


© 2009 IBM Corporation



CICS Transaction Server for z/OS V4.1

Connecting to CICS in an SOA environment

Daniel Millwood
CICS Test services
millwood@uk.ibm.com

CICS Transaction Server for z/OS V4.1

© IBM Corporation 2009. All Rights Reserved.

This material has been prepared by IBM or the speakers and reflect their own views. They are provided for informational purposes only, and are neither intended to, nor shall have the effect of being, legal or other guidance or advice to any participant. While efforts were made to verify the completeness and accuracy of the information contained in this presentation, it is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, this presentation or any other materials. Nothing contained in this presentation is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software.

References in this presentation to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in this presentation may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. Nothing contained in these materials is intended to, nor shall have the effect of, stating or implying that any activities undertaken by you will result in any specific sales, revenue growth or other results.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multi-programming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer.

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries. For a complete list of IBM trademarks, see www.ibm.com/legal/copytrade.shtml
 AIX, CICS, CICSplex, DB2, DB2 Universal Database, i5/OS, IBM, the IBM logo, IMS, iSeries, Lotus, OMEGAMON, OS/390, Parallel Sysplex, pureXML, Rational, RCAF, Redbooks, Sametime, Smart SOA, System i, System i5, System z, Tivoli, WebSphere, and z/OS.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.
 Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.
 Intel and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.
 Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Title page – Notes

CICS Transaction Server for z/OS® (CICS TS) is a modern, dependable, and cost-effective application platform. CICS TS V4.1 will deliver new business event capabilities, Web 2.0 programming support, and new operational tooling that will enable enterprise agility when responding to business opportunity and risk in rapidly changing markets. Its traditional qualities of security, reliability, availability, scalability, data-integrity, and application responsiveness make CICS TS the perfect transaction-server partner for Web application servers.

CICS TS V4.1 brings new levels of ease-of-use and flexibility to meet the needs of the next generation of business users, and is aimed at helping users in:

- Competing for new opportunities by gaining insight into business processes and responding by modifying key business applications quickly and with confidence.
- Complying with corporate, industry and government policies to manage business risk of critical business applications.
- Controlling costs by simplifying IT infrastructure and improving development and operations productivity through easier-to-use interfaces and functions.

CICS TS V4.1 is the appropriate upgrade path for all CICS customers

- CICS TS V1.3 service was discontinued 30 April 2006
- CICS TS V2.2 service was discontinued 30 April 2008
- CICS TS V2.3 service will be discontinued 30 September 2009

3 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

4 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

5 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Strategy and Customer Trends

- **SOA continues to be the major driving force**
 - Driving increased IT flexibility
 - Faster time to market for new solutions
 - Greater reuse of existing assets
- **Maturing of new programming architectures**
 - Web 2.0 (*RESTful*, *WOA*, ...)
 - Event Based Processing
- **Skills and expertise challenges**
 - Effectiveness and efficiency
- **Increased Governance requirements and regulations**
- **Interoperability and synergy with other SOA products**

6 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Strategies and Trends – Notes

These slides discuss trends in the industry and in customer needs which continue to drive the functionality in CICS TS, and ongoing strategic areas on which CICS continues to focus.

7 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

CICS Transaction Server V4 Themes

CICS TS V4 helps users to...

- Compete** for new opportunities by gaining insight into business processes and responding by modifying key business applications quickly and with confidence
- Comply** with corporate, industry and government policies to manage business risk of critical business applications
- Control costs** by simplifying IT infrastructure and improving development and operations productivity through easier-to-use interfaces and functions

and provides **Architectural Enhancements** to relieve constraints on processing, configuration or data capacities allowing for continued application and system growth

8 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

CICS TS V4 Themes – Notes

CICS Transaction Server for z/OS, Version 4 Release 1 delivers a set of capabilities which provide customer value by enabling business flexibility through IT simplification.

These capabilities are represented in three principal themes.

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

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

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

There is a fourth theme that spans the CICS product:
Architectural Enhancements to relieve constraints on processing, configuration or data capacities allowing for continued application and system growth.

9 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

10 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Integration with CICS – Previous options

Standard architectures

- ① Web services – in/out to/from any Web services implementation
- ② CICS Transaction Gateway - in from Java/JCA/.NET/C/COBOL
- ③ Enterprise JavaBeans – in/out to/from other J2EE platform

Standard transports

- ④ HyperText Transfer Protocol (HTTP)
- ⑤ WebSphere MQ (MQ APIs or JMS)
- ⑥ TCP/IP sockets

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Integration with CICS – Options now available

Standard architectures

- ① Web services – in/out to/from any Web services implementation
- ② CICS Transaction Gateway - in from Java/JCA/.NET/C/COBOL
- ③ Enterprise JavaBeans – support stabilized
- ⑦ Web 2.0 and Atom feeds – in from Web clients
- ⑧ Event Driven – out to any consumer of business events
- ⑨ WebSphere Optimized Local Adapters in/out zWAS on same lpar

Standard transports

- ④ HyperText Transfer Protocol (HTTP)
- ⑤ WebSphere MQ (MQ APIs or JMS)
- ⑥ TCP/IP sockets

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

13 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Web Services Enhancements

- **Delivering WS-Addressing support**
 - Improve SOA interoperability by adopting the most current standards
- **Reducing TCO of web services solutions by offloading XML content processing**
 - SOAP parsing to exploit XML System Services parser
 - XML System Services parser provides
 - Significant SOAP Message parsing improvements, resulting in overall Web Services improvement
- **Web services Global User Exit points**
- **Integrating WSRR support with CICS Web Services assistants**
- **Providing generalized XML to language structure system mapping component and data mapping enhancements**
- **New optimizations when requester and provider are both in CICS**
 - cics:// style URI

14 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

15 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

XML & Web Services

- 1. Use of z/OS XML System Services parser**
 - Improved SOAP XML parsing performance
 - Eligible for offload to zAAP engines
 - Parsing storage acquired from 64-bit storage
- 2. Generic XML Mapping**
 - EXEC CICS TRANSFORM command
 - XML to Data
 - Data to XML
 - New XML Assistants
 - Language structure to schema
 - Schema to language structure
 - Generates artifacts necessary to define a BUNDLE
 - New XMLTRANSFORM resource definition

16 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

XML & Web services – Notes

z/OS XML System Services (z/OS XML®) parser is a system level XML parser that is integrated with the base z/OS operating system. It is intended for use by system components, middleware, and applications that need a simple, efficient, XML parsing solution. The parser is used for SOAP parsing by CICS web services support. Storage necessary for the parsing process is acquired from 64-bit storage above the bar. If the z/OS LPAR is configured with zAAP engines then system XML parser activity can be offloaded to those engines.

The CICS XML assistant is a set of batch utilities that can be used to transform XML into high-level language structures and vice versa. The assistant supports rapid deployment of applications that perform XML processing with the minimum amount of programming effort. Using the XML assistant for CICS reduces the amount of code required to parse or construct XML; CICS transforms data between XML fragments and the data structure of an application program.

The XML assistant can create an XML schema from a simple language structure, or a language structure from an existing XML schema, and supports COBOL, C/C++, and PL/I. It also generates metadata that CICS uses at run time to automatically convert XML data to binary application data or vice versa; the metadata is defined in an XML binding file and stored on z/OS UNIX.

CICS provides a new EXEC CICS TRANSFORM command to transform application data to XML or XML to application data. The XML bind file produced by the XML assistants is used in the transformation.

17
© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

18
© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Web Services Addressing

- **CICS Web Services Addressing**
 - Defines transport neutral mechanisms to address Web Services
 - Facilitates message transmission through networks
 - Consists of a SOAP Header describing
 - Endpoint Reference
 - Uniquely identify the service requested
 - Message addressing properties
 - Convey information about message relationships
 - Provide information on where messages are to be directed
 - WS-Addressing Specifications
 - Recommended
 - <http://www.w3.org/TR/ws-addr-core/>
 - <http://www.w3.org/TR/ws-addr-soap/>
 - <http://www.w3.org/TR/ws-addr-metadata/>
 - Submission
 - www.w3.org/Submission/ws-addressing

CICS Transaction Server for z/OS V4.1

CICS Web services addressing – Notes

CICS supports services that use the Worldwide Web Consortium (W3C) Web Services Addressing (WS-Addressing) specifications. This family of specifications provides transport-neutral mechanisms to address Web services and facilitate end-to-end addressing.

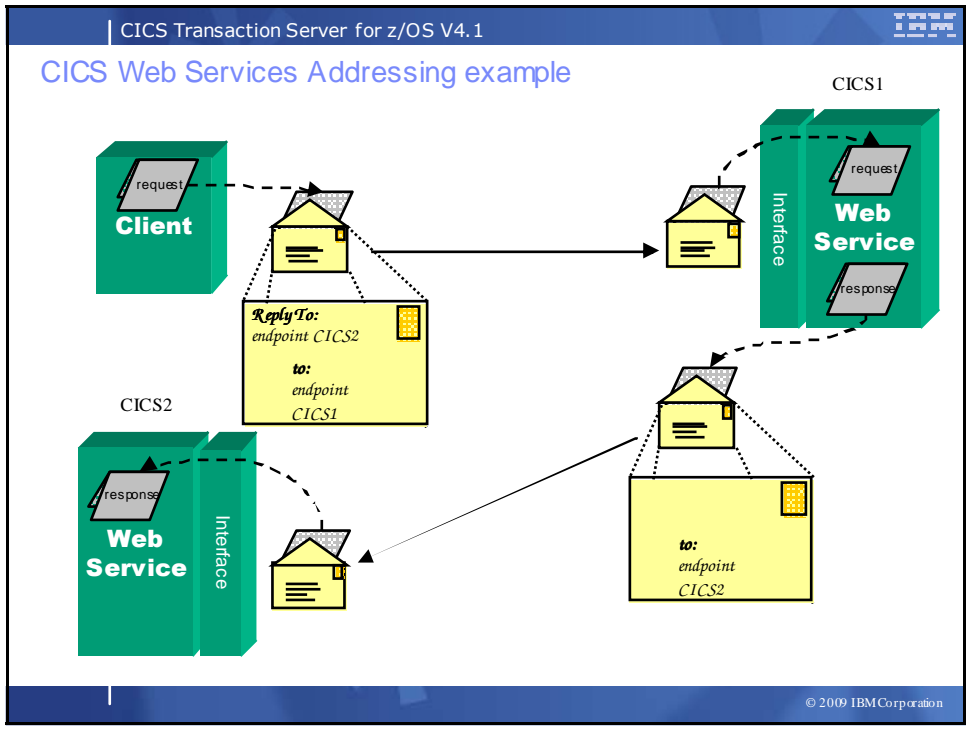
Web Services Addressing (WS-Addressing) is a Worldwide Web Consortium (W3C) specification that aids interoperability between Web services by defining a standard way to address Web services and provide addressing information in messages. The WS-Addressing specification introduces two primary concepts: endpoint references, and message addressing properties.

Endpoint references provide a standard mechanism to encapsulate information about specific endpoints. Endpoint references can be propagated to other parties and then used to target the Web service endpoint that they represent.

Message addressing properties (MAPs) are a set of well defined WS-Addressing properties that can be represented as elements in SOAP headers and provide a standard way of conveying information, such as the endpoint to which message replies should be directed, or information about the relationship that the message has with other messages.

By default, CICS supports the W3C WS-Addressing 1.0 Core and W3C WS-Addressing 1.0 SOAP Binding specifications that are identified by the <http://www.w3.org/2005/08/addressing> namespace.

For interoperability, CICS supports only the W3C WS-Addressing Submission specification with the namespace <http://schemas.xmlsoap.org/ws/2004/08/addressing>.

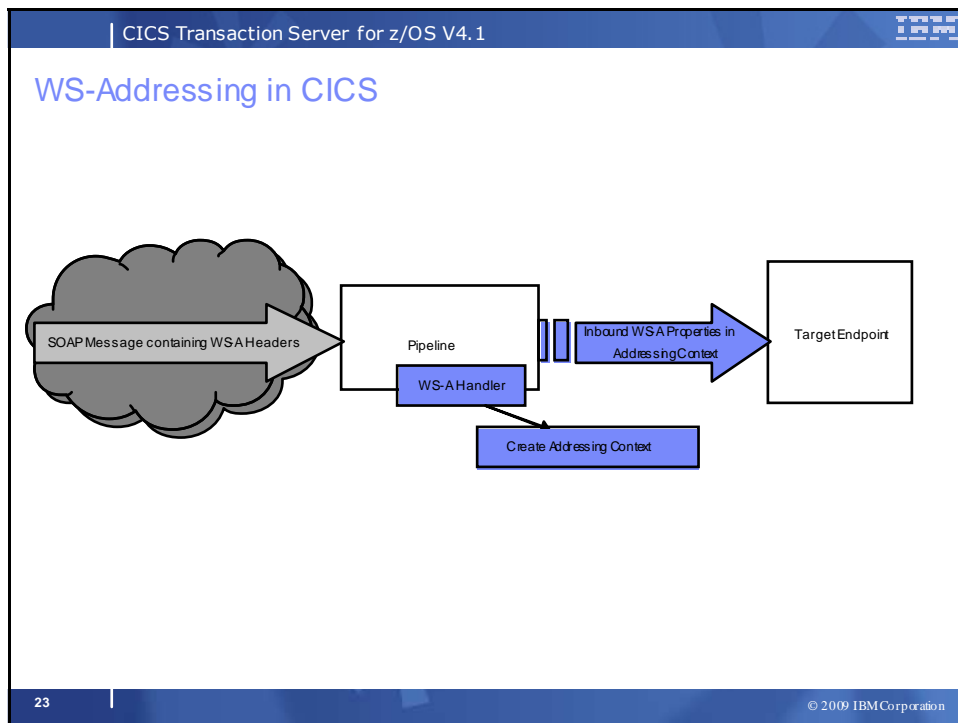


CICS Transaction Server for z/OS V4.1

WS-Addressing example – Notes

An example of how WS Addressing may be used. In this example, the response is not returned to the requester, but to another system.

22 | © 2009 IBM Corporation



CICS Transaction Server for z/OS V4.1

WS-Addressing and CICS Applications

- **CICS Pipeline Configuration (Requester and Provider)**
 - New SOAP header handler to processing WSA constructs
- **New CICS commands**
 - EXEC CICS WSAEPR CREATE
 - Create an endpoint reference (EPR) to represent a Web service or Web service resource
 - EXEC CICS WSACONTEXT BUILD
 - Build an addressing context
 - EXEC CICS WSACONTEXT GET
 - Get the message addressing properties (MAPs) of the service requester
 - Get the MAPs of a service provider

24 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

WS-Addressing and CICS applications – Notes

CICS service provider and requester programs need not be changed to use the WS Addressing functions. A CICS provided SOAP pipeline header handler can process the WSA elements and shield the application from the need to know about WS Addressing.

Web Services Addressing (WS-Addressing) support introduces new commands to manipulate addressing contexts and endpoint references (EPRs) for applications which do want to be WS-Addressing aware.

25 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

26 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1
IBM Corporation

MQ Group Attach

- **Connect to any active member of a WMQ Queue Sharing Group**
 - Allows common resource definitions for CICS regions
 - Connect to only one QMGR at a time
 - RESYNCMEMBER attribute for in-doubt resolution
 - QMGR must be on the same LPAR

- **Changes to CICS externals**
 - Resource definition
 - New MQCONN resource
 - SPI
 - EXEC CICS SET MQCONN
 - Quietse or forceclose the connection
 - CICSplex SM WUI views
 - CICS Explorer support

27
© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1
IBM Corporation

MQ Group Attach – Notes

You can now specify a WebSphere MQ queue-sharing group for the CICS-WebSphere MQ connection, so CICS uses any eligible queue manager in the group when it reconnects to WebSphere MQ, rather than waiting for a single queue manager. Queue-sharing groups increase reliability when you reconnect to WebSphere MQ, and help you standardize this aspect of CICS setup across CICS regions and z/OS images.

Instead of defining default settings for the CICS-WebSphere MQ connection in the DFHMQRPM operand and an INITPARM system initialization parameter, you must now use the new MQCONN resource definition. You can use the MQCONN resource definition to specify a queue-sharing group, or you can use it to specify the name of a single queue manager.

If you have specified a queue-sharing group for the connection, you can select appropriate resynchronization actions for CICS using the RESYNCMEMBER attribute of the MQCONN resource definition. Resynchronization works in the same way as it does for the group attach function for DB2. Resynchronization takes place when the connection to WebSphere MQ is lost and CICS is holding outstanding units of work for the last queue manager. You can choose whether CICS waits to reconnect to the same queue manager, or whether CICS makes one attempt to reconnect to the same queue manager, but if that attempt fails, connects to a different eligible queue manager in the group. A queue manager is eligible for connection to a CICS region if it is currently active on the same LPAR as the CICS region.

An MQCONN resource defines the attributes of the connection between CICS® and WebSphere MQ. You can install or discard an MQCONN resource only when CICS is not connected to WebSphere MQ.

Only one MQCONN resource can be installed at a time in a CICS region. When you define an MQCONN resource, CICS checks to ensure that there is only one MQCONN resource defined in the group or list. If more than one is found, even one with a different name, a warning message is issued. If you do install a second MQCONN resource, CICS implicitly discards the existing MQCONN resource before proceeding with the installation, unless you are reinstalling an MQCONN resource with the same name.

When you have installed the MQCONN resource, you can use the CEMT or EXEC CICS SET MQCONN command, CICSplex SM, or the CICS Explorer to start the connection between CICS and WebSphere MQ.

28
© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

29 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

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>

30 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Atom Feeds – Notes

Atom is both a protocol and an XML format for content providers to provide XML based web feeds of updated content. An Atom feed is a web feed provided using the Atom protocol and format. This provision of updated content is known as syndicating a web feed. Web users can subscribe to a feed allowing them to see new content as soon as it is made available.

Atom is described by two proposed standards defined by two Internet RFCs. Consult the following RFCs for complete, and authoritative, information about Atom.

- The Atom Syndication Format
- The Atom Publishing Protocol

31 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

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

32 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Atom feeds from CICS – Notes

Business users can take advantage of CICS Atom feeds to quickly create mashups, Web 2.0 applications that pull information from a variety of sources and aggregate it into a single, dynamic application. Businesses can exploit mashup technology in a variety of ways, including:

- Create decision-support tools for knowledge workers who require access to a variety of commercial and public, structured and unstructured data and content.
- Build composite, dynamic user interfaces for workers whose daily activities involve accessing data and functions in multiple, disparate applications and systems.
- Make new location-aware applications combining enterprise data with presence information from mobile providers and mapping and geo-spatial information from third parties.
- Deliver information feeds and widgets to consumers to use in their own mashups,

33 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Insurance Underwriting Mashup

Lotus Mashups Home / 2 Underwriter... Settings | Help | Logout


2 Underwriter Info

Request Reader

CICS_PolicyRequest_List[23]

- Sunshine Brick Company
10 Brickyard Drive Bloomington, Illinois
- Corky's
1312 Vandale St Collingville, Illinois
- Sporky's Pizzeria
210 W North Ave Chicago, Illinois
- Taurus
14 N Peoria St # B101 Chicago, Illinois
- IBM
201 Canada Sq W Wheaton, Illinois
- Super Stacker Corp
1949 N Ridge Blvd Chicago, Illinois
- IBM
4194 Arthur Ave Brookfield, Illinois
- BestPlace Hotels
1993 N Clybourn Ave Chicago, Illinois
- Smokey's Sandwiches
2369 N Clark St Chicago, Illinois
- IBM
3724 N Clark St Chicago, Illinois

Insurance Details



Personal Details

Customer Name: BestPlace Hotels
 Customer Id: 14
 Address: 1863 N Clybourn Ave Chicago, Illinois
 Zip code: 60614

Policy Details


Request Date: 2007-03-18
 Requested Start Date: 2007-04-08

Property Details

Property Type: Hotel
 Fire Rating: [5 blue circles] [1 red circle]
 Crime Rating: [5 blue circles] [1 red circle]
 Flood Rating: [5 blue circles] [1 red circle]
 Weather Rating: [5 blue circles] [1 red circle]

[View other properties in this area](#)

Insurance Map



By clicking on the link, other properties already insured in the same area – and the resulting exposure – are added to the map

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Definitions for Atom Feeds

- **URIMAP definition**
- **ATOMSERVICE definition**
 - Describes the type of Atom document returned
 - FEED, SERVICE, COLLECTION, CATEGORY
 - Specifies the type of CICS resource that provides the data for this Atom feed or collection
 - FILE, TSQUEUE
- **Atom Service Configuration file**
 - Specifies metadata/field names for the returned document
- **XML Binding file**
 - Describes the CICS resource format
 - Created by the CICS XML Assistant

The diagram illustrates the flow of information for an Atom feed. At the top, a URL `http://mycics.hursley.ibm.com/atom/cicsq/cmm` is shown. An arrow points from this URL to a box containing the URIMAP definition: `URIMAP PATH(atom/*) USAGE(ATOM)`. Another arrow points from the URL to a box containing the ATOMSERVICE definition: `ATOMSERVICE CONFIGFILE(cmm) BINDFILE(ctsq)`. From the URIMAP box, an arrow points to the ATOMSERVICE box. From the ATOMSERVICE box, two arrows point to output boxes: one containing XML tags `<cics:atomservice type="feed" />` and `</cics:atomservice>`, and another pointing to a box labeled `CTSQ Bnd File`.

35 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Definitions for Atom Feeds – Notes

The new ATOMSERVICE resource definition defines an Atom service, feed, collection, or category document, and identifies the Atom configuration file, CICS resource or application program, and Atom binding file that are used to supply the data for the feed. URIMAP resource definitions handle the incoming requests and point to the appropriate ATOMSERVICE resource definition.

The Atom configuration file contains XML that specifies metadata and field names for the Atom document that is returned for this resource definition.

The XML binding file specifies the data structures used by the resource named in RESOURCENAME, which supplies the data for the Atom document that is returned for this resource definition. You can create an XML binding file using the CICS XML assistant program DFHLS2SC.

36 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

37 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Event Processing

- **An event is something that happens**
 - A **business event** is something that happens that is relevant to the business
 - “**simple**” event: meaningful in itself
 - Order placement, stocktrade
 - “**complex** event processing”: detect & respond to patterns of events over time
 - 3 orders from a customer in 2 days, suspicious pattern of ATM activity
 - “Business Event Processing” extends event processing capabilities to business users
 - **CICS can be significant source of events**
 - Focus is on events relevant to the Line-of-Business
 - **CICS will emit single events**
 - Events emitted by CICS could
 - Drive another CICS transaction
 - Be written to a WebSphere MQ queue
 - Be written to a temporary storage queue
 - Be input to a monitor or business manager’s dashboard
 - e.g. WebSphere Business Monitor
 - Be sent to a “complex event processing” engine such as WebSphere Business Events
 - ...

38 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

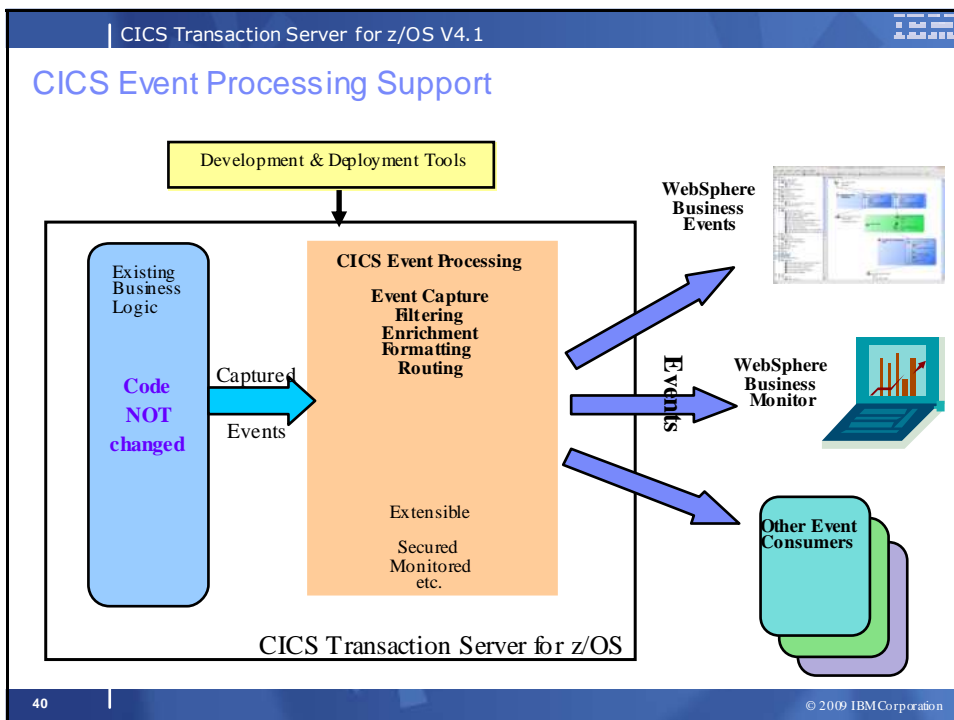
Event Processing – Notes

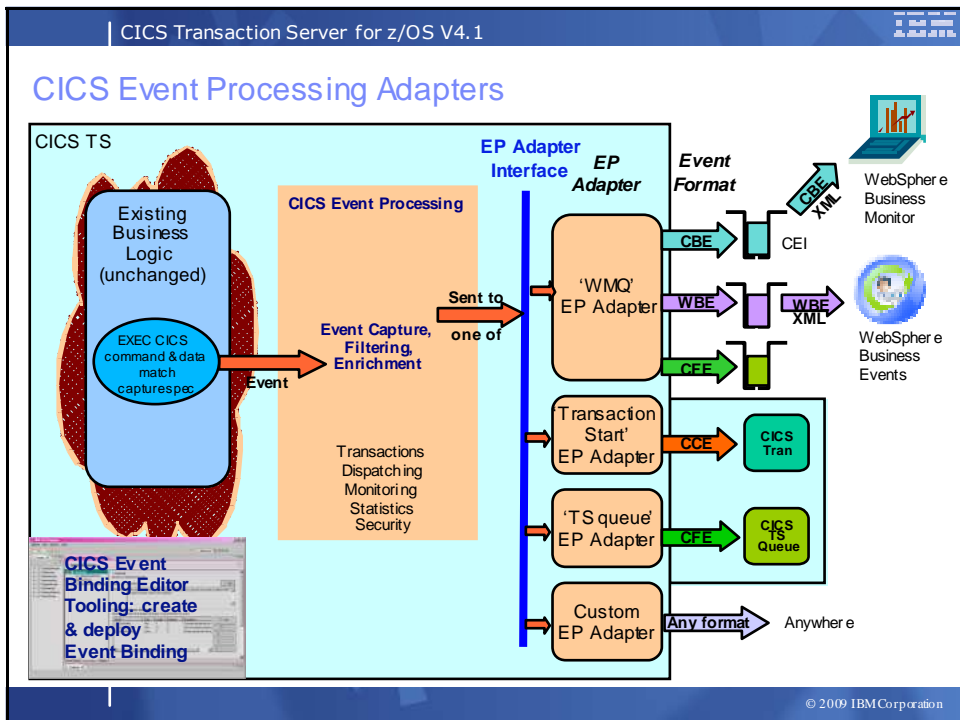
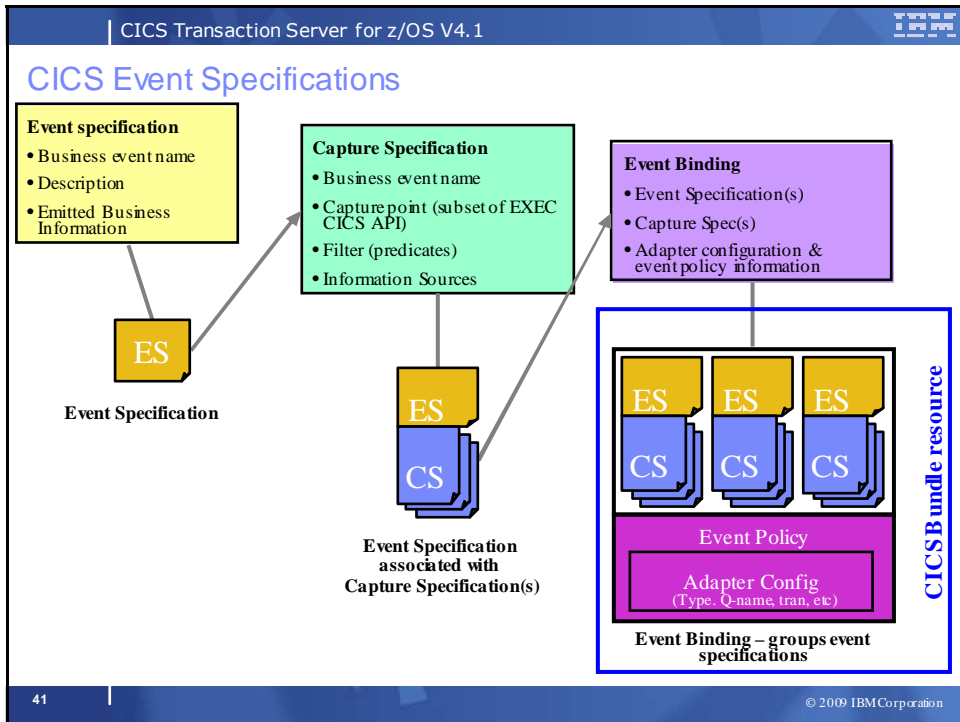
You can specify, capture, and emit business events from a CICS® application. These business events can be consumed by another CICS application, or placed on a WebSphere MQ queue for consumption in a variety of ways including by a complex event processing engine such as IBM WebSphere Business Events.

A business event is anything that happens that is relevant to your business. An individual stock trade or the placement of an order are both examples of business events. CICS allows business events to be captured in an application and emitted for processing, with typically no change to the emitting CICS application.

After CICS has captured and processed a business event, it is passed to an EP (Event Processing) adapter for formatting and routing. CICS provides EP adapters to allow business events to be emitted to WebSphere MQ, either in XML format for consumption by WebSphere Business Events, in CBE (Common Business Event) XML format to the Common Event Infrastructure (CEI) for consumption by business monitors, or in a non-XML character format, as well as to a CICS transaction or to a CICS temporary storage queue.

39 | © 2009 IBM Corporation





CICS Transaction Server for z/OS V4.1

CICS Event Processing Adapters – Notes

When an event is captured, CICS directs it to an EP adapter, based on what has been specified in the event binding. All adapters are invoked using a standard EP Adapter interface.

The EP adapters format the event and route it to the potential consumers, which include WebSphere Business Monitor, WebSphere Business Events, and a CICS transaction.

The EP adapters provided by CICS support the following transports and formats:

- WMQ transport, CBE (Common Base Event) XML format – primarily for sending events to WebSphere Business Monitor
- WMQ transport, WBE XML format – primarily for sending events to WebSphere Business Events
- WMQ transport, CFE (“CICS Flattened Event”) text-based format – to be read from the queue by consuming application
- CICS transaction start EP adapter, CCE (“CICS Channel-based Event”) format – to drive new work in this or another CICS region
- Temporary storage queue EP adapter, CFE format – primarily to test events are emitted when expected and contain the correct data

The standard EP adapter interface also allows users and IBM Business Partners to write custom EP adapters, to support formats and/or transports not provided by CICS

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Event Binding Editor – Event Specification

The screenshot shows the IBM CICS Explorer interface with the Event Binding Editor open. The 'Specifications' tab is active, showing the event 'Order_Dispatched' with a description 'Event indicating an order has been dispatched'. Below this, the 'Emitted Business Information' section contains a table with the following data:

Name	Type	Positi	Le	Description	+
Customer	Text	0	8	Customer who place...	+
ItemOrdered	Nu	0	4	Identifier of item orde...	+
Order_ID	Text	0	8	Identifier of the order	+

The interface also includes sections for 'Capture Specifications' and 'Automatic Capture Specification'.

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Event Binding Editor – Event Specification – Notes

This shows a screenshot from the Event Binding Editor, which is the tooling used to create event specifications, and is part of the CICS Explorer.

This slide shows an event `Order_Dispatched` within an event binding called `OrderingPatterns`. This view of the event specification shows the business-oriented aspects of the event: its name, which will indicate the interesting thing that happened, a description (which is used to describe the event when working with it in the Event Binding Editor), and the items of information to be included in the event.

In this example, the event indicates that an order has been dispatched, and the business information that is to be emitted as part of the event is the customer to whom the order is being dispatched, the item that was ordered, and an order identifier for the order. When specifying the emitted business information, you also specify whether it is text or numeric data, the length to be emitted, and a precision to be used (for numeric data).

Having defined the external view of the event, the user would 'Add a capture specification', which will indicate to CICS how to detect this event when it occurs at runtime.

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

CICS Event Processing

- **Non-invasive instrumentation of events**
 - No requirement to change existing business logic
- **EXEC CICS SIGNAL EVENT for explicit instrumentation**
- **Tooling to create event specifications**
 - Event binding editor in CICS Explorer
 - Deployed to CICS via event bindings in BUNDLE resources
 - Specify event and its payload, and how it can be detected/captured by CICS
 - Specify event capture points as EXEC CICS command (from supported subset)
 - Filtering on command parameters and data
- **Events dispatched to specified EP adapter for formatting and emission to event consumer**
 - CICS-supplied EP adapters
 - Capability to write custom EP adapters

46 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

CICS Event Processing – Notes

A CICS application can capture and emit business events with no change to the application itself, using non-invasive capture points, after (and sometimes before) selected EXEC CICS API calls, and at program start.

For situations in which the non-invasive capture points are not sufficient to capture a specific business event, a new EXEC CICS API call, SIGNAL EVENT, allows events to be captured anywhere in a CICS application.

The CICS Explorer includes the CICS event binding editor, a tool that helps you to define simple business events and create event bindings for your CICS applications. You deploy event bindings to a CICS system from the CICS Explorer.

After CICS has captured and processed a business event, it is passed to an EP (Event Processing) adapter for formatting and routing. CICS provides EP adapters to allow business events to be emitted to WebSphere MQ, either in XML format for consumption by WebSphere Business Events, in CBE (Common Business Event) XML format to the Common Event Infrastructure (CEI) for consumption by WebSphere Business Monitor and other CBE consumers, or in a non-XML character format, as well as to a CICS transaction or to a CICS TS queue.

You can also write your own custom EP adapter, where additional formats and transports are needed.

47 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Agenda

- **CICS TS Version 4**
 - Strategy and Themes
- **CICS TS Version 4.1 Connectivity updates**
 - Updates to Web Services support
 - Improvements to XML parsing
 - WS-Addressing
 - MQ Group Attach
 - Web 2.0 support
 - Atom Feeds
 - Event Processing
- **References and Summary**

48 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

CICS TS V4.1 Useful References

- **CICS TS V4.1 page**
 - <http://www-01.ibm.com/software/htp/cics/tserver/v41/>
- **CICS TS V4.1 Announcement Letter**
 - http://www.ibm.com/common/ssi/ShowDoc.jsp?docURL=/common/ssi/rep_ca/5/897/ENUS209-135/index.html
- **CICS TS V4.1 Information Center**
 - <http://publib.boulder.ibm.com/infocenter/cicsts/v4r1/index.jsp>
- **CICS TS V4.1 Business Value video**
 - http://www.youtube.com/watch?v=W_w6t81VbYc
- **Other CICS information on YouTube under 'CICSfluff', including**
 - CICS TS V4.1 High Level Technical Overview
 - CICS Events 5 minute demo
 - CICS and PHP SupportPac

© 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

CICS Transaction Server V4.1 Key Enhancements

Comply

Resource signatures
WebSphere Registry & Repository Support
Support for distributed identities

Compete

Support for event processing
Atom feeds from CICS
Application Bundles
Service Component Architecture
Java 6
Web Services Addressing
Improvements to data mapping

Control Costs

CICS Explorer
IPv6
IPIC Transaction Routing
MQ Group attach
Improvements to CICSplex SM workload management
New SPI commands for managing the CSD
Discovery Library Adapter

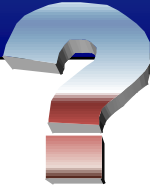
Architectural Enhancements

Improvements to XML parsing in CICS
Large file hosting
Performance Improvements

50 | © 2009 IBM Corporation

CICS Transaction Server for z/OS V4.1

Thank You !
Any questions?



© 2009 IBM Corporation

The image shows a presentation slide with a blue header and footer. The header contains the text 'CICS Transaction Server for z/OS V4.1' and a small IBM logo. The main content area is white and features a large blue rectangle with the text 'Thank You !' and 'Any questions?' in white. Below this rectangle is a large, 3D question mark graphic with a blue top and a red-to-white gradient bottom. The footer contains the text '© 2009 IBM Corporation'.