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“CICS Transaction Server V5.1 open beta”

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Matthew Webster
“CICS TS V5.1 open beta” Sessions

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11435 CICS Platform and Applications Basics
11437 CICS Platform and Applications Advanced Concepts
CICS TS V5.1 open beta
Available Now

The IBM® CICS® Transaction Server for z/OS® (CICS TS) V5.1 open beta introduces cloud-style CICS development, deployment, and operations.

This is achieved by delivering new Platform as a Service (PaaS) capabilities that can be used to host Software as a Service (SaaS)-based CICS applications. Foundational advancements in both capability and scalability will allow CICS applications to do more, more easily.

Cloud computing is transforming the way people think about information technology. CICS TS V5.1 open beta now introduces cloud-style development, deployment, and operations to the CICS platform, giving you the opportunity to explore this concept and implementation.

The combination of new Application, Platform, and Policy definitions will greatly simplify the assembly, deployment, and life-cycle management of CICS applications, delivering many of the characteristics found in private-cloud systems. CICS TS V5.1 open beta gives you the opportunity to explore the concept of a cloud-style CICS deployment in your environment.

Support has been added for a fast and lightweight Java web container, built on WebSphere Application Server Liberty profile technology, which implements the Java Servlet and JavaServer Pages (JSP) specifications, enabling you to co-locate your web and business applications.

A wide range of foundational improvements have been added, including support for Java 7 and further 64 bit exploitation. Event processing is expanded by new WRITE OPERATOR and messager capture points, and a new capability to emit a single event to multiple adapters.

The CICS-WebSphere MQ dynamic program link (DPL) bridge has been enhanced to pass data using containers, increasing the amount of data that can be passed and broadening the solutions in which it can be used.

CICS TS V5.1 open beta also introduces a number of enhancements to make operations easier and more transparent:
- Statistics and monitoring records are enhanced to provide more information that relates to the load, capacity, and performance of the system.
- Better defaults for startup parameters and new messages that aid online configuration changes.
Agenda

“CICS TS V5.1 open beta” overview
The new CICS information center and future directions
Platform as a Service (PaaS) Demo
Feedback
“CICS TS V5.1 OPEN BETA”
OVERVIEW

Matthew Webster
Highlights

• Platform as a Service (PaaS)
• Scalability
• Foundation
Platform

• What is a CICS Platform?
  – A grouping of selected CICSPlex SM managed regions
• Consists of different region types
  – e.g. TOR, AOR, FOR
• Deploy, manage and control the platform as a single entity
  – CPSM System Group (CSYSGRP) typically consists of a single region type

• What is a CICS Region Type?
  – A grouping of like regions where an application can be deployed
• Part of the Platform Definition
Application Packaging

• Create & deploy the application
  – Use the CICS Explorer to define the resources, dependencies and application code for a CICS application
  – Create an Application Bundle Project that describes the application
    • Application name, description and version
    • References to CICS bundles
  – Allows you to manage the application as a single entity
  – Bundle resource definitions
  – Import resource dependencies
Application Life-cycle

- INSTALL & ENABLE the application
  - Additional resources that can now be defined in a BUNDLE
    - PROGRAM
    - URIMAP
    - LIBRARY
    - TRANSACTION
  - Measured application usage
    - Define entry points for applications operations
      » CICS will associate tasks with those entry points to the operation
    - Application context data recorded in the CICS monitoring records
  - Policies for Applications
    - Allows thresholds to be set for resource consumption and actions to be taken when the threshold is exceeded
    - Scope is an application or operations within an application
Application Context

**Measure Application Use**
- Associate CICS tasks with an application
  - Define application entry point on a BUNDLE program definition
  - Define application entry point with SET PROGRAM OPERATION
    - Only sets the OPERATION attribute
- Application can comprise one or more tasks in different regions
  - Application context will flow between regions
    - MRO and IPIC connected regions
- Application context data will be included in monitoring data
  - Application name, Platform, Version, Operation
Policy

• Control application resource consumption
  – Define rules that apply to Platforms and Applications
  – Rule task consists of a:
    • Threshold
      – Database (SQL)
      – File
      – Program (LINK)
      – Storage amount or number of requests
      – Time (CPU)
    • Action to be taken when threshold is exceeded
      – Issue message
      – Emit an event
      – Abend the task
Policy

• Control application resource consumption
  – Scope of policies
    • Application scope
      – Policy packaged in application bundle deployed to the platform
      – Applies to all user tasks that match platform, application and version
    – Operation scope
      » Applies to user tasks that match the operation
  – Deployment
    • Packaged in an application bundle and deployed to the platform
    • Packed in a CICS bundle and installed in a region
Scalability

• Transient Data made threadsafe
  – EXEC CICS READQ  TD
  – EXEC CICS WRITEQ  TD
  – EXEC CICS DELETEQ TD

• Global User Exits must be threadsafe
  – XTDEREQ, XTDEREQ QC
  – XTDIN, XTDOUT
  – XTDREQ

• Function shipping over IPIC will use an Open TCB
Scalability…

• 64 bit Support
  – New commands to obtain and release 64 bit storage
    • EXEC CICS GETMAIN64
    • EXEC CICS FREEMAIN64
  – Channel commands to utilize 64 bit storage
    • EXEC CICS GET64 CONTAINER
    • EXEC CICS PUT64 CONTAINER
  – Execution Diagnostic Facility (CEDF)
    • Supports AMODE(64) non LE assembler code
  – Command Level Interpreter (CECI)
Scalability…

• 24 bit Virtual Storage Constraint Relief
  – Control blocks, modules and stack storage moved above the line
    • Transient Data
    • Journal Control
    • CEDF and CECI processing
    • DLI remote processing
    • CWTO, CIEP, CSNC, CSXM and the Mirror transactions
  – Mirror
    • Supplied mirror defined with TASKDATALOC(ANY)
      – Will use 31 bit storage
      – AEZA or AZEC abend will occur if you DPL to a AMODE(24) program
        » Define your own mirror with TASKDATALOC(BELOW)
        » Change the application to be AMODE(31)
  – User Exit Global Work Area
    • New GALLOCATION parameter on the ENABLE PROGRAM command
      – LOC24: GWA is in 24 bit storage (default)
      – LOC31: GWA is in 31 bit storage
        » DB2, MQ and DBCTL attaches now use LOC31
    • GWA now aligned on a quadword boundary
Foundation

- **Security**
  - SPI commands now audited to the CICS log for better accountability of configuration changes
    - SET, PERFORM, ENABLE, DISABLE, RESYNC
  - Logging on with VERIFY command can now use full RACF verification at least once a day
    - Ensures user IDs are always ready for audit, recorded as being used, and retained in your system
  - Distributed identities are now propagated for START command
    - Auditors can use the distributed identity associated with started tasks to find the identity of the user
  - SSL certificates and environment can be refresh online for improve 24x7 operation
    - New PERFORM SSL REBUILD command
  - SSL ciphers used are now recorded in SMF 110 records for better performance analysis
Foundation ...

• Communications
  – CICS-WebSphere MQ DPL bridge can use CONATAINERs – flexible, not restricted to 32 KB
  – Support execution diagnostic facility (EDF) over an IPIC connection
  – New sample programs for autostall of IPIC connection resources for easier configuration
  – Batch programs can now call CICS regions in different XCFGROUPs dynamically
    • Enables moving CICS regions to their own XCFGROUP without re-coding batch programs
Foundation – WAS Liberty Profile

- Support for WebSphere Application Server Liberty Profile
  - Lightweight WAS – configuration defines which features to load
  - WAS V8.5, released in April 2012
  - Runs in a JVM Server in CICS
  - Supplied and installed with CICS at no charge, with the restriction that it only runs dynamic web applications
    - Java Server Pages (JSP) and Servlets
  - Access to CICS functionality via JCICS API
  - Application lifecycle controlled via CICS Bundle support
  - Sample dynamic web applications supplied
Development requirements

- Download and install Eclipse IDE
  - Help > Install New Software > Work with: All Available Sites
  - Select Web, XML, Java EE and OSGi Enterprise Development and follow the wizard to install them.
- Download and install the CICS Explorer SDK
- Build and test the Servlet examples
The new CICS information center and future directions

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CICS Information Architect

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Introduction of a new information center structure

- The information center has been updated to use content types to structure how the information is displayed:
  - The information center content types are generally task-oriented, for example; upgrading, configuring, and installing. Other content types include reference, scenario, and tutorial-based information. This structure means that there is no duplication in the navigation.
  - The PDF library has not changed. A list of PDFs and a mapping of each PDF publication to where the content now sits in the top level navigation in a topic called “The CICS Transaction Server library: PDF and collections”. Each PDF preface also includes this mapping.
  - “Related resources” links have been added to top level and important topics
  - New graphics have been added to content type topics
**Product overview**

CICS Transaction Server is IBM’s general-purpose transaction processing software for z/OS. It is a powerful application server that meets the transaction-processing needs of both large and small enterprises. It builds on z/OS and System z facilities to provide high availability and scalability at a low cost per transaction; it supports large transaction volumes with a fast and consistent response time.

CICS Transaction Server provides these features and benefits:

- An environment for running transactions; CICS Transaction Server manages concurrency, sharing of resources, integrity of data, and prioritization of work.
- Support for business applications written in COBOL, C, C++, PL/I, Java, and Assembler, providing an application programming interface to access CICS services.
- Access by applications to data stored in DB2 and DL/I databases and in VSAM and BDAM data sets.
- Connectivity with WebSphere MQ and access to the Message Queue Interface from CICS application programs.
- Distribution of work between multiple CICS regions in a z/OS sysplex.
- Connectivity with other systems in client/server and peer-to-peer configurations.
- Interfaces for configuring and managing your CICS regions.
- Aids for debugging application programs, and for diagnosing problems in your system.
The CICS® Transaction Server library: PDF and collections

The CICS Information Center includes Portable Document Format (PDF) files and collections of information in the CICS library. You can view, print, and download either the collections in HTML format, or the PDFs as files.

See [Working with PDF files](#) for instructions on how to view, print, and download PDF files.

The topics that are contained in the PDFs and collections can also be found in the information center navigation.

Table 1. PDF publications in alphabetical order, with location of associated topics in the information center

<table>
<thead>
<tr>
<th>Link to PDF publication or collection</th>
<th>Alternative location of information in the information center navigation</th>
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<tbody>
<tr>
<td>Application Programming Guide</td>
<td>Developing applications</td>
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<tr>
<td></td>
<td>Debugging</td>
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<td></td>
<td>Deploying</td>
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<tr>
<td>Application Programming Reference</td>
<td>Application development reference</td>
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<tr>
<td>Business Transaction Services</td>
<td>Overview of BTS</td>
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<tr>
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<td>Developing applications</td>
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<td>Administering</td>
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<td></td>
<td>Troubleshooting and support</td>
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<td></td>
<td>System programming reference</td>
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<tr>
<td>C++ OO Class Libraries</td>
<td>Hello World</td>
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<td></td>
<td>Using the CICS foundation classes</td>
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<td>CICS management client interface (CMCI) collection</td>
<td>Configuring</td>
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<td></td>
<td>Application development reference</td>
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The proliferation of web content and integrated IBM solutions means that our clients:

- Spend too much time searching
- Spend too much time evaluating results
- Spend too much time determining if the information is relevant to their IT environments
- Have no way to filter information for their specific products and versions.
- Have no way to customize content or share custom content
- Spend too much time manually creating custom “cookbooks”

**But what if you could...?**

- Search and see all infocenter content, Redbooks, Tech Notes, demos, education, etc *all in one place.*
- Create and save a custom view of only the products and content you want.
- Log in to see saved views and recommendations.
- Create custom documents; download or share them.
- Subscribe to updates to information you care about.
- Rate and comment on information from IBM and other customers.
- Connect with experts.
Scenario: Using CICS in a cloud environment

CICS can participate in a cloud environment, making it possible to create a scalable and available computing resource. This scenario describes how to integrate CICS with a cloud application.

Technical solution

You can connect CICS Transaction Gateway for z/OS, Version 4.2.0, to a cloud environment. The gateway provides a way to access CICS from a cloud application.

Planning the solution

Review the topics in this section to understand why a business might want to follow the solution proposed by the scenario.

Business overview

A company wants to use a cloud network to host business applications to take advantage of the scalability and availability of computing resources in a cloud environment.

Virtual application pattern components

A virtual application pattern can contain two different components: a cloud component and a policy. A cloud component represents a middleware service that is required by the virtual application instance. A policy represents how a middleware service is configured during deployment, including the qualities of service that are defined.

Existing CICS Transaction Gateway

An existing CICS Transaction Gateway (GTG) component represents a connection to an existing transaction gateway.
Future capability: see content from all IBM sources

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<thead>
<tr>
<th>Title</th>
<th>Found in</th>
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<th>Date published</th>
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What next?

- Please give us any feedback on the new information center structure and on IBM Knowledge Center
- More information available from the CICS booth
- Email me directly if you are interested in providing input to the design and testing of IBM Knowledge Center (sophie.mcmonagle@uk.ibm.com)

- Thanks for your time!