Beyond Deployment Automation

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Agenda

Overview & benefits of automation

Automation Framework Capabilities

Version Control and the Deployment Package

Template driven provisioning

Demo

Summary & QA

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Overview

- Increasingly organizations seek sophisticated approaches to releasing multi-tier "Business Applications" – as opposed to individual technology components

- Move towards higher levels of automation in all areas of the application lifecycle
    - For instance, RTC / Hudson / Maven2 in source code build space

- Build processes were once complicated and error prone – but they are now push button solutions that simply work

- Middleware "deployments" need to be similar – if we can't reliably deploy to one target how can we hope to deploy to many?
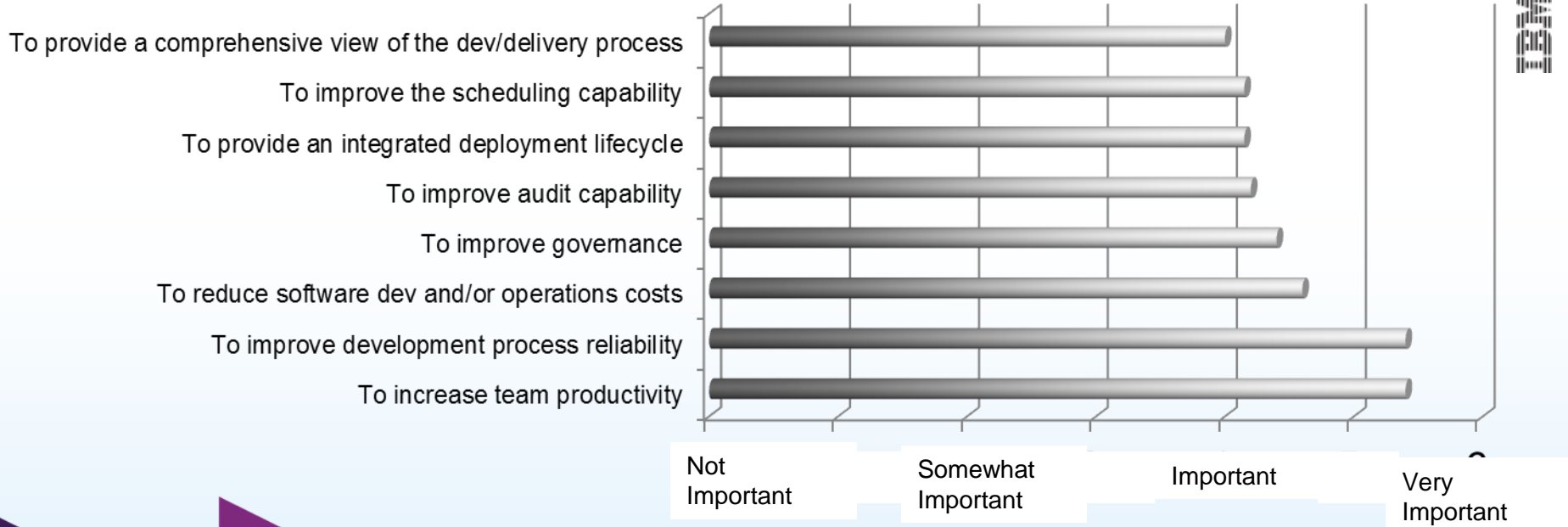
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Cloud is driving the market

- Cloud computing models are driving requirements in release automation: "I can have my OS in 20 minutes… and then wait 4 weeks for the applications to be available on them…"

- Cloud provisioning is based on a manufacturing approach – high volume, quick, reliable and consistent

- So why is middleware management such an art? Complex? Too many working parts / interconnected components?

- Why has the adoption been so slow?

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Why Automate the Application Release Process?

Chart categories:
- To provide a comprehensive view of the dev/delivery process
- To improve the scheduling capability
- To provide an integrated deployment lifecycle
- To improve audit capability
- To improve governance
- To reduce software dev and/or operations costs
- To improve development process reliability
- To increase team productivity

Axis labels: Not Important | Somewhat Important | Important | Very Important

(Source: Hurwitz & Associates, 2011)

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Benefits Achieved from Automating Application Releases

Benefit	Average Improvement	Maximum Improvement
Increase speed of software builds	87%	>140%
Increase in frequency of software releases	60%	>140%
Reduction in software errors	25%	40-60%
Increase in ability to meet compliance requirements	63%	>140%
Increase in ability to meet deadlines	40%	60-80%
Increase in developer productivity	30%	40-60%
Decrease in hardware or resources	88%	100-120%
Development cost savings	25%	60-80%
Increase in developer job satisfaction	38%	60-80%

(Source: Hurwitz & Associates, 2011)

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Rational Automation Framework

Customizable and extensible framework that delivers…

✛ Configuration management automation

✛ Application deployment automation

✛ Product installation & patching automation

Core Strengths…

Accuracy	"Data Driven" - Maintains normalized configuration data
Reliability	Apply right data to the right target environment
Consistency	Apply data in repeatable manner to target environments

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MidVision Extensions to RAFW (2Q2011)

MidVision Extension for WebSphere Connectivity

Supports WebSphere MQ and WMB version 6 / 7

Ability to create MQ configuration objects (Queue Managers, Queues, Channels, etc.)

Ability to create Brokers, Execution Groups, Deploy Bars, XSD schema, Jplugins, etc.

MidVision Extension for Oracle WebLogic Application Server

Support s versions 9, 10 and 11g

Ability to configure and deploy WLS, including create Domains, Machines, Clusters, JMS/JDBC resources, deploy EAR's, etc.

MidVision Extension for JBoss Application Server

Supports versions 5.1 and 6.x

Provision instances, configure, deploy (server config, JDBC, JMS, deploy EAR's, etc.)

New!

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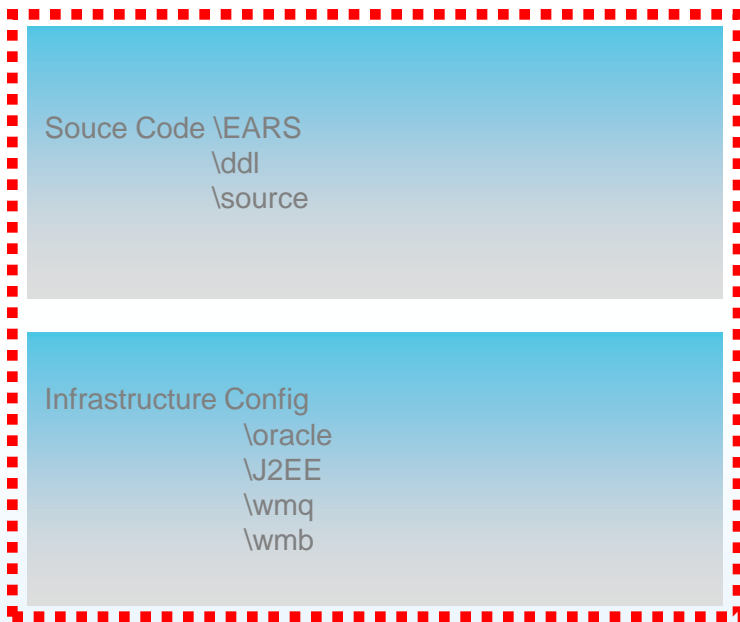# *Imports / Snapshots are the defining leap*

- We have moved from:
  Scripts > Abstracted Scripts > Frameworks

  - The next place is a Blackbox

- If virtualization has revolutionized OS provisioning - snapshots/imports are doing this for Release Automation

- The hard thing about Release Automation is not deploying application archive X to environment Y:
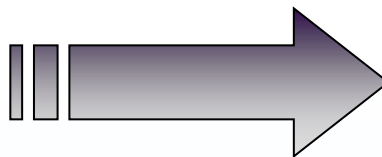 "*it is environments Y's <u>configuration and dependencies</u>*"

Importance of Version Control

- Mature Version Control strategy is a key component of composite application release automation

- Includes both code and some metadata about infrastructure

- Label / baseline code and/or infrastructure configuration together

- Link labels from source control to release tool and runtimes

- Concept of a "Deployment Package" – archive containing infrastructure configuration and/or code

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Creating the Deploy Package

Souce Code \EARS
      \ddl
      \source

Infrastructure Config
      \oracle
      \J2EE
      \wmq
      \wmb

DEPLOY PACKAGE

SALESAPP_BUILD_01_02_003.tar

Baseline File: SALESAPP_BUILD_01_02_003

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Release Manager

SALESAPP_BUILD_01_02_003.tar
SALESAPP_BUILD_01_02_004.tar

Deployment Server

httpd.conf
IHS

cluster/ds/jms
WAS

qmgr/queue
MQ

httpd.conf
IHS

cluster/ds/jms
WAS

qmgr/queue
MQ

httpd.conf
IHS

cluster/ds/jms
WAS

qmgr/queue
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qmgr/queue
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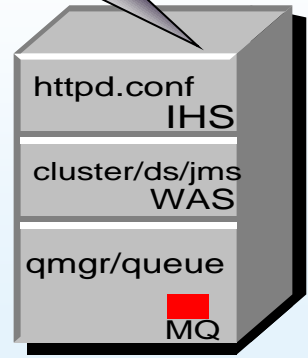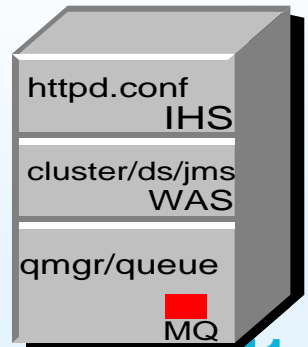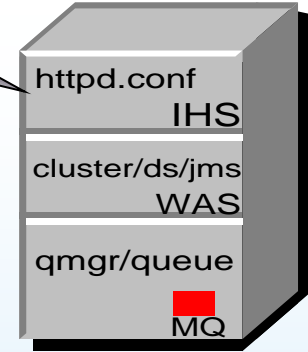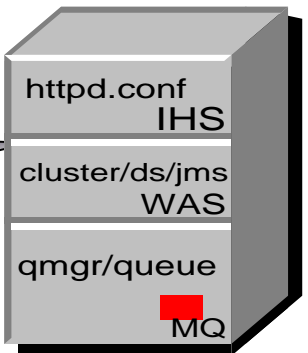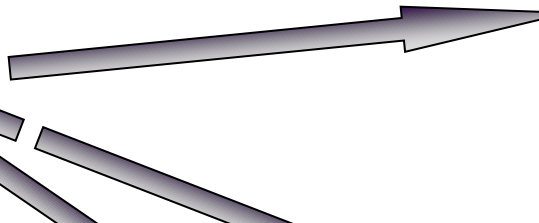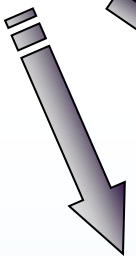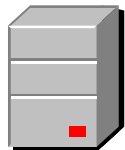
Implementation Manager selects:

- *Application*

- *Version of the Application*

- *Environment*

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Principles

- Version control and build configuration

- Release versions of configuration change in the same way as code

- Allows linking of configuration releases and application releases – together comprising a business application
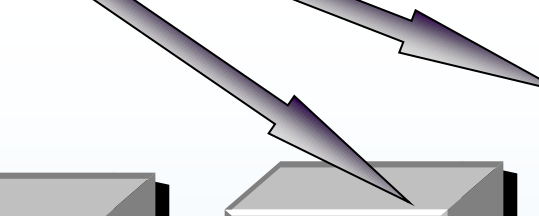
- "Build Once, Deploy Anywhere"

- Bringing established best practice from application development to infrastructure management

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Demonstration

- WebSphere MQ:

  - QMGR Creation and MQ Artifacts

  - Snapshot / Import

  - Template

  - Clone

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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

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Properties / Template

DevTst01	
QMGR_NAME	SALESDEVQM01
QMGR_HOST	lnxdev01
QMGR_PORT	1414

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

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Properties / Template

DevTst01	
QMGR_NAME	SALESDEVQM01
QMGR_HOST	lnxdev01
QMGR_PORT	1414
DB_USER	devtstuser

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

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Properties / Template

DevTst01	
QMGR_NAME	SALESDEVQM01
QMGR_HOST	lnxdev01
QMGR_PORT	1414
DB_USER	devtstuser

SysTst01	
QMGR_NAME	SALESTSTQM02
QMGR_HOST	lnxtst01
QMGR_PORT	1415
DB_USER	syststuser

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

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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	•WAS / Portal / WPS • WebLogic / JBoss • MQ / Broker •DB2 / Oracle

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x.mqsc	Alter channel			

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x.mqsc	Alter channel	SALES_MQ_01_02_033.zip		

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x.mqsc	Alter channel	SALES_MQ_01_02_033.zip	SALES_MQ_01_02_033	WMQ

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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			

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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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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	•WAS / Portal / WPS • WebLogic / JBoss • MQ / Broker •DB2 / Oracle
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	SALES_WAS_01_02_046	WAS

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Code Configuration	Eclipse or Web based config. UI	Generate Versioned Release Components	Ideally web based, self service	•WAS / Portal / WPS • WebLogic / JBoss • MQ / Broker •DB2 / Oracle
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	SALES_WAS_01_02_046	WAS
x.ddl	Column, View, etc			

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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	•WAS / Portal / WPS • WebLogic / JBoss • MQ / Broker •DB2 / Oracle
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	SALES_WAS_01_02_046	WAS
x.ddl	Column, View, etc	SALES_DB_01_02_012.zip		

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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	•WAS / Portal / WPS • WebLogic / JBoss • MQ / Broker •DB2 / Oracle
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	SALES_WAS_01_02_046	WAS
x.ddl	Column, View, etc	SALES_DB_01_02_012.zip	SALES_DB_01_02_012	Oracle

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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

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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

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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

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