IBM Software Group

IMS Product Update

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ibm.com/events/InformationOnDemand

IBM Information Management software

IBM INFORMATION ON DEMAND 2006

TAKE BACK CONTROL

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Securing your investment in IMS

Keeping IMS

THRIVING

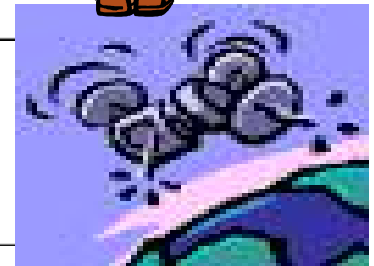- **Your Success is Our Success**
- **Being Responsive**

VITAL

- **Listening/Addressing Your Needs**
- **Ensuring Quality**
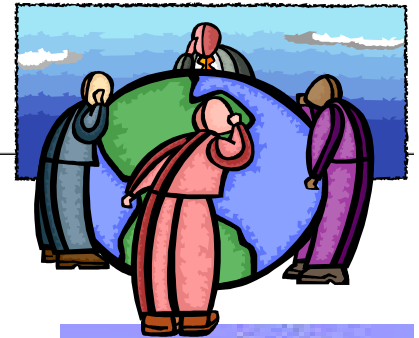
RELEVANT

- **Leveraging Latest Technologies**
- **Planned Evolutionary Rollout**

  … Well Into the Future

TAKE BACK CONTROL

IMS: Providing Information On Demand

✓ **Providing high performance, scalable, available, reliable and secure solutions**
✓ **Easing Integration with New Technology for a Service Oriented Architecture**
✓ **Simplifying Installation and Management**

IMS: Continuing to Deliver the Best ...

IMS V7
- Large DB
- High Avail. DB
- IMS Java
- Rapid Restart

- IMS Connect V1
- New IMS Tools

Database

IMS V8
- Extend DB Connectivity
- Enhance Sysplex Operations
- Simplify Install Process

- IMS Connect V2
- Enhance IMS Tools

Systems

IMS V9
- On-Line Reorg
- Enh Commands
- Reduced Sysgen Efforts
- Fast Path Enh
- DBRC Enh
- XML DB
- Integ IMS Connect

- Enh IMS Tools

Database

IMS V10
- Systems Enh
- Operations Enh
- DBRC Parallelism
- MSC Bandwidth
- Incremental Application Dynamic Resource Definition
- Enh Connectivity
- XQUERY
- Enh IMS SOAP

Systems

IMS N
- Sysplex Enh
- DBRC Enh
- Enhanced Dynamic Resource Definition
- HALDB/OLR extensions
- Fast Path extensions
- XML DB enh
- Enh Dist DB Connectivity

Database

IMS N+1…
- Sysplex Availability Enhancements
- Autonomic Management Enhancements
- Enhanced Dynamic Resource Definition
- Operations Mgmt Enh
- Enh Connectivity

Systems

Also delivering Service and Enhancements,
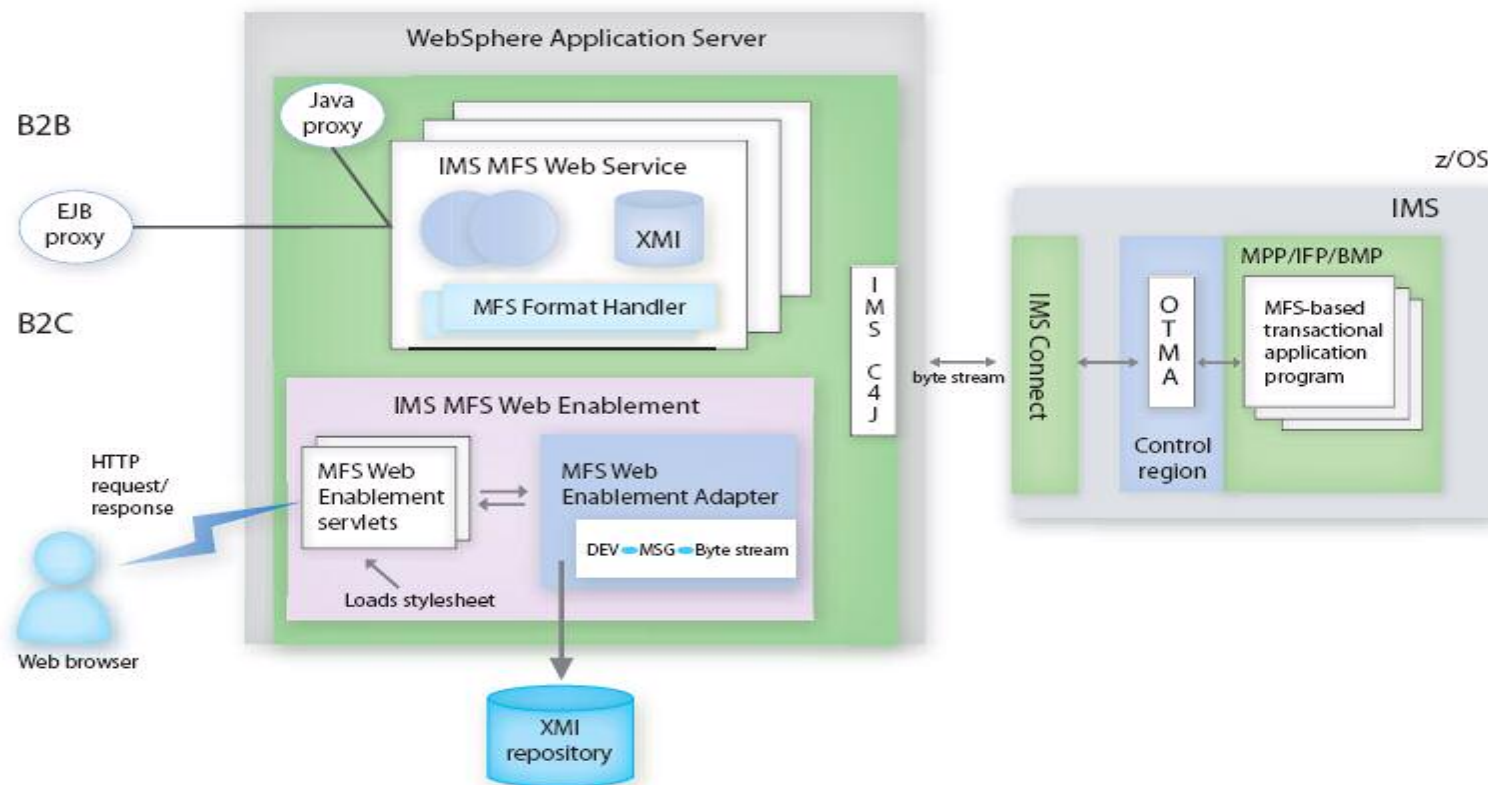with periodic Service Update (SUP) refreshed deliverables, and New/Enhanced Tooling.

There's a lot More For You Now … Before IMS Version 10

➢ **Enhancing IMS Integration and Transformation with New Technology in a Service Oriented Architecture**
- IMS MFS Web Services and Web Enablement
- IMS SOAP Beta
- IMS DLIModel Utility GUI Technology Preview
- IMS XQuery Technology Preview
- IMS Application Tooling

➢ **Providing Continuing Enhancements for IMS V9**
- Increased Ease of Integration
- Improved Systems Management
- Scalability

➢ **Easing IMS Installation and Management**
- IMS V9 Service Upgrade
- IMS Management Tooling
- IMS V9 Installation Workshop

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Enhanced IMS Application Integration with Modernized MFS-based IMS Transactions

WebSphere Application Server

B2B

Java proxy

EJB proxy

B2C

IMS MFS Web Service

XMI

MFS Format Handler

z/OS

IMS

MPP/IFP/BMP

IMS C4J

byte stream

IMS Connect

O T M A

Control region

MFS-based transactional application program

IMS MFS Web Enablement

HTTP request/ response

MFS Web Enablement servlets

MFS Web Enablement Adapter

DEV ▬ MSG ▬ Byte stream

Loads stylesheet

Web browser

XMI repository

> ***IMS MFS Web Enablement 9.2 GA 7/06***
>   - Display enhancements (Infopops in samples extended, dropdown list)
>   - WASz V6.0
>   ***Additional Information at http://www.ibm.com/ims***

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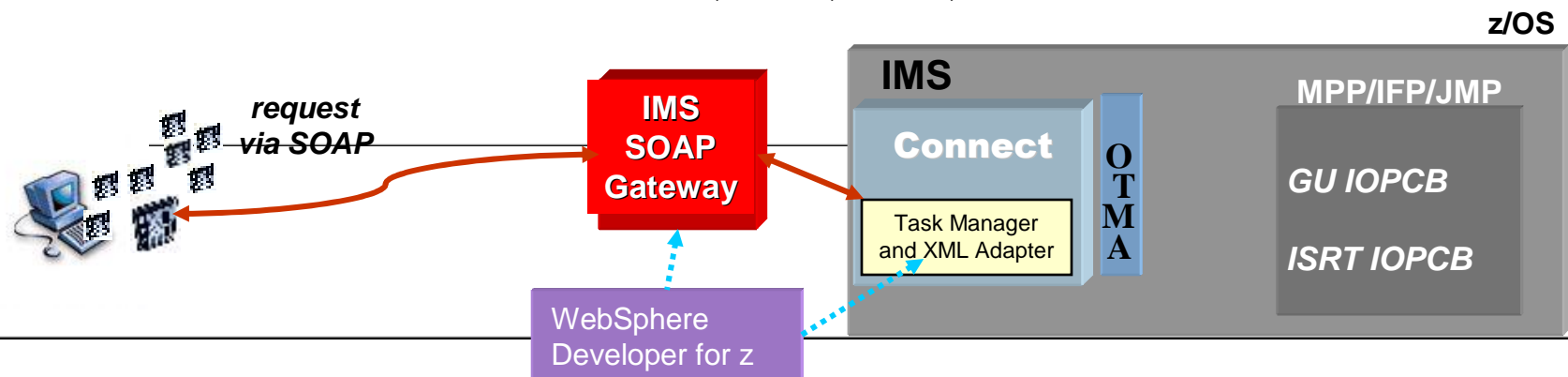© IBM Corporation 2006

Broadened IMS Application Integration with IMS SOAP support

- ➢ **Enables Reuse of IMS Applications as Web Services**
  - ▪ Support WebService specifications
  - ▪ Leverages open standards and utilizes flexible tooling support
- ➢ **Provides IMS Transaction Interoperation with Client Applications**
  - ▪ Independent of location, programming language, and platform
  - ▪ SOAP Clients can be Microsoft .Net, SAP, Java, etc.

z/OS

request via SOAP

IMS SOAP Gateway

IMS

Connect

Task Manager and XML Adapter

O T M A

MPP/IFP/JMP

GU IOPCB

ISRT IOPCB

WebSphere Developer for z

- ➢ *IMS SOAP Gateway R9.2 GA 8/06*
  - –*Security enhancements*
    - ▪ *Downloadable at http://www.ibm.com/ims*
- ➢ *Task Manager and XML Adapter Beta now in progress*

TAKE BACK CONTROL

Enhanced Application Tooling Strengthens the SOA Foundation for Transformation and Integration of Existing Applications and Data

Rational Application Developer
WebSphere Developer for zSeries
WebSphere Integration Developer
Debug Tool and Debug Tool Utilities

WebSphere Application Server
WebSphere Process Server
WebSphere Message Broker
WebSphere MQ
WebSphere MQ Workflow
WebSphere Information Integrator (II)
WebSphere II Classic Federation
WebSphere II Event Publisher

WebSphere Business Modeler
Rational Software Architect

WebSphere Application Monitor
Tivoli Composite Application
File Manager
Fault Analyzer

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Continuing Enhancements for IMS V9

Increased Ease of Integration

- IMS Connectivity enhancements
  - **Send only Reroute, Send only w/ACK, Client appl NAK w/output Purge or Reroute**
  - Sysplex Distributor - reroute persist socket msgs, reroute, purge not delivered, **Super member**
  - RAS enhancements, RACF Key ring support
  - JCA 1.5. WAS V6, WID/WBI V6
  - **OTMA enhancements for Message Flood and ERE**
- IMS Java enhancements
  - JDBC Deferred Program Switch support,
  - GSAM database support in JBP regions
  - SQL enhancements – adds use of non-DBD-defined fields in WHERE clause
  - Serviceability/Performance enhancements
- ESAF/DB2SAF simultaneous access to same DB2

Improved Systems Management

- Sysplex Unresolved CQSPUT during CQS Resynch new message
- Operations Manager enhanced to pass FID for AOI conversion
- Log Edit User Exit for additional security
- **PI/Stop Region ABDUMP**
- **LOCKTIME enhancements**

Scalability

- Fast Path Shared VSO Dual Structure diagnostic log records
- DBRC Retain Positon High Key
- **DBRC Intent to Reorg and Init.PART enhancement**
- Syncplex Option helps synchronize failed Sysplex IMSs restart
- HALDB Partition Range Processing
- **Allocation of DSAB/TIOT blocks about the 16 M line**
- **XRF-GDPS Coexistence**

Enhanced IMS Management Tooling for Infrastructure Simplification

1H2006

- IMS DB Recovery Facility V3R1
- IMS High Performance Change Accumulation V1R3
- IMS Performance Analyzer V4R1
- IMS Problem Investigator V2R1

2H2006

- IMS Sysplex Manager V1R2
- IMS High Performance Pointer Checker V2R2
- IMS Parallel Reorganization V3R2
- IMS Command Control Facility V2R1
- *IBM OMEGAMON XE for IMS for z/OS V4R1*
  - ➤ And more to come this year…

Easing IMS V9 Installation and Management

An "Introduction to IMS" book available

IMS V9 Installation Workshop (U3759) available
- Perform actual installation and run IMS IVP in environment of choice
- Hints and tips for successful IMS system implementation and maintenance
- 3 day lecture lab

New live classes available
- IMS Connect
- IMS DB/TM Debug
- IMS Exits

2007 IMS Education Schedule available
  at http://www.ibm.com/ims under Training/Certification
- Classes, seminars, webcasts, teleconferences

Migration and skills transfer and customized offerings available at ibmdds@us.ibm.com

And Still More to come ...

IMS: The Continuing Journey ... With IMS Version 10

Providing High Performance, Scalable, Available, Reliable and Secure Solutions

- Providing More Parallelism in DB Recovery Control
- Widening Bandwidth for Multiple Systems Coupling
- Enhancing Security

Easing Integration with New Technology for a Service Oriented Architecture

- Enhancing IMS XML and Web Services Connectivity
- Integrating Operations across Subsystems/Platforms

Simplifying Installation and Management

- Defining Resources Dynamically
- Easing Operations Management
- Easing Systems Management

IMS Version 10 Transaction Manager Enhancements

- **Integration**
  - SOA Composite Business Application Support
  - Asynchronous Callout for IMS as client to WebSphere and SOAP
  - MSC VTAM Generic Resources support
  - APPC Local-LU and timeout granularity
  - OTMA Autonomic Enhancements
  - Security Enhancements

- **Scalability**
  - Fast Path EMH Enhancements
  - Statistics Utilities Shared Queues support
  - MSC Bandwidth

- **Manageability**
  - Dynamic Resource Definition
  - Operations Manager Enhancements
  - System Management Enhancements
  - Syntax Checker/IVP Enhancements
  - Management of Serialized Programs Across Sysplex
  - Enterprise Workload Manager (EWLM)
  - Transaction Level Statistics
  - Selective Display System Parameters
  - BPE External Trace
  - KBLA migration/coexistence
  - Abend Search and Notification
  - Additional Serviceability Enhancements

IMS Version 10 Database Manager Enhancements

- **Integration**
  - XQuery
  - Java library support Enhancements
  - GSAM DB Support in Java Batch Regions
  - DLI Model Utility GUI and XMI Enhancements
  - XML Database Mapping enhancements

- **Scalability**
  - Parallel RECON Access
  - DBRC API 2
  - READONLY RECON DS support
  - DBRC Timestamp Precision
  - Support Data Set FlashCopy
  - Sort Exit Enhancement
  - ILDS Rebuild Utility
  - Fast Path DEDB Enhancements
  - CSA/VSCR
  - Large Sequential DS >64k support
  - ACBGEN 31bit (V9 SPE)

- **Manageability**
  - Dynamic Resource Definition
  - Operations Manager Enhancements
  - System Management Enhancements
  - Syntax Checker/IVP Enhancements
  - Management of Serialized Programs Across Sysplex
  - OLC ACBLIB Enhancements
  - Enterprise Workload Manager (EWLM) Support
  - Selective Display System Parameters
  - BPE External Trace
  - KBLA migration/coexistence
  - Abend Search and Notification
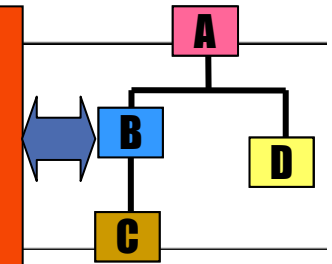 - Additional Serviceability Enhancements

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Integrated/Open Access
- IMS XQuery

```
<bib>
   for $b in /bib/book
   where $b/publisher = "Addison-Wesley"
and $b/@year > 1991
   return
      <book year="{ $b/@year }">
        { $b/title }
      </book>
</bib>
```

- Audience
  - IMS users looking to embrace SOA, XML
  - Those wanting enhanced Java application devt
  - Those wanting better IMS/ DB2 data integration
- Objectives
  - Further align IMS with industry direction
  - Enhance IMS integration with tooling support
- Solution
  - Standard XML query language jointly developed by industry leading companies as W3C Candidate Recommendation
  - SQL-like query, specifically designed for the more natural fit of hierarchical data
  - Full support for IMS DBs, using XML-DB with IMS/XML mapping
  - Full XQuery 1.0(+-) evaluation engine shipped with IMS, supported though Java language
  - Tech Preview at http://www.ibm.com/ims on alphaWorks
  - Includes DBD, PSB, load job, sample applications and step by step instructions
- Value
  - Further aligns IMS with industry and IBM direction (SOA, XML)
  - Increases value of IMS XML-DB support
  - Provides fully supported powerful standard query language shared with the database world
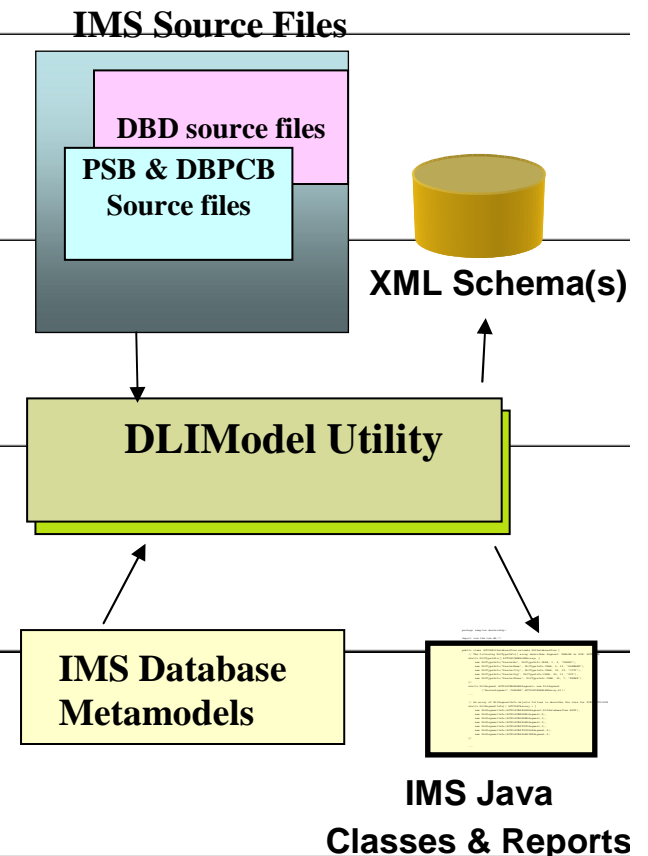 - Leverage App Dev tools that build off XQuery

IMS Callout Enhancements

- Enable IMS applications as clients, providing asynchronous outbound support from IMS applications.
- IMS pull of information/data from distributed system
    - IMS application initiates request to outbound WAS or other applications, and receives response back
- Asynchronous Callout to EJB
    - Customer provides code in JCA EJB application
- Asynchronous Callout to Message Driven Bean (MDB)
    - Use JCA 1.5 inbound architecture support of Enterprise Information System (EIS, e.g., IMS) to initiate communications to the J2EE application server, eg. WebSphere Application Server (WAS)
    - End-to-end tooling available
- Provide outbound Web services support to external SOAP server for IMS SOAP clients

IMS   z/OS

Initiating Client

IMS Application
Callout

Any platform

External Application

TAKE BACK CONTROL
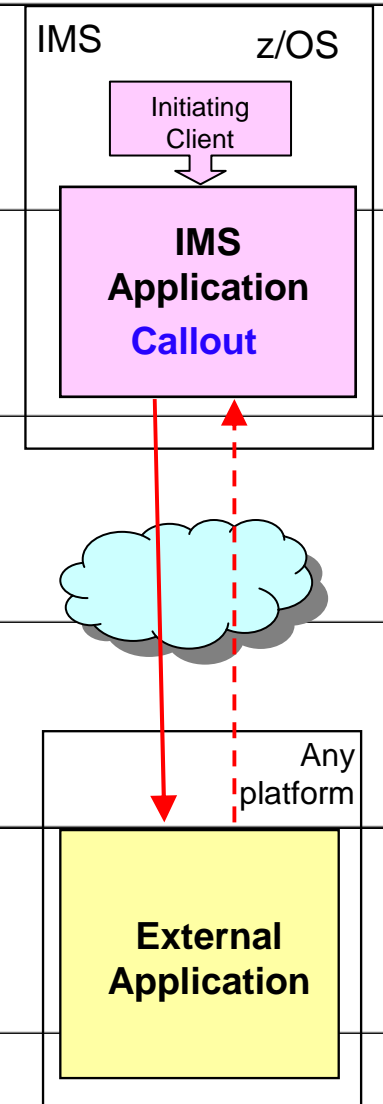
IMS Database AD Tool - DLIModel Utility

➤ DLIModel Utility first shipped with IMS V8
   Providing IMS Java tooling support
   ▪ SYS-CON Readers' Choice Award
      ▪ First runner up for Best Java Component
      http://au.sys-con.com/read/171303_3.htm

➤ DLIModel Utility XMI and GUI enhancements
   ▪ Enhance IMS Database MetaModel and separately generate PSB & DBD XMIs
   ▪ Provide GSAM Database support
   ▪ Enhance XML Schema Annotations for IMS XQuery
   ▪ Technology preview GUI available for download at http://www.ibm.com/ims
      ▪ Provides a user-friendly interface, eliminating need to write control statements
      ▪ Simplifies application development and visually representing IMS data
      ▪ Includes Editor to import COBOL XML files, modify segment/field info, create schemas for XML DB
      ▪ Uses an Eclipse 3.0 plug-in

IMS Source Files

DBD source files

PSB & DBPCB Source files

XML Schema(s)

DLIModel Utility

IMS Database Metamodels

IMS Java Classes & Reports

# Open Transaction Manager Access (OTMA) Enhancements

ƒ Audience
- –IMS TM customers using OTMA interface

ƒ Solution
- – Tpipe storage clean-up (also in V9 service)
- – Extended asynchronous reroute (also in V9 service)
- – Automatic flood control (partial in V9 service)
- – Time-out control
- – Member level security
- – Enhanced OTMA display information
- – Callout Descriptors
- – Resume TPIPE security

ƒ Value
- – Enhances OTMA for high availability and usability

Connect

WebSphere MQ

DB2

Tivoli

CICS

IMS

O T M A

TAKE BACK CONTROL
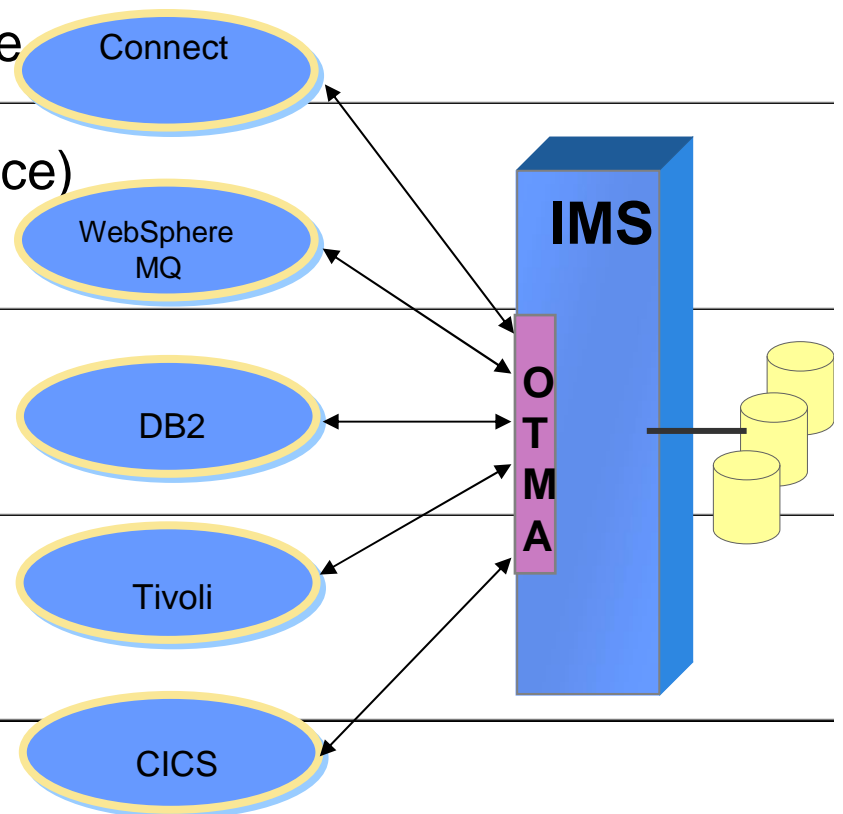
Security/Usability Enhancements for Connectivity

IMS benefits from transaction security through RACF

- **Client Password Change Request**
  - Allow user to change the security password by submitting a password change request message to the IMS Connect message exit routine
- **ACEE Aging Value**
  - Allow user to set an aging value of the cached ACEE for the OTMA security checking for better performance thruput.
- **RACF Mixed Case Password**
  - Allow user to specify the mixed case password for RACF or the equivalent product
- **CM1 Timeout**
  - Allow user to specify timeout value for dependent region wait-syncpoint condition when acknowledgement message is not received for an OTMA CM1 output response
- **Message Flood Control (partial support provided as V9 SPE)**
  - Allow user to specify a threshold value to detect the OTMA message flood condition
- **Alternate Client ID (also provided as V9 SPE)**
  - Allow user to retrieve IMS asynch output using alternate Tpipe name or client ID
- **Client ID Uniqueness**
  - Connect would ensure Client ID uniqueness
- **Command enhancements**
  - /SIGN ON enforcing conversations be held or user authorized to use transaction for active conversations
  - /DISPLAY SHUTDOWN STATUS showing active or indoubt ODBA threads that could prevent IMS from shutting down completely if IMS not shutting down as expected
  - /LOCL, /OPNDST, /SET,/SIGN, /UNLOCK enhanced to support mixed-case passwords

Easing Manageability
- IMS Dynamic Resource Definition (DRD)

- **Increases Availability with continued focus on 24x7 operations**
  - Less disruptive change than with existing online change process
  - Allows system to change dynamically for MODBLKS resources via a command
  - No need to cold start system to introduce new MODBLKS resources
  - Allows granular change with minimum impact to availability
  - System is quiesced for only those resources to be changed
  - Allows transactions to be defined dynamically via a user exit

- **Increases Productivity**
  - New User Interfaces
  - Simplifies the IMS definition process for IMS systems and resources
  - Reduces IMS and z/OS skill set required to define and customize IMS
  - Simplifies environment setup for application development

Dynamic Resource Definition…

- **Simplifies Resource Definition**
  - New commands to dynamically define and manage MODBLKS resources without a system generation or online change
    - Create, delete, import, export, query, update
    - Database, program, transaction and routing code
  - New commands to dynamically update Multiple Systems Coupling (MSC) resources
  - Enhances user exit (DFSINSX0) to dynamically create program and transaction resources
  - Decreases need for the system generation process
    - Reduces number of resources that must be defined through the system generation process-- FPCTRL, APPLCTN, DATABASE, RTCODE, TRANSACT macros no longer required

Operations Management (OM) Enhancements

ƒ Audience
  – Users requiring improved operations using the IMS Common Service Layer (CSL) to enter commands to IMS or wanting to view audit trail
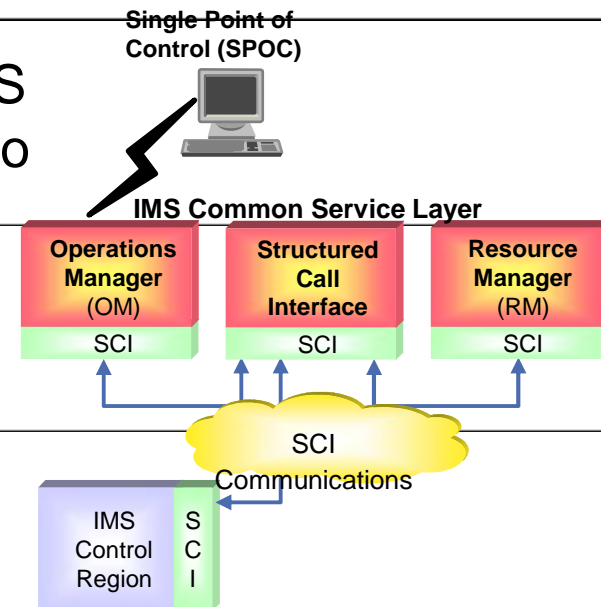
ƒ Objectives
  – Allow command processing clients to send unsolicited messages through OM
  – Provide OM audit trail

ƒ Solution
  – Define a new AOI for unsolicited messages.
  – System Logger used for Audit trail
  – Provide SPOC panel to view audit trail

ƒ Value
  – Improved output and auditability for commands entered through the Single Point of Control (SPOC)
  – Users can determine which commands were issued, by whom, and can see unsolicited messages
  – Enhances Integration of operations

Single Point of Control (SPOC)

IMS Common Service Layer

Operations Manager (OM)	Structured Call Interface	Resource Manager (RM)
SCI	SCI	SCI

SCI Communications

IMS Control Region | S C I

TAKE BACK CONTROL

Systems Management Enhancements (SME)

- Solution
  - ƒ Use Resource Manager to save global command status for Databases, Areas and Transactions, made available to IMS systems at startup
  - ƒ Type-2 QUEUE TRAN | QUEUE LTERM commands from OM API
    - Allows transaction to be initiated through OM API
    - Allows DEQ of transactions in non-shared queues (SQ) environments (as well as SQ)
  - ƒ UPD DB and UPD AREA commands enhanced to set/reset Prevent Further Authorization (PFA) in the RECON
    - /SMCOPY MSG ON | OFF support allows you to skip logging of messages to the secondary master
    - Type-2 AOI Exit DFSAOE00 enhanced to allow you to skip logging of messages to the secondary master
  - ƒ All Type-2 commands enhanced with completion code text on error completion codes
- Value
  - ƒ Single System Image, simplified Systems Management with Single Point of control
  - ƒ Granular control of logging secondary master messages

Sysplex Serialized Program Management

- Objectives
  - SCHDTYPE=SERIAL programs are serial on a single IMS but may be scheduled in parallel on another IMS in the IMSPlex
- Solution
  - Use IMS Resource Manager (RM) to serialize these programs throughout the IMSPlex
  - Expands serial program usage to all IMS systems
  - Requires CSL and IMS Resource Structure
- Value
  - True serialization of these programs across the IMSPlex
  - Eliminate need for users to create their own solution

Online Change Application Control Block Library (ACBLIB) Enhancements

- Objectives
  - ƒ Allow online change with work in progress for transactions that are not directly affected in order to improve the chances that a commit will succeed.
  - ƒ Allow add or change of one or more members of the ACBLIB without the need to perform an online change on the entire library

- Solution
  - ƒ Do not consider local queues with messages as work in progress when a transaction is not directly affected by an online change in a non-shared queues environment
  - ƒ Provide online change so that only affected resources by member level online change are quiesced allowing concurrent activity of unaffected resources
  - ƒ Coexist with existing library switch OLC

- Value
  - ƒ Improve the usability of online change by increasing the chances that commit will succeed, especially for an ACBLIB-only online change
  - ƒ Improve availability by minimizing impact of change

Transaction Level Statistics Enhancements

- Objectives
  - Capture, accumulate, and record transaction level statistics for an individual Unit of Recovery (ie. commit scope) for MODE=SNGL transactions and for every message processed for MODE=MULT transactions.
  - Allow user to control whether or not transaction level stats are recorded.
- Solution
  - Provides a new optional log record to reflect each transaction
  - Implemented with a specification in a PROCLIB member that turns on the statistics for ALL transactions and programs.
  - Optionally, individual transactions or programs can be turned on/off with a type-2 command, requiring the Common Service Layer (CSL).
- Solution
  - Provides more granular transaction information

Serviceability Enhancements
- Base Primitive Environment (BPE) External Trace

- Audience
  - ƒ IMS Common Service Layer/Shared Queues users
  - ƒ IMS Connect users
- Objectives
  - ƒ Currently users have to take a console dump in order to look at the BPE traces for problem diagnosis
- Solution
  - ƒ Externalizing of BPE internal traces to external Generation Data Groups (GDG) data set thus providing ability to trace system over longer time periods
  - ƒ Logs existing BPE traces to external GDG data set
- Value
  - ƒ Users are more likely to get diagnostic data the first time with fewer recreates

Scalability
- IMS Parallel Recovery Control (RECON) Access Enhancements

- **Audience:** IMS Data Sharing users and Single IMS system users with batch jobs sharing the RECON data set

- **Objectives:** Reduce contention for the shared RECON data set

- **Solution:** Exploit DFSMS Transactional VSAM (TVS) to provide record level locking and logging for the RECON data set

- **Value:** Reduces RECON contention, transaction response time issues, unplanned IMS system quiesces for OLDS switches, and growth constraints

IMS Database Recovery Control (DBRC) Application Program Interface (API) Enhancements

- **Audience**
  - ➢ Vendors and users who access data in the RECON data set
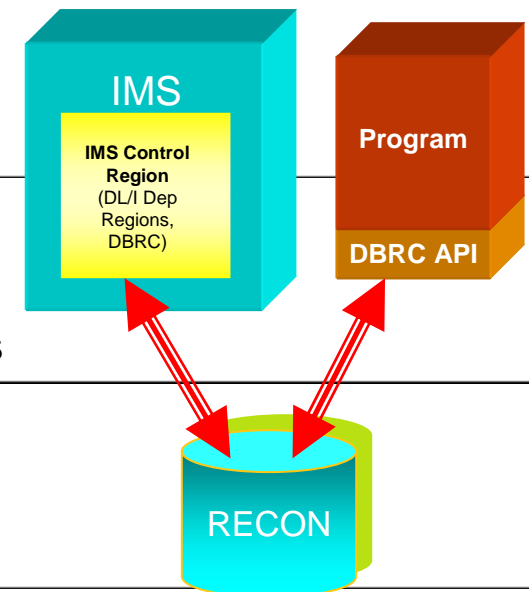
- **Objectives**
  - ➢ Provide users with a single release-independent interface to Recon
  - ➢ Provide a Recon Update function for users and programs
  - ➢ Enhance RECON security by limiting the level of access to individual users

- **Solution**
  - ➢ Add RECON update capability to the DBRC API by enabling applications to submit DBRC commands
  - ➢ Add READONLY access to the RECONs for DBRC applications and users of the DBRC utility

- **Value**
  - ➢ Architected interface to the DBRC Recon data set eases tool workload and V2V migration resulting from individually provided access to Recon information

IMS

IMS Control Region
(DL/I Dep Regions, DBRC)

Program

DBRC API

RECON

Fast Path Data Entry DB (DEDB) Usability Enhancements

- Audience
  - ƒ IMS Fast Path (FP) customers using Data Entry Databases (DEDB)
- Objectives
  - ƒ Start all areas of a DEDB after /DBR DB
  - ƒ UPD DB STOP (ACCESS) without unloading the randomizer
  - ƒ FP Shared VSO Private Pool during XRF tracking
- Solution
  - ƒ Start the DEDB and all of its areas using a single command
  - ƒ Provide an option not to unload the randomizer with new keyword on UPD DB
  - ƒ Automatically compress the Shared VSO Private Pool for XRF active systems, in addition to the earlier non-XRF and XRF Alternative systems
- Value
  - ƒ Eliminate the need to start the areas of a DEDB individually
  - ƒ Improve ECSA usage for XRF alternate systems

IMS Multiple Systems Coupling (MSC) Enhancements

- **Audience**
  - All MSC Users and those considering use of MSC
- **Objective**
  - Relieve bandwidth problems across the MSC network
  - Make 3 (Channel-to-Channel, Memory-to-Memory, VTAM) Link Protocols more efficient/dynamic
- **Solution**
  - Improve blocking technology for greater bandwidth across MSC links, exploiting DASD/Tape media concept blocking multiple records into single buffer
  - Dynamically display/query/change link buffer size from 160-2730 byte range to 1K-64K range
  - Support VTAM Generic Resources
- **Value**
  - Improve efficiency, availability, transaction performance and output message response times, easing use and reducing links required
  - Provide statistics to fine tune/analyze/improve link performance

IMS V10 Prerequisites

- **IMS V10 Minimum Release Levels**
  - ƒ z/OS V1R7 (5694-A01)
    - S RACF (included in separately orderable SecureWay Security Server), or equivalent, if security is used
    - – High Level Assembler Toolkit (5696-234)
- **Additional key prerequisites for optional line items:**
  - ƒ IMS Parallel Recon Access
    - – z/OS 1.7 DFSMStvs (separately orderable feature)
  - ƒ IMS Image Copy 2 DFSMS Fast Replication support
    - – z/OS 1.8
    - – Hardware: 3340-FLC, 2105-E20, 2105-F20 and 2105-800
  - ƒ IMS XML Adapter and SOAP Gateway
    - S WDz (2 Limited use licenses included for this. Ts&Cs in WDz license)
  - ƒ Additional individual functions and connectivity requirements in the IMS V10 Release Planning Guide

> **IMS V10 Runs only on 64 bit Processors (z800,z900, z990)**

IMS: Providing Leadership in the Marketplace

**Simplifying Information Integration
through Connectivity and New
Application Development**

**Easing Manageability
Reducing the Cost of
Computing**

IBM Information On Demand 2006

October 15-20, 2006
Anaheim, California
ibm.com/events/InformationOnDemand

**Enabling System Scalability
with Availability/Recoverability
Performance/Capacity**

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