Boldly Going Where No IMS Monitor Has Gone Before

Rosemary Galvan
Share # 8561
Agenda

• System Performance for IMS
  • MAINVIEW for IMS Online
  • MAINVIEW for IMS Offline
  • MAINVIEW AutoOPERATOR for IMS

• MAINVIEW
  • Fully loaded phaser bank of views
    • Focus will be on recent enhancements
    • Exploitation of IMS V11
  • Seamless integration
    • With other BMC IMS products
    • With other MAINVIEW products
TSO SPOC - Single Point of Control

- Introduced back with IMS V8.1
- Introduced with the Common Service Layer (CSL)
  - 3 main address spaces
  - SCI (Structured Call Interface), OM (Operations Manager), RM (Resource Manager)
- Required in order to issue Type 2 commands
- Growing interest in type 2 commands
  - Especially, new DB Quiesce in V11
- When using SPOC, you must be logged on to a TSO in the SYSPLEX
  - If Multiple SYSPLEX’s, must be logged on to a TSO in each of the PLEX’s
    - Doesn’t seem logical
MAINVIEW Architecture – Single System Image

- Designed to be single point of control
- Manage and Monitor all IMS systems from one view
  - Ideal for a SYSPLEX/IMSPLEX or multiple IMS environments
- System Performance for IMS solution
  - Issue both type 1 and type 2 commands
    - Type 2 commands still require OM & SCI
  - Line commands
    - CMD on a view means you can issue a command
    - Help provides information on the commands
  - IMSCMDS
    - This command displays a pop-up allowing you to issue type 1 or type 2 commands
- Audit capability
  - Commands issued through MAINVIEW view logged
## View of your entire IMS enterprise

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*Image of a terminal window showing IMS statistics for I10T, I11T, and I9T.*
Issue IMS Commands

25MAR2009  08:57:29  -----.  MAINVIEW WINDOW INTERFACE (V6.0.00)  -----------
COMMAND ===>  SCROLL ===> CSR
CURR WIN ===> 1      ALT WIN ===> 
>W1 =IDBSUMR==========111J44CT=**=25MAR2009==08:57:10==MVIMS====D==408

Database Overview

Related Views
  . Summary by
  . Summary by

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Help

Available Actions

Command ===> _

L or LD  Lock a database
U or UD  Unlock a database
D or DD  DBDUMP a database
DG or DDC  DBDUMP a database globally
QRY  QUERY DB NAME() SHOW(ALL)
SQ or SQH  Quiesce this database with or without the hold option
PQ  Stop a database quiesce for this database
More on DB Quiesce

- DB Quiesce
  - Needs DBRC SCI registration
  - The Quiesce process will wait for any uncommitted updates to be committed.
    - Quiesce attempt times out according to the DBQUISCETO parameter value
      - Prevents application from waiting too long
    - May want to review the value of DBQUISCETO parameter
Other IMS parameters

• May need to review other IMS parameters as well
  • IMS Connect
    • OTMA=Y,
    • GRNAME=GPF71GRP <<<<< This must match the value in the IMS Connect Proclib CONFIG for the Datastore

• What are my current IMS parameter settings?
  • Am I headed toward an Asteroid field?
  • IMSPARMR view can help
IMSPARMR view displays current IMS parameters

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IMS ID --> I11J
What else utilizes CSL? - Open Database Manager

- What is Open Database Manager (ODBM)?
  - Enhances the distributed access to IMS databases
    - Provides a scalable infrastructure to facilitate distributed access to IMS DB
    - Utilizes IMS Connect as the TCP/IP gateway to IMS data
      - *IMS Connect is the router between the client and ODBM*
    - Uses SCI as its communication mechanism
      - *SCI uses XCF to communicate with the ODBM address space*
        - *Allows for applications to be on any LPAR in an IMSPLEX*

- What has MVIMS done for ODBM?
  - New IODB* views
  - New set of views showing ODBM Alias, Datastore, thread, configuration, and client information.
New ODBM views

- VIEWS IODB*

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IODBSUMR – ODBM  Summary is my favorite
IODBSUMR – ODBM summary view.

- Always start here and hyperlink to the other views in warp speed!
- Shows all ODBM address spaces, with information about their status, threads, aliases, SCIs, configuration
- ODBM status shows it’s ready to receive messages
  - Use Automation to pro-actively monitor unacceptable status, like NOT_REACHABLE
IMS V11/V10 Synchronous Callout

- This enables IMS applications to synchronously call out to WebSphere applications, Web Service providers, or other external applications.
  - Positions IMS to be both a client and a server, and to allow for SOA integration

- The callouts go through OTMA, to IMS Connect, and then to the external application.
  - OTMA descriptors are used to tell OTMA how to reach the external application
IMS V11/V10 Synchronous Callout

- A new AIBTDLI call verb (ICAL) invokes the callout.
- Dependent regions waiting for a response can impact message queuing and scheduling
  - Callouts can be timed out or /PSTOP can be used.
- How do I know if this new ICAL is causing problems?
  - Trouble in my Tribble???
Shows synchronous calls outs were done by the transaction, including the start times and durations of these calls, and return codes.
IRGNSUMR view – Identifies ICAL waits

21JUL2010 08:36:44 ------ MAINVIEW WINDOW INTERFACE (V6.0.00) ---------------
COMMAND ===>
SCROLL ===>
CURR WIN ===>
ALT WIN ===>
>W1 =IRGNSUMR========== (ALL========*)=======)21JUL2010==08:36:44==== MVIMS====D====5

Region Summary

Related Views
. Region Status . Waiting Rgns . BMP Rgns . IMS Connect
. Region Occupancy . MPP Rgns . DBCTL Rgns . ALL Rgns
. Region Pgm Summary . Fastpath Rgns . JAVA Rgns

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Automation for pro-active notification of this condition
Waits/contention can impact performance

• Lock Contention in particular is extremely problematic
  • How do I identify if there’s a contention problem?
  • How severe or widespread is the problem?
  • Which resources are most contended for?
  • How can I resolve the contention problem?
• Identify the ultimate holder(s) for PI Locks has been available but identifying for IRLM locks needed.
• MAINVIEW IMS V4.5 - IRLM Locking Ultimate Holder
  • New views will directly indicate the ultimate holder(s) for any lock contention that is causing an application region to wait
  • ILKULLST and ILKULTWT includes the ultimate holder information such as the region ID, region name, PSB name and its IMS ID
New V4.5 View

24MAY2010 11:22:34 ------ MAINVIEW WINDOW INTERFACE (V6.0.00) ---------------
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SCROLL ===> CSR
CURR WIN ===> 1  ALT WIN ===> 
W1 =ILKULTWT=********(ALL=**********24MAY2010=11:22:32==MVIMS=DD==6 
  IRLM Wait With Ultimate Holder

Related Views
  . Resource Contention  . Holding Regions
  . Database Contention  . IRLM Statistics

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**Related Views**
- Regions in IRLM Wait
- Database Contention
- Resource Contention
- IRLM Statistics

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<td>I10PGLK2</td>
<td>I10P</td>
<td></td>
<td>WT-IRLM</td>
<td>BMP</td>
<td>PTEST01</td>
</tr>
<tr>
<td>3</td>
<td>I10QMP2</td>
<td>I11Q</td>
<td>118</td>
<td></td>
<td></td>
<td>1</td>
<td>I10PGLK2</td>
<td>I10P</td>
<td></td>
<td>ACTY-USR</td>
<td>BMP</td>
<td>PTEST01</td>
</tr>
</tbody>
</table>
Expanding the use of IMS Connect

- **IMS Connect**
  - Functions as a TCP/IP socket server allowing access to IMS transactions and data
    - Many new functions require IMS Connect
      - ICAL, ODBM, and probably more to come
  - Klingon Cloaking Device - messages go in and may or may not come out
  - IMS Connect is an OTMA client
  - How do you identify if it’s an IMS or IMS Connect Problem?
Expanding the use of IMS Connect

- What does System Performance for IMS do for IMS Connect
  - Utilizes Energizer for IMS Connect
    - Identifies IMS Connect and MQ clients from OTMA* views
    - Provides IMS Connect information to several region views
    - Populate IMSCON* Views
  - V4.5 – New WorkLoad Monitor
IMSRGNSR – Real-time Region Status View

05MAR2008 10:31:01 ------ MAINVIEW WINDOW INTERFACE (V5.0.05) ---------------
COMMAND ===>
CURR WIN ===> 3 ALT WIN ===> &2
>W1 -IMSRGNSR-------I10A43CT-*-------05MAR2008--10:31:01----MVIMS------D----1

------------------------ ----- --- Region Status --- ----- ------------------------------- -----

<table>
<thead>
<tr>
<th>IMS ID</th>
<th>-------&gt;</th>
<th>I10A</th>
</tr>
</thead>
</table>

A77 Regions.... 4 Excess CPU Msg Regns. 3 Active Regions...... 1
MPP Regions.... 2 Excess Occ Msg Regns. 0 Idle Regions......... 2
IFP Regions.... 2 Excess SQL Msg Regns. 0 Waiting Regions..... 1
BMP Regions.... 0 Excess DLI Msg Regns. 0 Waiting For Locks... 0
QDBA Threads... 0 Excess Elap Msg Regns 1 Processing IMS Conn. 1
Java Threads... 0
DBCTL Threads.. 0

Displays IMS Connects being processed by this IMS

>W2 -IRGNICSM-------I10A43CT-*-------05MAR2008--10:31:01----MVIMS------D----1
CM IMS Conn Session IMS Rgn Region Tran Client
-- Job/STC Time ID Typ Status Name
I10ACONN 1.75 I10A MPP WT-OSAM IVTNO 97560904

>W3 -IRGNSUMR=======I10A43CT=*========05MAR2008==10:31:01====MVIMS====D====4
CM Rgn IMS Rgn Region Tran PSB Curr Tran Tran Tot Tot Tot
-- ID ID Typ Status Name Name IWAIT CPU Elaps DLI Lock SQL
4 I10A MPP WT-OSAM IVTNO DFSIVP1 0.118 0.0004 0.2364 1 4
1 I10A MDP IDLE-WFI IVTNO DFSIVP4 0.000 0.0000 0.0000 1
2 I10A MDP IDLE-WFI IVTFD DFSIVP5 0.000 0.0000 0.0000 2
3 I10A MPP ACT-SCHD
### IRGNICSM – Region/IMS Connect Activity View

**24SEP2007 15:29:56 ------ MAINVIEW WINDOW INTERFACE (V5.0.05) ---------------------**
**COMMAND ==> _ SCROLL ==> PAGE**
**CURR WIN ==> 1 ALT WIN ==>**

```plaintext
>W1 =IRGNICSM=============ALL=============24SEP2007==15:29:56==MVIMS==D====1
CM IMS Conn Session IMS Rgn Region Tran Client Client IP Client
-- Job/STC Time ID Typ Status Name Address Port
TXCIC10S 0.36 T10P MPP ACTV-USR IVTNO 55274984 172.22.132.78 2676
```

This image shows a screen capture from a system interface, possibly related to a network or system monitoring tool. The table lists various connections and sessions, including client details, network addresses, and system times. The interface is used for managing and monitoring the connections to the IMS (Information Management System) environment.

**Hyperlink to MVIP**

<table>
<thead>
<tr>
<th>CM IMS Conn</th>
<th>Client</th>
<th>Rgn User</th>
<th>Sock PSB</th>
<th>Curr Tran</th>
<th>Tran Tot</th>
<th>Tot</th>
<th>Tot</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>TXCIC10S</td>
<td>2676</td>
<td>3 RIHTXC2</td>
<td>1 DFSIVP1</td>
<td>0.000</td>
<td>0.0003</td>
<td>0.0051</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**+W1 =IRGNICSM=============ALL=============24SEP2007==15:29:56==MVIMS==D====1**

This section of the interface might be used to manage specific tasks or view detailed activity logs.
IRGNDTLR – Identifies IMS Connect as the OTMA client & the TMEMBER name

Region ID: 3  Rgn Status: ACTV-USR  Tran Name: DFSSAM02  Tran Enqueued: 13:44:26 29600
Jobname: I10AMP1  Trancode: PART  Tran Elapsed: 0.0307
IMS ID: I10A  PSB: DFSSAM02  Region Idle: AGN
MVS Name: SJSC  LTERM: RIHTXC  Classes: >1 2 3 4
XCF Name: NONE  User: MQSeries  DB2 AuthID: N/A
Rgn Type: MPP  ESS Type: RIHTXC  DB2 AuthID: N/A
Msg Switch: M  ESS Name: CQ01  CICS TaskID: N/A
Msg Source: TM  ESS Status: CON  CICS UOW: N/A

OTMA Client: IMS Connect  IMS Conn: CURR EVENT-- TIMING  OTMA Member: IMSOCOOGA

Active Elap: 0.1046  Active in: APPL  Total CPU: 0.0043
IWAIT Elap: 0.0000  IWAIT for: TM & DB CALL ACTIVITY
DB Calls... 2  Current/Last DLI Call
Msg GU... 2  Seq Bf Usg: 0
Msg GN... 0  Msg Other: 1
CHKPT... 0  Msg PURG: 0
CMD... 0  Msg ISRT: 0
GCMD... 0  SETO: 0
ICMD... 0  SETS: 0
RCMD... 0  SETU: 0
GMSG... 0  ROLB: 0
CHNG... 0  ROLS: 0
BBA... 0  XRST: 0

FAST PATH ACTIVITY
NBA... 0  OBA: 0
Lock Detail
DB2 Name: Control  ACTIVITY
Plan Name: Dynamic  SQL Total: 0
Sel/Fetch: DDL  Inserts: 0
DB2 Name: Control  SQL Total: 0
Plan Name: Dynamic  Inserts: 0
Sel/Fetch: DDL  Deletes: 0
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>05MAR2008</td>
</tr>
<tr>
<td>Time Queued</td>
<td>10:59:36.40</td>
</tr>
<tr>
<td>IMS ID</td>
<td>110A</td>
</tr>
<tr>
<td>Server Name</td>
<td>MVIMS</td>
</tr>
<tr>
<td>Client Type</td>
<td>IMS10A</td>
</tr>
<tr>
<td>OTMA Group</td>
<td>OTMA10A</td>
</tr>
<tr>
<td>Correlator ID</td>
<td>C20C583065C1A2A9</td>
</tr>
<tr>
<td>Context ID</td>
<td>000000000000000000000000000000000000000000</td>
</tr>
<tr>
<td>Server Token</td>
<td>BOLJKXK1</td>
</tr>
<tr>
<td>Client PortID</td>
<td>1786</td>
</tr>
<tr>
<td>Arrival Time</td>
<td>10:59:36.40</td>
</tr>
</tbody>
</table>

Hyperlink to MVIP
Why does hyperlink to MVIP matter?

- IMS Connect is a TCP/IP socket server
  - Problem could be with TCP/IP
- IMS always gets blamed but is usually the victim
- Seamless integration with other MAINVIEW components
  - Hyperlinks take you in WARP speed to other potential problem areas
    - TCP/IP, DB2, z/OS
  - Same look & feel with all MAINVIEW components allows for easy navigation
Trace contains OTMA / IMS Connect data

Summary Trace Data

COMMAND ===> SYSTEM INFORMATION

IMS ID........ I10A IMS Target...... I10A43CT IMS Jobname..... I10A43CT
TRANSACTION INFORMATION

Trancode...... PART Region ID...... 003 Trace Seq#...... 12711
Program....... DFSSAMO2 Region Name... I10AMP1 User ID....... BOLJXXK1
PSB Name....... DFSSAMO2 Region Type... MPP LTERM...... 11014
Class.......... 001 Route Code...... Node Name.....
Arrival Date... 05MAR08 Arriv Time... 09:52:55.588429 Response... 153 ms
Start Date..... 05MAR08 Start Time... 09:52:55.588756 Elapsed.... 152 ms
End Date....... 05MAR08 End Time.... 09:52:55.741029 Abend Code..
Msg Switch...... NO APPC......... NO

OTMA INFORMATION

Client Type... IMSConn Tmember... IMSOCO0A IMS Connect.... I10ACONN
Port Id....... 11014 Client Id..... BOLJXXK1 Arrivd. 09:52:55.588116
IP Address... 172.017.008.092 Socket Id..... 10

DC CALL ACTIVITY

Message GU 2 Message GN 0 Message Other 2
Message PURGE 0 Message ISRT 7 Message Total 11
Last Tran Last LTERM

DL/I CALL ACTIVITY

--- ------------------- ---- --- ---- --- --- --- --- --- ---
DB Name Org GU GN REPL ISRT DLET Othr Total Opn Read Wnte Avg
DI21P A1 1 1 0 0 0 0 0 1
DI21P A1 1 1 0 0 0 0 0 2
**Total 1 1 0 0 0 0 2 0 0 .0000

EVENT TIMING

--- --- --- --- --- --- --- --- --- --- ---
DL/I DB Open Sync Point
Elap Time 0.0001 Elap Time 0.0000 Elap Time 0.0004
VSAM IWAIT 0.0000 I/O IWAIT 0.0000 VSAM IWAIT 0.0000
OSAM IWAIT 0.0000 DBRC IWAIT 0.0000 OSAM IWAIT 0.0000
DEDB IWAIT 0.0000 Misc IWAIT 0.0000 Ltcch IWAIT 0.0000
Ltcch IWAIT 0.0000 Misc IWAIT 0.0000
Lock IWAIT 0.0000
Misc IWAIT 0.0000

DL/I TM ESS Application
Elap Time 0.0006 DB2 Elap 0.0000 Elap Time 0.1171
Ltcch IWAIT 0.0000 MQS Elap 0.0000 Schd->DL/I 0.0108
Misc IWAIT 0.0000 Othr Elap 0.0000

CPU TIMES (us)

Dep Rgn..DLI 533 us Bufr Handler 52 us Open/Close 0 us
More on IMS Connect and ODBM

• ODBM has resulted in
  • New IMS Connect commands
  • New IMS Connect Event Records
  • New IMS Connect Routing exit to select the ODBM to service the requests
  • New IMS Connect Security exit

• MAINVIEW and Energizer for IMS Connect Integration
  • Issue IMS Connect Commands
  • Display IMS Connect Events

• Use Energizer for IMS Connect to dynamically implement IMS Connect exits.
IMS Connect Response Monitor

- Workload monitor named @CRSP

```
30JUN2010  11:10:26 ------ MAINVIEW WINDOW INTERFACE (V6.0.00) ---------------
COMMAND    ==> SCROLL    ==> CSR
CRRR WIN==> 1       ALT WIN ==>>
>W1  =MONSERV============I11J45CT=*==..==130JUN2010==11:09:40====MVIMS====D==108
Monitor Services
 Commands:  BLK (Requests)  JOURNAL (Log Display)
 Line CMDs:  S

<table>
<thead>
<tr>
<th></th>
<th>Service</th>
<th>Num</th>
<th>Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>$CBMP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$CDBT</td>
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<td></td>
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<tr>
<td>$CMPP</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>$CTOT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#CDB2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>#CIC</td>
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<td></td>
</tr>
<tr>
<td>#OBAW</td>
<td>@CRSP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#PROCO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#SDB2</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>h</td>
<td>@CRSP</td>
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<td>@ELAP</td>
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</tr>
<tr>
<td>@INPO</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>@OBA</td>
<td></td>
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<td>@RESP</td>
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<tr>
<td>CSAUT</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Help

Help

This service monitors the IMS Connect transaction average response time.

**Parameter:**

User-defined monitor request identifier or blank.

**Measurement:**

Average IMS Connect transaction response time for the selected workload and sampled interval. Response time is calculated as the difference between when IMS Connect reads the message from the socket and when IMS completes the transaction and sends the response back to IMS Connect.
MVIMS Offline - FA Log Records

- Provide additional transaction statistics
- MAINVIEW IMS Offline component reports on these records
- Provides lots of useful information that is formatted by Log Analyzer for IMS
  - For DBCTL – provides CICS tran name, applid, userid
  - For all IMS environments - READ Only DB information
    - Number shown controlled by event collector options DBTS and DBTS4BMP

```
FA Mainview 000000FC5EDF0 16:23:26.661454  jobname=IMSYS50K userid=OR498HK  message GU count=2 pst=00064
message insert count=1 i/o pcb input characters=1845
i/o pcb output characters=1845
readDBs= ED0008(24), ED0001(956), ED0007(26), ED0061(1), ED0006(5),
       ED0003(68), ED0005(4920), ED0025(273)
```
EZ Menus

30NOV2010 07:10:40                      MAINVIEW WINDOW INTERFACE (V6.0.00)                      SCREEN MVMS
COMMAND ===>       ALT WIN ==>
CURR WIN ===> I     W1 =EZISSI======(ALL----??-----)30NOV2010==07:10:40--MVMS--D-----1--

IMS SSI Easy Menu
Timeframe - Interval

(Change) Current Target
Context Members

(Multiple)
3

Performance

* IMS Systems in Context
* IMS MSG Sharing Groups
* IMS Data Sharing Group
* Processing by Class
* Processing by BALG
* Output Resp by Tran
* Output Resp by LTERM

Activity/Status

Dashboard
Region Occupancy
Region Activity
Database Activity
IRLM

Communications

Input Messages Queued

Place cursor on menu item and press ENTER

Resources

* Transactions
* Programs
* Databases
* Areas
* DB and Area datasets
* Subsystem Connections
* IMSplex Connections

Exceptions

* Current Delays
* Database Lock Waits
* Waiting Regions
* Warnings
* Alarms in Exception

* Unavailable Resources

Delay Factors

Transaction Analysis

Tools and Menus

* IMS Utility Menu

SHARE
2011
Different Menus for Different Functions

New with V4.5
Easy Admin Menu

(Change) Target—> DVT91IMS

Trace Admin
- History Traces
- Start Trace
- Current Traces

General
- Product Level Options
- Event Collector Options
- Misc. PAS Options
- Server Administration
- History Datasets
- Security

Monitor Admin
- Active Timers
- Start Monitor

Samplers/Workloads
- Sampler Administration
- Sampler Operation
- Workload Definition

Status: ACTIVE

Place cursor on menu item and press ENTER
View current event collector options

Easily determine if options are set differently in another system
Notice IMS systems
MVEXPLORE - View all the systems
IMS Views thru MVEXPLORER

Related Views
- Database Overview
- Summary by Type
- Database I/O Delays
- Data Set I/O Delays
- Database Exceptions
- Database Xref Summary

Database Status Summary

<table>
<thead>
<tr>
<th>Status 1</th>
<th>Status 2</th>
<th>Status 3</th>
<th>Number of DB</th>
<th>IMS ID</th>
<th>IMS Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOT-OPEN</td>
<td></td>
<td>NOT-OPEN</td>
<td>52</td>
<td>DVTA</td>
<td>DVT10IMS</td>
</tr>
<tr>
<td>NOT-OPEN</td>
<td></td>
<td>NODMB</td>
<td>751</td>
<td>DVTA</td>
<td>DVT10IMS</td>
</tr>
<tr>
<td>OPENED</td>
<td></td>
<td></td>
<td>4</td>
<td>DVTA</td>
<td>DVT10IMS</td>
</tr>
</tbody>
</table>

Command: IDBSTAR - MVIMS @ DVT10IMS[SYBDEMO]
Launch MVEXPLORER from Data Management Console
Data Management Console & MVEXPLORER integration
Beams you directly to a MVIMS view
Summary

• Monitoring your IMS environment is just as critical as it’s ever been!

• As you continue with IMS
  • And your on-going mission
    • Could be a 5 year mission!

• As you explore strange new IMS releases
• Seek out bold new IMS features and functions to exploit
• Don’t take this voyage alone
• BMC System Performance for IMS is the solution to monitor and manage your IMS systems now and into the future
Thank You!

Rosemary_galvan@bmc.com