

# BlueMix to mainframe: deployment automation



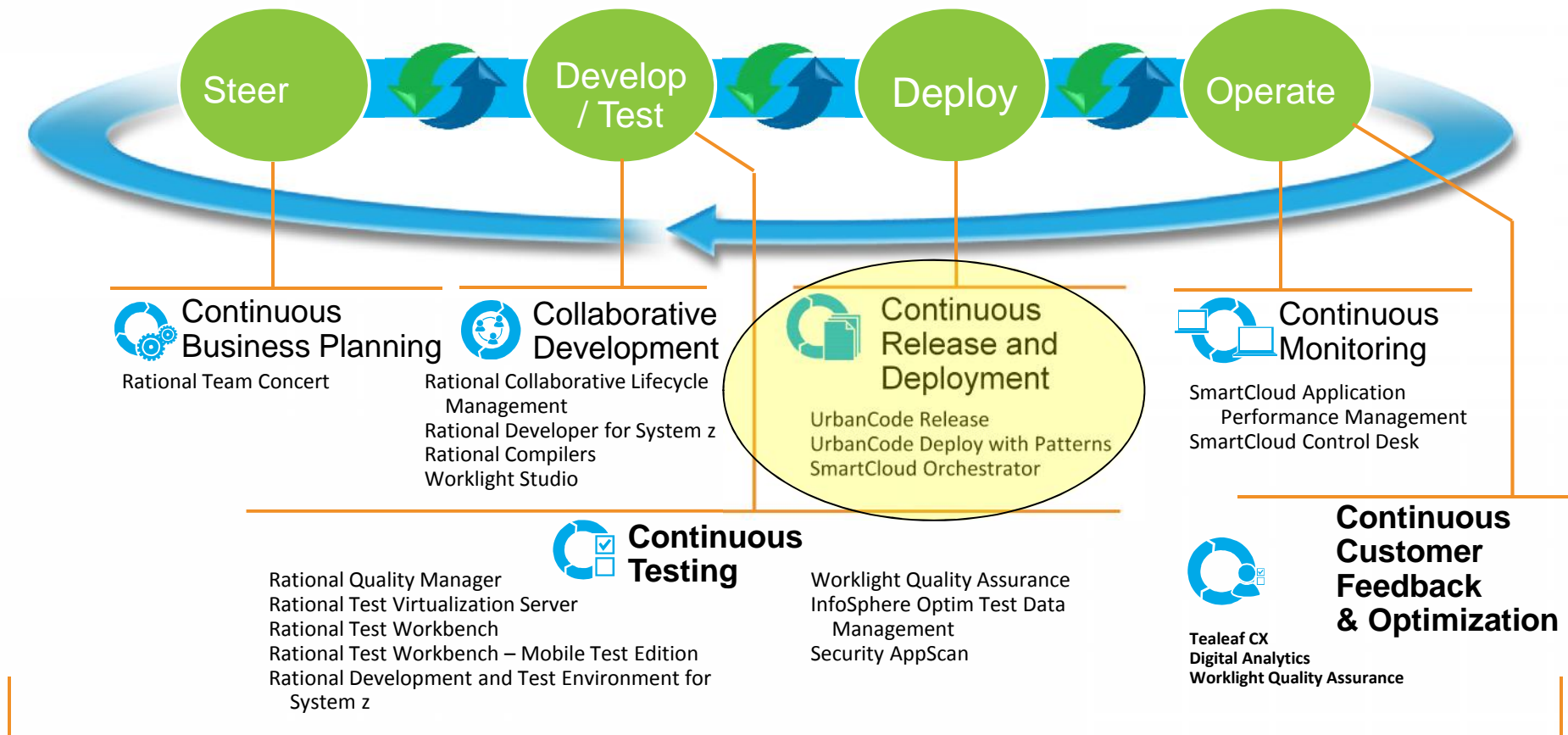
UrbanCode Deploy (UCD)

- 2:00 p.m. - Regi
- **BlueMix to mainframe: deployment automation for hybrid cloud**
- Because of market pressures, distributed and mainframe organizations must build and test applications more efficiently and economically. Organizations also need to deliver end-to-end applications quickly.
- Teams must implement code changes quickly, complete testing and deploy the application swiftly. However, based on prevailing mainframe delivery methods, it can take weeks or even months just to make simple module changes.
- This session provides an overview of DevOps solutions that can automate building, deploying and testing. These solutions can reduce manual effort and add repeatability and stability to the delivery process.

# IBM DevOps – Broad set of DevOps capabilities



Address bottlenecks across the application delivery lifecycle



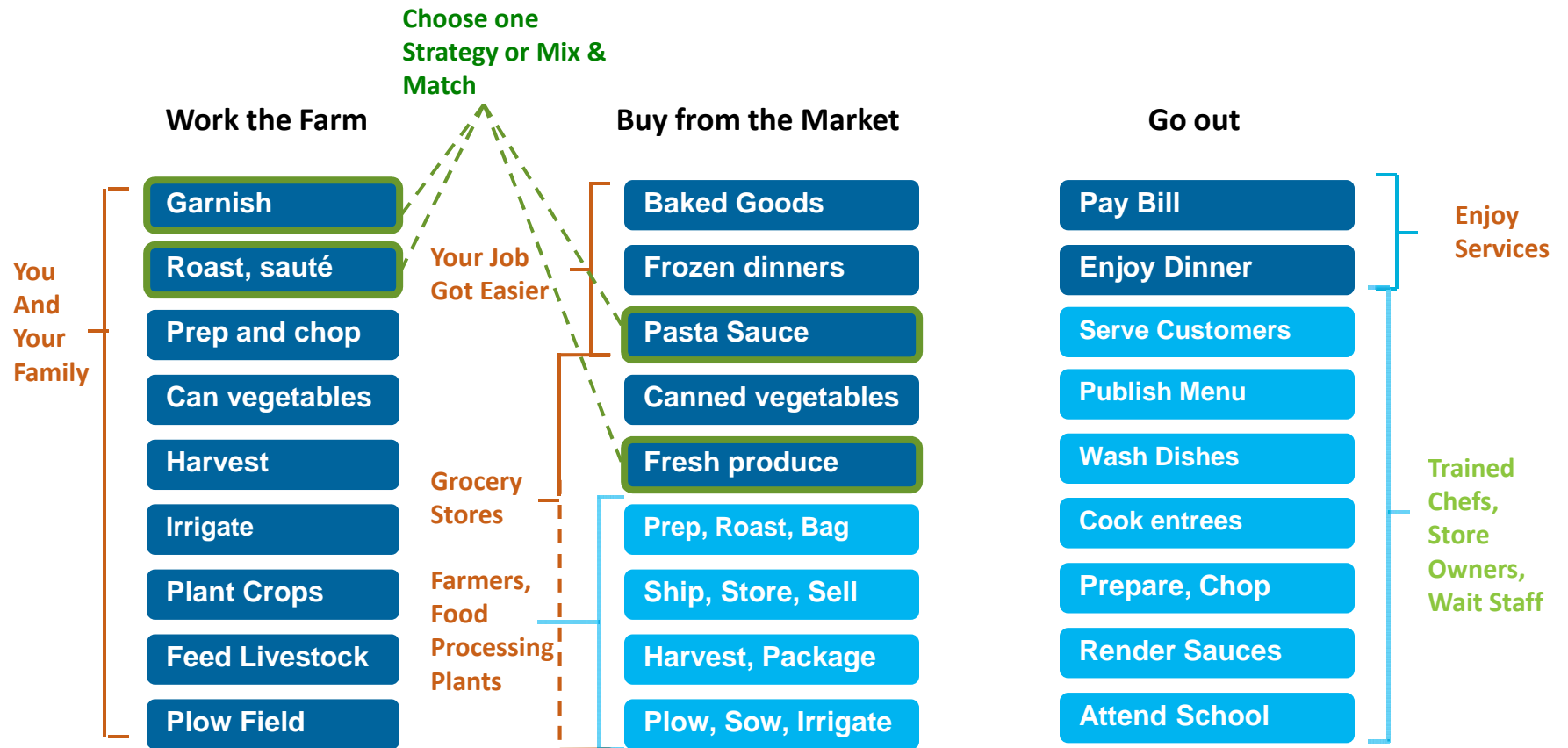
**Bluemix DevOps services**

Agile planning and tracking Application auto-scaling AppScan mobile analyzer Continuous delivery pipeline Git hosting	Mobile application security Mobile data Mobile quality assurance Monitor & analytics Push	RapidApps (beta) Server-side code Web IDE
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# What's for dinner?



Choose your ingredients to balance your goals – speed, quality, and customer satisfaction



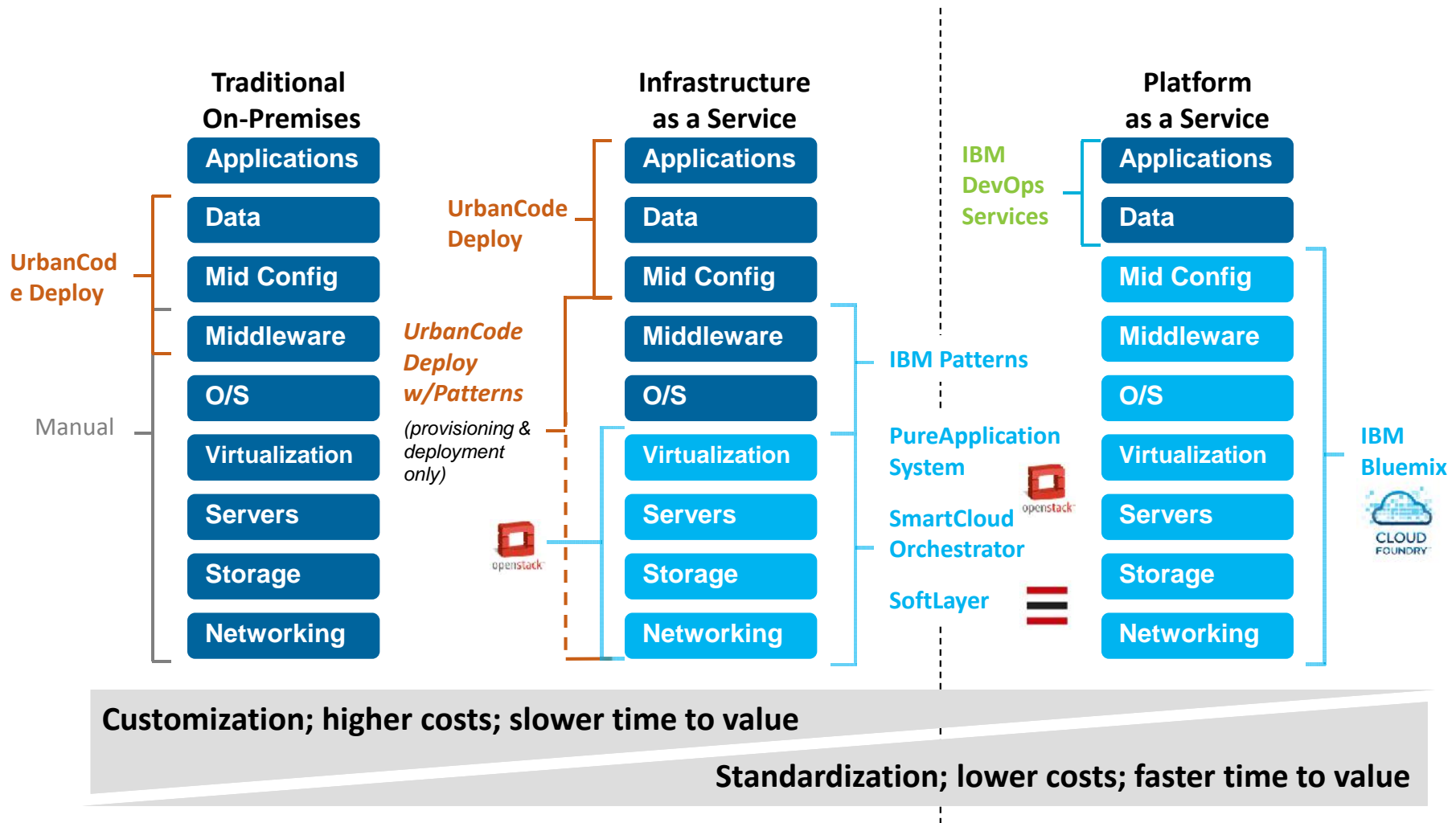
Customization; higher costs; slower time to value

Standardization; lower costs; faster time to value

# DevOps and Cloud adoption



*Automating for faster delivery with DevOps and Cloud*



# BlueMix - Create apps quickly with prebuilt services



A full range of capabilities to suit any great idea.

## Choice

- Runtimes, services, and tooling up to you

## Industry Leading IBM Capabilities

- Services leveraging the depth of IBM software
- Full range of capabilities

## Completeness

- Open source platform and services
- Third party to enable key use cases



# BlueMix - List of Cloud Platform Services



## IBM, Open Source and Third Party APIs

### Runtimes

 Java Liberty
  Node.js
  Ruby on Rails
  "Bring Your Own Buildpack"





### DevOps

 Monitoring and Analytics
  Git Hosting
  Deployment Automation
  Web IDE
  Agile Development



### Data Management Services

 IBM Relational Database
  IBM JSON Database
  Mongo DB
  MySQL
  PostgreSQL
  Mobile Data
  Mobile Sync
  BLU Data Warehouse
  MapReduce

### Mobile Services

 Push
  CloudCode
  Mobile App Mgmt
  Mobile Quality Assurance
  Twilio

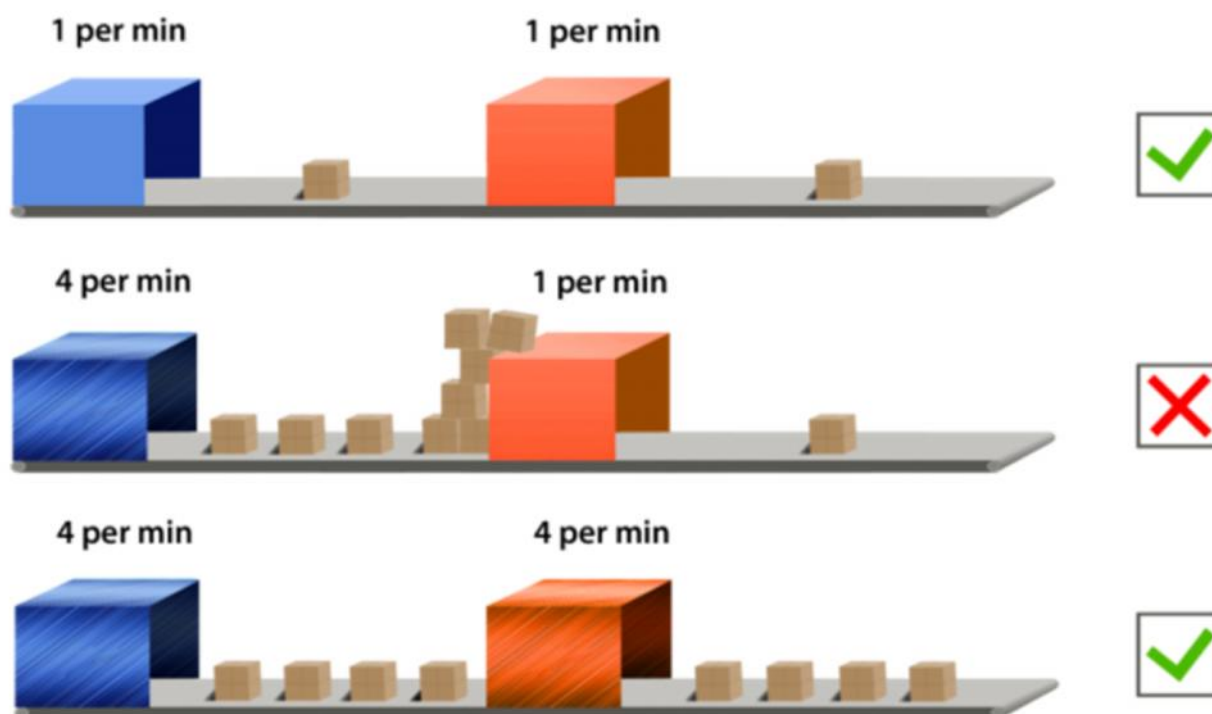
### Internet Of Things

 Historian
  MQTT

### Web & App Application

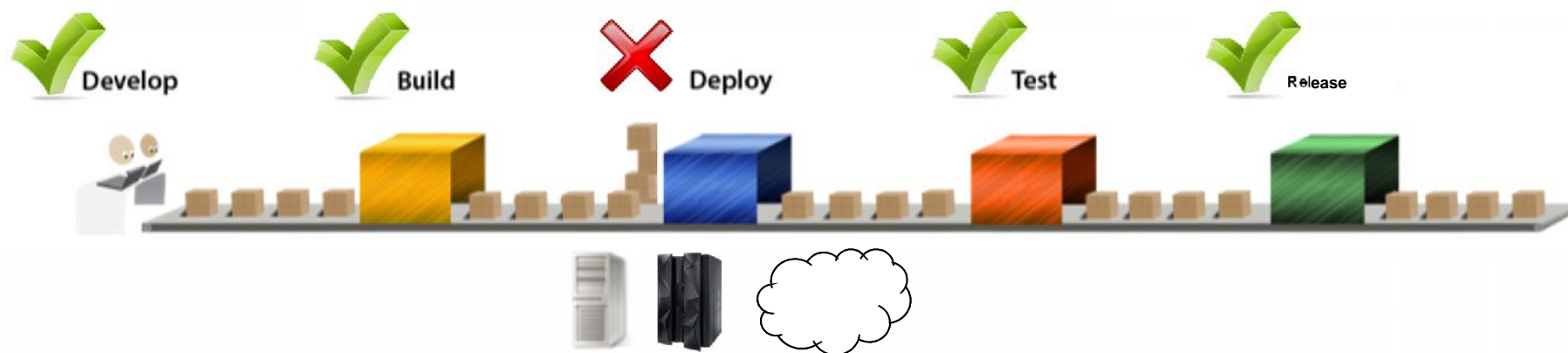
 Data Cache
  Session Cache
  Elastic MQ
  Decision
  SSO
  Redis
  RabbitMQ
  Log Analysis

DevOps is to optimize every stage of the software delivery





# Deploy is a bottle neck



# What's going wrong?

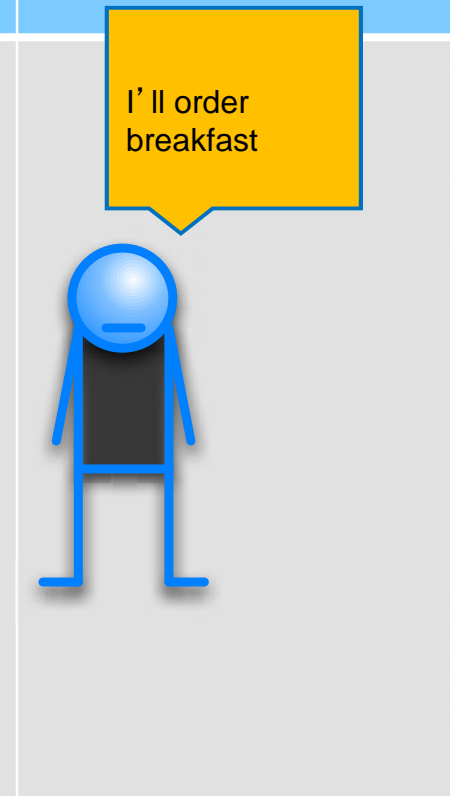
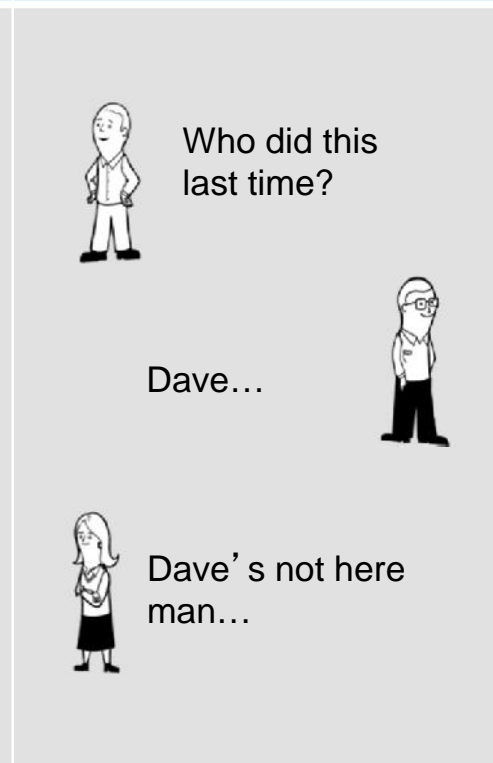
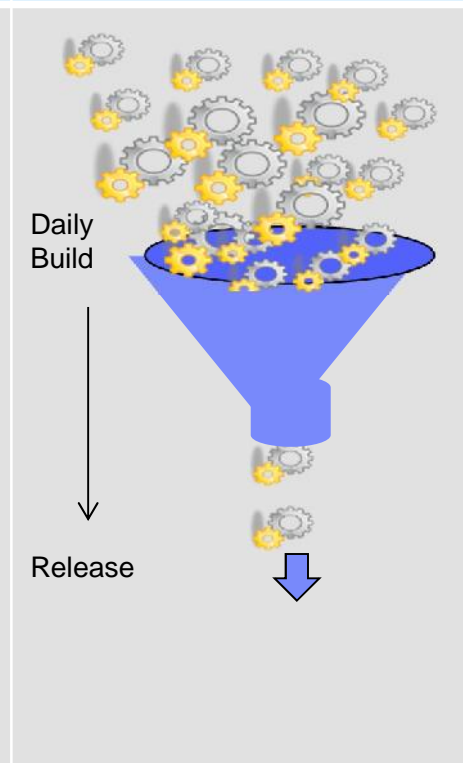
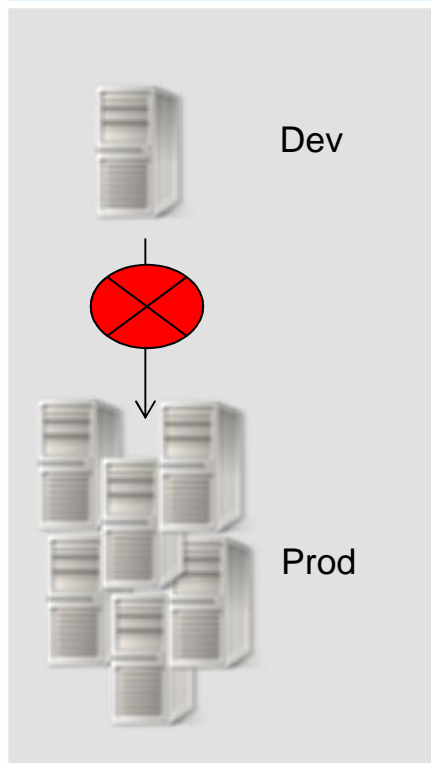


**Failures** due to inconsistent **dev** and **production** environments

**Bottlenecks** trying to deliver more frequent releases to meet market demands

**Complex and manual processes** for release lack repeatability and speed

**Costly, inefficient** releases take days, 100 people and are managed by a spreadsheet



- 11 Years Build, Release and Deployment Experience
- Global Customers
- Enterprise scalability, security, compliance and automation
- Training, consulting and implementation services
- Based in Cleveland, OH

***“One key benefit of UrbanCode is how quickly it can be implemented and used for deployments.”***

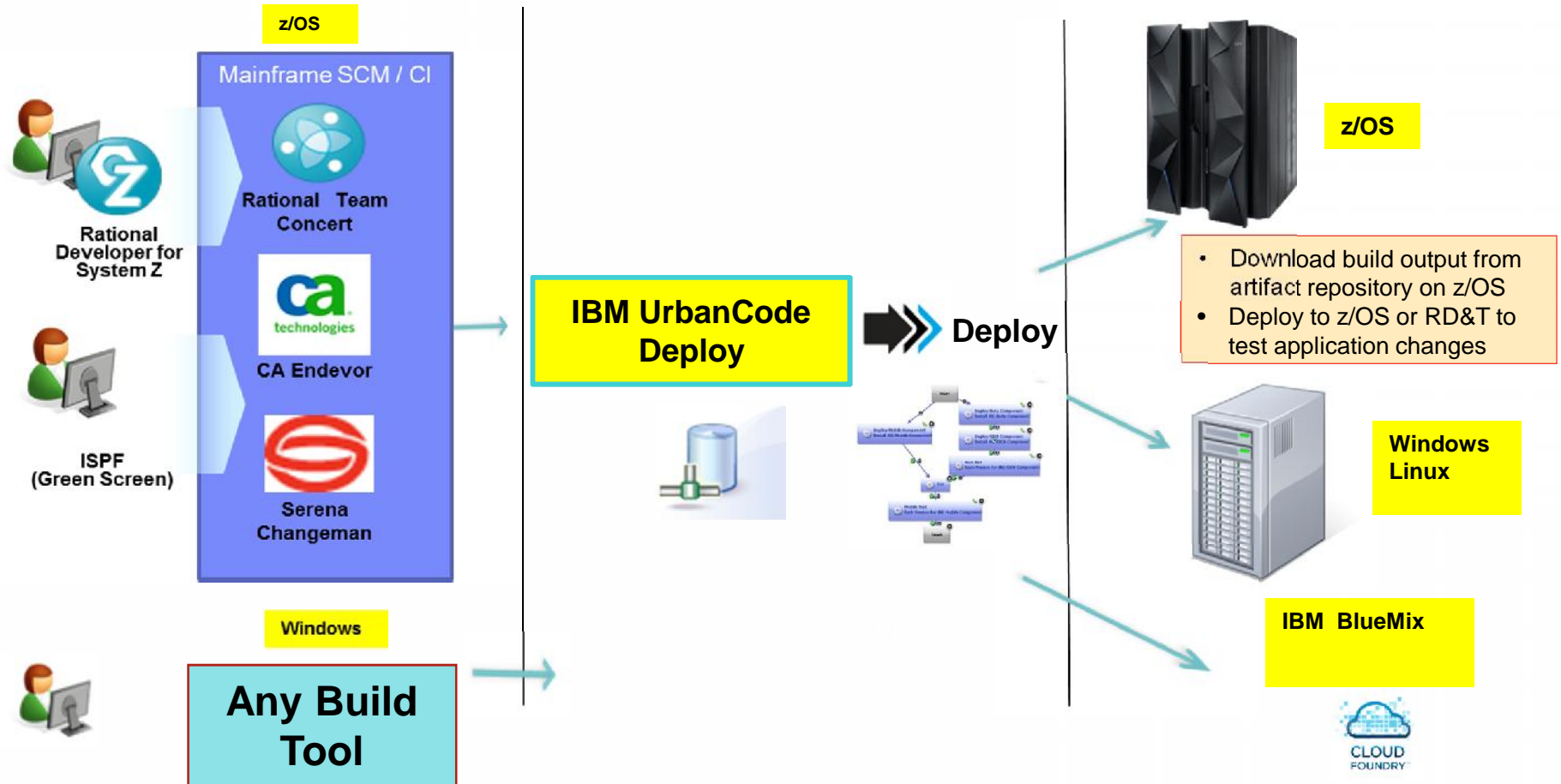
**Gartner**



# Continuous Delivery for the Mainframe and Others



Capabilities to speed delivery of interdependent, multi-platform applications



- Provides a **unified solution** for continuous delivery of heterogeneous enterprise applications
- **Accelerate delivery** and reduces cycle time to develop/test multi-tier applications across heterogeneous environments and platforms
- **Reduce costs** and eliminate delays for delivering mainframe applications
- **Minimize risk** and improve productivity across disparate teams with cross-platform release planning

Composite Applications



Re-usable Workflows



The “Where”

Environment Management



The “How”

The “What”



Components

Deployment Automation

# Model spaces and applications in UrbanCode Deploy



Resources | Resource Templates | Agents | Agents

Create Top-Level Group | Select All... | Actions

<input type="checkbox"/>	Name
	<input type="text" value="Resource Name"/>
:: <input type="checkbox"/>	▼  Bluemix
:: <input type="checkbox"/>	▼  bluemix-controller (View Agent)
:: <input type="checkbox"/>	▶  danberg@us.ibm.com
:: <input type="checkbox"/>	▼  mdelder@us.ibm.com
:: <input type="checkbox"/>	▶  dev
:: <input type="checkbox"/>	▼  prod
:: <input type="checkbox"/>	hello_world
:: <input type="checkbox"/>	HomesteadWebApp
:: <input type="checkbox"/>	▼  test
:: <input type="checkbox"/>	hello_world
:: <input type="checkbox"/>	HomesteadWebApp

What

## Component: HomesteadWebApp

Created By: admin  
Created On: 8/28/2014, 10:59 PM  
Template: cloud-foundry-template  
Used By: Homestead, Homestead Blue

Dashboard | Usage | Configuration | Calendar

Version	Statuses
<input type="text"/>	<a href="#">Statuses</a>
39	
38	
37	
36	

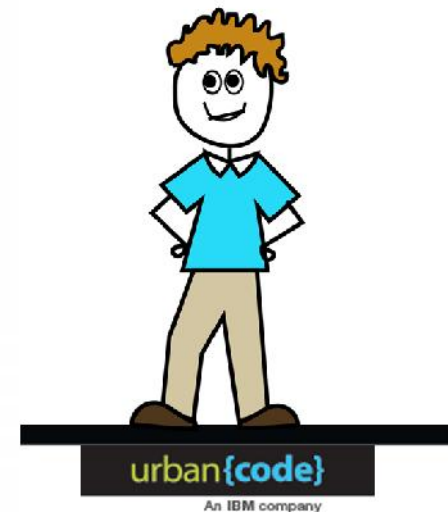
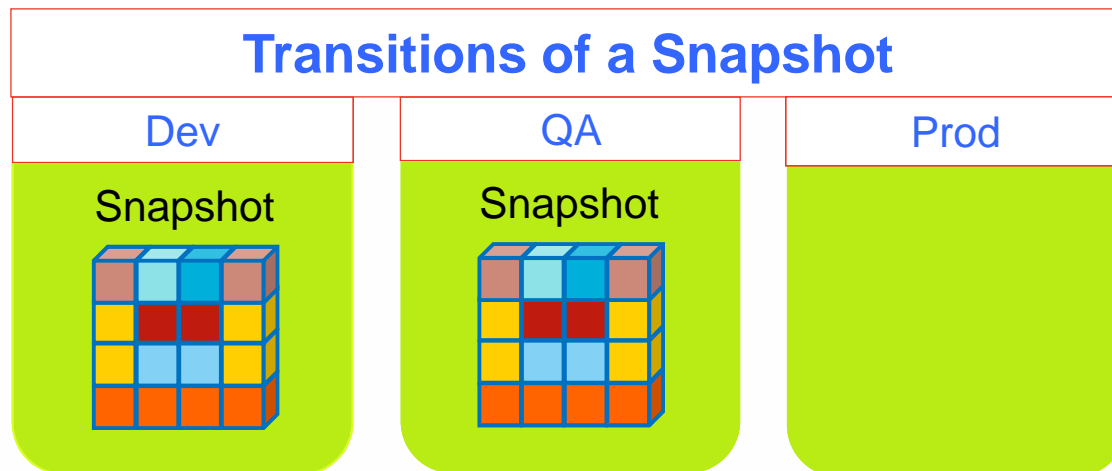
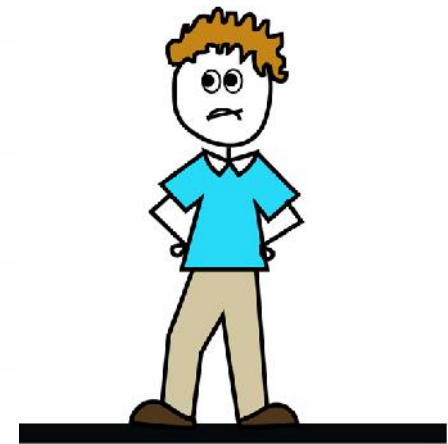
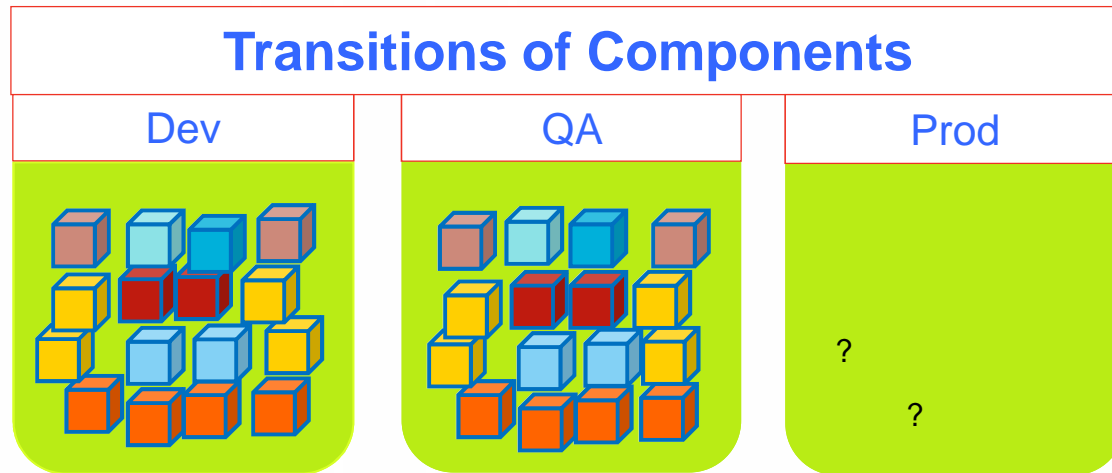
Components | Configuration | Processes | Changes

Create Process

Process	Description
blue_deploy	Deploy a new instance using a blue/green deployment strategy.
delete_deployed	Used to delete the old app when part of a blue/green strategy.
delete_old	Used to delete the old app when part of a blue/green strategy.
map_green_route	Map to the public route when used as part of a blue/green strategy.
mark active	Used as part of a blue/green deployment strategy.

Where

How



SCM agnostic artifact packaging

Deploy Partitioned Data Set (PDS)

Incremental deployment and rollback of versions

Artifact repository in z/OS

zLinux

WAS z/OS

CICS TS

IMS

## z/OS Plug-in steps

Submit JCL job, Submit job based on template, Check job status

Execute REXX

Run TSO/ISPF Command

FTP, Create PDS, Copy PDS, Replace Token MVS ...

DB2

MQ (Plan)



# Questions

The word "Questions" is rendered in a large, 3D, light blue font. Each letter is filled with a different photograph of a diverse group of people in professional or medical settings. The letters have a slight shadow beneath them, giving them a three-dimensional appearance.



# Scenario : Application change is required

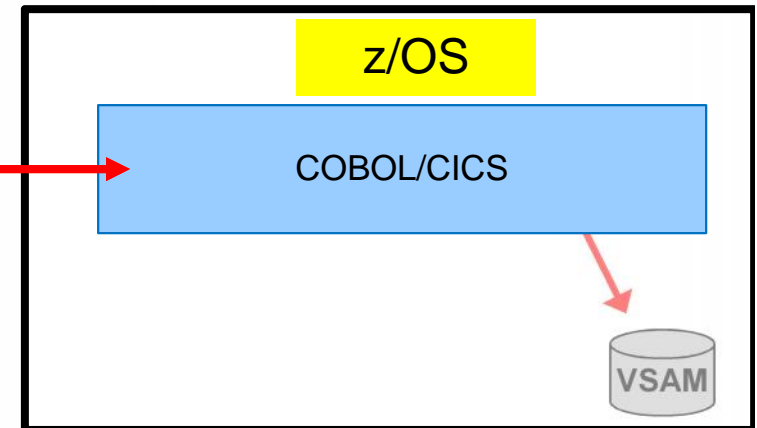
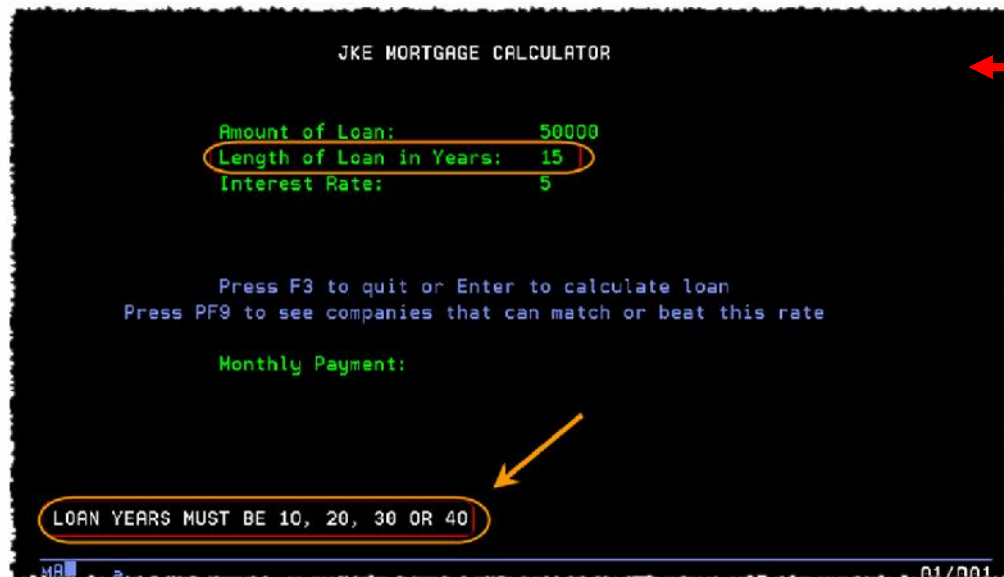


## *z/OS Application Bug*

The Only valid length of loan **must be 10, 20 30 or 40 years.**

Currently the length could be **between 1 and 40 years..**

**A message should reflect this new enhancement**



•Existing COBOL/CICS/BMS application

# Scenario : Application change is required



## z/OS COBOL program Bug

The Only valid length of loan **must be 10, 20 30 or 40 years.**

Currently the length could be **between 1 and 40 years..**

**Fixes: zOS:** A message should reflect this new enhancement

**Mobile :** A drop down should allow only 10,20,30,40

```
JKE MORTGAGE CALCULATOR - 12/15/2012

Amount of Loan:          180000
Length of Loan in Years: 30
Interest Rate:           8.2

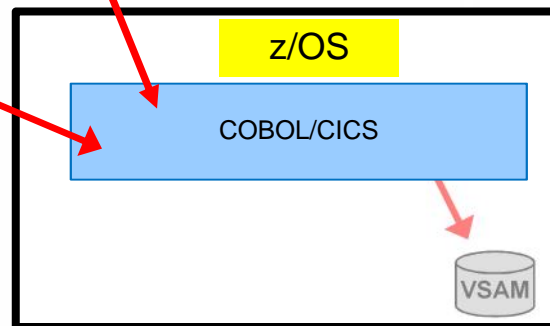
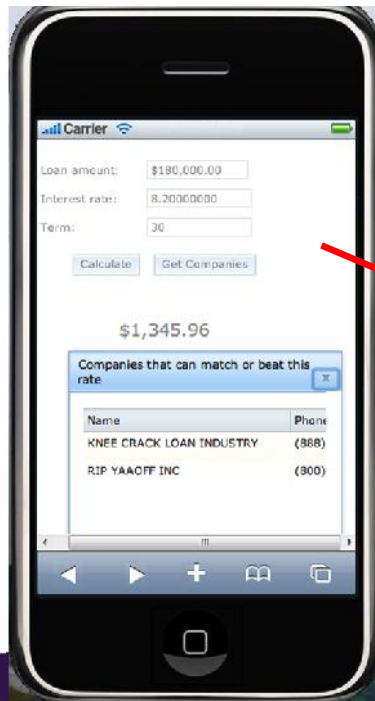
Press F3 to quit or Enter to calculate loan
Press PF9 to see companies that can match or beat this rate

Monthly Payment:                1,345.96
```



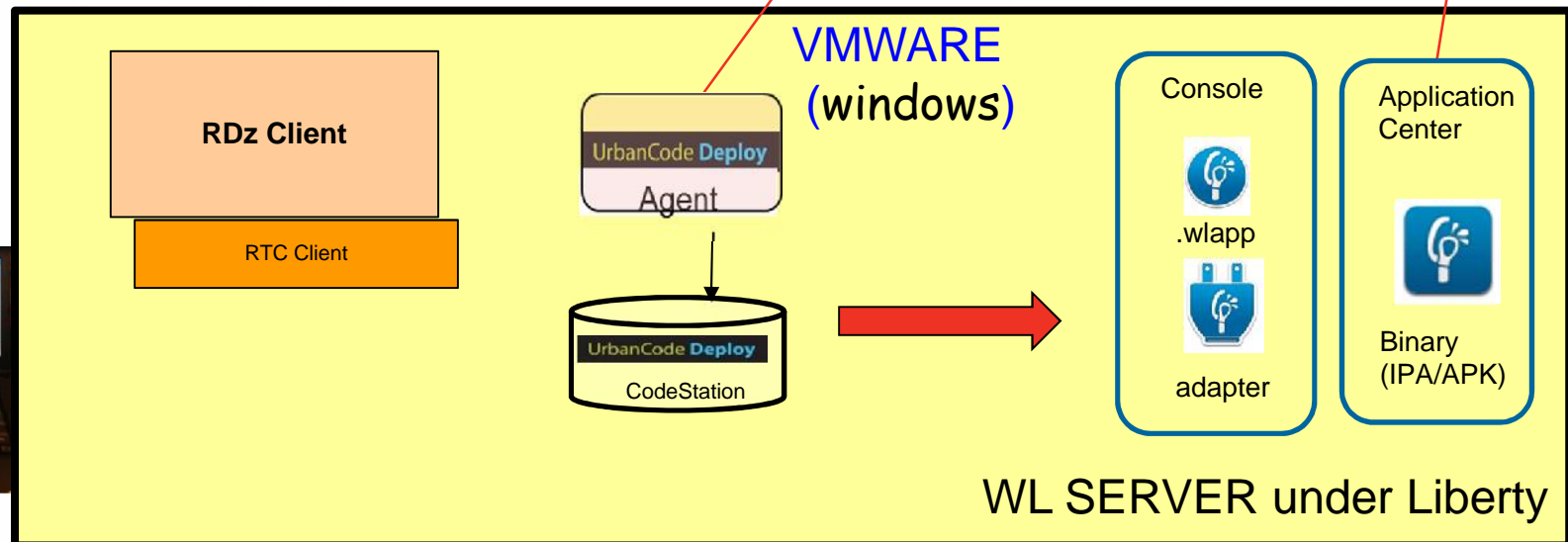
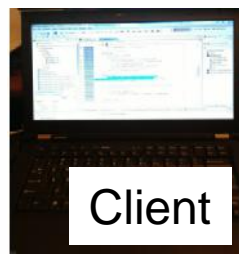
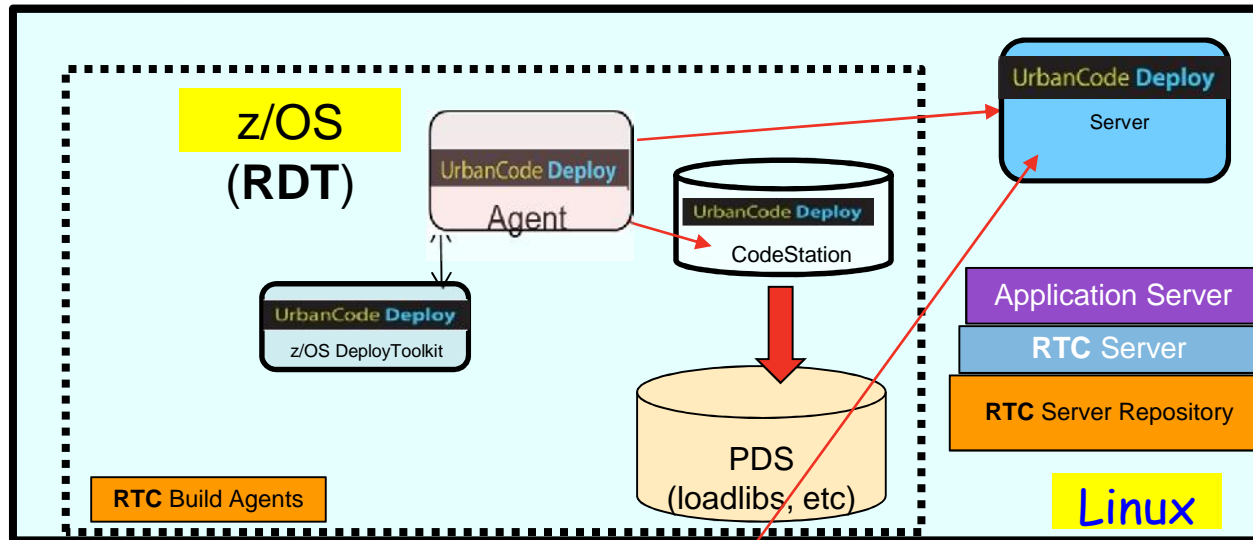
```
Better Mortgage Rates

Company          Phone Number  Interest Rate  Monthly Payment
KNEE CRACK LOAN INDUSTRY (888)123-4444  6.9            1,191.51
RIP YAOFF INC    (800)968-6933  7.2            1,227.92
```

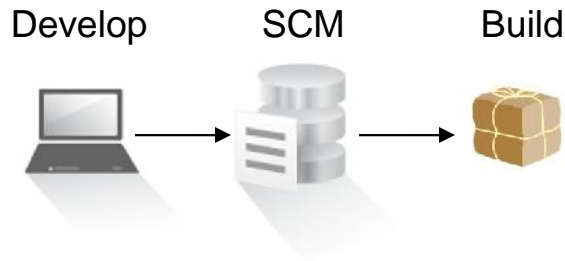


Existing COBOL/CICS/BMS application

# UC Deploy – Demo architecture



## Create and Build Application



## Deploy Application



CodeStation



Process



## Use Application



Emulators, Simulators, or Devices



Mobile back-end



Thanks to:  
Joel Cayne, MSc  
Rational Mobile Tool:  
IBM Canada Lab

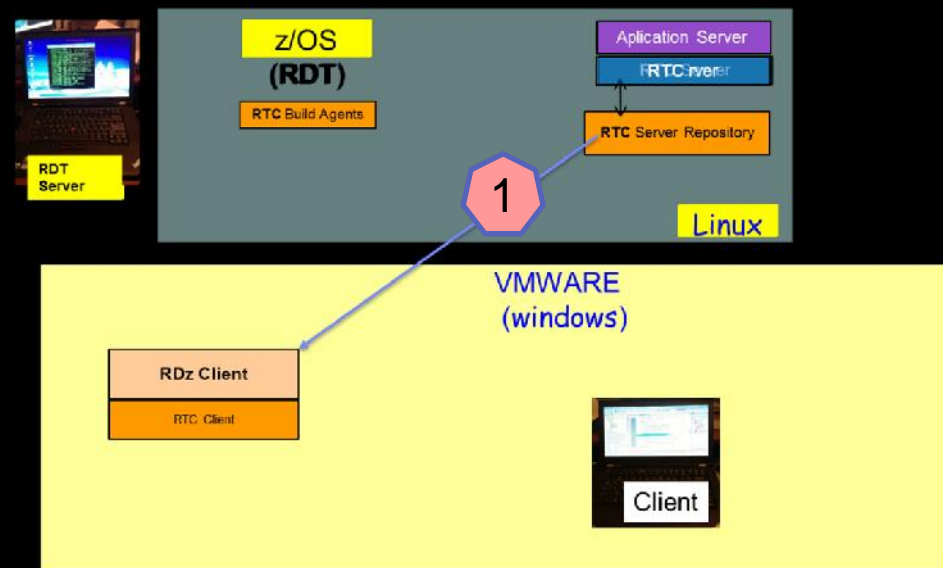
Update Application



## z/OS Developer:

### Change existing code and deploy DEV environment

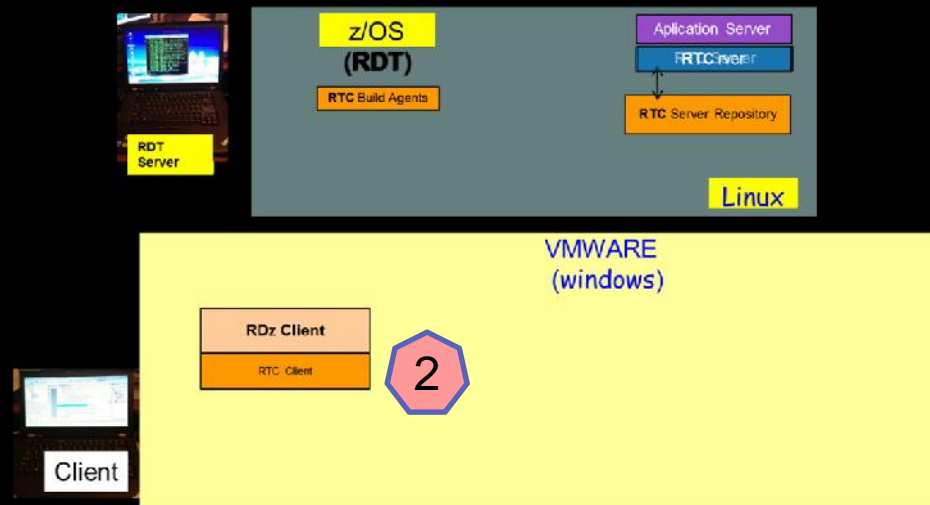
1. Use **RTC** to load the COBOL source code to **RDz**
2. Use **RDz** to make the COBOL changes on **JKEMPMT** and **JKENBRVL**.
3. Use **RTC** to perform a build that creates the z/OS loadlib members and push to **UrbanCode Deploy** on Windows



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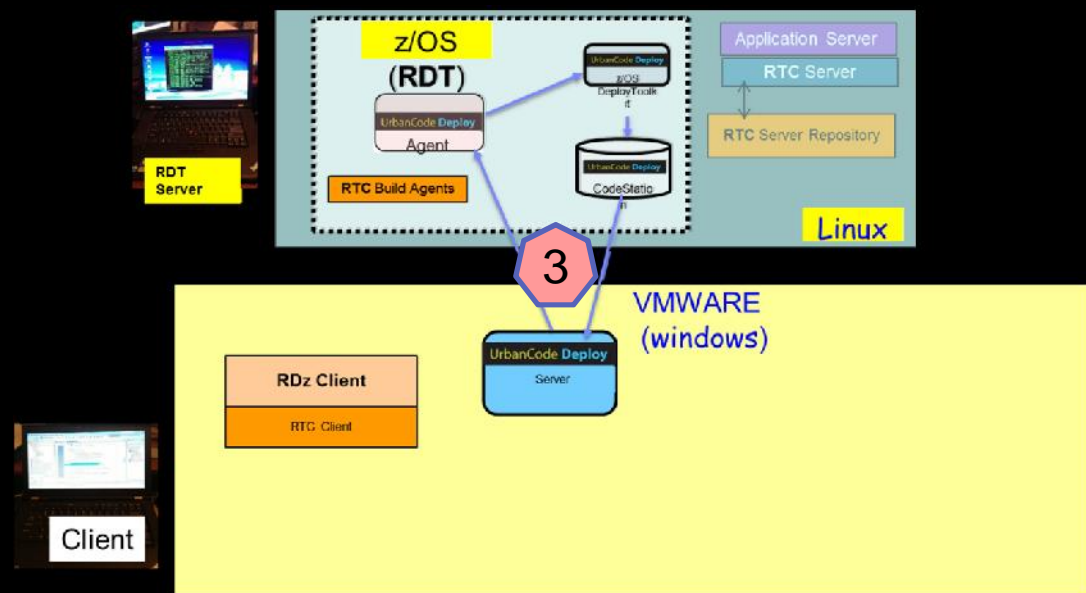




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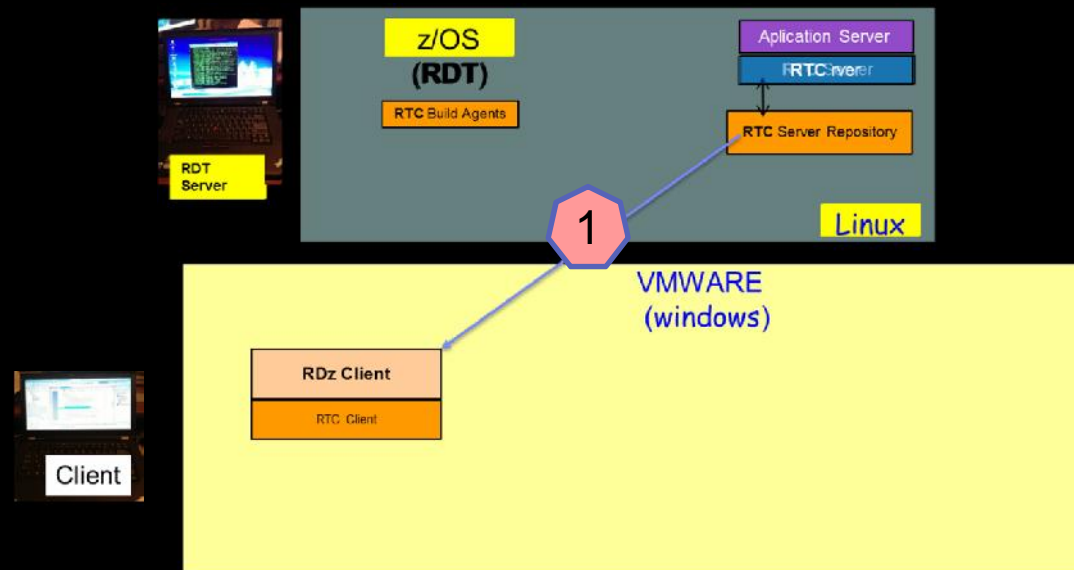
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## Worklight Developer:

### Change existing code and deploy DEV environment

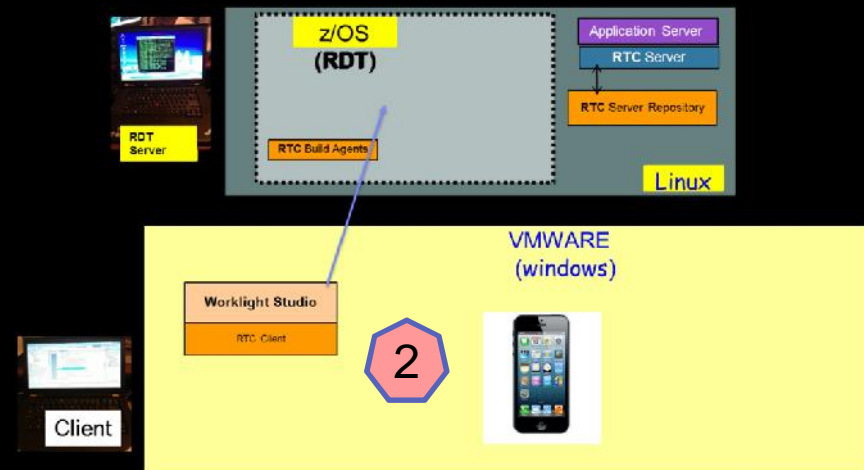
1. Use **RTC** to load the Worklight source code to **Worklight Studio**
2. Use **Worklight Studio** to make the Worklight changes on **HTML** and **Java Script**.
3. Use **RTC** to perform a Windows build that push to **UrbanCode Deploy** on Windows



## Worklight Developer:

### Change existing code and deploy DEV environment

1. Use **RTC** to load the Worklight source code to **Worklight Studio**
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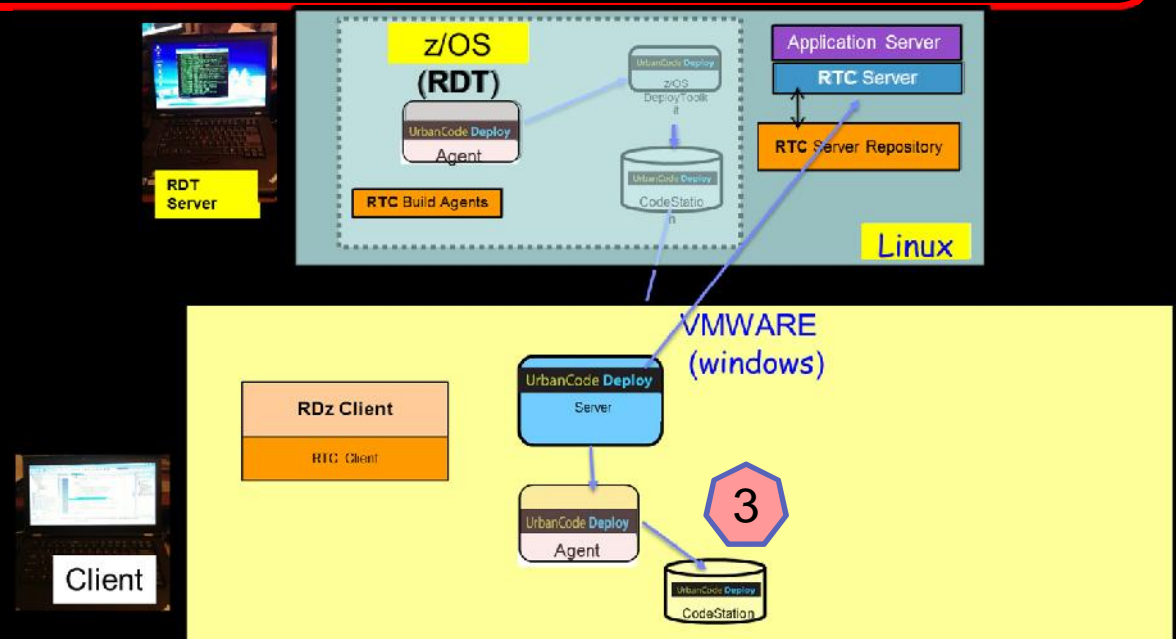


## Worklight Developer:

### Change existing code and deploy DEV environment

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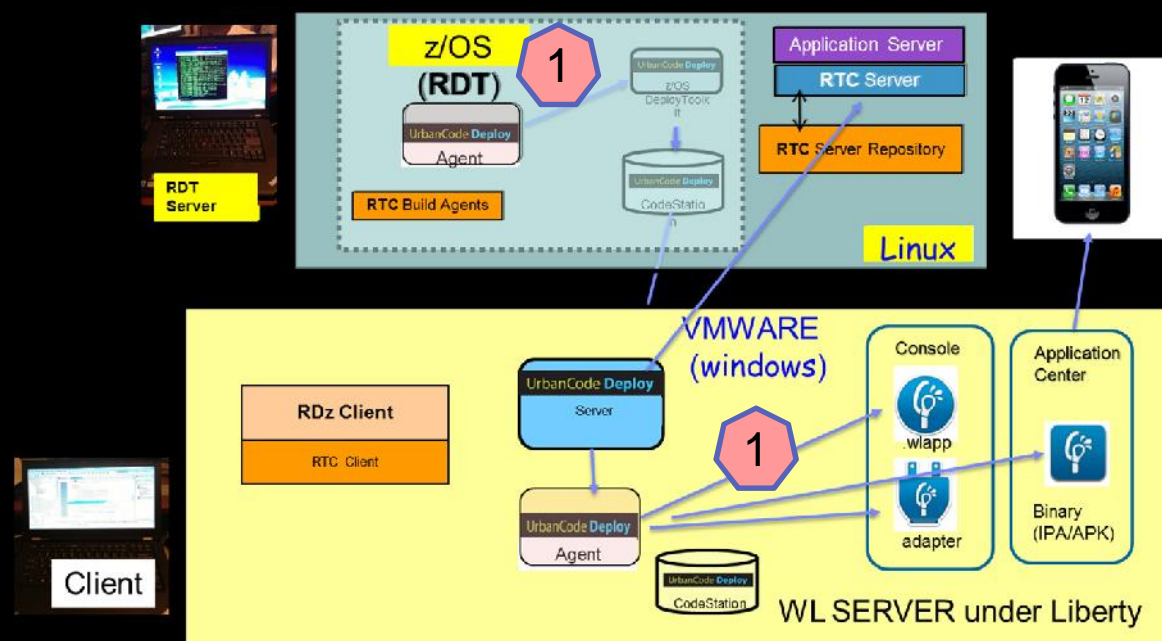
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## Release Engineer:

### Deploy z/OS (CICS) and Windows (Worklight Server) components to the DEV environment

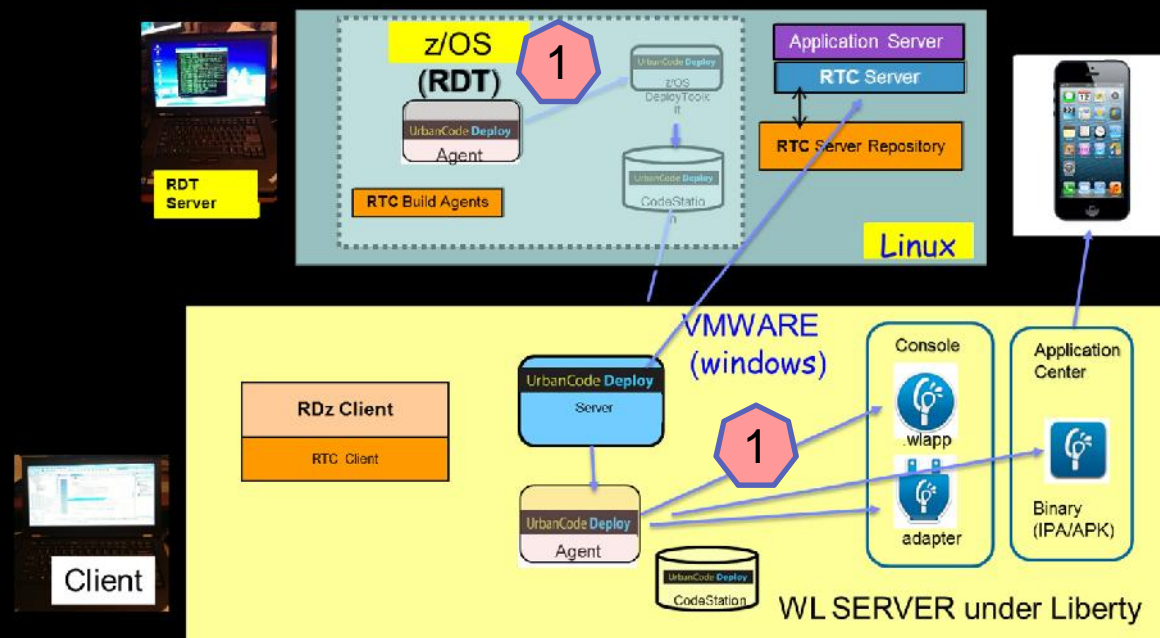
1. Go to **UrbanCode Deploy Server** and run the deploy at DEV level
2. Verify that the change has been made on **CICS** and **Worklight Server**



## Release Engineer:

### Deploy z/OS (CICS) and Windows (Worklight Server) components to the DEV environment

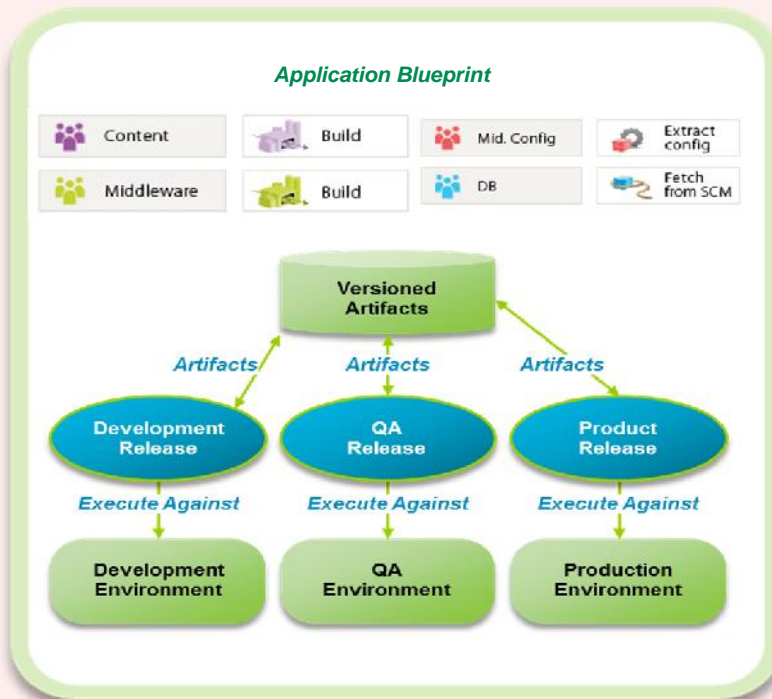
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- Automated software release and deployment **reduces errors**
- Push-button deployments **improves productivity** for developer and operations
- Built-in best practices provides for **faster time-to-market**
- Enforced Security and traceability ensures **compliance and auditability**



## Deliver test environments in minutes



urban{code}

An IBM company

IBM UrbanCode Deploy  
IBM UrbanCode Release  
IBM SmartCloud Orchestrator

## Enabling you to...

- Provision consistent images for test environments, reduce rework, and speed redeploy of application changes
- Quickly deploy multiple test instances in minutes versus hours or days
- Support mainframes using zLinux and z/OS applications
- Orchestrate and automate the deployment and management of applications, middleware configuration, and databases, including Bluemix



THANK  
YOU

The words "THANK YOU" are rendered in large, white, 3D-style block letters. Each letter is filled with a different photograph of a diverse group of IBM employees. The photos show people of various ethnicities, ages, and genders, all smiling or looking positively. The letters are arranged in two rows: "THANK" on top and "YOU" below it.

[ibm.com/devops](http://ibm.com/devops)

# END

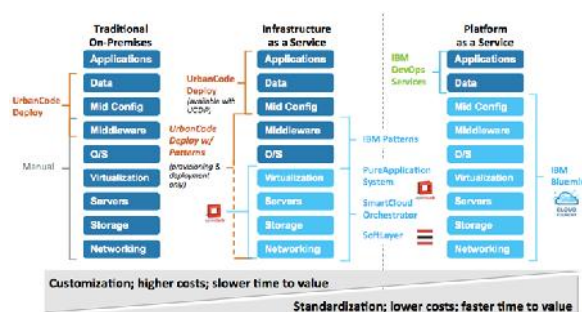
- Remaining Slides are Optional

- Integrate your Continuous Integration process directly into your delivery pipeline for all kinds of applications
  - Mobile
  - Bluemix or Platform as a Service
  - Midtier and Cloud
  - Mainframe
- Create snapshots of battle-tested configurations for components across all platforms and promote the entire snapshot through each successive phase of the pipeline
- Always know what version is deployed where, and avoid those pesky late-stage integration problems by “shifting left” and integrating against production like environments, earlier in the process
- Decouple teams with traditionally high dependencies through service virtualization, allowing each team to make progress and integrate in a predictable way

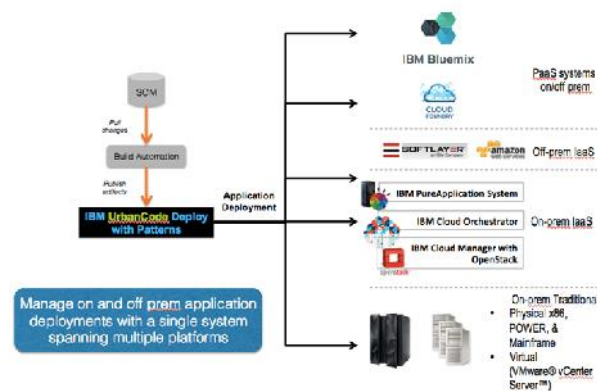
- Integrate your Continuous Integration process directly into your delivery pipeline for all kinds of applications
  - Mobile
  - Bluemix or Platform as a Service
  - Midtier and Cloud
  - Mainframe
- Test and promote components together as a snapshot (across all platforms!)
- Know (don't guess!) what version is deployed where, when, and by whom
- Use service virtualization to enable midtier and mainframe teams to work at their own pace

*"Success is not delivering a feature; success is learning how to solve the customer's problem."*

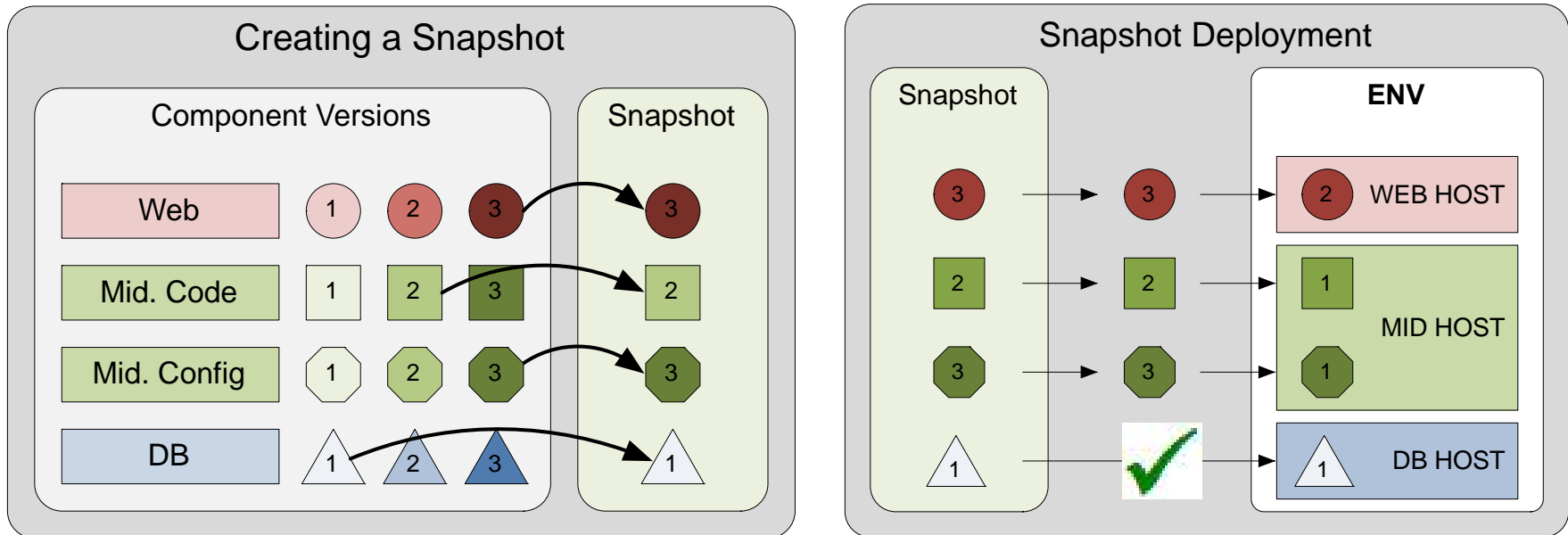
- Mark Cook



- **Continuous Deployment** across runtimes – Platform as a Service, Infrastructure as a Service, Hybrid Cloud
- **Deploying to IBM OpenStack (Infrastructure as a Service)**
- **Deploying to Bluemix (Platform as a Service)**
- **Integrating your Continuous Integration toolchain** to achieve Continuous Deployment
- **Managing your releases** across the breadth of applications



# Snapshots – A Version of the App



- Snapshot environments that pass tests
- Snapshots contain deployables and config
- They help with:
  - ✓ Automation, Audit, and Visibility