Reinventing the CICS Application Lifecycle

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Session 13378

http://uk.linkedin.com/pub/chris-hodgins/1/866/43/
Cloud Style Enablement

Tuesday

09:30 Reinventing the CICS Application Lifecycle
11:00 CICS as a Platform Service Provider
Announcing the new CICS TS V5.1 release

Operational Efficiency

- Greater capacity - achieve cost savings through consolidation
- Managed operations - control critical resource thresholds with policies
- Increased availability - reduce the need for planned downtime
- Deeper insight - extend performance and compliance information

Service Agility

- First-class applications - create agile services from existing assets
- First-class platforms - create agile service delivery platforms
- Modern interfaces - build rich web experiences for critical applications
- Foundational enhancements - extend core capabilities

... with Cloud Enablement

Consistent with the IBM Cloud Computing strategy
Positioning customers for the next transformational era in technology
Moving towards a cloud oriented service delivery platform
It shouldn't be complicated to deploy and manage your Application!

- Create a single entity to contain and manage your Applications
- Move Applications between development, test and production with confidence
- Provision and detect changes in shared services Applications depend on
- Monitor Applications by operation rather than at the transaction level
Problems addressed

- Inconsistent application resource definitions
  - Managed individually rather than as a package
  - May change while the application is installed
  - Difficult to know exactly what resources an application contains

- Moving applications between different environments can be time-consuming
  - Difficult to see where resources should be deployed
  - Regions may not have the same capabilities
  - Application dependencies may have changed
Even more problems addressed

- Application dependencies can not be easily defined
  - Not possible to declare an application dependency
  - Not possible to view the health of an application or it's supporting services
- Monitoring an application is an accumulation of the tasks it ran
  - Difficult to break down application performance by the actions it performed
  - Difficult to track application performance across multiple regions
What do I need to set this up?

• CICS Transaction Server V5.1 with CICSPlex SM set up
  – With CICSPlex SM set up
  – With APAR PM81540 applied (www-01.ibm.com/support/docview.wss?uid=swg1PM81540)
• CICS Explorer V5.1.1
• Access to zFS
Reduced effort for development

- Versioned Application/bundle for complete control over construction
- Applications can be stored in SCM and shared with others
- Applications can be quickly re-deployed to well-defined Platforms e.g. development, test, production
Reduced effort for operations

- Review Application health in a single click
- Quickly provision an Application from test to production without fear of resource definition changes/inconsistencies
- Define dependencies between different Platforms that affect the Applications health
- Enforce expected Application behaviour with policies
- Monitor the performance of Applications rather than the resources
Enabling DevOps collaboration

First class applications
Create agile services from existing assets

"Hey Simon, I need to test my new version of the payroll application."

First class platforms
Create agile service delivery platforms

"Sure Abigail, you should get the latest payroll test platform from the repository, I'll send you a link."

"Thanks, I'll deploy my app onto that platform on the development plex later today."

"That should be fine, just check with Oliver that the policies on the plex are going to be OK for your app's changes."

FASTER

SIMPLER

Complete your sessions evaluation online at SHARE.org/BostonEval
User roles – System Programmer

- Platform provider
- Policy overlord
- Application and Platform health reviewer
- Collection and review of Application monitoring SMF 110 records
- Problem determination for Platforms and Applications
User roles – Application Deployer

• Defining an Applications deployment rules to target a specific Platform
• Defining Application dependencies
• Applying System Programmer defined policies to an Application
User roles – Application Developer

- Design of business logic
- Code
- Test
- Application creation
Supporting the Application lifecycle

Value proposition for developers

- Versioned Application and bundles for complete control over construction
  - Long 64 byte names for clarity of purpose
  - Major.minor.micro versioning scheme used to denote the exact contents of the Application/bundle

- Applications can be stored in SCM and shared with others
  - Applications, Platforms and Bundles are all managed from the Explorer workspace
  - Use Eclipse SCM integration to quickly extract, modify, track and share
Value proposition for developers

- Applications can be quickly re-deployed to well-defined Platforms e.g. development, test, production
  - Use Application bindings to:
    - Map Applications to a specific Platform
    - Define Application dependencies to shared Platform resources or non-Platform resources
We need things to be simple again:
Platform

<table>
<thead>
<tr>
<th>Application</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>URIMAP</td>
<td>TERMINAL</td>
</tr>
<tr>
<td>TRANSACTION</td>
<td>FILE</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>DB2</td>
</tr>
<tr>
<td>WEBSERVICE</td>
<td></td>
</tr>
</tbody>
</table>
We need things to be simple again: Region Types
We need things to be simple again: Application
We need things to be simple again: Dependencies
We need things to be simple again: Operation

<table>
<thead>
<tr>
<th>Operation</th>
<th>Application</th>
<th>Platform</th>
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</tr>
</tbody>
</table>
We need things to be simple again: Entry Points

browse
- URIMAP
- TRANSACTION
- PROGRAM

Cart
- TRANSACTION
- PROGRAM

update
- WEBSERVICE
- TRANSACTION
- PROGRAM

Retail
- TERMINAL
- FILE
- DB2
We need things to be simple again: Application Context

```
TRANSACTION  PROGRAM  TERMINAL  FILE

TRANSACTION  PROGRAM  TRANSACTION

Cart

URIMAP

/Retail/Cart/1/0/0/browse
/Retail/Cart/1/0/0/update

Retail

TERMINAL

FILE

DB

SMF
```
New First Class Concepts Resources

Application & Application Binding
Platform
Policy
Application

- An Application bundle
- 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 Source Code Management (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

Package CICS bundle(s)
Create Application bundle project
Create Binding bundle project
Export Application package to zFS

INSTALL Application onto a Platform
ENABLE/DISABLE Application
DISCARD Application

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
How do I move an Application from Development through Test to Production (without changing it)?
Answer: use Application Bindings
A Binding allows additional resource dependencies to be created

Diagram:
- Operation
- Application
- Binding
- LIBRARY
- Transaction
- Platform
Application Binding

An Application Binding bundle
A collection of zero or more CICS bundles
A set of deployment rules
Life-cycle with Application as a single entity
Removes direct dependency between Application and Platform
Application Binding Package

Name
  org.maw.banking.binding.Loans
Version
  1.2.1
Binding
  Application name & version
  Platform name & version
Additional CICS bundles
  Resources
  Dependencies
Deployment Rules
  CICS bundle -> region type
Policy
Incremental approach for existing Application adoption

1) Create a Platform to allow management of the topology lifecycle

2) Create an Application containing CICS bundles with imports of existing resources

3) Add Operations through entry points in the CICS bundles

4) Replace bundle imports with real resources in the CICS bundles

5) Apply policies to the Application
Getting started with cloud-style deployment

If you want to try out a cloud-style deployment for one of your existing CICS® applications, you can use this phased approach.

To try out the complete process first, using one of the sample applications supplied with CICS, you can follow through the scenario Scenario: Deploying an application in a PaaS.

Stage 1: Create a platform

In CICS, you can use a Platform as a Service (PaaS) to deploy and manage Software as a Service (SaaS)-based CICS applications over multiple CICS regions. The platform provides services to the applications. In this stage of your cloud-style deployment, you can set up a platform including CICS regions where your existing CICS application is installed. To create a platform, you must be using CICSplex® SM to manage your CICS regions.

Use the CICS Explorer® or the CICS Explorer SDK to create a CICS Platform Bundle project and export it to zFS. The platform bundle is a type of management bundle that describes the platform.
Demonstration

Check out the CICS TS V5.1 demos!
Application Discovery using CICS IA

Discover entry points, resource and dependencies

Collect information about Applications

“Used by application”

“Collect by Application”
“CICS IA” Perspective
CICS IA Application support: Collect/display data for a deployed application

New menu option – “Used by Applications”
Can be used against any resource.
Summary

New Application resource simplifies development and deployment lifecycle

Application binding allows an application to be deployed to different Platforms without change

Application context simplifies management of runtime status and measurement of resource consumption
Questions?

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