



# Revitalizing your CICS – Revitalizing Business

**IBM Hursley**

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## Agenda for Revitalizing Business

- Expanded Service Enablement in CICS TS V4
- Scenarios for a revitalized business
  - 6 scenarios at 'Revitalized Bank'
- How some of the scenarios can be achieved
  - Consumable account information using CICS Atom feed support
    - Use of Atom feeds for the scenario
    - More details on Web 2.0 and Atom support in CICS
  - Risk management dashboards using PHP support in CICS
    - Use of PHP for the scenario
    - More details on PHP support for CICS
  - Customer care using CICS event processing support
    - Use of CICS events for the scenario
    - More details on CICS event processing support
- Summary



## A revitalized business

### **Introduction and scenarios**

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# Banking Scenarios

- Welcome to the Revitalized Bank



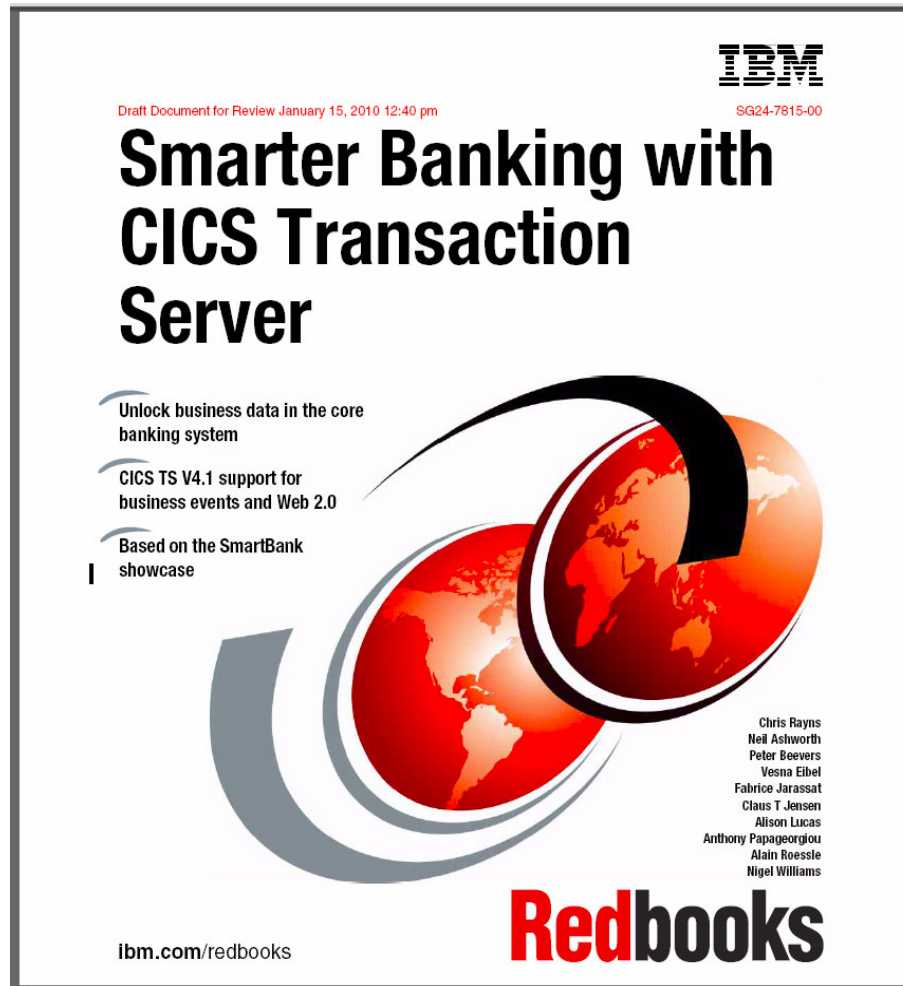
## Before being revitalized

- Bank was losing market share
- Market research showed customers were looking for more service options, such as
  - 24x7 real time banking with adhoc and scheduled bill payments
  - Ability to manage securities from multiple institutions from one location
  - Banking options that can be accessed from smart phones
- The bank wanted to simplify their IT infrastructure
  - Enhance effectiveness of system and application programmers

## The revitalized bank

- Revitalized its business
  - Providing customers with consumable information
  - Greater customer care and insight
  - Better risk management
- Revitalized its applications
  - Access to multiple accounts and branches
  - Increased agility and productivity
- Revitalized its infrastructure
  - Modernized and simplified
  - Greater flexibility and enhanced management
  - Robust, scalable, secure basis for an integrated user experience

# Scenarios mostly taken from CICS in Banking **Redbook**



Draft  
(available shortly)



## Accounts in multiple banks

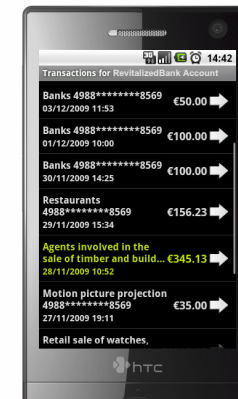


- Trend towards customers having multiple accounts in different banks
  - How can customers see all their accounts in one consolidated view?
  - How can our Revitalized Bank be seen as the customer's primary bank?
- Multi-account mashup provided by the Revitalized Bank
  - Both the provider of account information and on-the-glass integrator
  - Uses account information feeds, which can then also be used in other ways
- Use feeds of transaction data from an account, and of location data of payment terminals



## Consumable account information

- Provide account transaction data in consumable form, helping customer to
  - Find out about recent transactions on account
  - Budget across accounts using a budgeting application
  - Discover location of nearest ATM
  - Correlate transactions with locations where they occurred, potentially highlighting fraudulent situations



## Notification for corporate payments



- Falls within Payments and Securities domain
  - Need to differentiate via cash management and complex derivative products
- Provide real-time updates to corporate banking (and private banking) customers over mobile channel
- Many corporate customers require real-time updates on accounts, especially at month-end
- Surface events in a secure way to mobile devices
  - Offer differentiated payment services to customers who need up-to-the-minute information to control company cashflow and liquidity
  - Event-based solution avoids application change and offers common approach across disparate systems

## Market risk management

- Provide risk management dashboards with horizontal integration of 3 classic risk types
  - Financial
  - Operational
  - Criminal
- Enables floor traders to
  - Set sharper equity prices
  - Avoid overly risky trade transactions
- Risk-related data feeds and integration in a risk dashboard

Item	Description	Cost	Stock	On Order
0030	Ball Pens Black 24pk	2.90	77	0
0030	Ball Pens Blue 24pk	2.90	77	0
0030	Ball Pens Red 24pk	2.90	106	0
0040	Ball Pens Green 24pk	2.90	80	0
0050	Pencil with eraser 12pk	1.78	83	0
0060	Highlighters Assorted 5pk	3.88	15	0
0070	Laser Paper 24-B-108 Bright 500ream	7.4	18	0
0080	Laser Paper 28-B-108 Bright 2500 case	33.54	25	0
0090	Blue Laser Paper 20b 500ream	5.35	22	0
0100	Green Laser Paper 20b 500ream	5.35	3	20
0110	IBM Network Printer 24 - Toner cart	169.58	12	0
0120	Stenciled Diary: Week to year, 8 1/2x5 1/2	25.98	1	0
0130	Wall Planner: Erasable 36x24	18.85	3	0
0140	70 Sheet Hard Back wire bound notepad	5.89	84	0
0150	Sticky Notes 3x3 Assorted Colors 5pk	5.35	36	45

Thank you for shopping with the Big Blue Pen Company.

More

Date

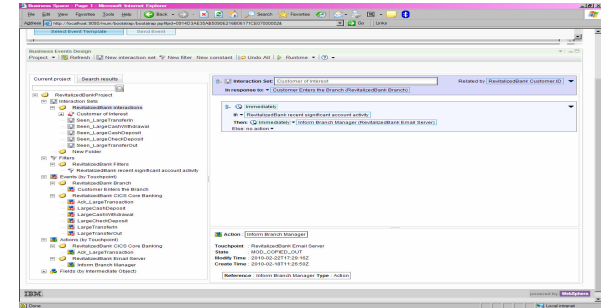
## Detect check kiting



- “Check kiting”
  - Use of non-existent funds to get an interest-free unauthorized bank loan or temporarily inflate account balance (e.g. to improve chances of getting a loan)
  - Example:
    - Deposit check in Bank 1 from an account at Bank 2. Before the check is collected (clears), write a check from Bank 1 to deposit at Bank 2 to cover the first deposit. Rinse and repeat.
  - Detection requires cross-bank visibility and horizontal integration
    - Could be achieved using standardized event processing
    - Scan for parallel (otherwise uncovered) checks and take appropriate action

## Customer care and insight

- Account overdraft protection
  - Inform customers when account is about to go overdrawn, giving them a chance to top up the account and avoid charges
  - Needs to be in near real-time (at the end of the day would be no good)
  - Event-based solution
- Customers of interest
  - Encourage customers to perform transactions without visiting branch
  - Policy for branch manager to greet high-value customers
  - Follow-up on unfinished business e.g. outstanding mortgage request
- Customer care
  - Customer begins a transaction e.g. loan request, but does not complete, could indicate customer satisfaction is at risk





## Achieving the revitalized business

**What was used to achieve the scenarios,  
and what's going on inside?**

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## Revitalizing your business with new CICS capabilities

- Business Events, Web 2.0, PHP support
  - CICS TS V4.1 provides business events and Web 2.0 support
    - With tasters for V3 via SupportPacs
  - Also a SupportPac for use of PHP scripting with CICS
- Allow rapid, flexible development of business solutions
  - Simple, or no, programming
  - Modern interaction styles
- Enable greater alignment between Business and IT
  - IT organisation better able to more rapidly meet needs of the business
  - Can also put capabilities in the hands of business users

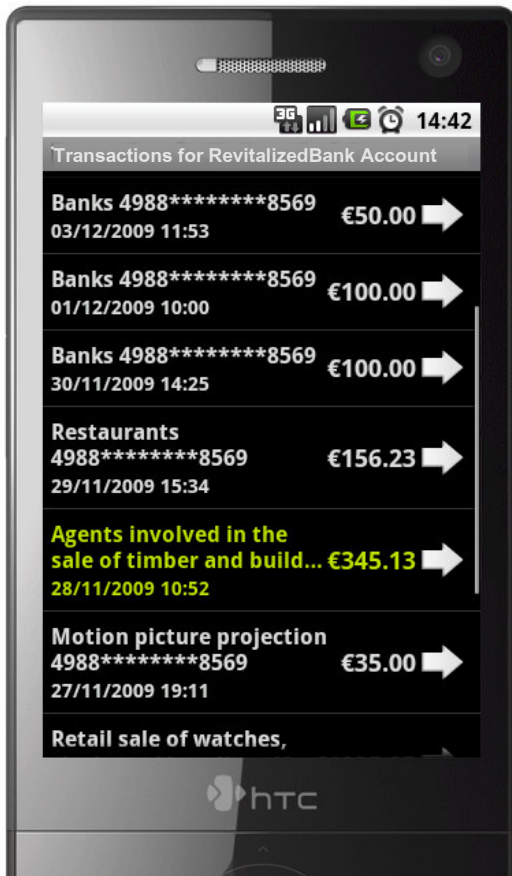


# Consumable account information: CICS Web 2.0 and Atom feed support

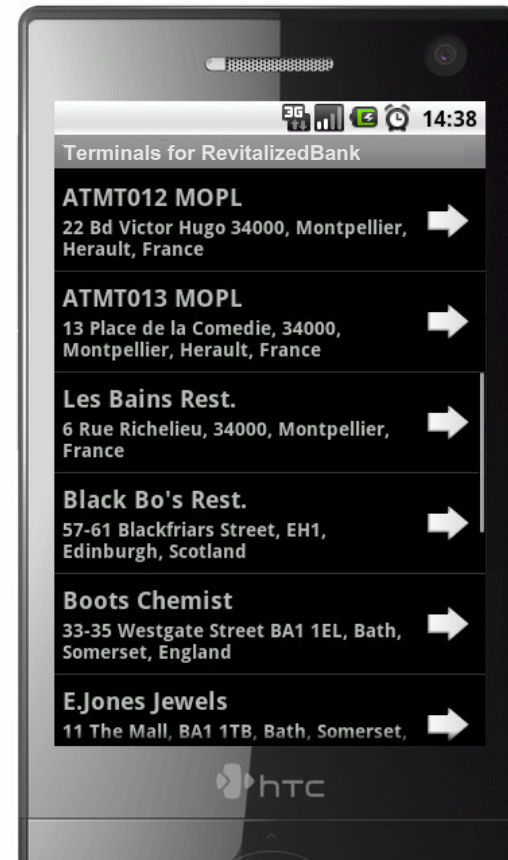
## Consumable Account Information

- Business Need
  - 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.
- Achieved by
  - Atom feed of POS terminal and ATM locations
  - Atom feed of account transactions
  - Application on mobile device that displays feeds, flags up large transactions, and mashes up terminal locations with transactions and phone location

# Mobile application showing Atom Feeds



Account Transactions

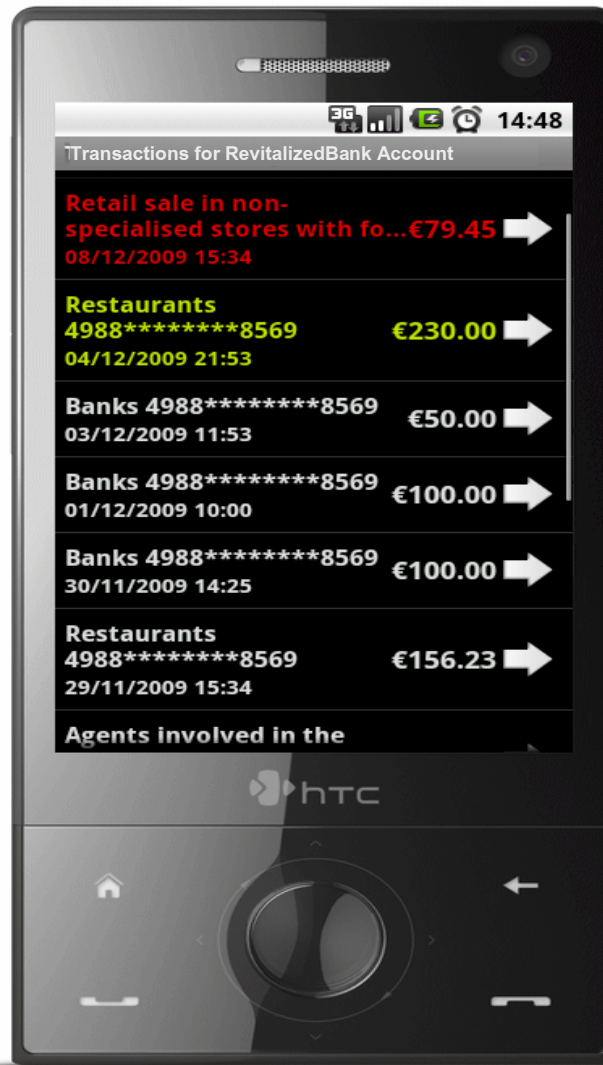


PoS terminals and ATMs

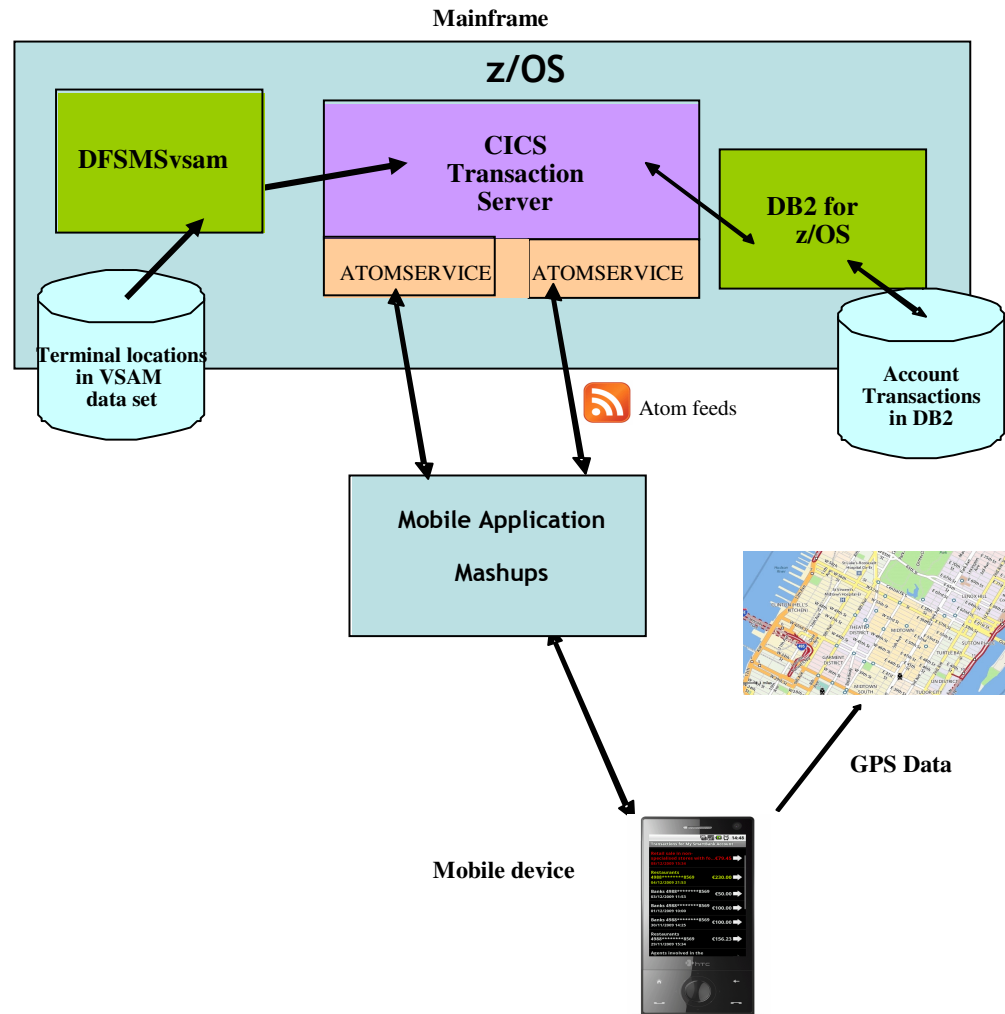
## Mobile application large transaction flagging



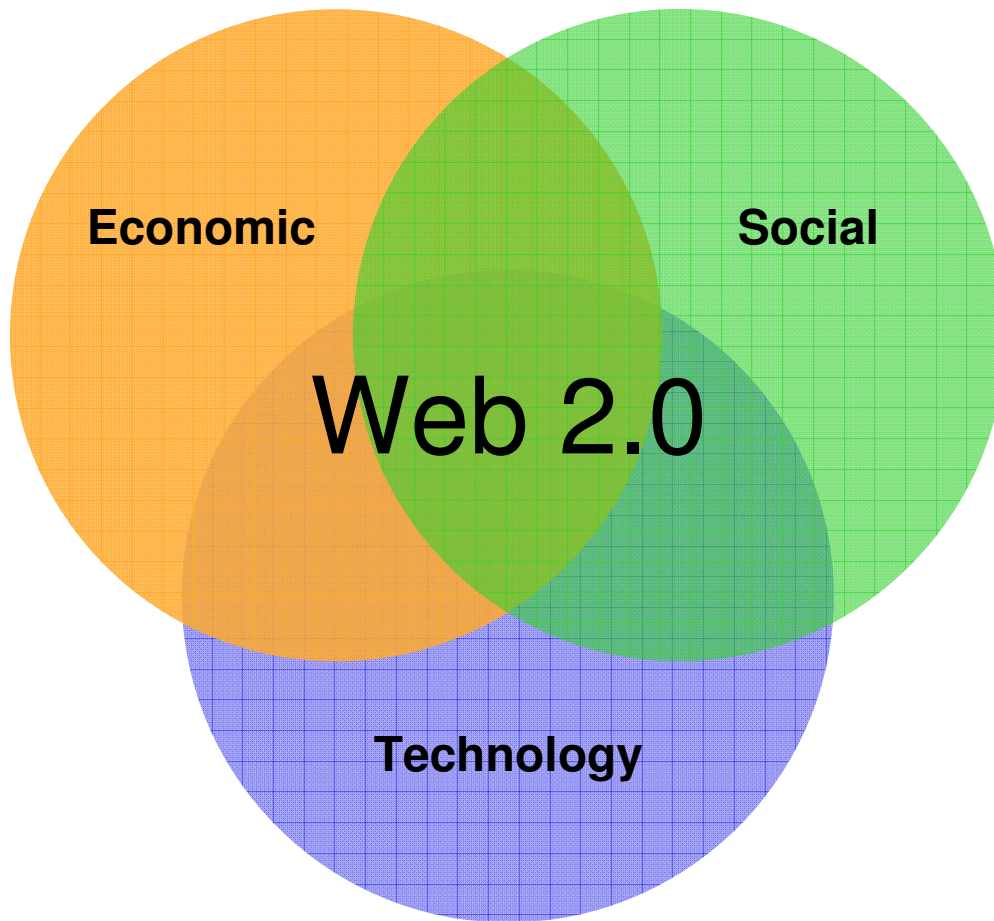
# Mobile application Mashup



# Atom feeds from CICS



# Web 2.0 is why the internet is exciting today ... ... for everyone



Web 2.0 is a set of economic, social, and technology trends that collectively form the basis for the next generation of the Internet - a more mature, distinctive medium characterized by user participation, openness, and network effects.

Source: Web 2.0 Best Practices and Principles, O'Reilly Radar

Web 2.0 is a term that captures the widespread sense that there's something qualitatively different about today's Web.

Source: Tim O'Reilly

## URLs, RESTful and tagging

- “Clean and meaningful URLs”
  - For everything!
  - e.g. a file, a Database, a TSqueue....
    - or a single record within each resource
- REST
  - REpresentational State Transfer - See [http://en.wikipedia.org/wiki/Representational\\_State\\_Transfer](http://en.wikipedia.org/wiki/Representational_State_Transfer)
  - How the Web has always worked...
    - HTTP methods POST | GET | PUT | DELETE are all the verbs you'll ever need
    - Everything else is a *resource* – with a representation of its state
- Tagging
  - “Remembering in public”
  - Associating audience-defined terms with entities/things so that dynamic collections are formed



## REST and SOAP comparison

- SOAP over HTTP
  - Objects are imbedded in the SOAP message
  - Operations have a URI
    - (Or a verb within a namespace with a URI)
  - Only uses the HTTP POST method
    - Firewall opaque
  
- REST over HTTP
  - All objects/resources have a URI (URL)
  - Operations on the objects are done through the four defined HTTP methods:
    - POST, GET, PUT, DELETE
    - Firewall friendly

## Syndication: RSS and Atom

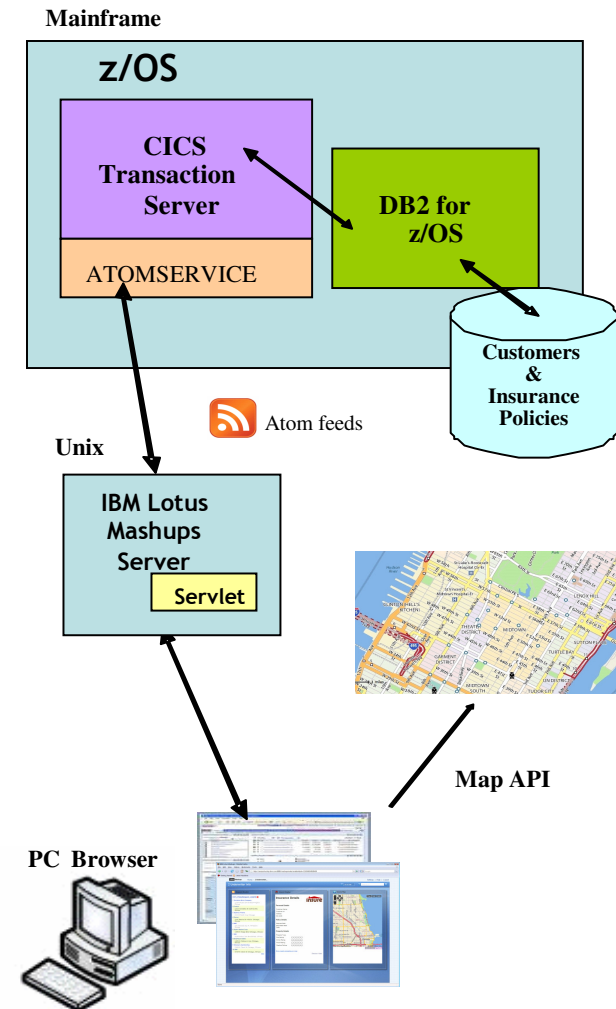
- Syndication: publishing short items of text
  - News headlines
  - System status changes
  - New customer records
  - CICS Events
- Client can be a web browser or a dedicated “feed aggregator”
- Two main syndication flavors
  - RSS is very popular but has several ad hoc implementations
  - Atom is an emerging standard defined in two RFCs

## Atom Feeds

- What is an Atom Feed?
  - Protocol and XML format for content publishing
    - Provide XML based feed of updated content
    - Process is known as syndicating a feed
      - > Follow-on to Really Simple Syndication (RSS)
    - Simple publish/subscribe implementation
      - > Polling model
      - > Based on http support
  - Described by two Internet Requests for Comments
    - The Atom Syndication Format
      - Targeted at producing feeds
      - RFC4287: (Dec 2005) <http://tools.ietf.org/html/rfc4287>
    - The Atom Publishing Protocol
      - Targeted to creating and updating resources
      - RFC5023: (Oct 2007) <http://tools.ietf.org/html/rfc5023>

## Atom feeds from CICS

- Enables CICS applications to:
  - Provide live information for Web 2.0 consumption
  - Integrate with related data
  - Give full picture in a single holistic view
- Create new applications based on up-to-date content and information
  - Decision-support tools for knowledge workers
  - Composite user interfaces for expert workers
  - Information feeds & widgets to consumers for use in their own mashups
- Develop using WebSphere sMash or RDz with EGL



*High level architecture: CICS Atom feeds*

## Atom Support in CICS TS V4.1 – 1 of 3

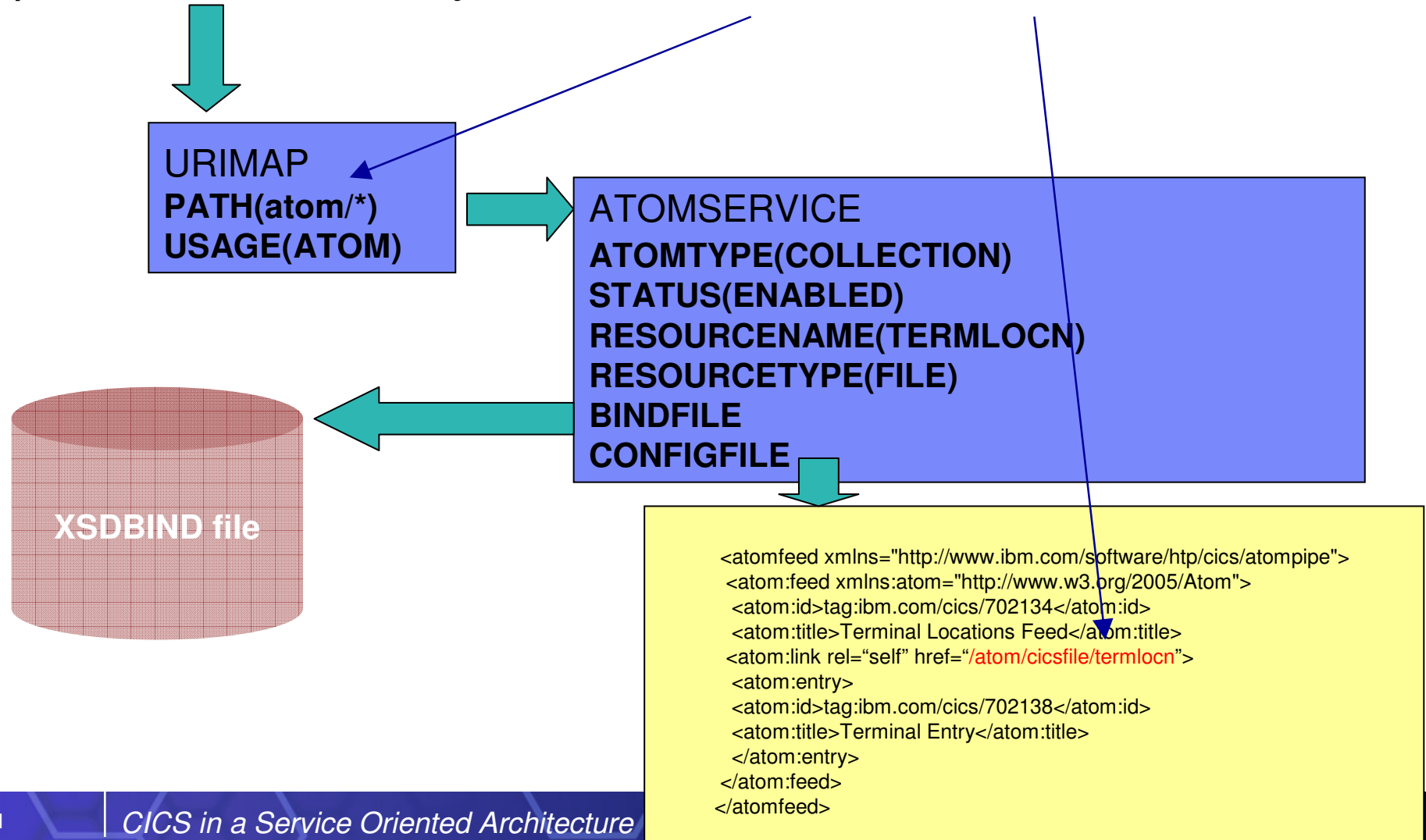
- New ATOMSERVICE resource
- URIMAP USAGE(ATOM) intercepts URL for ATOM request, maps it to an ATOMSERVICE
- ATOMSERVICE describes all the major Atom document types:
  - Service documents from RFC5023
  - Category documents from RFC5023
  - Feed documents from RFC4287
  - Entry documents from RFC4287

## Atom Support in CICS TS V4.1 – 2 of 3

- URIMAP→ATOMSERVICE points to CICS resources to be exposed as feeds
  - FILEs, TSQUEUEs or PROGRAMs
    - PROGRAM resource specifies the name of a custom “Service Routine” that can be used to access other data sources or link to other CICS applications
    - FILEs and TSQUEUEs are handled automatically (by a CICS-supplied Service Routine)
- Atom and CICS metadata configured in a CONFIGFILE
- XML to binary mapping uses an XSDBIND file
  - Bindfile is incorporated into a new XMLTRANSFORM resource

# Atom Support in CICS TS V4.1 – 3 of 3

<http://winmvs2c.hursley.ibm.com/atom/cicsfile/termlocn>



## Using Web 2.0

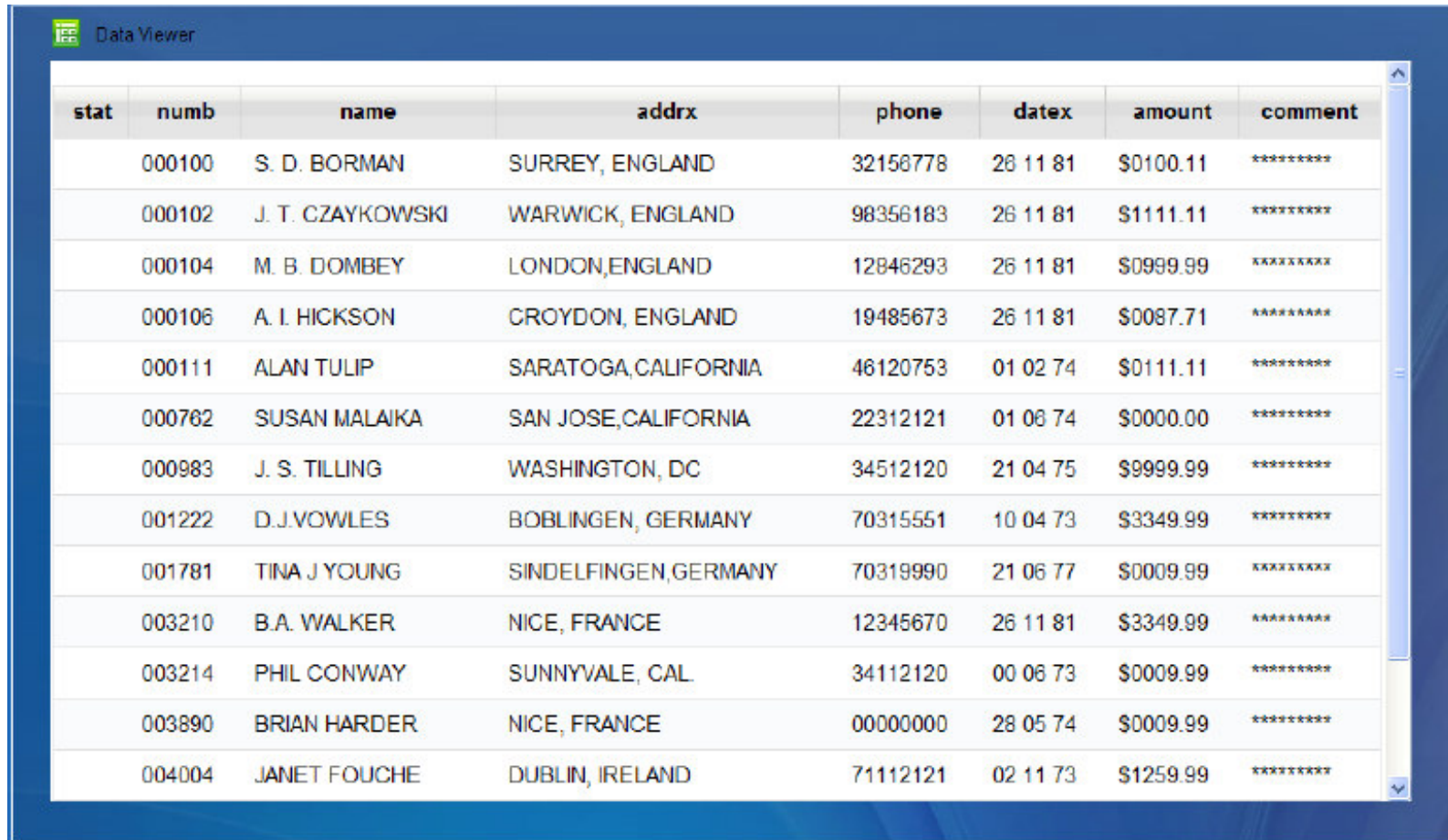
- Web 2.0 is mainly about more dynamic forms of web interaction - “Rich Internet Applications”
  - Mashups
    - Content from multiple servers composed in a single web page
    - Uses AJAX to communicate with server
    - Archetypal example is GoogleMaps
  - Syndications
    - Menu of short messages, possibly linking to other content
    - Podcasts
  - Blogs
    - Online “web log”, diary, etc, possibly collaborative
- CICS Atom support allows integration with “widgets” in a Web mashup environment
  - Rapid application deployment on the Web
  - Enable “Situational applications”
- Integrate with “IBM Mashup Center”
  - <http://www.ibm.com/software/info/mashup-center/>





## Using IBM Mashup Centre – Lotus Mashups

- Plug a CICS feed directly into the Lotus Mashup “Data Viewer” widget




The screenshot shows a web-based interface titled "Data Viewer" with a table of data. The table has eight columns: stat, numb, name, addrx, phone, datex, amount, and comment. The data is presented in a grid with alternating light and dark rows. A vertical scrollbar is visible on the right side of the table.

stat	numb	name	addrx	phone	datex	amount	comment
000100	S. D. BORMAN	SURREY, ENGLAND	32158778	28 11 81	\$0100.11	*****	
000102	J. T. CZAYKOWSKI	WARWICK, ENGLAND	98356183	26 11 81	\$1111.11	*****	
000104	M. B. DOMBEY	LONDON, ENGLAND	12846293	26 11 81	\$0999.99	*****	
000106	A. I. HICKSON	CROYDON, ENGLAND	19485673	26 11 81	\$0087.71	*****	
000111	ALAN TULIP	SARATOGA, CALIFORNIA	46120753	01 02 74	\$0111.11	*****	
000762	SUSAN MALAIKA	SAN JOSE, CALIFORNIA	22312121	01 06 74	\$0000.00	*****	
000983	J. S. TILLING	WASHINGTON, DC	34512120	21 04 75	\$9999.99	*****	
001222	D. J. VOWLES	BOBLINGEN, GERMANY	70315551	10 04 73	\$3349.99	*****	
001781	TINA J YOUNG	SINDELINGEN, GERMANY	70319990	21 06 77	\$0009.99	*****	
003210	B. A. WALKER	NICE, FRANCE	12345670	26 11 81	\$3349.99	*****	
003214	PHIL CONWAY	SUNNYVALE, CAL.	34112120	00 06 73	\$0009.99	*****	
003890	BRIAN HARDER	NICE, FRANCE	00000000	28 05 74	\$0009.99	*****	
004004	JANET FOUCHE	DUBLIN, IRELAND	71112121	02 11 73	\$1259.99	*****	


## Using the IBM Mashup Center – Lotus Mashups

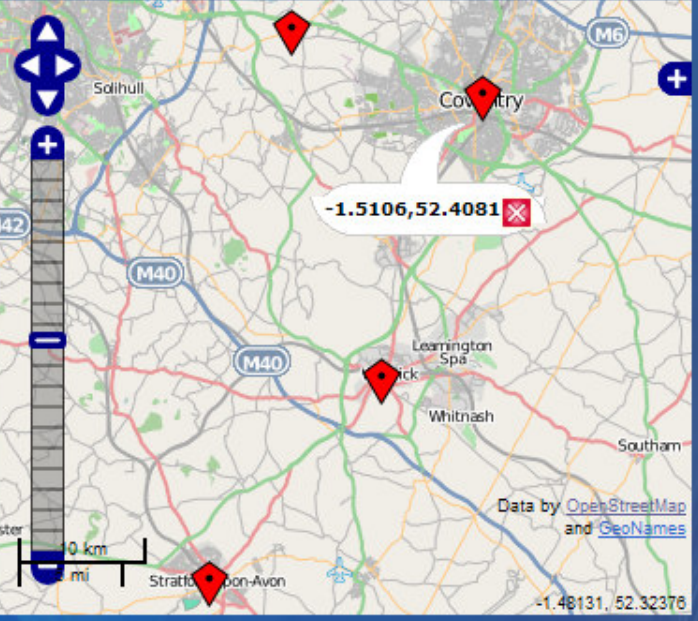
- Data transformed in MashupHup can be wired into other widgets, such as “OpenStreetMap”
- Example using the sample PersonnelData TS queue:-

 Data Viewer

name	occupation	residence	map_location
Millie Oak	Gardener	Leamington	-1.5293, 52.3016
Sadie Godiva	Equestrian	Coventry	-1.5106, 52.4081
Carole Singer	Vocalist	Warwick	-1.5846, 52.2820
Bill Shakes	Scriptwriter	Stratford	-1.7102, 52.1908
Joe Bloggs	Media Consultant	Meriden	-1.6496, 52.4379

Page 1 Previous | Next

 OpenStreetMap



The map displays several red diamond markers representing the residences of the personnel listed in the table. A callout box for the Coventry location shows the coordinates -1.5106, 52.4081. Other visible locations include Leamington, Stratford, and Meriden. The map includes standard navigation controls and a scale bar.

# Risk Management dashboards: PHP in CICS

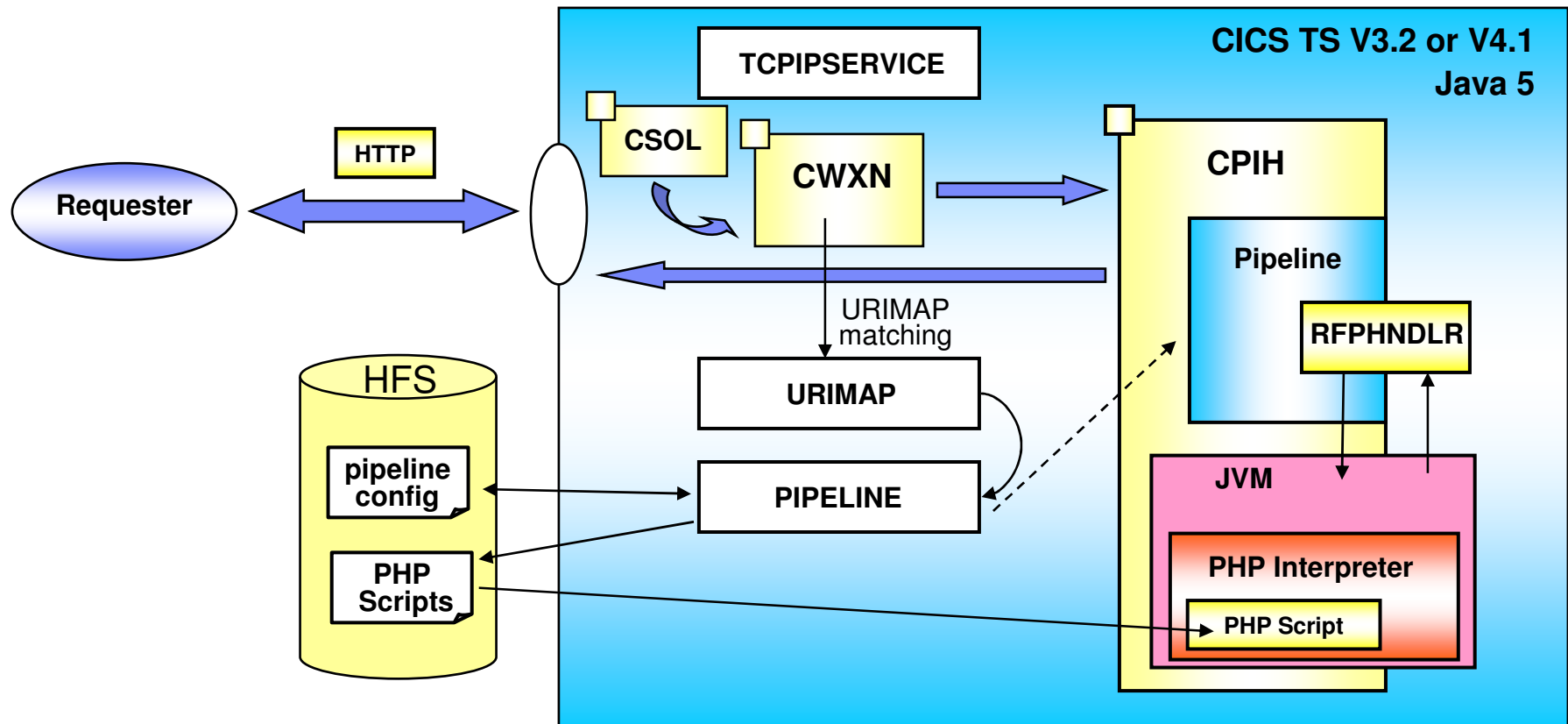
## Risk Management Dashboard Scenario

- **Business Need**
  - Provide risk management dashboard to horizontally integrate financial, operational and criminal risks
  - Information is from a variety of sources, including CICS programs and data written to DB2 from CICS
- **Achieved By**
  - PHP scripting to expose the information
    - RESTful services to CICS COMMAREA programs
    - Access CICS data in DB2 tables using PHP Data Objects
    - Invoke PHP script running in CICS via HTTP requests

# PHP

- PHP: Hypertext Preprocessor
  - A recursive acronym (began life as Personal Home Page)
- Popular, highly productive, scripting language
- Powerful programming model but quick and simple to develop applications
- Included in WebSphere sMash, along with Groovy
- CICS capability to use PHP scripts to easily create RESTful services to access CICS programs and DB2 tables
  - Via SupportPac, introduced for CICS TS V3.2
  - Use PHP in CICS to provide a thin wrapper layer around existing CICS assets, performing integration and rendering

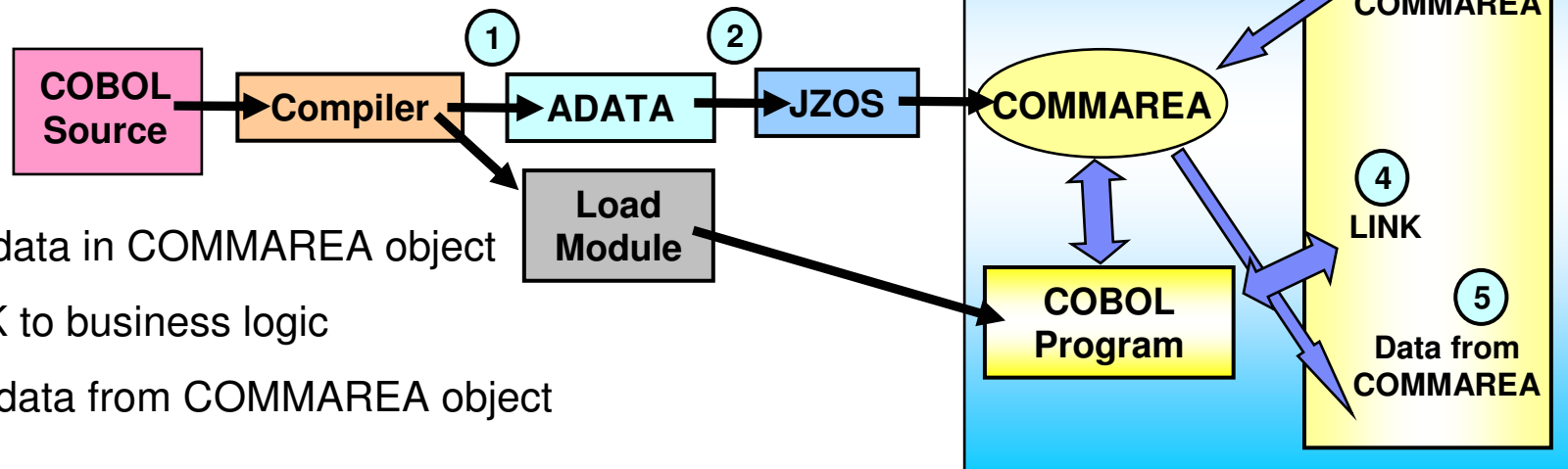
# CICS PHP: Interfacing with CICS CA1S supportPac



# PHP in CICS: Interacting with CICS Programs

- PHP in CICS has a Java Bridge
  - Build a Java object representation of your COMMAREA with JZOS
  - LINK to your business program using the provided API
  - LINK, Syncpoint, and Rollback supported

- Generate ADATA from compiler (data layout info)
- Generate Java Data object using JZOS



- Set data in COMMAREA object
- LINK to business logic
- Get data from COMMAREA object

## Summary of PHP SupportPac CA1S Features

- Handle HTTP requests with PHP code
- Call CICS commarea programs from PHP
- Access DB2 databases from PHP
  - using PHP Data Objects and CICS JDBC
- Manage units of work from PHP (commit/rollback)
- Use event handlers to easily create RESTful Web Services
- Debug PHP scripts with Eclipse PDT
- Access any Java classes from PHP code using the PHP/Java Bridge
  
- Requires CICS TS V3.2 plus Java 5 support (PTF), or CICS TS V4.1



# Example: PHP front-end to CICS Catalog Manager

The screenshot displays the IBM Rational Developer for System z IDE. The main editor window shows the PHP file `EGUI.php` with the following code:

```
<html>
<title>Developing Browser Interfaces to CICS Applications</title>
<body bgcolor="#6666ff">
<h1>Big Blue Pen Company</h1>
<h2>CICS Example Catalog Application</h2>
<h3>Main Menu</h3>
<?php
$CICS=$_SERVER['SERVER_SOFTWARE'];
if(isset($_GET['error']))
{
$error = $_GET['error'];
if($error == 'userName')
{
echo "<marquee><h1>","You must include a User Name to Order!!!","</marquee></h1>";
}
if($error == 'chargeDepartment')
{
echo "<marquee><h1>","You must include a Charge Department to Order!!!","</marquee></h1>";
}
if($error == 'orderQuantityZero')
{
echo "<marquee><h1>","You cannot order zero items!","</marquee></h1>";
}
if($error == 'orderQuantity')
{
echo "<marquee><h1>","You must specify an order quantity!","</marquee></h1>";
}
}
?>
<p>Please select an action</p>
<form action="/php/catalog.php" method="POST">
<p>
<input type="radio" name="action" value="List" checked>List items</input>
</p>
<p>
<input type="radio" name="action" value="Order">Order item number </input>
<input name="item" type="text" size="4" maxlength="4" value=""></input>
</p>
<p>
<input type="radio" name="action" value="Exit">Exit</input>
</p>
<input type="submit" name="Click me" value="Click here to continue"></input>
</form>
</body>
</html>
```

The IDE interface includes a Project Explorer on the left showing the project structure, a Properties window at the bottom left, and a Remote Systems Explorer on the right. The status bar at the bottom indicates "RevitalizedBankPHP [Default Target Environment]" and "No CICS SM connection".

# PHP dashboard front-end to CICS application

Developing Browser Interfaces to CICS Applications - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

http://winmvs26.hursley.ibm.com:64450/php/catalog.php

Most Visited Getting Started Latest Headlines IBM IBM

Developing Browser Interfaces to... Semula Limited

## Big Blue Pen Company

### CICS Example Catalog Application

#### Item List

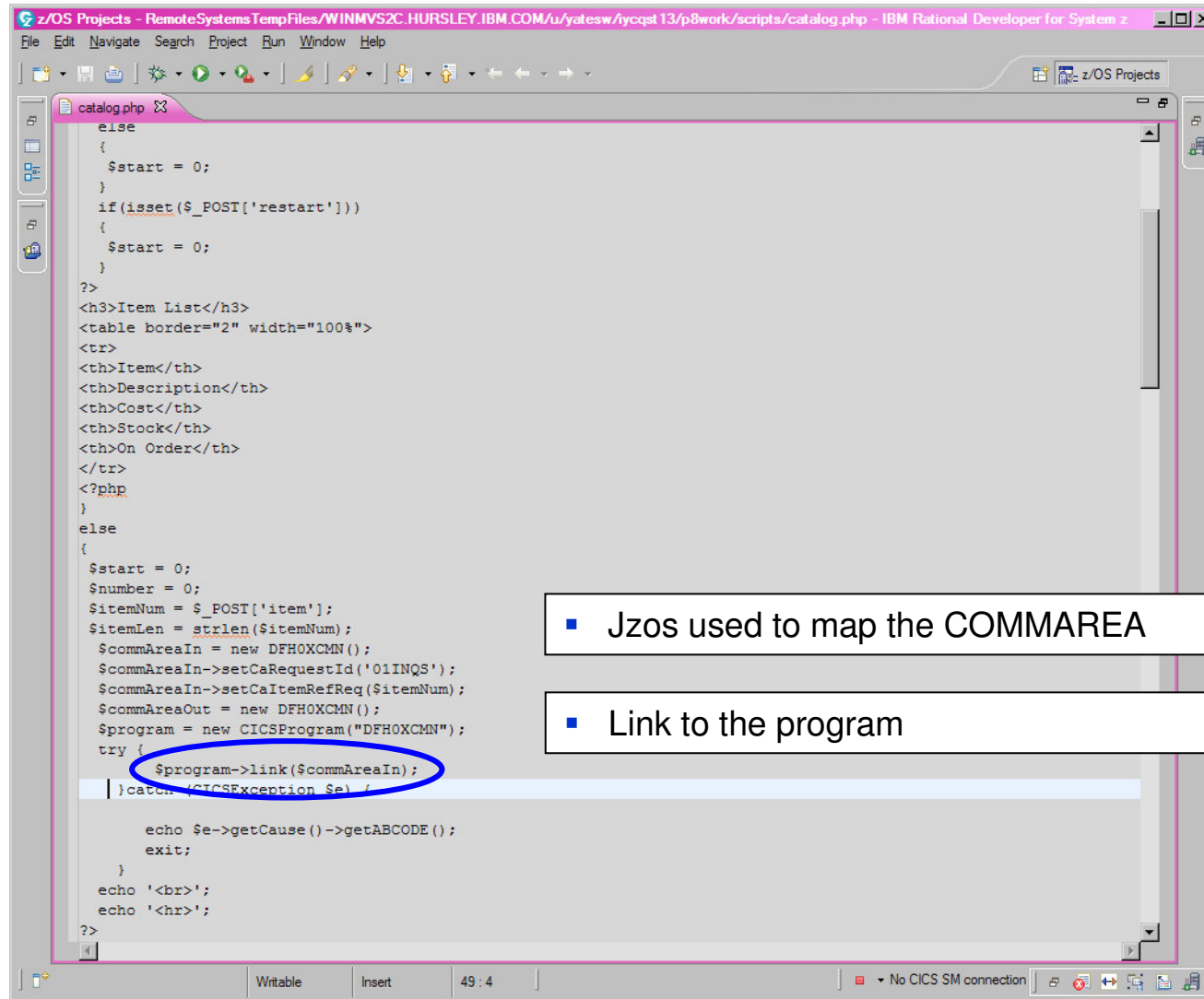
Item	Description	Cost	Stock	On Order
0010	Ball Pens Black 24pk	2.90	77	0
0020	Ball Pens Blue 24pk	2.90	5	50
0030	Ball Pens Red 24pk	2.90	106	0
0040	Ball Pens Green 24pk	2.90	80	0
0050	Pencil with eraser 12pk	1.78	83	0
0060	Highlighters Assorted 5pk	3.89	13	40
0070	Laser Paper 28-lb 108 Bright 500/ream	7.44	102	20
0080	Laser Paper 28-lb 108 Bright 2500/case	33.54	25	0
0090	Blue Laser Paper 20lb 500/ream	5.35	22	0
0100	Green Laser Paper 20lb 500/ream	5.35	3	20
0110	IBM Network Printer 24 - Toner cart	169.56	12	0
0120	Standard Diary: Week to view 8 1/4x5 3/4	25.99	7	0
0130	Wall Planner: Eraseable 36x24	18.85	3	0
0140	70 Sheet Hard Back wire bound notepad	5.89	84	0
0150	Sticky Notes 3x3 Assorted Colors 5pk	5.35	36	45

Thank you for shopping with the Big Blue Pen Company.

[More...](#)

Done

## Example PHP code to call program



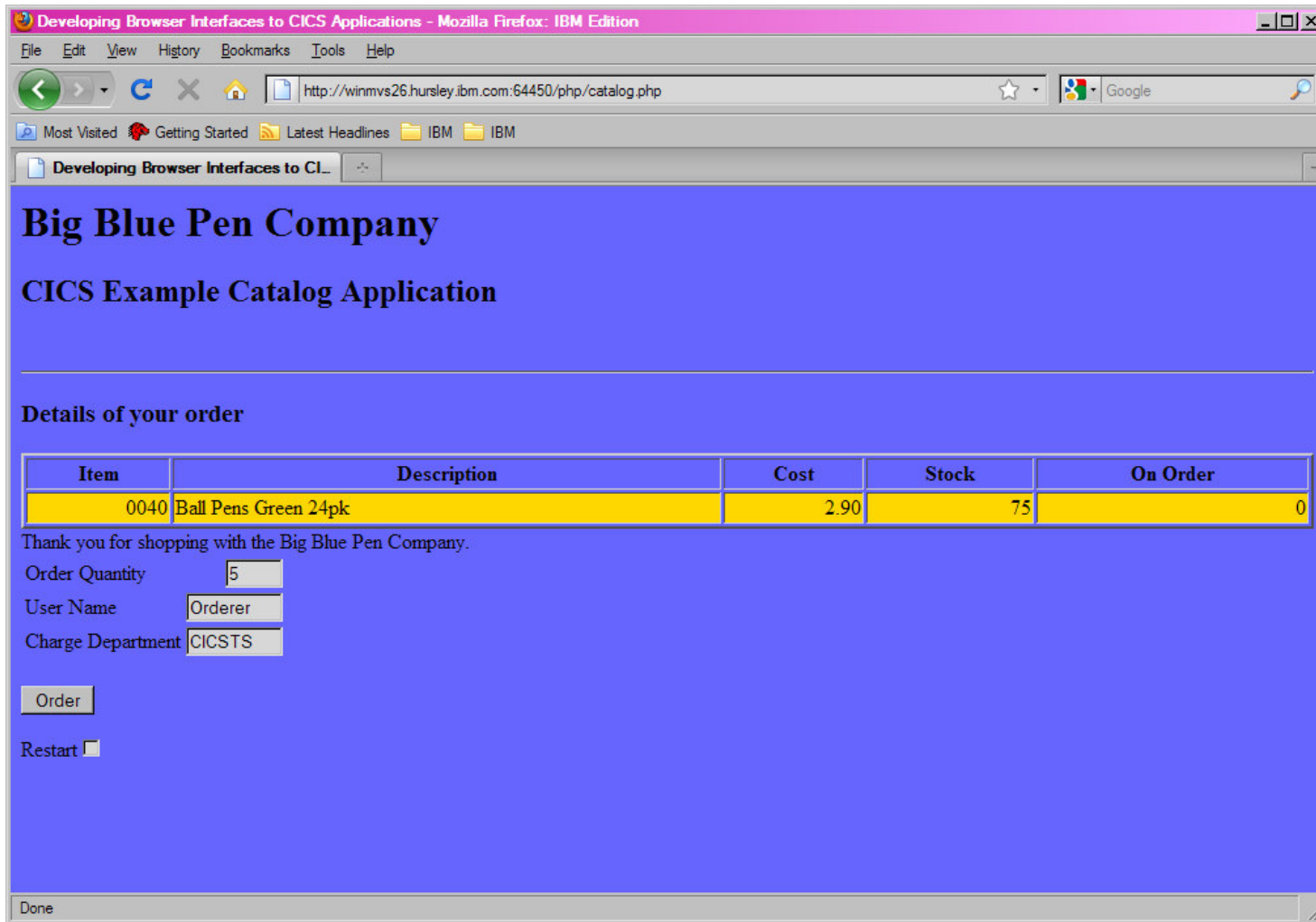
```
z/OS Projects - RemoteSystemsTempFiles/WINMVS2C.HURSLEY.IBM.COM/u/yatesw/tycqt13/p8work/scripts/catalog.php - IBM Rational Developer for System z
File Edit Navigate Search Project Run Window Help
catalog.php
else
{
    $start = 0;
}
if(isset($_POST['restart']))
{
    $start = 0;
}
?>
<h3>Item List</h3>
<table border="2" width="100%">
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
<th>Stock</th>
<th>On Order</th>
</tr>
<?php
}
else
{
    $start = 0;
    $number = 0;
    $itemNum = $_POST['item'];
    $itemLen = strlen($itemNum);
    $commAreaIn = new DFHOXCMN();
    $commAreaIn->setCaRequestId('01INQS');
    $commAreaIn->setCaItemRefReg($itemNum);
    $commAreaOut = new DFHOXCMN();
    $program = new CICSProgram("DFHOXCMN");
    try {
        $program->link($commAreaIn);
    } catch (CICSException $e) {

        echo $e->getCause()->getABCODE();
        exit;
    }
    echo '<br>';
    echo '<hr>';
?>
```

- Jzos used to map the COMMAREA

- Link to the program

# Ordering an item



Developing Browser Interfaces to CICS Applications - Mozilla Firefox: IBM Edition

File Edit View History Bookmarks Tools Help

http://winmvs26.hursley.ibm.com:64450/php/catalog.php

Most Visited Getting Started Latest Headlines IBM IBM

## Big Blue Pen Company

### CICS Example Catalog Application

---

#### Details of your order

Item	Description	Cost	Stock	On Order
0040	Ball Pens Green 24pk	2.90	75	0

Thank you for shopping with the Big Blue Pen Company.

Order Quantity

User Name

Charge Department

Restart

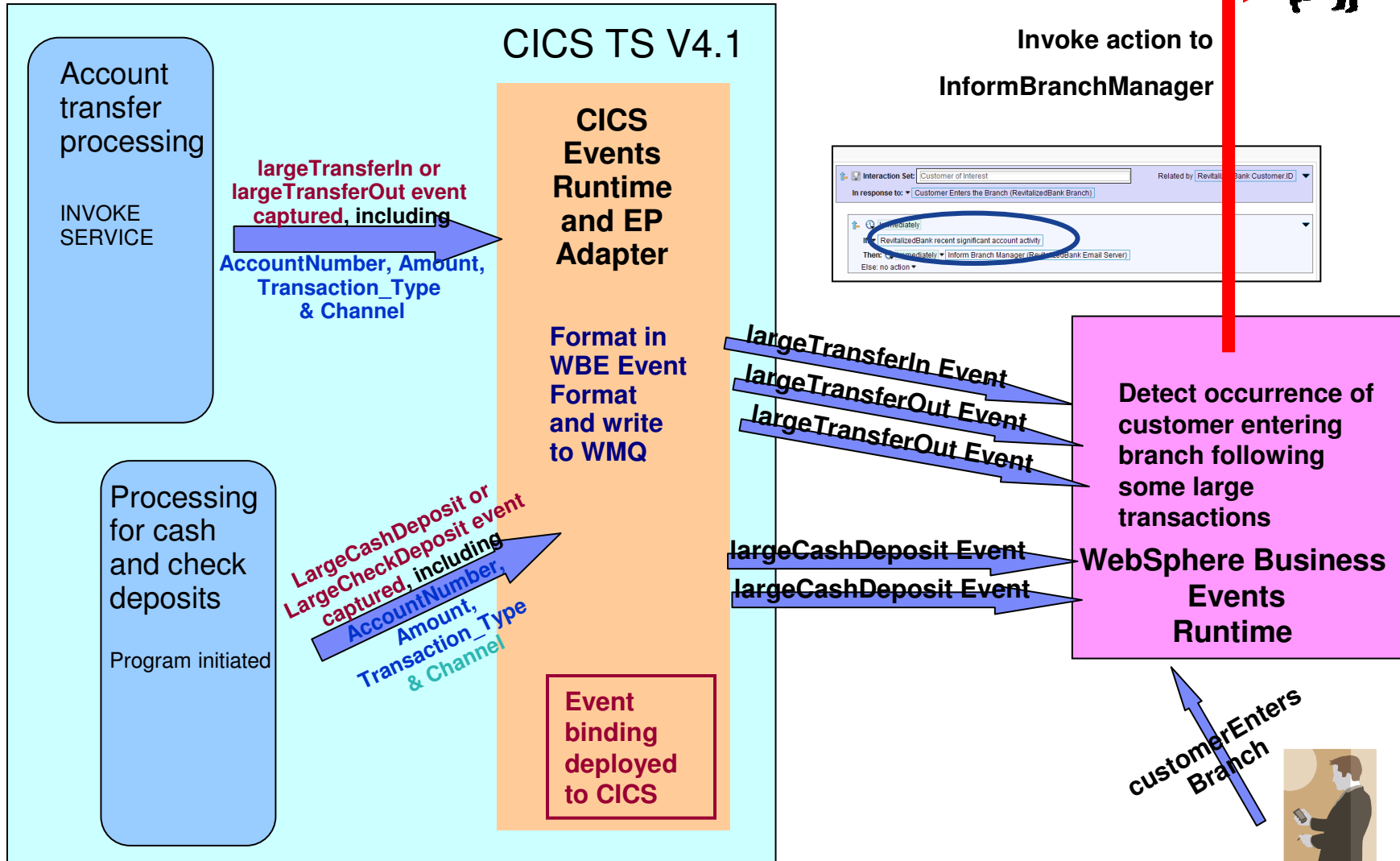
Done

# Customer care and insight: CICS event processing support

## Customer care – customers of interest scenario

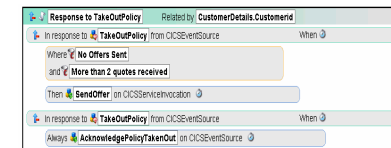
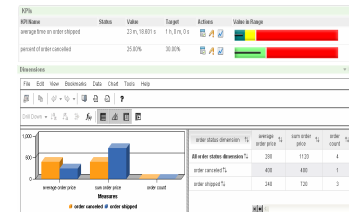
- Business Need
  - Track every corebanking transaction exceeding \$5000
  - Be informed when a customer who has performed 5 or more large transactions visits the branch
- Achieved by
  - Track large transactions for
    - Cash deposits, cash withdrawal, account transfer, check deposit
    - Such transactions are processed by CICS applications
  - Generate events for
    - largeChequeDeposit, largeCashDeposit, largeCashWithdrawal, largeTransferIn, largeTransferOut
    - Events captured from the CICS applications
  - Indication when a customer visits the branch
    - Event from RFID in customer's bank card

# Customers of Interest Scenario in action



## CICS and Business Events

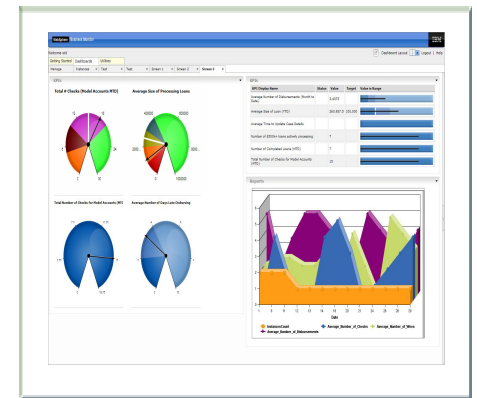
- Event processing addresses the need for agility
  - Modern businesses must react quickly to circumstances
  - Decision makers need reliable, timely information
  - *“Business events processing is becoming more important as it enables companies of all sizes and in all industries to proactively analyze and respond to minute market changes that can significantly impact their businesses” – Tom Rosamilia*
- CICS systems run an enormous amount of existing business logic
- Using an Event-based approach, there is potential to gain insight into the processing in CICS and to introduce additional extensions to applications
  - In a dynamic, de-coupled fashion
  - Without the need to change the applications
- **CICS Transaction Server for z/OS V4.1** allows business events to be emitted from existing applications
  - Driving a choice of destinations
    - WebSphere Business Monitor, WebSphere Business Events, CICS application, application through WebSphere MQ, ...





## EP Scenario 1 – Observe business processing

- Identify key points in order processing business logic
  - e.g. order requested, order placed, order confirmed, order dispatched, order cancelled
  - Collect relevant contextual data associated with the event, including a way to correlate events for the same order, and emit event
  - Events sent e.g. to WebSphere Business Monitor
    - Observe orders being received, processed, cancelled
    - Study KPIs – numbers of orders received per week, time to process and dispatch orders, etc.
    - Take action when thresholds exceeded, when value of a customer's orders exceeds a certain amount, etc.
- Original application continues processing independently:
  - Event instrumentation is 'non-invasive' to the application



# Observe processing – KPIs and Dimensions in Business Space

**Instances**

Export ...

orderID	itemID	customer name	item price	item quantity	order duration	order start time	order end time	order price	order status
+000012784	0001	Steve	20	20	24 m, 19.121 s	May 27, 2009 10:38:13 AM	May 27, 2009 11:02:32 AM	400	order canceled
+000012785	0002	Lijia	5	40	23 m, 25.009 s	May 27, 2009 10:39:24 AM	May 27, 2009 11:02:49 AM	200	order shipped

**KPIs**

KPI Name	Status	Value	Target	Actions	Value in Range
average time on order shipped		23 m, 18.601 s	1 h, 0 m, 0 s		<div style="width: 100%; height: 15px; background: linear-gradient(to right, green 20%, yellow 20% 40%, red 40% 100%);"></div>
percent of order cancelled		25.00%	30.00%		<div style="width: 100%; height: 15px; background: linear-gradient(to right, green 75%, red 75% 100%);"></div>

**Dimensions**

File Edit View Bookmarks Data Chart Tools Help

Drill Down

**Measures**

■ order canceled ■ order shipped

order status dimension ↑↓	average order price ↑↓	sum order price ↑↓	order count ↑↓
<b>All order status dimension ↑↓</b>	280	1120	4
order canceled ↑↓	400	400	1
order shipped ↑↓	240	720	3

50

CICS in a Service Oriented Architecture | [www.ibm.com/cics](http://www.ibm.com/cics)

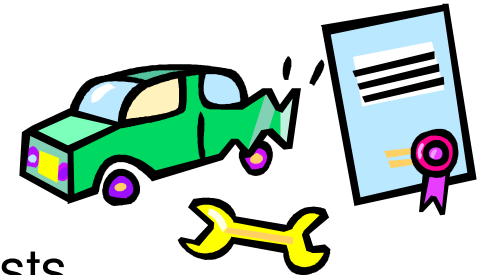
© 2010 IBM Corporation

## EP Scenario 2 – Non-invasive change to business processing

- Application extended by triggering new or existing separate program for extra, asynchronous processing
- **Examples:**
  - Extend governance practices by automatically updating an audit log or sending an alert when certain data is viewed or altered
  - Asynchronously send details of special offers or discounts when large customer orders have been placed
    - This example may be seasonal and is easily enabled/disabled without application change. The interpretation of a large order can be changed outside the application.
- Original program continues processing independently
- Consumer program can run within CICS or externally
  - Flexibility to use available skills and other resources
  - Choice of processing platform depends on nature of processing, interaction with other subsystems



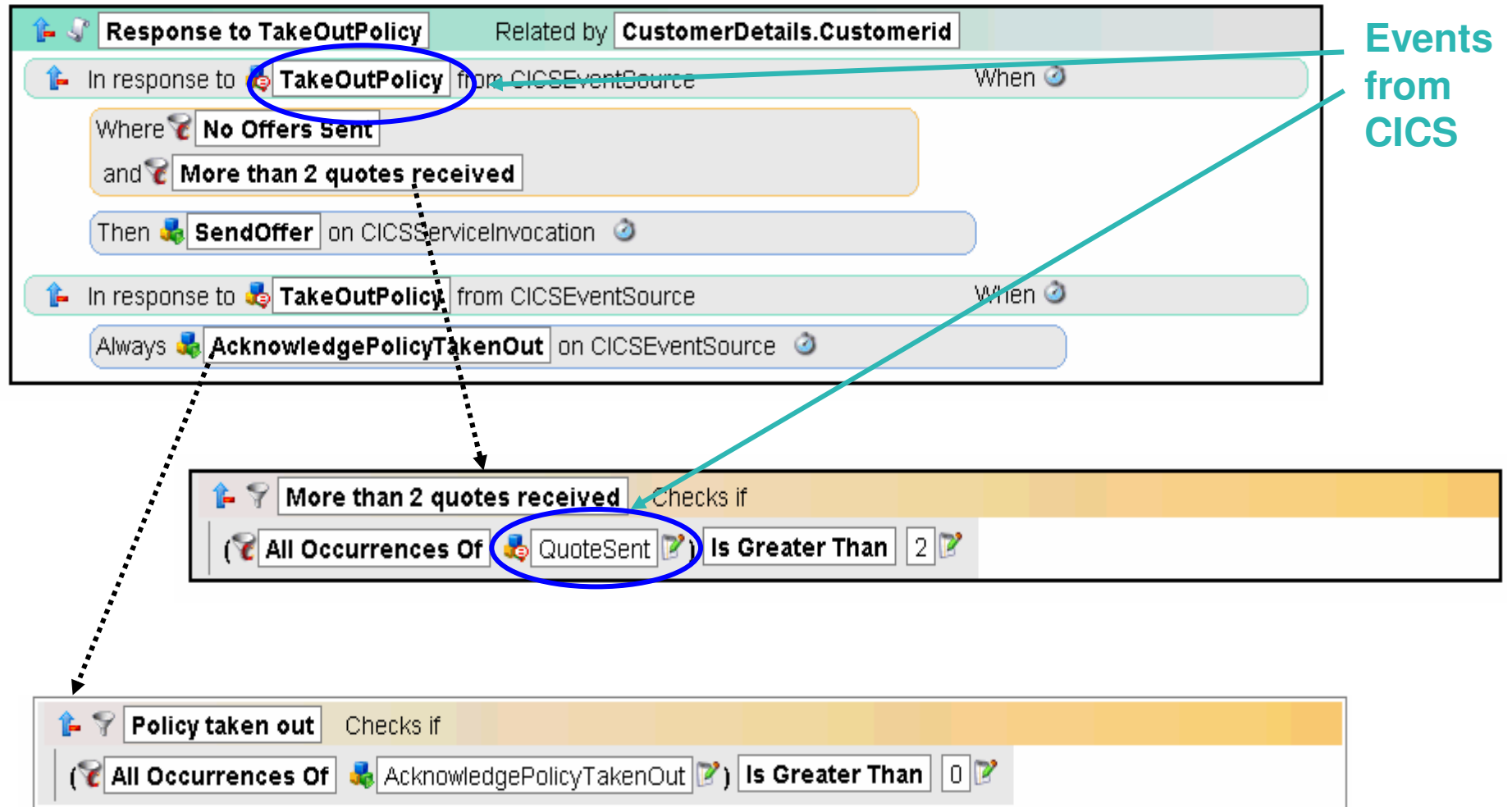
## EP Scenario 3 – Event Combination



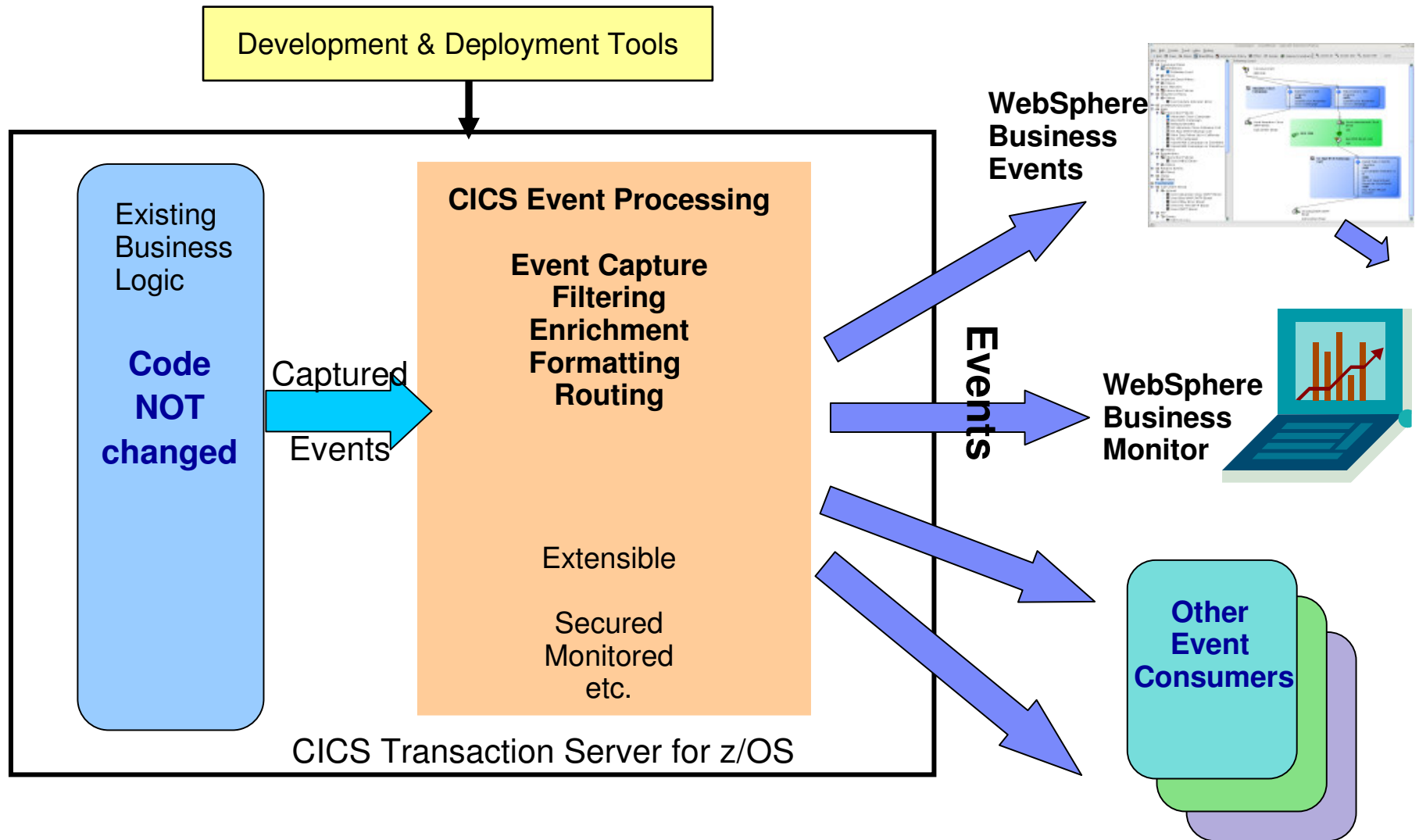
- Collect events relating to insurance quote requests
- How many of these result in the customer taking out insurance policies? Collect events relating to policies being taken out
- Look for opportunities in these patterns of behaviour, using WebSphere Business Events
  - Several quotes requested, but only one type of policy taken out
  - Several quotes requested, but no policy taken out in the following 10 days
  - Opportunity to encourage purchase of other policy types?
  - Indication that other insurers are offering better quotes?
  - etc.
- Specify actions to take in WBE e.g. targetted offer for types of insurance policy not taken out

# Event Combination – Insurance Quote Example

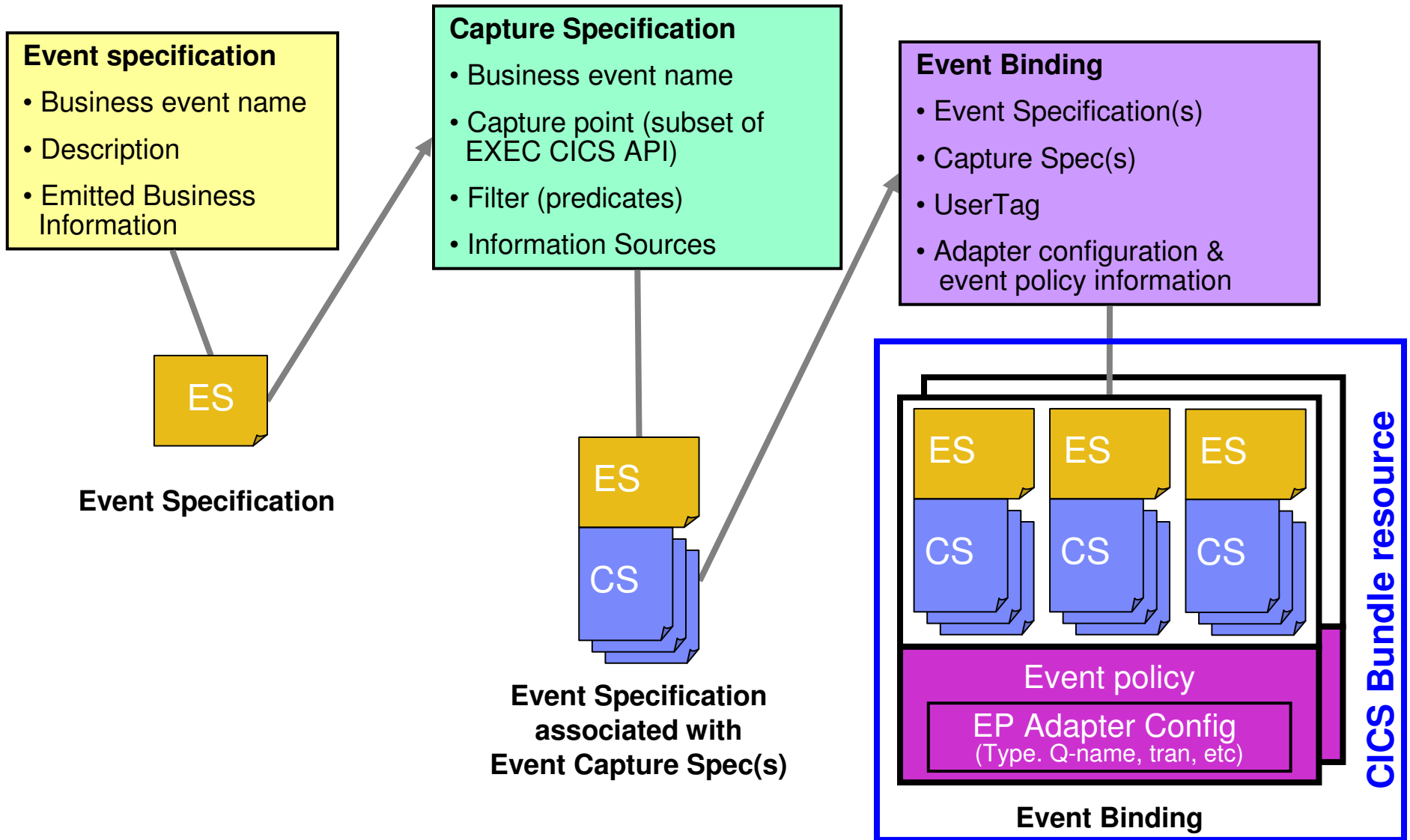
## WebSphere Business Events Interaction Set



# CICS and event processing – overview



# CICS Event Specification



## CICS Event Specification Example

### Event Specification:

*Event name:* LargeCashWithdrawal

*Event description:* Whenever a cash withdrawal is made which is over \$5000, this event is triggered

*Emitted business information:* Account\_Number, Amount, Transaction\_Type, Channel

### Capture Specification:

Before EXEC CICS LINK command

← **Capture Point**

to PROGRAM(WPPEPM33)

← **Application Command Options Predicate**

from current\_program = WPPEPM33

← **Application Context Predicate**

where Amount > 5000

← **Application Data Predicate**

*Amount is in the Commarea or channel passed on the LINK*

How to provide event data from data available from application and context

← **Information Sources  
(Captured Data)**

**Note:** This identifies an EXEC CICS command and some filters, it does not 'point' directly at a specific location in the application code; the capture spec can be made more or less specific by use of filtering predicates

### Event Binding:

LargeCashWithdrawal, LargeTransferIn, LargeTransferOut,

LargeCashDeposit, LargeCheckDeposit

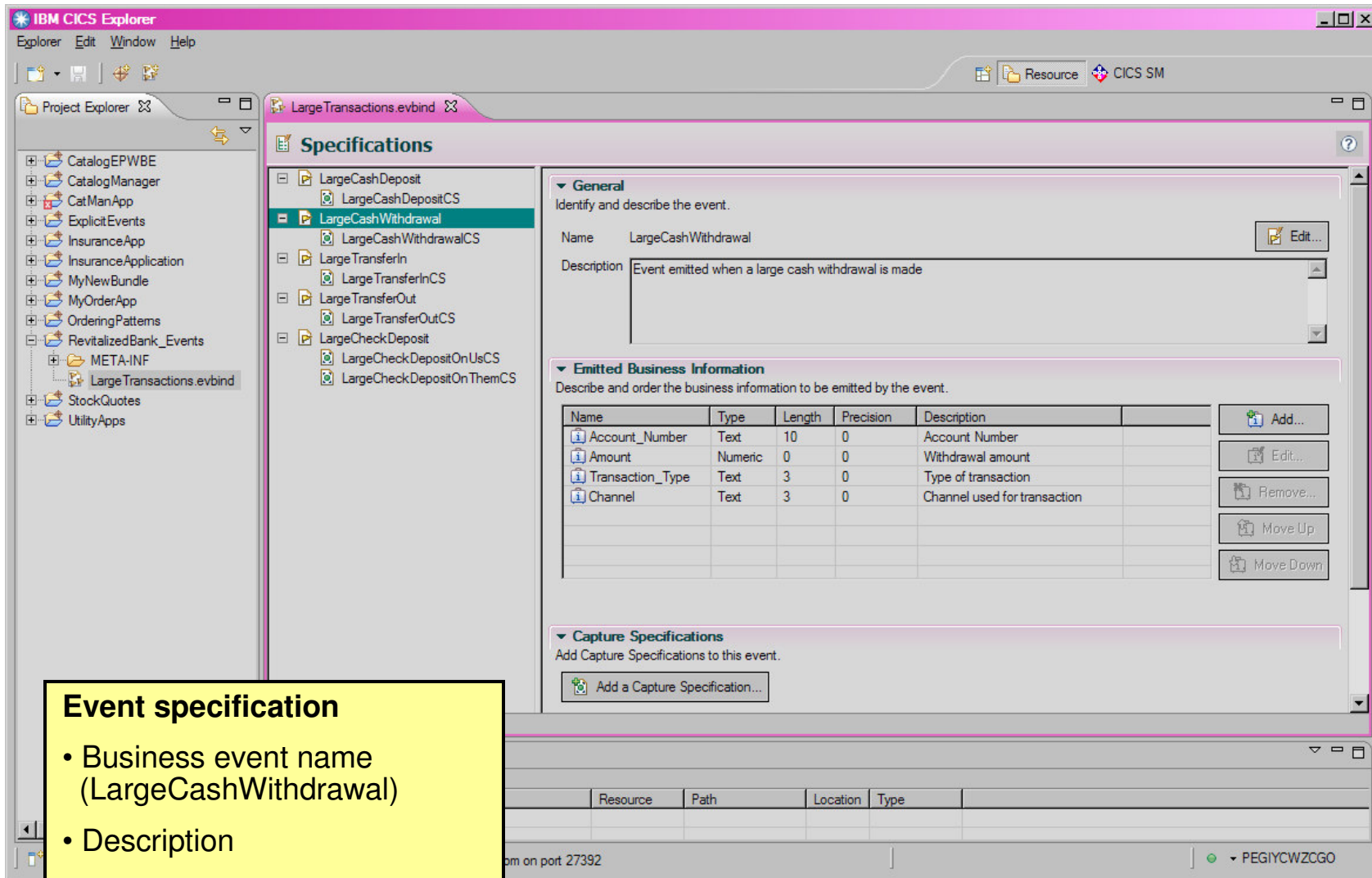
← **Event binding includes other related events**

EP Adapter = WMQ Queue, WBE Format

← **How events in this Binding are emitted**



# Event Binding Editor Tooling – example screenshots



**Event specification**

- Business event name (LargeCashWithdrawal)
- Description
- Emitted Business Information

# Event Binding Editor Tooling – example screenshots

**Event specificat**

- Business event (LargeCashWith
- Description
- Emitted Busine

**Capture Specification**

- Capture point (from subset of EXEC CICS API)
- Filtering (predicates)
- Information Sources

**Specifications**

- LargeCashDeposit
  - LargeCashDepositCS
- LargeCashWithdrawal
  - LargeCashWithdrawalCS
- Large TransferIn
  - Large TransferInCS
- Large TransferOut
  - Large TransferOutCS
- LargeCheckDeposit
  - LargeCheckDepositOnUsCS
  - LargeCheckDepositOnThemCS

**Capture Specification**

Define predicates to filter events.

Context	Operator	Value
Transaction ID	All	
Current Program	Equals	CPPEPM33
User ID	All	
Response Code	All	Ok

Define predicates for command options. Predicates marked with \* should be specified to maintain CICS performance.

Name	Operator	Value
PROGRAM*	Equals	WPPEPM33
CHANNEL	All	

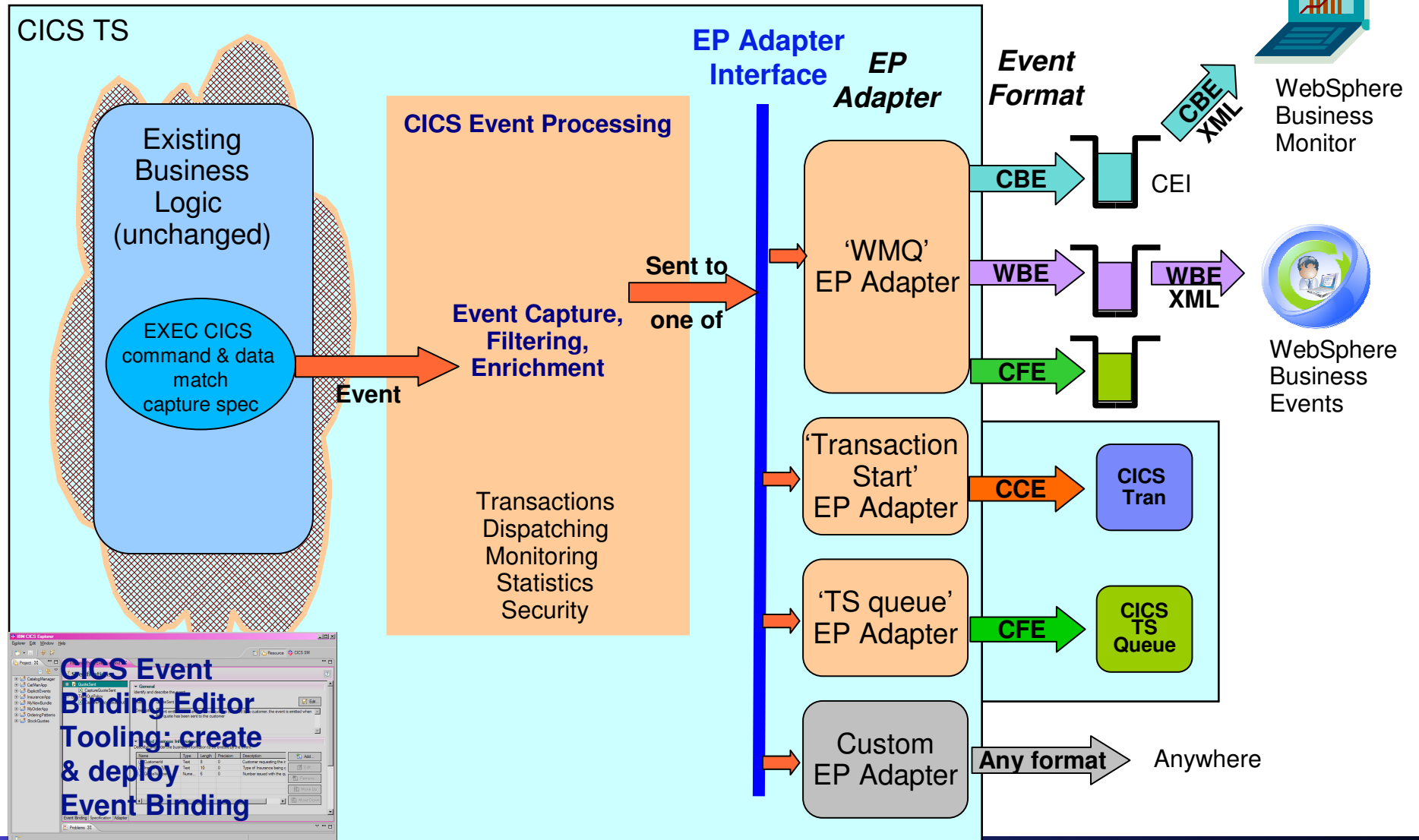
Define predicates for application data. Import a language structure and pick an item to specify the data format.

Source	Container	Offset	Length	Operator	Value
COMMAREA		77	8	Greater Than	5000

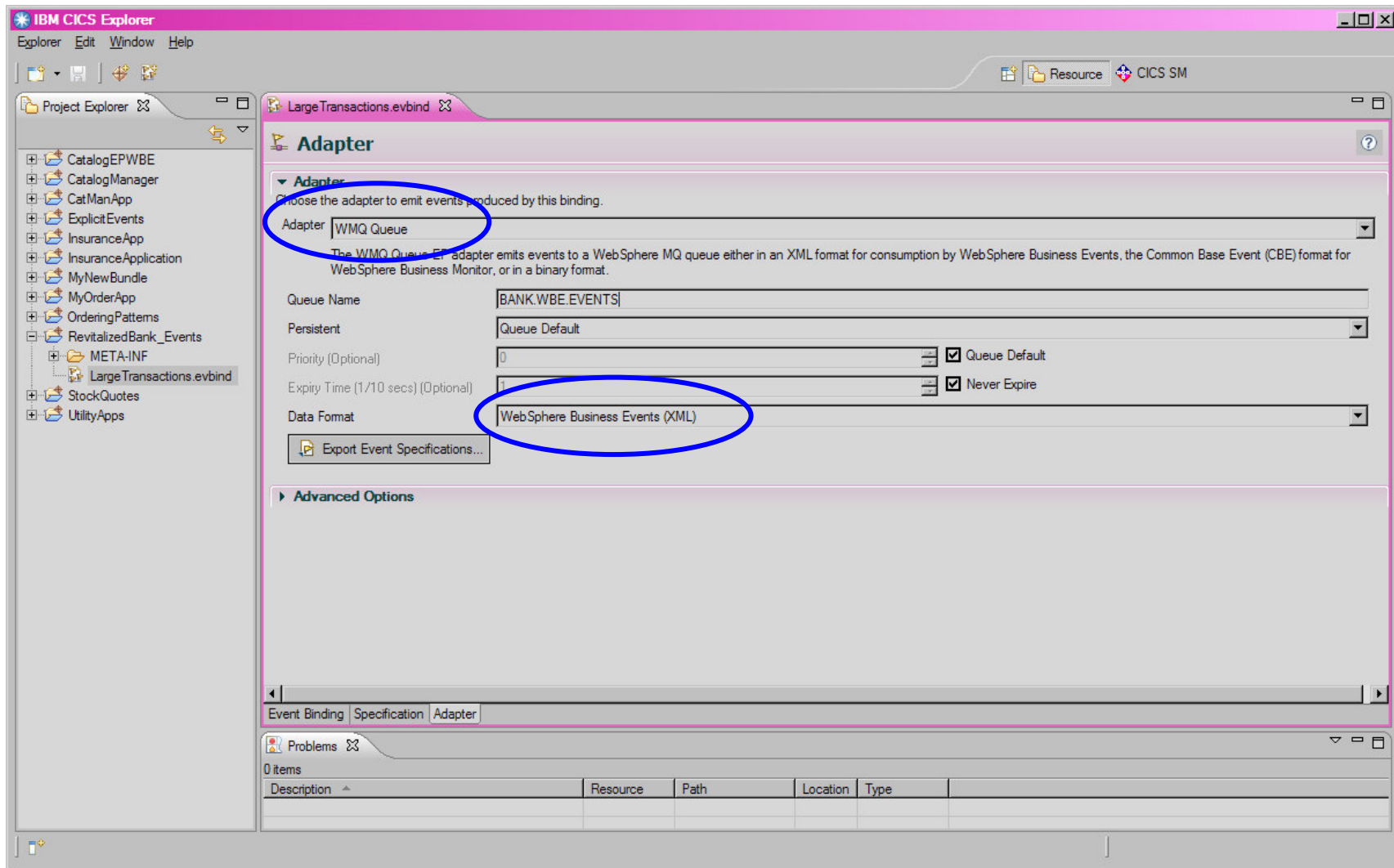
## Eventable CICS Commands

- Anything that starts work has a good likelihood of mapping to business events
  - e.g. START, START TRANSID, LINK, INVOKE WEBSERVICE
  - Also enable event capture for **program initiation** via whatever means (e.g. Web services pipeline, entering transid at a terminal)
- Getting data into or out of CICS can be a good way of finding out about business events
  - e.g. RECEIVE MAP, RECEIVE, SEND MAP
- Writes to CICS data resources (files, queues) may often occur when processing business events
  - e.g. WRITE FILE, WRITEQ TS
- Reads of CICS data resources are also interesting, as events do not only occur when data is updated
  - e.g. READ FILE, READQ TD
- **Not event-enabled: data-oriented commands which can be evented in other ways**
  - e.g. not RMI (DB2, MQ)
  - Can use products such as InfoSphere Change Data Capture
- **Focus is on events of interest in business terms, so commands relating to system activity not eventable**
  - e.g. not ABEND, DUMP TRANSACTION, HANDLE CONDITION, SPI commands
- **Explicit command to event-enable applications**
  - EXEC CICS SIGNAL EVENT
  - EVENT supplies an event identifier, data can be supplied as either FROMCHANNEL or Data area and length

# CICS Event Formats and Transports



# EP Adapter specification



# RevitalizedBank Events in CICS Explorer

**IBM CICS Explorer**

Explorer Edit Operations Administration RTA WLM Window Help

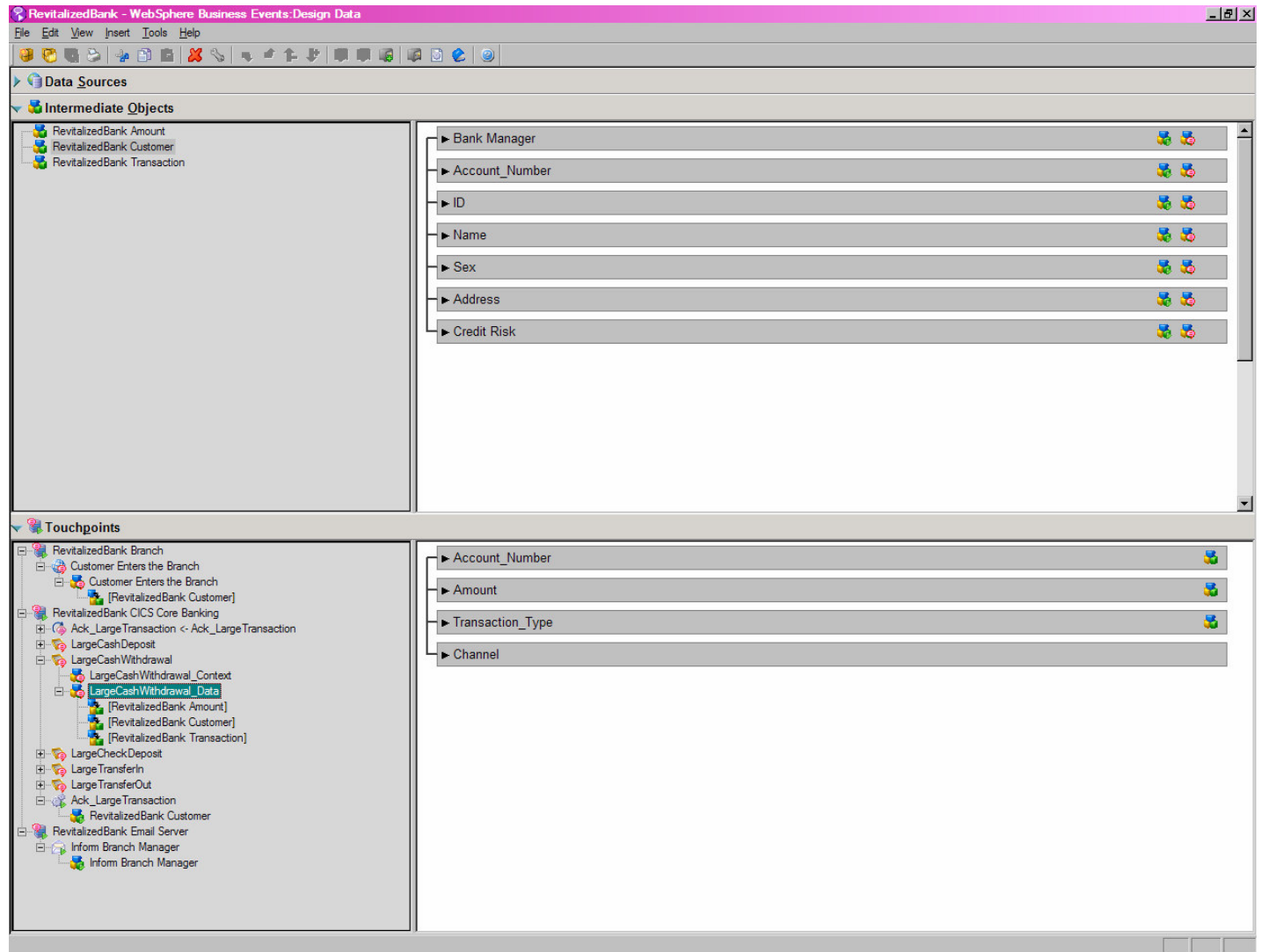
Server: CM11

CNX0211I Context: PLEXZB. Resource: EVCSPEC. 14 records collected at Dec 15/ 2009 11:11:50 AM

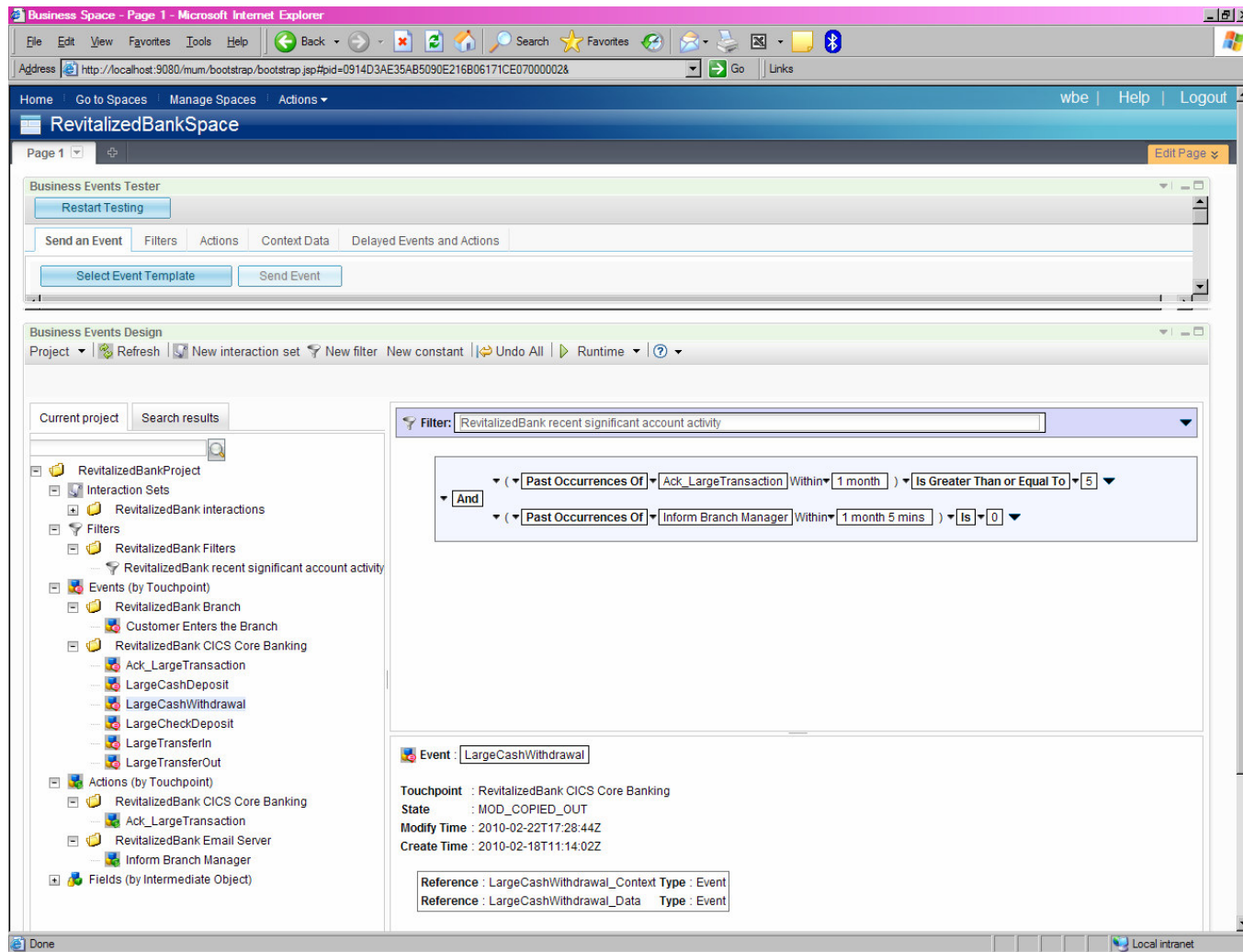
Region	Capture Specification	Event Name	Events Captured
CICSRA10	LargeCashDepositCS	LargeCashDeposit	13
CICSRA10	LargeCashWithdrawalCS	LargeCashWithdrawal	19
CICSRA10	LargeChequeDepositOnThemCS	LargeChequeDeposit	9
CICSRA10	LargeChequeDepositOnUsCS	LargeChequeDeposit	9
CICSRA10	LargeTransferInCS	LargeTransferIn	9
CICSRA10	LargeTransferOutExternalCS	LargeTransferOut	12
CICSRA10	LargeTransferOutInternalCS	LargeTransferOut	9
CICSRA11	LargeCashDepositCS	LargeCashDeposit	8
CICSRA11	LargeCashWithdrawalCS	LargeCashWithdrawal	33
CICSRA11	LargeChequeDepositOnThemCS	LargeChequeDeposit	11
CICSRA11	LargeChequeDepositOnUsCS	LargeChequeDeposit	14
CICSRA11	LargeTransferInCS	LargeTransferIn	11
CICSRA11	LargeTransferOutExternalCS	LargeTransferOut	6
CICSRA11	LargeTransferOutInternalCS	LargeTransferOut	11

# WebSphere Business Events – Design Data Tool

- Events and Intermediate Objects in Design Data



# WebSphere Business Events – Design Tool in Business Space (business user’s tool)





## RevitalizedBank filter for recent significant account activity

Filter: RevitalizedBank recent significant account activity

▼ ( ▼ Past Occurrences Of ▼ Ack\_LargeTransaction Within ▼ 1 month ) ▼ Is Greater Than or Equal To ▼ 5 ▼  
▼ And  
▼ ( ▼ Past Occurrences Of ▼ Inform Branch Manager Within ▼ 1 month 5 mins ) ▼ Is ▼ 0 ▼

# Customer of Interest Interaction Set

The screenshot displays the IBM Business Space interface for configuring an Interaction Set. The browser window title is "Business Space - Page 1 - Microsoft Internet Explorer". The address bar shows a local URL: `http://localhost:9080/mum/bootstrap/bootstrap.jsp#pid=0914D3AE35AB5090E216B06171CE07000002&`.

The main interface is titled "Business Events Design" and includes a toolbar with options like "Refresh", "New interaction set", "New filter", "New constant", "Undo All", and "Runtime".

On the left, a tree view shows the project structure under "RevitalizedBankProject":

- RevitalizedBankProject
  - Interaction Sets
    - RevitalizedBank interactions
      - Customer of Interest (selected)
      - Seen\_LargeTransferIn
      - Seen\_LargeCashWithdrawal
      - Seen\_LargeCashDeposit
      - Seen\_LargeCheckDeposit
      - Seen\_LargeTransferOut
      - New Folder
    - Filters
      - RevitalizedBank Filters
        - RevitalizedBank recent significant account activity
    - Events (by Touchpoint)
      - RevitalizedBank Branch
        - Customer Enters the Branch
      - RevitalizedBank CICS Core Banking
        - Ack\_LargeTransaction
        - LargeCashDeposit
        - LargeCashWithdrawal
        - LargeCheckDeposit
        - LargeTransferIn
        - LargeTransferOut
    - Actions (by Touchpoint)
      - RevitalizedBank CICS Core Banking
        - Ack\_LargeTransaction
      - RevitalizedBank Email Server
        - Inform Branch Manager
    - Fields (by Intermediate Object)

The main workspace shows the configuration for the "Customer of Interest" Interaction Set:

- Interaction Set:** Customer of Interest
- Related by:** RevitalizedBank Customer.ID
- In response to:** Customer Enters the Branch (RevitalizedBank Branch)
- Timing:** Immediately
- If:** RevitalizedBank recent significant account activity
- Then:** Immediately Inform Branch Manager (RevitalizedBank Email Server)
- Else:** no action
- Action:** Inform Branch Manager
- Touchpoint:** RevitalizedBank Email Server
- State:** MOD\_COPIED\_OUT
- Modify Time:** 2010-02-22T17:29:16Z
- Create Time:** 2010-02-18T11:26:50Z
- Reference:** Inform Branch Manager Type : Action

The interface is powered by WebSphere and shows a "Local intranet" status at the bottom.

# Customer of Interest Interaction Set

The screenshot displays the IBM Business Space interface for configuring an Interaction Set. The browser window title is "Business Space - Page 1 - Microsoft Internet Explorer". The address bar shows a local URL: `http://localhost:9080/mum/bootstrap/bootstrap.jsp#pid=0914D3AE35AB5090E216B06171CE07000002&`. The main content area is titled "Business Events Design" and includes a toolbar with options like "Refresh", "New interaction set", "New filter", "New constant", "Undo All", and "Runtime".

The configuration details for the "Customer of Interest" interaction set are as follows:

- Interaction Set:** Customer of Interest
- Related by:** RevitalizedBank Customer.ID
- In response to:** Customer Enters the Branch (RevitalizedBank Branch)
- Timing:** Immediately
- If:** RevitalizedBank recent significant account activity
- Then:** Immediately Inform Branch Manager (RevitalizedBank Email Server)
- Else:** no action

The left-hand navigation pane shows a tree structure with categories: "RevitalizedBank CICS Core Banking" (containing Ack\_LargeTransaction, LargeCashDeposit, LargeCashWithdrawal, LargeCheckDeposit, LargeTransferIn, LargeTransferOut), "Actions (by Touchpoint)" (containing RevitalizedBank CICS Core Banking, Ack\_LargeTransaction, RevitalizedBank Email Server, Inform Branch Manager), and "Fields (by Intermediate Object)".

The right-hand pane shows details for the "Inform Branch Manager" action:

- Action:** Inform Branch Manager
- Touchpoint:** RevitalizedBank Email Server
- State:** MOD\_COPIED\_OUT
- Modify Time:** 2010-02-22T17:29:16Z
- Create Time:** 2010-02-18T11:26:50Z
- Reference:** Inform Branch Manager Type: Action

The bottom of the interface features the IBM logo, the text "powered by WebSphere", and a "Local intranet" indicator.



## Summary

**Summary, and Resources for more information**

*SOA on your terms and our expertise – [www.ibm.com/cics](http://www.ibm.com/cics)*

## Summary

- Revitalize the business and compete for new opportunities using
  - CICS Atom feeds, to provide data from CICS into mashups and other rich internet applications
  - CICS PHP support, for rapid development of applications using programs and data in CICS
  - CICS Events, for non-invasive emission of business events from CICS applications, to monitor business processing, react to interesting patterns of events, or drive additional processing



## Resources

**For more information**

*SOA on your terms and our expertise – [www.ibm.com/cics](http://www.ibm.com/cics)*

# Impact 2010 Highlights for System z

## An enhanced Smart SOA and BPM Technology Program:

200+ client speakers, 50 Birds of a Feather sessions, & free certification testing

- 50 explicitly System z sessions scheduled, 15% of the Technology Program
- CICS specific sub-track – 35 sessions including 2 client sessions
- Broad System z coverage – additional 16 sessions
  - 1 client sessions, 1 BP session and 1 Cross-brand exec
- In the Business Program, 1 client WebSphere exec session
- System z Roadmap & flyers will provide the visibility

## A new Product Technology Center offering:

Open labs, tech zones, and product demos

- System z Solution Suite for a Smarter Planet
- Business Partner Café – System z table

## A state-of-the-art Solution Showcase Center:

- 17 Impact partners are z, 2 Gold and 6 Silver sponsors
- zZone – features IBM & 8 partners, 7 confirmed, 1 pending
  - Prime location at entrance to the expo floor
  - System z Hardware and pedestal
  - zZingo card – driving ped attendance with “benefits”
- System z Tour

## System z unique offerings:

- System z Software Reception on Sunday Evening
- System z Solution Suite: Ask z Experts on Wednesday evening
- STG GM for System z, Tom Rosamilia will be on site, speaking and available for client meetings

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



## The Objectives of CICS Smart Seminars

- **The CICS Seminar program presents to customers, at their site, a customised technical agenda of CICS TS and CICS Tools delivered by CICS Technical specialists.**
- **Convey our CICS family message and strategy to a wide audience and skill set (AD & System Programmers, Architects etc) at customers own location ensuring the customer incurs no travel and lodging costs.**
- **Obtain customer testimonies and references in support of the SOA capabilities of the latest CICS release.**
- **Develop new workload on CICS; show customers how they can use the new features in the latest release to take advantage of their existing solutions and investments and ensure their short term and long term plans can reflect these capabilities.**
- **Send a note to [cicssem@uk.ibm](mailto:cicssem@uk.ibm) or contact your Sales Representative to nominate yourself and construct a customised agenda to you requirements**



## CICS Development Technical Services

Helping to solve Business Problems and exploiting new Business Opportunities

Engage the Hursley development team to ensure that you get the maximum value from your CICS investments.

Consultants are now available via a funded services engagement directly from CICS development providing a complete range of CICS services - no one has more experience!

### ■ System Health Check

- How can you be sure that your CICS environment is running optimally? Be sure that your CICS environment is in the best of health and delivers maximum value to you

### ■ Upgrade Services

- Do you want to improve your competitive edge by offering new CICS services? Exploit new CICS features such as: Web services, IP connectivity, CICS Explorer, Event Processing, Web 2.0, Atom Feeds and PHP scripting in CICS



## CICS Development Technical Services

Helping to solve Business Problems and exploiting new Business Opportunities

### ■ Security and Governance

- Worried about your CICS security? Standards, regulatory compliance and policies getting you down? This services helps you assess and ensure the security and compliance of your CICS assets.

### ■ Performance Optimization

- Is your goal to maximize your performance and minimize your costs? We review CICS performance data from SMF records and/or CICS tooling to provide tuning recommendations and Capacity Planning advice

### ■ Web Services Enablement

- Need to unlock and modernize your CICS assets for SOA exploitation? We provide education and implementation for CICS Web services support including Rational Developer for z tooling. We can help with identifying assets for re-use in an application and legacy modernization project

### ■ Integration and Connectivity

- Interested in lowering complexity? Need to connect CICS with WebSphere using the latest technologies? We provide consultancy for migration from SNA to IP connectivity as well as using connection technologies such as the CICS Transaction Gateway and Web services to provide the availability of your CICS business assets to a wider audience in an SOA

## CICS Development Technical Services

Helping to solve Business Problems and exploiting new Business Opportunities

### ■ Systems Management

- Concerned about the availability of your CICS environment? Our Systems Management offering is aimed at ensuring that your CICS environment is being managed to Best Practice standards. Improve your service levels and lower your costs

### ■ Event Processing

- Respond more quickly to business opportunities without changing your existing CICS application code. CICS Event Processing also helps you with regulatory compliance and Service Level Agreement monitoring through Business Dashboards and Key Performance Indicators. This offering helps you integrate your CICS environment into an Event Processing framework.

### ■ Customized Workshops

- Skills issue? Need the best CICS product and solution training? Ensure the effective transfer of CICS best practices to the next generation of IT Staff. We offer Customized Workshops to meet your education needs for the CICS Family of products. These workshops are staffed by senior CICS developers and can be run either at your location, or at an IBM location that meets with your preference.

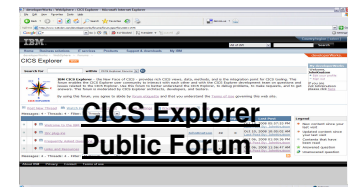
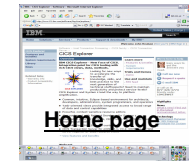


- For further information please contact: [CICSSTS@uk.ibm.com](mailto:CICSSTS@uk.ibm.com)

# CICS Communities and Information

**zSeries  
PD/CICS/Icing  
Sales - CICS  
Communities**

- CICS Transaction Server V4.1
  - <http://ibm.com/cics/tserver/v41/>
- CICS Explorer home page
  - Remember this link [ibm.com/cics/explorer](http://ibm.com/cics/explorer)
- CICS Explorer Forum
  - <http://tinyurl.com/68bndw>
  - IBM developerWorks forum with FAQs, Links and resources, ISV Contributions, etc. Ask questions, suggest improvements, report problems, chat
- New! CICS Hub on the Rational COBOL Café
  - <http://ibm.com/software/rational/cafe/community/cobol/cics>
- Twitter - Subscribe to the IBM System z channel & CICSfluff channel to get CICS news flashes
- CICS Blog - Comment and opinion at [TheMasterTerminal.com](http://TheMasterTerminal.com)
- CICS eNews - Subscribe for news about CICS and related products
- CICS Links regular updates all in a single presentation deck
- YouTube channels
  - CICS Explorer - Videos, demos and other cool stuff
  - CICSFluff - Other CICS videos



Thank You !