Webinar DevOps in an ABAP-based environment on 15th October 2020

Q: Do we get access of this recording later
A: Yes, slides and recording can later be found at: https://webinars.sap.com/sap-user-groups-k4u/en/ccoe#201015;

Q: What would be the purpose of moving to gCTS?
A: If you would like to set up DevOps processes for your ABAP development teams, you might find gCTS helpful as it allows storing ABAP files in Git-based version control systems. You could then set up pipelines and mage use of automation options that can be achieved via CI servers like Jenkins. With this, your ABAP developers could then work in a similar way as other developers that work with different languages.

Q: Are we able to manage both custom and workbench development?
A: Starting with SAP S/4HANA 2020, gCTS can be used with both customizing and workbench requests. In SAP S/4HANA 1909, only workbench objects can be handled.

Q: Will the SAP standard ABAP sources also be migrated to ABAP-Git in the future with S/4? I think about OSS note implementation or modifications of user exits.
A: There are currently no plans to make use of gCTS for any object that is delivered by SAP. gCTS is intended to be used for custom development and customizing

Q: Does gCTS work with ChaRM?
A: In integration of gCTS into ChaRM is planned. We will provide information on this as soon as it is available

Q: Is DevOps process possible in S/4HANA versions 1909 environment without gCTS?
"What's your views on implementing DevOps with classic CTS/CTS+ /ChaRM?
A: First of all, DevOps is a methodology which includes CI/CD as a technological background. These technologies are provided for ABAP on-premise environments via gCTS and the pipeline steps that we provide in Project 'Piper' – closer to the open source world. There are plans to integrate gCTS in ChaRM in upcoming SPs of SAP Solution Manager.
Without gCTS within the last three years, we established and recommended as SAP best practice a four-system landscape. CI between Dev and QA to run multiple sprints. Transport of copies are used to finalize the functionality. PreProd will be used to do a final assembly and a final testing. Final deployment is done into prod. The overall process will be controlled by ChaRM. Many customers are using the concept since many years.

Q: Is DevOps process possible in S/4HANA versions <1909 environment without gCTS?
A: see previous question – the ideas described above also work for older releases

Q: Do we need an SAP HANA system for gCTS?
A: SAP S/4HANA 1909 is the first release, where gCTS is available. If you would like to work with customizing, then SAP S/4HANA 2020 is required

Q: Is gCTS paid tool or does it come free with ABAP1909 version and above?
A: gCTS is part of the ABAP basis. It is for free.

Q: Do you have standard guide / documentation for gCTS?

A: The documentation explains [Configuring Git-Enabled Change and Transport System](#) and [Using Git-Enabled Change and Transport System](#)

Q: Can we still use the old CTS when we move to SAP S/4HANA 1909?
A: Yes! gCTS is a new offering, an additional option. There are no plans at all to replace classical CTS by gCTS. You can also use both in parallel in one system.

Q: What about containerization of ABAP development systems for developer specific environments? As far as I understand from your presentation, all developers start development on the same dev system first.
A: Containerization for ABAP is currently not available. There are ideas in that direction but nothing that I know of that is officially supported or delivered to customers. Developers need a server (an ABAP Runtime) to be able to develop.

Q: How do you manage the conflict while merging with master branch?
A: How conflicts can be resolved id described in here:
https://help.sap.com/viewer/4a368c163b08418890a406d413933ba7/202009.000/en-US/6b0a2ff92adc4301960a8148b33c88ee.html

Q: How would SAP upgrades work?
A: gCTS is made for managing custom development. SAP Notes or Fixes or Service Packs are not available via gCTS.

Q: Can all SAP Custom Development objects be used in gCTS?
A: In SAP S/4HANA 1909, there are restrictions concerning customizing. Details are provided in an SAP Note: https://launchpad.support.sap.com/#/notes/2888887
In SAP S/4HANA 2020 VDAT and TDAT is supported. CDAT is planned to be supported in the future

Q; Can the same object be modified by multiple developers at the same time? which is a common ask in a DevOps environment.
A: The locking mechanisms of the ABAP workbench remain as they are. If the developers work in different development systems then yes, it can be edited more than once. But afterwards, you have to resolve the conflicts when development from two systems is added to the same e.g. integration system. If you like to go for that option, please make sure that the conflict resolution functionality and other features of gCTS that you might need for distributed development are provided by gCTS and fit to your needs.

Q: Is there a way to put ABAP objects just direct from a Git store instead from an ABAP system in the gCTS?
A: I would need to know more about the scenario. You can push objects manually to a Git repository. You can pull commits that are available in the repository into your ABAP system. But the objects have to have the correct format so that gCTS can handle them. So, you don't necessarily have to release a transport request to add something to your repository. The topic [Manually Push Objects](#) on the SAP Help Portal provides more information on that

Q: Can we assign packages to repositories?
A: The transport layer determines whether an object is pushed to Git. The transport layer is set on package level

Q: What if we have several objects in same task?

A: That is completely fine. When you release the transport request, all the objects will be pushed to the remote repository as one commit

Q; I understand that with gCTS we do not require the classic 2-layer landscape for MNT and PRJ so that means we do not require to deal with Retrofit?
A: this depends on your requirements. As only one version of an ABAP system can be active at a time, you won't be able to do maintenance and feature development in one system at the same time.

Q: Feature and maintenance branches can be used parallelly to make development and support separate?
A: Only one branch can be active in one system at a time. You can only work on one version of an object at a time. Only one version of an object can be active in an ABAP runtime.

Q: What if local ABAP repository and Git repository are not consistent? is local ABAP repository overwritten?
A: If this question is about cloning the repository: You can only clone the repository from remote to the ABAP system once when you set it up. After that, if you push something (when you release a transport request, the objects that are part of the transport request will be added as a commit to the remote repository. No commit on the local repository will be overwritten. When you pull a commit into your ABAP system, the changes between the commit that was active before, and the one that you are pulling will be deployed to your ABAP system.

Q: Can we have multiple development and test systems and merge in a stage system?
A: If you would like to do distributed development, you would need conflict resolution support. A first version of the conflict resolution UI is part of SAP S/4HANA 2020 – please investigate whether it fits your needs. In addition, you might need the option to define in which branch an object can be developed – we plan to provide some support for this, but it is not available up to now.

Q: Are we still using the name "Project Piper" or is this renamed?
A: SAP Jenkins Library is the official marketing name, but "Project Piper" can be used equally.
https://sap.github.io/jenkins-library/

Q: Can then also sources in other languages be transported at the same time with ABAP? I think about hybrid scenarios when you might have Java code developed on SAP Cloud Platform plus some ABAP changes for the entire new process/features.
A: A mono-repository is possible. But gCTS is not CTS+ - it does not distribute the objects to the appropriate deployment tool.

Q: Is there a restriction on who can do the PULL to Prod? for SOX reasons we can't have the same person doing the development move the transport to Production system?
A: The gCTS SAP Fiori App runs locally on each system. So only people who have access to the system and have permissions to use the gCTS App can execute pulls.

Q: Do you have any experience on repo sizes (number of objects...)?
A: I don't know of any restriction.

Q: as package grows it becomes slow... to move to git
A: Only the changed objects are pushed – not the complete package

Q: When we are in development stage"; can we move the changes to GIT without releasing the actual transport so that we can move to test systems to test with
A: You can initiate a push when releasing a task. This requires implementing a BAdI. Details are described in [a blog post in the SAP Community](#):

Q: Which test automation tool do you use, or would you recommend for automated testing in QA system?
A: We don't have any preferences in here. In Project 'Piper' we currently provide a step for automatically executing ABAP unit tests.

Q: In other scenarios, changes for feature branches would be merged to the master branch once they have been tested in a first step successfully; so that in the master branch you have the single point of truth what is currently running in Q-systems
A: yes

Q: Can we add several test cases for one code?
A: I am not an expert on ABAP development - sorry

Q: How to handle downgrade protection?
A: Up to now, there are no special tools or options to handle downgrade protection. We need to gain some experiences what is needed in an gCTS environment.

Q: What steps of git usage are automated by gCTS? E. g. rebase on master branch seems to be done in the background somehow. What about other recurring steps for the developer? Are there some additional steps compared to a "usual" git developer workflow?"
A: gCTS on its own does push (when you release a transport request) and pull (when you go to a certain commit). There is no automatic rebase done. gCTS always only works with the one branch that is active for the respective system.
In principal, gCTS supports Git functionalities, as a native Git Client is used in the background. Automation can be done as part of a CI/CD process – so as part of a pipeline.

Q: As you said it is only for custom code: how are you handling modifications/implicit enhancements also. can they be managed?
A: gCTS in the standard will refuse to import repaired objects – like any import in classical CTS. You can change that by setting the parameter CLIENT_TP_UMODE = 6

Q: How do we optimize the rather monolithic approach of the ABAP repository for the git approach with branches and so on? Is there a best practice? Is the key to deploy a complex package hierarchy if we don't have one already to tackle this? what do you recommend? gCTS is in evaluation and we are on 1909 atm.
A: There are no plans to use gCTS for objects delivered by SAP.
For your own development, you can for sure think about how you would like to split it in logical parts if it is a big monolith – but this is in our eyes custom specific and a learning process. There can't be one simple answer or a best practice how this can be done

Q: How to maintain load balance?
A: I don't think that load balancing is needed a lot for gCTS. There can be one writ operation per system per repository at a time. There can be several read operations. Imports are done asynchronously in STMS (like in classical CTS) so that in principal, the next pull can already start while the previous is still running.

Q: Where did you set what Git repo the transport would go to?
A: When a repository is set up in gCTS, you have to define a virtual SID. With this, a transport layer is created. When the package was created, this transport layer was assigned to the package. More information is available on the SAP Help Portal at [Background Information: vSID](#)

Q; Does the GIQ system have Production level data? OR what kind of a system is this Test system?
A: In the demo shown during the session, GIQ is the test system.

Q: How do we configure the CI server - here in this example?
A: I can't provide the complete setup of our pipeline in here. But you can reach this state by using the pipeline steps [gctsDeploy](#), [gctsExecuteABAPUnitTests](#), and [gctsRollback](#) from gCTS in project 'Piper'