



# DevOps Essentials with SAP

## DevOps in an ABAP-Based Environment

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PUBLIC

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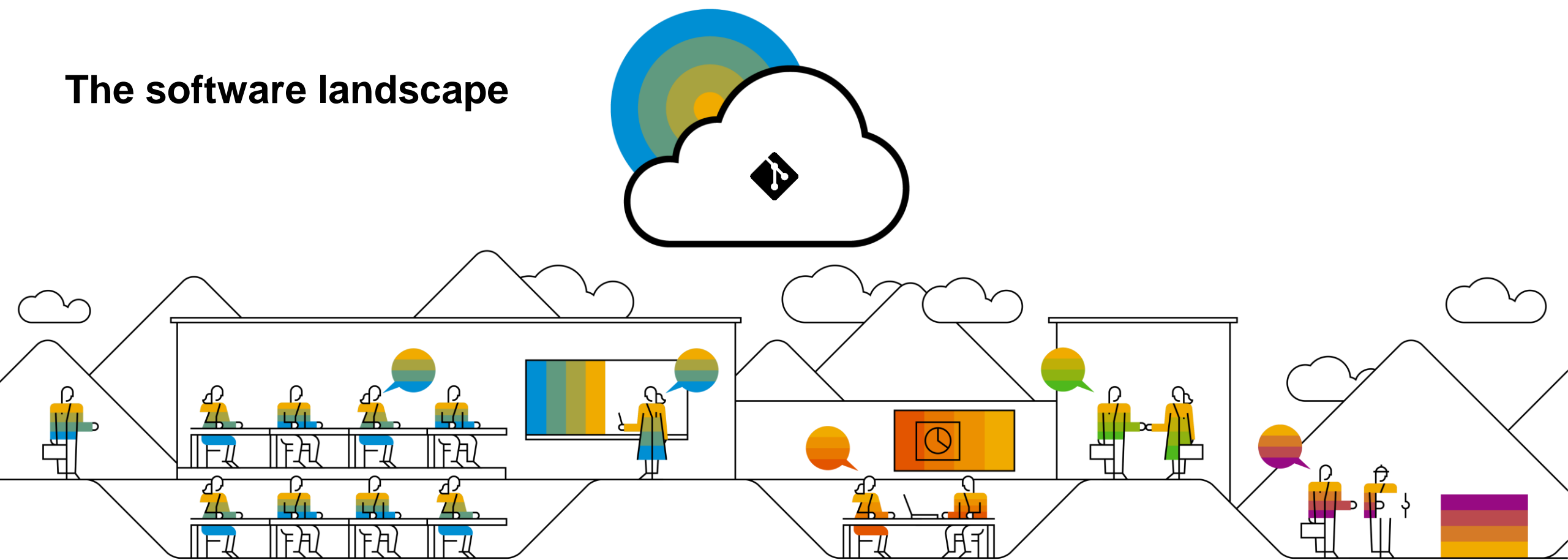
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**Why**

# The software landscape

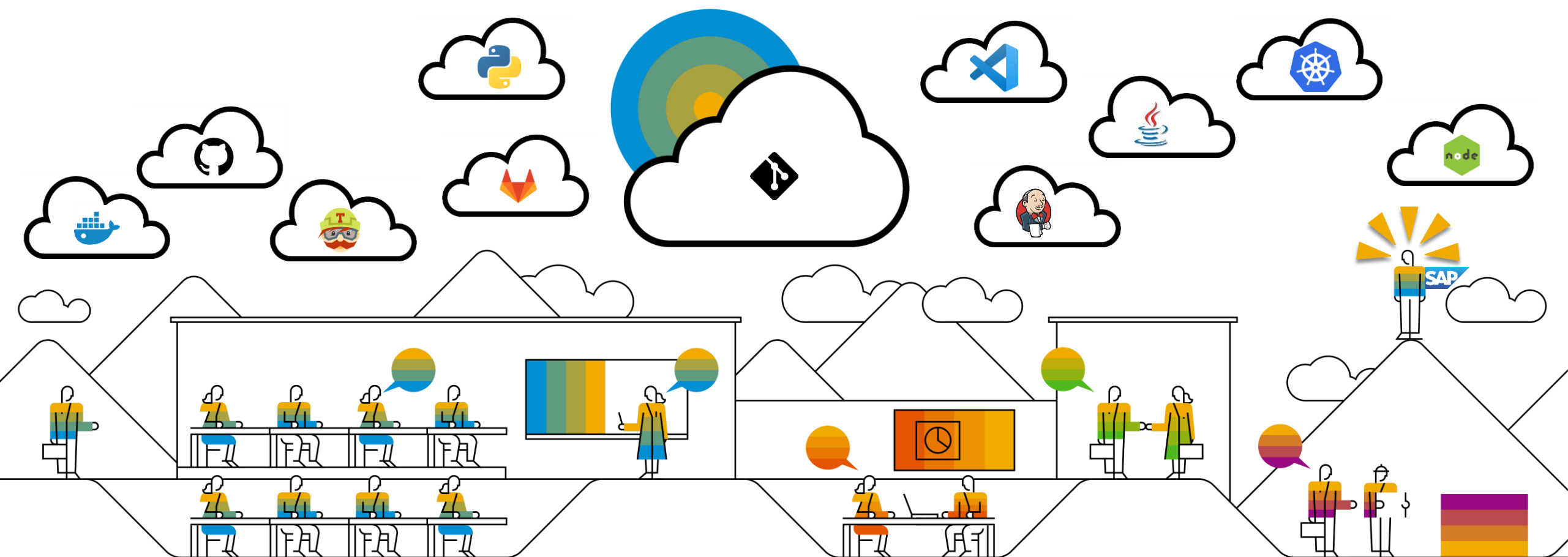


Git is an open  
source distributed  
version control  
system

Separated  
development in  
branches

Readable files in  
repositories

Source code can  
easily be  
accessed and  
shared



Source code can  
easily be  
accessed and  
shared

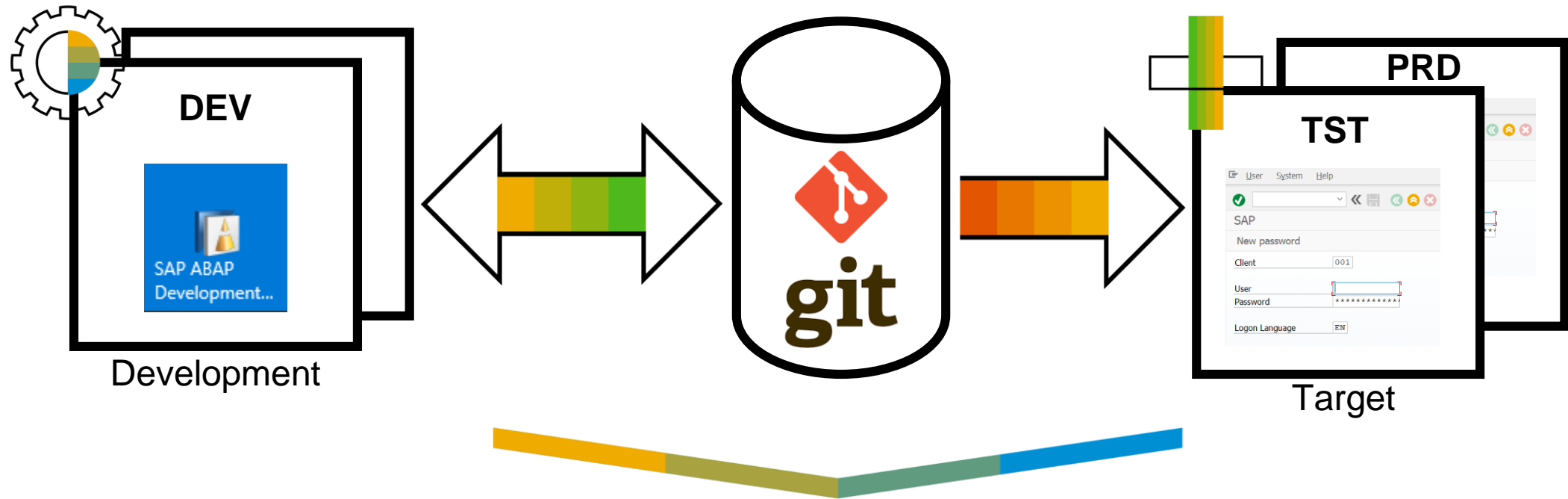
CI processes can  
be set up for most  
development  
environments

Integrated for  
most modern  
programming  
language

***But what about  
ABAP?***

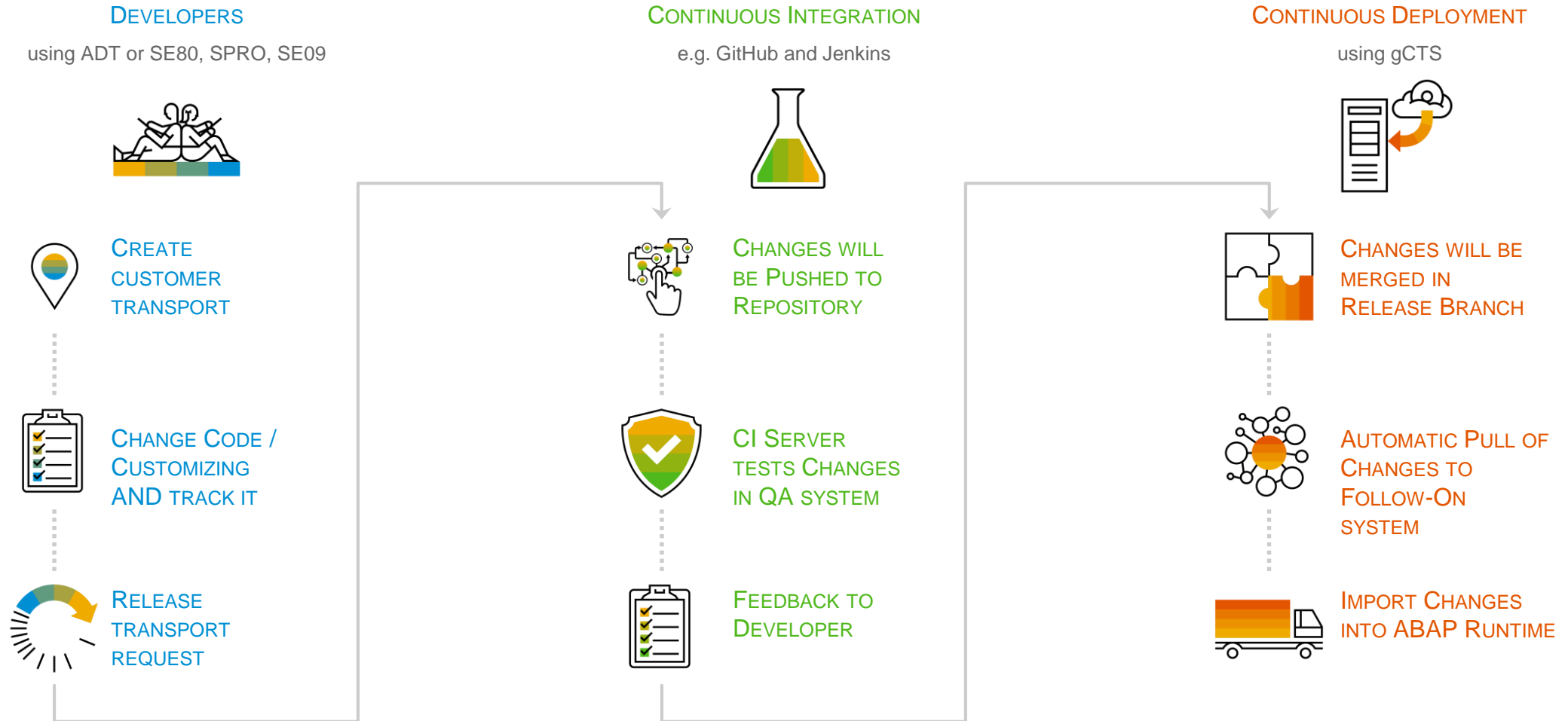
# Basics

# Our idea...



\* Change and Transport System

# New ABAP software lifecycle process

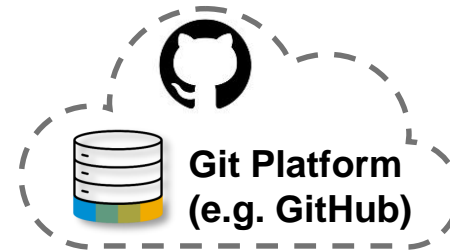




# Which systems do I need?

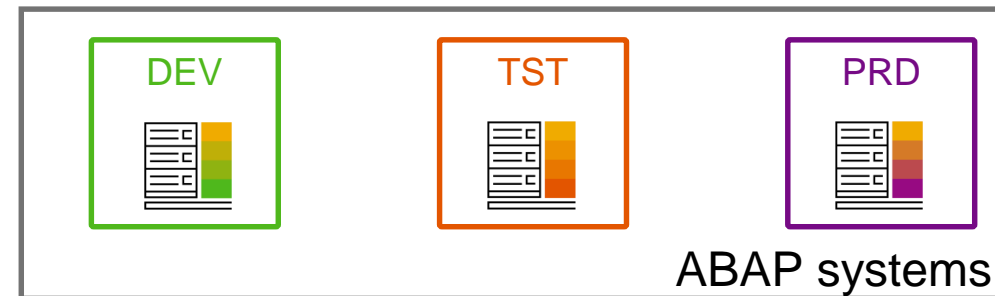
## Git platform

- To host your repositories



## ABAP systems

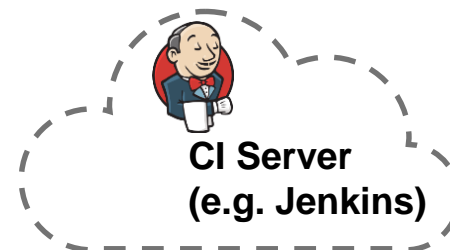
- E.g. development, test and production system



*MUST*

## CI server

- To host your pipelines

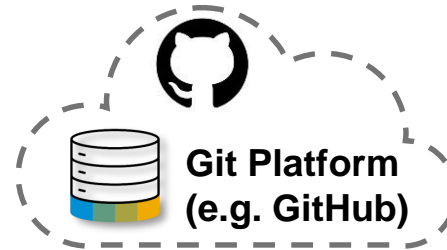


*optional*

# What do I need to install on these systems?

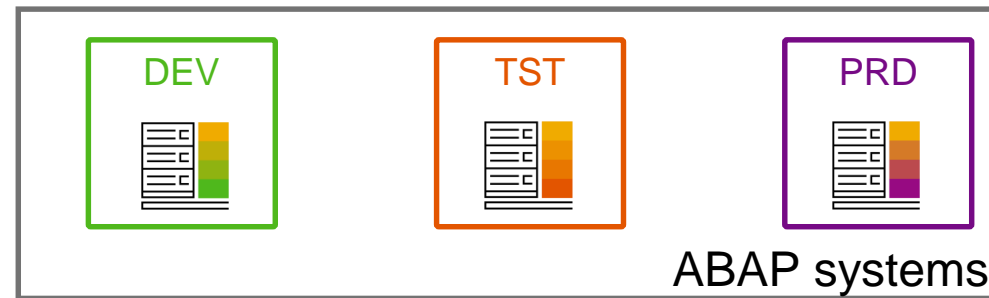
## Git platform

- (nothing special)
- Can be e.g. GitHub, GitLab, CodeBucket, AWS Code Commit



## ABAP systems

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

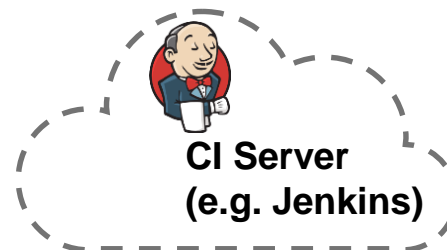


*MUST*

*optional*

## CI server

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



# What do I have to configure on these systems?

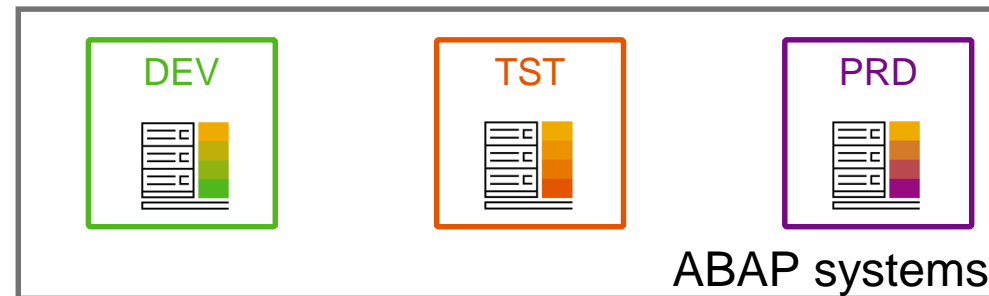
## Git platform

- Create Repository (with initial commit)



## ABAP systems

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

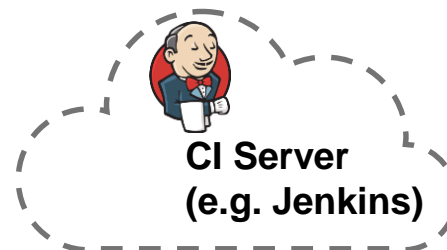


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*optional*

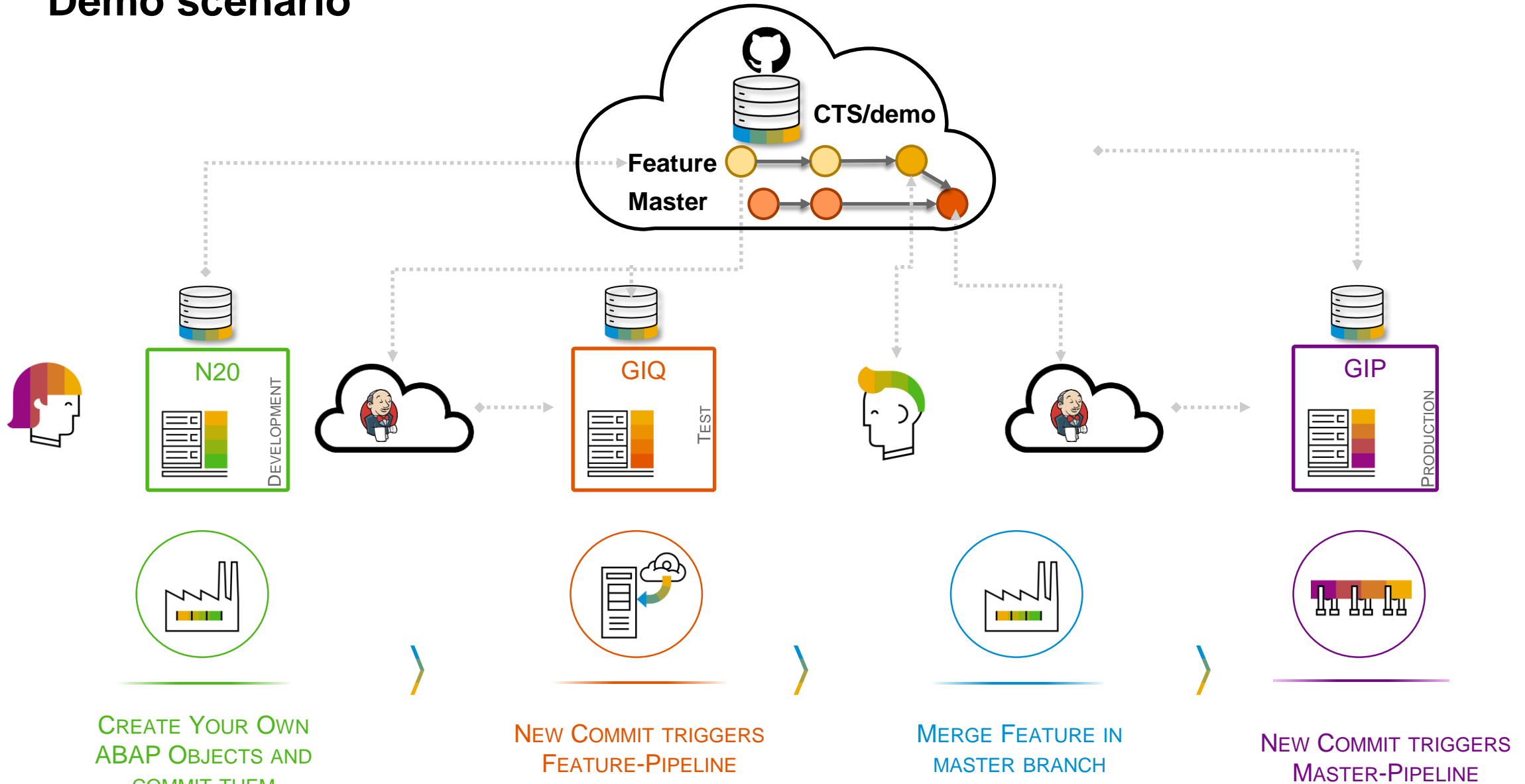
## CI server

- define pipeline



**Demo**

# Demo scenario



# News

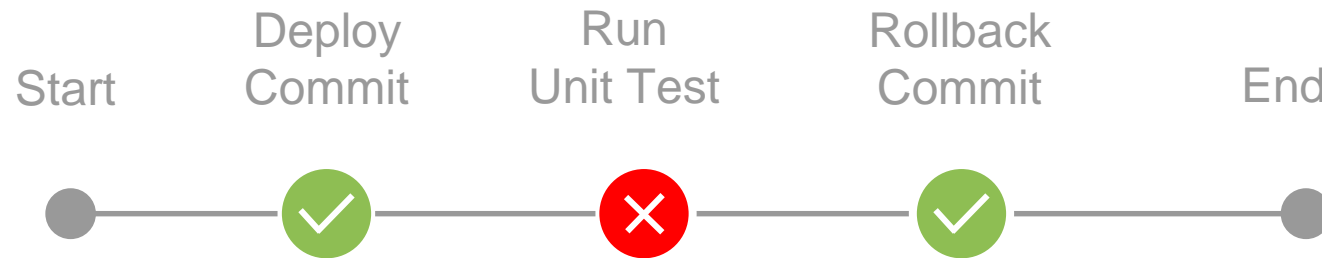
# Project 'Piper' – planned Steps



Library Steps in Project ,[Piper](#)'

[gctsCloneRepository](#)

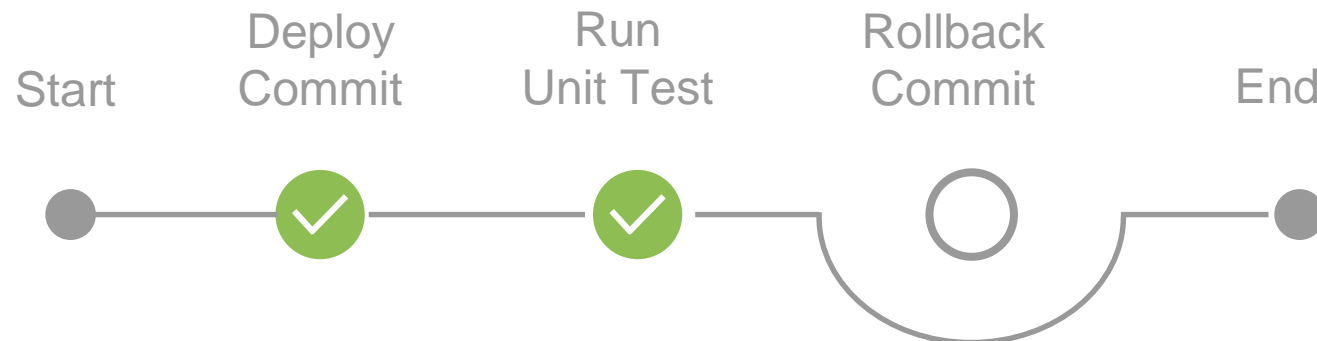
[gctsCreateRepository](#)



[gctsDeploy](#)

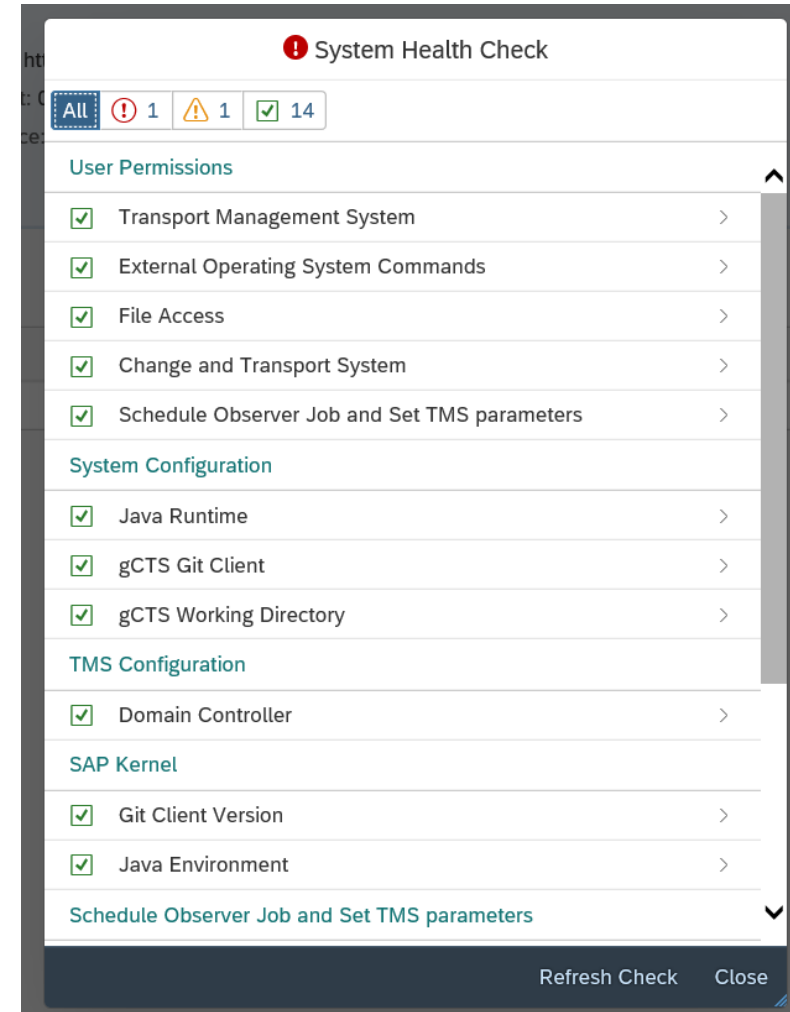
[gctsExecuteABAPUnitTests](#)

[gctsRollback](#)



# Health check

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





# 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 S/4HANA 2020, requires implementation of SAP Notes in 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

# Adding customizing to gCTS

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

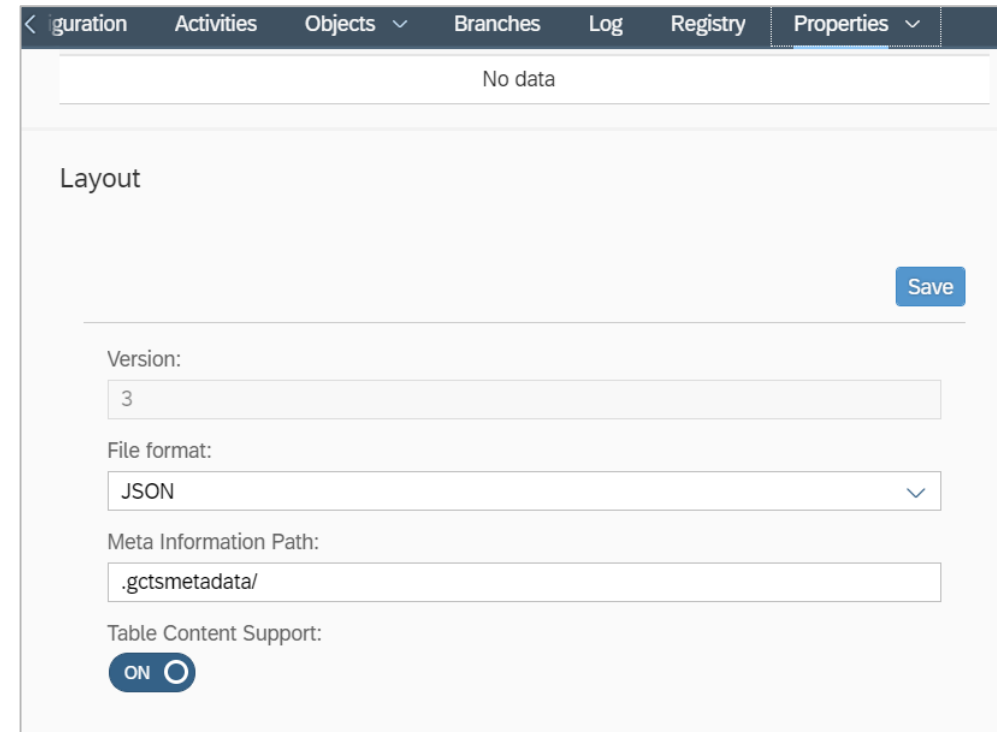
## Technical background

- TDAT and VDAT are enabled
- TABU: Deletion of single entries is enabled
- Repository Layout Version 3 required

The screenshot shows the 'Create Request' dialog box in SAP. The 'Request Type' is set to 'Customizing request'. The 'Short Description' is 'Customizing to gCTS'. The 'Project' field is empty. The 'Owner' field is empty. The 'Status' is 'New'. The 'Last changed' date is '23.06.2020' at '09:31:18'. The 'Source client' is '000'. The 'Target' is 'GIT'. The 'Tasks' section shows a list of users, with the first user selected. The dialog box has tabs for 'Global Information' and 'Transport Proposals'.

# 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

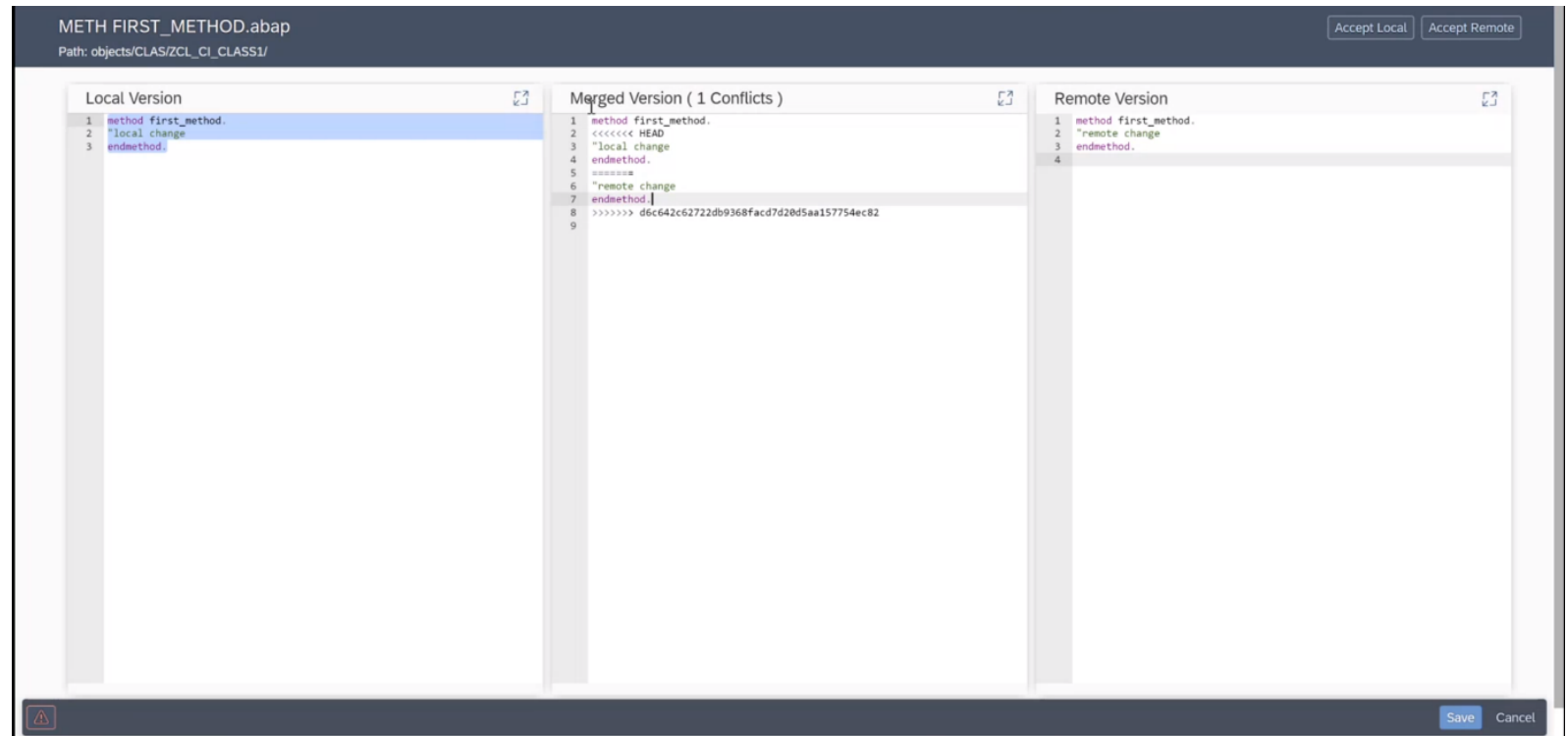


The screenshot shows the 'Properties' tab of a configuration window in SAP S/4HANA. The window has a dark blue header with tabs: 'Configuration', 'Activities', 'Objects', 'Branches', 'Log', 'Registry', and 'Properties'. Below the header, there is a light gray area with the text 'No data'. The main content area is titled 'Layout' and contains a 'Save' button. Below the 'Layout' section, there are four input fields: 'Version:' with the value '3', 'File format:' with a dropdown menu showing 'JSON', 'Meta Information Path:' with the value '.gctsmetadata/', and 'Table Content Support:' with a toggle switch set to 'ON'.

# Support for Conflict Resolution

## Conflict Resolution UI

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



# Outlook

# Releases and their Features

## S/4HANA 1909

- Git-based distribution of custom development
- Support for workbench objects
- Option to set up Continuous Integration process
- Option to automate Continuous Deployment

## S/4HANA 2020

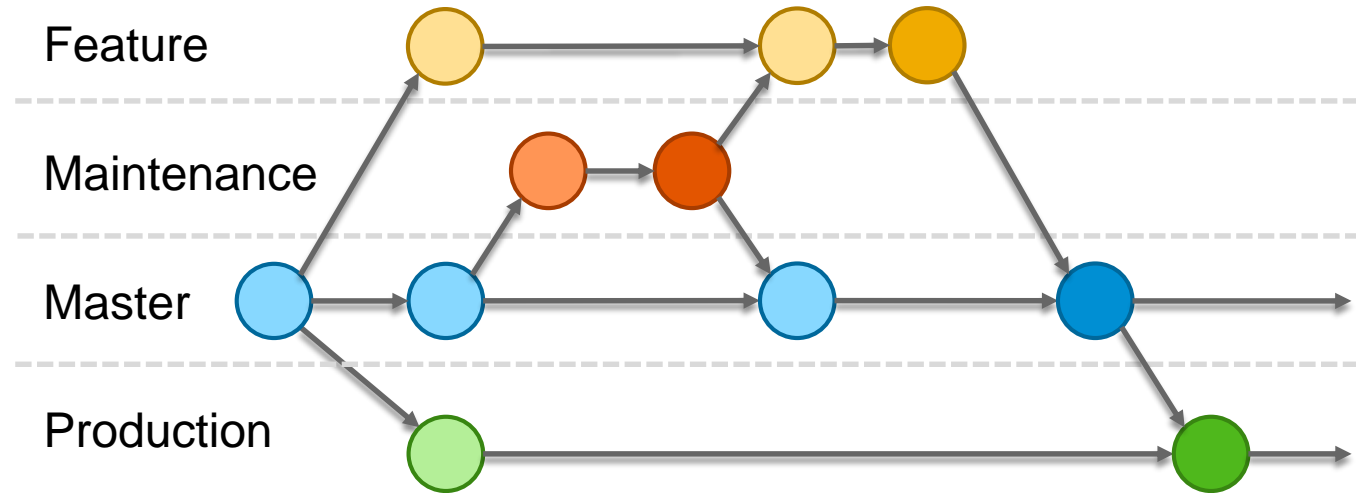
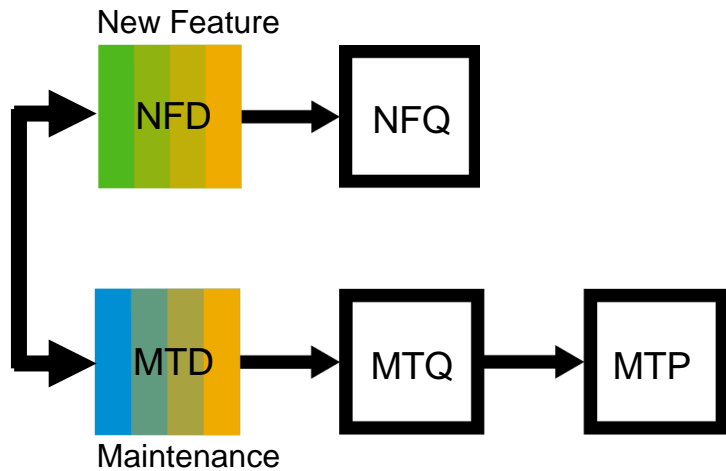
- Support for customizing objects
- Basic support for conflict resolution when merging branches

## Future Direction

Planned

- Enhance support for distributed development and maintenance / development use cases
- Leverage GitHub functionality for code reviews (e.g. pull requests)
- Integration in transport organizer
- Improve exception handling and logging
- Integration of gCTS with ChaRM
- Convenience functionalities to use gCTS for business processes on CI platforms.

# Planned use case: Feature development and maintenance in parallel



One branch for feature development

One branch for maintenance

No doubled system landscape needed

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

# Planned use case: Distributed development



Two Dev Teams can work on the same object



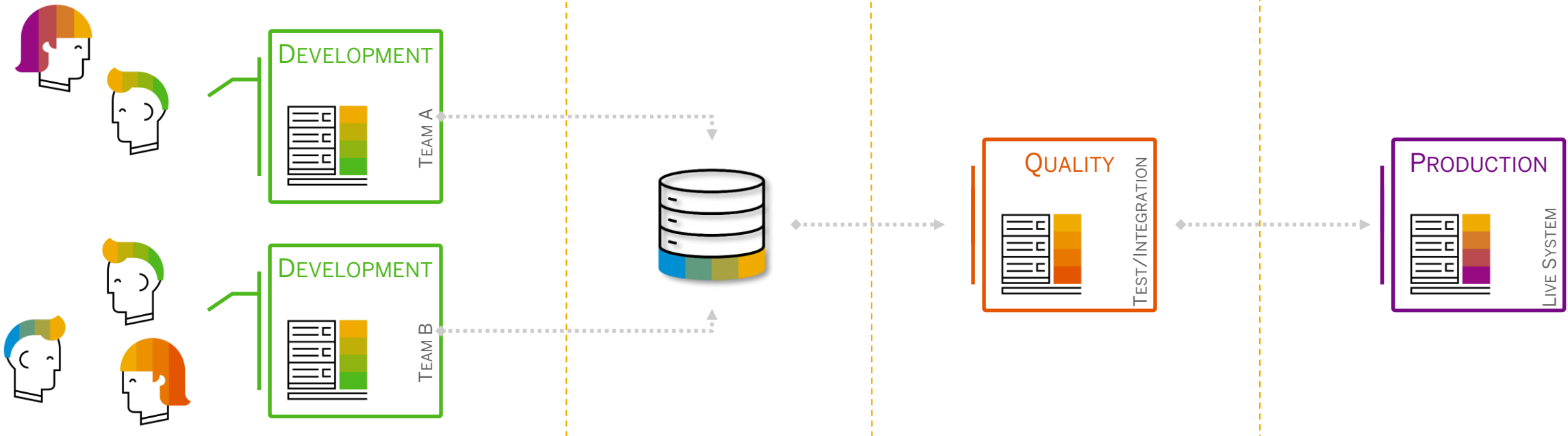
Commit changes to repository



Merge into master branch, deploy to QA

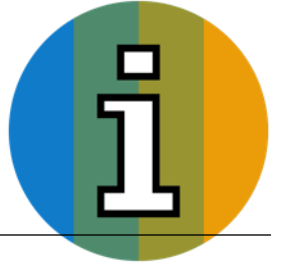


Deploy to Production after test





# More information



## Public SAP Web sites

- SAP Community:
  - gCTS initial announcement: <https://blogs.sap.com/2019/11/14/gcts-is-here/>
  - News about gCTS in S/4HANA 2020: <https://blogs.sap.com/2020/10/08/the-gcts-story-continues/>
  - Implement BAdI: <https://blogs.sap.com/2020/08/05/create-a-commit-in-git-when-an-abap-task-is-released/>
- 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)
- SAP Help Portal: <https://help.sap.com/viewer/4a368c163b08418890a406d413933ba7/latest/en-US/f319b168e87e42149e25e13c08d002b9.html>
- 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.

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