

The Open Space of Application Operations within SAP BTP

DevOps with SAP BTP

Boris Zarske, SAP

Public

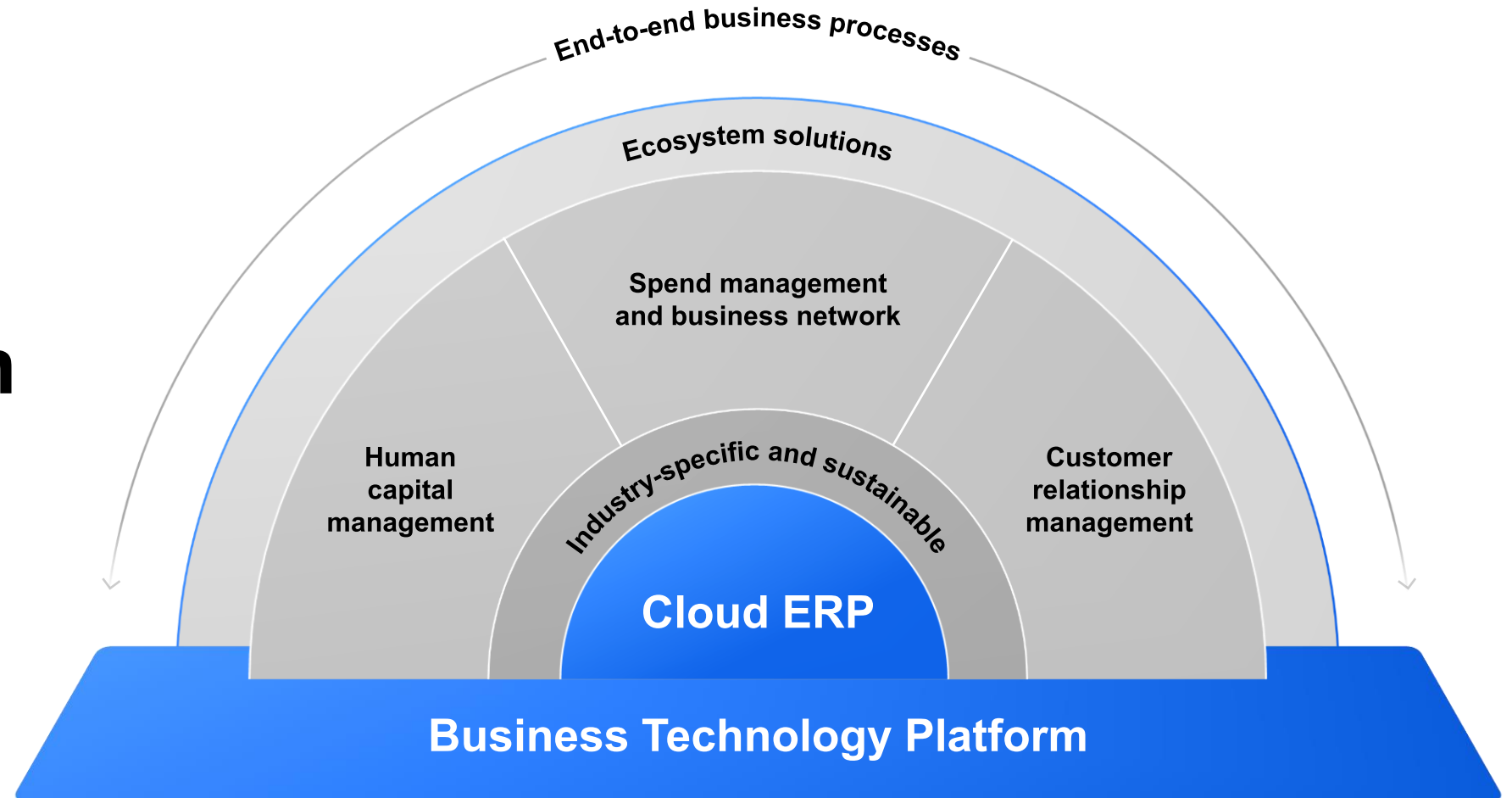
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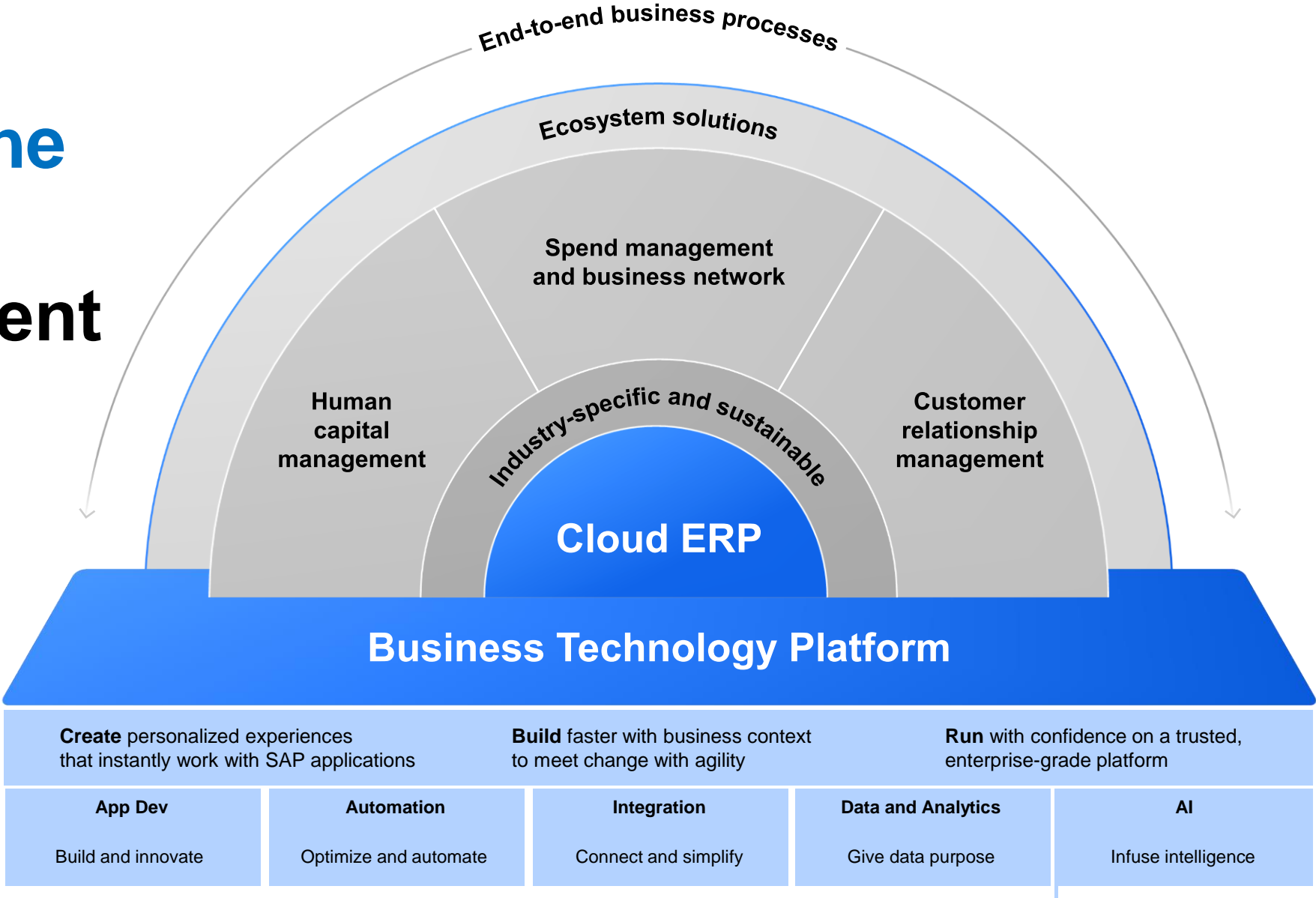
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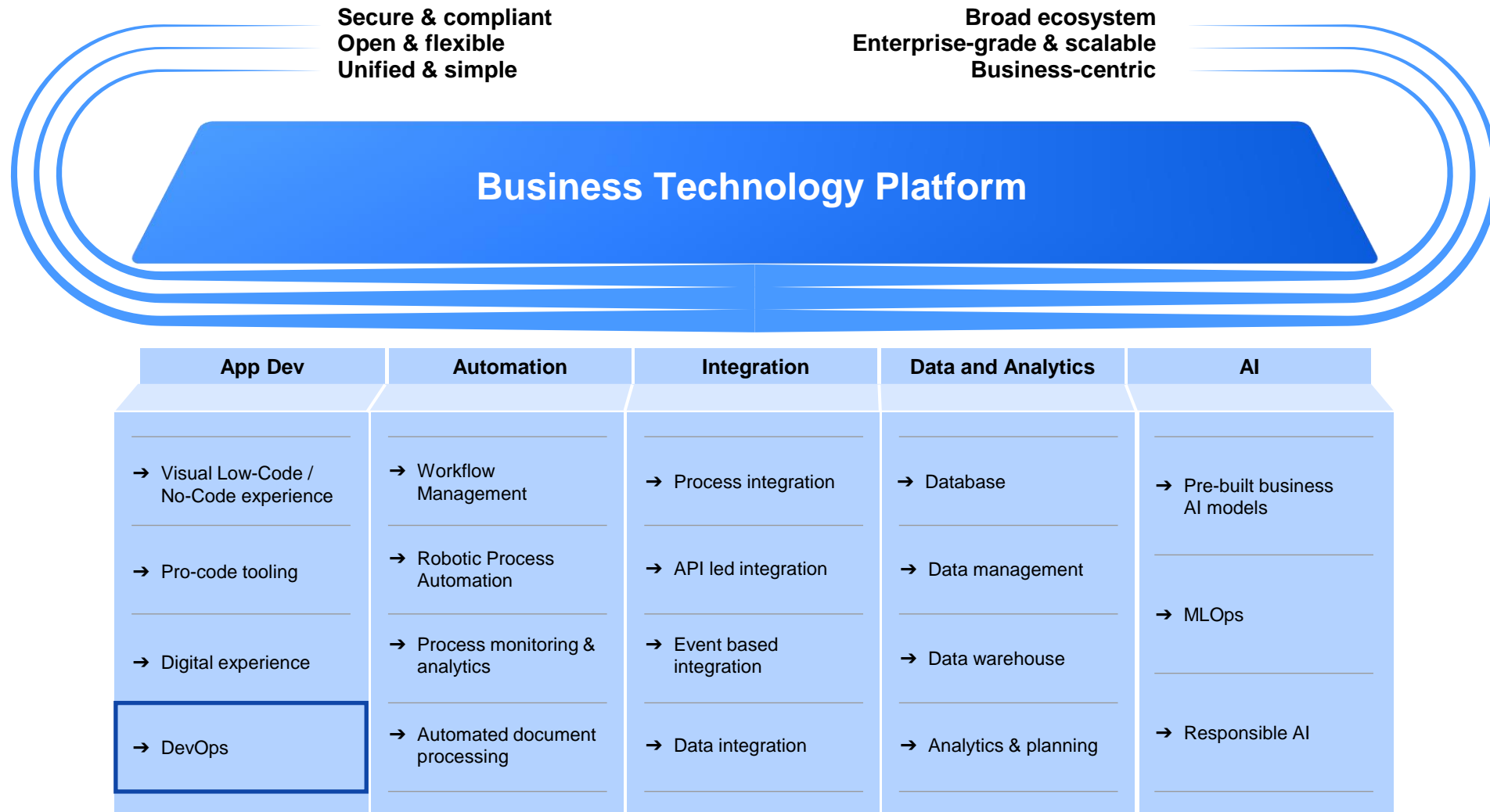
**Enable every
enterprise
to become an
intelligent,
sustainable
enterprise**



SAP BTP is the foundation of the Intelligent Sustainable Enterprise



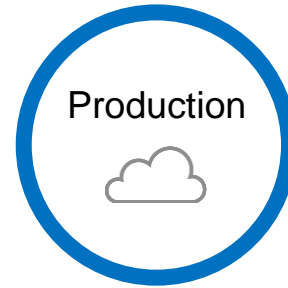
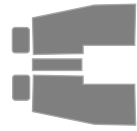
SAP BTP Cloud Capabilities



Why DevOps?

Challenge of conflicting goals

DEV



OPS

“I own the application!”

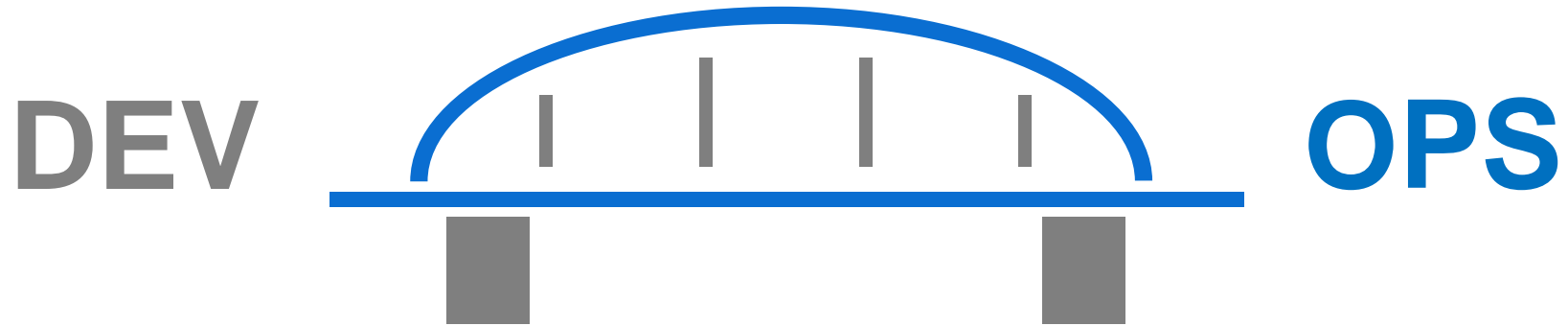
“I need to change it fast!”

“I own the application runtime!”

“I need to keep it stable!”



**Conflicting goals
in the organization**

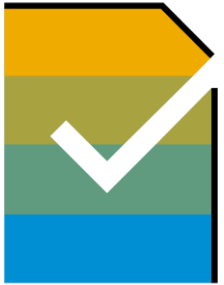


“A **culture** where people, regardless of title or background, **work together** to imagine, develop, deploy, and operate a system.”

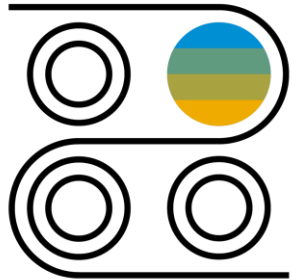
Definition by Ken Mugrage, ThoughtWorks

<http://kenmugrage.com/post/my-new-definition-of-devops/>

The goal of continuous delivery



Build quality in



Faster deployment



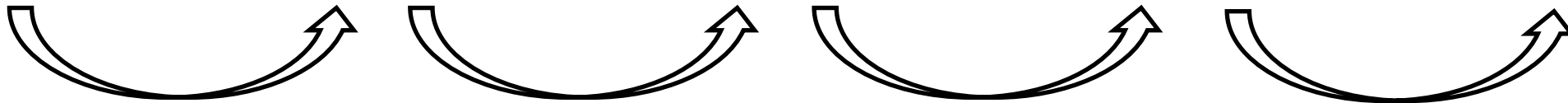
Faster feedback



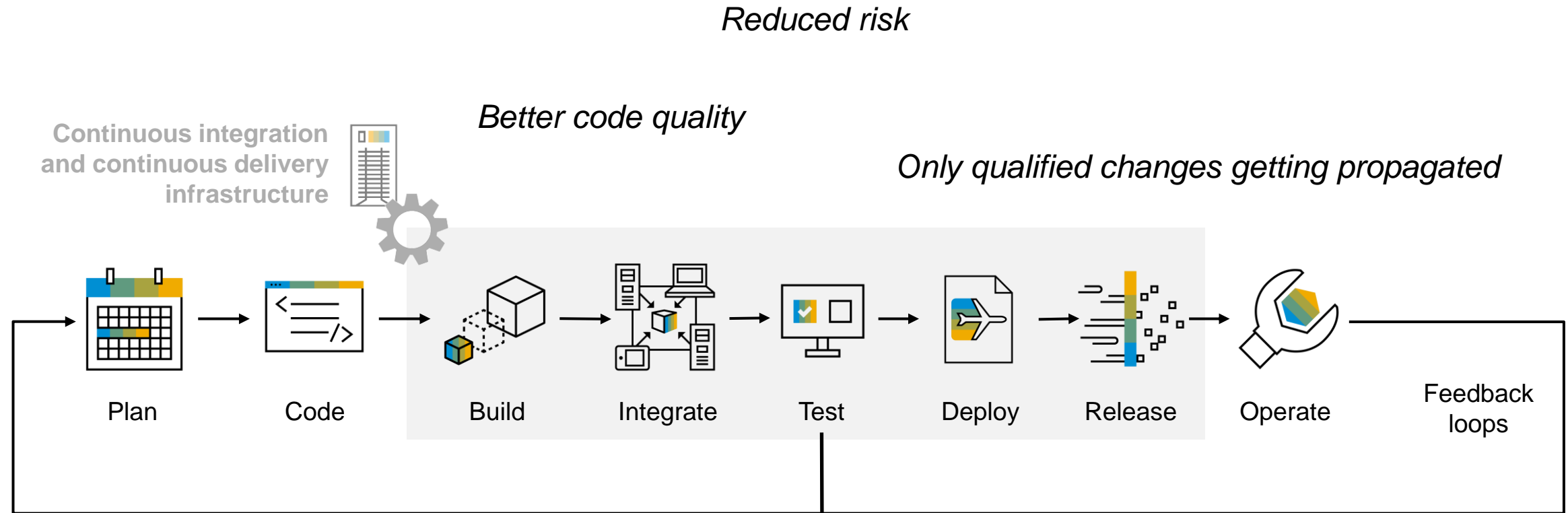
Better software



Happier customer



The deployment pipeline



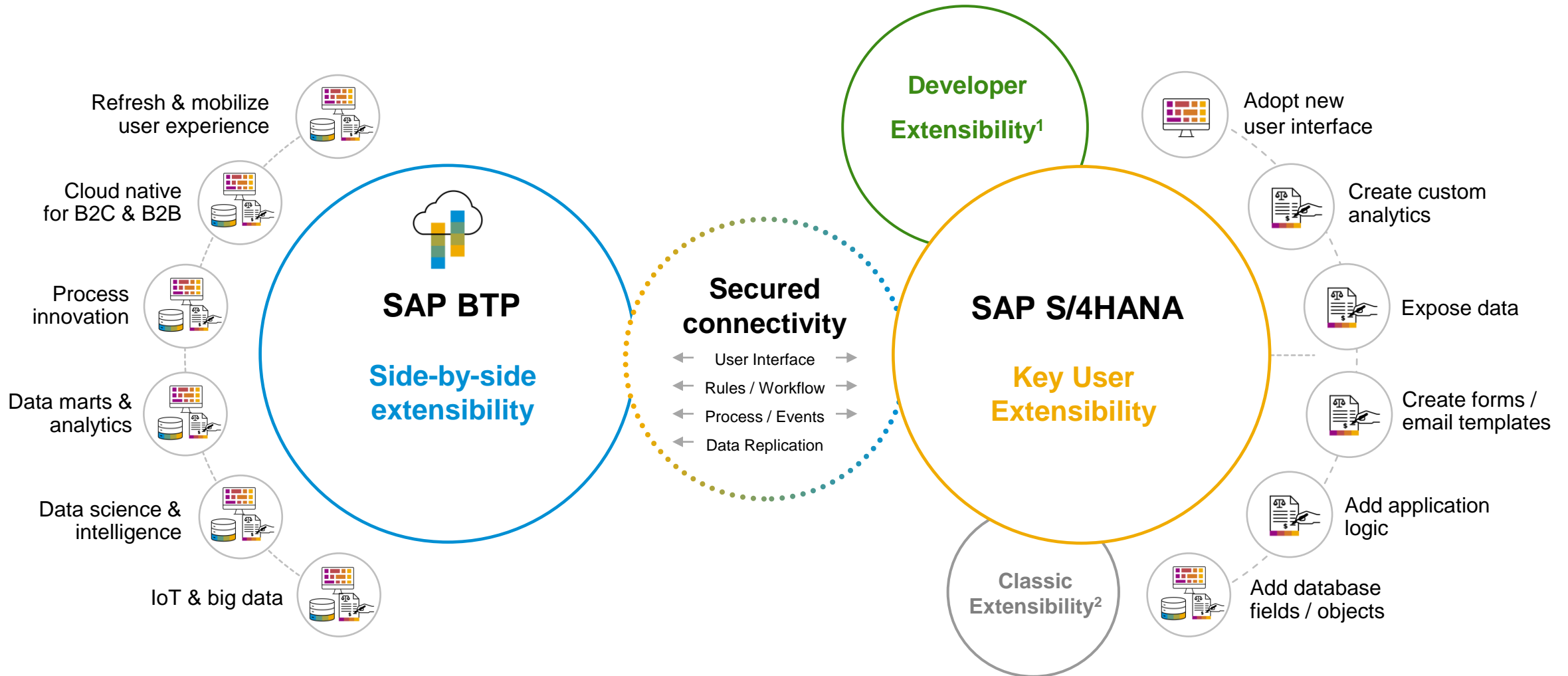
Tighter feedback loops

Automated tests that allow you to anchor compliance

Delivery becoming part of the daily routine

SAP S/4HANA extensibility concept

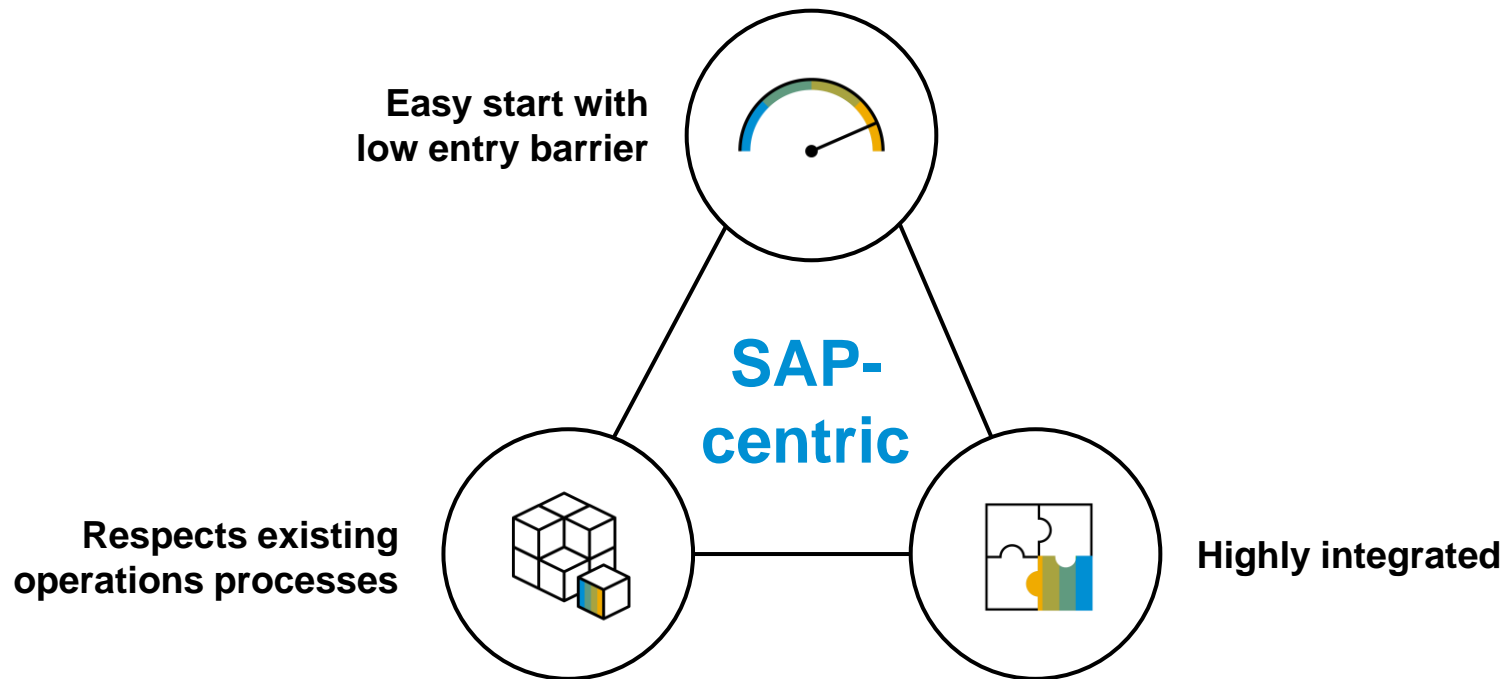
Side-by-Side Extensions ← → Core Solution Extensions



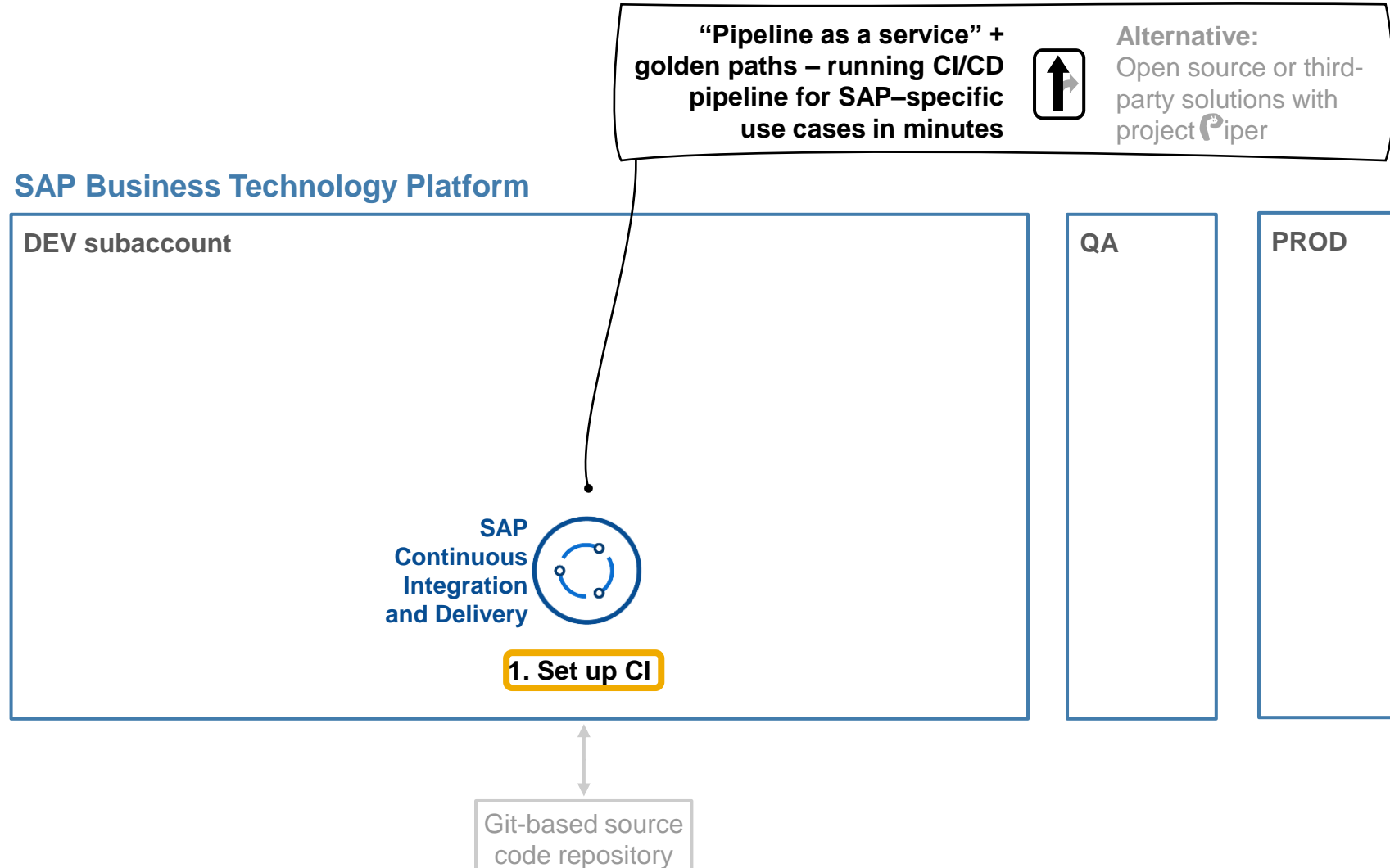
DevOps with SAP BTP

Benefit from opinionated approach focused on SAP-centric scenarios

SAP BTP makes it easy to benefit from general DevOps principles for your apps running on SAP BTP, as part of your cloud transformation



Enable DevOps in SAP enterprise environments



1. Set up **CI/CD** efficiently for SAP environments

CI/CD enablement



SAP Continuous Integration and Delivery

who For SAP customers and partners with ABAP background transitioning into the cloud

what The service provides a golden path for customers and partners that develop SAP-specific scenarios

where SAP BTP service, regional coverage (EU, US, APJ), Azure + AWS available, Trial + Free Tier

how No own infrastructure required, running pipeline in minutes, support provided by SAP



Simplicity

for typical SAP business application developers

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Simplicity

for typical SAP business application developers

Keeping things simple

- Managed infrastructure
- UI-based job editor (configuration-as-code optional)
- Superior integration with SAP DevOps tools

Set up pipelines in minutes, instead of hours, days ... or worse.

1. Set up **CI/CD** efficiently for **SAP** environments

SAP Continuous Integration and Delivery service – latest news



BUILD NOTIFICATION

Send Build Notifications via SAP Alert Notification Service ☒

*Service Key:

Custom Tag:

Ability to send **notifications** from pipelines via SAP Alert Notification service for SAP BTP

Pipeline: SAP Fiori for ABAP platform

Version: Container-Based Applications

State: SAP Cloud Application Programming Model

SAP Fiori for ABAP platform

SAP Fiori in the Cloud Foundry environment

SAP Fiori in the Neo environment

SAP Integration Suite Artifacts

New pipeline: package + deploy your SAPUI5 and SAP Fiori apps to an **ABAP front-end server**

WebdriverIO Test ☒

*npm Script:

*Base URL:

Credentials:

Acceptance stage using the **WebdriverIO** open-source testing automation framework

Planned: additional **flexibility**, while remaining opinionated + simple

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how No own infrastructure required, running pipeline in minutes, support provided by SAP



Simplicity

for typical SAP business application developers



Project “Piper”

who For experienced customers that need full flexibility

what Enablement, learnings and open source CI/CD library for custom CI/CD pipelines, covering many SAP-specific scenarios

where Customers/partners must bring their own CI/CD stack, widely used also SAP-internally

how CI/CD expertise required, you build pipeline on separate infrastructure – running pipeline in hours/days, no direct support by SAP



Flexibility

to automate complex and customer-specific development scenarios

1. Set up CI/CD efficiently for SAP environments

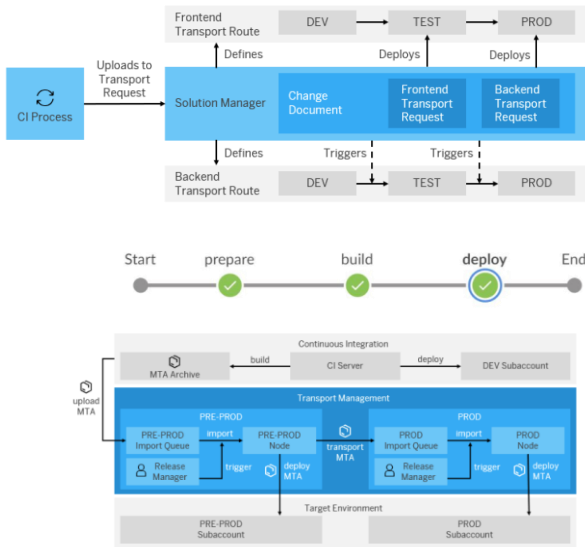
Project "Piper"

CI/CD enablement



Docker Images		
The following images are published on hub.docker.com/ :		
Name	Description	Docker Image
jenkins	Use a preconfigured Jenkins to run project "Piper" pipelines.	project/piper-jenkins
MTA Archive Builder	Build multitarget applications with the MTA archive builder.	project/mta-archive-builder
CI4-Client	Interact with SAP Solution Manager or CTS using the command line.	project/ci4-client
CloudFoundry CLI	Use command line tools for Cloud Foundry with plugins for blue-green deployment and MTA.	project/cf-cli
New CI	Use SAP Cloud Platform tools for Neo.	new-ci/
Jenkinsfile Runner	Run a Jenkinsfile without a long-running, stateful Jenkins master. The Jenkinsfile Runner is based on project/jenkins-master .	project/jenkinsfile-runner
Life Cycle Container	Improve life-cycle management of the CI server by using a sidecar image.	project/ci-server-companion
Container Structure Test	Run container structure tests with a shell for project/jenkins-master .	project/container-structure-test
Node Browsers	Use web browsers for end-to-end tests of web applications in Jenkins pipelines.	node-browsers/
SAP HANA XS Advanced CLI	Use command line tools to deploy to SAP HANA XS Advanced.	Dockerfile

Docker Images		
The following images are published on hub.docker.com/ :		
Name	Description	Docker Image
jenkins	Preconfigured Jenkins to run project "Piper" pipelines.	project/piper-jenkins
Jenkinsfile Runner	Jenkinsfile Runner based on project/jenkins-master , allows running a Jenkinsfile without a long-running, stateful Jenkins master.	project/jenkinsfile-runner
Jenkinsfile Runner GitHub Action	GitHub Action for using the Jenkinsfile Runner.	project/ci-server-companion
Life Cycle Container	Sidecar image for life-cycle management of the CI server.	project/ci-server-companion



TYPICAL SCENARIOS

CONTAINERIZED TOOLS

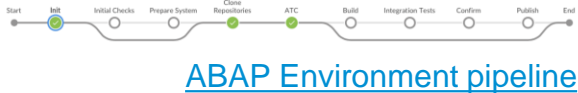

sap.github.io/jenkins-library/

STEP LIBRARY

A screenshot of the SAP Jenkins Library GitHub repository page, showing the repository name, description, and a list of recent commits with their authors and dates.

[Linux command line tool](#)

PIPELINE TEMPLATES



[ABAP Environment pipeline](#)



[General purpose pipeline](#)

1. Set up **CI/CD** efficiently for SAP environments

The general purpose pipeline

CI/CD enablement



■ General Purpose Pipeline

- A predefined, easy to use Jenkins pipeline
- Supports different scenarios

1. Set up **CI/CD** efficiently for **SAP** environments

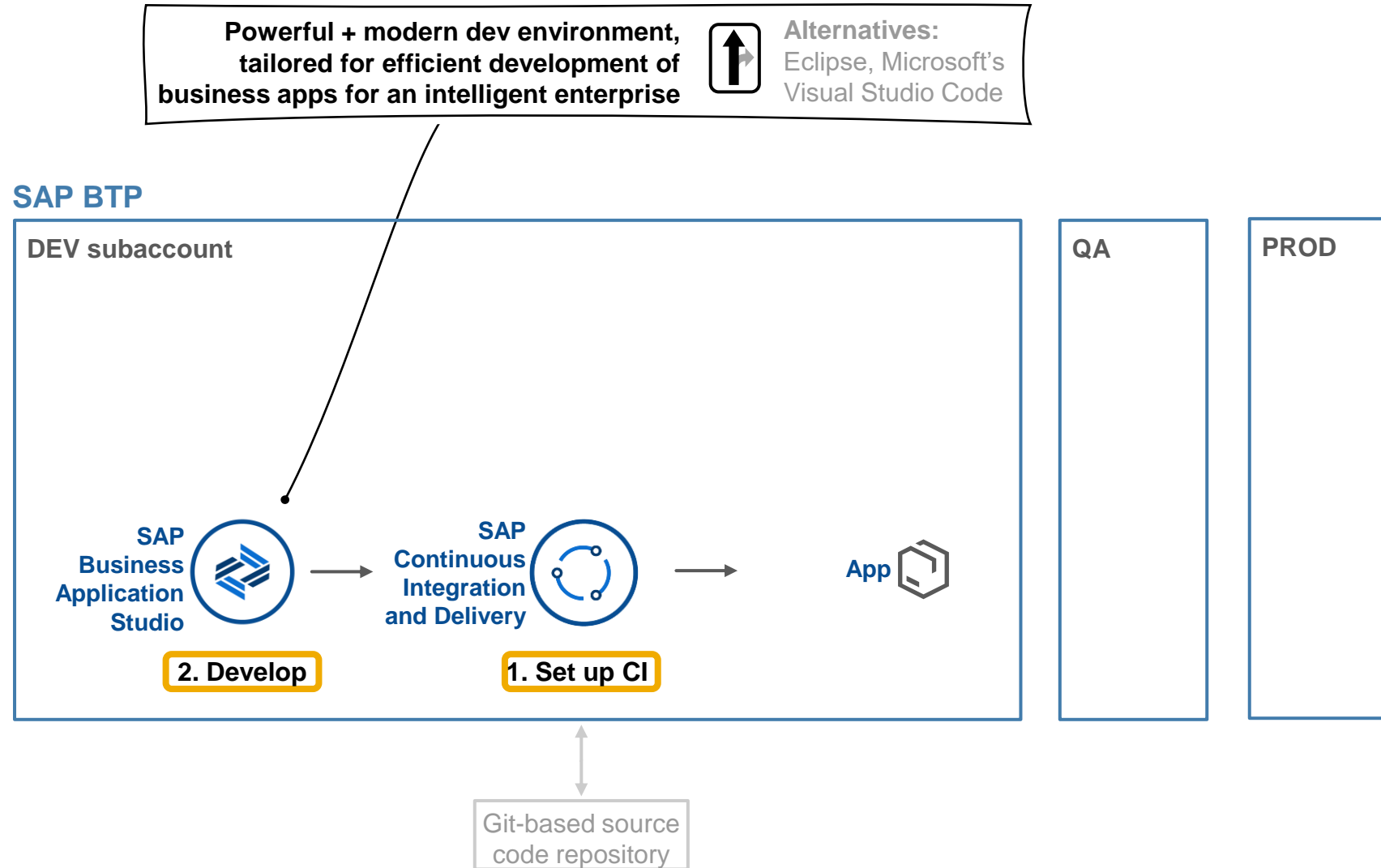
CI/CD enablement

In case you already have non-Jenkins CI/CD infrastructures in place

- Project “Piper” library steps in **Golang**
 - <https://github.com/SAP/jenkins-library/tree/master/resources/metadata> (available steps)
 - Linux command line tool available at: <https://sap.github.io/jenkins-library/cli/>
 - Download + execute under Linux kernel
- Containerized tools, such as with **Azure DevOps**
 - Blog post on using [Project “Piper” Docker Images with Azure DevOps](#)
- **GitHub Action** from project “Piper”: <https://github.com/SAP/project-piper-action>
- **AWS**: [AWS DevOps tools for SAP](#)

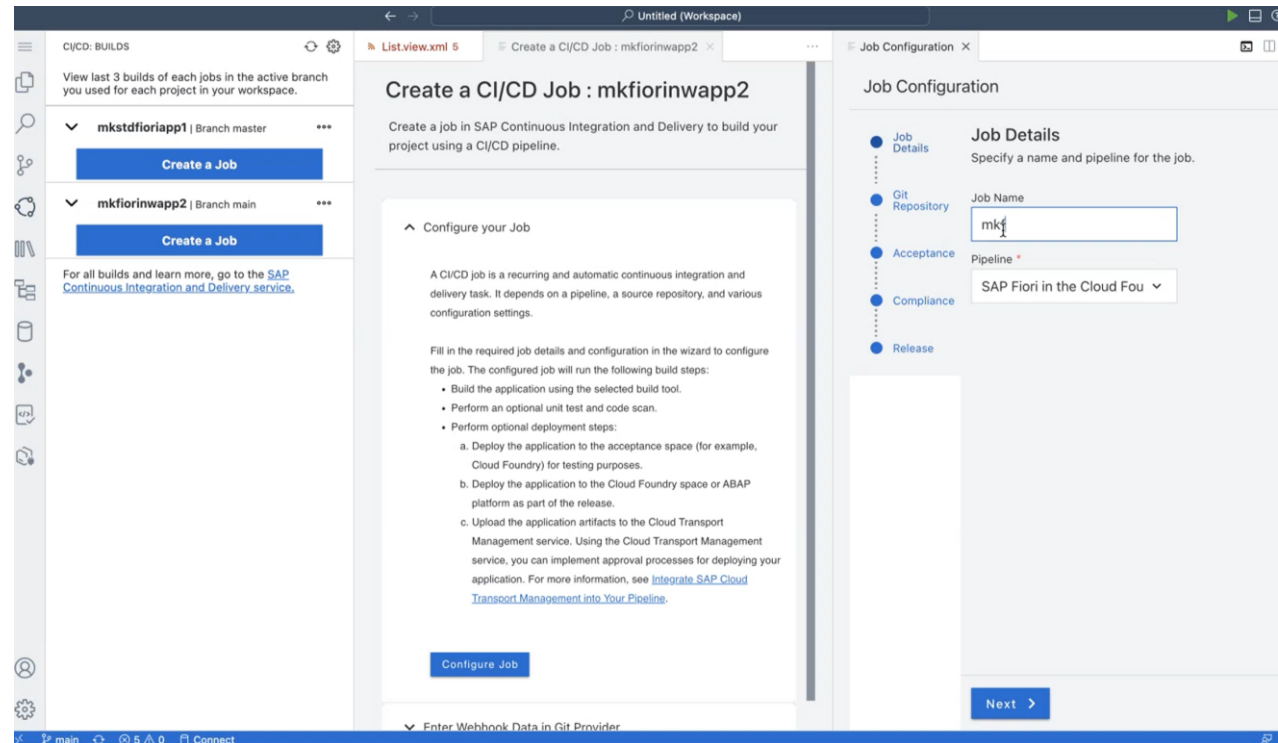


Enable DevOps on SAP BTP in enterprise environments



2. Agile development

Integration of SAP Business Application Studio with CI/CD for SAP Fiori

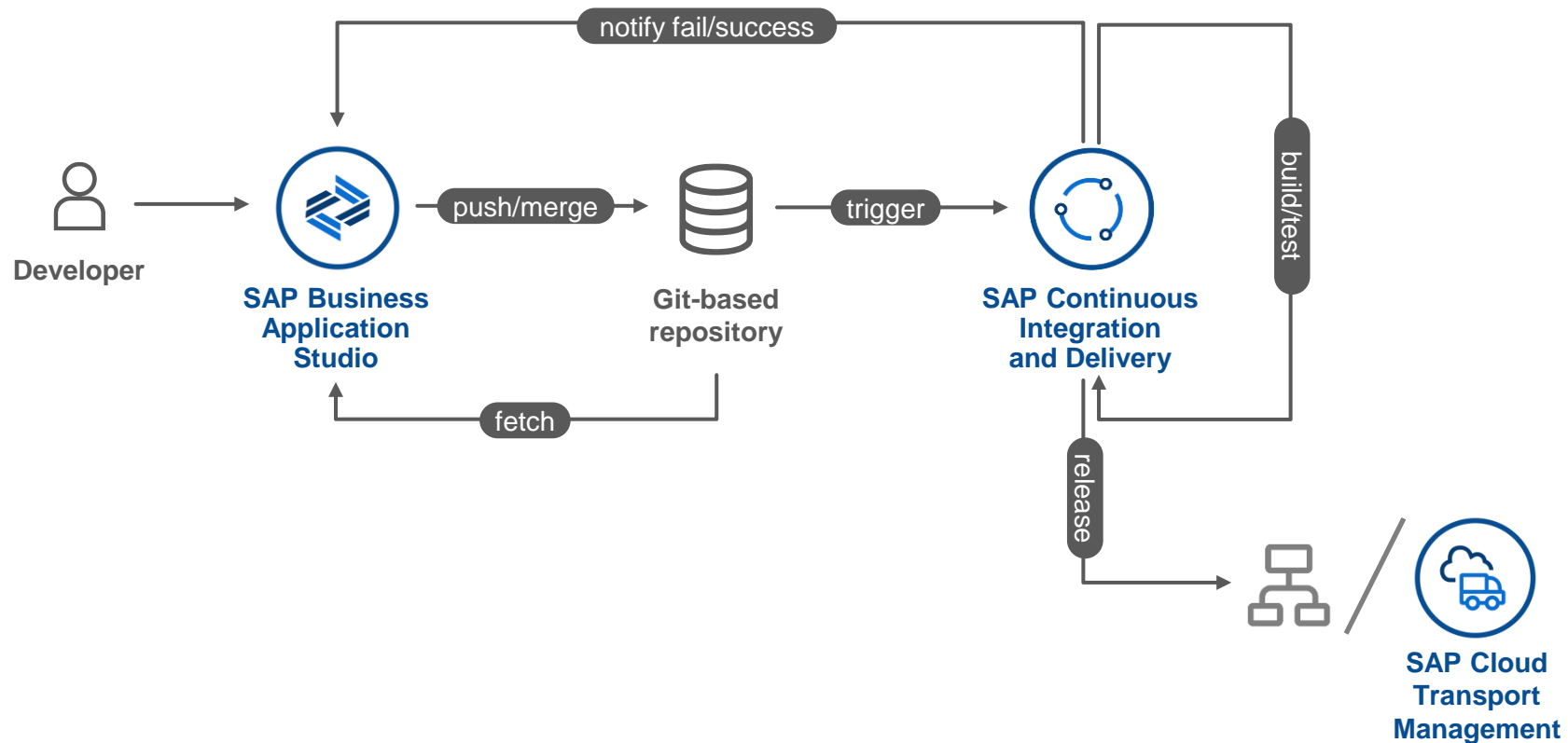


Set up CI/CD pipelines for your SAP Fiori projects on Cloud Foundry and ABAP front-end servers directly from **SAP Business Application Studio**

2. Agile development

CI/CD

Using automated continuous integration and continuous delivery pipelines on Cloud Foundry



Enable DevOps on SAP BTP in enterprise environments

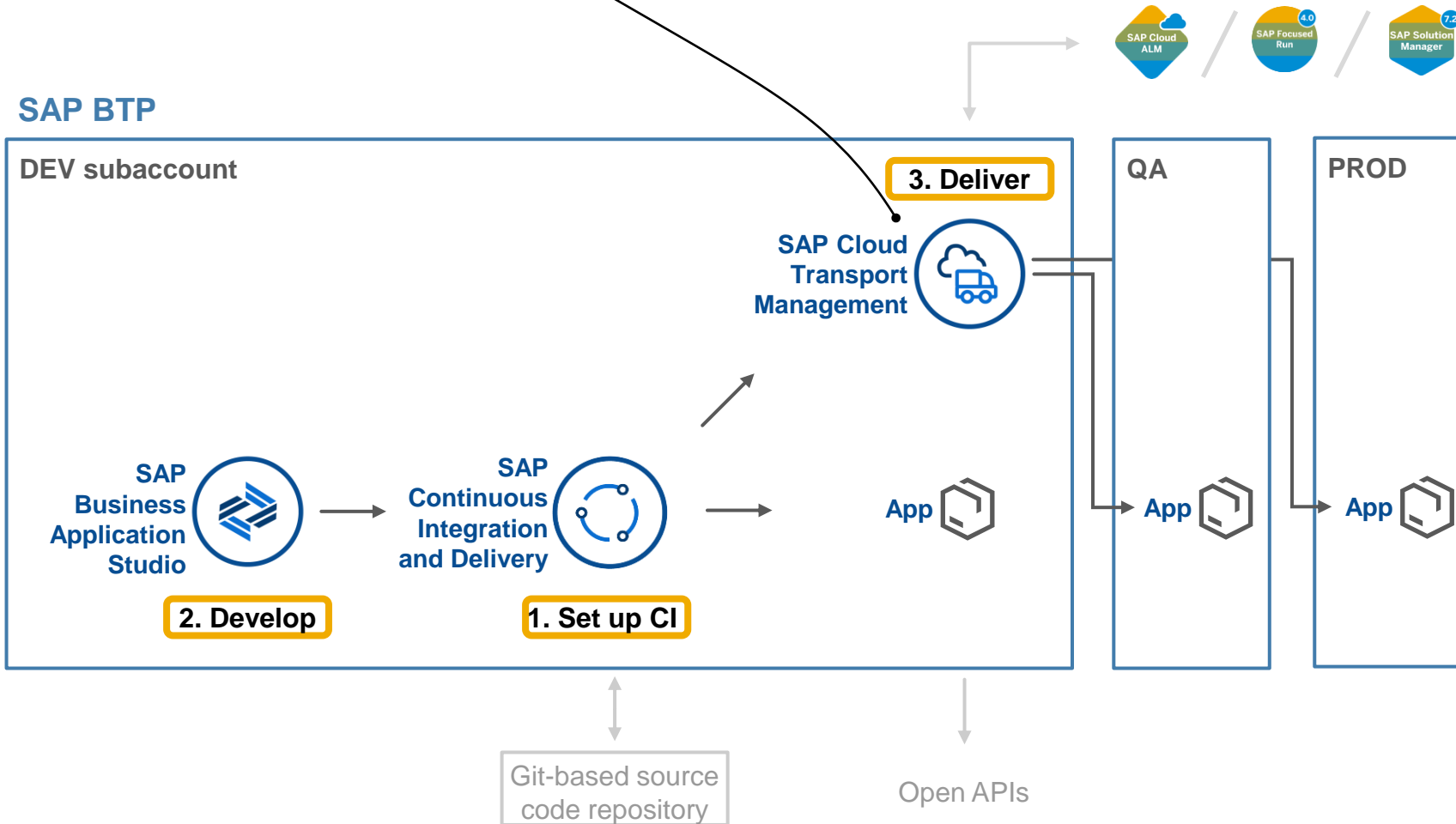


Standardized, enterprise-ready change mgmt. process – additional (regained) control, separation of concerns, auditing, synchronizing with on-premise changes



Alternatives:

Continuous deployment, CTS+, manual deployment



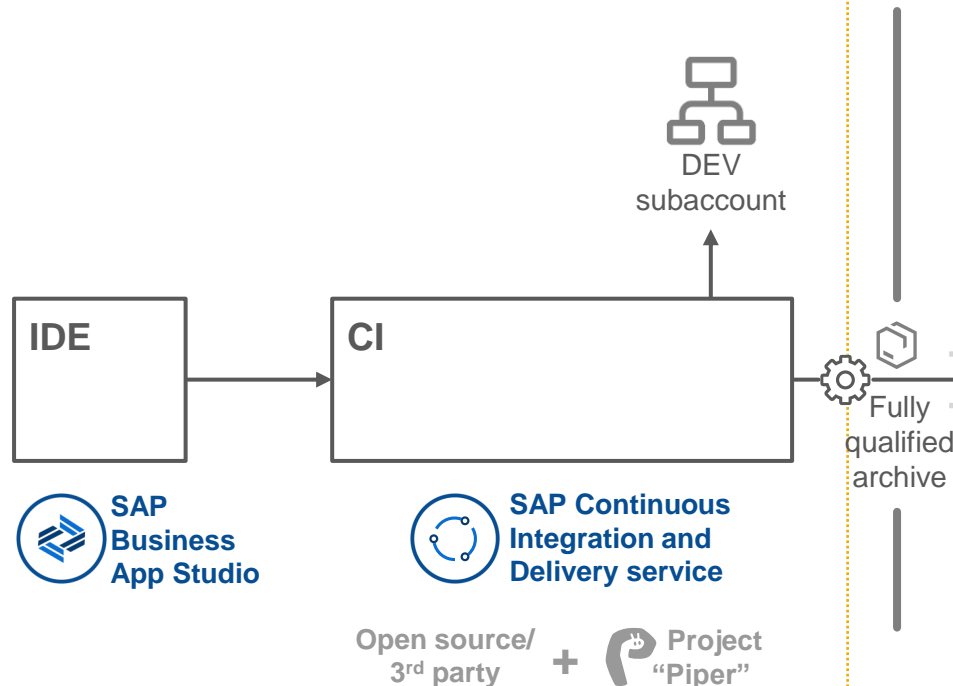
3. Deliver your cloud changes toward production

Transport mgmt

Best practice for delivery: combine agility + control

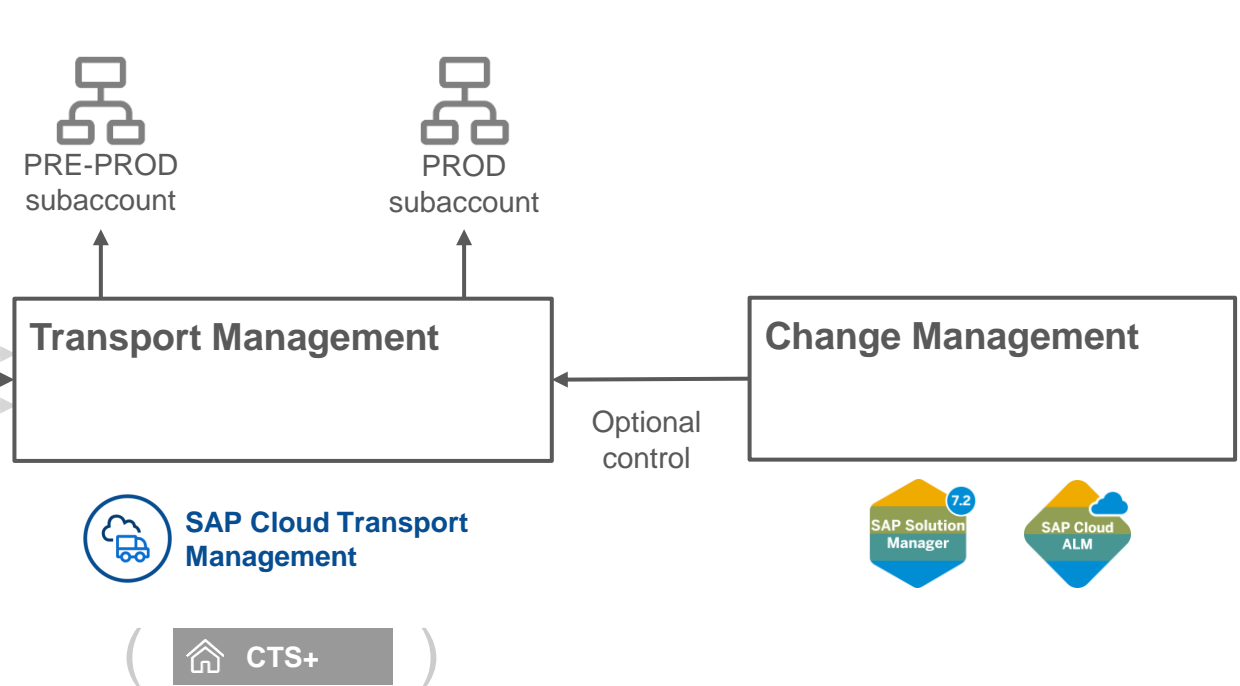
Development landscape

- Based on *Continuous Integration* principles, managed by local DevOps team
- Verification of single developer change
- Typically fully automated



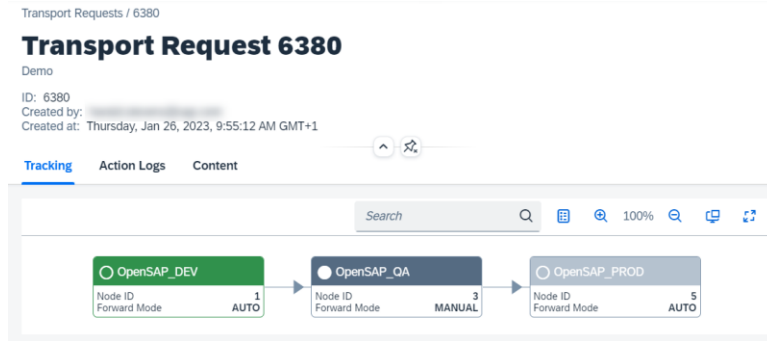
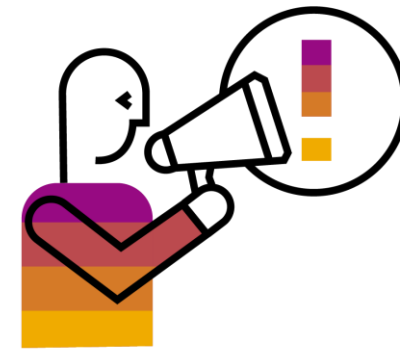
Delivery landscape

- Based on strict *Transport Management* rules (policies, schedules), centrally managed by ops/approvers
- Verification of release candidate version
- Typically done with manual confirmation



3. Deliver your cloud changes toward production

SAP Cloud Transport Management service – latest news



Transport-centric view

CPI and on-prem demo

Project: CDM Test Project
Scope: --
Workstream: Integration
Priority: High
Release Version: Deployment 07 / 22
Jul 1, 2022 - Jul 31, 2022

Status: Deployed

Description Transports (2) Relations (0)

ID	Title	Status	Target Tenant
Export Tenant: CPL_CF_DEV			
540	QDataIPforSalesOrder - Test	Deployed in CPL_CF_PROD	
Export Tenant: O11-000			
O11K903278	Import Demo	Deployed in O11-000	

Integration into change and deployment management capabilities of SAP Cloud ALM

Create Node

Content Type

Application Content

Multi-Target Application

BTP ABAP

XSC Delivery Unit

Go to Destination view

OK Cancel

Transport of SAP BTP, ABAP environment content

SAP Content Agent Service (CAS)

Export Content

1 Add Content 2 Add Dependencies (Optional) 3 Export Details 4 Review 5 Export

Reset Export Operation

Dependencies (0)

Name	Type	Version	Dependent On
------	------	---------	--------------

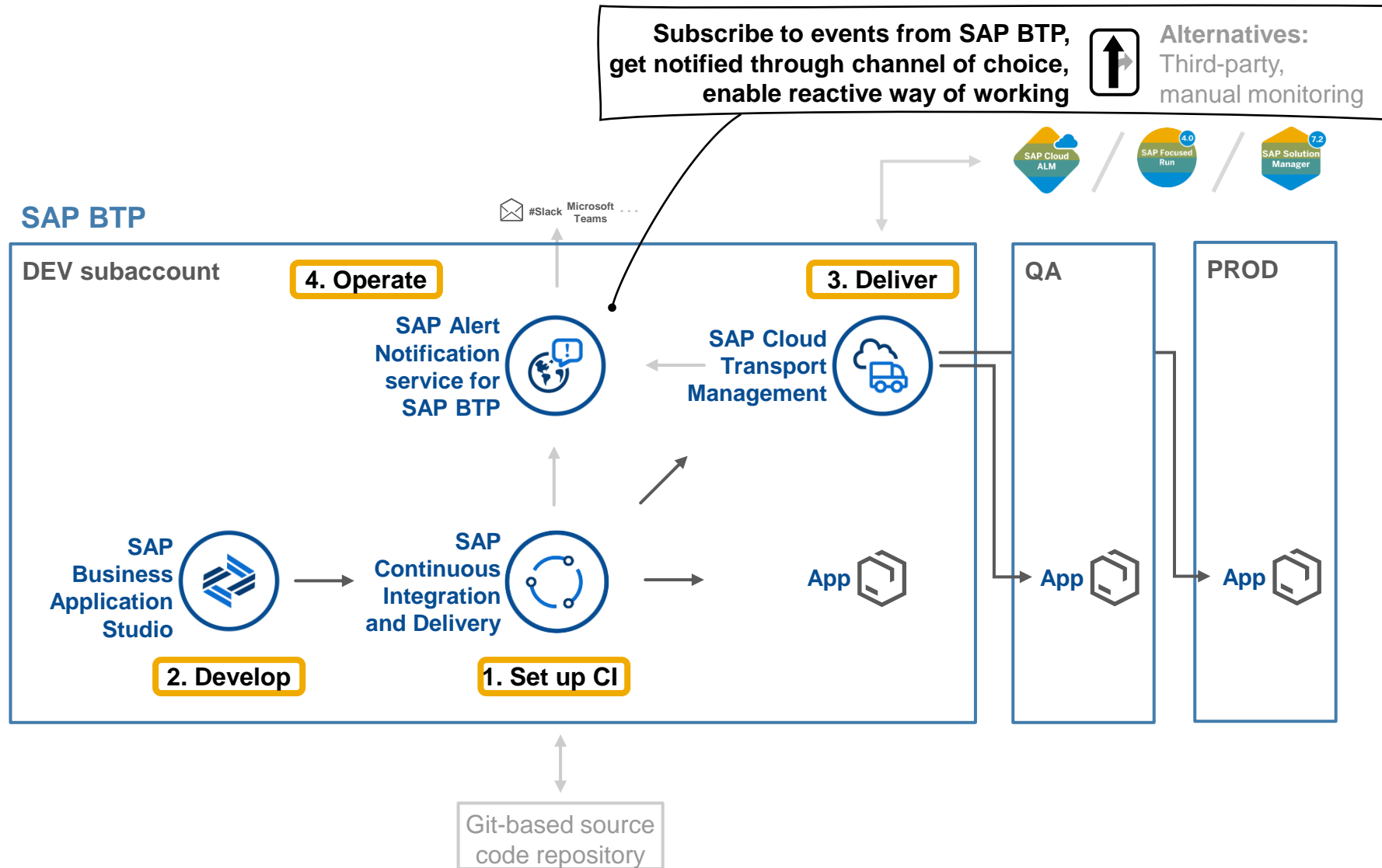
UI for SAP Content Agent service

All Projects (148)

Name	Versions	Type
Custom Invoice Approval Process	3 Available Latest: 3.0.1	Process Automation
Xiaohui Test transport	2.0.0 1.0.0	Process Automation

Transport of SAP Build Process Automation content

Enable DevOps on SAP BTP in enterprise environments



Enable DevOps on SAP BTP in enterprise environments

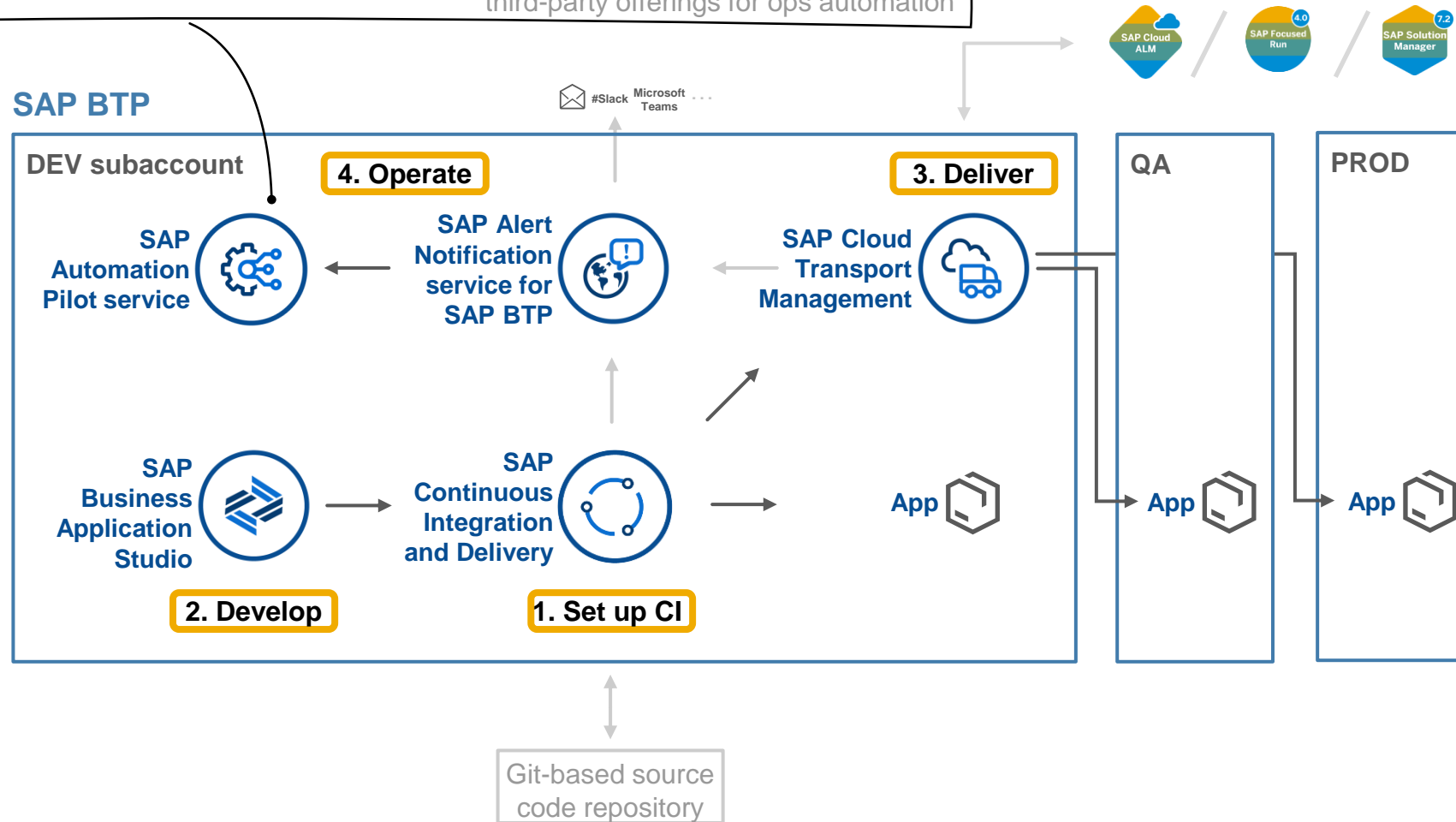


Low-code and no-code automation engine that brings catalogs of automated actions for DevOps tasks automation and alert remediation



Alternatives:

Shell scripts (custom solution),
SAP BTP command line interface,
third-party offerings for ops automation



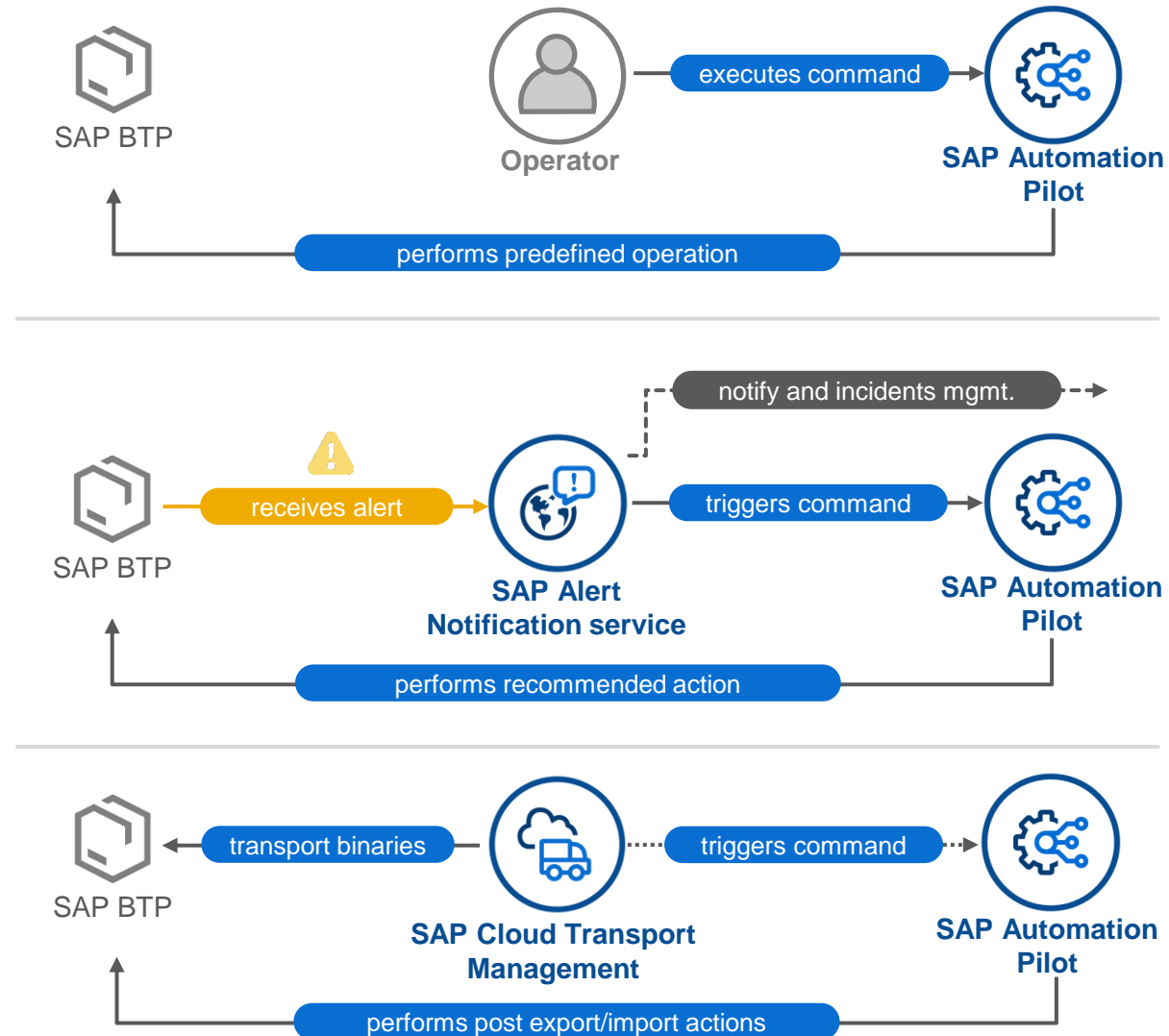
4. Operations: SAP Automation Pilot service

Ops automation



SAP Automation Pilot

- Model + execute automated sequences
- Execute scripts in serverless manner
- Example use cases:
 - Daily ops tasks
 - Alert remediation
 - Lifecycle management, hooks
 - Scheduled maintenance



Autoscaling

SAP BTP
resources mgmt

SAP BTP
runtimes (incl. Kyma)

SAP HANA Cloud

SAP Integration Suite

SAP Continuous
Integration and Delivery

Monitoring

Dynatrace,
Jenkins,
Jira

...

4. Operations: example use cases

Alerting

Ops automation

May
11th

Cloud App + SAP HANA Cloud: How to use SAP Alert Notification and SAP Automation Pilot for Synthetic Monitoring



May
25th

Monitoring, alerting and remediations on failed messages / events in SAP Event Mesh for your Cloud App

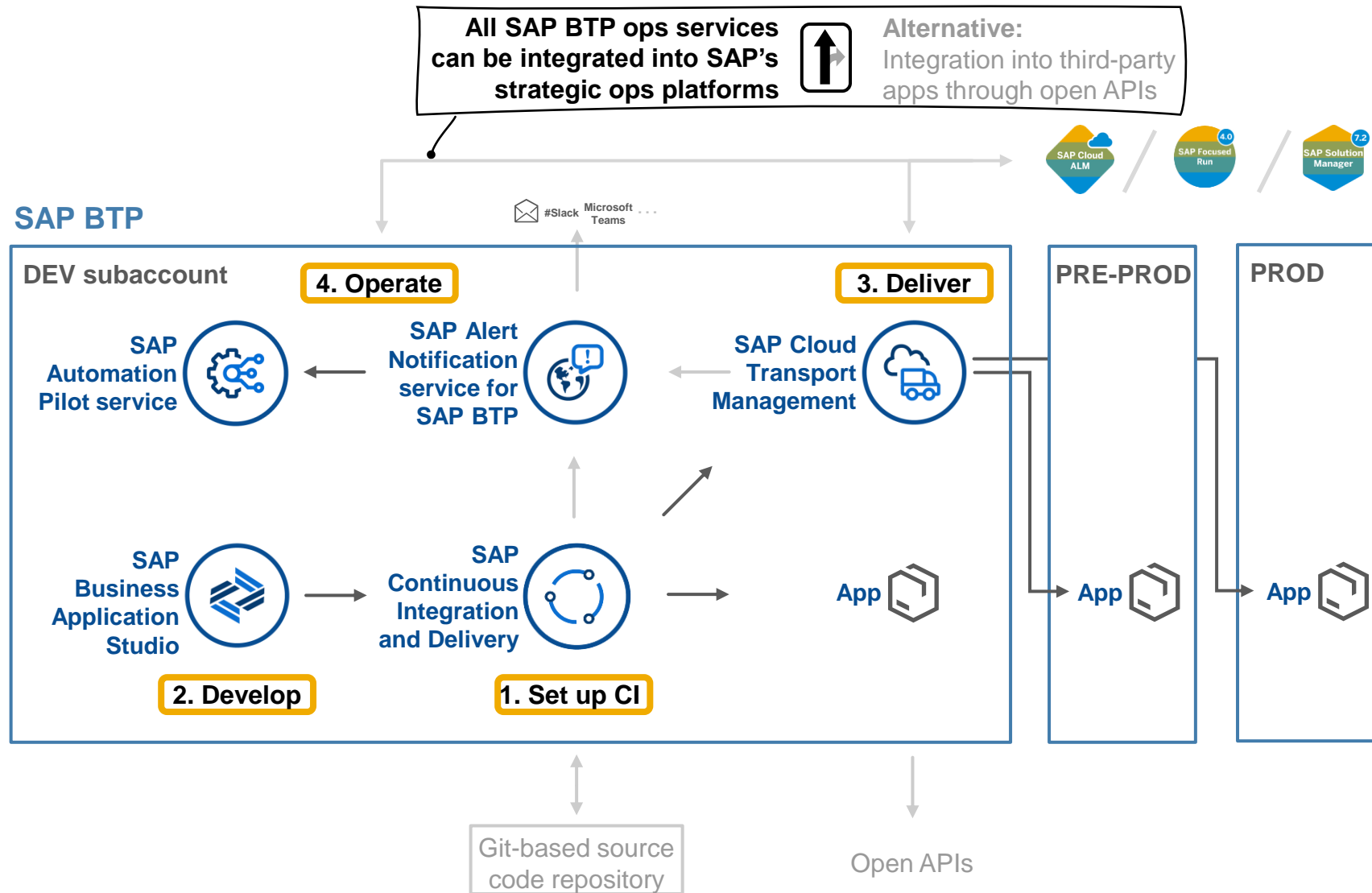


June
01st

SAP HANA Cloud: recurrent monitoring and an automated status report generation



Enable DevOps on SAP BTP in enterprise environments



Summary

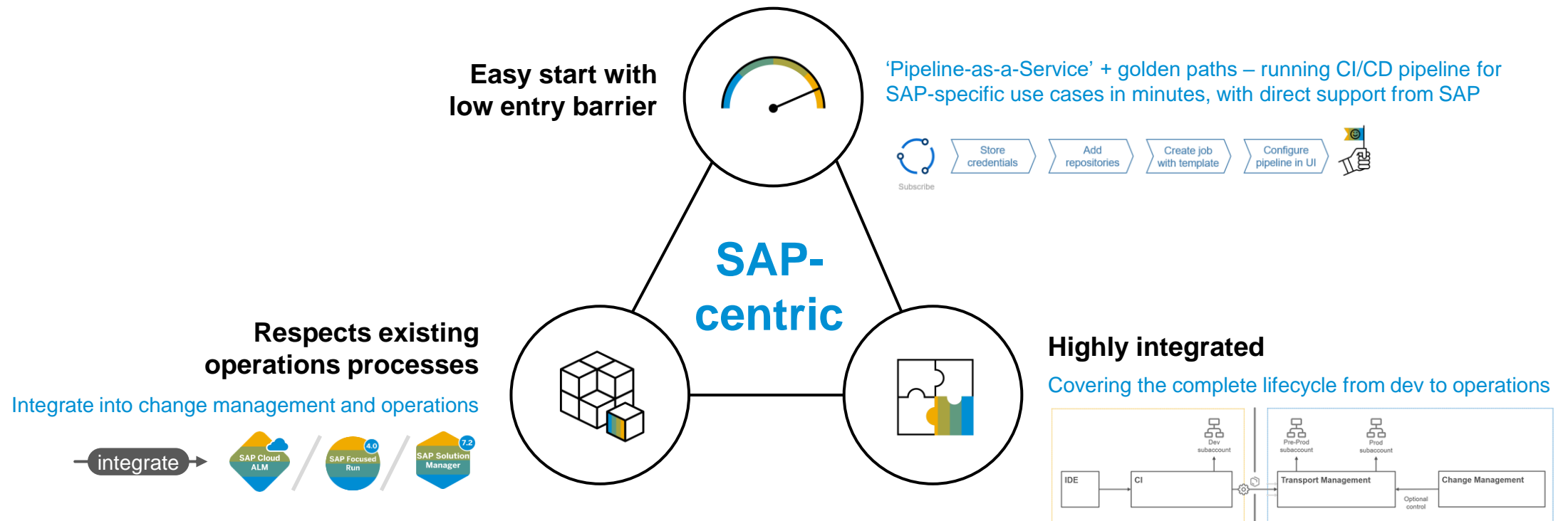


**The Open Space of
Application Operations
within SAP BTP**

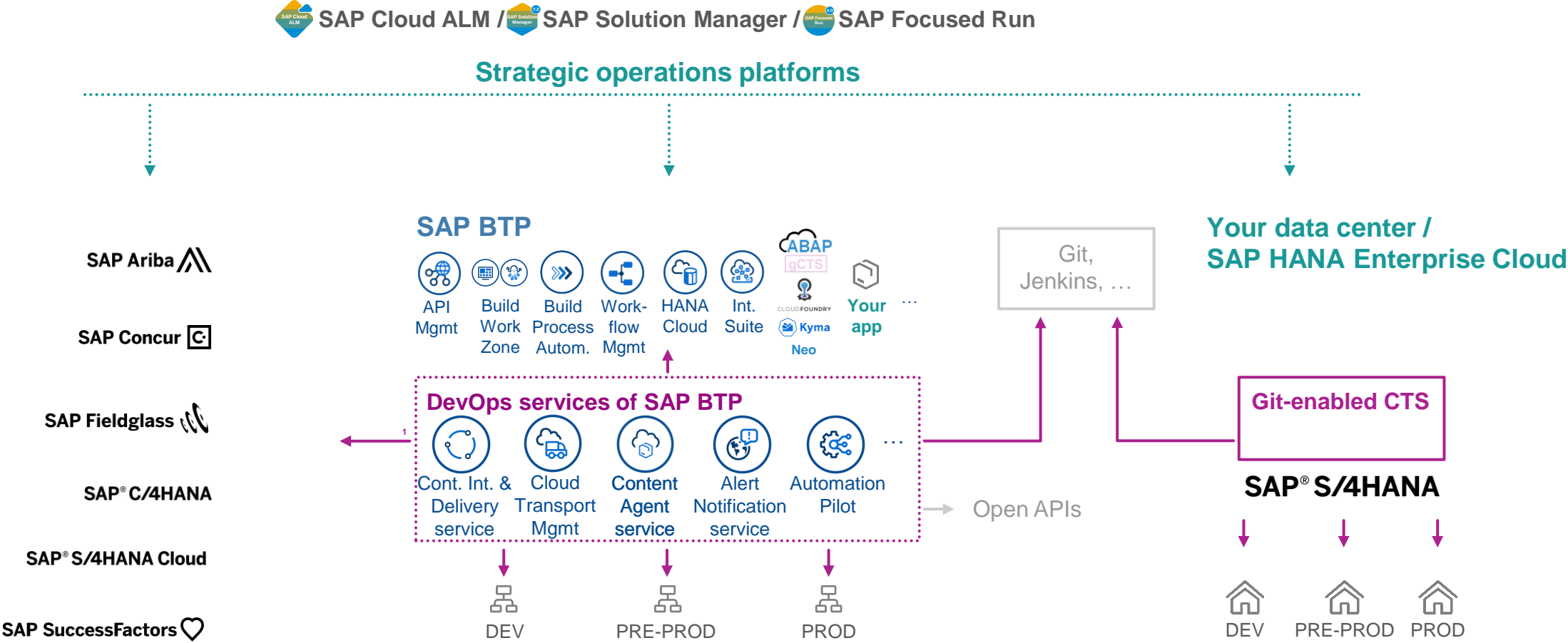
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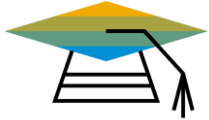


Vision of DevOps in hybrid enterprise environments



1) In progress

How your company can make **first steps**



Deepen your knowledge about DevOps with SAP



Identify suitable projects + teams interested in DevOps with SAP



Enable **quick results**: start simple + non-disruptively

- Greenfield: SAP CI+D service
- Existing CI/CD infrastructure: Project “Piper”
- ABAP on-premise: gCTS



Regain control & integrate, when needed

- Automated hand-over from automated pipeline into transport and change management
- Integration into strategic ops platform of choice



Scale: extend & adapt as needed, engage inside + outside your company with peers and experts on the same journey

[Sway about potential first steps](#)

Call to action



Learn more about DevOps with SAP:

- [The Open Space of Application Operations within SAP BTP Webcast Series](#)
- [DevOps SAP Community page](#)
- [openSAP course “Efficient DevOps with SAP”](#)
- [CI/CD in ABAP – An Outside-In View](#) (blog post)
- [CI/CD Tools for SAP BTP, ABAP Environment](#) (blog post)
- [SAP Help Portal page about DevOps with SAP BTP](#)
- [Best Practices for SAP BTP guide](#)
- [DevOps with SAP Business Technology Platform | Hands-on Video Tutorials](#)
- [App Development & Integration in SAP Road Map Explorer](#)

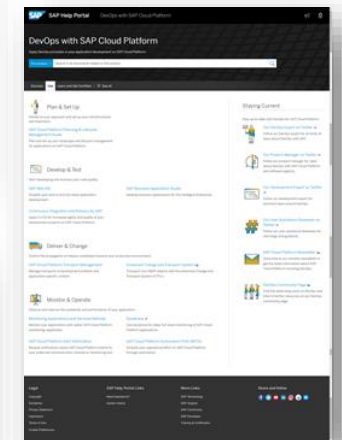
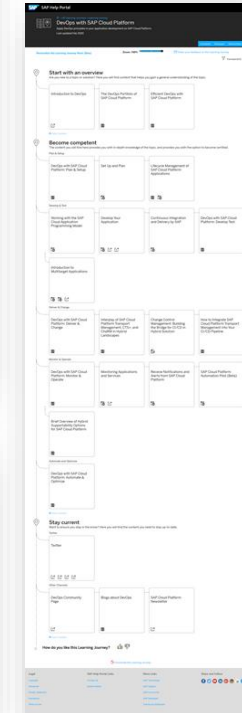
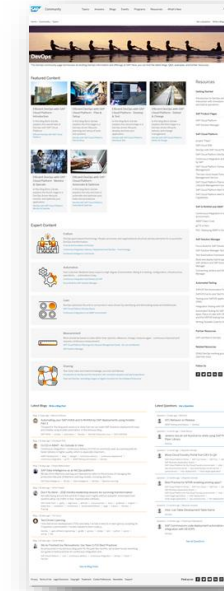


Try out our services on SAP BTP:

- Set up our services in the [free tier](#) environment of SAP BTP
- Run [missions](#) and [tutorials](#) for CI/CD, [booster](#) for SAP Automation Pilot



Contribute to our [SAP Continuous Influence session](#)



Our Series Agenda

The Americas: 10:00 EST (07:00am PST | 16:00 CET)

[Expand](#)

- ✓ DevOps with SAP BTP – April 20th, 2023 at 10:00 AM EST
- ✓ Integrate SAP Cloud Transport Management into Application Lifecycle Management solutions – April 27th, 2023 at 10:00 AM EST
- ✓ Cloud App + SAP HANA Cloud: How to use SAP Alert notification and SAP Automation Pilot for a Synthetic Monitoring – May 11th, 2023 at 10:00 AM EST
- ✓ Monitoring, alerting and remediations on failed messages / events in SAP Event Mesh for your Cloud App – May 25th, 2023 at 10:00 AM EST
- ✓ SAP HANA Cloud: recurrent monitoring and an automated status report generation – June 1st, 2023 at 10:00 AM EST

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Thank you.

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