Deploying and Modernizing Core System z Applications with CICS Tools

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Preface

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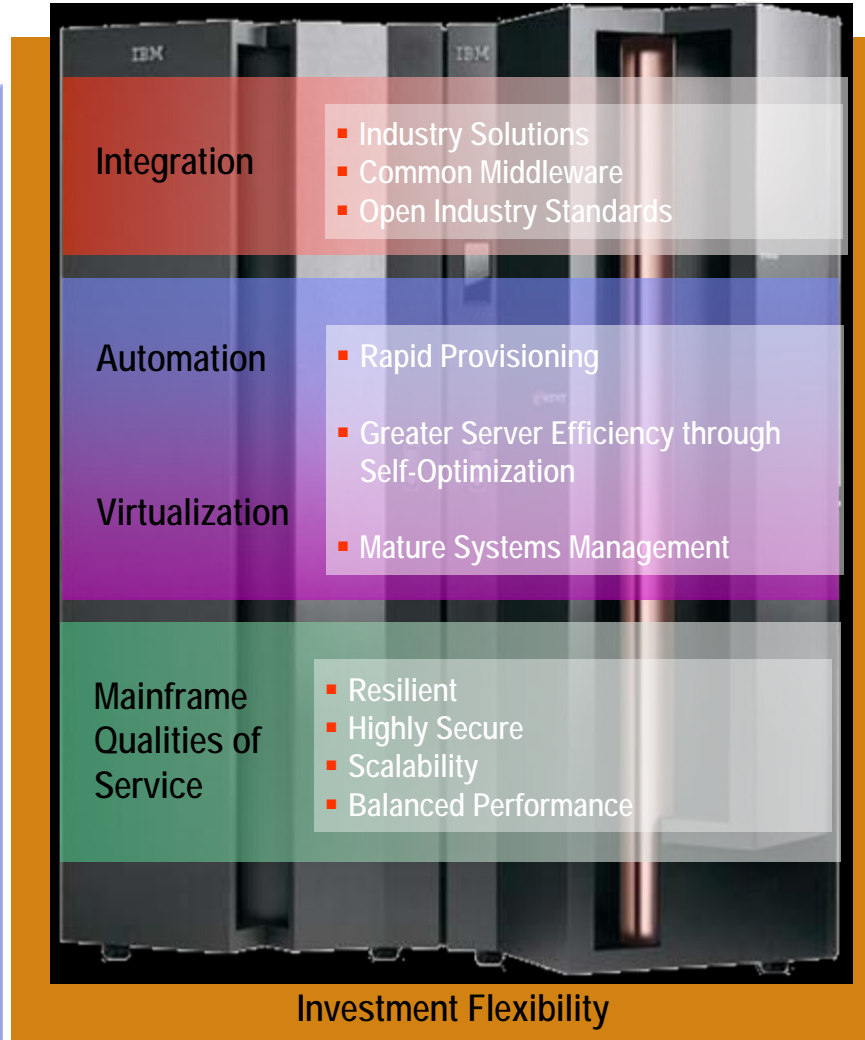
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System z core values – Built upon a 40-year heritage. . . And still relevant

Business Challenges

- **Financial Pressures**

- **Security and Operational Resiliency**

- **Simplify Infrastructure Complexity**

- **Accelerate Time-to-Market**

- **Increase Revenues**

- **Deploy New Capabilities**

Integration
- Industry Solutions
- Common Middleware
- Open Industry Standards

Automation
- Rapid Provisioning

- Greater Server Efficiency through Self-Optimization

Virtualization
- Mature Systems Management

Mainframe Qualities of Service
- Resilient
- Highly Secure
- Scalability
- Balanced Performance

Investment Flexibility

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 challenges you are facing today

- **Sarbanes-Oxley**
  - ▶ Audit Requirements
  - ▶ Change Control Requirements
  - ▶ More Work with less people

- **Budgets**
  - ▶ Work may have moved to a remote location
  - ▶ New applications from a merger or acquisition
  - ▶ Documentation or lack of documentation

Business challenges you are facing today

- **Disaster recovery and other outages**
  - ▸ VSAM and DB2 integration
  - ▸ CICS and batch integration

- **Performance and Tuning**
  - ▸ CICS Region Level
  - ▸ Application Level

- **Service Level Agreements**
  - ▸ 24 x 7 is applying to more applications
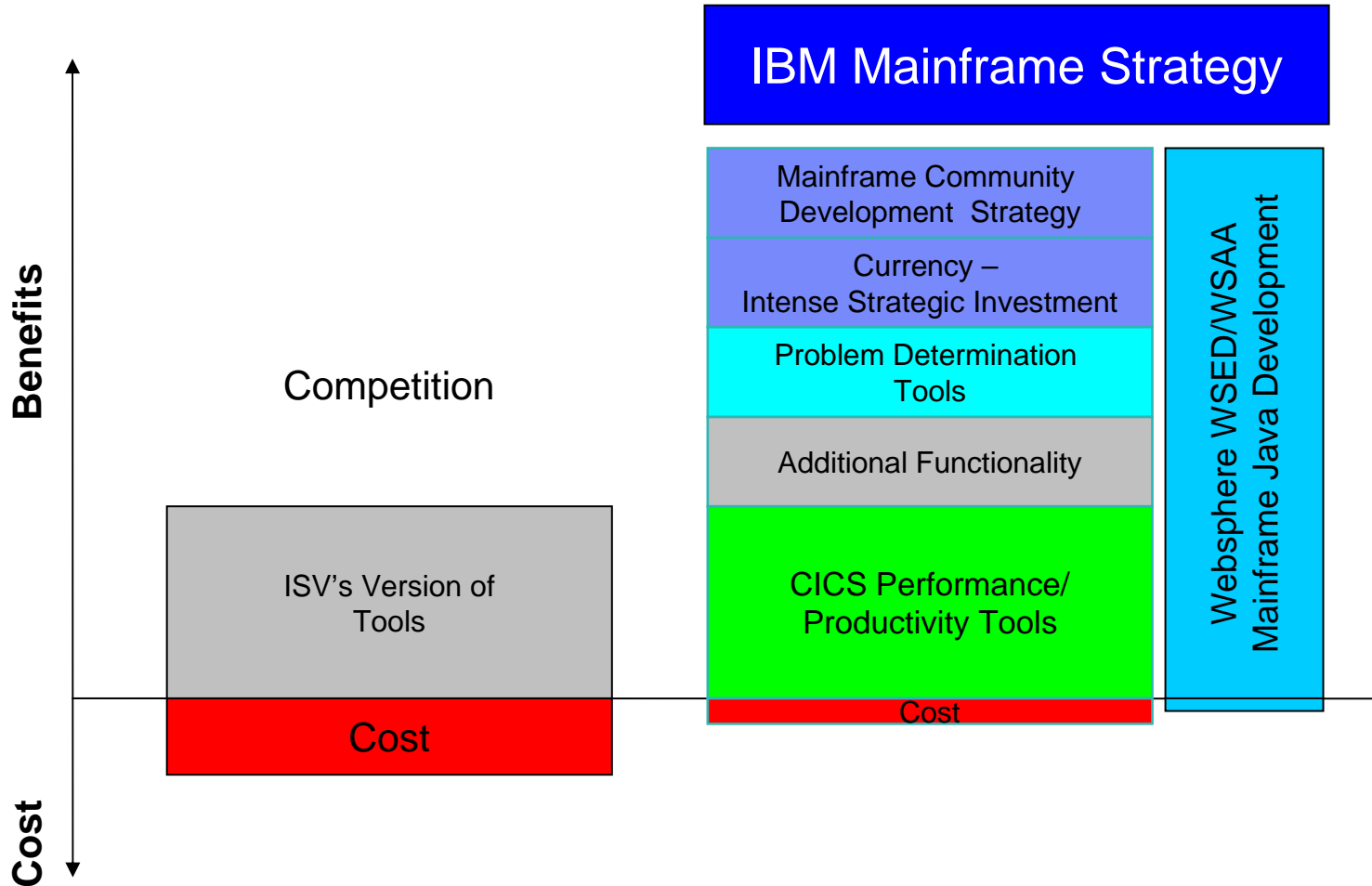 - ▸ Raising the bar again

Business challenges you are facing today

- **Service Oriented Architecture (SOA)**
  - ▶ **Legacy green screen applications – How to find:**
    - Presentation logic
    - Integration logic
    - Business logic
    - Data access logic

- **Web Access to CICS**
  - ▶ Transaction scope
  - ▶ Performance
  - ▶ Granularity
  - ▶ State management

IBM Tools Focus - Increase Productivity - Decrease Expense

Benefits

Cost

Competition

ISV's Version of Tools

Cost

IBM Mainframe Strategy

Mainframe Community Development Strategy

Currency – Intense Strategic Investment

Problem Determination Tools

Additional Functionality

CICS Performance/ Productivity Tools

Cost

Websphere WSED/WSAA Mainframe Java Development

System z IBM Application Development

Application Reuse / Data Migration

CICS Interdependency Analyzer

CICS VSAM Transparency

Application / Performance Management

CICS Performance Analyzer

Application Performance Analyzer

Operational Efficiency

IBM Session Manager

CICS Batch Application Control

CICS OTTO

Resource Recovery

CICS VSAM Recovery

COBOL Modernization

Debug Tool Utilities Adv Funct

Migration Utility

Software Configuration Management

SCLM Advanced Edition

Rational ClearCase, ClearQuest

Test, Deploy, Manage Data Environment

Fault Analyzer

File Manager

File Export

Debug Tool Utilities Adv Funct

WDDz

CICS V2V

CICS Interdependency Analyzer

CICS Configuration Manager

CICS Performance Analyzer

Testing

Workload Simulator

Rational Performance Tester z/OS

Rational Functional Tester Terminal Based Apps

Core COBOL, PI1, Assembler, C++, HP Java, DB2, IMS, CICS Applications

CICS Interdependency Analyzer

Understand Relationships in your CICS Environment

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CICS Interdependency Analyzer

- **What does it do?**
  - ▶ Real-time capture of CICS application calls (API)
  - ▶ Query facility from both Windows / CICS / Batch
  - ▶ Document application affinities to facility Dynamic Transaction Routing
  - ▶ Identify application programs that are ThreadSafe / Open TCB
  - ▶ Creates and updates CPSM affinities rules database

- **Benefits**
  - ▶ Eliminate manual documentation of application systems
  - ▶ Quickly identify application scope
  - ▶ Verify the application code via call path tracing
  - ▶ Automatically maintains CPSM rules
  - ▶ Helps you lower the total cost of ownership of your zSeries platform

CICS Interdependency Analyzer for z/OS (CICS IA)

Key features

- Captures resource relationships
- Programs with potential affinities
- Run-time and batch reporting tool
- Relationship data loaded onto a DB2 database
- Query interface and sample queries provided for comprehensive analysis

CICS Support

- CICS Transaction Server for z/OS, V2 and V3
- CICS Transaction Server for OS/390 V1.3
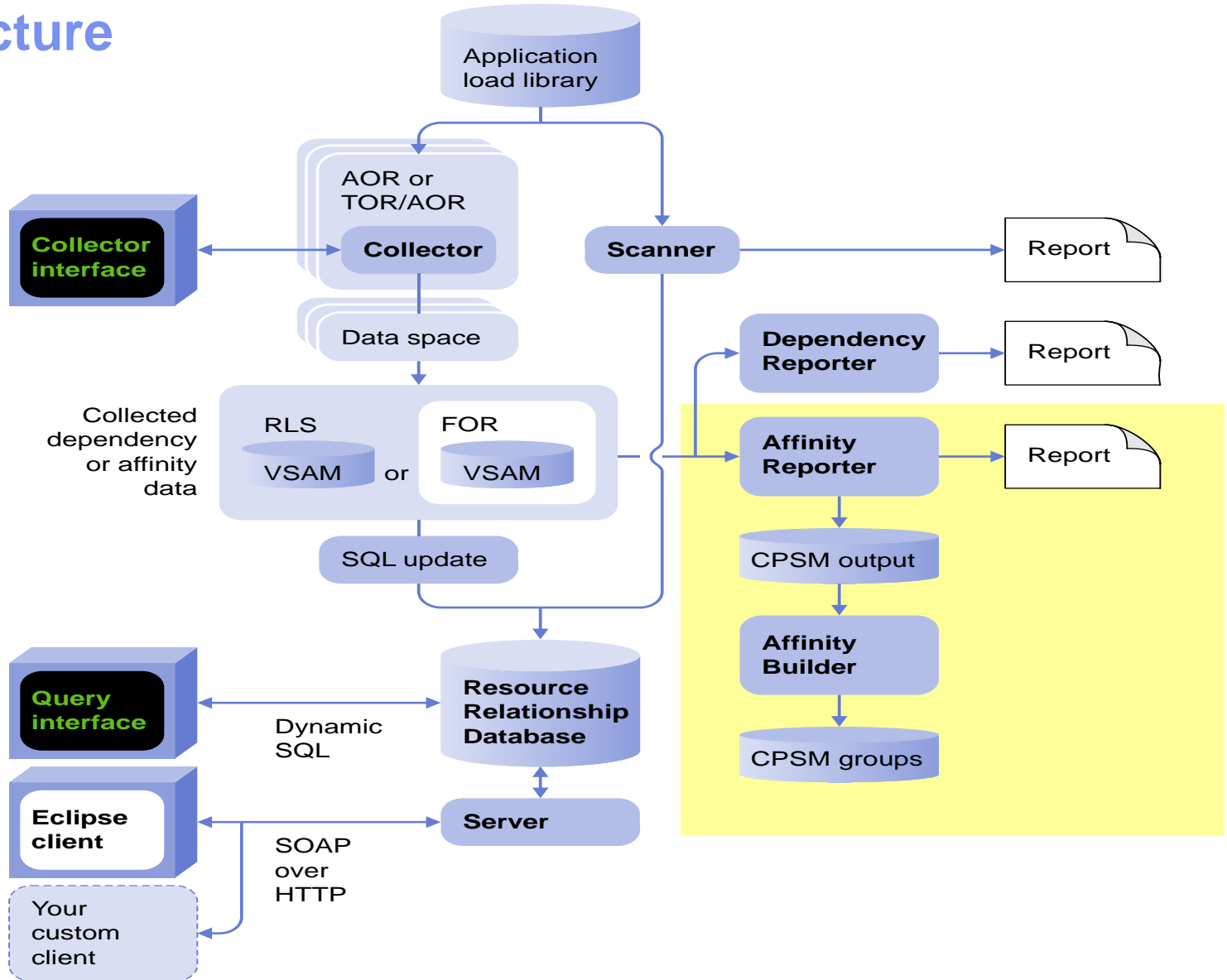
New in CICS IA V2.1

- **CICS TS V3.2 toleration PTF**
- **Sample queries to highlight applications that are most sensitive to CICS version changes**

Coming soon

- **Powerful new Eclipse-based UI**
- **Sample queries to identify applications suitable for use as Web services**
- **Support for Natural 4GL**
- **Exploitation PTF for CICS TS V3.2**
- **DB2 UDB support**

Architecture

Application load library

AOR or TOR/AOR

Collector interface

Collector

Scanner

Report

Data space

Dependency Reporter

Report

Collected dependency or affinity data

RLS

VSAM

or

FOR

VSAM

Affinity Reporter

Report

SQL update

CPSM output

Affinity Builder

Query interface

Dynamic SQL

Resource Relationship Database

CPSM groups

Eclipse client

SOAP over HTTP

Server

Your custom client

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

Use CICS IA to exploit CICS TS 3.x

Has every program been tested?

- ▶ Each program entry has a timestamp and region information
- ▶ Run queries to produce reports of testing by application
  - ▪ Queries can check for positive or negative results
- ▶ Easy sign-off of testing by AD managers

Are your programs threadsafe ?

- ▶ Run queries to see if your applications using shared resources
- ▶ Check to see which TCBs your applications are using

Are your programs LE Enabled ?

- ▶ Identifies whether your COBOL or PLI programs are LE enabled
- ▶ Reports on the version of your COBOL programs

**Are you positioned to WEB enable your applications?**

- ▶ Identify entry points to presentation logic
- ▶ Identify service flow components

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
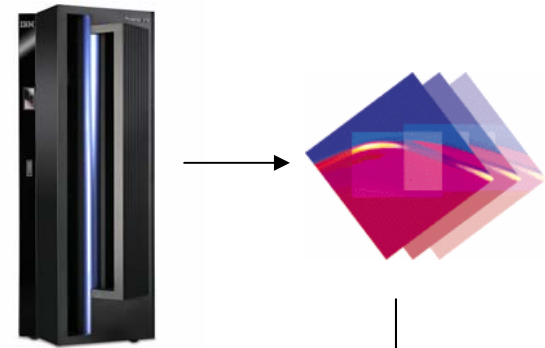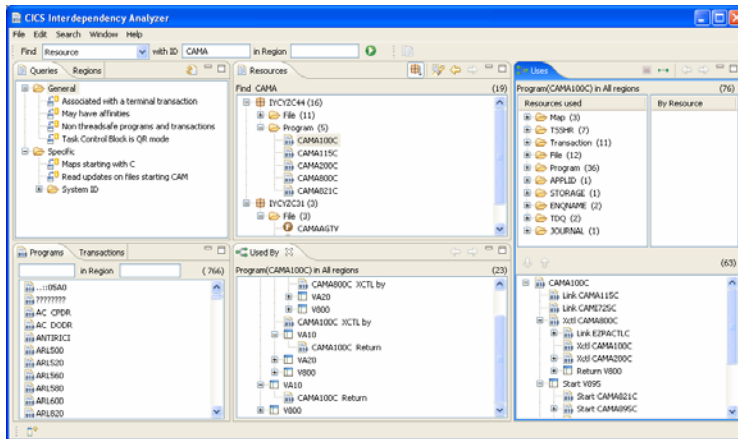
JDBC type 4 driver accesses DB2 Tables on System z

CICS Interdependency Analyzer

File Edit Search Window Help

Find [Resource ▼] with ID [*] in Region [   ] ●

Queries | Regions | (12)

[   ]

- IYCYZC3A
- IYCYZC3C
- IYCYZC3D
  - Show Resources
  - Show Files
  - Show Maps
  - Show Temporary Storage
  - Show Transient Data
  - Programs used
  - Transactions used

Programs | Transactions

[CAM] in Region [   ] (27)

- CAMA100C
- CAMA115C
- CAMA200C
- CAMA800C
- CAMA821C
- CAMA884C
- CAMA895C
- CAMA900C
- CAMIMROC
- CAMI710C
- CAMI715C

Resources

Resource for IYCYZC3D (64)

- Transaction (3)
  - EQAC
  - VA10
  - V800
- STORAGE (1)
  - ADDR
- EXIT (30)
- TD (1)
- Program (19)
- File (4)
  - CAMASWIT
  - EQZLOGB
  - EQZTRCB
  - EQZTRFB
- ENQNAME (1)
- APPLID (1)
- Map (4)

Uses

Resources used	By Resource

Compare results to see intersections of resources
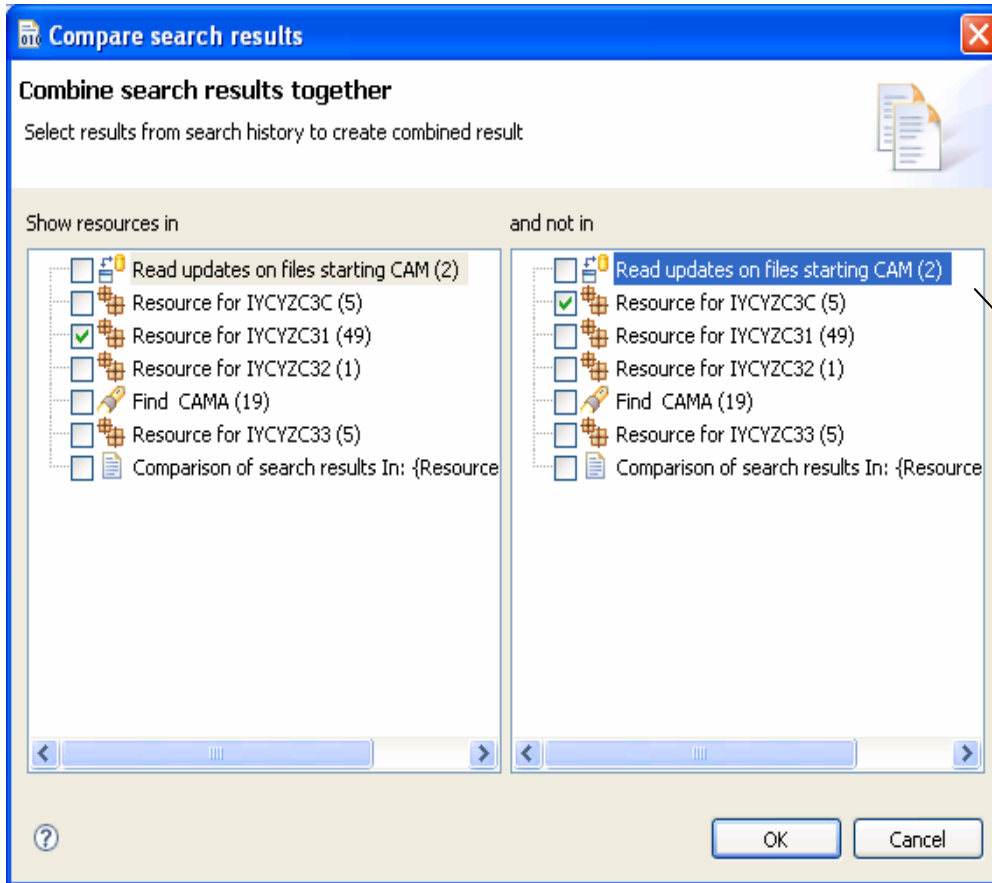
Result history can be navigated back and forward
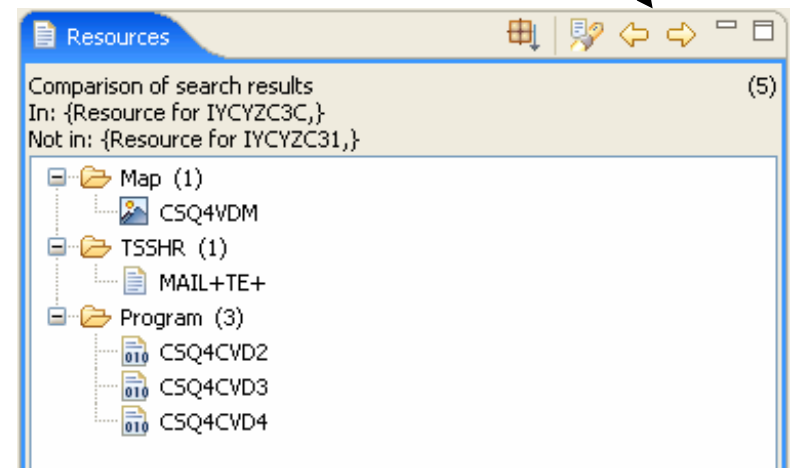
Create queries with complex expressions

Queries can be organized into folders

Expression filters

Expression values

Results of queries can
be saved
for later comparison
to see changes
over time
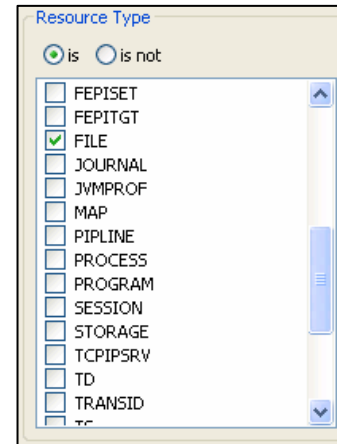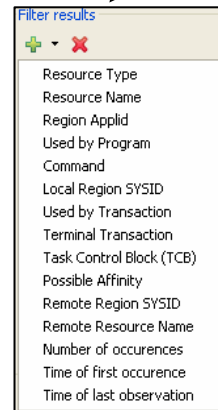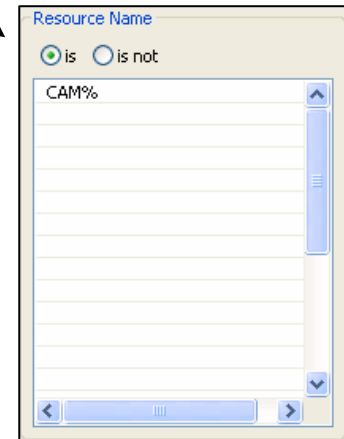
Summary – CICS Interdependency Analyzer

- 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 3.x (threadsafe, LE enablement, and WEB enablement)

- Reduce time and effort for application maintenance activities

- Supports CICS TS, version 3, version 2, and 1.3

- Program product – 5697-J23

CICS Performance Analyzer

CICS Historical Analysis for solving today's business problems

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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
- Historical Database (HDB)
- Trending and Capacity Planning
- ISPF Dialog to build, maintain, and submit reports and extracts
- Comprehensive reporting of CICS Statistics data
- Ease of Use

CICS Support

- CICS TS V2,V3, and V1.3

New in CICS PA V2.1

- CICS TS V3.2 support including:
  - **Compressed SMF type 110 records**
  - **Higher precision (12-byte) clock fields**
  - **New and updated statistics fields and records**
- Extended integration with OMEGAMON XE for CICS
- New Transaction Profiling reports
- New and updated sample reports
- Historical Reporting using SupportPac CP12

What SMF Data does CICS PA use?

- Comprehensive Performance Reporting and Analysis for CICS
- CICS Monitoring Facility (CMF) data (SMF 110)
- CICS Statistics data (SMF 110)
- CICS Server Statistics data (SMF 110)
- DB2 Accounting records (SMF 101)
- WebSphere MQ Accounting records (SMF 116)
- z/OS System Logger records (SMF 88)
- Tivoli OMEGAMON XE for CICS on z/OS (SMF 112**)**

Architecture

CICS Monitoring Facility

CICS statistics

System Logger

DB2

WebSphere MQ

Tape

SMF data sets

DB2, WebSphere MQ accounting data for attached CICS tasks

Historical database (HDB)

CICS Performance Analyzer

ISPF dialog

Comma-separated value (CSV) files

Formatted reports

DB2 tables

Use this interactive interface, or submit your own CICS PA batch jobs
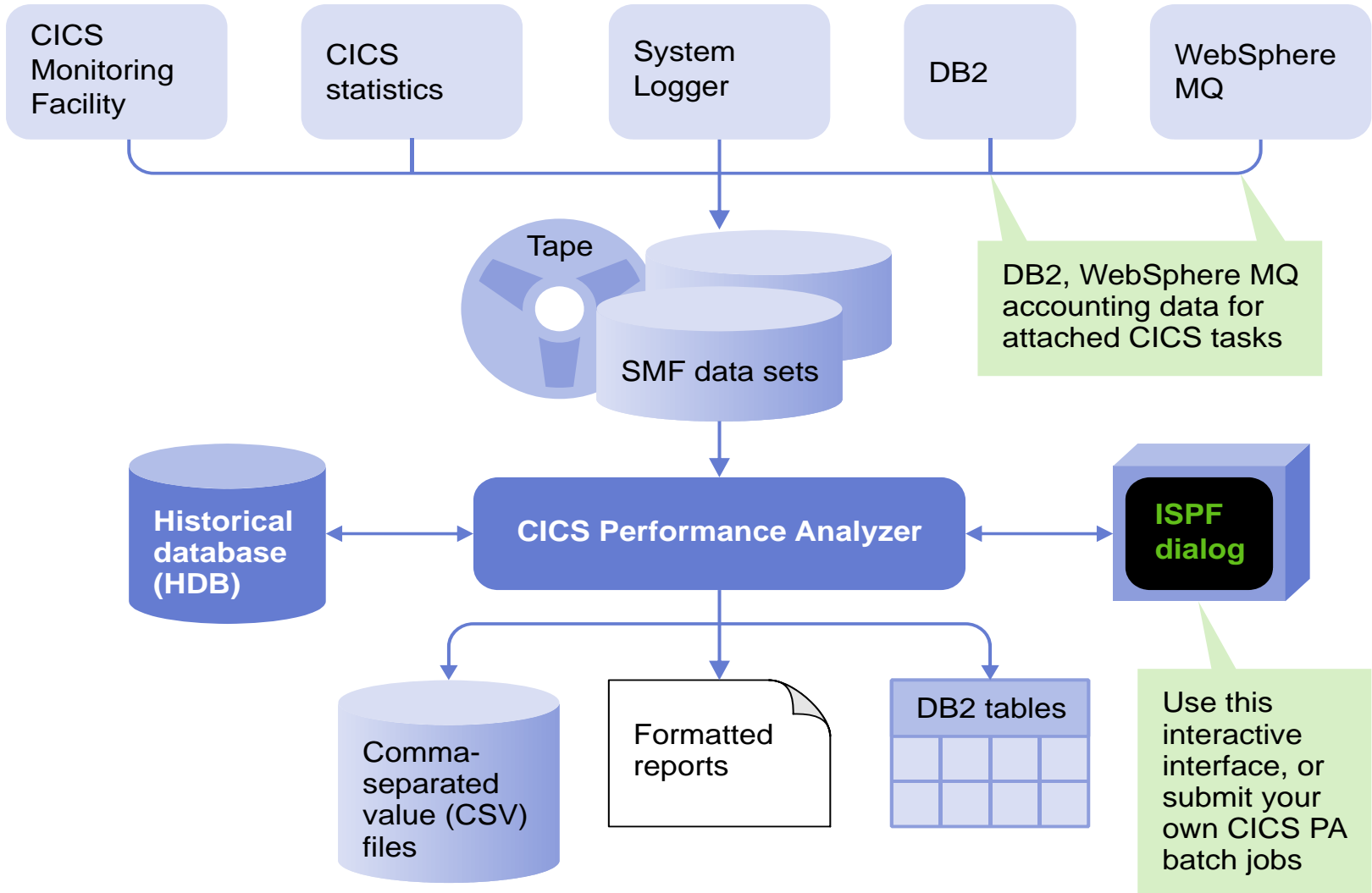
CICS Performance Analyzer – SupportPac CP12
Reporting using DB2 / Exporting data for use in PC based applications

HDB Reporting …

- **Step-by-step procedure** …
  - ▸ From SMF to HDB
  - ▸ From HDB to DB2 or CSV
- **Reporting Tools …**
  - ▸ QMF and Excel
- **Example Scenarios**
  - ▸ Are we meeting service-level agreements?
  - ▸ Why is a transaction slow?
  - ▸ Tuning LSR buffer pools
- **Custom Reports**
  - **Automating Tasks**

z/OS

Tape

SMF data sets

HDB register

HDB template

Load

CICS Performance Analyzer

Historical database (HDB)

Extract

Report form

Export

Report forms data set

CSV data set

DB2 table

SQL query

DB2 QMF

File transfer to .csv

ODBC

Windows

Excel

Chart

Report
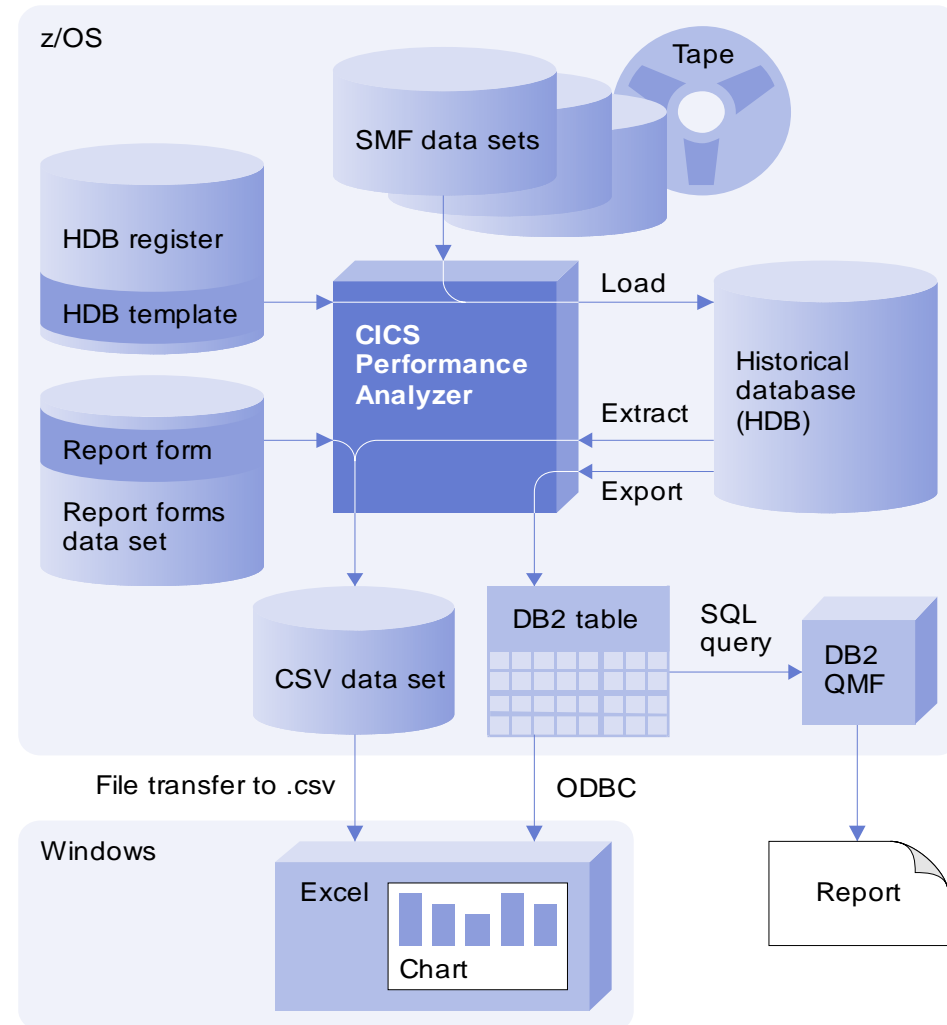
CICS PA - Business values

- **Plan capacity to reduce MIPS cost**
  - ▸ Trend analysis for capacity planning

- **Proactively analyze performance trends to reduce down time and increase customer satisfaction**
  - ▸ Ensure quick response to performance issues identified by an online monitor

- **Reduce cost of outages**
  - ▸ Enables performance reviews before applications go into production
  - ▸ Identification of usage trends leading to reduced CICS performance or even outages

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

- **Reduce time and cost of managing system performance and availability**
  - ▸ CICS PA also complements the enterprise-wide historical performance capabilities of IBM Tivoli ® Decision Support for z/OS

CICS PA - Complements Omegamon XE or any online monitor

OMEGAMON XE for CICS Online Monitoring

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

- Helps detect performance problems early, identify cause and avoid problems

CICS Performance Analyzer for 'Offline' Analysis

- 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

- Complements IBM online monitors for a complete solution

- IBM's statement of direction for CICS historical analysis

ORDR transaction: Wednesday, September 27, 2006

Legend: Transactions ■ | Average response time ━ | SLA ━

Service-level agreement
(2 seconds)

Y-axis (left): Seconds — 0, 0.5, 1, 1.5, 2, 2.5

Y-axis (right): Number of transactions — 0, 2000, 4000, 6000, 8000, 10000, 12000

X-axis: 9-10am, 10-11am, 11am-12pm, 12-1pm, 1-2pm, 2-3pm, 3-4pm, 4-5pm
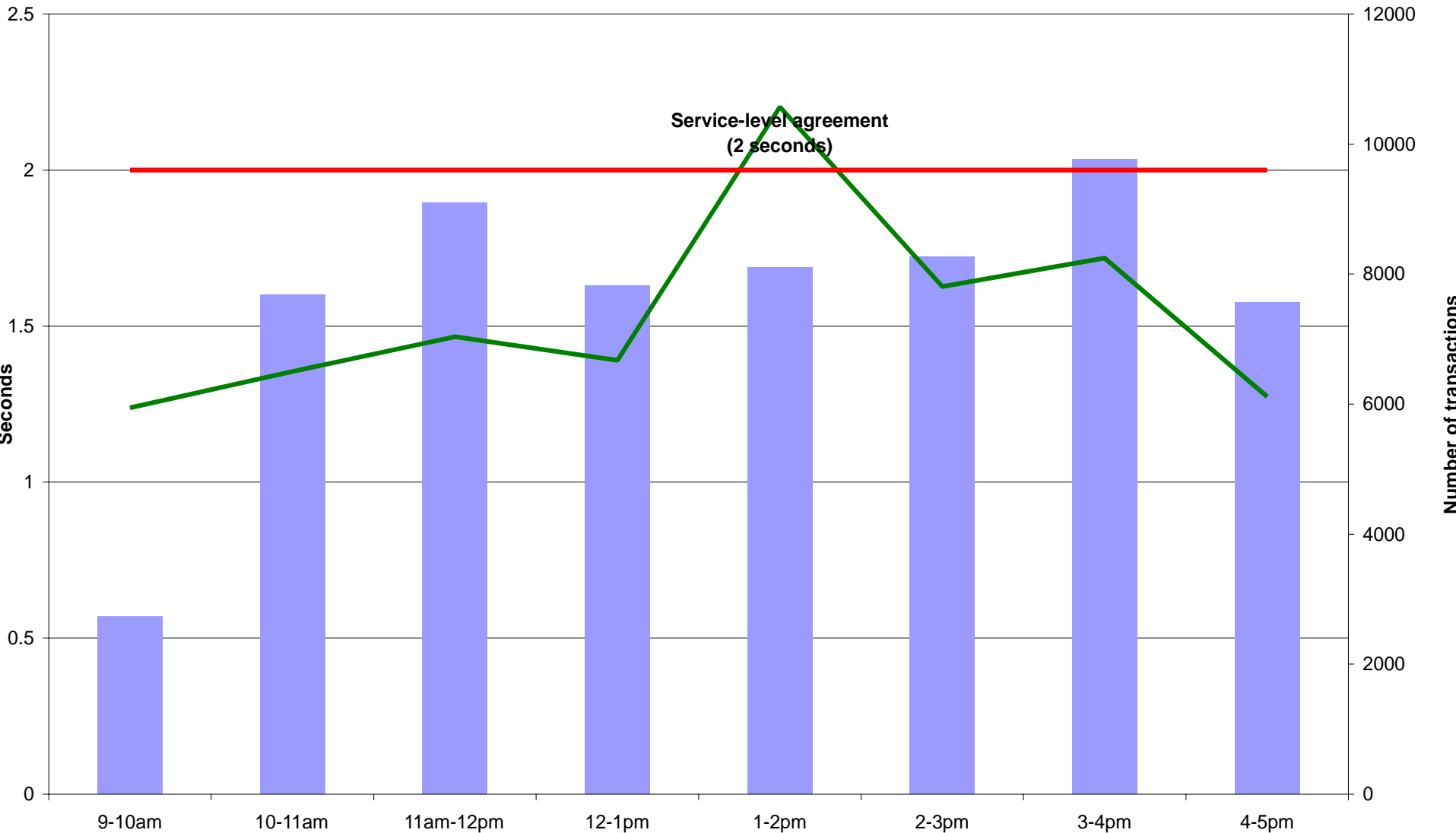
Cross-System Work Report – Default …

```
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

                                         Request         Fcty  Conn                         UOW               R                  Response A
Tran Userid    SC TranType Term   LUName  Type   Program T/Name Name NETName              Seq APPLID     Task T  Stop Time         Time    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
```

DB2 Reports – List

```
V1R2M0                                    CICS Performance Analyzer
                                              DB2 - List

DB2R0001 Printed at 10:14:46  2/13/2002    Data from 13:31:17  1/24/2002 to 13:32:08  1/24/2002                    Page      1


Tran/ Userid/ Program/                    UOW R              ..DB2 Wait Time..   DB2    User CPU                            Response A
SSID  Authid  Planname  APPLID    Task Seq T Term  LUName   Connect  Thread   ReqCnt     Time      Start Time    Stop Time    Time  B

WROS  RAIMAN   CRWWPPOS STM4IRA1   34695   1 T <ADQ STM4IRT1    .0000     .0000       18     .3112  13:31:23.053 13:31:34.349  11.2956

CH1G  STM4IRA1 CRWWPPOS STM4IRA1   34695   Thread Identification    ID=ENTRWROS0037  NETName=USIBMSY.LE000081   UOWID=16372A6C7E14
                                                                    Begin Time: 13:31:23.056  1/24/02  End Time: 13:31:35.378  1/24/02
                             Class1: Thread Time     Elapsed= 12.3218  CPU= .310480
                             Class2: In-DB2 Time      Elapsed= 11.2359  CPU= .309914
                             Class3: Suspend Time     Total  = 6.5988  I/O=  2.3726  Lock/Latch=  4.2262  Other=   .0000
                             Buffer Manager Summary  GtPgRq=     8120  SyPgUp=        8
                             Locking Summary         Suspnd=       11  DeadLk=        0  TmeOut=        0  MxPgLk=        1
                             SQL DML Query/Update     Sel=        2  Ins=        0  Upd=        0  Del=        0
                             SQL DML 'Other'          Des=        0  Pre=        0  Ope=        3  Fet=       13  Clo=        0

WRNO  RAIMAN   CRWWPPNO STM4IRA1   34869   1 T <ACY STM4IRT1    .0000     .0000       67     .0114  13:31:38.853 13:31:45.875   7.0220

CH1G  STM4IRA1 CRWWPPNO STM4IRA1   34869   Thread Identification    ID=ENTRWRNO0051  NETName=USIBMSY.LE000081   UOWID=1637397E8927
                                                                    Begin Time: 13:31:38.854  1/24/02  End Time: 13:31:45.808  1/24/02
                             Class1: Thread Time     Elapsed= 6.9534  CPU= .010208
                             Class2: In-DB2 Time      Elapsed= 6.8909  CPU= .008283
                             Class3: Suspend Time     Total  = 6.3783  I/O=   .0000  Lock/Latch=  6.3783  Other=   .0000
                             Buffer Manager Summary  GtPgRq=      173  SyPgUp=       36
                             Locking Summary         Suspnd=        2  DeadLk=        0  TmeOut=        0  MxPgLk=       15
                             SQL DML Query/Update     Sel=        1  Ins=       12  Upd=       11  Del=        0
                             SQL DML 'Other'          Des=        0  Pre=        0  Ope=       12  Fet=       21  Clo=       10
```
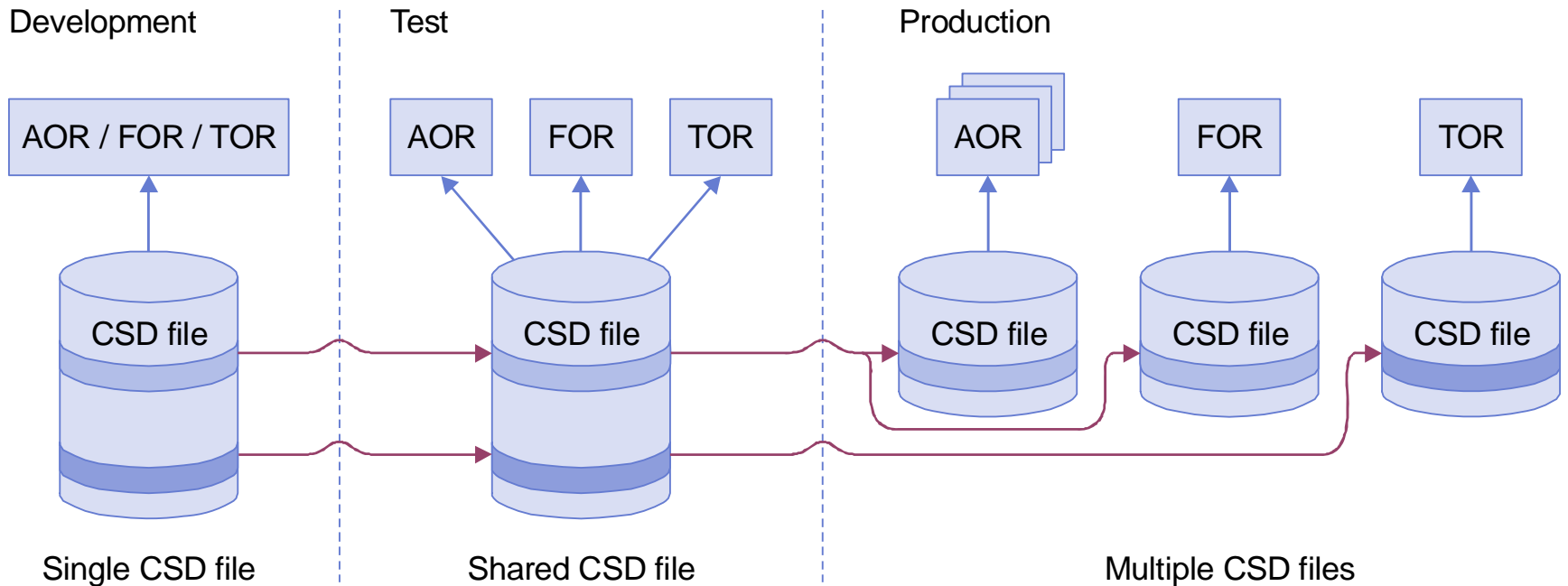
CMF performance data

Associated DB2 Accounting data

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

- Supports CICS TS, Version 3, Version 2, and 1.3

- Program Product – 5697-N40

CICS Configuration Manager

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

Management of CICS Resource Definitions

Development

Test

Production

| AOR / FOR / TOR | | AOR | FOR | TOR | | AOR | FOR | TOR |

CSD file | CSD file | CSD file | CSD file | CSD file

Single CSD file   Shared CSD file   Multiple CSD files

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

  ▸ 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, V2 and V3
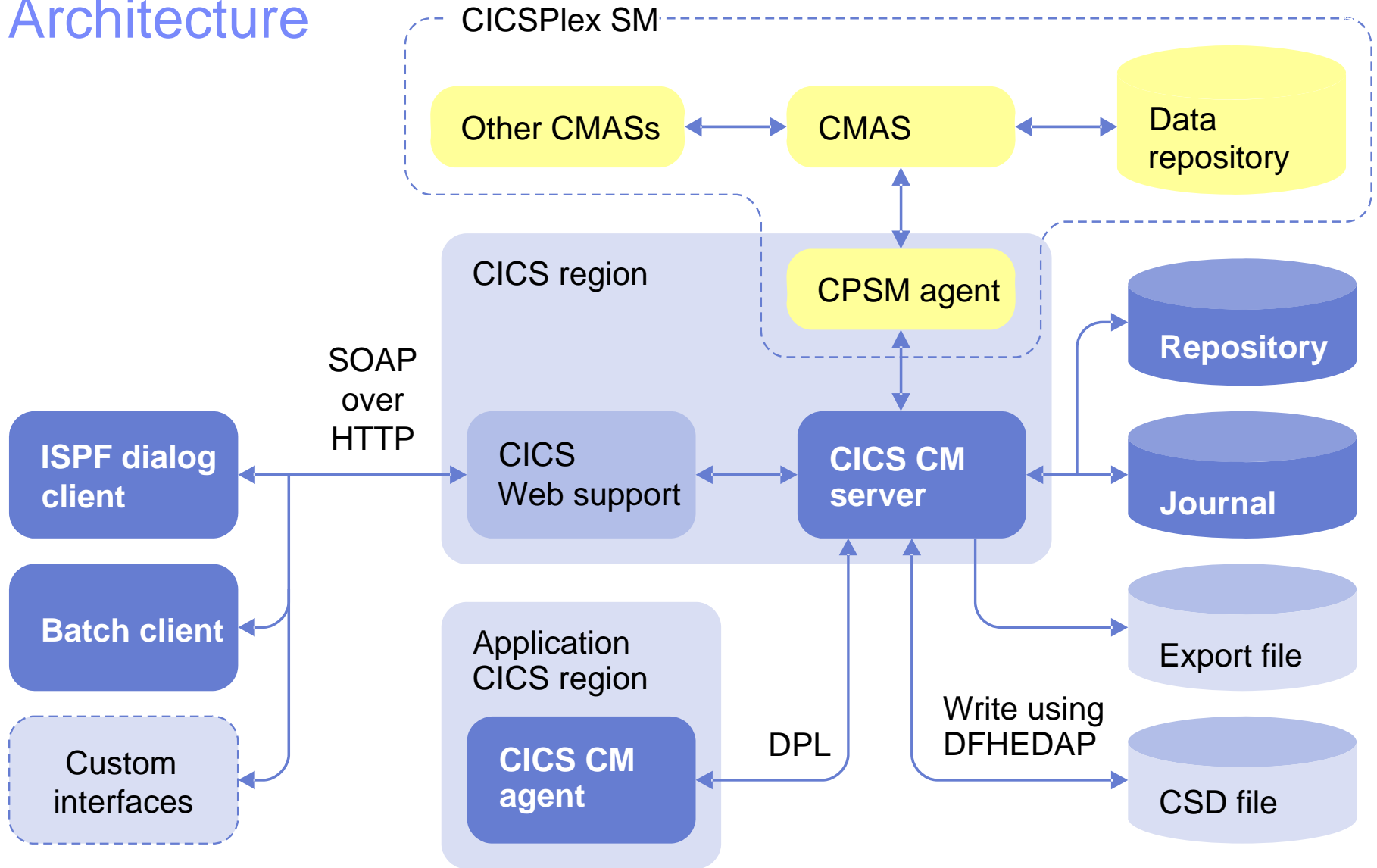▸ CICS Transaction Server for OS/390 V1.3

New in CICS CM V1.2

- **CICS TS V3.2 support PTF**

- **Migration of resource definitions between partitioned environments**

- **Integration with change management solutions**

- **Mixed RLS and non-RLS CSDs**

Coming soon

- **Improved CSD clean-up capabilities.**

- **Identification of resources updated outside of CICS CM**

- **Improved identification of orphaned recourses**

- **Usability and reporting enhancements**

Architecture

CICSPlex SM

Other CMASs ⟷ CMAS ⟷ Data repository

CPSM agent

CICS region

SOAP over HTTP

ISPF dialog client

CICS Web support ⟷ **CICS CM server**

Batch client

Repository

Journal

Custom interfaces

Application CICS region

CICS CM agent

DPL

Write using DFHEDAP

Export file

CSD file

Business Values

Reduce CICS system administration overhead

▶ Single point of control (access) to all CICS resources

▶ Share responsibility between technical & application groups

▶ Extensive resource analysis capability (compare, search, history)

▶ Audit Trail of all resource modifications

Improve Speed of Implementation

▶ Associate resource modifications to AD change package

▶ Build and reuse migration schemes

▶ Use transformation rules to modify attributes

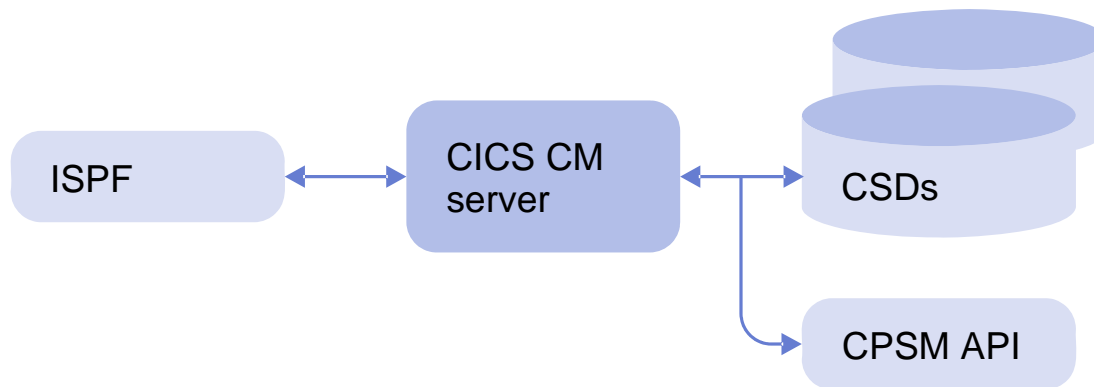▶ Automate repetitive change activities

Reduce the chance of outages

▶ Enforce naming standards

▶ Less manual intervention

▶ Signoff for migrations

▶ Backout facility
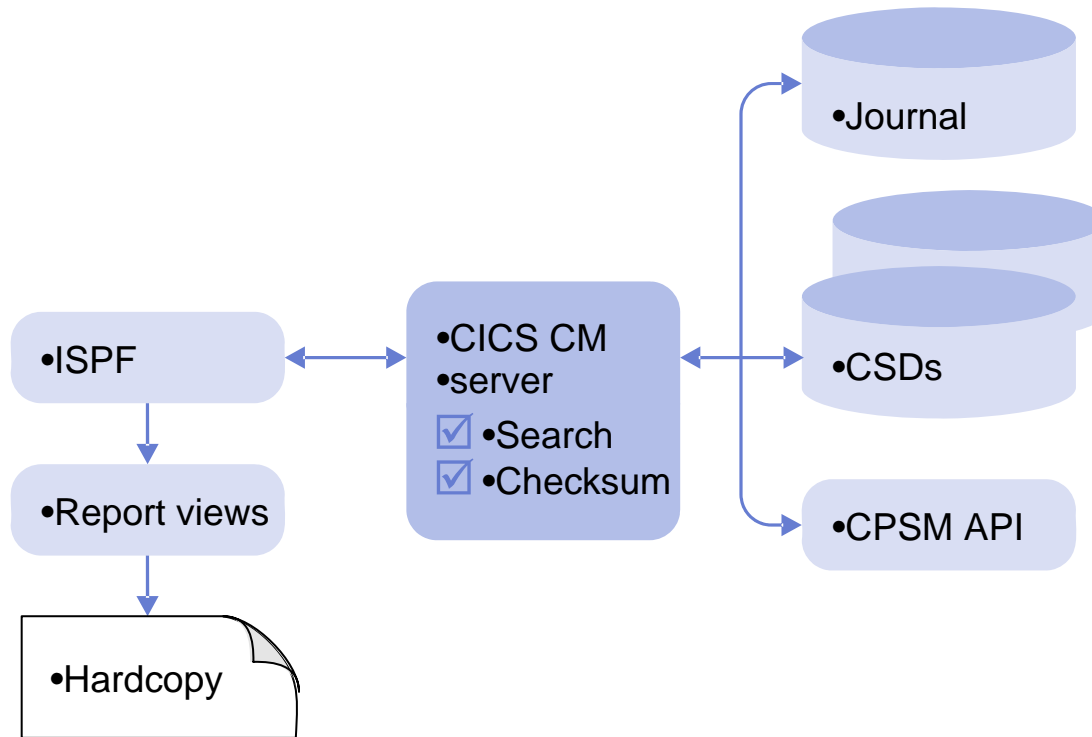
CICS CM Services

- **Centralized definition management**

- **Reporting and analysis**

- **Change control enablement**

CICS CM Services: Centralized Definition Management

```
ISPF  <---->  CICS CM
              server    <---->  CSDs

                                CPSM API
```

- **Native repositories**
- **CSDs or CICSPlex SM BAS**
- **CICS TS 1.3 to 3.1**
- **Access when CICS is down**

CICS CM Services: Reporting & Analysis

•ISPF

•Report views

•Hardcopy

•CICS CM
•server
☑ •Search
☑ •Checksum

•Journal

•CSDs

•CPSM API

- **Resource histories**
- **Audit reporting**
- **Comparative analysis**
- **Search analysis**
- **Cross CSD/CPSM views**

CICS CM Services: Change Control Enablement

Change package
- Package
- Ready
- Approve

Migrate

Test

Production
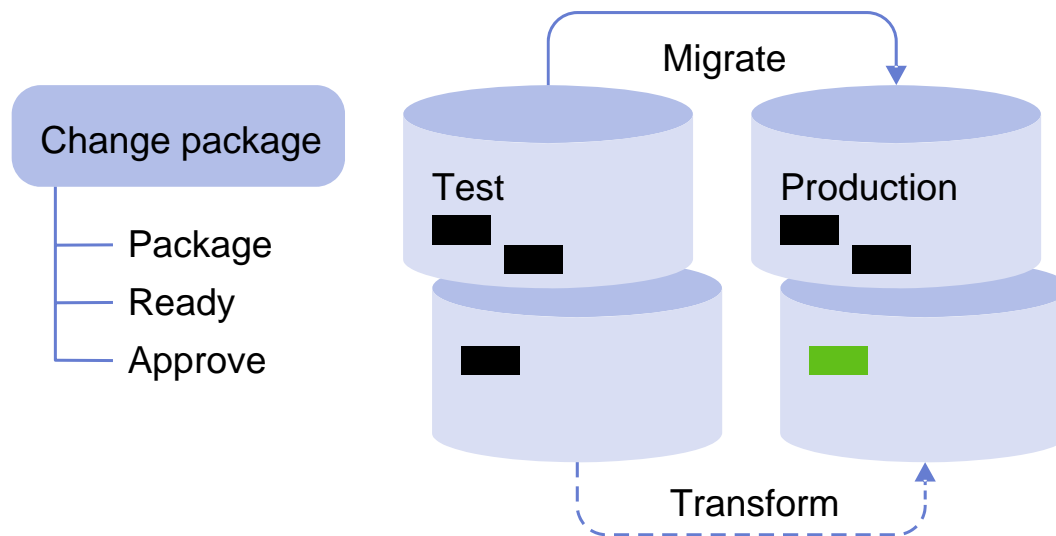
Transform

- **Change packages**
- **Ready, approve**
- **Detection of compromise**
- **Migration schemes**
- **Transformation rules**
- **Back-out capability**
- **SCM integration exits**

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 3, Version 2, and 1.3

- Program Product – 5697-I78

CICS VSAM Recovery

Risk Management for Your Mission Critical VSAM Data

CICS VSAM Recovery

- **What does it do?**

  - ▸ Recovers lost or damaged VSAM data

  - ▸ Recovers updates made to data by CICS and/or batch applications

  - ▸ Provides assistance and processes for VSAM Disaster Recovery

  - ▸ Automates VSAM backup and restore processes

  - ▸ Provides intelligent decision automation for certain VSAM error conditions

  - ▸ Fully supports log records written by Transactional VSAM (DFSMStvs)

  Benefits

  - ▸ Automates recovery for physically or logically damaged or lost VSAM files

  - ▸ Quickens recovery from batch window errors

  - ▸ Reduces overall VSAM recovery time

  - ▸ Provides database type recovery for your VSAM files

  - ▸ Reduce outages for certain VSAM errors

CICS VSAM Recovery for z/OS (CICS VR)

▪Key features

- ▸ Automated recovery
- ▸ Extensive functionality and authorization management the from ISPF panel interface
- ▸ Provide test-only forward recovery and backout
- ▸ Disaster recovery report
- ▸ Export and Import commands
- ▸ Change accumulation
- ▸ Batch support including logging
- ▸ NOTIFY support for IBM and non-IBM backups

▪CICS Support

- ▸ CICS Transaction Server for z/OS, V2 and V3
- ▸ CICS Transaction Server for OS/390 V1.3

New in CICS VR V4.2

- •**CICS TS V3.2 support**
  - •**Extended addressability Entry Sequenced Data Sets (ESDSs)**
  - •**Backout failure detection operates in a thread-safe mode**
- •**Integration with external backup products, including IBM ABARS**
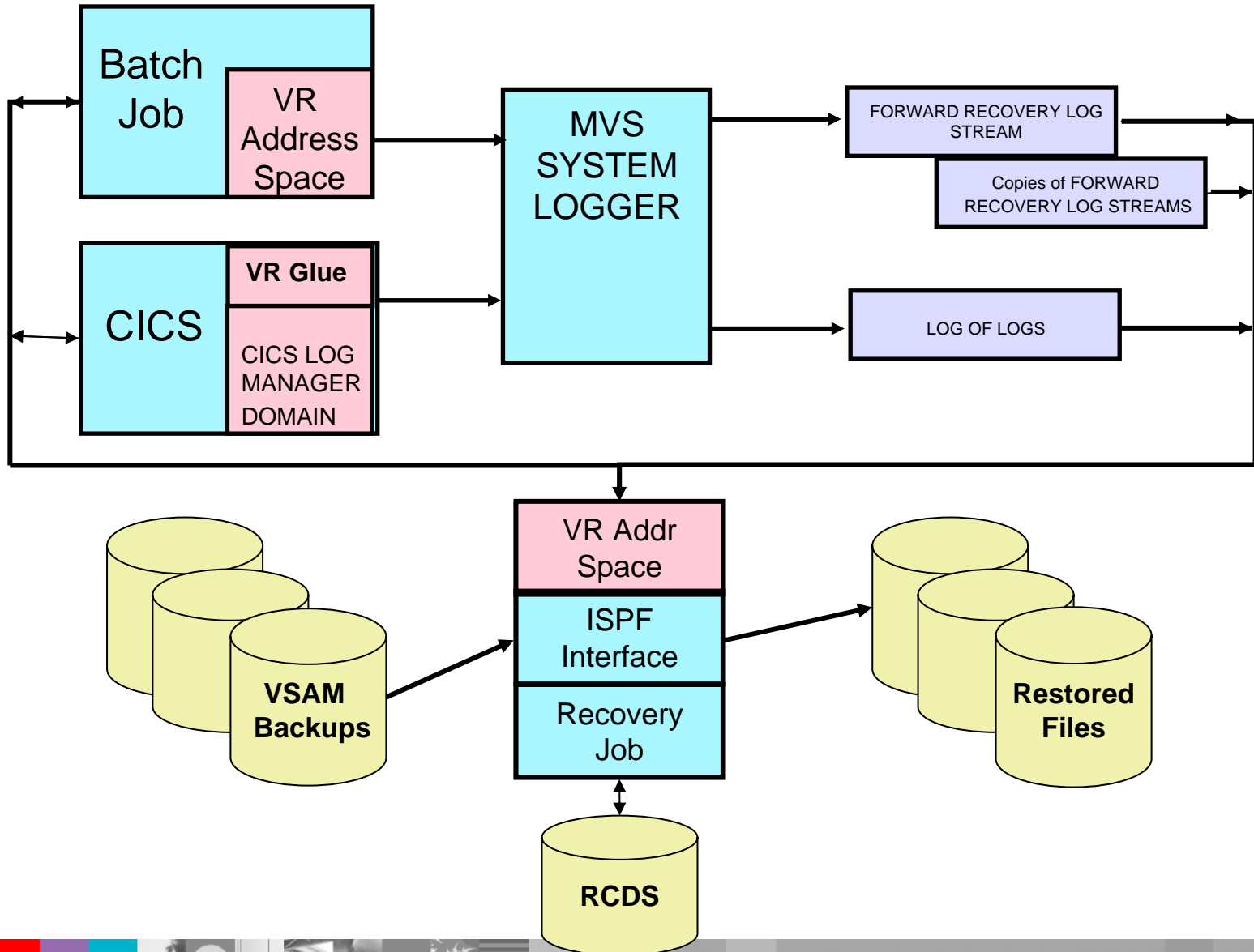- •**Enhanced logging support**

Coming Soon

- •*Additional functionally for the ISPF dialog*
- •*Automation enhancements*
- •*Extend support for non IBM backups*

Architecture

CICS VR – Business Value

- Insurance protection for your mission critical VSAM files

- Use familiar database recovery techniques reducing the learning curve for implementation

- Provide consistency for all VSAM processing types

- Reduce cost of operator intervention and on call support with automation of VSAM file error detection
    - ▸ Detect VSAM errors and take corrective action

- Potential savings in the batch cycle by reducing number of backups

- Assistance at Disaster Recovery with exported RCDS and quicker automated recovery

- Reduce human errors with automated recovery processes

CICSVR and Disaster recovery

- **CICSVR disaster recovery utilities**
  - ▶ Log stream copy
    - Create sequential data set copy of a forward recovery log stream
  - ▶ RCDS import/export
    - Create sequential data set that contains essential recovery information
      - – Includes information related to logstreams, backups and change accumulation data sets
  - ▶ Remote site change accumulation
    - Create change accumulation data sets for use at a remote recovery site
    - Will accumulate latest unread portion of forward recovery log stream
  - ▶ Shadow recovery
    - Maintain updated copies of VSAM spheres at a remote recovery site
    - Batch job set up once and submitted during regular intervals

CICSVR Summary

- Helps automate recovery in the following scenarios
  - Recover physically damaged or lost VSAM files at the primary site
  - Recover VSAM files in a disaster recovery scenario (at a remote site)
  - "Logically" recover VSAM files from particular updates
  - Remove updates made by failed batch jobs steps
- Helps quicken recovery from batch window errors
- Eliminates possible user errors with the ISPF panel interface
- Reduces recovery time
- Recovers from updates made by CICS, batch, or both
- Supports CICS TS, Version 3, Version 2, and 1.3
- Program Product - 5655-P30

CICS VSAM Transparency

Exploit the Value of Your Business Data that Resides on VSAM

CICS VSAM Transparency

- **What does it do?**
  - ▸ Move your data from VSAM to DB2 without application program changes
  - ▸ Eliminates VSAM files
  - ▸ Clean data via utilities to eliminate bad data "surprises"
 - ▸ Re-engineer data to increase corporate value

- **Benefits**
  - ▸ Low Risk migration strategy
  - ▸ Fast path to move VSAM data to DB2
  - ▸ Modify application programs at a controlled pace
  - ▸ Helps you lower the total cost of ownership of your zSeries platform

WHAT EXACTLY IS CICS VT?

After CICS VT

Application Program

V T

V S A M

INSERT, UPDATE

SELECT

GET, READ

WRITE, REWRITE

DB2 Table #1

VSAM File #1
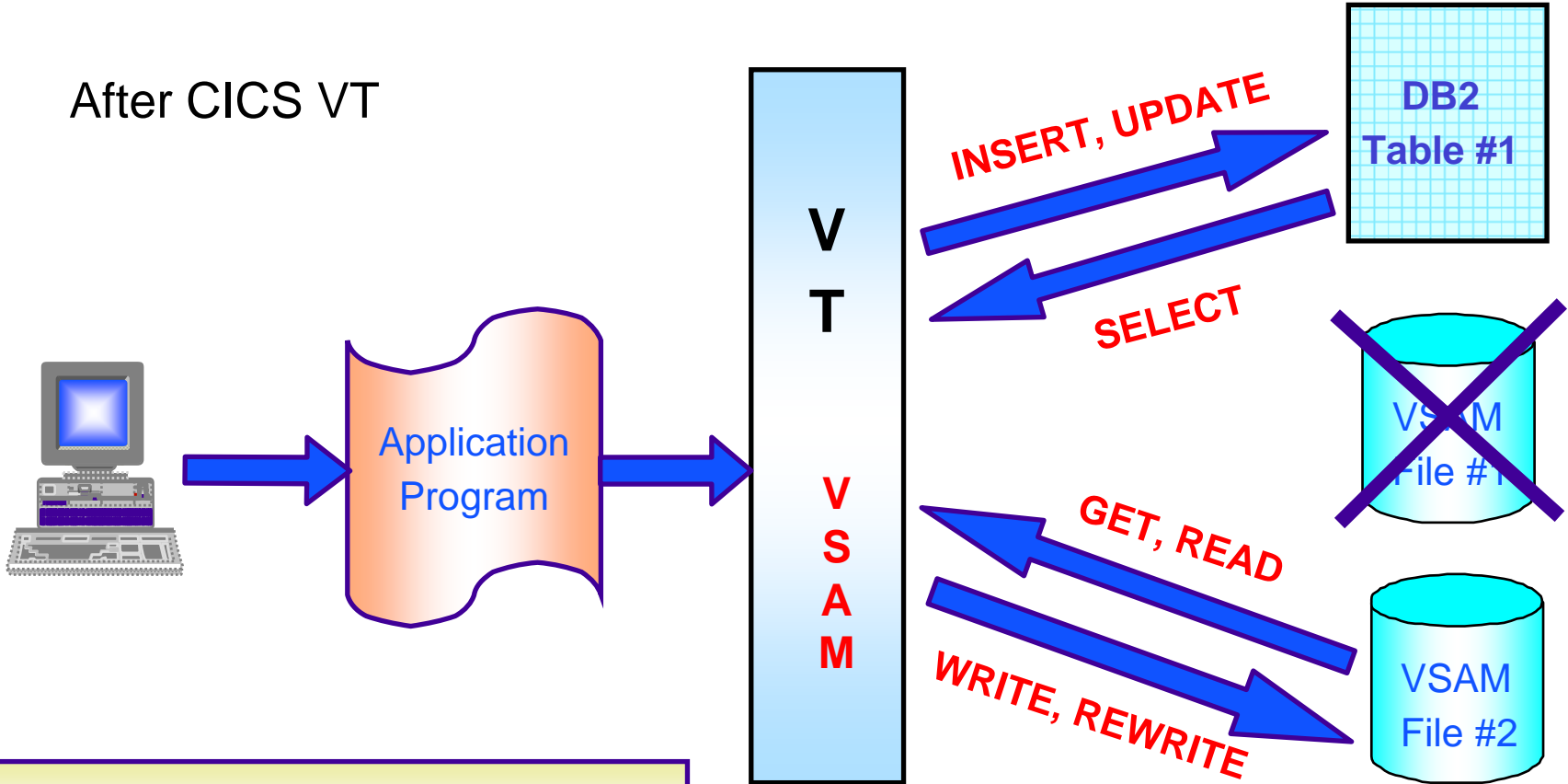
VSAM File #2

Application programs unchanged

CICS VSAM Transparency for z/OS (CICS VT)

- Key features
  - ▶ Migrate VSAM files to DB2
    - without changing application programs
    - single copy of the data
  - ▶ CICS programs access data via GLUE/TRUE access
  - ▶ Batch programs access DB2 via CICS VT
  - ▶ Cleansing migration utilities
  - ▶ Add SQL to existing programs
  - ▶ No additional region / STC required
  - ▶ Lower risk migration strategy
- CICS Support
  - ▶ CICS Transaction Server for z/OS, V2 and V3
  - ▶ CICS Transaction Server for OS/390 V1.3

New in CICS VT V1.2

- **CICS TS V3.2 support without modification**

- **CICS TS V3.2 threadsafe File Control API performance benefits**

- **Dual Mode Facility assists with testing of migrated data**

- **Automated Mapping Facility now supports PL/I and Assembler**

- **Re-entrant SQL driver modules**

CICS Batch Application Control

Reduce the Impact of Your Batch Window

# CICS Batch Application Control

- **What does it do?**
  - ▶ Simplifies and automates the transitions between batch and CICS application access to the same resources
  - ▶ Enables a batch-job step to change the state of relevant CICS resources
  - ▶ Tracks resource state change requests across CICS systems and batch streams and helps ensure each resource is in its correct state when CICS regions start

- **Benefits**
  - ▶ Helps reduce errors and abends related to batch processing
  - ▶ Minimizes manual interventions by operators and system programmers
  - ▶ Moves your CICS applications closer to 24x7 availability
  - ▶ Helps you lower the total cost of ownership of your zSeries platform

Need for improved resource control

CICS	BATCH	CICS
	Payroll batch application / **Payroll report utility**	
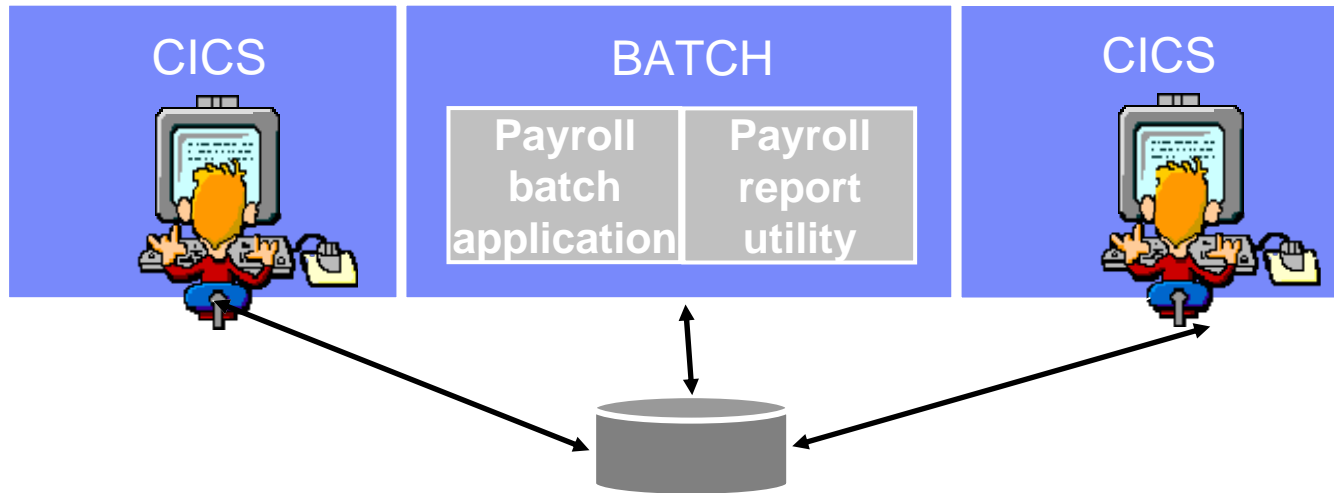
- **Objective**
  - ▶ Need a way to quickly change resource state to prevent
    - CICS from allocating a resource that is being used by batch
    - Batch from allocating a resource that is being used by CICS
- **Incorrect or inefficient resource control could cause**
  - ▶ Failure of applications
  - ▶ Incorrect changes to data
  - ▶ Incorrect results from application processing
  - ▶ Reduced online CICS availability

CICS Batch Application Control for z/OS (CBAC)

▪Key features

> ▶ Enables batch to change the state CICS resources

> ▶ Audit history of change requests

> ▶ Ensures same state at CICS region start

> ▶ Powerful "group" feature

>> ▪ Set CICS region name at the system level

>> ▪ Change all resources associated with an application

New in CICS BAC V1.1.1

•**CICS TS V3.2 support PTF**

•**Security enhancements**

•**ISPF-based administration interface**

▪CICS Support

> ▶ CICS Transaction Server for z/OS, V2 and V3

> ▶ CICS Transaction Server for OS/390 V1.3

CICS Online Transmission Time Optimizer

Reducing Response Time

CICS Online Transmission Time Optimizer for z/OS

▪Key features

- ▸ Identifies and removes repetitive data
- ▸ Compresses 3270 data streams
- ▸ Only changed data sent to the terminals
- ▸ Optimizes messages to increase printer speed
- ▸ Include/Exclude of terminals and transactions
- ▸ Optional exit to change the data stream
- ▸ Compression status monitoring

▪CICS Support

- ▸ CICS Transaction Server for z/OS, V2 and V3
- ▸ CICS Transaction Server for OS/390 V1.3

New in CICS OTTO V1.2

- •CICS TS V3.2 support **without modification**

- •**Improved compression status management**

- •**Improvements in viewing trace data**

- •**New system options to exclude transactions and terminals from optimization more easily**

- •**Additional end-user help**

- •**Improved documentation**

IBM Session Manager

Improving User Access

IBM Session Manager for z/OS (Session Manager)

▪**Key features**

▶ Access multiple z/OS systems from a single 3270 terminal - SNA and TCP/IP

▶ Session recovery across the Sysplex

▶ Centralized administration

▶ Provided Rexx like scripting language

- Log-off procedures

- Security checking

- Audit logging

▶ Benefits to helpdesk and operations

- Spy function

- Broadcast messages

▶ Benefits in training remote staff – Demo function

New in Session Manager V1.3

•**CICS TS V3.2 support without modification**

•**Workload balancing and shared configurations**

•**User customization**

•**System management menu**

•**Improvements in Online Administration usability**

Coming soon in Session Manager V2.1

•**High application availability and near-continuous operations in a Parallel Sysplex environment**

CICS Tools Summary

CICS Tools and your business challenges

- **Sarbanes-Oxley**

- **Budgets**

- **Disaster recovery and other outages**

- **Performance and Tuning**

- **Service Level Agreements**

- **Service Oriented Architecture (SOA)**

- **Web Access to CICS**

Why CICS Tools from IBM?

- **Increase** CICS systems efficiency and flexibility
- **Improve** system integrity
- **Control** your MIPS cost
- **Leverage** your investment in the latest releases of CICS TS
- **Minimize** your time to exploitation
  - ►easy to learn and use
  - ►migration support is available

IBM offers a comprehensive portfolio of zSeries tools to help IBM customers significantly reduce the total cost of ownership of zSeries platform

For more information

Tools WEB sites

▸ CICS tools, including library: www.ibm.com/cics/tools

▸ WebSphere zSeries tools:
www.ibm.com/software/websphere/zadportal

▸ Try CICS tools for free for 60 days

www.ibm.com/software/os/zseries/trials/cicstools

Support Pacs

▸ CP12: CICS PA Historical Database Reporting

www.ibm.com/support/docview.wss?uid=swg24011321

▸ CA5D: CICS IA V2.1 – New Explorer (Client Replacement)

http://www.ibm.com/support/docview.wss?uid=swg240159
01

Business Article

▸ The Wall Street Journal, June 24, 2007. *The Dinosaurs That Won't Die:* *http://blogs.wsj.com/biztech/2007/07/24/the-dinosaurs-that-wont-die/*

Program numbers (licence):

5697-J23: CICS Interdependency Analyzer

5697-N40: CICS Performance Analyzer

5697-I78: 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

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▶ CICS Interdependency Analyzer for z/OS V2.1 Program Directory GI10-2598

▶ DB2 Application Programming and SQL Guide, SC26–4377

▶ DB2 Administration Guide, SC26–4374

▶ Redbook: CICS Interdependency Analyzer, SG24 -6458-00

▶ Redbook: Migration Considerations for CICS Using CICS CM, CICS PA, and CICS IA,SG24-7294-00

▶ White paper: CICS Interdependency Analyzer for z/OS V1.3 - Discovering resource relationships and affinities within your CICS environment, G224-9129

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- ▸ CICS Performance Analyzer for z/OS V2.1 Report Reference SC34-6800
- ▸ CICS Performance Analyzer for z/OS V2.1 Program Directory GI13-0517
- ▸ Redbook: CICS Performance Analyzer Release 3, SG24-6063
- ▸ Redbook: Migration Considerations for CICS Using CICS CM, PA and IA, SG24-7294
- ▸ Redbook: Systems Programmer's Guide to: z/OS System Logger, SG24-6898
- ▸ Red Paper: Performance Considerations and Measurements for CICS and System Logger, REDP-3768
- ▸ z/OS MVS System Management Facilities (SMF), SA22-7630
- ▸ CICS Performance Guide, SC33-1699
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▸ Redbook - Migration Considerations for CICS Using CICS CM, CICS PA, and CICS IA, *SG24-7294-00*

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▸ CICS VR V4.2 User's Guide and Reference, SC34-6804

▸ CICS VR V4.2 Implementation Guide, SC34-6802

▸ CICS VR V4.2 Program Directory, GI10-2599

▸ CICS VR V4.2 Messages and Problem Determination, SC34-6803

▸ Redbook: CICSVR Usage Guide, SG24-6563-00

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- ▸ CICS Online Transmission Time Optimizer for z/OS Compatibility Mode Guide, SC34-6780
- ▸ CICS Online Transmission Time Optimizer for z/OS Message Guide, SC34-6781
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- ▸ Systems Network Architecture: Sessions Between Logical Units, GC20-1868

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▸ Session Manager for z/OS - Technical Reference, SC34-6693

▸ Session Manager for z/OS - Facilities Reference, SC34-6694

▸ Session Manager for z/OS - Panels, Scripts and Variables, SC34-6695

▸ Session Manager for z/OS - Messages and Codes, GC34-6696

▸ Session Manager for z/OS – Online and Batch Administration, GC34-6697

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