



IBM Software Group

# IMS Tools from IBM

## Performance Management Solutions

IMS V10 Update - Enhancements and Migration Planning  
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IBM **Information Management** software

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**ON** DEMAND BUSINESS™

# IBM IMS Tools Portfolio

## IMS Database Administration

- IBM Data Encryption for IMS and DB2 Databases
- IMS Audit Management Expert
- IMS HALDB Conversion and Maintenance Aid
- IMS HD Compression Extended
- IMS Library Integrity Utilities
- IMS Sequential Randomizer Generator
- IMS Database Repair Facility
- IMS Parameter Manager
- **IMS Sysplex Manager**

## IMS Utilities Management

- IMS DB Control Suite
- IMS HP Fast Path Utilities
- IMS HP Unload
- IMS HP Load
- IMS Index Builder
- IMS HP Prefix Resolution
- IMS Parallel Reorganization
- IMS Online Reorganization Facility
- IMS HP Pointer Checker
- IMS Knowledge Base

## IMS Recovery Management

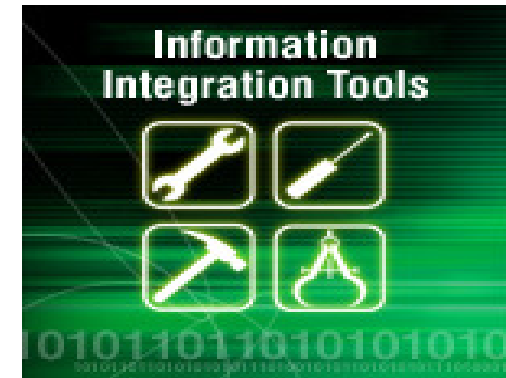
- IMS DEDB Fast Recovery
- IMS Database Recovery Facility
- IMS HP Change Accumulation
- IMS HP Image Copy
- IMS Recovery Expert
- IBM Application Recovery Tool for IMS and DB2

## IMS Performance Management

- **IMS Buffer Pool Analyzer**
- **IMS Performance Analyzer**
- **IBM Tivoli Omegamon XE for IMS**
- **IMS Problem Investigator**
- IMS Network Compression Facility

## IMS Transaction Management

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



## IMS Application Management

- IMS Batch Backout Manager
- IMS Batch Terminal Simulator
- IMS Connect
- **IMS Connect Extensions**
- IMS MFS Reversal Utilities
- IMS Program Restart Facility

## Information Integration

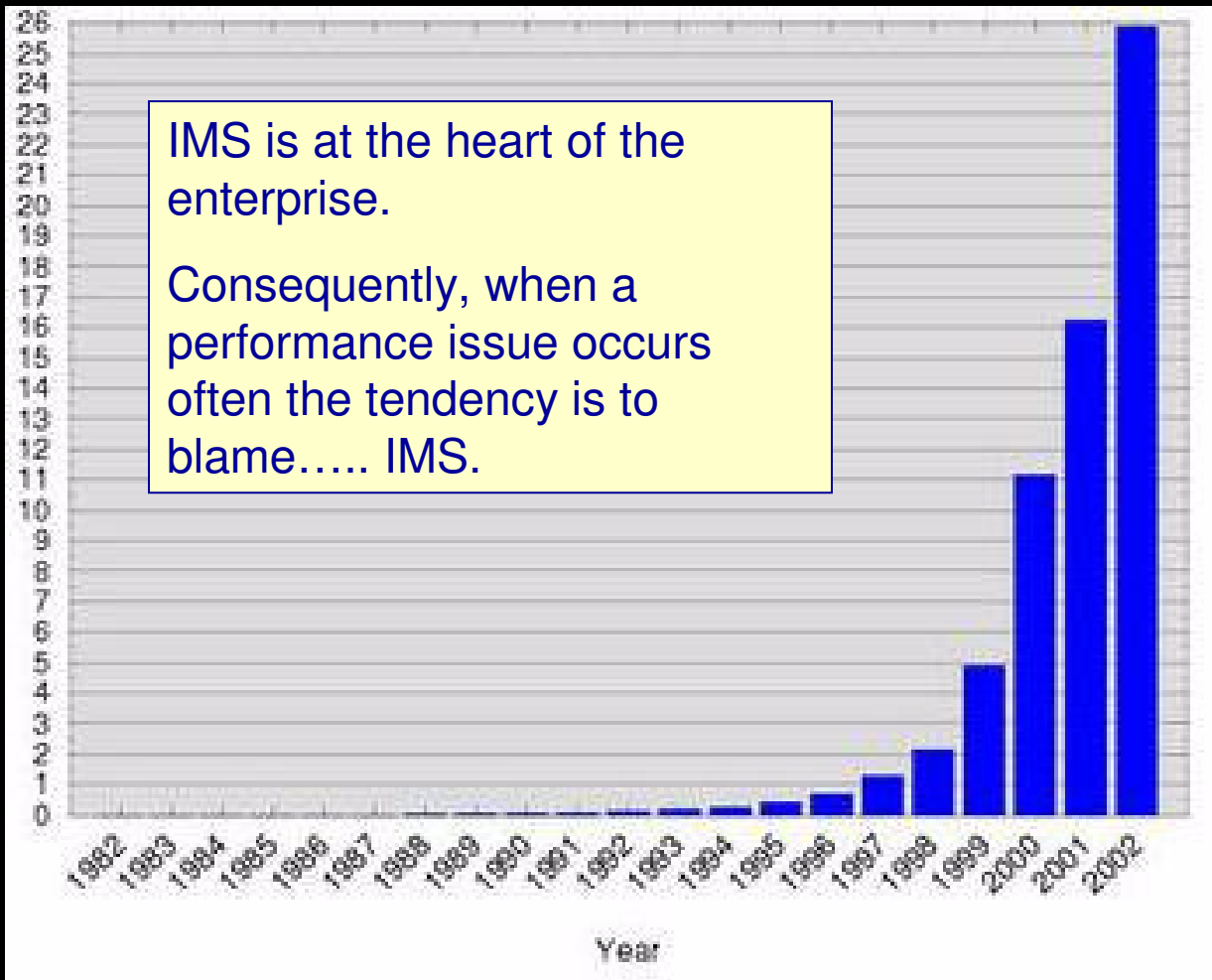
- IMS DataPropagator
- Websphere Classic Replication Server
- Websphere II Classic Federation
- Websphere II Event Publisher for IMS, CA-IDMS, DB2, VSAM, Adabase



**Is  
Performance  
Tuning a  
Luxury or a  
Necessity?**



# The amount of data being stored in data bases has grown exponentially



## What affects Performance?

- z/OS Tuning
- IMS/TM
- IMS/DM
- Application Programming
- Application environmentals
- Hardware
  - ▶ Network
- z/OS Systems
- IMS Systems Programmers
- DBAs
- Application Programmers
- DBAs
- Maintenance Programmers



## Why is Performance Tuning at the Application or Database Level not happening anymore?

- Application Static – no changes
- Meeting Service Level Agreement
- Performance is OK
- No money for special performance tools
- No time to do performance tuning
- No skills
- Major re-writes not possible
  - ▶ No one understands the applications anymore
- If everything is running – who cares

*Why should you care?*



# Why should we still do application tuning?

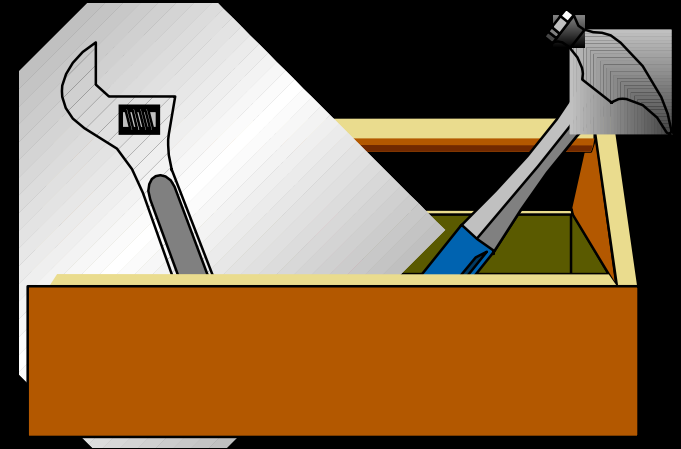
- **Change is still happening:**
  - ▶ New software releases affecting applications
  - ▶ Transaction Volumes are increasing
  - ▶ Data Volumes are increasing
  - ▶ Web enablement of transactions
  - ▶ IMS Connect stresses
- **Reductions of 20% CPU usage/ Elapsed time is good at anytime**
  - ▶ You really want to buy more hardware?
- **Applications were not that well written to begin with**
- **Application and Database design decisions based on older releases of IMS**
  - ▶ Performance Recommendations have changed

*One small change can deliver  
18-40% CPU time improvement*



## OK – now the next BIG problem

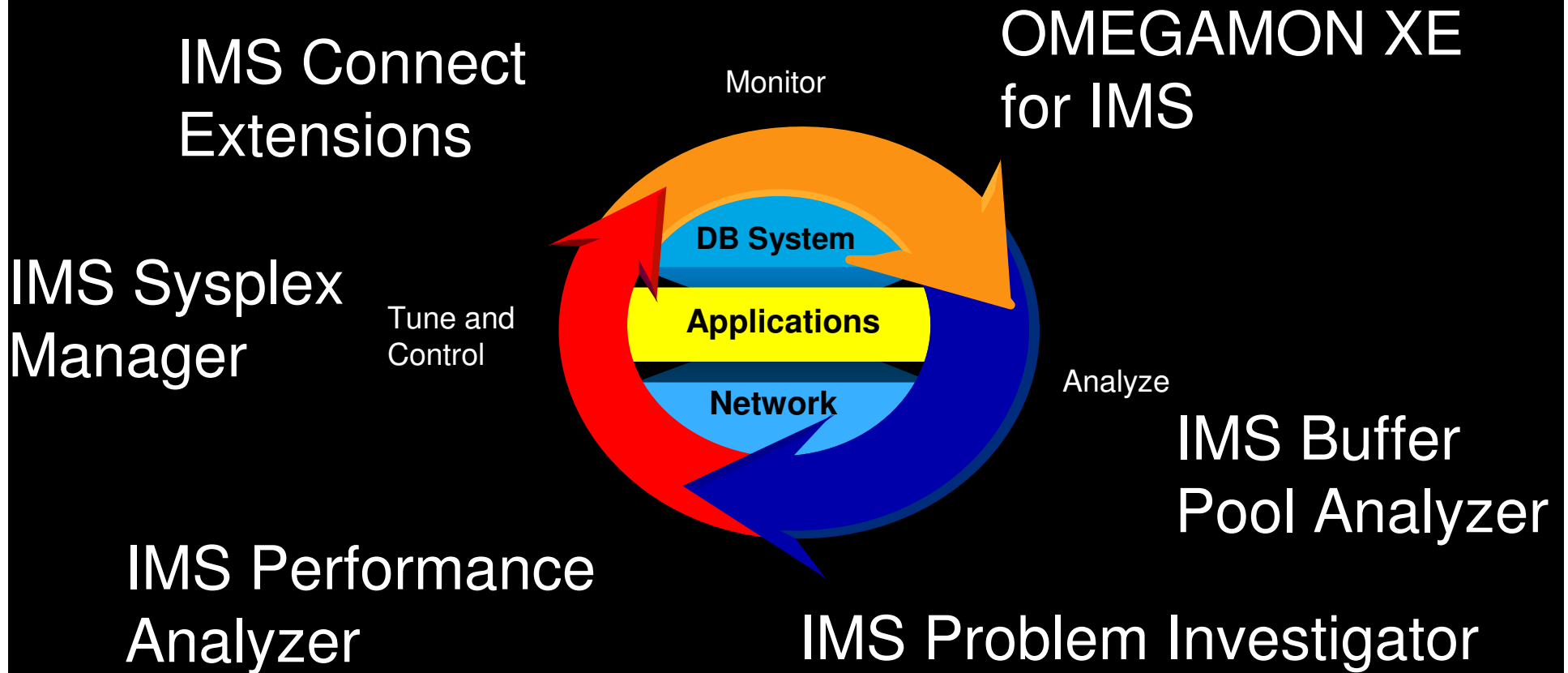
- I don't have the tools I need
- I don't have the time
- No Management Support
- Can it be done without tools?
  - ▶ YES but.... Needs lots of time and lots of people
  - ▶ How good is your HEX reading skills?
- Tools give you back time and give you accuracy





# IMS Performance Management Tools

*Provide tools to monitor and tune IMS systems and applications to obtain optimal performance and lowest cost*



# Monitoring can be a real challenge because ...

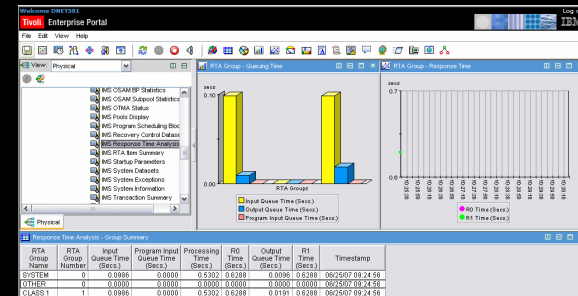
- Performance issues are the result of a variety of things
  - ▶ Heavily accessed databases and tables
  - ▶ Poor or outgrown object design
  - ▶ Disorganized objects
  - ▶ Poorly written applications (SQL or DL/I)
  - ▶ Poor object placement
  - ▶ Overloaded / under-allocated buffer pools
  - ▶ Network throughput
  - ▶ For DB2, Lack of DB2 Catalog statistics
  - ▶ .....
- Monitoring can be
  - ▶ System oriented
  - ▶ Application oriented

What is the cost / hour of a system delay?



# OMEGAMON XE For IMS on z/OS V4.1 Components And Facilities – Real Time And Historical

- **Real Time Monitor**
  - ▶ Subsystems, regions, resources, pools, DBs, Fast path
  - ▶ IMS Connect, OTMA
- **Response Time Analysis (RTA)**
  - ▶ Transaction Response time by user defined groups
- **Bottleneck Analysis**
  - ▶ Workload performance and task analysis
- **Operator Assist & Integrated Console Facility**
  - ▶ IMS resource commands
- **Exceptions & Alerts**
  - ▶ Integrated alert/automation in the TEP
- **Historical analysis of transaction response**
  - ▶ Bottlenecks and IMS resources
- **Transaction Reporting Facility (TRF)**
  - ▶ Detailed transaction & database data – individual transactions
  - ▶ Suitable for performance analysis & chargeback
  - ▶ Data retrieved from IMS log
- **XE Snapshot Historical**
  - ▶ Snapshot historical stored in the Tivoli Data Warehouse



# Monitor And Analyze IMS Subsystem

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

IMS Pools Display

**Click to navigate to various IMS resource displays**

**Pool Storage Sizes**

Pool Type	Pool Size	Current Storage Used
QBLB	~90	~90
SMSG	~10	~10
DLDP	~5	~5
DPSB	~5	~5
ADIP	~5	~5
DLMP	~5	~5
LUMP	~5	~5
HIOP	~5	~5
CIOP	~5	~5

**Pool Utilization**

Pool Type	Current Storage Used (Percent)
QBLB	~90
SMSG	~10
DLDP	~5
DPSB	~5
ADIP	~5
DLMP	~5
LUMP	~5
HIOP	~5
CIOP	~5

	Pool Name	Pool Type	Pool Size	Current Storage Used	Utilization Percentage	Free Space	Free Blocks	Largest Free Block	Pool Group
☺	Communications I/O Pool	CIOP	17976	528	2.93	17392	0	0	Communications
☺	High I/O Pool	HIOP	99568	5136	5.15	94320	0		
☺	LU 6.2 Manager Private Area Pool	LUMP	103336	11288	10.92	91880	0		
☺	Message Format Pool	MFBP	24576	0	0.00	24576	1		
☺	Expedited Message Handler Buffer	EMHB	0	0	0.00	0	0		
☺	PSB Pool in Common Storage	DLMP	4096	872	21.28	3224	1		
☺	Extended PCB Pool	EPCB	8192	0	0.00	8192	1		
☺	Fast Path Work Pool	FPWP	0	0	0.00	0	0		
☺	Auto Operator Interface Pool	AOIP	22912	1168	5.09	21632	0	0	Program

**Use OMEGAMON XE for IMS and the TEP to monitor critical IMS resources**

# Monitor And Analyze IMS Workload Performance

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

- [-] MVS
- [-] CICS
- [-] DB2
- [-] IMS
  - [-] IMSA:MVS:IMS
    - [-] IMS Address Spaces
    - [-] IMS Coupling Facility Data Sharing Sta
    - [-] IMS DASD Logging
    - [-] IMS DBCTL Thread Summaries
    - [-] IMS Dependent Regions
    - [-] IMS Device Activity
    - [-] IMS Extended Recovery Facility
    - [-] IMS External Subsystems
    - [-] IMS Fast Path Balancing Groups
    - [-] IMS Fast Path DEDB Activity
    - [-] IMS Fast Path MSDB Information
    - [-] IMS Fast Path Regions

RTA Group - Queuing Time

secs

0.030

0.020

0.010

0.000

RTA Groups

Input Queue Time (Secs.)

Output Queue Time (Secs.)

Program Input Queue Time (Secs.)

RTA Group - Response Time

secs

0.05

0.04

0.03

0.02

0.01

0.00

10-16:10 10-16:40 10-17:10 10-17:40 10-18:10 10-18:40 10-19:10 10-19:40 10-20:10 10-20:40

R0 Time (Secs.)

Response Time Analysis - Group Summary

RTA Group Name	RTA Group Number	Input Queue Time (Secs.)	Program Input Queue Time (Secs.)	Processing Time (Secs.)	R0 Time (Secs.)	Output Queue Time (Secs.)	R1 Time (Secs.)	Timestamp
SYSTEM	0	0.0034	0.0000	0.0360	0.0393	0.0121	0.0393	08/06/07 09:19:58
OTHER	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	08/06/07 09:19:58
CLASS 1	1	0.0034	0.0000	0.0360	0.0393	0.0217	0.0393	08/06/07 09:19:58

**Monitor response time components broken out by groups viewable in the TEP**

# Alerting And Identification Of Performance And Availability Issues

## Example – Response Time Analysis Alert Situation Has Fired

**CRITICAL**  
EW\_RTA\_TransAlert IMSA:MVSA:IMS 08/06/07 09:20:17

Click on link icon to see alert detail

Fly-over shows what situation has fired

RTA Group Name	RTA Group Number	Input Queue Time (Secs.)	Program Input Queue Time (Secs.)	Processing Time (Secs.)	R0 Time (Secs.)	Output Queue Time (Secs.)	R1 Time (Secs.)	Timestamp
SYSTEM	0	0.0034	0.0000	0.0360	0.0393	0.0121	0.0393	08/06/07 09:19:58
OTHER	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	08/06/07 09:19:58
CLASS 1	1	0.0034	0.0000	0.0360	0.0393	0.0217	0.0393	08/06/07 09:19:58

# Situation Detail For The RTA Alert

**What is the problem?**

**What are the details?**

R1 Time (Secs.)	Originating System Identifier	RTA Group Number	Input Queue Time (Secs.)	Program Input Queue Time (Secs.)	Processing Time (Secs.)	R0 Time (Secs.)	Output Queue Time (Secs.)	MVS System	IMSID
0.0393	IMSA:MVSA:IMS	0	0.0034	0.0000	0.0360	0.0393	0.0121	MVSA	IMSA
0.0393	IMSA:MVSA:IMS	1	0.0034	0.0000	0.0360	0.0393	0.0217	MVSA	IMSA

**Any Predefined Actions?**

**Any expert advice?**

Expert advice is use customizable. If this alert fires it is an example of how to alert on RTA performance information.

# IMS Performance Analyzer

- A comprehensive batch performance monitor to analyze, report on, and thereby improve your IMS Performance
- Easy to use dashboard for display and reporting
  - End-to-end transit analysis for all types of database and transaction workloads, including shared queues
  - End-to-end IMS Connect and IMS log reporting, providing a complete picture of the life cycle of transactions
  - Complements OMEGAMON for IMS by reporting its historical data
  - Offers DBRC Log selection for quick and easy log report requests
  - Report Forms allow you to design your own transit reports
  - Extracts transaction performance statistics to DB2 or CSV
  - Full Fast Path support

Summarization by Region Type

Transaction Dashboard

DASH Printed at 14:34:54 05May2006 Data from 16.03.39 29Dec2005 to 16.17.33 29Dec2005

Reg	Tran	Avg	Avg	Avg	Avg	Avg	Avg	90%	90%	90%	90%	90%	90%
Typ	Count	InputQ	Process	OutputQ	Total	IMS	Resp	InputQ	Process	OutputQ	Total	IMS	Resp
		Time	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time	Time
BMP	287	200	409	0	607	0	0	819	1282	0	1543	0	0
DBC	1	0	5	0	5	0	0	0	5	0	5	0	0
MPP	47017	118	63	8	189	183	18	3550	982	26	3827	3908	227
MSC	204	0	97	14	111	111	0	0	267	35	280	280	0

Transit time breakdown (averages)

Transit time breakdown (90% SLA)

Transaction volume for the day

CPU time



## IMS PA provides ...

- Information on IMS system performance for:
  - ▶ Tuning
  - ▶ Capacity Planning
  - ▶ Management Reporting
  - ▶ Reporting on IMS through ISPF dialog or batch commands
- Support for IMS versions 8, 9, and 10
  - ▶ Shared Queue support - merges logs to produce end to end transaction response times
  - ▶ Fast Path reporting for log and monitor
  - ▶ Combined TCP/IP + IMS reporting with IMS Connect Extensions
  - ▶ IMS PA V4.1 reports from TRF Extractor output records with **APAR PK43823**

# Performance before and after version migration in IMS PA

Trancode	Proc Version	Tran Count	Avg InputQ Time	Avg Process Time	Avg CPU Time	Avg OutputQ Time	Avg Total IMS Time	Avg IMS Resp Time	Avg DB Get Count	Avg DB Updat Count	Avg DB Wait Count	Avg DC Call Count
ACCOUNT	0910	167	0	345	30	0	345	341	14	135	0	3
	1010	178	0	356	31	0	356	347	14	135	0	3
BALANCE	0910	273	0	93	8	0	93	99	11	42	0	4
	1010	298	0	97	9	0	97	101	11	42	0	4
INVOICE	0910	546	0	174	43	0	174	182	710	67	0	4
	1010	563	0	177	45	0	177	185	710	67	0	4
LOGON	0910	444	0	274	9	0	274	282	14	40	0	3
	1010	423	0	281	11	0	281	287	14	40	0	3
MENU	0910	165035	6	134	16	0	140	84	50	0	0	1
	1010	167381	7	145	19	0	152	85	50	0	0	1
ORDER	0910	342	0	258	10	0	259	266	38	42	0	3
	1010	376	0	263	11	0	263	269	38	42	0	3
STOCK	0910	272	0	155	33	0	156	171	498	38	0	3
	1010	298	0	134	37	0	134	162	498	38	0	3
WITHDRAW	0910	134	0	175	9	0	175	184				
	1010	156	0	182	11	0	182	191				

STOCK Transaction  
9ms faster response  
time



# IMS PA

Provide insight into TRF Extractor records for BMP, DBD, DB2, DLI, FP

IPIRSMNU Report Set - TRFDFLT Line 1 of 12  
 Command ==> Scroll ==> PAGE

Description . . . OMEGAMON TRF Basics

Enter "/" to select action.

```

** Reports **
Active
- Options Yes
  TRF Global Yes
- Database Usage Reports Yes
  DLI Call List No
  DLI Call Summary No
  DB2 Call List Yes
  DB2 Call Summary Yes
- Message Queue Reports (Form-based) Yes
  List No
  Summary Yes
- Trace Reports Yes
  Record Trace Yes
** End of Reports **
    
```

This report, in List and Summary forms, provides statistics on calls to DB2 subsystems

TRF Report Set

IMS Performance Analyzer 4.1  
 OMEGAMON TRF DB2 Call List

Extractor output from 23May2007 10.40.50.8 Page 1

Time	Trancode	Program	PST	DB2 SSID	Call Count	Total Elapsed	Average Elapsed	Minimum Elapsed	Maximum Elapsed	Recovery Token
10.40.50.8	DSN8CS	DSN8IC0	2	DB2P	21	0.371054	0.017669	0.000105	0.164244	I9DE/00000004
10.41.21.2	DSN8CS	DSN8IC0	2	DB2P	2	0.018570	0.009285	0.000683	0.017887	I9DE/00000006
10.41.42.9	DSN8PS	DSN8IP0	2	DB2P	22	0.107009	0.004864	0.000104	0.039592	I9DE/00000008

OMEGAMON TRF DB2 Call Summary

Extractor output from 23May2007 10.40.50.8 to 23May2007 10.41.42.9 Page 2

Trancode	Call Count	Total Elapsed	Average Elapsed	Minimum Elapsed	Maximum Elapsed	Calls per second	Calls per minute
DSN8CS	23	0.389624	0.016940	0.000105	0.164244	0.44	26.48
DSN8PS	22	0.107009	0.004864	0.000104	0.039592	0.42	25.33
<b>Total</b>	<b>45</b>	<b>0.496633</b>	<b>0.011036</b>	<b>0.000104</b>	<b>0.164244</b>	<b>0.86</b>	<b>51.82</b>

IMS Performance Analyzer 4.1  
Transaction Resource Usage

SUMM0001 Printed at 15:57:27 20Jul2007 Data from 14.12.04 22May2007 to 12.02.16 23May2007

Trancode	Tran Count	Avg InputQ Time	Avg Process Time	Avg OutputQ Time	Avg Total IMS Time	90% InputQ Time	90% Process Time	90% OutputQ Time	90% Total IMS Time	Avg CPU Time
-	4	0	36750559	0	36750559	0	72978168	0	72978168	9
CEXS CONV	8	57	22	0	79	172	36	0	204	0
CEXS NONC	1	147	17126	0	17273	147	17126	0	17273	0
CEXT CONV	10	4129	327	0	4456	20599	1543	0	20851	0
CEXT NONC	7	621359	298	0	621657	2119486	1286	0	2119548	0
DSN8CS	2	11	637	0	648	13	925	0	938	26
DSN8FP	18	9	372	0	381	11	595	0	602	0
DSN8PS	18	9	353	0	362	12	505	0	516	1
DSN8PT	15	8	272	0	280	10	367	0	376	0
IVTCV	13	17	266	0	283	62	377	0	408	0
IVTNO	13	14	60	0	74	56	265	0	320	0
IVTNV	11	9	13	0	22	16	37	0	51	0
Total	156	28156	942613	0	970770	366154	11500400	0	11529808	1

IMS PA TRF Reports continued

Page 3

Message Queue Report Summary by tranocode

Record trace reports format input records for human analysis

Extractor output from 22May2007 14.12.04.2

Page 4

Time	Trancode	Type
14.12.04.200000	10	Transaction: message send/receive or program schedule/process/end
		Input LTERM
		Job name I9DEIFP1
		PSB name DFSIVP4
		IMS name I9DE
		Class -
		CPU time 0.018767
		Private storage below 16M 65,536
		Input message length 0
		Input queue time 0.000000
		Processing time 7.47E+02
		Output queue time 0.000000
		Pseudo-Abend/SCC/User-Abend ( / / )
		BALG Q-count at syncpoint 0
		Time of input msg on EMHQ 0.000000
		VSO reads from dataspace 0
		VSO updates to dataspace 0
		08 UTC 2007-05-22 14.12.04.226068
		Input queue time 1 0.000000
		Program execution time 7.29E+04
		CQS output time 0.000000
		Output queue time 0.000000
		SMF system id FTS1
		Alternate CQS output time 0.000000
		Output messages back to in dest 0
		Region type IFP
		Step name IFP
		Userid DFSIVP4
		IMS version -
		PST Id 1
		SRB time 0.003207
		Private storage above 16M 102,400
		Output message length 0
		Program input queue time 0.0
		Internal application response time 0.000000
		Total response time 0.000000
		VTAM input node
		BALG Q-time 0.000000
		Time of output msg on EMHQ 0.000000
		VSO reads from DASD to dataspace 0
		01 UTC -
		07 UTC 2007-05-23 10.28.13.970291
		Input queue time 2 0.000000
		Local output queue time 0.000000
		Recovery token (IMSID/OASN) I9DE/00000001
		Alternate local output Q time 0.000000

# IMS Problem Investigator

- IMS Problem Investigator is an IMS TM and DB log analysis tool for versions 8, 9, and 10 of IMS
- **It helps you solves complex, time-consuming problems easily and inexpensively**
- Analysis of IMS event data can help identify problematic applications and identify system performance issues
- Process OMEGAMON TRF records on the IMS log the same way as IMS system log records
- It can analyze the events collected by IMS Connect Extensions in conjunction with records in IMS OLDS and SLDS log data sets
- Combined graphic analysis gives an end-to-end picture of transactions
- View the message flow of the transaction as it:
  - ▶ Enters IMS from TCP/IP
  - ▶ Is processed by IMS
  - ▶ Returns to the TCP/IP client



# IMS Problem Investigator

- Browse, analyze, and interpret IMS log and monitor, user log, CQS, and IMS Connect records
- Gain an end-to-end picture of transactions in the Sysplex (a complex and time intensive activity)
- Determine transaction times and event latencies
- Analyze IMS Connect event data collected by IMS Connect Extensions for z/OS

```

BROWSE      IPI000.QAAUTO.CI#D1CEX.ECL4.NONCNV10      Record 00000179 More: < >
Command ==> /----- Scroll ==> CSR
Forwards / Backwards . . . 00.00.00.000001      Time of Day . . . 17.10.56.000000
Code Description                               Date 2006-01-09 Monday      Time (Relative)
-----
/-----
___ A03C Prepare READ Socket                      13.269405
___ A049 READ Socket                             +0.234215
___ A049 READ Socket                             +0.234269
___ A03D Message Exit called for READ            +0.234329
___ A03E Message Exit returned from READ TranCode=PART 24385
___ A041 Message sent to OTMA Datastore=XCfMI8D1 4484
___ 01 Input Message TranCode=PART Source=Connect 5596
___ 35 Input Message Enqueue TranCode=PART       +0.235769
___ 08 Application Start TranCode=PART Region=0002 +0.236385
___ 5607 Start of a Unit-of-Recovery Program=DFSSAM02 +0.236386
___ 31 DLI GU TranCode=PART Region=0002          +0.236422
___ 5E SB Handler requests Image Capture Region=0002 +0.257467
___ 5E SB Handler requests Image Capture Region=0002 +0.257472
___ 03 Output Message Response LTerm=3101 Source=Connect +0.276641
___ 31 DLI GU TranCode=PART Region=0002          +0.276661
___ 33 Free Message                              +0.276902
___ 5610 Start Phase 1 syncpoint Region=0002      +0.276930
___ 37 Syncpoint Region=0002                     +0.276983
___ 33 Free Message                              +0.277126
___ 5612 End of Phase 2 syncpoint Program=DFSSAM02 +0.277163
___ 07 Application Terminate TranCode=PART Region=000z +0.277334
___ A042 Message received from OTMA Datastore=XCfMI8D1 +0.277636
___ A042 Message received from OTMA Datastore=XCfMI8D1 +0.277677
___ A03D Message Exit called for XMIT           +0.277794
___ A03E Message Exit returned from XMIT        +0.277846
___ A04A WRITE Socket                            +0.278031
___ A00C Begin CLOSE Socket                      +0.278087
___ A00D End CLOSE Socket                       +0.278767
___ A048 Trigger Event                          +0.278790
*****
***** Bottom of Data *****
    
```

Start of Connect transaction

Start of IMS transaction

Connect resumes

Connect transaction ends after 0.278 seconds

# IMS V10 Support

- Supports all new log record types and formats
- Supports OM audit log
- Supports XML processing in IMS Connect
- REXX interface allows tailoring to meet your debugging requirements.
- Allows pattern matching between IMS versions
  - ▶ How have log record patterns changed
- View IMS Type 2 commands log records



# IMS V10 - The new 56FA log record

- Provides detailed information about each transaction
  - ▶ One record per transaction rather than per schedule (type 07)
  
- Additional information including:
  - ▶ OSAM and VSAM read and write counts
  - ▶ Database IO counts and elapsed times
  - ▶ Database lock elapsed times
  - ▶ External subsystem call counts
  - ▶ UOR elapsed and CPU times
  - ▶ Application statistics for each unit-of-recovery\*, or after each message for MODE=MULT transactions



# The 56FA (shown in IMS Problem Investigator)

	Code	Description	Date	Time
<b>Incoming transaction</b>	01	Input Message TranCode=IVTNO	2007-02-07	09.18.25.6784
<b>Transaction start in dependant region</b>	35	Input Message Enqueue TranCode=IVTNO		09.18.25.6785
	33	Free Message		09.18.25.6834
<b>DB updates</b>	01	Input Message TranCode=IVTNO		09.18.25.6883
	31	DLI GU TranCode=IVTNO Region=0001		09.18.25.6883
	5E	SB Handler requests Image Capture Region=0001		09.18.25.6884
	5E	SB Handler requests Image Capture Region=0001		09.18.25.6888
	50	Database Update Database=IVPDB1 Region=0001		09.18.25.6892
	50	Database Update Database=IVPDB1 Region=0001		09.18.25.6893
	50	Database Update Database=IVPDB1 Region=0001		09.18.25.6893
	50	Database Update Database=IVPDB1I Region=0001		09.18.25.6893
	50	Database Update Database=IVPDB1I Region=0001		09.18.25.6894
	<b>Output message</b>	03	Output Message Response LTerm=FUNTRM06	
35		Output Message Enqueue LTerm=FUNTRM06 Region=0001		09.18.25.7967
37		Syncpoint Region=0001		09.18.25.7967
37		Syncpoint message transfer Region=0001		09.18.25.8051
<b>Sync point</b>	33	Free Message		09.18.25.8080
	33	Free Message		09.18.26.037
	5612	End of Phase 2 Syncpoint Program=DFSIVP1 Region=0001		09.18.26.0376
<b>Transaction-level stats</b>	56FA	Transaction Statistics UTC=09.18.26.037664 TranCode=IVTNO Program=DFSIVP1 Userid=FUNTRM06 Region=0001 IMSID=IADF RecToken=IADF/0000000200000009 RegTyp=WFI TClass=01 TPrty=01 CPU=00.001497 UORtime=15.035210 DLI DB/DC=1/2 ESAF=0 VSAM R/W=0/1 OSAM R/W=0/0		
	03	Output Message Response		09.18.26.4114

# The 56FA (shown in IMS Problem Investigator)

```

File  Menu  Format  Help
-----
BROWSE      IPI000.QADATA.IVTMIX02.IADELOG.D07020 Record 00000362 Line 00000000
Command ==>                               Scroll ==> CSR
Form       ==>                               Format ==> FORM
***** Top of data *****
Code...
STCK... C01E823AA6B4EB22      LSN... 000000000000016A
Date... 2007-02-07 Wednesday Time... 09.17.42.939470.695

TPCPLL..... 0210          TPCPZZ..... 0000          TPCPCDE.... 56
TPCPSSTY... FA           TPCPSBCD... 0000
TPCPOSSN... 'IADF      '

TPCP55X....
TPCPNSS.... +0          TPCPSTN.... 0001
TPCPPSB... 'DFSIVP1 '   TPCPUSID... 'FUNTRM06'
TPCPGRPN... '           '
TPCPRTKN...
TPIMSID.... 'IADF      '   TPOASN..... 00000002      TPCOMN..... 00000004
TPCPFLGS... 00
TPCPCPUI... 000321D120660000      TPCPSIDD... 0000
TPCPSIDS... 0000

TPCPDATA...
TPPFLEN... 004C          TPIMSVER... 10          TPIMSREL... 10
TPRECV... 0001          TPJOB... 'IADFMP1'
TPSTEPN... 'REGION '   TPLTERM... '           '
TPNWID.... '           '   TPLUNAME... '           '
TPPGNM... 'DFSIVP1 '   TPTRAN.... 'IVTNO '   TPCLASS.... 0001
TPPTY.... 01           TPTYPE.... 41          TPCMPCD... 00000000
TPEXTIME... 000000000398B60

```

# IMS PI Navigation

```

BROWSE      REA IMSPI IQDF.SLDS                      Record 00000850
Command ==> F 'ATM'                                Scroll ==> CSR
Forwards    Backwards . . 00 00.00.000100          Time of Day . . 01.10.56.000000
Code Description                               Date 2006-09-17 Friday      LSN
-----
01  Input Message TranCode=ATMWDRAW              4-00000000000203
35  Input Message Enqueue TranCode=ATMWDRAW      4-00000000000204
07  CQSPUT COMMIT request completed             3-0000000000005D
33  Free Message                                4-00000000000205
4E15 Scheduling IWAIT end Region=0002           2-0000000000001F
08  Application Start TranCode=ATMWDRAW Region=0002 1-000000000000A6
5607 Start of UOR Program=ATMPROG Region=0002    1-000000000000A7
4E64 DLA30 start Database=I/O PCB Region=0002
0801 CQSREAD request completed
01  Input Message TranCode=ATMWDRAW
31  DLI GU TranCode=ATMWDRAW Region=0002        1-000000000000A9
4E65 DLA30 end Region=0002 SC=' '              2-0000000000001F
4E42 Transaction Originator TranCode=ATMWDRAW Region=0002 2-0000000000001F
4E11 MPP Scheduling end TranCode=ATMWDRAW Region=0002
4E10 MPP Scheduling start Region=0001
4E14 Scheduling IWAIT start Region=0001
4E15 Scheduling IWAIT end Region=0001
08  Application Start TranCode=CEXTNONC Region=0001
5607 Start of UOR Program=CEXTPGM Region=0001    1-000000000000AB
4E64 DLA30 start Database=I/O PCB Region=0001    2-00000000000020
5616 Start of protected UOW Region=0002         1-000000000000AC
4E65 DLA30 end Region=0001 SC='QC'            2-00000000000020
4E11 MPP Scheduling end TranCode=CEXTNONC Region=0001 2-00000000000020
5612 End of Phase 2 Syncpoint                  1-000000000000AD
07  Application Terminate TranCode=CEXTNONC Region=0001 1-000000000000AE
    
```

Navigate to point in time

Find a record from the transaction

# IMS PI Navigation

Track (show) all records in the same transaction as this record

```

BROWSE      REA.IMSPI.I9DF.SLDS                      Record 00
Command ==>
Forwards / Backwards . . 00.00.00.000100    Time of Day . . 01.10.56.000000
Code Description                      Date 2006-03-17 Friday    Time (Elapsed)
-----
TX  Input Message TranCode=ATMWDRAW          01.10.56.568098
    Input Message Enqueue TranCode=ATMWDRAW  0.00001
    CQSPUT COMMIT request completed         0.000085
    Free Message                            0.004419
    Application Start TranCode=ATMWDRAW Region=0002 0.001488
    Start of UOR Program=ATMPROG Region=0002  0.000000
    CQSREAD request completed              0.000429
    Input Message TranCode=ATMWDRAW          0.002177
    DLI GU TranCode=ATMWDRAW Region=0002     0.000009
    Start of protected UOW Region=0002      0.000747
    Database Open Database=ACCOUNTS Region=0002 0.083128
    Database Open Database=ACCOUNTS Region=0002 0.051840
    SB Handler requests Image Capture Region=0002 0.002982
    SB Handler requests Image Capture Region=0002 0.000001
    Database Update Database=ACCOUNTS Region=0002 0.049020
    Database Update Database=ACCOUNTS Region=0002 0.001806
S   Database Update Database=ACCOUNTS Region=0002 0.000039
    Database Update Database=ACCOUNTS Region=0002 0.000423
    Database Update Database=ACCOUNTS Region=0002 0.000059
    Output Message Response LTerm=NEWYORK     2.021227
    Output Message Enqueue LTerm=NEWYORK Region=0002 0.000015
    Syncpoint Region=0002                    0.000019
    Syncpoint message transfer Region=0002    0.014575
    CQSPUT COMMIT request
    Free Message
    
```

Highlight delays in session processing by viewing time relative to a base or showing event latencies...



# IMS PI Processing TRF Collector records in IMS log files

Specify the data set name of the IMS log file containing the OMEGAMON TRF data

```
File  Menu  Edit  Help
-----
                Process Log Files                Row 24 of 36 More:
Command ==> _____ Scroll ==> P

Select a Log File to browse.                IMS Release 910 +   Zone _____

/      Log File                                Rel + Filter + Zone
S      'IPI000.QADATA.TCOMG007.I9DE.OMGLOG'    _____ B0
```

Specified B0 in the Filter column

```
File  Menu  Edit  Mode  Navigate  Filter  Time  Labels  Options  Help
-----
BROWSE  IPI000.QADATA.TCOMG007.I9DE.OMGLOG      Record 00002280 More: < >
Command ==> _____ Scroll ==> PAGE

Forwards / Backwards . . HH.MM.SS.THMIJU  Time of Day . . HH.MM.SS.THMIJU
Code Description                Date 2007-04-18 Wednesday Time (Local)

/
B001 Resource Trace                09.40.32.663780
      Region=0001 IMSID=I9DE RecToken=I9DE/00000000A00000000
-----
B021 DLI Database Trace            09.40.46.026537
      LTerm=DI21PART Database=DI21PART Region=0001
      RecToken=I9DE/00000000B00000000 Func=GHU Elapsed=00.001188
```

To view only the OMEGAMON TRF records, you can filter by the log record code



# IMS PI Processing TRF Collector records in IMS log files

```
File Menu Edit Mode Navigate Filter Time Labels Options Help
-----
BROWSE      IPI000.QADATA.TCOMG007.I9DE.OMGLOG      Record 00002280 More: < >
Command ==>                                     Scroll ==> PAGE
Forwards / Backwards . . HH.MM.SS.THMIJU      Time of Day . . 09.40.32.THMIJU
Code Description                               Date 2007-04-18 Wednesday LSN
-----
_ B001 Resource Trace Region=0001                0000000000001422
S B021 DLI Database Trace Database=DI21PART Func=GHU 0000000000001444
_ B021 DLI Database Trace Database=DI21PART Func=REPL 0000000000001446
_ B021 DLI Database Trace Database=DI21PART Func=GHU 0000000000001447
_ B021 DLI Database Trace Database=DI21PART Func=DLET 000000000000144A
_ B021 DLI Database Trace Database=DI21PART Func=ISRT 000000000000144D
```

Use F10/F11 to scroll left/right to view compact or expanded details, by time or by LSN

Enter line action "S" to format a particular record

```
File Menu Format Help
-----
BROWSE      IPI000.QADATA.TCOMG007.I9DE.OMGLOG      Record 00002314 Line 00000000
Command ==>                                     Scroll ==> PAGE
Form ==> + Use Form in Filter                    Format ==> STD_
***** Top of data *****
+0004 Code . . . B021 DLI Database Trace
+0064 STCK . . . C076975928B29B42 LSN . . . 0000000000001444
Date . . . 2007-04-18 Wednesday Time . . . 09.40.46.026537.703

+0000 OMLDRECLL . . . . . 0074
+0002 OMLDRECZZ . . . . . 0000
+0004 OMLDRECID . . . . . B0 OMLDSUBID..... 21
+0006 OMLDFLAG1 . . . . . 00 OMLDFLAG2..... 00
+0008 OMLDRSV . . . . 0000000000000000000000000000000000
+001C OMLDPSTNR . . . . . 0001
+001E OMLDDBD . . . 'DI21PART' OMLDCTIME . . . . . C076975928645402
+0030 OMLDRTIME . . . . C076975928AE9802 OMLDIO . . . . 00000000
+0040 OMLDFUNC . . . 'GHU ' OMLDRCODE . . . . . ' '
+001E OMLDLTERM . . . . . 'DI21PART'
+0046 OMLDUSID . . . 'FUNTRM65'
+0052 OMLDRKTKN . . . . . C9F9C4C5404040400000000B00000000
+0062 OMLDEPCBT . . . . . 00
***** End of data *****
```

Press F4 to switch to DUMP format

# IMS PI Processing TRF Collector records in IMS log files

```

File  Menu  Format  Help
-----
BROWSE      IPI000.QADATA.TCOMG007.I9DE.OMGLOG      Record 00002314 Line 00000000
Command ==> _____ Scroll ==> PAGE
                                           Format ==> DUMP

***** Top of data *****
+0000  00740000 B0210000 00000000 00000000  *.....*
+0010  00000000 00000000 00000000 0001C4C9  *.....DI*
+0020  F2F1D7C1 D9E30000 C0769759 28645402  *21PART...p...*
+0030  C0769759 28AE9802 00000000 00000000  *..p..q.....*
+0040  C7C8E440 4040C6E4 D5E3D9D4 F6F50000  *GHU  FUNTRM65..*
+0050  0000C9F9 C4C54040 40400000 000B0000  *..I9DE  .....*
+0060  00000000 C0769759 28B29B42 00000000  *.....p.....*
+0070  00001444                *.....*

***** End of data *****

File  Menu  Help
-----
BROWSE      IPI000.QADATA.TCOMG007.I9DE.OMGLOG      Line 00000000
Command ==> _____ Scroll ==> PAGE
***** Top of data *****
+0030  OMLDRTIME..... C076975928AE9802

Time (LOCAL)... 2007-04-18 09.40.46.026473.500 Wednesday

Return time
***** End of data *****
    
```

**Press F4 to switch back**

**In the same way as Processing TRF Collector records in IMS log files, specify the data set name of the TRF Extractor Output file containing the data you want to analyze.**

**Position the cursor on a point-and-shoot field name and press Enter to zoom for more details on a particular field.**

## Additional features...

## IMS PI

- **Processing merged TRF and IMS log files**
- IMS PI can process multiple files, merging them into time sequence according to their STCK time stamps. It is valuable to view TRF log data in conjunction with IMS log data to see, for example, the additional information about DLI and DB2 calls such as response times
- Systems and Groups (primary menu options 4 and 5) have been enhanced to allow you to associate TRF data sets with an IMS subsystem
  - ▶ IMS PI optionally shares system and group definitions with IMS Performance Analyzer (IMS PA) so that changes in one product are reflected in the other

### View detailed information

- Define the TRF files to IMS PI, either by specifying the individual files in the Process panel, or by using the Systems and Groups facility that is shared (optionally) with IMS PA
- Drill-down from file to record to data field to pursue the cause of problems
- Merge files to get a comprehensive view of events over time or across systems in an IMSPLEX
- Define filters and forms as required for refining your analysis
- Use navigation aids such as tracking and skipping to a point in time to explore the TRF data
- Set up batch reporting as required for your job scheduler





# IMS PI

## Processing merged TRF and IMS log files

```

File  Menu  Edit  Help
-----
                Process Log Files          Row 7 of 36 More: < >
Command ===> _____ Scroll ===> CSR_

Select a Log File to browse.          IMS Release 910 +      Zone _____

/
SS   'IPI000.QADATA.TCOMG008.I9DE.LOG001'  _____  _____
    'IPI000.QADATA.TCOMG008.I9DE.LOG002'  _____  B0_____
SS   'ALZ000.QADATA.IMS910.LOG.TEST'      _____  _____
_____
***** End of data *****
    
```

Enter multiple line actions “S” to select all the files you wish to merge.

Alternatively, you can use: Move/Copy/Repeat line actions to bunch the data set names in the Process list, then use the block line action “SS” to browse the merged files.

# IMS PI

## Provide a useful insight into DLI and DB2 call activity

File Menu Edit Help

-----  
 Process Log Files Row 7 of 36 More: < >  
 Command ==> \_\_\_\_\_ Scroll ==> CSR

Select a Log File to browse. IMS Release 910 + Zone \_\_\_\_\_

	Log File	Rel +	Filter +	Zone
ss	'IPI000.QADATA.TCOMG008.I9DE.LOG001'		B0	-8
	'IPI000.QADATA.TCOMG008.I9DE.LOG002'			
	'IPI000.QADATA.TCOMG008.I9DE.TRF.DET1'	10		-8
	'IPI000.QADATA.TCOMG008.I9DE.TRF.SUM1'			
	'IPI000.QADATA.TCOMG008.I9DE.TRF.DET2'			
ss	'IPI000.QADATA.TCOMG008.I9DE.TRF.SUM2'			

BROWSE IPI000.QADATA.TCOMG008.I9DE.LOG001 Record 00001368 More: < >  
 Command ==> \_\_\_\_\_ Scroll ==> CSR

Forwards / Backwards . . HH.MM.SS.THMIJU Time of Day . . 17.10.56.568098  
 Code Description Date 2007-05-22 Tuesday LSN

/ ---- Search limit reached (+5000) -----

R_ 01	Input Message TranCode=DSN8CS	18.41.21.202126
___ 35	Input Message Enqueue TranCode=DSN8CS	+0.006686
___ 08	Application Start TranCode=DSN8CS Region=0002	+0.007295
___ 5607	Start of UOR Program=DSN8IC0 Region=0002	+0.007297
___ 31	DLI GU TranCode=DSN8CS Region=0002	+0.009474
___ 5616	Start of protected UOW Region=0002	+0.009729
___ 5600	Sign-on to ESAF Region=0002 SSID=DB2P	+0.107514
___ 5600	Thread created for ESAF SSID=DB2P	+0.107547
___ 5600	Commit Prepare starting Region=0002 SSID=DB2P	+0.131012
. . . . .		
S_ B032	<b>DB2 Summary</b>	+0.358998
	Program=DSN8IC0 Region=0002 RecToken=I9DE/0000000600000000	
	Calls=2 Shortest=0.000683 Longest=0.017887 Total=0.018570 SSID=DB2P	
___ B001	Resource Trace	+0.358999
	Region=0002 IMSID=I9DE RecToken=I9DE/0000000600000000	
___ 07	Application Terminate	+0.359074
	UTC=10.41.21.560995 TranCode=DSN8CS Program=DSN8IC0 Region=0002	
	RecToken=I9DE/0000000600000000	
	RegTyp=MPP MCNT=1 DBDLI=0 DCDLI=2 CPU=00.015391	

By processing OMEGAMON TRF data, IMS PI can provide a useful insight into DLI and DB2 call activity.

Select the relevant group of log files for IMS PI to merge and format in time sequence

Use line action "R" to display relative times

Looking at TRF Collector records, select DB2 Summary

# IMS PI

## Provide a useful insight into DLI and DB2 call activity

```

Form    ==>      +      Use Form in Filter      Format ==> STD
*****
***** Top of data *****
+001C Code... IÜ      transaction message
+000C STCK... C0A313485FF40000      LSN... 0000000000000042
Date... 2007-05-23 Wednesday      Time... 02.49.31.400000.000
+0000 TRFLL..... 01CC      TRFZZ..... 0000
+0004 TRFICNT... 'FUNTRM91'      TRFDT..... 2007143F0249314F
+0014 TRFSMBNM... 'DSN8PT '      TRFTYPE... 10      TRFRTYPE... 80
+001E TRFRNJOB... 'I9DEMP2'      TRFRNSTP... 'REGION '
+002E TRFRNPGM... 'DSN8IH0 '      TRFRACUS... 'DVP '
+003E TRFSMBCLS..... 00      TRFIMSNM... 'I9DE'
+0043 TRFIMSVER..... 09      TRFIMSREL..... 01
+0045 TRFIMSLEV..... 00      TRFUNIQUE..... 00000000
+004A TRFRESV1... 00000000      TRFSMBCLS9..... 0000
+0050 TRFPSTNR... 0002
+0052 TRFUSRKEY..... Reserved for User EXIT programs
+0000 00000000 00000000 00000000 00000000 *.....*
+0010 00000000 00000000 00000000 00000000 *.....*
+0020 00000000 0000
+0078 TRFCOM1... Common fields for message record
+0078 TRFFILL... 00000000000000000000000000000000 TRFRESV2... 0000
+0084 TRFACCPU... 00000000000000000000000000000000
+008C TRFSRBTME..... 00000000000000000000000000000000
+0094 TRFPGMSZE..... 00000000
+0098 TRFLOALOC..... 00000000
+009C TRFHIALOC..... 00000000      TRFIN..... 00000023
+00A4 TRFOUT.... 00000098      TRFOUTQ.... 00000000
+00AC TRFCOM2... MSG only fields
+00AC TRFALTOUT..... 00000000
+00B0 TRFALTNUM..... +0      TRFINQ.... 00000000
+00B8 TRFPI..... 00000000      TRFPT..... 00000004      TRFR0..... 00000001
+00C4 TRFR1..... 00000001      TRFALTO... 00000000      TRFMINSY... +0
+00CE TRFMAXSY... +0      TRFNUMSY... +0
+00D2 TRFPSAFLG..... 00      TRFPSABND..... '
+00D7 TRFSCCPLG..... 00      TRFSCC..... '
+00DB TRFUABEND..... '
+00DF TRFSAPTRN..... 00000000000000000000000000000000
+00E7 TRFSAPTKN..... 00000000000000000000000000000000
+00EF TRFINODE... 'SCOTCP91'

+00F8 TRFCOM3... Shared IMS data
+00F8 TRFCOT.... 000000000000000000000000000000000002E6E
+0104 TRFLOQT... 0000000000000000000000000000000000032
+0110 TRFOQT.... 0000000000000000000000000000000000032
+011C TRFRKTKN... C9F9C4540404040404000000000050
+012C TRFOQT.... +0      TRFIQTM.... 0000
+0132 TRFOQT3... 0000      TRFVSOR.... +0
+0138 TRFVSWT... +0
+013A TRFUTC.... UTC of 01 record
+013A TRFUDATE... 2007143F      TRFUETIME... 024931459637
+0144 TRFUTODZ... 032C
+0146 TRFIQT1... 000000000000000000000000000001B69
+0152 TRFIQT2... 0000000000000000000000000000021B5
+015E TRFPET.... 0000000000000000000000000066363
+016A TRFENDTIME..... Process termination UTC (07)
+016A TRFENDTIME..... 2007143F024931885313032C
+0176 TRFSTARTIME..... Process schedule UTC (08)
+0176 TRFSTARTIME..... 2007143F024931466654032C
+0182 TRFALT_COT..... 000000000000000000000002E6E
+018E TRFALT_LOQT..... 00000000000000000000000000032
+019A TRFALT_OQT..... 00000000000000000000000000032      TRFNUM.... +1
    
```

Looking at TRF Extractor records, we select Transaction Message

Zoom on a particular field

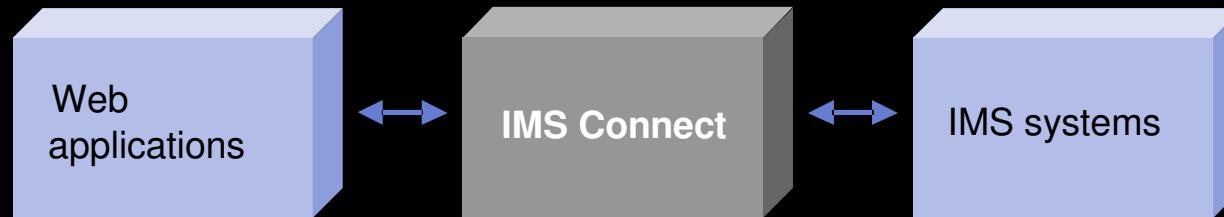
```

BROWSE      IPI000.QADATA.TCOMG008.I9DE.LOG001      Line 00000000
Command ==>      Scroll ==> CSR
*****
***** Top of data *****
+001D TRFRTYPE... 80      Region type (MPP, BMP, DBCTL)

On   R@SMPP..... 80      MPP
Off  R@SBMP..... 40      BMP
Off  R@SFP..... 10      Fast Path
Off  R@SDBCTL... 01      DBCTL Thread
Off  R@SMSGSW... FF      Region type value for message switch
                               (MSGOUT record only)
*****
***** End of data *****
    
```

# IMS Connect

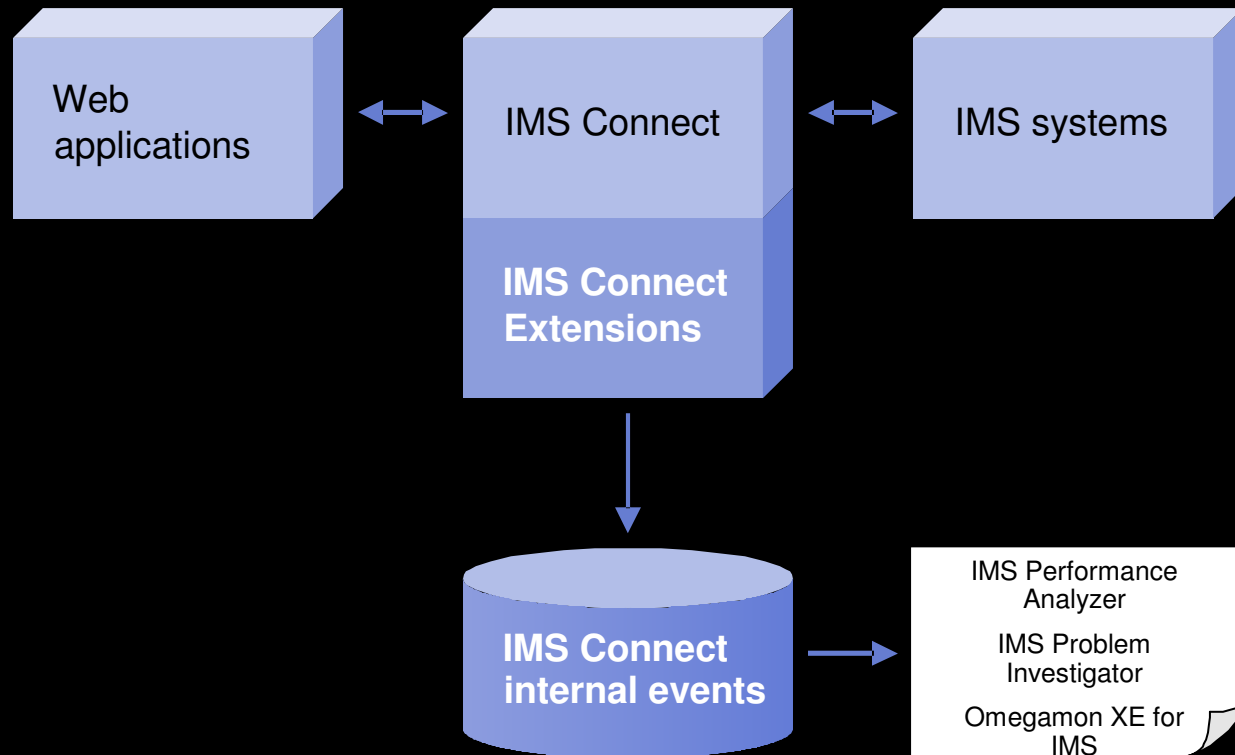
- **Problem:** IMS Connect does not log performance data



- Of the components that contribute to overall transaction response time, only IMS Connect does not provide this data
  - ▶ Difficult to rule out IMS Connect as a cause of slow response times
  - ▶ Difficult to diagnose and fix problems

# IMS Connect Extensions

- **Solution:** provide the same high level of instrumentation and performance reporting as other components



# IMS Connect Extensions

## Enhances IMS Connect performance, availability, & security

- Enhances IMS Connect availability with dynamic workload management
  - ▶ Management of customer user exits and control of input message traffic
- Improves system security with flexible access control
- Event recording & performance monitoring features
  - ▶ Examine the details and timing of internal IMS Connect events
  - ▶ Collects performance and accounting information for IMS Connect
  - ▶ IMS Connect internal and external transit times and latency times
  - ▶ Exception reporting showing failures and timeouts
- Provides instrumentation and performance reporting for IMS Connect
  - ▶ Creates detailed IMS Connect reports in conjunction with IMS Performance Analyzer
  - ▶ Solves IMS Connect problems in conjunction with IMS Problem Investigator
  - ▶ Displays IMS Connect activity and utilization in real time
  - ▶ Enables reporting for Omegamon XE, IMS Performance Analyzer, and IMS Problem Investigator



# Monitor TCP/IP based connections

- The IMS Connect function of IMS V9 and V10 provides a gateway for TCP/IP based communication.
- IMSV10 and the IMS SOAP Gateway make it easier to write client applications that communicate with IMS via TCP/IP
- But...
  - ▶ How do you monitor active TCP/IP sessions?
  - ▶ How do you track TCP/IP originating transactions?
  - ▶ How do you analyze events when problems occur?



# Active TCP/IP sessions

# CEX

- View a snapshot of all active sessions
- Identify sessions with long wait times
- Use filters to select sessions based on conditions
- Use forms to customize the display

File Menu Form Filter Systems Help

Active Sessions  
 Command ==> \_\_\_\_\_ Scroll ==> CSR

Session Wait Time . . .  (Seconds)

System	Port	Socket	Event	Session Start Time	Session Wait T
QAARG001	8801	10	Message received from	13.20.16.869244	00.00.00.000
QAARG001	8801	10	Message Exit returned	13.20.16.869244	00.00.00.159
QAARG001	8801	11	Message Exit returned	13.20.16.944999	00.00.00.088
G001	8801	11	Message Exit returned	13.20.16.944999	00.00.00.417
G001	8801	10	Message Exit returned	13.20.18.371911	00.00.00.635
G001	8801	11	Trigger Event	13.20.18.372311	00.00.00.213
G001	8801	13	Message Exit returned	13.20.18.707939	00.00.00.304
G001	8801	11	Message Exit returned	13.20.18.619926	00.00.00.498
G001	8801	12	Message Exit returned	13.20.18.644068	00.00.00.927
QAARG001	8801	13	Message Exit returned	13.20.18.707939	00.00.01.887
QAARG001	8801	12	Begin CLOSE Socket	13.20.18.644068	00.00.00.001
	8801	10	Message Exit returned	13.20.20.382620	00.00.00.555
	8801	11	Message Exit returned	13.20.20.382620	00.00.00.555
	8801	11	Message Exit returned	13.20.20.382620	00.00.00.555

Sort by any column

Filter sessions displayed by time in current status

Show or hide persistent sockets in Read Prepare status



## Additional columns...

# CEX

- You can display any of the following columns of information:
  - ▶ System
  - ▶ Port
  - ▶ Socket
  - ▶ Event
  - ▶ Session Start Time
  - ▶ Session Wait Time
  - ▶ Client ID
  - ▶ Original Datastore
  - ▶ Target Datastore
  - ▶ User ID
  - ▶ Transaction Code

## Select sessions to view detailed information

- View details based on the state of the session
- Identify the predicted socket state
- List events for the session



# IMS Buffer Pool Analyzer

IMS Buffer Pool Analyzer provides analytic capabilities to help improve IMS buffer pool utilization. IMS Buffer Pool Analyzer is able to:

- ▶ Determine if adding or subtracting buffers will improve the performance of a selected buffer pool
  - ▶ Model buffer pool usage to determine I/O rates for various numbers of buffers in each pool
  - ▶ Identify which databases most heavily use each database sub-pool
  - ▶ Provide I/O rates and buffering requirements for a specific database to facilitate required buffer pool changes for database structure alterations
  - ▶ Perform “what if” scenario analysis, including the impact of creating new buffer pools or changing the buffer size of a database.
  - ▶ Visualize the impact of change—before it’s too late
- 
- Benefits include improved buffer pool utilization and overall improvements to application performance



# IMS Sysplex Manager

- Management of IMS in a Sysplex/IMSplex is operationally cumbersome and challenging for IMS customers. IMS Sysplex Manager is a tool designed to help you better control the IMS environment
  - ▶ A simple to use TSO/ISPF interface to view the IMSplex as a single system image with aggregated data elements
  - ▶ Providing detailed information about key IMSplex components: datasharing structure, shared message queue structures and content, RM structure and content, all related address spaces.
  - ▶ Operational capabilities to make users more productive: IMS type 1 and 2 command capability, IMS system level command audit trail, detailed resource views such as trans, programs, databases, dependent regions with integrated group command capabilities for immediate user response. Ability to generate and collect diagnostics from all address spaces simultaneously.
  - ▶ Functions that enhance the base capabilities of IMSplex support: real-time RM structure content update, shared queues browse, delete, recover
  - ▶ Functions to allow shared queue users to create affinities for one or more IMS systems to partition workload where necessary
  - ▶ Functions to protect from system outages: shared message queue overflow protection
  - ▶ Automatic long-lock notification to help prevent system bottlenecks
- Benefits include improvements to the operations of IMS in a Sysplex

