources
 - Database Directory, Program Directory, Transaction, Routing Code, Descriptors
 - OTMA Destination Descriptor
 - IMS Connect configuration
- Enabled through commands and/or user exit
- Eliminates the need for some system definition and generation steps
- **Enhanced to fully manage MSC resources**
 - Create and Delete commands for MSC resources
- **Why this is important**
 - Improved availability when changing MSC definitions
 - Elimination of need for system definition and system generation for MSC resources

See
Sessions
A07, A08,
C14

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Improving usability for the IMS Repository

- The IMS repository function is a common store for managing resource definitions in an **IMSplex**
- Provides consistent definitions across IMS systems
- Allows resources to be removed from sysgen yet preserved for cold start
- Provide the ability to show changes that have not yet been hardened to the IMS repository
 - QUERY SHOW(EXPORTNEEDED)

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- **Why this is important**
 - Improves usability of the IMS Repository
 - Reduces the chance of an IMS terminating without hardening changes to the IMS Repository



Dynamic refresh of (P)WFI regions

- The Pseudo Wait-for-Input option for MPP and JMP regions along with the BMP transactions defined WFI allow the application to remain scheduled until another input message appears
- Eliminates unnecessary application program termination and rescheduling
- **Simplified command to terminate these applications in order to roll out application changes**
 - UPDATE PGM START(REFRESH)
 - Does not apply when the program name is in the preload list

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- **Why this is important**
 - Enables faster rollout of application changes with less manual effort
 - Reduces data integrity exposures due to missed application changes



Improving flexibility of IMS User Exits

- Starting in IMS 11, selected user exits were enhanced for usability and availability
- Multiple user exit routines can be defined for a single user exit type
- User Exits can be refreshed dynamically using a command
- **Enable the Type-2 AOI User Exit (AOIE – DFSAOE00)** to be specified in a list and allow it to refresh dynamically
- **New IMS Monitor (IMSMON) User Exit point**
- **Why this is important**
 - Increases availability for IMS
 - Improves usability for tools that provide monitor functions

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See
Session
A07



Managing change in IMS Connect

- Commands allow dynamic change for IMS Connect configuration
- **Allow additional commands to dynamically manage IMS Connect resources**
 - Introduce DELETE PORT and DATASTORE commands
 - Enhance UPDATE PORT and DATASTORE commands to allow changes to selected attributes
 - Introduce CREATE and DELETE IMSPLEX commands
 - Convert selected IMS Connect commands to complete synchronously
 - Command response would reflect actual command result

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- **Why this is important**
 - Availability is increased by allowing dynamic creates, deletes and updates for selected resources
 - Usability is increased by providing a synchronous command response



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Improving External Subsystem Connections



Defining External Subsystems

- External Subsystem Attach Facility (ESAF) allows IMS applications to communicate with other subsystems
- Provide options to define MQ Series and WebSphere Optimized Local Adapter subsystem in addition to DB2
- New subsystem type (SST=) values
 - **SST = DB2 | MQ | WOLA**
 - Positional SSM definitions assume SST=DB2
- Commands and log records changed to show SST value for subsystem
 - /DIS SUBSYS
 - /DIS OASN SUBSYS
- **Why this is important**
 - Improves usability

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FDBR Resolve In-Doubt Notification Exit – DFSFIDN0

- Fast Database Recovery (FDBR) regions monitor an IMS subsystem and can automatically recover database resources if that IMS fails, reducing the time a data sharing subsystem must wait for locks
- **Simplify the resolution of in-doubt work for DB2 when Fast Database Recovery releases IMS**
 - New sample DFSFIDN0 user exit that can be used without having to write custom code to enable automation to resolve in-doubt work
 - Issues a message for each in-doubt ESS UOR with the subsystem information
 - Automation can monitor the messages and act upon the in-doubt UOR

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- **Why this is important**
 - Improves usability when using both FDBR and DB2 z/OS
 - Can reduce the time DB2 holds locks during an IMS abend situation



Summary

IMS 14 has many enhancements to make IMS easier to use and manage

New functions built on strategic IMS components including

- IMS Connect
- Catalog
- Repository
- Common Service Layer

If you have not yet added these components to your environment, now is the time to do so

Do not let your environment be left behind as everyone else moves forward



Thank You

