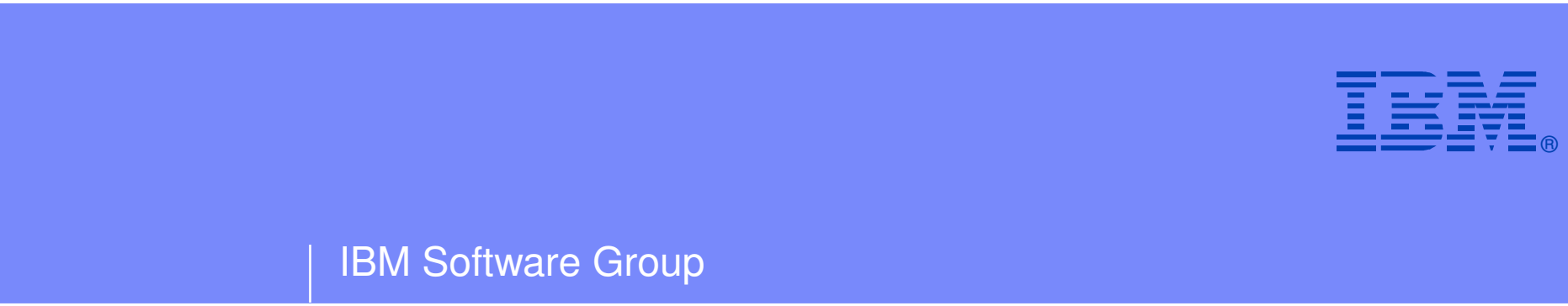

IBM Software Group

CICS TOOLS

Making your job Easier!

ON DEMAND BUSINESS

I ♥ CICS

Preface

The following are trademarks of International Business Machines Corporation in the United States, other countries, or both:

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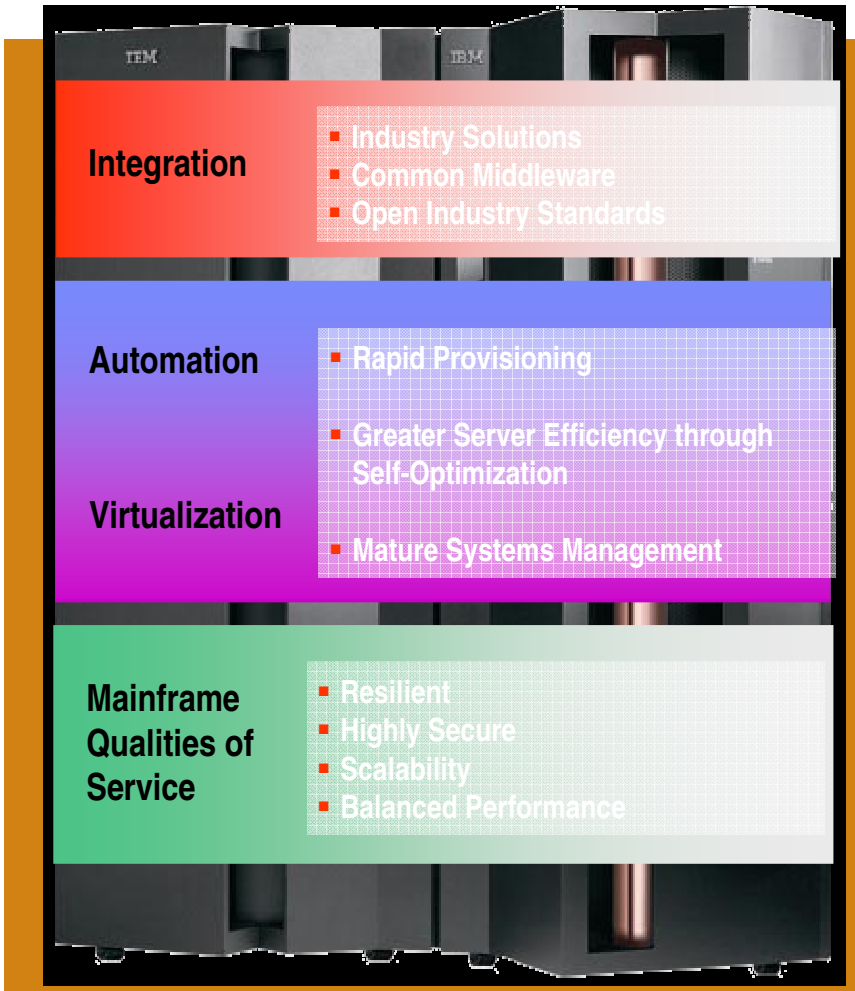
Topics

- **Why CICS Tooling is important to you.**
  - Improved productivity and cost reduction
- **CICS Performance Analyzer**
  - Simplifies performance and tuning activities.
- **CICS Interdependency Analyzer**
  - Improved efficiencies when everyone understands relationships and interactions within the CICS environment.
- **CICS Configuration Manager**
  - Single point of control for CICS resource definitions with full audit and governance capabilities.
- **CICS Explorer: -** Live Demonstration
  - The “New Face” of CICS

System z core values – Built upon a 40-year heritage. . . And still relevant

Business Challenges

- Financial Pressures
- Security and Operational Resiliency
- Simplify Infrastructure Complexity
- Accelerate Time-to-Market
- Increase Revenues
- Deploy New Capabilities



IT Challenges

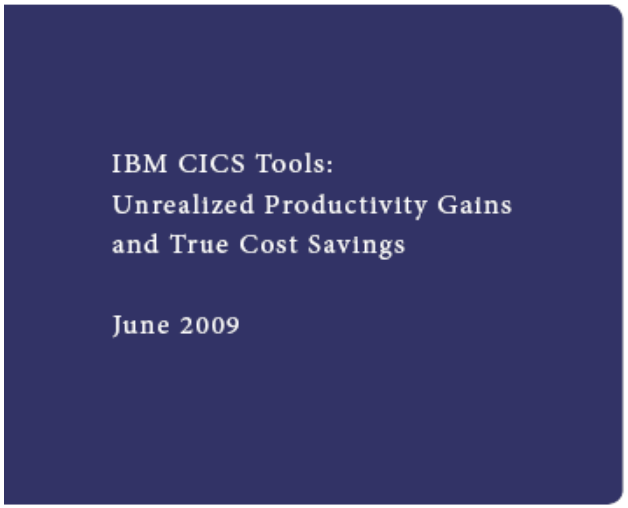
- Be responsive to changing business needs
- Meet service level agreements
- Increase server and IT resource utilization
- Help reduce IT Costs
- Develop new applications while mitigating risk

Business today is focused on Costs, Skills, Competition and Regulatory Compliance

- **Competitive Edge:**
  - "I need a faster response in the market by using insight from business key performance indicators to identify changes "
  - "I want to change business application behaviours quickly and without new risks"
- **Regulatory Compliance:**
  - "We must demonstrate that lending/capital ratio's are maintained at all times"
  - "National Government mandates that money laundering exceptions are identified and corrective action is taken immediately"
- **Cost & Skills :**
  - "Our systems infrastructure is complex and fragile; it takes a lot of time to understand what the consequences of configuration change may be and I need my best guys to do that."
  - "Our business is at risk as natural attrition of critical systems administrations expertise are proving tough to replace"

Branham Group ROI white paper

- This Branham Group white paper (June 2009) provides an independent perspective on the value of IBM's CICS tools.
- In cooperation with IBM, Branham interviewed IBM CICS Tools customers with IBM CICS IA, CICS PA, and CICS CM
- The following provides just a snapshot of the achievable cost savings:
  - 75% time savings for the identification, coding, and testing of CPSM rules, in some cases equating to the recovery of a whole month in time savings for a major affinity.
  - Upwards of 90% time savings to identify and validate typical performance issue related changes.
  - An average of 66% less time to administer CICS Service Definition changes, which happen on a daily basis.
  - The recovery of 2%-15% of CPU cycles through the designation of CICS applications as threadsafe.
- https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-cicstroi



CICS Performance Analyzer

Simplifies performance and tuning activities

ON DEMAND BUSINESS

CICS Performance Analyzer

- **What does it do?**
  - ISPF Dialog to build, maintain and submit reports
  - Extensive Tabular Reports and Graph Reports
  - Create Historical Databases that include trend and capacity information
  - Comprehensive Batch Reporting and Analysis from SMF data
  - Online Statistics Reporting Capability
- **Benefits**
  - Improves tuning and capacity planning analysis
  - Improve transaction response time
  - Provides detailed performance bottleneck analysis
  - Uncovers trends leading to poor CICS performance or even outages
  - Helps plan capacity for optimal performance

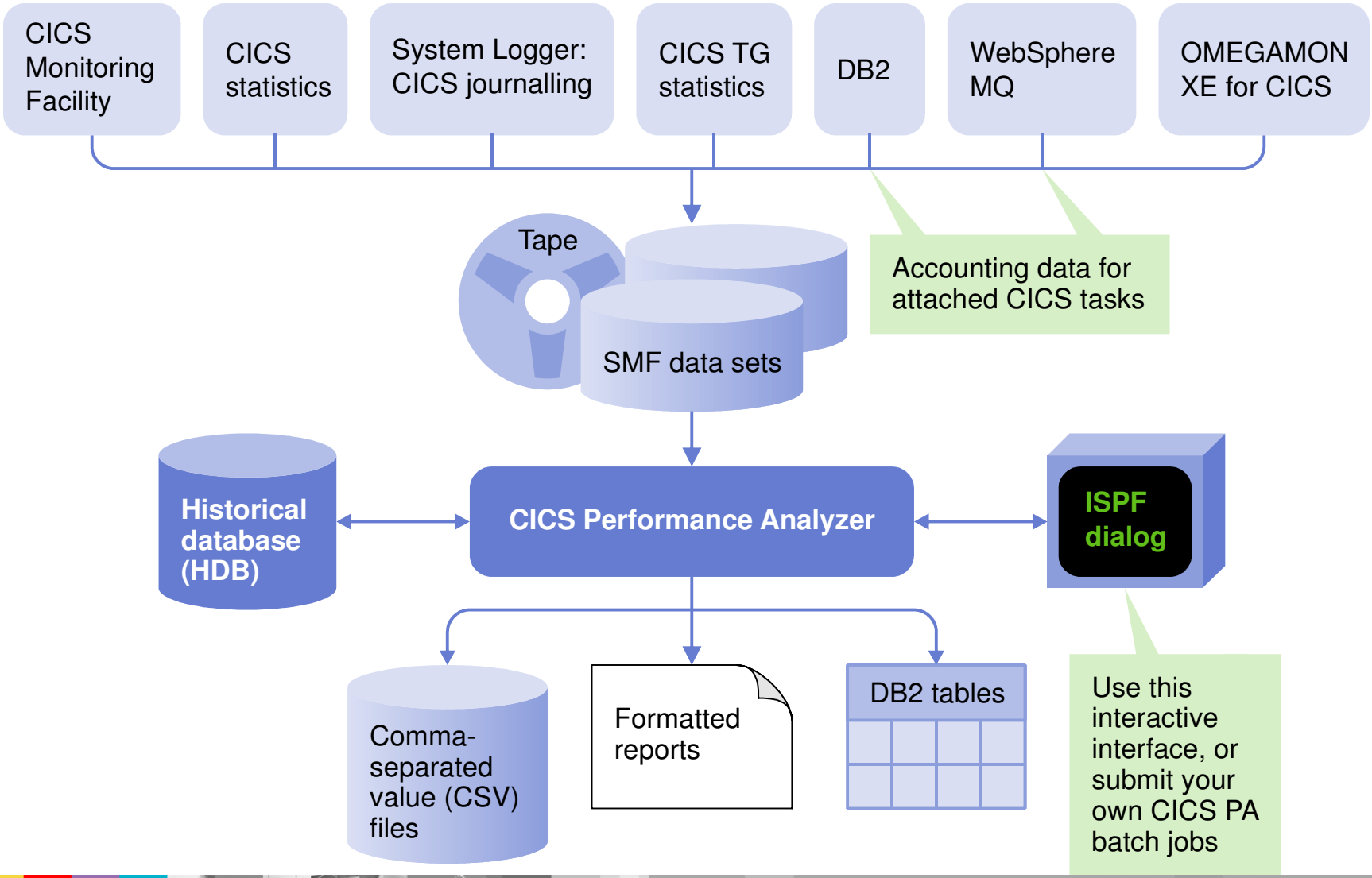
CICS Performance Analyzer for z/OS (CICS PA)

- Key features
  - Comprehensive Performance Reporting and Analysis for CICS including DB2, WebSphere MQ, and MVS System Logger
  - Extensive Tabular Reports and Extract Data Sets
  - CICS Explorer
  - Historical Database (HDB)
  - Trending and Capacity Planning
  - ISPF Dialog to build, maintain, and submit reports and extracts
  - Comprehensive reporting of CICS Statistics data
  - Threadsafe metrics
- CICS Support
  - CICS Transaction Server for z/OS, V2, V3, and V4

New in CICS PA V3.1 (May 2009)

- **CICS TS V4.1 support and exploitation of all new CICS SMF 110 data including:**
  - **Event Processing, Atom feeds**
  - **Data Mapping Conversion, XML System Services, Web Services Addressing**
  - **IPv6, JVM Server, Dispatcher**
- **CICS Explorer plug-in extended and fully supported**
- **New and updated sample reports to support the new performance data metrics provided by CICS TS V4.1**
- **Additional enhancements delivered via the service channel**

CICS PA Overview



Easy to Customize Sample Reports

```
 File  Edit  Confirm  Upgrade  Profiling  Options  Help
                    EDIT SUMMARY Report Form - IMSTHRD     Row 1 of 18 More: >
Command ===> _                                            Scroll ===> PAGE

Description  . . . Transaction DBCTL Analysis      Version (VRM): 620

Selection Criteria:
 _  Performance  *                                 Page width . . 132

    Field     Sort
/   Name +    K  O Type     Fn   Description
__  TRAN      K  A _______  ___  Transaction identifier
__  PSBNAME   K  A _______  ___  PSB Name
__  TASKCNT      _ _______  ___  Total Task count
__  RESPONSE     _ _______  AVE  Transaction response time
__  IMSREQCT     _ _______  AVE  IMS (DBCTL) requests
__  IMSWAIT      _ TIME____ AVE  IMS (DBCTL) wait time
__  THREDCPU     _ _______  AVE  Thread TCB CPU time
__  OVFLBFRU     _ _______  AVE  Number of Overflow Buffers used
__  SCHTELAP     _ _______  AVE  Elapsed time for Schedule Process
__  POOLWAIT     _ _______  AVE  Elapsed wait time for Pool Space
__  INTCWAIT     _ _______  AVE  Elapsed wait time for Intent Conflict
__  DBIOELAP     _ _______  AVE  Elapsed time for Database I/O
__  PILOCKEL     _ _______  AVE  Elapsed time for PI Locking
__  DBIOCALL     _ _______  AVE  Number of Database I/Os
__  EOR          _ _______  ___  ---------------- End of Report ----------------
```


Distribution Reports …

V2R1M0 CICS Performance Analyzer
Performance Summary

SUMM0003 Printed at 15:14:26 2/14/2007 Data from 08:27:42 1/30/2007 to 09:19:35 1/30/2007 Page 8
Transaction Response Time Distribution Summary (Percentage) by Time-of-Day

Stop Interval	Tran	#Tasks	<0.1 Response Time	0.1–0.25 Response Time	0.25–0.5 Response Time	0.5–0.75 Response Time	0.75–1.0 Response Time	1.0–1.5 Response Time	1.5–2.0 Response Time	2.0–10.0 Response Time	>=10.0 Response Time	Max Response Time	Avg Response Time
09:16:00	WMSC	24	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0004	.0004
09:16:00		29	89.66	6.90	3.45	.00	.00	.00	.00	.00	.00	.2788	.0212
09:17:00	CEDF	9	11.11	.00	.00	22.22	11.11	22.22	22.22	11.11	.00	2.1832	1.1744
09:17:00	CEMT	1	.00	.00	.00	.00	.00	.00	.00	.00	100.00	14.9315	14.9315
09:17:00	WMSC	24	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0004	.0004
09:17:00		34	73.53	.00	.00	5.88	2.94	5.88	5.88	2.94	2.94	14.9315	.7503
09:18:00	CATA	1	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0332	.0332
09:18:00	CEDF	3	.00	.00	.00	.00	.00	33.33	.00	33.33	33.33	32.6115	13.0935
09:18:00	CEJR	2	50.00	.00	50.00	.00	.00	.00	.00	.00	.00	.3164	.1583
09:18:00	CEMT	3	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0588	.0216
09:18:00	CESN	1	.00	100.00	.00	.00	.00	.00	.00	.00	.00	.2283	.2283
09:18:00	CGRP	1	.00	100.00	.00	.00	.00	.00	.00	.00	.00	.1779	.1779
09:18:00	CISC	1	.00	100.00	.00	.00	.00	.00	.00	.00	.00	.1499	.1499
09:18:00	CPIR	7	57.14	28.57	14.29	.00	.00	.00	.00	.00	.00	.3686	.0875
09:18:00	CPLT	1	.00	.00	.00	.00	.00	.00	.00	100.00	.00	6.2207	6.2207
09:18:00	CQRY	1	.00	100.00	.00	.00	.00	.00	.00	.00	.00	.1021	.1021
09:18:00	CRSQ	1	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0998	.0998
09:18:00	CSSY	9	33.33	44.44	11.11	.00	.00	.00	.00	11.11	.00	6.3256	.8250
09:18:00	CWBG	1	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0420	.0420
09:18:00	CXRE	1	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0552	.0552
09:18:00	DPL3	1	.00	.00	.00	.00	.00	.00	.00	.00	100.00	50.0251	50.0251
09:18:00	WMSC	19	100.00	.00	.00	.00	.00	.00	.00	.00	.00	.0005	.0004
09:18:00		53	64.15	18.87	5.66	.00	.00	1.89	.00	5.66	3.77	50.0251	1.9781
Total		1317	75.40	4.56	2.96	4.86	2.51	3.19	1.75	3.04	1.75	1887.437	6.3369

Cross-System Work Report – Default …

V1R2M0 CICS Performance Analyzer
Cross-System Work

CROS0001 Printed at 12:09:28 1/24/2002 Data from 11:10:51 2/04/1999 to 08:10:28 2/16/1999 Page 3

Tran	Userid	SC	TranType	Term	LUName	Request Type	Program	Fcty T/Name	Conn Name	NETName	UOW Seq	APPLID	Task	R T	Stop Time	Response Time	A B
ABRW	BRENNER	TP	U	S23D	IGCS23D	AP:	DFHúABRW	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	61	T	11:13:20.275	.0080	
CSMI	CBAKER	TO	UM	R11	IYK2Z1V1	FS:F---	DFHMIRS	T/R11	CJB1	GBIBMIYA.IGCS23D	1	IYK2Z1V3	57	T	11:13:20.274	.0044	
ABRW	BRENNER	TP	U	S23D	IGCS23D	AP:	DFHúABRW	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	62	T	11:13:21.332	.0064	
CSMI	CBAKER	TO	UM	R11	IYK2Z1V1	FS:F---	DFHMIRS	T/R11	CJB1	GBIBMIYA.IGCS23D	1	IYK2Z1V3	58	T	11:13:21.331	.0039	
CEDA	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D		GBIBMIYA.IGCS23D	3	IYK2Z1V1	72	T	11:16:28.284	1.1025	
CEDA	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	72	C	11:16:27.181	3.0046	
CEDA	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	72	C	11:16:24.177	2.2127	
CEDA	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	72	C	11:16:21.964	46.5125	
CEDA	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEDAP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	72	C	11:15:35.451	.6794	
CEMT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	140	T	11:21:24.062	51.3442	
CEMT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	140	C	11:20:32.718	8.3481	
CEMT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	140	C	11:20:24.370	.0042	
CEMT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	174	T	11:21:28.662	1.1930	
CEMT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFHEMTP	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	174	C	11:21:27.469	.0041	
RMST	BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	178	T	11:22:38.447	48.9210	
STAT	CBAKER	TO	U	R11	IYK2Z1V1	AP:	DFH0STAT	S/S23D	CJB1	GBIBMIYA.IGCS23D	1	IYK2Z1V3	349	T	11:22:38.433	66.7720	
RMST	BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	178	C	11:21:49.526	10.0524	
RMST	BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	178	C	11:21:39.473	7.8027	
RMST	BRENNER	TO	U	S23D	IGCS23D	TR:CJB3		T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	178	C	11:21:31.671	.0110	
STAT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFH0STAT	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	195	T	11:22:52.663	2.0203	
STAT	BRENNER	TO	U	S23D	IGCS23D	AP:	DFH0STAT	T/S23D		GBIBMIYA.IGCS23D	1	IYK2Z1V1	195	C	11:22:50.642	8.9745	

CICS Performance Analyzer Threadsafe

Use CICS Performance Analyzer to analyze your CICS applications to determine which of these applications are good candidates for Threadsafe….and then when to stop

- How many switches (change modes) occurred?
  - What was the delay as the result?
- How much CPU time did they use?
  - What is this costing me?
- Sample Report Forms …
  - CPU Usage, Delays, Change Mode Delays, **Transaction Profiling** …

- Business Benefit of CICS Performance Analyzer…without would be a longer and more painful process….providing future performance analysis

An example of the customized TCB3LST report form

```
 Display  Filter  View  Print  Options  Help
--------------------------------------------------------------------------------
SDSF OUTPUT DISPLAY CICST05A JOB06972  DSID   103 LINE 0       COLUMNS 02- 133
COMMAND INPUT ===>                                          SCROLL ===> CSR
******************************** TOP OF DATA ***************************************

V2R1M0                                  CICS Performance Analyzer
                                          Performance List

LIST0001 Printed at  9:42:32  7/23/2008    Data from 07:09:38  3/28/2008          APPLID CICSACB6      Page
CICS TCB Usage and Delays (V3) - Detail

Tran Userid     TaskNo Stop          User CPU Response TCBAtach DSTCBHWM DSCHMDLY DSTCBMWT MAXSTDLY MAXXTDLY KY8 Disp KY9 Disp
                       Time             Time     Time                      Count    Count    Count    Count    Count    Count
TXD0 DNET409        78 07:09:38.039    .0024    .9163       0        0        4        0        0        0        0        0
TXDA DNET409        79 07:09:39.053    .2298   1.0153       1        1      108        0        0        0       52        0
TXDB DNET409       110 07:09:39.505    .2277   1.4667       1        1      104        0        0        0       52        0
TXDC DNET409       111 07:09:39.515    .2275   1.4765       1        1      104        0        0        0       52        0
TXDD DNET409       112 07:09:39.958    .2268   1.9190       1        1      104        0        0        0       53        0
TXDE DNET409       113 07:09:39.968    .2266   1.9290       1        1      104        0        0        0       53        0
TXDA DNET409       114 07:09:40.414    .2266   2.3748       1        1      104        0        0        0       53        0
TXDB DNET409       115 07:09:40.433    .2265   2.3939       1        1      104        0        0        0       53        0
TXDC DNET409       116 07:09:40.867    .2266   2.8285       1        1      104        0        0        0       53        0
TXDD DNET409       117 07:09:40.882    .2263   2.8428       1        1      104        0        0        0       53        0
TXDE DNET409       118 07:09:41.328    .2265   3.2889       1        1      104        0        0        0       53        0
TXDA DNET409       119 07:09:41.342    .2265   3.3033       1        1      104        0        0        0       53        0
```


CICS PA V2.1 – Transaction Profiling

- **Transaction Profiling compares transaction performance between two different time periods, for example …**
  - CICS (or DB2,IMS) release migration when you need to ensure transaction performance is not degraded
  - Application changes when you need to determine the impact of change on transaction performance
  - Benchmark from last month when performance was good compared to yesterday when performance was sub-standard
- **Use Transaction Profiling to identify …**
  - Changes in application performance behaviour over time
  - Causes for the change in behaviour

CICS PA V2.1 – Transaction Profiling …

V2R1M0 CICS Performance Analyzer
Transaction Profiling

PROF0001 Printed at 8:19:02 10/28/2008 Report Data from 11:22:39 3/20/20
Baseline Data from 11:22:39 3/20/20

Transaction Profiling

Tran		#Tasks	Avg Response Time	Avg Dispatch Time	Avg User CPU Time	Avg Suspend Time	Avg DispWait Time	Avg QR CPU Time
TXDA	Report	13	184.9159	12.0625	11.3313	172.8534	8.5657	2.5630
TXDA	Baseline	10	259.3623	11.6278	11.3364	247.7345	31.0950	11.0913
	Delta	+3	-74.4465	+.4346	-.0051	-74.8811	-22.5293	-8.5283
	Change%	+30.00	-28.70	+3.74	-.05	-30.23	-72.45	-76.89
				•				
TXDB	Report	15	230.3776	12.0201	11.3307	218.3575	10.3600	3.7001
TXDB	Baseline	11	315.4359	11.6446	11.3355	303.7913	32.1837	10.0834
	Delta	+4	-85.0582	+.3755	-.0048	-85.4338	-21.8238	-6.3833
	Change%	+36.36	-26.97	+3.22	-.04	-28.12	-67.81	-63.31
				•				
TXDC	Report	14	216.4352	11.8608	11.3285	204.5744	7.9447	3.1722
TXDC	Baseline	11	303.1090	11.6455	11.3359	291.4635	26.1401	10.0836
	Delta	+3	-86.6738	+.2153	-.0074	-86.8891	-18.1954	-6.9114
	Change%	+27.27	-28.59	+1.85	-.07	-29.81	-69.61	-68.54
				•				

CICS Transaction Server for z/OS Version 4.1 Support

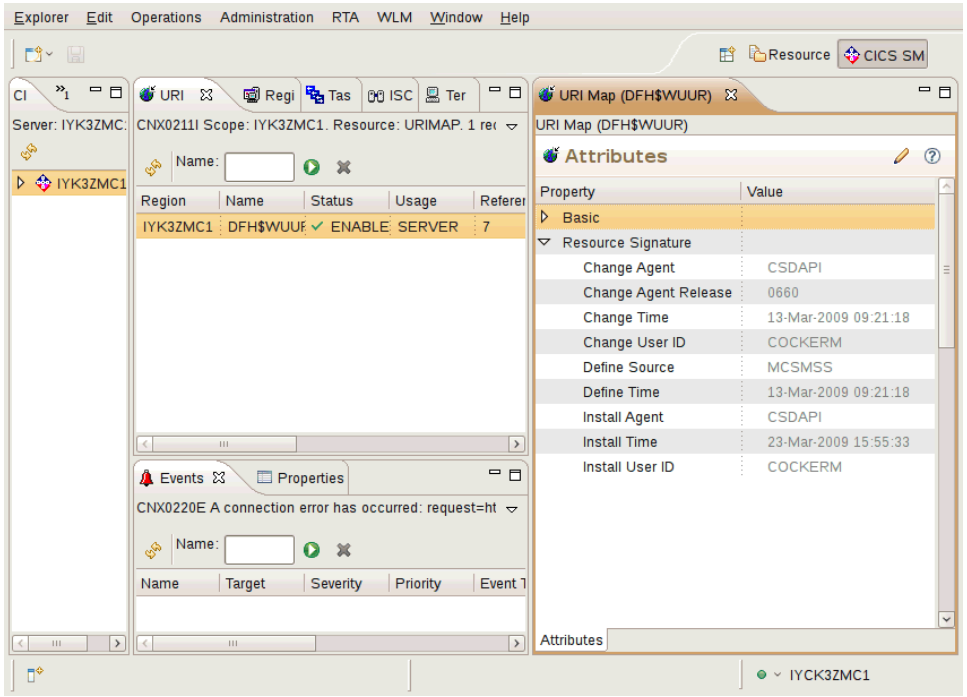
- Support and exploitation of all new CICS SMF 110 data
- Monitoring Data …
  - Web, Web Services, WS-Addressing, Event Processing, …
  - IPv6, XML System Services, JVM Server, Dispatcher, …
- New metrics and reports also support performance analysis of other key CICS TS V4.1 enhancements, including …
  - Event Processing, Atom feeds, …
  - Data Mapping Conversion, Web Services Addressing, …
- New sample report forms are provided to support the new performance data metrics provided by CICS TS V4.1 enabling improved reporting of CICS applications

CICS Transaction Server for z/OS Version 4.1 Support

- Statistics Data …
  - Event Processing, IPv6, JVM Server, CICS Dispatcher, …
  - Web and Web Services …
    - Urimap, Pipeline, Webservice, Atomservice, Xmltransform
  - Ipconn, DB2Conn, DB2Entry, MQConn, …
  - Resource Definition/Install Signature ..
    - Combines the installation and definition signatures providing specific information for resource definitions that were installed or changed in CICS TS V4.1
    - Users will be able to use these improved details to detect resource modifications for auditing, tracking, or problem resolution

CICS Resource Signatures

- Definition signature attributes added to CICS resources
  - Signature data added when you add/alter a resource
    - DEFINESOURCE, DEFINETIME, CHANGETIME, CHANGEUSRID, CHANGEAGENT, CHANGEAGREL
- Installation signature attributes added to CICS resources
  - Signature data added when you Install a resource
    - INSTALLAGENT, INSTALLTIME, INSTALLUSRID



- **Signature information display**
  - CEDA, CEMT, INQ SPI, CICS Explorer, CICSPlex SM Views, DFHCSDUP

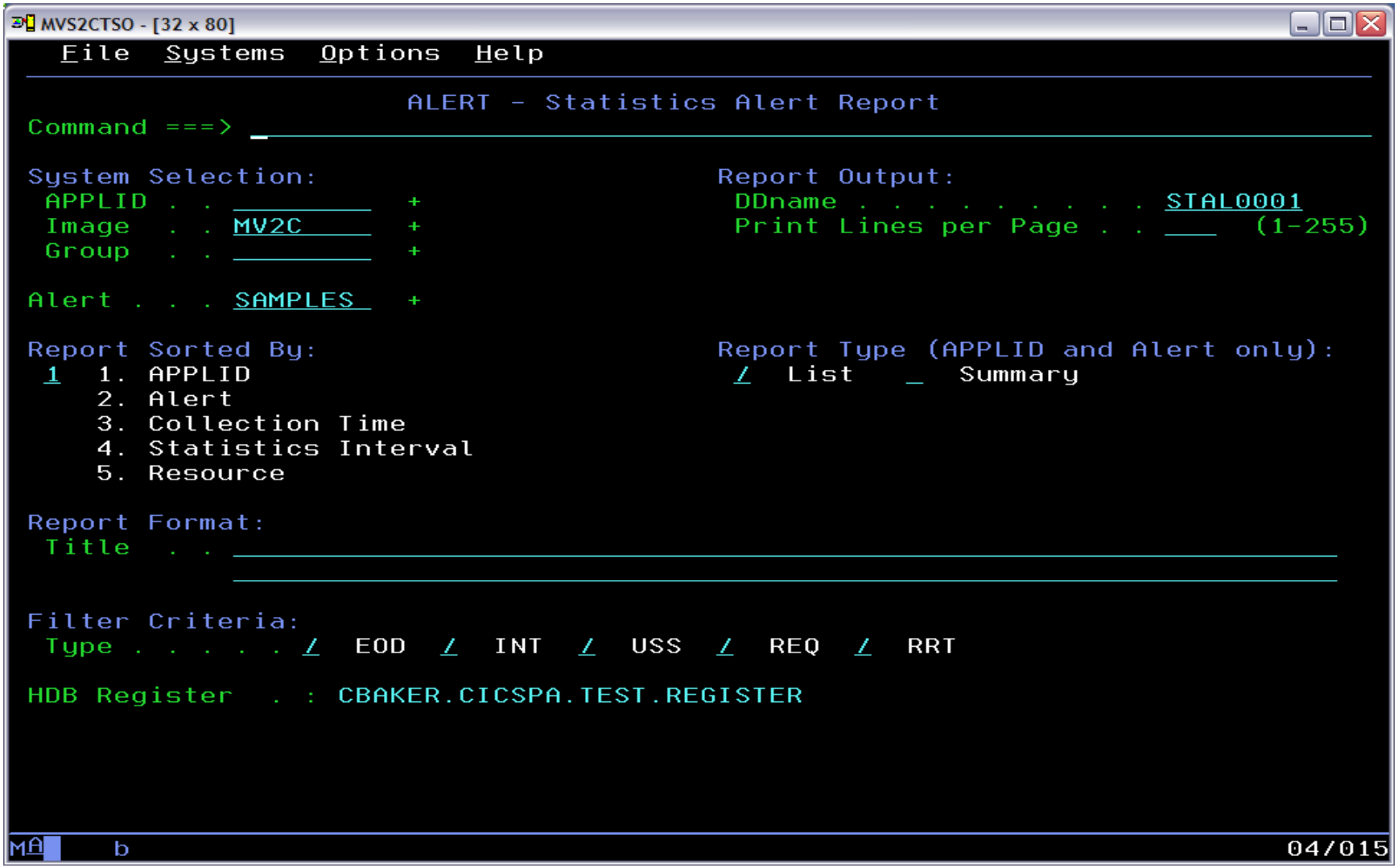
Statistics Alert Reporting

- Statistics Alert Reporting is a new capability enabling the definition of conditions, in terms of CICS TS or CICS TG statistics field values, which will generate alerts in batch reports
- These new batch reports …
  - Can be used to assist users in highlighting potential tuning opportunities or identify trends that may lead to poor CICS performance or even unnecessary CICS system outages
  - Enable users to more easily identify the specific CICS regions, the time of day and the type of CICS resources that may require further specific in-depth performance analysis thereby allowing preventative tuning action to be taken
  - Either from SMF data (in Report Sets) or from HDBs

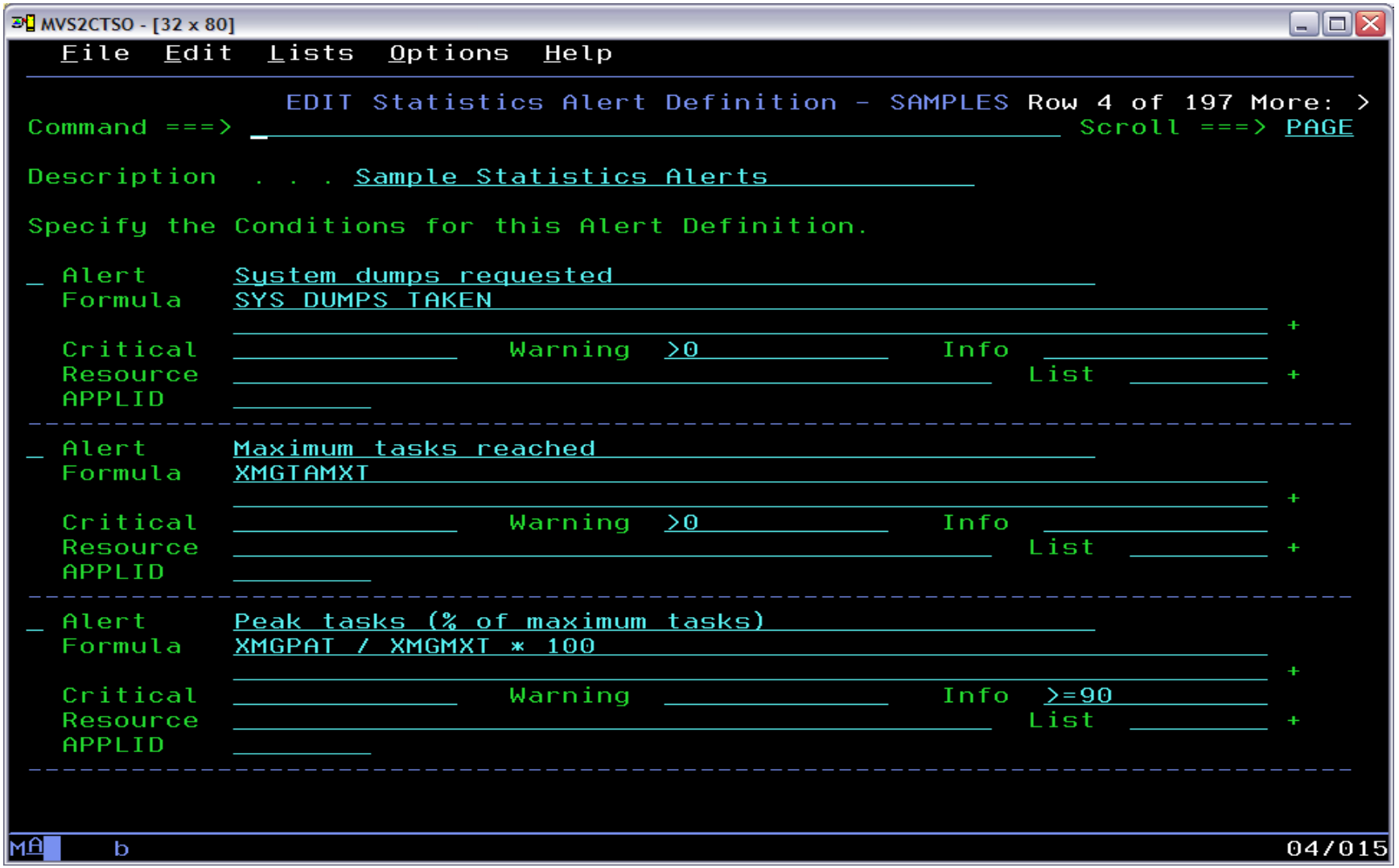
Statistics Alert Reporting …

- Alert Definition
  - Defined with arithmetic formula using CICS statistics field names
  - Up to three threshold values indicate the severity …
    - Critical, Information, Warning
  - For example … a condition can trigger an alert when …
    - the number of CICS tasks exceeds a percentage of the maximum number of tasks allowed
    - the number of transaction dumps is greater than zero
    - the number of VSAM file string waits is greater than zero
  - Possible to limit the reporting to specific CICS resources
    - Specific Files, Transaction Classes, Connections, …
  - Sample Alert Definitions
    - Warning, Information

Statistics Alert Reporting …



Statistics Alert Reporting …



Statistics Alert Reporting …

```
V3R1M0                                          CICS Performance Analyzer
                                                Statistics Alerts - List by APPLID

STAL0001 Printed at 13:30:41  4/14/2009     Data from 12:16:06  4/14/2009 to 12:58:27  4/14/2009                    Page       1

System: CICSCCC0   Image: CTS1   VRM: 660   Type: TS

Sev Alert                                                  Threshold       Actual  Collection Time      Type
W   Transaction dumps requested                                >0            3  2009-04-14 12.30.45   EOD
W   Transaction dumpcode taken                                 >0            1  2009-04-14 12.30.45   EOD
    Dump Code = ASP2
W   Transaction dumpcode taken                                 >0            1  2009-04-14 12.30.45   EOD
    Dump Code = AZI4
W   Connection allocates failed (link): system                 >0            6  2009-04-14 12.30.45   EOD
    Connection Name = CCC1
W   Connection allocates failed (link): system                 >0          208  2009-04-14 12.30.45   EOD
    Connection Name = CCC2
W   Connection allocates failed (link): system                 >0            5  2009-04-14 12.58.26   EOD
    Connection Name = CCC1
W   Connection allocates failed (link): system                 >0           34  2009-04-14 12.58.26   EOD
    Connection Name = CCC2
W   Maximum active transactions in class reached              >0          329  2009-04-14 12.58.26   EOD
    Tclass Name = DFHTCL02

System: CICSCCC1   Image: CTS1   VRM: 660   Type: TS

Sev Alert                                                  Threshold       Actual  Collection Time      Type
W   Program load requests that waited                          >0            3  2009-04-14 12.51.54   EOD
W   System dumps requested                                     >0            1  2009-04-14 12.51.54   EOD
W   Transaction dumps requested                                >0            1  2009-04-14 12.51.54   EOD
W   Transaction dumpcode taken                                 >0            1  2009-04-14 12.51.54   EOD
    Dump Code = AEIP
W   Transaction dumpcode taken                                 >0           48  2009-04-14 12.51.54   EOD
    Dump Code = ASRA
```


Application Grouping

- Application Grouping is a facility that allows users to consolidate and view transaction performance information for related CICS tasks as a logical business unit rather than by individual transaction IDs

- Using Application Grouping …
  - CICS transactions that belong to the same business unit are reported together under their application name
    - For example you can define an Application Group that groups all Finance transactions together under the FINANCE application name

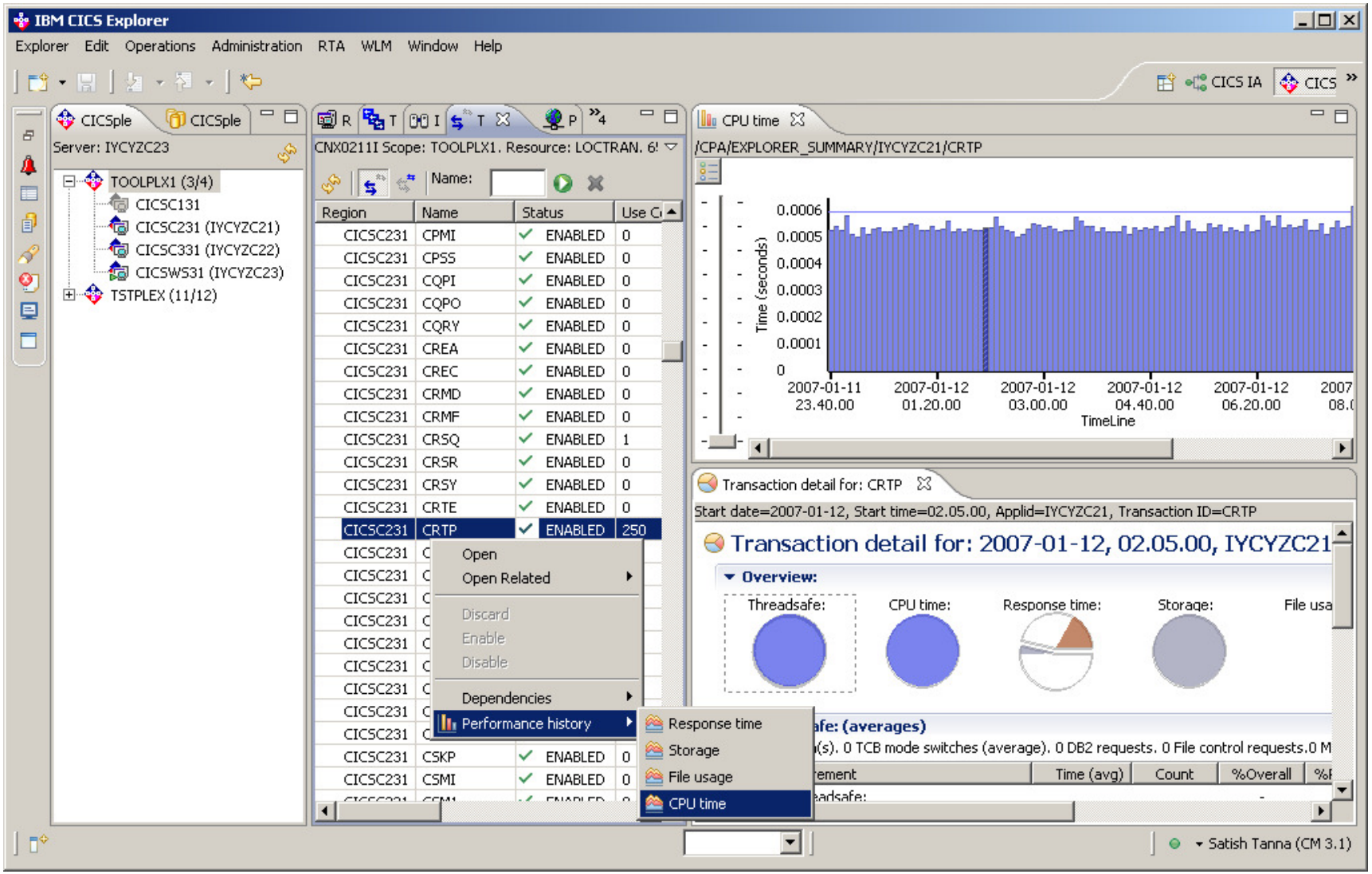
Reporting Enhancements

- Cross-System Work Report
  - End of unit-of-work marker
- ListX Report Enhancements – User Fields …
  - Such as OMEGAMON or DBCTL, now available as sort keys
- DB2 Report Enhancements
  - Parallel Thread support
- Additional sample Report Forms …
  - BADCHMDS – Top 20 worst Change modes by Transaction ID
- Time Precision …
  - New Format Type for START/STOP fields – TIMEP
    - Use the Report Set PRECISION setting for START/STOP fields

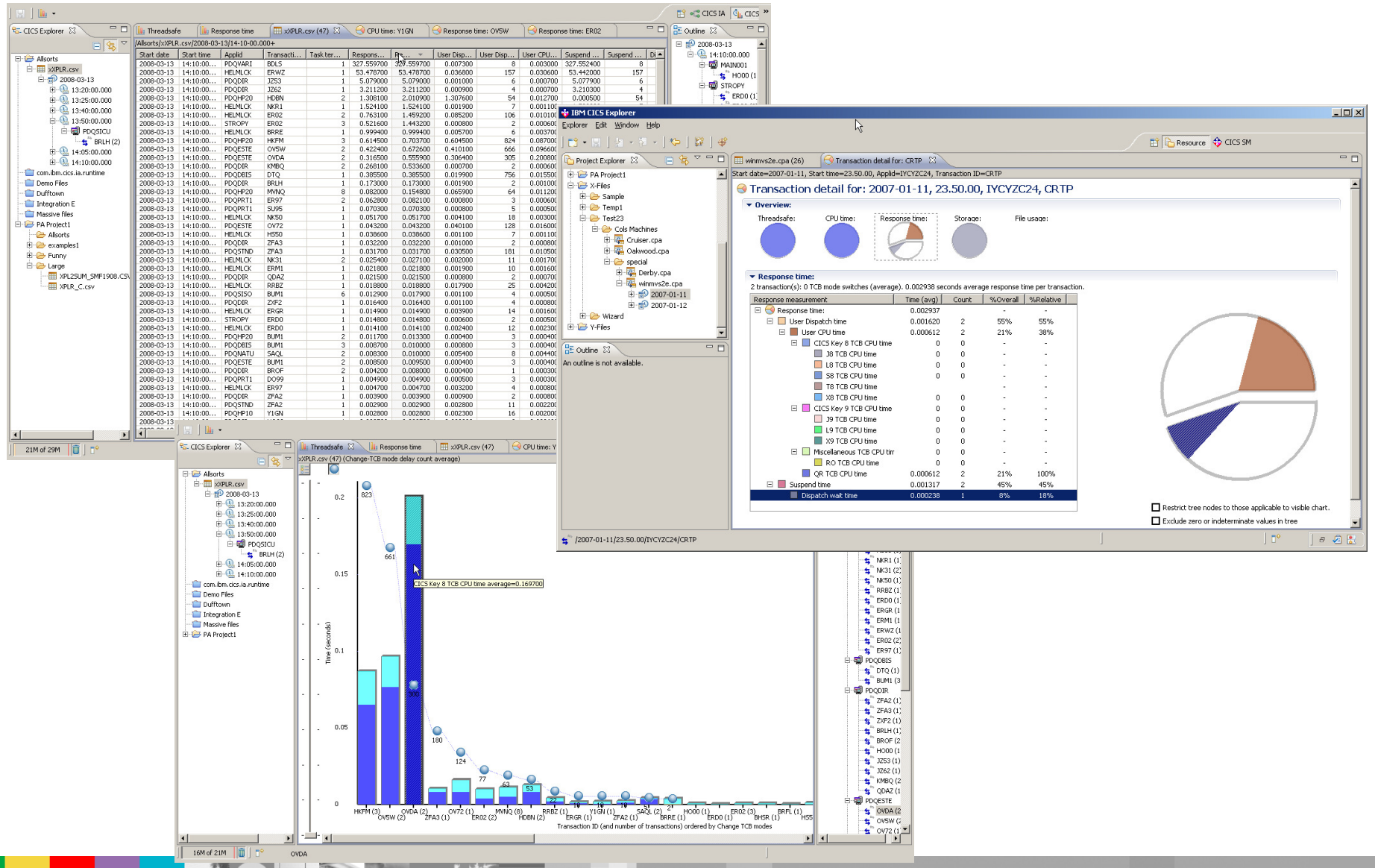
CICS PA Explorer plug-in

- Provides Visualization of historical performance data
- Access to critical data summaries and reporting scenarios via CSV or database (DB2) extracts
- Numerous visualizations presentable
- Integrates with the strategic CICS Explorer and other tooling plug-ins

Integration with CICS Explorer



Visualizing the summary data



CICS PA Version 3 Release 1 Highlights

- CICS PA Explorer plug-in updated
- CICS Transaction Server for z/OS Version 4.1 Support
- Statistics Alert Reporting Enhancements
- CICS PA Version 2.1 Enhancements Incorporated
  - Application Grouping
  - Reporting Enhancements
- CICS PA Version 3.1 – Product information ...
  - Program Product – 5655-U87

Summary - CICS Performance Analyzer

- Analyzes SMF records to produce a wide range of reports and extracts
- Extensive Tabular Reports and Extract Data Sets
- Historical Database
  - Trending and Capacity Planning
- ISPF Dialog to build, maintain, and submit reports and extracts
- Graphical view of performance and statistical data via CICS Explorer
- Supports CICS TS, Version 4, Version 3, and Version 2
- Program Product – 5697-U87

CICS Interdependency Analyzer

Understand Relationships in your CICS Environment

ON DEMAND BUSINESS

CICS Interdependency Analyzer

- **What does it do?**
  - Real-time capture of CICS application calls (API's,SPI's,Calls)
  - Query facilities: Windows / CICS / Batch
  - Document application affinities to facilitate Dynamic Transaction Routing
  - Identify application programs that are ThreadSafe / Open TCB
  - Creates and updates CPSM affinities rules database
- **Benefits**
  - Automated documentation of CICS applications
  - Quickly identify application scope
  - Verify the application code via call path tracing
  - Automatically maintains CPSM rules

- **Makes it easier to maintain, enhance, modify, and redistribute your applications.**

CICS Interdependency Analyzer for z/OS (CICS IA)

Key features

- **Captures CICS application relationships:**
  - Resources used by a transaction - Programs, Files, TSQs, TDQs plus DB2, MQ, IMS plus Web services, Natural and Adabas
  - Transactions with affinities and their type / lifetime
  - Unused resources
  - Sequencing of transactions within an application
  - Command flow shows detailed TCB switching within a transaction
- **Relationship data loaded onto a DB2 data base or UDB**
- **CICS Explorer plug-in integrates with CICS run-time and other tools**

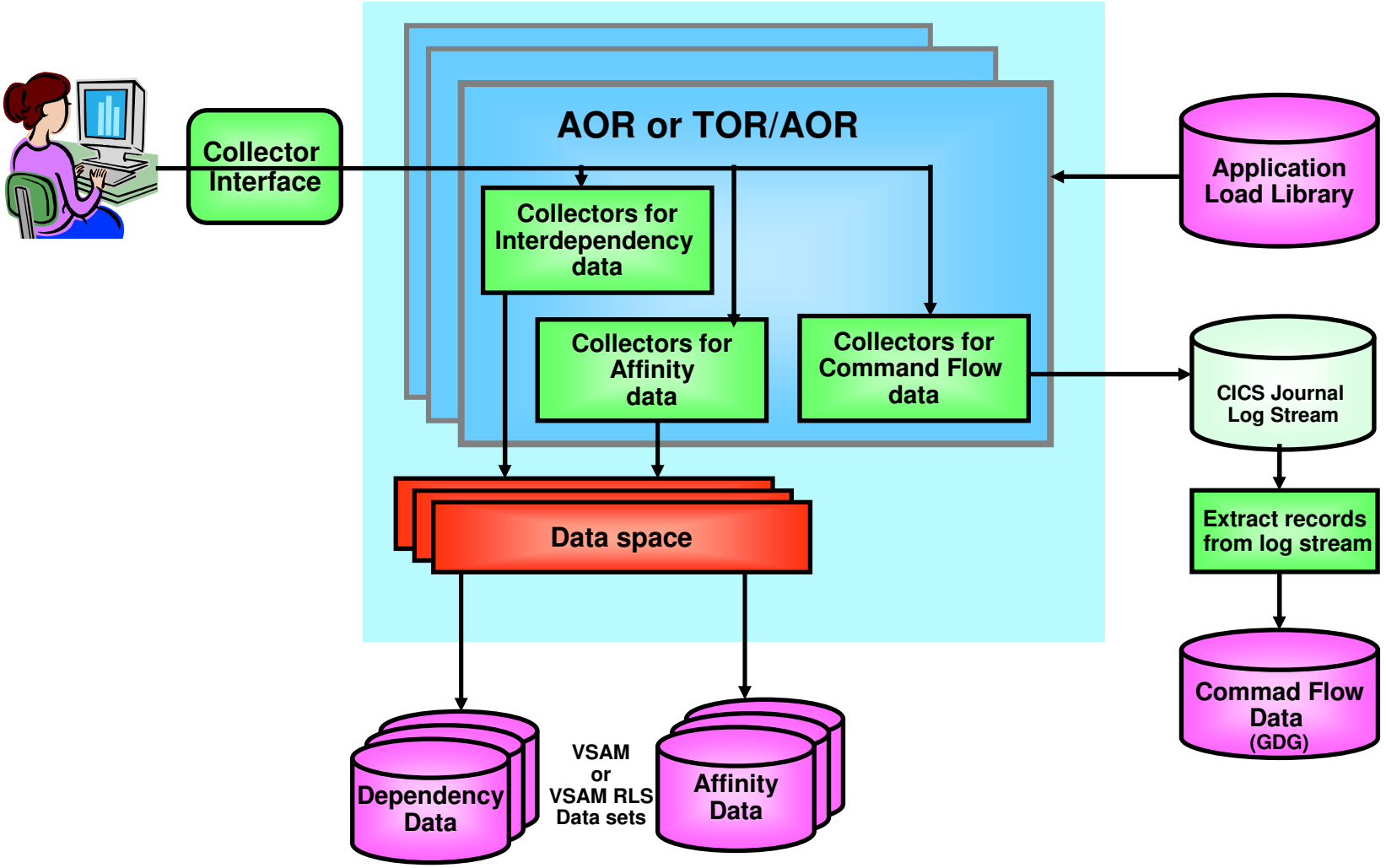
CICS support

- CICS Transaction Server for z/OS, V3 and V4

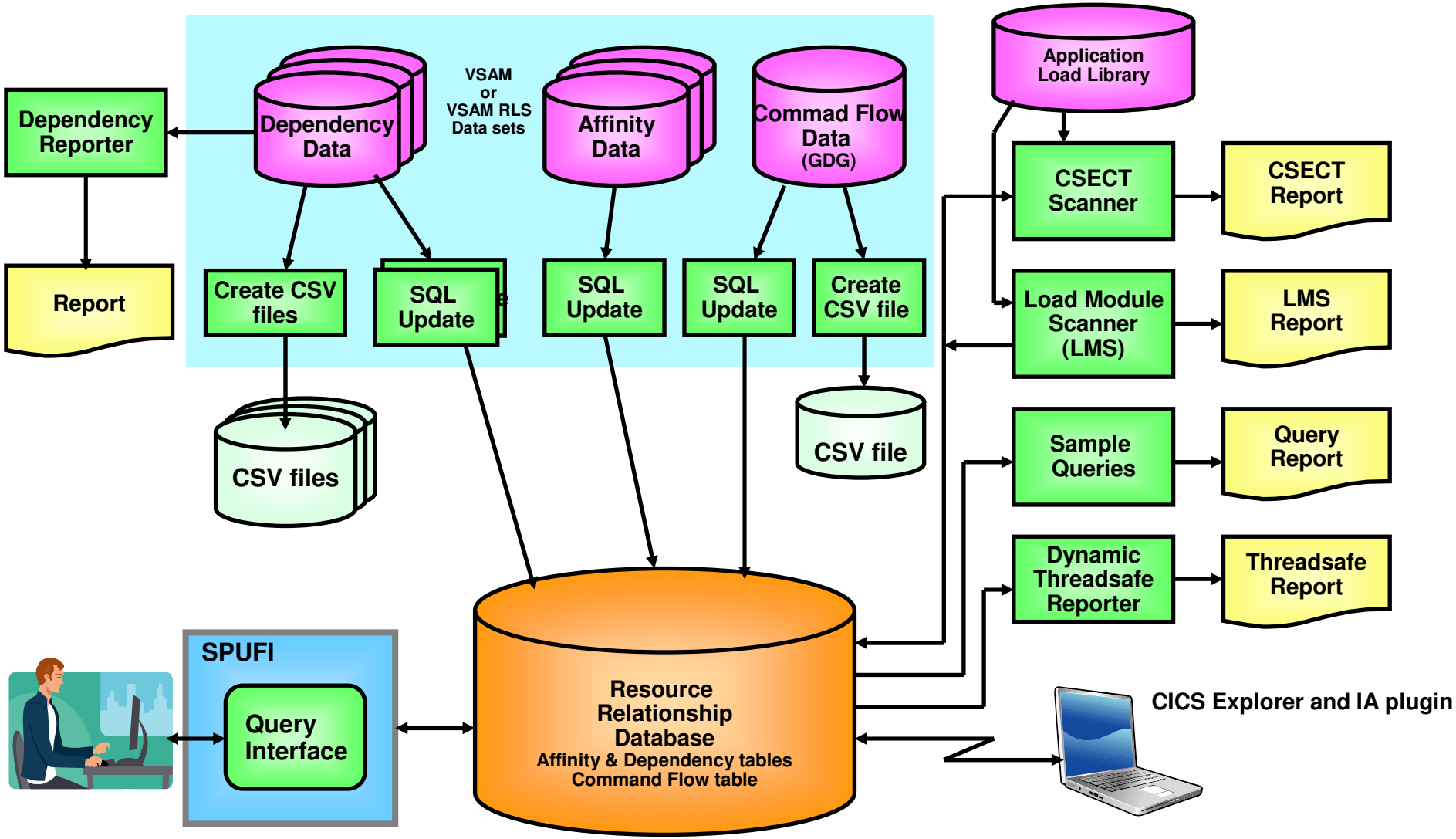
New in CICS IA V3.1 (Sept 2009)

- **Supports all new and updated CICS TS V4.1 resources, including Events, Atom feeds, Bundles, XML mappings, etc**
- **Fully supported plug-in for the CICS Explorer**
- **Command Flow feature**
- **Natural program interactions and ADABAS usage**
- **Migration queries for CICS TS V4.1.**
- **Collect Affinity and Dependency data at the same time**
- **Change collector options dynamically**

CICS IA Architecture (Collector structure)



CICS IA Architecture (Reporting Structure)



CICS IA – Business Value

- **Understand active application inventory quickly and efficiently**
  - Understand cross-system applications and dependencies
  - Know the resource topology within a particular CICS region
  - Understand the where and how resources are used
  - Know the last time a particular resource was used

- **Maintain or enhance applications more quickly and efficiently**
  - Identify the scope of a change
  - What resources that are affected directly and indirectly
    - ***Transactions, programs, data elements: files, queues, screens, ...***
  - What to change, what to build, what to test, what needs to be communicated to roles involved
  - Look across boundaries, including shared data

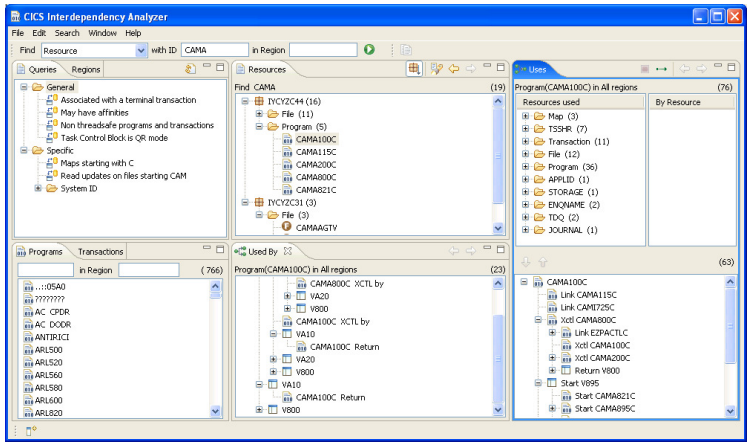
CICS IA Key Features

- Affinity Analysis Support
- Web Services Support
- Application Migration Support
- Application Performance Support - Threadsafe
- Support for Software AG's Natural
- Command Flow
- IA Explorer

CICS IA Explorer Architecture

CICS IA **Explorer** is a stand alone PC application that includes an Eclipse Rich Client platform and Java Runtime Environment. Saved queries and query results are stored locally on the PC

CICS IA **Collector** runs in regions and writes data about Interactions between Transactions, Programs and other resources to DB2 tables



JDBC type 4 driver accesses DB2 Tables on System z

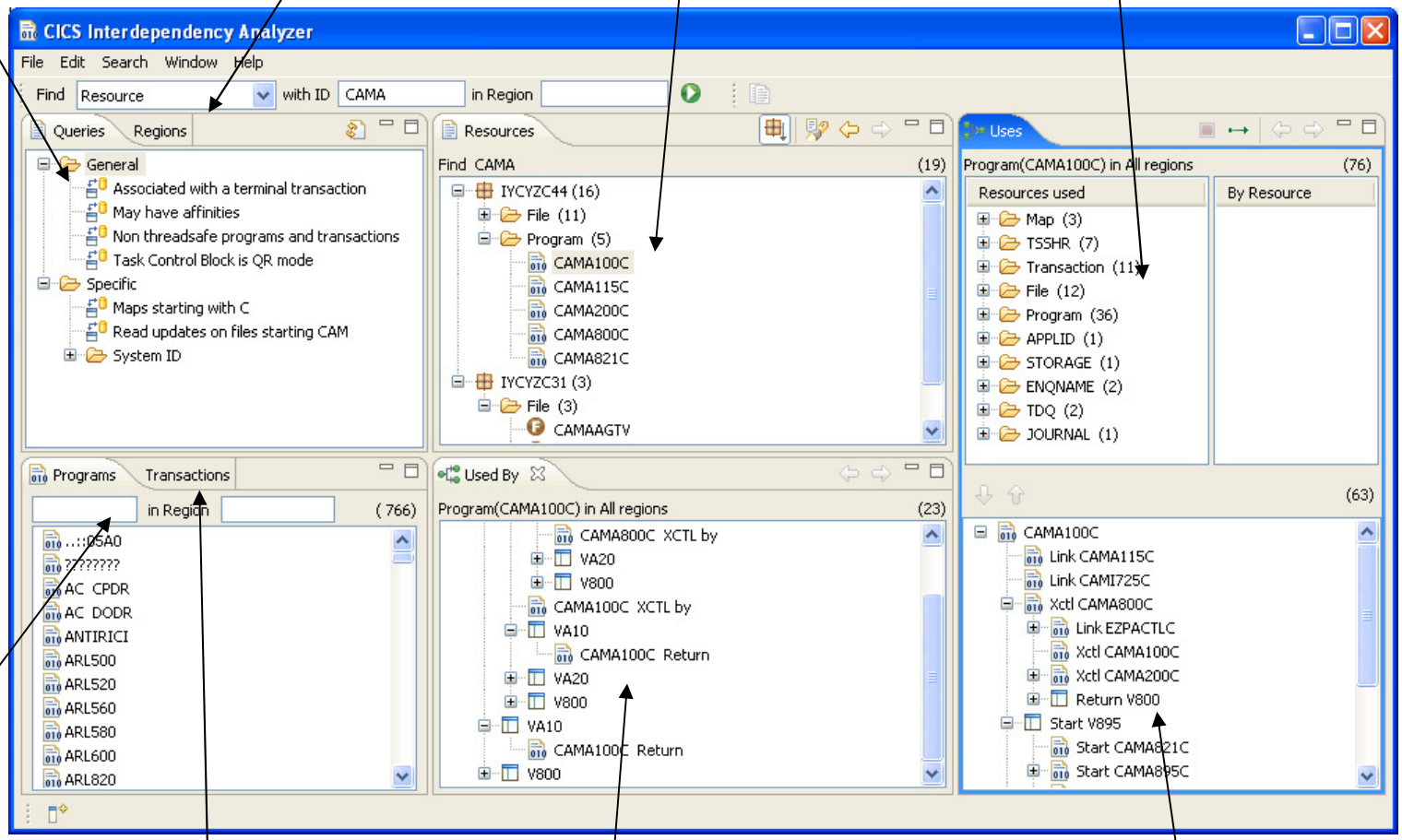
IBM DB2

List of all Regions

Saved query definitions

Results of queries

Breakdown of resources used



List of all Programs

List of all Transactions

Where is resource used ?

Call tree of program execution

Commands Monitored by CICS IA for Affinities

CICS Commands

Inter Transaction Affinities :–

ENQ, DEQ
READQ TS, WRITEQ TS,DELETEQ TS
LOAD HOLD, RELEASE
RETRIEVE WAIT, START
ADDRESS CWA
GETMAIN SHARED, FREEMAIN
LOAD, FREEMAIN
CANCEL, DELAY, POST, START.

Transaction System Affinities :–

INQ, SET, ENABLE, DISABLE, EXTRACT, COLLECT STATS
PERFORM, DISCARD, CREATE, RESYNC
CICS BTS BROWSE
WAITCICS, WAIT EVENTS , WAIT EXTERNAL.

The Affinity Reporter - example output (ENQ/DEQ)

```
2006/05/18 - CICS INTERDEPENDENCY ANALYZER (CIU) - Version 210  -  Page:   5
INTER-TRANSACTION AFFINITIES REPORT FOR APPLID: IYCYZC41 - ENQ/DEQ

Trangroup    :  EQ.00000001
Affinity     :  GLOBAL        (Worsened from USERID  )
Lifetime     :  SYSTEM
Resource     :  'CAMENQTL'          (C3C1D4C5D5D8E3D3)
Length       :  8
Tranid    Program      Offset      Usage     Command                 Terminal    CBTS Task    Link3270
------    --------    --------    -------    ----------------------  --------    ---------    --------
 V800     EZPACTLC    00002074         1     ENQ NAME                   Yes         No           No
 V800     EZPACTLC    000020A0         1     DEQ NAME                   Yes         No           No
          Total Transactions      :       1
          Total Programs          :       1
Trangroup    :  EQ.00000002
Affinity     :  Background
Lifetime     :  SYSTEM
Resource     :  'NQ200205'          (D5D8F2F0F0F2F0F5)
Length       :  8
Tranid    Program      Offset      Usage     Command                 Terminal    CBTS Task    Link3270
------    --------    --------    -------    ----------------------  --------    ---------    --------
 V200     CAMT200C    00002AB4         8     ENQ NAME                   No          No           No
```

The Affinity Reporter - example output (TSQs)

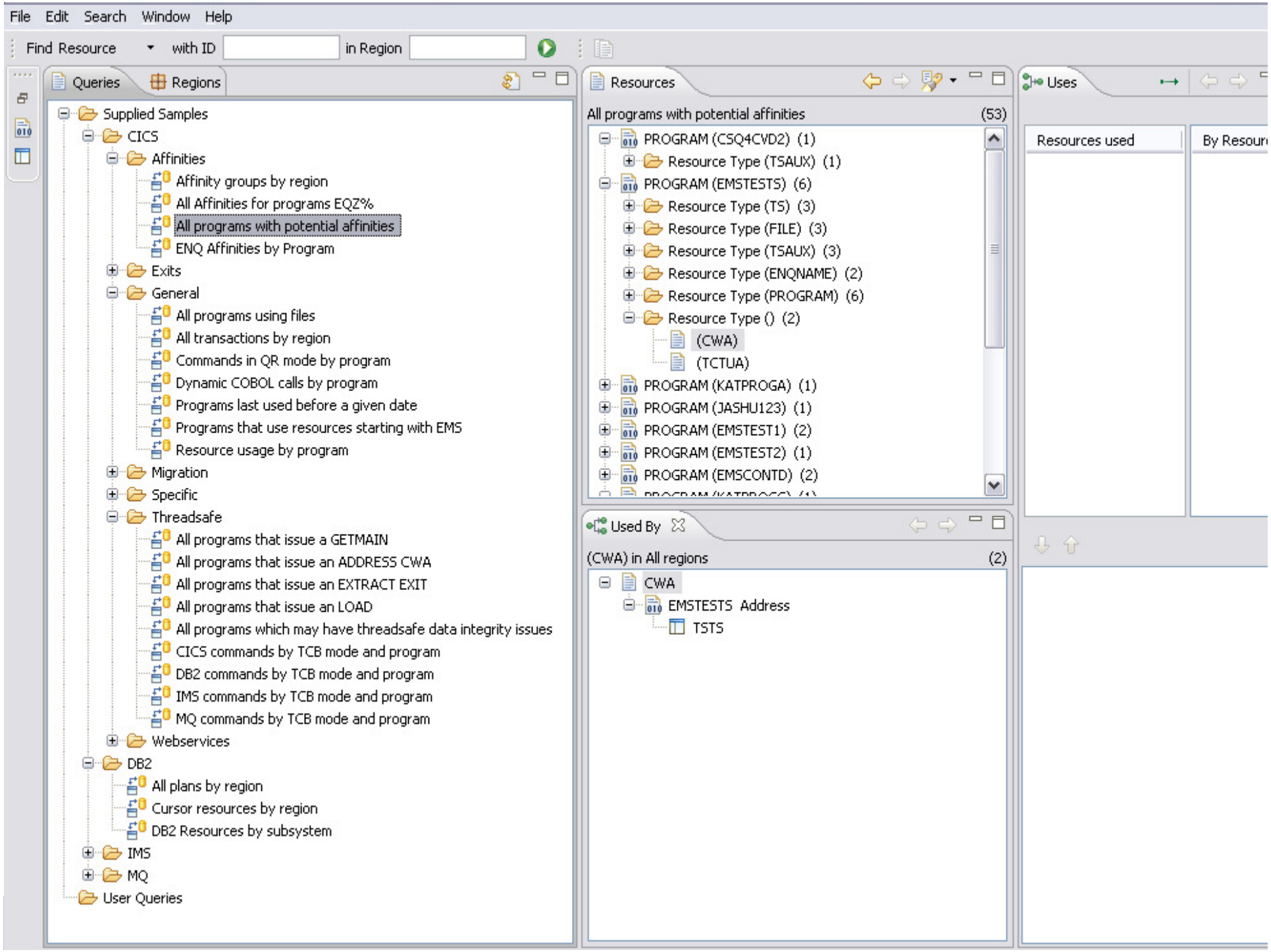
```
2006/05/18 - CICS INTERDEPENDENCY ANALYZER (CIU) - Version 210  -  Page:  11
INTER-TRANSACTION AFFINITIES REPORT FOR APPLID: IYCYZC41 - TEMPORARY STORAGE COMMANDS

Trangroup    :  TS.00000001
Affinity     :  LUNAME
Lifetime     :  SYSTEM        (Worsened from LOGON   )
Queue        :  CAMTCORS              (C3C1D4E3C3D6D9E24040404040404040)
Recoverable  :  No            (AUX )
Terminal Id  :  TC49          (E3C3F4F9)
```

Tranid	Program	Offset	Usage	Command	Terminal	CBTS Task	Link3270
VA10	CAMI725C	000014E8	10	READQ TS	Yes	No	No
VA20	CAMI725C	000014E8	1	READQ TS	Yes	No	No
VA90	CAMI710C	0000B380	1	READQ TS	Yes	No	No
VA90	CAMI715C	000053F8	1	READQ TS	Yes	No	No
VA90	CAMI720C	00003C40	5	READQ TS	Yes	No	No
V800	CAMI725C	000014E8	2	READQ TS	Yes	No	No
V800	EZPACTLC	000009D8	1	READQ TS	Yes	No	No
V800	EZPACTLC	00000B32	1	WRITEQ TS	Yes	No	No
V800	EZPACTLC	00000BD0	1	READQ TS	Yes	No	No
V800	EZPACTLC	00000C2E	1	READQ TS	Yes	No	No
V884	CAMA884C	00000CA2	2	READQ TS	No	No	No

The Affinity Builder - example output

```
* HEADER APPLID(BUILDER )  SAVEDATE(20050426)  SAVETIME(132144  );
*
* Generated by CICS IA Transaction Affinities (Builder) on 2005/04/27
* Note: Suitable for input to CICSPlex SM
*
* REMOVE TRANGRP NAME(CTSAGRP );
CREATE TRANGRP NAME(CTSAGRP ) AFFINITY(GLOBAL  ) AFFLIFE(SYSTEM   )
               MATCH(LUNAME) STATE(ACTIVE );
  CREATE DTRINGRP TRANGRP(CTSAGRP ) TRANID(CTSA);
  CREATE DTRINGRP TRANGRP(CTSAGRP ) TRANID(CTST);
  CREATE DTRINGRP TRANGRP(CTSAGRP ) TRANID(TSTA);
*
* REMOVE TRANGRP NAME(CTSDGRP );
CREATE TRANGRP NAME(CTSDGRP ) AFFINITY(GLOBAL  ) AFFLIFE(SYSTEM   )
               MATCH(LUNAME) STATE(ACTIVE );
  CREATE DTRINGRP TRANGRP(CTSDGRP ) TRANID(CTSD);
*
* REMOVE TRANGRP NAME(CTSEGRP );
CREATE TRANGRP NAME(CTSEGRP ) AFFINITY(GLOBAL  ) AFFLIFE(SYSTEM   )
               MATCH(LUNAME) STATE(ACTIVE );
 CREATE DTRINGRP TRANGRP(CTSEGRP ) TRANID(CTSE);
```

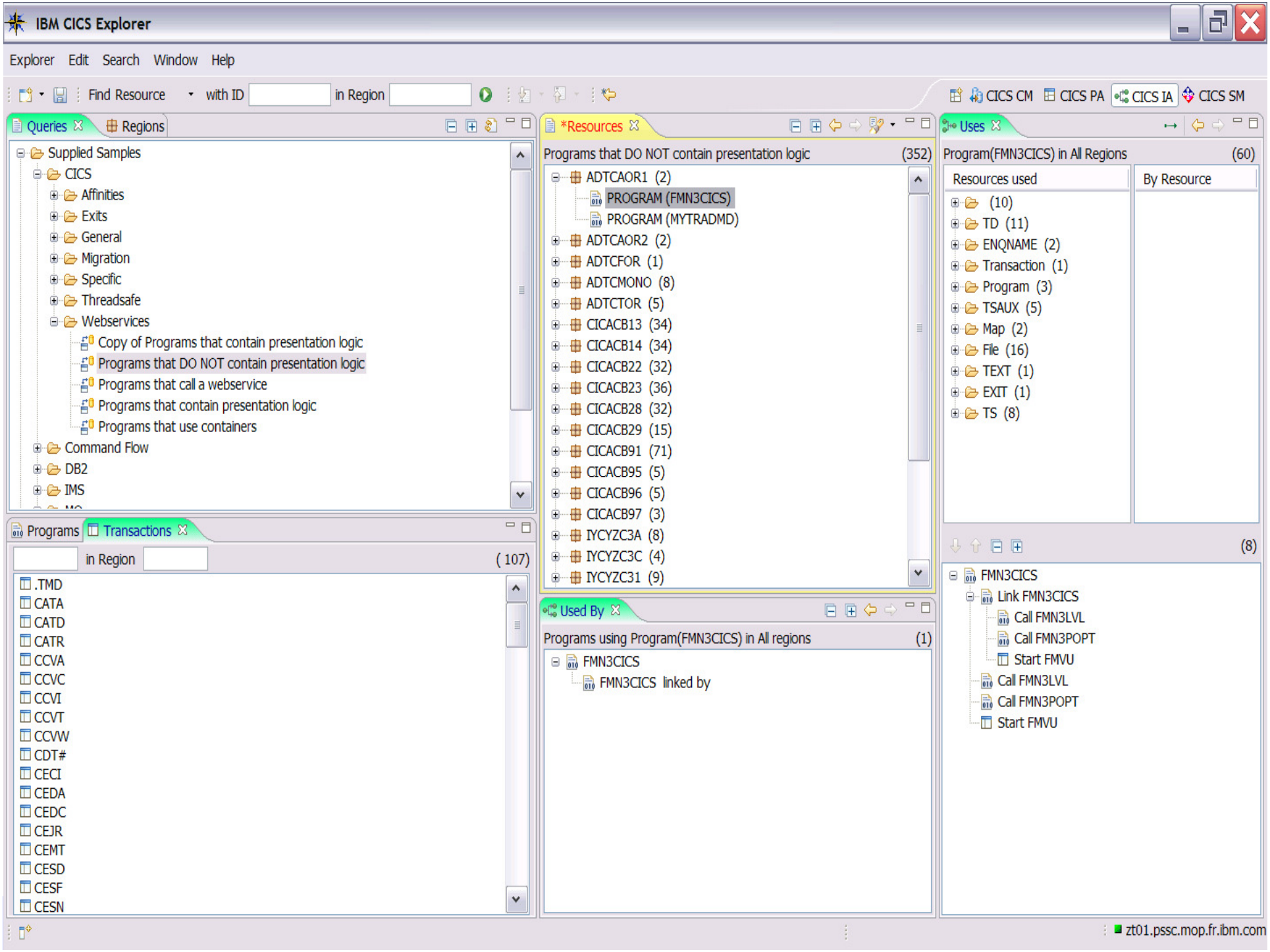


File Edit Search Window Help
Find Resource
with ID
in Region
Queries
Regions
Supplied Samples
CICS
Affinities
Affinity groups by region
All Affinities for programs EQZ%
All programs with potential affinities
ENQ Affinities by Program
Exits
General
All programs using files
All transactions by region
Commands in QR mode by program
Dynamic COBOL calls by program
Programs last used before a given date
Programs that use resources starting with EMS
Resource usage by program
Migration
Specific
Threadsafe
All programs that issue a GETMAIN
All programs that issue an ADDRESS CWA
All programs that issue an EXTRACT EXIT
All programs that issue an LOAD
All programs which may have threadsafe data integrity issues
CICS commands by TCB mode and program
DB2 commands by TCB mode and program
IMS commands by TCB mode and program
MQ commands by TCB mode and program
Webservices
DB2
All plans by region
Cursor resources by region
DB2 Resources by subsystem
IMS
MQ
User Queries
Resources
All programs with potential affinities (53)
PROGRAM (CSQ4CVD2) (1)
Resource Type (TSAUX) (1)
PROGRAM (EMSTESTS) (6)
Resource Type (TS) (3)
Resource Type (FILE) (3)
Resource Type (TSAUX) (3)
Resource Type (ENQNAME) (2)
Resource Type (PROGRAM) (6)
Resource Type () (2)
(CWA)
(TCTUA)
PROGRAM (KATPROGA) (1)
PROGRAM (JASHU123) (1)
PROGRAM (EMSTEST1) (2)
PROGRAM (EMSTEST2) (1)
PROGRAM (EMSCONTD) (2)
Used By
(CWA) in All regions (2)
CWA
EMSTESTS Address
TSTS
Uses
Resources used
By Resour

Web Services support

- **Detection of a Web service requester**
  - Captured in table CIU_CICS_DATA
- **Captured Web service resources information**
  - When the CICS Resource Option ‘Web Services’ is set to ‘D’
  - Captured in the table CIU_WEBSERV_DETAIL
- **Sample queries help identify candidate Web services programs**
  - Program does not contain any CICS presentation logic (contains only business logic)
  - Program is linked using a COMMAREA or CHANNEL
- **Detection of a Web service provider**
  - Captured at a Captured when
    - the application issues EXEC CICS INVOKE WEBSERVICE command
    - and CICS Resource Option ‘Web Services’ is set to ‘Y’ or ‘D’
    - new CICS TS GLUE – to be provided via service channel
  - Data captured will be the same as for a requester.

Web Services support

- CICS IA captures these CICS presentation commands :
  - BMS commands
    - EXEC CICS PURGE MAP
    - EXEC CICS RECEIVE MAP
    - EXEC CICS SEND MAP
    - EXEC CICS SEND TEXT
  - Presentation commands
    - EXEC CICS ADDRESS TCTUA
    - EXEC CICS ASSIGN SCRNWD
    - EXEC CICS ASSIGN SCRNHT
    - EXEC CICS ASSIGN EXTDS
    - EXEC CICS ASSIGN COLOR
    - EXEC CICS ASSIGN PS
    - EXEC CICS ASSIGN HILIGHT
    - EXEC CICS ASSIGN SYSID
    - EXEC CICS ASSIGN MAPLINE
    - EXEC CICS ASSIGN MAPCOLUMN
    - EXEC CICS ASSIGN MAPHEIGHT
    - EXEC CICS ASSIGN MAPWIDT
    - EXEC CICS ASSIGN APLTEXT
    - EXEC CICS ASSIGN TEXTKYBD
    - EXEC CICS ASSIGN APLKYBD
    - EXEC CICS ASSIGN TEXTPRINT
    - EXEC CICS ASSIGN DEFSCRNWD
    - EXEC CICS ASSIGN DEFSCRNHT
    - EXEC CICS ASSIGN ALTSCRNWD
    - EXEC CICS ASSIGN DS3270
    - EXEC CICS ASSIGN ALTSCRNHT
    - EXEC CICS ISSUE COPY
    - EXEC CICS ISSUE PASS
    - EXEC CICS ISSUE RESET
    - EXEC CICS SIGNOFF
    - EXEC CICS SIGNON
  - **Commands where CONVID option is NOT present**
    - EXEC CICS CONVERSE
    - EXEC CICS EXTRACT PROCESS
    - EXEC CICS ISSUE ABEND
    - EXEC CICS ISSUE CONFIRMATION
    - EXEC CICS ISSUE SIGNAL
    - EXEC CICS ISSUE ERROR
    - EXEC CICS ISSUE DISCONNECT
    - EXEC CICS RECEIVE
    - EXEC CICS SEND

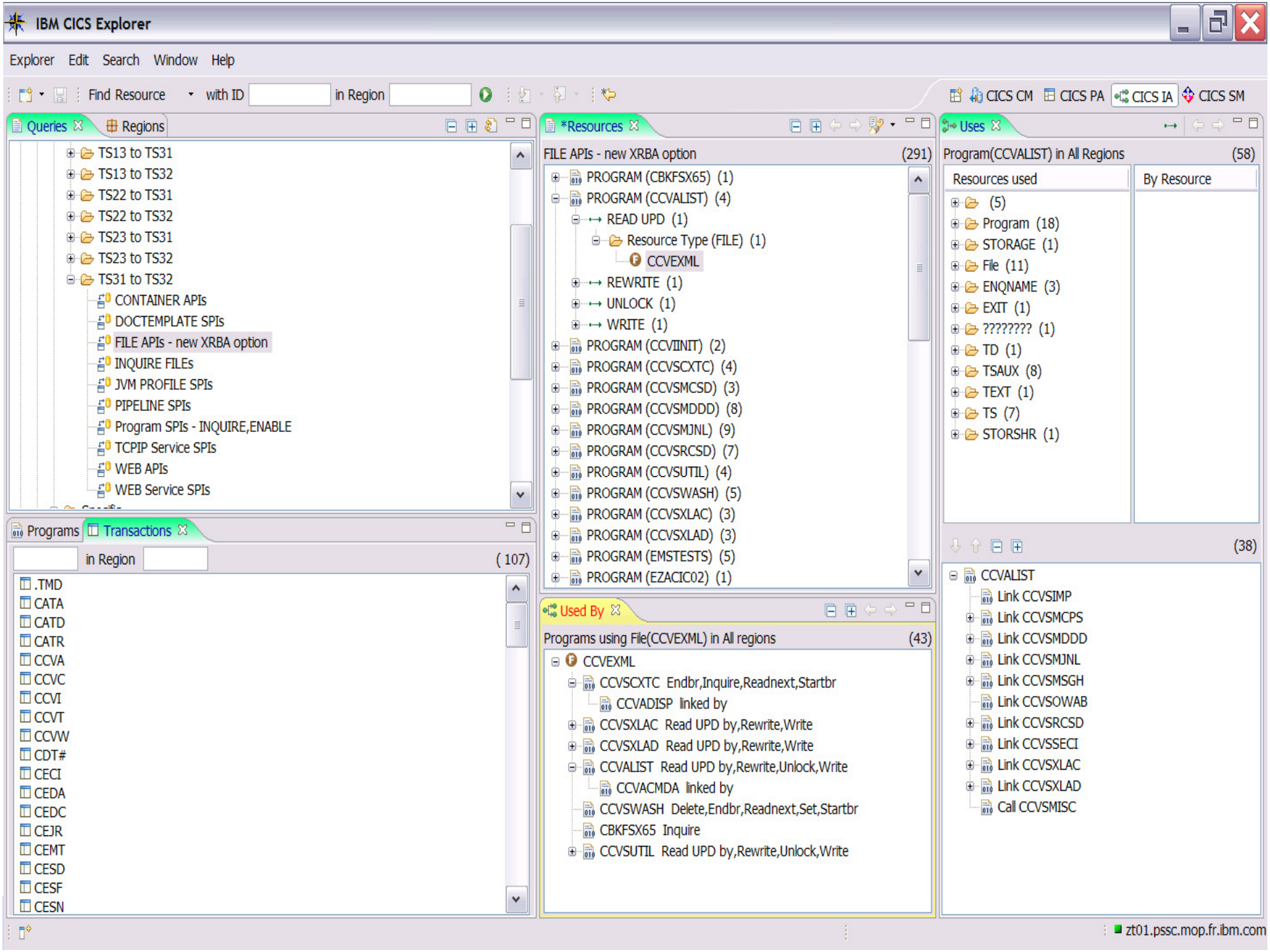

IBM CICS Explorer
Explorer Edit Search Window Help
Find Resource with ID in Region
CICS CM CICS PA CICS IA CICS SM
Queries Regions
Supplied Samples
CICS
Affinities
Exits
General
Migration
Specific
Threadsafe
Webservices
Copy of Programs that contain presentation logic
Programs that DO NOT contain presentation logic
Programs that call a webservice
Programs that contain presentation logic
Programs that use containers
Command Flow
DB2
IMS
*Resources
Programs that DO NOT contain presentation logic (352)
ADTCAOR1 (2)
PROGRAM (FMN3CICS)
PROGRAM (MYTRADMD)
ADTCAOR2 (2)
ADTCFOR (1)
ADTCMONO (8)
ADTCTOR (5)
CICACB13 (34)
CICACB14 (34)
CICACB22 (32)
CICACB23 (36)
CICACB28 (32)
CICACB29 (15)
CICACB91 (71)
CICACB95 (5)
CICACB96 (5)
CICACB97 (3)
IYCYZC3A (8)
IYCYZC3C (4)
IYCYZC31 (9)
Uses
Program(FMN3CICS) in All Regions (60)
Resources used
By Resource
(10)
TD (11)
ENQNAME (2)
Transaction (1)
Program (3)
TSAUX (5)
Map (2)
File (16)
TEXT (1)
EXIT (1)
TS (8)
(8)
FMN3CICS
Link FMN3CICS
Call FMN3LVL
Call FMN3POPT
Start FMVU
Call FMN3LVL
Call FMN3POPT
Start FMVU
Programs Transactions
in Region (107)
.TMD
CATA
CATD
CATR
CCVA
CCVC
CCVI
CCVT
CCVW
CDT#
CECI
CEDA
CEDC
CEJR
CEMT
CESD
CESF
CESN
Used By
Programs using Program(FMN3CICS) in All regions (1)
FMN3CICS
FMN3CICS linked by
zt01.pssc.mop.fr.ibm.com

Application Migration Support

- **Assist users in selecting which applications need testing during the migration from one CICS TS release to another**
- **Done by identifying**
  - programs that include APIs or SPIs that have changed
  - Exits routines used in the CICS region
- **CICS IA provides sample SQL queries that help identify**
  - Obsolete commands and options
  - Changes to File control API's
  - Changes to Program API's
  - Changes to SPI commands and options for:
    - Programs
    - Transactions
    - Files
    - CORBA
    - TCP/IP
    - Web services
    - Pipelines
    - JVM's
    - Doc Templates

Application Migration support

- **Sample queries for the different migration combinations.**
  - **CIUM1332 - Migration from TS 1.3 to TS 3.2**
  - **CIUM2231 - Migration from TS 2.2 to TS 3.1**
  - **CIUM2232 - Migration from TS 2.2 to TS 3.2**
  - **CIUM2331 - Migration from TS 2.3 to TS 3.1**
  - **CIUM2332 - Migration from TS 2.3 to TS 3.2**
  - **CIUM3132 - Migration from TS 3.1 to TS 3.2**
- **Processes for evaluating applications to migrate**
  - Collect data for applications in TS version to be migrated.
  - Run SQL queries to identify those application that may need changing
  - Evaluation and/or change application
  - Test on new TS version.


IBM CICS Explorer
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Find Resource with ID in Region
CICS CM CICS PA CICS IA CICS SM
Queries Regions
TS13 to TS31
TS13 to TS32
TS22 to TS31
TS22 to TS32
TS23 to TS31
TS23 to TS32
TS31 to TS32
CONTAINER APIs
DOCTEMPLATE SPIs
FILE APIs - new XRBA option
INQUIRE FILEs
JVM PROFILE SPIs
PIPELINE SPIs
Program SPIs - INQUIRE,ENABLE
TCPIP Service SPIs
WEB APIs
WEB Service SPIs
*Resources
FILE APIs - new XRBA option (291)
PROGRAM (CBKFSX65) (1)
PROGRAM (CCVALIST) (4)
READ UPD (1)
Resource Type (FILE) (1)
CCVEXML
REWRITE (1)
UNLOCK (1)
WRITE (1)
PROGRAM (CCVIINIT) (2)
PROGRAM (CCVSCXTC) (4)
PROGRAM (CCVSMCSD) (3)
PROGRAM (CCVSMDDD) (8)
PROGRAM (CCVSMJNL) (9)
PROGRAM (CCVSRCSD) (7)
PROGRAM (CCVSUTIL) (4)
PROGRAM (CCVSWASH) (5)
PROGRAM (CCVSXLAC) (3)
PROGRAM (CCVSXLAD) (3)
PROGRAM (EMSTESTS) (5)
PROGRAM (EZACIC02) (1)
Uses
Program(CCVALIST) in All Regions (58)
Resources used
By Resource
(5)
Program (18)
STORAGE (1)
File (11)
ENQNAME (3)
EXIT (1)
???????? (1)
TD (1)
TSAUX (8)
TEXT (1)
TS (7)
STORSHR (1)
(38)
CCVALIST
Link CCVSIMP
Link CCVSMCPS
Link CCVSMDDD
Link CCVSMJNL
Link CCVSMSGH
Link CCVSOWAB
Link CCVSRCSD
Link CCVSSECI
Link CCVSXLAC
Link CCVSXLAD
Call CCVSMISC
Programs Transactions
in Region (107)
.TMD
CATA
CATD
CATR
CCVA
CCVC
CCVI
CCVT
CCVW
CDT#
CECI
CEDA
CEDC
CEJR
CEMT
CESD
CESF
CESN
Used By
Programs using File(CCVEXML) in All regions (43)
CCVEXML
CCVSCXTC Endbr,Inquire,Readnext,Startbr
CCVADISP linked by
CCVSXLAC Read UPD by,Rewrite,Write
CCVSXLAD Read UPD by,Rewrite,Write
CCVALIST Read UPD by,Rewrite,Unlock,Write
CCVACMDA linked by
CCVSWASH Delete,Endbr,Readnext,Set,Startbr
CBKFSX65 Inquire
CCVSUTIL Read UPD by,Rewrite,Unlock,Write
zt01.pssc.mop.fr.ibm.com

Application performance support

- **Support to identify the thread-safe aspect of your program inventory**
- **Limit the number of TCB swaps to the quasi-reentrant task control block. Saving as much as 15% in processor usage.**
- **How do you find which programs would benefit from being made Threadsafe?**
  - CICS documents which EXEC CICS commands are threadsafe.
    - API and SPI Programming Ref guides
  - Those identified as thread safe do not cause a TCB swap.
  - Using as many of these threadsafe commands will increase performance.
  - Programs that are threadsafe can be defined to CICS with CONCURRENCY(THREADSAFE) or API(OPENAPI)
- Command Flow Feature
  - Track commands in chronological sequence to see exactly where TCB switching occurs

Threadsafe Dynamic Analysis report

```
1CICS INTERDEPENDENCY ANALYZER VERSION 2.2.0                                  2007/10/03:14.01.34    PAGE
 Program Dynamic Analysis - THREADSAFE DETAIL LISTING FOR CICS TS

 Report options:
   PROGRAMNAME=*         REGIONNAME=*         CICSLEVEL=      REPORT=DETAIL   LINESPERPAGE=60


 Definitions of Terms:

   'Threadsafe' calls are EXEC CALLS commands that do not cause a TCB swap.

   'Non-Threadsafe' calls are EXEC CALLS commands that cause a TCB swap.

   'Indeterminate Threadsafe' calls are EXEC CALLS commands where it cannot be determined if the call causes a TCB swap.

   'Dynamic calls' are calls to modules at execution time. Programs that are called dynamically take on the same environment
                   as the calling program.

   'Threadsafe Inhibitor calls' are EXEC CICS commands that need to be investigated further because they may prevent you from
                                defining your program as threadsafe. These commands are: ADDRESS CWA, EXTRACT EXIT, GETMAIN SHARED
                                and LOAD.
```

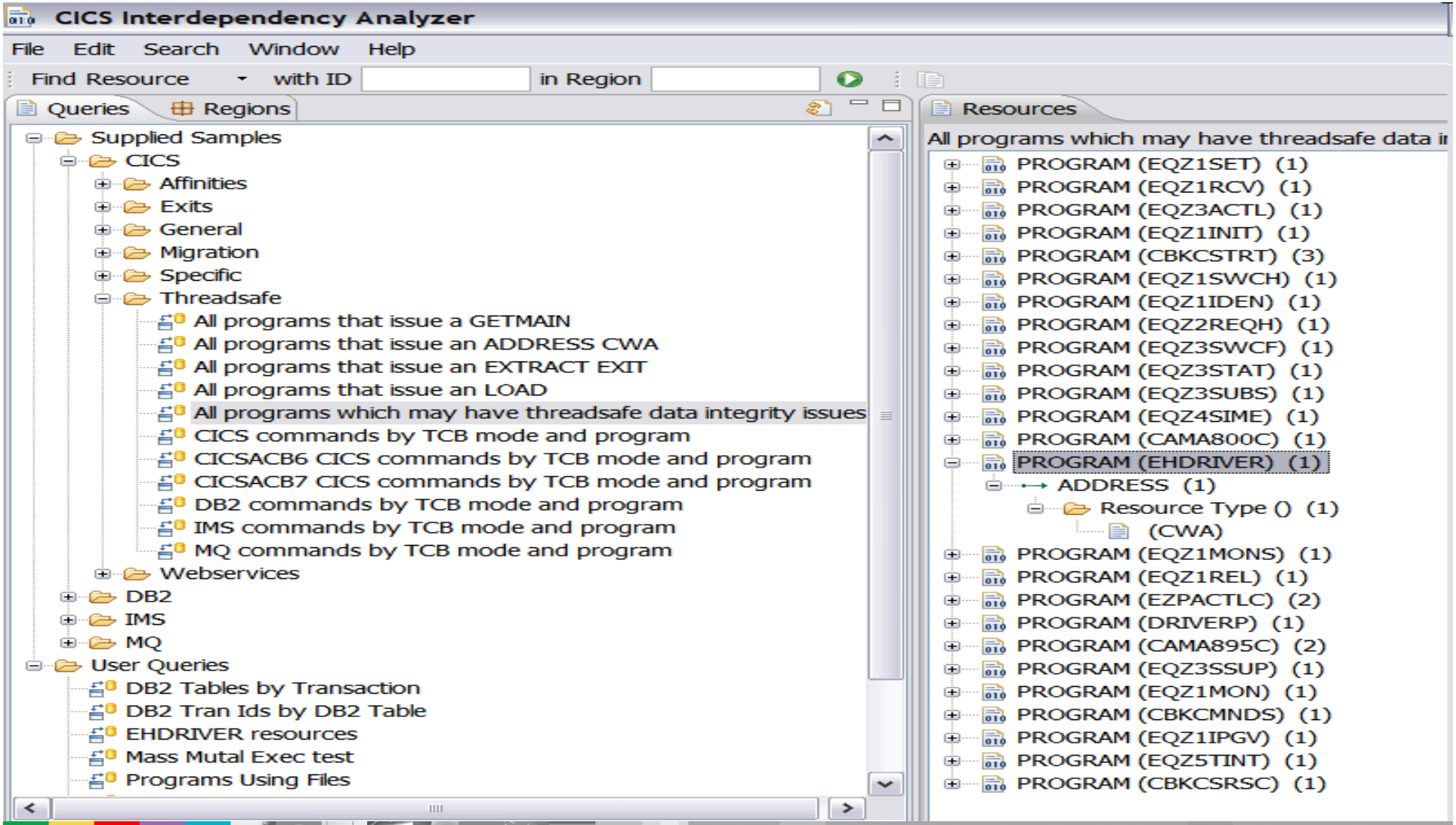

Threadsafe Dynamic Analysis report - Summary

```
CICS INTERDEPENDENCY ANALYZER VERSION 2.2.0                                    2007/10/19:11.50.59    PAGE
3
Program Dynamic Analysis - THREADSAFE SUMMARY LISTING FOR CICS TS 3.2


APPLID   Program   Linkedit   Execution  Concurrency  APIST  Storage  CICS  LIB Dataset Name
                     Date        Key                        Protect  Rel
-------- -------- ---------- ---------- ---------- ------- -------- ----- --------------------------------

IYDZZ328 EMSCONTA ---------- USER        QUASIRENT   CICSAPI ACTIVE   0650  CICSIAD.TEST.LOADLIB
  Total CICS calls:         13  Threadsafe:           1  Non-Threadsafe:                    7  Indeterminate Threadsafe:
0
                              DB2 calls:             0  MQ calls:                          0  IMS calls:
0
                              Dynamic Calls:         0  Threadsafe Inhibitor calls:        0

IYDZZ328 EMSTESTS ---------- USER        QUASIRENT   CICSAPI ACTIVE   0650  CICSIAD.TEST.LOADLIB
  Total CICS calls:         64  Threadsafe:          34  Non-Threadsafe:                   26  Indeterminate Threadsafe:
0
                              DB2 calls:             0  MQ calls:                          0  IMS calls:
0
                              Dynamic Calls:         0  Threadsafe Inhibitor calls:        5
```


Threadsafe Dynamic Analysis report

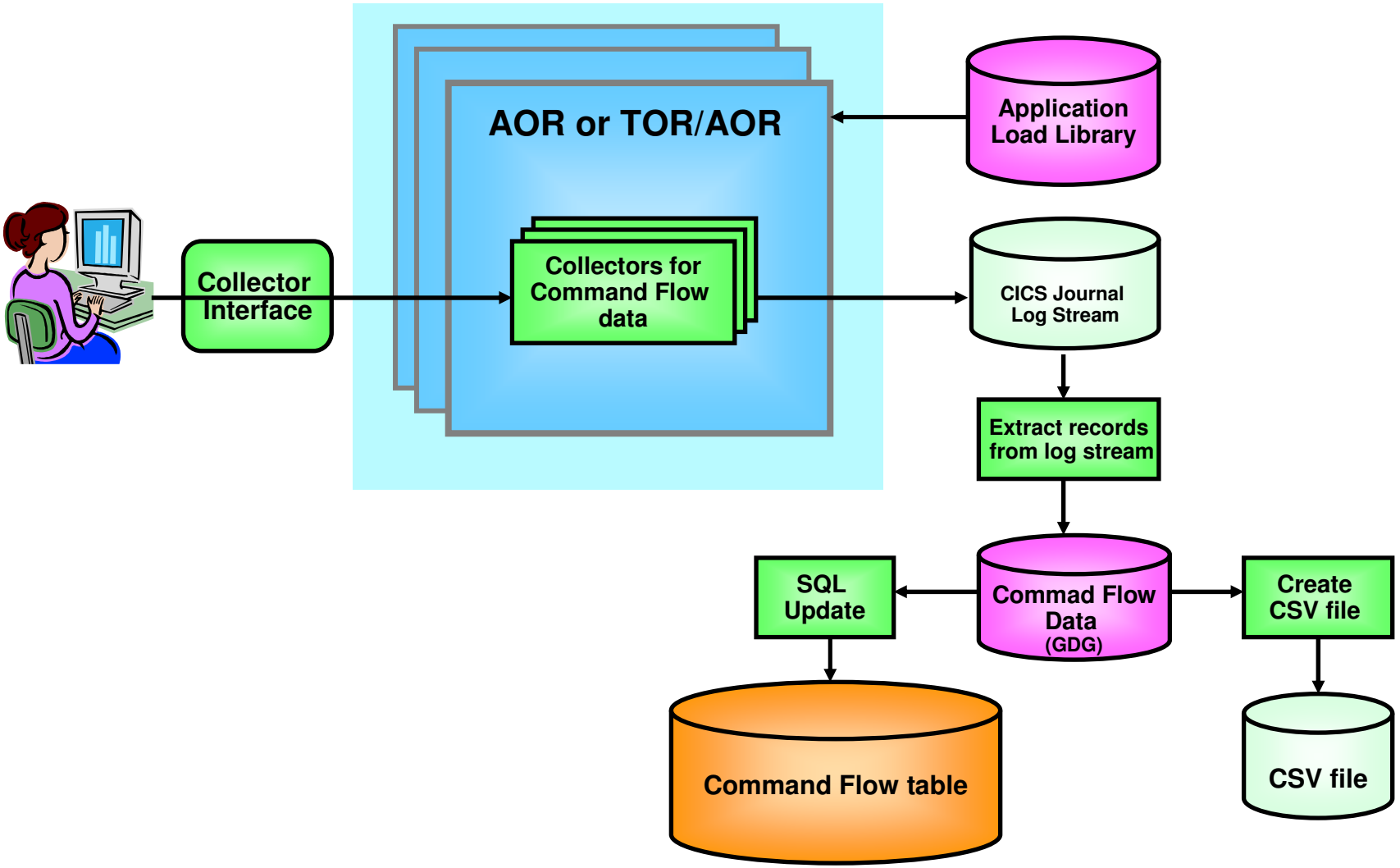
```
CICS INTERDEPENDENCY ANALYZER VERSION 2.2.0                                    2007/10/19:12.22.05    PAGE
3
Program Dynamic Analysis - THREADSAFE DETAIL LISTING FOR CICS TS 3.2

APPLID   Program   Linkedit    Execution  Concurrency  APIST  Storage  CICS  LIB Dataset Name
                     Date         Key                        Protect  Rel
-------- -------- ---------- ---------- ---------- ------- -------- ----- --------------------------------

                 CMD  Function                Type       Resource                        Offset   Program  Use
Threadsafe
                 Type                                                                              Length   Count
                 ---- ----------------------- ---------- ------------------------------- -------- -------- --------- -----
-----

IYDZZ328 EMSTESTS ---------- USER        QUASIRENT   CICSAPI ACTIVE   0650  CICSIAD.TEST.LOADLIB
                 CICS ADDRESS                        CWA                                  E76     3380         1    Y
*
                 .                                   .
                 CICS ADDRESS                        TCTUA                                E76     3380         1    Y
                 CICS ADDRESS                        TCTUA                               1152     3380         1    Y
                 .                                   .
                 .                                   .
                 CICS DEFINE                 COUNTER    TESTDCOUNTER                     1BE0     3380         1    N
                 CICS DELETE                 COUNTER    TESTCOUNTER                      1F2C     3380         1    N
                 CICS DELETE                 COUNTER    TESTDCOUNTER                     1F78     3380         1    N
 Total CICS calls:         64  Threadsafe:           34  Non-Threadsafe:                  26  Indeterminate Threadsafe:
                               DB2 calls:             0  MQ calls:                         0  IMS calls:
                               Dynamic Calls:         0  Threadsafe Inhibitor calls (*):   5
```

Use IA Explorer to help with Threadsafe analysis

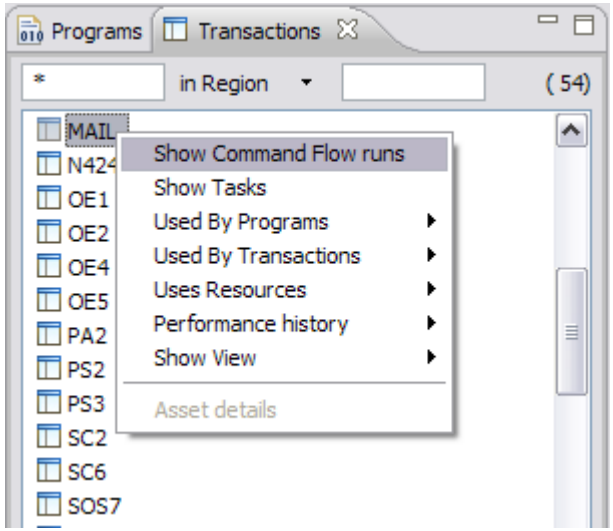


Command Flow Option

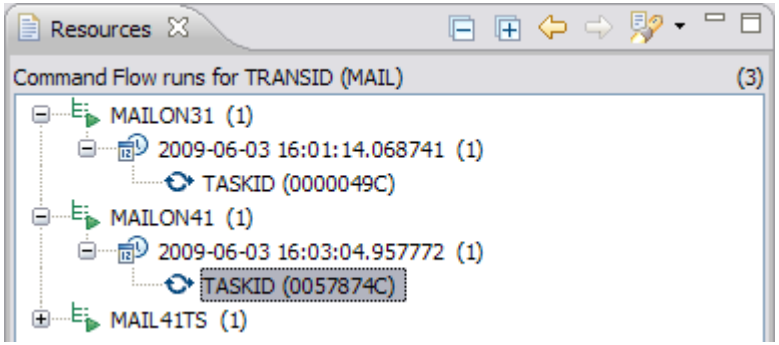
Command Flow option structure



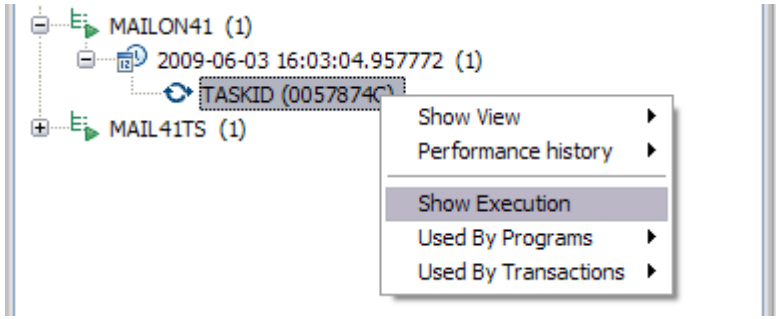
Command Flow



Show collected Command Flow runs for a Transaction

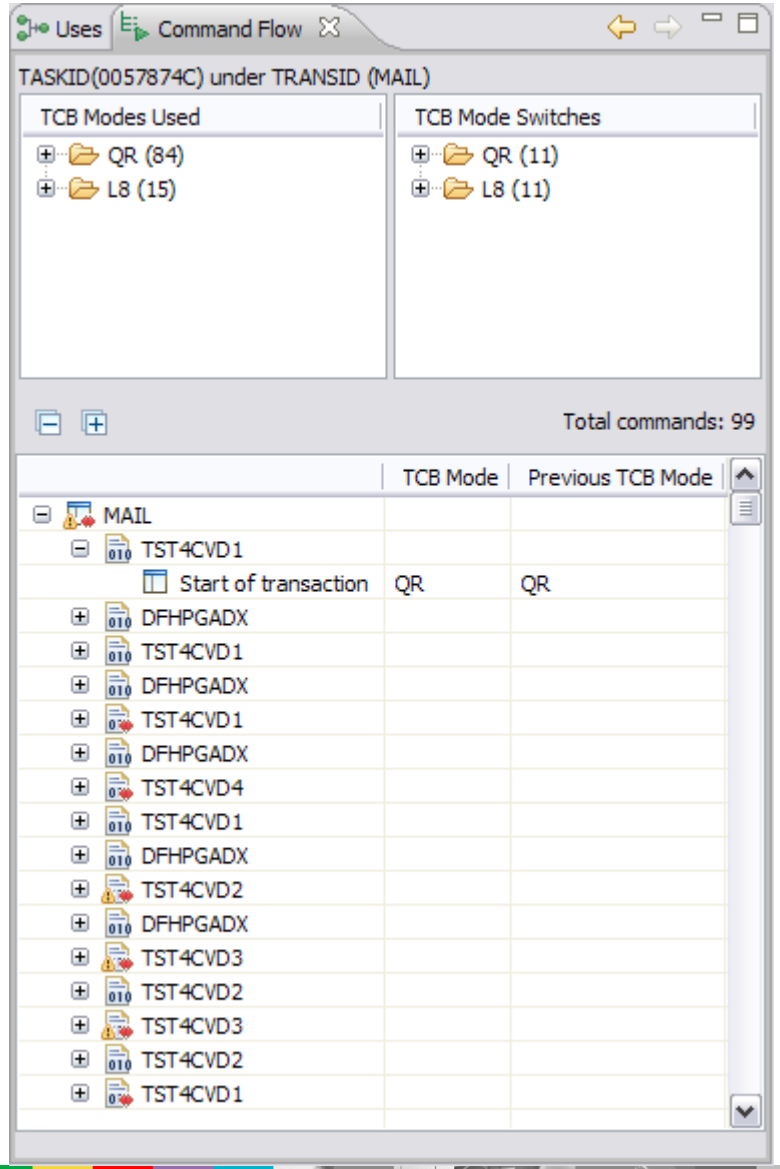


Select which task you are interested in



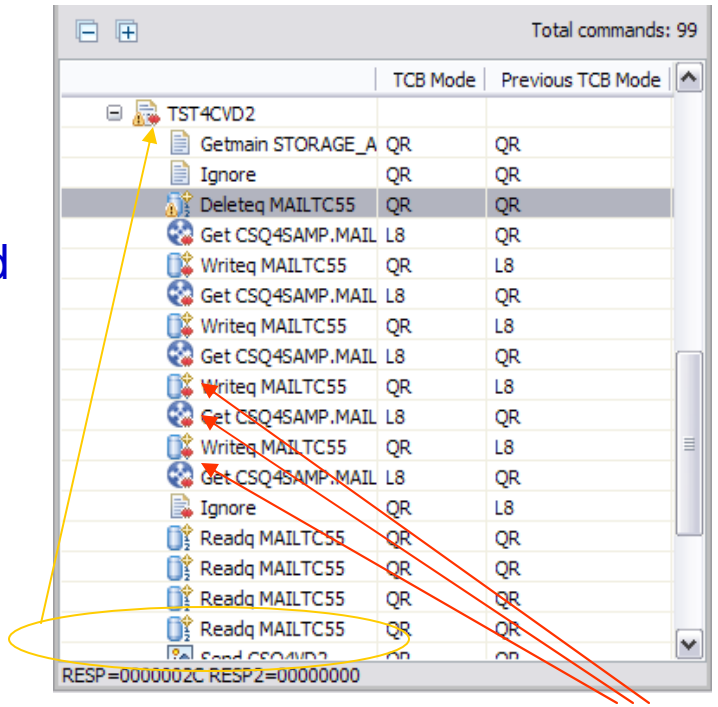
Show the execution of that task

Command Flow Continued…



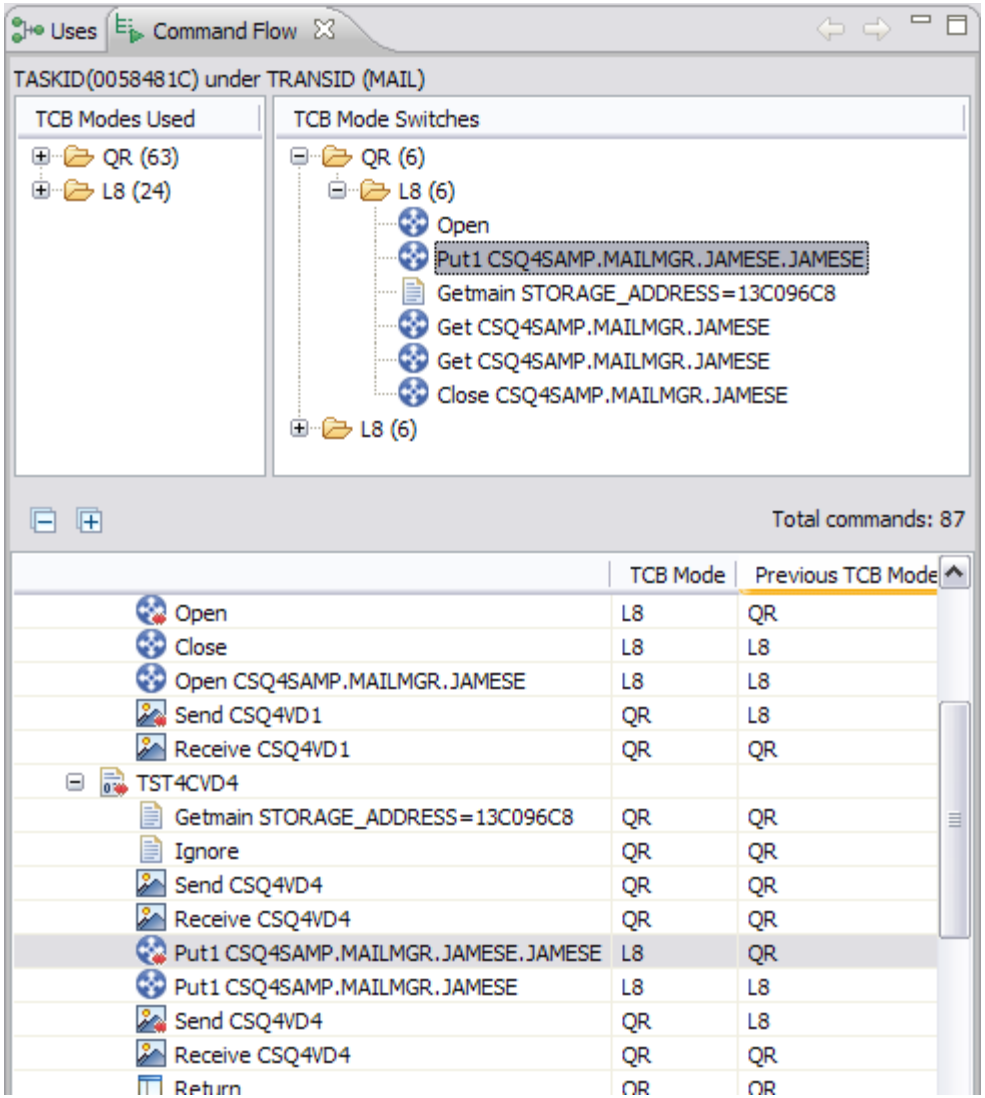
Displays commands in time order alongside summary of TCB Modes used and any TCB mode switches

Command with non-zero response code decorated with warning. Codes shown on selection



TCB Mode switches decorated with red switch arrow

Command Flow Continued…



See where in the tree a switch occurred – selecting an item in the summary drives the tree to that position

Summary – CICS Interdependency Analyzer

- Collect and store resource relationship information from running CICS environment
- Automate CPSM rules definitions with the affinity reporter and builder.
- Understand your applications for SOA enablement
- Extensive query capabilities (CICS interface, desktop IA Explorer, user defined queries)
- Exploit Features of CICS TS (threadsafe, LE enablement, and WEB enablement)
- Reduce time and effort for application maintenance activities
- Supports CICS TS, version 4, version 3, and version 2.
- Program product – 5655-U86

CICS Configuration Manager

A single point of control
for CICS resource definitions across your enterprise

ON DEMAND BUSINESS

CICS Configuration Manager

- **What does it do?**
  - Simplifies and automates the management of your CICS resources in both CSD and CPSM BAS environments
  - Enables migration of CICS resources from different environments under a structured change control process
  - Tracks resource history as well as provides back-out to previous change level
  - Provides detailed reports of CICS resources

- **Benefits**
  - Helps reduce errors and abends related to incorrect resource changes
  - Minimizes manual work by operators and system programmers
  - Provides complete audit history of all CICS resource modifications
  - Improve Speed of Implementation
  - Helps you lower the total cost of ownership of your zSeries platform

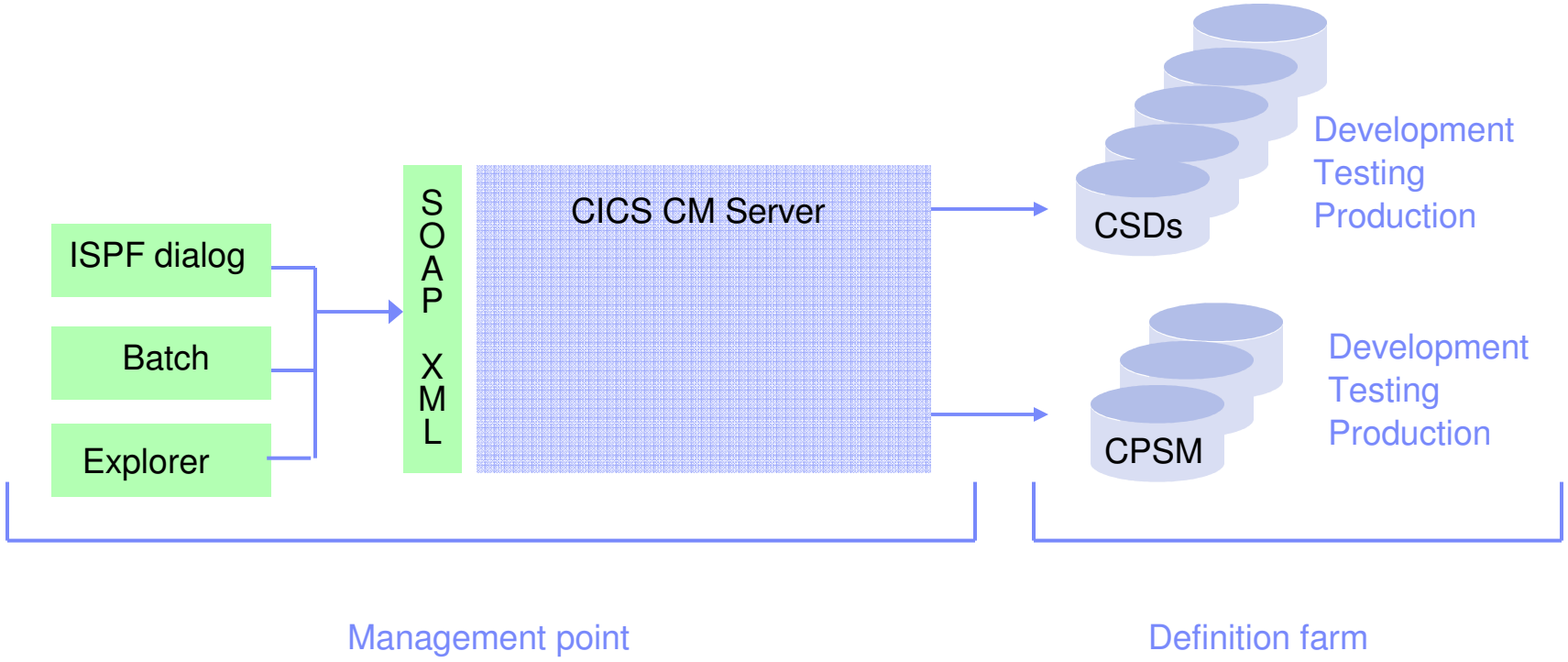
CICS Configuration Manager for z/OS (CICS CM)

- Key features
  - Create, Update, Delete, Copy, Replicate CICS resource definitions
  - Change management through the life-cycle stages, e.g. development, test, production
  - Create customized reports to identify redundant definitions, show resource relationships and change management history
  - Audit, back-out and change authorization capabilities
- CICS Support
  - CICS Transaction Server for z/OS, V3 and V4

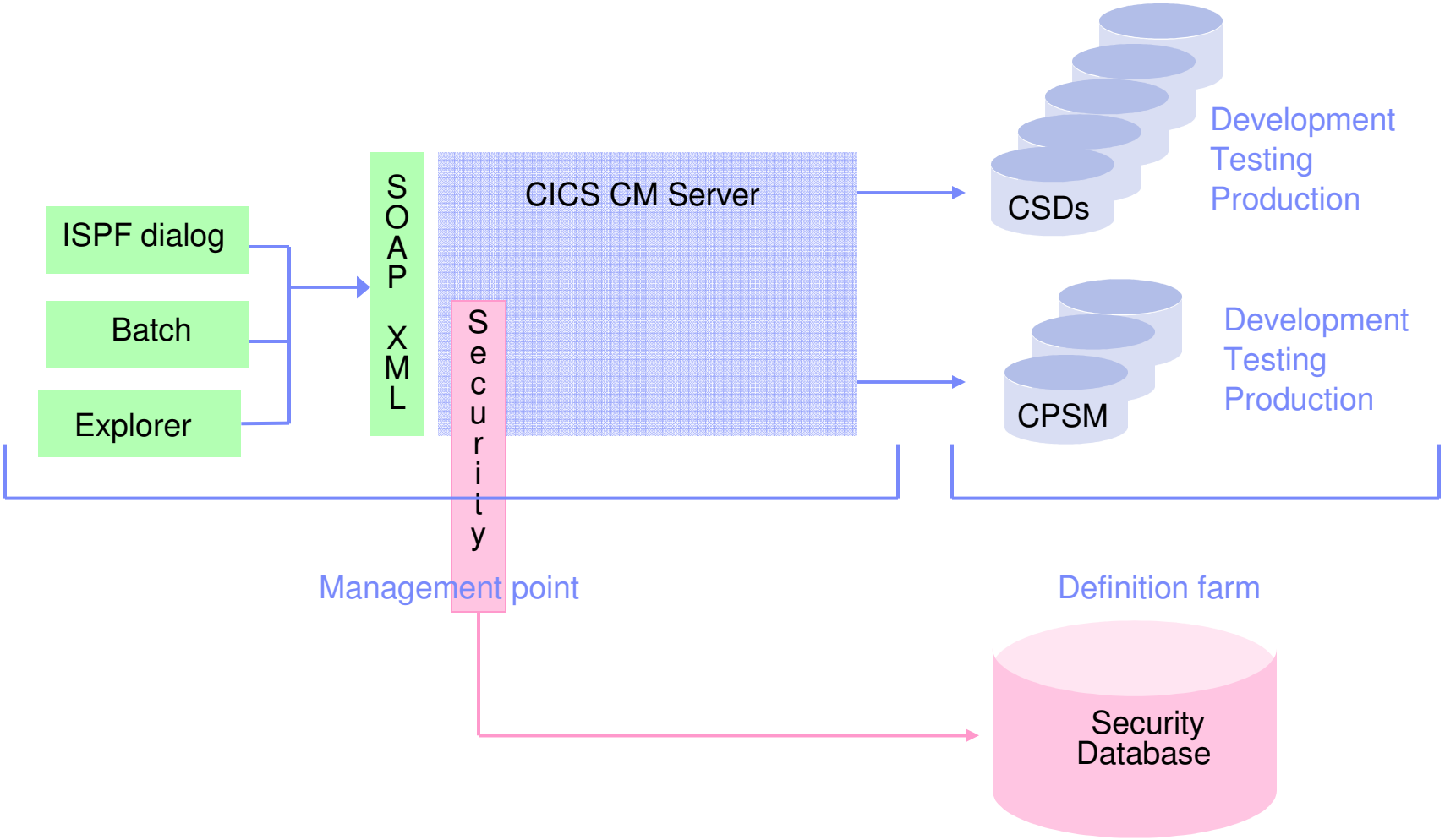
New in CICS CM V2.1 (July 2009)

- **CICS TS V4.1 support**
- **Deployment Analysis Reports**
- **Fully supported CICS Explorer plug-in**
- **Full-function BAS definition support**
- **Change Package 'Command Stack'**
- **Diagnostic Collection**

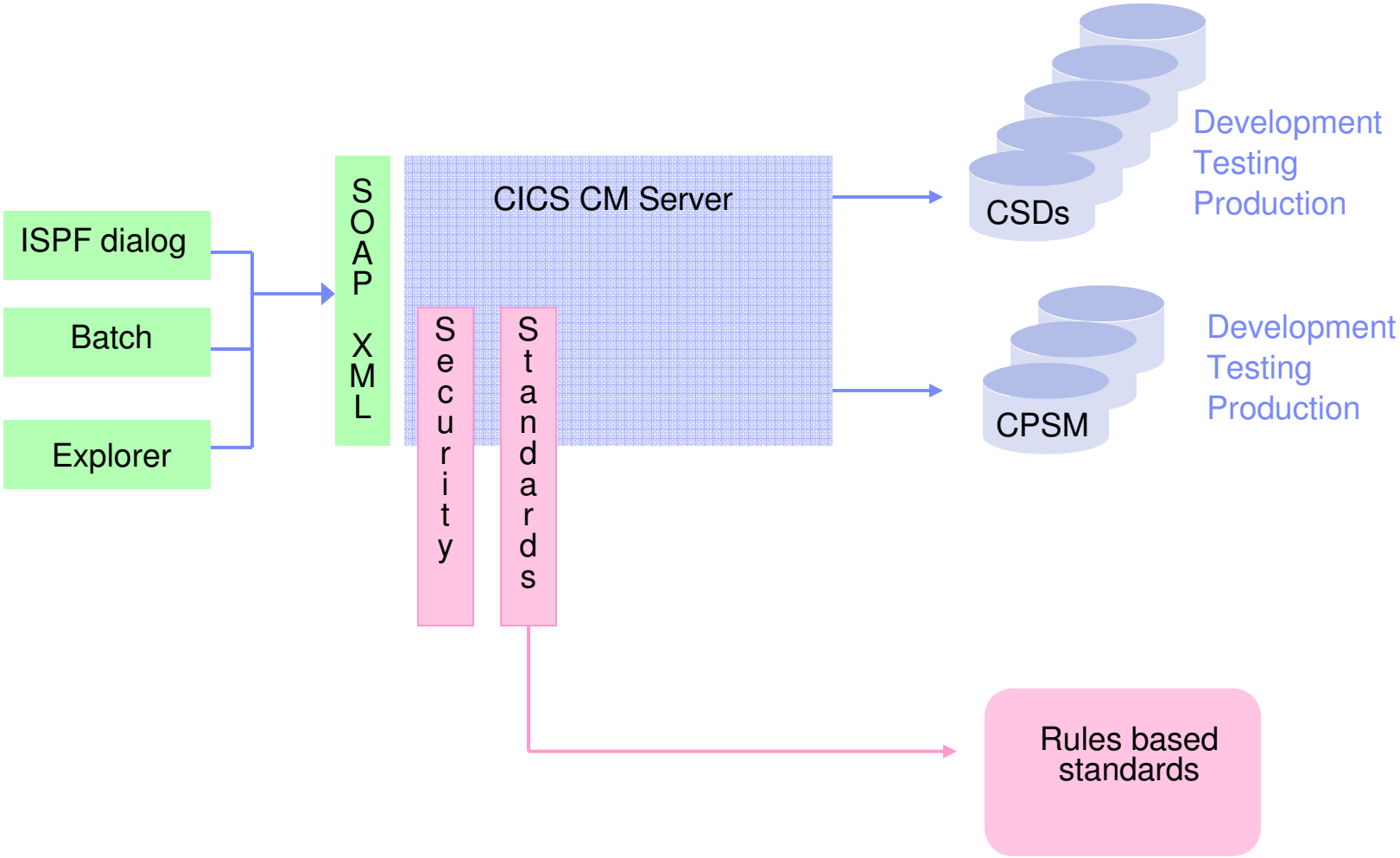
Centralize Resource Definition Management



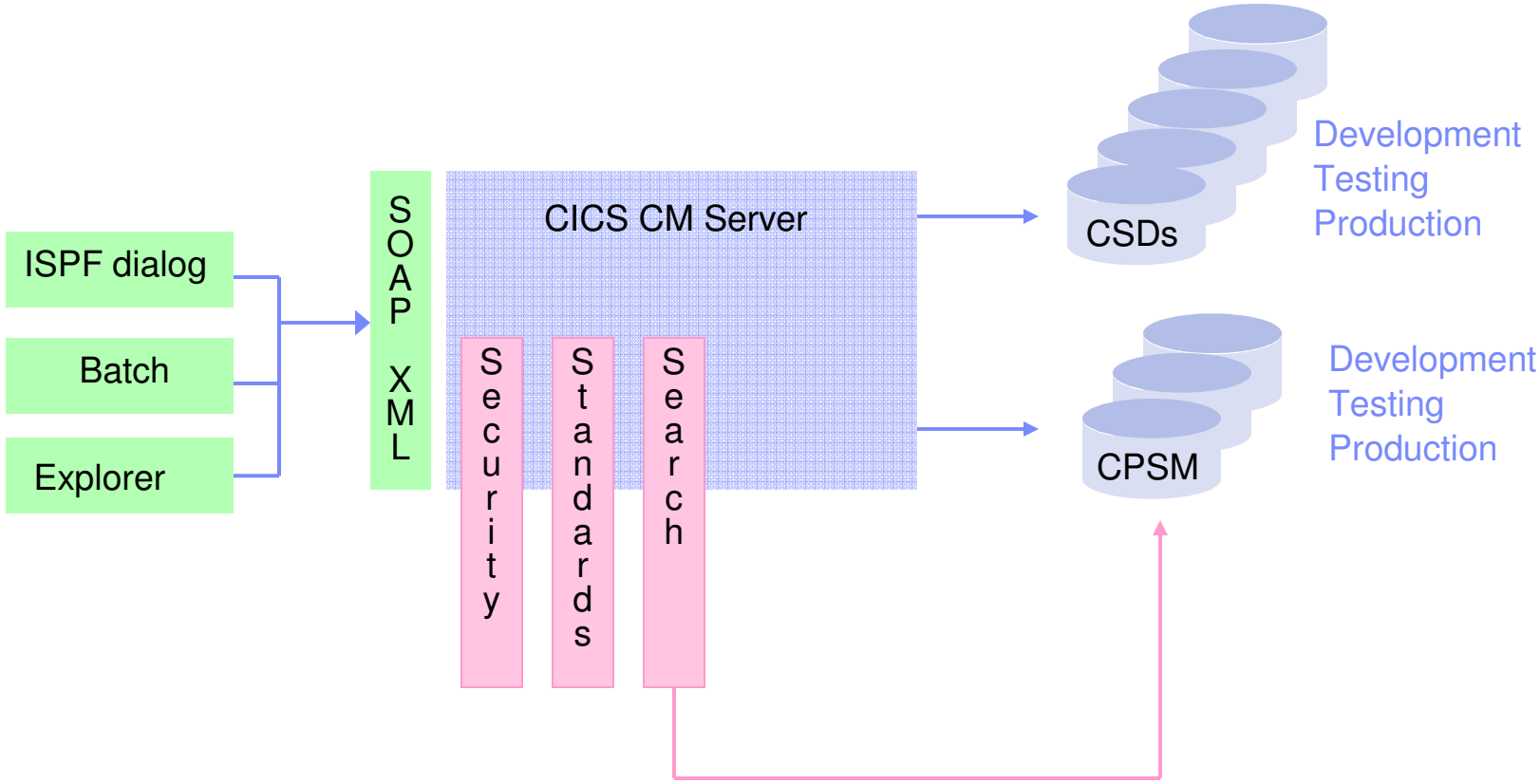
Centralize Resource Definition Management



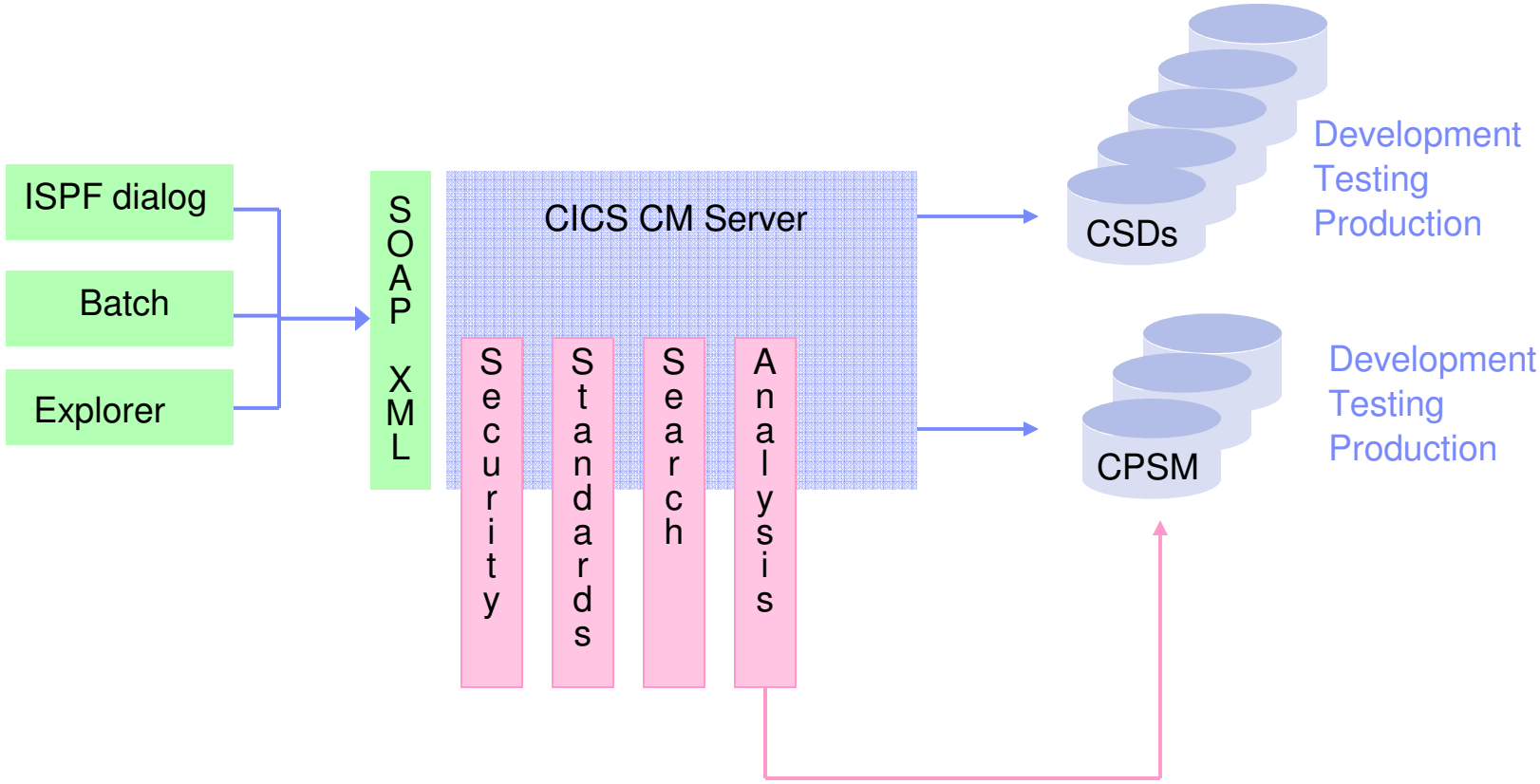
Centralize Resource Definition Management



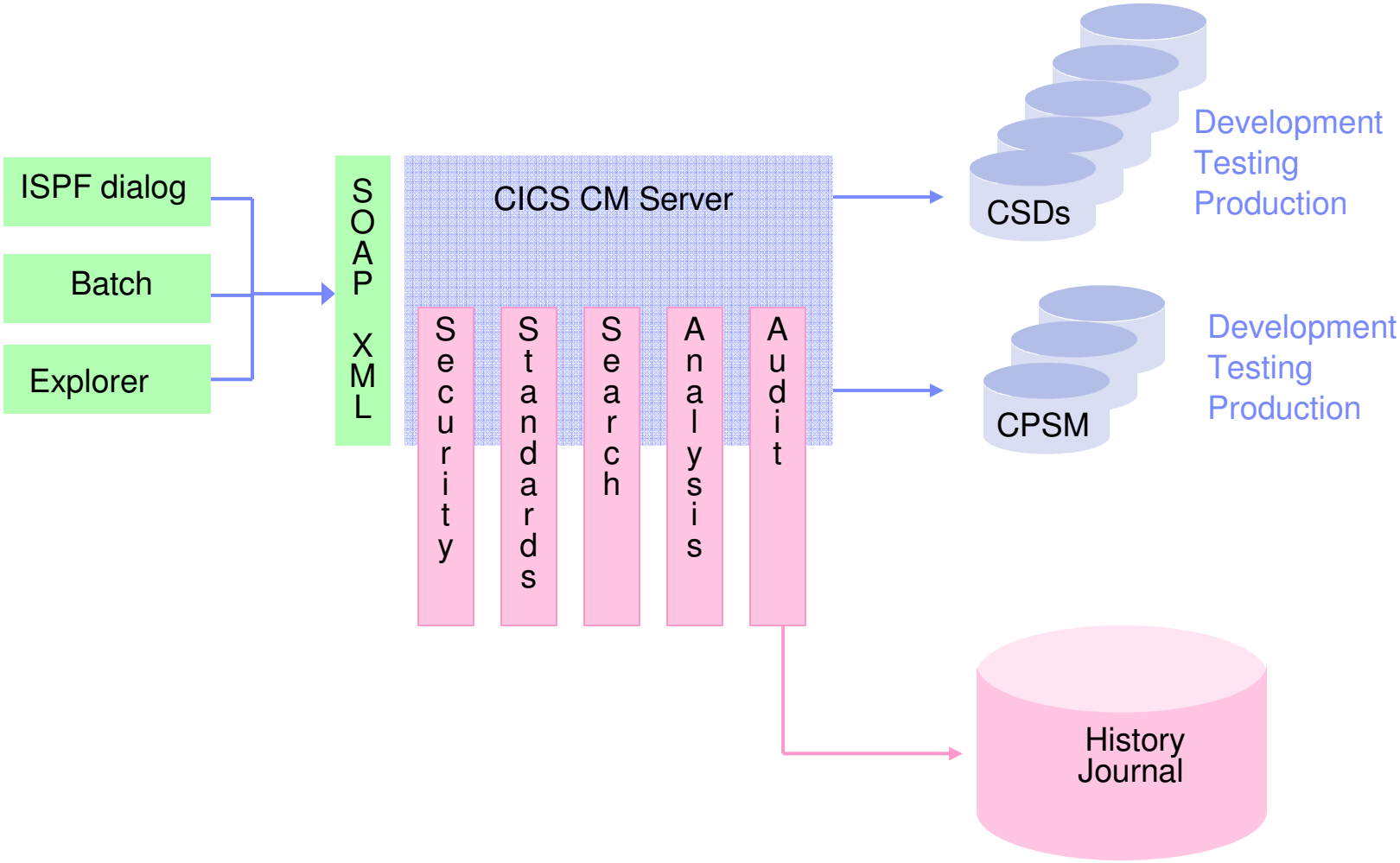
Centralize Resource Definition Management



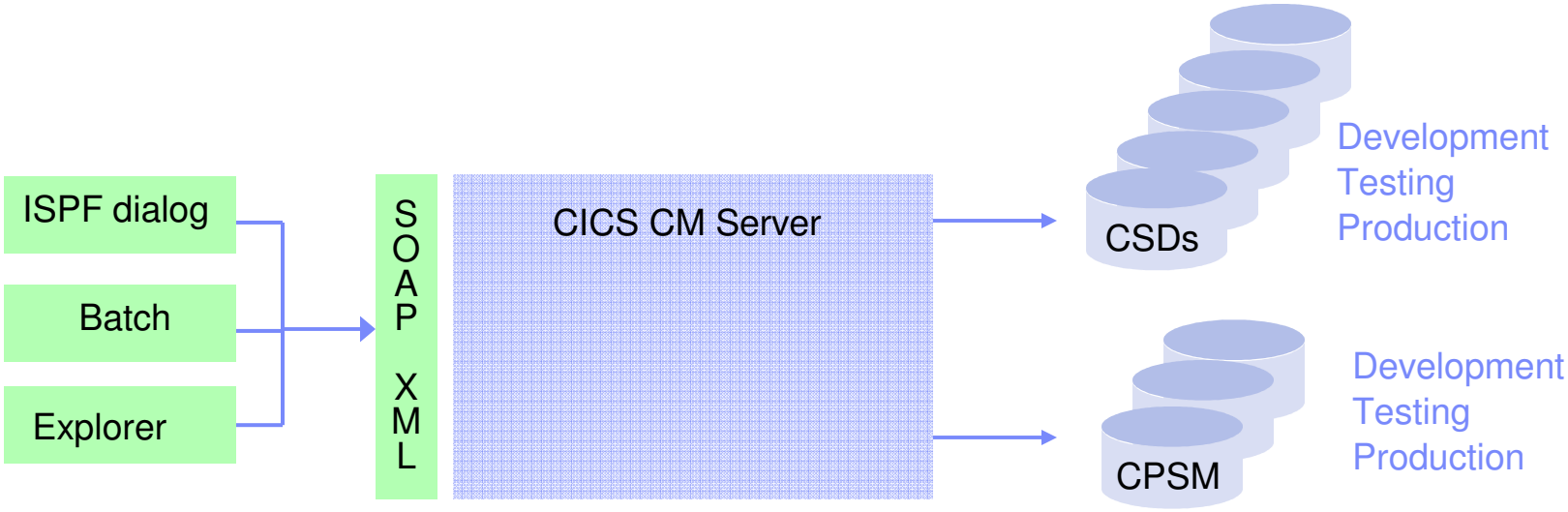
Centralize Resource Definition Management



Centralize Resource Definition Management



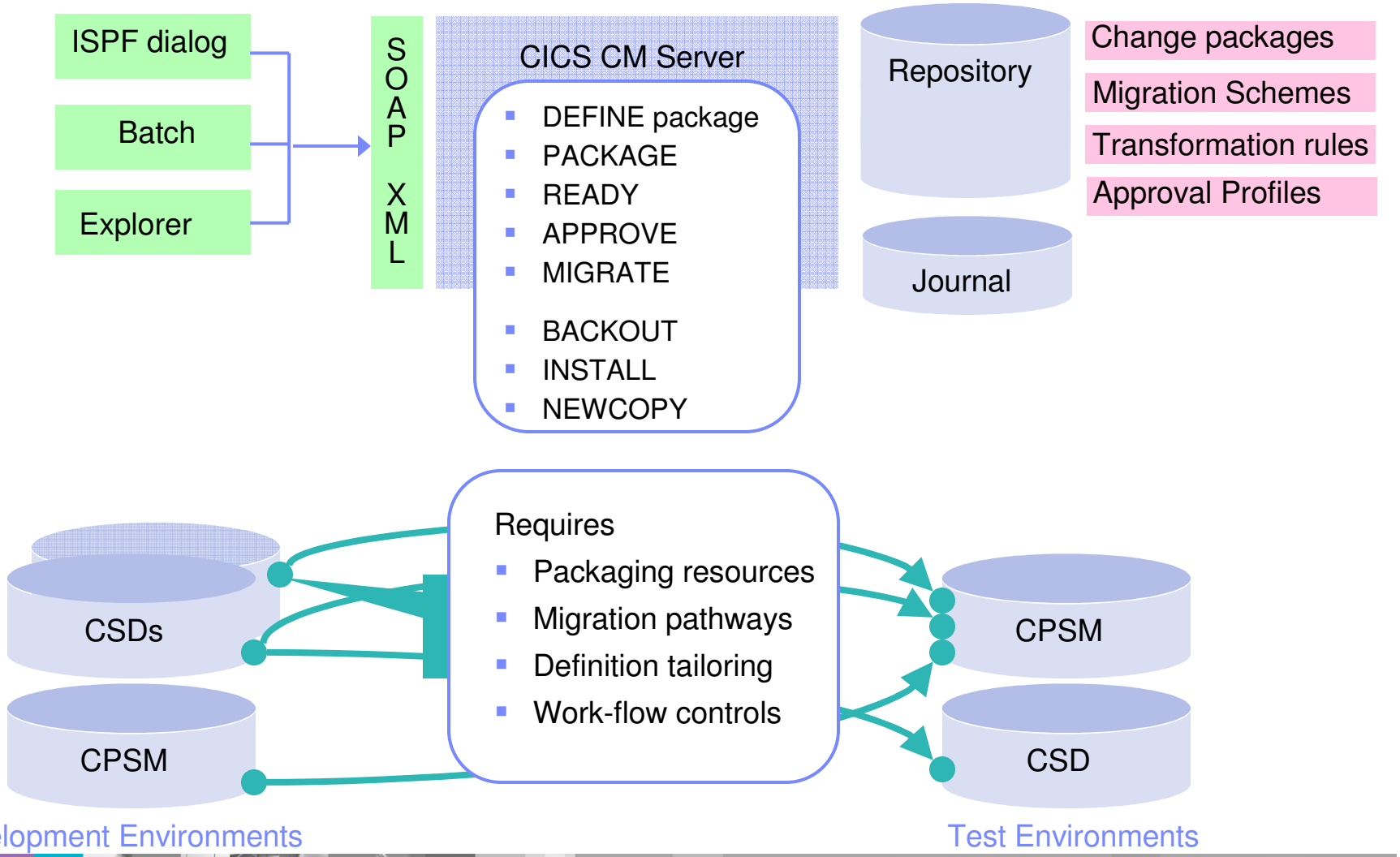
Centralize Resource Definition Management



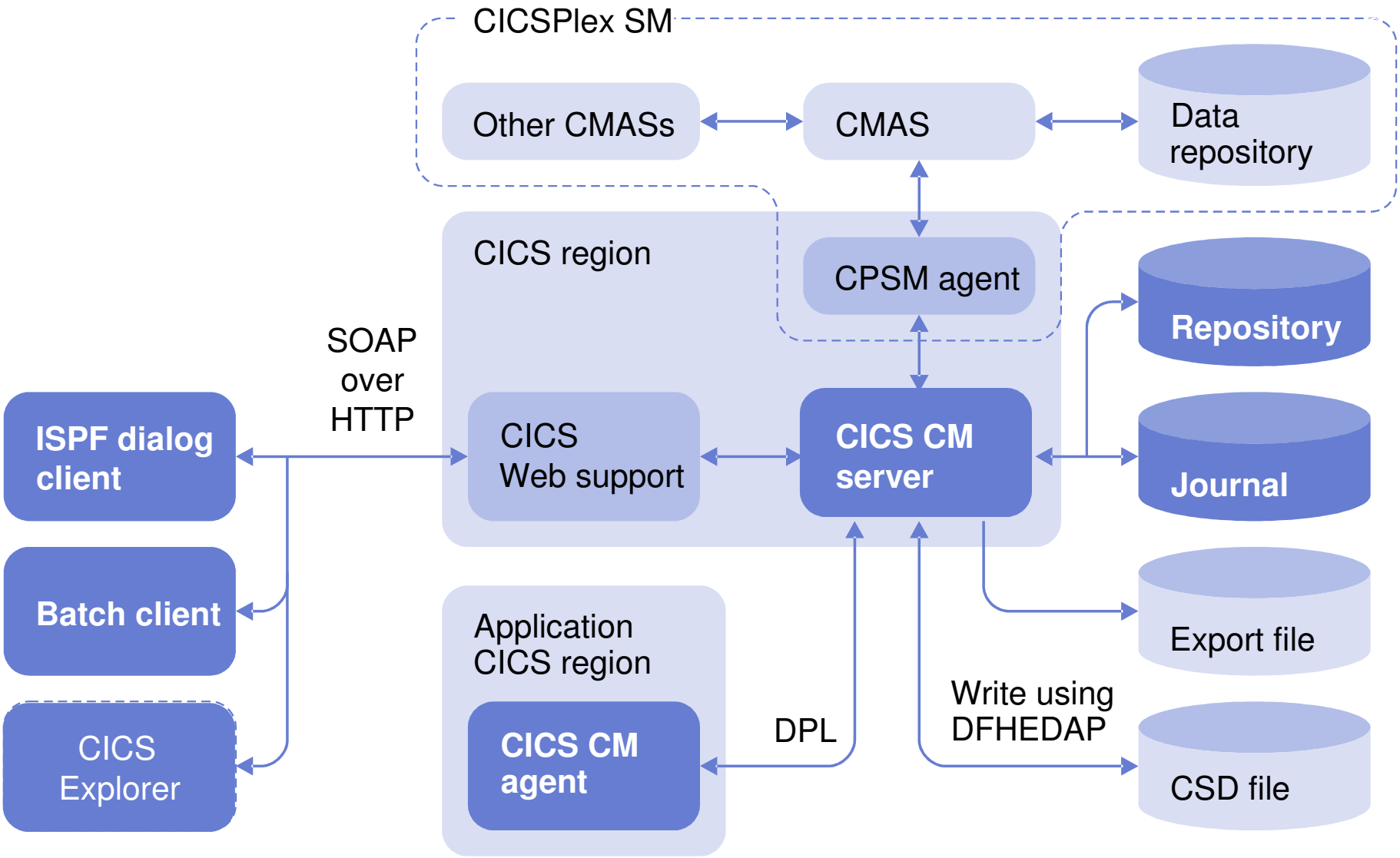
Benefits

- Single point of governance
- Seamless interface between CPSM and CSDs
- Audit recording, resource histories
- Allows selective delegation via security and standard controls
- Supports CICS TS v1.3 to v4.1
- High productivity interface
- Change control capability …

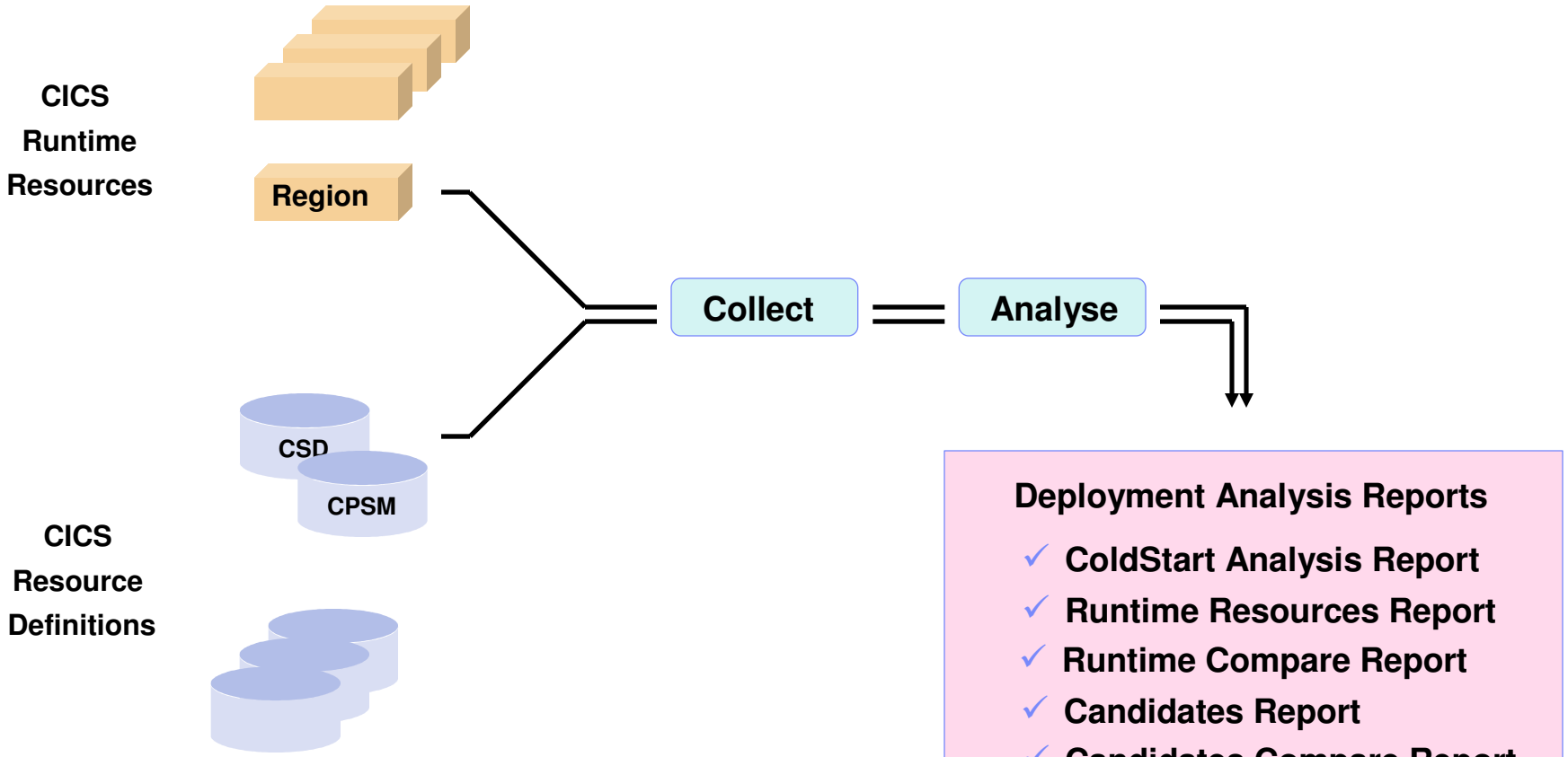
Promoting Definition Changes



CICS CM Component Architecture



Deployment Analysis – Unique Analytical Reporting



CICS CM Usage Examples

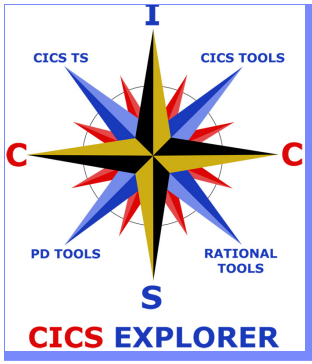
Function	Wow
Switching CSDs	No routing, logging on and off
Copying resources	So easy, and it even does CPSM to CSD
Security/standards	I can finally delegate work and do important stuff
History	Tells me who, what, when, how
Side-by-side compare	See resource differences on the screen
Compare Groups	TEST is different to PROD, not what I expected
Multiple configurations	Great, I can see n-ways at the same time
Show exceptions	Reduce clutter so I can easily see the problem
Search	Just like Google - I can keep digging
Audit reporting	That'll keep the Auditors happy
Migrate with transform	This will save heaps of time
Clean-up reports	My CSD files are in a mess

Product Overview – Control movement of definitions

- Users are able to gain more control over the movement of definitions
  - Packages – what to move
  - Migration schemes – source and target configurations
  - Transformation rules – how attributes are transformed
  - Approval processing (optional feature) prior to migration
  - Migrate/Backout commands to implement changes
- Migration schemes, transformation rules & approval profiles
  - Defined by the System Programmer
- Packages
  - Defined and processed by the Developer or System Programmer

Summary – CICS Configuration Manager

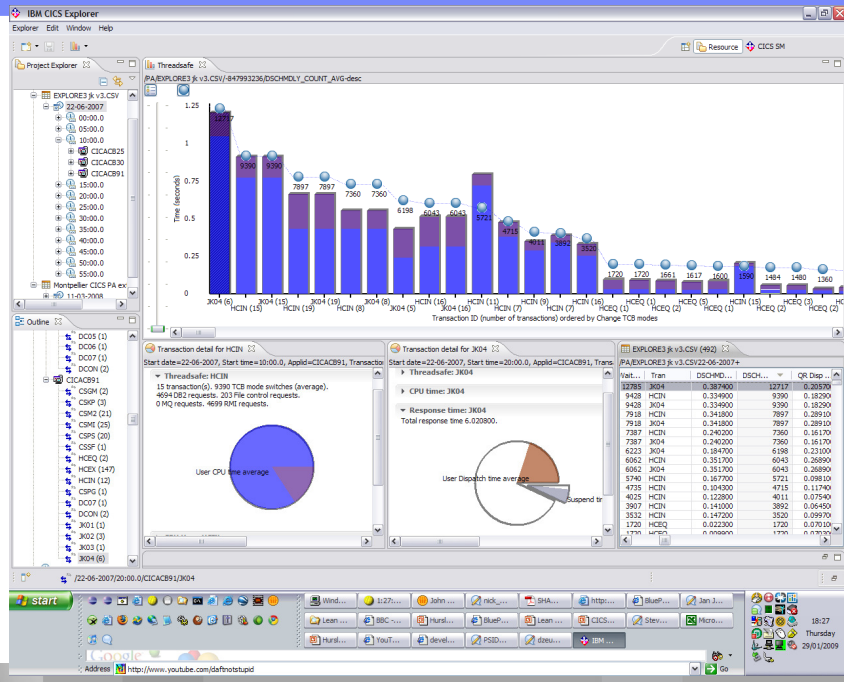
- Facilitate responsibility sharing between CICS sys-progs, application development and system administration
- Central point of control of CICS resource definitions
- End-to-end accountability and control
- Automate application-definition delivery and deployment
- Integrate change management and CICS administration strategies
- Reduce CICS system administration overheads
- Supports CICS TS, Version 4, Version 3
- Program Product – 5697-P09



IBM Software Group

IBM CICS Explorer

The New Face of CICS



ON DEMAND BUSINESS

I ♥ CICS

The changing world

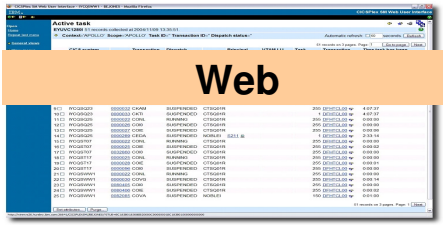
- First- and second-generation System z specialists exit the industry
  - Enterprises must transfer skills, knowledge and best practice to new CICS technical staff
  - Productivity must be maintained, and service-levels protected
- Opportunity to build new System z skill pool
  - Specialists can collaborate with new developers and administrators to create new applications, and manage IT resources with a smaller operations team.

- CICS family is making a significant contribution by reducing the skills barrier to the development and management of CICS systems
- IBM CICS Explorer
  - Common, intuitive, Eclipse-based tooling environment for architects, developers, system administrators, system programmers, and operators
  - Integrated access to a broad range of data and control capabilities
  - Supports CICS runtime, CICS tools, and CICS connectors, plus other IBM and third-party software products

The changing face of CICS tooling

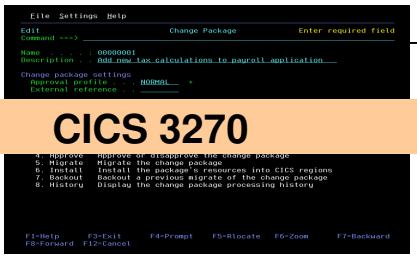
CICS Explorer reduces need for multiple interfaces

Previously…

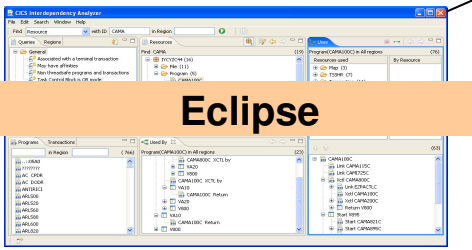


Web

ISPF

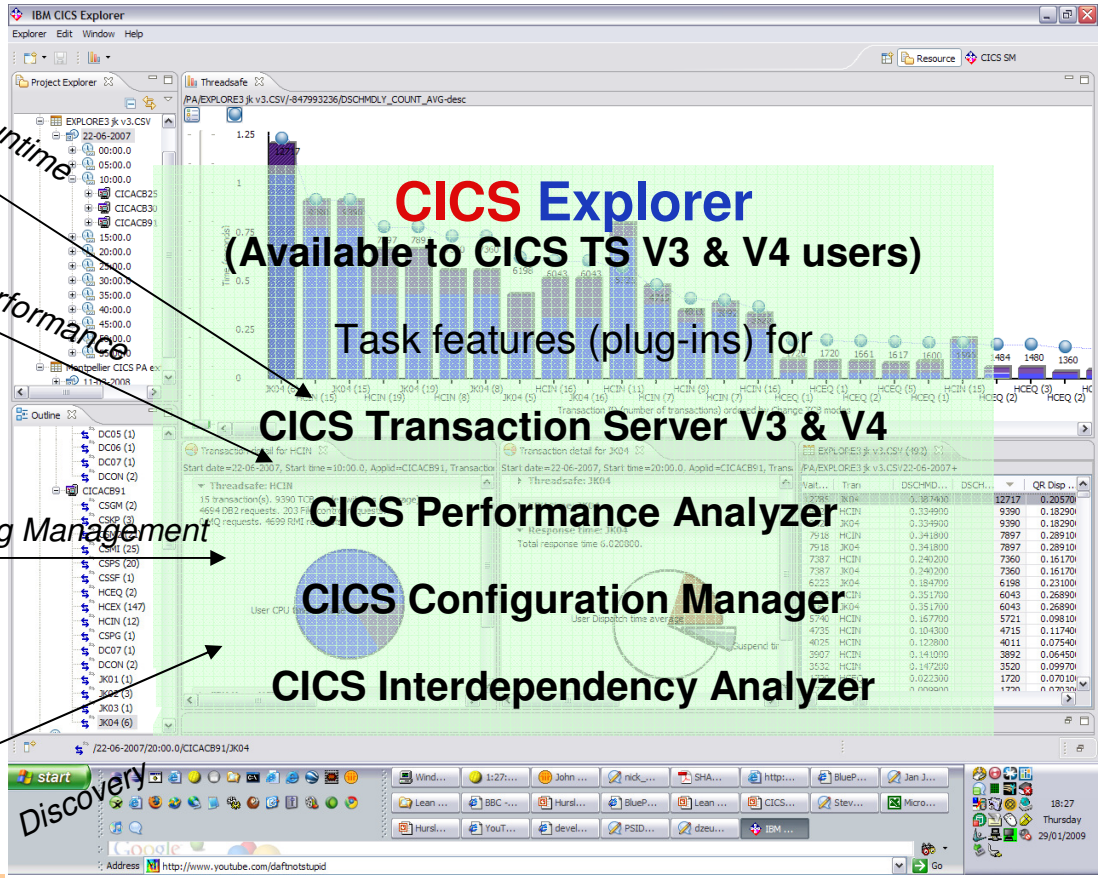


CICS 3270



Eclipse

Now …



IBM CICS Explorer - The New Face of CICS

- Key features
  - Common, intuitive, Eclipse-based environment for architects, developers, administrators, system programmers, and operators
  - Task-oriented views provide integrated access to broad range of data and control capabilities
  - Powerful, context-sensitive resource editors
  - Integration point for CICS TS, CICS Tools, CICS TG, PD Tools, and Rational Tools
  - Extensible by ISVs, SIs, and customers
- CICS support
  - CICS Transaction Server for z/OS V3.1, V3.2, V4.1
    - CICSPlex SM WUI server required for CICS resource views
- **Available Now!**
  - New capability is continually being added
  - More information at ibm.com/cics/explorer
  - Download from: http://www-ibm.com/cics/explorer/download/

Available now in CICS Explorer

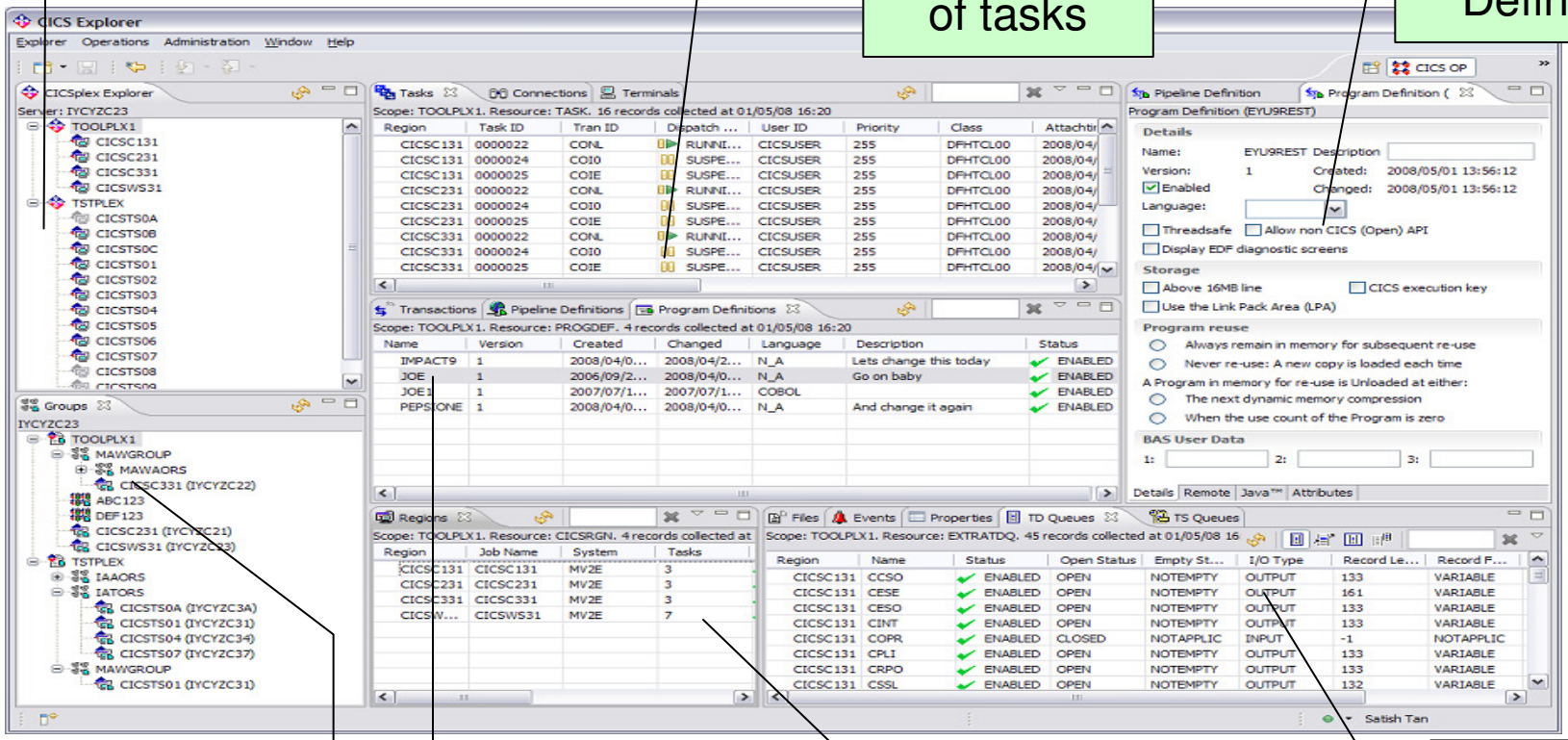
- **CICS TS - Real-time resource status**
- **CICS IA - Resource dependency views**
- **CICS CM - Query and manage resource definitions**
- **CICS PA - Performance data drill-down, Threadsafe analysis**
- **RDz - CICS resource definition**
- **Plug-ins for CICS TG and OMEGAMON XE for CICS**
- **Operational & Administrative updates**
- **Events, Bundles, Components tooling**

CICS Explorer

View Systems

View status of tasks

Edit Resource Definitions



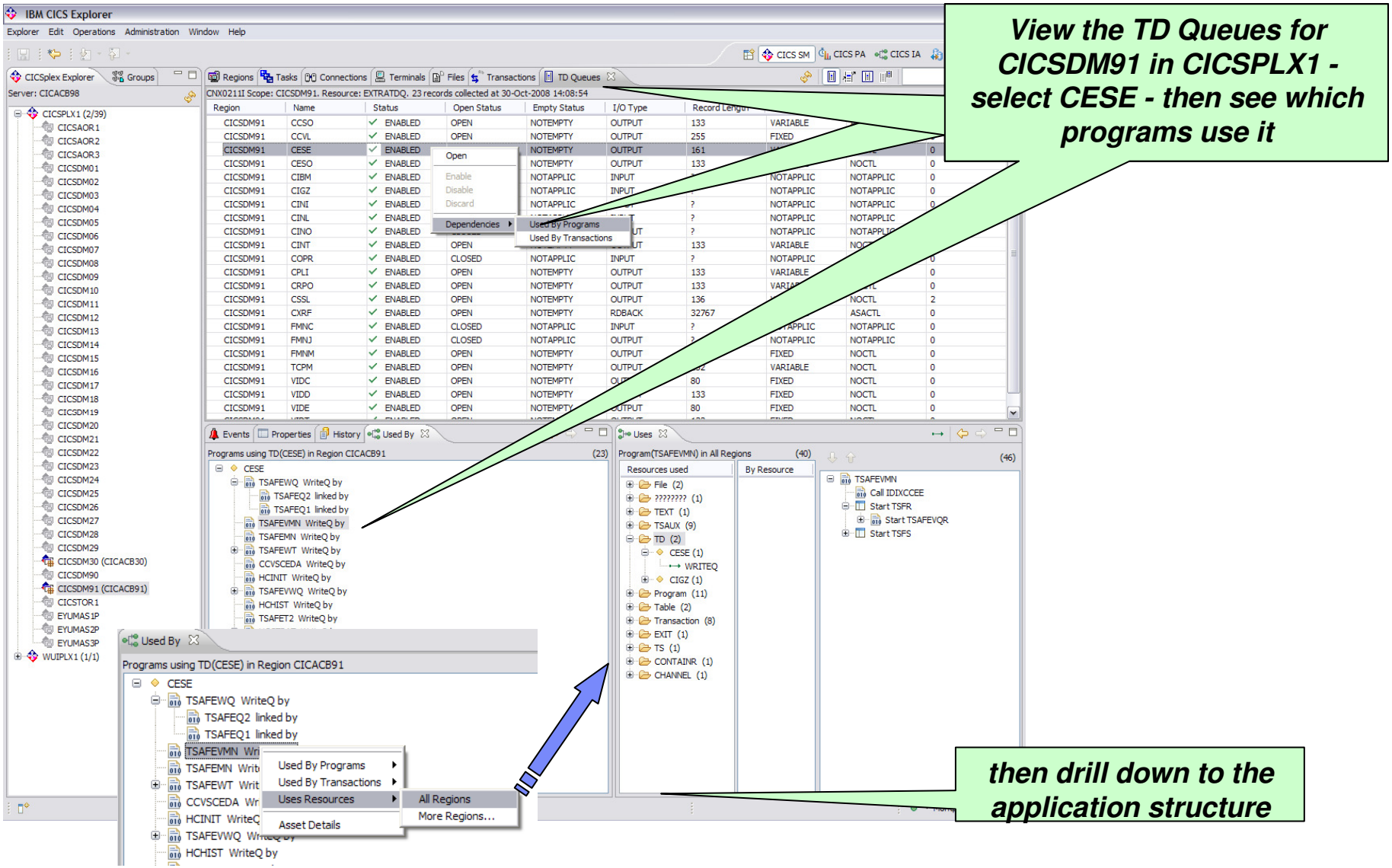
Resource and System Groups

Views Program Definitions

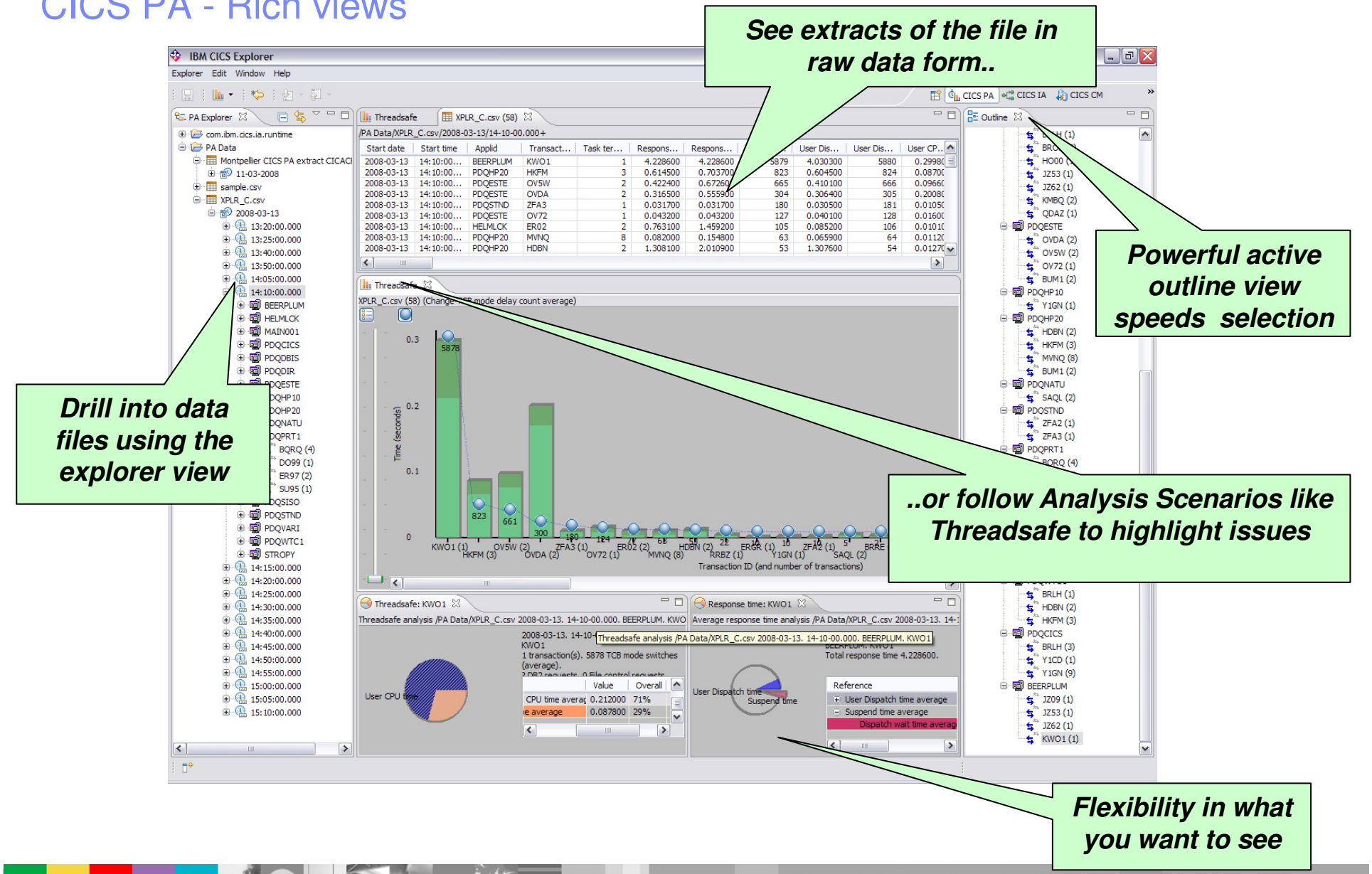
Active CICS Systems in the selected PLEX

View Queue Information

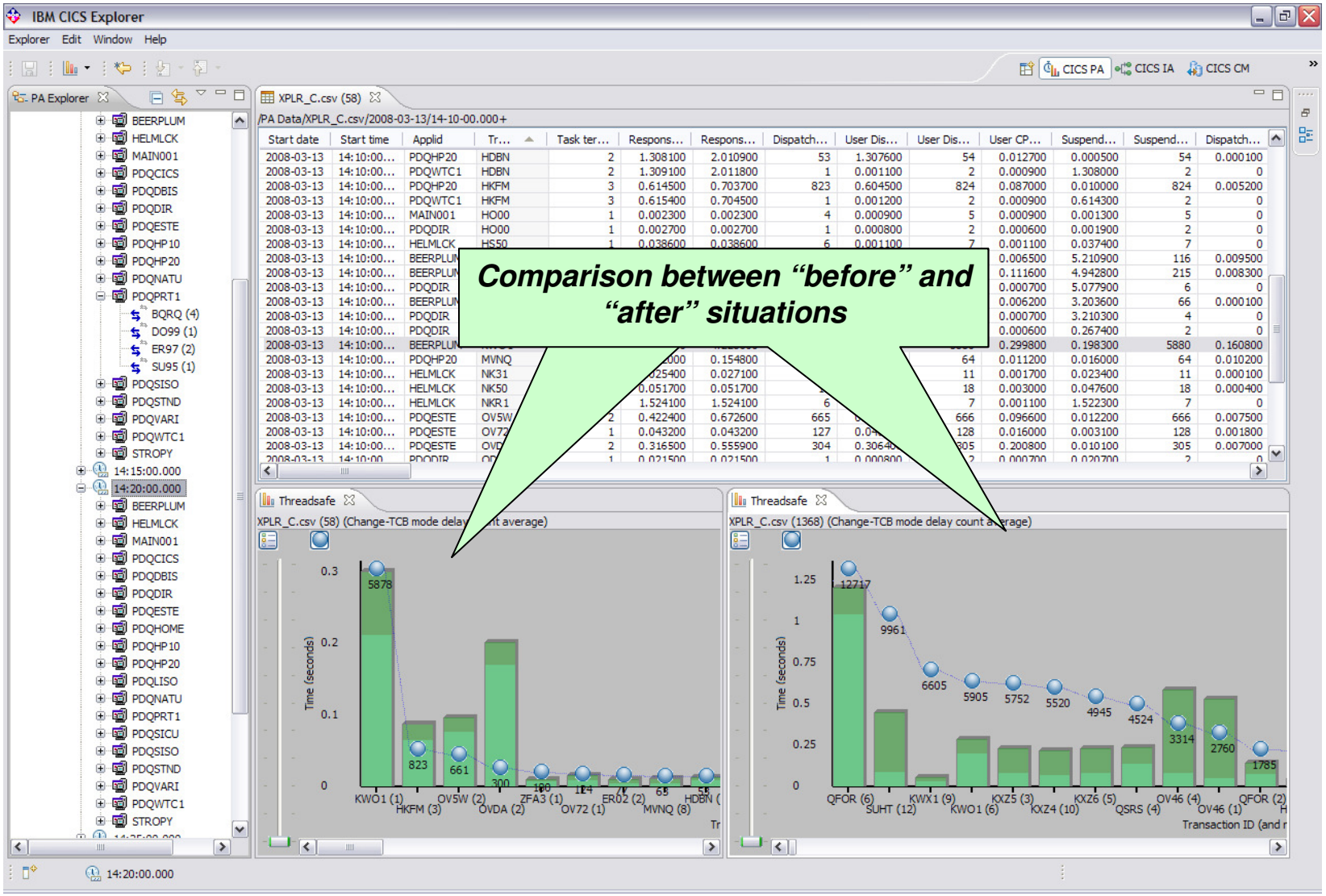
CICS IA



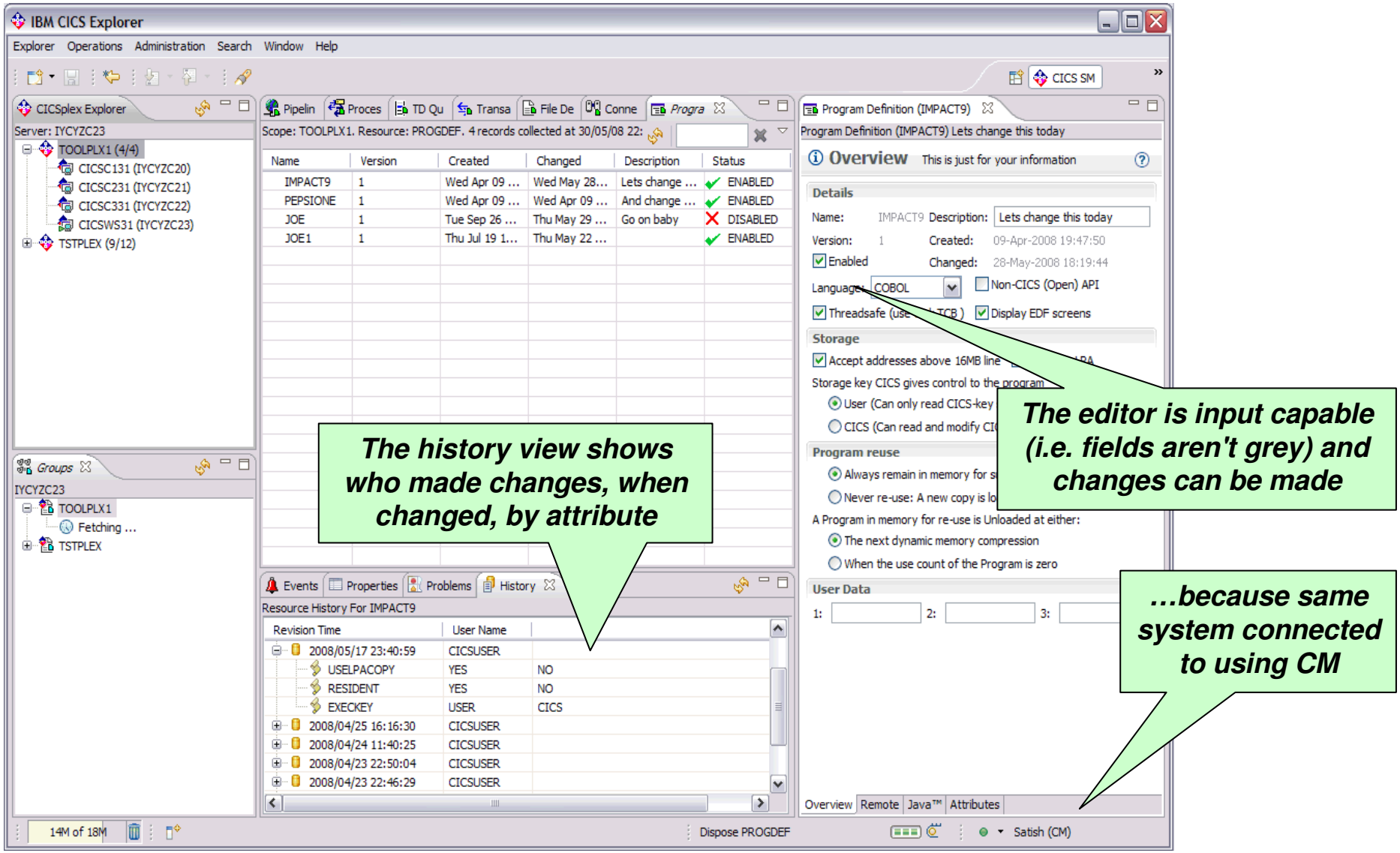
CICS PA - Rich views



CICS PA - Comparison views



CICS Explorer - Program Definition editor - CICS CM



CICSPlex SM QuickStart Set-up

- **What is actually involved in setting up CICSPlex SM?**
- **Assumptions**: CICSPlex SM has been down loaded off the distribution tape, but is currently not in use.
- **Objective**: To get Explorer up and running using CICSPlex SM Operations capability for CICS regions in a single LPAR

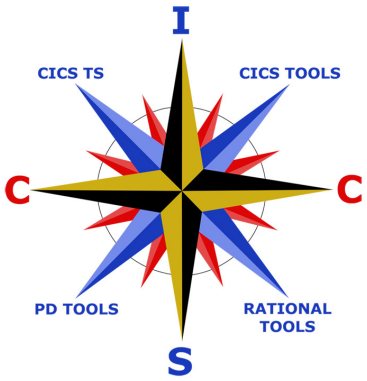
- Setting up CICSPlex SM for use with the CICS Explorer only should take about half a day, using the following high-level 10-step process.

- Steps: Essentially

  1. Create datasets for two CICS regions that will become WUI Server and CMAS using existing CICS practices.
  2. Create VTAM Applids etc for these regions. using existing practices
  3. Make zOS changes for dataspaces (MVS LINK list, MAXCAD, NSYSLX).
  4. LPA and AUTH libraries (standard CICS practice again)
  5. Create CICSPlex SM specific datasets (EYUDREP and EYUWREP). This is standard IDCAMS stuff.
  6. Modify existing CICS JCL with WUI server and CMAS specific DDs and minimum startup parms.
  7. Create WUI plex and WUI MAS membership via batchjob.
  8. Start up WUI server and CMAS
  9. Define CICSplex and Customer CICS regions via batch.
  10. Define a connection using the CICS Explorer. For a 'CICSPlex SM' Connection type, it connects to a CICSPlex SM Web User Interface (WUI) server. The Server address and port number on the connection panel, should match the CICSPlex SM Web User Interface System Parameters TCPIPHOSTNAME and TCPIPPORT.

- Many of these steps are done via IVP code in 3.2, but many customers just modify existing JCL.

- These steps are outlined in detail in the WUI Redbook You need to configure CICSPlex SM which is already installed when you install current releases of CICS. All the information you need is the CICS InfoCenter under "The CICSPlex". There is also a Redbook: http://www.redbooks.ibm.com/redbooks/pdfs/sg246793.pdf.



Live Demonstration

ON DEMAND BUSINESS

CICS Explorer SupportPacs

- CS1J: IBM CICS Explorer for Windows SupportPac
  - CICS Transaction Server for z/OS, V3.1, or later
  - Category 2 - un-supported
- CS1O: IBM CICS Explorer for Linux SupportPac
  - CICS Transaction Server for z/OS, V3.1, or later
  - Category 2 - un-supported
- CS1N: CICS Tools Plugins for SupportPac
  - CICS Configuration Manager (CM) for z/OS V1.2, and/or
  - CICS Interdependency Analyzer (IA) for z/OS V2.2, and/or
  - CICS Performance Analyzer (PA) for z/OS V2.1
  - Category 2 - un-supported
- CA1R: CICS Explorer SDK SupportPac
  - Classes and javadoc to integrate in-house, ISV, and SI tools with the CICS Explorer
- Note that ALL of the CICS Explorer SupportPacs can be downloaded from the CS1J page (**http://tinyurl.com/6o6n9v**) or from the CICS Explorer home-page http://ibm.com/cics/explorer

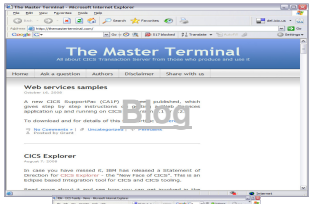
CICS Explorer Capability Matrix

With numerous choices between versions and releases of CICS Transaction Server, CICS tools, the CICS Explorer, and CICS tools plug-ins for the CICS Explorer, the following table is useful in deciding which version of the CICS Explorer and related plug-ins IBM recommends you use. In the table, 'GA' denotes General Availability - the version supplied with the latest released level of that product, and 'SP' denotes SupportPac

	CICS TS V3.x GA Explorer	CICS TS V4.1 GA Explorer	CICS CM V2.1 GA plugin	CICS CM V1.2 SP plugin CS1N(V1.4)	CICS IA V2.2 SP plugin CS1N(V1.4)	CICS PA V3.1 GA plugin	CICS PA V2.1 SP plugin CS1N(V1.4)
CICS TS V3.x	Y						
CICS TS V4.1		Y					
CICS CM V1.2 with CICS TS V3.x	Y			Y			
CICS CM V1.2 with CICS TS V4.1		Y		Y			
CICS CM V2.1 with CICS TS V3.x	Y		Y				
CICS CM V2.1 with CICS TS V4.1		Y	Y				
CICS IA V2.2 with CICS TS V3.x	Y				Y		
CICS IA V2.2 with CICS TS V4.1		Y			Y		
CICS PA V2.1 with CICS TS V3.x	Y						Y
CICS PA V2.1 with CICS TS V4.1		Y					Y
CICS PA V3.1 with CICS TS V3.x	Y					Y	
CICS PA V3.1 with CICS TS V4.1		Y				Y	

CICS Communities

- CICS Explorer home page
  - Remember this link ibm.com/cics/explorer
- CICS Explorer Forum
  - http://tinyurl.com/68bndw
  - IBM developerWorks forum with FAQs, Links and resources, ISV Contributions, etc. Ask questions, suggest improvements, report problems, chat
- Twitter
  - Subscribe to the IBM_System_z channel to get CICS Explorer news flashes
- CICS Blog
  - Comment and opinion at TheMasterTerminal.com
- CICS eNews
  - Subscribe for news about CICS and related products
- YouTube channels
  - CICS Explorer - Videos, demos and other cool stuff
  - CICSFluff - Other CICS videos



For more information

CICS Tools

- Home page ibm.com/cics/tools/
- Trial download ibm.com/software/os/zseries/trials/cicstools/

CICS Explorer

- Home page ibm.com/cics/explorer
- Download page http://ibm.com/cics/explorer/download
- CICS TS home page ibm.com/cics

Program numbers (licence):

5655-U86: CICS Interdependency Analyzer

5697-U87: CICS Performance Analyzer

5697-P09: CICS Configuration Manager

5655-P30: CICS VSAM Recovery

5697-I76: CICS VSAM Transparency

5697-I94: CICS Batch Application Control

5655-K01: IBM Session Manager

5655-I05: CICS OTTO

Demos and animations

- CICS Explorer demo - featuring Threadsafe Analysis using the CICS PA and CICS IA perspectives - http://www.youtube.com/watch?v=Jk3YdvI8Ino
- CICS Explorer animation - http://www.youtube.com/watch?v=-NzWwUi5ILw
- CICS Transaction Server in your SOA - Great source of links to more CICS ecosystem information - ftp://ftp.software.ibm.com/software/htp/cics/presentations/CICS_TS_in_your_SOA_-_Links_-_Issue_3.ppt

Business Article

- **Branham Report:** Productivity gains and cost savings realized with CICS Tools
  - https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-cicstroi

CICS Communities and Information

zSeries PD/CICS/Icing Sales - CICS Communities

- CICS Transaction Server V4.1
  - http://ibm.com/cics/tserver/v41/
- CICS Explorer home page
  - Remember this link ibm.com/cics/explorer
- CICS Explorer Forum
  - http://tinyurl.com/68bndw
  - IBM developerWorks forum with FAQs, Links and resources, ISV Contributions, etc. Ask questions, suggest improvements, report problems, chat
- New! CICS Hub on the Rational COBOL Café
  - http://ibm.com/software/rational/cafe/community/cobol/cics
- Twitter
  - Subscribe to the IBM_System_z channel to get CICS Explorer news flashes
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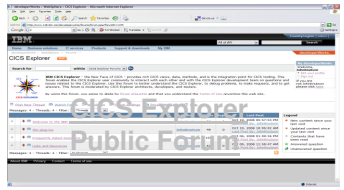
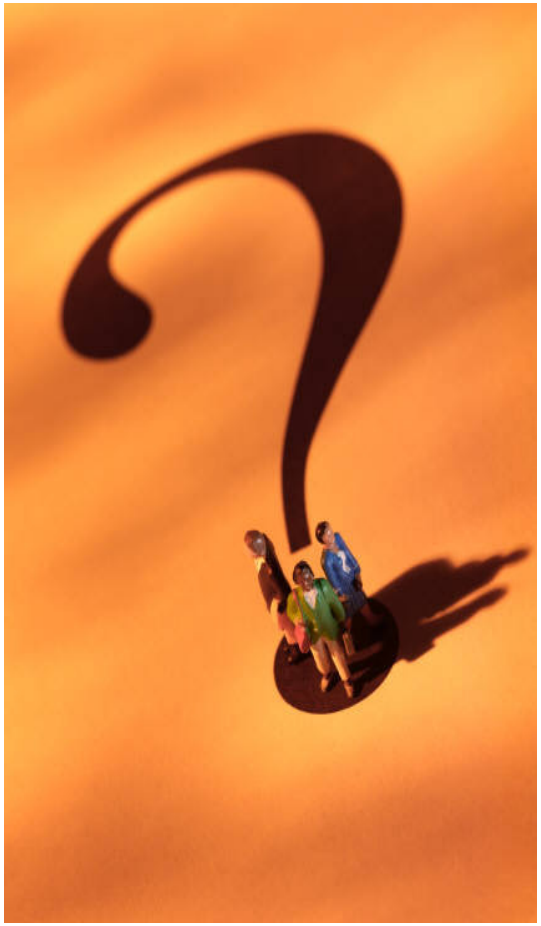


New CICS Explorer RedBook - SG24-7778-00

- This RedBook focuses on the new CICS Explorer
- The first part of the RedBook overviews the CICS Explorer, along with all the CICS Tools plug-ins
- The second part of the RedBook focuses on different scenarios in which the CICS Explorer can be used, along with the CICS Tools plug-ins to resolve different problems

Questions



Complete CICS Tools Portfolio

CICS Tools portfolio

CICS Performance Analyzer
- Comprehensive batch performance reporting and analysis for tuning and capacity planning

CICS Interdependency Analyzer
- Understand you active application inventory for efficient maintenance and upgrades

CICS Configuration Manager
- Manage, replicate, and deploy CICS system definitions

CICS VSAM Transparency
- Enable VSAM to DB2 migration without rewriting applications

CICS VSAM Recovery
- Automate recovery of lost VSAM data

IBM Session Manager
- Provide secure, reliable, and easy access to multiple z/OS and OS/390 applications from a single terminal

CICS Online Transmission Time Optimizer
- Optimize 3270 data streams to increase your system performance

CICS Batch Application Control
- Simplify and automate batch access to CICS resources