11435

CICS Platform and Applications Basics

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Cloud-style CICS development, deployment, and operations Sessions

SHARE Lunch & Learn “CICS Transaction Server V5.1 open beta”

11435 CICS Platform and Applications Basics

11437 CICS Platform and Applications Advanced Concepts
“CICS TS V5.1 open beta”

“introduces cloud-style CICS development, deployment, and operations.”

“delivering new Platform as a Service (PaaS) capabilities that can be used to host Software as a Service (SaaS)-based CICS applications.”

“The combination of new Application, Platform, and Policy definitions ..., delivering many of the characteristics found in private-cloud systems..”
Pain Points

Deploying and un-deploying applications is a high skill complex job due to the number of separate artifacts

Customers would like to see usage / charging, availability / SLA at the application level

Elastic scale is a requirement, but it needs to be managed within the constraints of the customers resources and business environment
Pain Points

Deploying and un-deploying applications is a high skill complex job due to the number of separate artifacts

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New Platform as a Service (PaaS)

Concepts Resources

Application
Platform
Policy
Application

A collection of one or more CICS bundles
Life-cycle as a single entity
Measure and control resource usage
Develop in Eclipse/Rational
Share and promote through SCM
Application Package

Name
  org.maw.banking.Loans
Version
  1.2.1
Resources
  LIBRARY, PROGRAM, TRANSACTION, URIMAP, (EVENTBINDING, OSGIBUNDLE, ...)
Dependencies
  DB2CONNECTION, JVMSERVER, TCPIPSERVICE, ...
Entry points
  operation: browse, update, ...
  resource: PROGRAM

Policy
Application Lifecycle

Deploy Application bundle to zFS
INSTALL Application onto a Platform
ENABLE Application
DISABLE Application
DISCARD Application
ENABLE/DISABLE CICS bundle
Application status (DISABLED, ENABLING, ...
Application Context

Manage Application
Measure & control resource usage
Associate Task with Application operation
PROGRAM
Flow from Task to Task & Region to Region
MRO, IPIC
Recorded in monitoring data
Platform, Application, Version (major.minor.micro), Operation
Version

Semantic versioning
  major: backward incompatible change
  minor: backward compatible change
  micro: bug fix

Resources
  Application
  CICS bundle
  OSGi bundle

Life-cycle
  Development
  Deployment
  Operations
  Planning

CICS Application vs. CPSM BAS

Offline representation of an Application
Separation of DevOps* roles
Complete lifecycle
Versions
Management, measurement and control

* “... communication, collaboration and integration between software developers and information technology(IT) professionals ...”

Application Questions

*Can I define single application package that moves from development, through test to production unchanged?*
Yes

*Can I tell what’s changed between two versions of the same application at any point in the life-cycle?*
Yes

*Can I use source code management (SCM) to manage application lifecycle?*
Yes
Platform

Set of one or more region types
Life-cycle as a single entity
Hides complexity of underlying topology

Provides services for Applications
Control Applications through Policy
Platform Lifecycle

Name
  org.maw.production.Banking
zFS home
Region types
  ID
  name

Resource & Dependencies

Policy
DevOps Roles

Application Developer
System Programmer
*Application Deployer*
DevOps Roles

Application Developer
  Resources
  Dependencies
  Entry points
  Policy

System Programmer
  Topology
  Services
  Policy

Application Deployer
  Deployment
  Resources
  Policy
Development Lifecycle

Loans_1.2.0

Deployment

development.Banking

Applications

Deployment

test.Banking

Web

Java

Queues

Deployment

production.Banking

Web

Java

Queues

Files

Files
Deployment Lifecycle

<table>
<thead>
<tr>
<th></th>
<th>CPU</th>
<th>Database</th>
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<tbody>
<tr>
<td>Loans 1.1.3</td>
<td>100</td>
<td>10</td>
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<tr>
<td>Loans 1.2.0</td>
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NIST Definition of Cloud Computing

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models, and four deployment models.

Four Deployment Models

Private cloud
Community cloud
Public cloud
Hybrid cloud
Four Deployment Models

Private cloud
Community cloud
Public cloud
Hybrid cloud
Three Service Models

Cloud Software as a Service (SaaS)
Cloud Platform as a Service (PaaS)
Cloud Infrastructure as a Service (IaaS)
Three Service Models

Cloud Software as a Service (SaaS)

Cloud Platform as a Service (PaaS)

Cloud Infrastructure as a Service (IaaS)
Cloud Service Models

- SaaS
- PaaS
- IaaS
New CICS Platform as a Service (PaaS)

<table>
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<tr>
<th>Loans</th>
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<tr>
<td>Banking</td>
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<tr>
<td>CICSplex</td>
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Cloud Service Models

CICS Applications

CICS Platform

System z
Cloud Service Models

CICS Applications

CICS Platform
- Security
- Integrity
- Runtimes
- Lifecycle
- Communications
- Database

System z
Cloud Service Models

CICS Applications
- PL/I
- C++
- COBOL
- ASM
- Java
- JSP
- Groovy
- PHP

CICS Platform
- Security
- Integrity
- Runtimes
- Database
- Lifecycle
- Communications

System z
Five Essential Characteristics

On-demand self-service
Broad network access
Resource pooling
Rapid elasticity
Measured Service
SaaS Lifecycle

- On-demand Self Service
- Broad Network Access
- Resource Pooling
- Rapid Elasticity
- Measured Service
SaaS Lifecycle

On-demand Self Service

Measured Service

Application Package
Application Lifecycle

Rapid Elasticity

Resource Pooling

Broad Network Access
SaaS Lifecycle

On-demand Self Service

Measured Service

Web Services
Servlets & JSP (Liberty)

Rapid Elasticity

Resource Pooling

Broad Network Access
SaaS Lifecycle

- On-demand Self Service
- Measured Service
- Rapid Elasticity
- Resource Pooling
- CICSplex
  - Platform region types
  - Policy-based management
- Broad Network Access
SaaS Lifecycle

On-demand Self Service

Workload management
64-bit Support
Threadsafe API

Rapid Elasticity

Measured Service

Resource Pooling

Broad Network Access
SaaS Lifecycle

On-demand Self Service

Measured Service

Monitoring
Application Context
Policy-based management

Rapid Elasticity

Resource Pooling

Broad Network Access
Summary

Introduces Application and Platform as first class entities

Simplifies Application development and deployment lifecycle

Demonstrates five essential characteristics of Platform as a Service (PaaS) in a private cloud deployment
QUESTIONS
Related Cloud-Style CICS Sessions

Monday
  11417: CICS Project Opening and Product Update

Tuesday
  11434: CICS Explorer - A System Programmer Perspective
  11435: CICS Platform and Applications Basics

Wednesday
  11437: CICS Platform and Applications Advanced Concepts
  11439: Event Processing: Insight into Your CICS Systems and Business
  11441: Managing CICS Resources in a Unix File System: Best Practices
  11442: CICS and Java: How the JVM Server transforms Java in CICS

Thursday
  11448: Core Foundations and Scalability

Friday
  11458: Modernizing CICS -- Hands-on Lab, Part 1 of 2
  11459: Modernizing CICS -- Hands-on Lab, Part 2 of 2