Driving Virtual Mobile Devices Through the zEnterprise

Matthew Cousens

Friday, August 14, 2015
11:15 AM-12:15 PM
Session 17268
Meet the zPET Mobilization Team

Max Bender
Torin Reilly

• Max and Torin joined the IBM zPET team in January 2015 while Sophomores at Marist College. Working only part-time, they were able to quickly prototype mobile workloads. We are currently moving our first prototype to production.

Complete your session evaluations online at www.SHARE.org/Orlando-Eval

8/12/2015
Agenda

• z/OS Platform Evaluation Test (zPET) introduction
  – Mission
  – Environment
  – Mobile challenge
• Mobilization project
  – Proof-of-concept: EGUI
  – JMeter
  – Mobile Bookstore
  – Architecture design
• Future mobilization plans
z/OS Platform Evaluation Test (zPET)

• Mission
  – Perform integration testing of z/OS and z/HW
  – Recreate field issues, assist with critsits, etc.

• Hardware
  – Approx. 175,000 MIPS
  – 3 generations of z/HW (z13, zEC12, z196)

• Logical
  – (up to) 32-way parallel sysplex
z/OS Platform Evaluation Test (zPET)

• Middleware
  – 86 IBM products outside z/OS BCP
  – Subsystems: CICS, IMS, DB2, MQ, WAS, IIDR
  – Operations: System Automations, NetView, TWS, GDPS

• Workloads
  – 88 test applications
  – Designed to match client user flows, in some cases with direct input from IBM clients

• Mobile
  – MobileFirst workloads
  – Currently deploying to production
Mobile challenge

• How do we include mobile flows in our test environment?
  – Need a scalable, automated solution to fit

• How are mobile flows different from other flows?
  – The back-end system of record is the same
  – Is the transaction mix different?
    • Read/Write
    • Search/Update

• Solution
  – Implement MobileFirst Platform to drive CICS, IMS, DB2, WAS, MQ, etc. via simulated mobile devices

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
Well, we think we know how we’re going to do this .... let’s try a proof of concept
Proof of concept - EGUI

• EGUI sample application available on developerWorks

• Fit nicely into our existing environment where CICS skills are readily-available
  – Deployed application as CICS web service

• Phase I: MobileFirst Studio
  – Hosted on local Windows client
  – Completed 2014

• Phase II: MobileFirst Server
  – New environment needed but more production-like
EGUI – Phase I

• Code imported from developerWorks, built with MobileFirst Studio, and deployed to MobileFirst Development Server, viewed with Mobile Browser Simulator
Everything seems to be working as expected
.... this is great!

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
EGUI - Phase II

• Utilize MobileFirst Server running on Linux on z Systems to host mobile connections

• Provision Linux guest on VM

• Install necessary components:
  – Application Server – WebSphere
  – Database – DB2
  – MobileFirst deployed to Liberty

• Build and deploy application to remote MobileFirst server
  – https://www.ibm.com/developerworks/community/files/basic/anonymous/api/library/81f3b7dc-d966-402d-b2f2-8824c96deb4a/document/d45c0e21-6ff-42b8-b2da-7fc7c33858fb/media
MobileFirst Server Does What?

• Now that the MobileFirst application and adapters are deployed, let’s run them .... How do I do that?

• LEARNING MOMENT #1
  MobileFirst Server does not include the Mobile Browser Simulator
    – Mobile Browser Simulator is part of MobileFirst Studio
    – Needed another way to drive adapters – at scale – on MobileFirst Server

• Our answer: JMeter
  – Alternatives: IBM Rational Performance Tester, IBM Rational Test Workbench
JMeter uses a simple, tree-based interface with “fill in the blank” test generation.
JMeter-to-MobileFirst Adapters

• JMeter simulates HTTP traffic from multiple synchronous users
  – Very short learning curve for creating a simple JMeter script to drive a MobileFirst adapter, so we could get running quickly
  – Very quickly we realized it wasn’t working the way we thought it would :>

• LEARNING MOMENT #2
  MobileFirst adapters were maintaining a single instance across all invocations.
  – Needed minor change to adapter configuration to function as “endUser”

• To invoke MobileFirst adapters in sequence, we first had to initialize and receive a unique Instance ID
  – Details available at our zPET developerWorks blog

https://www.ibm.com/developerworks/community/groups/community/zpet
Now we know enough to be dangerous
… let’s see what we can do!
Mobile Bookstore Introduction

- Originally web-based servlets hosted on WebSphere Application Server
- Initially we thought we could use the same servlets for mobile

- LEARNING MOMENT #3
  Existing servlets were “old school” and returned HTML responses. We ended up writing new servlets which returned only the relevant data without any formatting.
zPET Mobile-to-DB2 architecture

Data Warehouse
z/OS

MQ

WAS Server
z/OS

JDBC Connection

DB2 Server

MobileFirst Server
Linux on z

Device (JMeter)
Mobile Bookstore User Flow

- Each box on the left represents a MobileFirst adapter call on the back-end.

- User flow simplified for illustration. Would normally contain loops not displayed here.
Mobile Bookstore User Flow

- Initialize
- Search for Book
- View Book Details
- Add To Cart
- Checkout
- Logout

No associated user interface for this call

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
Mobile Bookstore User Flow

Initialize

Search for Book

View Book Details

Add To Cart

Checkout

Logout

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
Mobile Bookstore User Flow

- Initialize
- Search for Book
- View Book Details
- Add To Cart
- Checkout
- Logout

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
Mobile Bookstore User Flow

- Initialize
- Search for Book
- View Book Details
- Add To Cart
- Checkout
- Logout

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
Mobile Bookstore User Flow

- Initialize
- Search for Book
- View Book Details
- Add To Cart
- Checkout
- Logout
Mobile Bookstore User Flow

- Initialize
- Search for Book
- View Book Details
- Add To Cart
- Checkout
- Logout

No associated user interface for this call

Complete your session evaluations online at www.SHARE.org/Orlando-Eval
Current Status & Strategy

• Strategy: run JMeter from z/OS using JZOS
  – Successful proof of concept

• Currently integrating code to generate message to Websphere MQ, which is consumed by downstream Warehouse application

• Scaling plan:
  – Thousands of users for production
  – Tens of thousands of users for stress
Future Mobile Considerations

• Workloads
  – Mobile-to-CICS  In Progress
  – Mobile-to-IMS
  – More, more, more

• Infrastructure
  – WebSphere Liberty z/OS Connect
  – MobileFirst in the cloud via BlueMix
  – Highly-available Mobile First Server implementation
  – Create maintenance/service procedures

These are Matt’s thoughts. They do not represent any commitments, and I haven’t discussed all items with my team … although I expect to hear from them once they read this. ;>
Questions

Matthew T. Cousens
Advisory Software Engineer
z/OS Platform Evaluation Test

2455 South Rd
Poughkeepsie, NY 12601
Tel 845 435 8706
mcousen@us.ibm.com