How CICS IA can help with CICS TS Projects and Problems.

Emyr James
Technical Specialist for CICS z/OS Tools
IBM UK Hursley

em_james@uk.ibm.com

Agenda

CICS projects , problems and solutions

- ☐ Workload Management
- ☐ Threadsafe Analysis
- ☐ Upgrading CICS TS or Applications
- ☐ Implementing events with TS 4.1
- ☐ Implementing 24 * 7
    - ■ Migrating from VSAM to DB2
- ☐ Problem Determination
- ☐ Operational Problems

What is CICS Interdependency Analyzer for z/OS ?

- ☐ CICS IA
  - Captures CICS application relationships:
    - ☐ resources used
      - CICS : Transactions , Programs, Files, TSQs, TDQs , Webservices, etc
      - DB2: tables , views, cursors etc
      - MQ: Queues , QueueMgrs
      - IMS/DLI: PCBs and PSBs
      - Natural and Adabas resources
  - Captures CICS Affinity data
  - Batch Scanners
    - ☐ CSECT scanner , CICS command scanner
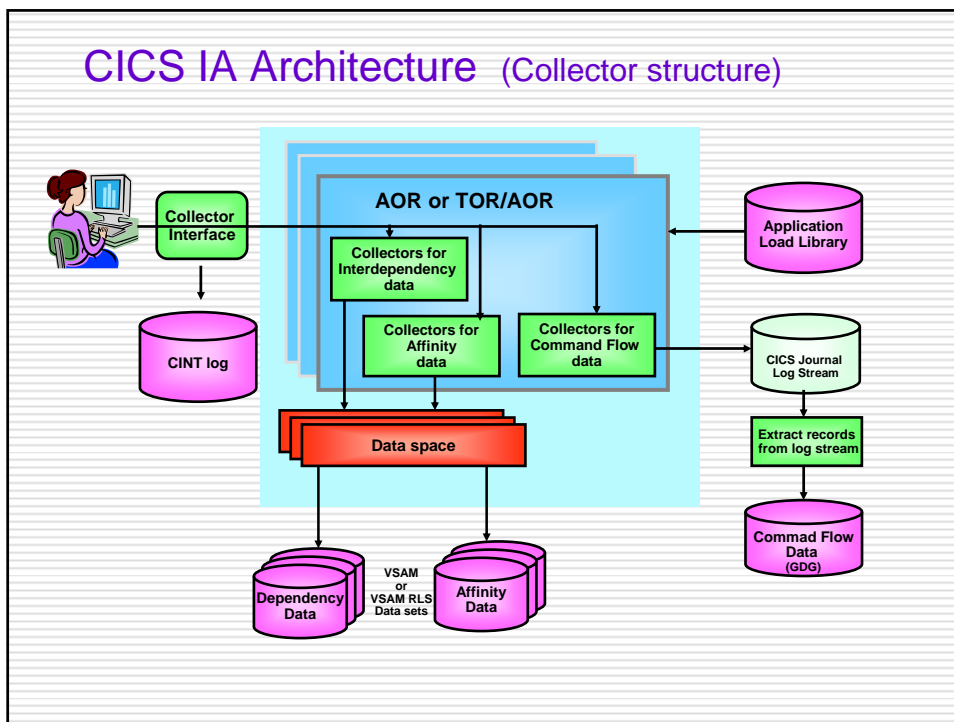 - All data loaded into a DB2 data base
  - CICS Explorer plug-in integrates with CICS run-time and other tools

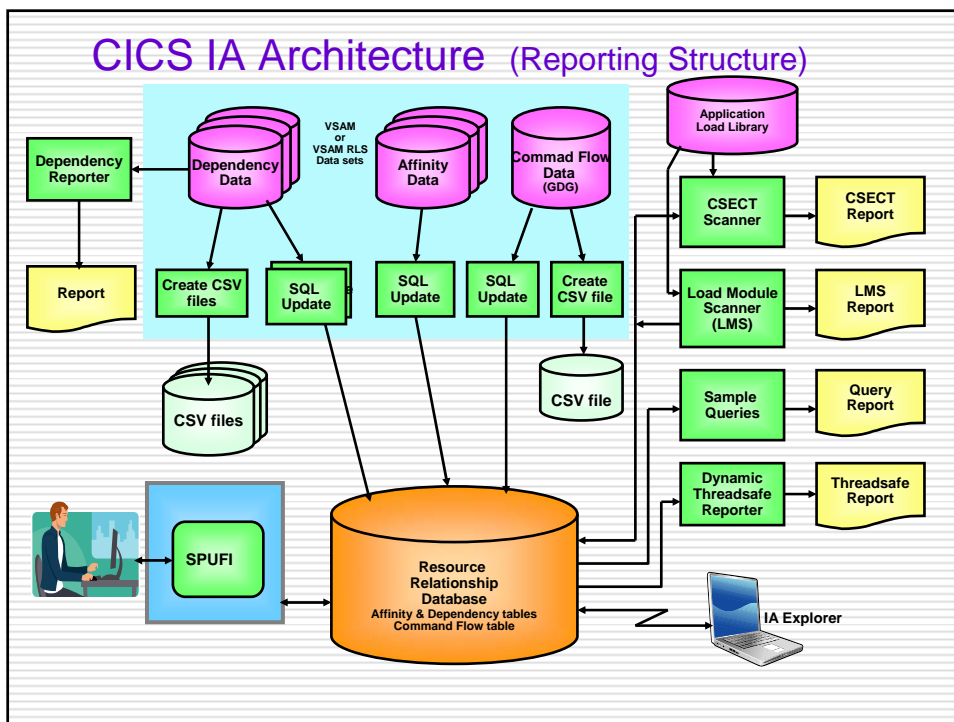## What is CICS Interdependency Analyzer for z/OS ?

- New in CICS IA V3.1
  - Supports all new and updated CICS TS V4.1 resources
    - 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)

Collector Interface

AOR or TOR/AOR

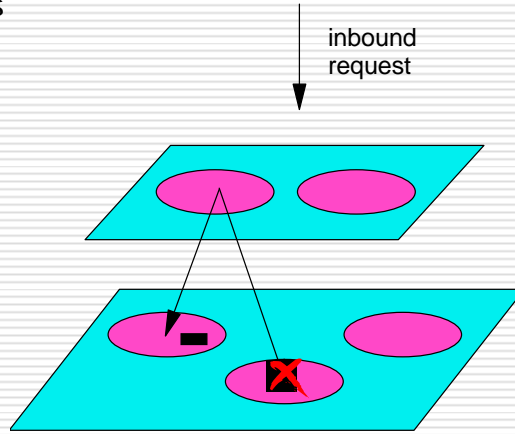Collectors for Interdependency data

Collectors for Affinity data

Collectors for Command Flow data

Application Load Library

CINT log

Data space

CICS Journal Log Stream

Extract records from log stream

VSAM or VSAM RLS Data sets

Dependency Data

Affinity Data

Commad Flow Data (GDG)

CICS IA Architecture (Reporting Structure)

Dependency Reporter

VSAM or VSAM RLS Data sets

Dependency Data

Affinity Data

Commad Flow Data (GDG)

Application Load Library

CSECT Scanner

CSECT Report

Report

Create CSV files

SQL Update

SQL Update

SQL Update

Create CSV file

Load Module Scanner (LMS)

LMS Report

CSV files

CSV file

Sample Queries

Query Report

SPUFI

Resource Relationship Database
Affinity & Dependency tables
Command Flow table

Dynamic Threadsafe Reporter

Threadsafe Report

IA Explorer
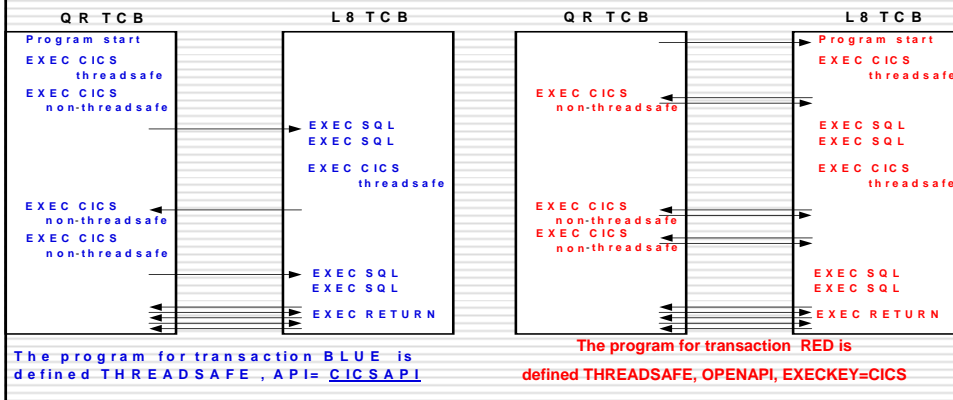
3
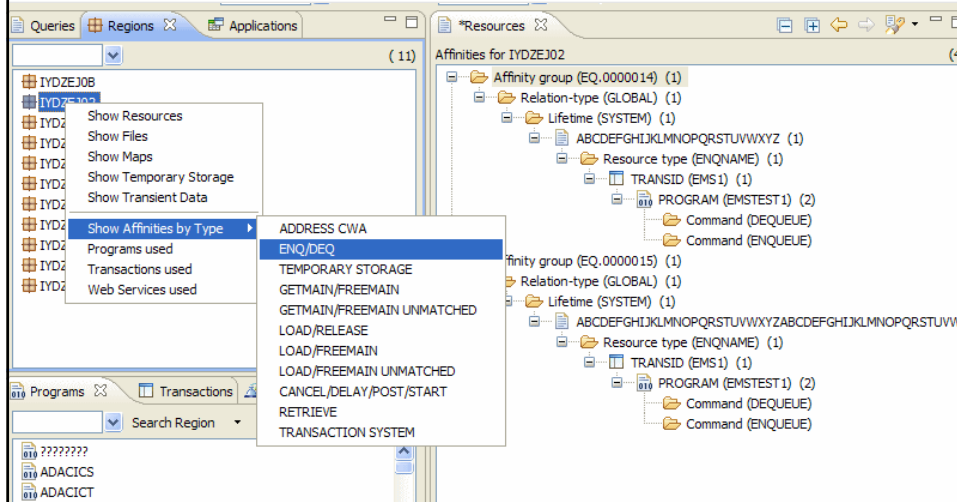
Threadsafe Analysis

Project

- CICS TS V2.2 introduced Open TCBs for Resource Managers
  - New options allow Task Related User Exits to be invoked on an Open TCB
    - OPENAPI option on the ENABLE command
  - Eliminates the need for adapters to manage their own private TCB pool
- DB2 exploits this function in CICS TS V2.2
- XPLINK exploits this function in CICS TS V3.1
- MQ exploits this function in CICS TS V3.2
- CICS Sockets exploits this function with z/OS V1R7 Communications Server
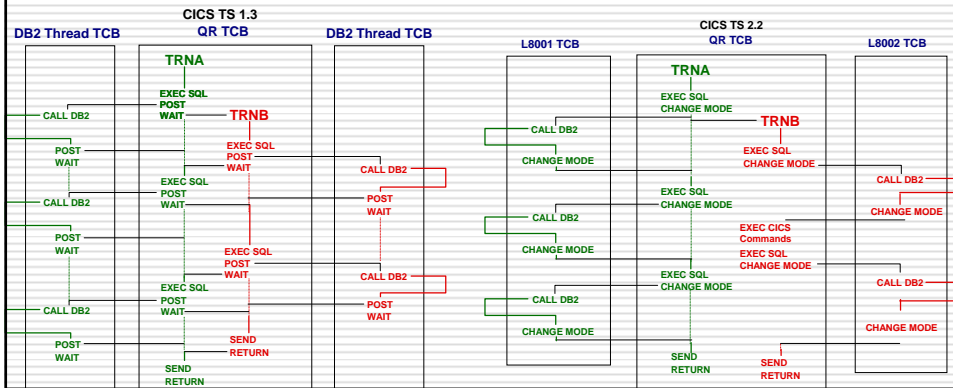
Threadsafe Analysis

Project

- Application programs may exploit the additional TCBs
  - Program may continue to execute on a resource manager TCB after the request is complete
    - DB2
    - MQ
  - Program may request it's own TCB

The program for transaction BLUE is defined THREADSAFE , API= CICSAPI

The program for transaction RED is defined THREADSAFE, OPENAPI, EXECKEY=CICS

Threadsafe Analysis

Solution

Use the CICS IA Explorer – sample queries

Threadsafe Analysis

Solution

Use the CICS IA Explorer – Command Flow feature

Slide 1

Solution

Threadsafe Analysis

Use the CICS IA Explorer – Command Flow feature

Resources ⊠
Command Flow runs for TRANSID (MAIL)   (49)
- IMPACTNS (1)
- KLTEST (1)
- MAILON31 (1)
- MAILON41 (1)
- MAIL41QR (1)
  - IYDZEJ02 (27)
- MAIL41TS (1)
  - IYDZEJ02 (1)
    - 2009-06-04 09:47:31.051835 (1)
      - TASKID (0058481...

Show View ▸
Show Execution
Used By Programs ▸
Used By Transactions ▸

Uses | **Command Flow** ⊠
TASKID(0058481C) under TRANSID (MAIL) in Region IYDZEJ02

TCB Modes Used	TCB Mode Switches
QR (63)	QR (6)
L8 (24)	L8 (6)

Total commands: 87

	Task Control Block (TCB)	Previous
MAIL		
TST4CVD1		
Start of transa	QR	QR
Getmain STOR	QR	QR
Ignore CONDI	QR	QR
Assign	QR	QR
Send Map(CSC	QR	QR
Receive Map(C	QR	QR
Open Queue()	L8	QR
Close Queue()	L8	L8
Open Queue((	L8	L8
Send Map(CSC	QR	L8
Receive Map(C	QR	QR
TST4CVD4		

Slide 2

Project

Upgrading CICS TS

☐ CICS Transaction Server V4.1 allows you to:

Compete for new opportunities by gaining insight into business processes and responding by modifying key business applications quickly and with confidence

▪ **Business Flexibility and Innovation**

Comply with corporate, industry and government policies to manage business risk of critical business applications

▪ **Governance and compliance**

Control costs by simplifying IT infrastructure and improving development and operations productivity through easier-to-use interfaces and functions

▪ **IT Simplification**

Upgrading CICS TS

Project

Considerations

• Changed or Deleted APIs/SPIs

• Changed GLUEs and TRUEs

• Test Coverage

• Application upgrades
   • What makes up an application ?

Upgrading CICS TS

Solution

Use the CICS IA Explorer – sample queries
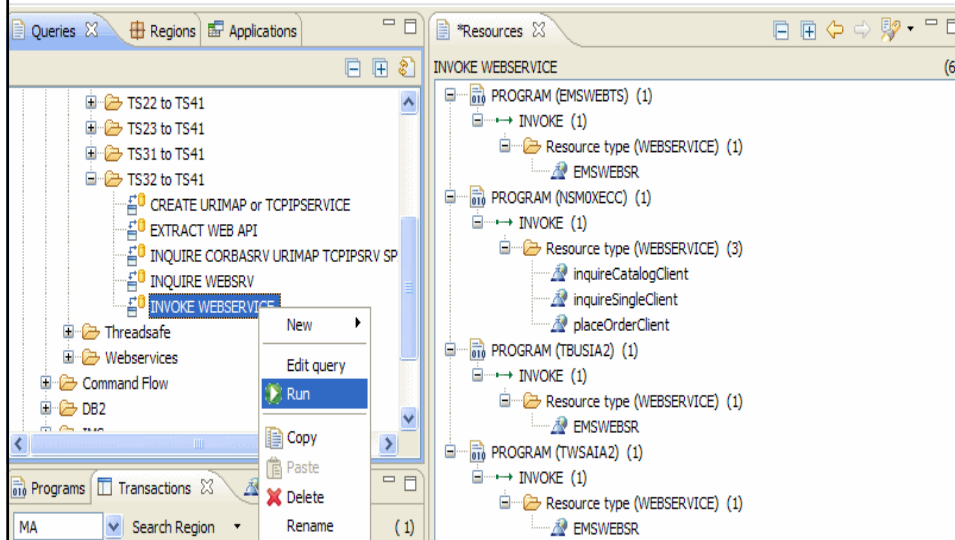
Solution — Upgrading CICS TS

Use the CICS IA Explorer – sample queries with Properties
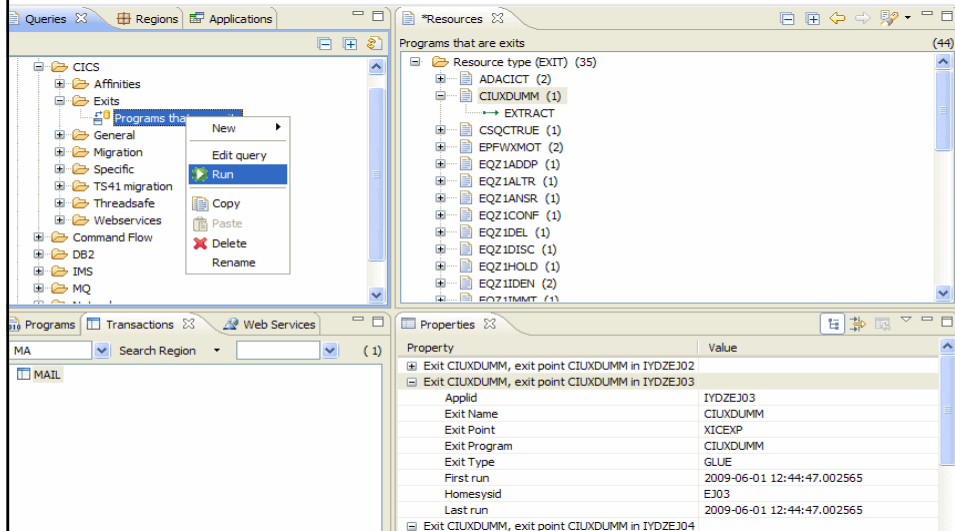
Solution — Upgrading CICS TS
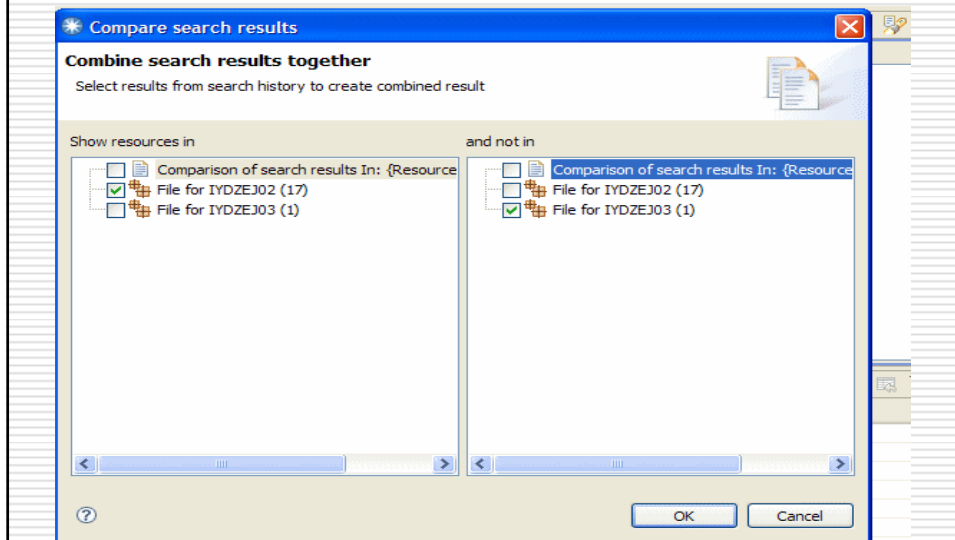
Use the CICS IA Explorer – compare query results

Upgrading CICS TS

Solution

Use the CICS IA Explorer – compare query results
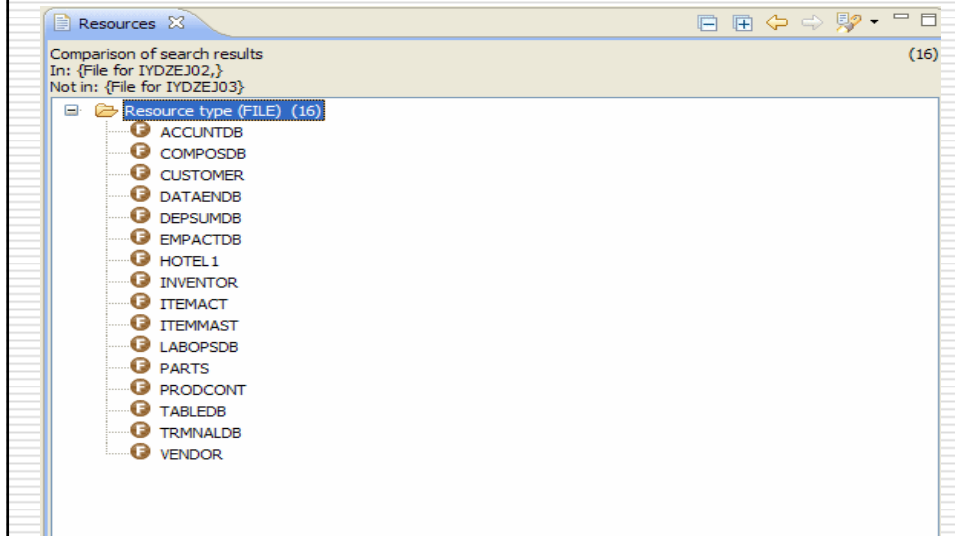
Upgrading Applications

Solution

Use the CICS IA Explorer – Application View

Project **Implementing CICS Events**

Development & Deployment Tools

WebSphere Business Events

Existing Business Logic

Code NOT changed

Captured Events

CICS Event Processing

Event Capture
Filtering
Enrichment
Formatting
Routing

Extensible

Secured
Monitored
etc.

Events

WebSphere Business Monitor

Other Event Consumers

CICS Transaction Server for z/OS
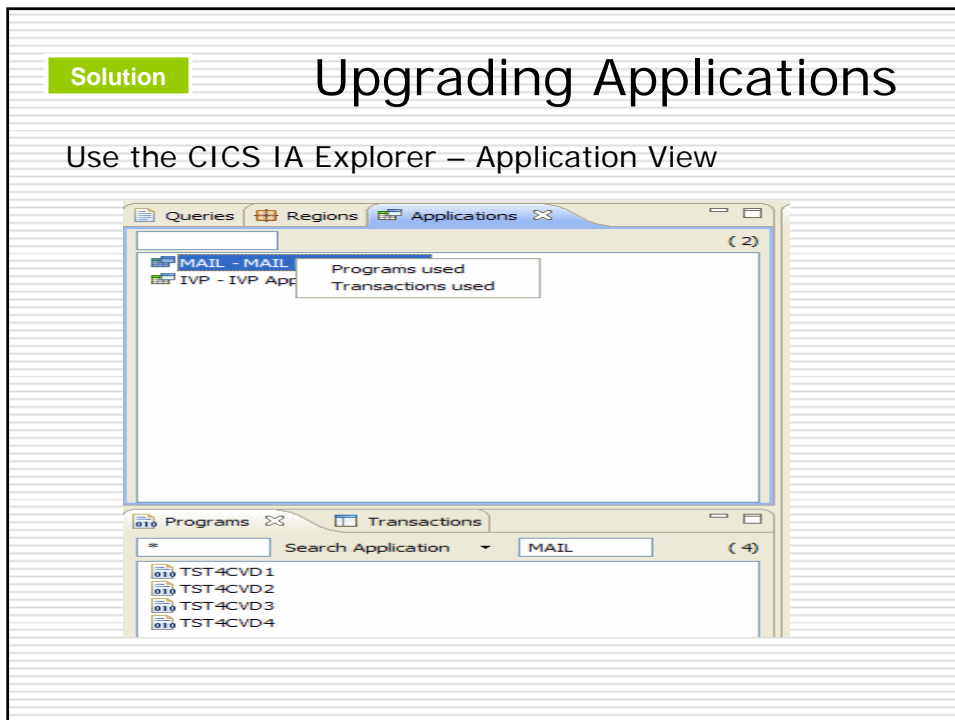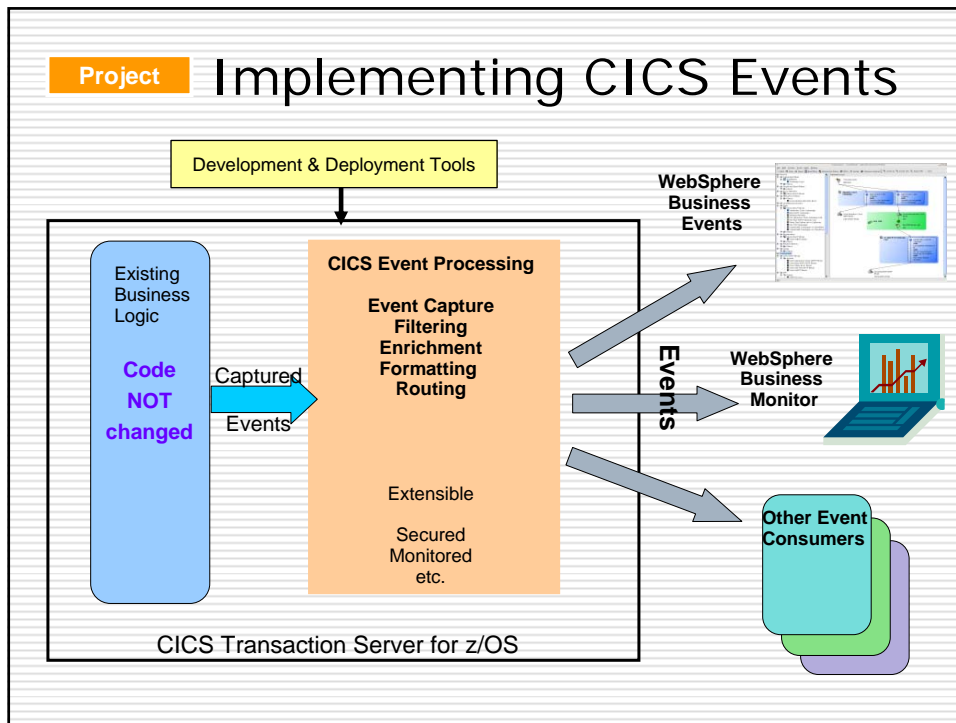
Solution **Implementing CICS Events**

Use the CICS IA Explorer – Create Query

Create CICS query

Create query
Add, remove or change criteria for which resources to include or exclude

Name: Event_File CAMAAGTV REWRITE

Show

- Region Applid
  - Transaction
    - Program
      - Offset of Comm

Filter results

- Resource name is CAMAAGTV
- Command is REWRITE

Command

(=) is

- [ ] READ FOR UPDATE
- [ ] READ NEXT
- [ ] READ PREVIOUS
- [ ] READQ
- [ ] RECEIVE
- [ ] REQIND DCOUNTER
- [ ] REQTCKT
- [ ] RESETBR
- [ ] RETRIEVE
- [ ] RETURN
- [ ] REWIND
- [ ] REWIND COUNTER
- [x] REWRITE
- [ ] SEND

OK   Cancel

Implementing CICS Events

Solution

Use the CICS IA Explorer – Create Query

```
*Resources ⊠                                    ⊟ ⊞ ⇦ ⇨ 🔧 ▾  ⎯ ☐
Event_File CAMAAGTV REWRITE                                        (4)
  ⊟ IYDZZ32A (1)
      ⊟ TRANSID (VA90) (2)
          ⊟ PROGRAM (CAMI710C) (1)
                📁 Offset of Command (00009416)
          ⊟ PROGRAM (CAMI715C) (1)
                📁 Offset of Command (0000348E)
  ⊟ IYDZZ41A (1)
      ⊟ TRANSID (VA90) (2)
          ⊟ PROGRAM (CAMI710C) (1)
                📁 Offset of Command (00009416)
          ⊟ PROGRAM (CAMI715C) (1)
                📁 Offset of Command (0000348E)
```

Implementing CICS Events

Solution

Use the CICS Explorer – Event Wizard

```
*File_EVENT.evbind ⊠                                                ⎯ ☐
📋 Specifications                                                    ?

📄 FILE_SPEC        | Capture Point | Filtering | Information Sources |
   AUTO_EVENT       
                    ▾ Application Context
                    Define predicates to filter events.

                    Context         Operator              Value
                    Transaction ID  | All      ▾ | |                    |
                    Current Program | Equals   ▾ | | CAMI710C           |
                    User ID         | All      ▾ | |                    |
                    Response Code   | Equals   ▾ | | Ok               ▾ |

                    ▾ Application Command Options
                    Define predicates for command options. Predicates marked with * should be specified to maintain CICS performance.

                    Name               Operator              Value
                    FILE*          | Equals          ▾ | | CAMAAGTV           |

                    ▾ Application Data
                    Define predicates for application data. Import a language structure and pick an item to specify the data format.

                    Source   Container   Offset   Length   Operator   Value      🔧 Add...
```
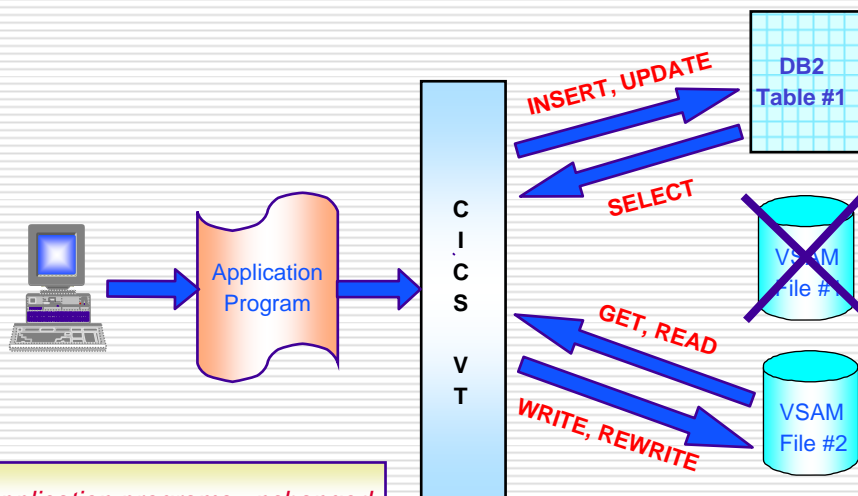
12

Implementing 24 * 7

- Migrating from VSAM to DB2

  - Code change costly….

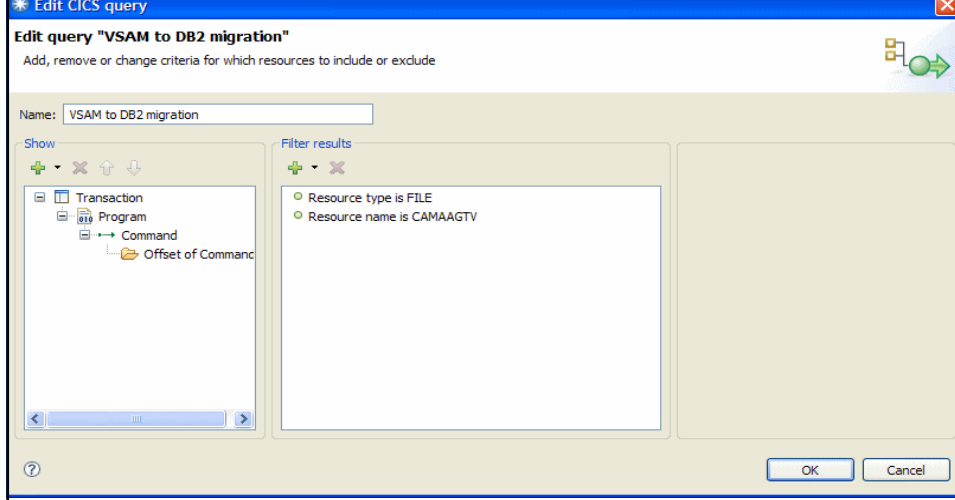
Implementing 24 * 7

Use the CICS VSAM TRANSPARENCY tool

INSERT, UPDATE

**DB2
Table #1**

SELECT

Application
Program

**C
I
C
S
.
V
T**

VSAM
File #

GET, READ

WRITE, REWRITE

VSAM
File #2

Application programs unchanged

Solution

Implementing 24 * 7

Use the CICS IA Explorer – create a query

Edit CICS query

Edit query "VSAM to DB2 migration"
Add, remove or change criteria for which resources to include or exclude

Name: VSAM to DB2 migration

Show
- Transaction
  - Program
    - Command
      - Offset of Command

Filter results
- Resource type is FILE
- Resource name is CAMAAGTV

OK   Cancel

Solution

Implementing 24 * 7

Use the CICS IA Explorer – create a query

Queries ✕   Regions   Applications

Program CALLS in PSOSCICG and UMA2
Program calls
Program loads in PSOSCICG and UMA2
Specific
TS41 migration
Threadsafe
VSAM to DB2 migration
Webservices
t2
tesappl
test impact
test perth
test
test1

New
Edit query
Run
Copy
Paste
Delete
Rename

Programs   Transactions ✕

Used By   *Resources ✕

VSAM to DB2 migration
- TRANSID (VA90) (3)
  - PROGRAM (CAMI710C) (4)
    - INQUIRE (1)
      - Offset of Command (000034AC)
    - READ (1)
      - Offset of Command (00009266)
    - READ FOR UPDATE (1)
      - Offset of Command (00009306)
    - REWRITE (1)
      - Offset of Command (00009416)
  - PROGRAM (CAMI715C) (2)
    - READ FOR UPDATE (1)
    - REWRITE (1)
  - PROGRAM (CAMI720C) (1)
- TRANSID (V800) (1)
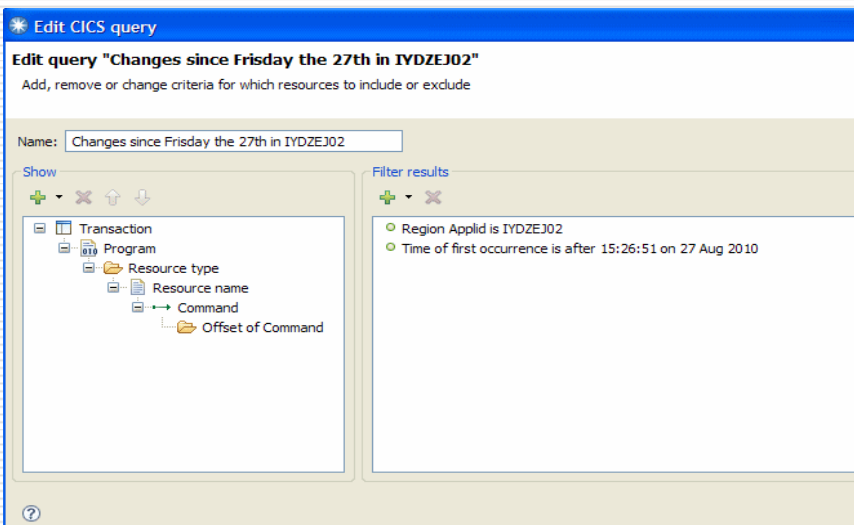 - PROGRAM (EZPACTLC) (3)

Problem

Problem Determination

- Outages after weekend maintenance / upgrades.

    - What has changed since the application ran OK ?
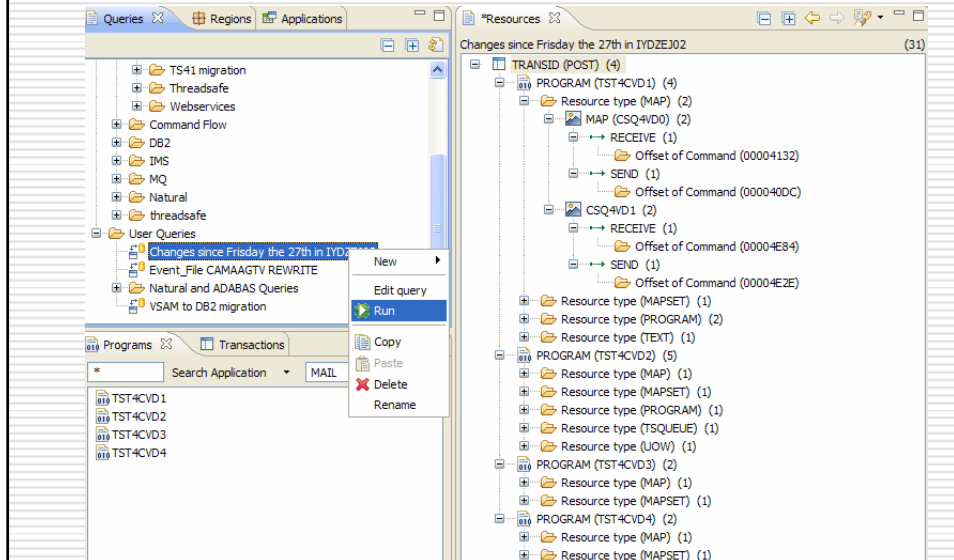

Solution

Problem Determination

Use the CICS IA Explorer – Create Query

✳ Edit CICS query

Edit query "Changes since Frisday the 27th in IYDZEJ02"

Add, remove or change criteria for which resources to include or exclude

Name: Changes since Frisday the 27th in IYDZEJ02

Show

- Transaction
    - Program
        - Resource type
            - Resource name
                - Command
                    - Offset of Command

Filter results

- Region Applid is IYDZEJ02
- Time of first occurrence is after 15:26:51 on 27 Aug 2010

Solution

Problem Determination

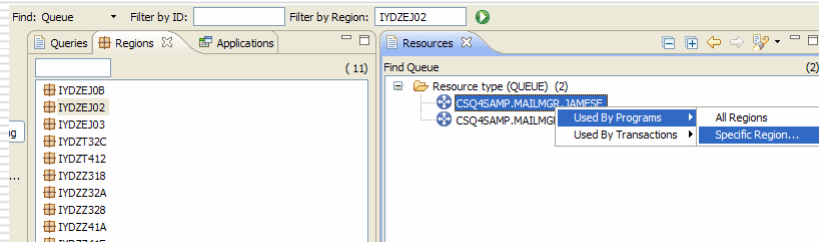## Use the CICS IA Explorer – Create Query

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Problem

Operational

• Do you understand your batch windows.

• DASD outage – file recovery

• MQ outage

•What regions use a resource you want to disable ?

• Which programs use a given resource ?

• What transactions use a given resource ?

• etc....

Solution

Operational

Use the CICS IA Explorer – Uses and Used By views

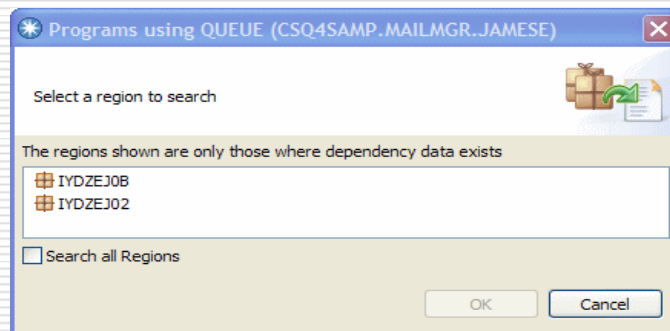Search for 'QUEUEs' in region IYDZEJ02

then search for Programs that use a specific queue

Solution

Operational

Use the CICS IA Explorer – Uses and Used By views

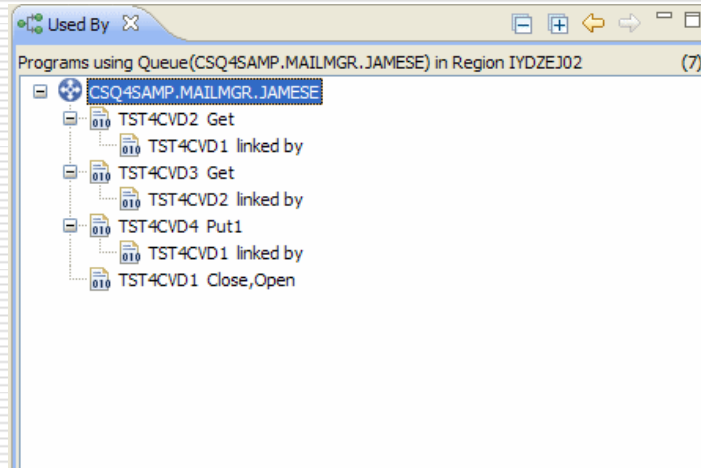it will show you all the regions that has used that resource

then select a region
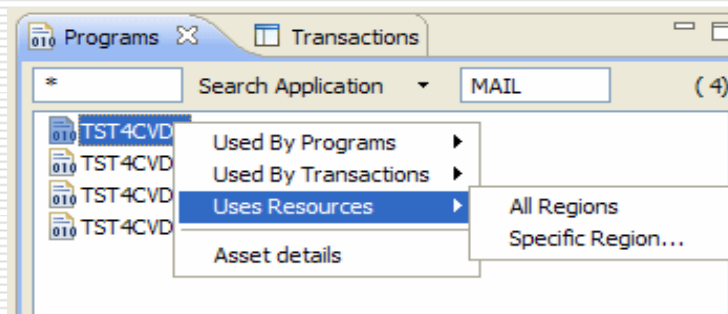
Operational

Use the CICS IA Explorer – Used By views

> Used By
>
> Programs using Queue(CSQ4SAMP.MAILMGR.JAMESE) in Region IYDZEJ02 (7)
>
> CSQ4SAMP.MAILMGR.JAMESE
> TST4CVD2 Get
> TST4CVD1 linked by
> TST4CVD3 Get
> TST4CVD2 linked by
> TST4CVD4 Put1
> TST4CVD1 linked by
> TST4CVD1 Close,Open

Operational

Use the CICS IA Explorer – Uses resources view
- by program
- by transaction

> Programs   Transactions
>
> *   Search Application ▾   MAIL   (4)
>
> TST4CVD   Used By Programs ▶
> TST4CVD   Used By Transactions ▶
> TST4CVD   Uses Resources ▶   All Regions
> TST4CVD   Specific Region…
>   Asset details