OMEGAMON XE for CICS on z/OS, CICS Performance Analyzer for z/OS, and IBM Application Performance Analyzer

The IBM Complete Solution for your CICS Performance problems

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@business on demand

Performance and Availability Management Solutions for CICS

Managing system performance and planning capacity for the future

OMEGAMON XE for CICS

- Provides a real-time and historical performance management, monitoring and troubleshooting solution for CICS

- Helps you to detect performance problems early, identify cause and change system and resource parameters to avoid problems

CICS Performance Analyzer

- Provides ongoing system management and measurement reports on all aspects of CICS application performance

- Enables deep-dive CICS performance analysis and understanding of usage trends

- Aids capacity planning and tuning

- Helps quickly identify and eliminate trends leading to online performance problems

- **Plan capacity to reduce MIPS cost**

- **Proactively analyze performance trends to reduce down time and increase customer satisfaction**

- **Reduce cost of outages**

- **Reduce risk of missing the service level commitments**

- **Reduce time and cost of managing system performance and availability**

Application Performance Analyzer Functional Overview
Application performance analysis tooling for application developers

TSO User	BATCH	IMS	CICS	DB2	MQ Series

Print reports from z/OS

Application Performance Analyzer

APA Observation Files

ISPF

View reports online with ISPF
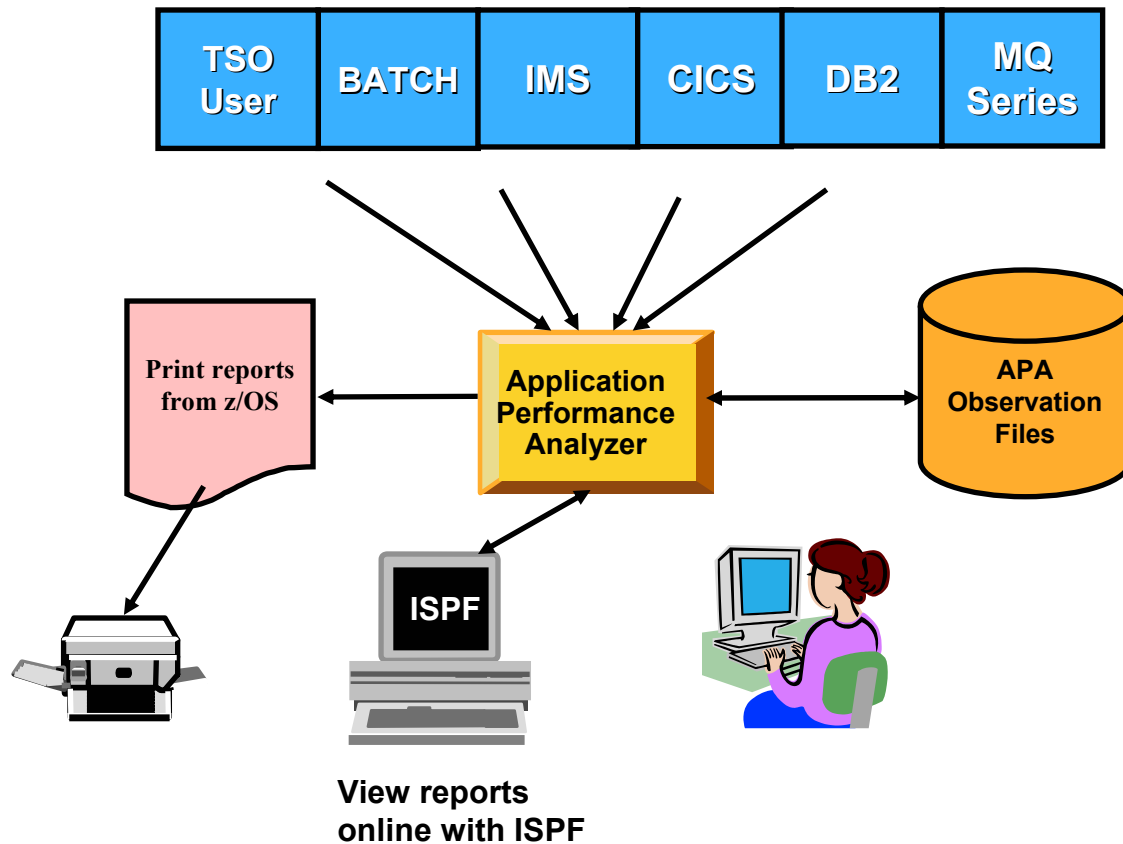
Application Performance Analyzer & IBM Performance Tools

CICS	*MVS*	*DB2*	*IMS*	MQSeries
Omegamon XE for CICS CICS Performance Analyzer	Omegamon XE for MVS	Omegamon XE for DB2 DB2 PE (soon to be part of Omegamon…	Omegamon XE for IMS IMS Performance Analyzer	Omegamon for MQSeries
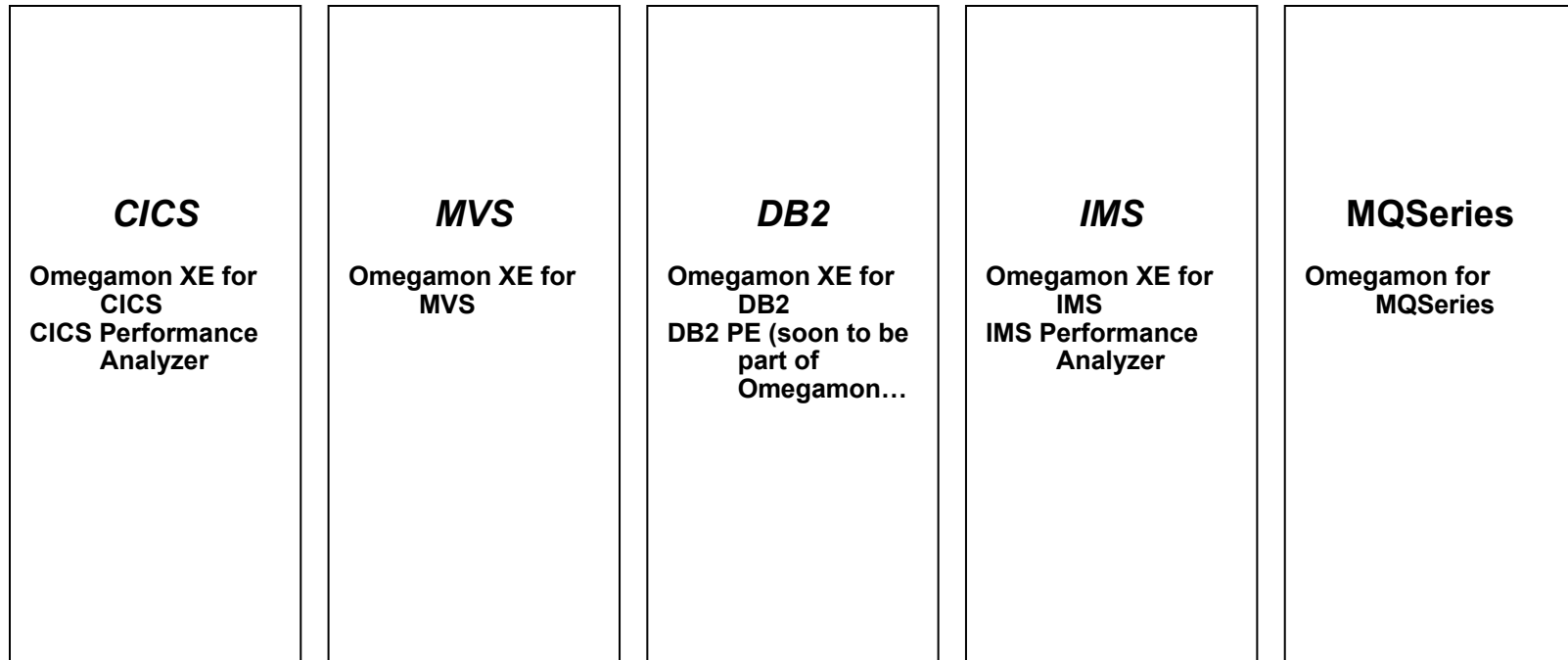
Application Performance Analyzer for z/OS
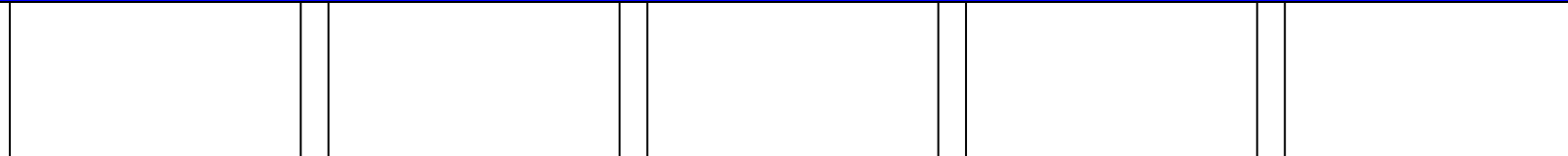
OMEGAMON XE and CICS PA and APA Sample Scenario to show synergy

- Use **OMEGAMON** online alert to detect a performance problem, e.g a 'bottleneck' transaction

- Since it is a CICS transaction, use **CICS Performance Analyzer** to go deeper and understand the root cause of the problem, eg contention problems by holding lock, resources held, interaction from cross systems (**cross system reports to show CICS, DB2, IMS, MQ resources used by the transaction** …)

- To go to the application level, use **Application Performance Analyzer** to step through the application code and fix the root cause of the performance problem caused by the application

Enterprise Status - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Tivoli. Enterprise Portal®   **Tivoli.** software

File Edit View Help

Physical

Enterprise
- OS/390 Systems
  - MV2C
    - CICS
      - MV2C.ANDY
      - MV2C.APOWD1
      - MV2C.BSFDD1
      - MV2C.BSFDD2
      - MV2C.C630CICS
      - MV2C.C640CICS
      - MV2C.CBCICS1
      - MV2C.CICS31#1
      - MV2C.CICSAC1
      - MV2C.CICSAPO
      - MV2C.CICSFB1
      - MV2C.CICSGBA1
      - MV2C.CICSGBA2
      - MV2C.CICSGBA3
      - MV2C.CICSGBP1
      - MV2C.CICSSC1
      - MV2C.CICSTM1A
      - MV2C.CMASCAC0

Physical

Enterprise Message Log

Status	Name	Display Item	Origin Node	Global Timestamp	Local Timestamp	Node	Type

Managed System Status

	Status	Name	Product	Version	
	*ONLINE	MV2C.ANDY	CP	03.01.00	
	*ONLINE	MV2C.APOWD1	CP	03.01.00	
	*ONLINE	MV2C.BSFDD1	CP	03.01.00	
	*ONLINE	MV2C.BSFDD2	CP	03.01.00	
	*ONLINE	MV2C.CBCICS1	CP	03.01.00	

Open Situation Counts - Last 24 Hours

CICSPlex_Waiting_RLS_locks

0   1   2   3   4   5

☐ Count

Ready   Hub Time: Tue, 25/10/2005 05:09:05 PM   Server Available.   Enterprise Status - 9.20.213.162 - SYSADMIN

Applet CMWApplet started   Internet

Transaction Analysis - Microsoft Internet Explorer

File　Edit　View　Favorites　Tools　Help

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File　Edit　View　Help

Physical

Transaction Processor Utilization

- MV2C.CBCICS1
- MV2C.CICS31#1
- MV2C.CICS31#2
- MV2C.CICSAC1
- MV2C.CICSAPO
- MV2C.CICSFB1
- MV2C.CICSGBA1
- MV2C.CICSGBA2
- MV2C.CICSGBA3
- MV2C.CICSGBP1
- MV2C.CICSSC1
- MV2C.CICSTM1A
- MV2C.CMASCAC0
- MV2C.CMASJT1A
- MV2C.CMASZCGD
- MV2C.CTGHI1
- MV2C.CTGHI2
- MV2C.FVFNT01A
- MV2C.FVFNT01C
- MV2C.FVFNT01D
- MV2C.FVFNT02A

Task Number

00003

00008

00026

The red state of the objects in the navigation tree indicate that a critical situation has been evaluated as TRUE. The Enterprise reflects the state of the highest TRUE situation.

VSAM RLS Lock Analysis - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help

Tivoli. Enterprise Portal®   **Tivoli.** software

File   Edit   View   Help

Physical

- 🔺 CICS
  - ⊞ MV2C.ANDY
  - ⊞ MV2C.APOWD1
  - ⊞ MV2C.BSFDD1
  - ⊞ MV2C.BSFDD2
  - ⊞ MV2C.C630CICS
  - ⊞ MV2C.C640CICS
  - ⊞ MV2C.CBCICS1
  - ⊞ MV2C.CICS31#1
  - ⊞ MV2C.CICSAC1
  - ⊞ MV2C.CICSAPO
  - ⊞ MV2C.CICSFB1
  - ⊞ MV2C.CICSGBA1
  - ⊟ 🔺 MV2C.CICSGBA2
    - ⊟ 🔺 VSAM RLS Lock Analysis
      - ✦ CICSPlex_Waiting_RLS_locks
    - ⋎ More...
  - ⊞ MV2C.CICSGBA3
  - ⊞ MV2C.CICSGBP1
  - ⊞ MV2C.CICSSC1
  - ⊞ MV2C.CMASCAC0
  - ⊞ MV2C.CMASJT1A

🖳 Physical

RLS Lock Duration

Owning Task Number: 00106

Seconds: 0 10 20 30 40 50 60 70 80 90 100 110 120 130
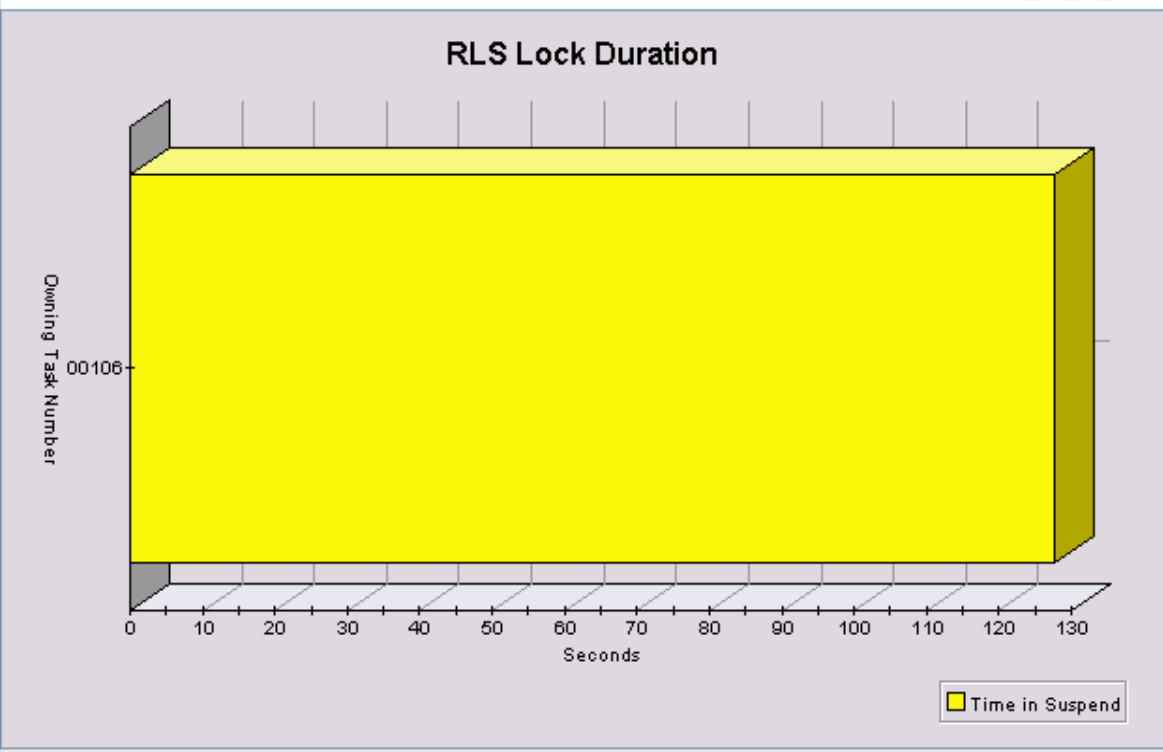
■ Time in Suspend

VSAM Record Level Sharing Lock Analysis

System ID	CICS Region Name	Transaction ID	Task Number	Task State	Time in Suspend	Dataset Type	Dataset Name	Key Length	Argument or Key
MV2C	CICSGBA1	LOCK	00106	Holder	00:02:07.67	KSDS	GBURGES.TESTFILE.KSDS	8	AAAAAAAA
MV2C	CICSGBA2	LOCK	00081	Waiter	00:01:55.42	KSDS	GBURGES.TESTFILE.KSDS	8	AAAAAAAA

Ready   🕒 Hub Time: Mon, 24/10/2005 04:49:00 PM   🌐 Server Available.   VSAM RLS Lock Analysis - 9.20.213.162 - SYSADMIN

🖻 Applet CMWApplet started   🌐 Internet

Enterprise Status - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help

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File   Edit   View   Help

Physical

CICS
- MV2C.ANDY
- MV2C.APOWD1
- MV2C.BSFDD1
- MV2C.BSFDD2
- MV2C.C630CICS
- MV2C.C640CICS
- MV2C.CBCICS1
- MV2C.CICS31#1
- MV2C.CICSAC1
- MV2C.CICSAPO
- MV2C.CICSFB1
- MV2C.CICSGBA1

Enterprise Message Log

Status	Name	Display Item	Origin Node	Global Timestamp	Loca
Open	CICSPlex_Waiting_RLS_locks		MV2C.CICSGBA2	24/10/05 16:47:35	24/1
Started	CICSPlex_Waiting_RLS_locks			24/10/05 16:47:05	24/1
Stopped	CICSPlex_Waiting_RLS_locks			24/10/05 16:46:45	24/1

⚠ CRITICAL
    🔗 CICSPlex_Waiting_RLS_locks   MV2C.CICSGBA2   24/10/05 16:47:35

Select workspace link button to view event results.

Physical

Managed System Status

Status	Name	Product	Version	-
*ONLINE	MV2C.ANDY	CP	03.01.00	24/1
*ONLINE	MV2C.APOWD1	CP	03.01.00	24/1
*ONLINE	MV2C.BSFDD1	CP	03.01.00	24/1
*ONLINE	MV2C.BSFDD2	CP	03.01.00	24/1
*ONLINE	MV2C.CBCICS1	CP	03.01.00	24/1

Open Situation Counts - Last 24 Hours

CICSPlex_Waiting_RLS_locks

0.0   1.0   2.0   3.0

☐ Count

Ready   🕐 Hub Time: Mon, 24/10/2005 04:48:00 PM   🌐 Server Available.   Enterprise Status - 9.20.213.162 - SYSADMIN

Applet CMWApplet started   🌐 Internet

Transaction Analysis - Microsoft Internet Explorer

File   Edit   View   Favorites   Tools   Help

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File   Edit   View   Help
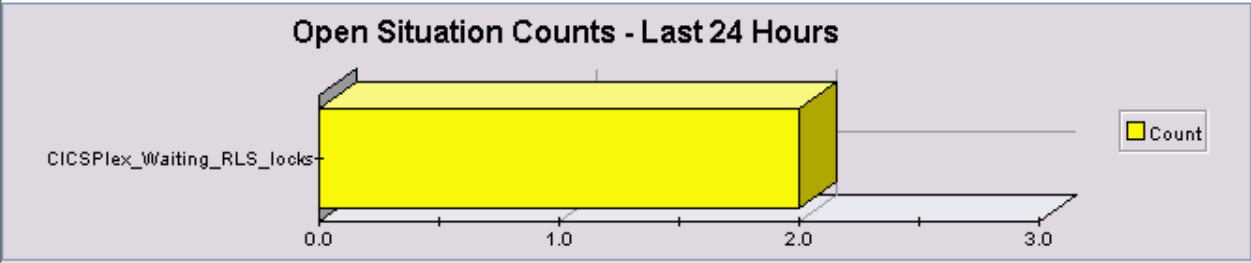
Physical

- ⊞ MV2C.CBCICS1
- ⊞ MV2C.CICS31#1
- ⊞ MV2C.CICS31#2
- ⊞ MV2C.CICSAC1
- ⊞ MV2C.CICSAPO
- ⊞ MV2C.CICSFB1
- ⊞ MV2C.CICSGBA1
- ⊞

⚠ **CRITICAL**

🔗 CICSPle

Select workspace link

- ⊞ MV2C.CTGHI2
- ⊞ MV2C.FVFNT01A

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cessor Utilization

Acknowledgement - Create

Acknowledged event

Event: CICSPlex_Waiting_RLS_locks - MV2C.CICSGBA2
Event time: Mon, 31/10/2005 02:31:02 PM

Last Updated:

Owner:
Ack time:

Created

Owner: SYSADMIN
Ack time: Mon, 31/10/2005 02:37:26 PM

Expiration

🔘 Expire at end of Interval   ⚪ Expire at specific time

⚪ 1 Hour   ⚪ 8 Hours   31/10/05 02:37 PM

⚪ 2 Hours   ⚪ 24 Hours   ☐ Use Server time

⚪ Custom   🔘 Never

    0 / 0 : 0

    dd   hh   mm

Notes

We are about to take ownership of this situation.
Doing this informs anyone else viewing the situation
that it has an owner and is under control

🕐

| OK | Cancel | Remove | Help |

Current Server time: Mon, 31/10/2005 02:38 54 PM

File   Edit   View   Favorites   Tools   Help

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File   Edit   View   Help

Physical
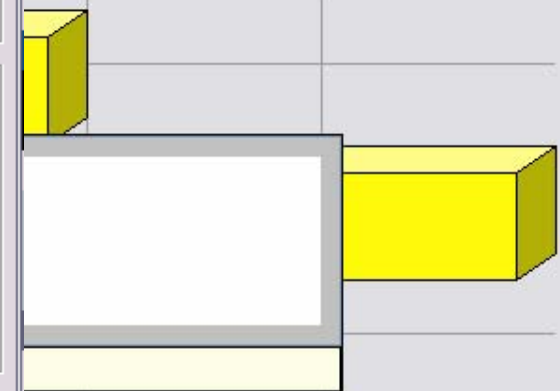
OMEGAMON XE for CICS, and CICS PA
- what can we do to prevent this happening again ?

- We dealt with our alert online using OMEGAMON and resolved the problem.

- Now we're going to use CICS PA reports to do more in-depth analysis of these locks to see if they are occurring frequently.

File Edit View Communication Actions Window Help

File Edit View Communication Actions Window Help

File   Systems   Confirm   Options   Help

                                    Report Sets   Row 1 to 1 of 1
Command ===> NEW_   Scroll ===> PAGE

Report Sets Data Set . . : CBAKER.CICSPA.RSET2

   /   Name   Description   Changed   ID
   ___   TRANSET   CICS PA Report Set   2005/10/25 15:50 CBAKER
   ******************************** Bottom of data ********************************

MA   c   04/018

File Edit View Communication Actions Window Help

```
   File   Systems   Confirm   Options   Help
 _____

 EDIT                       Report Set - TRANSET              Row 1 of 35
 Command ===> _____  Scroll ===> CSR

 Description . . . CICS PA Report Set_____

 Enter "/" to select action.


 ____         ** Reports **                          Active
     -  ____  Options                                Yes
        ____     Global                              Yes
     -  ____  Selection Criteria                     No
        ____     Performance                         No
        ____     Exception                           No
     -  ____  Performance Reports                    Yes
        ____     List                                No
        ____     List Extended                       No
        ____     Summary                             No
        ____     Totals                              No
        s        Wait Analysis                       Yes
        s        Cross-System Work                   Yes
        ____     Transaction Group                   No
        ____     BTS                                 No
        ____     Workload Activity                   No
     -  ____  Exception Reports                      No
        ____     List                                No
        ____     Summary                             No
     -  ____  Transaction Resource Usage Reports     Yes
        s__      File Usage Summary                  Yes
        ____     Temporary Storage Usage Summary     No
        ____     Transaction Resource Usage List     No
```

MA   c   30/016

File Edit View Communication Actions Window Help

File Edit View Communication Actions Window Help

File   Systems   Confirm   Options   Help

```
EDIT                        Report Set - TRANSET              Row 1 of 35
Command ===> _____  Scroll ===> CSR

Description . . . CICS PA Report Set

Enter "/" to select action.


run    _          ** Reports **                     Active
       -    ____  Options                            Yes
            ____     Global                          Yes
       -    ____  Selection Criteria                 No
            ____     Performance                     No
            ____     Exception                       No
       -    ____  Performance Reports                Yes
            ____     List                            No
            ____     List Extended                   No
            ____     Summary                         N
```

The JCL created by the report request can be saved to be run again. Typically it's hidden from the customer when they run the report.

Cross-System Work Report

```
V1R4M0                                    CICS Performance Analyzer
                                             Cross-System Work

CROS0001 Printed at 11:23:00 11/02/2005 Data from 15:02:24 10/24/2005 to 16:58:46 10/24/2005                    Page      1
```

Tran	Userid	SC	TranType	Term	LUName	Request Type	Program	Fcty T/Name	Conn Name	NETName	UOW Seq	APPLID	R Task T	Stop Time	Response Time	A B
LOCK	CICSUSER	TO	U	T169	IYCWT169	AP:	GENERAL	T/T169		GBIBMIYA.IYCWT169	1	IYK2ZFV2	115 T	15:11:48.050	32.5170	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	115 T	15:13:21.977	31.1209	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	119 T	15:14:30.257	54.6545	
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	124 T	15:20:28.159	32.2999	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	126 T	15:21:39.152	32.4154	Y
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	139 T	15:39:55.933	220.846	
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	145 T	15:44:23.287	239.740	
LOCK	CICSUSER	TO	U	T170	IYCWT170	AP:	GENERAL	T/T170		GBIBMIYA.IYCWT170	1	IYK2ZFV1	106 T	15:52:01.735	448.871	
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	129 T	15:14:25.050	32.1299	Y
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	081 T	15:34:33.430	894.431	
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	144 T	15:35:10.963	37.5284	
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	162 T	15:41:05.046	31.8238	Y
LOCK	CICSUSER	TO	U	T171	IYCWT171	AP:	GENERAL	T/T171		GBIBMIYA.IYCWT171	1	IYK2ZFV2	164 T	15:42:16.052	31.8847	Y

Wait Analysis Report

```
V1R4M0                                    CICS Performance Analyzer
                                             Wait Analysis Report
                                   _____


WAIT0001 Printed at 11:23:00 11/02/2005    Data from 15:11:15 10/24/2005 to 16:56:27 10/24/2005              Page      1

---------------------------------------------------------------------------------------------------------------------------
APPLID=IYK2ZFV1   Tran=LOCK
  Summary Data                                  -------- Time ---------    ------ Count ------   ------ Ratio ------
                                                  Total      Average        Total    Average
      # Tasks                                                                 13
      Response Time                             1608.6077   123.7391
      Dispatch Time                                1.5424     0.1186          121       9.3       0.1% of Response
      CPU Time                                     0.4230     0.0325          121       9.3      27.4% of Dispatch
      Suspend Wait Time                         1607.0653   123.6204          121       9.3      99.9% of Response
      Dispatch Wait Time                           0.1136     0.0087          108       8.3       0.0% of Suspend
      Resource Manager Interface (RMI) elapsed time  0.0110   0.0008           26       2.0       0.0% of Response
      Resource Manager Interface (RMI) suspend time  0.0000   0.0000            0       0.0       0.0% of Suspend


  Suspend Detail                                ------------------ Suspend Time ------------------   ----- Count -----
                                                  Total      Average    %age  Graph                   Total   Average
      ICDELAY   Interval Control (IC) wait time  1239.9434   95.3803   77.2% |***************            7       0.5
      RLSWAIT   RLS File I/O wait time            318.4543   24.4965   19.8% |***                        13       1.0
      N/A       Other Wait Time                    48.6477    3.7421    3.0% |                           24       1.8
      JCIOWTT   Journal I/O wait time               0.0067    0.0005    0.0% |                            6       0.5
      IRIOWTT   MRO link wait time                  0.0065    0.0005    0.0% |                           22       1.7
      GVUPWAIT  Give up control wait time           0.0055    0.0004    0.0% |                           20       1.5
      DSPDELAY  First dispatch wait time            0.0007    0.0001    0.0% |                           13       1.0
      DSCHMDLY  Redispatch wait time caused by change-TCB mode  0.0004  0.0000  0.0% |                   16       1.2

---------------------------------------------------------------------------------------------------------------------------
```

File Usage Summary Report

```
V1R4M0                                      CICS Performance Analyzer
                                         Transaction File Usage Summary

FILE0001 Printed at 11:23:00 11/02/2005     Data from 15:05:40 10/24/2005 to 15:52:01 10/24/2005     APPLID IYK2ZFV1     Page     1


                                  ********************* FC Calls ********************* ******** I/O Waits ******* AccMeth
Tran                    #Tasks          Get      Put    Browse    Add     Delete    Total     File      RLS      CFDT   Requests
----                    -------         -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
LOCK                       0
                                  ********************* FC Calls ********************* ******** I/O Waits ******* AccMeth
     File               #Tasks          Get      Put    Browse    Add     Delete    Total     File      RLS      CFDT   Requests
---------------- -------         -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
    TESTKSDS            12 Elapse Avg  16.0119   .0003    .0000    .0000    .0000   16.0122    .0000   15.9835    .0000
                           Max  32.3834   .0034    .0000    .0000    .0000   32.3834    .0000   32.3817    .0000
                    Count  Avg       1        0        0        0        0        1        0        1        0        2
                           Max       2        1        0        0        0        4        0        2        0        4


 V1R4M0                                      CICS Performance Analyzer
                                         Transaction File Usage Summary

FILE0001 Printed at 11:23:00 11/02/2005     Data from 15:05:40 10/24/2005 to 15:52:01 10/24/2005     APPLID IYK2ZFV2     Page     2


                                  ********************* FC Calls ********************* ******** I/O Waits ******* AccMeth
Tran  File             #Tasks          Get      Put    Browse    Add     Delete    Total     File      RLS      CFDT   Requests
---- ---------------- -------         -------- -------- -------- -------- -------- -------- -------- -------- -------- --------
LOCK TESTKSDS             7 Elapse Avg  22.9281   .0000    .0000    .0000    .0000   22.9281    .0000   22.9016    .0000
                           Max  32.4540   .0000    .0000    .0000    .0000   32.4540    .0000   32.4533    .0000
                    Count  Avg       1        0        0        0        0        1        0        1        0        2
                           Max       1        0        0        0        0        2        0        1        0        2
```

CICS PA Support Pac (CP12)

- Scenario 1 : Are we meeting service level agreements ?

- Scenario 2 : Why is a transaction slow ?

- Scenario 3 : Tuning LSR pool

- For more info :http://www-306.ibm.com/software/htp/cics/panaly/

  ‣ Download New Support Pac CP12

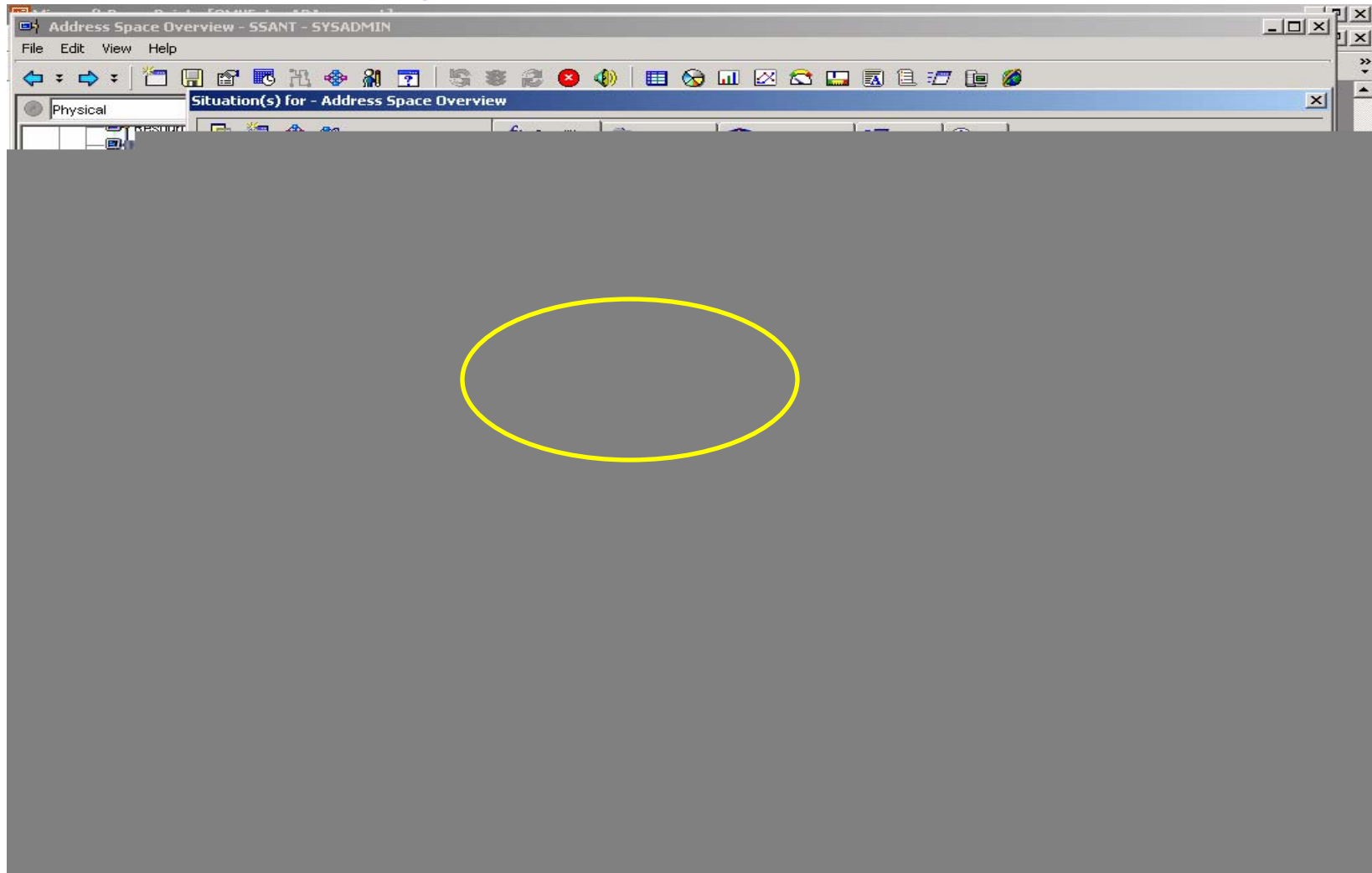# CICS PA capabilities complementary to OMEGAMON: Summary

▶ Ease of installation, set-up, and use
  ▪ Requires no additional setup or customization – just SMF data collection
  ▪ Familiar CICS terms and concepts
  ▪ Comes with over 130 supplied reports to help you get started quickly
  ▪ Provides a comprehensive ISPF dialog to manage and tailor reports
▶ Powerful and flexible analysis capabilities
  ▪ Statistics reports to help improve system and resource usage
  ▪ Detailed and summary reports on all aspects of CICS system activity and resource usage
  ▪ Ability to tailor your reports easily to display data in the order and format needed
  ▪ Extensive online help to enable easy CICS PA operation and maintenance
▶ Comprehensive data coverage and a variety of reports on all aspects of CICS performance, also covers CICS-related DB2, IMS, MVS Logger, and WebSphere MQ performance data
▶ Customizable extracts capability
  ▪ Export for importing into PC tools and DB2
  ▪ Record selection for filtering large SMF files to improve speed of processing
▶ Historical database for performance problem analysis and capacity planning
▶ Full support for all the new

OMEGAMON XE Monitors the z/OS Address Space Table for Anomalies
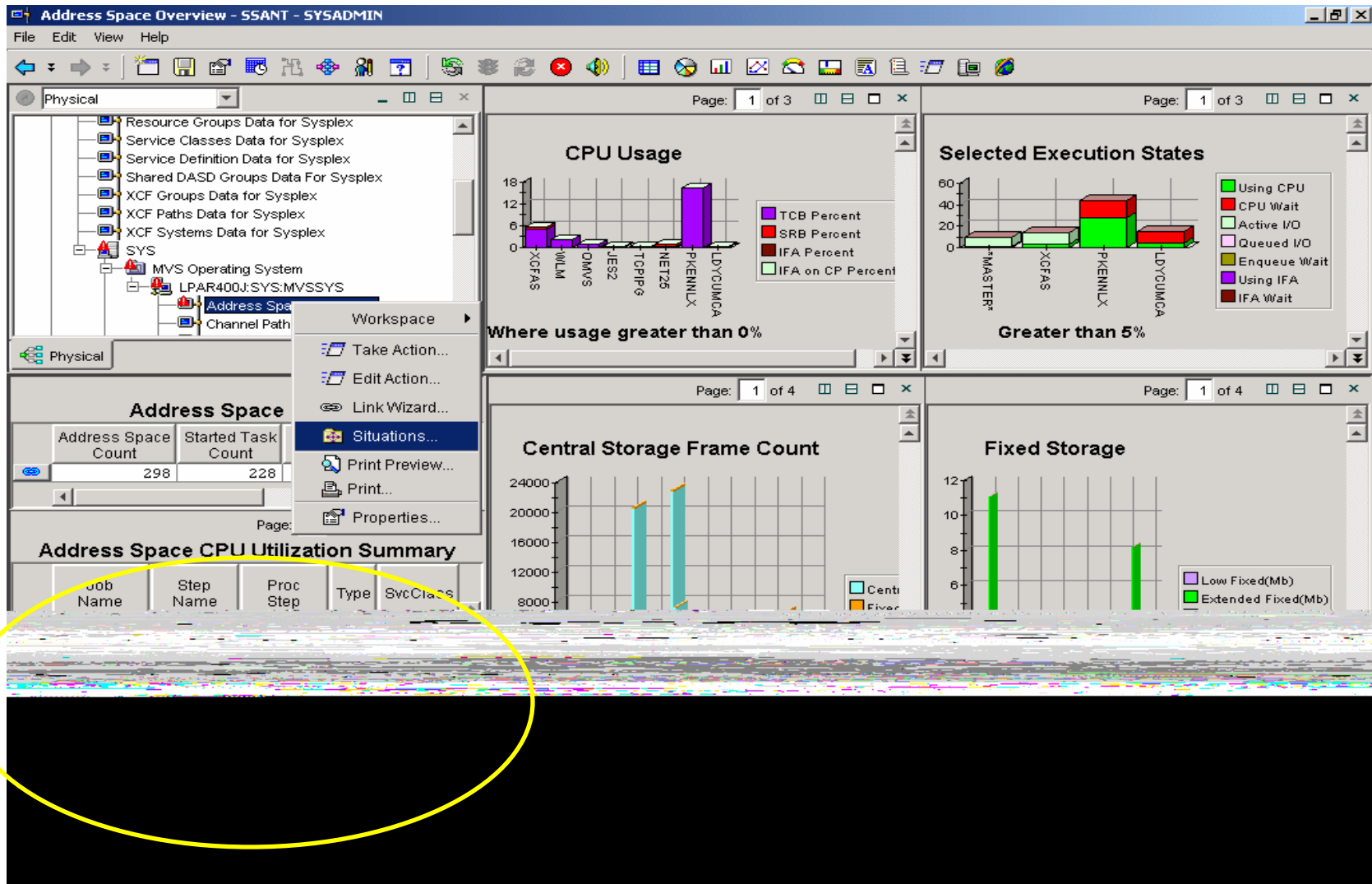
Omegamon "Situation" – Activate Application Performance Analyzer

Omegamon "Action" for the Situation
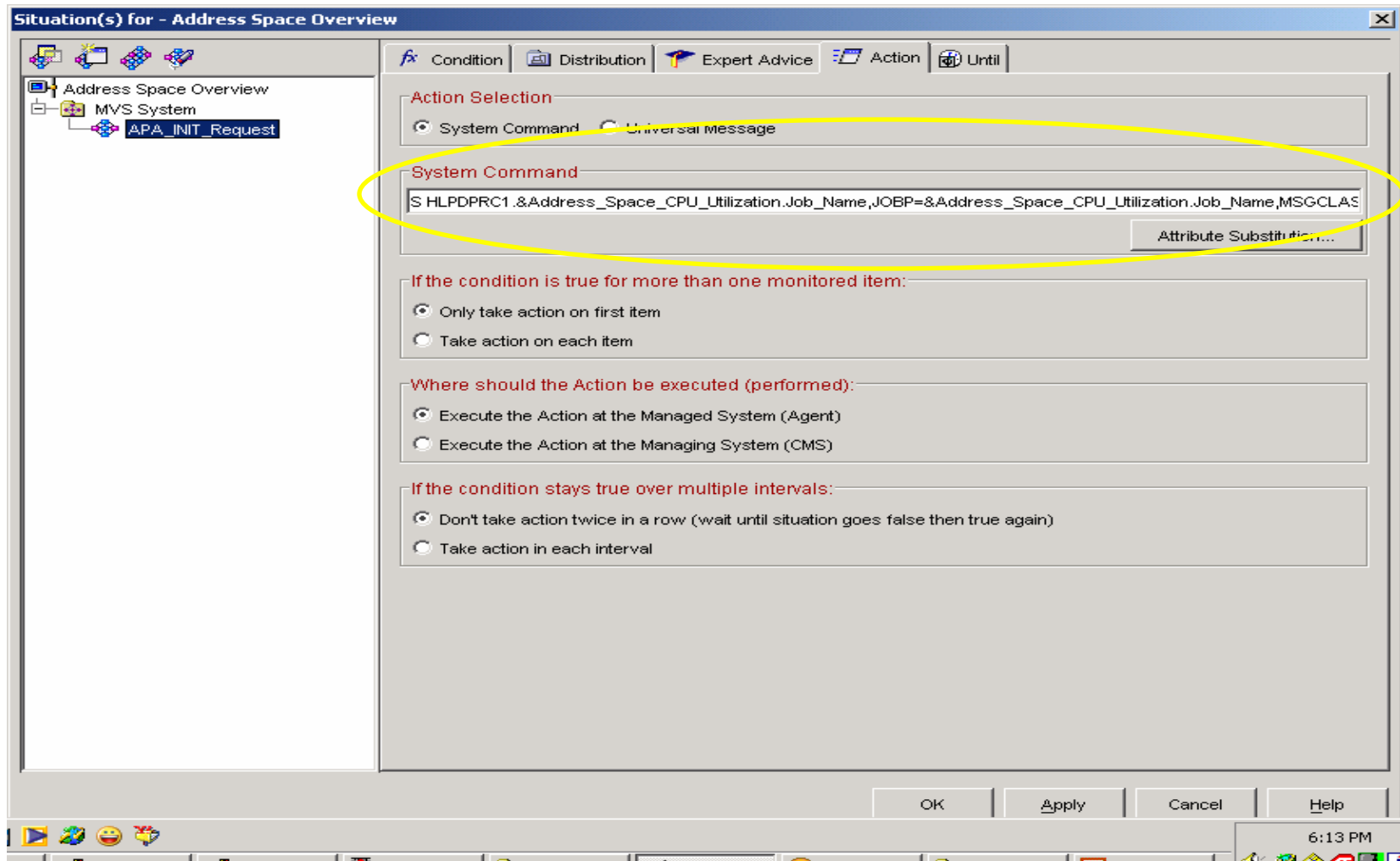
Omegamon Tailors the APA Session

C05: CPU Usage by Task/Category - Expanded

```
 File   View   Navigate   Help
_____

C05: CPU Usage by Task/Category (0018)              Row 00001 of 00018
Command ===> _____   Scroll ===> CSR

Name              Description         Percent of CPU Time * 10.00%   ±1.8%
                                          *....1....2....3....4....5....6....7....8.
VSAMWRTE-001  TCB=008CAD90            100.00  ████████████████████████████████████████
  → SYSTEM         System/OS          91.06  ██████████████████████████████████████
                  Services
  → APPLCN         Application Code     8.93  ████
    → VSAMWRTE       Application        8.93  ████
                    Program
      → VSAMWRTE      CSECT in          8.76  ████
                      VSAMWRTE
      → CEELOCT       LE Runtime        0.17
                      Module
  → DATAMG         Data Mgmt            0.00
                  Processing
  → DB2SQL         SQL Processing       0.00

IEAVAR00-002  TCB=008FE0A8             0.00
IEAVTSDT-003  TCB=008FFE88             0.00
IEESB605-004  TCB=008FFBF8             0.00
_____
MA     a                              A                          11/004
```

P01: Source Program Attribution

```
 File   View   Navigate   Help
_____

P01: Source Program Attribution (0018)                Row 00018 of 00047
Command ===> █_____ Scroll ===> CSR

LineNo Offset Count  Source Statement
000049 0006D6    17              PERFORM CAL-PARA UNTIL TIME-INTERVAL > TIME-DURA
000050 000710                    STOP RUN.
000051
000052                   CAL-PARA.
000053 000730    21              PERFORM STOP-PARA.
000054
000055                   START-PARA.
000056 00074E                    ACCEPT TIME-START FROM TIME.
000057
000058                   STOP-PARA.
000059 00078E    47              ACCEPT TIME-STOP FROM TIME.
               2546     <- CPU time attributed to above statement
000060 0007C8   129              COMPUTE TIME-INTERVAL = TIME-START - TIME-STOP.
000061
000062                   INITIALIZE-PARA.
000063
000064 0007F2                    MOVE  'SIRISHA'   TO TABLE-VALUES(1).
000065 0007F8                    MOVE  'SUSARLA'   TO TABLE-VALUES(2).
MA  a                                    A                           04/015
```

E03: CICS CPU Usage by Transaction – Expand SQL Service

```
 File   View   Navigate   Help
_____

E03: CICS CPU Usage by Transaction (0104)              Row 00001 of 00020
Command ===> _____      Scroll ===> CSR

Name    NTxns/Description                  Percent of CPU Time * 10.00%   ±7.4%
                                           *....1....2....3....4....5....6....7
SSP1         28                            38.04  ████████████████████
→  DFHD2EX1   CICS Program                 10.86  █████
→  SSTESTP1   CICS Program                  8.15  ████
→  LGIPOL01   EXEC SQL                      7.60  ████
   →  +2102       SELECT                    7.60  ████

→  CICS       System Services              4.34  ██
→  SSTESTP1   EXEC CICS                     3.26  ██
   →  +0892       RECEIVE MAP(SSMAPP1)      1.63  █
   →  +0EE4       SEND MAP(SSMAPP1)         1.08  █
   →  +0908       LINK PROGRAM(LGIPOL01)    0.54

→  LGIPOL01   EXEC CICS                     1.08  █
→  LGIPOL01   CICS Program                  1.08  █
→  EQADCXXT   EXEC CICS                     1.08  █
→  EQADCCXR   EXEC CICS                     0.54
SSC1         22                            37.50  ████████████████████
MA          a                                  A
```

Enter

E03: CICS CPU Usage by Transaction – SQL Service Detail

```
 File   View   Navigate   Help

                                                    More:        +
                        The following report line was selected
     →  +2102      SELECT                      7.60   ████

 Calculation Details
     The 7.60% quantification represents 14 measurements of CPU
     usage while processing the indicated SQL request in
     transaction SSP1 from a total of 184 CPU usage measurements.

 SQL Statement Information
     Subsystem name    DB1E              Attach type      SASS
     Plan name         LGINSUR           Plan BIND time   no data

     DBRM name         LGIPOL01          DBRM token       179DF3E0 1A87E55E
     DBRM date/time    Apr-29-05 14:06:59

     SQL function      SELECT            Static/dynamic   Static

 → EQADCXXT   EXEC CICS              1.08  ■
 → EQADCCXR   EXEC CICS              0.54
 SSC1      22                       37.50  ██████████████
 MA█    a                                A
```

PF8

E03: CICS CPU Usage by Transaction – SQL Service Detail

```
 File   View   Navigate   Help

                                                        More:     -
    ■
    Precmplr stmt#   618               DBRM section#    3
    CSECT/module     LGIPOL01          Offset of call   00002102
    Sample count     15                SQL req count    26
    SQL CPU time     0.00              Service time     0.01

    SQL Statement:    SELECT ISSUEDATE , EXPIRYDATE , LASTCHANGED ,
                      BROKERID , BROKERSREFERENCE , PAYMENT , MAKE , MODEL
                      , VALUE , REGNUMBER , COLOUR , CC ,
                      YEAROFMANUFACTURE INTO : H , : H , : H , : H : H , :
                      H : H , : H : H , : H , : H , : H , : H , : H , : H
                      , : H FROM LGINSUR . POLICY , LGINSUR . MOTOR WHERE
                      ( LGINSUR . POLICY . POLICYNUMBER = LGINSUR . MOTOR
                      . POLICYNUMBER AND LGINSUR . POLICY . CUSTOMERNUMBER
                      = : H AND LGINSUR . POLICY . POLICYNUMBER = : H )




  →  EQADCXXT   EXEC CICS                    1.08  ■
  →  EQADCCXR   EXEC CICS                    0.54  ████████████████
     SSC1       22                          37.50  █████████████████████
 MA■       a                                   A                     03/004
```

E04: CICS Mean Service Time by Txn - Expanded

```
 File   View   Navigate   Help

 E04: CICS Mean Service Time by Txn (0104)          Row 00001 of 00015
 Command ===> ▮_____      Scroll ===> CSR

                                    -------- Mean Time in Seconds ---------
 Name      NTxns  Description     Error Execution + Suspend + Delay  = Service

 FBII        1                   ±99.9%   0.004    119.894    0.001    119.900
 → FBIMPL20         EXEC CICS             0.003    119.894    0.001    119.898
   → +0562          DELAY                 0.000    119.894    0.001    119.895
   → +0534          INQUIRE SYSTEM        0.003      0.000    0.000      0.003

 → FBIMPL20         CICS Program          0.001      0.000    0.000      0.001
 MQPT        1                   ±99.9%   0.009     21.222    0.185     21.417
 SSP1       28                   ±19.2%   0.002      0.074    0.000      0.078
 SSC2        1                   ±99.9%   0.001      0.010    0.001      0.013
 → CICS             System Services       0.001      0.010    0.000      0.011
   → CICS           System Services       0.001      0.010    0.000      0.011
     → CICSSusp     Suspend               0.000      0.010    0.000      0.010

 → DFHACP           CICS Program          0.000      0.000    0.001      0.001
 SSC1       22                   ±21.7%   0.003      0.000    0.005      0.009

 MA▮     a                                                          ^        04/015
```

Time spent in CICS by subsystems (IMS, SQL, MQ) will

appear in the Expanded (+) view

E07: CICS Wait by Txn - Expanded

```
 File   View   Navigate   Help

E07: CICS Wait by Txn (0104)                        Row 00001 of 00009
Command ===> ▓                                       Scroll ===> CSR

Name     NTxns/Description          Percent Wait Time * 10.00%  ±0.2%
                                      *....1....2....3....4....5....6....7....8
FBII         1                      83.41
MQPT         1                      14.89
SSP1        28                       1.46
 → ZCIOWAIT   Wait on Terminal I/O   1.44
 → MVSBusy    MVS Delay (Busy)       0.01
 → CICSSusp   Suspend                0.00
 → CICSDly    CICS Dispatch Delay    0.00
SSC1        22                       0.09
SSC2         1                       0.00




MA▓    a                                                    04/015
```

Wait conditions experienced by a CICS Transaction

Application Performance Analyzer capabilities complementary to OMEGAMON: Summary

- ▶ Ease of installation, set-up, and use
  - ▪ Easy SMP/E installation – provides interface to current security package (RACF, etc) or used of APA internal security rules to control usage and viewing of reports
  - ▪ OMEGAMON rules used to invoke Application Performance Analyzer
  - ▪ Comes with over 80 supplied reports covering 9 categories to help you pinpoint application related performance/resource issues
  - ▪ Provides a comprehensive ISPF dialog to easily navigate reports
- ▶ Powerful and flexible analysis capabilities
  - ▪ Statistics reports to help improve the applications use of system resources
  - ▪ Overview reports provide summary level analysis with detailed drill down into resources consumed by the application
  - ▪ Reports employed by Systems Programmers, Capacity Planners, DBA's, and Developers
- ▶ Comprehensive application resource coverage and a variety of reports on all aspects of resource usage from application source to subsystem usage
  - ▪ Supports COBOL, PL/I and Assembler at the source level
  - ▪ Reports on applications usage of resources in CICS, DB2 (including DRDA and Stored Procedures), IMS, WebSphere MQ
  - ▪ Reports on TSO UserID consumption and Batch applications
- ▶ Export/Import capability
  - ▪ APA Observation Session can be exported from production environments for viewing importing and viewing on test environment

Summary

- Use Omegamon to detect a performance situation that was raised during the day to day operation of our systems

- Use Omegamon to start an Observation Session in Application Performance Analyzer when a warning/critical resource consumption level is found in a application

- Use CICS PA to fully understand the nature of the issue and what it's impact has been on our operations

- Use APA to step through the code and get down to the application level

- Having completely analyzed the problem, we are in a position to recommend changes that will result in improved system performance

- The IBM End-To-End Set of Tools to help with Performance

For more information …
  http://www-306.ibm.com/software/tivoli/products/omegamon-xe-cics/
  http://www.ibm.com/cics/
  hppt://www.ibm.com/software/awdtools/deployment/apa/