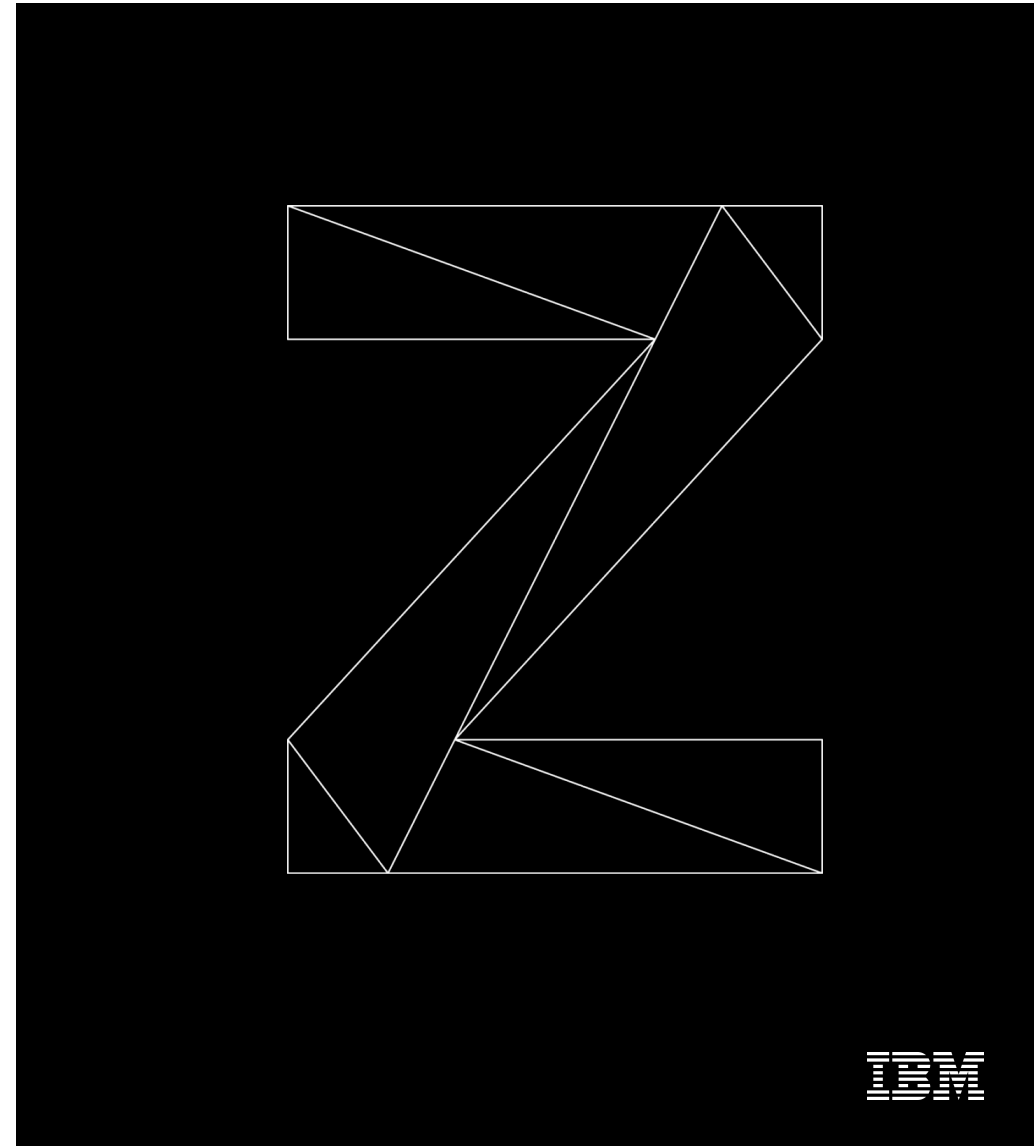# DevOps

—

Rosalind Radcliffe
IBM DE, Chief Architect for DevOps for Enterprise Systems
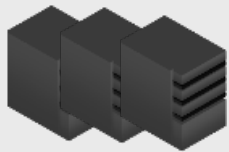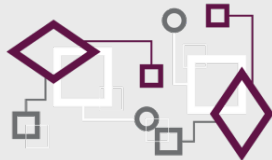rradclif@us.ibm.com
@RosalindRad
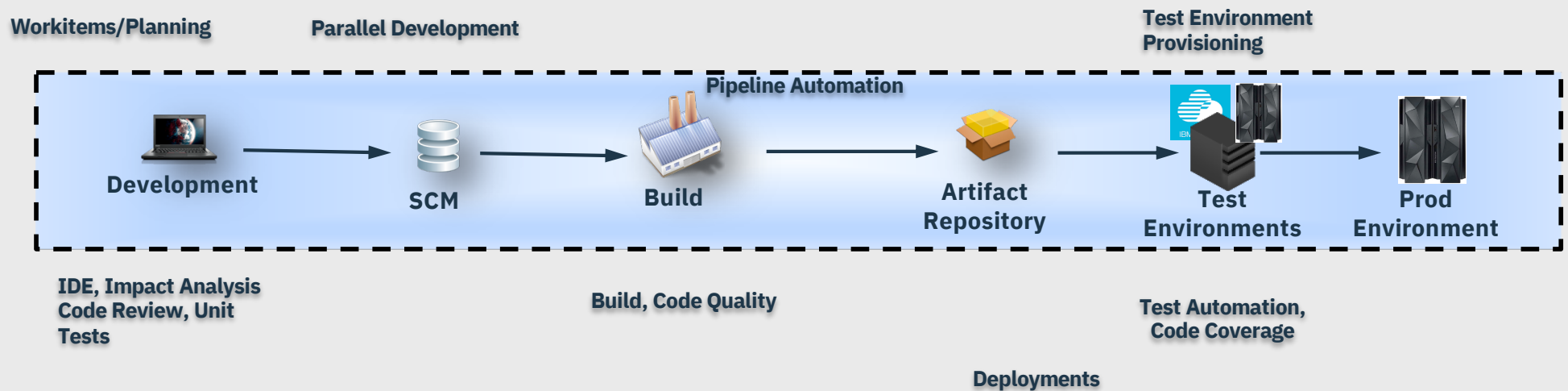
DevOps

HYBRID CLOUD

API Management

End to End Strategy

- End to End strategy sets direction for steps along the way

- Single DevOps pipeline or as close as possible improves collaboration and reduces friction between teams

- Removing the differences that provide no value from z/OS to allow it to be part of any pipeline

- Automated Testing at all levels is what provides the increased velocity with increased quality

Workitems/Planning

Parallel Development

Test Environment Provisioning

Pipeline Automation

Development

SCM

Build

Artifact Repository

Test Environments

Prod Environment

IDE, Impact Analysis Code Review, Unit Tests

Build, Code Quality

Test Automation, Code Coverage

Deployments

Standardization
Automation and Pipeline

Bring z/OS into your existing automation with common open source tools.

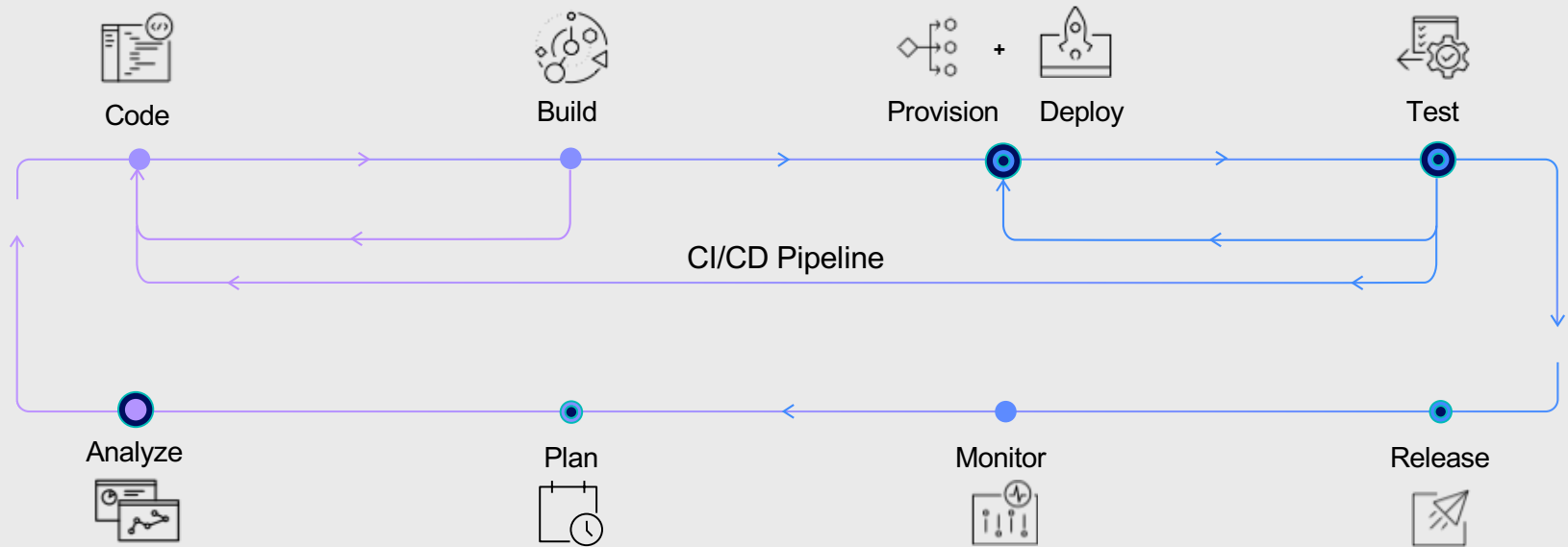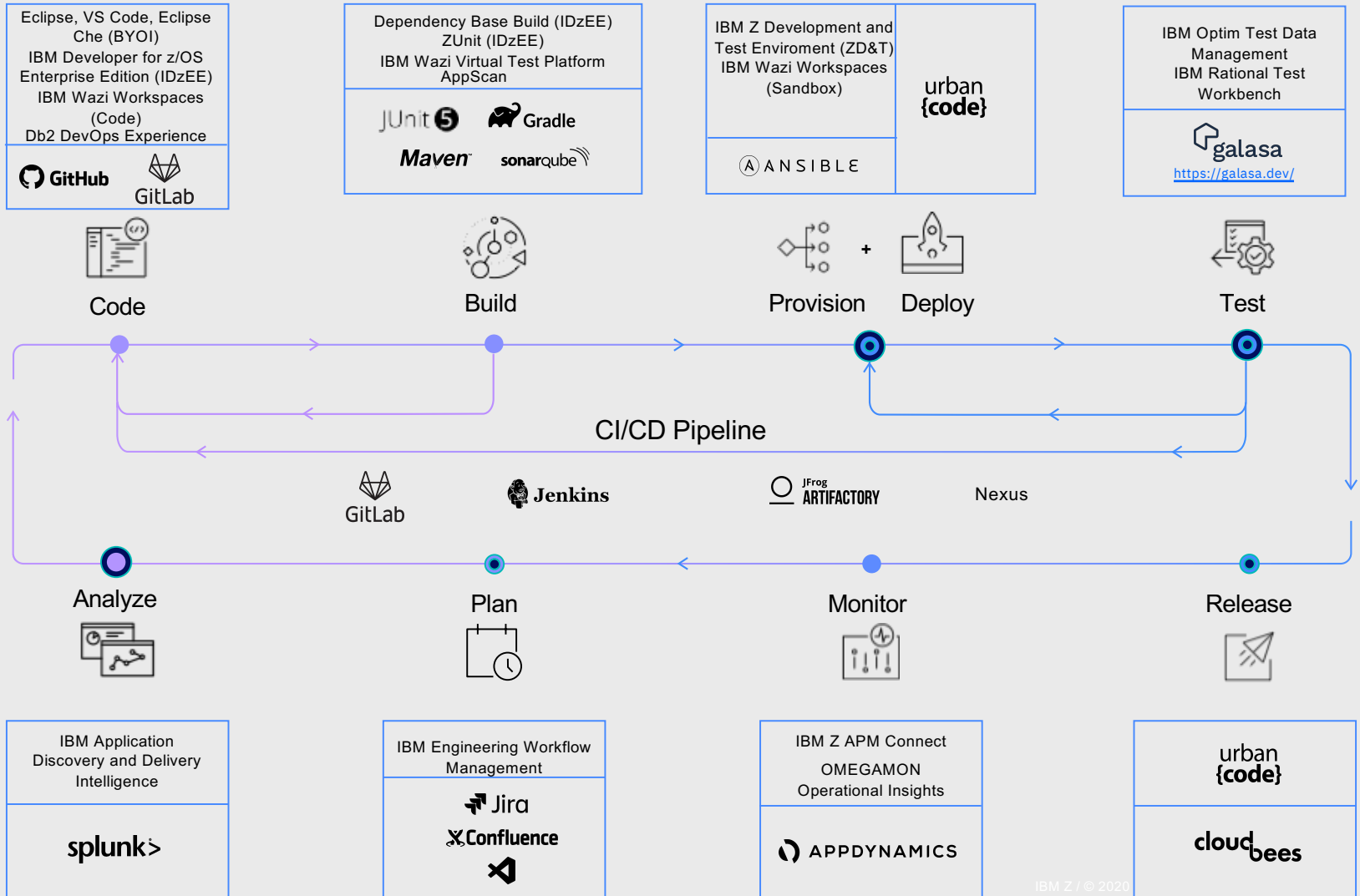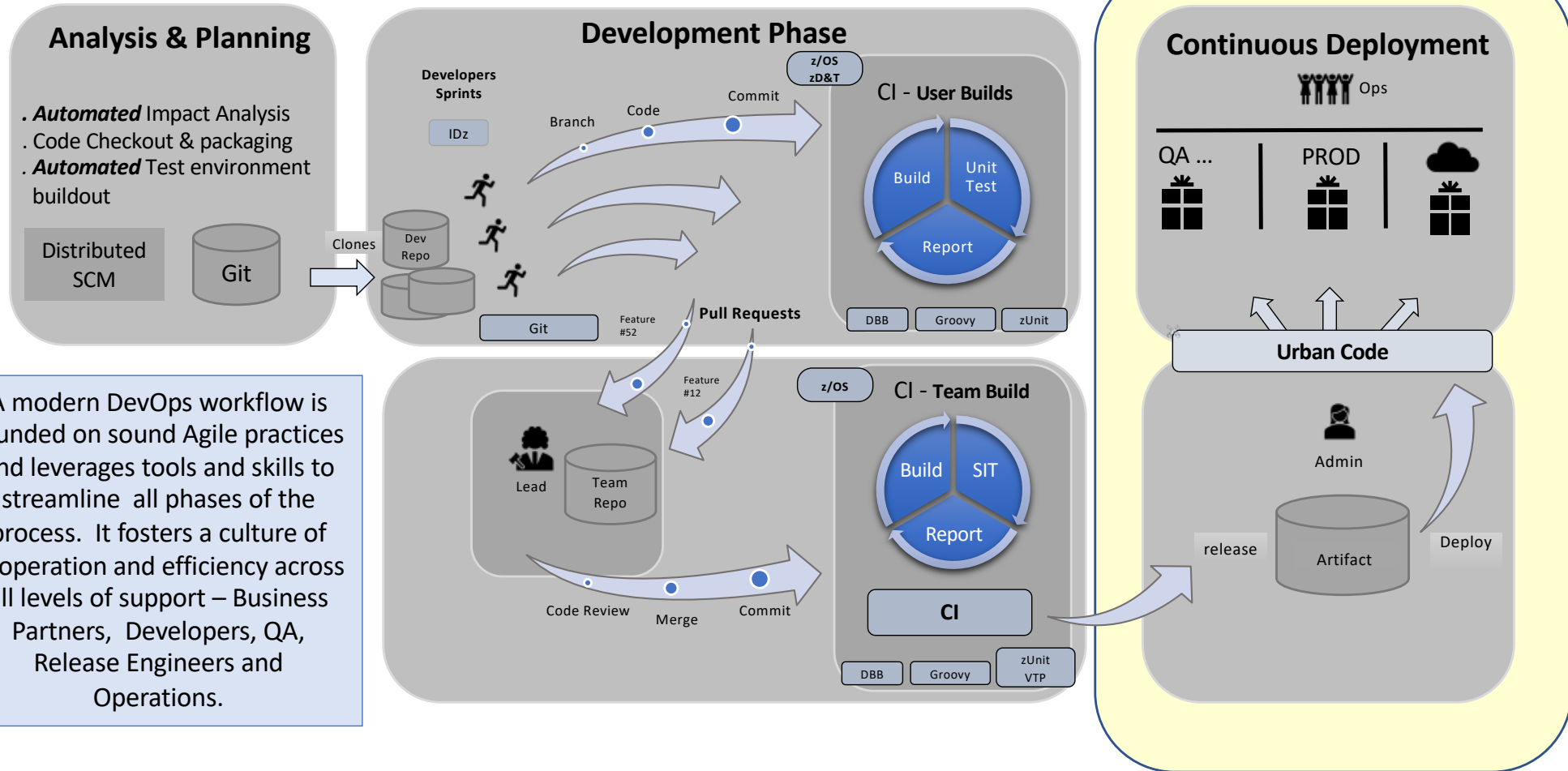Bring z/OS into your existing pipeline with common open source tools.

LEGEND

- ● Analyze
- ● Feedback, approvals

Note: Starting from the upper left, products and significant capabilities appear once, the first time they are used in the pipeline. Products and capabilities are used at multiple points.

Code
Eclipse, VS Code, Eclipse Che (BYOI)
IBM Developer for z/OS Enterprise Edition (IDzEE)
IBM Wazi Workspaces (Code)
Db2 DevOps Experience
GitHub · GitLab

Build
Dependency Base Build (IDzEE)
ZUnit (IDzEE)
IBM Wazi Virtual Test Platform
AppScan
JUnit 5 · Gradle
Maven · sonarqube

Provision + Deploy
IBM Z Development and Test Enviroment (ZD&T)
IBM Wazi Workspaces (Sandbox)
urban {code}
ANSIBLE

Test
IBM Optim Test Data Management
IBM Rational Test Workbench
galasa
https://galasa.dev/

CI/CD Pipeline
GitLab · Jenkins · JFrog ARTIFACTORY · Nexus

Analyze
IBM Application Discovery and Delivery Intelligence
splunk>

Plan
IBM Engineering Workflow Management
Jira
Confluence

Monitor
IBM Z APM Connect
OMEGAMON
Operational Insights
APPDYNAMICS

Release
urban {code}
cloud bees

Modern Z Development

Analysis & Planning

. *Automated* Impact Analysis
. Code Checkout & packaging
. *Automated* Test environment buildout

Distributed SCM

Git

Development Phase

Developers Sprints

IDz

z/OS zD&T

Branch Code Commit

Clones

Dev Repo

Git

Feature #52

Pull Requests

Feature #12

CI - User Builds

Build | Unit Test
Report

DBB | Groovy | zUnit

Lead Team Repo

z/OS

CI - Team Build

Build | SIT
Report

Code Review Merge Commit

CI

DBB | Groovy | zUnit VTP

A modern DevOps workflow is founded on sound Agile practices and leverages tools and skills to streamline all phases of the process. It fosters a culture of cooperation and efficiency across all levels of support – Business Partners, Developers, QA, Release Engineers and Operations.

Continuous Deployment

Ops

QA ...   PROD

Urban Code

Admin

release   Artifact   Deploy

Everyone Plays a part

1. **DevOps is about transforming application development and delivery in order to accelerate digital innovation.**
   So DevOps is a topic for both business and IT roles in the organization.

2. **You don't <u>buy</u> DevOps, you <u>do</u> DevOps.** *DevOps is an approach, a mindset – a combination of culture, process and technology (including infrastructure, tools and services).*

3. **DevOps is not only about the hand-off between Development and Operations.** *DevOps is about applying <u>lean and agile</u> principles across the application delivery lifecycle (biz-dev-sec-ops) to achieve <u>continuous delivery</u> of digital innovation. Key concepts: automation, feedback loops.*

Resources

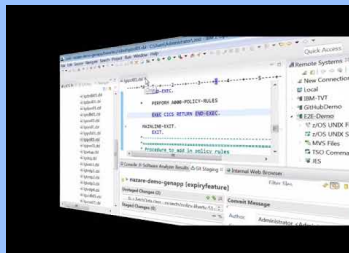| IBM Wazi for Red Hat® CodeReady Workspaces	IBM zDevOps	The Open Developer experience for the mainframe demo	IBM Wazi VTP Demo	IBM Wazi VTP Expert Blog
IBM Marketplace www.ibm.com/products/wazi-for-red-hat-codeready-workspaces	All you need to know about Enterprise DevOps: case studies, communities, resource library, product list, education and much more https://www.ibm.com/it-infrastructure/z/capabilities/enterprise-devops	A demo illustrating how to use CI/CD practices, common tools, and a collaborative coding environment to bridge the gap between mainframe and other platforms https://www.youtube.com/watch?v=vRxdhlaRqA0&feature=youtu.be	See Wazi VTP in action with this demo https://mediacenter.ibm.com/media/t/1_tbcimobz	**Expert blog** https://developer.ibm.com/mainframe/2020/05/27/ibm-wazi-virtual-test-platform/

Additional Resources

https://galasa.dev

ZD&T
Product page https://www.ibm.com/products/z-systems-development-test-environment
Overview
Video https://www.youtube.com/watch?v=62N6NH1W5Q4&feature=emb_logo
Technical video
library https://developer.ibm.com/mainframe/zsystemstechzone/ (click on ZD&T tab)
Latest
bloghttps://developer.ibm.com/mainframe/2020/03/09/z-development-and-test/

Books to read

New one – Coming soon – Software Quality for the Enterprise

Resources

Continuing your 'Understanding DevOps' journey
DevOps from APIs to z Systems for Dummies

– https://ibm.biz/apis2zdevops

Other Resources

Phoenix Project Book

DevOps Handbook

https://puppet.com/resources/whitepaper/state-of-devops-report

https://itrevolution.com/book/mythbusting-devops-enterprise/

https://itrevolution.com/book/tactics-leading-change/

http://dearauditor.org