



DevOps for YOU!

Database, EBS, APEX, Middleware, BI, Cloud, and More

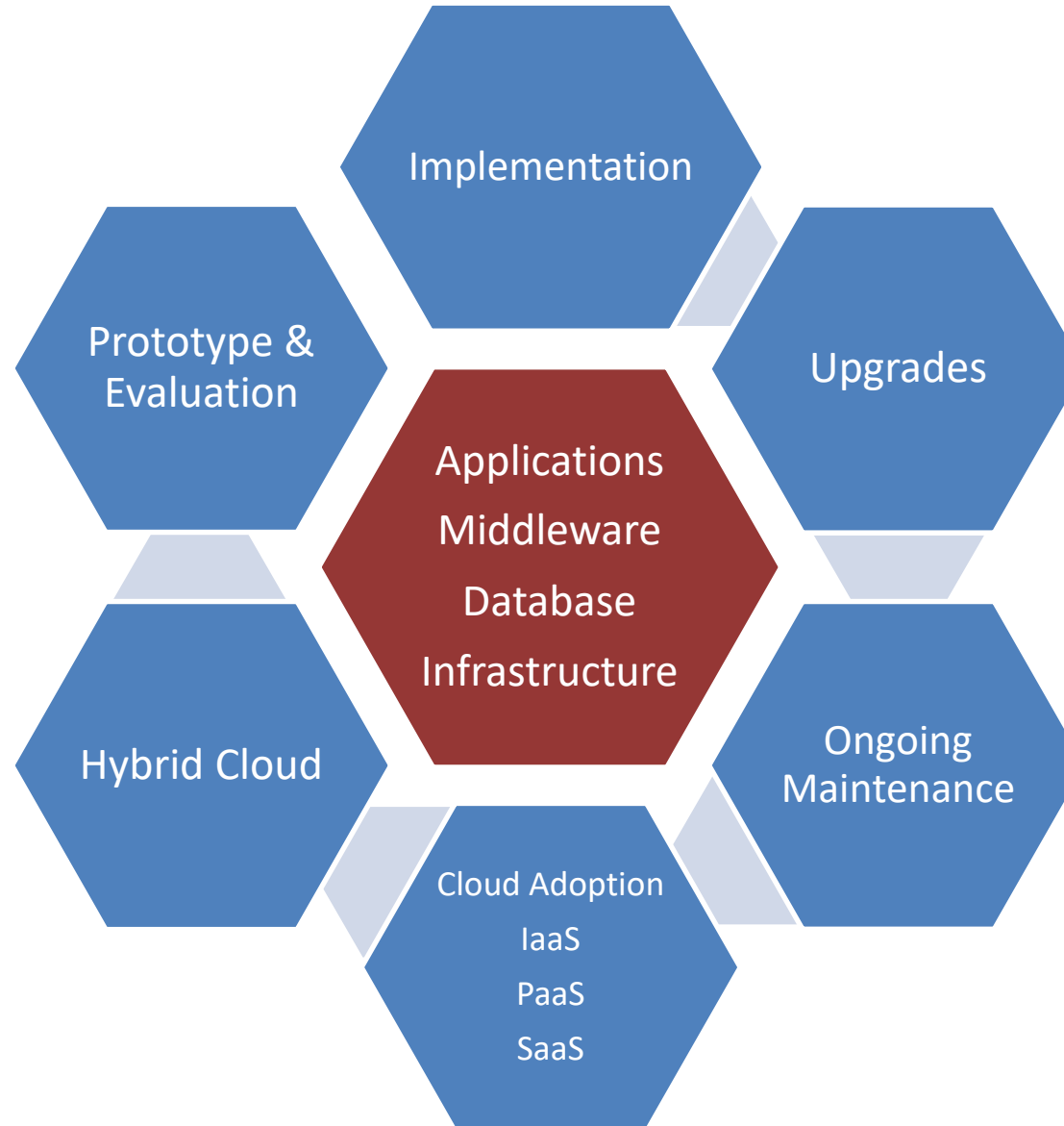
Dan Goerdts

Flexagon

+1 920.819.6788

dan.goerdts@flexagon.com

The Challenges Never End!



Challenges with Software Delivery

Cost

- Manual activities are very costly
- Creating & maintaining environment and scripts
- Outages in test and production environments

Speed

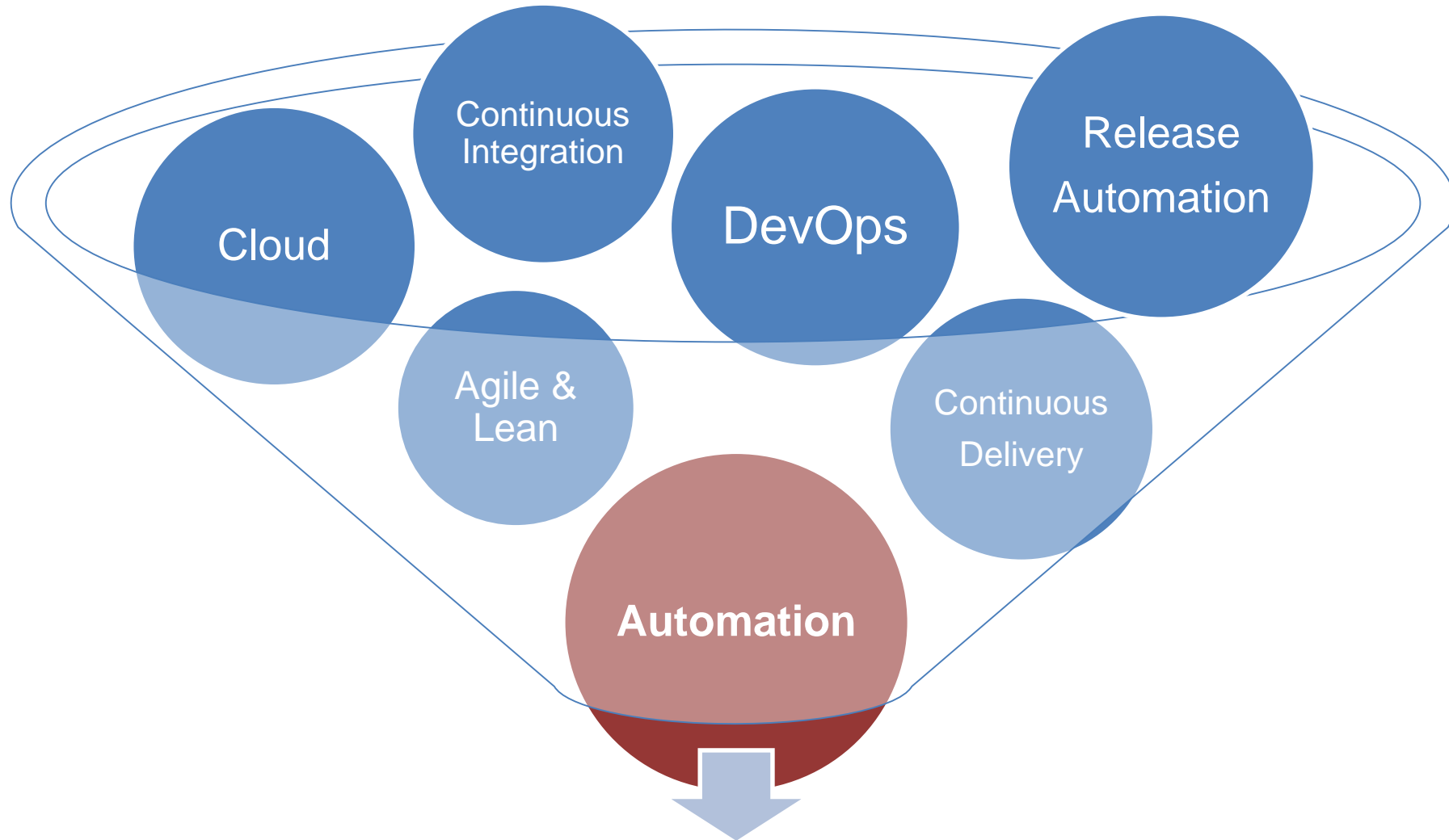
- Delays for environment provisioning/setup
- Slow deployment and release, impacting test cycle times
- Time spent troubleshooting issues vs. 'productive work'

Quality

- Poor Visibility to what, when, who, how
- Lack of Controls lead to compliance issues & failed audits
- Increased Risk for quality delivery

Too costly, slow, error prone, and high risk

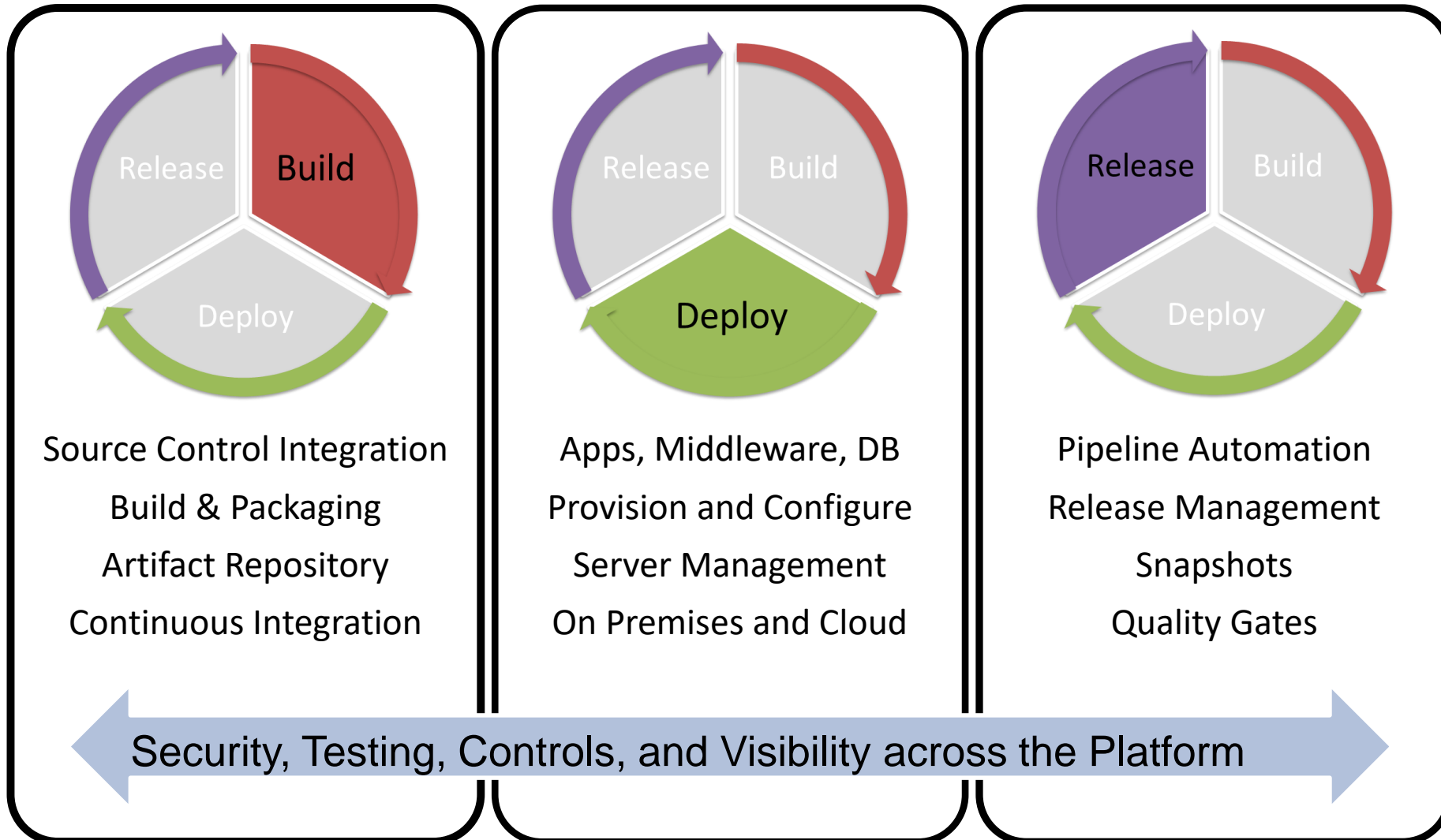
Drivers for Change



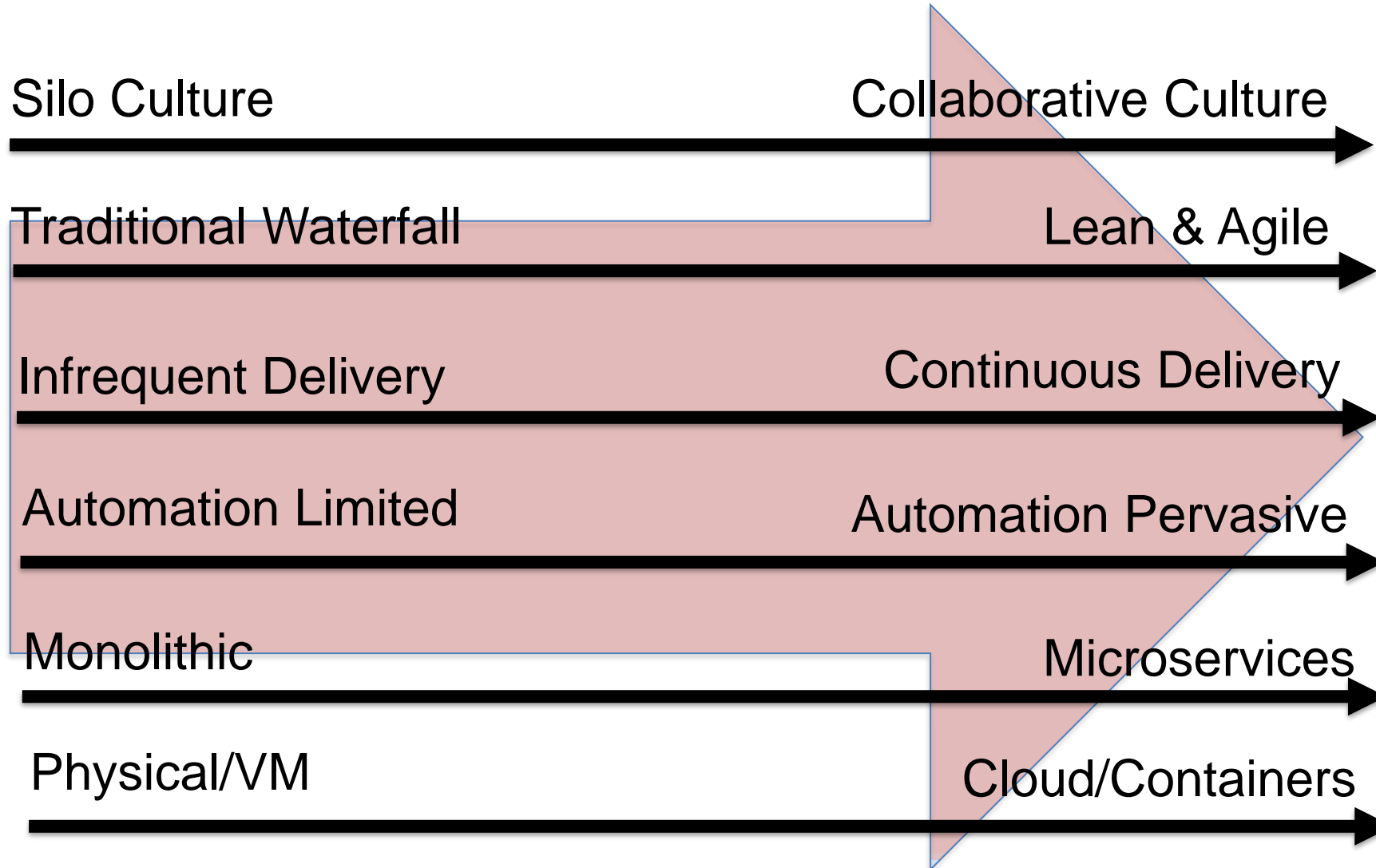
Accelerate Delivery, Improve Quality, Reduce Cost

---- **Business Value** ----

3 Core Tool Categories



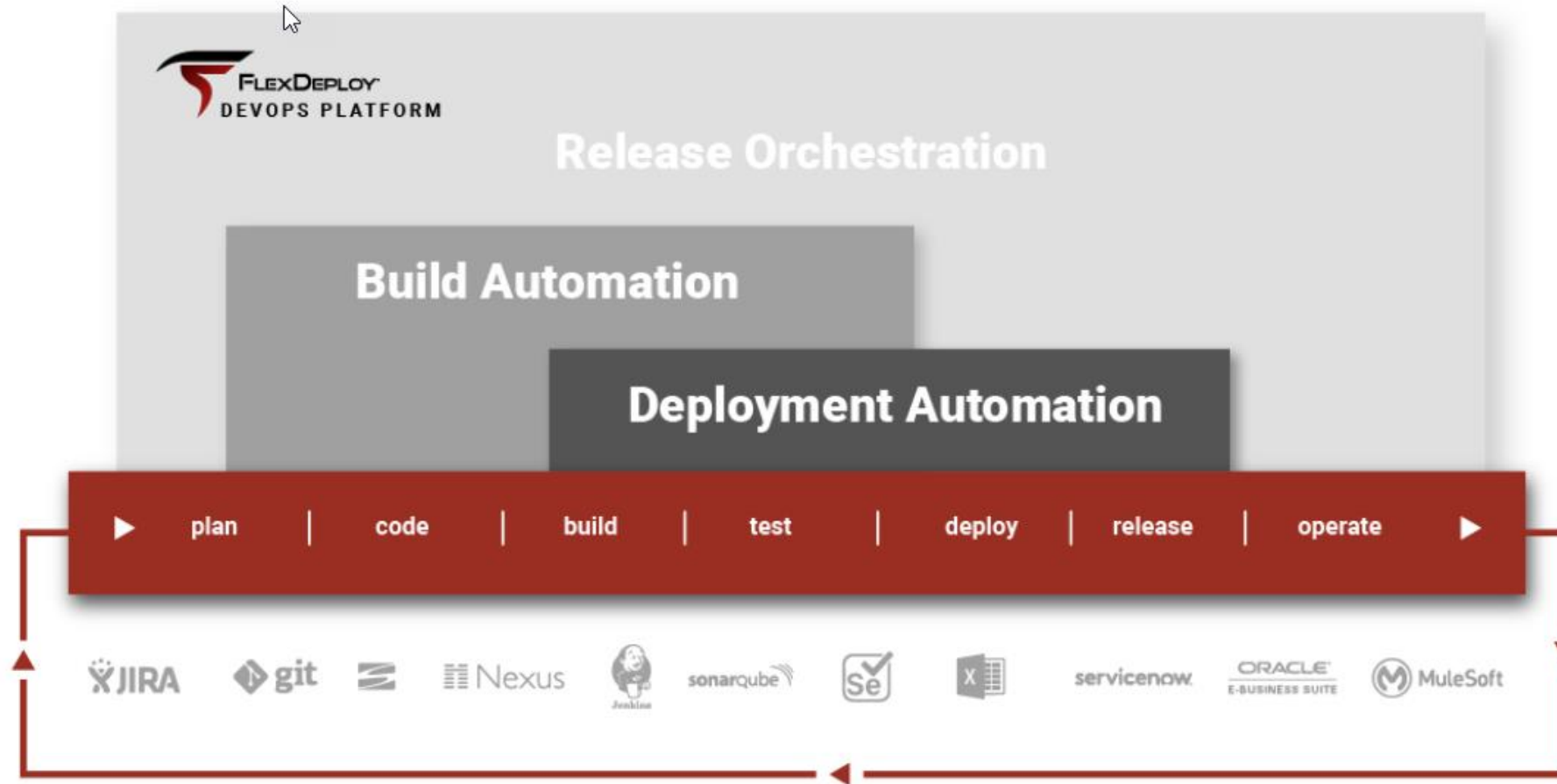
Support across the Spectrum



Tooling Options

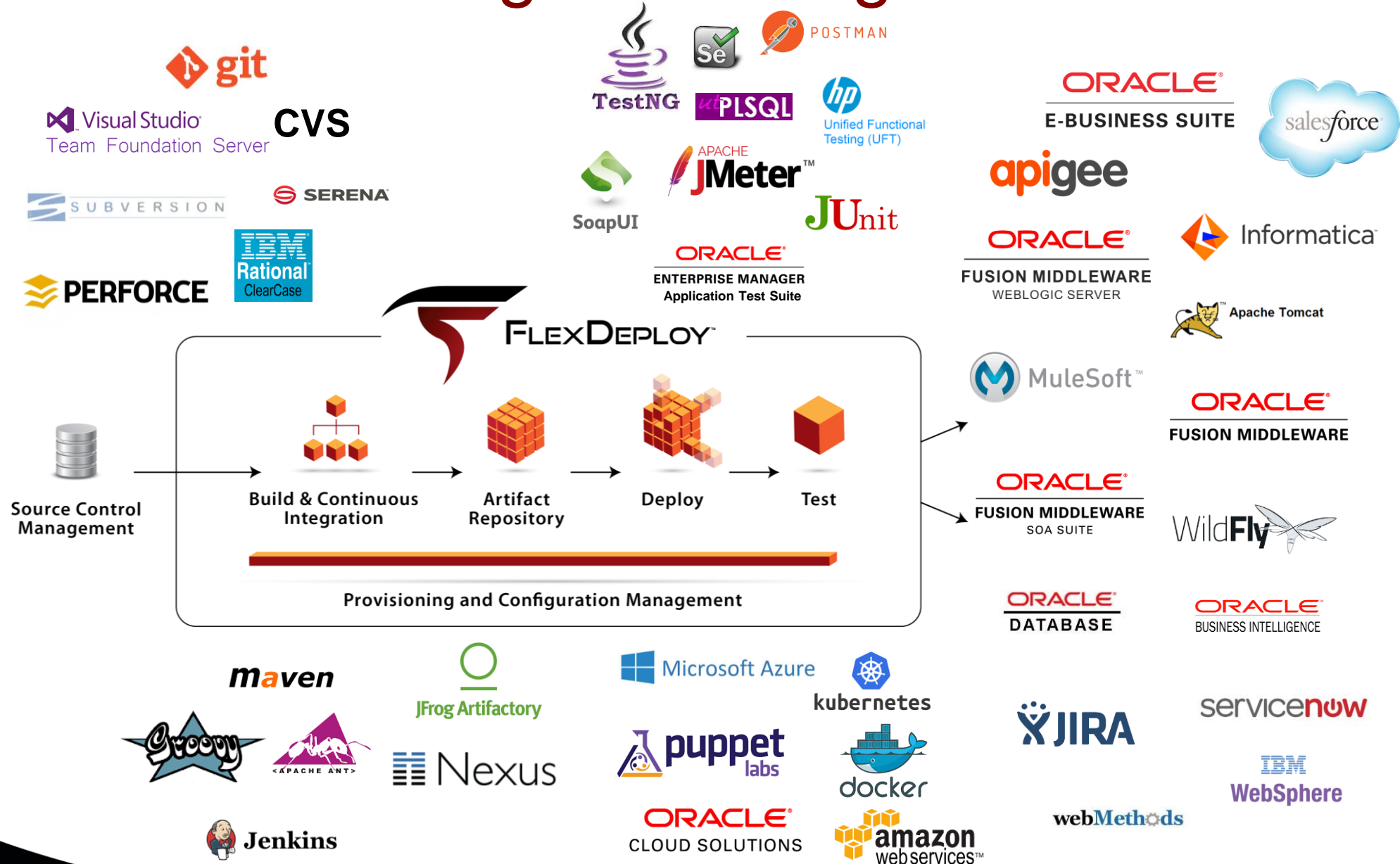
- **Commercial options**
 - Most vendors have a Suite of products (Build, **Deploy**, **Release**)
 - Focus on Deploy and Release
 - Licensing cost can be a barrier to entry
 - Can be time consuming and costly to implement multiple products
- **Open Source options**
 - Many point tools (**Build**, Deploy, Release)
 - Focus on Build/CI
 - Can be complex and costly; extending CI Servers (e.g. Jenkins)
 - Skills can be a challenge, driven by tool sprawl

FlexDeploy DevOps Platform



- ✓ Comprehensive and Integrated Build, Deploy, Release
- ✓ Automation, Controls, Visibility
- ✓ 3rd Party Plugins and Integrations
- ✓ Open and Extensible Platform

Pre-Built Plugins & Integrations



Out of the Box Support for Oracle

Database and Tools

- DB as code
- APEX
- ORDS
- JDeveloper
- ADF
- JET
- utPLSQL
- OATS
- SODA
- Forms

Middleware and BI/ETL

- WebLogic
- JMS
- SOA
- OSB
- MDS
- B2B
- MFT
- BPM
- WebCenter
- ODI
- OBIEE

Applications

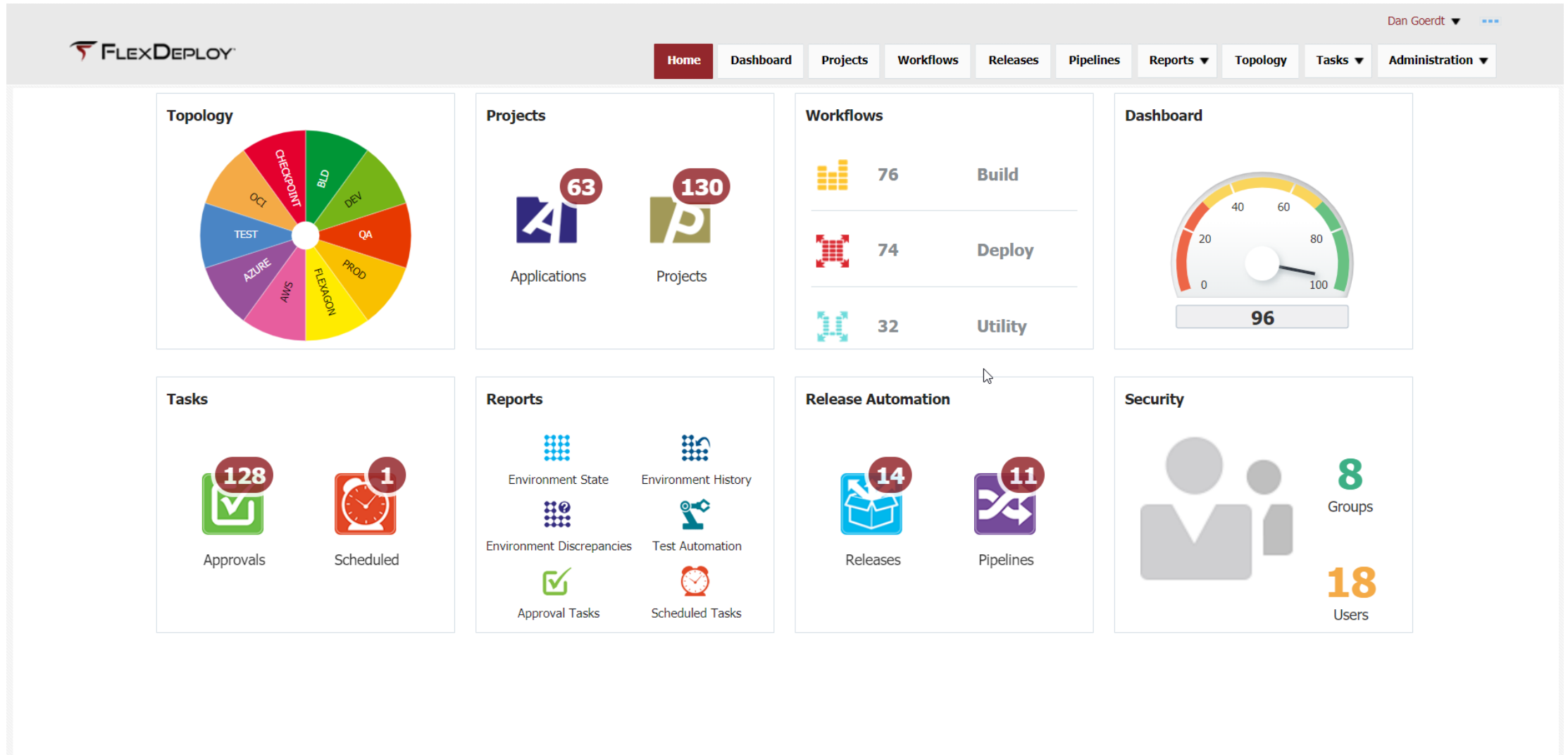
- E-Business Suite

Cloud

- IaaS Compute
- IaaS Storage
- IaaS Container
- PaaS Java
- PaaS SOA
- PaaS Integration
- PaaS API Platform
- PaaS Database
- PaaS ACC
- Terraform (Hashicorp)

FlexDeploy Demo

FlexDeploy Homepage



Workflows Eliminate Manual Tasks and Scripting

The screenshot displays the FlexDeploy web interface. At the top, the 'Workflows' tab is selected in the navigation bar. The left sidebar shows a tree view of various components, including 'Oracle Cloud PaaS', 'Oracle DB and Tools', and 'Oracle E-Business Suite'. The main area shows the 'Definition' tab for a workflow named 'DeployEBS [1.24] (Read-only)'. The workflow is updated on 02/15/2019 09:55 by user 'karl'. The workflow steps are: 'Deploy EBS' (represented by a puzzle piece icon), followed by 'Compile Invalids if Necessary' (represented by a red cross icon). An 'If' condition is shown: 'DeployedTypes != null && DeployedTypes.contains("SQL")'. If this condition is true, the step 'compileInvalidSqls' (represented by a puzzle piece icon) is executed. The workflow ends with a red cross icon. On the right, the 'Workflow Operations' and 'Plugin Operations' sections are visible, showing a list of available plugins for the 'ebs' category.

FlexDeploy

Home Dashboard Projects **Workflows** Releases Pipelines Reports Topology Tasks Administration

Workflows + ↺ 📊 🔍

Main Definition Referenced By

✓ DeployEBS [1.24] (Read-only) Make Copy Switch Version 1.24 * Save Activate Revert

Updated On 02/15/2019 09:55 Updated By karl 🔍 (x)= Source

Deploy EBS

↓

Compile Invalids if Necessary

▲ If + Else If + Else

▲ DeployedTypes != null && DeployedTypes.contains("SQL")

compileInvalidSqls

↓

Workflow Operations

Plugin Operations

ebs

Oracle EBS

- abortWorkflowServices
- activateWorkflowServices
- adcGenerateJar
- adopAbort
- adopCleanup
- adopCutover
- adopFinalize
- adopPrepare
- applyOraclePatches
- build
- compileInvalidSqls
- deactivateWorkflowService
- deploy
- executeCommand
- generateCustomJar
- restartConcurrentManager
- restartFormsServer
- restartOACore
- startAll

Workflows Eliminate Manual Tasks and Scripting

Oracle Database

- ✳ compileInvalid
- ✳ createBaseline
- ✳ dropUnusedColumns
- ✳ recreateBuildDB
- ✳ refreshMView
- ✳ synchronize

Oracle Database Cloud

- ✳ buildInstance
- ✳ createInstance
- ✳ instanceExists
- ✳ instanceIsRunning
- ✳ restartInstance
- ✳ startInstance
- ✳ stopInstance

Oracle WebLogic

- ✳ adminServerStart
- ✳ adminServerStop
- ✳ createOrUpdateDataSources
- ✳ createOrUpdateEISEntries
- ✳ createOrUpdateJMSObjects
- ✳ createOrUpdateWeblogicConfig
- ✳ createOrUpdateWorkManagers
- ✳ deploy
- ✳ DeployAndImportOWSMPolicy
- ✳ domainRestart
- ✳ domainStart
- ✳ domainStop
- ✳ executeWLST
- ✳ executeWLSTScriptFile
- ✳ generateEISDeploymentPlans
- ✳ ImportOWSMPolicy
- ✳ libraryDeploy
- ✳ libraryUndeploy
- ✳ managedWeblogicRestart

Oracle Integration Cloud

- ✳ activateIntegration
- ✳ buildIntegration
- ✳ createConnectionPlan
- ✳ deactivateIntegration
- ✳ exportConnections
- ✳ exportIntegration
- ✳ exportLibrary
- ✳ exportLookup
- ✳ exportUpdatedIntegrations
- ✳ importIntegration
- ✳ importLibrary
- ✳ importLookup
- ✳ runIntegration
- ✳ updateConnections

Oracle SOA Cloud

- ✳ addManagedServer
- ✳ buildInstance
- ✳ createInstance
- ✳ instanceExists
- ✳ instanceIsRunning
- ✳ listManagedServers
- ✳ removeManagedServer
- ✳ scaleManagedServer
- ✳ startInstance
- ✳ stopInstance

Oracle SOA Suite

- ✳ bpmBuild
- ✳ bpmDeploy
- ✳ purge
- ✳ soaBuild
- ✳ soaDeploy
- ✳ soaStart
- ✳ soaStop
- ✳ undeploy

Docker

- ✳ buildImage
- ✳ connectNetwork
- ✳ createContainer
- ✳ disconnectNetwork
- ✳ killContainer
- ✳ pushImage
- ✳ removeContainer
- ✳ runContainer
- ✳ startContainer
- ✳ stopContainer
- ✳ tagImage

Kubernetes

- ✳ apply
- ✳ delete
- ✳ exec
- ✳ label
- ✳ run
- ✳ scale

FlexDeploy Project Configuration

FLEXDEPLOY Dan Goerd

Home Dashboard **Projects** Workflows Releases Pipelines Reports Topology Tasks Administration

Project Explorer

- APEX
- Apigee
- BusinessIntelligence
- BusinessToBusiness
- Containers
- DeploymentStrategies
- EBSCustomizations
- EBS_Customizations
 - HR**
 - XXHR**
- EBS_Other
- Finance
- Generic Partials
- HRPortal
- HumanResources
 - HRApp**
 - HRDBObjects
 - HRJavaApp
 - HRMDSObjects
 - HRSOAService
 - HRSpringApp
 - HRWLSConfigurations
 - OICLookups
 - ProcessHRRRequest

Project Configuration Save Revert

*** Active** Yes **SCM Type** Git

*** Priority** 1 **Priority Scope** Application

Description EBS Customizations

Build Workflow

Build Workflow BuildEBS **Build Instance** EBS 12.1.3

Deploy Workflow

Deploy Workflow DeployEBS **Deploy Instance(s)** EBS 12.1.3

SCM Configuration + Add Source

Source 1

*** Git Instance** Git Demo

*** Branch Name Script** StreamName (x)=

*** Tag Name Script** ProjectVersion (x)=

Sparse Checkout Folders Script "EBSCustomizations/XXHR" (x)=

Checkout Folder Script ProjectName (x)=

Streams + Create Stream Show Inactive

*** Stream Name** master

*** Version Syntax Script** "4.0." + SequenceNumber (x)=

Attribute1

Attribute2

Description

FlexDeploy Projects

FLEXDEPLOY Dan Goerd ▾

Home Dashboard **Projects** Workflows Releases Pipelines Reports ▾ Topology Tasks ▾ Administration ▾

Project Explorer XXHR x

View ▾ 📁 📄 📊


- ▶ APEX
- ▶ Apigee
- ▶ BusinessIntelligence
- ▶ BusinessToBusiness
- ▶ Containers
- ▶ DeploymentStrategies
- ▶ EBSCustomizations
- ▶ EBS_Customizations
 - ▶ **HR**
 - XXHR
- ▶ EBS_Other
- ▶ Finance
- ▶ Generic Partials
- ▶ HRPortal
- ▶ HumanResources
 - ▶ HRApp
 - HRDBObjects
 - HRJavaApp
 - HRMDSObjects
 - HRSOAService
 - HRSpringApp
 - HRWLSConfigurations
 - OICLookups
 - ProcessHRRequest

Project ID - 195743 (FlexDeploy / EBS_Customizations / HR) Refresh Packages Build ▾ Deploy Test

Project Activity View ▾ Filter

Workflow Requests				Workflow Executions								
Request Id	Request Status	Requested By	Requested On	Environment	Instance	Workflow Type	Status	Package Name	Project Version	Stream	Execution Id	Start Time
924916	Submitted	stepworker	03/21/2019 00:55	Development	EBS 12.1.3	TEST	Running	4.0.1652 (All Files)	4.0.1652	master	1260803	03/21/2019 C
924852	Completed	gateworker	03/21/2019 00:53	Development	EBS 12.1.3	DEPLOY	Success	4.0.1652 (All Files)	4.0.1652	master	1260738	03/21/2019 C
924842	Completed	dan.goerd	03/21/2019 00:53	Development	EBS 12.1.3	BUILD	Success	4.0.1652 (All Files)	4.0.1652	master	1260717	03/21/2019 C
923606	Completed	gateworker	03/17/2019 04:44	Production	EBS 12.1.3	DEPLOY	Success	4.0.1651 (All Files)	4.0.1651	master	1256802	03/17/2019 C
923499	Completed	gateworker	03/17/2019 04:42	QA	EBS 12.1.3	DEPLOY	Success	4.0.1651 (All Files)	4.0.1651	master	1256597	03/17/2019 C
923459	Completed	stepworker	03/17/2019 04:41	Development	EBS 12.1.3	TEST	Success	4.0.1651 (All Files)	4.0.1651	master	1256493	03/17/2019 C
923266	Completed	gateworker	03/17/2019 04:39	Development	EBS 12.1.3	DEPLOY	Success	4.0.1651 (All Files)	4.0.1651	master	1256296	03/17/2019 C
923256	Completed	dan.goerd	03/17/2019 04:38	Development	EBS 12.1.3	BUILD	Success	4.0.1651 (All Files)	4.0.1651	master	1256275	03/17/2019 C
923102	Completed	chandresh	03/16/2019 07:15	Development	EBS 12.1.3	DEPLOY	Success	ALM-150	4.0.1650	master	1255501	03/16/2019 C
922950	Completed	gateworker	03/15/2019 12:58	QA	EBS 12.1.3	DEPLOY	Success	ALM-152	4.0.1628	master	1255282	03/15/2019 1
922938	Completed	gateworker	03/15/2019 12:57	Development	EBS 12.1.3	DEPLOY	Success	ALM-152	4.0.1628	master	1255260	03/15/2019 1
922935	Completed	dan.goerd	03/15/2019 12:57	Development	EBS 12.1.3	BUILD	Success	ALM-150	4.0.1650	master	1255239	03/15/2019 1
922923	Completed	dan.goerd	03/15/2019 12:51	Development	EBS 12.1.3	DEPLOY	Success	4.0.1649	4.0.1649	master	1255211	03/15/2019 1
922917	Completed	dan.goerd	03/15/2019 12:50	Development	EBS 12.1.3	BUILD	Success	4.0.1649	4.0.1649	master	1255190	03/15/2019 1
922905	Completed	dan.goerd	03/15/2019 12:45	Development	EBS 12.1.3	DEPLOY	Success	4.0.1648 (All Files)	4.0.1648	master	1255128	03/15/2019 1

Workflow Execution



HomeDashboardProjectsWorkflowsReleasesPipelinesReports▼TopologyTasks▼Administration▼

Project Explorer

View ▾

- ▶ APEX
- ▶ Apigee
- ▶ BusinessIntelligence
- ▶ BusinessToBusiness
- ▶ Containers
- ▶ DeploymentStrategies
- ▶ EBSCustomizations
- ▶ EBS_Customizations
 - ▶ HR
 - XXHR
- ▶ EBS_Other
- ▶ Finance
- ▶ Generic Partials
- ▶ HRPortal
- ▶ HumanResources
 - HRApp
 - HRDBObjects
 - HRJavaApp
 - HRMDSObjects
 - HRSOAService
 - HRSpringApp
 - HRWLSConfigurations
 - OICLookups
 - ProcessHRRequest

XXHR x

Project Workflow Execution (Deploy workflow on EBS 12.1.3 Instance in QA Environment) - Continuous Deployment of E-Business Suite

Promote to ReleaseBack

Request Id	924921	Project Version	4.0.1652	Requested By	gateworker	Start Time	03/21/2019 00:56	Status	Success
Execution Id	1260845	Stream	master	Requested On	03/21/2019 00:56	End Time	03/21/2019 00:58	Package Name	4.0.1652 (All Files)

Execution Steps (DeployEBS [1.24])ArtifactsFilesChange LogLinksProperties (498)Inputs (0)Outputs (3)Variables (3)Test Results

Deploy EBS

Plugin Call: deploy (FlexagonEBSPlugin)

Plugin invocation status on Endpoint EBSLT01(10.48.0.123:22) and Instance EBS 12.1.3 is SUCCESSFUL. Click to View Logs.

Start Time: 03/21/2019 00:56Duration (seconds): 33.364Success

Compile Invalids if Necessary

If: DeployedTypes != null && DeployedTypes.contains("SQL") ✓

compileInvalidSqls

Plugin Call: compileInvalidSqls (FlexagonEBSPlugin)

Plugin invocation status on Endpoint EBSLT01(10.48.0.123:22) and Instance EBS 12.1.3 is SUCCESSFUL. Click to View Logs.

Start Time: 03/21/2019 00:57Duration (seconds): 58.561Success

Recycle if Java code is deployed

If: DeployedTypes != null && DeployedTypes.contains("OAF_JAVA") ✓


Stop OA Core

Plugin Call: stopOACore (FlexagonEBSPlugin)


Plugin invocation status on Endpoint EBSLT01(10.48.0.123:22) and Instance EBS 12.1.3 is SUCCESSFUL. Click to View Logs.

Start Time: 03/21/2019 00:58Duration (seconds): 8.129Success

17



Pipeline Orchestration



[Home](#) [Dashboard](#) [Projects](#) [Workflows](#) [Releases](#) [Pipelines](#) [Reports ▼](#) [Topology](#)

Pipeline

* Name

Simple Pipeline

Updated On 03/2

Definition

[Team](#) [Properties](#) [Project Groups](#) [Referenced By](#)

Description

Simple 3 stage Pipeline with Approvals, Schedules, Test Gates, and DeployAll steps

Make Copy


Switch Version 0321201

Development

🗑️ ⏪ ⏩ ↺

Gates




Steps

1  Deploy All Projects





QA

🗑️ ⏪ ⏩ ↺

Gates

 Dev Quality Check
 QA Manager Approval
 Daily Deploy to QA at 9pm




Steps

1  Deploy All Projects
2  Functional Regression Test
3  Verify Quality
4  Notify QA Manager





Production

🗑️ ⏪ ⏩ ↺

Gates


 QA Quality Check
 CAB Approval
 Release Manager Approval

Steps

1  Deploy All Projects
2  Notify IT Checkout Group
3  Production Verification - Manual Tests
4  Notify Business Users

+ Add Stage

Robust Pipeline Orchestration



Home Dashboard Projects Workflows Releases **Pipelines** Reports Topology Tasks Administration

Save Apply Cancel

Pipeline

* Name CDRA Pipeline Updated On 09/25/2018 18:52 Updated By fdadmin

Definition Team Properties Project Groups Referenced By

Description Forrester demo pipeline to highlight the power of FlexDeploy!

Make Copy Switch Version 09252018 185156 * (Read-only) Make Active

Development

Gates

Steps

- 1 Deploy Middleware
- 2 Deploy ERP Packages
- 2 Deploy Java Applications
- 2 Deploy SaaS
- 3 Deploy Microservices
- 4 Execute Unit Tests

QA

Gates

- Verify Unit Test Results
- QA Manager Approval
- Every Day at Noon

Steps

- 1 Deploy Middleware
- 2 Deploy ERP Packages
- 2 Deploy SaaS
- 2 Deploy Java Applications
- 3 Deploy Microservices
- 4 Execute Integration Tests
- 5 Send QA Communication

Checkpoint

Gates

- Verify Integration Test Results
- QA Sign-off

Steps

- 1 Final Release Prep
 - 1.1 Deployment Plan Review
 - 1.2 Send Outage Communication
- 1 External Release Communication
 - 1.1 Send Press Release
 - 1.2 Send Customer Communication

Production

Gates


- Change Management Approval
- Release Manager Sign-off
- Schedule Saturday 9pm

Steps

- 1 Deploy Middleware
- 2 Deploy ERP Packages
- 2 Deploy SaaS
- 2 Deploy Java Applications
- 3 Deploy Microservices
- 4 Check Microservices
- 5 Switch Blue to Green
- 6 Release Verification
- 7 Finishing Release
- 8 Release Communication

+ Add Stage

Release Dashboard



flexdeploy admin

HomeDashboardProjectsWorkflowsReleasesPipelinesReportsTopologyTasksAdministration

Weekly E-Business SuiteSnapshot 06-24-2018 17:22:42STARTEDSimple PipelineRefreshBack

Pipeline Executions

Search

06-25-2018 14:59:34

Running

06/25/2018 15:00 -

06-24-2018 17:22:42

Running

06/24/2018 17:23 -

06-17-2018 20:04:07

Successful

06/17/2018 20:04 - 06/24/2018 17:38

06-14-2018 19:27:46

Successful

06/14/2018 - 06/17/2018

Execution

CAB Approval on Production1 d 17 h 34 min

Snapshot Content1

Development

Successful

Gates

Steps

1.Deploy All Projects

2.Manual check

QA

Successful

Gates

Steps

1.Deploy All Projects

2.Functional Regression Test

3.Notify QA Manager

Production

Current Gate CAB Approval

Gates

Steps

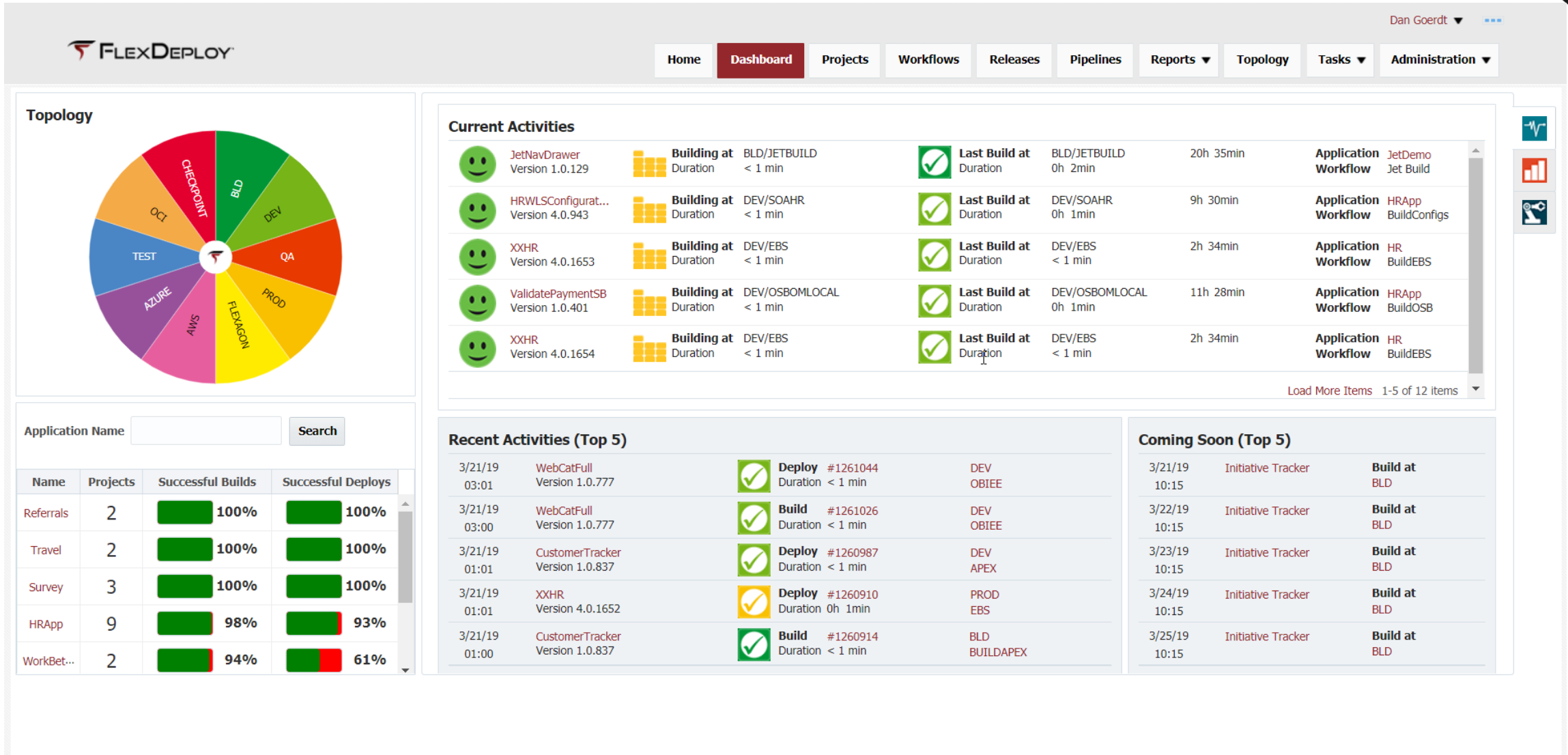
1.Deploy All Projects

2.Notify IT Checkout Group


3.Production Verification - Manu...

4.Notify Business Users

Dashboards



Reports



[Home](#)
[Dashboard](#)
[Projects](#)
[Workflows](#)
[Releases](#)
[Pipelines](#)
[Reports](#)
[Topology](#)
[Tasks](#)
[Administration](#)

Dan Goerdt

Environment History

Environment: Development
Instance:

Status:
Workflow Type:

Requested On: 03/19/2019 03:24 - 03/21/2019 03:24
Release:

Show File Level Details ☒
Search
Reset
Advanced

View
Export

Ref #	Workflow Type	Status	Environment	Instance	Path	Project Name	Project Version	SCM Revision	Package Name	File Name (with Path)	File Status	Workflow Name
P-925068	Deploy	Success	Development	OBIEE (12c)	FlexDeploy / BusinessIntelligence / We...	WebCatFull	1.0.777					DeployOBI
P-925065	Build	Success	Development	OBIEE (12c)	FlexDeploy / BusinessIntelligence / We...	WebCatFull	1.0.777					BuildOBI
P-925037	Deploy	Success	Development	APEX Server	FlexDeploy / APEX / CustomerTracker	CustomerTracker	1.0.837					DeployAPEX
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/workflows/US/POSAPSPE.wfx		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/forms/FABAL.pll		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/publisher/XXHR_BIP_ROSTER.xls		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/publisher/XXHR_BIP_ROSTER.xml		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/publisher/XXHR_BIP_ROSTER.pdf		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/publisher/XXHR_BIP_ROSTER.rtf		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652	a4a5d8ac0c9f	4.0.1652 (All Files)	/sql/XXHR_PER_SOCIETIES_DATA.sql		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652		4.0.1652 (All Files)	GLB_HR_POSITION.Idt		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652		4.0.1652 (All Files)	HR_US_EIN.Idt		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652		4.0.1652 (All Files)	AST_RC_ALL.Idt		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652		4.0.1652 (All Files)	APXVDMVD.Idt		TestWorkflow
S-206423	Test	Success	Development	EBS 12.1.3	FlexDeploy / EBS_Customizations / HR	XXHR	4.0.1652		4.0.1652 (All Files)	/publisher/APXSBLX_1.rtf		TestWorkflow