



IBM IMS Tools

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Information Management software

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IMS Tools Product Portfolio

HALDB Toolkit
HD Compression- Extended
IMS Cloning Tool
Library Integrity Utilities
Sequential Randomizer
Generator
IMS Tools Knowledge Base

IMS Database Control Suite
High Performance Fast Path Utilities
High Performance Unload
High Performance Load
IMS Index Builder
High Performance Prefix Resolution
Parallel Reorganization
Online Reorganization Facility
High Performance Pointer Checker
Database Control Suite

IMS Recovery Expert
Database Recovery Facility
High Perf Image Copy
High Perf Change
Accumulation
DEDB Fast Recovery

Batch Terminal Simulator
Batch Backout Manager
IMS Connect Extensions
Program Restart Facility

End to End Management

Data Base
Administration

Utility
Management

Backup and
Recovery

Application
Management

IMS DATA BASE TOOLS

Performance
Management

Transaction
Management

System
Administration

Regulatory
Compliance

Buffer Pool Analyzer
Network Compression Facility
Performance Analyzer
Problem Investigator
OMEGAMON XE for IMS

Command Control Facility
ETO Support
HP Sysgen Tools
Queue Control Facility
IMS Workload Router

IMS Parameter Manager
IMS Sysplex Manager

IMS Audit Management
Expert
IBM Data Encryption for IMS
and DB2 Databases

What's new in IMS Tools

Information Management software

- IMS Audit Management Expert
- IMS Cloning Tools
- IMS Connect Ext
- IMS Performance Analyzer

Announcement on 08/04/2009 General Availability 08/07/2009

Information Management software

- IMS Audit Management Expert for z/OS V1.2
 - PID # 5655-R23 and S&S PID 5655-R24
- IMS Cloning Tool for z/OS V1.1
 - PID # 5655-U91 and S&S PID 5655-U92
- IMS Connect Extensions for z/OS V2.2
 - PID # 5655-S56 and S&S PID 5655-K49
- IMS Performance Analyzer for z/OS V4.2
 - PID # 5655-R03 and S&S PID 5655-E18



IMS Audit Management Expert for z/OS Version 1.2

Information Management software

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- IMS Audit Management Expert for z/OS
 - Provides a comprehensive auditing solution that reduces the cost of compliance through automation, centralization, and segregation of duties
 - Simplifies the collection of audit data through automation
 - Reduces manual efforts and increases productivity
 - Provides centralization of the audit data by collecting and correlating data access information from a variety of IMS and SMF resources
 - Removes the difficulty of gathering data from multiple data sources by centralizing audit data
 - Auditors can easily get audit information while requiring fewer resources
 - Data from different sources is presented in a consistent way

OVERVIEW

- IMS Audit Management Expert for z/OS
 - Allows for segregation of duties between auditors and DBA's
 - Increases the integrity of the audited data
 - Removes the opportunity for data tampering because reports are no longer provided by the personnel companies need to audit
 - Saves time and effort by eliminating manual auditing processes
 - Facilitates common auditing tasks
 - determining who updated a particular object
 - time frame
 - monitoring access to specific objects
 - Shows a detailed analysis for any changes being monitored by IMS Audit Management Expert
 - Allows auditors to obtain information
 - without being defined as IMS users
 - work without extensive interaction with Data Base and System Administrators
 - Auditors will not be able to directly manipulate IMS resources

IMS Audit Management Expert for z/OS

- Data collection
 - Collection and reporting of READ (GETS), INSERT, UPDATE and DELETE accesses to databases
 - Ability to audit and report on READ, INSERT, UPDATE, and DELETE calls on specific database segments
 - READ and DELETE calls retain the concatenated key of the audited segment
 - UPDATE and INSERT calls retain the segment concatenated key as well as the segment data, as found in the DLI call I/O area

IMS Audit Management Expert for z/OS

- Data collection

- IMS Audit Management Expert can collect and correlate many different types of information into its audit repository:
 - Access to database, image copy and RECON data sets as recorded in SMF
 - Access to databases as recorded in the IMS log
 - Access to databases and segments from IMS Batch (DLI/DBB/BMP) jobs
 - Access to databases and segments from IMS Online regions
 - User access to the IMS system via SIGNON as recorded in the IMS log
 - PSB and database 'change of state' activity as recorded in the IMS log
 - System STOP and START activity as recorded in the IMS log

IMS Audit Management Expert for z/OS

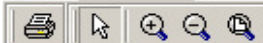
- REPORTING of audit data
 - GUI Reporting interface
 - Provides auditors with flexible options for examining the data in the audit repository
 - Summary and detail reports
 - Report filtering
 - Graphical and tabular reports
 - Export data grid values directly to Excel
 - Zoom data grid cells, to view data more easily
 - Search capability for data grid cells
 - Batch Reports
 - Generate reports by
 - USERID, DATABASE, SEGMENT, TRANCODE, PSB, JOBNAME
 - Date Range with STARTDATE, ENDDATE
 - Masking and control card omission allows desired report content
 - Provides capability to view segment concatenated key and segment data in it's raw format

IMS Audit Management Expert for z/OS

- Automated audit notification
 - Exceptions exceeding CRITICAL or WARNING threshold values
 - Thresholds values are set by individual Report users
 - Trigger Action
 - Email notification with message to selected email addresses
 - WTO to selected TSO USERids

IMS Audit Management Expert for z/OS

- Administration User Interface GUI
 - Provides administrators with flexible control options
 - User management
 - Auditing profile management
 - Ability to define what will be targets of auditing
 - Ability to set auditing rules for different levels of auditing
 - Ability to filter auditing at the database level as well as segment level
 - The inclusion of PSBs within a rule, to audit all databases within the PSB at the database level
 - Reporting authorizations



IMS SYSTEMS | DATASETS | AD HOC | IMS AUDIT MANAGEMENT EXPERT
 Welcome Barry

> Overview Subsystem
 Go to... Help

Report Options:

Date Range:

From:

Month Starting: Sat, Aug 1, 2009

To:

Month Ending: Mon, Aug 31, 2009

Last Summary Table Update: 08-10-2009 16:19

Log Type:

▾

Set time period to check for Threshold:

- Every Hour
- Every Day
- Every Week
- Every Month

No Filters applied

Database Activity:

- a. First INSERT [IMS]
- b. First UPDATE [IMS]
- c. First DELETE [IMS]
- d. Get [IMS]
- e. Update [SMF]
- f. Read [SMF]

System Activity:

- g. IMS STOP and START [IMS]
- h. IMS Users Sign-on and OFF
- i. PSB STOP and START [IMS]
- j. Database STOP and START [IMS]

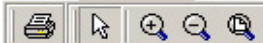
Normal
Warning
Critical

Comparison of Activity count against Thresholds

Subsystem I9A1

Database Activity:		System Activity:	
a.	d.	g.	j.
b.	e.	h.	
c.	f.	i.	

> Available Dates: 2007-4-2 to 2009-8-10



Report Options:

Date Range:

From: Sat, Aug 1, 2009 Hour:

To: Mon, Aug 31, 2009 Hour:

> Available Dates: 2007-4-2 to 2009-8-10

Last Summary Table Update: 08-10-2009 16:19

Subsystem:

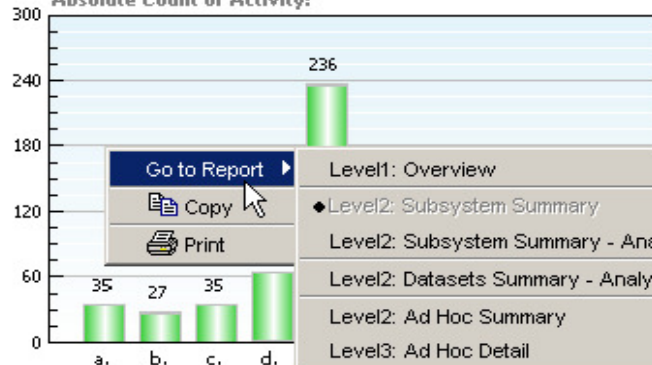
Log Type:

Set time period to check for Threshold:

- Every Hour
- Every Day
- Every Week
- Every Month

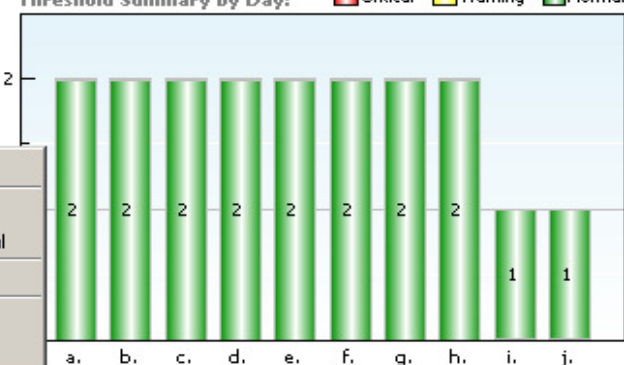
Summary Report for Subsystem: I9A1

Absolute Count of Activity:

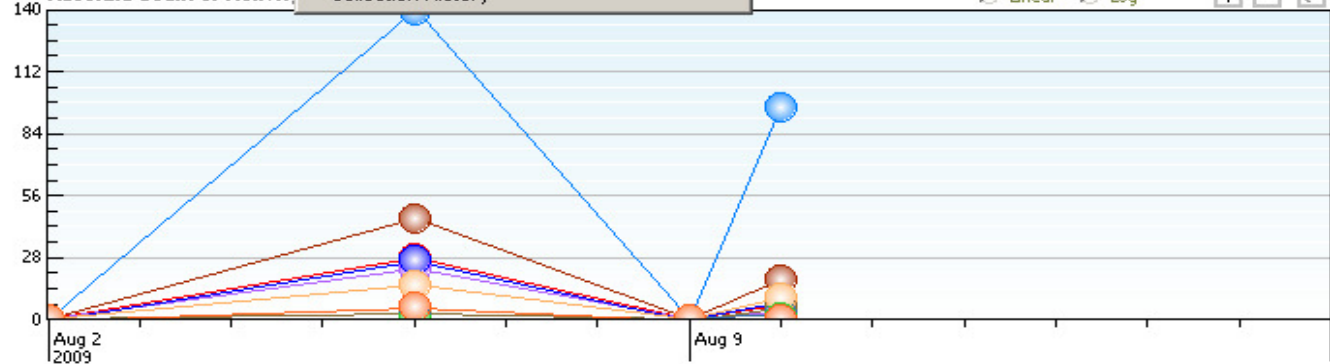


Threshold Summary by Day:

Critical Warning Normal



Absolute Count of Activity:



- a. First INSERT [IMS]
- b. First UPDATE [IMS]
- c. First DELETE [IMS]
- d. Get [IMS]
- e. Update [SMF]
- f. Read [SMF]
- g. IMS STOP and START [IMS]
- h. IMS Users Sign-on and OFF
- i. PSB STOP and START [IMS]
- j. Database STOP and START [IMS]

Level2_Users_Subsystem

-1.72 1.81 100%

Option

Record Count: 64

	EVENT_TYPE	START_TIME	END_TIME	IMS_SUBSYSTEM	SYSTEM_ID	JOB_NAME	JOB_NUMBER	
	IMS050	2009-08-06 21:00:47...	2009-08-06 21:00:5...	ISA1	AUEBB1G	AUEBB1G	JOB09348	G
	IMS050	2009-08-06 21:01:22...	2009-08-06 21:01:2...	ISA1	AUEBB1I	AUEBB1I	JOB09349	G
	IMS050	2009-08-06 21:01:42...	2009-08-06 21:01:4...	ISA1	AUEBB1D	AUEBB1D	JOB09350	G
	IMS050	2009-08-06 21:02:06...	2009-08-06 21:02:1...	ISA1	AUEBB1U	AUEBB1U	JOB09351	G
	IMS050	2009-08-06 21:02:52...	2009-08-06 21:03:2...	ISA1	AUEBB1U	AUEBB1U	JOB09352	G
	IMS050	2009-08-06 21:03:50...	2009-08-06 21:03:5...	ISA1	AUEBB1S	AUEBB1S	JOB09353	G
	IMS050	2009-08-06 21:13:13...	2009-08-06 21:13:1...	ISA1	AUEBB2I	AUEBB2I	JOB09358	G
	IMS050	2009-08-06 21:13:51...	2009-08-06 21:13:5...	ISA1	AUEBB2D	AUEBB2D	JOB09359	G
	IMS050	2009-08-06 21:14:06...	2009-08-06 21:14:1...	ISA1	AUEBB2U	AUEBB2U	JOB09360	G
	IMS050	2009-08-06 21:14:26...	2009-08-06 21:14:3...	ISA1	AUEBB2S	AUEBB2S	JOB09361	G
	IMS050	2009-08-06 21:16:14...	2009-08-06 21:16:4...	ISA1	AUEBB2U	AUEBB2U	JOB09364	G
	IMS050	2009-08-06 21:47:33...	2009-08-06 21:47:3...	ISA1	ISA1	ISAM11		RE
	IMS050	2009-08-06 21:47:57...	2009-08-06 21:47:5...	ISA1	ISA1	ISAM11		RE
	IMS050	2009-08-06 21:48:16...	2009-08-06 21:48:1...	ISA1	ISA1	ISAM11		RE
	IMS050	2009-08-06 21:48:21...	2009-08-06 21:48:2...	ISA1	ISA1	ISAM11		RE
	IMS050	2009-08-06 21:48:35...	2009-08-06 21:48:3...	ISA1	ISA1	ISAM11		RE
	IMS050	2009-08-06 21:48:37...	2009-08-06 21:48:3...	ISA1	ISA1	ISAM11		RE
	IMS050	2009-08-06 21:50:24...	2009-08-06 21:50:2...	ISA1	ISA1	ISAM11		RE
34	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:50:33...	2009-08-06 21:50:3...	ISA1	ISA1	ISAM11	RE
35	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:50:43...	2009-08-06 21:50:4...	ISA1	ISA1	ISAM11	RE
36	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:50:46...	2009-08-06 21:50:4...	ISA1	ISA1	ISAM11	RE
37	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:51:49...	2009-08-06 21:51:4...	ISA1	ISA1	ISAM11	
38	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:51:52...	2009-08-06 21:51:5...	ISA1	ISA1	ISAM11	
39	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:52:36...	2009-08-06 21:52:3...	ISA1	ISA1	ISAM11	RE
40	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:52:43...	2009-08-06 21:52:4...	ISA1	ISA1	ISAM11	RE
41	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:52:59...	2009-08-06 21:52:5...	ISA1	ISA1	ISAM11	RE
42	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:53:02...	2009-08-06 21:53:0...	ISA1	ISA1	ISAM11	RE
43	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:58:41...	2009-08-06 21:58:4...	ISA1	ISA1	ISAF11	JOB09329
44	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:58:47...	2009-08-06 21:58:4...	ISA1	ISA1	ISAF11	JOB09329
45	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:58:58...	2009-08-06 21:58:5...	ISA1	ISA1	ISAF11	JOB09329
46	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-06 21:59:05...	2009-08-06 21:59:0...	ISA1	ISA1	ISAF11	JOB09329
47	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-10 15:11:51...	2009-08-10 15:11:5...	ISA1	ISA1	ISAM11	RE
48	SEG GET CALL (IMS050 - 70)	IMS050	2009-08-10 15:12:13...	2009-08-10 15:12:1...	ISA1	ISA1	ISAM11	RE

Report Filter for Subsystem: Level2: Subsystem I9A1

Report Filter

- Filters
 - Databases (AND)
 - Included
 - Other
 - Detailed - IMS (AND)
 - Detailed - SMF (AND)
 - Job Name (AND)
 - PSB Name (AND)**
 - Included
 - Other
 - PSB Program Types (AND)
 - Included
 - Other
 - User ID (AND)
- Filter Summary

- Hide Unused And Disabled Filters
- Only Display Universal Filters

Connector: And Or

Available PSB Name

<N/A>	Add
ALL	
DFSIVP1	
DFSIVP2	
DFSIVP3	
DFSIVP4	
DFSIVP6	
DFSIVP7	
DFSIVP9	
DFSIVPC	

Back Next

Filter Available PSB Name

Operator: Is Is Not

Starting With Refresh

Other Options:

- Populate Available List At Load Time
- Do Not Use This Filter
- Use This Filter On All Reports (Universal Filter)

PSB Name Filter:

Selected PSB Name

--

Include Exclude

Remove Remove All

Other PSB Name Options:

--

Remove Remove All

Connector: And Or

Operator: Is Is Not

Starting With Add

Notifications:

Name	Description	Type	Created	Owner	Next Scheduled	Notification Enabled	Subsystem	Time Range From	Time Range To	Run Count	Critical Count	Warning Count
barry1	first notificatio...	Standard	7/20/09 8:43...	barry	7/20/09 9:00...	<input checked="" type="checkbox"/>	All Subsystems	4/1/07 12:00...	8/1/09 12:00...	15	6	7
barry1	test on reads	Standard	7/23/09 9:39...	barry	7/24/09 8:00...	<input checked="" type="checkbox"/>	All Subsystems	7/1/09 12:00...	8/1/09 12:00...	1	1	0
barry3	test the good ...	Standard	7/30/09 12:4...	barry	7/31/09 8:00...	<input checked="" type="checkbox"/>	All Subsystems	7/26/09 12:0...	8/2/09 12:00...	0	0	0

Quick Filter

Name like Refresh

- Show All Notifications
- Show only enabled Notifications
- Show only disabled Notifications
- Show only Notifications with warnings

Selected Notification History

Run Date	Result	Duration (Seconds)	Time Range From	Time Range To	Messages
8/10/09 9:49 AM	Critical	2	4/1/07 12:00 AM	7/31/09 11:59 PM	1
8/7/09 7:57 AM	Critical	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
8/6/09 4:29 PM	Critical	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
8/6/09 1:48 PM	Critical	2	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/30/09 10:54 AM	Critical	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/29/09 7:05 PM	Critical	16	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/27/09 9:26 AM	Warning	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/24/09 7:35 AM	Warning	3	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/23/09 1:33 PM	Warning	3	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/23/09 8:50 AM	Warning	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/22/09 5:08 PM	Warning	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/22/09 3:35 PM	Warning	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/21/09 9:58 AM	Warning	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/20/09 5:04 PM	Normal	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1
7/20/09 9:00 AM	Normal	1	4/1/07 12:00 AM	7/31/09 11:59 PM	1

View Graphical Report...

View Messages...

Delete

Create Notification

Clone Notification

Enable Notification

Disable Notification

View Notification

Delete Notification

Run Notification...

Current Notification Server Time: 8/10/09 5:06 PM



IMS Cloning Tool

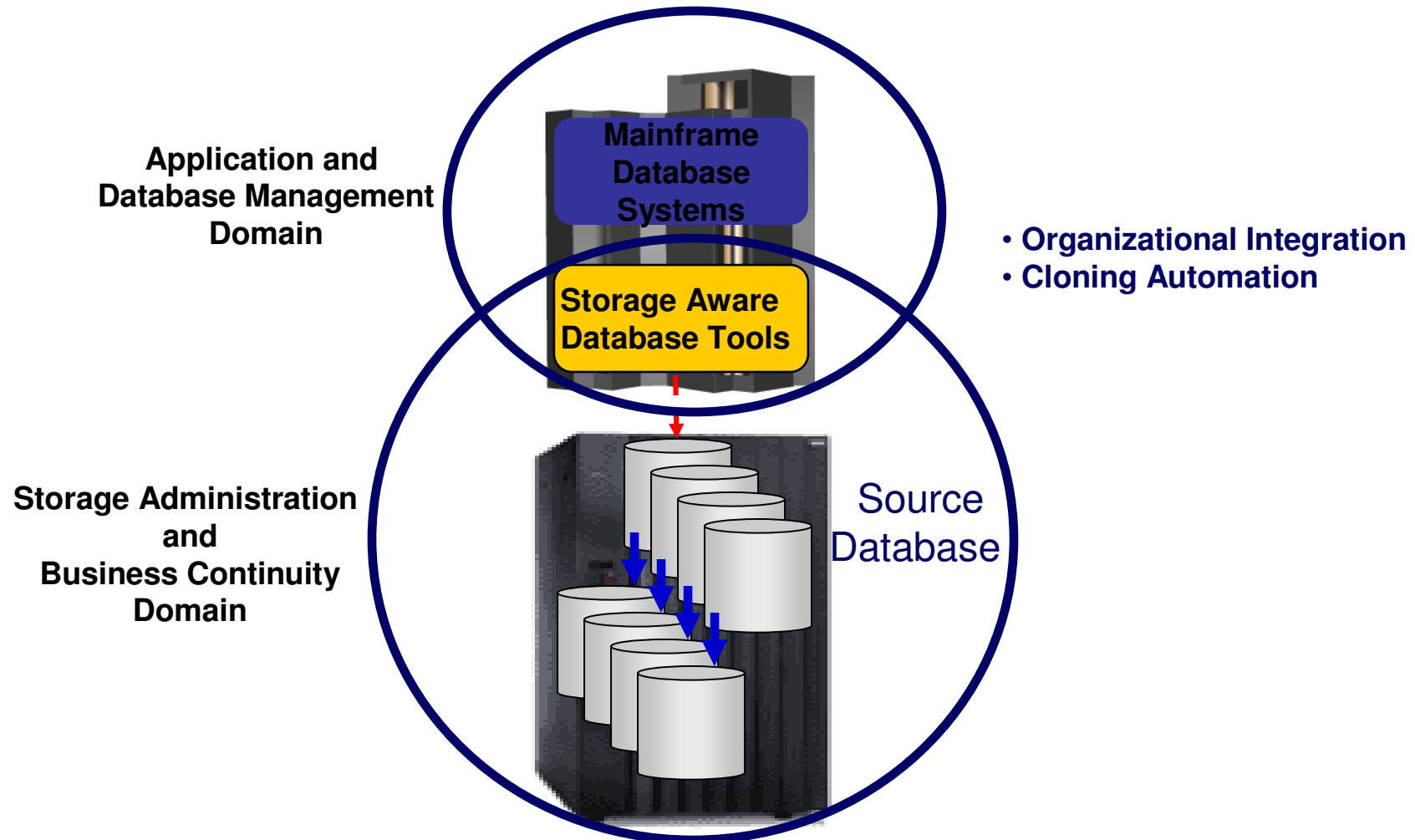
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Trends and Directions:

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Database and Storage Integration



Database and Storage Integration

- Reduce administration costs through automation
 - Fast replication executed in safe and transparent manner
- Reduce host CPU and I/O resource utilization
 - Copy process is done in the storage processor
- Copy data instantaneously
 - Data cloning in minutes
- Promotes high availability solutions
 - Copy of production data without sacrificing data availability
 - Clone IMS systems in less than an hour

Use Cases for Cloning IMS Systems and/or Databases

- To run 'read-only' production
 - Offload business processes from production
 - Improve production performance
 - Run pointer checker utility from the clone
- To create or refresh test, quality assurance, or development environments
- To apply maintenance and verify integrity before applying to production
- To stage data-warehouse loads
- To aid in problem determination
- To refresh databases into a previously cloned IMS skeleton

You may be cloning your IMS systems and databases today!



Problems with Traditional Methods

- **Slow**
 - Can require the data to be stopped for a long time while the copy operation is performed
- **Impacts high availability**
 - Customers waiting
 - Users waiting
- **Expensive**
 - Resource intensive
 - Use large amounts of host CPU and I/O
- **For IMS system cloning**
 - Requires a separate LPAR to house the copy
 - Same volumes and data set names

Storage-Based Fast Replication

- What is storage-based fast replication?
 - The act of copying volumes or data sets using microcode facilities in the modern storage processors
- Fast
 - Copies data instantaneously
 - Combined with IMS Cloning Tool
 - IMS system cloning on average – < 30 minutes
 - Database refreshes - minutes
- Provides high availability
 - Provides a consistent copy of production
 - Allows clones to be available quicker
- Provides huge cost savings
 - Doesn't use host CPU or I/O resources
 - Copy process is done in the storage processor
 - » Save CPU and I/O costs
 - Save personnel time

Challenges to Data Access on the Same or Shared LPAR

Information Management software

- IMS system cloning by volume
 - The volumes have been cloned but how do you access the data that was just cloned?
- Problems:
 - VOLSERS can have the same volume names as the source
 - Data has the same data set names as the source
 - If you don't want to access the data from a different, non-sharing system, how do you access the data?



IMS Cloning Tool Overview

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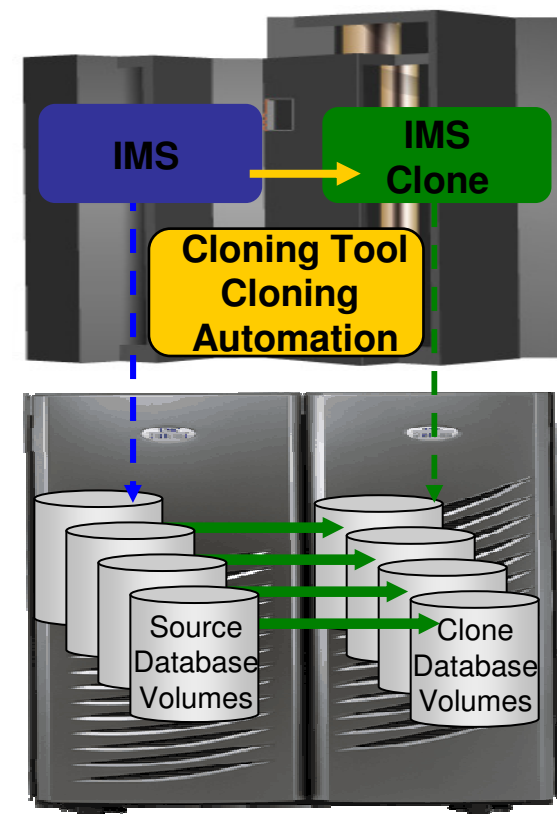
- Clones IMS systems (includes all databases)
 - Uses volume-based fast replication, including:
 - FlashCopy (IBM,EMC,HDS), TimeFinder/Snap(EMC), SnapShot (IBM,STK), Onsite Mirrors, Software Point-in-Time
 - Performs the necessary operations so that the data can be used by the cloned IMS system
 - IMS Cloning Tool takes an existing IMS system (complete installation and system generation process completed) and creates a new, or cloned, IMS system from it without having to repeat the entire installation and system generation processes

- Refreshes IMS databases
 - Uses data set based fast replication, including:
 - FlashCopy (IBM,EMC,HDS), TimeFinder/Snap(EMC), SnapShot (IBM,STK)
 - Performs the necessary operations to enable the cloned databases to be used on the same or another IMS system

Cloning IMS Systems Using IMS Cloning Tool

Information Management software

- Performs IMS system cloning automation
 - Simplifies IMS cloning processes
 - Reduces cloning time and administration costs
- Leverages fast replication facilities to clone data
 - Data can be cloned while on-line or off-line
- Performs rapid volume reconditioning and dataset renaming on cloned database volumes
 - Critical component of the database system cloning process
- Adjusts target IMS to accommodate and accept the cloned data
 - IMS RECONs, PROCLIB, JOBS, JCL, MDA members



- Update IMS cloned system
 - 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 are 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

- Update IMS cloned system
 - 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 (MVS Dynamic Allocation) members for databases or system data sets, are updated to reflect the new data set names. Updates include:
 - The RECON data sets
 - Online Log data sets (OLDS)
 - Write-ahead data sets (WADS)
 - If IMS data sharing is involved, each additional IMS data sharing member is updated

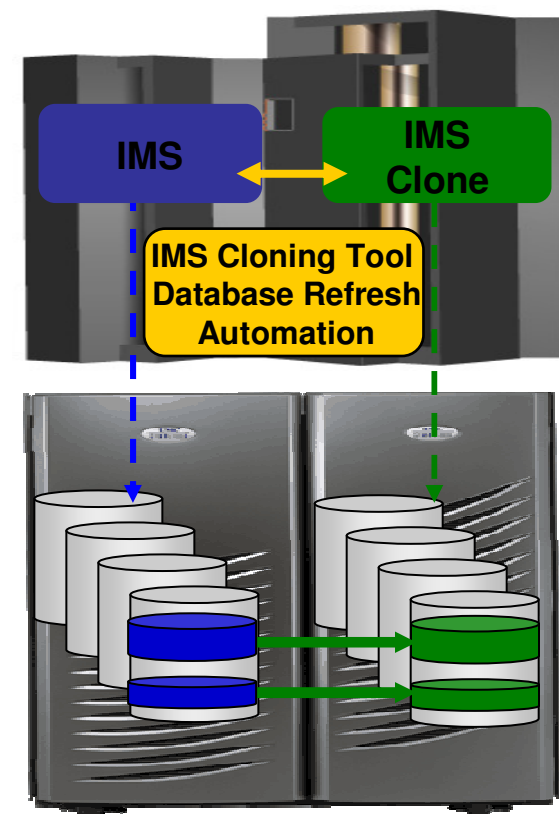
IMS Database Refresh Overview

- Uses data set fast replication
 - Does not use volume copy
 - Any fast replication data set copy mechanism can be used, including
 - FlashCopy (IBM,EMC,HDS), TimeFinder/Snap(EMC)
 - SnapShot (IBM,STK), DFSMSdss or FDR
- Traditional copies can also be used but are much slower
- Refreshes IMS databases within the same IMS system or to another IMS system
 - Lowest level that can be copied is a data set
- Updates DBRC information for target databases

Refreshing IMS Databases Using IMS Cloning Tool

Information Management software

- Performs automated IMS database refresh operations
 - Fast refresh of IMS databases
 - IMS DB support (FF, HALDB, DEDB)
- Verifies source and target database compatibility
- IMS data copied using storage-based dataset fast-replication
 - Target takes up the same amount of space as the source
- Performs target system meta-data management



Benefits

- Promotes high availability solutions by leveraging fast replication and automation
- Copies production data instantaneously: system clones in less than an hour, database refreshes in minutes
- Significantly reduces costs by using less CPU and I/O
- Removes production contention by offloading work to the clone
- Reduces administration costs through automation
- Executes fast replication in a safe and transparent manner
- Reduces downtime through fast replication and automation
- Example savings: Total savings over 3 years for a site with 1264 MSU's and 4290 GB of IMS data is approximately \$ 8,396,301.57



Updates to IMS performance tools

Information Management software

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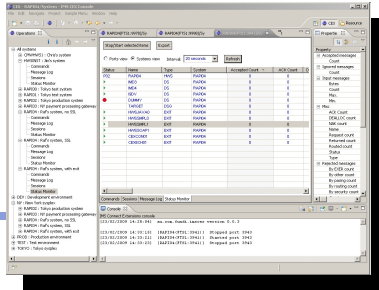
- IMS Connect Extensions is a key tool for managing access to IMS through IMS Connect
- Key benefits:
 - Provides event collection and instrumentation for IMS Connect
 - Streamlines operational management of IMS Connect and its clients
 - Assists in the development of TCP/IP clients and the transition to an SOA
- Principal users: IMS tuning specialists, application developers, and administrators

What's new in IMS Connect Extensions V2R2? (includes features delivered through PTFs in V2R1)

- Eclipse-based operational management GUI (V2R2 only)
- Rules-based routing
- Extended status information (V2R2 only)
- TCP/IP information (similar to NETSTAT) for active sessions (V2R2 only)
- Routing intelligence improved to use IMS flood-warn state
- IMS V11 command support (V2R2 only)
- IMS V11 event collection (V2R2 only)
- Improved management of IMS Connect transaction options
- Persistent trace: activate IMS Connect Extensions tracing on every system restart
- Verify user service exit function
- Batch Command utility refresh of Connect Extensions options
- Mixed-case password support
- Simplified configuration with setup dialog (V2R2 only)

- New IMS Connect interface: provides all IMS Connect Extensions operational management capabilities
- Does not provide definition management (still ISPF only)
- Shipped as part of the product libraries
- Connects via the same TCP/IP port as the IMS Connect Extensions' ISPF dialog
- Requires no additional server-side configuration

Centralized monitoring and control

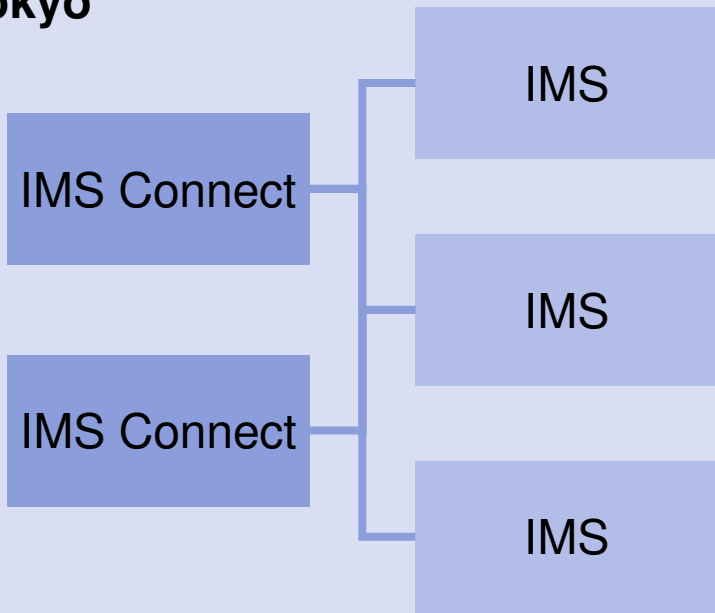


Eclipse or ISPF

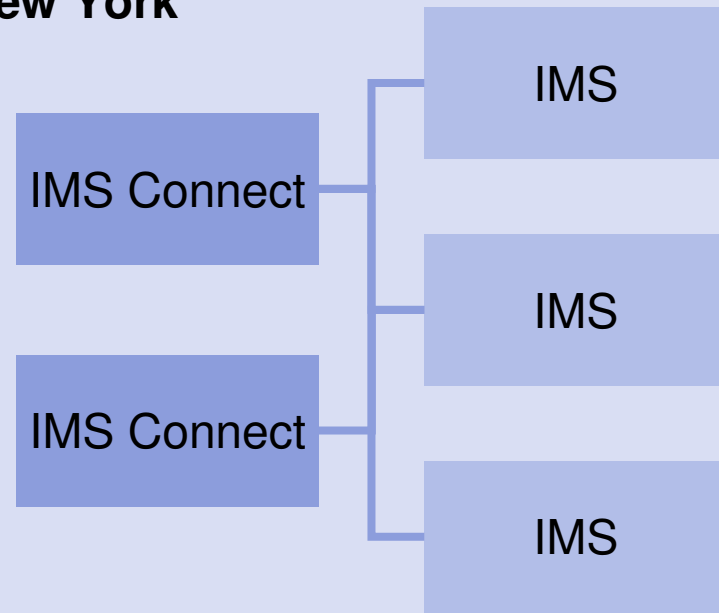
```
File Option Help
-----
_ Stop IMS 1 link
_ View TOKYO sessions
_ Stop NY sessions

F1 - Help F2 - Scroll
```

Tokyo



New York



Systems

- All systems
- Development Billing
 - ICOND00 : ICON Demo system
 - Status Monitor
 - Sessions
 - Commands
 - Message Log
 - ICOND01 : ICON Demo system
- Development Payroll
- Test Billing
- Test Payroll

Cancel sessions



ICOND00 (fts1:8900)/System Development Payroll/Group All systems/Group

Session wait time (seconds): 0

Include persistent sockets Display limit (rows): 5000

Row 1 of 5

System	Port	Wait Time	Predicted Session Status	Start Time	R/Exit Init. Client id.
ICOND00	8940	0-00.00.21.064498	P002 - Waiting for reply from datastore=ACCNT01	2009-08-04 09.37.40.169442	DEMCLI40
ICOND00	8940	0-00.00.18.735867	P003 - Waiting for ACK/NAK from remote client	2009-08-04 09.37.42.474117	ATM001
ICOND00	8940	0-00.00.16.684739	P014 - Reading remote client input	2009-08-04 09.37.44.552742	
ICOND01	8941	0-00.00.15.091071	P002 - Waiting for reply from datastore=ACCNT02	2009-08-04 09.37.46.160938	DEMCLI41
ICOND02	8942	0-00.00.13.120730	P002 - Waiting for reply from datastore=ACCNT01	2009-08-04 09.37.48.147530	DEMCLI42

Single consolidated view of sessions running on all systems (or view activity for individual systems or user-defined groups)

The system view shows the status of all systems

Status Monitor Sessions

Console Properties

Property	Value
Event record trace	49 READ socket 3C Prepare READ socket
IMS Connect	
Event key	C495DEC3A3926320
Last Trace Time	2009-08-04 09.37.44.554227
Port	8940
Session Wait time	0-00.00.16.684739
Socket	9
Start Time	2009-08-04 09.37.44.552742
System	ICOND00
Misc	
Predicted Session Status	P014 - Reading remote client input
Read Exit	
Read Exit Client ID	

Extensive details on individual sessions

The screenshot shows the IMS Connect Operations Console interface. On the left is a tree view of systems, including 'Development Billing' and 'Development Payroll'. The main window displays the command 'VIEWHWS' and its output, which lists system parameters for two members (GCCNT01A and GCCNT02A). A green text box on the left side of the console contains the text: 'You can submit IMS Connect commands against systems and receive the output'. The console also shows a 'Display limit (lines): 20000' setting and various menu options like 'Status Monitor', 'Sessions', 'Commands', and 'Message Log'.

Enter Command:

Response:

```

09.42.40 CEX5053I VIEWHWS
F ICOND00,QUERY MEMBER TYPE(IMSCON) SHOW(ALL)
HWSC0001I  HWS ID=ICOND00  RACF=N  PSWDMC=R
HWSC0001I  MAXSOC=20000  TIMEOUT=8888
HWSC0001I  NUMSOC=8  WARNSOC=80%  WARNINC=5%
HWSC0001I  RRS=N  STATUS=REGISTERED
HWSC0001I  VERSION=V11  IP-ADDRESS=172.017.069.025
HWSC0001I  SUPER MEMBER NAME=  CMO ACK TOQ=
HWSC0001I  ADAPTER=Y
HWSC0001I  ODEM AUTO CONNECTION=Y
HWSC0001I  ODEM TIMEOUT=20000
HWSC0001I  ODEM IMSPLEX MEMBER=IMSPLEXZ  TARGET MEMBER=PLEXZ
HWSC0001I  DATASTORE=ACCNT01  STATUS=ACTIVE
HWSC0001I  GROUP=XCFGDEV1  MEMBER=GCCNT01A
HWSC0001I  TARGET MEMBER=XCFMI9DV  STATE=N/A
HWSC0001I  DEFAULT REROUTE NAME=HWS$DEF
HWSC0001I  RACF APPL NAME=
HWSC0001I  OTMA ACBE AGING VALUE=2147483647
HWSC0001I  OTMA ACK TIMEOUT VALUE=120
HWSC0001I  OTMA MAX INPUT MESSAGE=5000
HWSC0001I  SUPER MEMBER NAME=SM01  CMO ACK TOQ=
HWSC0001I  DATASTORE=ACCNT02  STATUS=ACTIVE
HWSC0001I  GROUP=XCFGDEV1  MEMBER=GCCNT02A
HWSC0001I  TARGET MEMBER=XCFMI9DV  STATE=N/A
HWSC0001I  DEFAULT REROUTE NAME=HWS$DEF
HWSC0001I  RACF APPL NAME=
HWSC0001I  OTMA ACBE AGING VALUE=2147483647
HWSC0001I  OTMA ACK TIMEOUT VALUE=120
    
```

Display limit (lines):

Console Properties

You can submit IMS Connect commands against systems and receive the output

IMS Connect - ICOND00/System - IMS Connect Extensions for z/OS - Operations Console

File Edit Navigate Project Status Monitor Sessions Commands Message Log Window Help

IMS Connect

Systems

- All systems
 - Development Billing
 - ICOND00 : ICON Demo system
 - Status Monitor
 - Sessions
 - Commands
 - Message Log
 - ICOND01 : ICON Demo system
 - Development Payroll
 - Test Billing
 - Test Payroll

ICOND00 (fts1:8900)/System Development Payroll/Group All systems/Group

Ports view Systems view

Interval: 20 seconds Last: 09.36.02

Status	Type	Name	Super Member	Accepted Count	ACK Count	DEALLO
P01	HMS	ICOND00		0	0	0
	DS	ACCNT01	SM01	0	0	0
	DS	ACCNT02	SM02	0	0	0
	DSG	ACCNT		0	0	0
	EXIT	HWSJAVA0		0	0	0
	EXIT	HWSSMPL1		0	0	0
	EXIT	CEXSVC01		0	0	0
	EXIT	HWSSOAP1		0	0	0

Status Monitor Sessions Commands Message Log

Console Properties

Property	Value
Accepted messages	
Accepted Count	0
Ignored Messages	
Ignored Count	0
Input Messages	
Input Bytes	0
Input Count	0
Input Max.	0
Input Min.	0
Misc	
ACK Count	0
DEALLOC Count	0
Keep Alive	0
NAK Count	0

View activity for IMS Connect components. Stop and start, exits, ports, and datastores. Reload Exits

- The simplest way to gain the benefits of IMS Connect Extensions' routing
- Create rules that, for a given DESTID, determine a primary and fallback collection of candidate datastores
- IMS Connect Extensions will balance workload between the datastores in the primary collection
- If none of the datastores in the primary collection are available or if all datastores in that collection are in flood, then IMS Connect Extensions spreads workload between the fallback collection
- Compatible with transactional messages, Send Only, Resume TPIPE, Synchronous callout, and Asynchronous callout
- Benefits: improved availability and performance;

IMS Connect Transaction Options

- IMS Connect clients can specify transaction parameters that:
 - Balance between responsiveness, resource usage, and reliability
 - Handle duplicate client sessions
- Problem:
 - Tweaking and optimizing these values may require modifying every client that can potentially access IMS Connect
 - Customers may want to temporarily change parameter values for various reasons (peak-capacity, faults, etc)

IMS Connect Transaction Options

```

File  Menu  Settings  Help
-----
EDIT                                     Transaction
Command ==> _____

Name . . . . : PAYROLL
Description : _____

Application . . . SIMPLE +

_ Activate Transaction Timer
    Message timeout . . 00 (default)
    ACK/NAK timeout . . 00 (default)

_ Activate Transaction Expiration
_ Activate Client ID Cancellation

/ Activate Transaction Routing
    _ Override Application options

Route transactions to:
  1. All Dastores
  2. Dastore . . . . . _____ +
  3. Dastore Group . . . _____ +
  4. Affinity List . . . _____ +

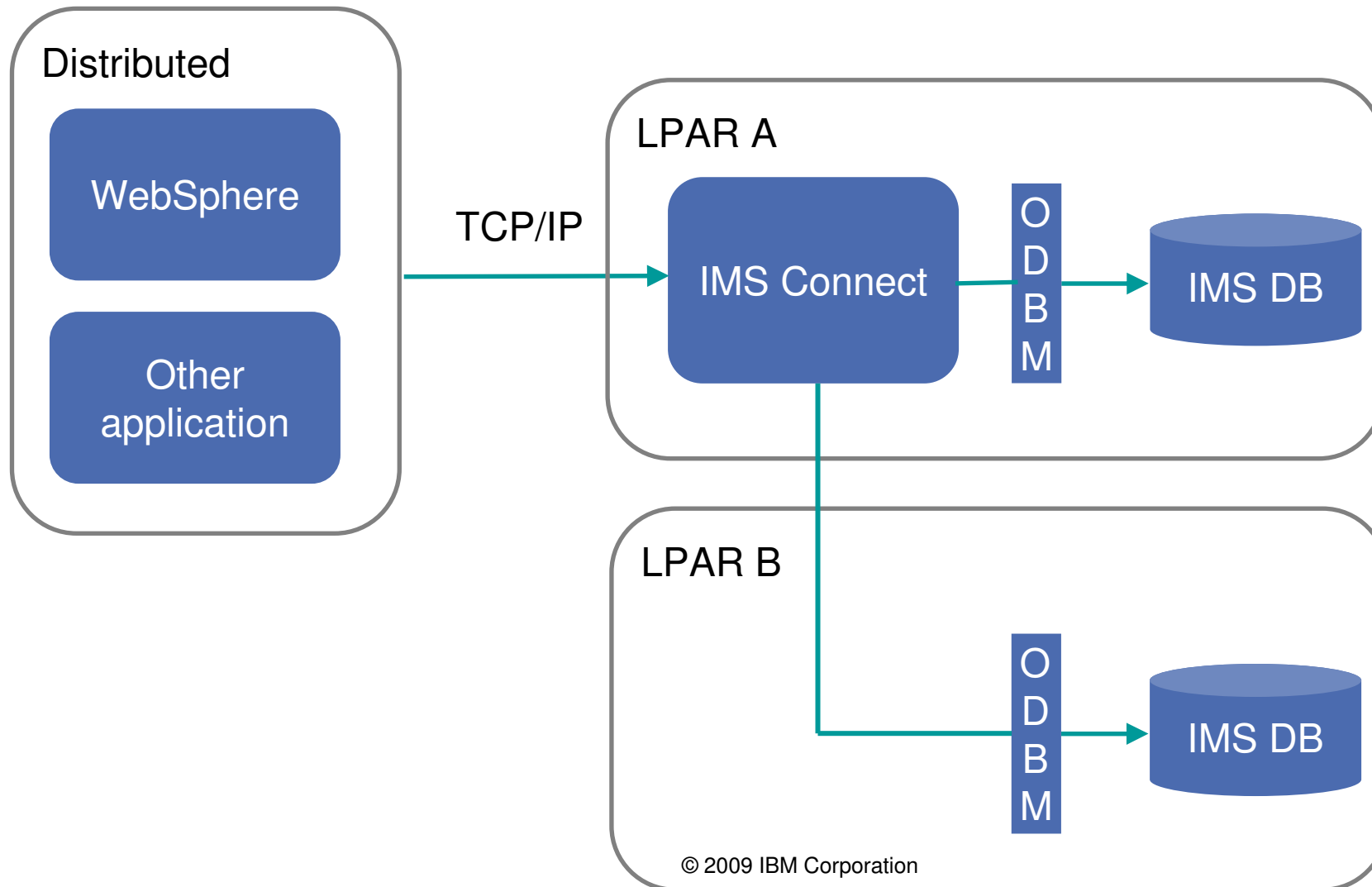
Routing Error processing:
  - 1. Use the original dastore in the message request
  - 2. Reject the transaction
    
```

The screenshot shows the 'Transaction' menu in the IMS Connect software. The 'Name' field is set to 'PAYROLL'. The 'Application' is 'SIMPLE'. There are several options to activate, including 'Transaction Timer', 'Transaction Expiration', 'Client ID Cancellation', and 'Transaction Routing'. The 'Message timeout' and 'ACK/NAK timeout' are both set to '00 (default)'. The 'Route transactions to' section shows 'All Dastores' selected. The 'Routing Error processing' section shows 'Use the original dastore in the message request' and 'Reject the transaction' as options.

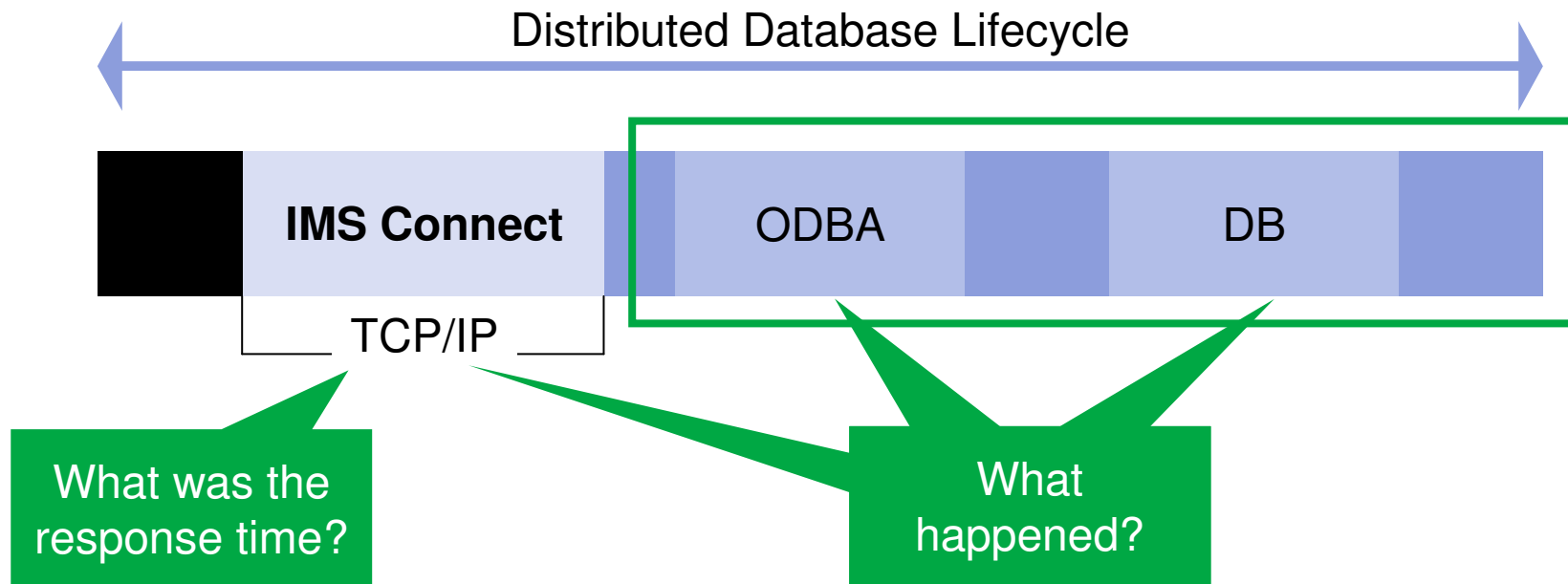
Callouts in the image:

- A box around 'Message timeout . . 00 (default)' and 'ACK/NAK timeout . . 00 (default)' has an arrow pointing to a green box: "Set the timeout value for messages, as well as ACKs and NAKs for a given transaction code (V2R1)".
- A box around '- Activate Transaction Expiration' and '- Activate Client ID Cancellation' has an arrow pointing to a green box: "Sets transaction expiration and Client ID cancellation options (V2R2)".

Distributed IMS database access



Distributed Database Access



Which parts of the lifecycle do we care about?

Format and navigate log files quickly and easily

Information Management software

- IMS PI allows you to interactively browse and analyze log records
- Instantaneous view of the logs
- Navigate by the time of day
- Select records to drill down right to the values of individual flag bits

1 Select a record to view all of its fields

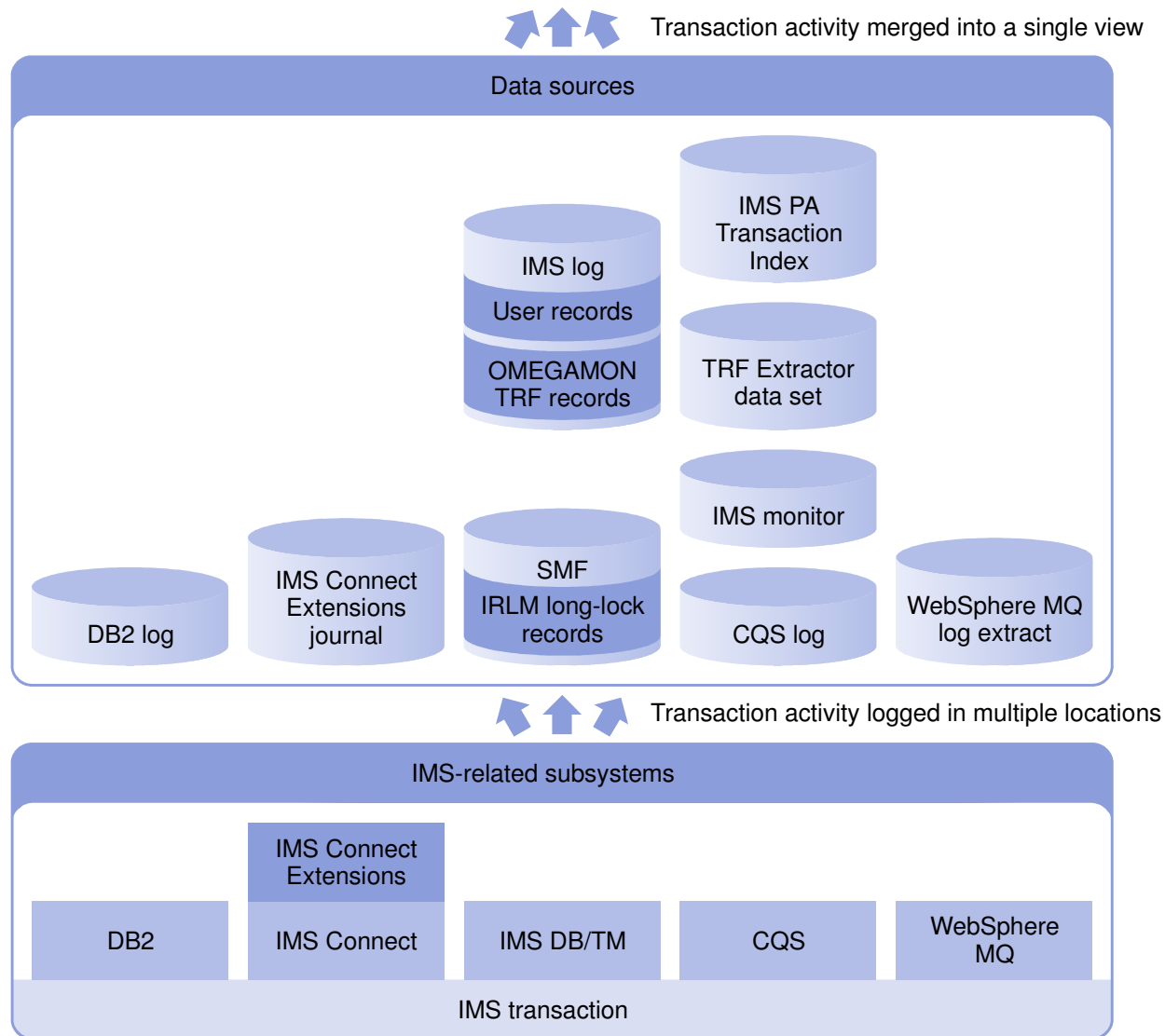
```

Forwards / Backwards . . 00.00.00.000100   Time of Day . . 01.10.30.000000
Code Description                Date 2006-03-17 Friday   Time (Local)
-----
S 01  Input Message                01.10.56.574109
    UTC=17.10.56.568088 TranCode=ATMWDRAW Userid=NEWYORK LTerm=NEWYORK
    Terminal=NYATM001 OrgUOWID=I9DE/BE8300F4C92D4A23
-----
 08  Application Start                01.10.56.574110
    UTC=17.10.56.574100 TranCode=ATMWDRAW Region=0002
    RecToken=I9DF/0000000300000000 RegTyp=MPP TClass=01 TPpty=08
-----
 31  DLI Form      ===> _____ +                Format ===> FORM
    UTC=17.10.56.574100 TranCode=ATMWDRAW Region=0002
    OrgUOWID=I9DE/BE8300F4C92D4A23
-----
5616 Start of Data
    Region=0002
-----
 03  Output Message                01.10.56.574109
    UTC=17.10.56.574100 TranCode=ATMWDRAW Region=0002
    OrgUOWID=I9DE/BE8300F4C92D4A23
-----
+0004 Code... 01      Input Message
+0166 STCK... BE8300EDBF897D01   LSN...
+0166 Date... 2006-03-17 Friday   Time...
-----
+0000 MSGLRLL... 0176      MSGLRZZ... 0000      MSGLCODE... 01
+0005 MSGFLG1... C1      MSGDFLG2... 81      MSGFPADL... 94
+0008 MSGMDRRN... 08000009   MSGDRRRN... 08000009   MSGPRFL... 0166
+0012 MSGCSW... 0n      MSGDFLG3... 02
-----
Field Zoom
-----
+0007 MSGFPADL... 94      Prefix Additional Info Flag      A754C703
On      MSGFPRSP... 80      Response Mode                      A754C703
Off     MSGSACMD... 40      Scheduled APPL issued 'CMD'
Off     MSGAOIUE... 20      Message generated by AOI user exit
On      MSGSYSEG... 10      System Segment exists
Off     MSGSSPND... 08      Message is on SMB Suspend queue
On      MSGFPINR... 04      Input message is non-recoverable
-----
MSGDRBN... 00000000
tem ID = 81
MSGCFLG1... 00
MSGCQSF1... 00
    
```

2 Zoom on a field to view a detailed description of its value



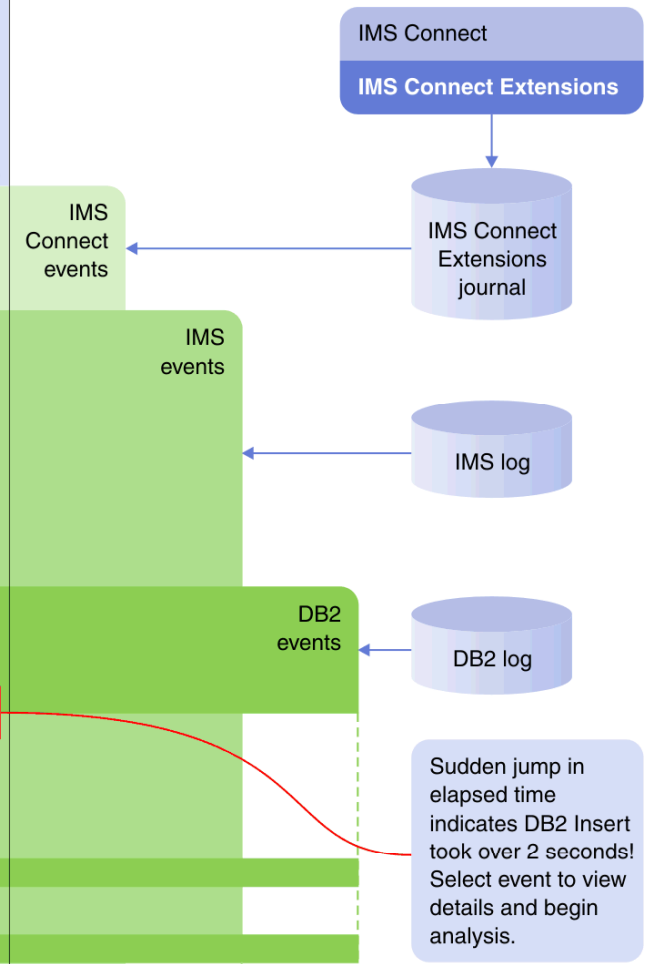
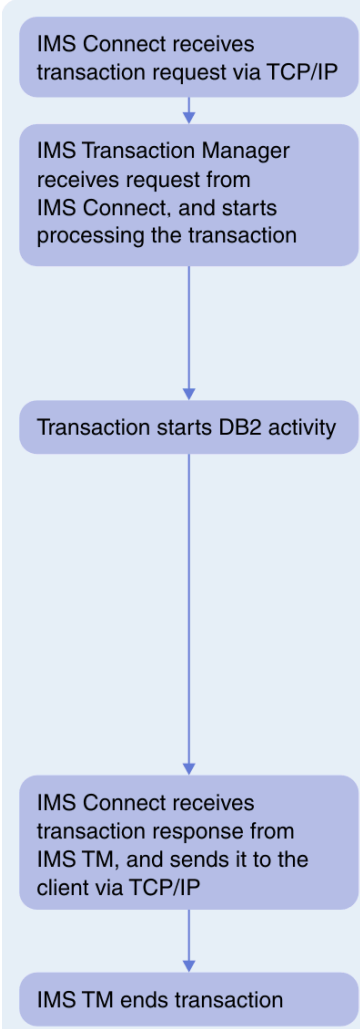
- Modern IMS transactions affect multiple subsystems
- Information about these transactions is recorded in even more sources
- IMS PI provides a unified logical view of transactions spanning all these systems



```

IMS Problem Investigator ISPF dialog
File Menu Edit Mode Navigate Filter Time Labels Options Help
BROWSE CEX000.QAAUTO.COMBLOG.ICONPT.D071205 Record 00145076 More: < >
Command ==> Scroll ==> CSR
Forwards / Backwards . . 00.00.00.000100 Time of Day . . 14.41.55.532866
Code Description Date 2007-12-05 Wednesday Time (Relative)
-----
_ A03C Prepare READ Socket -0.001009
_ A049 READ Socket -0.000942
_ A03D Message Exit called for READ -0.000923
_ A03E Message Exit returned from READ TranCode=CEXTNONC -0.000888
_ A041 Message sent to OTMA Datastore=XCFMI9DE -0.000607
_ 01 Input Message TranCode=CEXTNONC Source=Connect 14.41.55.803770
_ 35 Input Message Enqueue TranCode=CEXTNONC +0.003398
_ 31 DLI GU TranCode=CEXTNONC Region=0001 +0.020757
_ 5616 Start of protected UOW Region=0001 +0.021560
_ 5E SB Handler requests Image Capture Region=0001 +0.021636
_ 50 Database Update Database=DI21PART Region=0001 +0.025143
_ 50 Database Update Database=DI21PART Region=0001 +0.025983
_ 50 Database Update Database=DI21PART Region=0001 +0.026027
_ 50 Database Update Database=DI21PART Region=0001 +0.026695
_ 50 Database Update Database=DI21PART Region=0001 +0.026756
_ 5600 Sign-on to ESAF Region=0001 SSID=DB2P +0.027700
_ 0020 DB2 Unit of Recovery Control - Begin UR +0.028763
_ 0020 DB2 Update In-Place in a Data Page +0.028779
_ 0010 DB2 Savepoint +0.028987
_ 0020 DB2 Delete from a Data Page +0.029067
_ 0020 DB2 Insert into a Data Page +0.029291
_ 03 Output Message Response LTerm=3835 Source=Connect +2.029659
_ 31 DLI GU TranCode=CEXTNONC Region=0001 +2.029682
_ 33 Free Message +2.029777
_ 5610 Start Phase 1 Syncpoint Region=0001 +2.029809
_ 5600 Commit Prepare starting Region=0001 SSID=DB2P +2.029836
_ A042 Message received from OTMA Datastore=XCFMI9DE +2.030109
_ 0020 DB2 Unit of Recovery Control - End Commit Phase 1 +2.040235
_ 37 Syncpoint Region=0001 +2.043131
_ 33 Free Message +2.051761
_ 0020 DB2 Unit of Recovery Control - Begin Commit Phase 2 +2.052187
_ A042 Message received from OTMA Datastore=XCFMI9DE +2.052401
_ A03D Message Exit called for XMIT +2.052601
_ A03E Message Exit returned from XMIT +2.052636
_ A04A WRITE Socket +2.052891
_ A00C Begin CLOSE Socket +2.052922
_ A00D End CLOSE Socket +2.053526
_ A048 Trigger Event +2.053557
_ 0020 DB2 Unit of Recovery Control - End Commit Phase 2 +2.054395
_ 5600 Commit Continue completed Region=0001 SSID=DB2P +2.054540
_ 5612 End of Phase 2 Syncpoint Program=CEXTPGM +2.054550
_ 07 Application Terminate TranCode=CEXTNONC Region=0001 +2.443742
***** Bottom of Data *****

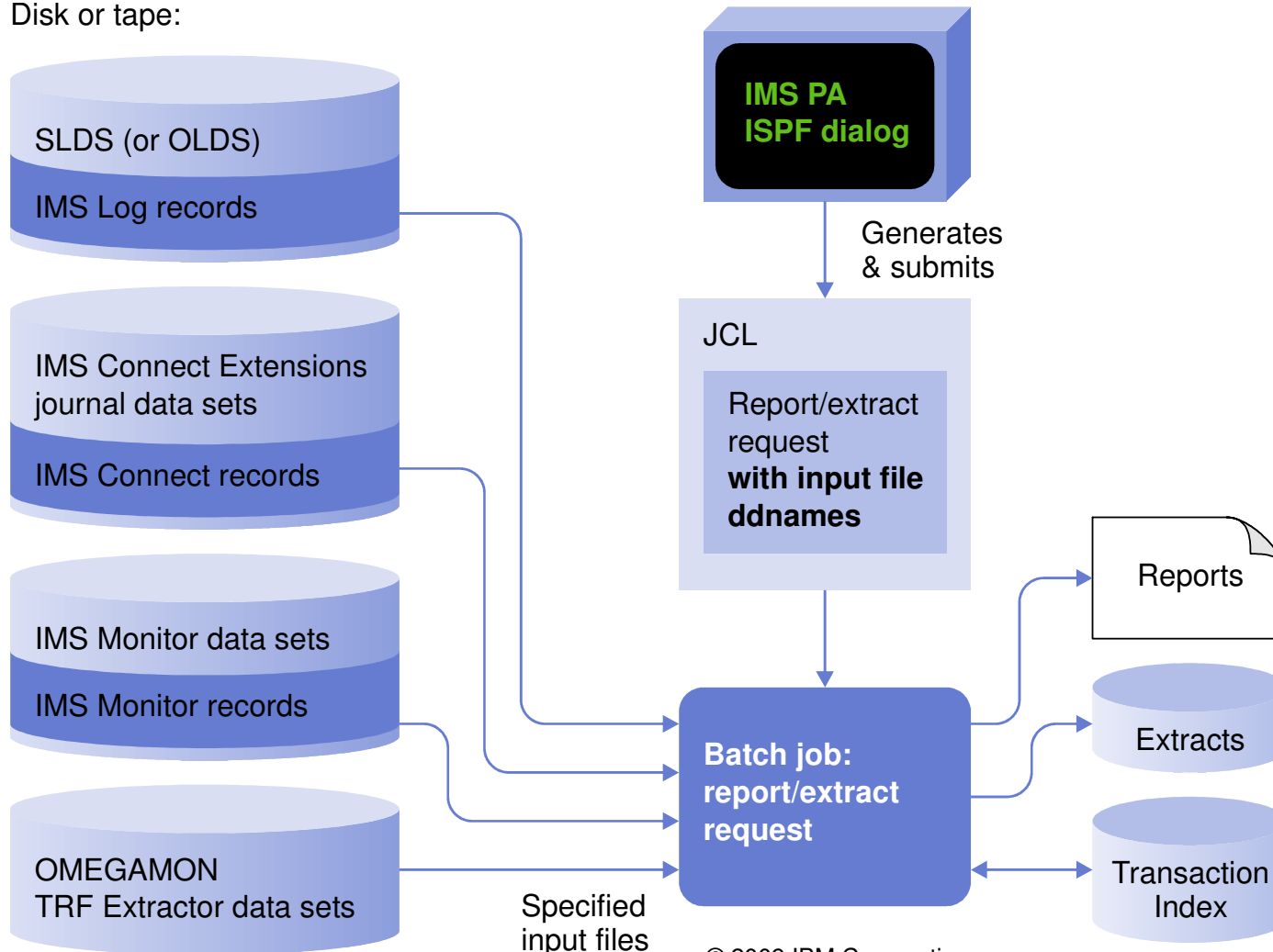
```



IMS Performance Analyzer

Information Management software

Disk or tape:



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- Analyzes OMEGAMON monitor-level instrumentation
- Transaction response time breakdown, CPU time, and other resource usage statistics
- Full Function and Fast Path database DL/I call count and elapsed time
- DB2 database call count and elapsed time

OMEGAMON TRF DLI Call Summary

Trancode	Database	Func Code	Call Count	Total Elapsed	Average Elapsed	Minimum Elapsed	Maximum Elapsed	Calls per second	Calls per minute
BANKING	CUSTOMER	ISRT	3	0.101742	0.033914	0.003939	0.093401	0.00	0.04
		REPL	1	0.001066	0.001066	0.001066	0.001066	0.00	0.01
		DLET	1	0.005595	0.005595	0.005595	0.005595	0.00	0.01
		GU	7	0.571528	0.081646	0.000915	0.557844	0.00	0.10
		GHU	3	0.004219	0.001406	0.001343	0.001520	0.00	0.04
		Total	15	0.684150	0.045610	0.000915	0.557844	0.00	0.23
ORDER	ORDERS	ISRT	3	0.023952	0.007984	0.001385	0.016799	0.00	0.04
		REPL	1	0.000120	0.000120	0.000120	0.000120	0.00	0.01
		DLET	1	0.000239	0.000239	0.000239	0.000239	0.00	0.01
		GU	5	0.024809	0.004961	0.001621	0.015286	0.00	0.07
		GHU	2	0.002255	0.001127	0.000727	0.001528	0.00	0.03
		Total	12	0.051375	0.016330	0.001621	0.015286	0.00	0.25

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- **Cold start analysis** takes the IMS log and tell you what would be lost in the event of a cold start
 - Input messages (transactions) that would be discarded
 - Incomplete units-of-work with database changes and ESAF connections
- **Gap analysis** identifies periods of time where log records are not being cut, potentially highlighting an external system event that may have caused IMS to slow down.
- Form improvements:
 - Analyze service levels with distributions. For example, request the percentage of transactions with response time that exceeded the allowable threshold
 - Profile database updates and ESAF activity by transaction

Any Questions ?