S4H202 – Lifecycle Management of Applications Built on SAP Cloud Platform

EXTERNAL

Speakers 2017

Las Vegas

September 25 - 29

Miroslav Petrov

Bangalore

October 25 - 27

Manjunath Baburao

Barcelona

November 14 - 16

Harald Stevens

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Agenda

Setting the stage – What is SAP Cloud Platform?

Shared responsibility model

Typical lifecycle phases for SAP Cloud Platform applications

Typical lifecycle phases for partner applications – built on SAP Cloud Platform

Outlook/road map

Summary

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Setting the stage

SAP Cloud Platform

Key use cases

CPL119

Extend

cloud & on-prem apps

Quickly add new functionality to your existing cloud and on-prem apps to optimize your existing investments

Integrate

your apps and data

Connect your cloud and on-prem apps to eliminate data silos and make digital access simple, secure, and scalable

Build

differentiating cloud apps

Rapidly build and run new cloud apps to solve new problems, engage new customers, and drive new revenue

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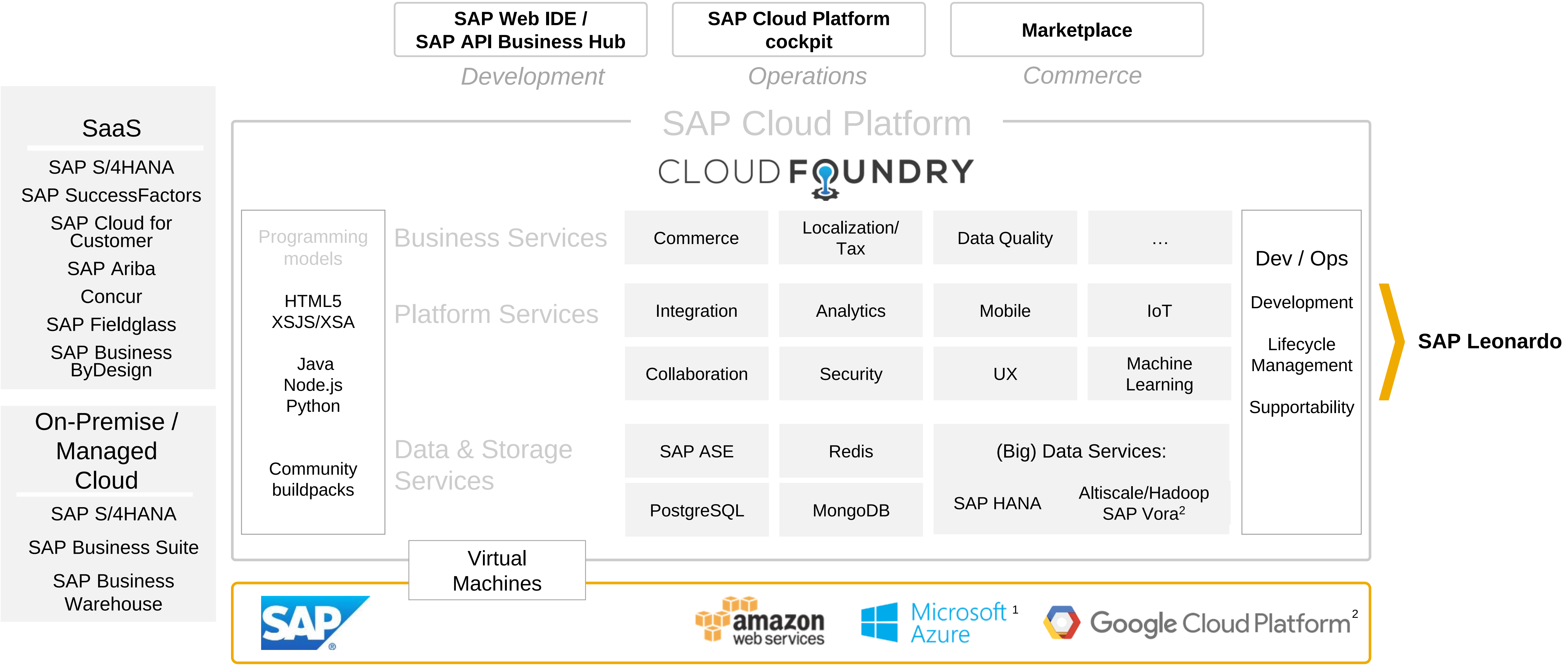
SAP Cloud Platform

Architecture



SAP Web IDE / SAP API Business Hub

Development

SAP Cloud Platform cockpit

Operations

Marketplace

Commerce

SaaS

- SAP S/4HANA
- SAP SuccessFactors
- SAP Cloud for Customer
- SAP Ariba
- Concur
- SAP Fieldglass
- SAP Business ByDesign

On-Premise / Managed Cloud

- SAP S/4HANA
- SAP Business Suite
- SAP Business Warehouse

SAP Cloud Platform

CLOUD FOUNDRY

Programming models

- HTML5
- XSJS/XSA
- Java
- Node.js
- Python
- Community buildpacks

Business Services: Commerce, Localization/ Tax, Data Quality, …

Platform Services: Integration, Analytics, Mobile, IoT, Collaboration, Security, UX, Machine Learning

Data & Storage Services: SAP ASE, Redis, PostgreSQL, MongoDB, (Big) Data Services: SAP HANA, Altiscale/Hadoop, SAP Vora[2]

Dev / Ops

- Development
- Lifecycle Management
- Supportability

SAP Leonardo

Virtual Machines

SAP, amazon web services, Microsoft Azure[1], Google Cloud Platform[2]

1) BETA , 2) planned innovations / future direction

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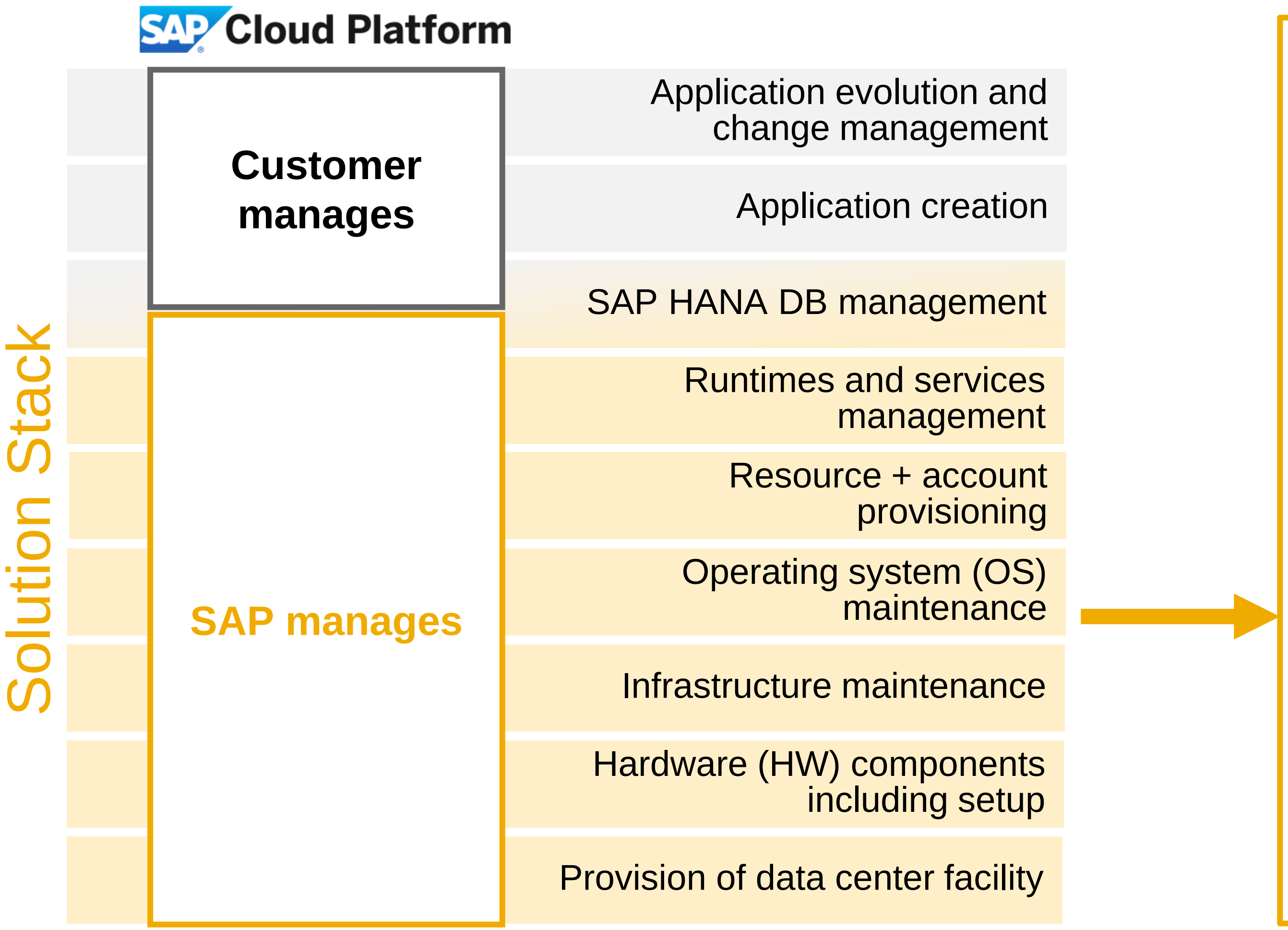
Shared responsibility model

SAP Cloud Platform

Platform-as-a-Service – SAP manages platform, customer manages apps


SAP Cloud Platform
Solution Stack
Customer manages
SAP manages
Application evolution and change management
Application creation
SAP HANA DB management
Runtimes and services management
Resource + account provisioning
Operating system (OS) maintenance
Infrastructure maintenance
Hardware (HW) components including setup
Provision of data center facility

SAP Cloud Platform services

- SAP specialists in cloud services operate overall infrastructure
- **Infrastructure operations management**
  - Monitor, patch, apply software updates, and maintenance up to the OS layer
- **OS management**
  - Monitor, patch, apply updates, and maintenance of specific OS
- **Resource and account provisioning**
  - Set up initial account, provide purchased resources + services
- **SAP technical operations**
  - Monitor, perform troubleshooting – incident management, regular updates, housekeeping
- **Health check services, services monitoring, capacity management**
- **SAP HANA database platform operations**
  - Hardware configuration management, backup and recovery, space management, security management, provide SAP HANA data center service point revisions as self-service update options

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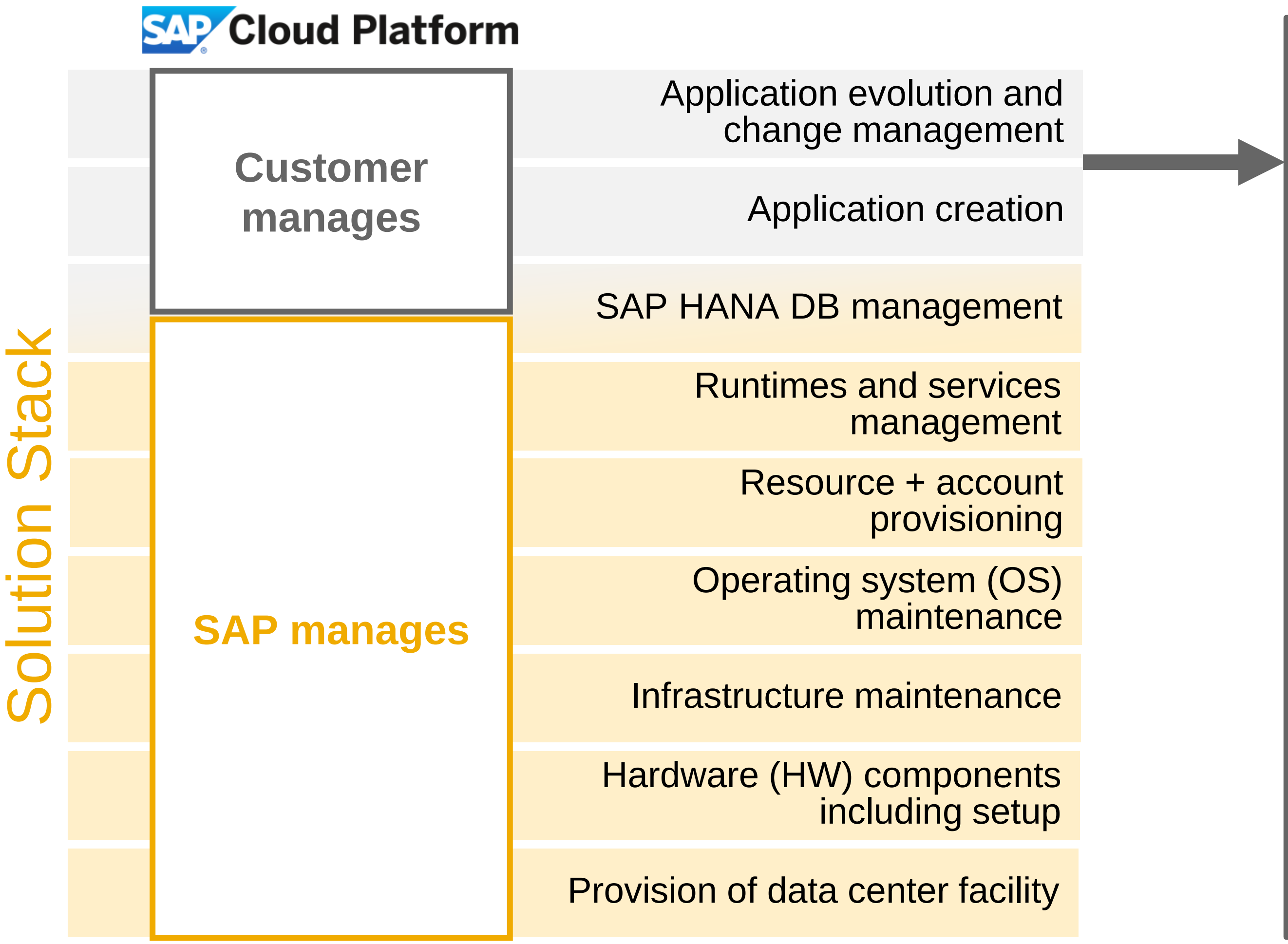
SAP Cloud Platform

Platform-as-a-Service – SAP manages platform, customer manages apps



SAP Cloud Platform

Solution Stack

Customer manages

SAP manages

Application evolution and change management

Application creation

SAP HANA DB management

Runtimes and services management

Resource + account provisioning

Operating system (OS) maintenance

Infrastructure maintenance

Hardware (HW) components including setup

Provision of data center facility

Customer responsibilities

- Customers develop and operate applications
- **Manage accounts**
  - Create and manage sub-accounts based on project requirements
  - Configure accounts, e.g. security settings
  - Distribute resources + services accordingly (when needed in cooperation with SAP operations teams)
- **Customer individual application operations**
  - When applicable: set up integration with existing systems and applications
  - Develop application
  - Manage application-specific role assignments
  - Monitor + implement health checks, perform troubleshooting, regular updates, housekeeping (leveraging PaaS services and frameworks)
- **SAP HANA database platform operations**
  - Use self-service to update SAP HANA revisions when applicable

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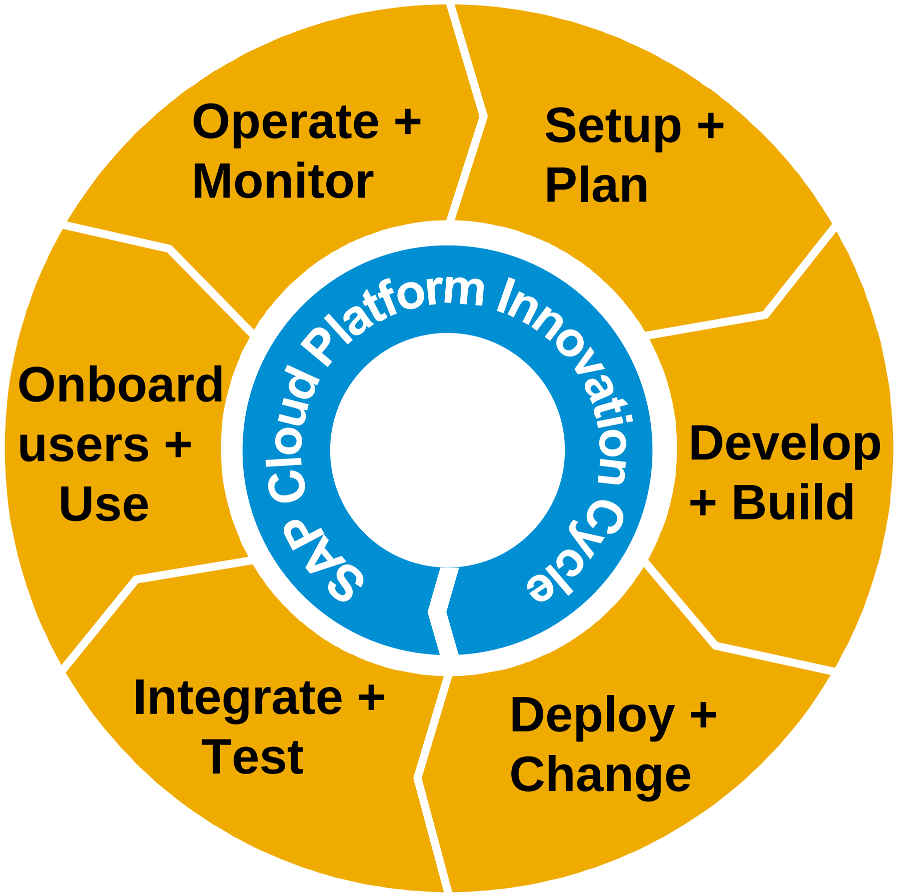
Typical lifecycle phases for SAP Cloud Platform applications

Typical lifecycle phases for SAP Cloud Platform applications

Customer develops application on SAP Cloud Platform



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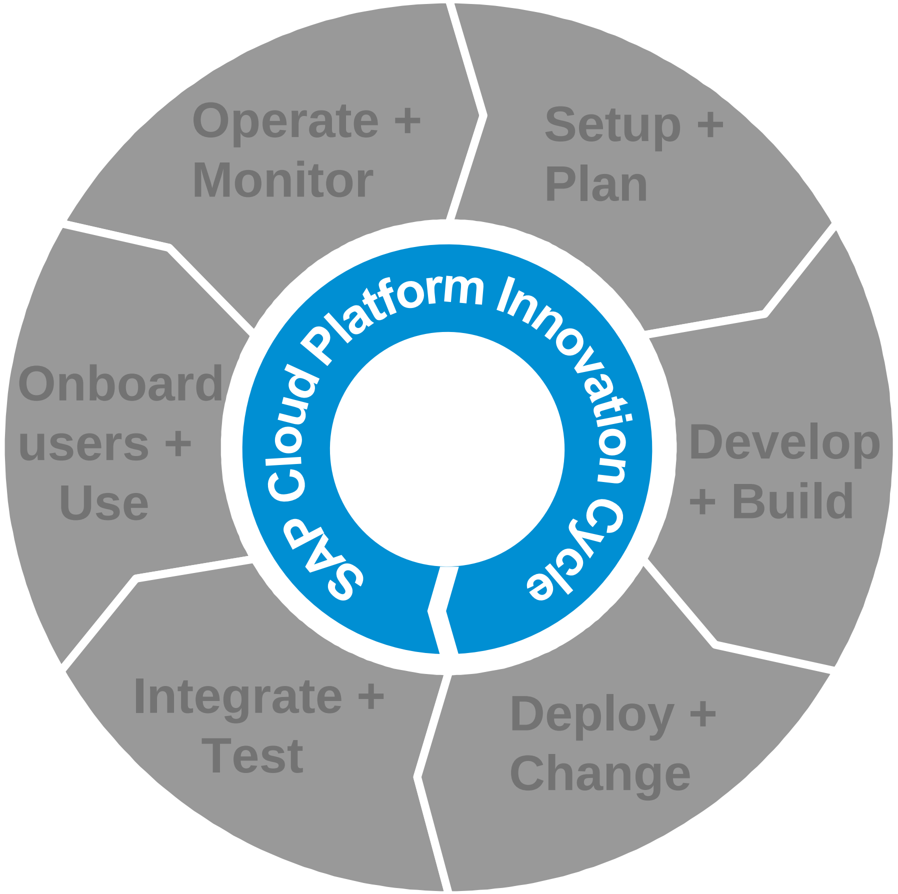
Typical lifecycle phases for SAP Cloud Platform applications

SAP Cloud Platform has its own innovation cycle



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Platform-as-a-Service

Innovation cycle – why at all?

Major value proposition of SAP Cloud Platform as Platform-as-a-Service offering:

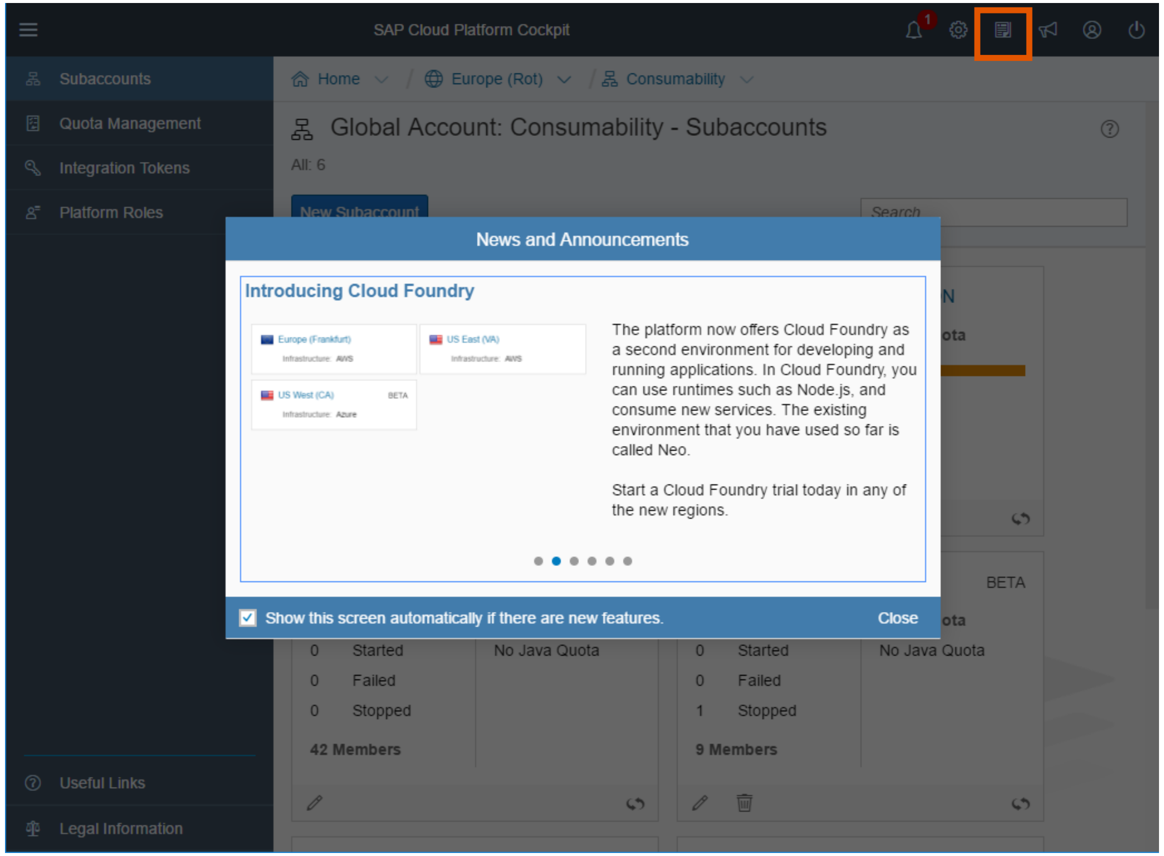
- SAP provides platform itself as service and takes care of operating, updating and enriching it accordingly
- Customers and partners – i.e. developers – can focus on creating applications

Regular and quick innovation cycles for SAP Cloud Platform runtimes + services:

- Currently bi-weekly release cycle
- See latest news in release notes + announcements when logging into SAP Cloud Platform cockpit

Access to multi-cloud environment:

- Neo environment in SAP datacenters
- Cloud Foundry environment on Amazon Web Services and Microsoft Azure (Beta)



News and Announcements

Introducing Cloud Foundry

The platform now offers Cloud Foundry as a second environment for developing and running applications. In Cloud Foundry, you can use runtimes such as Node.js, and consume new services. The existing environment that you have used so far is called Neo.

Start a Cloud Foundry trial today in any of the new regions.

☑ Show this screen automatically if there are new features.

Close

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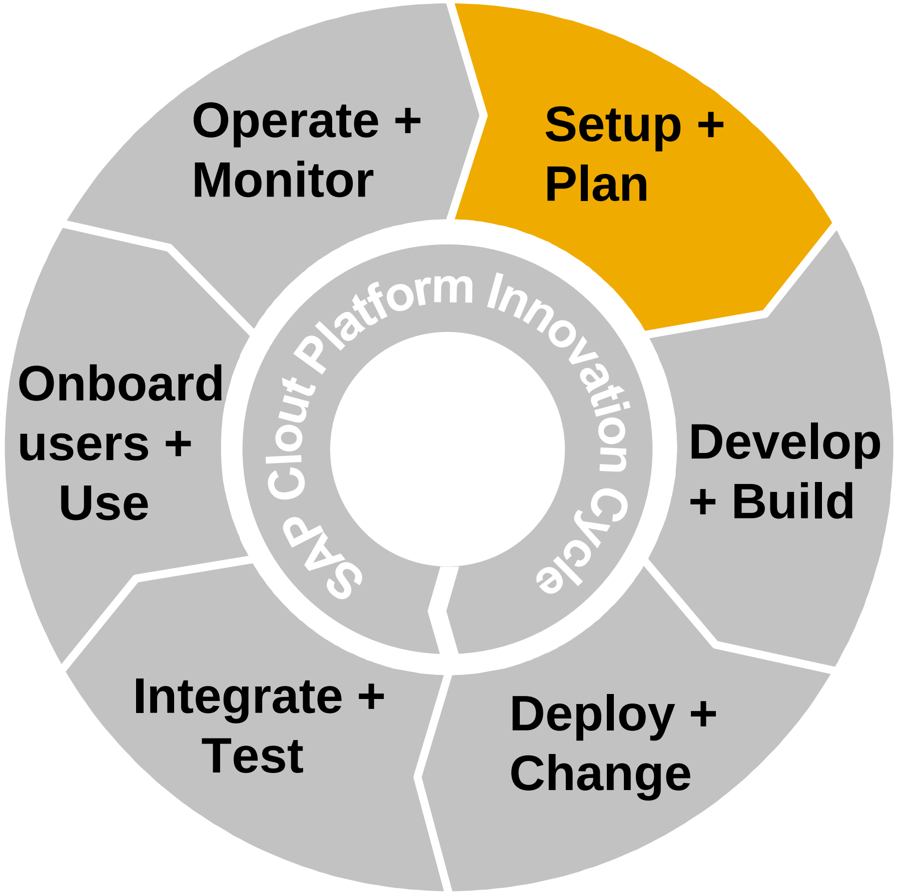
Typical lifecycle phases for SAP Cloud Platform applications

Setup and plan



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Types of SAP Cloud Platform applications

What are you going to build?

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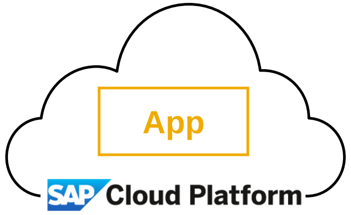
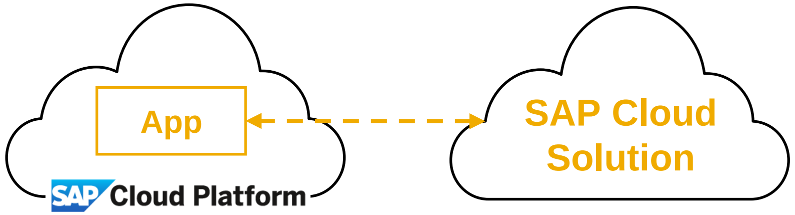
1 Standalone



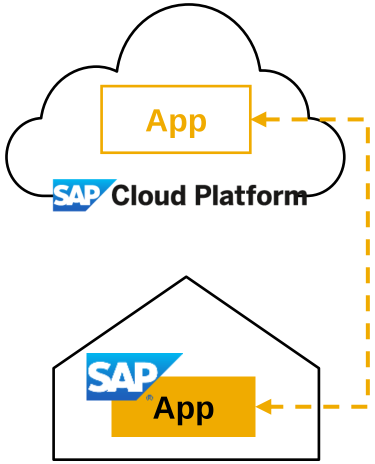
SAP Cloud Platform application only – no dependencies to manage

2 Cloud extension



SAP Cloud Platform-based application + dependency to SAP Cloud solution

3 On-premise extension



SAP Cloud Platform-based application + dependency to on-premise component or application

Different target architectures/application archetypes lead to different requirements around lifecycle management and tooling

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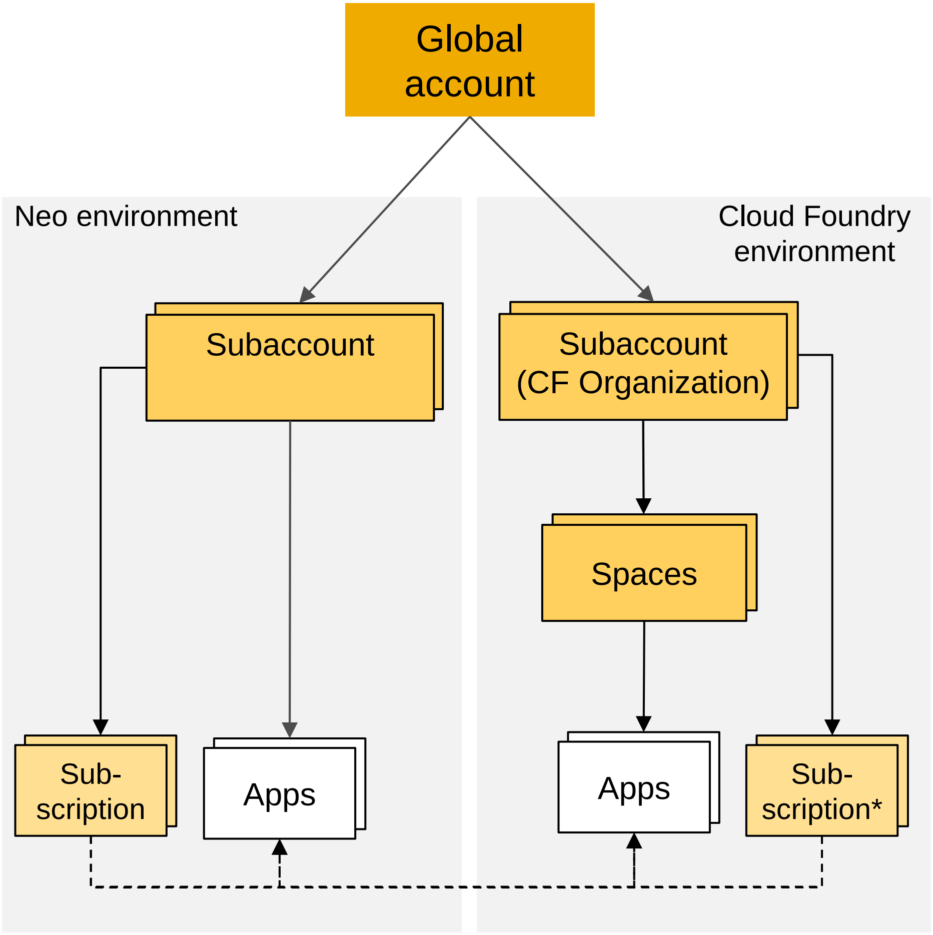
SAP Cloud Platform

Accounts



- Represents a SAP Cloud Platform customer and his/her available quota
- Spans across (geographical) regions

- Used by customer to structure development or application consumption (example: dev/test/prod or different subsidiaries)
- Holds common configuration: e.g. business users, roles, connectivity, …

- Use Neo or Cloud Foundry environment to develop own applications (PaaS scenario)
- Use subscriptions to consume provided SaaS applications (SaaS scenario)
- Supported environments can grow over time (e.g. Kubernetes,...)*

* Future Plan

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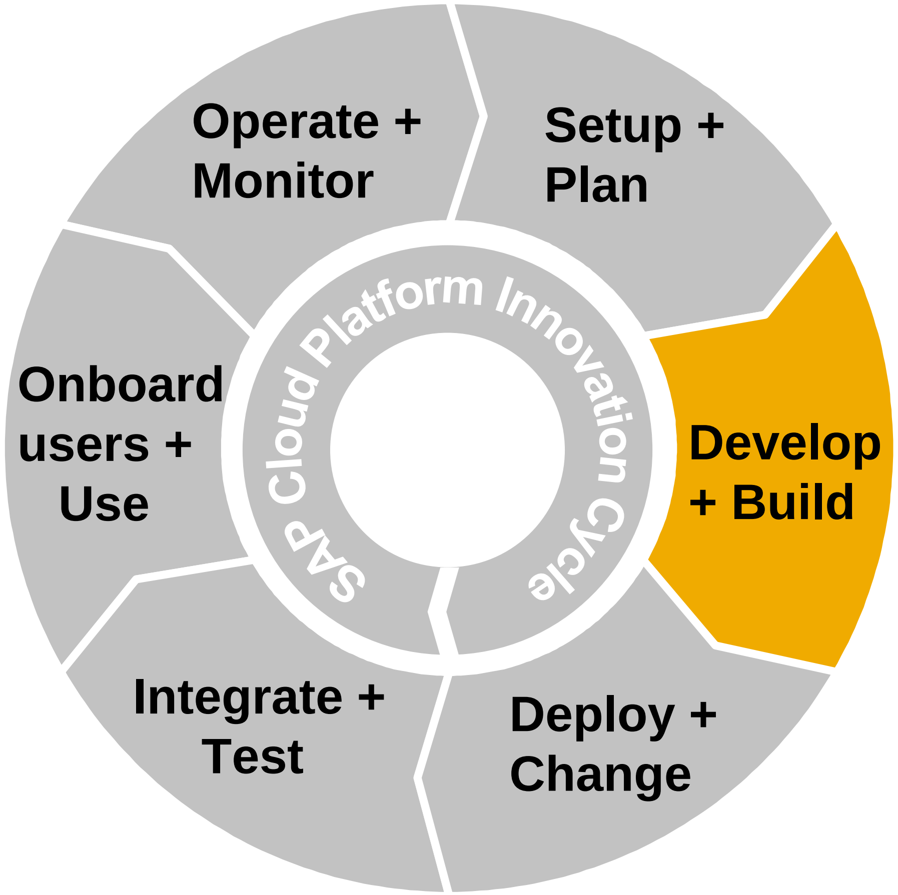
Typical lifecycle phases for SAP Cloud Platform apps

Develop and build



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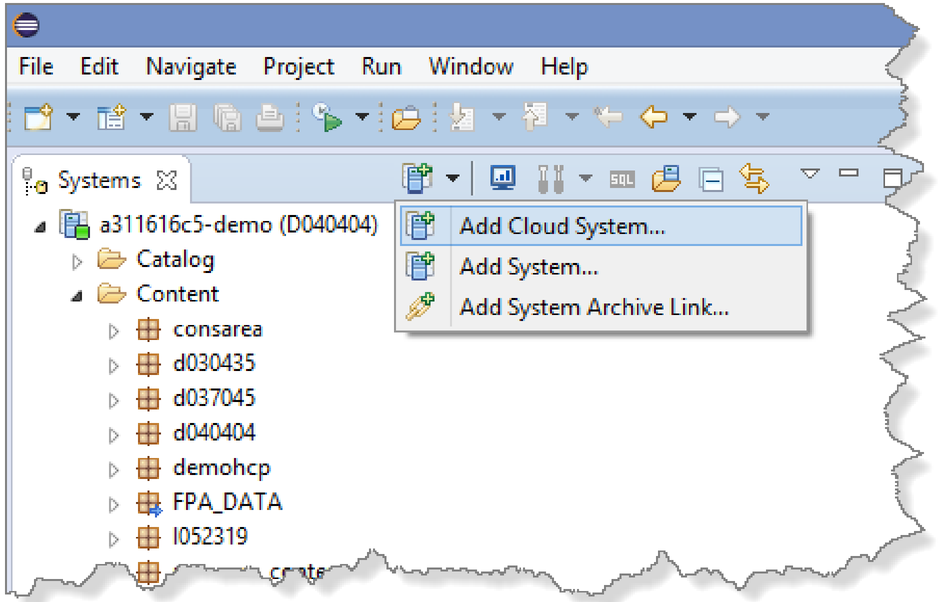
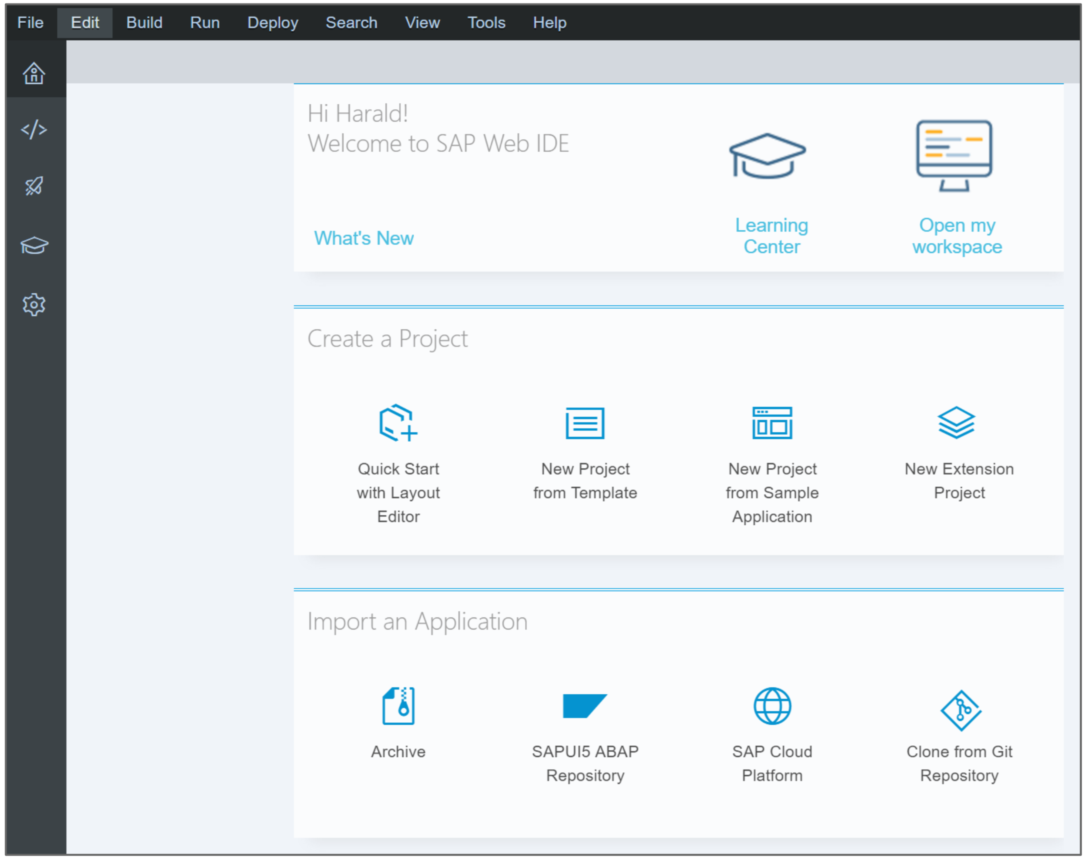
Develop your applications

Development environments

Create your application development environment:

- Cloud Foundry architecture allows use of buildpacks to use your favorite programming language
- SAP Web IDE (for SAPUI5, Fiori and SAP HANA)
- Eclipse plug-in to connect to SAP Cloud Platform




Hi Harald!
Welcome to SAP Web IDE

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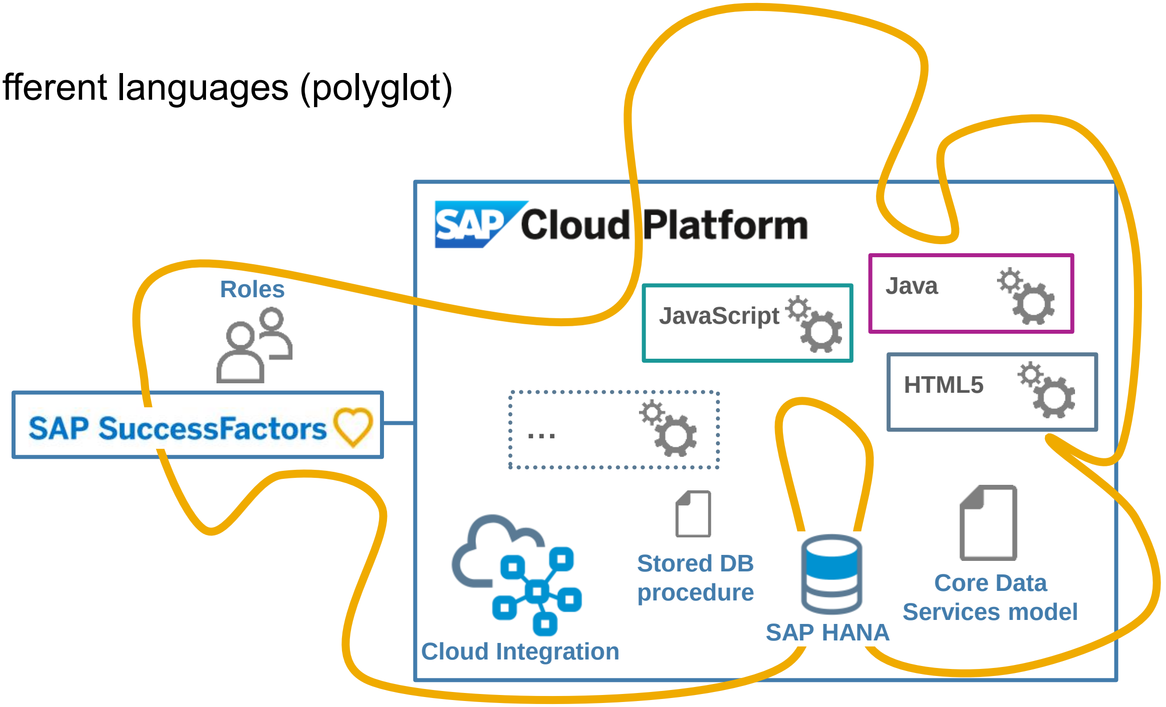
Manage dependencies

Heterogeneity of cloud software … and our approach to tackle it

Cloud applications often show a high heterogeneity

- Consisting of multiple interdependent software “modules”, written in different languages (polyglot)
- Using multiple programming paradigms and development tools
- Deployed to multiple target runtimes
- Involving different products



As modules provide single coherent application purpose, shared single lifecycle is desired

- To deploy all parts together, in the right order, automatically
- To manage configuration of complete solution

To ease handling of such a combined single lifecycle, SAP introduced Multi-Target Applications (MTAs)

- Hand-over artifact between development and operation + delivery construct for partners
- Can be delivered, transported, linked to SAP software components, and deployed
- Process can be automated in a *Continuous Integration* pipeline
- For more information about MTAs, see SAP Help Portal

CPL221

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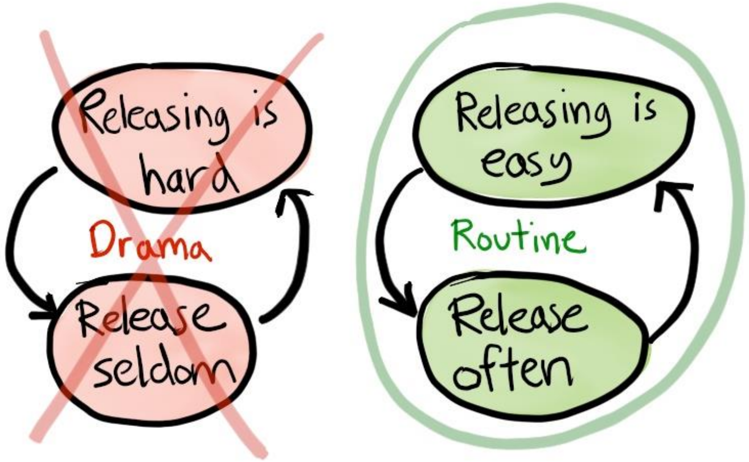
Continuous Integration – key practices

If you want to run in DevOps mode it’s advisable to implement a highly automated agile development process – to ensure speed and quality

- Maintain a code repository
- Automate the build (scriptable MTA archive builder available)
- Make the build self-testing
- Every commit (to baseline) should be built
- Everyone can see the results of the latest build
- Automate the deployment



More details: **Continuous Integration (CI) Best Practices with SAP**
http://www.sap.com/developer/tutorials/ci-best-practices-intro.html

CPL126 Continuous Delivery: Introduction

CPL216 Best of Two Worlds: Continuous Integration and Change Management

CPL275 Continuous Delivery of an SAP Fiori Application to SAP Cloud Platform

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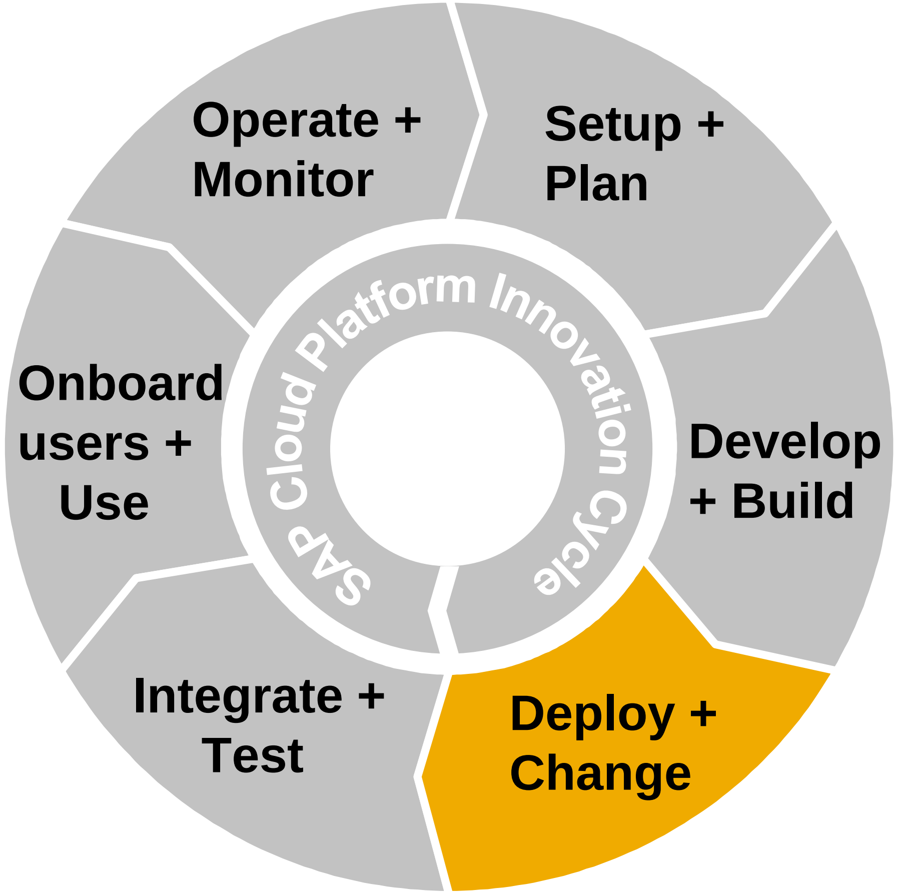
Typical lifecycle phases for SAP Cloud Platform apps

Deploy and change



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Deployment of simple applications

Leveraging suitable tools for different runtimes and services

- Use SAP Cloud Platform cockpit or console client to deploy a Java application
- Options to choose for your development suitable runtimes, JVM versions etc.
- For larger-scaled development setups, connect your own development infrastructure

- Deployment from within SAP Web IDE
- Export and import via SAP Cloud Platform cockpit (Neo environment)
- Deployment via console client (cf push, Cloud Foundry environment)

SAP HANA XS classic

- Delivery Unit (DU) is a .tgz file containing all SAP HANA artefacts that are part of application
- Export and import via SAP HANA administration tools, can be opened via SAP Cloud Platform cockpit

- Deployment from within SAP Web IDE
- Deployment via console client (cf push, Cloud Foundry environment)

SAP HANA XS advanced

- Deployment via SAP HANA Deployment Infrastructure (HDI) from within SAP Web IDE
- Deployment via console client (cf push)

- Bring your own language
- Rely on language-specific development and deployment infrastructure

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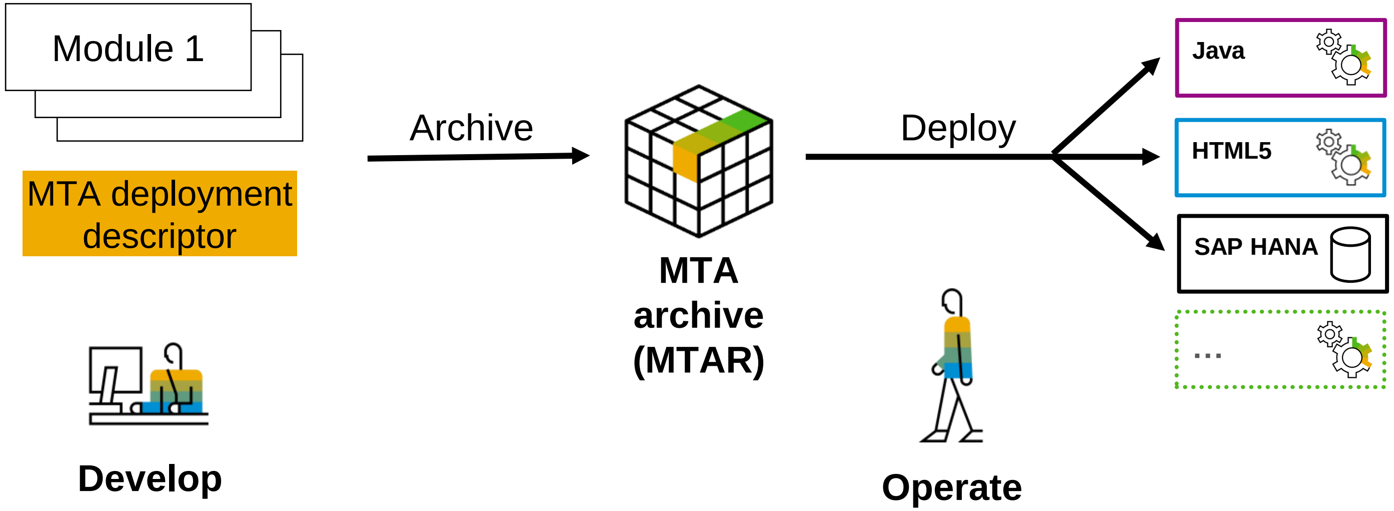
Deployment of Multi-Target Application archives

Combining deployments of different artefacts

Solutions consisting of different artefacts can be modeled as an MTA and deployed together

Use console client or solutions view in the SAP Cloud Platform cockpit to deploy the MTA archive



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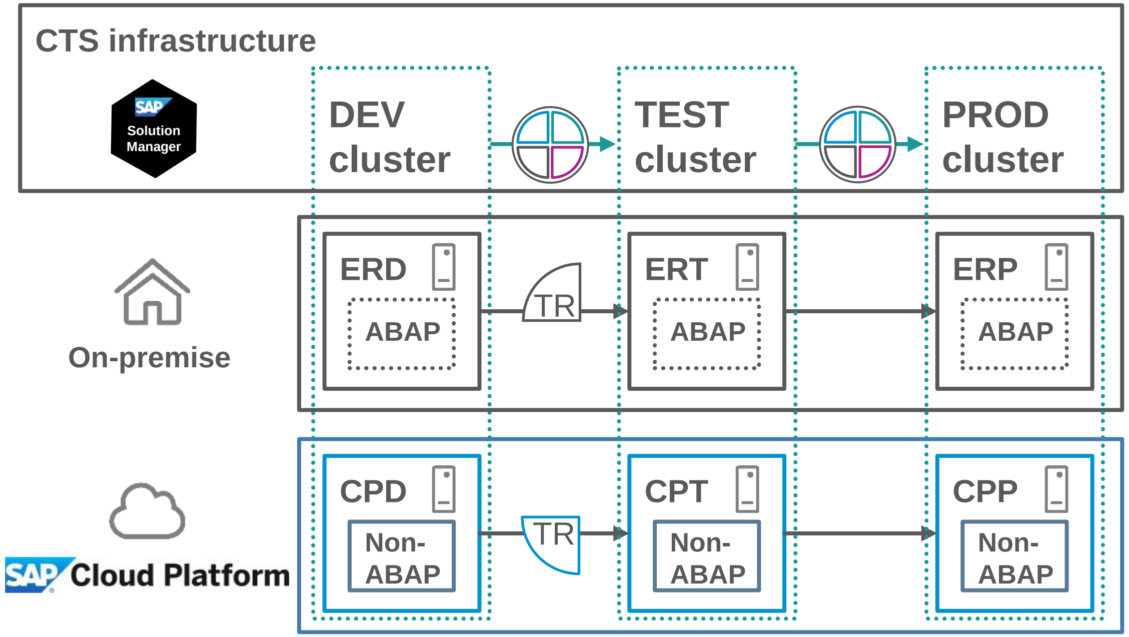
Deployment of MTAs via Change Management process

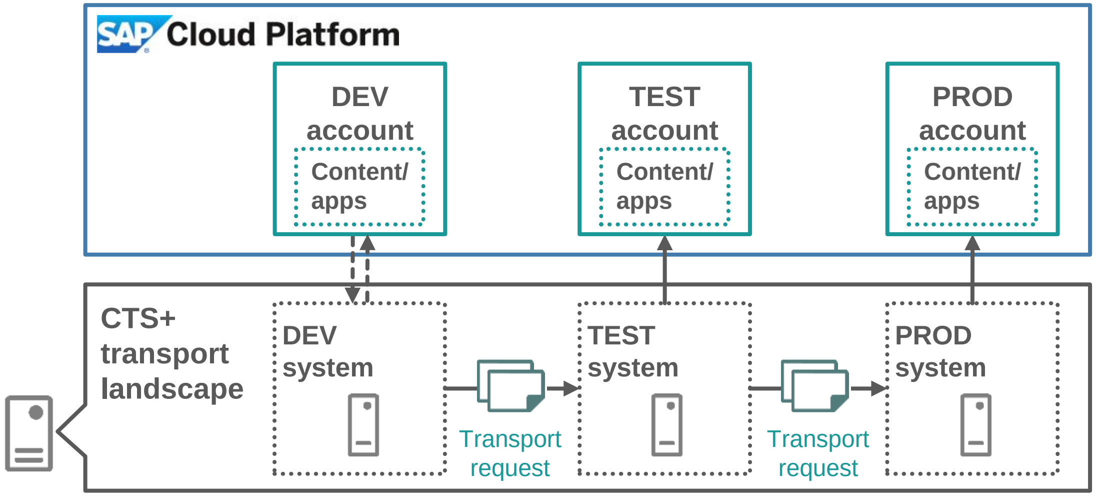
Optional use of enhanced CTS (CTS+) and SAP Solution Manager

Use **enhanced CTS (CTS+)** as central (on-premise) tool to control content that gets deployed in different SAP Cloud Platform accounts

Model transport landscape and transport routes depending on your provisioning and maintenance strategy

For more information, see this blog in SAP Community





Can be run standalone or as part of *SAP Solution Manager*

Enables **synchronized transport in hybrid scenarios** (such as on-premise ABAP content together with SAP Cloud Platform content)

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DevOps meets release management

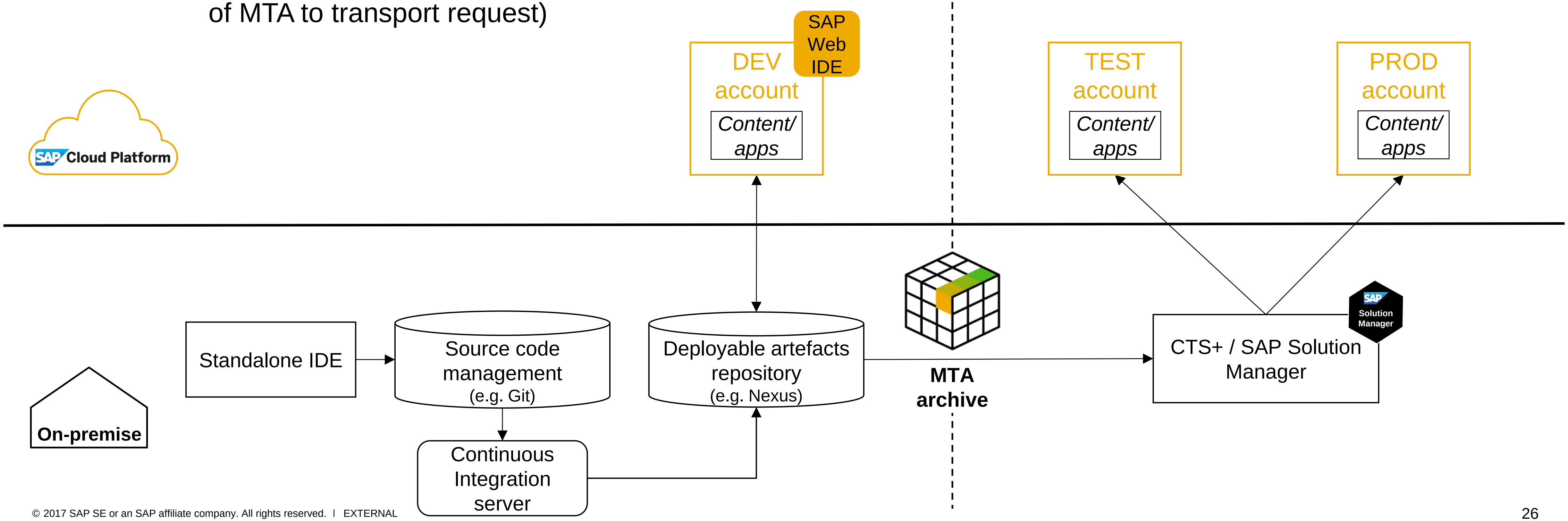
Combining Continuous Integration and Change Management best practices

Development

- Based on *Continuous Integration* principles
- Verification of single developer change
- Typically fully automated (incl. attachment of MTA to transport request)

Production deployment

- Based on strict *Change Management* rules
- Verification of release candidate version
- Typically done with manual confirmation



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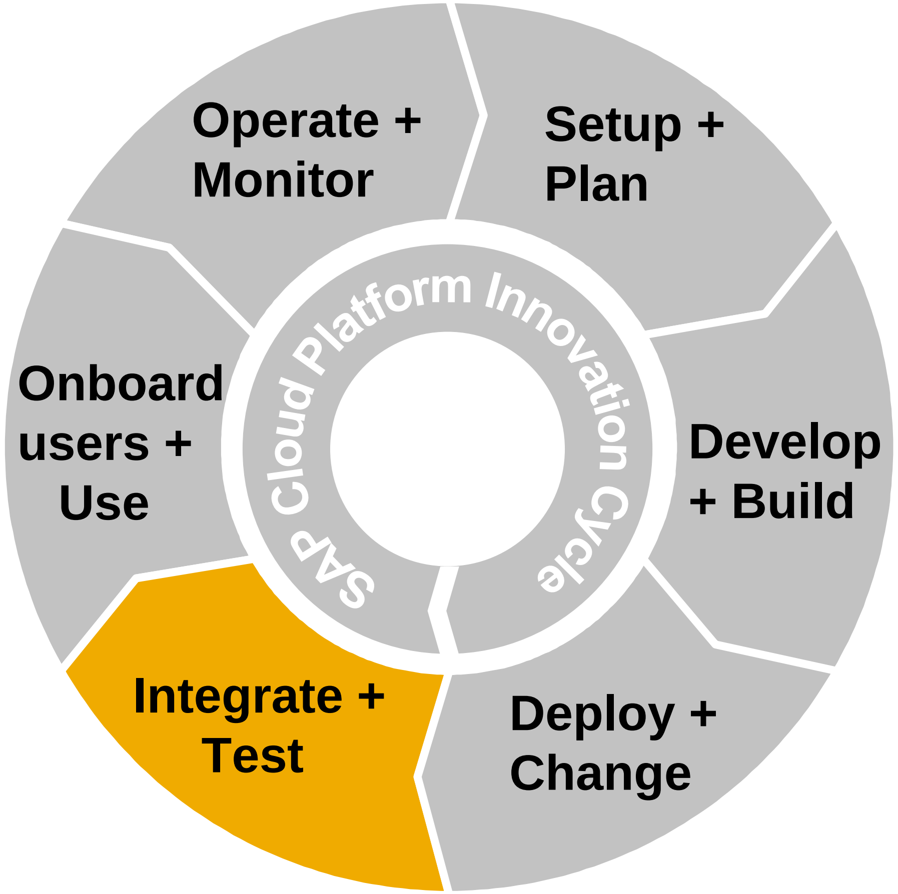
Typical lifecycle phases for SAP Cloud Platform apps

Integrate and test



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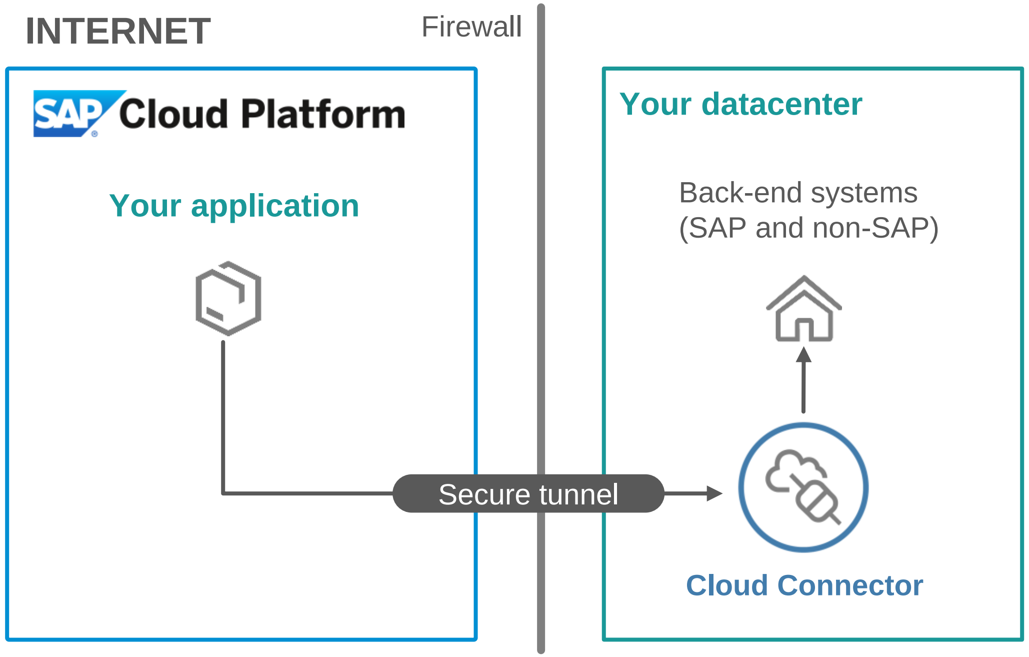
Integrate

SAP Cloud Platform Cloud Connector and SAP Cloud Platform Integration

Point-to-point integration



INTERNET

Firewall

SAP Cloud Platform

Your application

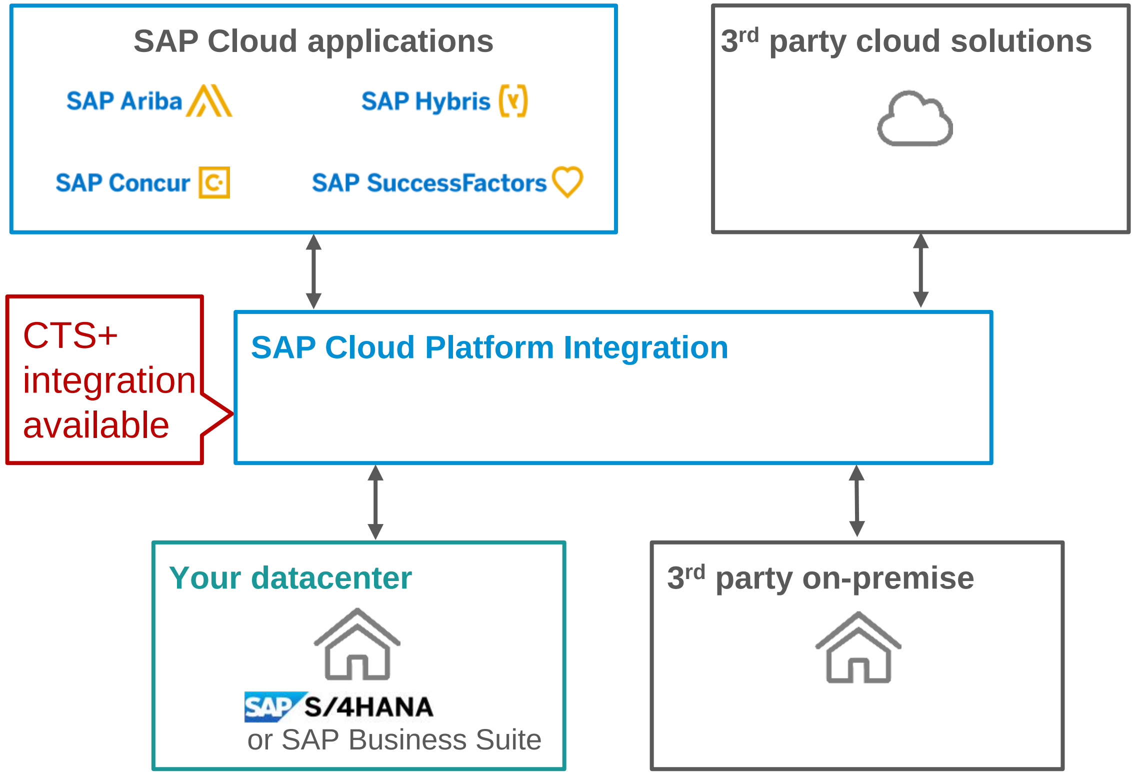
Secure tunnel

Your datacenter

Back-end systems
(SAP and non-SAP)

Cloud Connector

Business process integration



SAP Cloud applications

SAP Ariba

SAP Hybris

SAP Concur

SAP SuccessFactors

3rd party cloud solutions

CTS+
integration
available

SAP Cloud Platform Integration

Your datacenter

SAP S/4HANA
or SAP Business Suite

3rd party on-premise

CPL104

SAP Cloud Platform Cloud Connector in SAP Help Portal

SAP Cloud Platform Integration
in SAP Help Portal

CPL206

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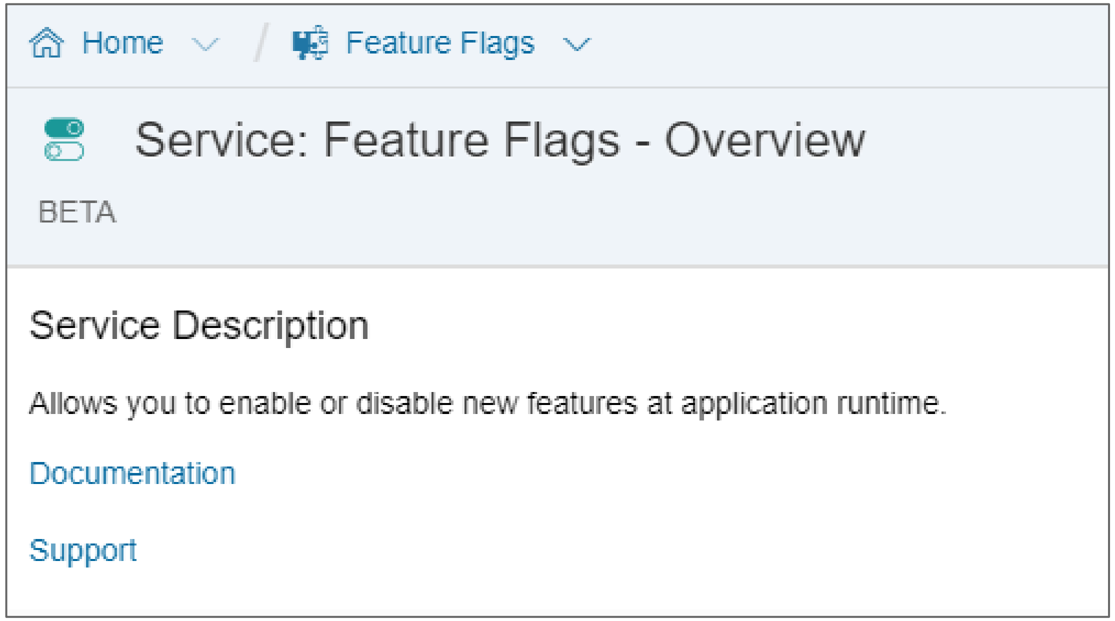
Test support

Feature Flags service (beta) for Cloud Foundry environment

Allows enabling or disabling new features without redeploying or restarting the application

Implements common agile development concept that allows:

- Delivery of latent code
- Synchronized roll-out of features that require changes in several different components or microservices
- Enablement in predefined subaccounts
- Fast rollback of features



Service: Feature Flags - Overview

BETA

Service Description

Allows you to enable or disable new features at application runtime.

Documentation

Support

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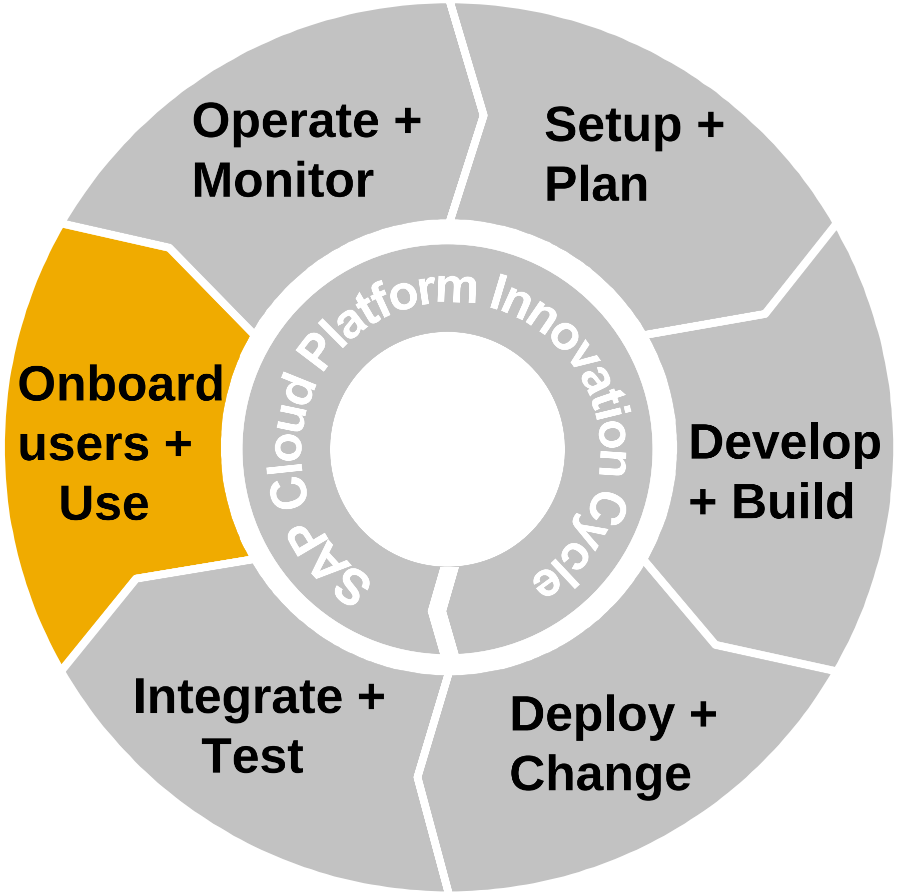
Typical lifecycle phases for SAP Cloud Platform apps

Onboard users and use application



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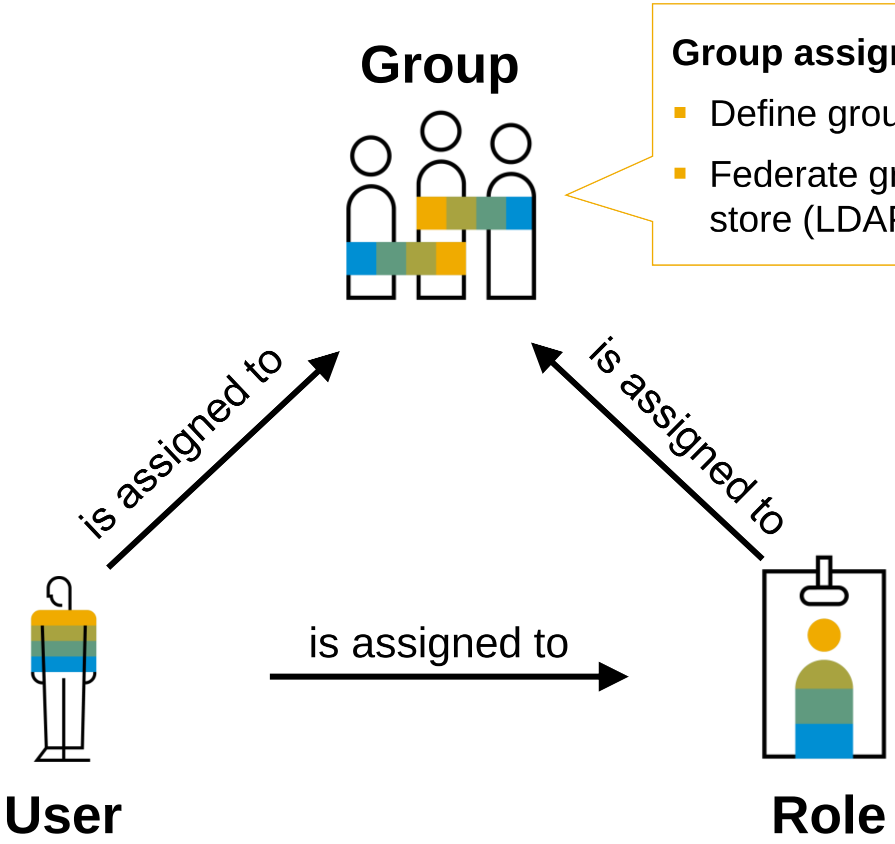
Onboard users

Users, roles & groups in SAP Cloud Platform



Group assignment

- Define groups in SAP Cloud Platform cockpit
- Federate group assignments from on-premise user store (LDAP) or own identity provider (SAML)

Identity provider options

- Default: SAP ID Service
- SAP Identity Authentication (cloud service, common in B2B + B2C scenarios)
- Use own identity provider (common in B2E scenarios)

Role assignments

SAP Cloud Platform – application and service-specific roles

For more information: https://cloudplatform.sap.com/capabilities/security.html

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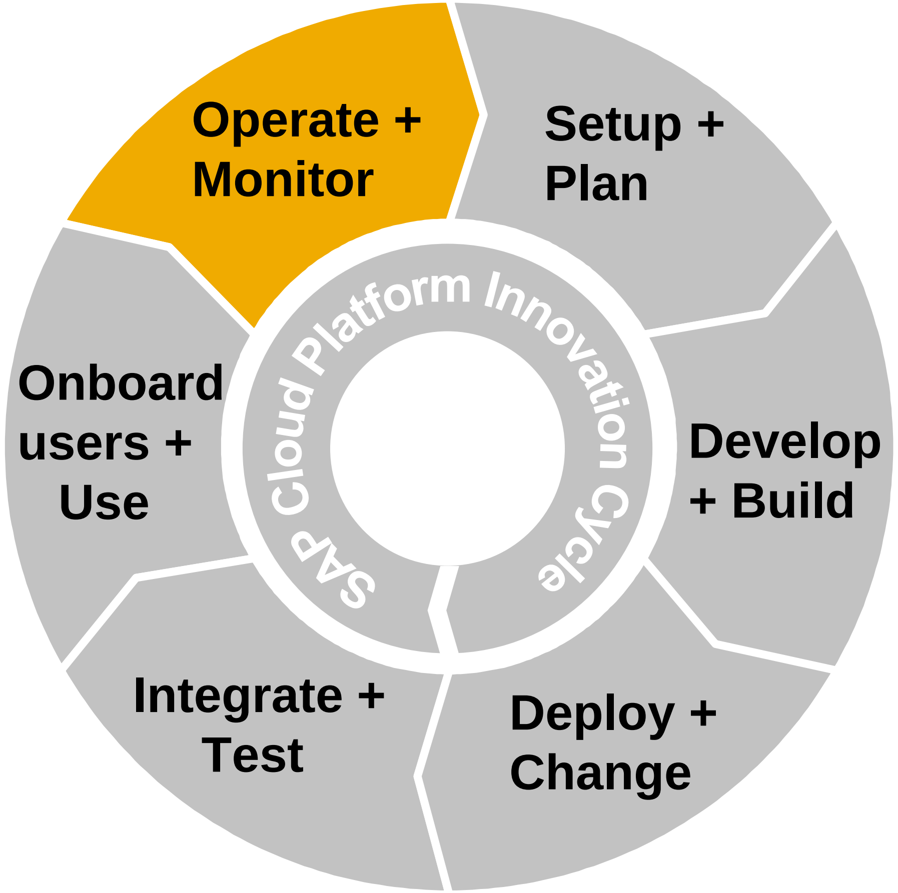
Typical lifecycle phases for SAP Cloud Platform apps

Operate and monitor



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Monitor your application

Java applications

- Application monitoring + performance statistics (beta) available
- Custom JMX checks + monitoring APIs available

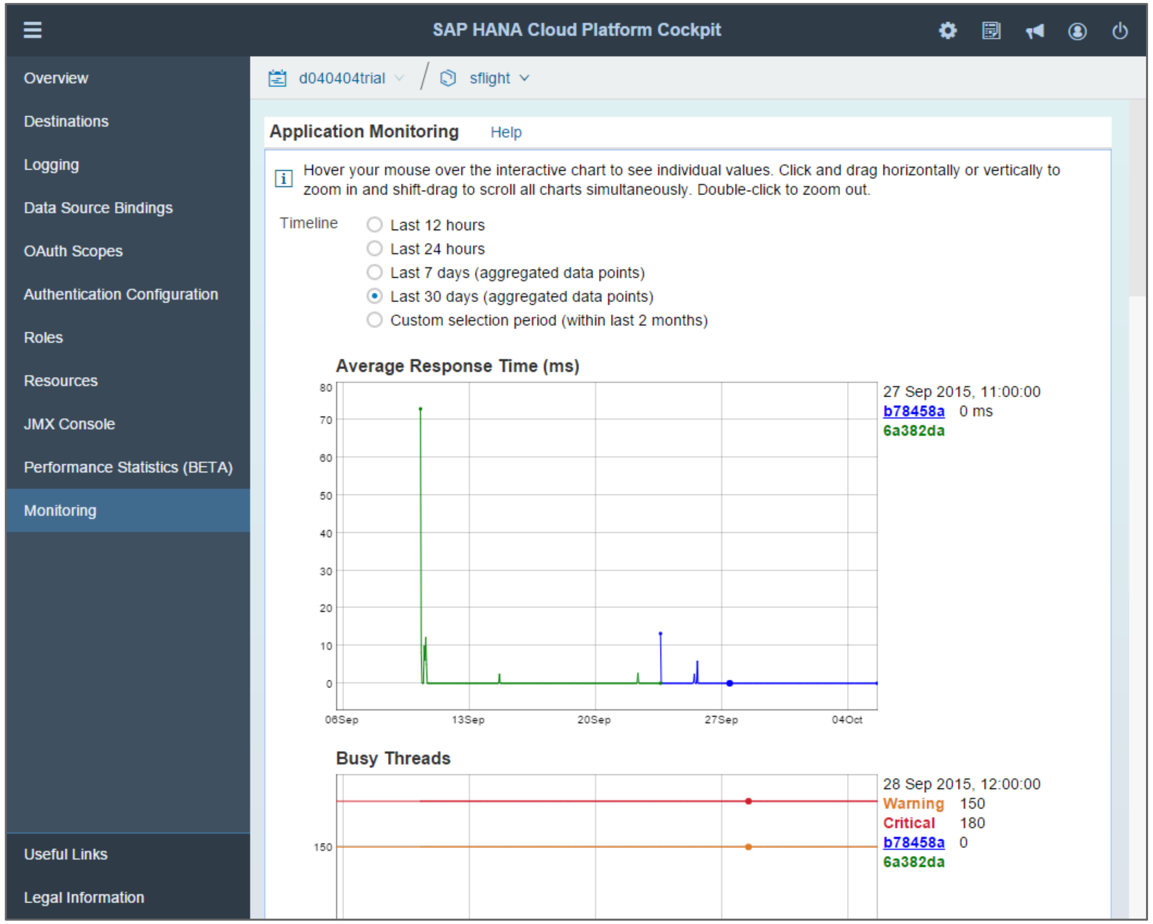
SAP HANA extended application services

- Monitor health statistics for SAP HANA instances
- Create availability check for your applications + configure email notifications

HTML5 applications

- Log viewer available collecting error messages

Individual services contain monitoring information (SAP Cloud Platform Cloud Connector, SAP Cloud Identity, SAP Fiori Launchpad, etc.)



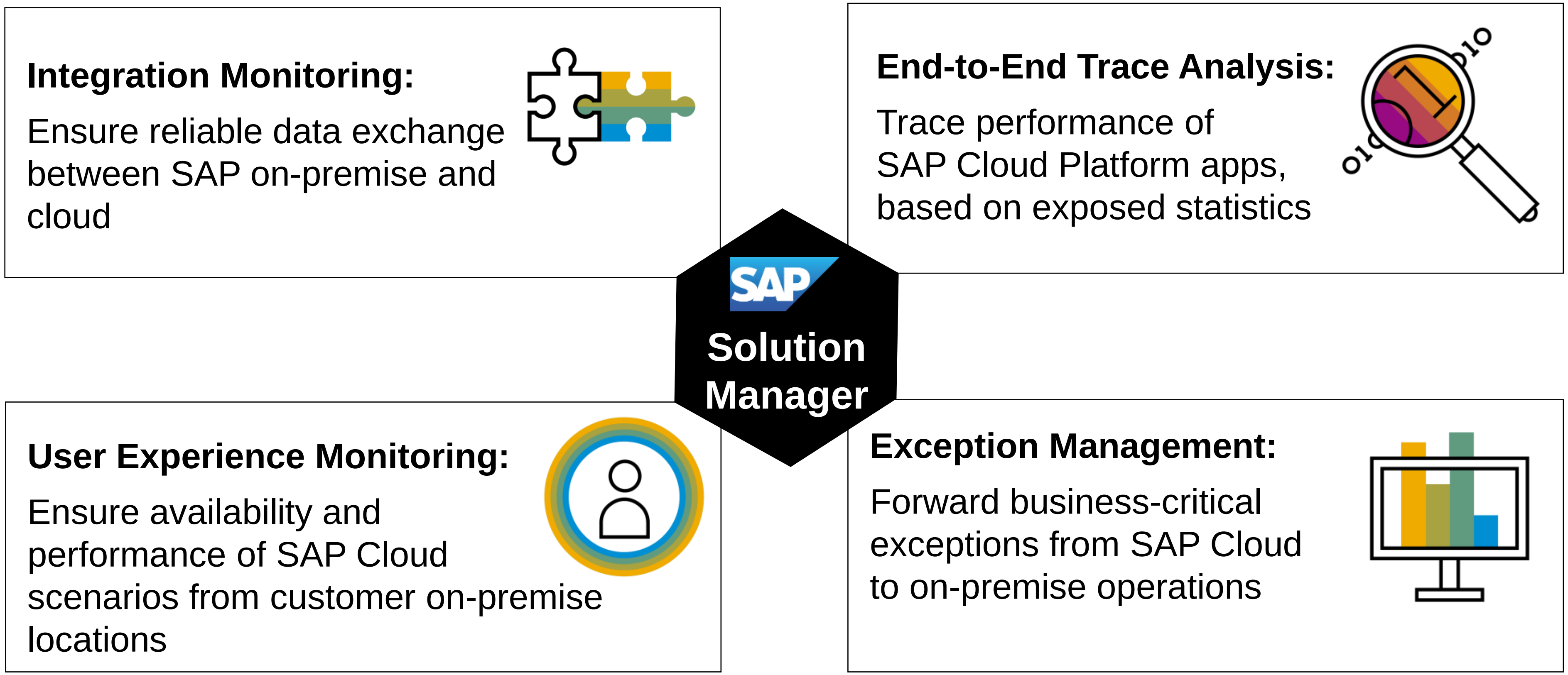
Application Monitoring

Hover your mouse over the interactive chart to see individual values. Click and drag horizontally or vertically to zoom in and shift-drag to scroll all charts simultaneously. Double-click to zoom out.

Timeline
○ Last 12 hours
○ Last 24 hours
○ Last 7 days (aggregated data points)
● Last 30 days (aggregated data points)
○ Custom selection period (within last 2 months)

Operate & monitor hybrid landscapes

Hybrid supportability offerings in SAP Solution Manager



Solution Manager

Integration Monitoring:

Ensure reliable data exchange between SAP on-premise and cloud

End-to-End Trace Analysis:

Trace performance of SAP Cloud Platform apps, based on exposed statistics

User Experience Monitoring:

Ensure availability and performance of SAP Cloud scenarios from customer on-premise locations

Exception Management:

Forward business-critical exceptions from SAP Cloud to on-premise operations

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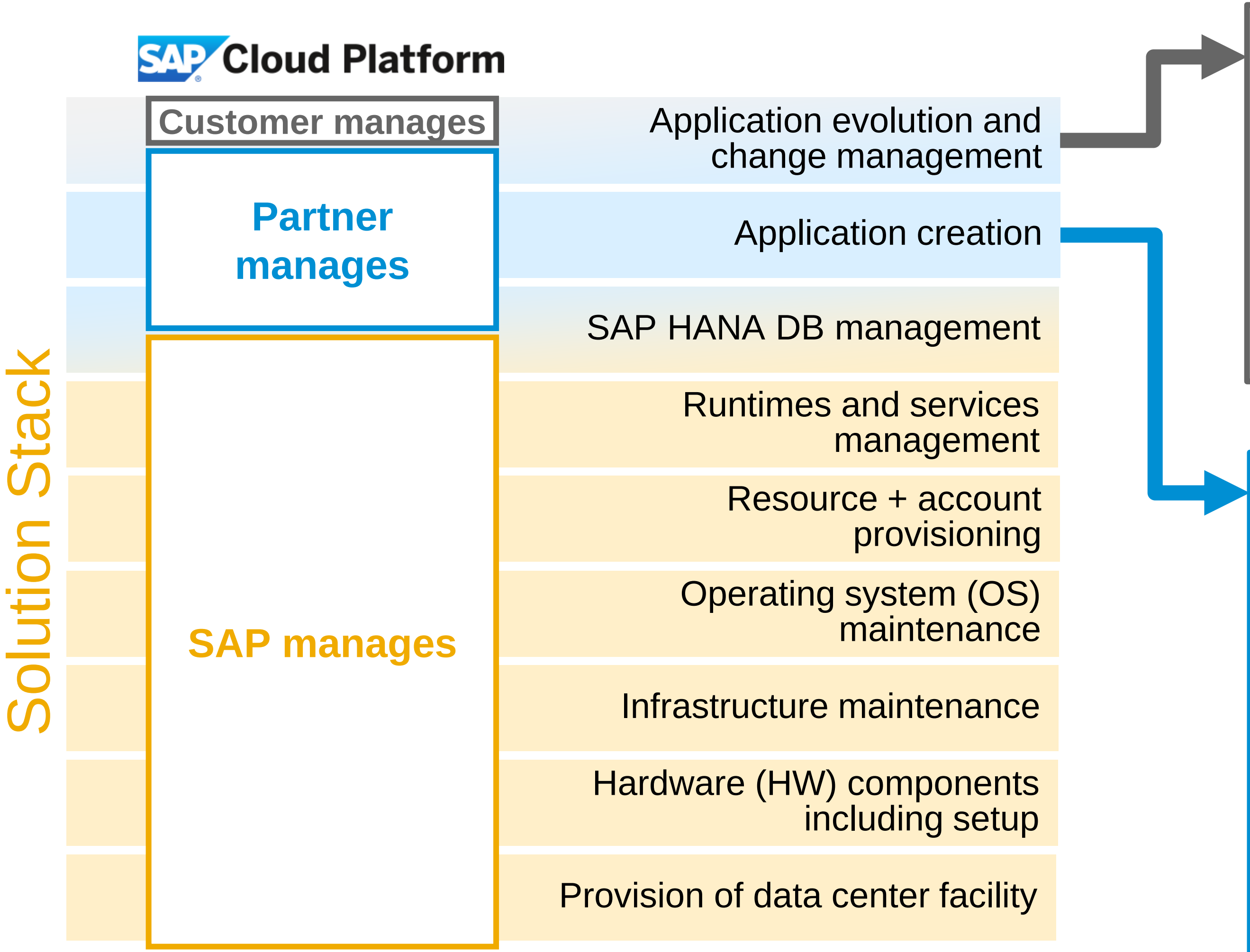
Typical lifecycle phases for partner applications – built on SAP Cloud Platform

SAP Cloud Platform

SAP manages platform, partner manages apps, customer extends and uses



SAP Cloud Platform

Solution Stack

Customer manages

Partner manages

SAP manages

Application evolution and change management

Application creation

SAP HANA DB management

Runtimes and services management

Resource + account provisioning

Operating system (OS) maintenance

Infrastructure maintenance

Hardware (HW) components including setup

Provision of data center facility

Customer responsibilities

- **Extends and uses applications**
- **Performs customer-individual application operations:**
  - When applicable: set up integration with existing systems and applications
  - Extend and adapt application
  - Monitor + implement health checks, perform troubleshooting + housekeeping (leveraging PaaS services and frameworks)

Partner responsibilities

- **Develop and operate applications**
- **Manage accounts:**
  - Create and manage tenants, e.g. sub-accounts
  - Distribute resources + services accordingly (when needed in cooperation with SAP operations teams)
- **Perform partner application operations**
  - Develop application
  - Monitor + implement health checks, perform troubleshooting, regular updates, housekeeping
- **Perform SAP HANA database platform operations**
  - Use self-service to update HANA revisions when applicable

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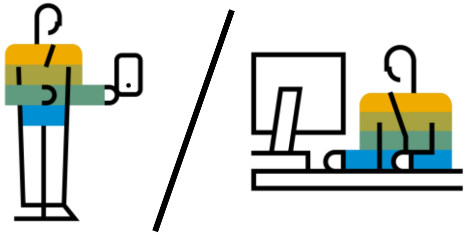
Typical lifecycle phases for SAP Cloud Platform applications

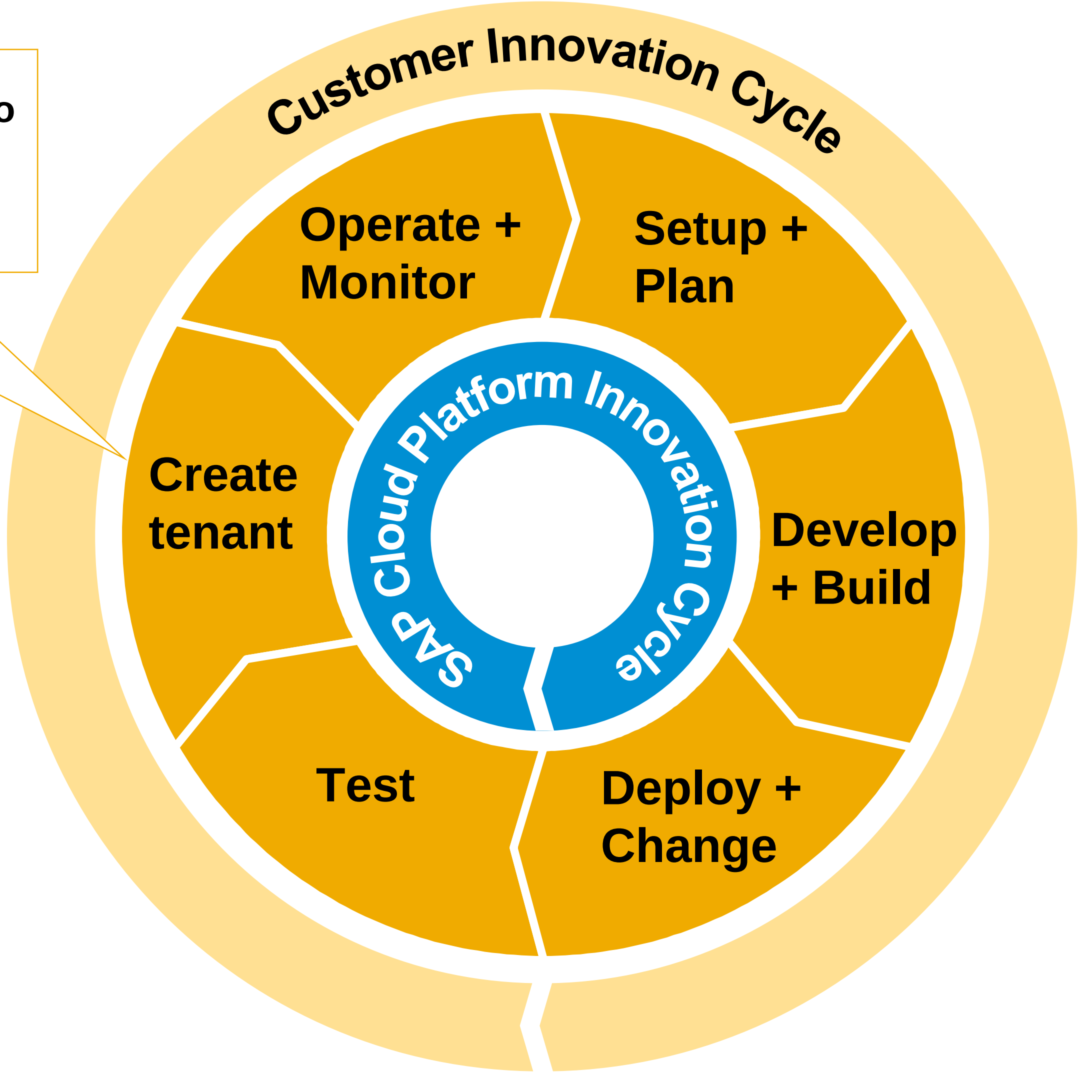
Provider develops the application

New in partner application scenario

Provider creates tenants for different customers



Provider



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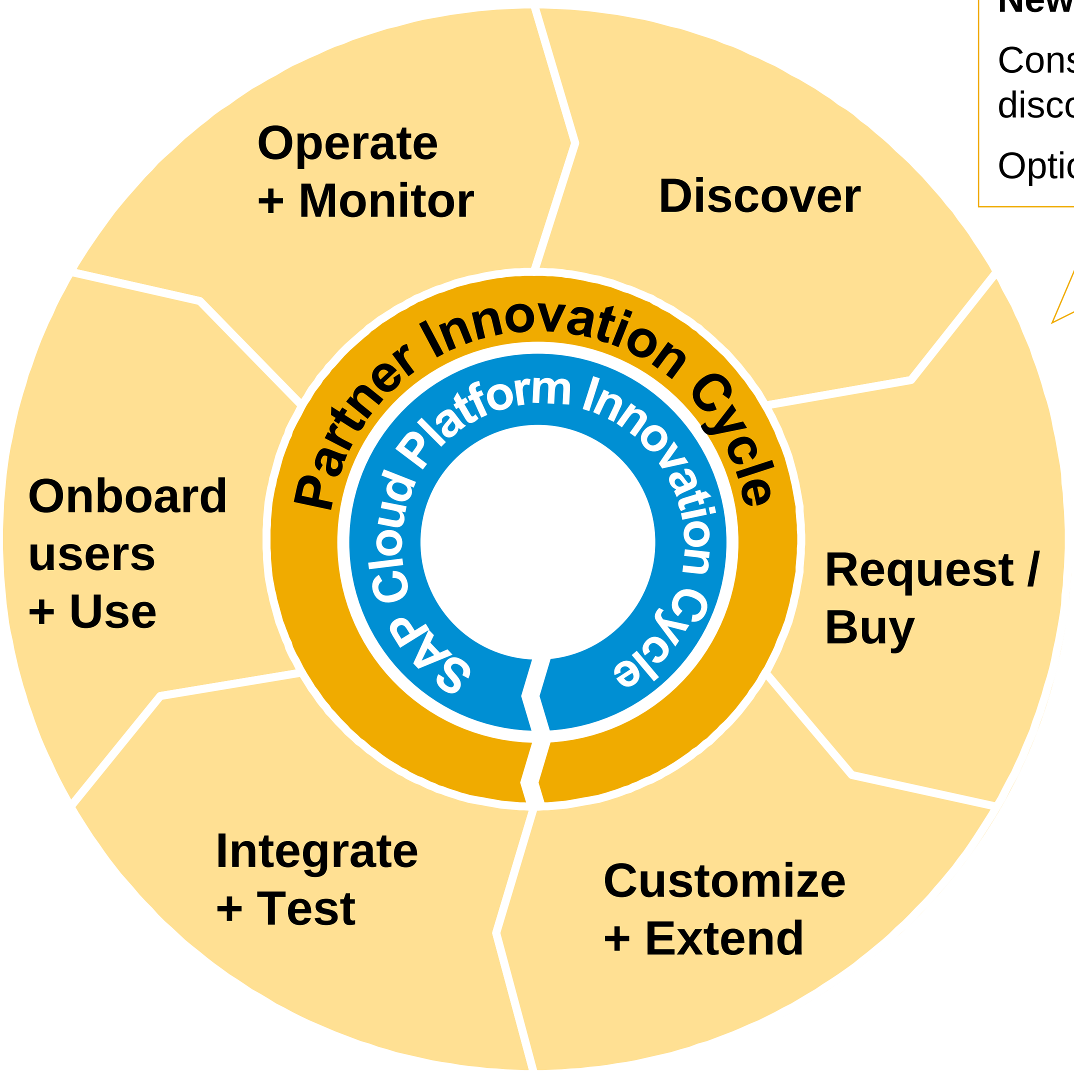
Typical lifecycle phases for SAP Cloud Platform applications

Consumer discovers and uses



New in partner application scenario

Consumer uses SAP App Center to discover and request the application

Optionally, customize and extend

Consumer

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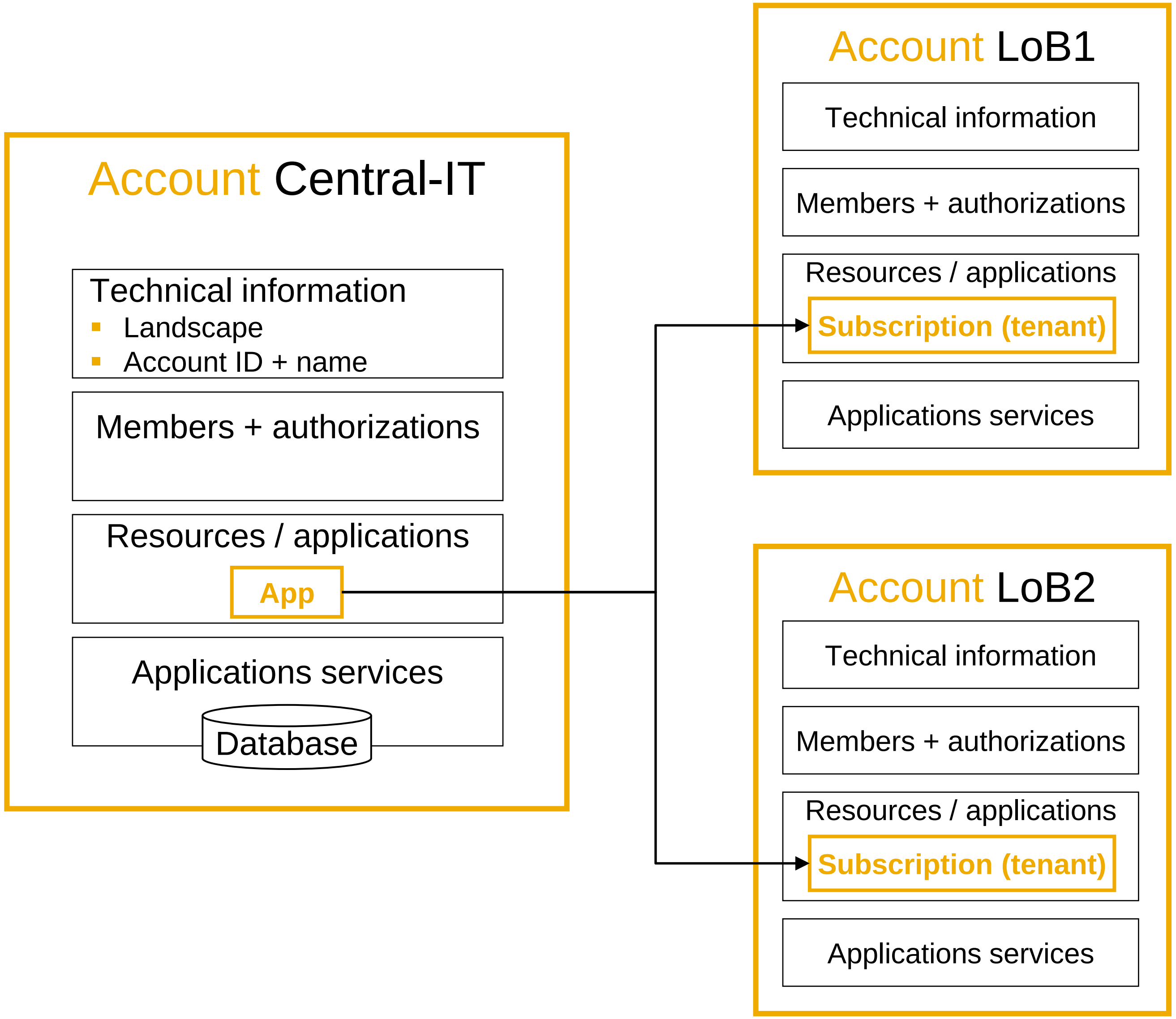
SAP Cloud Platform accounts

Provider – subscriber scenario

Provider account
Develop and provide application to your customers

Consumer account
Use centrally provided application, shared with others – only access own tenant

- “A tenant is a group of users who share a common access with specific privileges to the software instance. With a multi-tenant architecture, a software application is designed to provide every tenant a dedicated share of the instance” (source: Wikipedia)
- Software-as-a-Service applications and SAP Cloud Platform-based services are developed this way
- Blog about how to build multi-tenant applications in SAP Community



Account Central-IT

Technical information
- Landscape
- Account ID + name

Members + authorizations

Resources / applications
App

Applications services
Database

Account LoB1

Technical information

Members + authorizations

Resources / applications
Subscription (tenant)

Applications services

Account LoB2

Technical information

Members + authorizations

Resources / applications
Subscription (tenant)

Applications services

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Demo

Tenant creation in SAP Cloud Platform

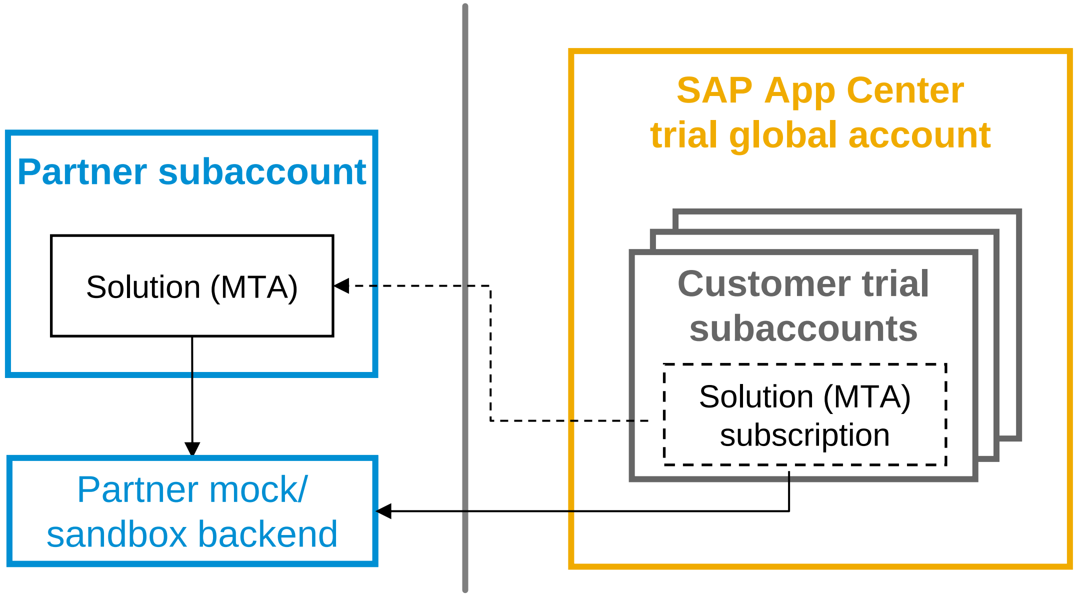
SAP App Center integration for partners

- Partners model applications as MTAs and onboard them into SAP App Center
- Customers create trial environment (offered as self-service)

Trial by subscription

Partner tasks:

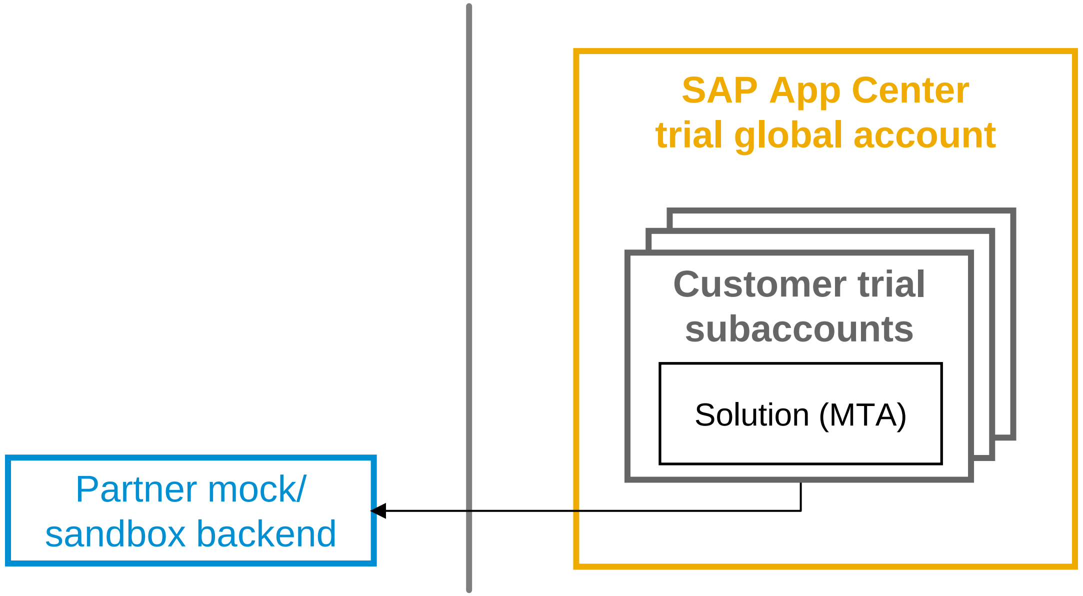
- Deploy the MTA in partner subaccount
- Configure solution metadata in SAP App Center


Partner subaccount
Solution (MTA)
Partner mock/ sandbox backend
SAP App Center trial global account
Customer trial subaccounts
Solution (MTA) subscription

Trial by deployment

Partner tasks:

- Host MTA archive as deployable binary
- Configure solution metadata in SAP App Center


Partner mock/ sandbox backend
SAP App Center trial global account
Customer trial subaccounts
Solution (MTA)

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Outlook/road map

Lifecycle management capabilities in SAP Cloud Platform

Road map overview – key themes and capabilities

Today	Planned Innovations	Future Direction
Develop & Build		
• Best practices for CI / CD landscapes for selected technologies (new: SAP Fiori, XSA)	• Extend best practices for CI / CD landscapes, e.g. with MTAs	• Ready-to-use SAP Cloud Platform templates for common on-premise development landscapes
Deploy & Change		
• Automated deployment for SAP SuccessFactors extension solutions via MTA (Neo environment) • Provider/consumer deployment model using MTAs, entitlement support for provisioning management (Neo environment) • CTS+ integration based on MTAs for SAP Cloud Platform Integration (loose coupling)	• Automated deployment via MTAs for API management and Workflow service content (Neo environment) • Open-source MTA concept with deploy tooling (Cloud Foundry environment) • Blue-green deployment of MTAs (Cloud Foundry environment) • GUI in SAP Cloud Platform cockpit listing inventory of deployed applications and for deploy/undeploy (Cloud Foundry environment) • Close coupling into CTS+ for selected scenarios (Neo environment)	• Modeling and export of solutions of MTA archives via SAP Cloud Platform cockpit (Neo environment) • MTA reconfiguration • Cloud-based transport service
Operate & Monitor		
• User Experience Monitoring, Exception Management (monitoring) and Integration Monitoring (monitoring) powered by SAP Solution Manager for SAP Cloud Platform-based applications • Monitoring capabilities in SAP Cloud Platform cockpit per service	• End-to-End Trace Analysis using SAP Solution Manager for selected SAP Cloud Platform scenarios (Neo environment) • Availability dashboard for SAP Cloud Platform services • Premium services for High Availability and Disaster Recovery	• End-to-End Trace Analysis for selected SAP Cloud Platform scenarios (Cloud Foundry environment) • Instrumentation at cloud product side for Exception Management and Integration Monitoring • Increased coverage of monitoring APIs • Event service

This is the current state of planning and may be changed by SAP at any time.

Summary

Summary

Key takeaways

1 With cloud applications, it is key to deliver new applications with a minimum viable scope as quickly as possible – and iterating on enhancements and further developments based on user feedback

2 SAP Cloud Platform provides a rich set of tools to support you in developing and operating your own cloud applications in standalone and hybrid scenarios

3 SAP, partners and customers collaborate and co-innovate based on well defined processes and clear separation of concerns

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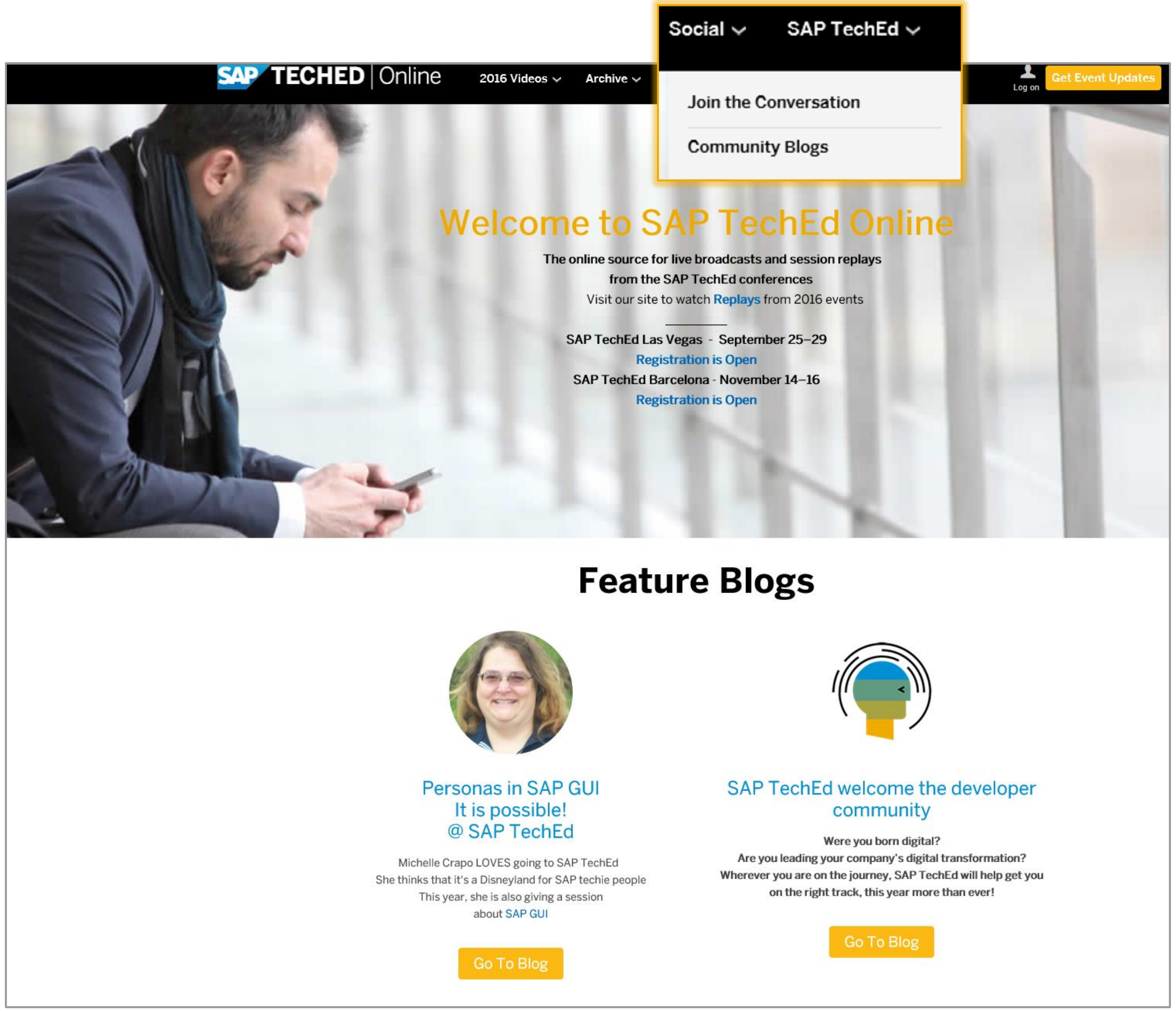

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Registration is Open
SAP TechEd Barcelona - November 14–16
Registration is Open

Feature Blogs

Personas in SAP GUI
It is possible!
@ SAP TechEd

Michelle Crapo LOVES going to SAP TechEd
She thinks that it's a Disneyland for SAP techie people
This year, she is also giving a session
about SAP GUI

SAP TechEd welcome the developer community

Were you born digital?
Are you leading your company's digital transformation?
Wherever you are on the journey, SAP TechEd will help get you
on the right track, this year more than ever!

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Further information

Related SAP TechEd sessions

S4H102 - Hybrid Lifecycle Management in SAP Cloud Platform
S4H263 - Developing and Operating Applications with SAP Cloud Platform
CPL100 - SAP Cloud Platform: A Security Overview
CPL104 - Our Integration-Platform-as-a-Service Offering on SAP Cloud Platform
CPL119 - SAP Cloud Platform: Overview
CPL126 - Continuous Delivery: Introduction
CPL206 - SAP Cloud Platform Integration: Leverage B2B Integration Through the Cloud
CPL216 - Best of Two Worlds: Continuous Integration and Change Management
CPL221 - Introducing Multitarget Applications for SAP Cloud Platform
CPL275 - Continuous Delivery of an SAP Fiori Application to SAP Cloud Platform

SAP Public Web

SAP Cloud Platform
scn.sap.com
www.sap.com

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Thanks for attending this session.

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