

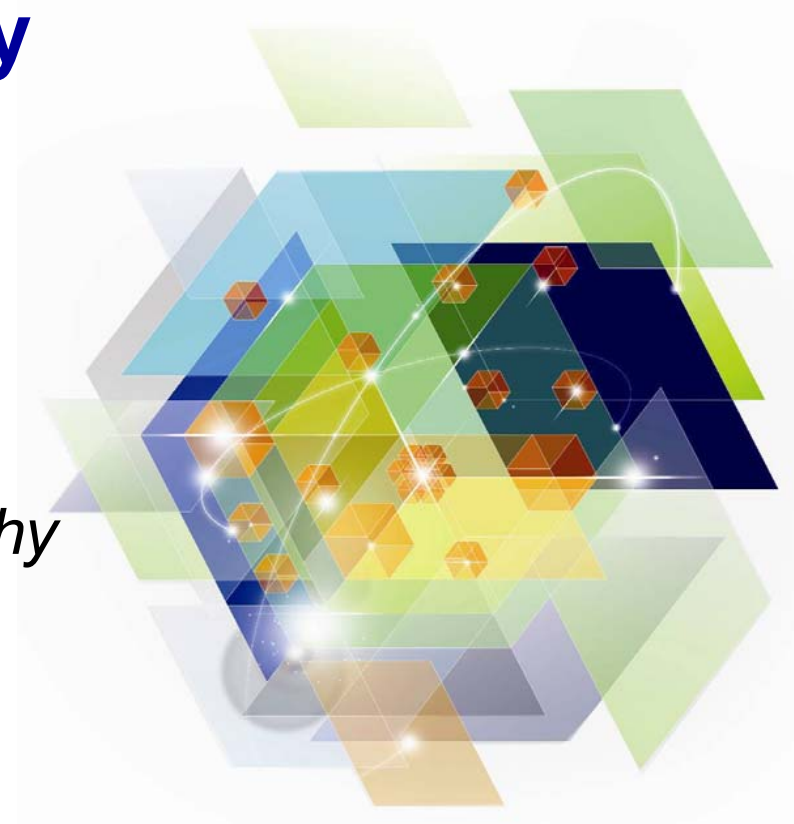


IBM System z Technology Summit

Presenter –

CICS Architecting for your future – *why CICS matters to you*

Date: 1Q 2012



Organizations must

- *Sell new product lines to grow revenue and profit*
- *Rapidly address new market opportunities and customer expectations – delivering **personalized services** with speed, flexibility and integrity*
- *Shift resources from “running IT” to transforming the business*
- 1. Leverage **best practices** and expertise from a broader range of sources
- 2. **Integrate** and optimize **merged** entities resulting from **acquisitions**
 - Constantly **innovate** and optimize **business processes**, adding both rigor and flexibility
 - Break down organizational and **application silos** to embrace rapid, proactive change
- 3. Tap into **information** and activity across the entire network – including sensors, mobile, cloud, and social media – to serve customers better, resolve problems and operate more efficiently
- 4. **Predict** problems and issues before they occur
- 5. Implement new **mobile** services to better serve customers

Agenda

- Issues facing Architects and Developers
- Key Architectural Principles
 - Best Practices
 - Integration
 - Connectivity
 - Predict problems
- Mobile services
- Demo
- Summary
- References

Issues facing Architects and Developers

- Leverage Best practices
- Integration
- Tap in to Information across applications/systems
- Predict problems
- Implementing mobile solutions

Best Practices

- CICS Explorer
- OSGi
- Java 64 Bit
- Axis2
- Threadsafe
- CICS Developer Trial

A yellow starburst graphic with a red outline, containing the word "New" in black text.

New

Some Key Architectural Principles

Architectural Principle	Relevant technology
Use industry standards	Web services, OSGi
Define clear interfaces	Web services, REST, Atom
Componentisation	OSGi, SCA
Reuse, not rewrite	Event Processing, WSRR, CICS IA
Loose coupling	Web services, Event Processing
Design for high availability	Parallel sysplex, CICSplex SM workload management, no affinities
Code for performance	Threadsafe
Fit for purpose	Language choices e.g. Java Platform choices i.e. CICS TS Connectivity choices e.g. CICS TG

New!

IBM CICS Explorer® V1.1

Develop
Test
Etc

RDz

Configuration
Status
Control, Test

MQ

Status
Situations
Topology

XE

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

ISM

Daemon & Connection
Status & Test

TG

New!

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

Enhanced!

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

SM

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

Execution Tree
Dependencies
Queries
Command Flow

IA

CRUD/Install
History, Audit
Backout
Search, Compare

CM

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

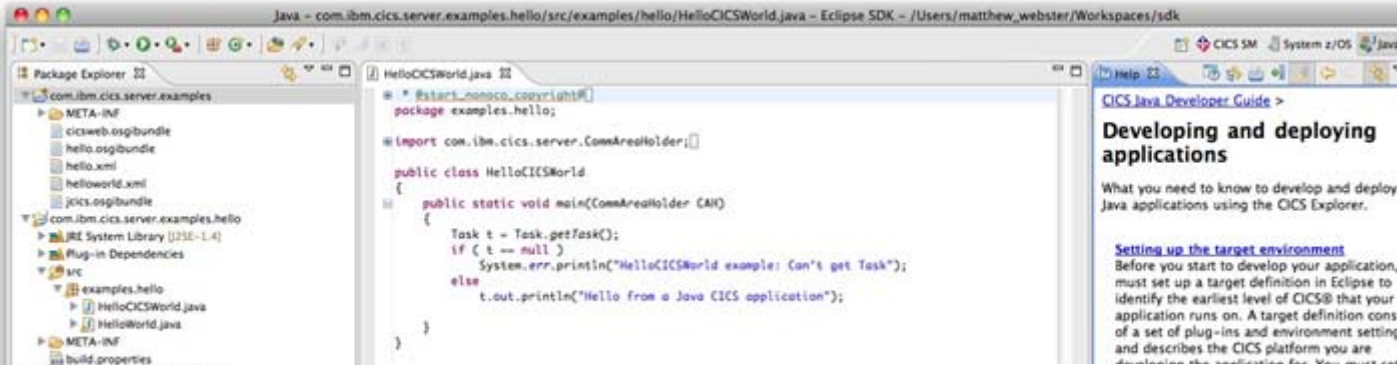
SM	IBM Session Manager
IA	CICS Interdependency
PA	CICS Performance Analyzer
CM	CICS Configuration Manager
DA	CICS Deployment Assistant
TG	CICS Transaction Gateway
ISM	IBM Session Manager

CICS TS

Support for Java 6 64-bit JVMs

- CICS TS supports Java 6.0.1, 64-bit
- Allows many more JVMs and larger heap sizes
- New OSGI runtime and tooling provides improves lifecycle and management support
- Rebuild any Native DLLs as AMODE(64)
- JVMServer provides modern scalable runtime for CICS together with Eclipse based tooling environment
 - OSGi,
 - Axis2,
 - CICS Dynamic Scripting,
 - Container for compute grid (CN11)

OSGi support in CICS



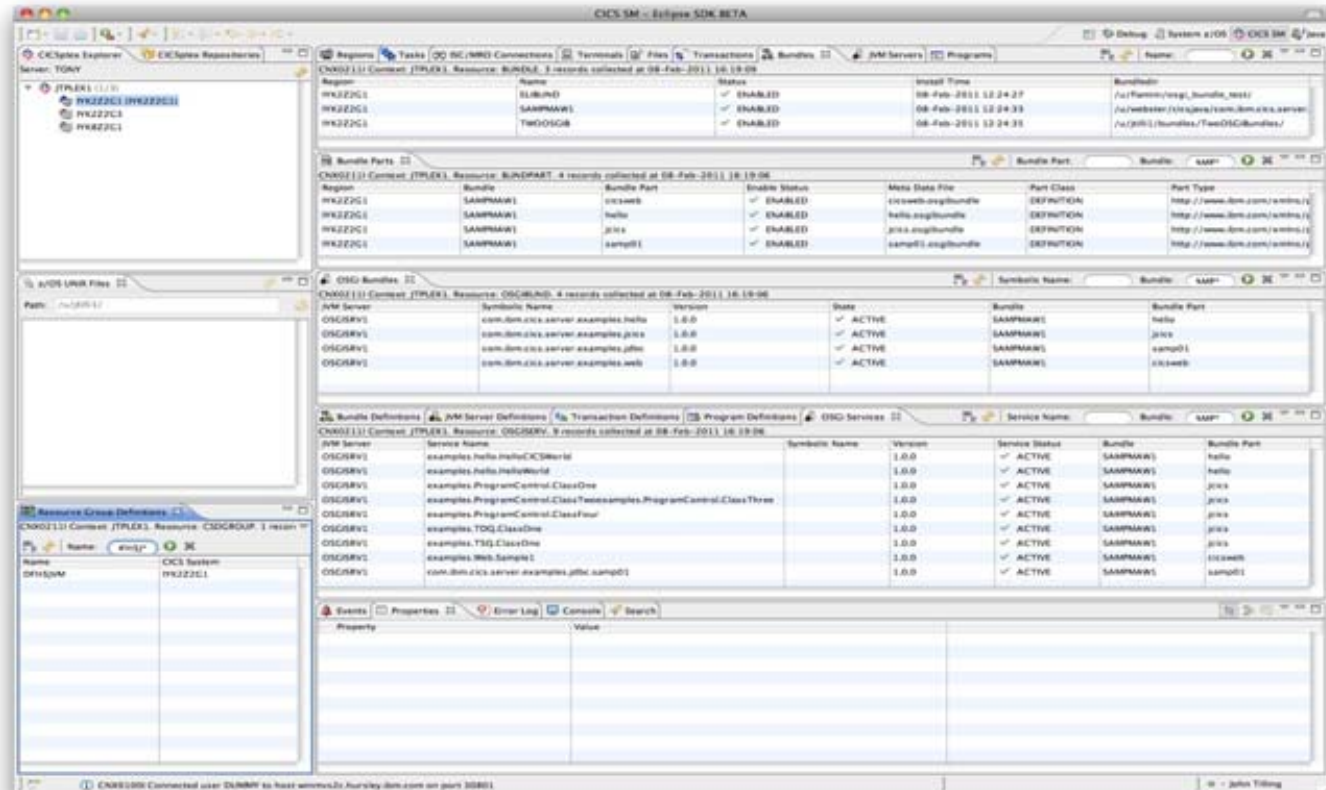
CICS Explorer SDK

Developing and deploying applications

What you need to know to develop and deploy C Java applications using the CICS Explorer.

Setting up the target environment

Before you start to develop your application, you must set up a target definition in Eclipse to identify the earliest level of CICS® that your application runs on. A target definition consists of a set of plug-ins and environment settings and describes the CICS platform you are developing for.

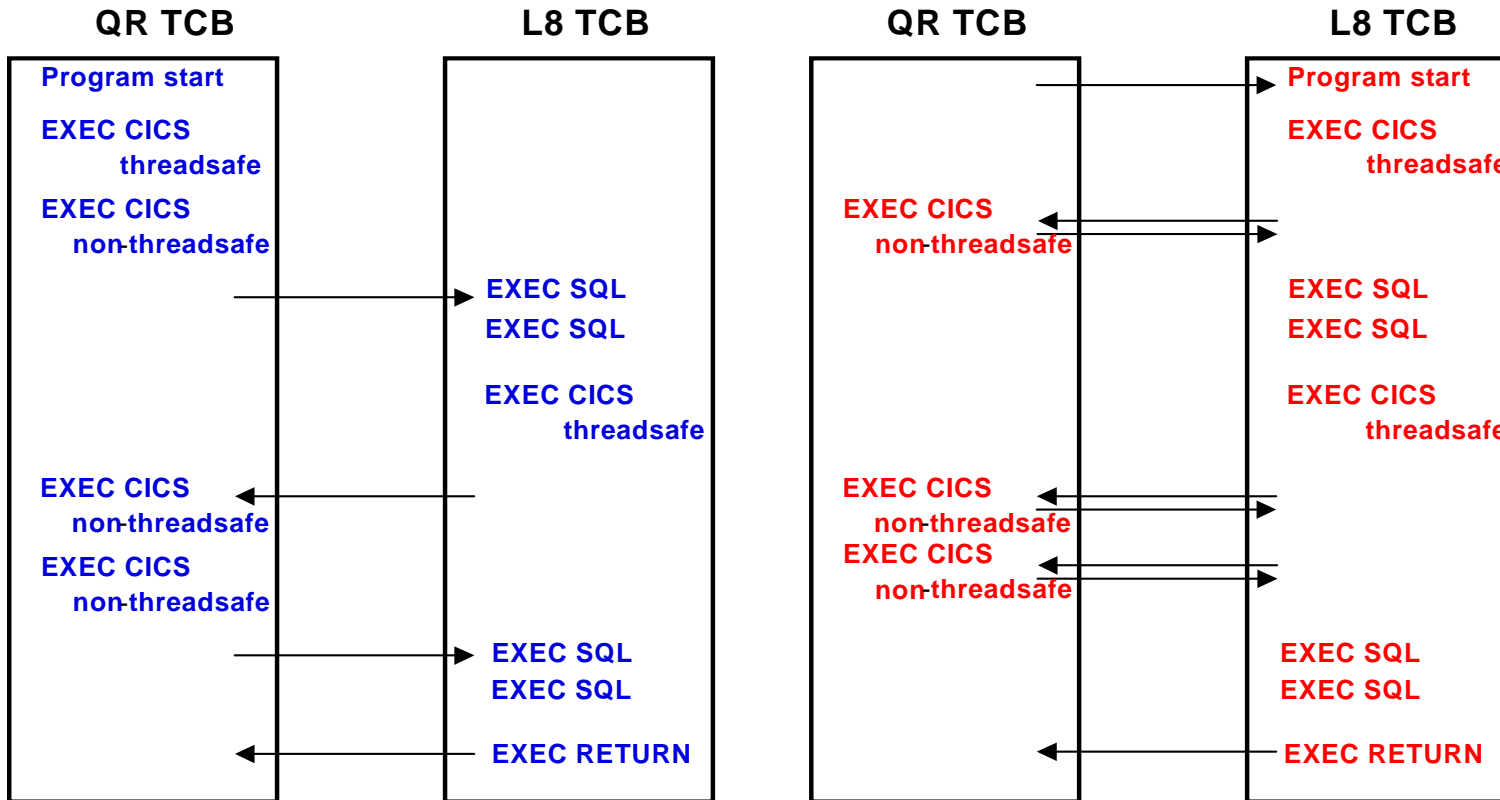


OSGi bundles and services in CICS Explorer

Axis2 Java Web services

- **Based on Axis2 technology**
 - Java SOAP pipeline
 - Alternative to the existing CICS Web Services pipeline
 - Similar support to existing CICS Web services pipeline
 - Provider (inbound) and requester (outbound) applications
 - WS-Addressing and MTOM/XOP
 - Runs within CICS JVM server environment
 - Can access existing CICS programs files etc. using JCICS class library
- **Advantages**
 - Complex XML parsing can off-loaded to zAAP
 - No need to use DFHWS2LS for top-down (WSDL to COBOL) mappings
 - Java components can use Java Web services interfaces such as JAX-WS
 - Ability to develop pure Java Web Services applications
 - **Note:** WS-Security not available for Axis2 WS provider applications

CICS TS V4.2 Scalability Enhancements



The program for this transaction is defined
CONCURRENCY(THREADSAFE)
 API (CICSAPI),

EXECKEY(USER) or EXECKEY(CICS)

The program for this transaction is defined
CONCURRENCY(REQUIRED)
 API (CICSAPI),

EXECKEY(USER) or EXECKEY(CICS)

CONCURRENCY(THREADSAFE) vs CONCURRENCENCY(REQUIRED)

CICS Developer Trial



Announced Jan 24th 2012, available from Jan 27th

- No charge trial, fixed expiry date
- Does not start SVC period
- For non-production environments
- Available through IBM ShopzSeries
- PID 5655-CIC

Based on CICS TS V4.2 (with restrictions)

- Performance
- Capacity
- License

<https://www.ibm.com/developerworks/connect/cicsdev>

GENAPP – SupportPac and Redpaper

- **GENAPP is available to customers as SupportPac CB12, at no extra cost**
 - Download from <http://www-01.ibm.com/support/docview.wss?rs=1085&uid=swg24031760>
- **There is a paper based on GENAPP with scenarios in this new IBM Redpaper**
 - Download from <http://www.redbooks.ibm.com/abstracts/redp4824.html?Open>



Learn How to Perform Popular Business Solutions with the CICS



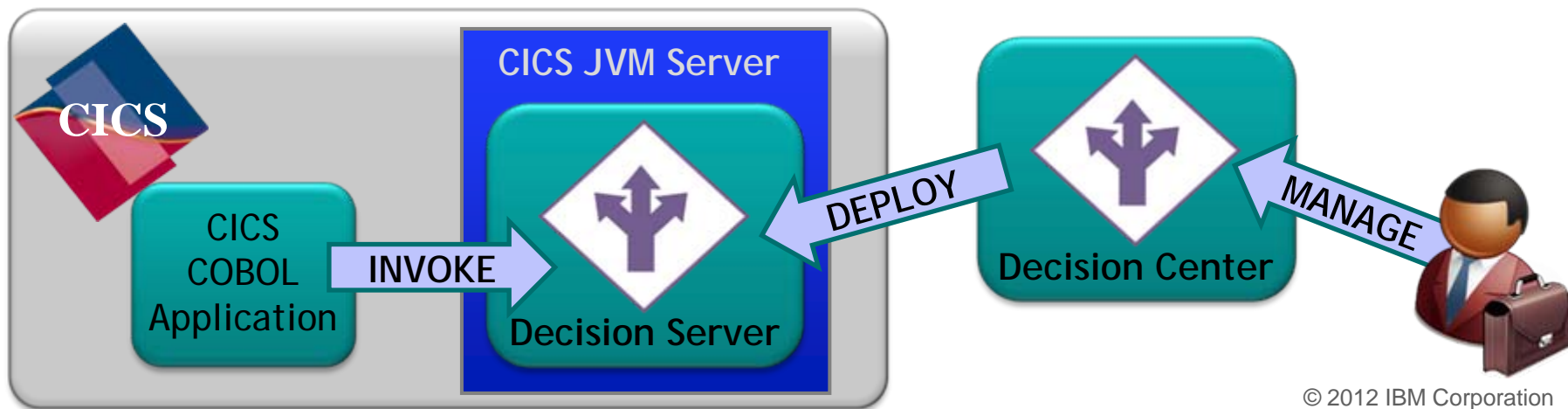
Integration



WebSphere Operational Decision Management & CICS

Externalize embedded business rule logic & execute within CICS

- *Gain business agility with existing and new CICS applications*
 - Manage decision logic on a separate lifecycle to application code
 - Ability to react to changes in a fast paced, competitive marketplace
- *Lower the cost of maintaining your business applications*
 - Improvement operational efficiency and total cost of ownership
- *Consistent Decision evaluation across the enterprise*
 - Author decision rules once and deploy to multiple systems on z/OS and distributed
- *Optimized decision execution*
 - Highly efficient rule execution engine
 - Local optimization of Decision Server within the CICS JVM Server environment



Events from CICS TS V4 with WODM

Event Sources

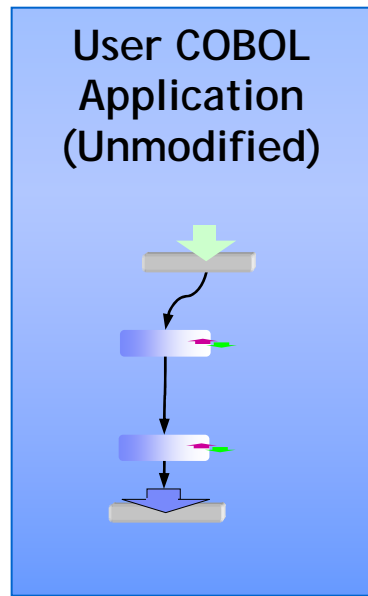
Event Emission

Event Processing

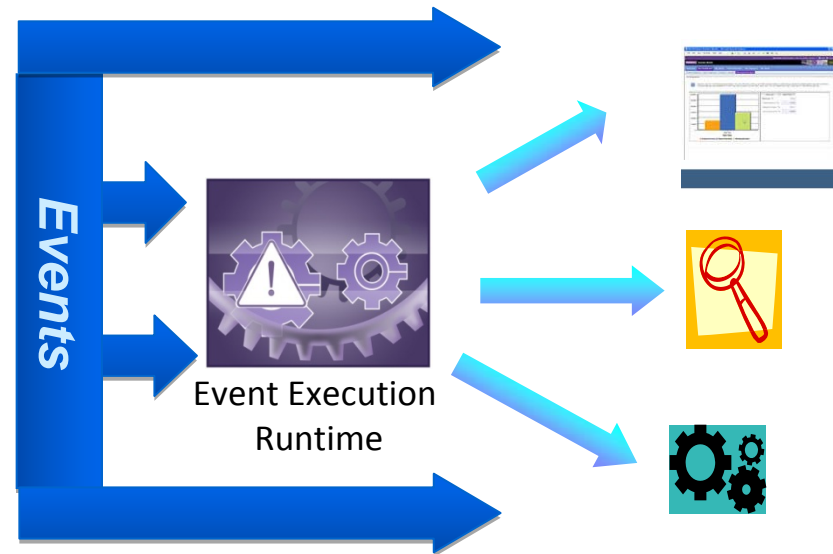
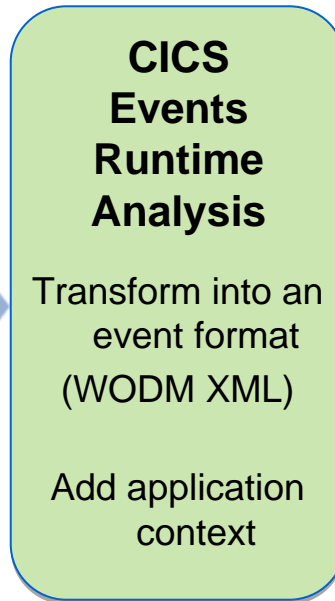
Business Action

CICS TS V4

WODM V7.5



Events captured by CICS runtime



- CICS Events help you to*
- *Observe business processes*
 - *Recognize suspicious activity*
 - *Drive new processing*

Everyone wants to Lower The Cost Curve

How?

- Make **reuse** a fundamental tenant of application development
- Speed delivery by **dramatically reducing need to write code**
- Support **self-service development**, freeing up central IT to work on more strategic initiatives

Cost Per Application

Traditionally Developed Applications

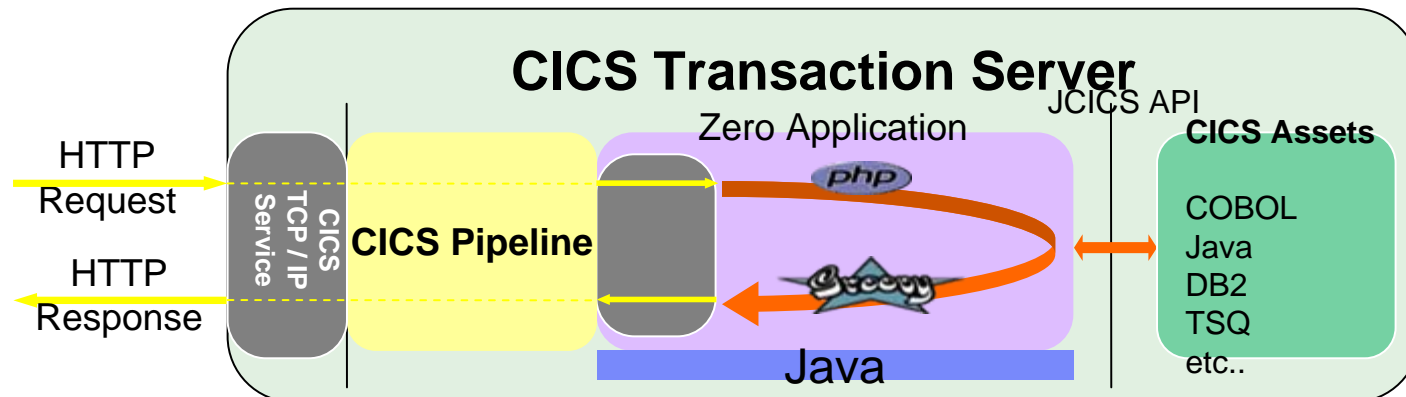
A new method is needed to lower cost

Mashups

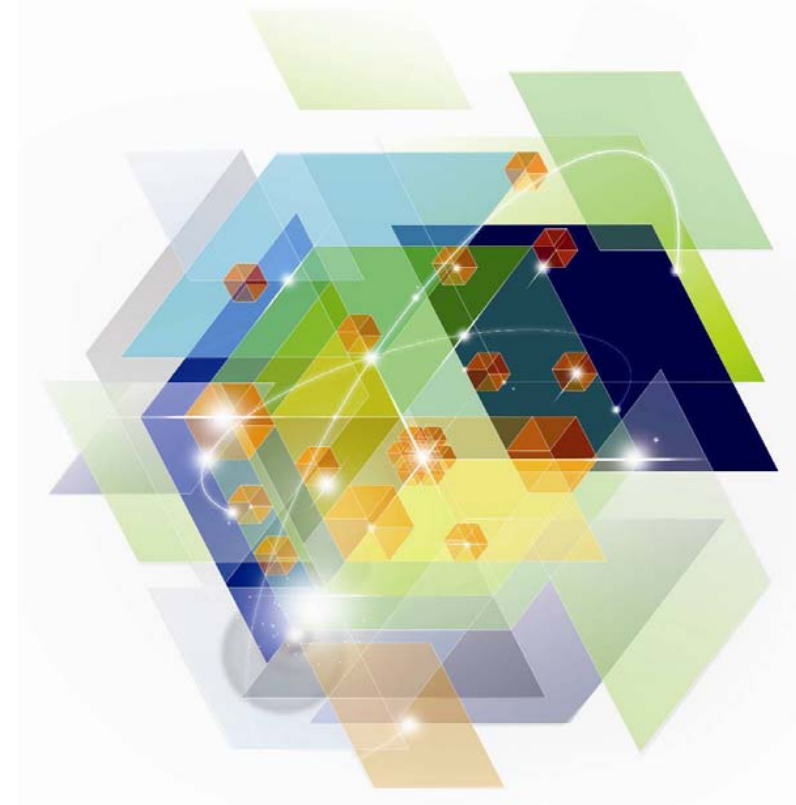
Number of Applications / Time

CICS TS Dynamic Scripting

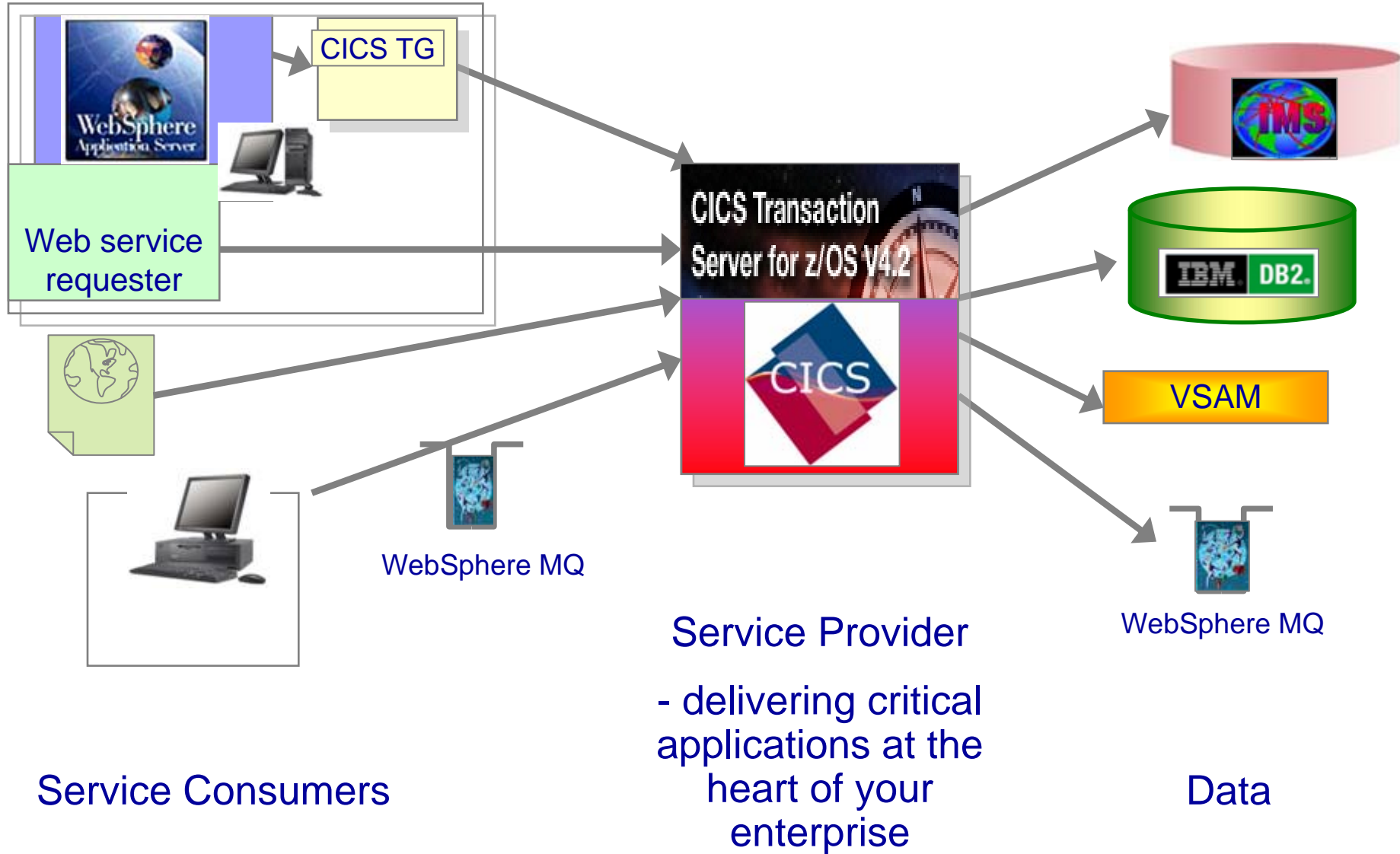
- Integrates Project Zero technology into CICS TS V4, for a robust environment for PHP and Groovy situational reports, dashboards, and web feeds
- Helps meet the long tail of application demand and exploit business opportunities, by rapidly creating and deploying situational applications which access CICS assets, while complying with key IT processes like manageability, scalability, and security
- Feature Pack is built on scalable CICS TS V4 JVM server technology
- Quickly** try out new business ideas, prototyping, build productivity applications like reports, dashboards, and widgets, or application front-ends for IT and Line of Business users.



Connectivity



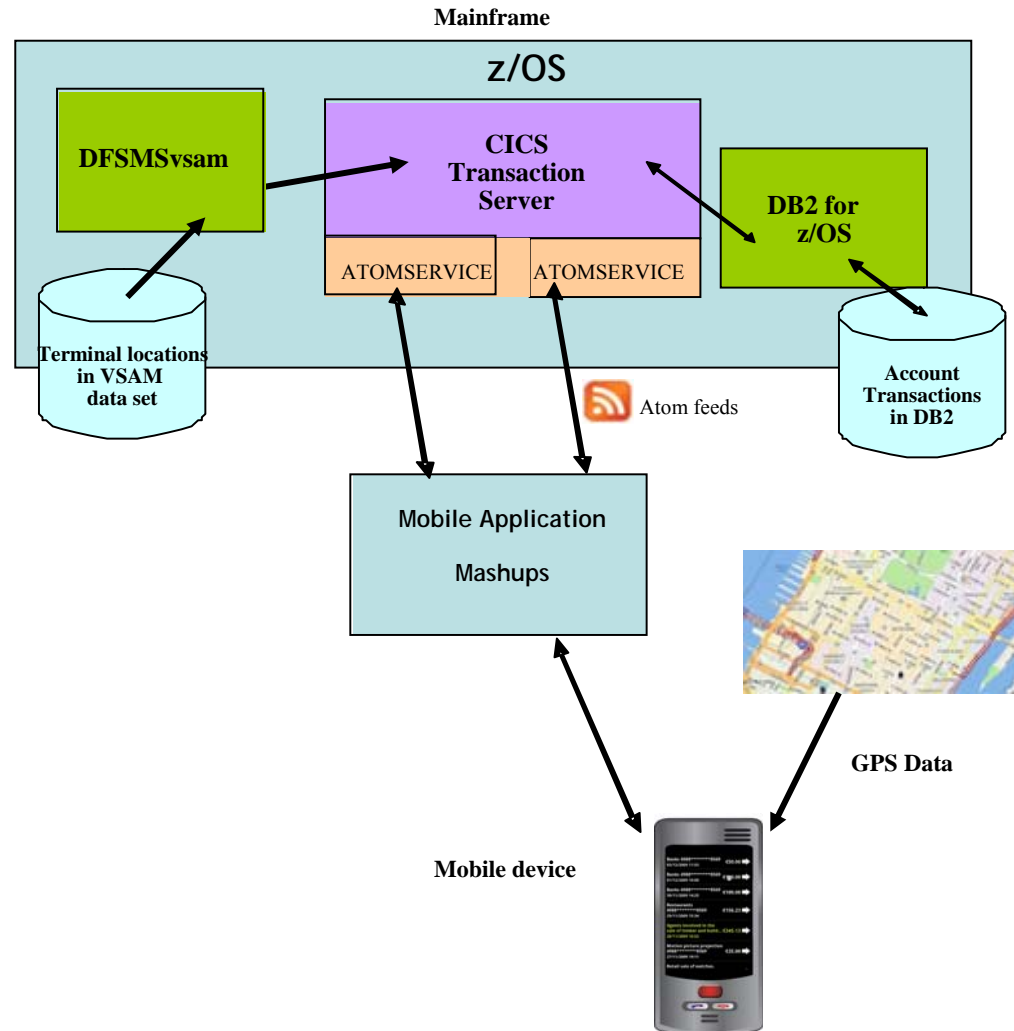
CICS and connectivity



Consumable account information using Atom feeds from CICS

Mobile application which provides added value to customer

- View account data
- Flag unusually large transactions
- Find location of nearest ATM
- Mashup of where transactions took place together with location of mobile device at the time
- etc.



Define clean and clear interfaces

Motivation

- Clarity of function provided
- Easy to invoke and use
- Easy and transparent to change underlying implementation
- Encourages a structured architecture

Supporting technologies

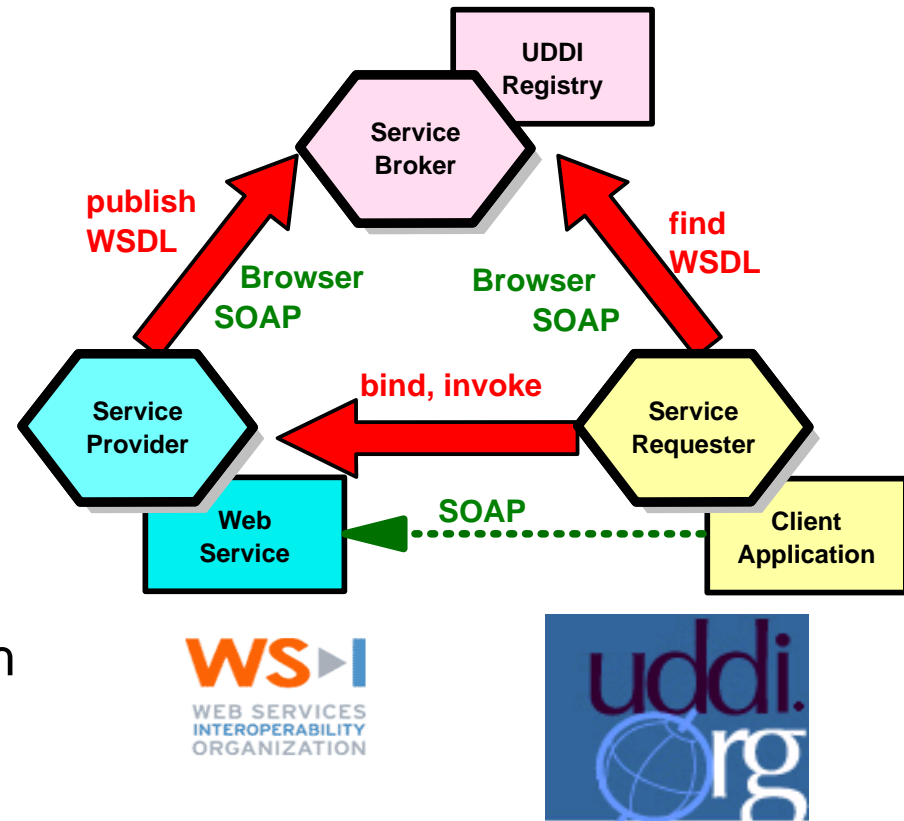
- Web services
- RESTful services
- Atom feeds
- Dynamic Scripting

Web Services: Definitions

- **Architecture for**
 - Application to application
 - Communication
 - Interoperation

- **Definition:**
 - Web Services are **software components described via WSDL** that are capable of being accessed via **standard** network protocols such as **SOAP** over **HTTP**

- **WS-I.org (Web Services Interoperability Organization):**
 - An organization to ensure interoperability



The entire industry is agreeing on one set of standards !!

RESTful services

- **REST**
 - **RE**presentational **S**tate **T**ransfer
 - Architectural model on which the World Wide Web is (and always has been) based

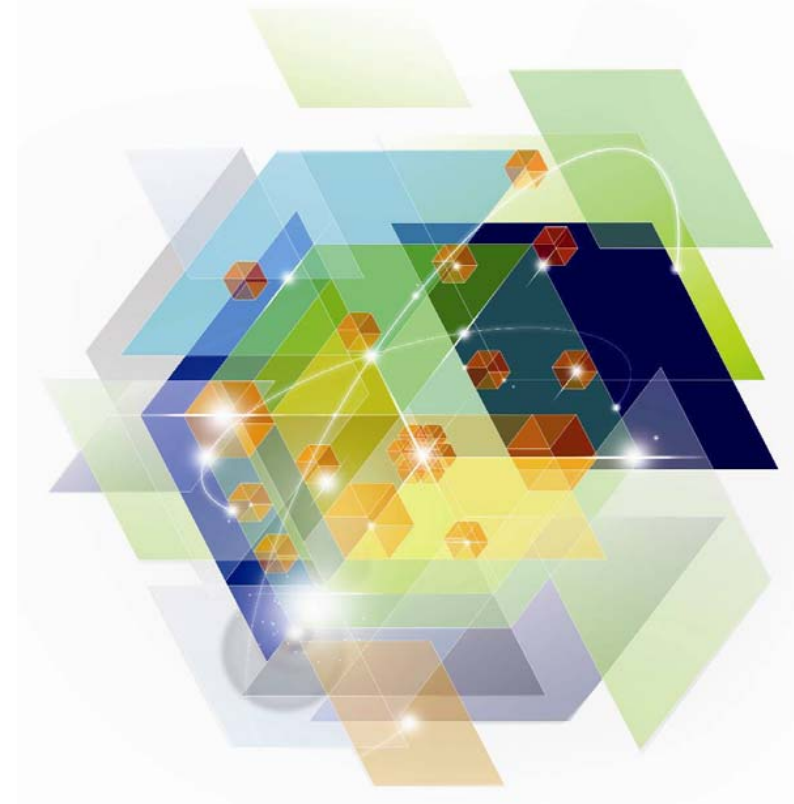
- **Principles of REST**
 - Resource-centric approach
 - All relevant resources are addressable via URIs
 - Uniform access via HTTP – GET, POST, PUT, DELETE
 - ... all the verbs you'll ever need
 - Content type negotiation: retrieve alternative representations from same URI
 - Lightweight data transfer – from Web browser or any HTTP client or server

- **“Clean and meaningful URLs”**
 - For everything
 - e.g. a file, a database, a CICS TS queue....
 - or a single record within each resource

- **Light reading:** <http://www.ics.uci.edu/~fielding/pubs/dissertation/top.htm>



Predict Problems



The Role-Based CICS Event Workflow



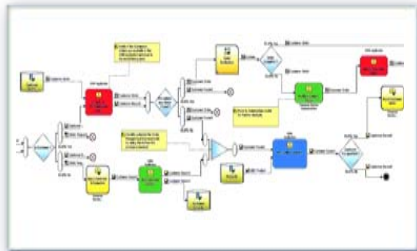
**LoB
Manager**



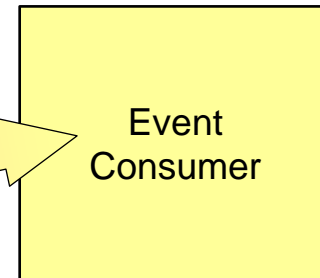
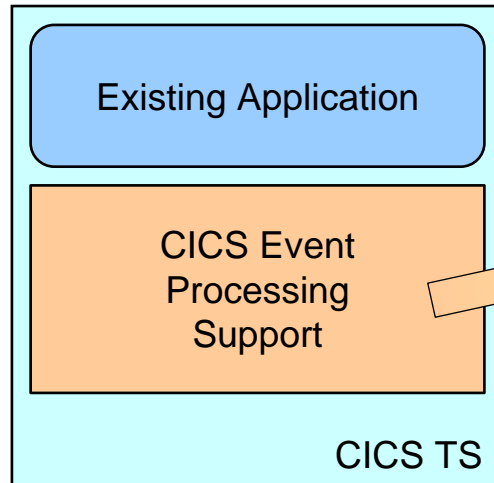
**Application
Analyst**



**Systems
Programmer**

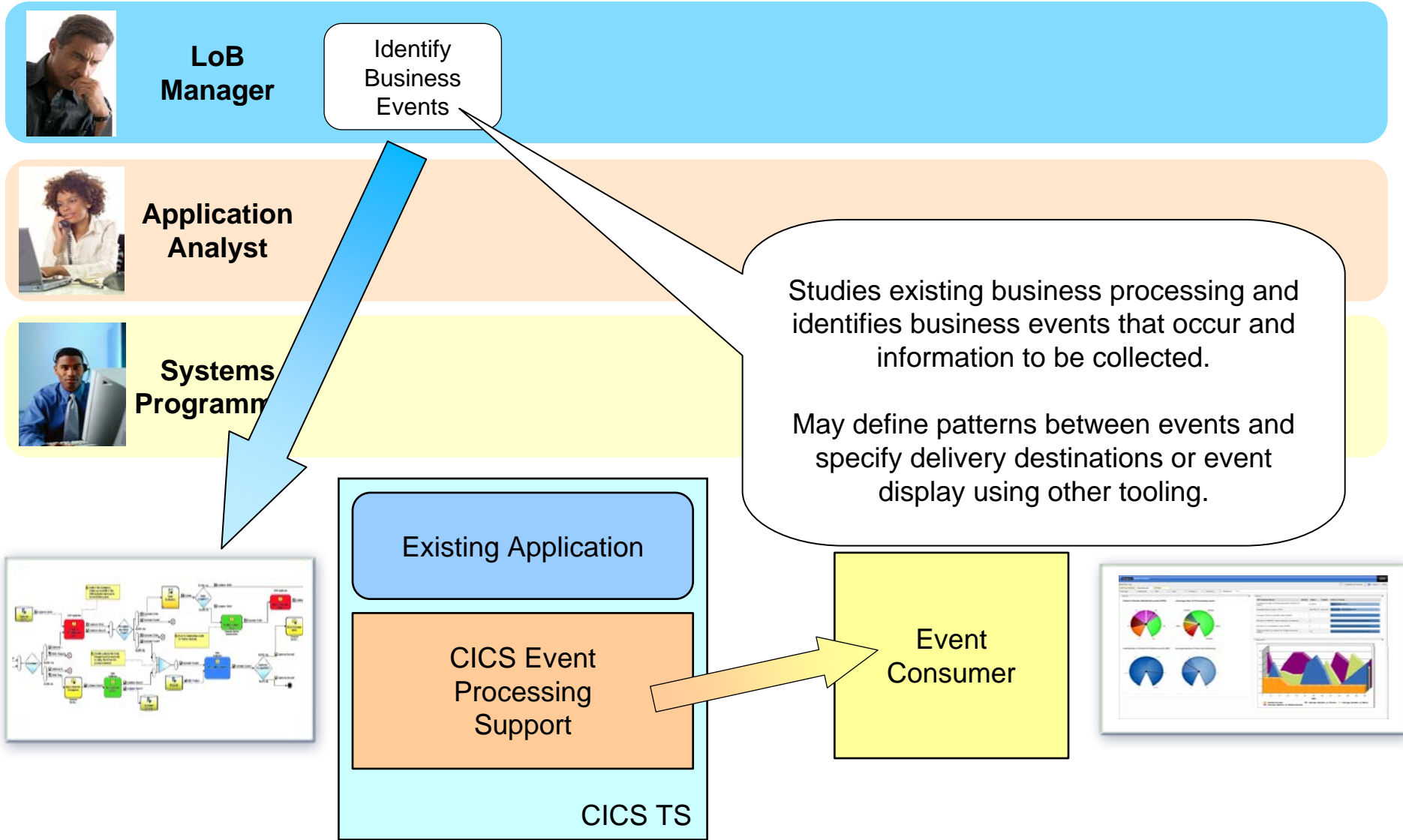


Business Modeler



Business Dashboard

LoB defines the business events



Application Analyst identifies events in application



LoB Manager

Identify Business Events



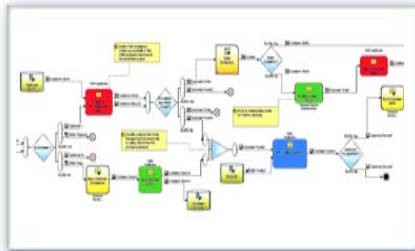
Application Analyst

Create Event Capture Specification

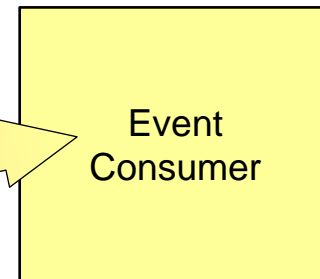
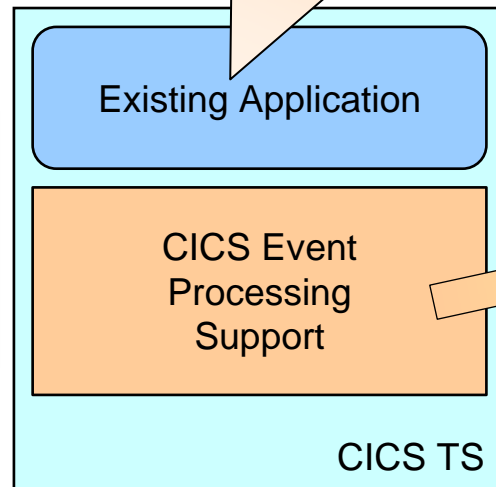
Inspects programs to determine how to capture the business events and collect the required data. Specifies where and how event is to be emitted.



Systems Programmer



Business Modeler



Business Dashboard

Systems Programmer configures the infrastructure



LoB Manager

Identify Business Events



Application Analyst

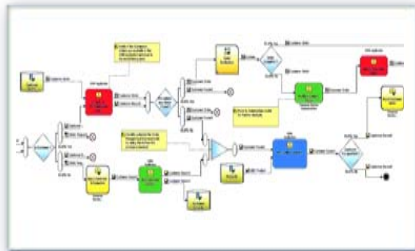
Create Event Capture Specification



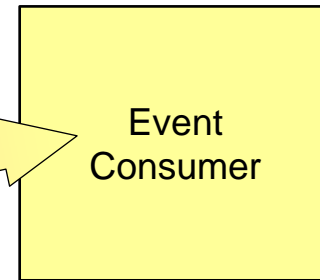
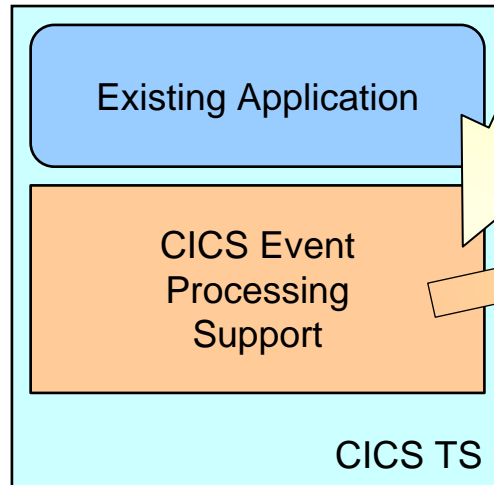
Systems Programmer

Deploy Events

Specifies format and destination for the captured events.
Defines CICS resources to deploy the events

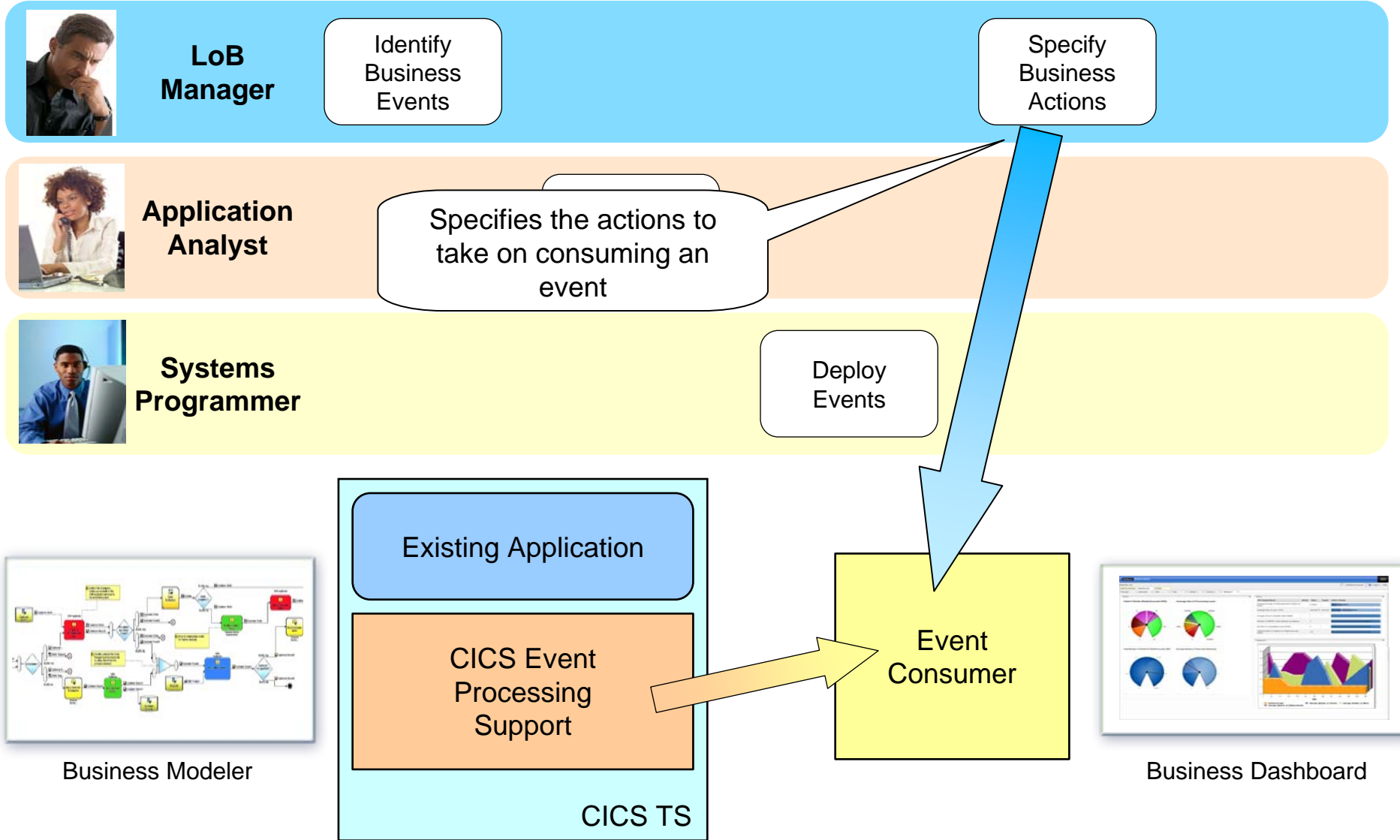


Business Modeler

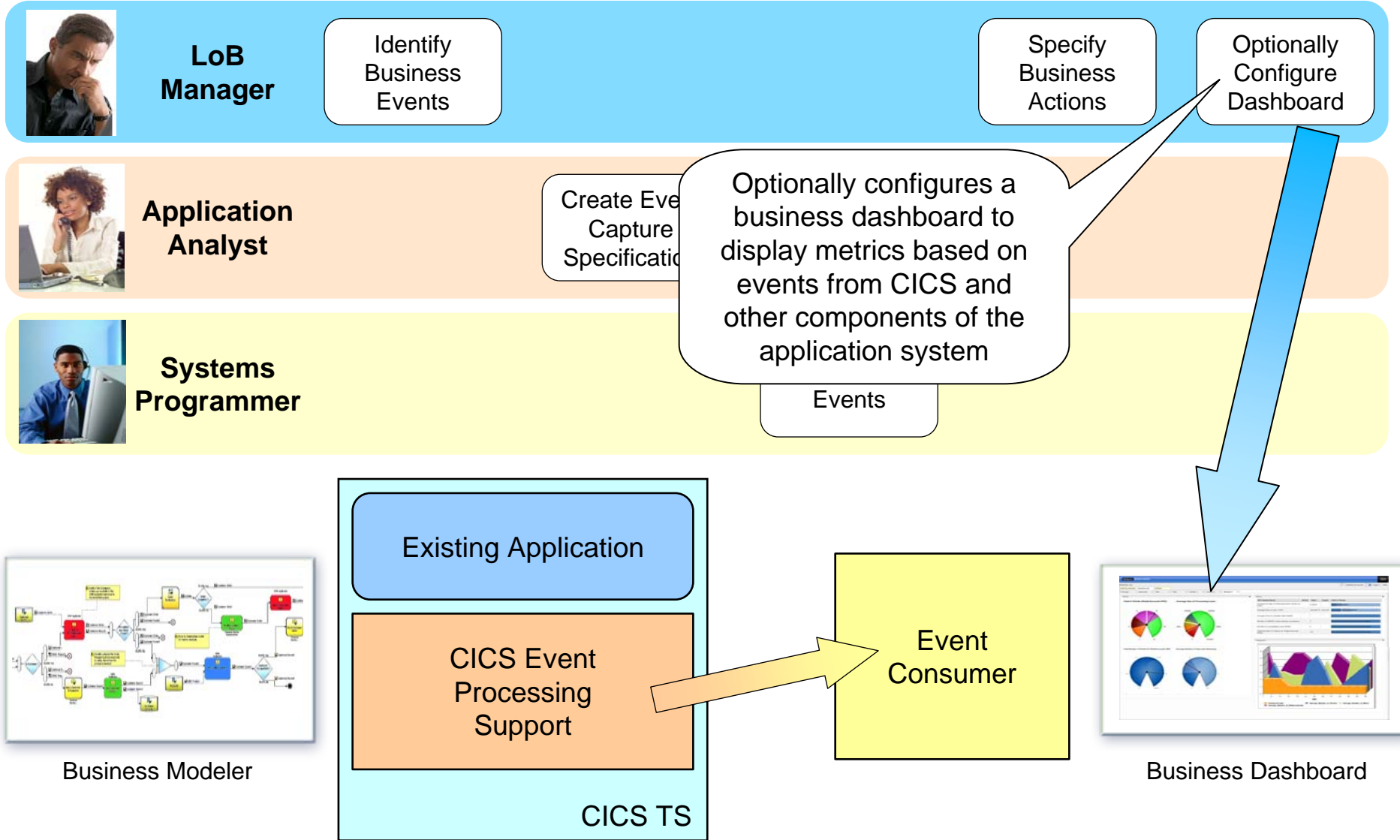


Business Dashboard

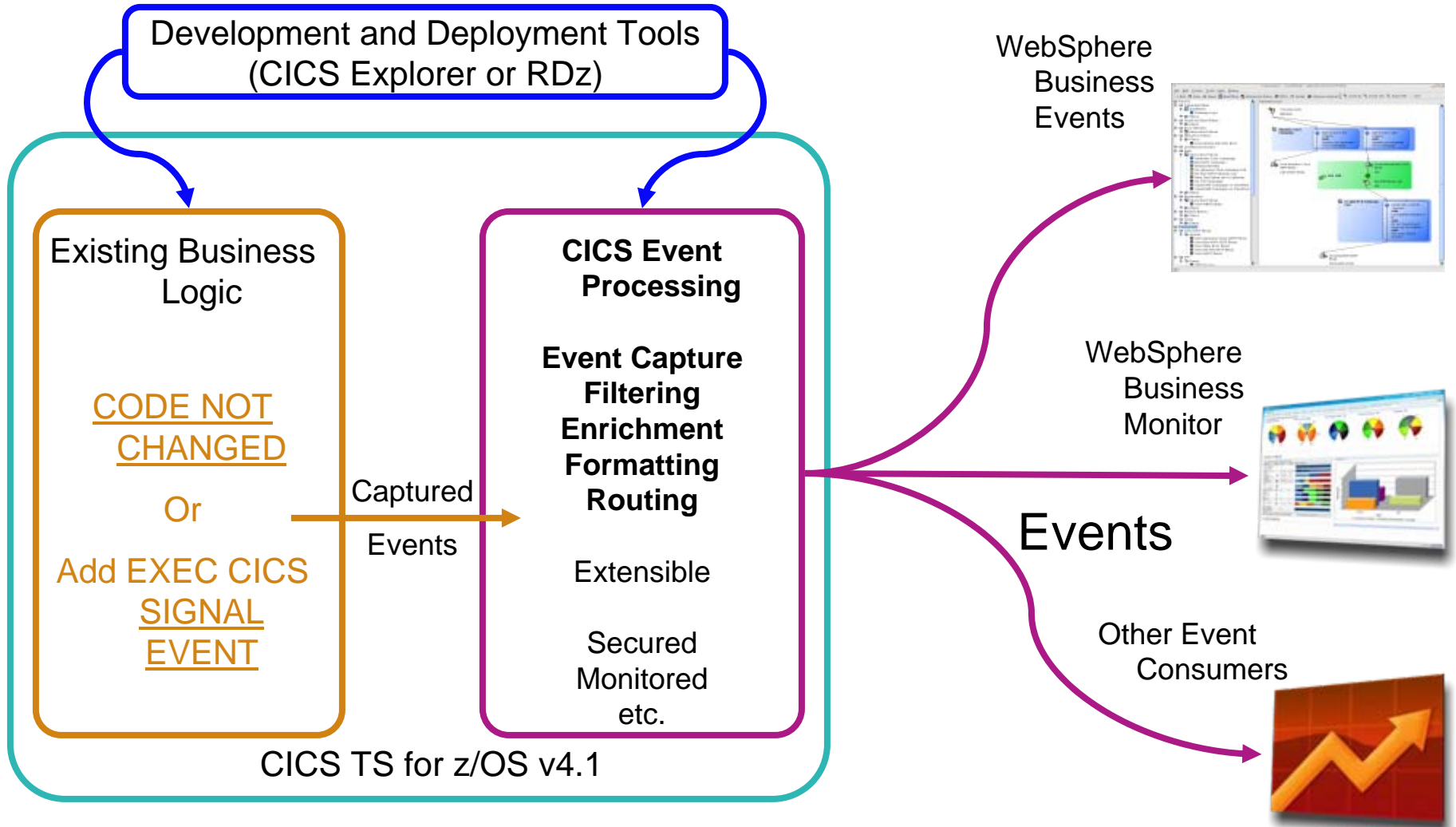
LoB defines the business actions



LOB may configure a dashboard



Event Processing...



System Events

- Capture events when the state of certain resources changes
- System Events in CICS TS V4.2
 - File state events - file enablement or open state change
 - DB2 connection state events (DB2 connection state changes)
 - TRANCLASS task threshold events (number of tasks in TRANCLASS goes above or below a % of MAXACTIVE)
 - Task threshold events (number of tasks in system goes above or below a % of maxtasks)
 - Transaction has abended (with unhandled abend)
 - Filter by transaction and/or abend code
- Uses the existing event infrastructure
 - Specify in Event Binding Editor, emit via an EP adapter
- Examples of use
 - Notify an application or support staff that a file it uses has become disabled
 - Start an additional cloned CICS region if the number of tasks goes above 90% of maxtasks limit for that region
 - With WebSphere Business Monitor, monitor frequency of transaction abends during month

System Event Specification Example

The screenshot displays the IBM CICS Explorer BETA interface. The main window is titled 'SysProgEvents.evbind' and shows the 'Specifications' tab. The 'System Event' is set to 'FILE ENABLE STATUS'. The 'General' section contains the following details:

- Name:** PayrolOffline_capture
- Description:** Payrol file offline event is captured when the payroll file status is no longer enabled

The 'Capture Point' section is set to 'System Capture Point'. The list of system capture points includes:

- DB2 CONNECTION STATUS
- FILE ENABLE STATUS** (highlighted)
- FILE OPEN STATUS
- TRANCLASS ACTIV THRESHOLD
- TRANSACTION ABEND

At the bottom of the window, there is a 'Problems' pane which is currently empty, showing 0 items.

System Event Specification Example

The image displays two screenshots of the IBM CICS Explorer BETA interface, illustrating the configuration of a system event specification.

Top Screenshot: Shows the 'Specifications' tab for the capture point 'PayrollOffline_capture'. The 'System Event' is set to 'FILE ENABLE STATUS'. The 'Name' field is 'PayrollOffline_capture'. The 'General' section is expanded, showing the instruction: 'Identify and describe the capture specification.'

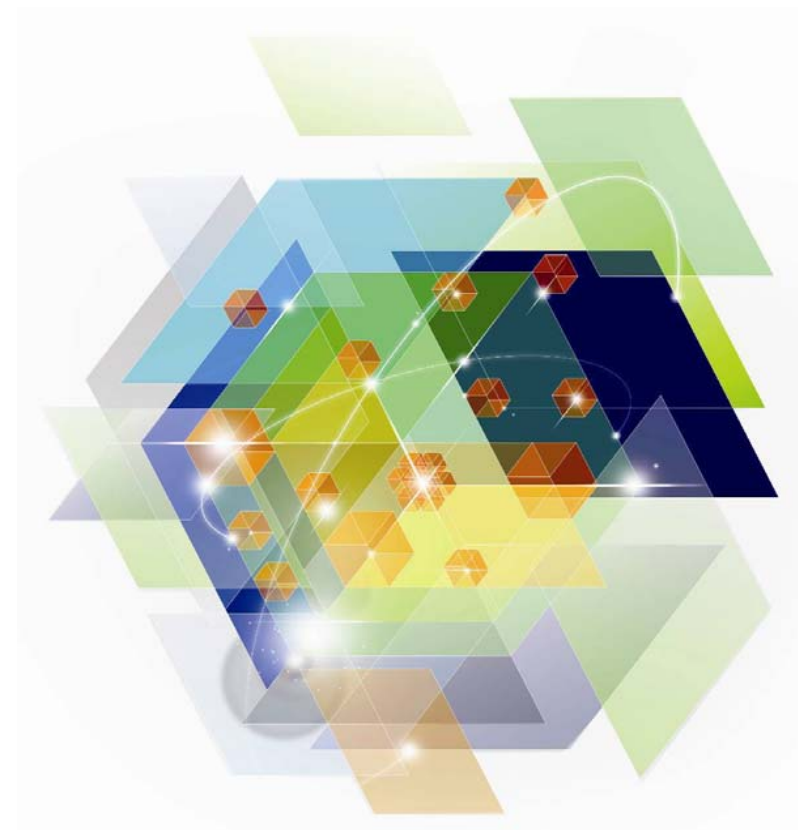
Bottom Screenshot: Shows the 'Specifications' tab for the same capture point, but with the 'Context' and 'Event Options' sections expanded. The 'Context' section is titled 'Define predicates to filter events.' and includes fields for 'Transaction ID' (set to 'All') and 'User ID' (set to 'All'). The 'Event Options' section is titled 'Define predicates for event options.' and includes the following settings:

Option	Value	Operator	Value
FILE*	All		
FROM_ENABLESTATUS	Equals		ENABLED
TO_DISABLESTATUS	Not		DISABLED
OPENSTATUS	All		CLOSED

The 'Application Data' section is expanded and shows the message: 'This capture point does not use Application Data.'

At the bottom of the interface, the 'Problems' tab is visible, showing a table with columns: Description, Resource, Path, Location, Type. The table is currently empty.

Demo



Summary

Not your Father's CICS

New features/technology

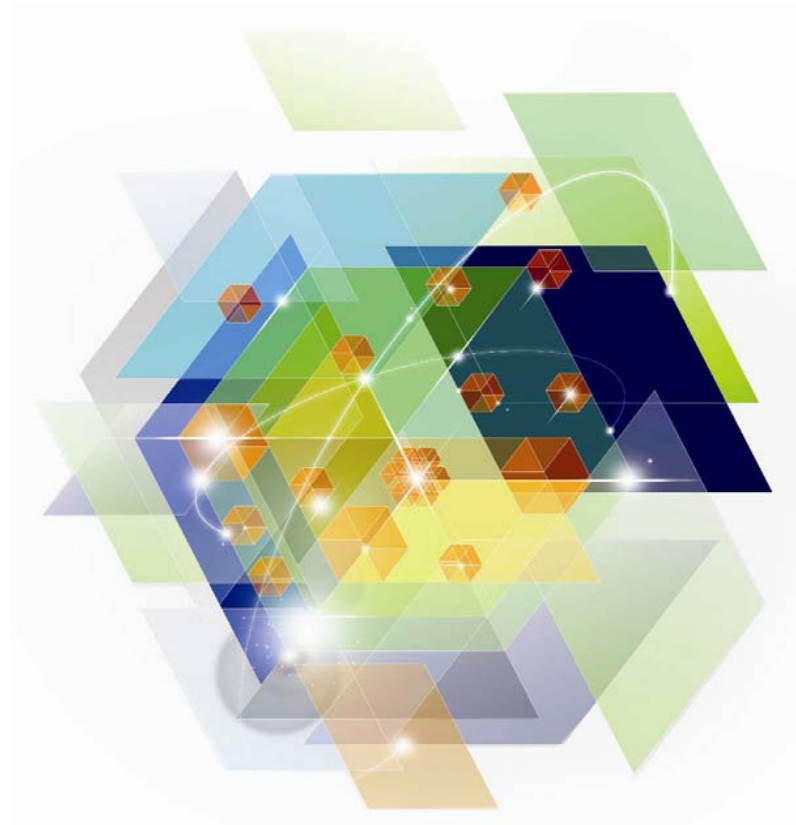
Events, Dynamic Scripting, SOA, mobile

Classic capability enhancements

Threadsafe, connectivity, Performance

No Charge Developer Trial

Reference materials

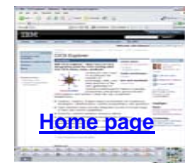


CICS Communities and Information

- **Web pages**
 - Transaction Server V4.2 <http://ibm.com/cics/tserver/v42>
 - CICS Tools ibm.com/cics/tools
 - PD Tools ibm.com/software/awdtools/deployment/
 - CICS Explorer ibm.com/cics/explorer
- **CICS Explorer Forum**
 - <http://tinyurl.com/68bndw>
 - IBM developerWorks forum with FAQs, Links and resources, ISV Contributions, etc. Ask questions, suggest improvements, report problems, chat
- **CICSdev community**
 - Public community with blog, forum etc aimed at application developers
 - <https://www.ibm.com/developerworks/connect/cicsdev>
- **Twitter**
 - Subscribe to the [IBM System z channel](#) and the [ibm_cics channel](#) to get System z and CICS news flashes
- **CICS Blog**
 - Information, comment and opinion at TheMasterTerminal.com
- **CICS eNews**
 - Subscribe for news about CICS and related products – share with your clients
- **YouTube channels**
 - [CICS Explorer](#) - Videos, demos and other cool stuff
 - [CICSFluff](#) - Other CICS videos



New



Twitter



Blog



eNews



YouTube

Key documents

▪ Analyst papers

- Lustratus Research - New project platform section for CICS Users
ftp://public.dhe.ibm.com/software/htp/cics/pdf/Lustratus_Research_Paper_New_project_platform_selection_for_CICS_users.pdf
- Branham Group: IBM CICS Tools: Unrealized Productivity Gains and True Cost Savings
ftp://public.dhe.ibm.com/software/htp/cics/tools/IBM_CICS_Tools_Whitepaper_2009.pdf
- Software Strategies: IBM z/OS Problem Determination Tool Suite Leads Again
https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?lang=en_US&source=swg-rszswg

▪ IBM Redbooks

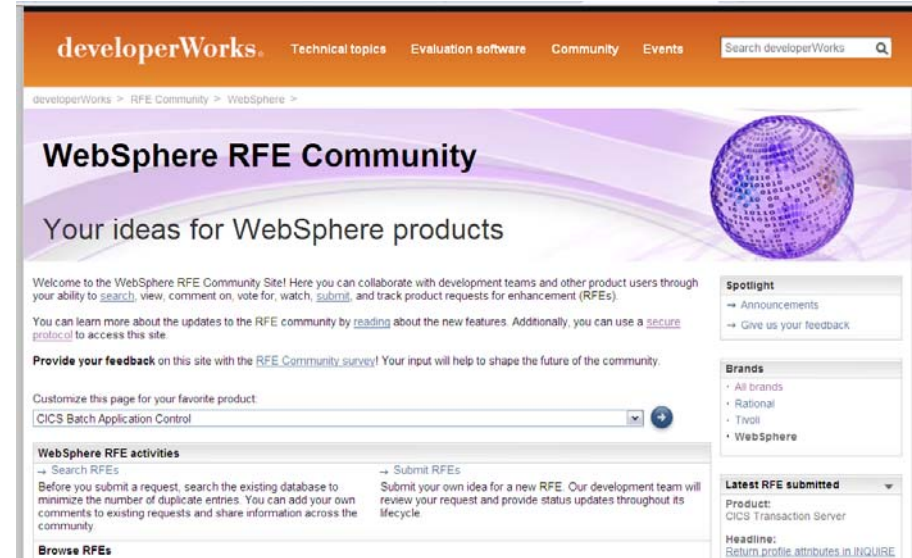
- [CICS Transaction Server from Start to Finish](#), SG24-7952-00
- [Smarter Banking with CICS Transaction Server](#), SG24-7815-00
- [Implementing Event Processing with CICS](#), SG24-7792
- [Introduction to CICS Dynamic Scripting](#), SG-7924

▪ Coming soon ...

- CICS and SOA: Architecture and Integration, SG24-5466-06
- Implementation of Popular Business Solutions with CICS Tools, REDP-4824-00

Raising new requirements with RFE

- You can now raise and track requirements using the new IBM RFE system for
 - CICS Transaction Server
 - CICS Explorer
 - TXSeries
 - WXTR
 - IBM CICS Tools
 - CICS Transaction Gateway
 - PD Tools - coming soon (target end Jan 2012)



- Existing FITS requirements are currently being processed, and will either be transferred to RFE or closed and returned.
- All brands <https://www.ibm.com/developerworks/rfe/> - select Brand: WebSphere
- WebSphere only https://www.ibm.com/developerworks/rfe/?BRAND_ID=181
- Select Product Family: Transaction Processing - for CICS Transaction Server, TXSeries, and WXTR
- Select Product Family: Enterprise Tooling - for the CICS Tools, CICS Transaction Gateway, and PD Tools
- Raise CICS Explorer base requirements against the Explorer component of CICS TS.
- Raise plug-in requirements against the Explorer component of related product.

IBM Software

Impact2012

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April 29-May 4 Las Vegas, NV



30 sessions and labs in the CICS Track

Visit the zSoftware Solutions Suite for live demos and technical discussions

Early registration discounts available!

<http://www-01.ibm.com/software/websphere/events/impact/registration.html>