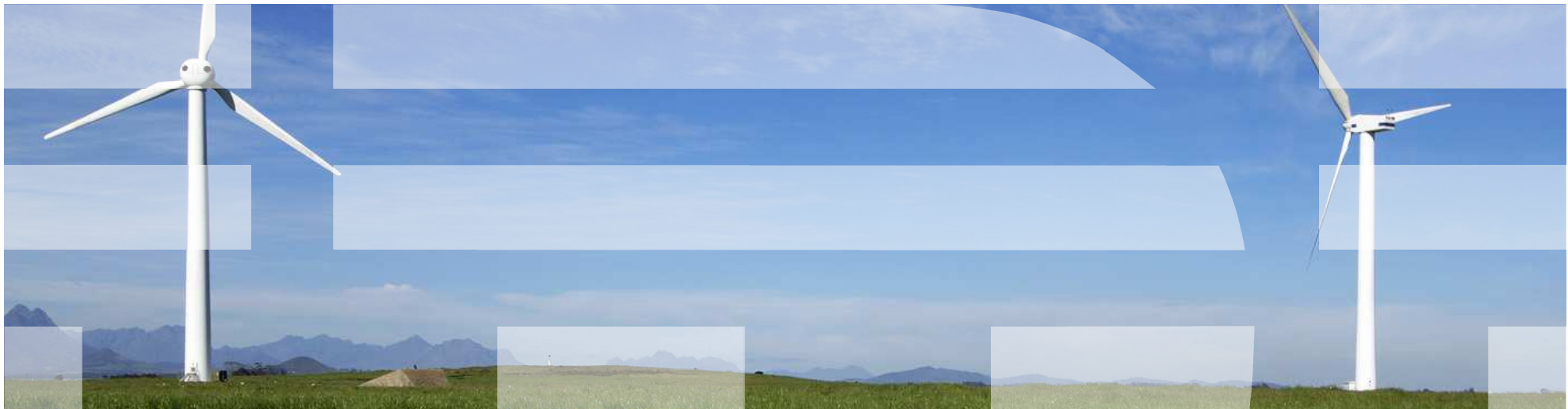




Modern CICS

Modern Interfaces and Programming Models



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Agenda

Modern Interfaces – What is new in CICS Explorer

CICS, SOA and other integration problems

Programming Languages, Tools and Development environments

All about data – VSAM, IMS, DB2

Modernize, Extend and Debug CICS Applications

Agenda

Modern Interfaces – What is new in CICS Explorer

CICS, SOA and other integration problems

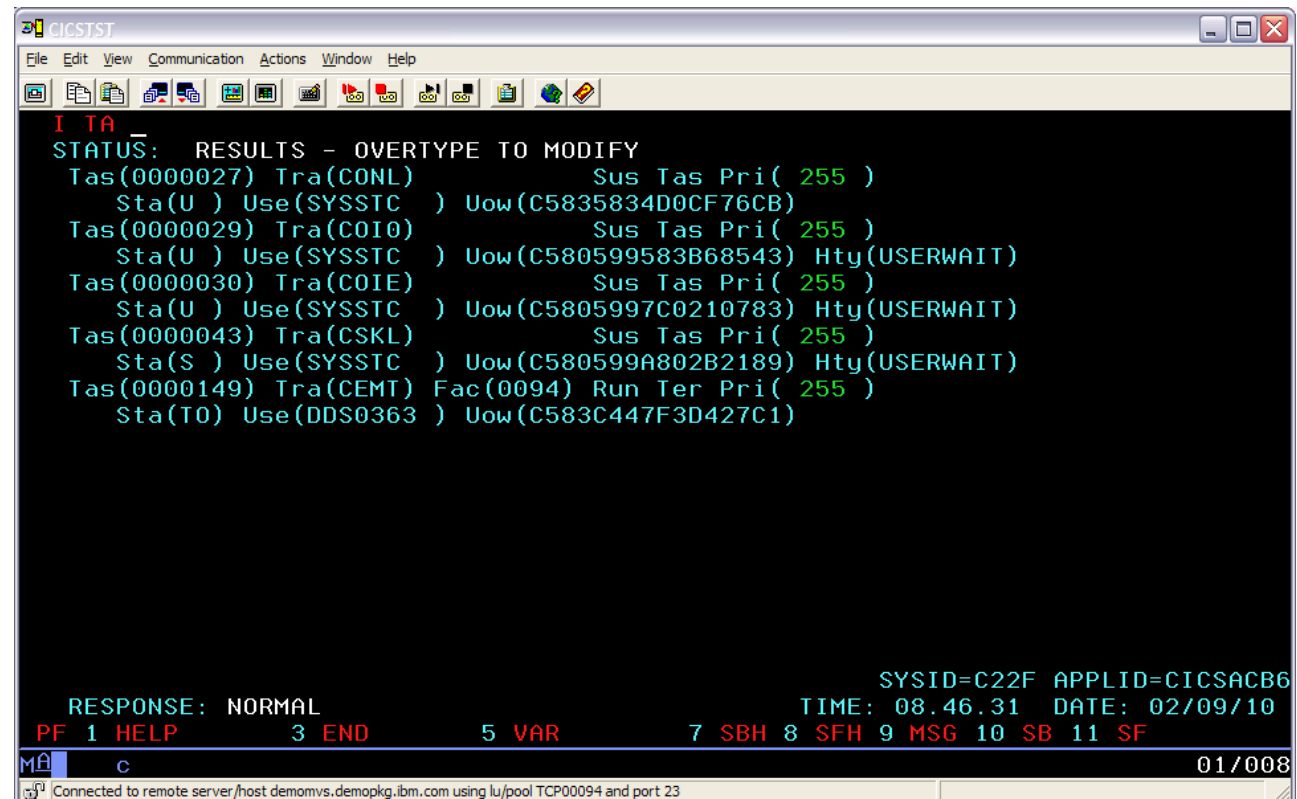
Programming Languages, Tools and Development environments

All about data – VSAM, IMS, DB2

Modernize, Extend and Debug CICS Applications

How a CICS Environment is managed by an experienced Sysprog

- The traditional way of managing CICS is the use of supplied Transactions:
 - CEMT for the Runtime
 - CEDA for the Definitions
- These Transactions control all CICS Functionality
- Limited complexity due to 32 * 80 characters
- No integration of other tools



The screenshot shows a terminal window titled 'CICSTST' with a menu bar (File, Edit, View, Communication, Actions, Window, Help) and a toolbar. The main display area contains the following text:

```
I TA _
STATUS: RESULTS - OVERTYPE TO MODIFY
Tas(0000027) Tra(CONL)          Sus Tas Pri( 255 )
Sta(U ) Use(SYSSTC ) Uow(C5835834D0CF76CB)
Tas(0000029) Tra(COI0)         Sus Tas Pri( 255 )
Sta(U ) Use(SYSSTC ) Uow(C580599583B68543) Hty(USERWAIT)
Tas(0000030) Tra(COIE)         Sus Tas Pri( 255 )
Sta(U ) Use(SYSSTC ) Uow(C5805997C0210783) Hty(USERWAIT)
Tas(0000043) Tra(CSKL)         Sus Tas Pri( 255 )
Sta(S ) Use(SYSSTC ) Uow(C580599A802B2189) Hty(USERWAIT)
Tas(0000149) Tra(CEMT) Fac(0094) Run Ter Pri( 255 )
Sta(T0) Use(DDS0363 ) Uow(C583C447F3D427C1)
```

At the bottom of the terminal, the following information is displayed:

```
RESPONSE: NORMAL                                SYSID=C22F APPLID=CICSACB6
TIME: 08.46.31 DATE: 02/09/10
PF 1 HELP      3 END      5 VAR      7 SBH 8 SFH 9 MSG 10 SB 11 SF
01/008
```

The status bar at the very bottom indicates: 'Connected to remote server/host demomvs.demopkg.ibm.com using lu/pool TCP00094 and port 23'.

What's wrong with this way?

- The existing Transactions worked for many years
- CEDA and CEMT are covering the full functionality of CICS
- CEDA and CEMT are single Region Commands
- If you want to administrate a CICSplex, you need a WUI as well

The screenshot displays the CICSplex SM Web User Interface. The title bar at the top reads 'CICSplex SM Web User Interface'. On the left is a blue navigation pane with the following links: 'Open', 'Home', 'Repeat last menu', '+ General views', '+ View menus', '+ Favorites', 'Special', 'Favorites editor', 'View editor', 'User editor', 'New window', 'Close window', and 'Sign off'. The main content area is titled 'Install' and shows configuration for resource 'XMC2RD00'. The 'Description' is 'XMC2RD00 in Scope of XMC2CG00'. There are three rows of settings, each with a checked checkbox and a dropdown menu:

Field	Value	Options
Notify value	<input checked="" type="checkbox"/> NO	(NO, INACTIVE, RELEASE, FULL)
State check value	<input checked="" type="checkbox"/> NO	(NO, YES)
Force install value	<input checked="" type="checkbox"/> NO	(NO, YES)

At the bottom of the main area, there are 'No' and 'Yes' buttons. The status bar at the very bottom indicates 'Resource name: RESDESC. View name: EYUSTARTRESDESC.INSTALL'.

Why you should have a look at the CICS Explorer

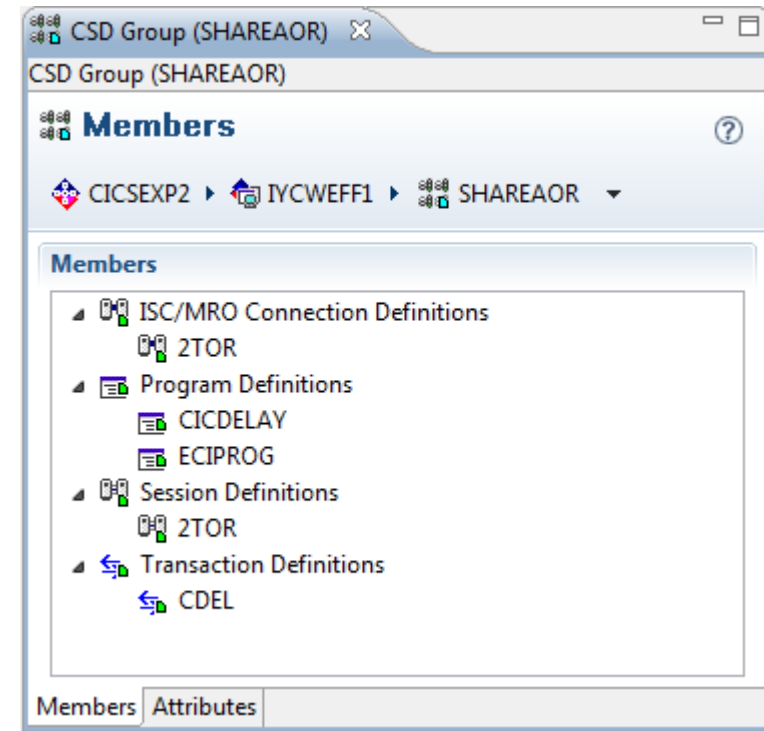
- The CICS Explorer is the strategical Tool to administrate complex CICS Environments
- CICS Explorer is for Free!
- The configuration is very simple
- CICS Explorer can unify the interface for CICS and tools as well
- Eclipse is a commonly used platform in the industry
- CICS Explorer helps you to administrate CICS with task oriented views and wizards

Functionality Demo

- CEDA EXPAND GROUP()
- Print out Explorer Content
- Transaction Tracking
- Connection Management

The Group Members View

- Within this new View a User have all the Functions that he had in the CEDA EXPAND GROUP:
 - Showing the Resources of the Group
 - Install the Group and single Entries of it
 - Create a new resource based on an existing one



Screenshots

The screenshots illustrate the process of creating a URI mapping definition in CICS Explorer.

Top Left: CSD Group (SHAREAOR)
 The tree view shows the hierarchy: CICS EXP2 > IYCWEFF1 > SHAREAOR. A context menu is open over the 'CICDELAY' program definition, showing options: Lock, Unlock, Install..., Add to List..., and Remove from List...

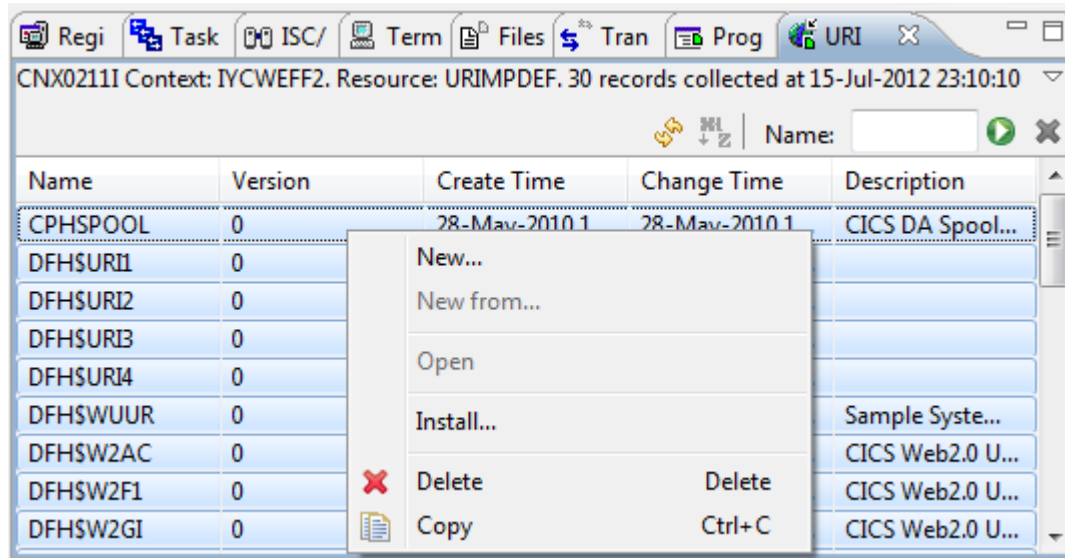
Top Right: Resource Table
 The table displays resource information for the context: IYCWEFF2. Resource: URIMPDEF. 30 records collected at 15-Jul-2012 23:00. The table has columns: Name, Version, Create Time, Change Time, and Description. A context menu is open over the 'DFHRSURI' resource, showing options: New..., New from..., Open, Install..., and Delete (Ctrl+C).

Middle: Program Definition (CICDELAY) Overview
 The overview shows the program definition for 'CICDELAY' under the same hierarchy. A context menu is open over the 'CICDELAY' program definition, showing options: New from... and Install...

Bottom: Create URI Mapping Definition from DFHRSURI
 The dialog box for creating a URI mapping definition from the selected resource 'DFHRSURI'. The fields are filled as follows:

Field	Value
Data Repository:	CICSEXP2
<input checked="" type="checkbox"/> Region (CSD)	IYCWEFF2
Resource Group:	DFHWSAT
Name:	DFHRSURI

Screenshots



	A	B	C	D	E
1	# URIMPDEF				
2	Name	Version	Create Time	Change Time	Description
3	CPHSPOOL	0	28/05/2010 15:30	28/05/2010 17:04	CICS DA Spool Processing
4	DFH\$URI1	0	28/05/2012 09:26	28/05/2012 09:26	
5	DFH\$URI2	0	28/05/2012 09:26	28/05/2012 09:26	
6	DFH\$URI3	0	28/05/2012 09:26	28/05/2012 09:26	
7	DFH\$URI4	0	28/05/2012 09:26	28/05/2012 09:26	
8	DFH\$WUUR	0	28/05/2012 09:26	28/05/2012 09:26	Sample System Management Interface URI Map
9	DFH\$W2AC	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for ATOM config static content
10	DFH\$W2F1	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for sample file Atomservice
11	DFH\$W2GI	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for GIF static content
12	DFH\$W2HT	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for HTML static content
13	DFH\$W2JS	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for JavaScript static content
14	DFH\$W2P1	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for custom service routine
15	DFH\$W2Q1	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for sample TSQueue Atomservice
16	DFH\$W2SS	0	28/05/2012 09:26	28/05/2012 09:26	CICS Web2.0 URIMAP for style sheet static content
17	DFHRSURI	0	28/05/2012 09:26	28/05/2012 09:26	URIMAP for provider pipeline for WSAT reg and coordinati
18	DFHWUUIR	0	04/12/2009 16:30	18/12/2009 11:28	

Transaction Tracking within CICS Explorer

IBM CICS Explorer

File Edit Project Operations Definitions Search Window Help

Regions Tasks ISC/MRO Connections Terminals Files Transactions TCP/IP Ser

Context: CNX0211I Context: PRODUCTN. Resource: TASKASSC. 4 records collected at 18-May-2011 12:16:43

Task ID: Origin Transact

Region	Task ID	Start Time	Trans ID	Facility Type	Origin Tra...	Origin Ap...	C
IPHPAAAF	0001035	2011-05-1...	STA1	START	STA1	IPHPAAAF	S
IPHPBAAY	0000486	2011-05-1...	STAX	MRO	STA1	IPHPAAAF	S
IPHPCAAR	0001051	2011-05-1...	ST...	MRO	STA1	IPHPAAAF	S
IPHPDABD	0000289	2011-05-1...	CS...	IC	STA1	IPHPAAAF	S

Open Search Associated Tasks Tasks from Origin IP address

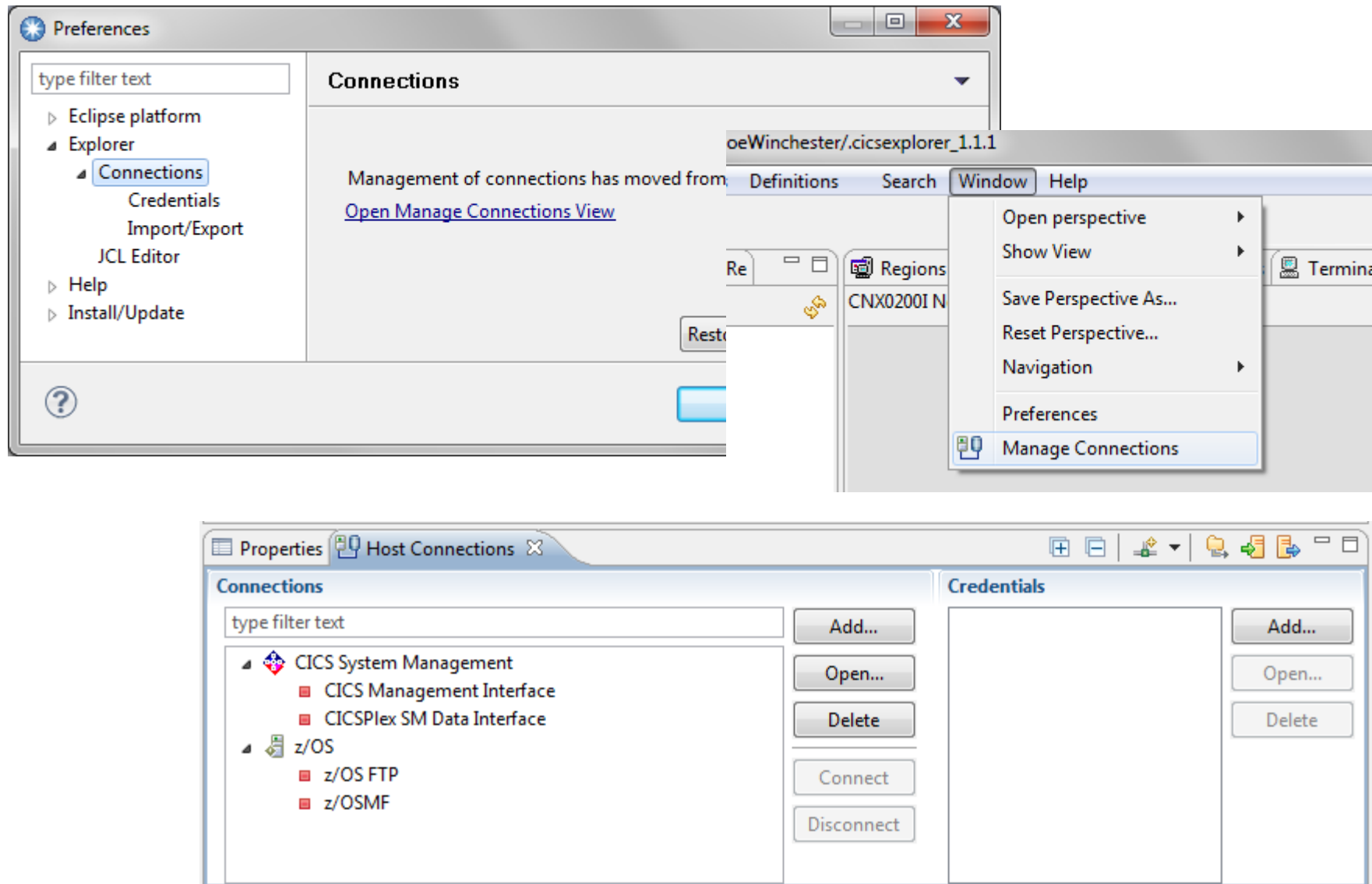
Properties Error Log Search

Tasks associated with task "0015912" in region "IYK2Z32C" - 3 results - 15:38:00

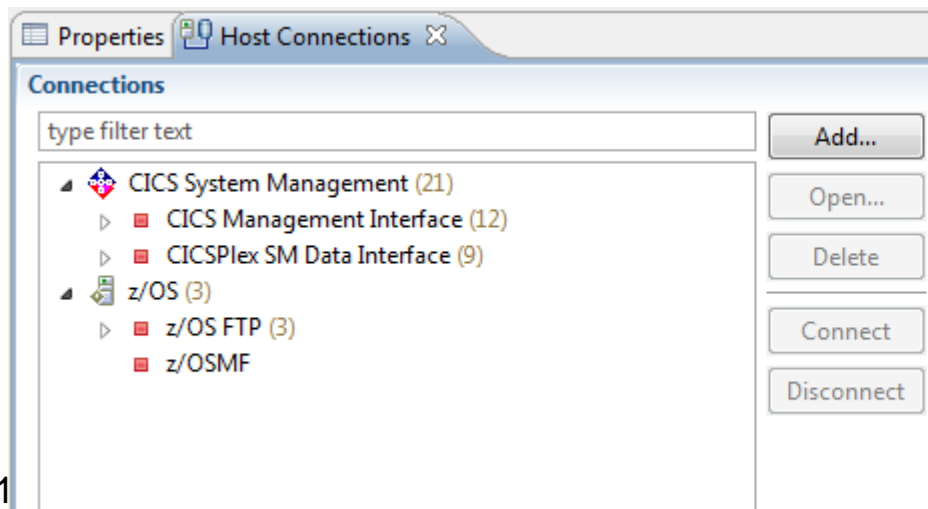
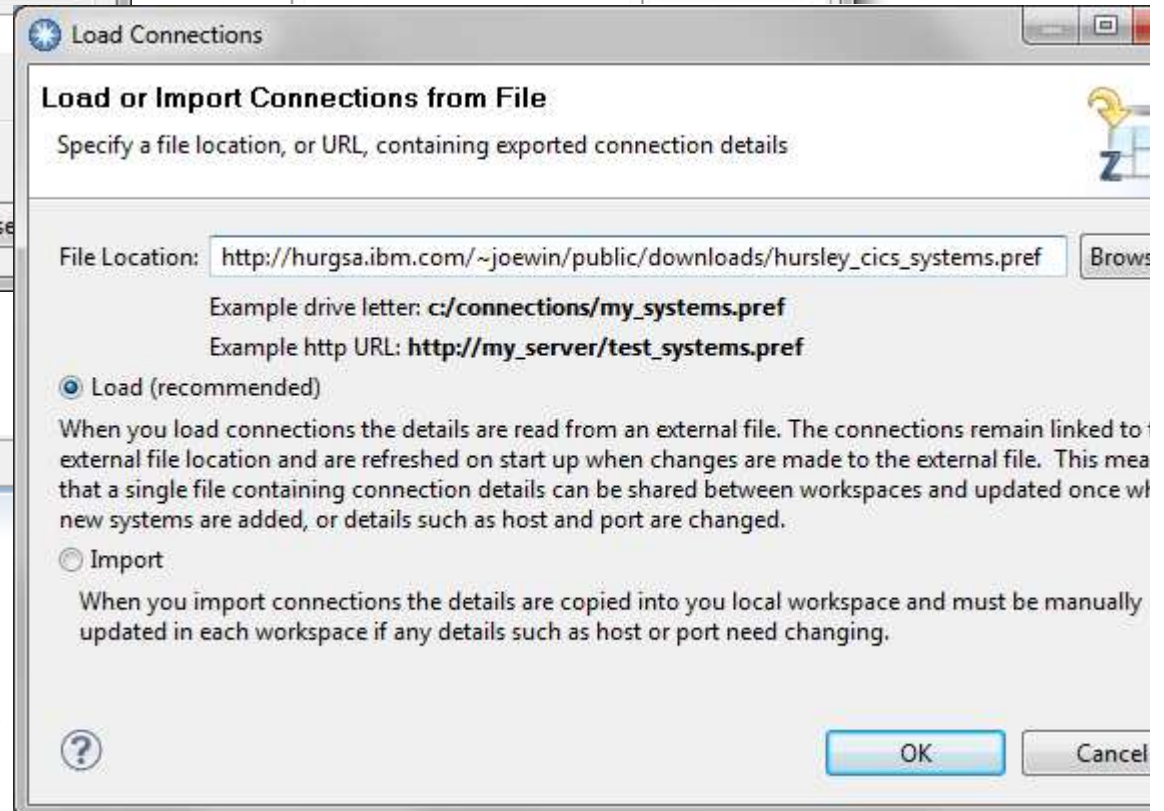
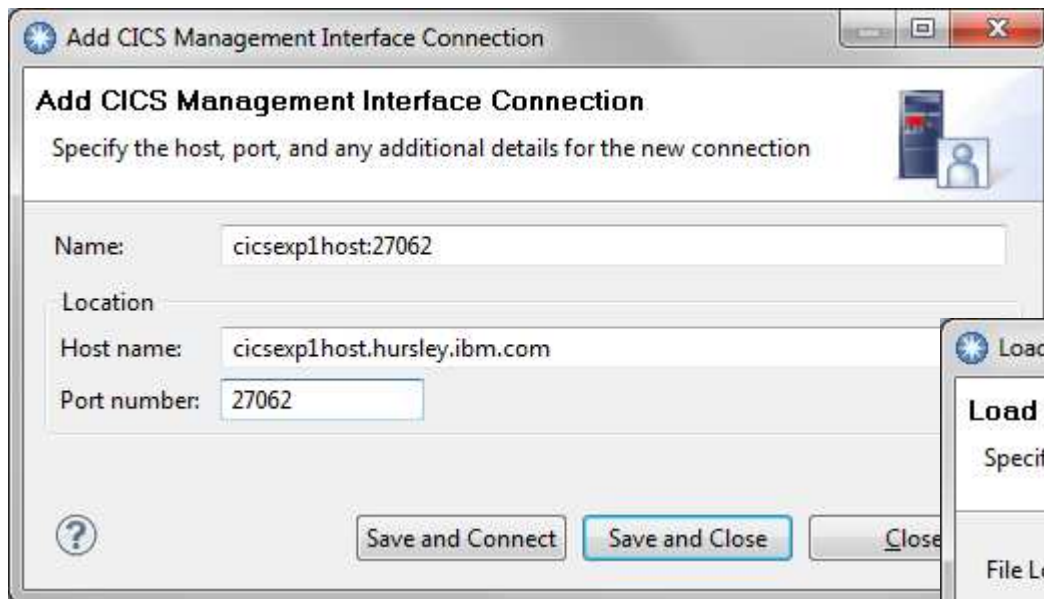
Tasks	Transaction ID	Region	Origin Task	Origin Trans ID	Facility Type	Prev Hop Count	Origin IP ...	Start Time	Run Status
0015911	CWXN	IYK2Z32C	0015911	CWXN	SOCKET	0	9.20.213.71	2011-10-03T14:37:50.521461...	SUSPENDED
0015912	CWBA	IYK2Z32C	0015911	CWXN	WEB	0	9.20.213.71	2011-10-03T14:37:50.522101...	SUSPENDED
0000498	CSMI	IYK2Z32B	0015911	CWXN	MRO	1	9.20.213.71	2011-10-03T14:37:50.523057...	SUSPENDED

Tasks	Transaction ID	Region	Origin Task	Origin Trans ID	Facility Type	Prev Hop Count	Origin IP ...	Start Time
SDAYPEG								
IYCWJGWM								
IYK2Z32B								
0000498	CSMI	IYK2Z32B	0015911	CWXN	MRO	1	9.20.213.71	2011-10-03T14:37:50.523057+00:00
0000500	CEDF	IYK2Z32B	0000500	CEDF	STARTTERM	0	9.20.213.71	2011-10-03T14:37:50.742139+00:00
IYK2Z32C								
0015911	CWXN	IYK2Z32C	0015911	CWXN	SOCKET	0	9.20.213.71	2011-10-03T14:37:50.521461+00:00
0015912	CWBA	IYK2Z32C	0015911	CWXN	WEB	0	9.20.213.71	2011-10-03T14:37:50.522101+00:00
0015914	CEDF	IYK2Z32C	0015914	CEDF	STARTTERM	0	9.20.213.71	2011-10-03T14:37:50.527082+00:00

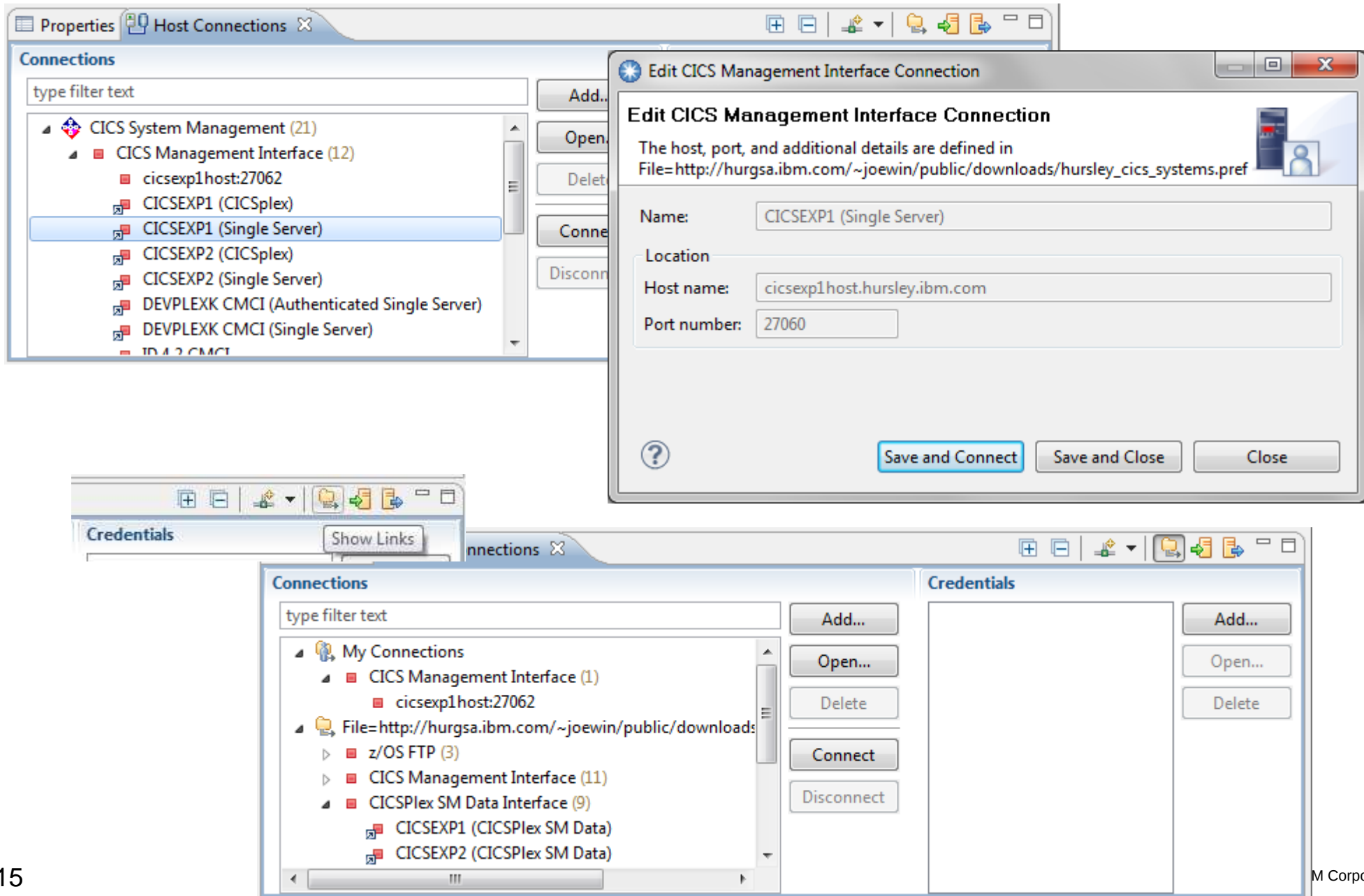
Screenshot



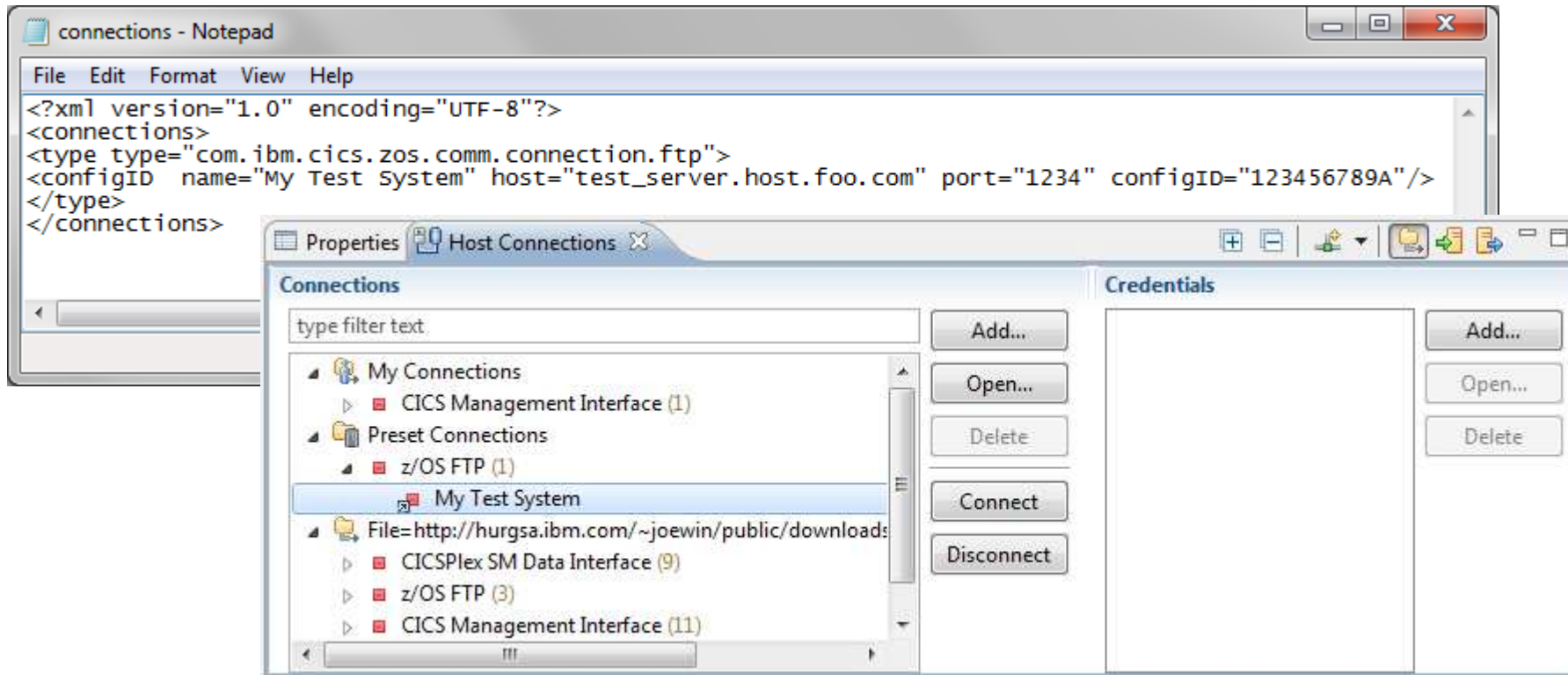
Screenshots II



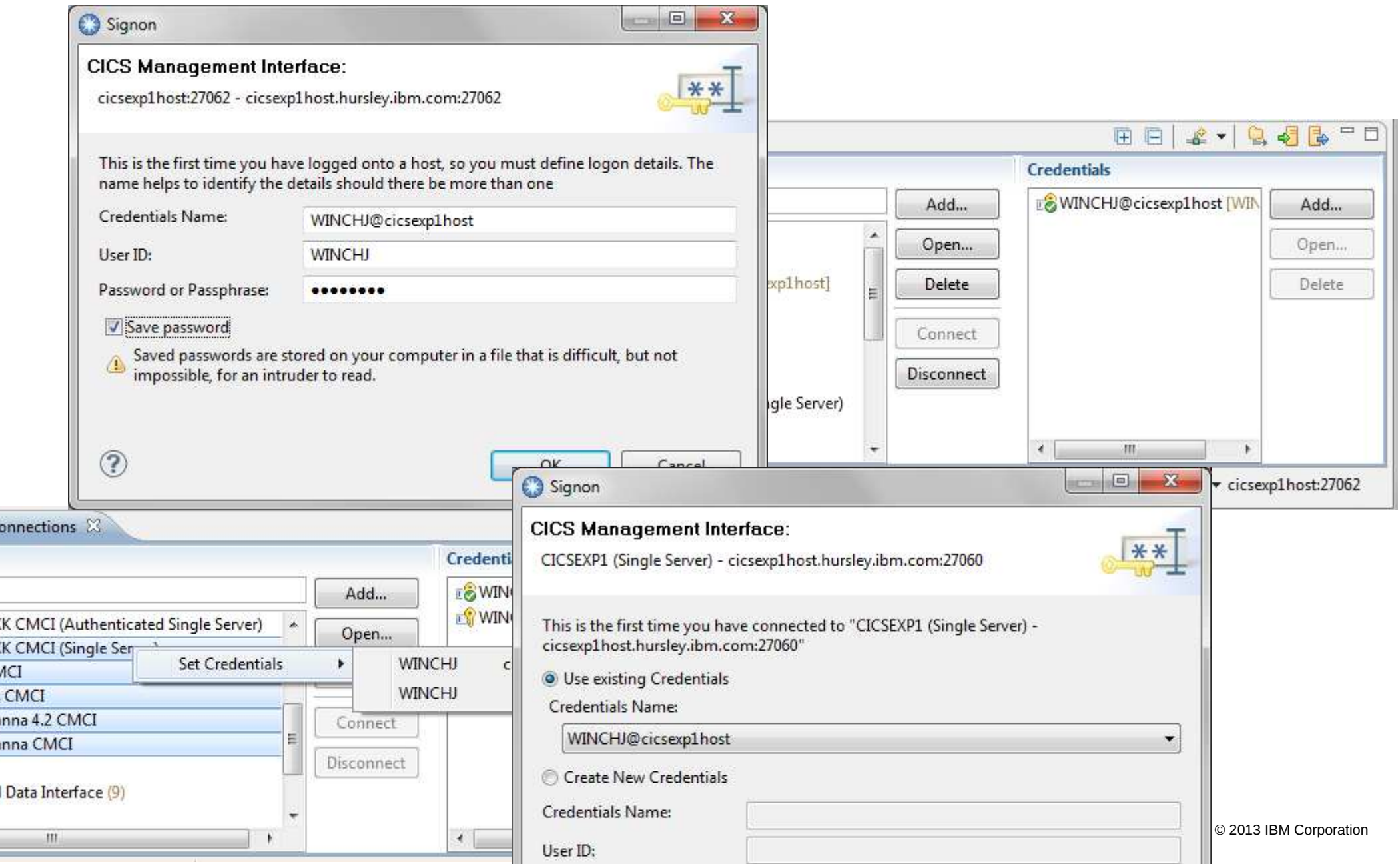
Screenshots III



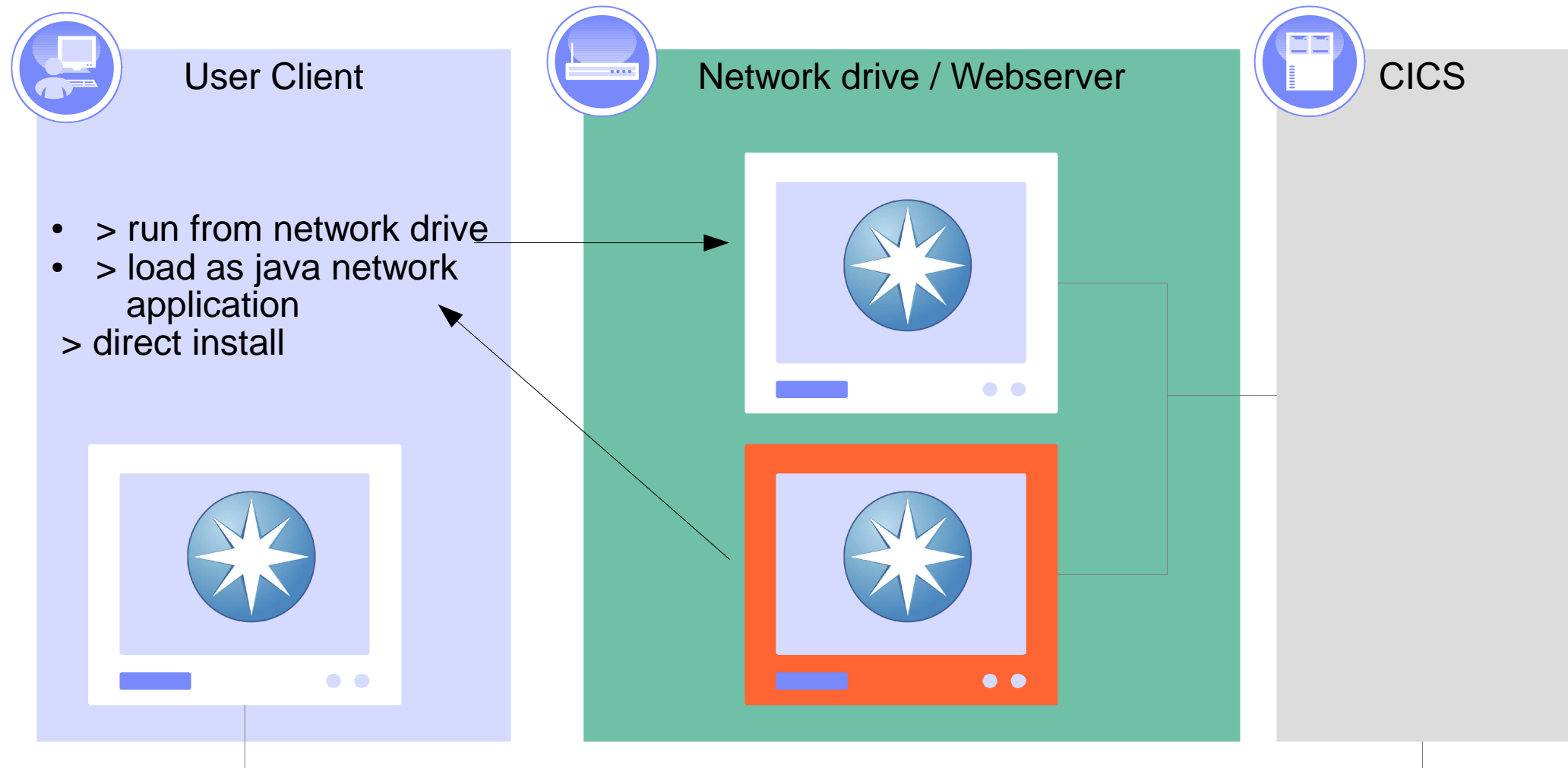
Screenshots IV



Screenshots V



Deployment options



The CICS SDK for Java within CICS

- With the new SDK it is possible to develop Java CICS Applications directly within Eclipse
- The solution is like the CICS Explorer for free
- Special extensions to eclipse help to improve the handling of a zOS environment
- Java is Java is Java
- Full OSGi support

Agenda

Modern Interfaces – What is new in CICS Explorer

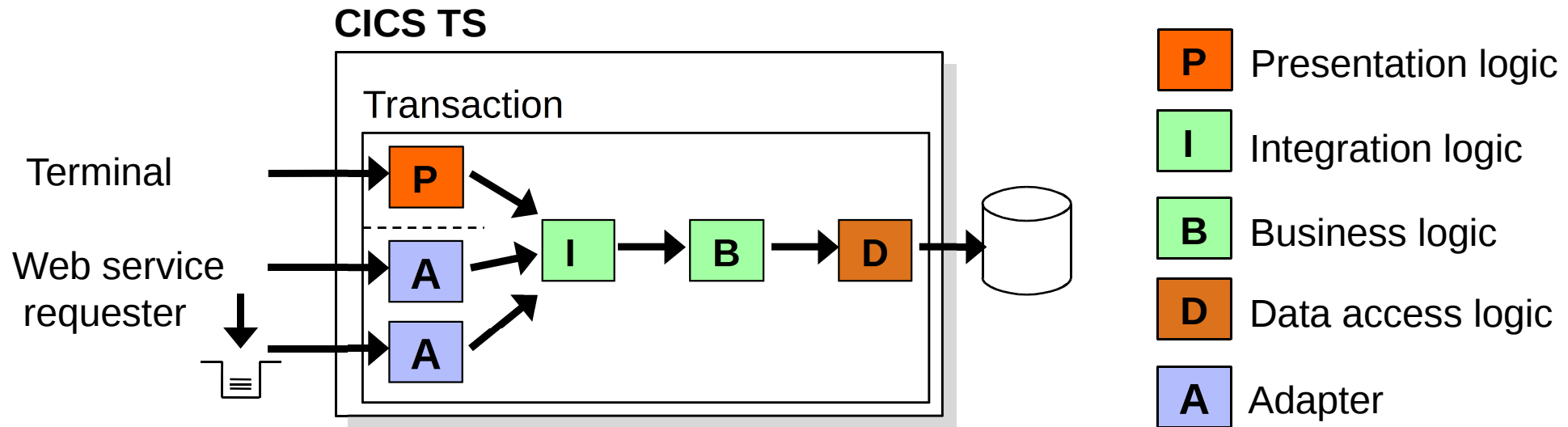
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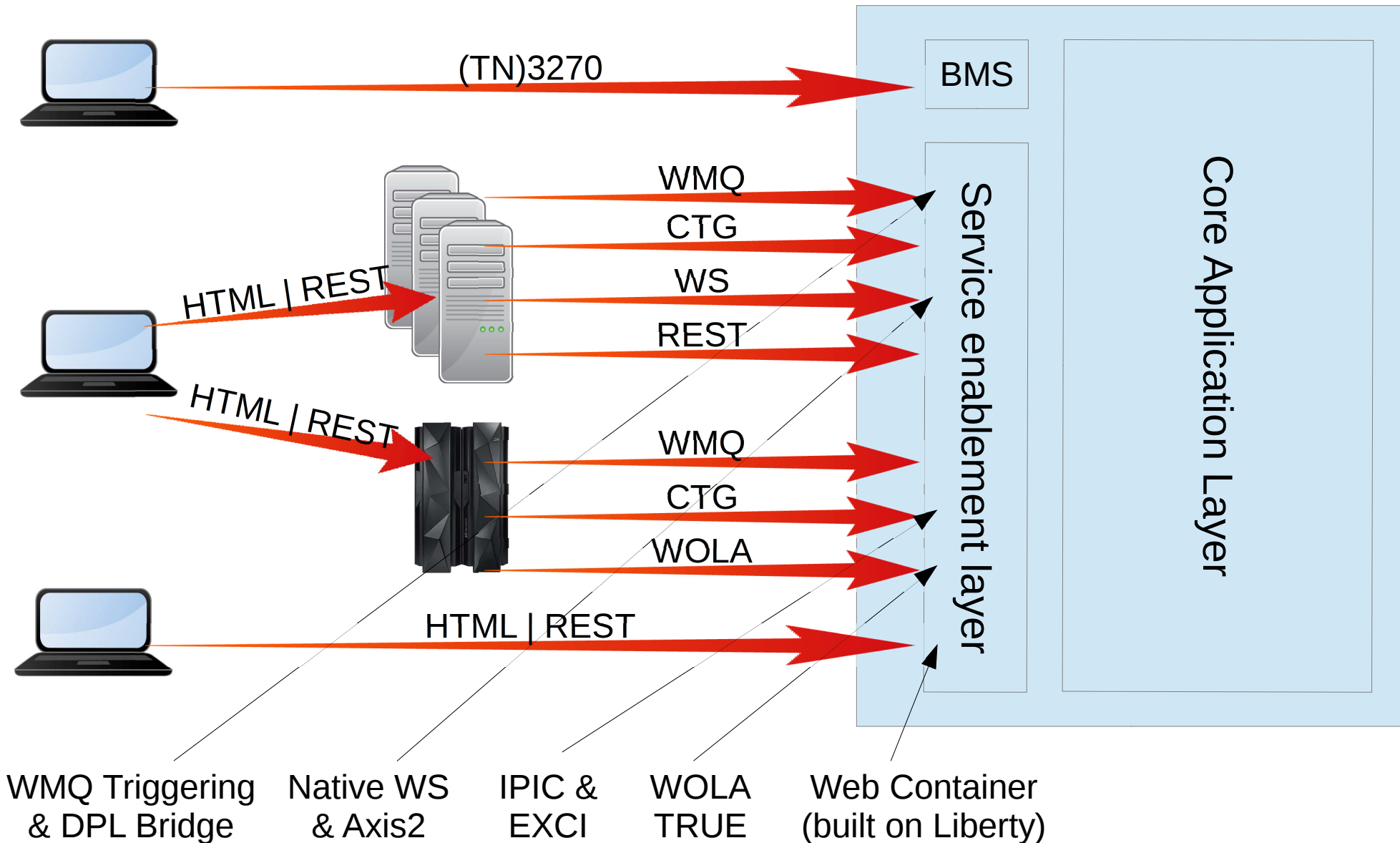
What assets in CICS can be leveraged/extended?



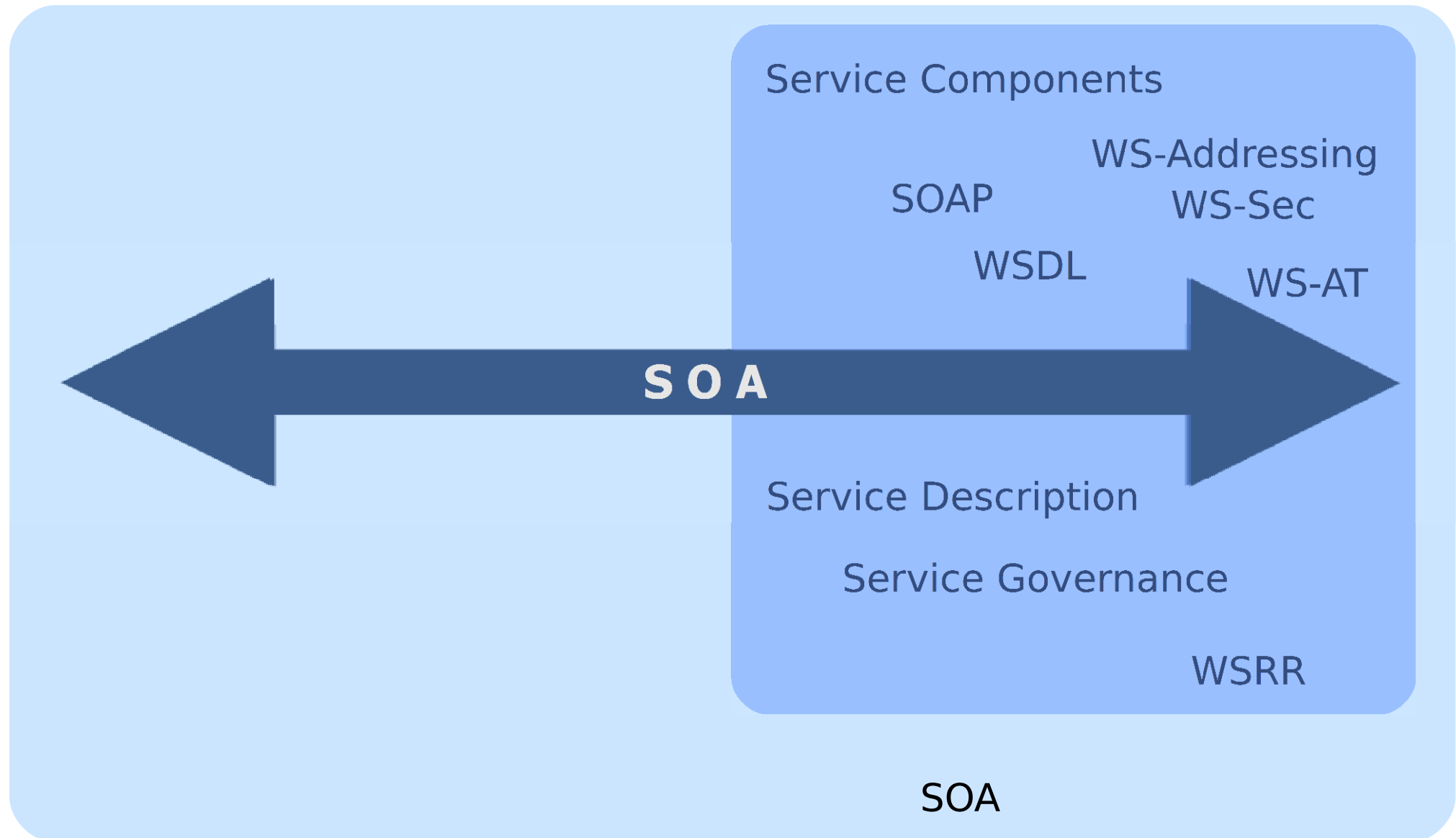
- Best practice in CICS application design is to separate key elements of the application
- Adapter (A) can be
 - Internal (e.g CICS XML-aware program)
 - External (e.g JavaBean using CICS Transaction Gateway classes)
 - Written or generated by tools
- COMMAREA or container based programs are supported

Channel		
Employee	Employee data	Container1
Branch	Branch data	Container2
Payslip	Payslip data	Container3

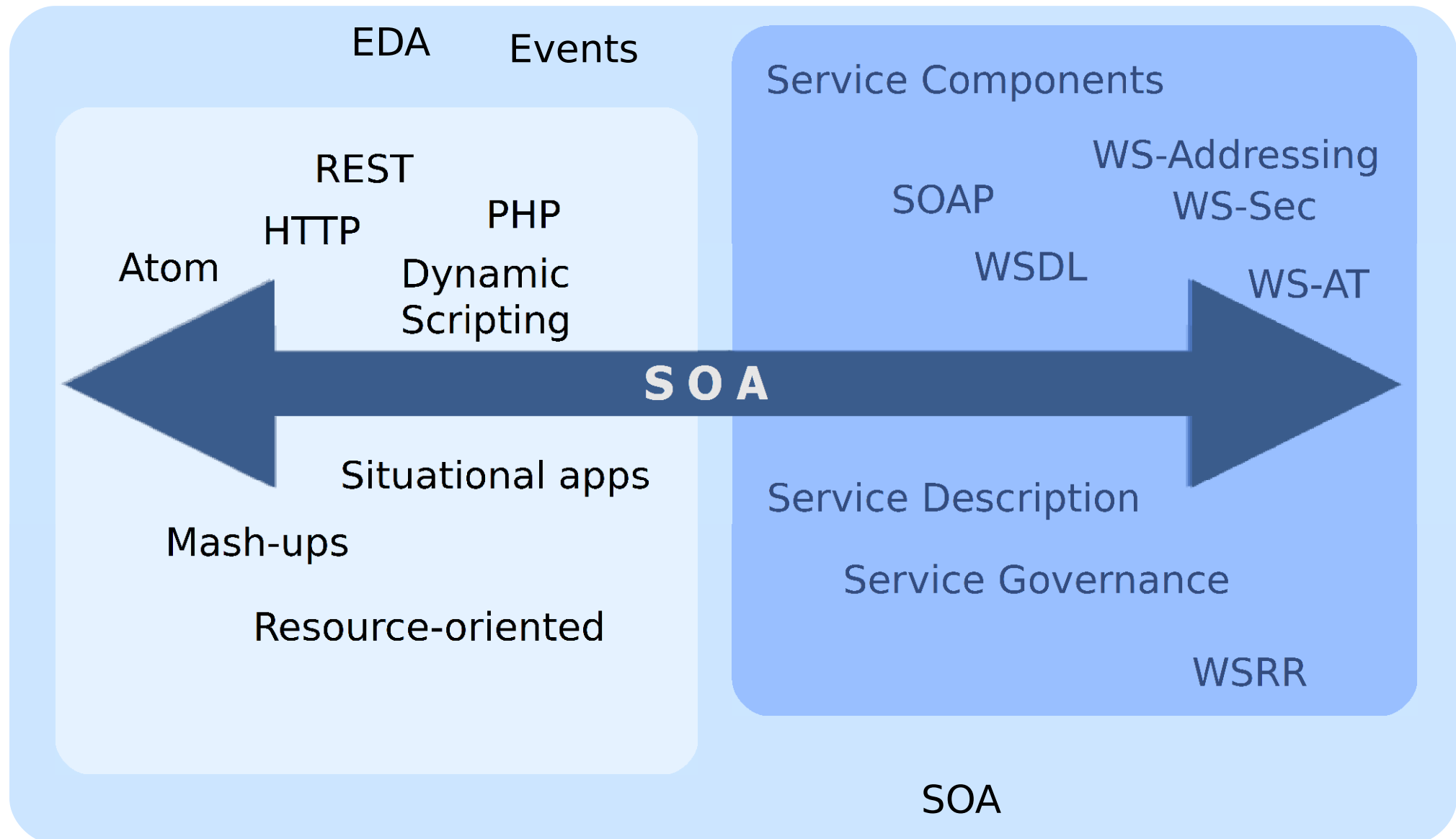
So what does that mean?... more choices!



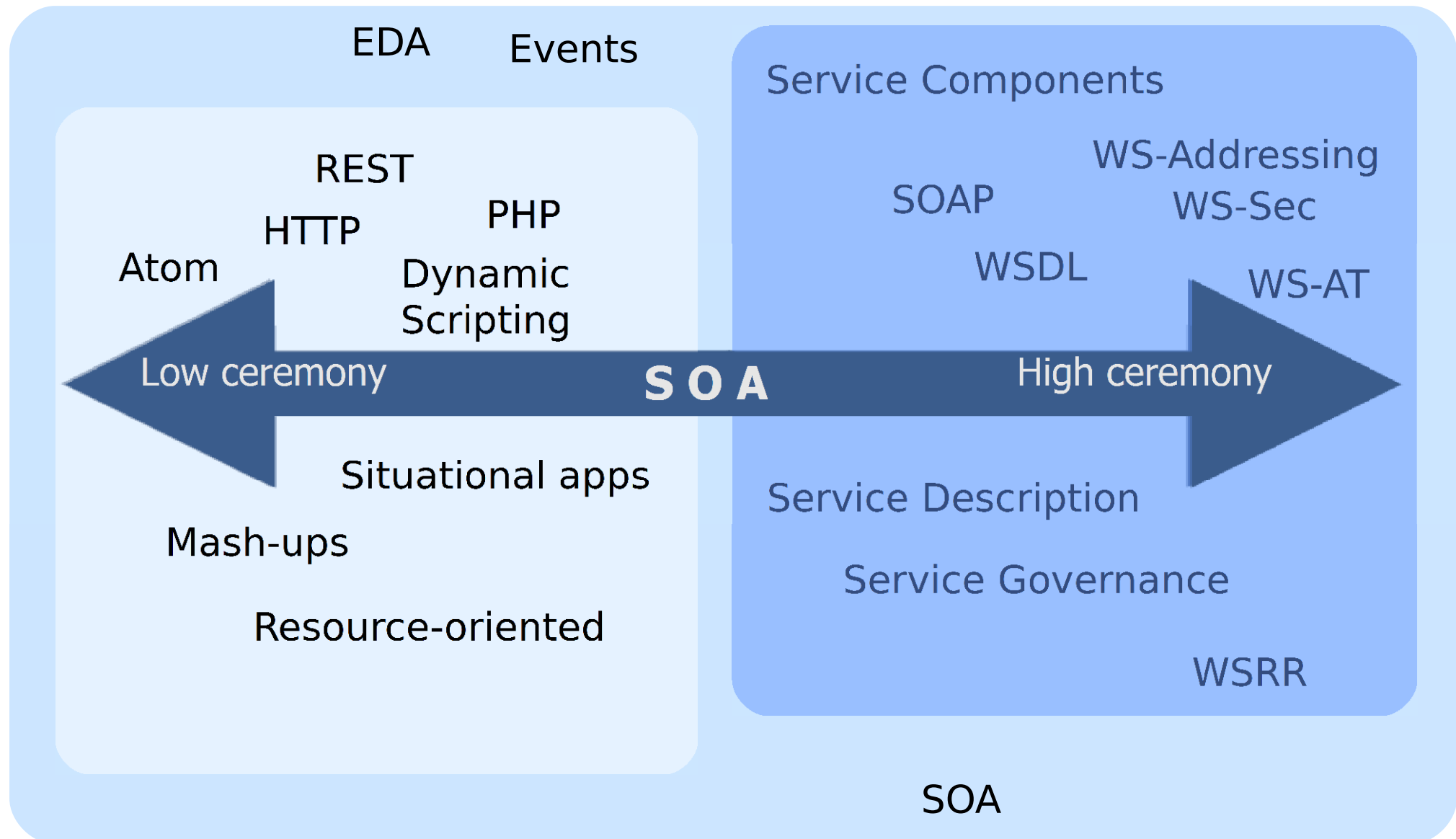
SOA and the Spectrum of Service Enablement



SOA and the Spectrum of Service Enablement



SOA and the Spectrum of Service Enablement



Transactionality – comparing the technologies

	CICS Web services	CICS TG for z/OS	WOLA	CICS Web support	WebSphere MQ	CICS sockets
Traditional CICS units of work	Supported	Supported	Supported	Supported	Supported	Supported
Extended Logical units of work	Not Supported	Supported when using JCA and ECI v2	Not Supported	Not Supported	Supported	Not Supported
Distributed units of work	Supported when using WS-AT	Supported when using JCA	Supported when using JCA from WAS z/OS on same LPAR	Not Supported	Not Supported	Not Supported
Optimizations for distributed units of work	Not Supported	Supported when using WebSphere Application Server	Supported	Not Supported	Not Supported	Not Supported
Asynch messaging transactional model	Supported when using WebSphere MQ	Not Supported	Not Supported	Not Supported	Supported	Not Supported

Security - comparing the technologies

	CICS Web services	CICS TG for z/OS	WOLA	CICS Web support	WebSphere MQ	CICS sockets
Basic authentication	Supported	Supported	Not supported	Supported	Supported	Supported
Identity assertion	Supported	Supported	Supported	Not Supported	Supported	Supported
z/OS Identity propagation	Supported when using DataPower and CICS TS V4.1	Supported when using JCA with CICS TG V8 and CICS TS V4.1	Not supported	Not Supported	Not Supported	Not Supported
TLS/SSL	Supported	Supported for JCA	Not supported	Supported	Supported	Supported with AT-TLS
Message security	Supported with WS.* standards	Not supported	Not supported	Not supported	Supported with WMQ AMS	Not Supported

CICS SOA - References

Redbook/Whitepaper Title	Publication N°	Last Update
CICS and SOA: Architecture and Integration Choices	SG24-5466-06	Mar 2012
Options for Integrating CICS applications in an SOA	WSW11339-USEN-00	Sept 2007
Implementing CICS Web Services	SG24-7657-00	Nov 2008
Application Development for CICS Web Services	SG24-7126-00	May 2006
Securing Access to CICS Within an SOA	SG24-5756-01	Dec 2006
Securing CICS Web Services	SG24-7658-00	Dec 2008
WebSphere for z/OS to CICS and IMS Connectivity Performance	REDP-3959-00	May 2006
CICS Web Services Performance	SG24-7687-00	2009
Deploying CICS Web services to preserve IT investments in the Banking Industry	WSW14002-USEN-00	Dec 2007
Integrating WebSphere Application Server and CICS using the CTG	WSW14013-USEN-00	March 2008
CICS Transaction Gateway for z/OS V6.1	SG24-7161-00	May 2006
Developing Connector Applications for CICS	SG24-7714-00	April 2009
Increase the value of CICS applications with WebSphere MQ	WSW14006-USEN-01	Feb 2008
WebSphere MQ for z/OS Highly Available System Design	SupportPac MD17	Jan 2006



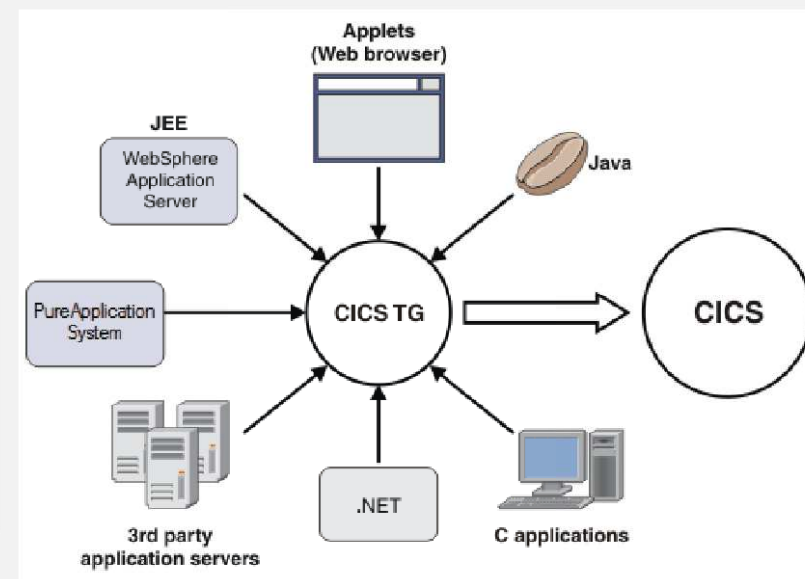
CICS Transaction Gateway V9.0 - Open integration and modernization

What's new in CICS Transaction Gateway V9.0...

- Java 7 support for client applications
- Increased vertical scaling on z/OS
- SSL connectivity for 3-tier topologies
- Connection-level time-out with IPIC
- 64-bit support for ECI V2 and ESI V2
- ECI V2 support for asynchronous calls.
- End-to-end transaction tracking
- Simplified DSS configuration
- Statistics recording with CICS TG for MP

CICS Transaction Gateway provides...

- Proven connectivity—distributed platforms integrate with any CICS server
- Skills match for today—bridges the skill gap
- Secure, scalable, and highly available connectivity



Agenda

Modern Interfaces – What is new in CICS Explorer

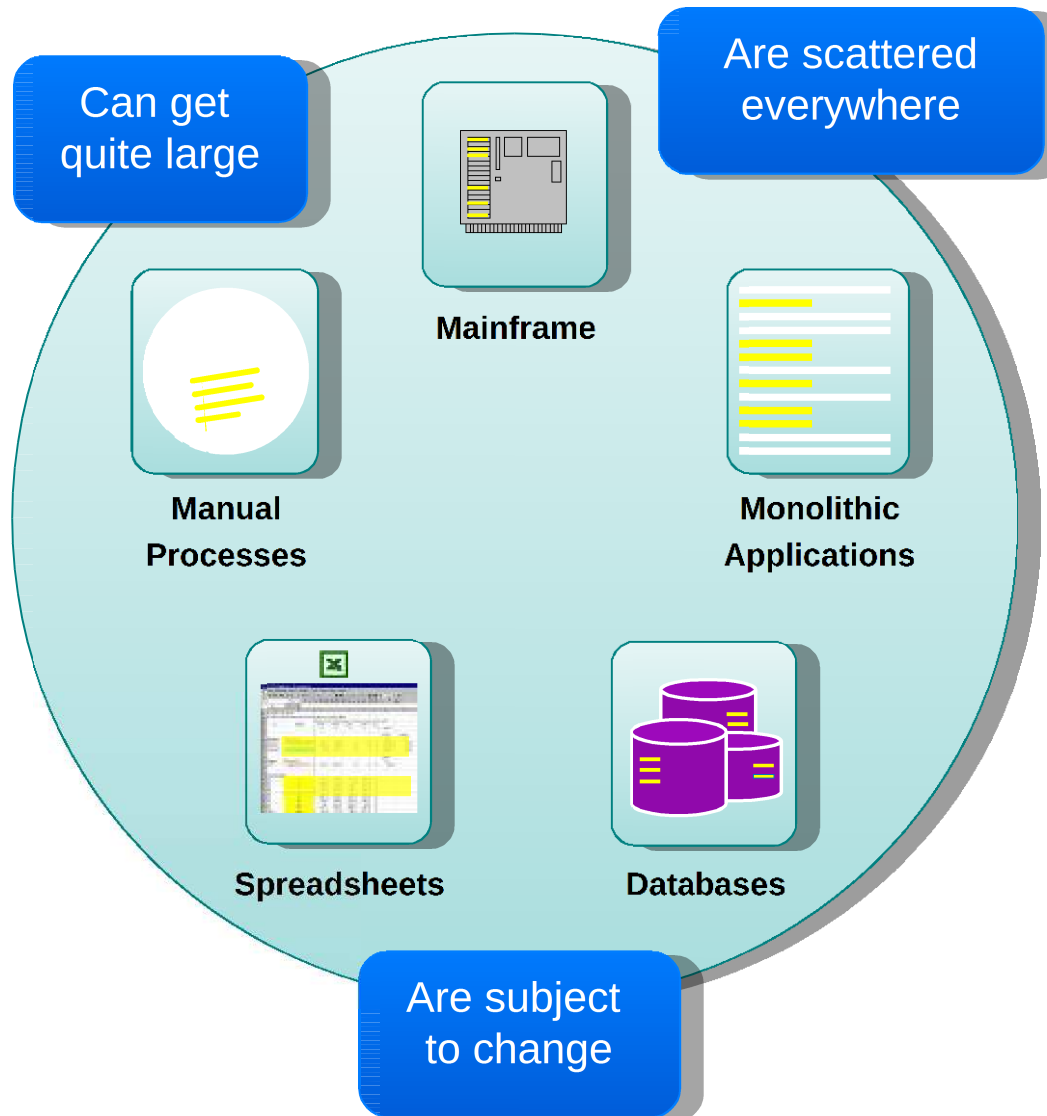
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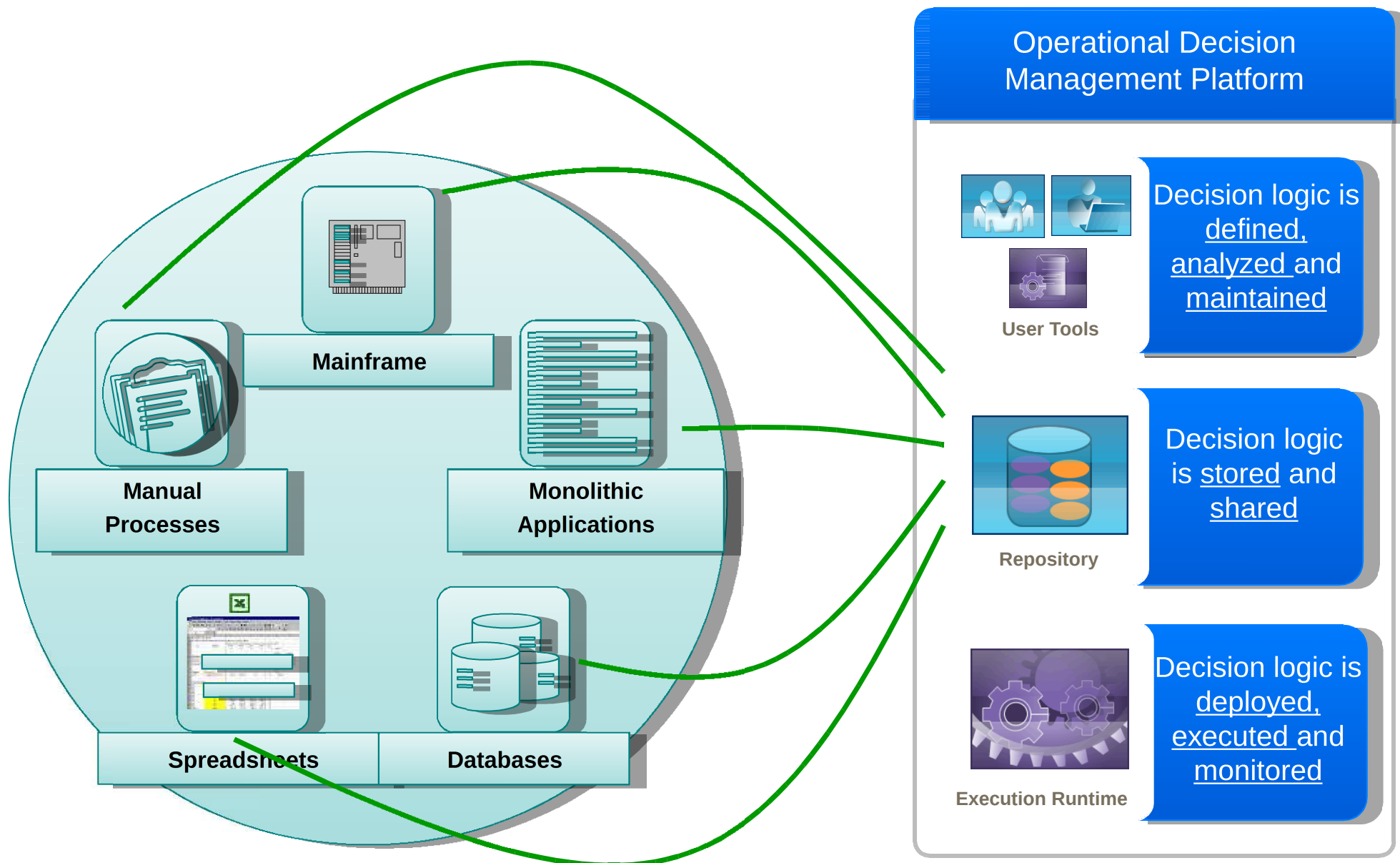
Operational decisions in organizations



Challenges for a Change Request

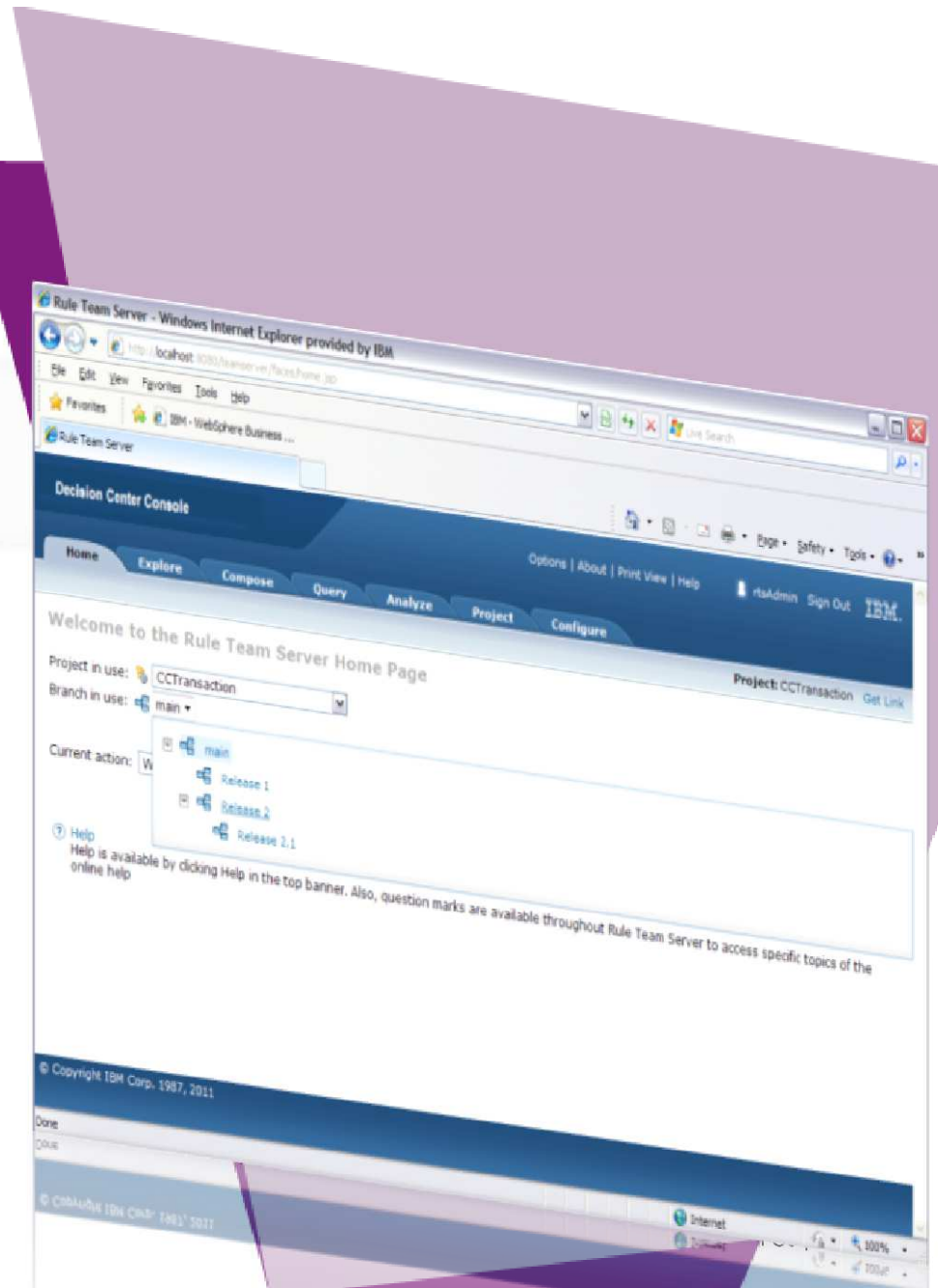
- Changes are costly, resource & time-intensive
 - **Hidden in code**
 - **Most changes have to be programmed – costly**
- Lack of consistency
 - **No central management**
 - **No reuse of decision logic**
- Gap between business analysts & IT administrators
 - **Knowledge fades over time**
- Lack of audit ability
- No easy way to test/simulate changes

Operational Decision Management Approach



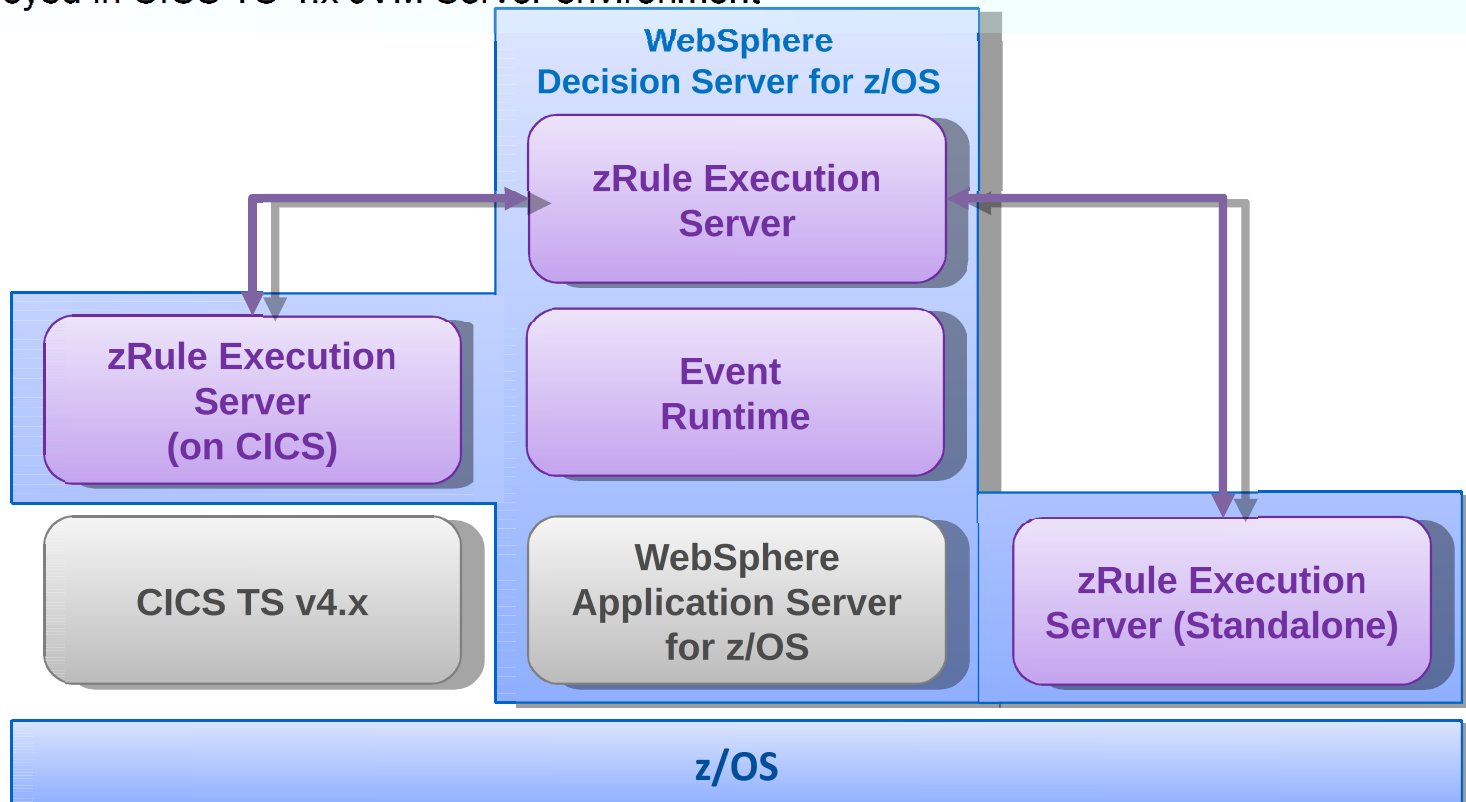
The Value to your CICS Applications

- *WebSphere Operational Decision Management enables organizations in every industry to make their business rules and business decisions clear, consistent and **expressed in business language** to be able to change when the business needs.*
- *Transformation or **modernization** of z/OS applications*
- *Ability to **react to change** (timely reaction to market and competitive changes)*
- *Overcome IT and Business mis-alignment – keep up and service **business requests***
- *Eliminate resource drain on application maintenance – **reuse of business decisions** across applications and platforms*



Operational Decision Management on System z

- Decisions can be invoked from existing CICS, IMS and batch applications
- Runtime support for COBOL data types
- Flexible runtime deployment to fit any System z environment:
 - Deployed on WebSphere Application Server for z/OS
 - Deployed standalone to z/OS
 - Deployed in CICS TS 4.x JVM Server environment



New programming API within a COBOL program

```

Line 33      Column 12      Insert   139 changes
-----+*A-1-B-----2---+---3---+---4---+---5---+---6---+---7---
IDENTIFICATION DIVISION.
PROGRAM-ID. HBRMINC.
...

WORKING-STORAGE SECTION.
...
* Parameter Data
COPY MINILOAN.
* Return Code definitions
COPY HBRCL.
* HBR Header structure
COPY HBRWS.
...

PROCEDURE DIVISION.
...
* Connect to zRES
call 'HBRCONN' using HBRA-CONN-AREA

IF HBRA-CONN-COMPLETION-CODE NOT EQUAL HBR-CC-OK THEN
    perform onFailedCall
END-IF

* Initialize call parameters
MOVE ALL SPACES TO Borrower Loan
MOVE ALL LOW-VALUES TO HBRA-RA-PARMETERS
MOVE "/zRulesMiniLoanDemoRuleApp/zRulesMiniLoanDemo" TO
        HBRA-CONN-RULEAPP-NAME

move LENGTH OF Borrower to HBRA-RA-DATA-LENGTH(1)
move "borrower" to HBRA-RA-PARAMETER-NAME(1)
set HBRA-RA-DATA-ADDRESS(1) to address of Borrower

move LENGTH OF Loan to HBRA-RA-DATA-LENGTH(2)
multiply length of messages by 10 giving WS-maxMessageLen
add WS-maxMessageLen to HBRA-RA-DATA-LENGTH(2)
move "loan" to HBRA-RA-PARAMETER-NAME(2)
set HBRA-RA-DATA-ADDRESS(2) to address of Loan

move 'F' to approved

```

```

Line 81      Column 12      Insert      144 changes
-----+*A-1-B-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----
* Read scenario data
  MOVE ALL LOW-VALUES TO WS-IN
  UNSTRING SCENARIO-DATA DELIMITED BY ','
    INTO
      WS-IN-data(1) WS-IN-data(2) WS-IN-data(3)
      WS-IN-data(4) WS-IN-data(5) WS-IN-data(6)
* Populate the borrower from scenario data
  move WS-IN-data(1) to name
  Compute creditscore      = Function numval(WS-IN-data(2))
  Compute yearlyIncome      = Function numval(WS-IN-data(3))
* Populate the loan from scenario data
  Compute amount           = Function numval(WS-IN-data(4))
  Compute yearlyRepayment  = Function numval(WS-IN-data(5))
  Compute yearlyInterestRate = Function numval(WS-IN-data(6))

* Invoke the rule
  call 'HBRRULE' using HBRA-CONN-AREA

EXEC CICS SUSPEND END-EXEC

* Display rule responses, or error code, as appropriate
  if HBRA-CONN-COMPLETION-CODE = HBR-CC-OK then
    display 'HBR CALL Successful'

* Disconnect
  call 'HBRDISC' using HBRA-CONN-AREA

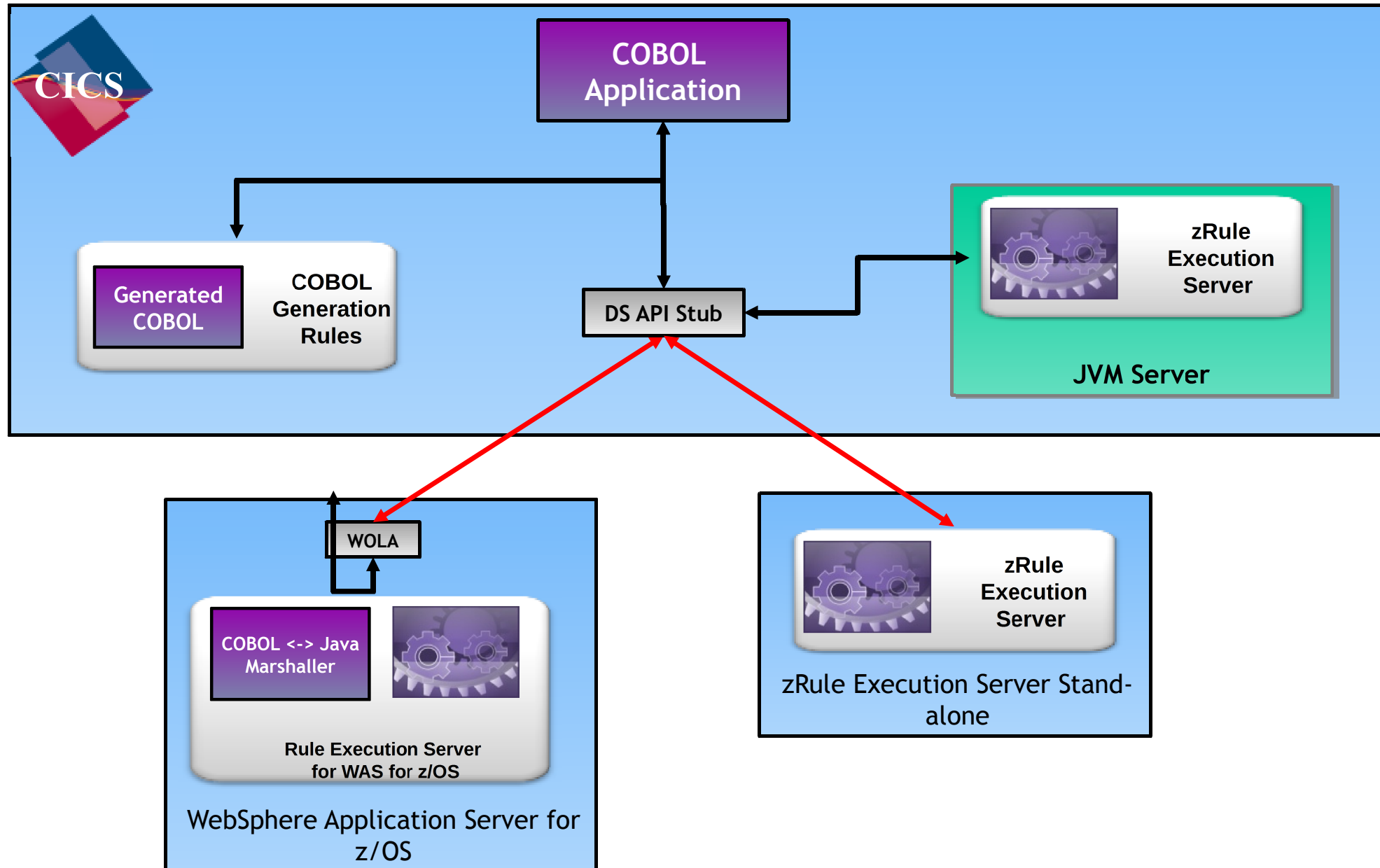
  IF HBRA-CONN-COMPLETION-CODE NOT EQUAL HBR-CC-OK THEN
    perform onFailedCall
  END-IF

  perform prtDemoText

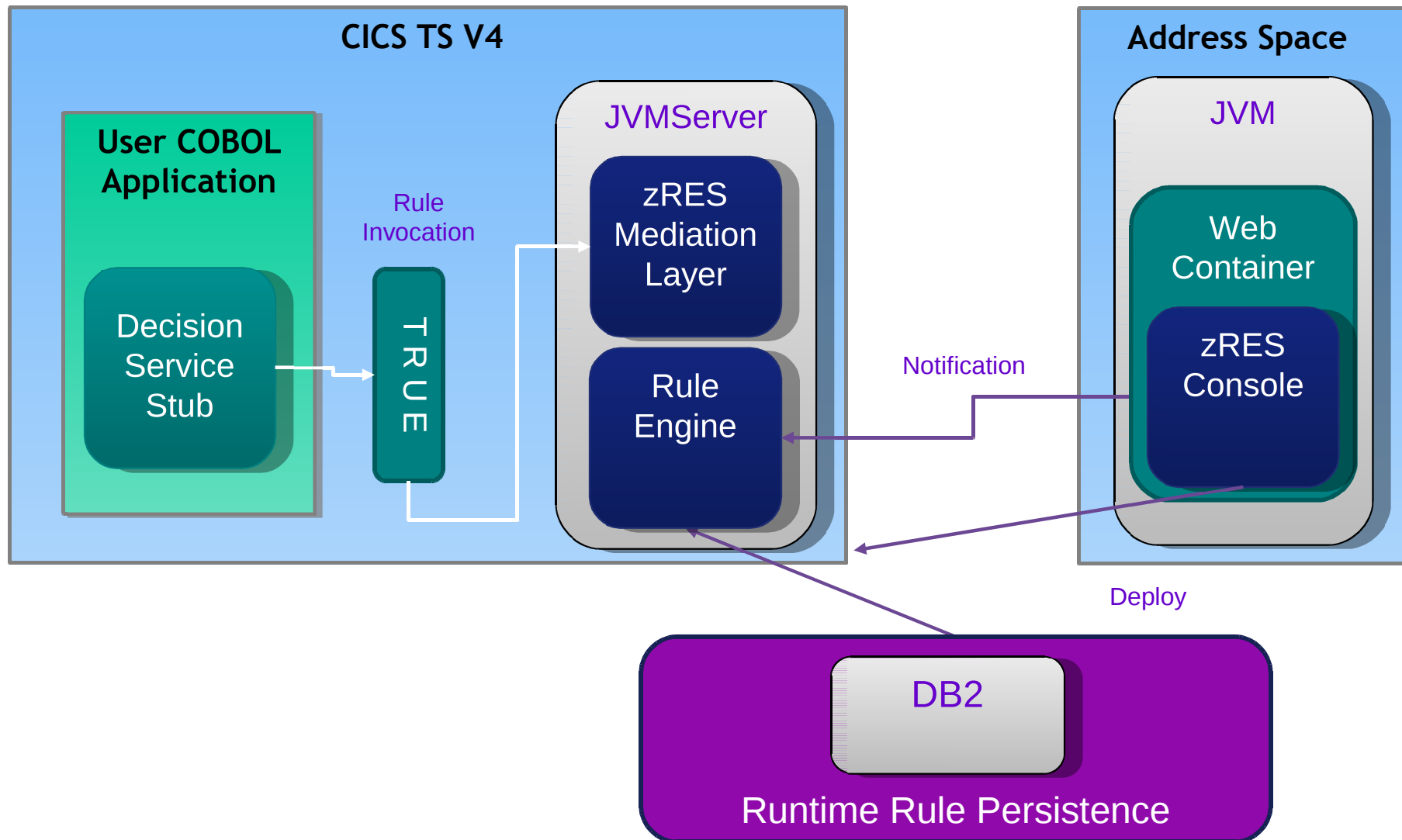
EXEC CICS RETURN END-EXEC
GOBACK.

```

Rule invocation options for CICS

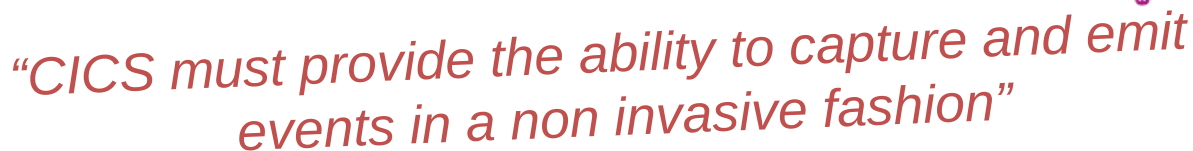


zRule Execution Server for z/OS – CICS TS V4



“CICS runs Core Business Logic”

"CICS is where business events happen"



Where can CICS events be captured?

Event-enabled API call

Non-invasive

Program initialisation

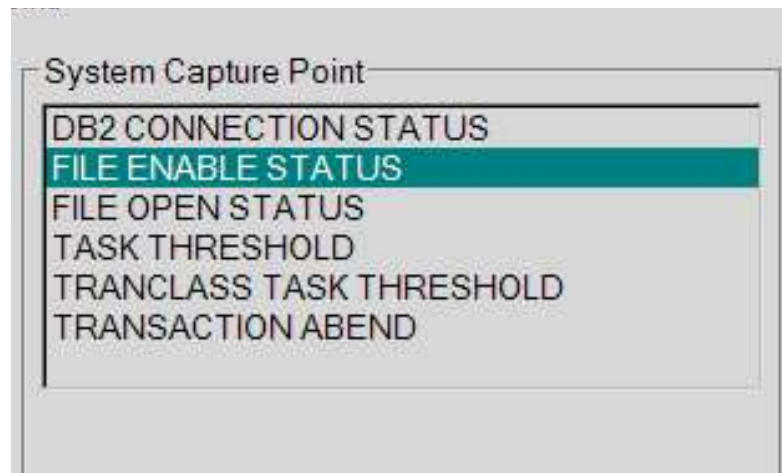
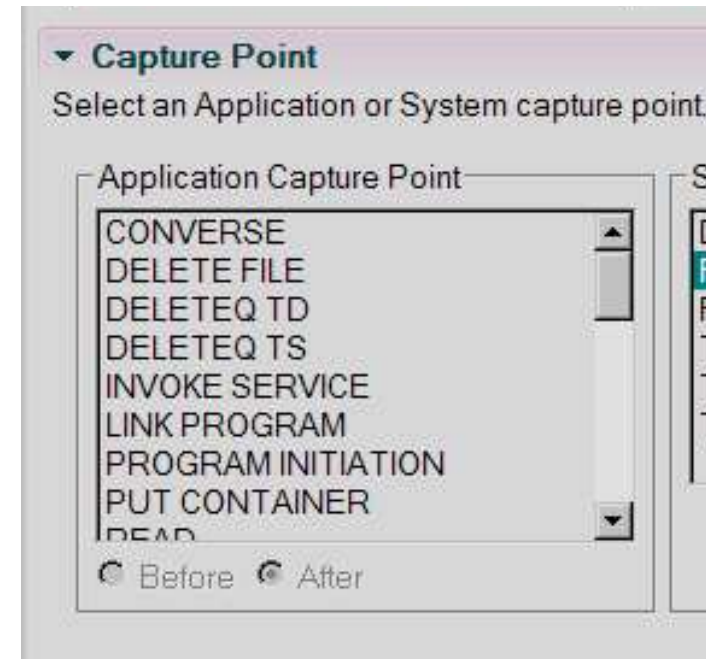
Non-invasive

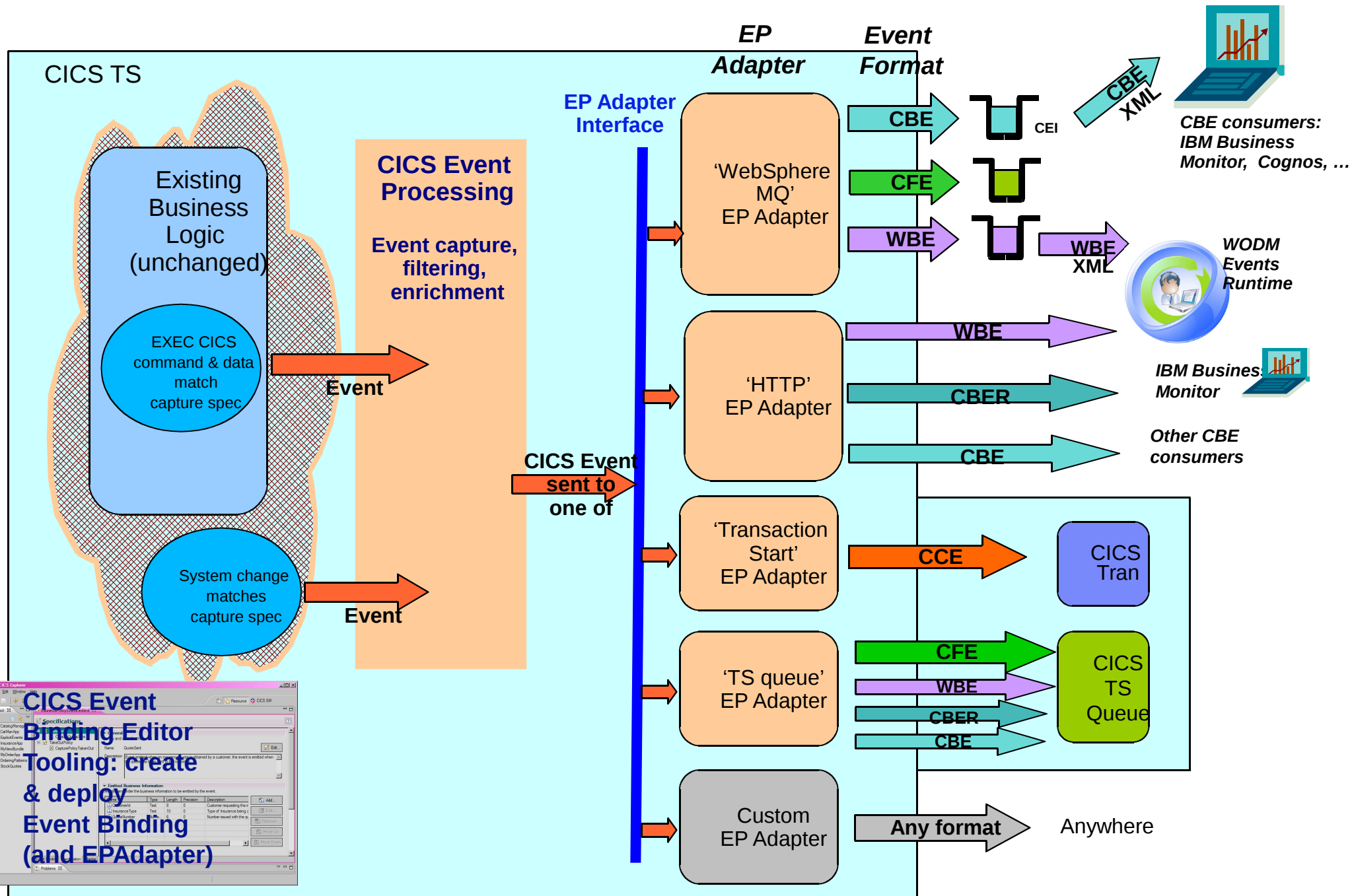
Explicit EXEC CICS SIGNAL EVENT call

Simple program change required

System event points

Non-invasive





Agenda

Modern Interfaces – What is new in CICS Explorer

CICS, SOA and other integration problems

Programming Languages, Tools and Development environments

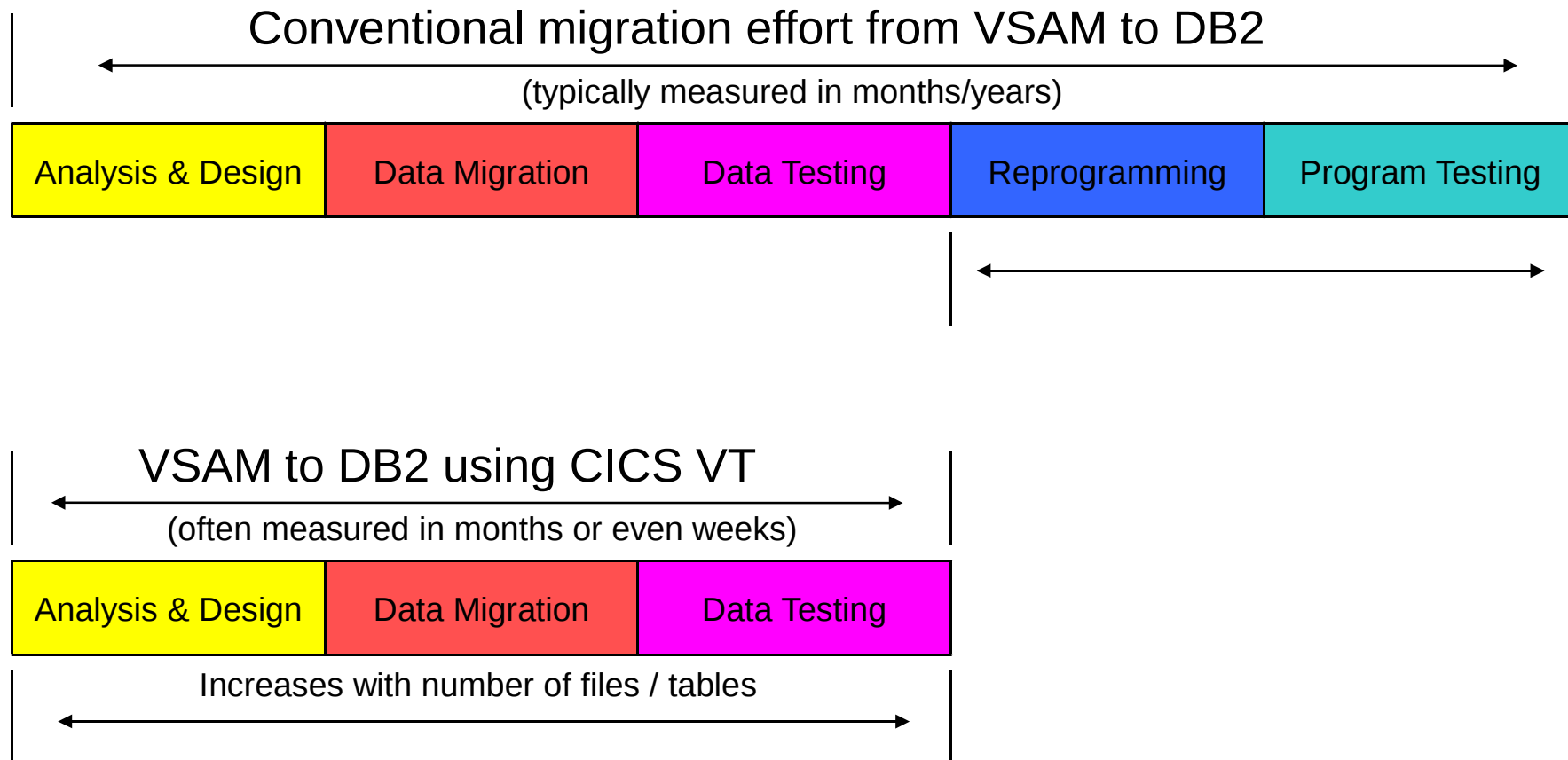
All about data – VSAM, IMS, DB2

Modernize, Extend and Debug CICS Applications

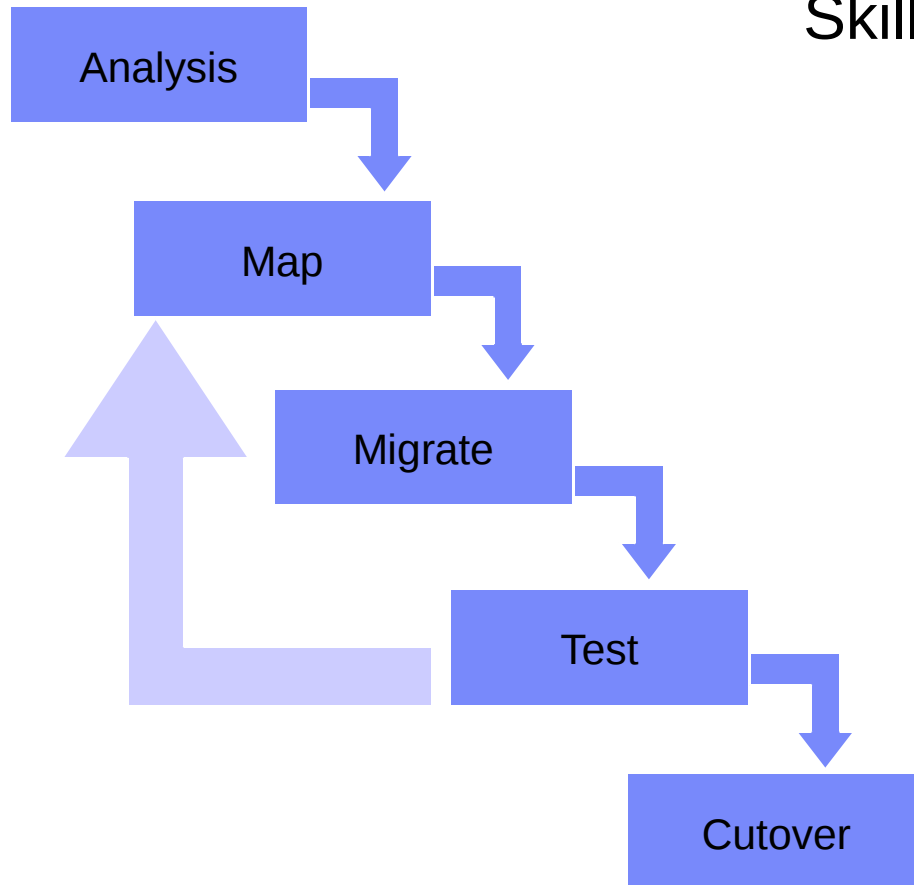
DB2

- Temporal Tables
- DB2 Thread re-attach
- WebSphere MQ
 - Group attach
 - Group UR

Data Migration – CICS VT vs. Conventional Method



Deployment Summary

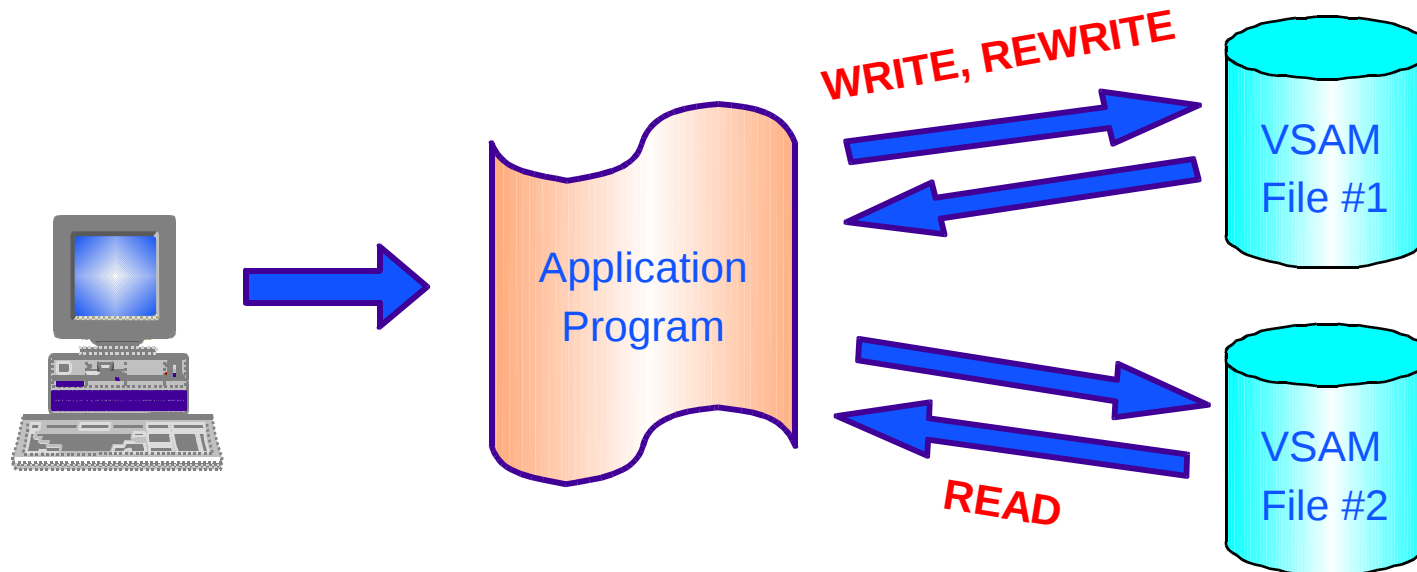


Skills Required

- Application Programmer and DBA for migration and testing
- Users for Testing
- CICS Support for defining modules
- Assembler or HLL skills if CICS VT exits required

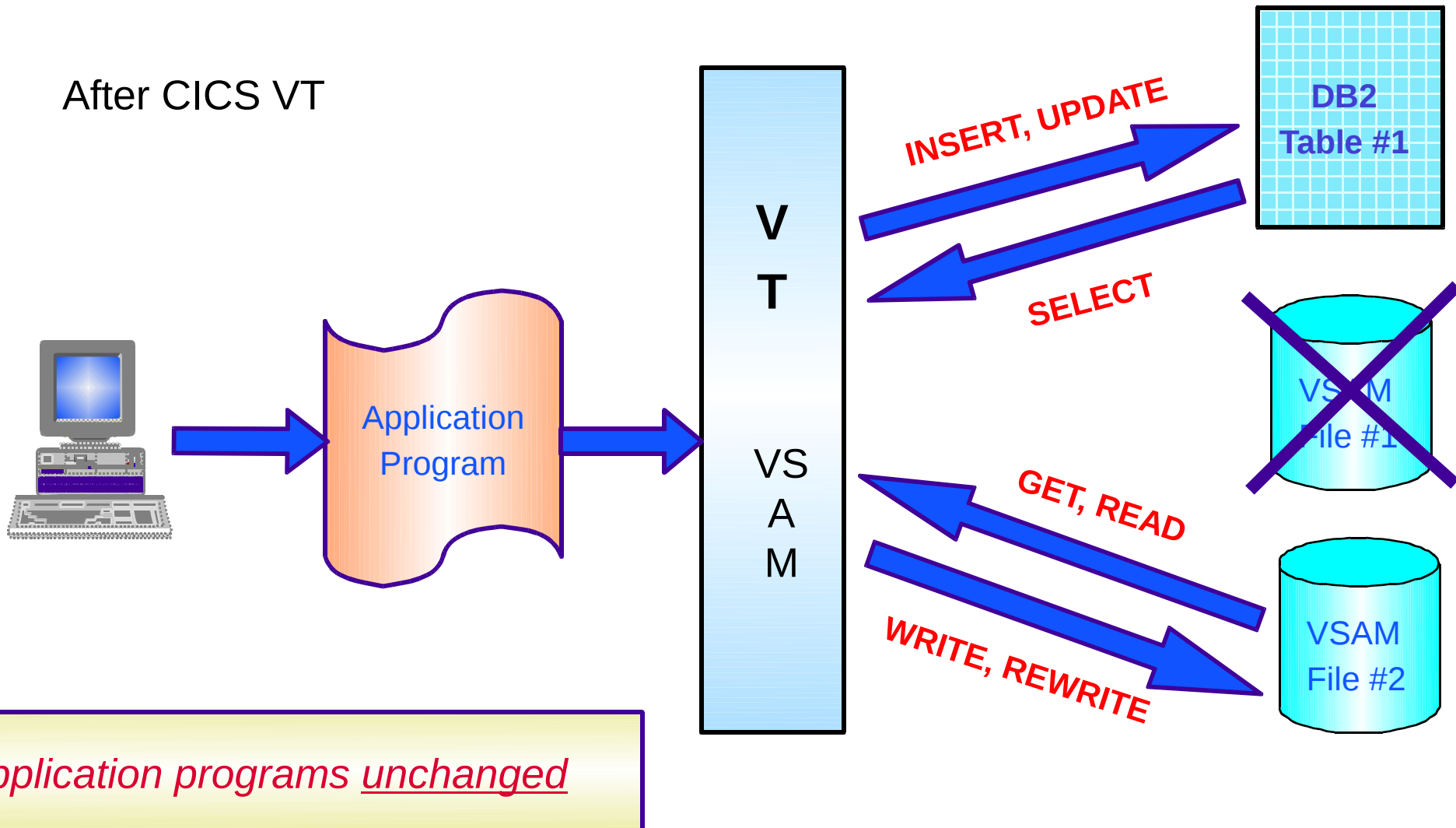
WHAT EXACTLY IS CICS VT?

Before CICS VT



WHAT EXACTLY IS CICS VT?

After CICS VT



CICS VT COMPONENTS

- Mapping component
Establishes relationship between VSAM record layout and DB2 row
- Data migration component
Utilities to migrate data to DB2 and re-engineer if required
- Testing component
Enables application programs to be tested following data migration
- Run time component
Intercepts application calls to VSAM data sets migrated to DB2

CICS und MQ – der letzte Stand

- **PTFs für CICS TS 3.2 & 4.1, um die neuen APIs von WMQ V7 zu nutzen**
 - Pub/Sub, Message Properties und Async. Consumer
- **CICS TS 4.1 bietet MQ Group Attach für WMQ V6 +**
 - Kommt nur zum Tragen, wenn >1 QMgr pro LPAR existiert
 - CICS wählt den QMgr, an den das Connect geht aus;
 - Resyncmember(yes) Einstellung erzwingt Connect zum vorher verbundenen QMgr, falls Indoubt UoWs existieren
- **CICS 4.2 bietet “extended MQ Group Attach” in Verbindung mit WMQ V7.1**
 - Implementierung des GroupUR Features – für MQ Client und WAS mit V7.0.1 eingeführt – für reine “shared UoWs” ist damit Resyncmember(YES) nicht mehr nötig
 - Auch hierbei ist (natürlich) pro LPAR mehr als 1 QMgr erforderlich
 - WMQ wählt den Queue Manager aus
- **CICS V5.1: Channel/Container Support für CICS MQ DPL Bridge**
 - Überwindung des 32 kB (Commarea) Limits

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CICS Trace Table Overview

- Footprints of system activity in time sequence
- Abbreviated (ABBREV)
 - One line per entry
- Short
 - Contains pertinent information from both the abbreviated and the full trace entries
- Extended (FULL)
 - up to 4K of data per entry
- Abbreviated, short and full trace entries are tied together by the trace entry number

CICS Trace Table Overview (cont)

- Trace Destinations are as follows...
- Internal
 - A wrap-around table in main CICS storage (above the 16M line).
 - In CICS TS 4.2 the table can be above the bar
 - If enabled for a component, will show in both system and transaction dumps
 - Always allocated
- Auxiliary
 - One or two CICS-owned BSAM datasets
 - May be autoswitched
 - Can be set so it does not wrap (to prevent data loss)
- GTF
 - Written to MVS-defined destination, main storage or a dataset
 - Entries wrap
 - Can trace from multiple regions

Analysing CICS Trace Entries

- CICS auxiliary trace may be formatted offline by the batch trace utility program:
 - for CICS TS 3.1 this is DFHTU640
 - for CICS TS 3.2 this is DFHTU650
 - for CICS TS 4.1 this is DFHTU660
 - for CICS TS 4.2 this is DFHTU670

- CICS system dumps may be formatted offline by the IPCS verbexit provided with CICS:
 - for CICS TS 3.1 this is DFHPD640
 - for CICS TS 3.2 this is DFHPD650
 - for CICS TS 4.1 this is DFHPD660
 - for CICS TS 4.2 this is DFHPD670

Interpreting CICS Trace Entries

- CICS trace entries are documented in the following CICS manuals...
 - For CICS/ESA R4.1, the Diagnosis Handbook contained trace information
 - For CICS Transaction Server 1.1 and 1.2, the User's Handbook contained trace information
 - From CICS Transaction Server 1.3 onwards, there is a new manual - "CICS Trace Entries"
- Each new release generates more and more trace data...
 - e.g. in CICS TS V3, Channels and Containers, Web Services support, etc, all generate new trace entries ...

New style entries – abbreviated and short formats

-- ABBREVIATED --

Task No.	T C B	Trace Point ID	Mod.	Abbreviated Interpretation String	Trace Entry No.
00050	QR	SM 0301	SMGF	ENTRY GETMAIN 1448AEE4 , 000000A8,NO,TSQAB	=000522=
00050	QR	SM 0302	SMGF	EXIT GETMAIN/OK 14CC0030	=000523=

-- SHORT --

00050	QR	SM 0301	SMGF	ENTRY GETMAIN SUBPOOL_TOKEN(1448AEE4 , 000000A8) SUSPEND(NO) REMARK(TSQAB)	
				RET-9476D808 16:52:17.6915040014 00.0000061875	=000522=
00050	QR	SM 0302	SMGF	EXIT GETMAIN/OK ADDRESS(14CC0030)	
				RET-9476D808 16:52:17.6915145170 00.0000105156	=000523=

New style entries – extended format

-- EXTENDED --

SM 0301 SMGF ENTRY - FUNCTION(GETMAIN) SUBPOOL_TOKEN(1448AEE4 , 000000A8) SUSPEND(NO) REMARK(TSQAB)

```
TASK-00050 KE_NUM-002E TCB-QR /008ABA68 RET-9476D808 TIME-16:52:17.6915040014 INTERVAL-00.0000061875 =000522=
1-0000 00480000 0000000E 00000000 00000000 BC500000 00000000 01C901B0 1448AEE4 *.....&.....I.....U*
0020 000000A8 0C01FDB2 14C9400C 00000080 14C89400 0200E3E2 D8C1C240 40400000 *...y.....I .....Hm...TSQAB ..*
0040 14C94588 94230C68 *..I.hm... *
2-0000 E3E2D8C1 C2404040 *TSQAB *
```

SM 0302 SMGF EXIT - FUNCTION(GETMAIN) RESPONSE(OK) ADDRESS(14CC0030)

```
TASK-00050 KE_NUM-002E TCB-QR /008ABA68 RET-9476D808 TIME-16:52:17.6915145170 INTERVAL-00.0000105156 =000523=
1-0000 00480000 0000000E 00000000 00000000 BC500000 00000000 01C901B0 1448AEE4 *.....&.....I.....U*
0020 000000A8 14CC0030 14C9400C 00000230 14C89400 0200E3E2 D8C1C240 40400000 *...y.....I .....Hm...TSQAB ..*
0040 14C94588 94230C68 *..I.hm... *
2-0000 E3E2D8C1 C2404040 *TSQAB *
```

Summary

- Many problems are easily resolved by knowing how to use CICS trace
- We've examined trace debugging capability by looking at various issues:
 - Abend
 - Loop
 - Wait
 - Storage related
 - OTE and Web Tips
- Essential Manuals:
 - CICS Trace Entries (from CICS TS 1.3 onwards)
 - CICS Problem Determination Guide
- Tracing is the key to debugging!
- Please complete the evaluation forms, and good luck!

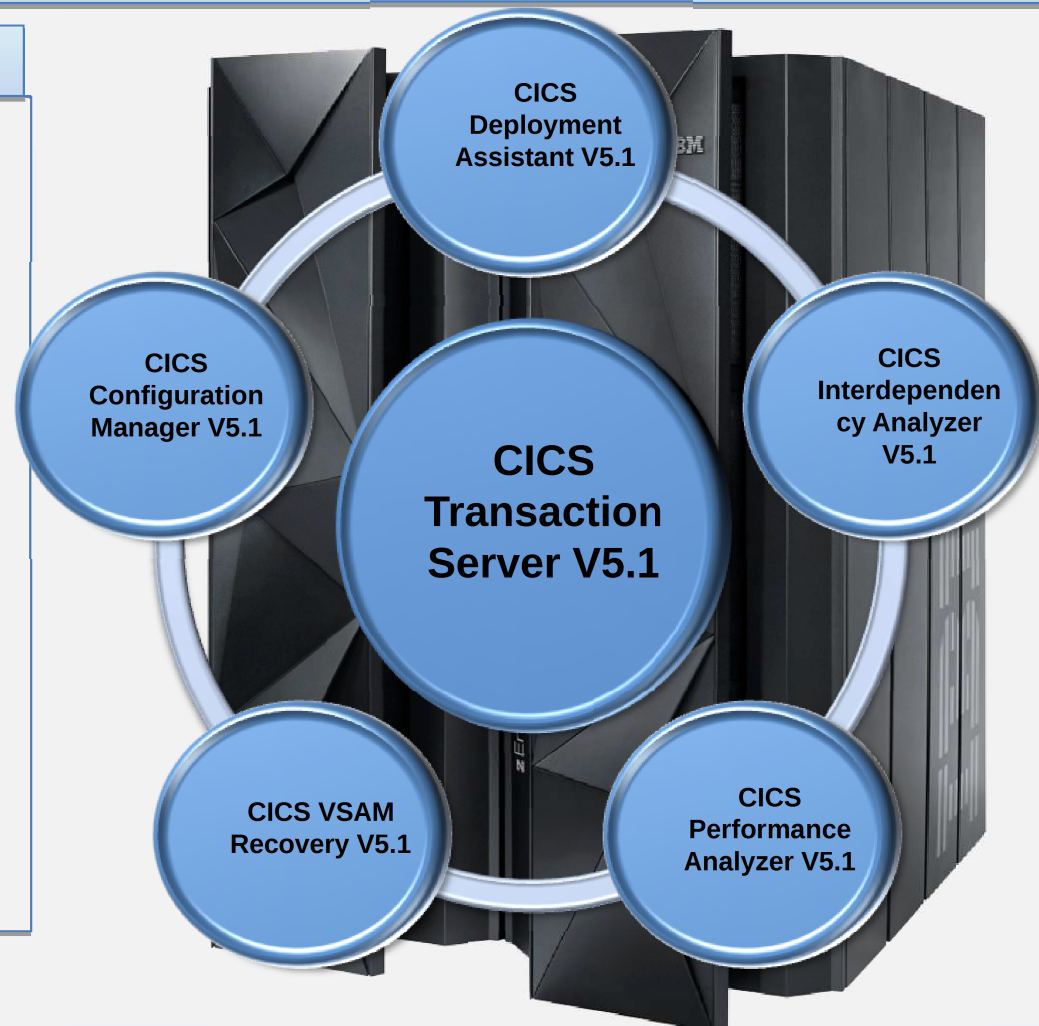
CICS Tools enhance Operation Efficiency & Service Agility



Five core foundational CICS Tools – updated to exploit CICS TS V5.1

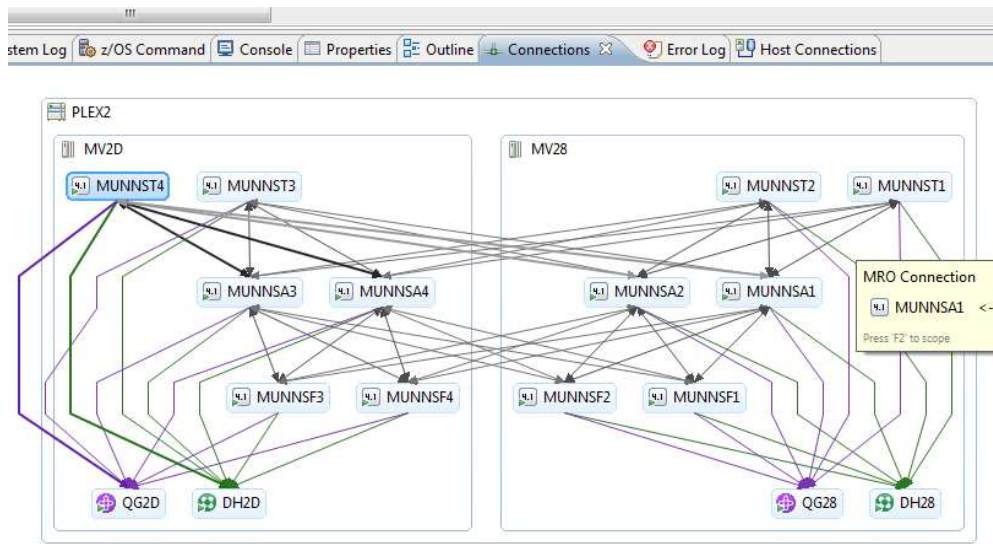
Fully integrated with CICS TS & CICS Explorer

- **Discovery and visualization aids insight into application and platform dependencies**
- **Automation speeds service delivery and ensures standardization and governance**
- **Modern, integrated user interfaces lower skills barrier**
- **Day-1 exploitation of CICS TS V5.1 new capabilities reduces time to value**
- **Five core tools support and extend the CICS runtime**



CICS Deployment Assistant for z/OS V5.1

- Intuitive CICS Explorer plug-in
- Visualize and manage your CICS
- Discover regions and sus-systems
- Validate CICS topology and options
- Automation creates new CICSplex
- Plexify and clone CICS regions
- Start and stop a CICS region
- Cheat sheets for CICS version upgrades



What's new?

Support for CICS® TS V5.1

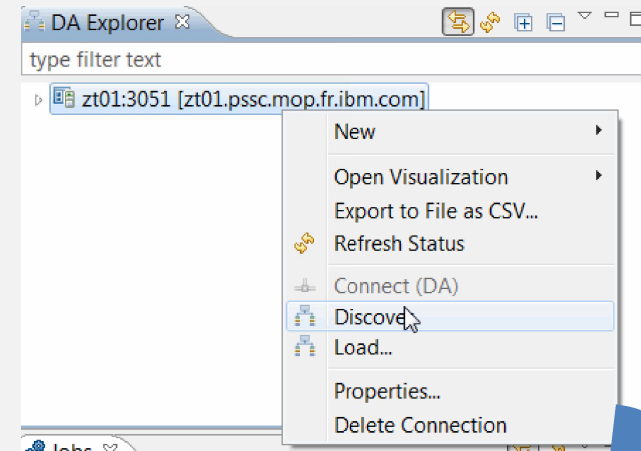
- Enriched discovery of over 30 entities
- Improved visualization with tagging and filtering
- Connections view with scoping
- Export model for external reporting
- CICS TS V5.1 upgrade cheat sheet
- Tagging and filtering of model elements
- New navigators
- Clone JCL improvements
- IPv6 support
- Virtual IP addressing support
- Serviceability enhancements

Plexify your unmanaged regions with CICS DA

Benefits

- 3 steps to a managed region
- Manage your region from the CICS SM Explorer perspective

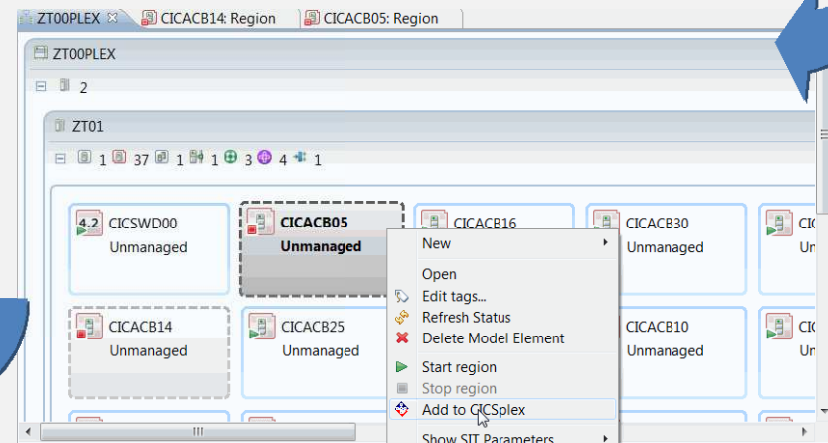
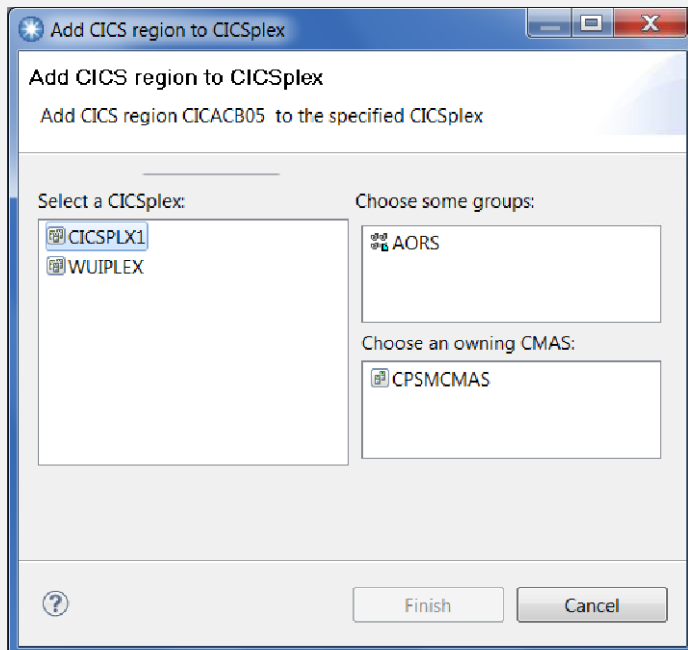
Discover



Ok then

Visualize
Unmanaged regions

Manage



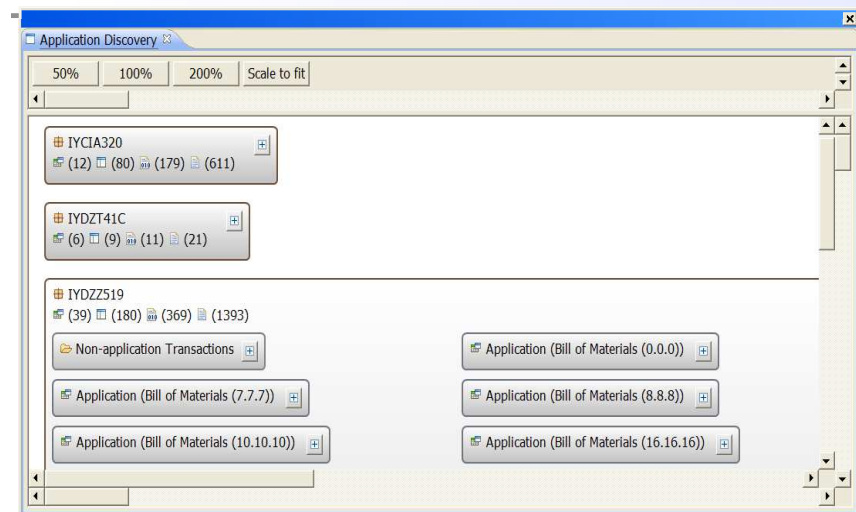
CICS Interdependency Analyzer for z/OS V5.1

- Captures all CICS application relationships
- Intuitive CICS Explorer plug-in
- Centralized data access using DB2® database
- See *uses* and *where used* relationships
- Powerful comparison feature
- Command Flow for advanced program analysis
- Business application analysis
- Identify threadsafe / non-threadsafe programs
- Isolate and remove affinities
- Speed CICSplex® SM workload management
- Highlight CICS web service candidates

What's new?

Support for CICS TS V4.2

- Improved CICS Explorer views
- Plug-in control for data collection
- Command Flow self-service
- CICS Business Events support
- Enhanced business application analysis
- CICS user exit detection and mapping
- Data life-cycle management

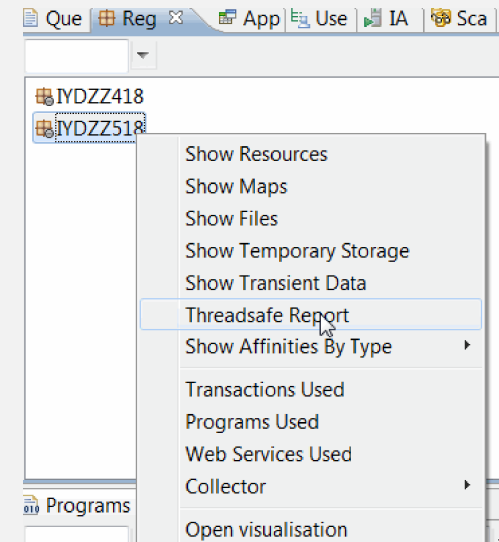


Drive a threadsafe report from the CICS IA plug-in

Benefits

- Understand threadsafe issues by program
- Run the report against the latest level of CICS

Run threadsafe report by region



View Summary

Save as HTML report

Comma...	Function	Type	Object	Offset	Use cou...	Threadsafe	Inhibitor
MQ	CLOSE	QUEUE	CSQ4SAMP.MAILMGR.JAM...	000063...	2	Y	
CICS	IGNORE	CONDITION		000049...	2	Y	N
MQ	INQUIRE	QUEUE	CSQ4SAMP.MAILMGR.JAM...	000065...	7	Y	
CICS	LINK	PROGRAM	TST4CVD2	00005A...	2	I	N
CICS	LINK	PROGRAM	TST4CVD4	00005B...	1	I	N
MQ	OPEN	QUEUE	CSQ4SAMP.MAILMGR.JAM...	000062...	2	Y	
CICS	RECEIVE	MAP	CSQ4VD0	00004E...	2	N	N
CICS	RECEIVE	MAP	CSQ4VD1	00005C...	5	N	N
CICS	RECEIVE	MAPSET	CSQ4VDM	00004E...	2	N	N
CICS	RECEIVE	MAPSET	CSQ4VDM	00005C...	5	N	N
CICS	SEND	MAP	CSQ4VD0	00004E...	2	N	N
CICS	SEND	MAP	CSQ4VD1	00005B...	5	N	N
CICS	SEND	MAPSET	CSQ4VDM	00004E...	2	N	N
CICS	SEND	MAPSET	CSQ4VDM	00005B...	5	N	N
CICS	SEND	TEXT	SEND TEXT	00004D...	2	N	N

View detail by program

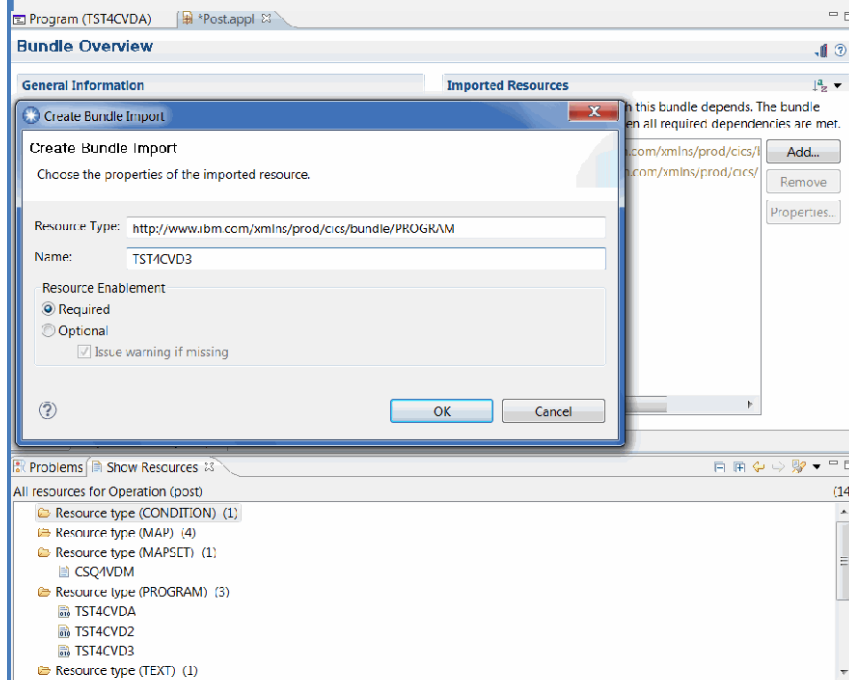
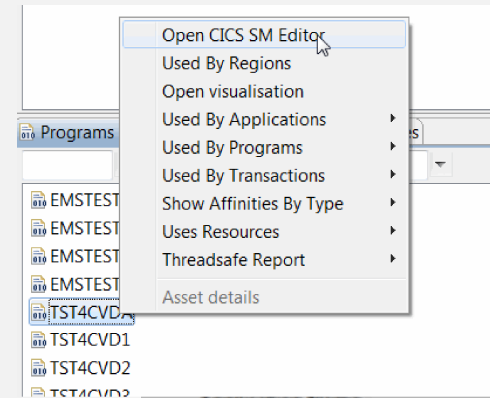
MAILAPPLTEST						
YDZZ518 (CICS TS 5.1)						
TST4CVD2	CICSIAI	QUASIRENT	USER	INACTIVE	0680	
Total CICS Calls 12 Threadsafe 1 Non-Threadsafe 9						
Indeterminate Threadsafe 2 Total DB2 C... 0 Total MQ Calls 6						
Total IMS Calls 0 Dynamic Cal... 0 Threadsafe Inhi... 0						
TST4CVD1	CICSIAI	QUASIRENT	USER	INACTIVE	0680	
Total CICS Calls 12 Threadsafe 1 Non-Threadsafe 9						
Indeterminate Threadsafe 2 Total DB2 C... 0 Total MQ Calls 6						
Total IMS Calls 0 Dynamic Cal... 0 Threadsafe Inhi... 0						
TST4CVD2	CICSIAI	QUASIRENT	USER	INACTIVE	0680	
TST4CVD3	CICSIAI	QUASIRENT	USER	INACTIVE	0680	
TST4CVD4	CICSIAI	QUASIRENT	USER	INACTIVE	0680	

Using CICS IA data to define Applications in CICS TS 5.1

Benefits

- Upfront knowledge of resources required to define an Application Bundle

Open CICS
SM Editor
and assign
an entry
point



Collect and
load data into
DB2

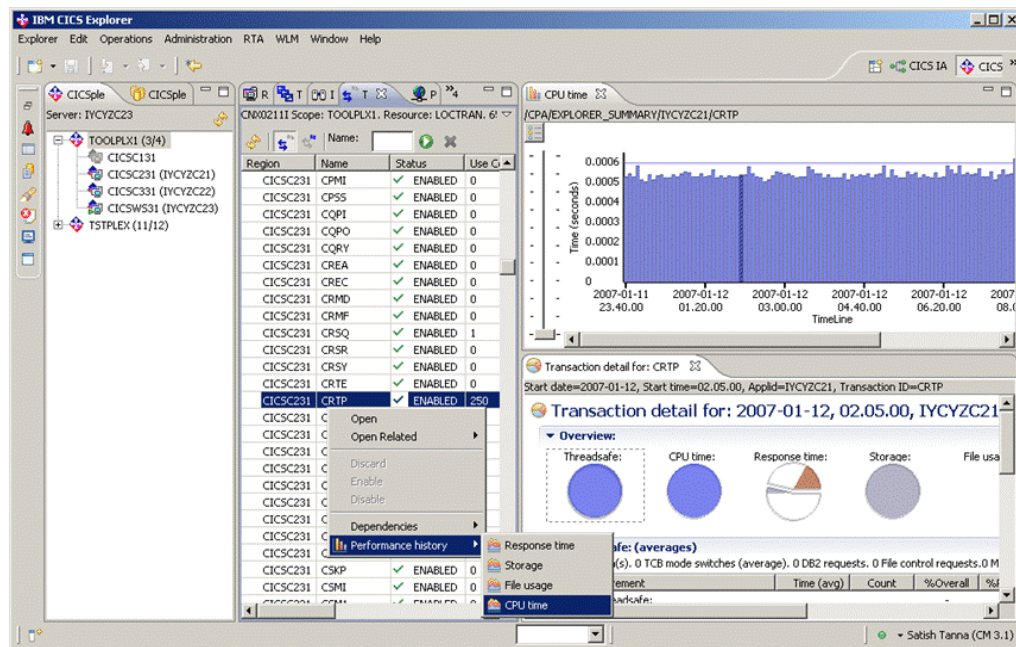
Define bundle using
IA information

Name	Version
IA Applications (1)	
TS Applications (2)	
ia.mail.appl	1.0.0
mailappl	
CIUTEST OPERATIONS	0.0.0
post	

Show All Resources
Show

CICS Performance Analyzer for z/OS V5.1

- Comprehensive Performance Reporting and Analysis for CICS including DB2, WebSphere MQ, and MVS System Logger
- Extensive Tabular Reports
- Plug-in for CICS Explorer
- Historical Database (HDB)
- Trending and Capacity Planning
- Statistics and Statistics Alerts



What's new?

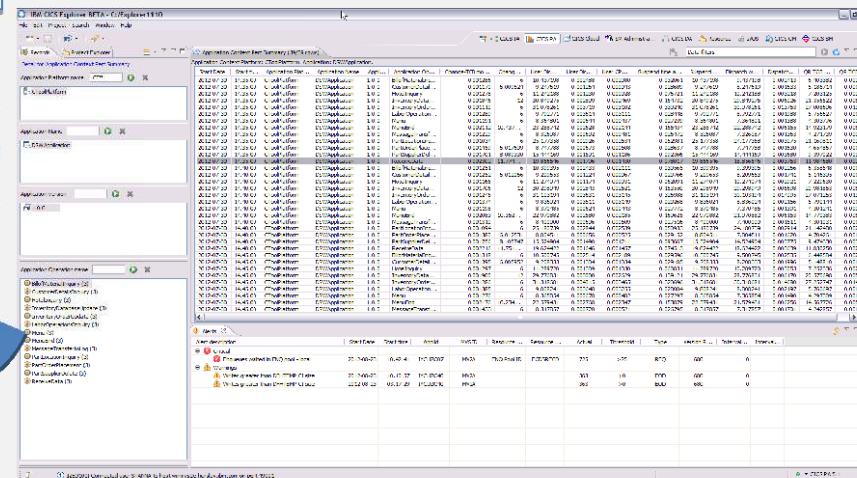
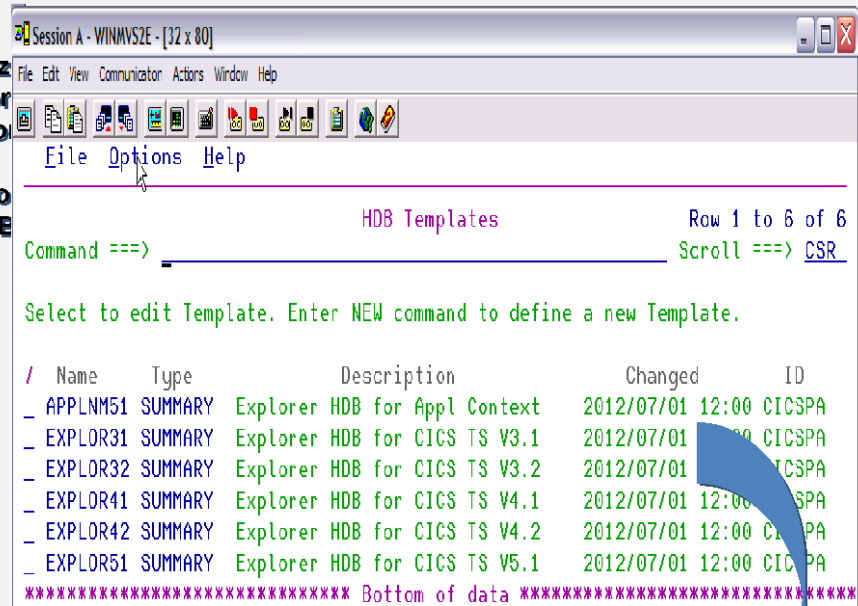
- CICS TS V5.1 support
- Application, Platform, and Policy
- Plug-in enhancements:
 - Application centric view
 - Customizable sheet views
 - Wait Analysis
 - Improved Navigation
 - Export and Import capability
- Batch statistics reporting for CICS TG
- Statistics filtering
- CPU totals on MQ reports
- Data management improvements

CICS PA gives Platform and Application Performance insight

Scenario

- Summarize CICS performance data at application and transaction level
- Drill down into details such as CPU, Response time, Storage and TCB usage
- Data filtering to analyze specific transactions and operations
- Statistics alerts
- Simplify analysis of large volumes of data
- Identify performance bottlenecks promptly

Summarize and export application and transaction data to DE



Drilldown to transaction or operation

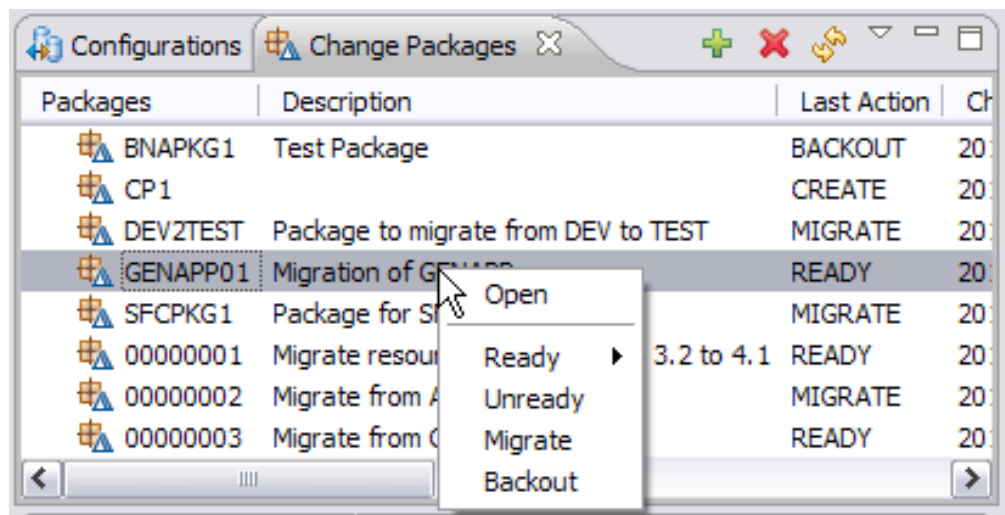
Detailed performance and statistics analysis with data filtering

CICS Configuration Manager for z/OS V5.1

- 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

What's new?

- CICS TS V5.1 support
- Application, Platform, and Policy resources
- Enhanced plug-in with Packaging and Deployment Analysis
- Sort in Package view and Ready list
- COMMAND STACK to support Add/Remove of CSD Groups to
- Remove empty Group from the CSD List
- SSL support for plug-in connection
- Audit trail for Install and NewCopy

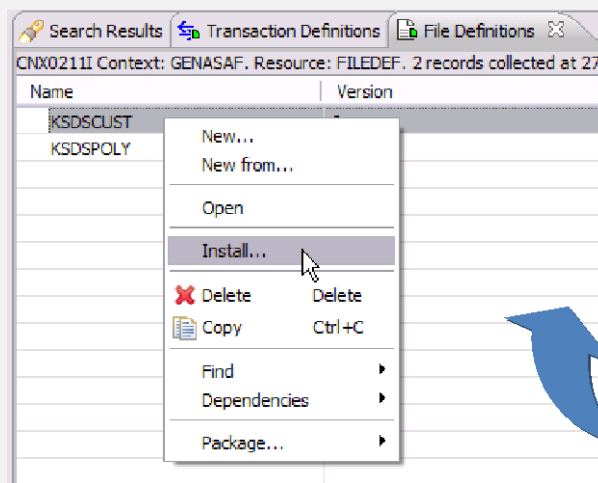
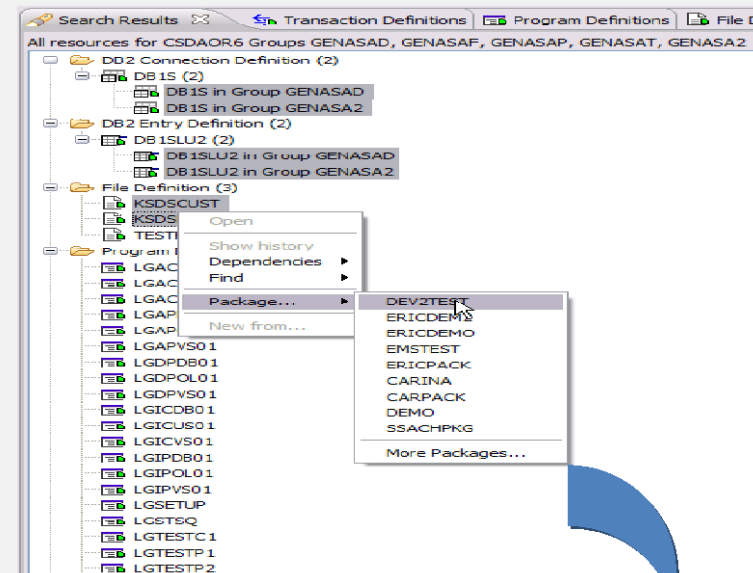


Speed CICS resource definition lifecycle mgt with CICS CM

Scenario

- Create Change Package
- Add resources
- Migrate Change Package
 - Can include transformation and approval
- Install resources in Target environment
- Less error prone promotion of resources
- Full audit trail and backout capability

Change package created for resources in Development repository



Install definitions in CICS regions on test environment

Packages	Description	Last Action	Changetime
CP1		CREATE	2012/05/21 06:49:
DEMO	Demo PKG	CREATE	2012/07/19 08:28:
DEV2TEST	Development to Test	READY	2012/09/27 05:44:
ERICDEMO	of change packaging via explorer	UNREADY	2012/09/25 21:26:
ERICDEMO	for Humana	MIGRATE	2012/09/26 13:51:
EMSTEST	Package for Eric	MIGRATE	2012/09/18 10:22:
CARINA	Backout of GENAPP resource	READY	2012/04/29 12:40:
CARPACK	Package for SFC app	MIGRATE	2012/05/02 17:52:
SSACHPKG	Change package for WMQ definitions	MIGRATE	2012/07/11 03:44:
00000001	Migrate resources from CICS TS 3.2 to 4.1	READY	2012/04/18 05:31:
00000002	Migrate from AOR6 to AOR7	MIGRATE	2012/02/13 08:24:
00000003	Migrate from CSD to CPSM BAS	BACKOUT	2012/05/30 03:55:

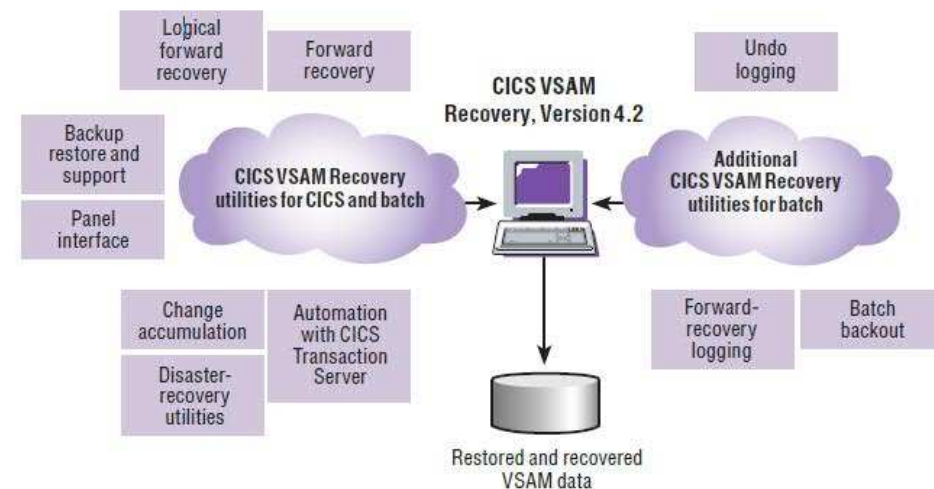
Change package migrated to test environment

CICS VSAM Recovery for z/OS V5.1

- Change accumulation
- Export and Import commands
- Batch support including logging
- NOTIFY support for IBM and non-IBM backups
- Supports backups created by Backup-While-Open (BWO)
- Automated recovery
- Pre-allocates the target data set prior to restore
- Authorization management
- Test-only forward recovery and backout
- Disaster recovery report
- Panel Interface usability enhancements

What's new?

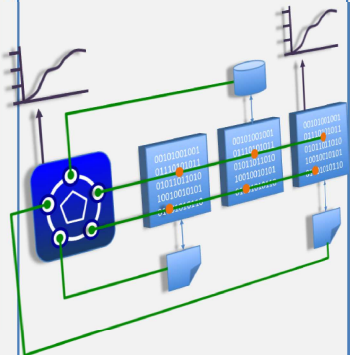
- Replication logging
- Batch logging enhancements
- Batch backout improvements
- Migration utility enhancements
- Logstream printing and other usability enhancements



CICS Tools V5.1 : Increasing Service Agility



First-class Applications



Objective: Leveraging application support to add new levels of agility

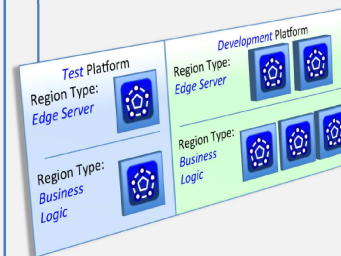
CICS Performance Analyzer views simplify Application performance analysis

CICS Interdependency Analyzer can track, analyze, and help create new Applications

CICS Configuration Manager supports new Application definitions



First-class Platforms



Objective: Leverage platform support to reduce infrastructure costs

CICS Deployment Analyzer automates creation of new Platforms

CICS Performance Analyzer can isolate Platform performance issues

CICS Configuration Manager manages Platform definitions



Modern Interfaces



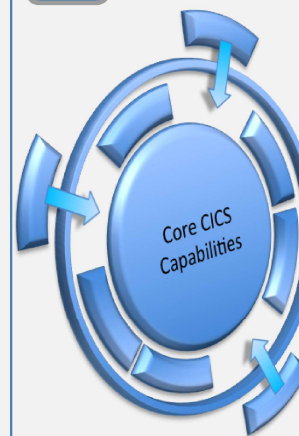
Objective: Investment protection beyond traditional applications

CICS Performance Analyzer measures performance of JSPs and servlets

CICS Interdependency Analyzer analyzes CICS resource relationships of new JSPs and servlets



Foundational Enhancements



Objective: Faster time to market using latest runtime capabilities

CICS Interdependency Analyzer queries helps to upgrade applications for CICS TS V5.1

CICS Deployment Assistant cheat-sheets help to upgrade regions for CICS TS V5.1

Session and user views,
Configuration, Broadcast,
User and Admin
commands

ISM

Daemon & Connection
Status & Test

TG

Develop
Test
Etc

RDz

Configuration
Status
Control, Test

MQ

Status
Situations
Topology

XE

Threadsafe, File, CPU,
Response Time, Statistics,
Alerts, Graphical and
Sheet views

PA

Deployment,
Discovery,
Visualization, Cloning,
Automation & Control

DA



Manipulate, browse
z/OS data sets, z/FS,
MQ

FM

CICS, IMS, DB2,
& z/OS
Abend Reporting
& Diagnosis

FA

CICS, IMS,
DB2, & z/OS
Application
Debugging

DT

CICS, IMS, DB2,
& z/OS
Observation Requests
& Reporting

APA

Execution Tree
Dependencies
Queries
Command Flow

IA

CRUD/Install
History, Audit
Backout,copy/paste
Search, Compare

CM

CRUD/Install, Control,
Filter, Sort, Topology,
Events, ATOM. Java.
z/OS, Txn Tracking,
WLM

SM

ibm.com/cics
ibm.com/cics/tools
ibm.com/cics/explorer

SM	CICS Transaction Server
IA	CICS Interdependency Analyzer
PA	CICS Performance Analyzer
CM	CICS Configuration Manager
DA	CICS Deployment Assistant
TG	CICS Transaction Gateway
ISM	IBM Session Manager

CICS TS

APA FA DT FM	Application Performance Analyzer Fault Analyzer Debug Tool File Manager
MQ	WebSphere MQ
XE	OMEGAMON XE for CICS
RDz	Rational Developer for System z

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CICS Explorer Forum ibm.com/developerworks/forums/forum.jspa?forumID=1475&start=0



CICS-L list Forum
listserv.uga.edu/archives/cics-l.html

