Continuous Delivery Pipelines

Automating the value stream through Continuous Release

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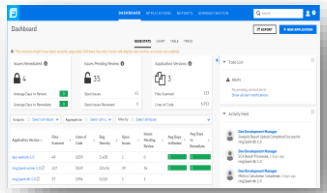
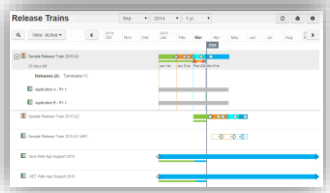
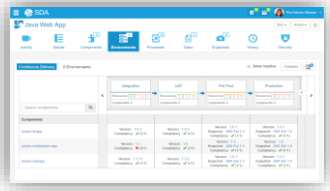
DevOps and Release Management Webinars (UK)



- **Automating DevSecOps**: How to embed security into your continuous delivery pipelines



- **Enterprise DevOps**: Release Management for the multi-modal Enterprise



- **Continuous Delivery Pipelines**: Automating the value stream through continuous release

https://www.microfocus.com/campaign/serena-release-management/

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Agenda

01. Application Release Challenges

02. Implementing Continuous Delivery

03. Micro Focus Solutions

04. Demonstration

05. Q&A

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Application Release Challenges

Modern Software Lifecycle Disruptions

METHODOLOGY
DevOps Adoption

Waterfall

Iterative

Agile

DevOps

APPLICATIONS
Software Complexity

Monolithic

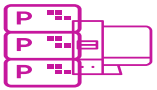
Client-Server

N-Tier

Microservices + APIs

INFRASTRUCTURE
Cloud Transformation

Mainframe


Open Systems

Virtualization/Cloud

Cloud Native

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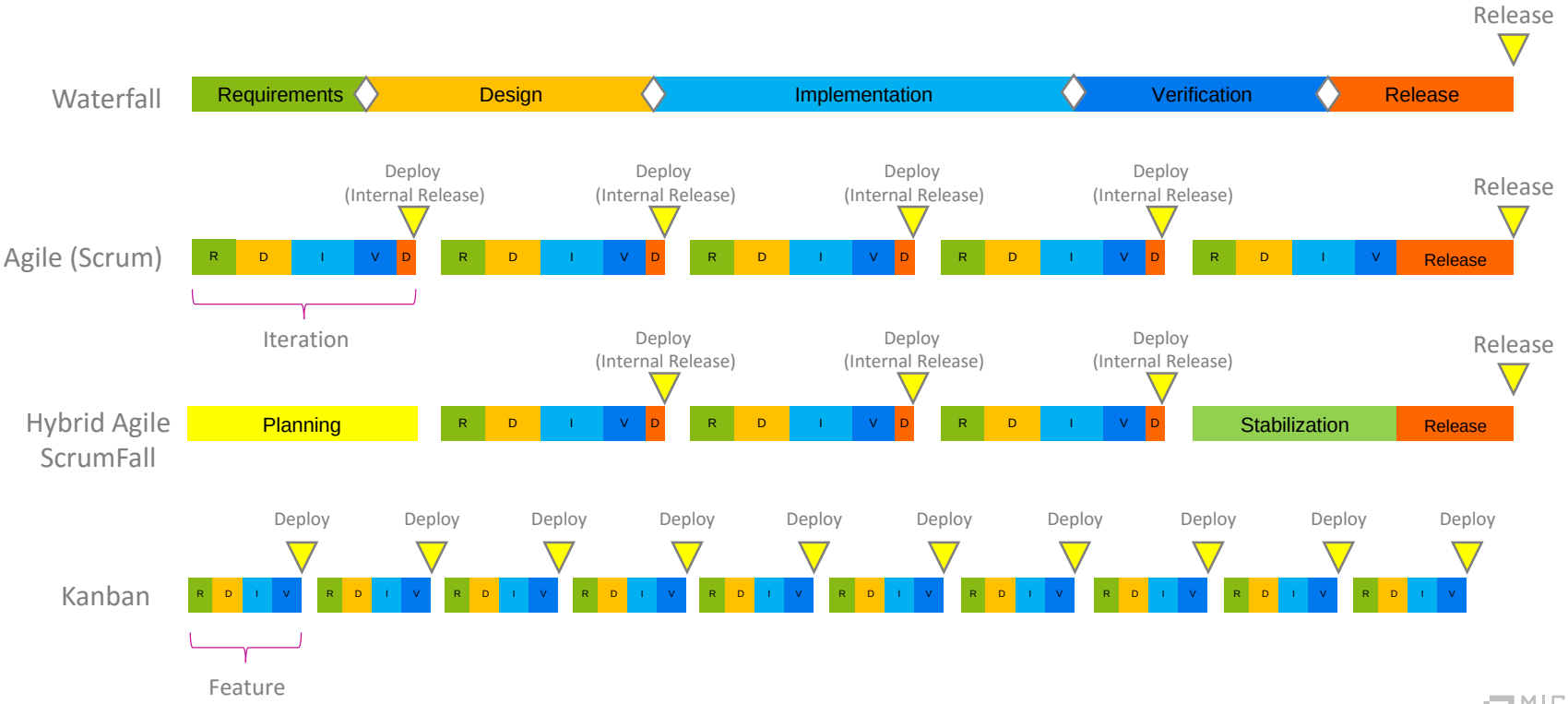
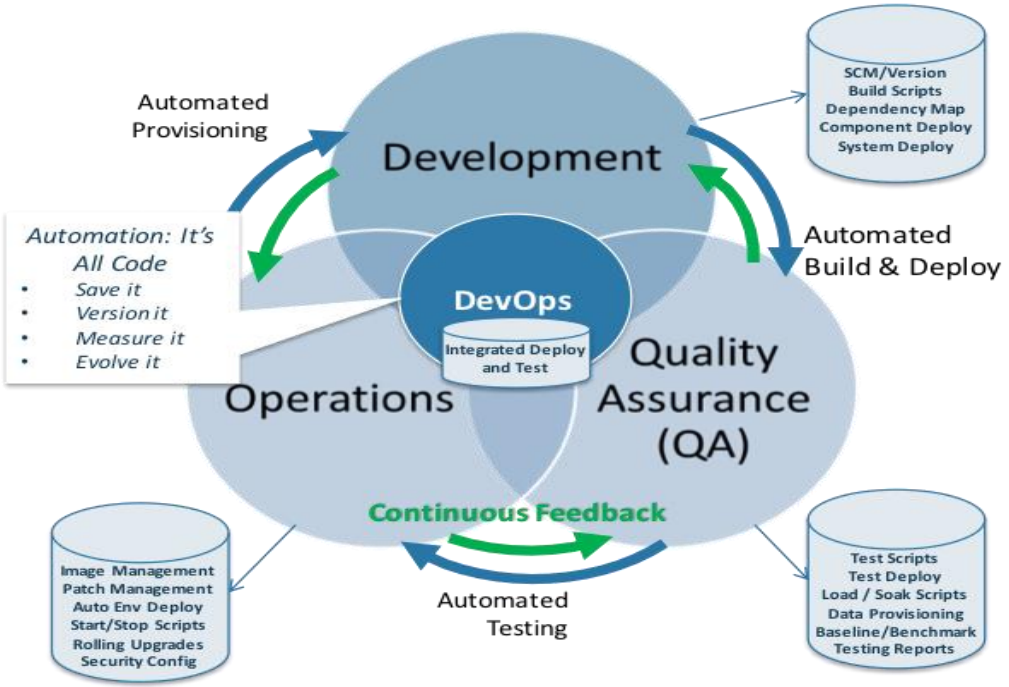
Shift to Continuous Releases



Adoption of DevOps

DevOps *(development and operations) is an enterprise software development phrase used to mean a type of agile relationship between development and IT operations. The goal of* ***DevOps*** *is to change and improve the relationship by advocating better communication and collaboration between these two business units.* (webopedia.com)



Release Management?

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Adoption of DevOps – Many different meanings

People - Culture

Systems Thinking

Value Stream Management

Continuous Feedback

Multidisciplinary Teams

Autonomous Teams

Experimentation & Learning

Process - Techniques

Agile

Continuous Delivery

Application Performance Management

Microservices

Shift Left

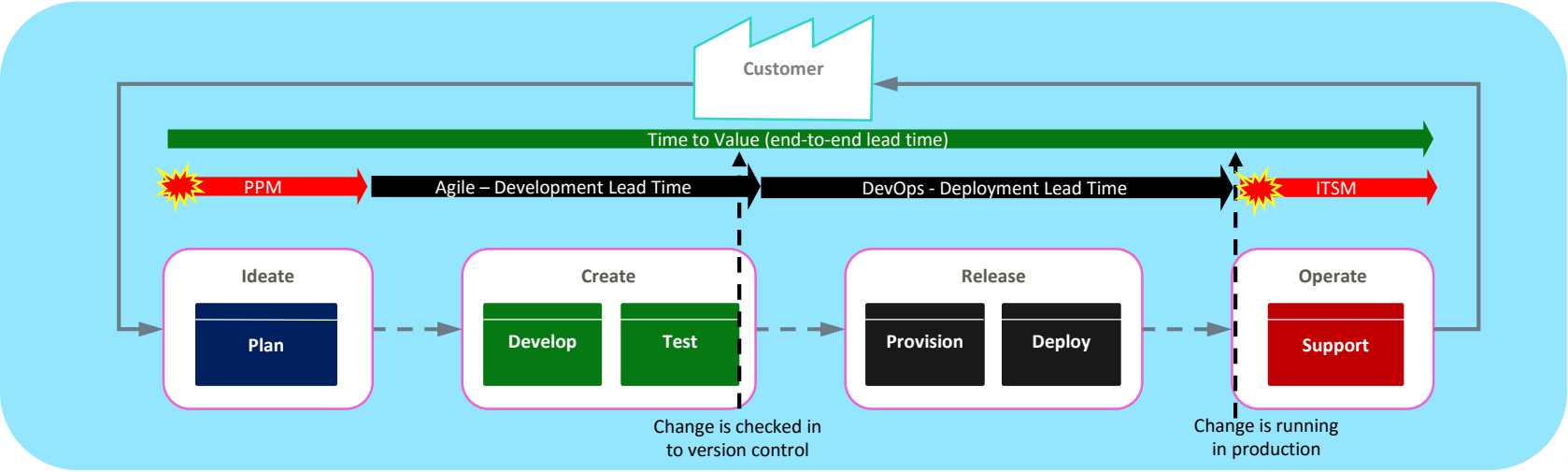
Release Management

Containerization

Infrastructure as Code

Tools - Automation

Value Stream Management



- A value stream is the sequence of activities an organization undertakes to deliver on a customer need
- Value stream per product, application or service
- Organizations have focused on reducing waste by optimising Agile and now DevOps Lead Times
- But still struggle with visibility & management at cross product (portfolio) level and optimizing value in approval centric IT environment (service)

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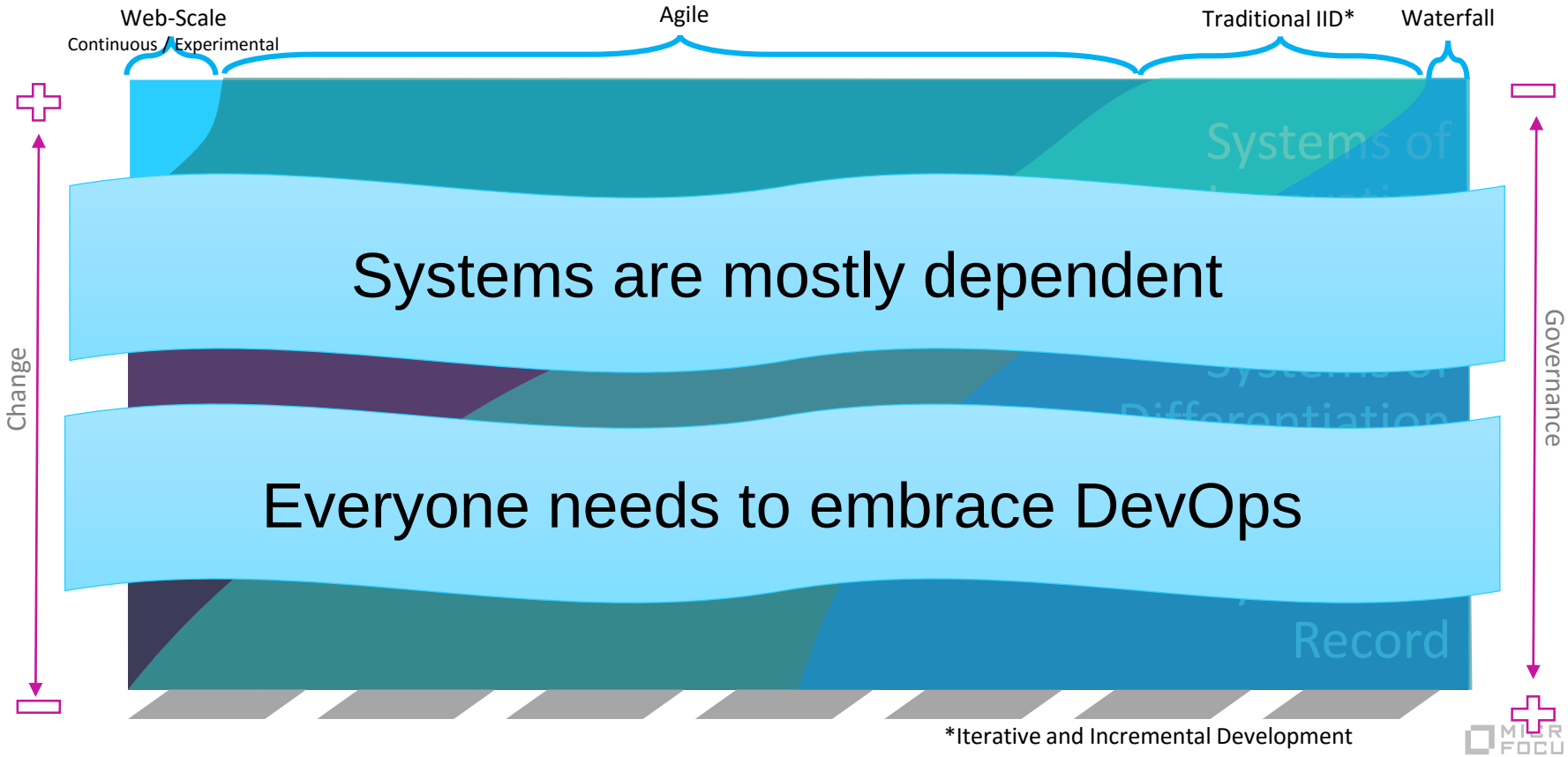
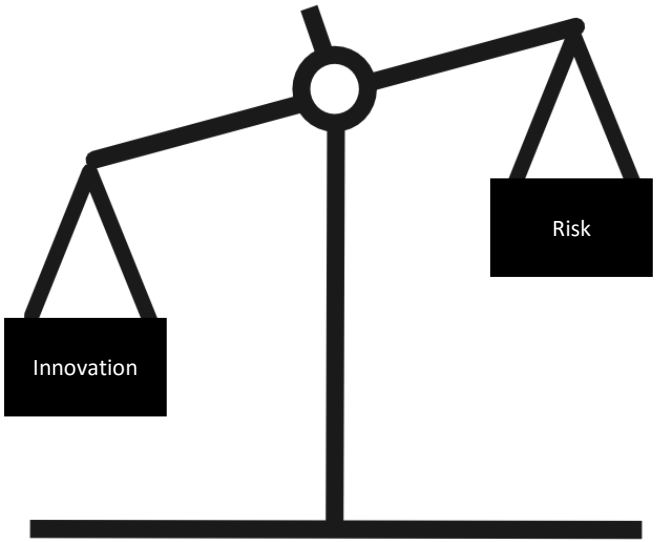
Most Organisations are “Multi-modal”



*Iterative and Incremental Development

And need to Balance Agility and Control

"Move fast without breaking things"



Governance, Risk and Compliance	Sarbanes-Oxley, PCI-DSS, HIPAA …	Segregation of Duties	Information Security, Audit
Multi-platform Development	Distributed	Mainframe	Mobile
Dependent Applications	Integration to Core Systems, Back Office Systems	Integration to third-party providers	
Shared Environments	Multiple Apps running on Infrastructure	Schedule Access to Test	
Customer Representative Environments	Performance Testing		

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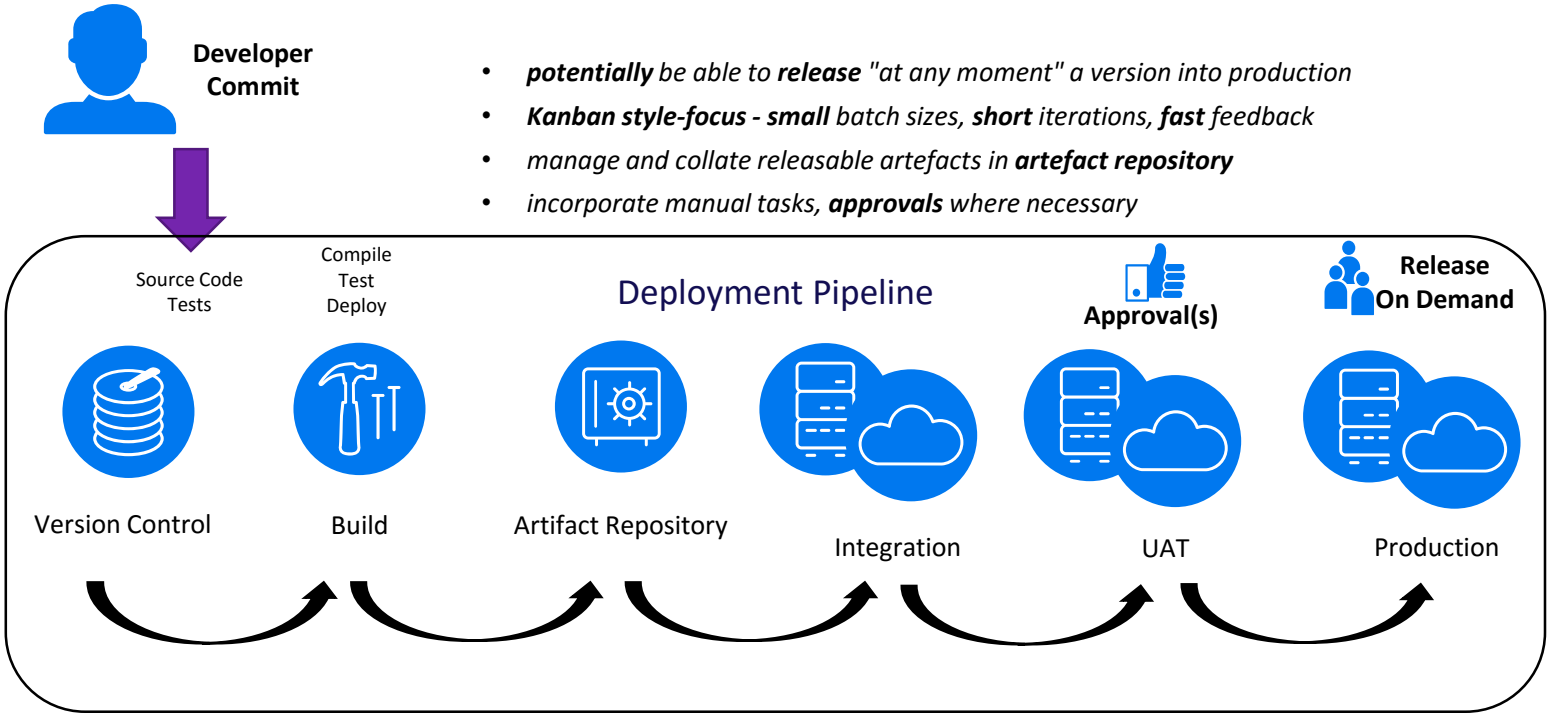
Implementing Continuous Delivery

What is Continuous Delivery?



- ***potentially*** *be able to* ***release*** *"at any moment" a version into production*
- ***Kanban style-focus - small*** *batch sizes,* ***short*** *iterations,* ***fast*** *feedback*
- *manage and collate releasable artefacts in* ***artefact repository***
- *incorporate manual tasks,* ***approvals*** *where necessary*

Continuous Delivery

Continuous Deployment = fully automated Developer push to production

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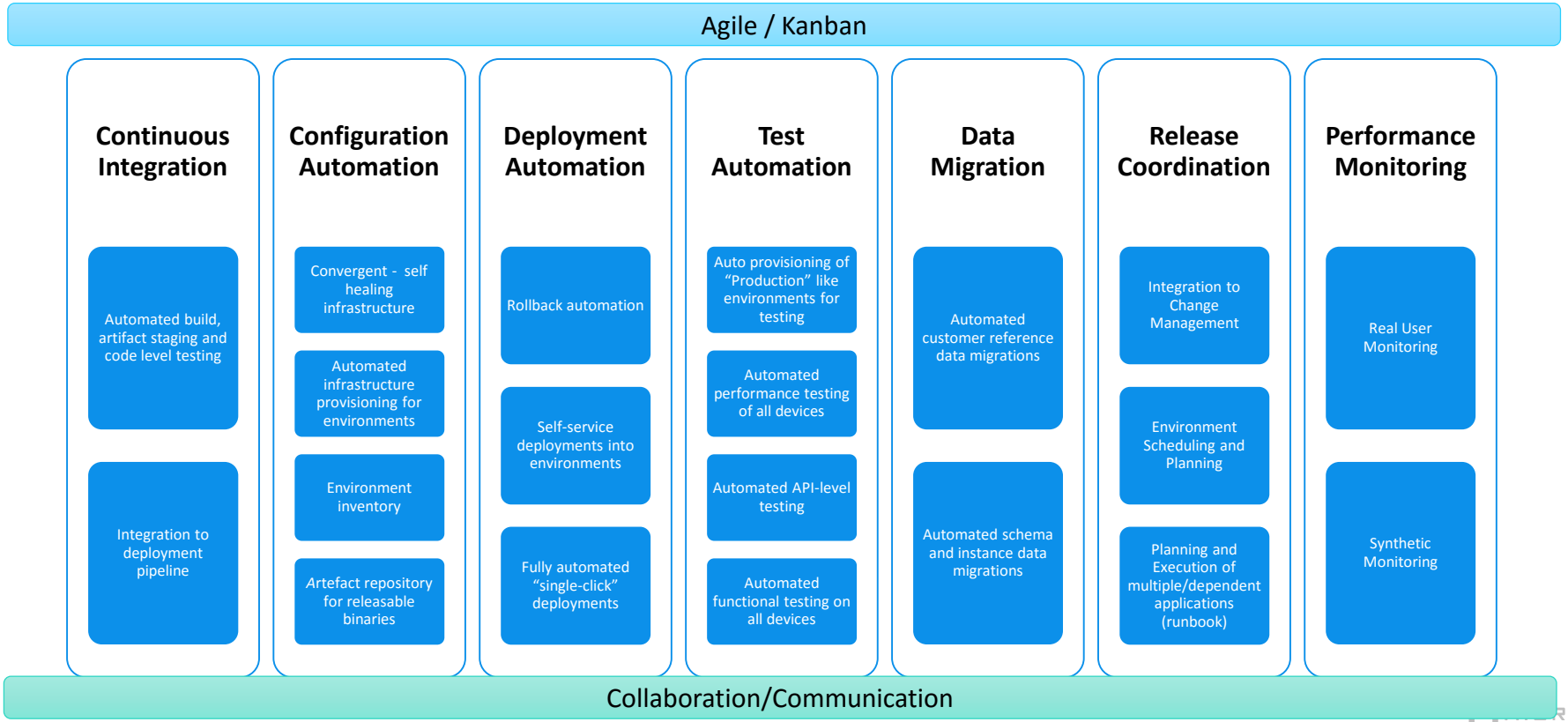
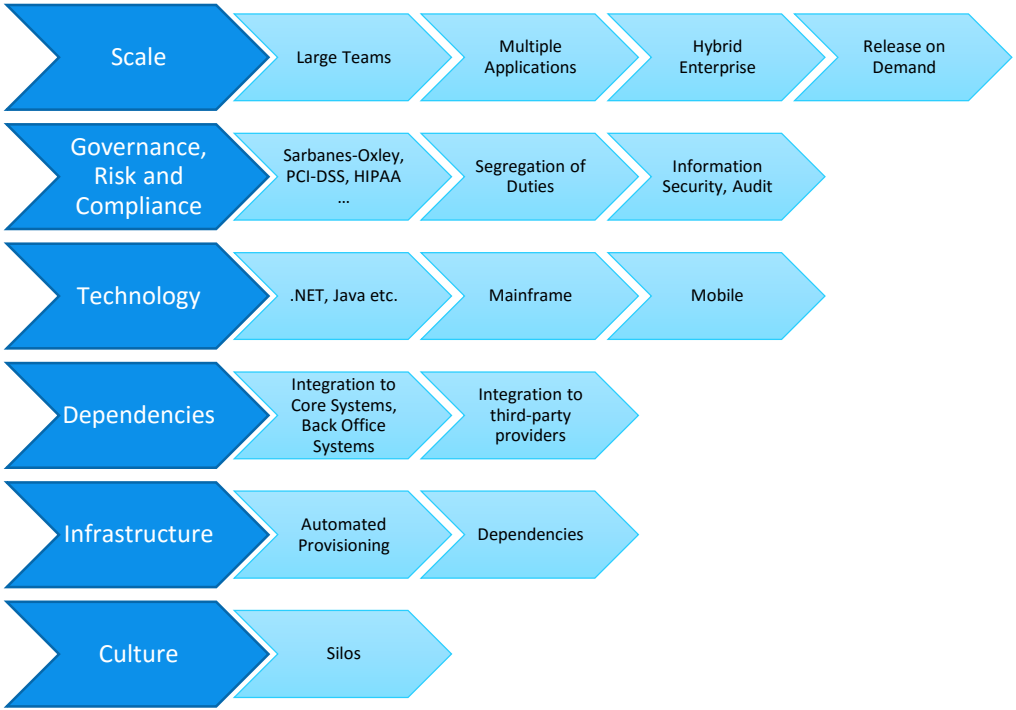
Example Continuous Delivery Capabilities



Continuous Delivery Challenges



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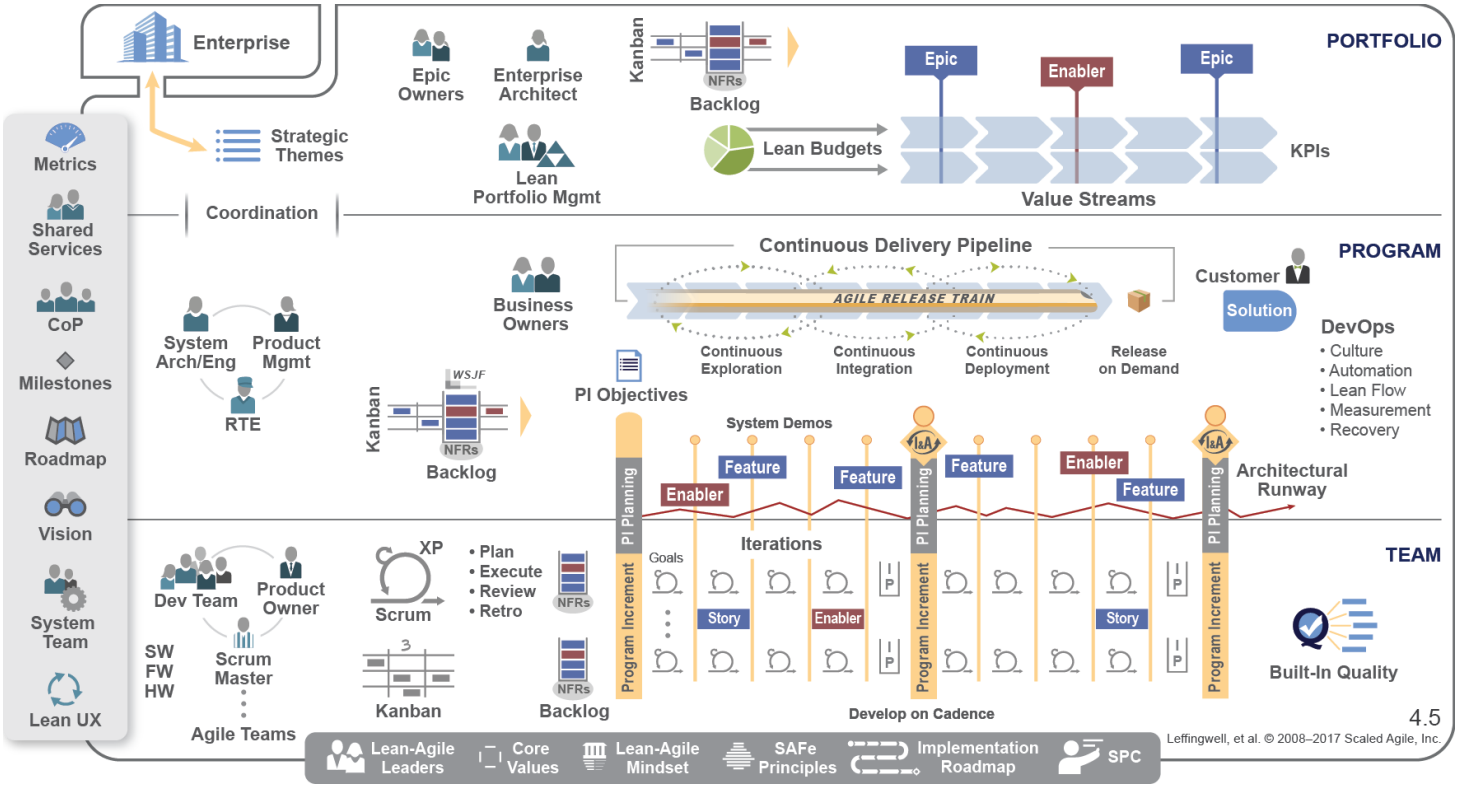
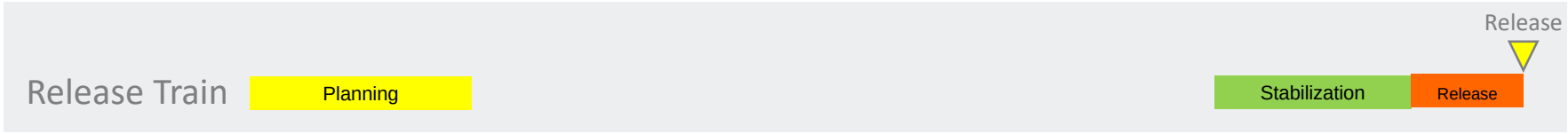
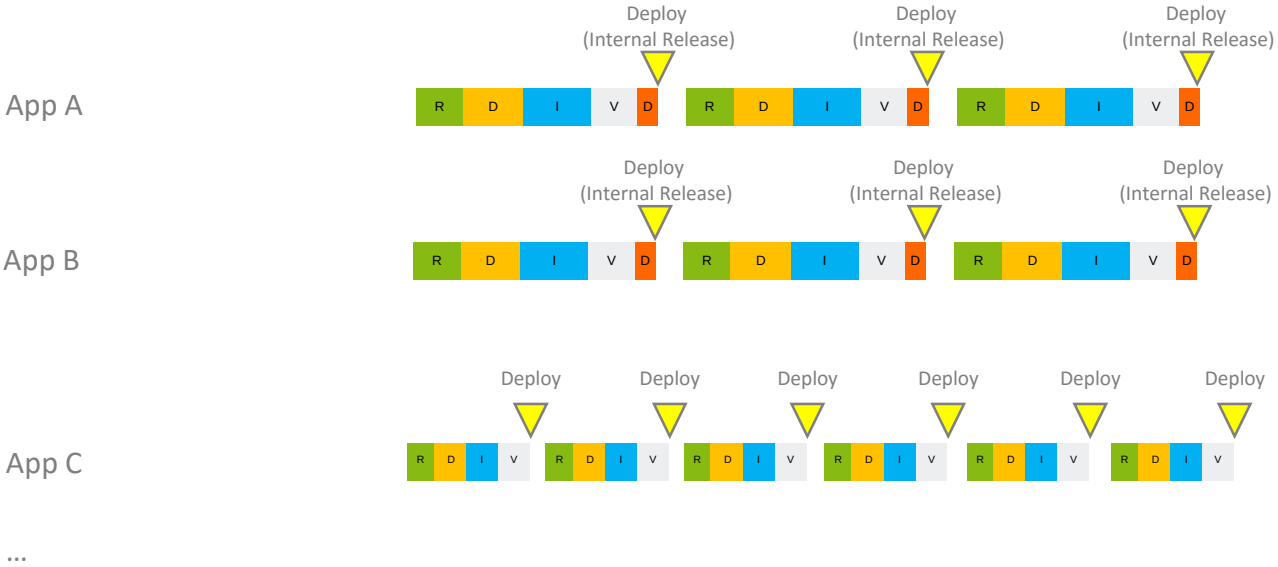
Scaled Agile Framework (SAFe)?



Continuous Delivery & Release Management



(recurring frequency, i.e. every month/quarter)



Automate for All Technologies

Type	Examples	Automation Process
Flat File	HTML, PHP	File Transfer
Scripted (direct)	Shell, Batch	File Transfer, Execute Directly
Scripted (command)	SQL,MQ,Forms	File Transfer, Incremental, Adhoc Execution
Installer	MSI,RPM,DAC	File Transfer, Execute via Command
Extract and Load	Siebel, SAP, Informatica	Extract from Environment A, Transfer and Load into Environment A via Commands
Application Archive	WARs,EARs (WebSphere,JBoss)	File Transfer, Deploy into App Server via APIs
Container	Docker	Pull Images from Tag, Stop/Start Container via Commands
Configuration	Property Files	File Transfer, Replace Tokens
Batch Jobs	Mainframe Cobol	Promote, Schedule Execution

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Adhoc Deployment Manifest Example

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<release>
    <name>Adhoc Deployment Example</name>
    <description>Release file for System A</description>
    <system>System A</system>
    <subsystem>Customer Portal</subsystem>
    <date>24/06/2017</date>
    <version>1.2</version>
    <deployment>
        <files>
            <file name="somefile.sh" type="script" version="1.6" source="somedir/bin"
               destination="$SOME_HOME/bin" copy="true" chmod="755" execute="true"/>
            …
        </files>
    </deployment>
    <rollback>
        …
    </rollback>
</release>
```

Release details with “deployment” and “rollback” sections

type=script|sql|file
Determines type of file and what to automate

Version=[SCM Version]
Input manually or automatically from SCM

copy=true|false
Copy file from source to destination, chmod if necessary

Execute=true|false
Execute the file automatically

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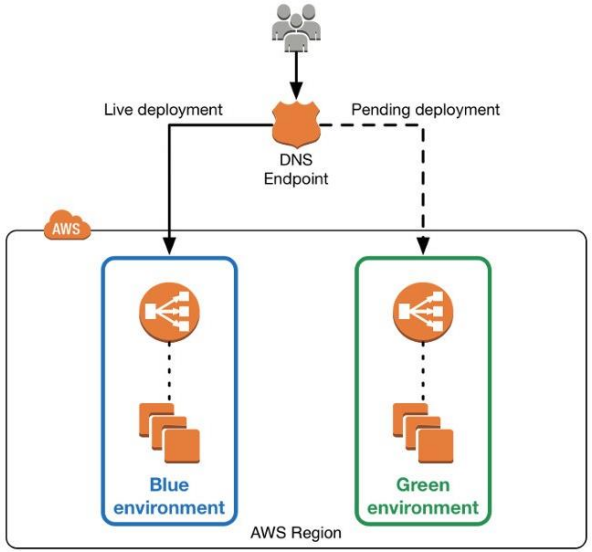
Decouple Release from Deployment



Rolling Deployments

- New versions deployed onto a limited set of servers to see how they perform
- Typically load balancer points at multiple current versions and one instance of new “canary” release

Blue-Green Deployment

- Running versions of your app in “blue” production environment
- New versions deployed to “green” environment, switched over (via “load balancer” on successful deployment, test ….

Configuration Updates

- No code deployment, only make changes to configuration files (debugging / feature flags)

Feature Flags

- Turn already deployed features on/off through updates in configuration

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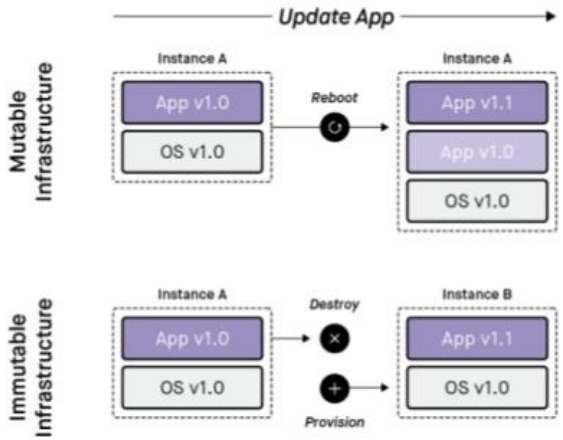
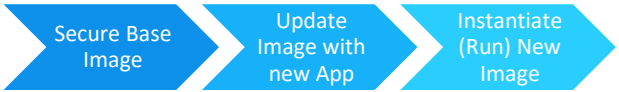
Implement immutable infrastructure





- Next level on from Blue-Green deployment
  - ~~Deploy onto existing infrastructure!~~
  - Programmatically spin up new servers for each new application deployment
- Guarantees validity / security of infrastructure and remediates configuration drift
- Really needs Infrastructure as a Service platform.
- Can similarly be implemented using containerization (Docker) – but base image needs to be secure.

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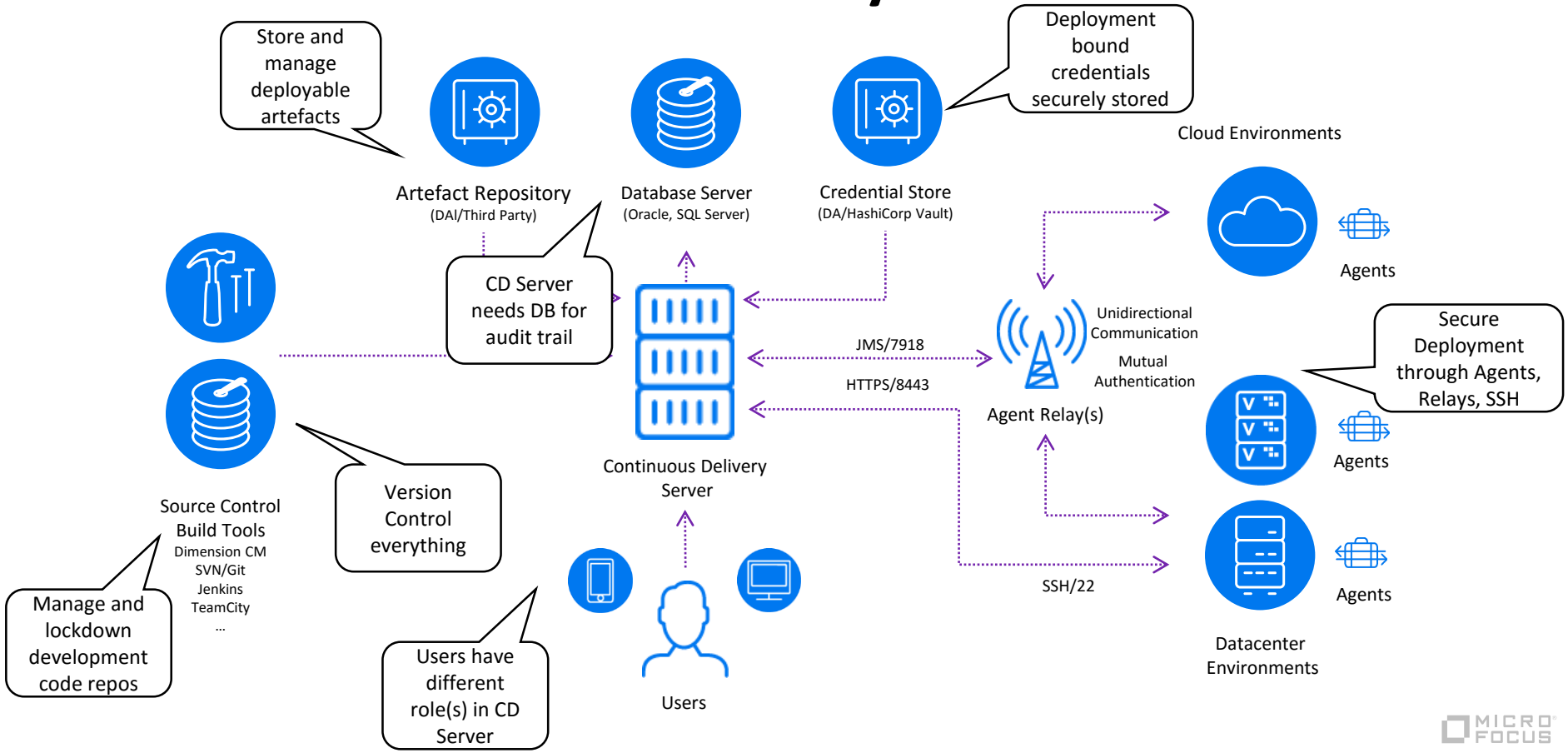
Harden Continuous Delivery infrastructure



Micro Focus Solutions

Micro Focus Portfolio and Lifecycle Management

Accelerating an organization's ability to securely deliver high-quality applications at enterprise scale and manage, track, and unlock the value of investments you've already made.

REPORTING | ANALYTICS | E2E TRACEABILITY

PRODUCT & PORTFOLIO MGMT.

- Portfolio Plan
- Product and Hybrid Project Plan
- Financials
- Require
- Resource

SOFTWARE DELIVERY AND QUALITY MGMT.

- Bi-Modal Execution
- 01101 SCCM
- Quality
- Build
- Open Integrations

RELEASE MANAGEMENT

- Digital | Packaged | Mainframe
- Deploy Auto
- Release Control
- SDLC Gov
- Hybrid Infrastructure

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Micro Focus Release Management Solutions

Deployment Automation

orchestrate ● automate ● deploy ● audit

ORCHESTRATE COMPLEX DEPLOYMENTS
ACROSS ALL ENVIRONMENTS

Release Control

plan ● track ● deliver ● integrate ● audit

PLAN, TRACK, MONITOR AND
RELEASE COMPLEX APPLICATIONS
ACROSS ANY TECHNOLOGY

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Micro Focus Portfolio| End-to-End DevOps

PLAN

Project, Portfolio and Requirements

- Project & Portfolio Mgmt
- Atlas
- Caliber
- Dimensions RM
- Rhythm

Mainframe + COBOL

- Enterprise Developer
- Visual Cobol

OPERATE

Application and User Monitoring

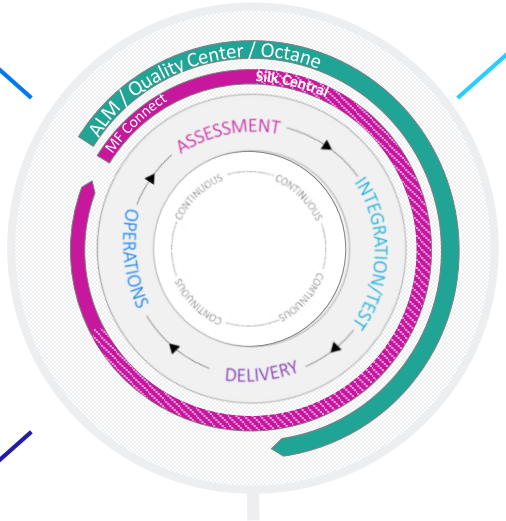
- AppPulse
- Silk Performance Manager

IT Operations

- Hybrid Cloud Automation
- Data Center Automation

RELEASE/DEPLOY

- Release Control
- Deployment Automation



Data Insights

- Vertica

BUILD

Software Change & Configuration Mgmt

- AccuRev
- Dimensions CM
- Star Team
- PVCS

Mainframe + COBOL

- ChangeMan
- StarTool
- ESync

TEST

Functional Test

- UFT
- BPT
- Sprinter
- StormRunner Functional
- Silk Test
- Silk WebDriver

Performance Test

- LoadRunner
- Performance Center
- StormRunner Load
- Silk Performer

Security Test

- Fortify

Digital Lab

- Mobile Center
- Service Virtualization
- Network Virtualization

Micro Focus **Deployment Automation**

Deployment Automation enables repeatable, reliable and audit-compliant processes to simplify application deployments, reduce risk and increase the velocity of delivery across all environments of your delivery pipeline.

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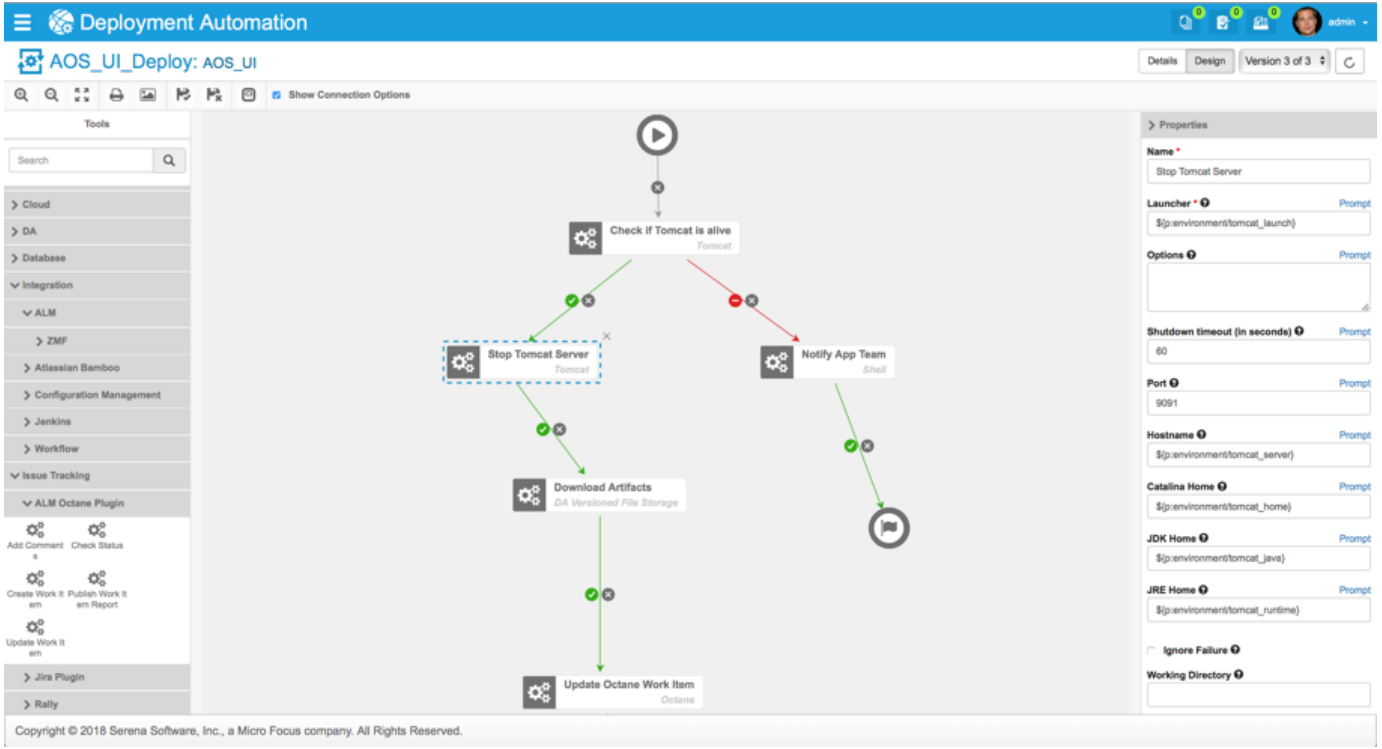
Easy-to-use graphical editor

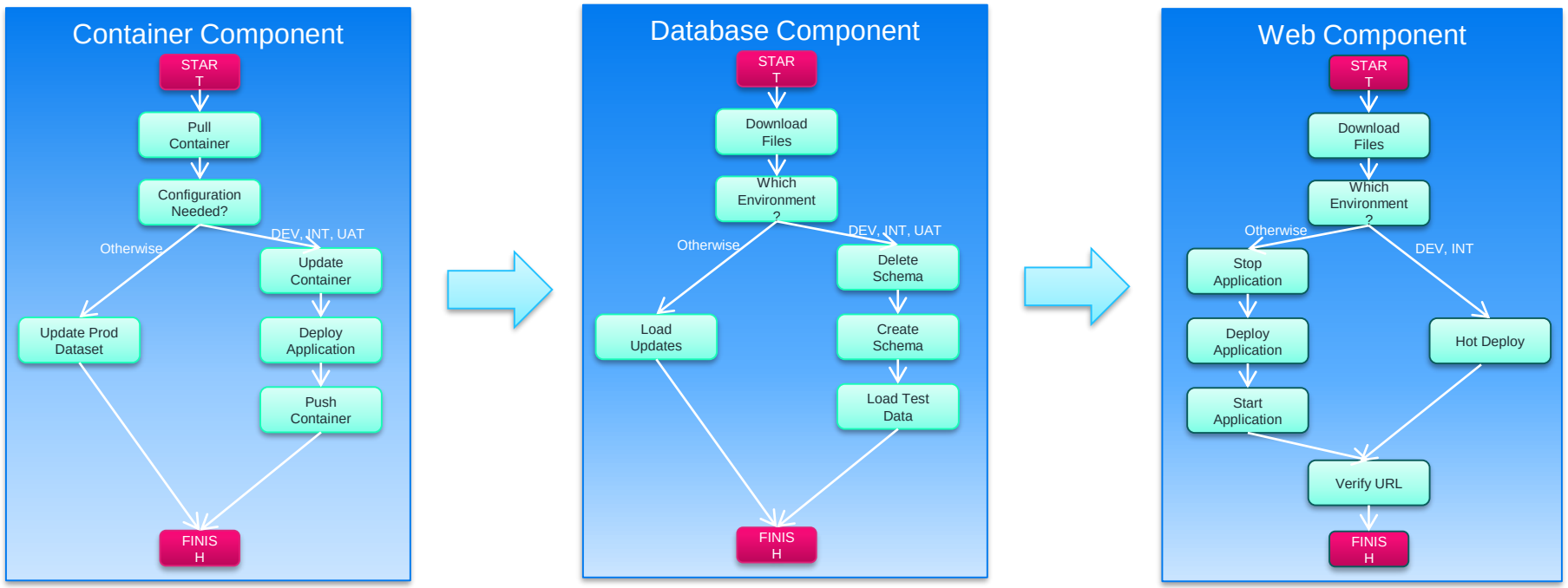
DRAG-AND-DROP PROCESS DESIGN

EASILY CREATE , VISUALIZE AND REUSE DEPLOYMENT PROCESS

MODEL DEPLOYMENTS AT BOTH THE APPLICATION AND COMPONENT LEVEL



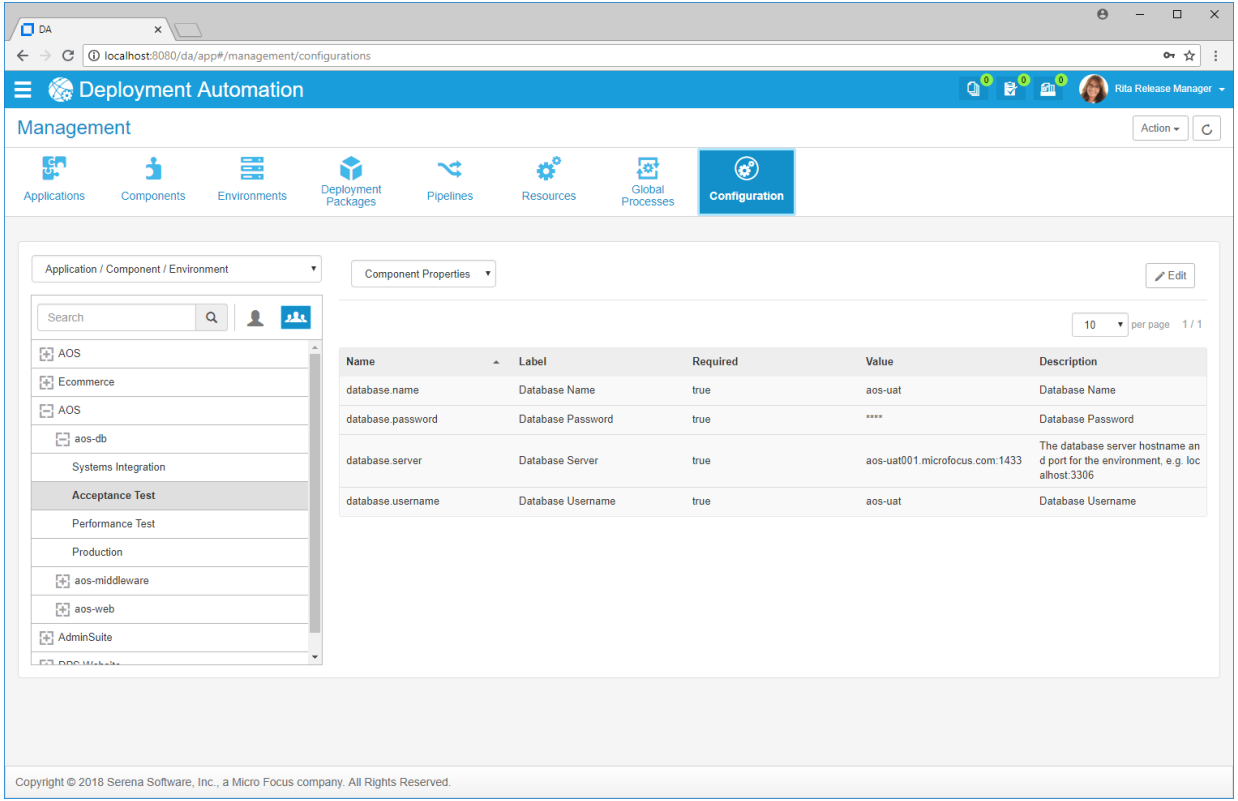
Model-based deployments reused in all environments



Environment Specific Properties

PROPERTY VALUES ARE APPLIED TO SPECIFIC PROCESS STEPS AND FIELDS

PROPERTIES ARE IMPLEMETED AS VARIABLES THAT ARE SET PER ENVIRONMENT ENABLING PROCESSES TO BE REUSED



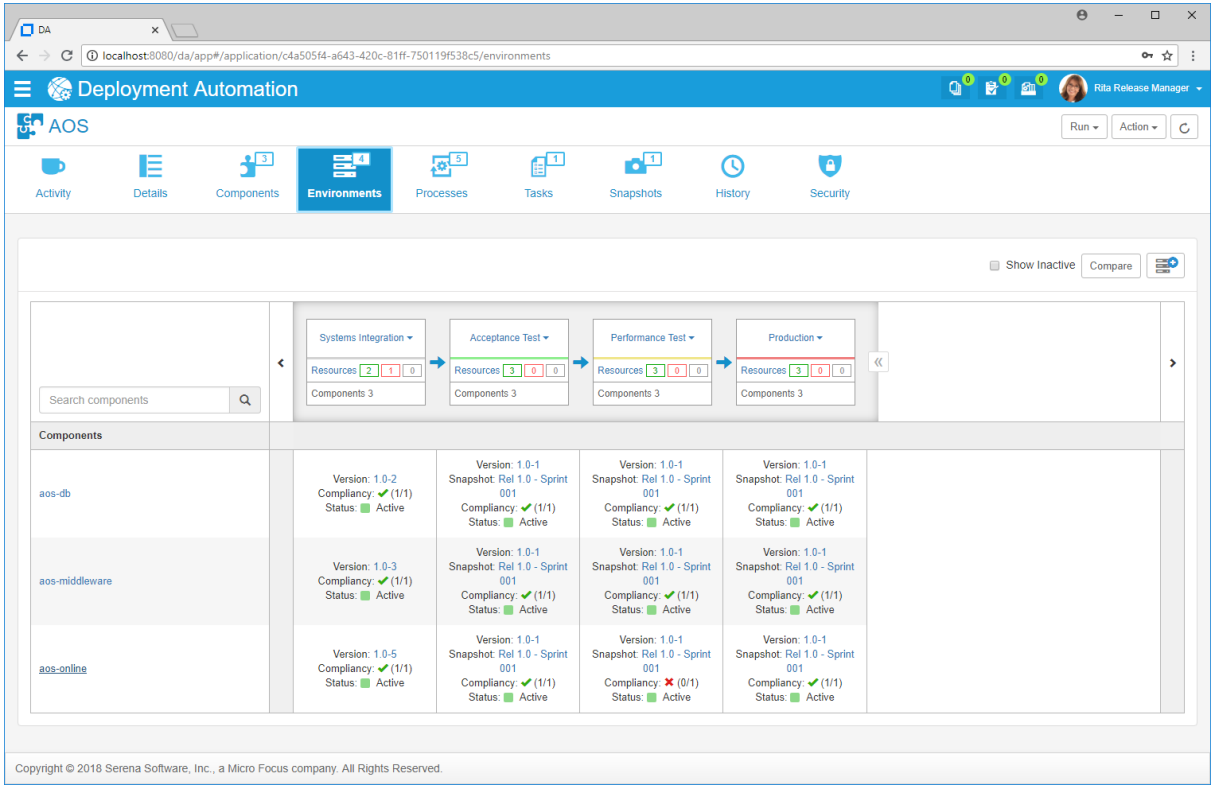
Pipeline automation and visibility

SUPPORTS SEAMLESS, NO TOUCH DEPLOYMENTS, FROM DEVELOPMENT TO PRODUCTION

DEPLOYMENT SEQUENCE CAN BE ENFORCED VIA PIPELINES

GATE CONDITIONS AND APPROVALS CONTROL DEPLOYMENT INTO ENVIRONMENTS

ENFORCES ACCURATE ENVITRONMENT CONTENT AND COMPLIANCY



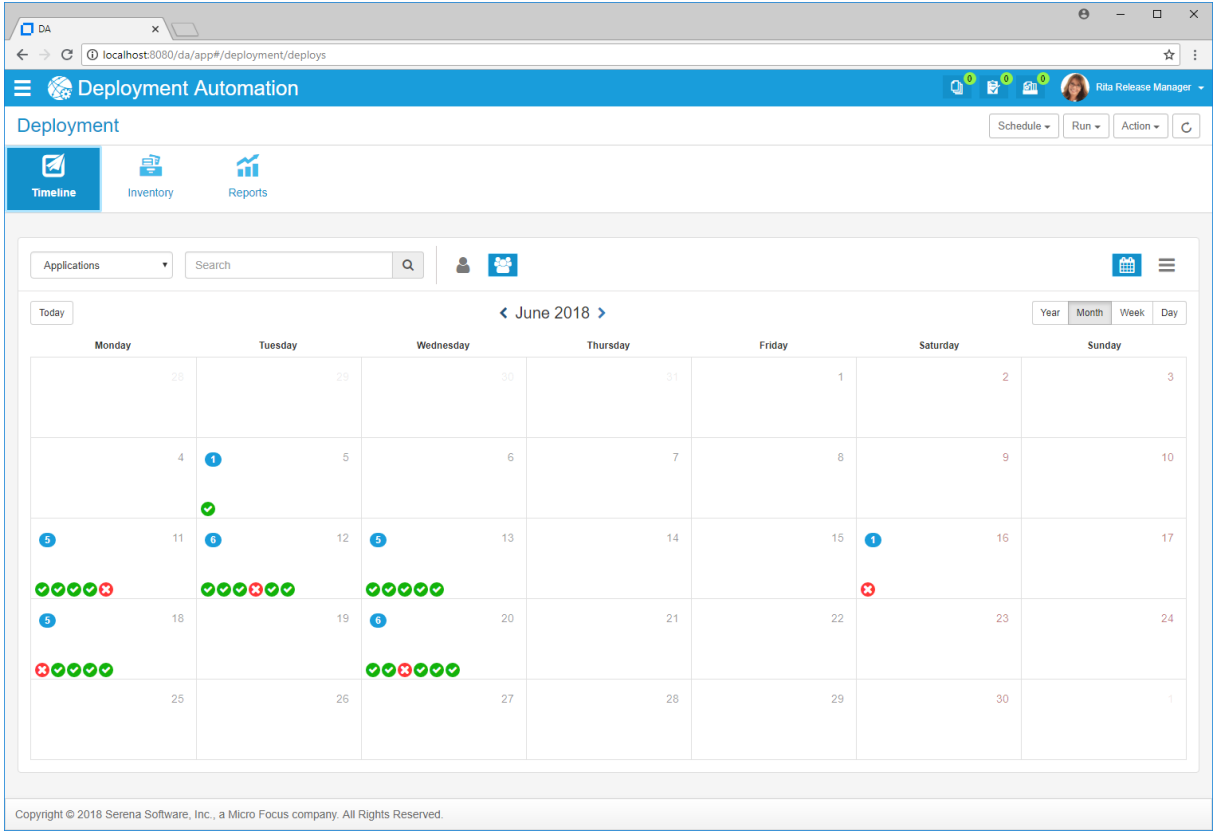
Deployment History

VIEW ALL DEPLOYMENT HISTORY AND SCHEDULED DEPLOYMENTS QUICKLY AND EASILY

VIEW DEPLOYMENT HISTORY FOR MULTIPLE APPLICATIONS

SELECT TO A DEPLOYMENT TO SEE A SUMMARY

CLICK TO SEE FULL DETAILS OF EVERY DEPLOYMENT STEP



Extensible Plugin architecture

OUT-OF-THE-BOX SUPPORT FOR COMMON APPLICATION DEPLOYMENT TOOLS AND SYSTEMS

AVAILABLE PLUGIN CATEGORIES

- Application Server Management
- Build Management Plugins
- Change and Service Management
- Database Management
- Deployment and Release Automation
- Network Management
- Quality and Test Management
- System Tools and Scripting
- Virtual and Cloud Environment Management

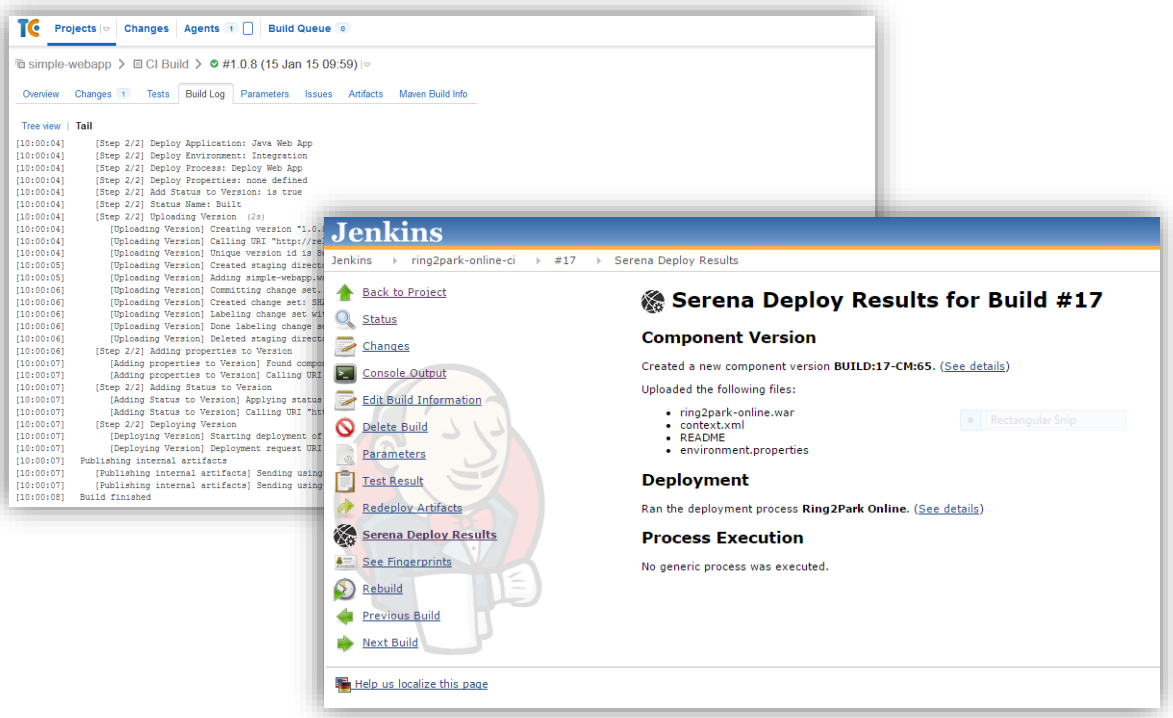
Continuous Integration

Build plugins (Jenkins, TeamCity, TFS) directly installed into third-party build tool.

The plugins store and version the outputs of successful builds in the **DA Artefact Repository**

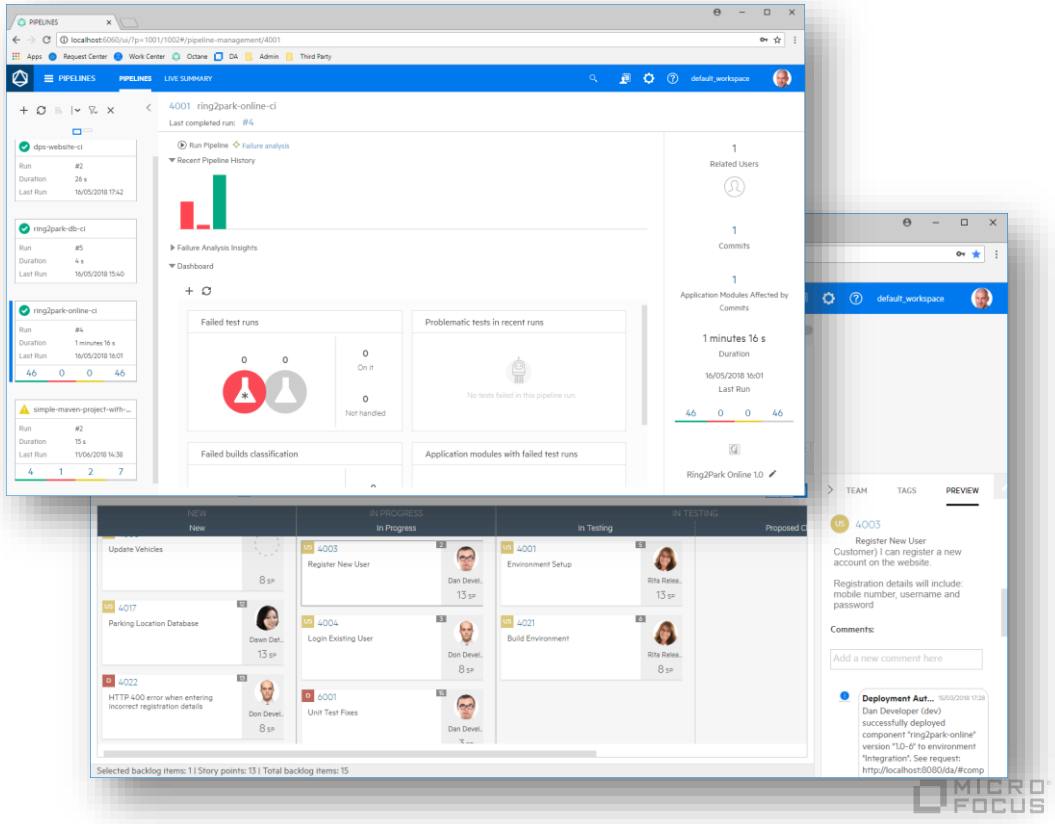
.. and automatically deploy them to the desired environments

Third party Artefact Repository plugins (Artefactory /Nexus) are also available



ALM Octane Integration

- Next-generation application lifecycle management solution
  - Natively supports Continuous Delivery and DevOps approach
- Deployment Automation
  - Update/Create/Comment on entities (Stories/Defects etc)
  - DA/Jenkins integration with Octane Pipelines



Micro Focus Release Control

Release Control enables organizations to plan, control, and orchestrate their release processes for both mainframe and distributed systems, from definition to deployment with a visual release calendar and automated approval processes.

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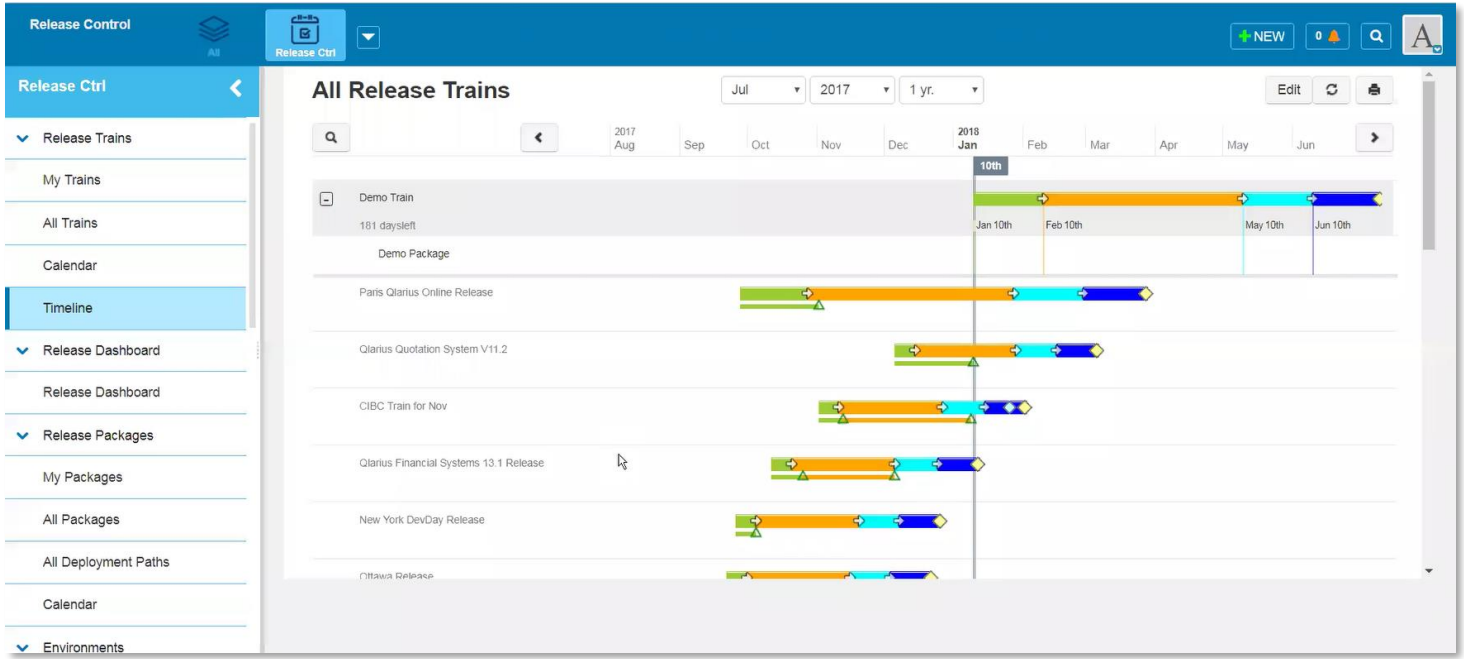
Plan, track, and control all release content

VISUALIZE & CUSTOMIZE ALL RELEASE ACTIVITIES SIMPLY AND EASILY

RELEASE PLANNING AND EXECUTION CO-ORDINATION

REDUCES RELEASE RISK BY PROVIDING VISIBILITY OF RELEASE PROCESSES TO ALL AREAS OF YOUR ORGANIZATION

ENSURES AUDIT AND COMPLIANCE BY TRACKING ALL RELEASE ACTIVITIES

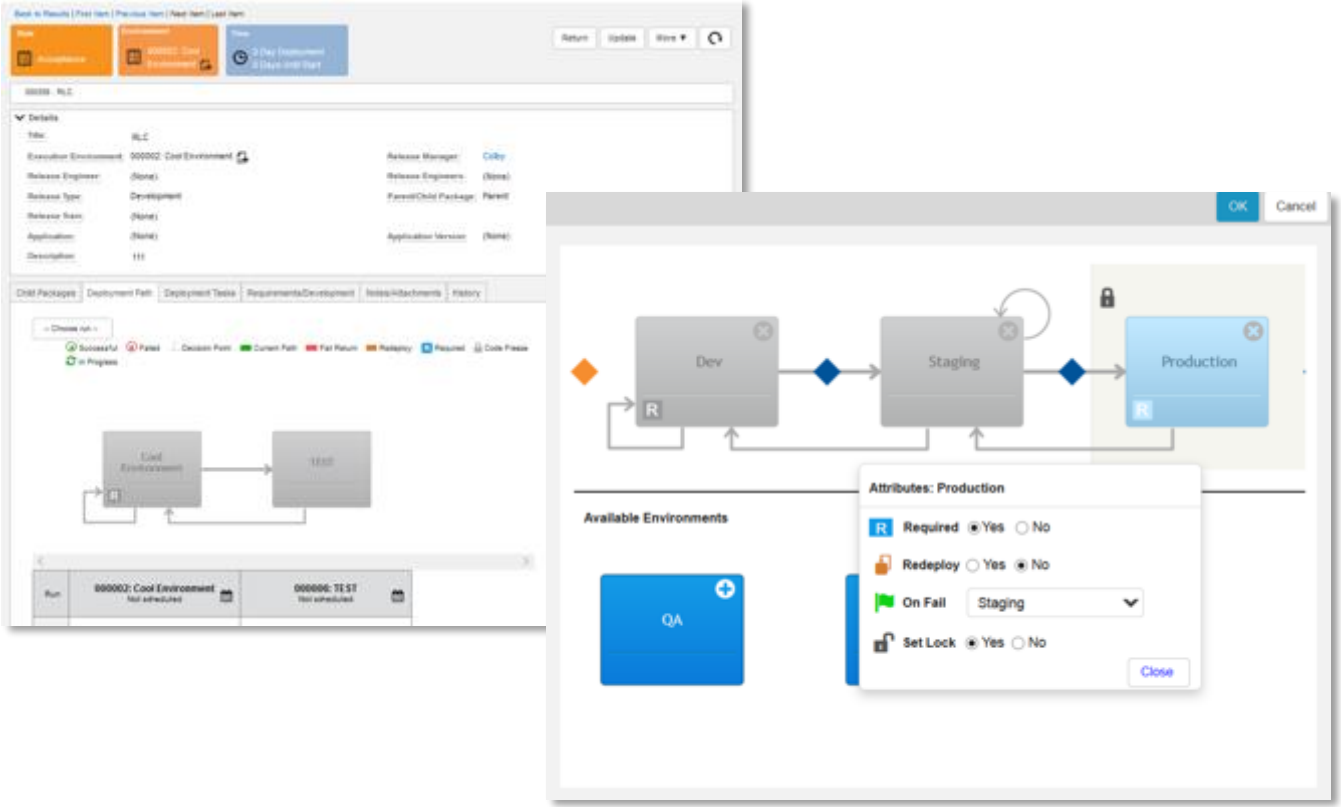


Automate deployments, tasks and actions

AUTOMATICALLY PROMOTE MULTIPLE APPLICATIONS ACROSS ENVIRONMENTS IF PROCESS RULES ARE MET

ENFORCE ENVIRONMENT SEQUENCING, RE-DEPLOY AND RETROFIT PATHS FOR APPLICATIONS OR TRAINS

RELEASE MORE OFTEN, RELEASE MORE EACH TIME, AND REDUCE THE RELEASE WINDOW

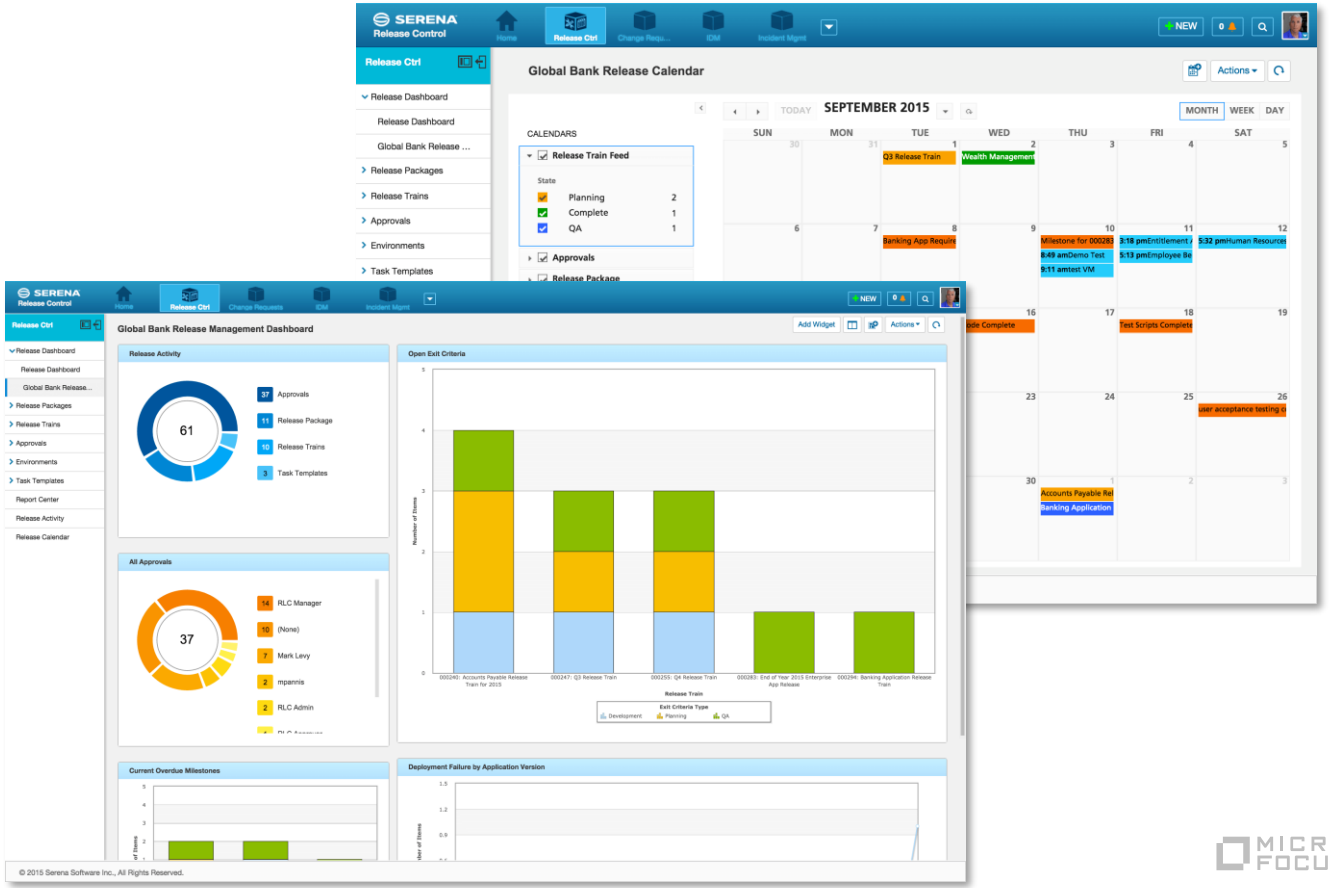


Actionable insight from dashboards and reports

VIEW UPDATES ON ALL RELEASE ACTIVITIES, FROM EXECUTIVE-LEVEL STATUS TO DEPLOYMENT TASK DETAILS IN REAL-TIME

SHARED CALENDARS AND A CONFIGURABLE TIMELINES PROVIDE VISIBILITY ACROSS YOUR ENTIRE ORGANIZATION

MAINTAIN A SINGLE SOURCE OF TRUTH TO KEEP THE ENTIRE ORGANIZATION ALIGNED



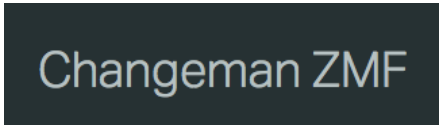
Cross Product Integration & Collaboration Capabilities

EASE OF INTEGRATION TO EXISTING CUSTOMER INFRASTRUCTURE

OUT-OF-THE-BOX SUPPORT FOR COMMON APPLICATION DEPLOYMENT TOOLS AND SYSTEMS

AVAILABLE PLUGIN CATEGORIES

- REQUEST PROVIDERS
- DEPLOYMENT UNIT PROVIDERS
- EXECTUION PROVIDERS



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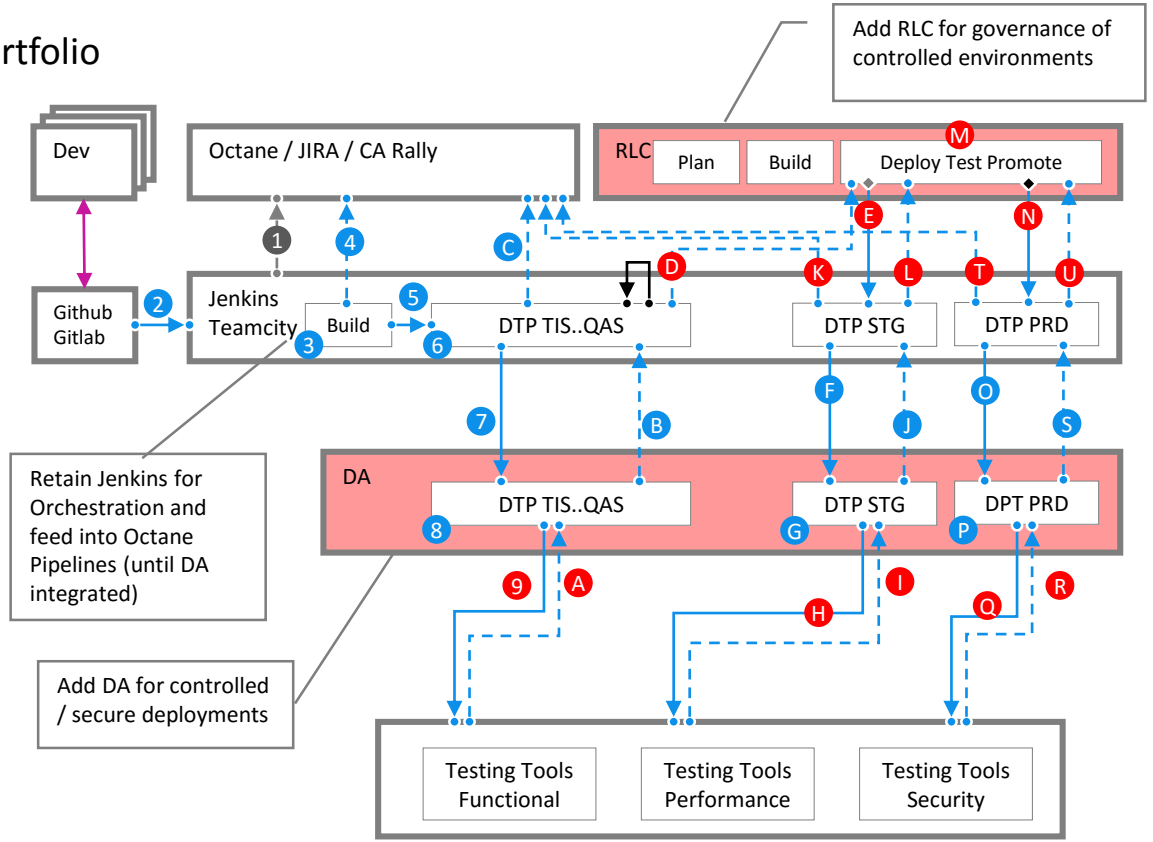
Demonstration

ARM Option

Release Management – Example Add-on

Leverage customers existing portfolio

- Where can we add value:
  - Governance
  - Security
  - Visibility
- Integrate with Open Source
- Integrate with Micro Focus
  - ADM – Octane
  - ITOM – DA / HCM



Deployment Automation benefits:

- Simplify, standardize, and **automate** the deployment of the most complex multi-tier applications
- Seamlessly deploy and maintain applications across **heterogeneous**, distributed physical, virtual, container, and cloud servers whilst maintaining audit, compliance and reducing risk
- Ensure that components tested together are released together—use the **same deployment process** for seamless automated deployments, from development to production
- **Reduce application failures** in data center production by **up to 90%**
- Cut the time and cost of managing deployments **by up to 80%**

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Deployment Automation: Customer Proof

> *"Serena (now part of Micro Focus) Deployment Automation has provided us with all the benefits that we expected it would, our original business case has been realized, and we now expect to gain further value as we roll it out to the rest of the organization"*

— CHRIS RISEBROW – Allianz Project Delivery Manager, Allianz

> *"We had three goals: reduce release complexity, shorten the deployment cycle so that it could be done in just a few clicks, and comply with new regulations."*

— CYRIL THENON - Manager, Performance and Industrialization Skill Center, Generali France

> *"Serena (now part of Micro Focus) Deployment Automation provides Gordmans with enterprise-class, develop-todeploy release management and gives us the visibility, tracking, and deployment automation capability we require."*

— [illegible] & Information Security Manager, Gordmans

GuideStone Financial Resources
TIAA CREF Financial Services
EatonVance Investment Managers
Gordmans
D&B
Lombard Odier Darier Hentsch Private Bankers Since 1796
UBS
bp
Aflac
Crédit Agricole
Great American Insurance Group
Allianz
Groupama
DTCC
TD Ameritrade
Telecom Italia
citi
Generali Group

Release Control benefits:

- **Visibility and Tracking**: Centralized release calendar, process metrics, and dashboards
- **Compliance and Control**: Process enforcement, routing, and approvals with built-in audit trails and reports
- **Multi-Platform Support**: The only release management solution that supports both mainframe and distributed
- **Process Automation**: Automation and workflow that replace manual process steps to enforce your release policies and processes
- **Integration**: Flexible and open architecture that allows easy integration to current enterprise tools via an extensible, enterprise ready plugin architecture

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Release Control: Customer Proof

"With Serena (now part of Micro Focus) Release Control we have a reliable and repeatable release process, greater visibility into the release activities for all of our stakeholders and significantly improved confidence in our compliance with international laws and internal audit requirements."

Director Change and Release, Global Financial Services Leader

- Reduced release window; production release reduced from 3 hours to 35 minutes
- Anticipated benefits of up to $3M annually through broad use of Release Control
- Gained an internal rate of return of 185 percent over five years

World's largest credit solutions provider

- Eliminated audit and compliance risks
- Provided stakeholders clear insight into the impact of changes to its respective applications and assets
- Automated promotion of changes into production removing major source of errors
- Delivered greater environment stability, predictability and reliability

Global Financial Services Leader

Q&A

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Thank You!!