



# gCTS Intro

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PUBLIC

**Why gCTS?**

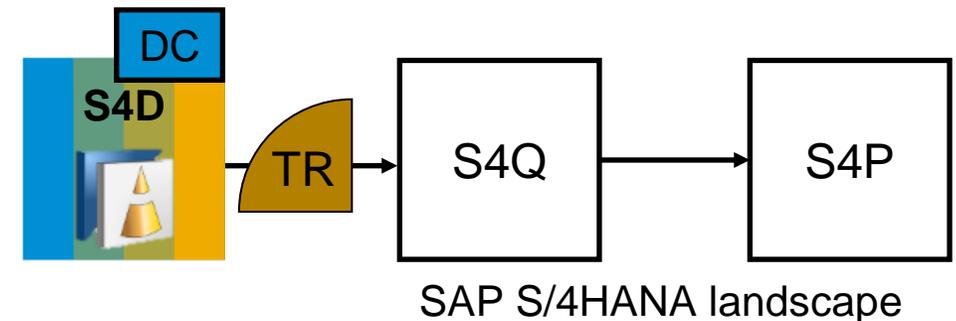
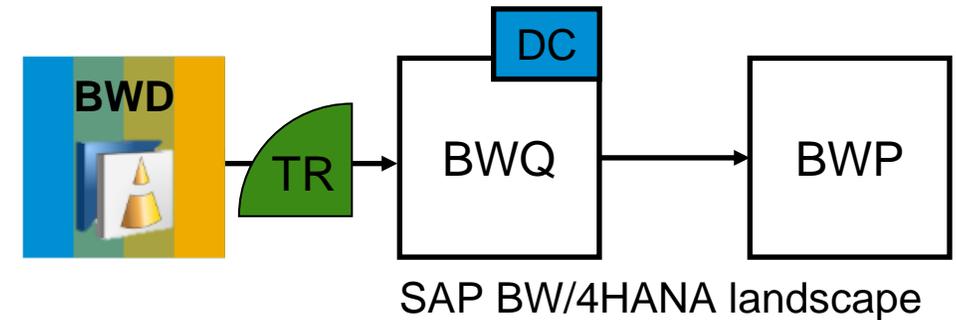
# When and why DevOps with ABAP

## CTS – where ABAP comes from

*Change and Transport System (CTS)* has been an integral part of ABAP development processes since the beginning

With CTS, you:

- Model system landscapes (e.g. DEV → TEST → PROD)
  - Transport changes through the landscape
  - Monitor your transports
  - Can integrate into Change Request Management (ChaRM) and Quality Gate Management (QGM)
- Safe and controlled



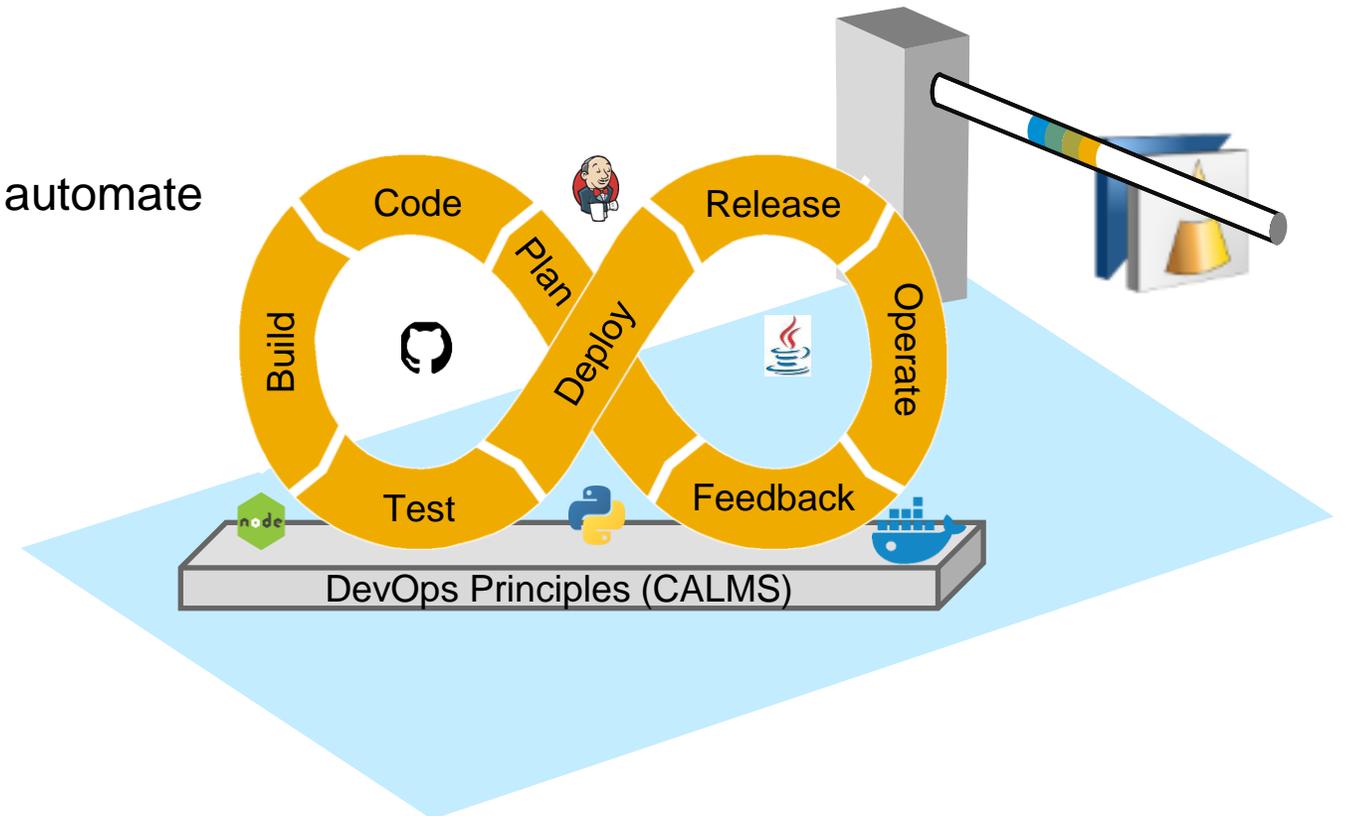
# When and why DevOps with ABAP

## DevOps – where ABAP should go

The developers' world has changed:

- DevOps processes are widely used
- Git is used to manage development artifacts
- Automation servers (e.g. Jenkins) are used to automate DevOps processes
- One 'world of tools' for many development languages / environments

But: How about ABAP?

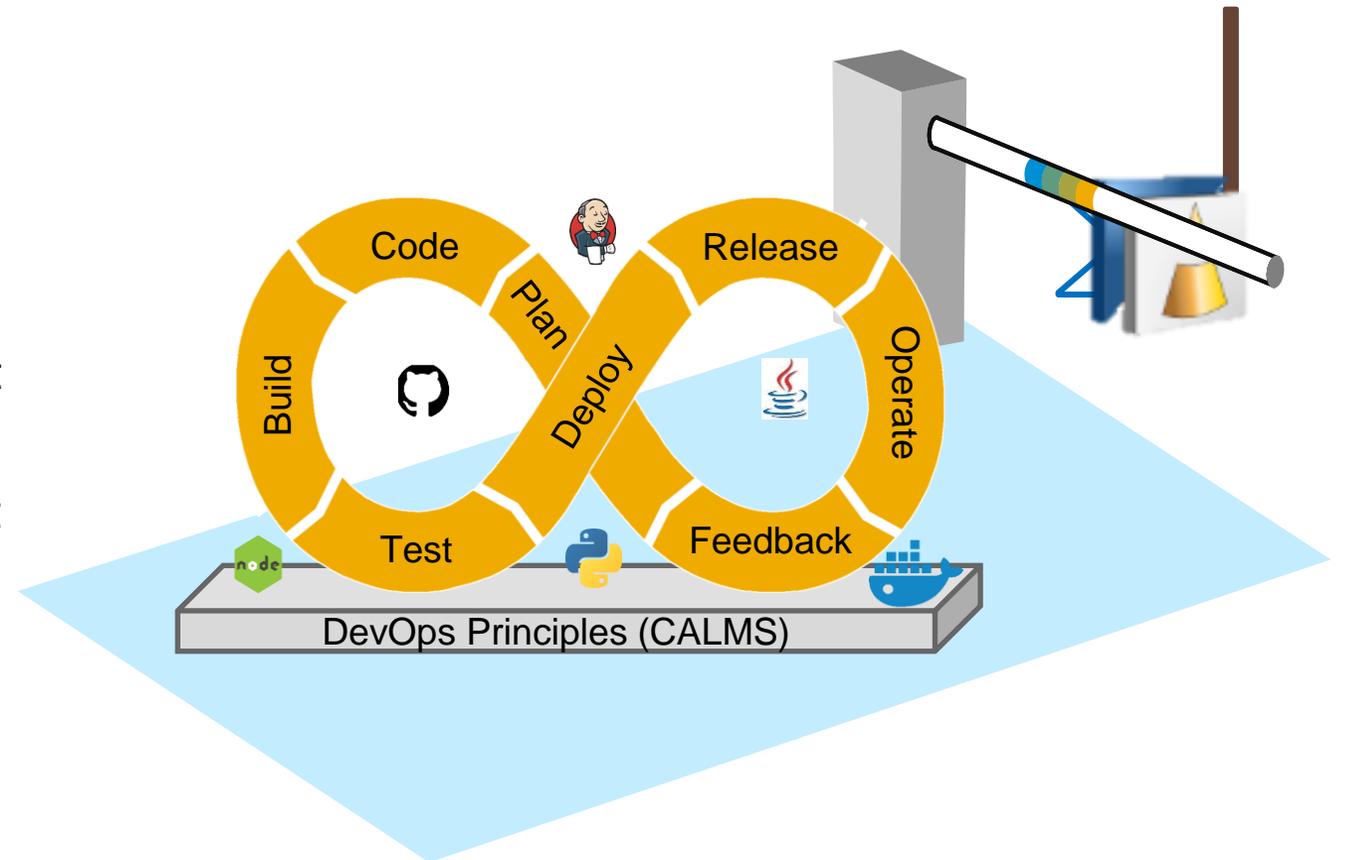


# When and why DevOps with ABAP

## DevOps – get ABAP in

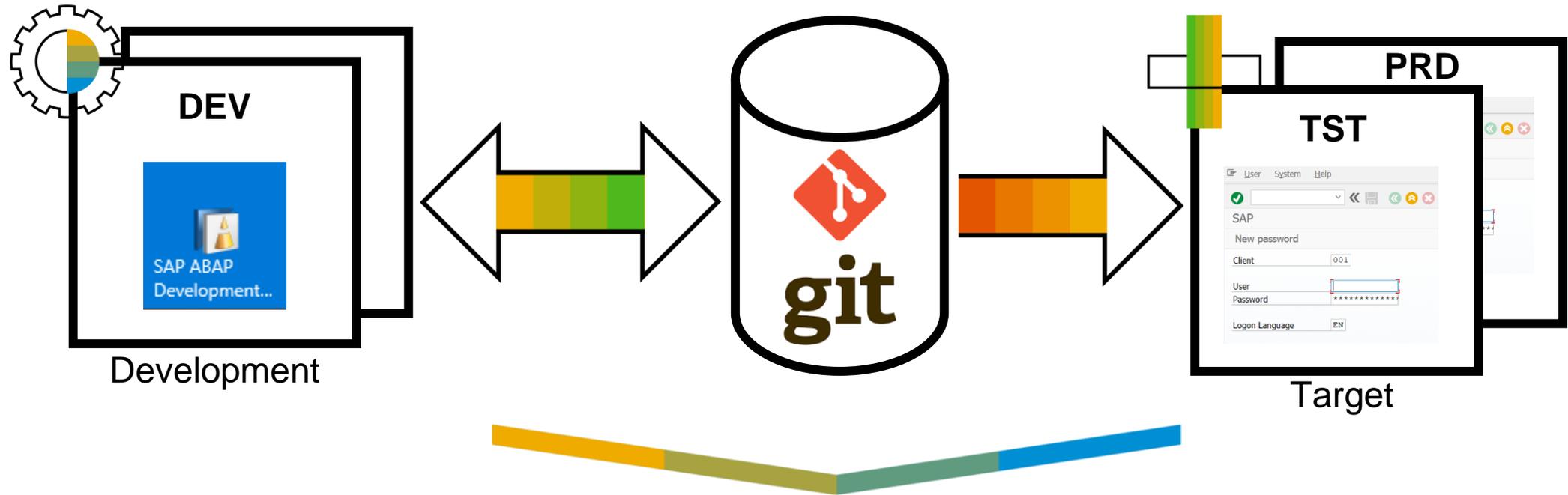
It should be possible to add ABAP to the DevOps world

- To share source code on Git
  - To enable automation of development processes via pipelines
  - To manage ABAP development similar to what you do in other languages and environments
- This is what Git-enabled CTS (gCTS) aims at



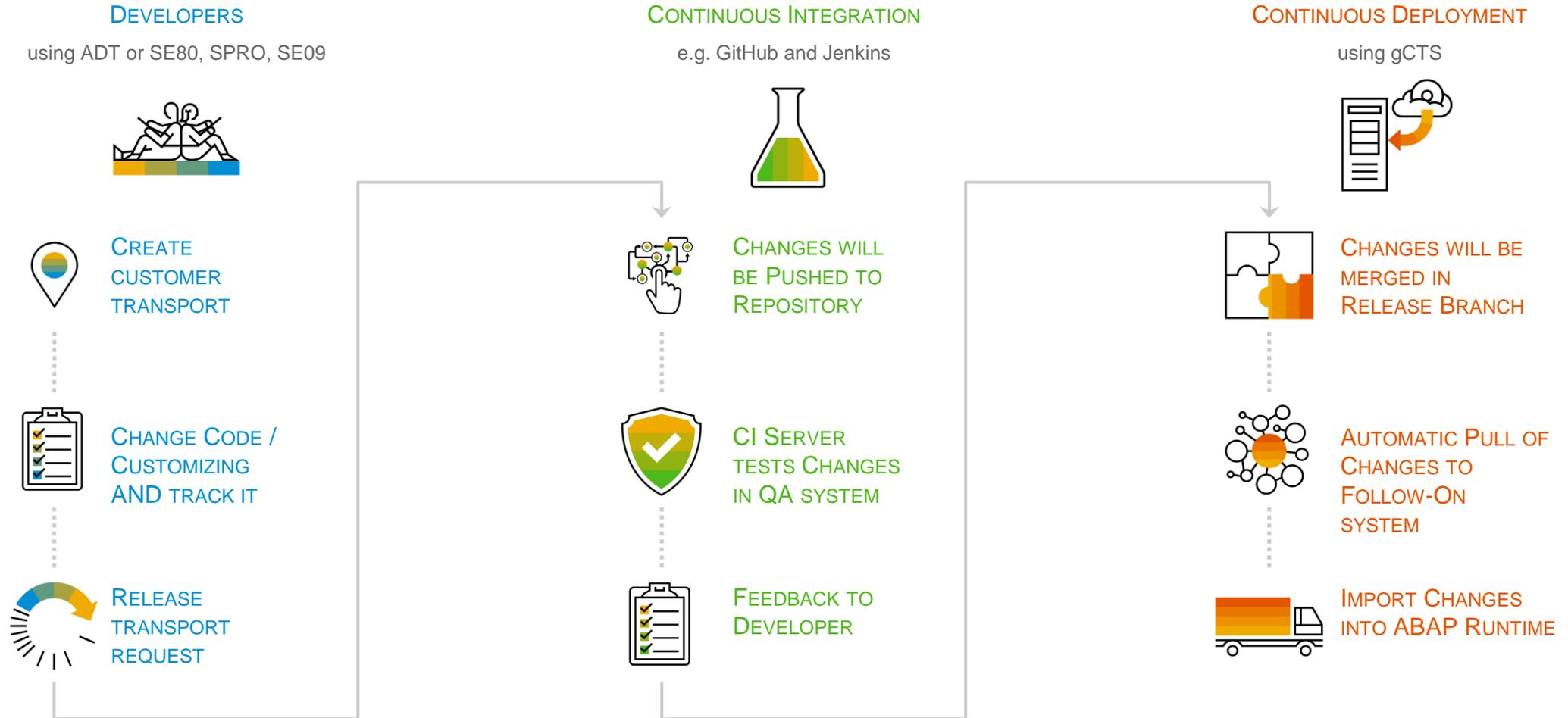
# Basics

# Our idea...



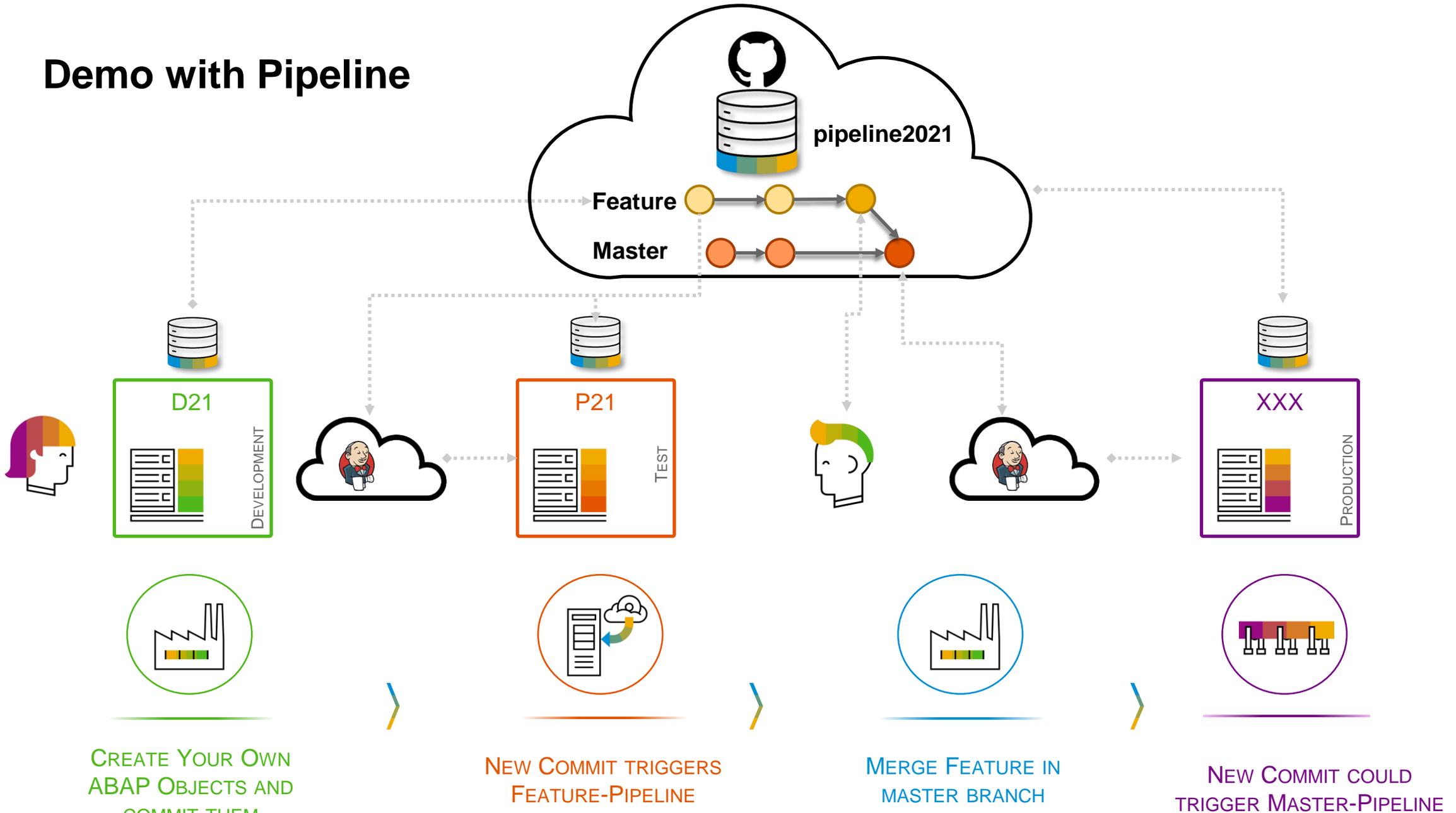
\* Change and Transport System

# ABAP software lifecycle process



**Demo**

# Demo with Pipeline

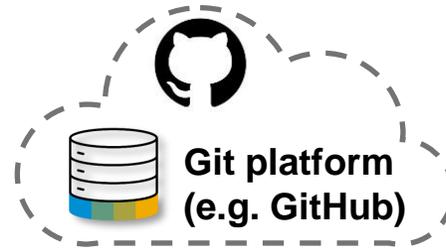


# Configuration

# Which systems do I need?

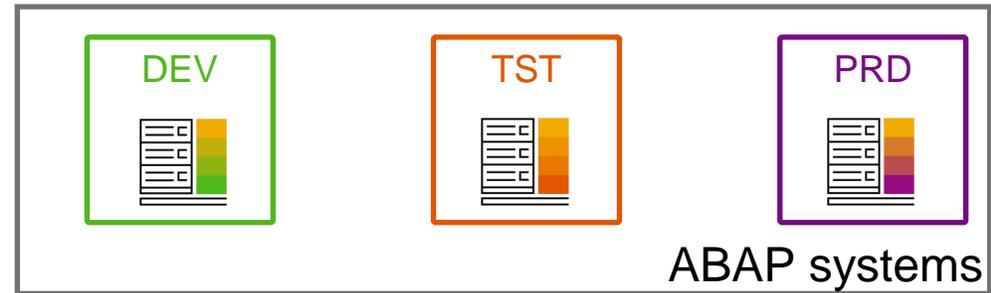
## Git platform

- To host your repositories



## ABAP systems

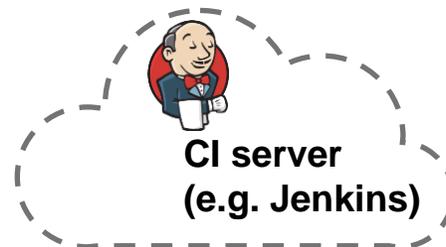
- E.g. development, test and production system



*MUST*  
*optional*

## CI server

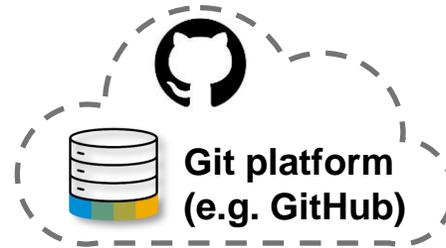
- To host your pipelines



# What do I need to install on these systems?

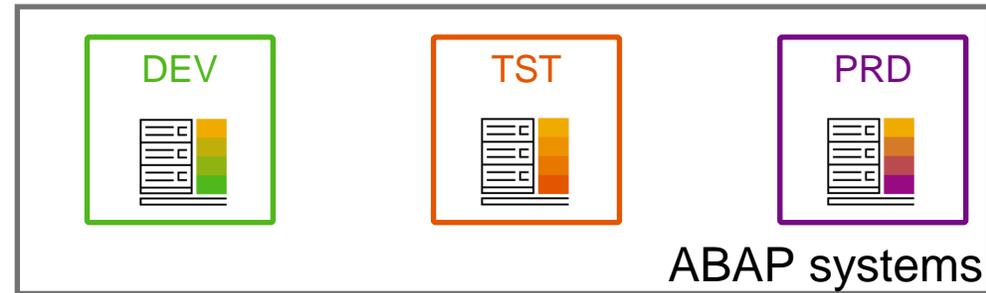
## Git platform

- (nothing special)



## ABAP systems

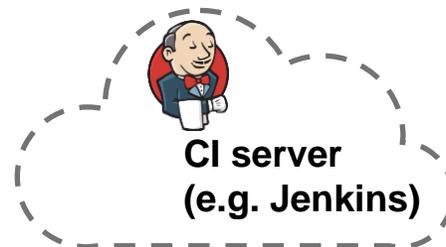
- SAP S/4HANA 1909 (2020 for customizing support)
- [SapMachine](#) Version 11 or comparable JRE
- Some SAP Notes (depending on SP)



*MUST*  
*optional*

## CI server

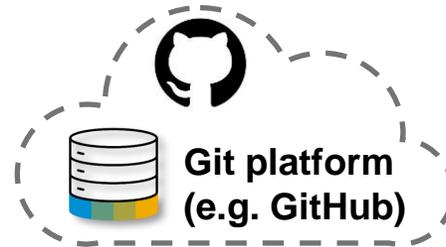
- (nothing special – you can use pipeline steps provided in project 'Piper')



# What do I have to configure on these systems?

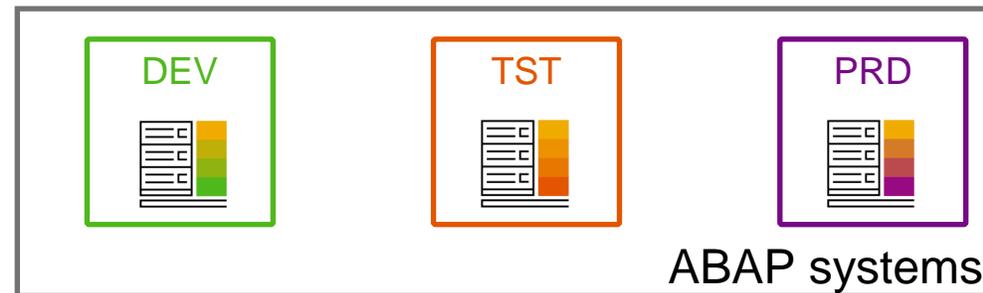
## Git platform

- Create Repository (with initial commit)



## ABAP systems

- [gCTS Fiori UI](#)
- [Authorizations](#)
- [Set parameters, initialize systems](#)
- [Clone repository](#)
- [Create branches](#)



*MUST*

*optional*

## CI server

- define pipeline



# Wizard to support you with the initial setup

- Guides through main configuration steps to enable a system for gCTS
- Executes health check at the end
- Available with SAP S/4HANA 2020 and 1909 SPS03, requires implementation of SAP Notes in previous SPs for SAP S/4HANA 1909 – check SAP Note [2821718](#)

Wizard to Enable gCTS in Current System

1 Set Working Directory for Repositories — 2 Set Java Runtime — 3 Set Path to Git client — 4 Schedule Observer Job and Set TMS parameters — 5

1. Set Working Directory for Repositories

gCTS requires a working directory to store files in local repositories in the file system of the application server. Enter the path to the working directory. The path must exist and end with 'gcts'. The value you enter here will be saved as the value of the configuration parameter VCS\_PATH.

Save

Close

# Health check

- Shows information about gCTS configuration, permissions,...
- Can be filtered by level
- Available with SAP S/4HANA 2020 and 1909 SPS03, requires implementation of SAP Notes in previous SPs for SAP S/4HANA 1909 – check SAP Note [2821718](#)

The screenshot displays the 'System Health Check' window. At the top, there is a red exclamation mark icon and the text 'System Health Check'. Below this, a summary bar shows 'All' (selected), '1' with a red exclamation mark icon, '1' with a yellow warning triangle icon, and '14' with a green checkmark icon. The main content area is divided into several sections, each with a blue header and a list of items with green checkmarks and right-pointing arrows:

- User Permissions**
  - Transport Management System
  - External Operating System Commands
  - File Access
  - Change and Transport System
  - Schedule Observer Job and Set TMS parameters
- System Configuration**
  - Java Runtime
  - gCTS Git Client
  - gCTS Working Directory
- TMS Configuration**
  - Domain Controller
- SAP Kernel**
  - Git Client Version
  - Java Environment
- Schedule Observer Job and Set TMS parameters**

At the bottom right, there are two buttons: 'Refresh Check' and 'Close'.

# Supported **object types** in gCTS

# Workbench objects

- Use transport layer resulting from vSID

## Technical background

- All objects that can be part of a workbench transport request

Package: Z\_DEMO

### General Data

Application Component:

Responsible:

Language Version:

### Transport Properties

Transport Layer:

Software Component:

Record objects changes in transport requests

# Customizing

## Customizing

- Requires SAP S/4HANA 2020
- Choose the vSID that you created as target for the transport request

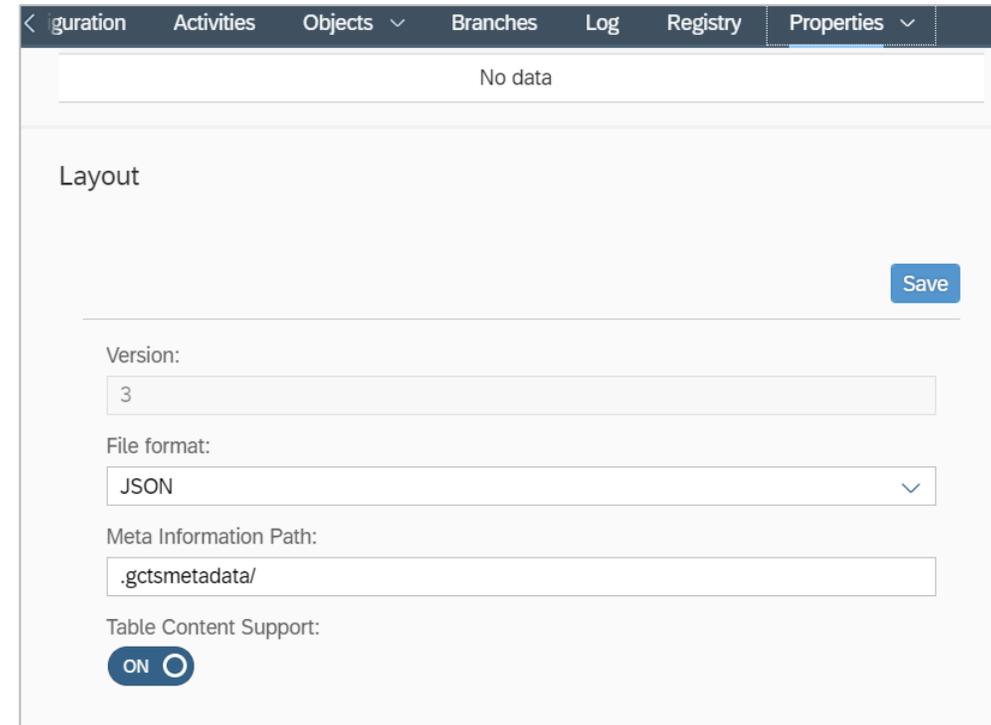
## Technical background

- TDAT and VDAT are enabled with SAP S/4HANA 2020
- CDAT requires SAP S/4HANA 2020 FPS1 plus SAP Notes ([3016865](#))
- TABU: Deletion of single entries is enabled

The screenshot shows the 'Create Request' dialog box in SAP. The 'Request' field is set to 'Customizing request'. The 'Short Description' field contains 'Customizing to gCTS'. The 'Project' field is empty. The 'Owner' field is filled with a user ID. The 'Status' is 'New'. The 'Last changed' date and time are '23.06.2020 09:31:18'. The 'Source client' is '000'. The 'Target' field is 'GIT'. A 'Tasks' section is visible with a 'User' dropdown menu. The dialog box has a blue title bar and a standard SAP interface style.

# Format of repositories

- In SAP S/4HANA 2020 data will be stored in JSON-Format for newly created repositories
- XML format is still supported
- Why? To improve readability



The screenshot shows the 'Properties' dialog box in SAP S/4HANA. The top navigation bar includes 'Configuration', 'Activities', 'Objects', 'Branches', 'Log', 'Registry', and 'Properties'. The main area displays 'No data' in a white box. Below this is a 'Layout' section with a 'Save' button. The 'Version' field contains the number '3'. The 'File format' dropdown menu is set to 'JSON'. The 'Meta Information Path' field contains the text '.gctsmetadata/'. The 'Table Content Support' toggle is turned 'ON'.

# Conflict resolution in gCTS

# Conflict resolution in gCTS

## Conflict resolution

- Requires SAP S/4HANA 2020
- Can only happen if you stop automatic pull and push
- Is done via the *Objects* tab

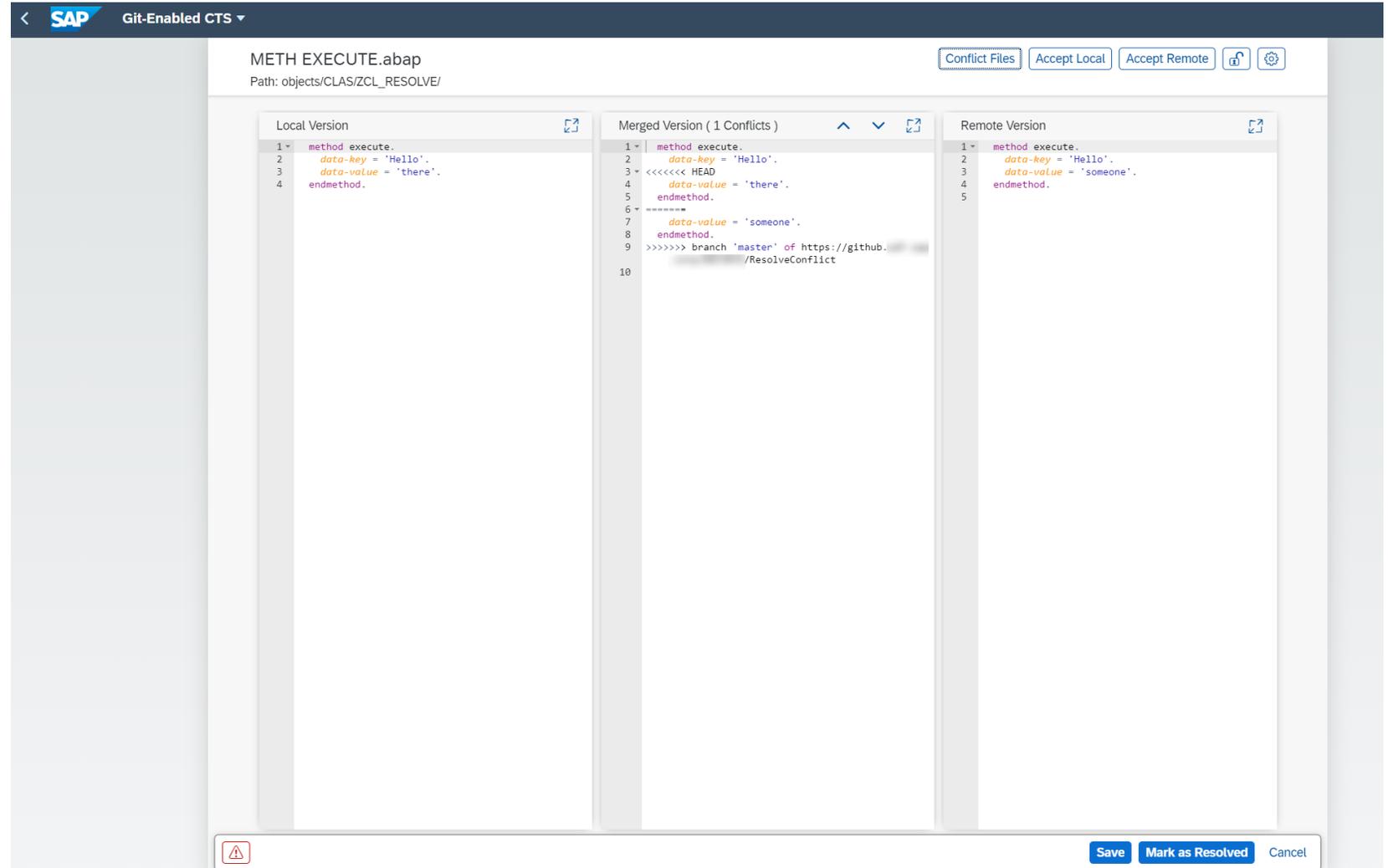
The screenshot displays the SAP gCTS interface. The top navigation bar includes 'Commits', 'Configuration', 'Activities', 'Objects' (selected), 'Branches', 'Log', and 'Properties'. The main area is divided into several sections: 'Current Objects' (empty), 'Conflicting Files' (1 item: objects/CLAS/ZCL\_HELLO/ with name METH EXECUTE.abap, type abap), and 'Local Files' (empty). A 'Push (1)' button is visible. Below the main area, the 'Configuration' tab is active, showing a table of configuration parameters. The parameters are:

Configuration Parameter	Value	Type	Value
CLIENT_VCS_AUTH_TOKEN			
CLIENT_VCS_CONNTYPE	ssl	CONNECTION	ssh
CLIENT_VCS_URI	https://github.wdf.sap.corp/D033035/ConflictDemo	CONNECTION	
CURRENT_COMMIT	25a382b48551a7280681da2f9ae1d157ddee2f34	GENERAL	
TRANSPORT_LAYER	ZDCF	REPOSITORY	
VCS_AUTOMATIC_PULL	false	REPOSITORY	true
VCS_AUTOMATIC_PUSH	false	REPOSITORY	true

# Conflict resolution UI

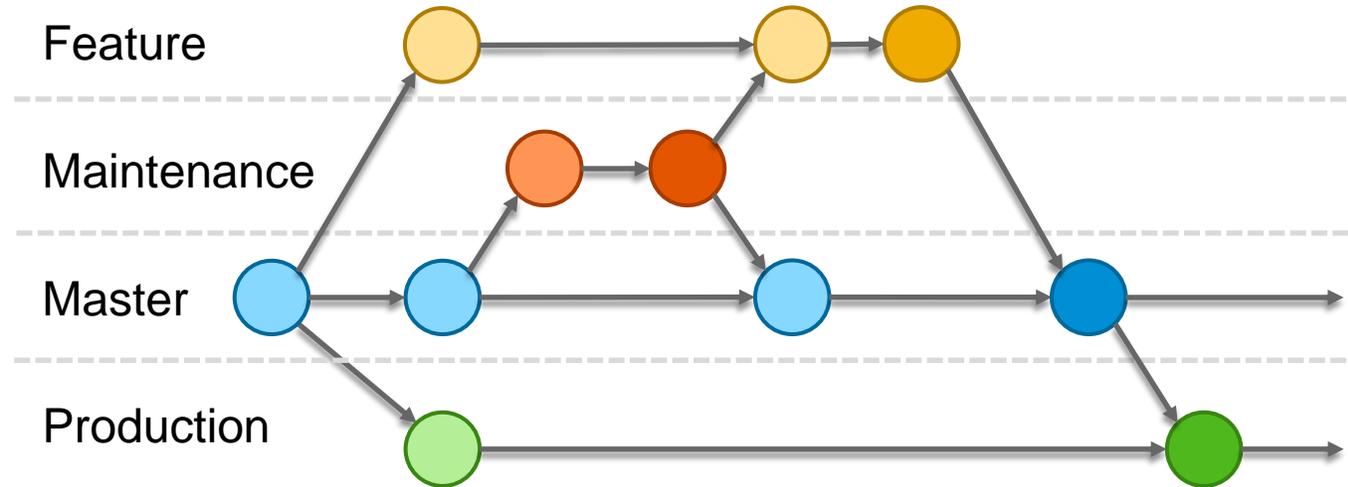
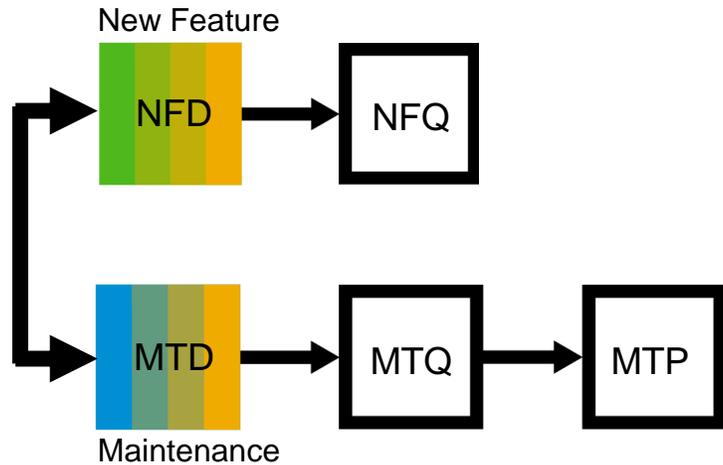
## Conflict Resolution UI

- Shows local and remote version
- Shows merged version indicating conflicts
- Merged version requires editing
- Integrated in Objects tab of gCTS app
- Requires GitHub



# Main use cases

# Alternate feature development and maintenance



One branch for feature development

One branch for maintenance

No doubled system landscape needed (if alternating development and maintenance is possible)

Deploy the latest commit of one or the other branch to develop new features or to do maintenance

# Planned use case: Distributed development



Two development teams can work on the same object



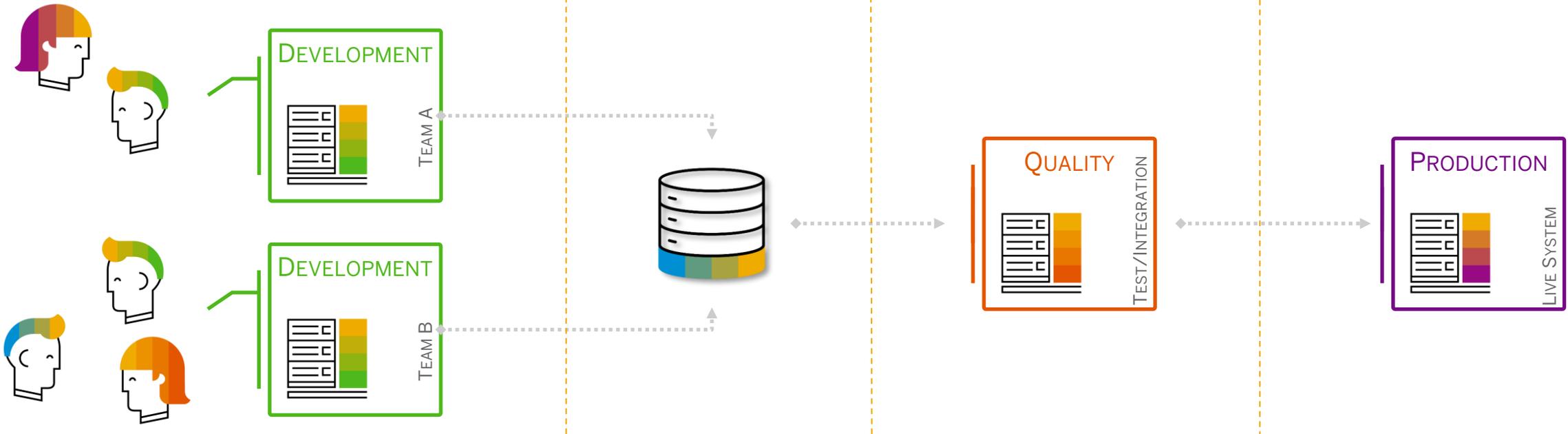
Commit changes to repository



Merge into master branch, deploy to QA



Deploy to production after test



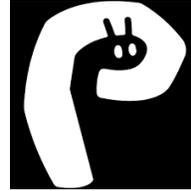
# gCTS in Project 'Piper'

# gCTS steps in project “Piper”

## What is project “Piper”?

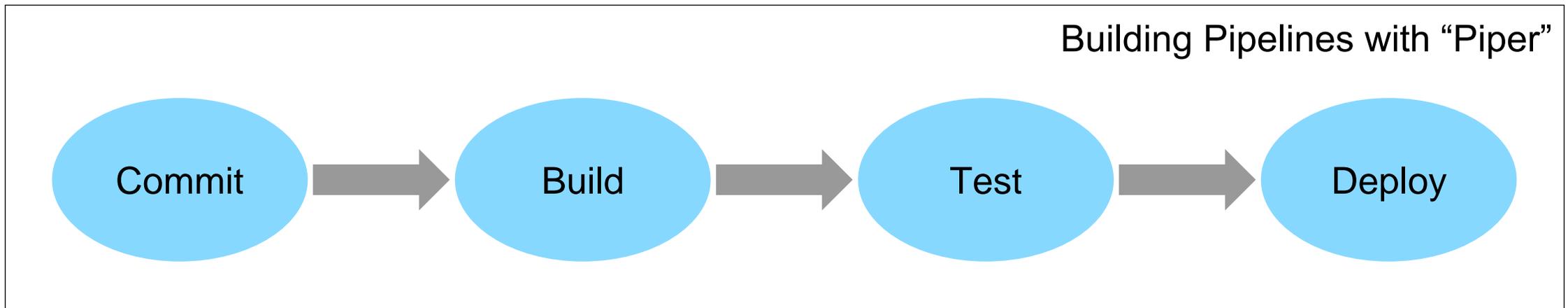
Open source project hosted on GitHub

Tools for DevOps



Prebuilt pipelines

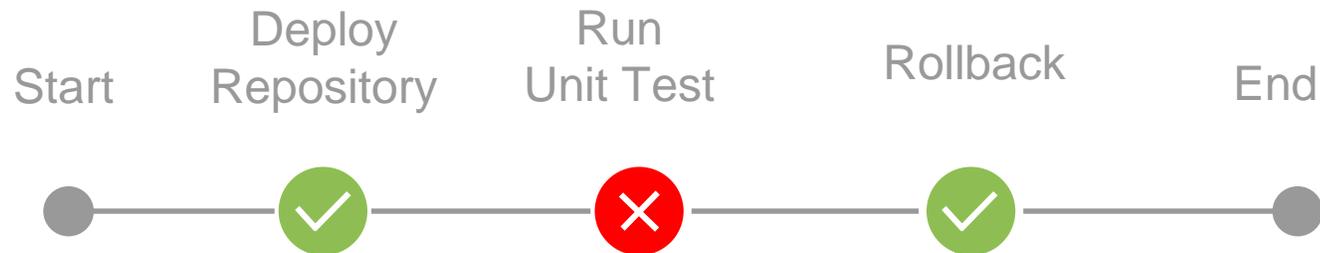
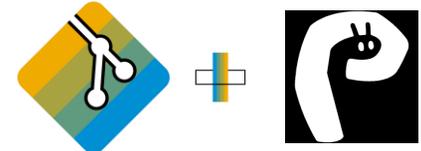
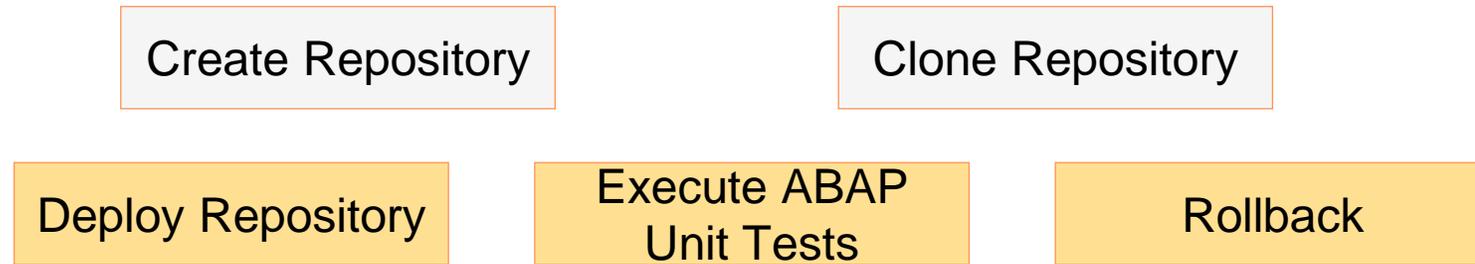
Orchestration and configuration of steps



# gCTS steps in project “Piper”

## gCTS and project “Piper”

### gCTS steps in project “Piper”



# Further Learning



openSAP course [Efficient DevOps with SAP](#) about DevOps in general

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Join this free online course to learn about DevOps and how you can efficiently foster DevOps principles along the relevant phases of SAP development projects.

Self-paced since June 1, 2021  
Language: English  
Subtitles (machine-translated): Deutsch, Français, Español

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Course information

Course Summary

DevOps can be a key enabler for achieving high-level agility and quality in development projects. Its basic approach is to overcome functional silos by creating cross-functional, autonomous teams in an open working environment.

In this course, you'll get an introduction to general DevOps approaches and key principles. The course will then outline the SAP offerings, such as best practices, services, and tools, that enable you to foster DevOps principles efficiently along the relevant phases of SAP development projects based on different programming languages and technologies. You'll learn where to find

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openSAP course [DevOps for ABAP with gCTS in SAP S/4HANA](#) about gCTS in detail – starts March 7<sup>th</sup>

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Join this free online course to learn about the Git-enabled Change and Transport System (gCTS) and how you can leverage it to set up DevOps for SAP S/4HANA ABAP development processes.

March 7, 2022 - April 19, 2022  
Language: English

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Course information

Course Summary

DevOps principles become more and more relevant in all processes which involve software development. Many development languages and software management environments already follow these paradigms. If you'd like to set up DevOps for SAP S/4HANA ABAP development processes, the Git-enabled Change and Transport System (gCTS) would be the way to go.

The aim of this course is to provide you with an understanding of gCTS in all its aspects. You'll get to know the features and

Dates and Statistics

Course starts in: 0 1 2 2 3 9

Learners enrolled: 5515

Certificate Requirements

## More information



- SAP Community:
  - gCTS announcement: <https://blogs.sap.com/2019/11/14/gcts-is-here/>
  - Implement BAdI: <https://blogs.sap.com/2020/08/05/create-a-commit-in-git-when-an-abap-task-is-released/>
- SAP Help Portal: <https://help.sap.com/viewer/4a368c163b08418890a406d413933ba7/latest/en-US/f319b168e87e42149e25e13c08d002b9.html>
- SAP Support Portal: [https://support.sap.com/en/tools/software-logistics-tools/change-and-transport-system.html#section\\_1079943272](https://support.sap.com/en/tools/software-logistics-tools/change-and-transport-system.html#section_1079943272)
- Guided Answer: <https://ga.support.sap.com/dtp/viewer/index.html#/tree/2504/actions/34024>
- SAP Note: <https://launchpad.support.sap.com/#/notes/2821718>

# Thank you.

Contact information:

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