DevOps for Banking

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Agenda

• The Business / IT Context
• The Path to DevOps
• Shift Left Testing
• Automated Deployment
• Getting Started
• Summary
The Business / IT Context
Challenge: Customers’ Changing Expectations

Mobile has become the most frequently used channel

Source: Bain & Co., Customer Behavior & Loyalty in Retail Banking 2015, Dec 2015
Challenge: Disruptive Innovation

- First consolidated taxonomy for disruptive innovation in FSS
- Identifies 11 clusters of innovation

Source: June 2015 World Economic Forum, The Future of Financial Services
Challenge: Regulatory Compliance

Regulatory Pressure
KPMG Index, 2011 to 2015

- 2015
- 2014
- 2013
- 2012
- 2011

Source: Reuters, CCP Research Foundation, Morgan Stanley, Reuters, KPMG Index
Challenge: Innovating the Operating Model

- E.g. Distributed ledgers / Blockchain

PROBLEM: Asset ownership & transfer in business networks

- Inefficient, expensive, vulnerable

SOLUTION: A replicated, shared ledger for business networks

- Consensus, provenance, immutability, finality, permissioned
Challenge: End-to-End Digitization

~50% of a bank’s costs tend to be driven by the 30 largest end-to-end processes...

Percent of FTE

Top 30 end-to-end processes account for ~50% of labor costs:
- Account opening & customer onboarding
- Mortgage
- Lending (personal, small bus.)
- Credit card issuance
- Annual client reviews
- Complaint handleings
- Cash handling

...aggressively automating and digitizing these processes can deliver significant impact

% of processes by “digitization” level

- Mostly "manual"
- Partly digitized/automated
- Fully digitized/automated

Today

End-state

4.5x decrease in "manual" processes
2x increase in partly digitized processes
7x increase in fully digitized processes

Typical improvements include FTE reduction, faster delivery & turnaround, and reduced leakage and churn

Source: McKinsey, April 2015 Webcast
The Path to DevOps
1. Mobile Platform

2. Integration
   - API Management
   - Integration
   - Process Automation

3. DevOps
   - Idea
   - Shift Left Testing
   - Automated Deployment
   - Cloud Mgmt. & Cloud Brokerage

4. Hybrid Cloud
   - Traditional IT
   - Dedicated On-Prem
   - Dedicated Off-Prem
   - Shared Off-Prem

5. Digital Innovation Platform
A Traditional Approach

Requirements → Design → Code → Integration → Test

Integration Begins

Late Design Breakage

Development Progress (% coded)

Project Schedule

Original Target Date

Completion Date

InterConnect 2016
An Iterative / Agile / DevOps Approach

Prototypes → Architecture → Functional → Release

Development Progress (% coded)

Modern Project Profile

Traditional Project Profile

Project Schedule

InterConnect 2016
Attack Significant Risks Early

- Risk exploration period
- Risk resolution period
- Controlled risk management period

Traditional Project Profile

Modern Project Profile

Risk Reduction

Time

InterConnect 2016
Shift Left Testing
Traditional Testing: Build prototype, test it, break it, start again
Customer can build 1 x test environment which all projects can share
Defects are found and addressed as they appear
Project testing delivered without dependencies between components

Google: How to build a supercar + McLaren
Only one-tenth of an iceberg is above water

Traditional UI testing
Load Testing

The majority of risk in modern systems is seldom tested as it is unseen

Presentation layer
Integrations, data and business logic
- Multiple defects introduced at once
- More unknowables – greater risk
- Expensive!
The New World (Shift Left)

- Accelerated testing
- Reduced costs
- Lowered risk
End-to-end testing is required for Compliance

The Continuous Delivery espoused by DevOps is only realized when the entire system is available to test against.
DevOps demands a new approach: Test Components
Traditional Testing Approach

Testing Effort = Defects Found

- Developers hand code their own unit tests
- Architects define Integration Tests
- Test Environment Assurance
- Isolate Defects / Fix 3rd party Components

Project Schedule

InterConnect 2016
"I spend a lot of time on this task. I should write a program automating it!"

**Theory:**
- Writing code
- Work on original task
- Automation takes over
- Free time

**Reality:**
- Writing code
- Debugging
- Ongoing development
- Rethinking
- No time for original task anymore

InterConnect 2016
Traditional World

DevOps World
Testing in a DevOps Approach

Integration Tests become assets for reuse

- Test Environment Assurance
- Isolate Defects / Fix 3rd party Components

Project Schedule
Client Success – UK based challenger banks

• Classic Tier 2 Bank
• < 5% of UK Current Account Market
• Loyal Local Customer Base: call-centre centric
• ECO System of 3rd party suppliers:
  – In house EA / PM function
  – In-house: Infrastructure
  – Outsourced Development
  – Outsourced Testing
Client Success – UK based challenger bank

- Now find 80% of interface defects by spinning up simple stubs in DEV environments which represent missing service components.
- More than 50 ‘showstopper’ defects were discovered on a single project which would otherwise have slipped through during a 3 month period.
- All new projects are mandated to use “Rational Integration Testing” as they go through the design phase.
- A compressed SDLC gives them the ability to run more projects each year:
  - Sharing of Test Environment through “Sift and Pass Through” drives efficiency
    - Heightened staff satisfaction levels due to less time spent on mundane repeatable tasks - now doing more “real” work.
    - Much faster ability to validate application quality. No longer reliant on UI availability and time consuming manual testing.
    - Changed the way testers think. A more proactive attitude has been seen when bottlenecks occur – SV is deployed to workaround the issues. More time is spent on exploratory and “what if” testing.
Automated Deployment
Let’s do some math …

# Applications 250
# Releases per year (per app) 28
# Prod deployments per year 7000

# Non-prod environments 2
# Deployments per non-prod environment 5
# Non-prod deployments per year 70000

# Deployments per year 77000
Fidelity Worldwide Investments

Achieves predictable release schedules and simplifies regulatory compliance

**Achieved**
cost avoidance of more than USD2.3 million per year

**Gained**
more predictable release schedules for stakeholders

**Improved**
the ability to demonstrate compliance with regulations

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Solution components

Software
  - IBM® UrbanCode™ Deploy

The transformation: As it prepared to launch a critical new application, Fidelity Worldwide Investment wanted to replace its manual release processes with an automated release solution. The solution helped reduce the time required for software releases by 99 percent, from 2 - 3 days to just 1 - 2 hours. The company also achieved cost avoidance of more than USD2.3 million per year.

“Applications that took days to release now take just an hour.”

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— Tony Green, Technology, Architecture and Engineering, Fidelity Worldwide Investment
Getting Started
Summary

- Banks are seeing a changing emphasis: from optimization to innovation
- DevOps is a key enabler in helping deliver an innovation agenda
- Shift Left Testing and Automated Deployment are core DevOps Capabilities
- IBM can help with your DevOps journey
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