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# CICS and Web Services
# Why, When and How?

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# Why use Web Services with CICS?

- Consumerization
- Cloud Applications
- Cloud Services
- Virtualization
- Integrating Mainframe Data
- Integrating CICS Applications

# What is Consumerization?

- Personal Devices in the workplace (BYOD)
- Applications (BYOA)
- Servers (BYOS)
- Cloud Computing

# Internal Devices and Apps

- Smartphones
- Tablets
- Laptops

- Email
- CRM
- Etc.


# External Applications

- Portals
- Web Applications
- Wireless
- Mobile Computing




# Benefits of Consumerization

- Familiarity
- Personalization
- Interface Flexibility

# Cloud Applications

- BYOA
- CRM – Salesforce.com
- Google – Google Docs
- Public, Private, Private Hosted
- Etc.

There's an App for that!


# Cloud Services

- Servers on Demand
- Amazon
- Rackspace
- Etc.


# Virtualization

- Mainframe
  - z/VM
- Servers
  - Windows, Linux, Unix
- Etc.

UNIX®

Virtual PC

vmware

# Why Use Web Services with CICS?

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications To/From the Cloud
- CICS Integration With Presentation Layers
- CICS Applications Using Industry Standards
- CICS Applications Deployed at the Speed of Business
- CICS Applications Integrated with Off Platform Applications
- Backbone System for many fortune 100 companies
- 40+ years of dependable, reliable, scalable systems
- How many 9's reliability?
- Online and Batch Processing
- Enterprise integrating with mainframe systems without the expense of re-writing them!

# Mainframe is Still Relevant!

- 95 of top 100 banks run System z
- 60% of all online data is on a mainframe
- 60 of top 100 System z customers also run Linux on the platform
- Majority of Fortune 1000 run a mainframe as part of their IT infrastructure
- System z holds the highest security classification
  - Only platform with EAL5 security classification
- In 2011 more than 1500 apps were added or upgraded on System z from over 100 ISVs

# When to Use Web Services with CICS

# When to Use Web Services with CICS

- Mobile device app integration with existing CICS workflows
- Cloud Applications running CICS in the cloud
- Integrating Mainframe Data to distributed applications
- Integrating CICS Applications to distributed applications
- Reuse existing logic and stability of current CICS applications
- Business drivers
- NOW!

# Success Factors

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
- CICS New Application usage with no new coding
- CICS New Applications leveraging standards
- CICS New Applications developed at the speed of business

# Success Factor 1

- Mainframe Data Used in Cloud and Mobile Applications

  - Critical mainframe data available directly from cloud or mobile applications
  - Available via ODBC/JDBC
  - Available via Web Services(SOAP/REST)
  - Available via JSON
  - Available via JCA Exploitation

# Success Factor 2

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud

# Success Factor 2

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud

- CICS Applications can be called by Mobile or Cloud
- CICS Applications calling Mobile or Cloud applications
- CICS Applications calling in native language(COBOL,PL/1)
- CICS Applications do not worry about XML/SOAP
- CICS Applications can be orchestrated

# Success Factor 3

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
- CICS New Application usage with no new coding

# Success Factor 3

- CICS Applications can be included in new applications
- CICS Applications are left unchanged , but are reused
- CICS Applications can be combined in new business function
- CICS Applications are not re-coded
- No New CICS Application code is required

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
- CICS New Application usage with no new coding

# Success Factor 4

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
- CICS New Application usage with no new coding
- CICS New Applications leveraging standards

# Success Factor 4

- New Services can leverage industry standards(IFX, SWIFT, ACORD, etc.)
- CICS Applications can use company specified standards and mappings(XSD's, WSDL)
- Services can easily be mapped in an IDE that will handle difficult data types.

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
- CICS New Application usage with no new coding
- CICS New Applications leveraging standards

# Success Factor 5

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
- CICS New Application usage with no new coding
- CICS New Applications leveraging standards
- CICS New Applications developed at the speed of business

# Success Factor 5

- CICS based services developed in minutes
- CICS based services developed as new business needs
- CICS based services in easy drag and drop studio
- CICS based services immediately available
- No New CICS Application code is generated

- Mainframe Data Used in Cloud and Mobile Applications
- CICS Applications to/from the cloud
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# The Real World

- Bank (Mobile Banking Application)
- Insurance (Mobile Insurance Application for agents)
- Manufacturing (Automobile Engineering)
- Finance (Stock trading, Financial tools)
- International Bank (Credit card processing, ATM)

# How to Use Web Services with CICS

# How to Use Web Services with CICS

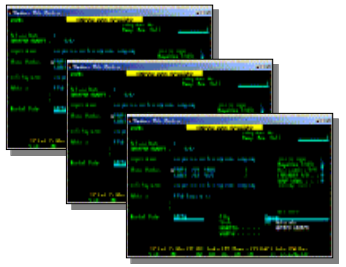
- Integration Challenges
  - Mainframe Roadblocks
  - Mainframe Is Not Agile

- 'Type' of Service
  - Top Down/Bottom Up
  - Discrete or Composite
  - CICS a Consumer or a Provider

# The Mainframe

HALDB
Copybook
PSB
TS Queue
EXCI
Transactions
3270
IMS Connect
MSC
Stage 1
COBOL
VSAM
BMS
TD Queue
DBD
Natural
Assembler
ACB
DB2
IO PCB
PL/I
OTMA
CTG
Message Queue
3270
MFS

CICS/IMS



# CICS

TS Queue

Copybook

EXCI

Transactions

3270

COBOL

VSAM

BMS

Natural

TD Queue

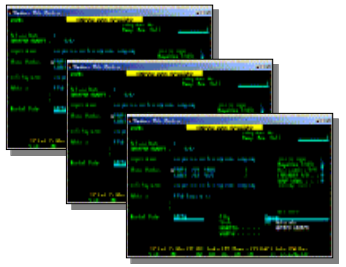
DB2

Assembler

CTG

PL/I

CICS



# Consumerization World



BPMN

Web 2.0

JSON

SaaS

Tablets

SAP

SharePoint

DaaS

.NET

JMS

SSL

Smart Phones

AJAX

POJO

PHP

Virtualization

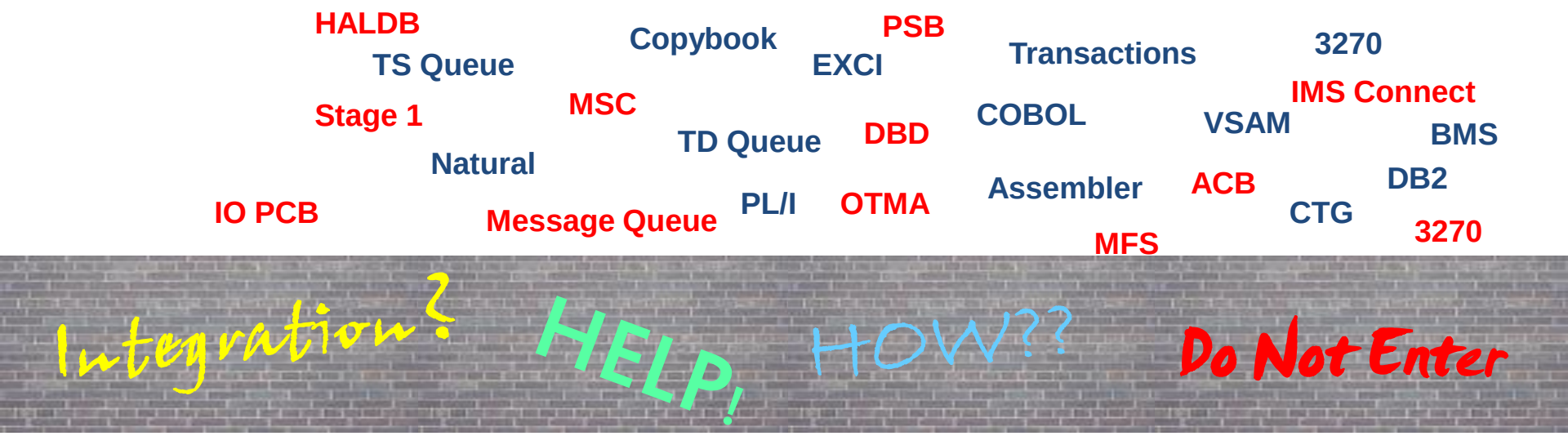
REST

JAVA

Cloud Apps

Oracle Apps

# Two Worlds Collide!




NO
TRESPASSING
VIOLATORS
WILL BE SHOT
SURVIVORS
WILL BE SHOT
AGAIN

# Integration Challenges

- Development Challenges
- New Skill Sets
- Legacy Integration

# Mainframe Road Blocks

- The Mainframe is not Agile
- Multiple Systems and Interfaces
- Integration will be a challenge
- Legacy Data
- “Old”

# The Mainframe is not Agile

- The mainframe is not agile
- 27% feel constrained by legacy applications
- Bright Spots
  - 75% feel “Agile IT” could save 30%
  - 45% feel need to modernize
  - But….. 80% don’t have a roadmap for modernization

# ‘Type’ of Services

- Top Down – WSDL import
- Bottom Up – Commarea/3270 WSDL create
- Discrete services
- Composite services
- CICS Provider
- CICS Consumer

# Coding Options to Create Services

- Coding requirements
  - Write native CICS code
  - Use generated code created by products
  - Integrate to existing CICS applications without any new code, written or generated

# Mainframe as a Client

- Mainframe Applications to/from the cloud…

  - Mainframe Applications can be called by Mobile or Cloud
  - Mainframe Applications calling Mobile or Cloud applications
  - Mainframe Applications calling in native language(COBOL,PL/1)
  - Mainframe Applications do not worry about XML/SOAP
  - Mainframe Applications can be orchestrated

# Use Standards

- New Mainframe Applications leveraging standards

  - New Services can leverage industry standards(IFX, SWIFT, ACORD, etc.)
  - Applications can use company specified standards and mappings(XSD's, WSDL)
  - Services can easily be mapped in Ivory Studio that will handle difficult data types.

# Do It Quickly

- New Applications developed at the speed of business

  - Mainframe based services developed in minutes
  - Mainframe based services developed as new business needs
  - Mainframe based services in easy drag and drop development studio
  - Mainframe based services immediately available
  - No New Mainframe Application code is generated

# Case Study

- Scenario
  - Large bank and financial institution required a modern/mobile solution for stock purchases.

# Case Study

- Current State
  - Client called into call center/services rep to inquire about stock costs and purchase request
  - Call center rep would lookup account info (commarea), get current stock price (web service call) and inquire account balance (3270)
  - Calculate if number of shares requested are possible with current account balance.
  - Return message to indicate whether or not client has the funds to purchase the requested stock

# Case Study

- Future State:
  - Client can use mobile device or call call-center/services rep to inquire about stock costs and purchase request
  - Input data would be minimal, name, stock symbol and amount of shares requested
  - Front end app will call a composite web service to complete the necessary steps
  - Return message to indicate whether or not client has the funds to purchase the requested stock

# Demo

# Conclusion

- The mainframe continues to integral to businesses
- CICS Applications need to be agile and integrated
- Services is the way to complete the mission

Timothy Sipples, Resident Architect, IBM Corporation, states in a February 11, 2006 blog entry;

“Quite simply, if your mainframe is not the key ingredient in your SOA then you really don't have an SOA strategy.”