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

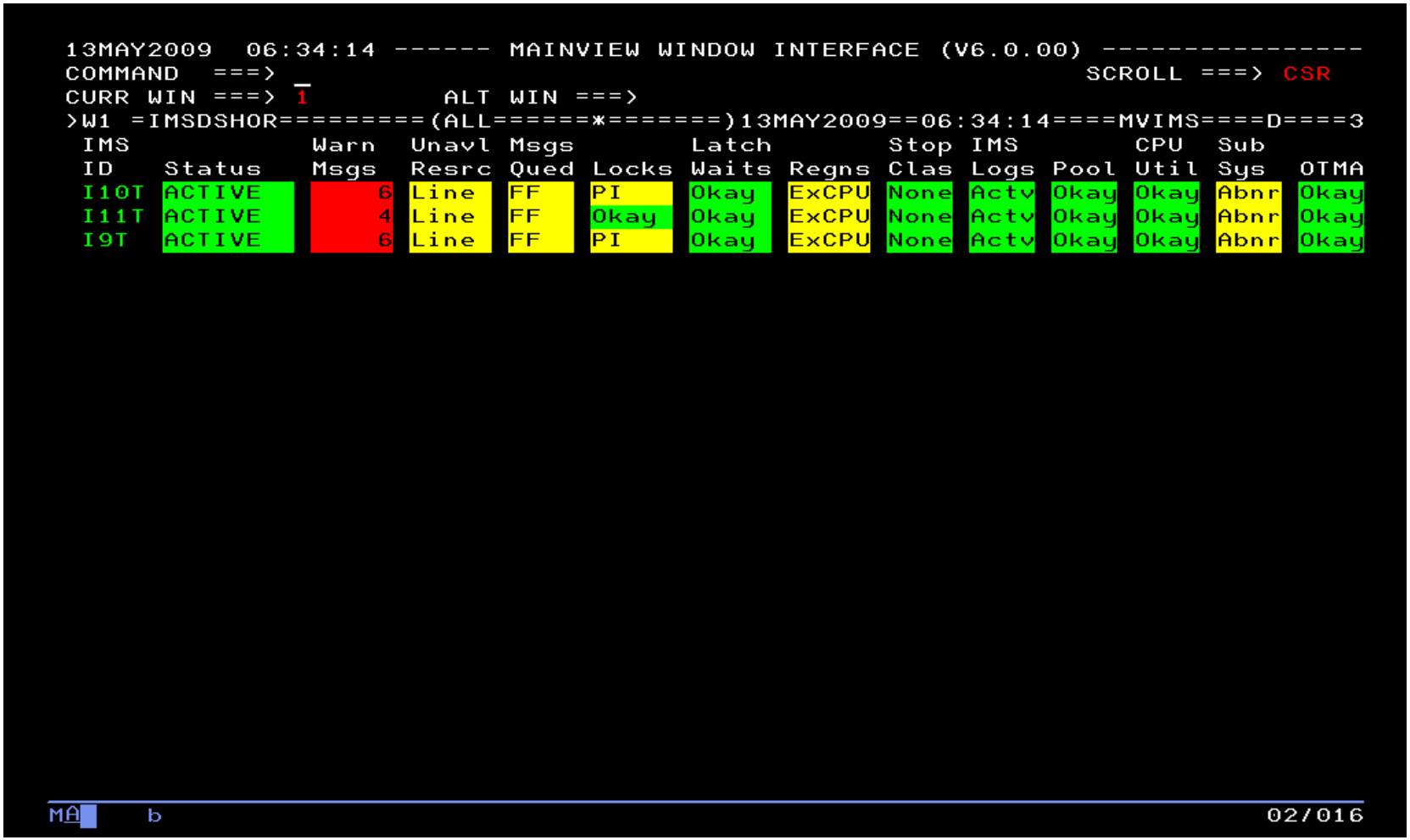
TSO SPOC - Single Point of Control

- 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

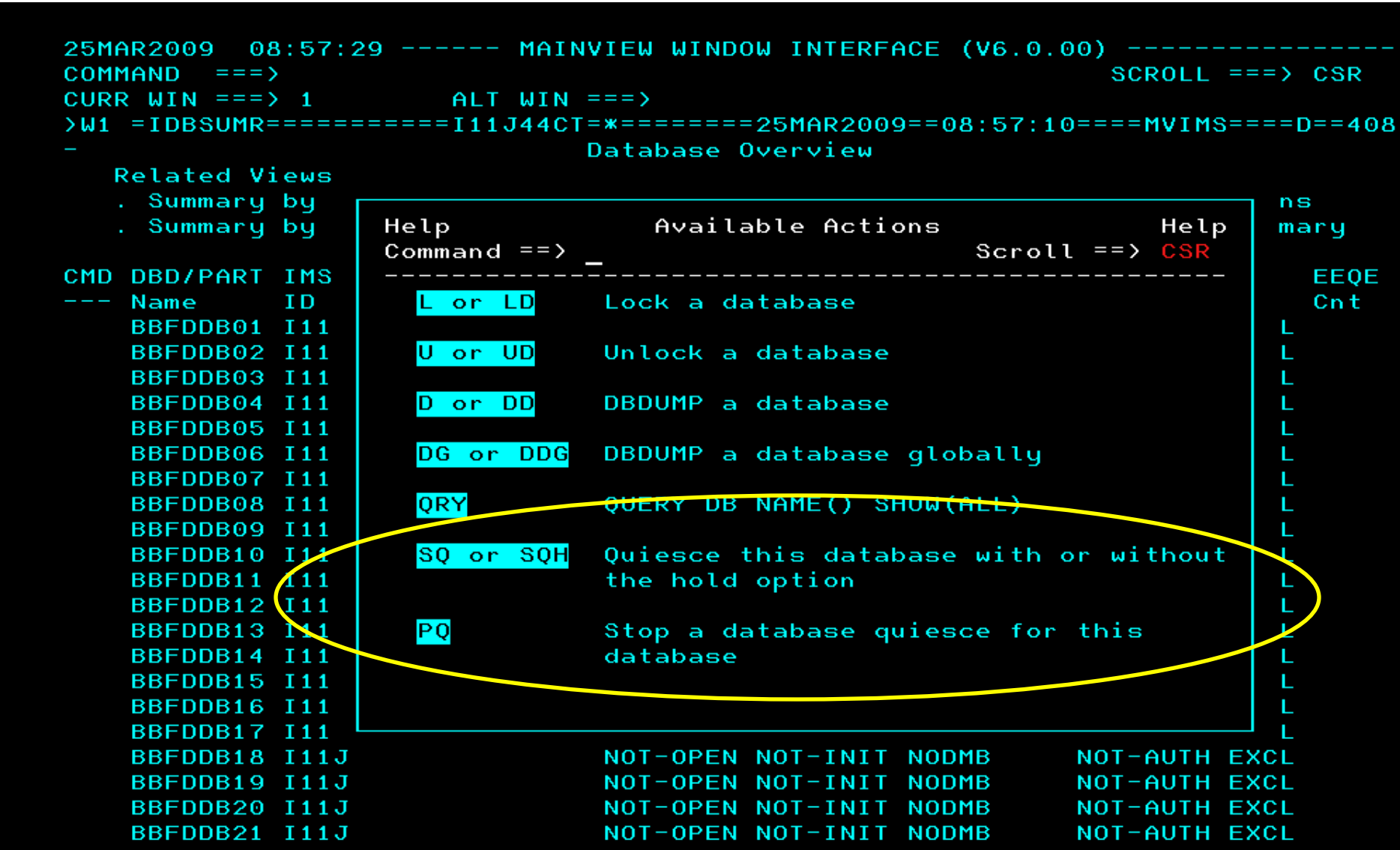
MAINVIEW Architecture – Single System Image

- 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 type1 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



Issue IMS Commands



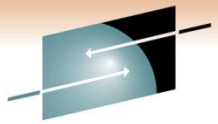
More on DB Quiesce

- 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



```
25MAR2009  08:55:44 ------ MAINVIEW WINDOW INTERFACE (V6.0.00) ----------------
COMMAND  ===>                                                  SCROLL ===> CSR
CURR WIN ===> 1          ALT WIN ===>
 W1 =IMSPARMR==========I11J44CT=*========25MAR2009==08:55:44====MVIMS====D===50

 -------------- ---------  IMS Parameters --------- --------------- ---------

                                  IMS ID --> I11J

 ACBSHR ........    (blank) ALOT ..........       60 AOIP ..........     2047M
 AOIS ..........          N APPC ..........        Y APPCIOT........  0005:00
 APPCLLU........          Y APPCSE ........        N APPLID1 .......     I11J
 APPLID2 .......    (blank) APPLID3 .......  (blank) ARC ...........        1
 ARMRST ........          N ASOT ..........       60 AUTO ..........        N
 AUTOEXPORT ....          N AUTOIMPORT ....  MODBLKS BSIZ ..........     2048
 CHTS ..........        256 CIOP ..........    2047M CMDMCS ........        Y
 CMDSEC ........    (blank) CPLOG .........   150000 CRC ...........        /
 CSAPSB ........      10240 CSLG    .......  (blank) DBBF ..........       50
 DBFX ..........         10 DBQUIESCETO....  (blank) DBRCNM ........  I11JDBRC
 DBWP ..........      24576 DC ............      60K DCLWA .........        Y
 DFSDF .........    (blank) DLIDSIZE ......  102400 DLINM .........  I11JDLS
 DLIPSB ........     102400 DLQT ..........       60 DMB ...........    98304
 DPRTY .........        254 DSCT ..........        I EMHB ..........     2047M
 EMHL ..........        256 EPCB ..........    12288 ETO ...........        Y
 EXVR ..........          Y FBP ...........    49152 FDRMBR ........  (blank)
 FESTIM ........          0 FIX ...........       DC FMTO ..........        M
 FP    .........          Y FPDSSIZE ......    1024M FPWP ..........     2047M
 FRE ...........         30 GRNAME ........   IMFOTMA GRSNAME .....  (blank)
 GSTSAREA.......    (blank) GSTSDB  .......  (blank) GSTSTRAN.....  (blank)
 HIOP ..........      2047M HSBID .........  (blank) HSBMBR ........        DC
 IMPORTERR .....      ABORT IMSGROUP ......  IMFOTMA IMSID .........     I11J
 INPUT  ........    (blank) IOVFI .........     7200 IRLM ..........        N
```

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.**

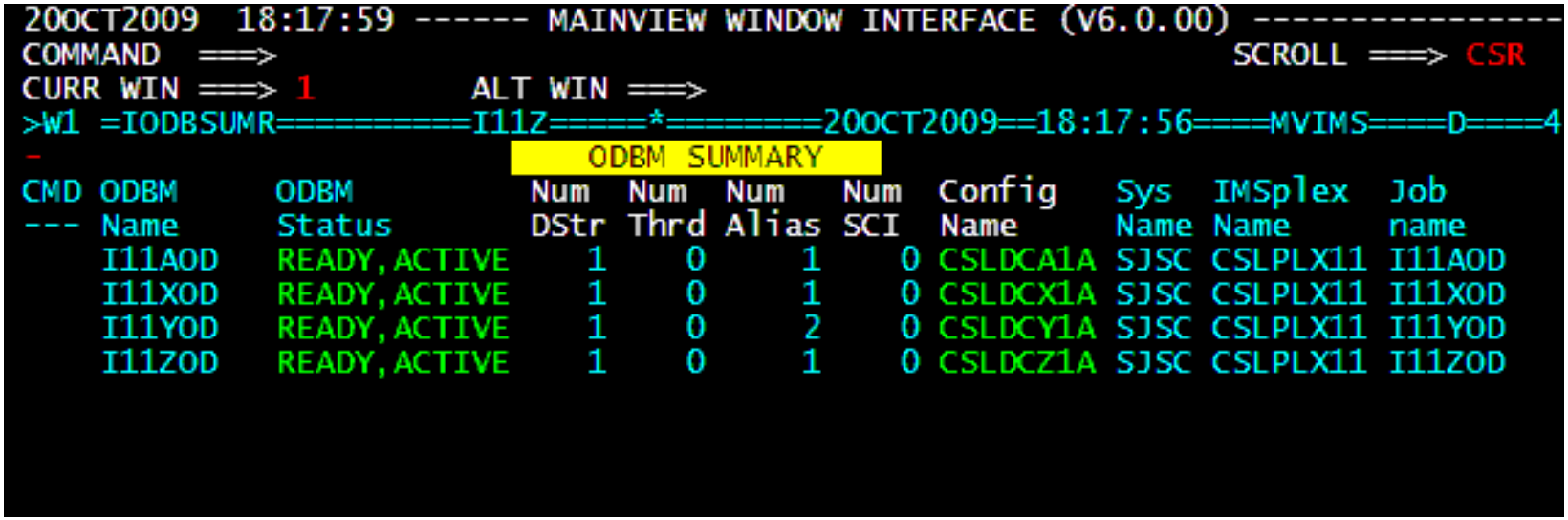
New ODBM views

- VIEWS IODB*

```
20OCT2009  18:07:11 ------ MAINVIEW WINDOW INTERFACE (V6.0.00) -----------------
COMMAND  ===>                                                  SCROLL ===> CSR
CURR WIN ===> 1         ALT WIN ===>
 W1 =VIEWS============I11Z=====*========20OCT2009==18:07:09====MVIMS====D====6
C View Name Product  Area     Description
- --------- -------- -------- ------------------------------------
  IODBASMR  MVIMS    ODBM     ODBM Alias Summary
  IODBCSMR  MVIMS    ODBM     ODBM Configuration Summary
  IODBDSMR  MVIMS    ODBM     ODBM DataStore Summary
  IODBSSMR  MVIMS    ODBM     ODBM SCI Summary
  IODBSUMR  MVIMS    ODBM     ODBM Summary
  IODBTSMR  MVIMS    ODBM     ODBM Thread Summary
```

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

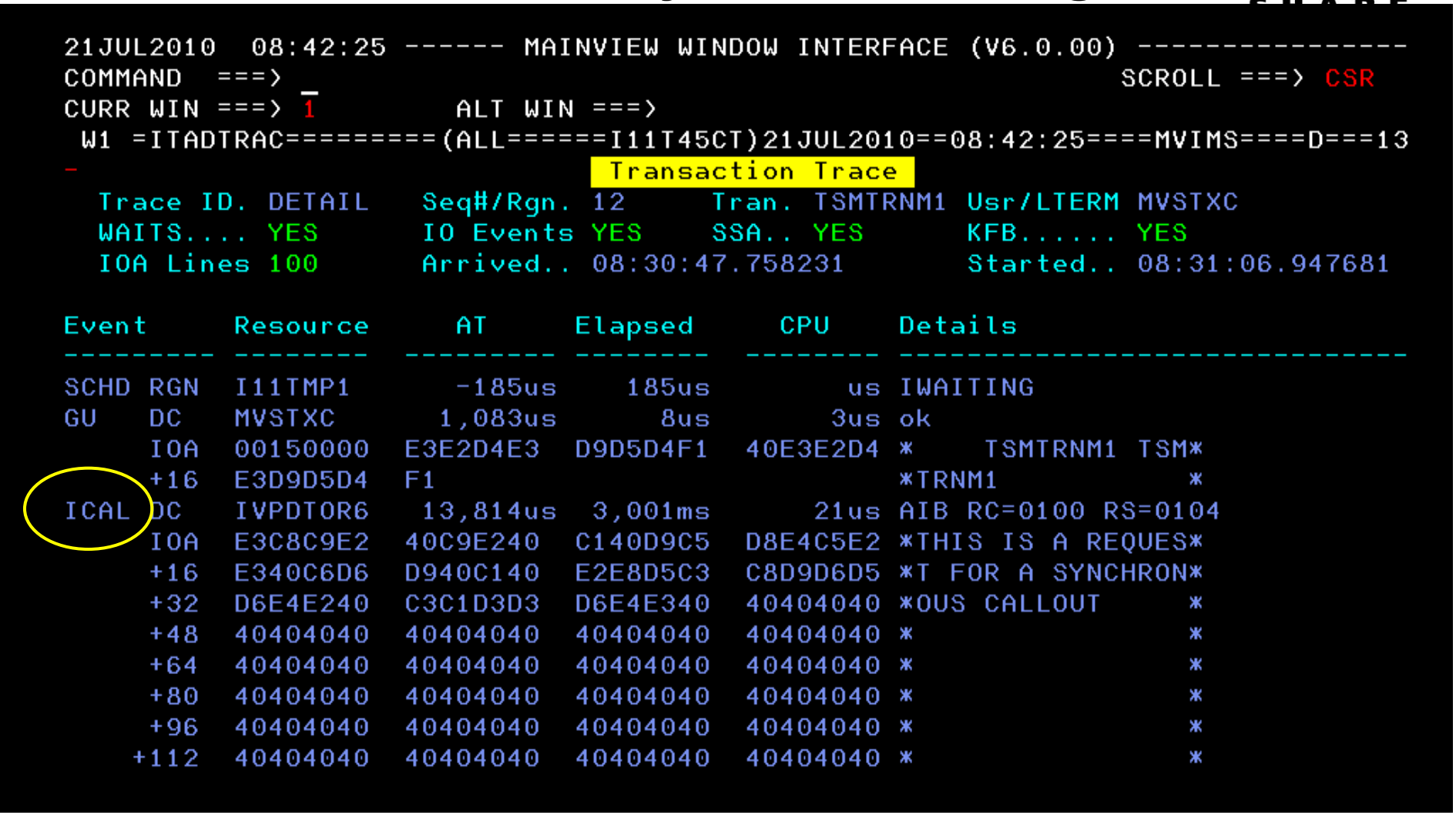
IMS V11/V10 Synchronous Callout

- 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???

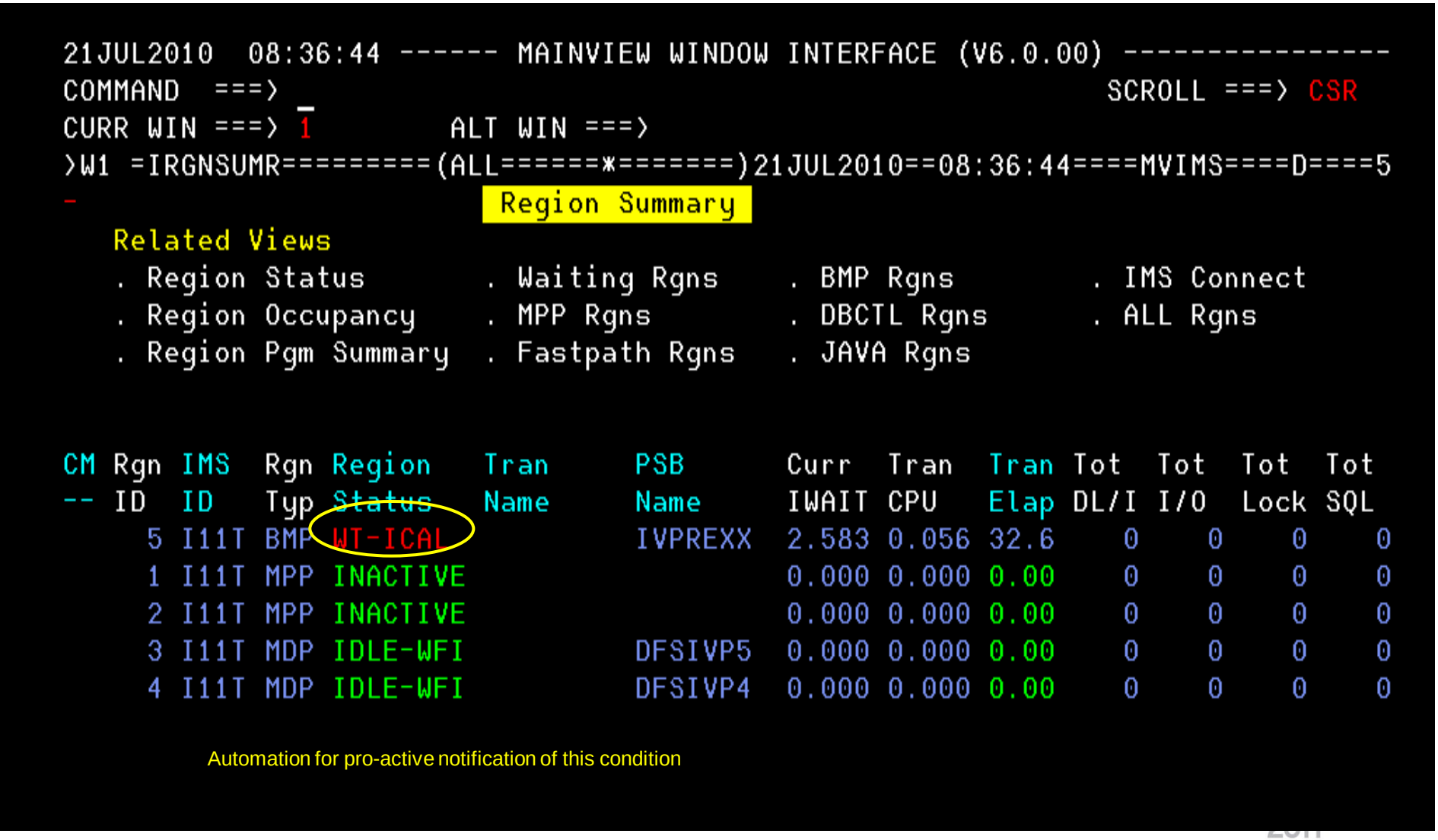
MAINVIEW for IMS Trace facility
Detail Trace – What's your Tran doing



Shows synchronous calls outs were done by the transaction, including the start times and durations of these calls, and return codes

SHARE in Anaheim 2011

IRGNSUMR view – Identifies ICAL waits

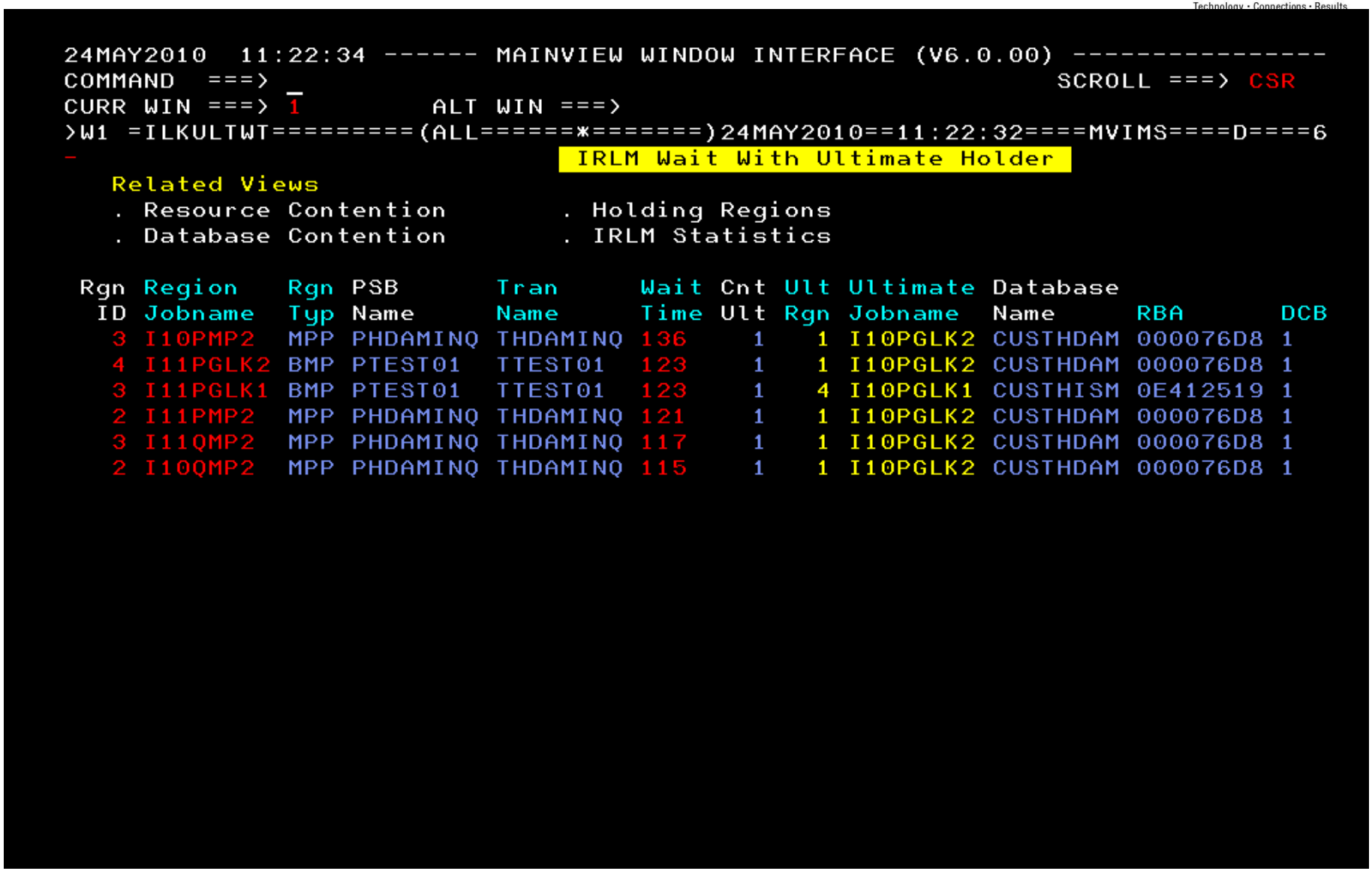


Automation for pro-active notification of this condition

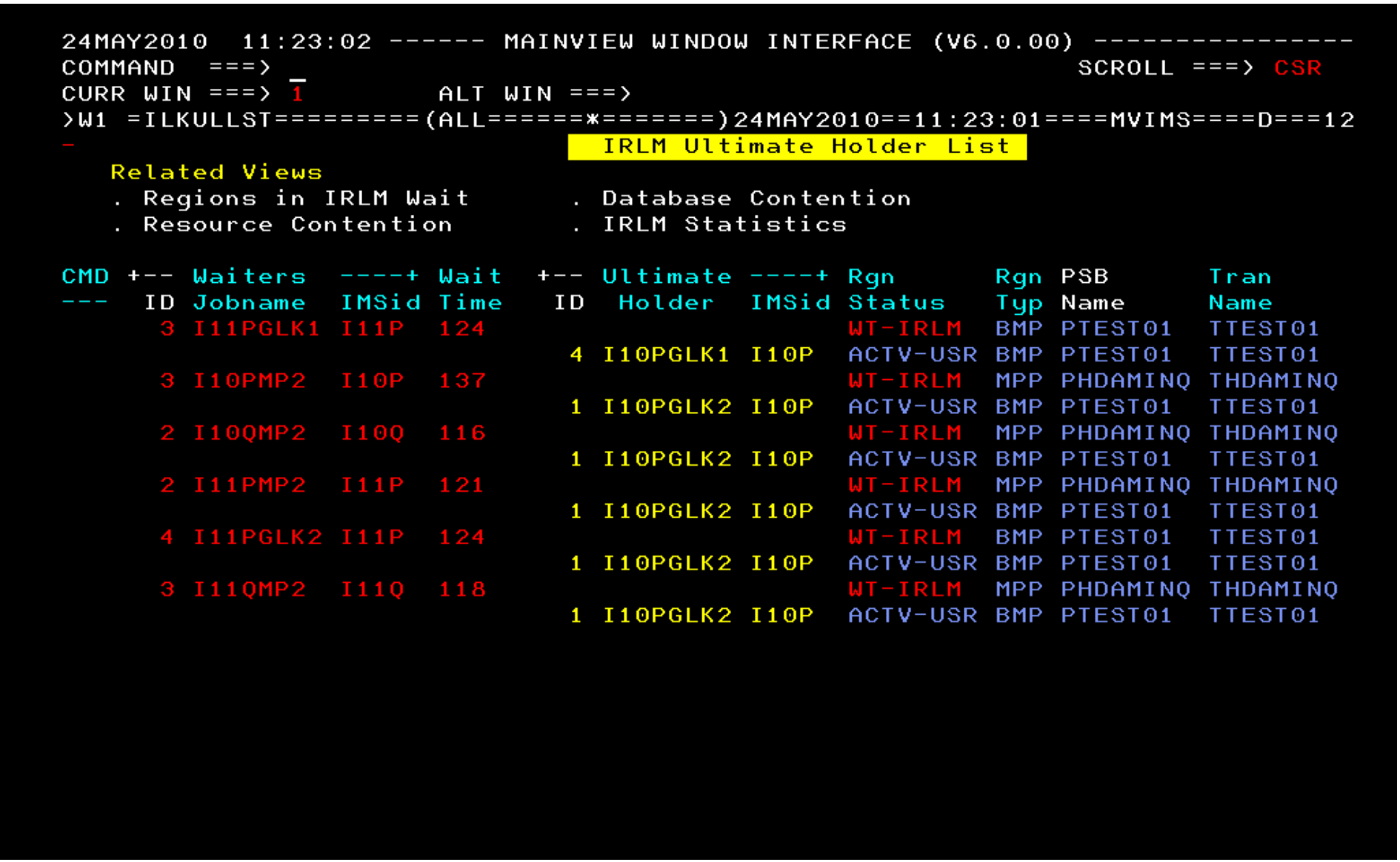
Waits/contention can impact performance

- 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) ----------
COMMAND ===>
SCROLL ===> CSR
CURR WIN ===> 1 ALT WIN ===>
>W1 =ILKULTWT=========(ALL======*=======)24MAY2010==11:22:32====MVIMS====D====6
IRLM Wait With Ultimate Holder
Related Views
. Resource Contention
. Holding Regions
. Database Contention
. IRLM Statistics
Rgn ID
Region Jobname
Rgn Typ
PSB Name
Tran Name
Wait Time
Cnt Ult
Ult Rgn
Ultimate Jobname
Database Name
RBA
DCB
3 I10PMP2 MPP PHDAMINQ THDAMINQ 136 1 1 I10PGLK2 CUSTHDAM 000076D8 1
4 I11PGLK2 BMP PTEST01 TTEST01 123 1 1 I10PGLK2 CUSTHDAM 000076D8 1
3 I11PGLK1 BMP PTEST01 TTEST01 123 1 4 I10PGLK1 CUSTHISM 0E412519 1
2 I11PMP2 MPP PHDAMINQ THDAMINQ 121 1 1 I10PGLK2 CUSTHDAM 000076D8 1
3 I11QMP2 MPP PHDAMINQ THDAMINQ 117 1 1 I10PGLK2 CUSTHDAM 000076D8 1
2 I10QMP2 MPP PHDAMINQ THDAMINQ 115 1 1 I10PGLK2 CUSTHDAM 000076D8 1

Another New V4.5 View-Waiters & Holders



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

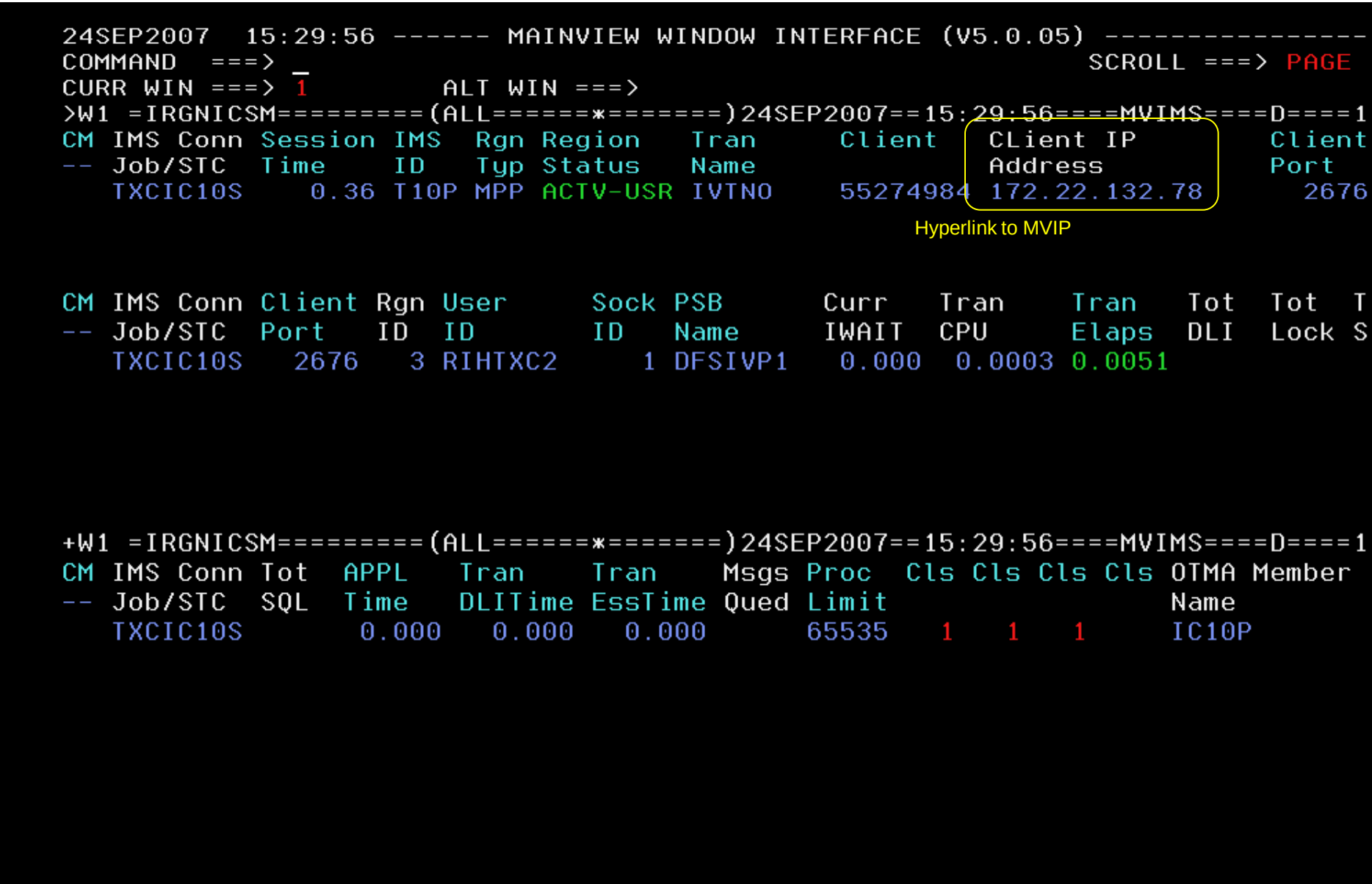
```
05MAR2008  10:31:01 ------ MAINVIEW WINDOW INTERFACE (V5.0.05) ----------------
COMMAND  ===>                                              SCROLL ===> CSR
CURR WIN ===> 3          ALT WIN ===> &2
>W1 -IMSRGNSR----------I10A43CT-*--------05MAR2008--10:31:01----MVIMS----D----1

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

                                IMS ID ------>  I10A

 All 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
 ODBA 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

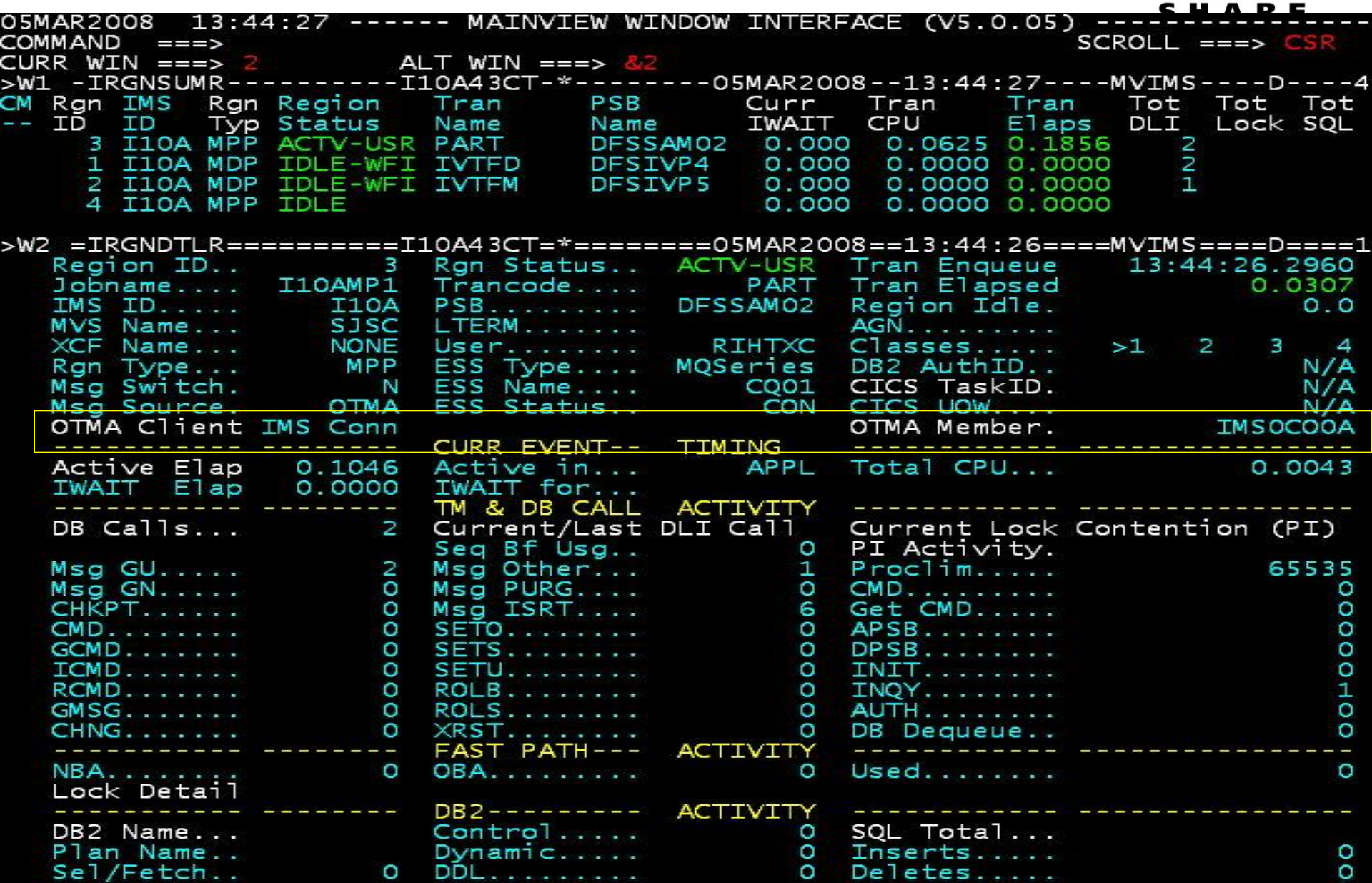
```
>W2 -IRGNICSM----------I10A43CT-*--------05MAR2008--10:31:01----MVIMS----D----1
CM  IMS Conn Session IMS  Rgn Region   Tran     Client    Client IP       Client
--  Job/STC  Time    ID   Typ Status   Name               Address         Port
    I10ACONN    1.75 I10A MPP WT-OSAM  IVTNO    97560904 172.21.28.217     2217
```

```
>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 IVTFD    DFSIVP4   0.000  0.0000 0.0000     1
      2 I10A MDP IDLE-WFI IVTFM    DFSIVP5   0.000  0.0000 0.0000     2
      3 I10A MPP ACT-SCHD                    0.000  0.0000 0.0000
```

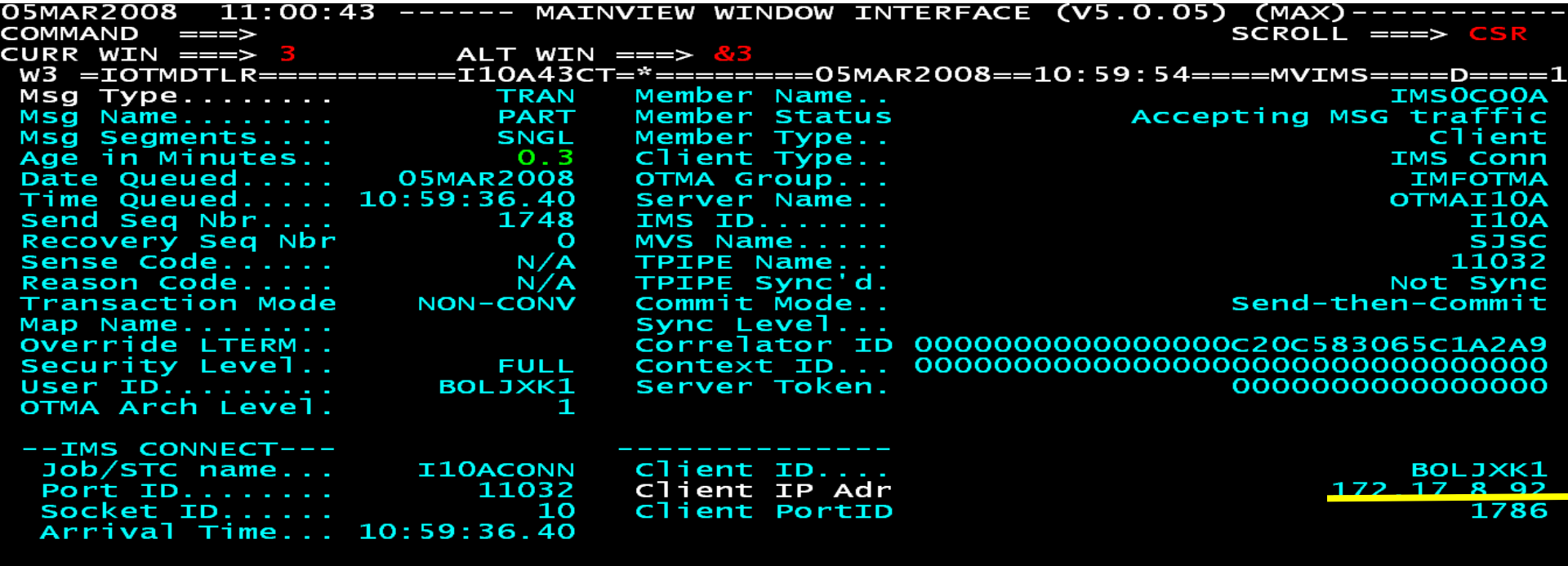
IRGNICSM – Region/IMS Connect Activity View



IRGNDTLR –Identifies IMS Connect as the OTMA client & the TMEMBER name



IOTMDTLR – OTMA Message Detail View



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

SHARE

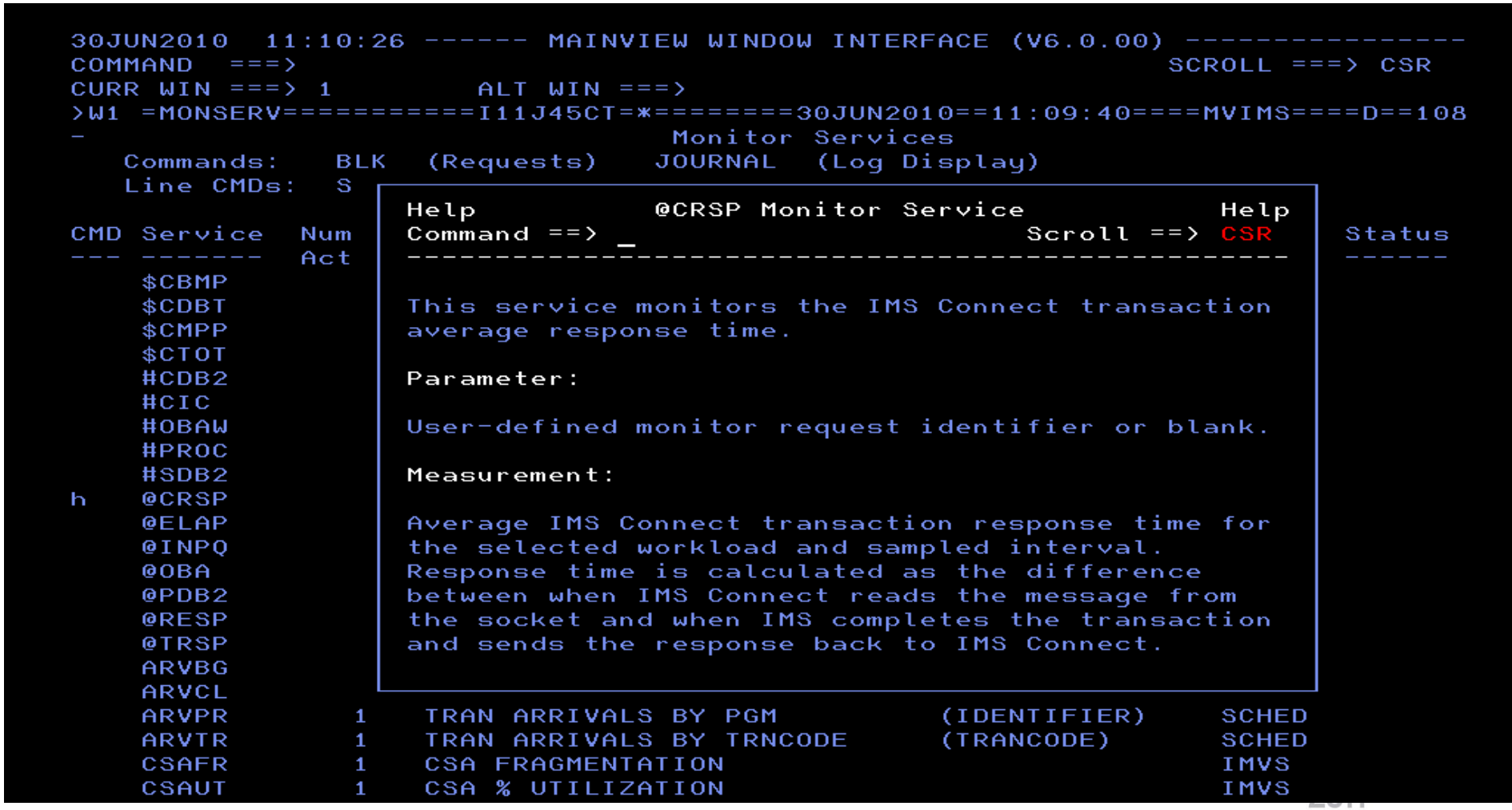
```
                              Summary Trace Data
COMMAND ===>                                                  SCROLL ===> CSR
                                                                        MORE: +
---------------------------- SYSTEM INFORMATION ----------------------------
IMS ID........ I10A      IMS Target.... I10A43CT      IMS Jobname... I10A43CT
------------------------- TRANSACTION INFORMATION -------------------------
Trancode...... PART      Region ID..... 003           Trace Seq#....     12711
Program....... DFSSAM02  Region Name... I10AMP1       User ID....... BOLJXK1
PSB Name...... DFSSAM02  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... IMS0CO0A          IMS Connect... I10ACONN
Port Id....... 11014     Client Id..... BOLJXK1       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 --------  ------ I/O ------
DB Name  Org       GU    GN REPL ISRT DLET Othr Total Opn   Read Wrte   Avg
-------- ------ ---- ---- ---- ---- ---- ---- ----- ---   ---- ----  ------
DI21PART HISAM      1    1    0    0    0    0     2          0    0   .0000
**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      Ltch IWAIT     0.0000
  Ltch 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
  Ltch 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



MVIMS Offline - FA Log Records

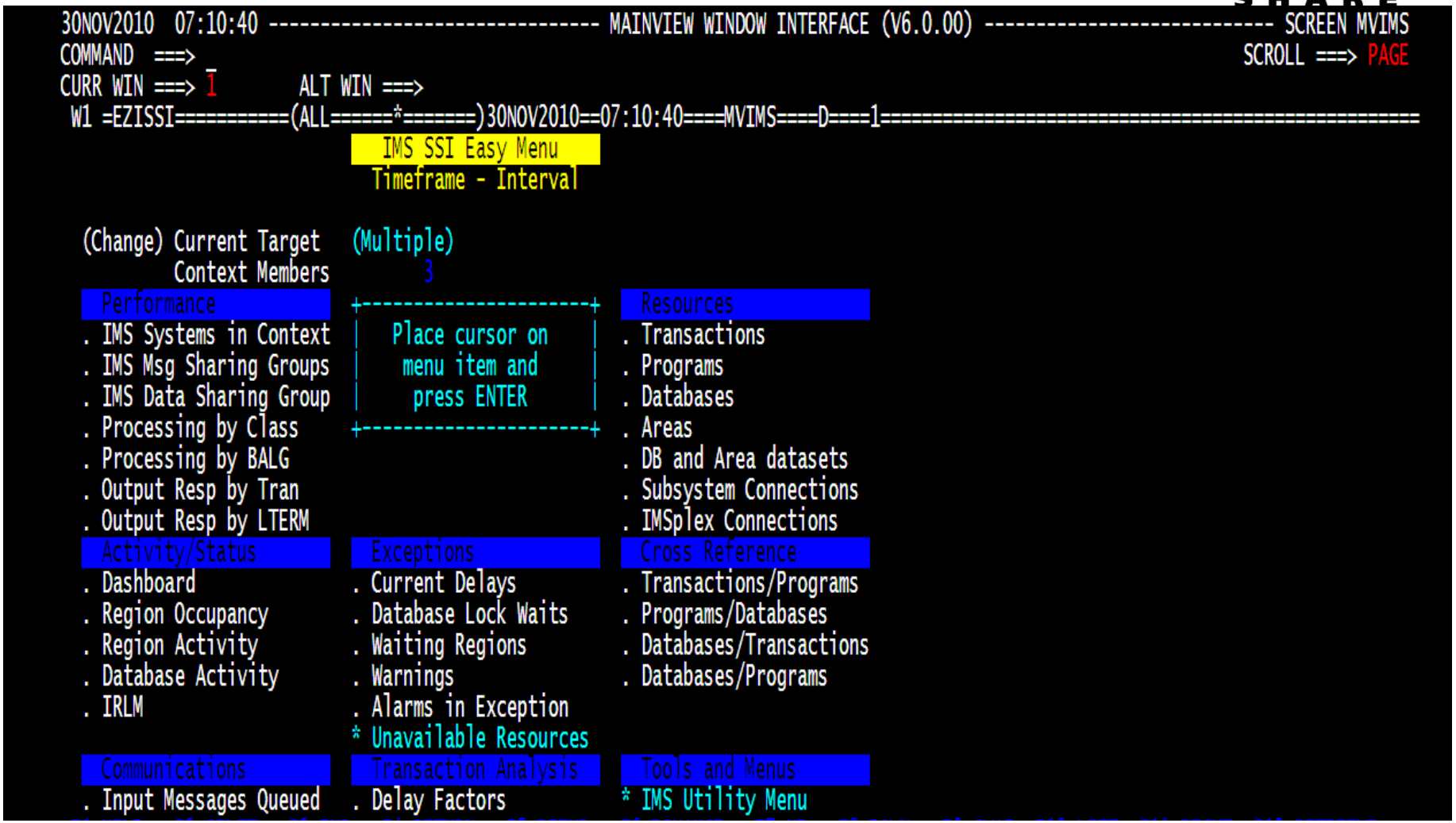
- Provide additional transaction statistics
- MAINVIEW IMS Offline component reports on these records
- Provides lots of useful information that is formatted by Log Analyzer for IMS
  - For DBCTL – provides CICS tran name, applid, userid
  - For all IMS environments - READ Only DB information
    - Number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

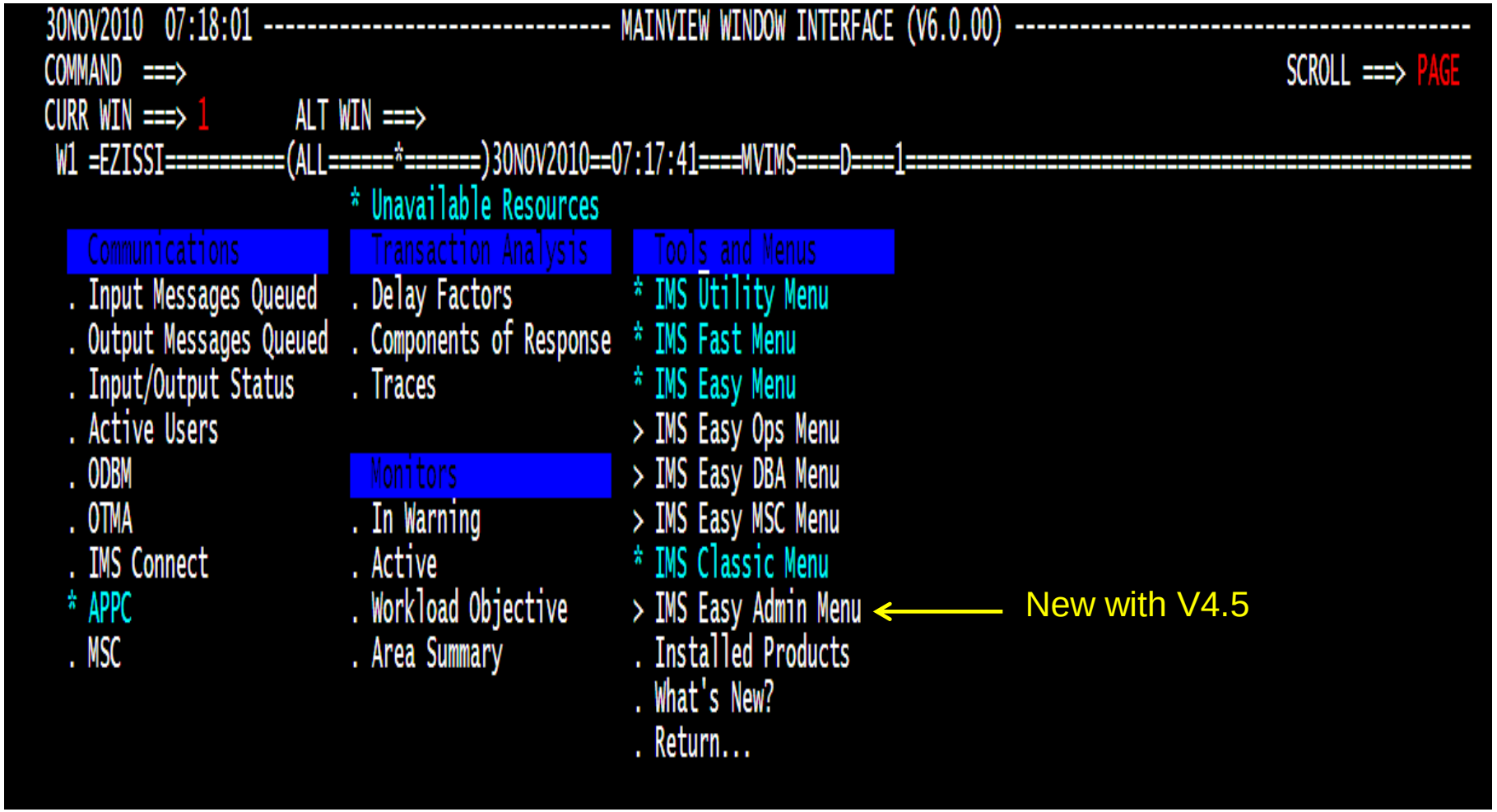
Database name

non-update CALL counts

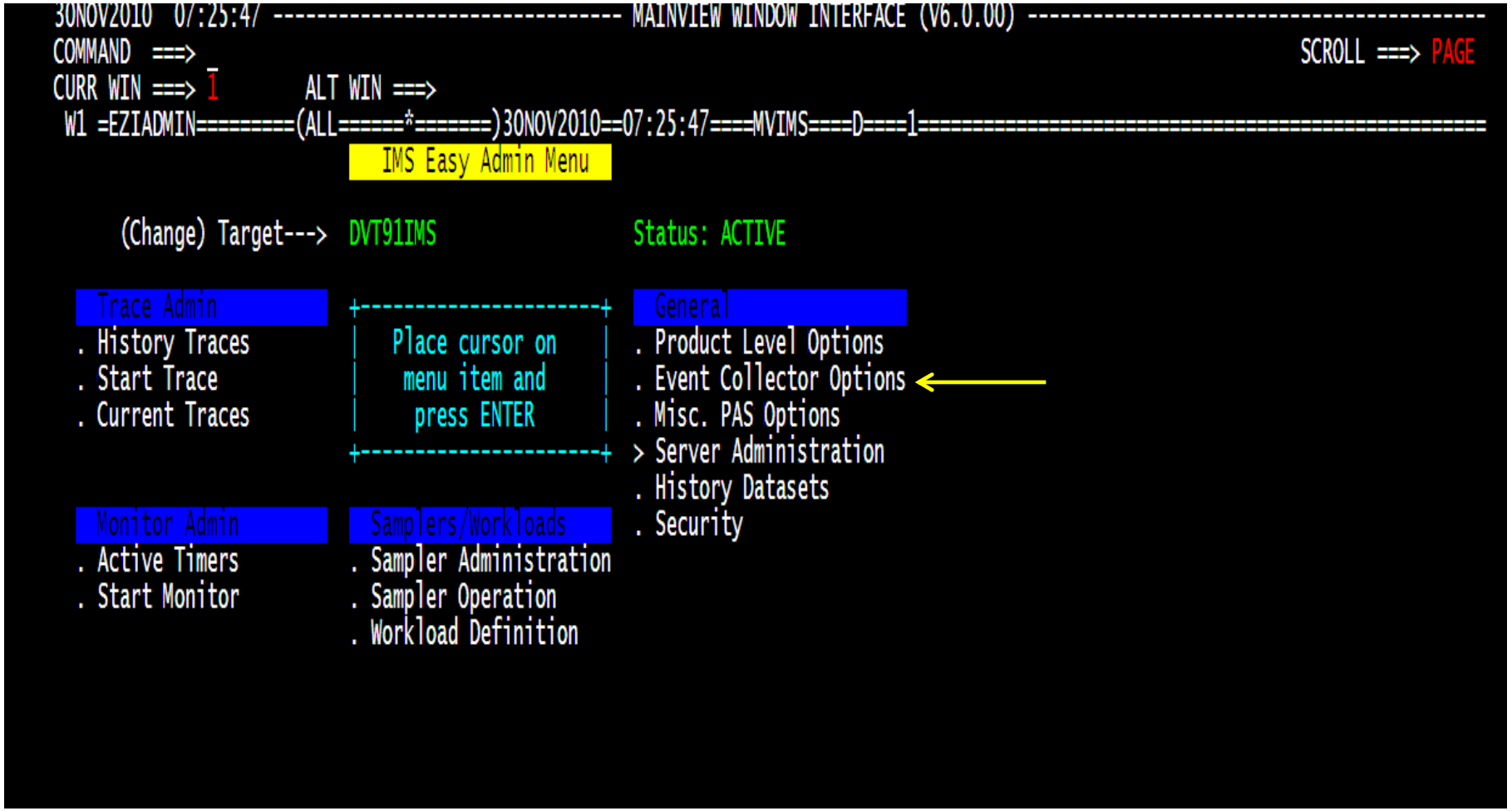
EZ Menus


30NOV2010 07:10:40 ---------- MAINVIEW WINDOW INTERFACE (V6.0.00) ---------- SCREEN MVIMS
COMMAND ===>
SCROLL ===> PAGE
CURR WIN ===> 1 ALT WIN ===>
W1 =EZISSI==========(ALL======*=======)30NOV2010==07:10:40====MVIMS====D====1
IMS SSI Easy Menu
Timeframe - Interval
(Change) Current Target (Multiple)
Context Members 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
Place cursor on menu item and press ENTER
Resources
. Transactions
. Programs
. Databases
. Areas
. DB and Area datasets
. Subsystem Connections
. IMSplex Connections
Activity/Status
. Dashboard
. Region Occupancy
. Region Activity
. Database Activity
. IRLM
Exceptions
. Current Delays
. Database Lock Waits
. Waiting Regions
. Warnings
. Alarms in Exception
* Unavailable Resources
Cross Reference
. Transactions/Programs
. Programs/Databases
. Databases/Transactions
. Databases/Programs
Communications
. Input Messages Queued
Transaction Analysis
. Delay Factors
Tools and Menus
* IMS Utility Menu

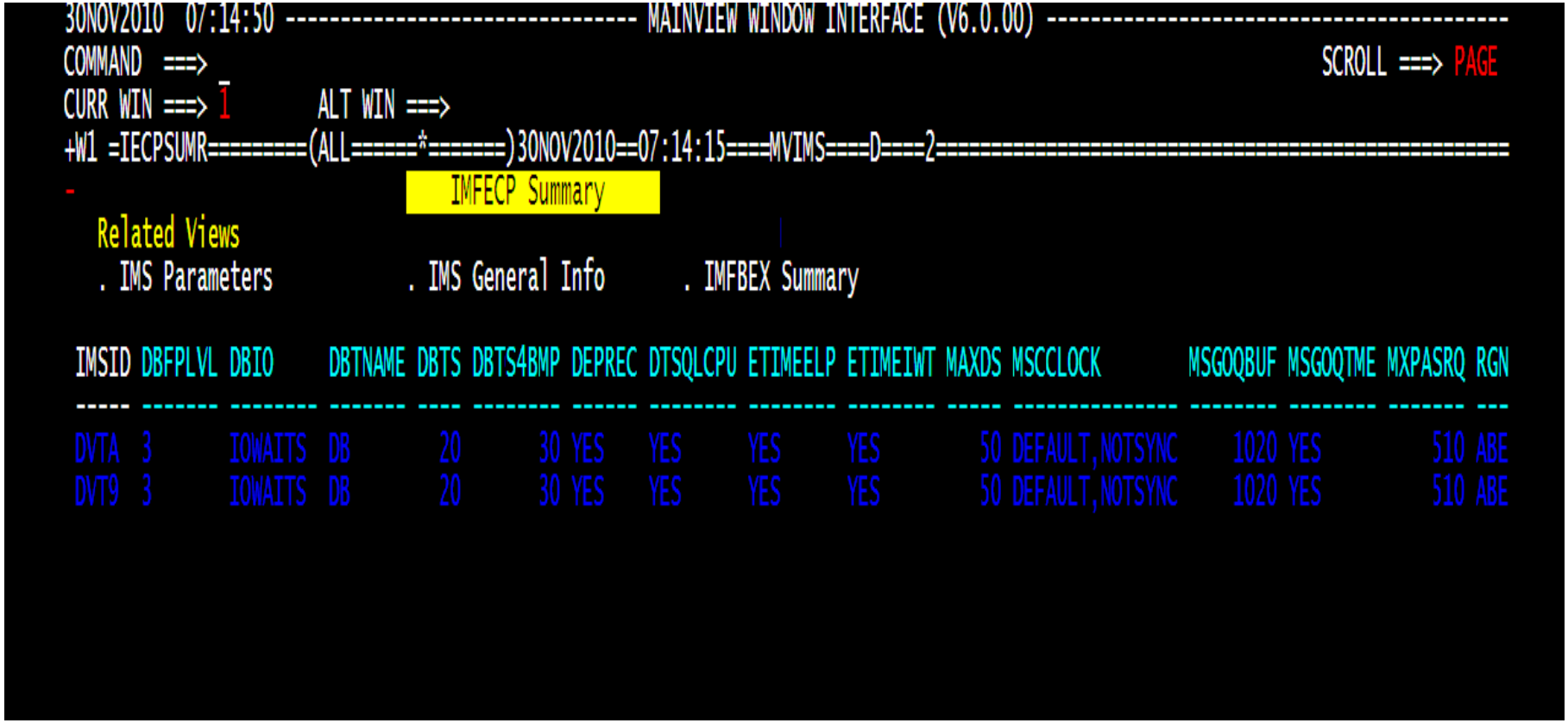
Different Menus for Different Functions



Easy Admin Menu

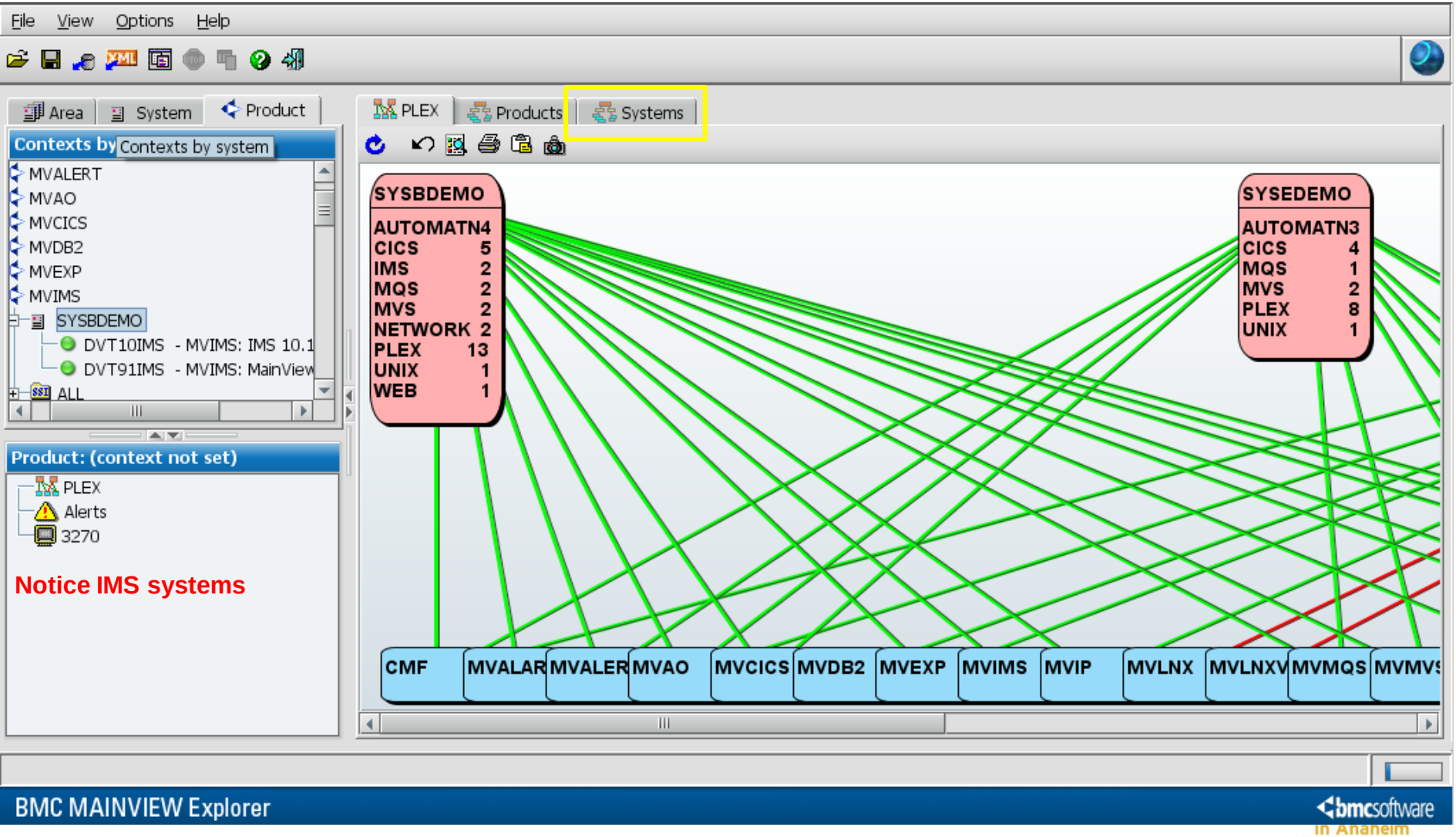


View current event collector options

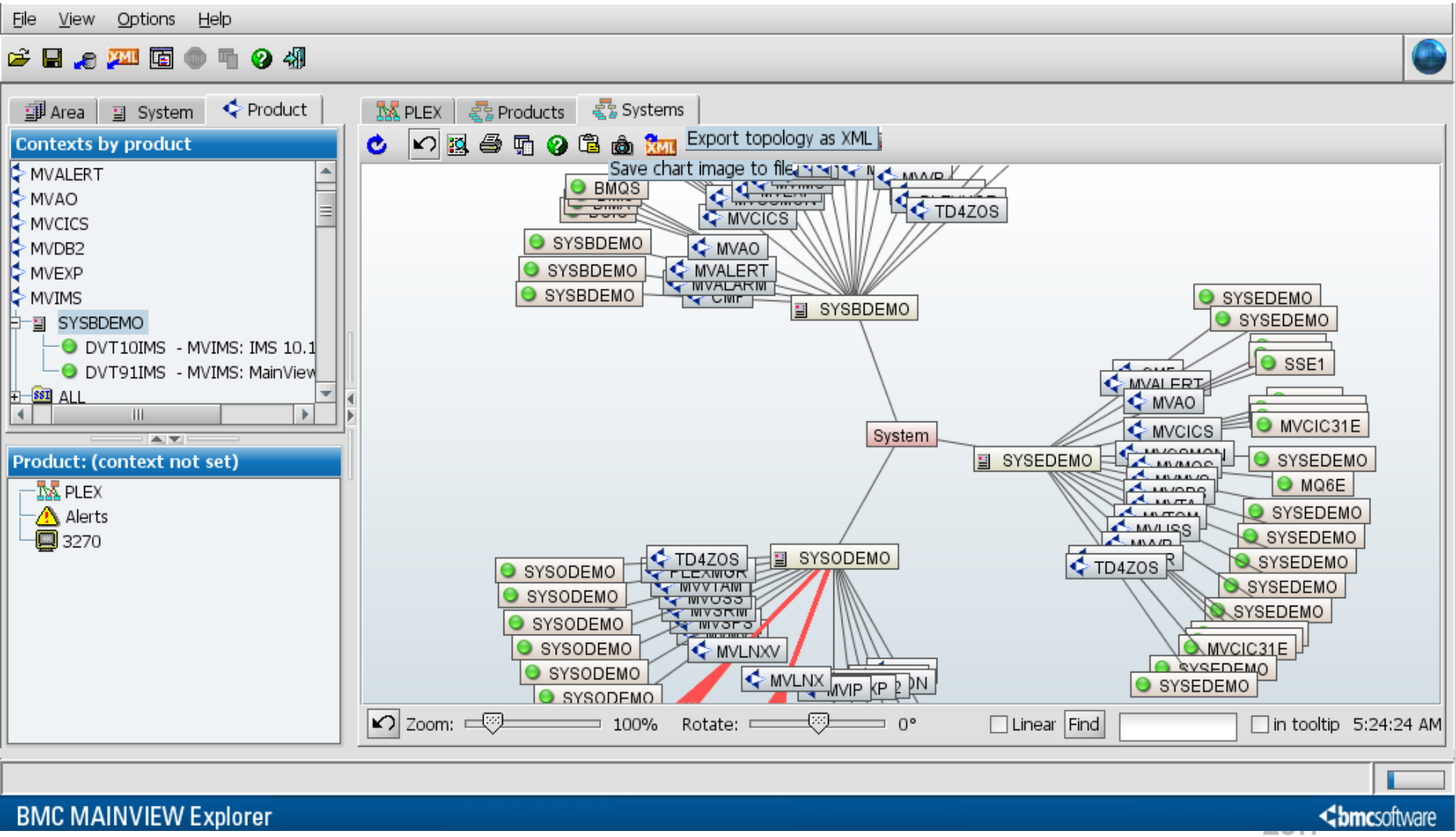


Easily determine if options are set differently in another system

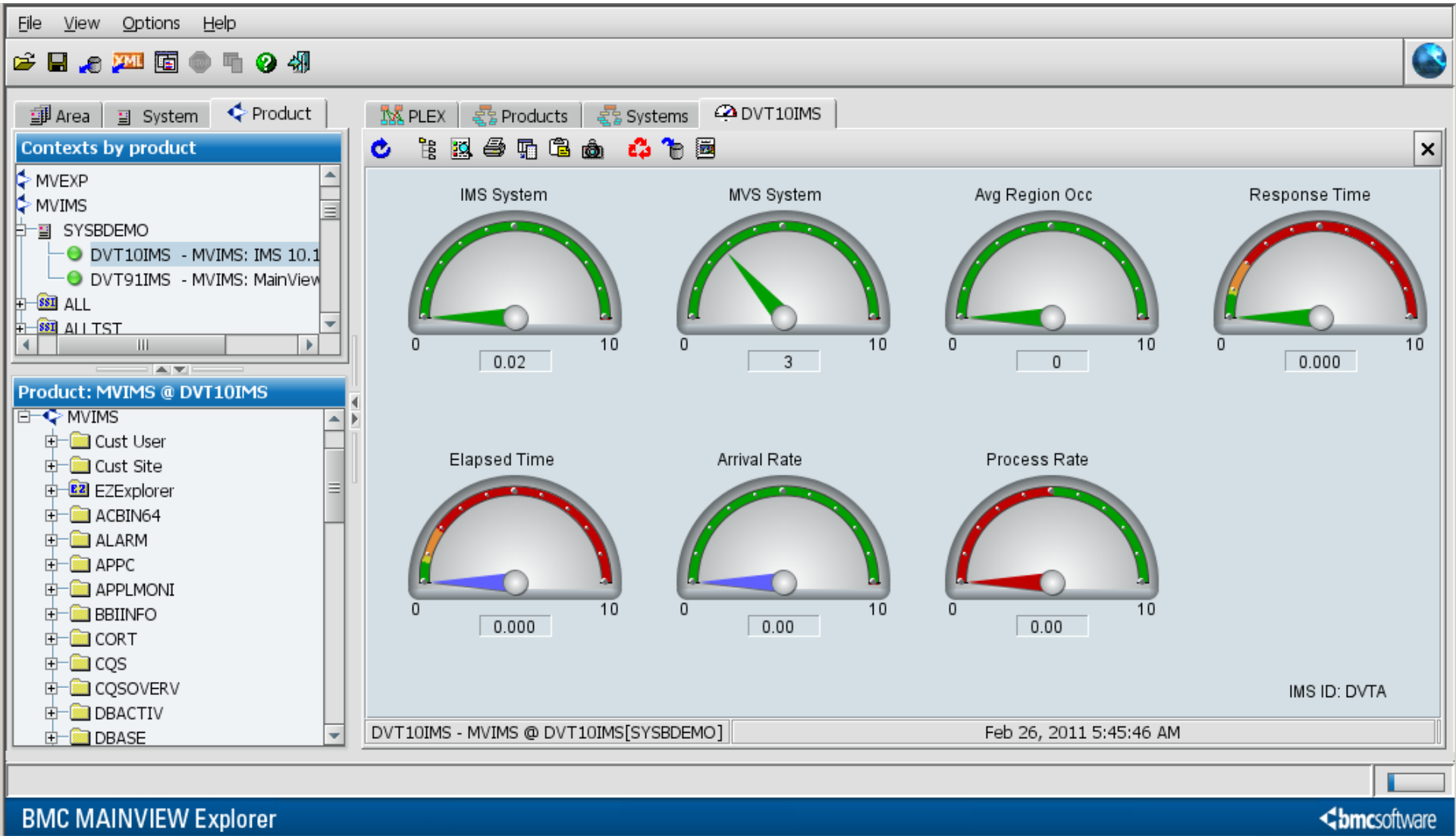
BMC MAINVIEW Explorer – Manage IMS from web browser



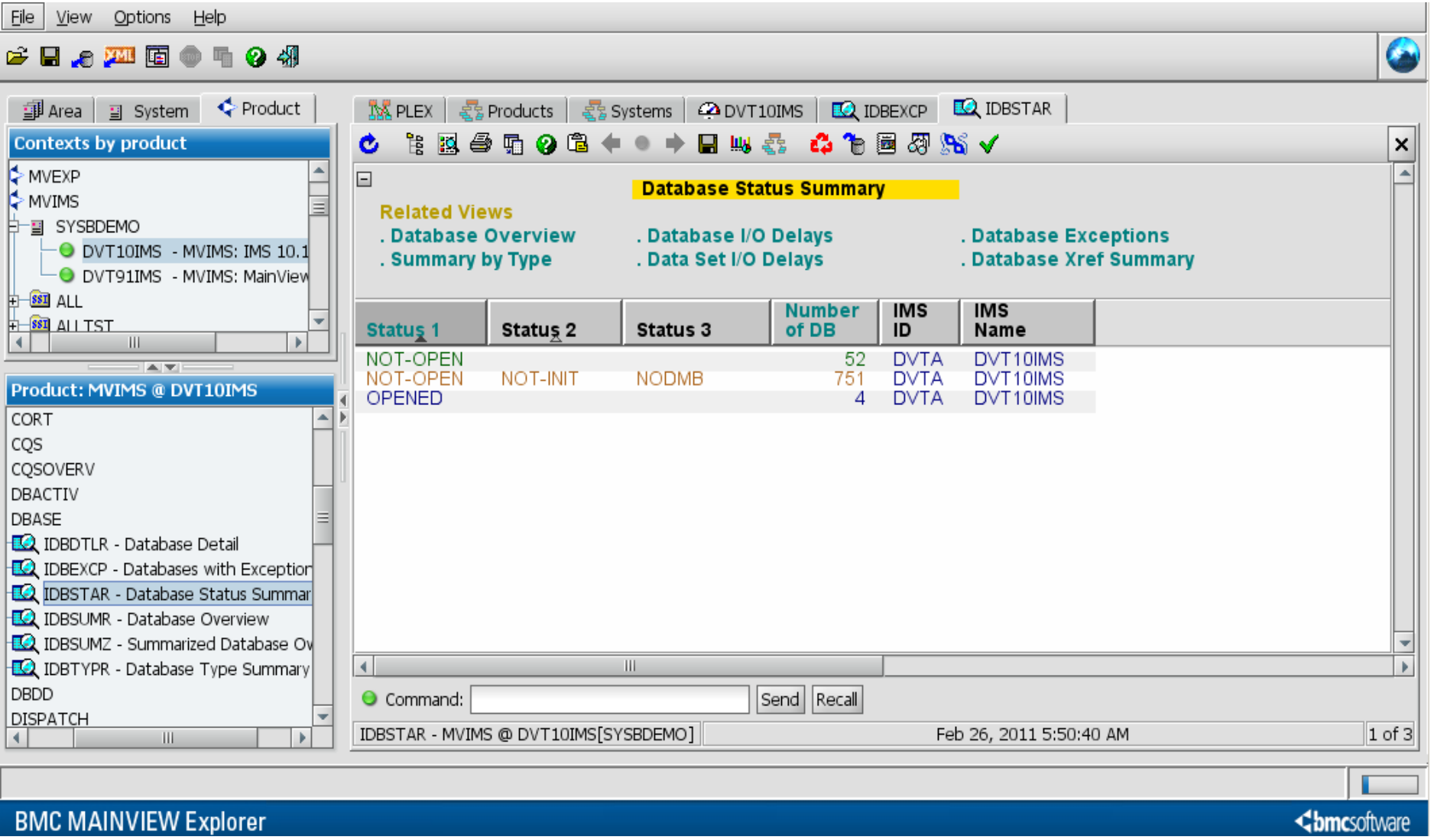
MVEXPLORER – View all the systems



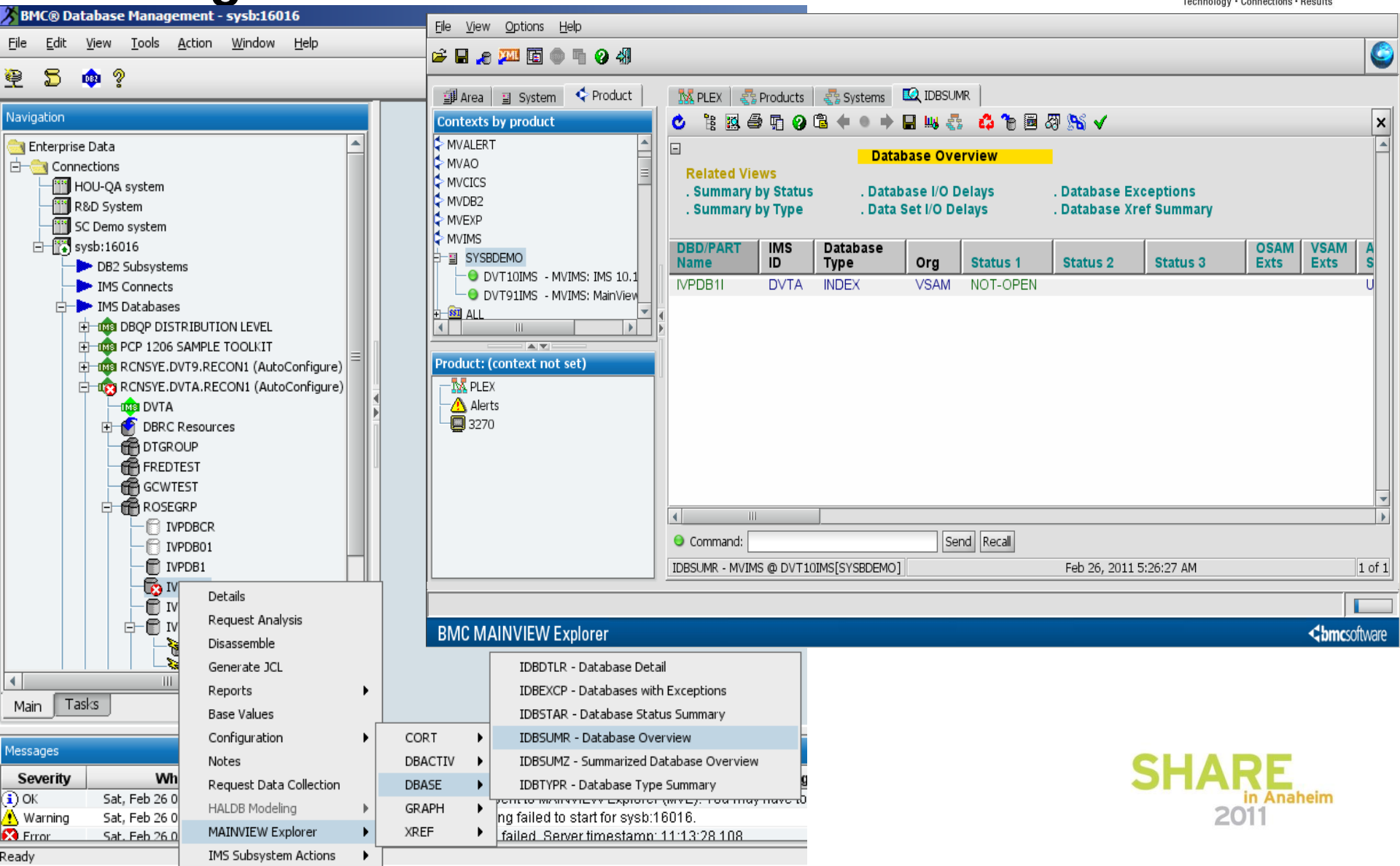
MVIMS Dashboard View



IMS Views thru MVEXPLORER



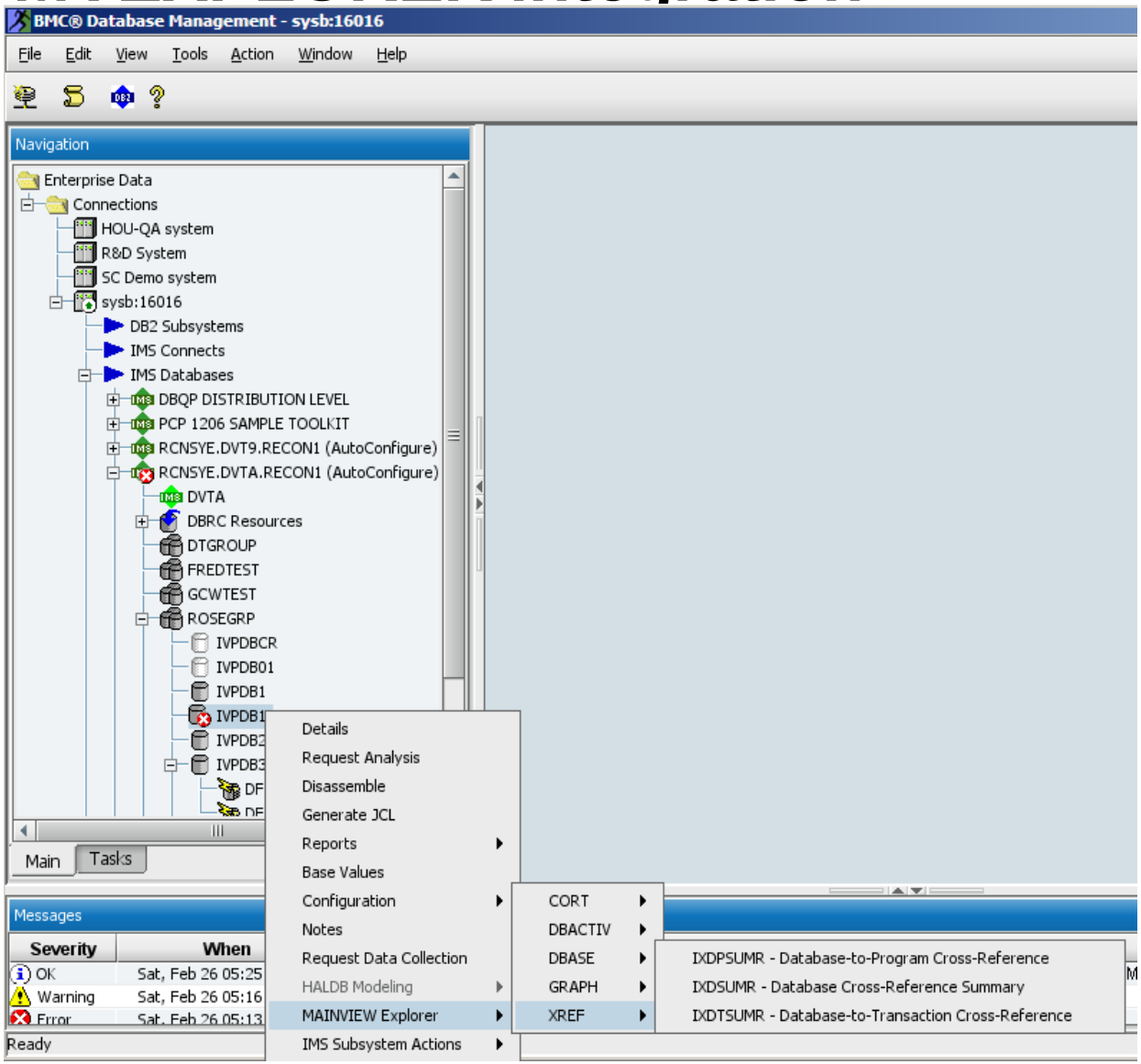
Launch MVEXPLORER from Data Management Console



SHARE
Technology • Connections • Results

SHARE in Anaheim 2011

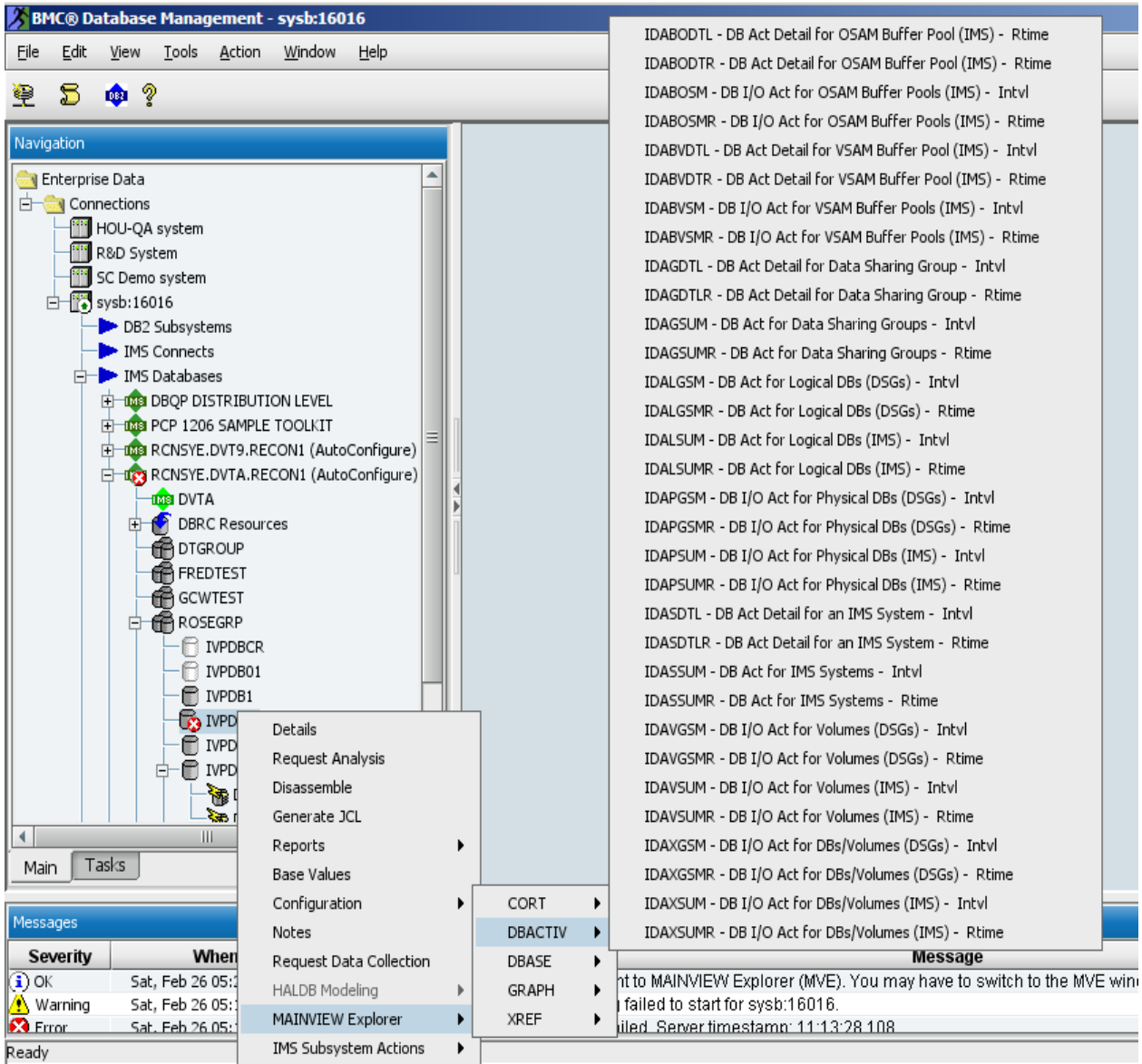
Data Management Console & MVEXPLORER integration



SHARE
Technology • Connections • Results

SHARE in Anaheim 2011

Beams you directly to a MVIMS view



SHARE in Anaheim 2011

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