



DevOps in the Enterprise

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25th September 2012

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Agenda

- History of DevOps
- Culture
- DevOps Strategies and architecture
- Toolchains
- Benefits

Delivery Challenges

Today's business and technical needs are pushing traditional delivery approaches to the breaking point

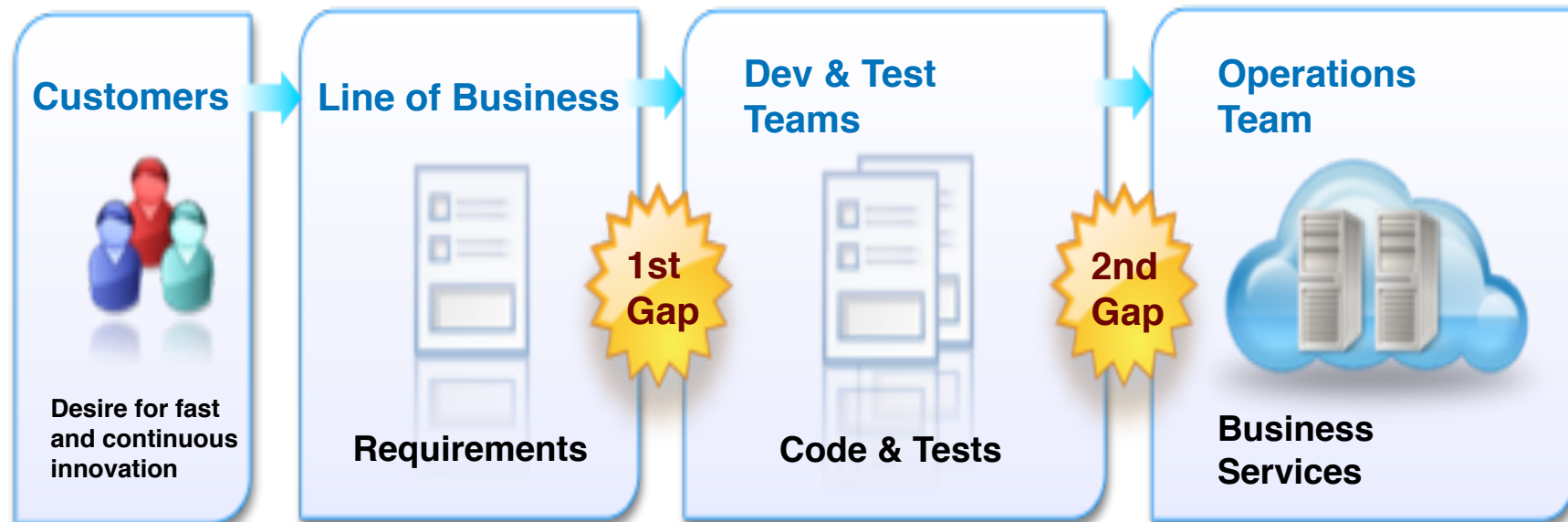
People



Process



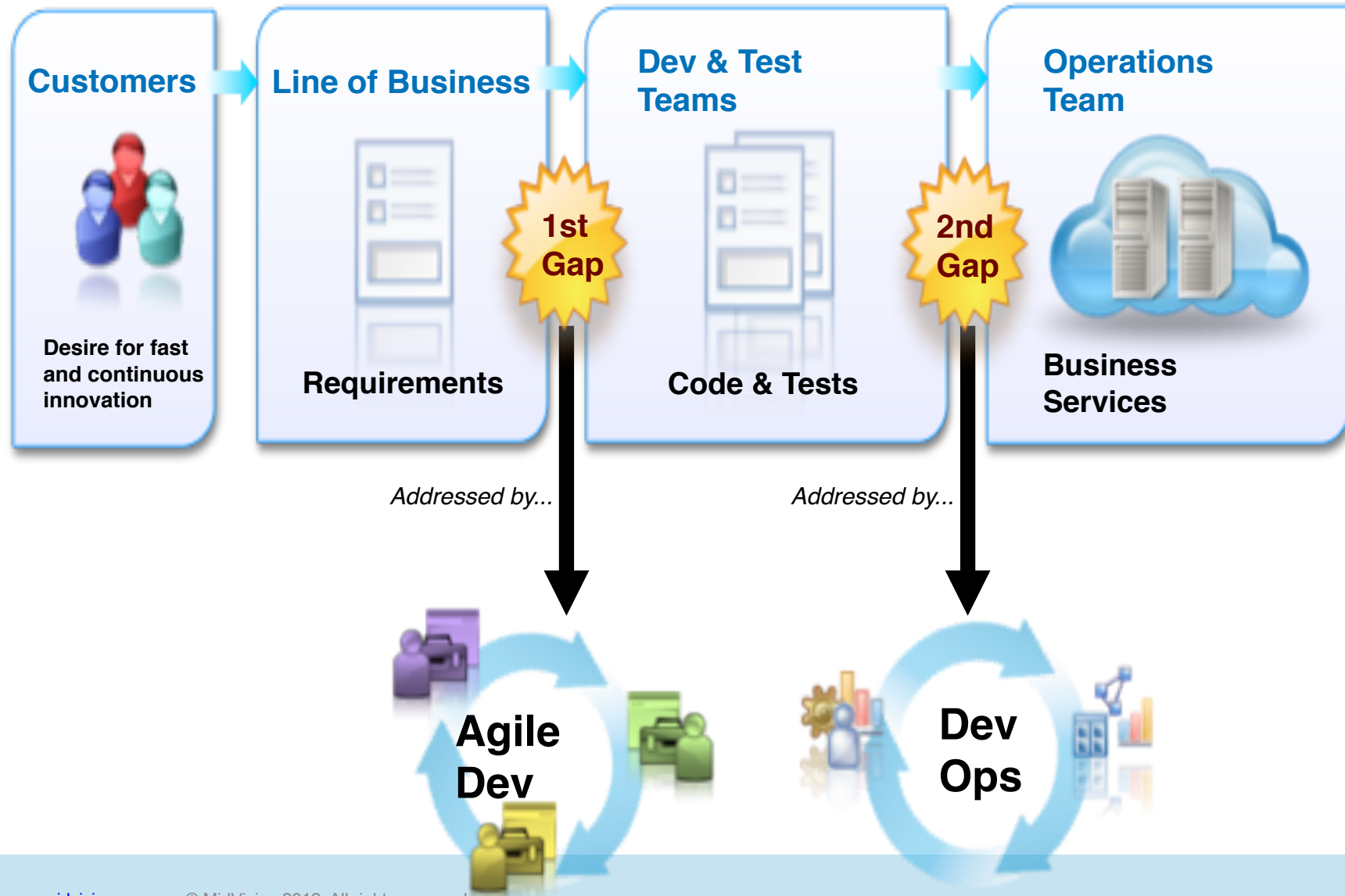
Information



“At some point, you take a step back, and you realize you have an awful lot of **siloed systems** that are **limiting transparency** across strategic projects.”

- Development Director
Temenos, Inc.

Addressing Application Lifecycle Management gaps



Brief history of DevOps: Where it came from and what does it mean?

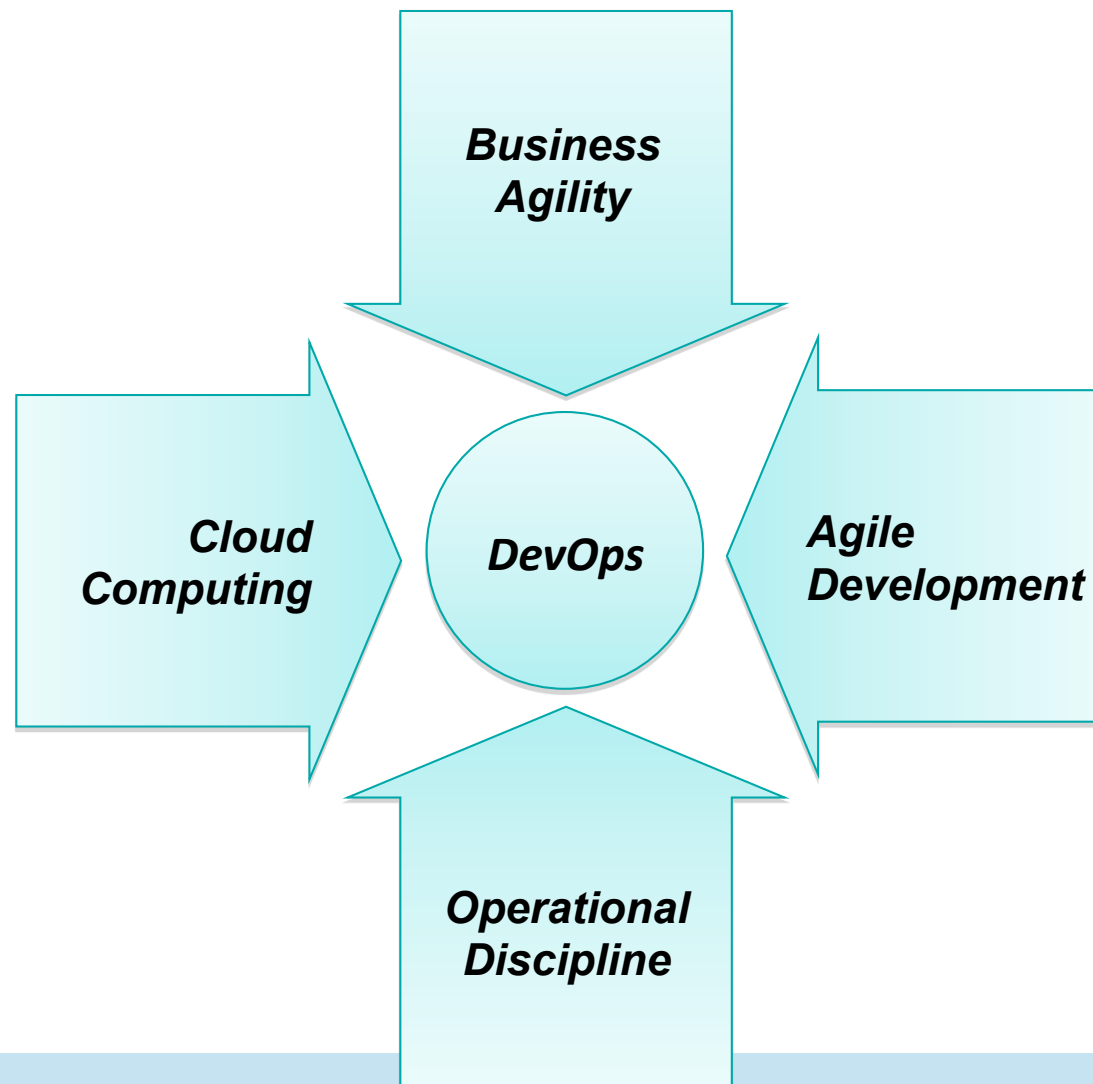
- Patrick De Bois: "The godfather"
- DevOps day conference in 2009
- The reason for it's success is there were lots of people thinking the same thing
- Ground roots movement

Culture

- Historically development is about value creation: bringing new ideas to market
- Operations is focused value protection: reducing the amount of change, incentivised on stability
- Create a misalignment of incentives (meaning different parts of the organisation are incentivised for different behaviours)
- Solving this problem is what devops is about

DevOps: The time is now

Four key drivers are making DevOps a 2012 imperative for all organizations.

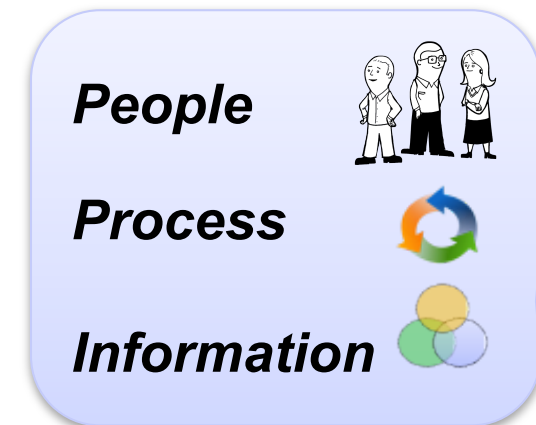


“collaborative working relationship between Development and IT Operations, resulting in the fastflow of planned work (i.e., high deploy rates), while simultaneously increasing the reliability, stability, resilience and security of the production environment.”

Gene Kim, Author
“The Visible Ops”

DevOps Principles & Values

- Collaborate across disciplines
- Develop and test against a production-like system
- Deploy in small increments
- Continuously validate operational quality characteristics



What DevOps means in Development

- Done means released
 - Code deploy not code complete
- Version control everything
 - Everything is an artefact (scripts, xml, source)
- Frequent releases
 - Self service / continuous delivery
- Test end to end
 - Test driven code and infrastructure

What DevOps means in operations

- Automate everything you can
 - Desired state
- Instrument pervasively
 - Collect data to detect trends early
- Don't put all your eggs in one basket
 - Canary releases
- Re-provision not repair
 - Recover to a known state
- MTTR vs MTBF

Cultural Principles

- No super stars
 - Shared contribution
- Healthy attitude towards failure
 - Failures are learning opportunities
- The problem is the enemy
 - No blame games
- No victims
 - shared blame
- Shared metrics
 - Focus on the end goal
- Alignment of purpose
 - Shared goals

How is DevOps being applied in the enterprise?

- Putting the science back into computer science
- Commoditisation of IT
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)

DevOps strategies and architecture

- Move away from waterfall infrastructure management
- Fear in Operations that the release mechanism itself is a cause for concern
- It's not just “is the product itself safe to release” - but will it arrive in one piece!
- Imperative to test the release process as well as the release itself
- Releasing small change regularly *requires* confidence in the delivery

DevOps Toolchain

A closer look at the automation tools

A version-controlled software library - which ensures all system artefacts are well defined, consistently shared, and up to date across the release lifecycle.

Deeply modelled systems - describes the components, policies and dependencies of the software and infrastructure

Automation of manual tasks - install, configure, deploy, maintain. Automation - not hoards of people - becomes the basis for command and control of high-velocity, conflict-free

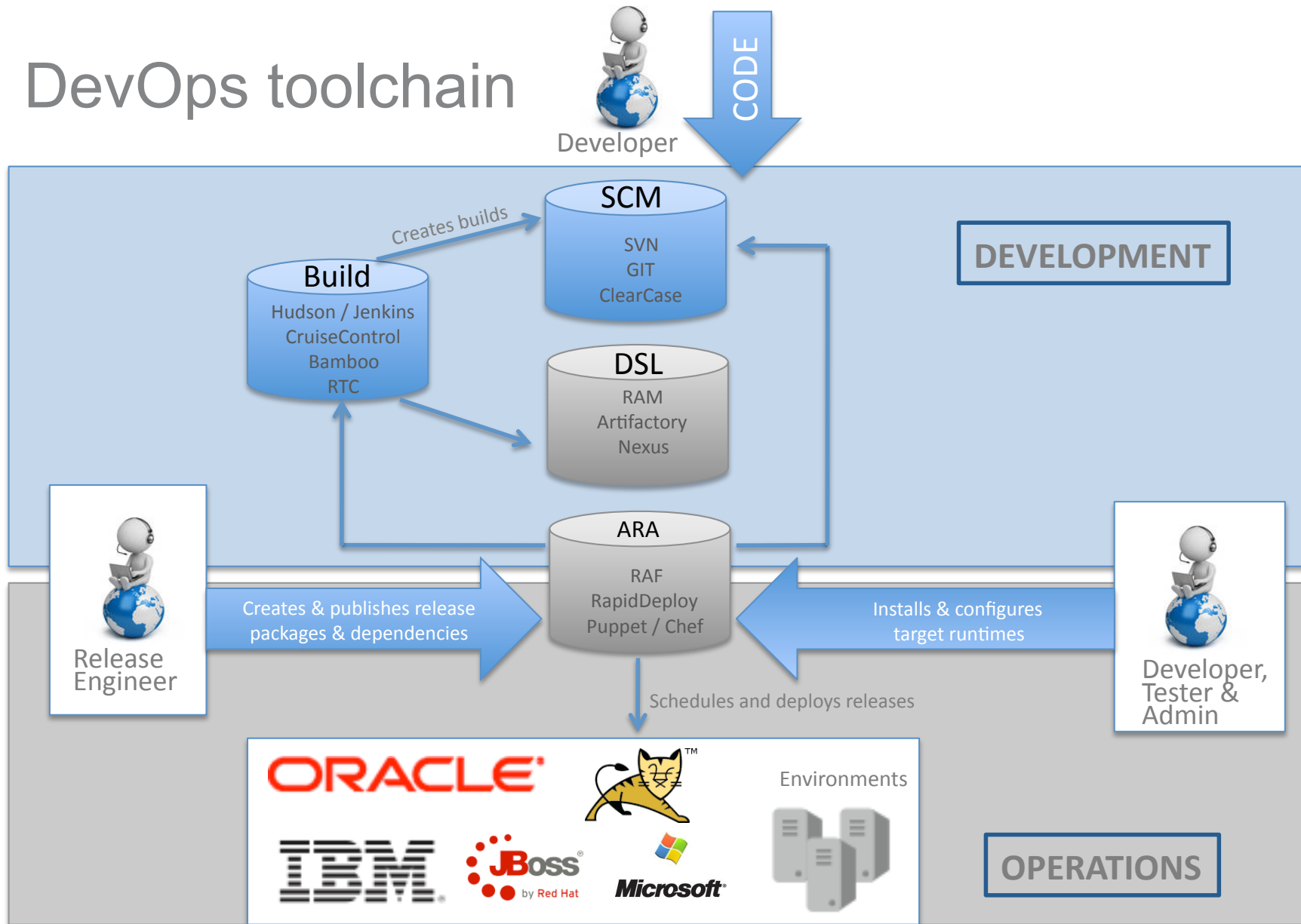
Tool vendors: Automation

- Puppet and Chef
 - The new world: Tomcat, MySql, Mongo DB, Cassandra, Glassfish, etc.
- MidVision / Nolio / Xebialabs
 - Commercial vendors focusing on enterprise middleware
- The big boys
 - IBM (MidVision) / BMC / HP

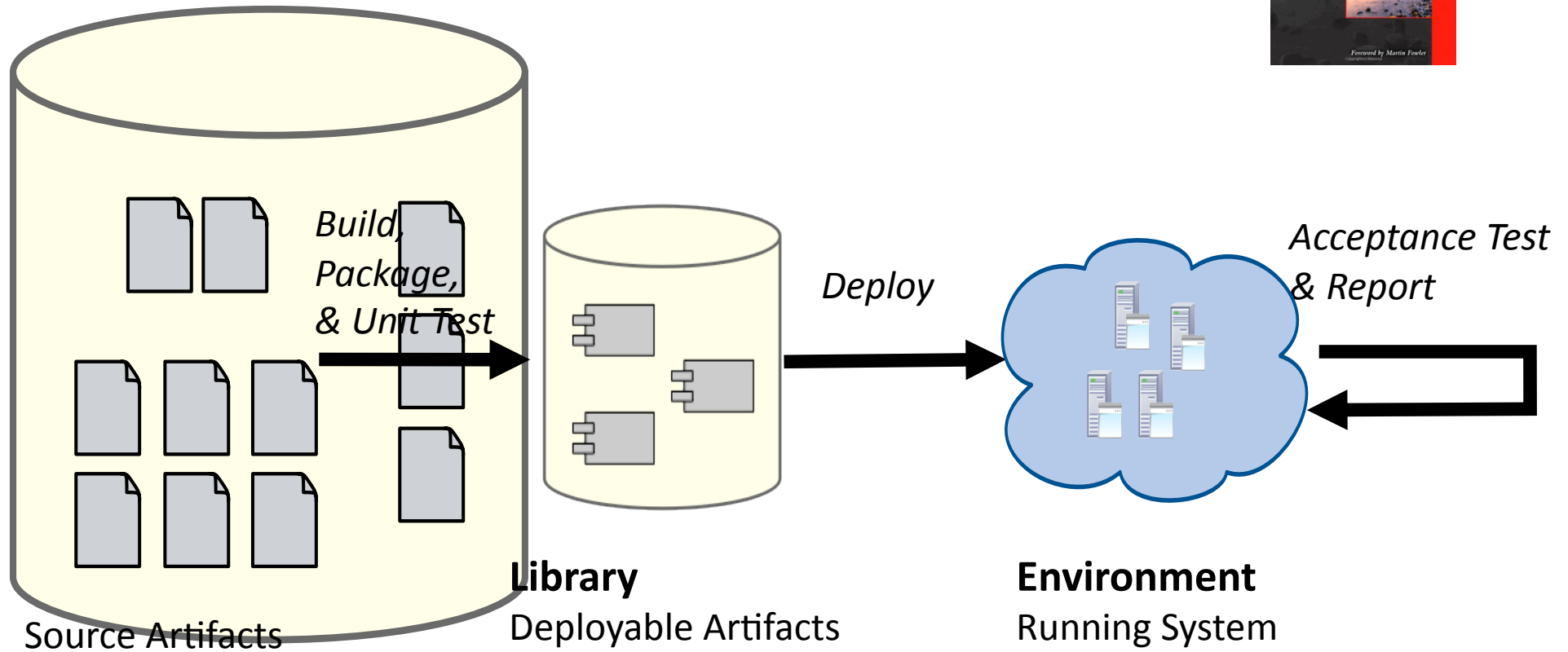
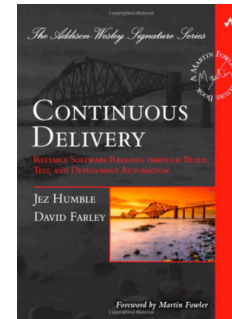
Tool vendors: The rest

- Source Control / SCM
 - RTC, ClearCase, SubVersion, Mercurial, GIT
- Build
 - Jenkins / Hudson, Bamboo, etc.
- Definitive Software Library (DSL)
 - RAM, Nexus Sonatype, Artifactory, Maven
- Automated Testing
 - Greenhat, Lisa, Cucumber, Selenium, etc.
- Monitoring and metrics

DevOps toolchain



Delivery Pipeline



SCM

Using the same tools and methodologies to manage and deliver software and deployment configuration changes.



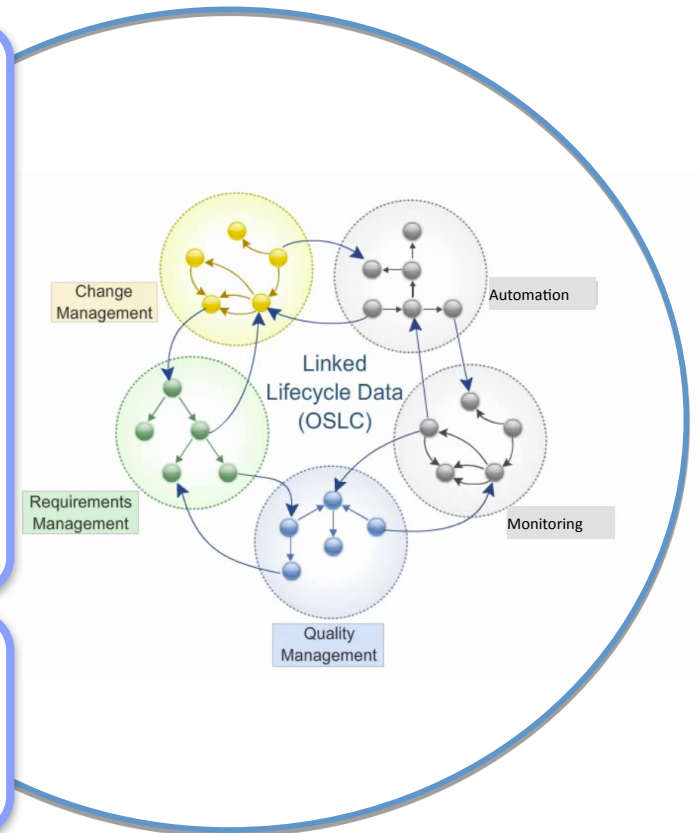
Open Services for Lifecycle Collaboration (OSLC)

Working to standardize the way software lifecycle tools share data



Open Services for Lifecycle Collaboration
Lifecycle integration inspired by the web

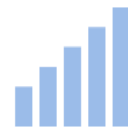
- Community Driven – @ **open-services.net**
- Specifications for numerous disciplines
 - Such as, ALM, PLM and DevOps
 - Defined by scenarios – solution oriented
- Inspired by Internet architecture
- A different approach to industry-wide proliferation
- Based on **W3C**® inked Data



Inspired by the web



Free to use and share

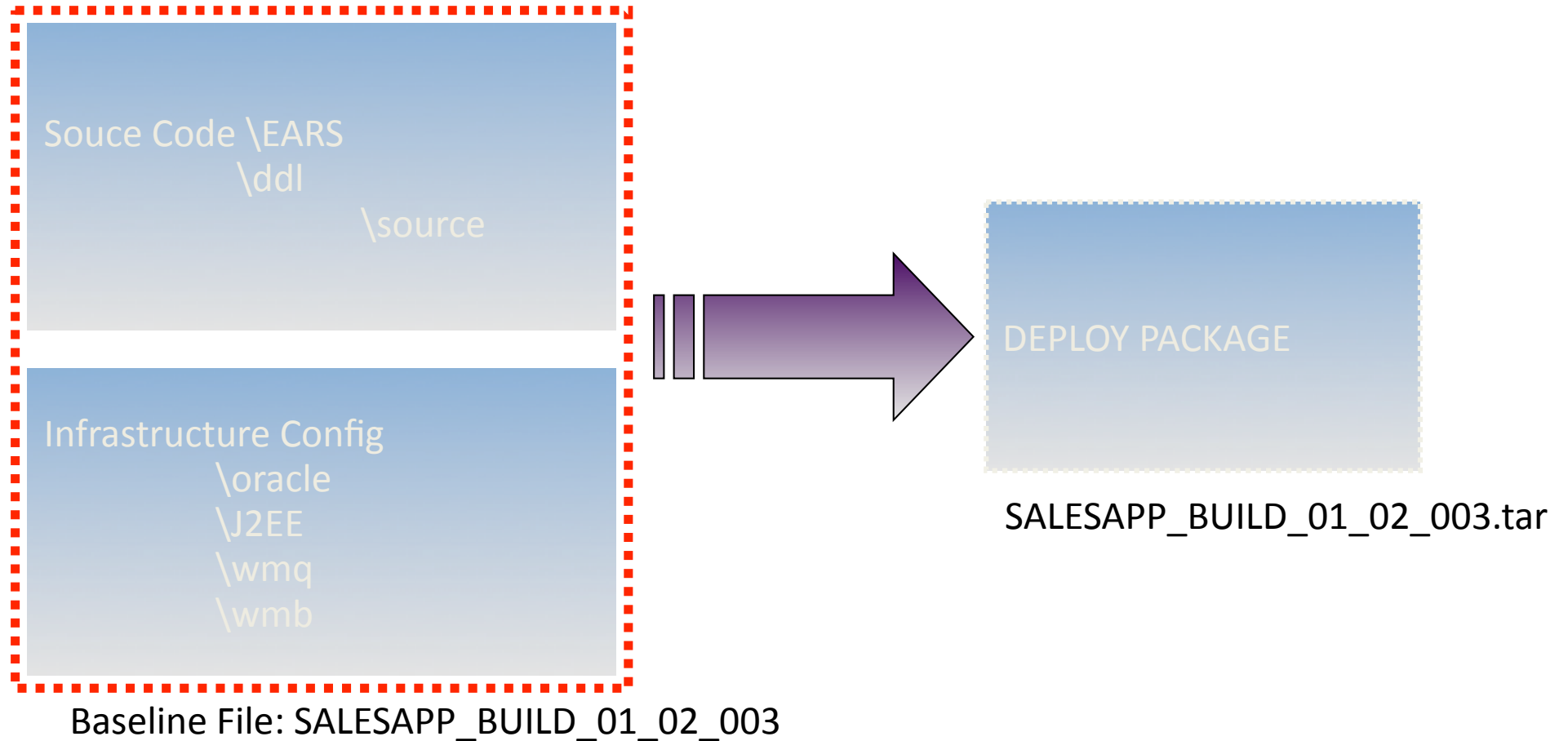


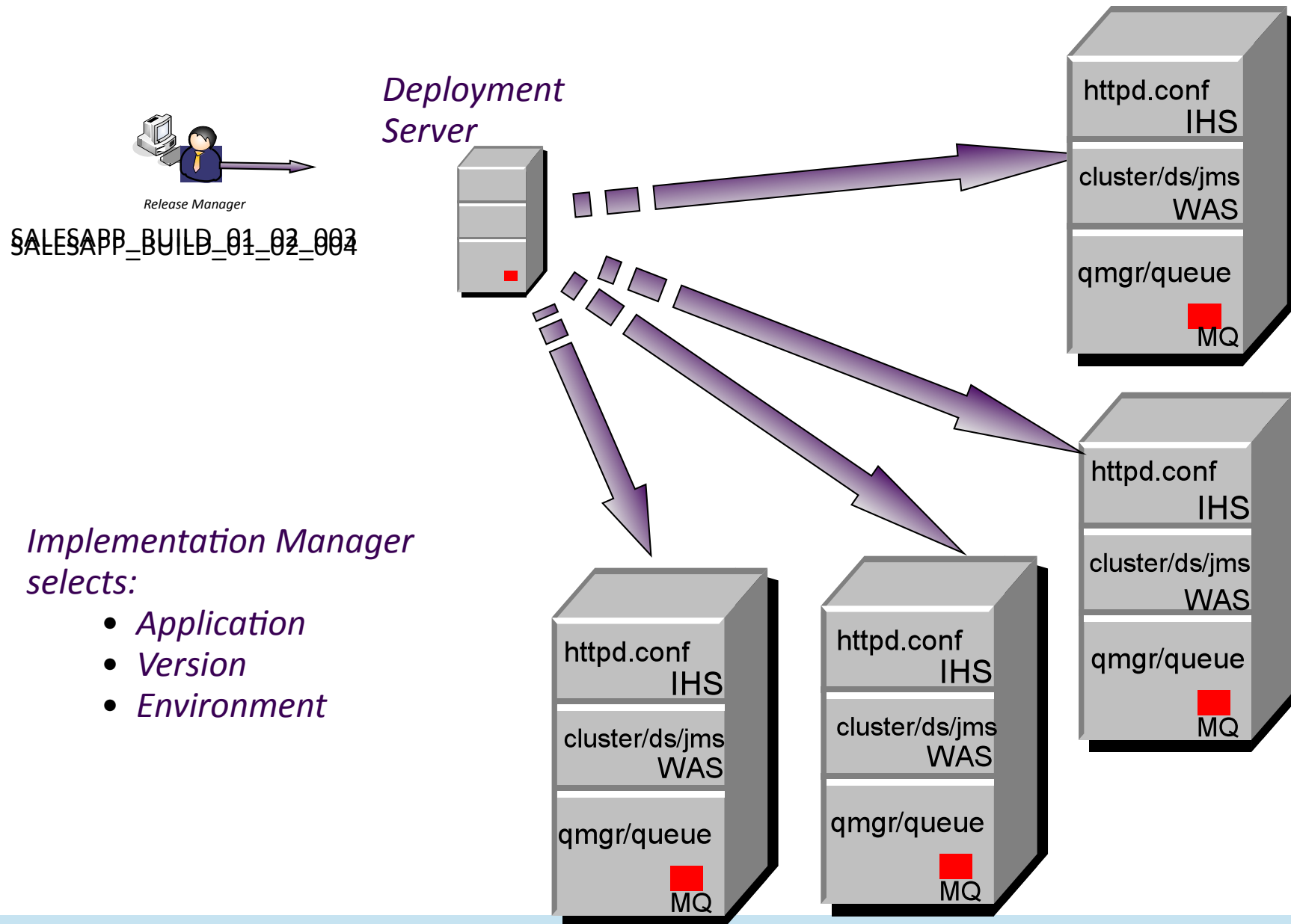
Changing the industry



GET INVOLVED AND CONTRIBUTE!

Creating the Deploy Package





Implementation Manager selects:

- Application
- Version
- Environment

To ensure consistency – always deploy the same thing!

- Templates created that define infrastructure or application configuration
- Templates are environment neutral and usually stored in the target platform format (i.e. ddl, mqsc, etc.)
- Contain the complete configuration for a target technology
- Deltas become part of the template – so configuration changes are not made in isolation

Properties / Template

DevTst01

QMGR_NAME	SALESDEVQM01
QMGR_HOST	Inxdev01
QMGR_PORT	1414

MQSC Template

-----<QMGR_NAME>-----

-----<QMGR_HOST>-----

-----<QMGR_PORT>-----

Properties / Template

DevTst01	
QMGR_NAME	SALESDEVQM01
QMGR_HOST	Inxdev01
QMGR_PORT	1414
DB_USER	devtstuser

MQSC Template
-----<QMGR_NAME>-----
-----<QMGR_HOST>-----
-----<QMGR_PORT>-----
-----<DB_USER>-----

Properties / Template

DevTst01

QMGR_NAME	SALESDEVQM01
QMGR_HOST	Inxdev01
QMGR_PORT	1414
DB_USER	devtstuser


SysTst01


QMGR_NAME	SALESTSTQM02
QMGR_HOST	Inxtst01
QMGR_PORT	1415
DB_USER	syststuser



MQSC Template

```
-----<QMGR_NAME>-----
-----<QMGR_HOST>-----
-----<QMGR_PORT>-----
-----<DB_USER>-----
```




Version Control	Configuration Management Tool	Build Process	Release Mechanism	Middleware
Code Configuration	Eclipse or Web based config. UI	Generate Versioned Release Components	Ideally web based, self service	<ul style="list-style-type: none"> •WebSphere AS •Portal / WPS / ESB / WSSR •MQ / Broker / Datapower •DB2 / Oracle





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x.mqsc 	Alter channel			






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x.mqsc 	Alter channel	SALES_MQ_01_02_033.zip	SALES_MQ_01_02_033	 WMQ
x.py 	JMS Queue Dest	SALES_WAS_01_02_046.zip		

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x.py 	JMS Queue Dest	SALES_WAS_01_02_046.zip	SALES_WAS_01_02_046	WAS 

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x.py 	JMS Queue Dest	SALES_WAS_01_02_046.zip	SALES_WAS_01_02_046	WAS 
x.ddl 	Column, View, etc			

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x.py 	JMS Queue Dest	SALES_WAS_01_02_046.zip	SALES_WAS_01_02_046	WAS 
x.ddl 	Column, View, etc	SALES_DB_01_02_012.zip		

Version Control	Configuration Management Tool	Build Process	Release Mechanism	Middleware
Code Configuration	Eclipse or Web based config. UI	Generate Versioned Release Components	Ideally web based, self service	<ul style="list-style-type: none"> •WebSphere AS •Portal / WPS / ESB / WSSR •MQ / Broker / Datapower •DB2 / Oracle
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x.py 	JMS Queue Dest	SALES_WAS_01_02_046.zip	SALES_WAS_01_02_046	 WAS
x.ddl 	Column, View, etc	SALES_DB_01_02_012.zip	SALES_DB_01_02_012	 Oracle

Provisioning New Environments

Products > Configuration > Code

AppServer - products

IBM HTTP Server

WebSphere AS 6.1.0.29

WMQ6 ML72

AIX 6 TL10

Database - products

Oracle 11.1.0.7.0

AIX 6 TL10

Provisioning New Environments

Products > Configuration > Code

AppServer - products	Configuration / App
IBM HTTP Server	WEB_CONFIG_SALES_1_2_056
WebSphere AS 6.1.0.29	WAS_CONFIG_SALES_1_2_087
WMQ6 ML72	WMQ_CONFIG_SALES_1_2_032
AIX 6 TL10	STANDARD ORG IMAGE

Database - products	Configuration / App
Oracle 11.1.0.7.0	ORA_CONFIG_SALES_1_2_042
AIX 6 TL10	STANDARD ORG IMAGE

Provisioning New Environments

Products > Configuration > Code

AppServer - products	Configuration / App
	APP_CONTENT_SALES_1_2_124
IBM HTTP Server	WEB_CONFIG_SALES_1_2_056
WebSphere AS 6.1.0.29	WAS_CONFIG_SALES_1_2_087
WMQ6 ML72	WMQ_CONFIG_SALES_1_2_032
AIX 6 TL10	STANDARD ORG IMAGE
Database - products	Configuration / App
Oracle 11.1.0.7.0	ORA_CONFIG_SALES_1_2_042
AIX 6 TL10	STANDARD ORG IMAGE



Sales
Release 1.2

Benefits

Faster time to market (i.e., reduced cycle times and higher deploy rates)

- Increased quality (i.e., increased availability, increased change success rate, fewer failures, etc.)
- Increased organizational effectiveness (e.g., increased time spent on value adding activities vs. waste, increased amount of value being delivered to the customer).

Closing note

- Organisations that need IT need to learn from organisations that are IT
- Firms like google, twitter, netflix, amazon are at the forefront
- DevOps could be as transformative to IT as JIT is for retail
- DevOps will transform the skills and shape of IT

