Automation Framework Enabling CI/CD in the Cloud

Snehal Pujara, Nikhil Sobti

May 2019

Capgemini

Agenda

CI / CD Pipeline

Automated Testing – An important link missed in CI / CD Pipeline

Automation Framework

- **Unit Test Automation Framework**
- **UI Test Automation Framework**
- **UI Test – Health Check Framework**
- **Overarching Landscape**

Framework Implementation

Recorded demo and screenshots for -

- **Unit Test Framework Implementation**
- **UI Test Automation for Health Check**

Challenges Faced

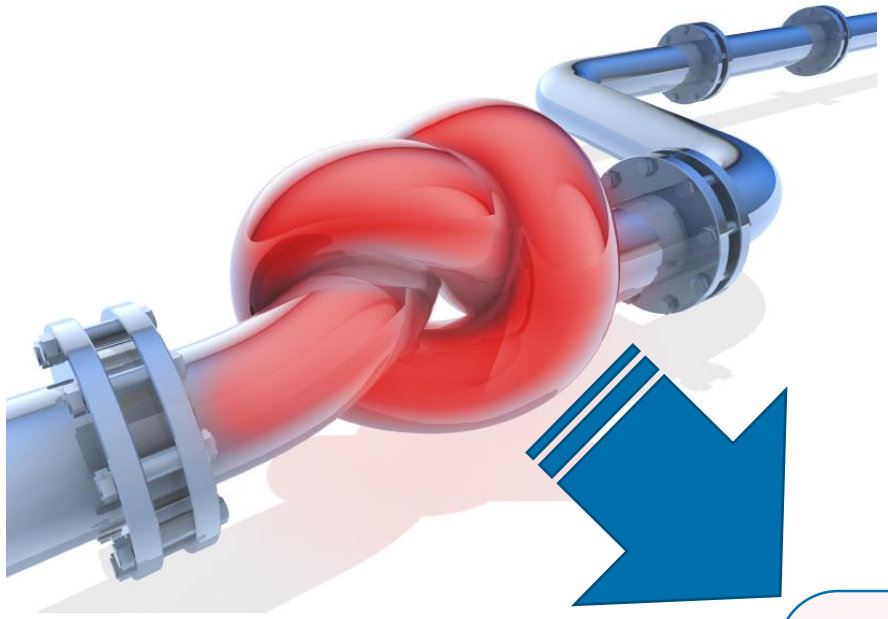
Key challenges faced during framework implementation

© 2018 Capgemini. All rights reserved.

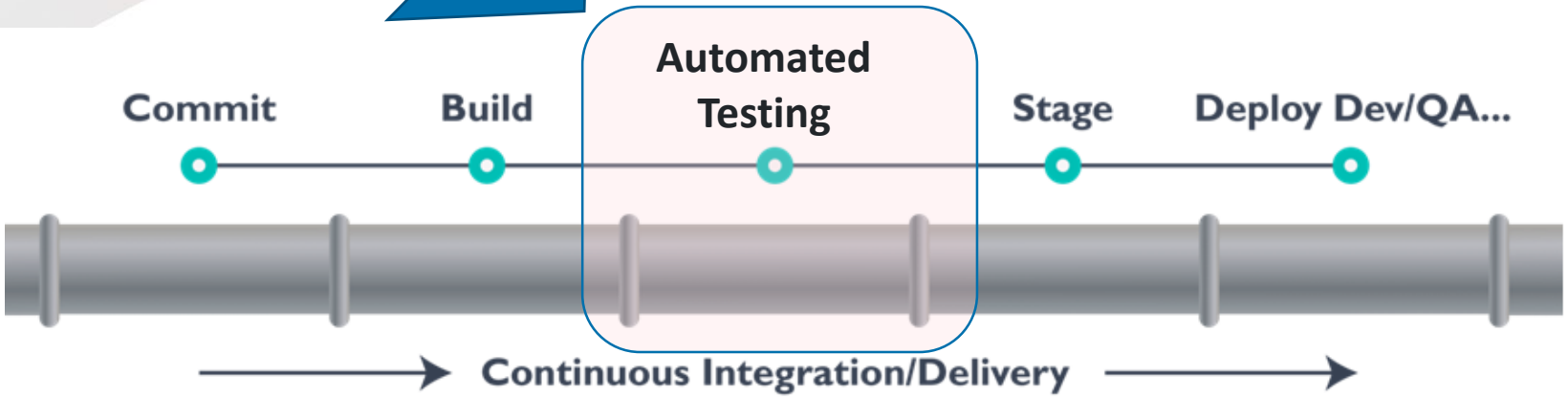
Original and © by Scott Adams, 1995

© 2018 Capgemini. All rights reserved.

Automated Testing – An Important Link Missed in CI/CD Pipeline



- **Speed**
- **Coverage**
- **Consistency**
- **Agility**



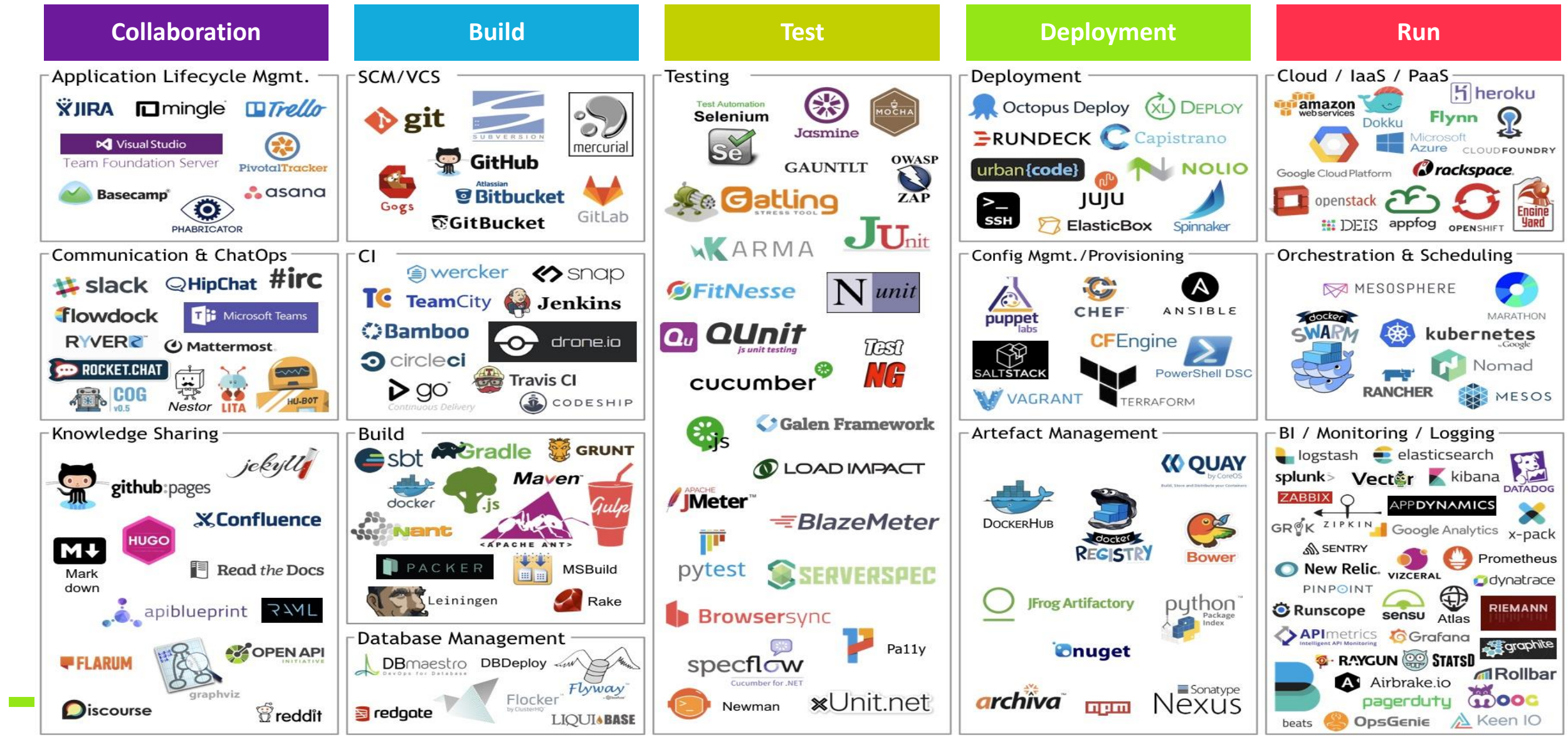
© 2018 Capgemini. All rights reserved.

Significance of Automation Framework

- **Foundation to build**
- **Reliable**
- **Flexible**
- **Scalable**
- **Repeatable**
- **Maintainable**
- **Standardised approach**

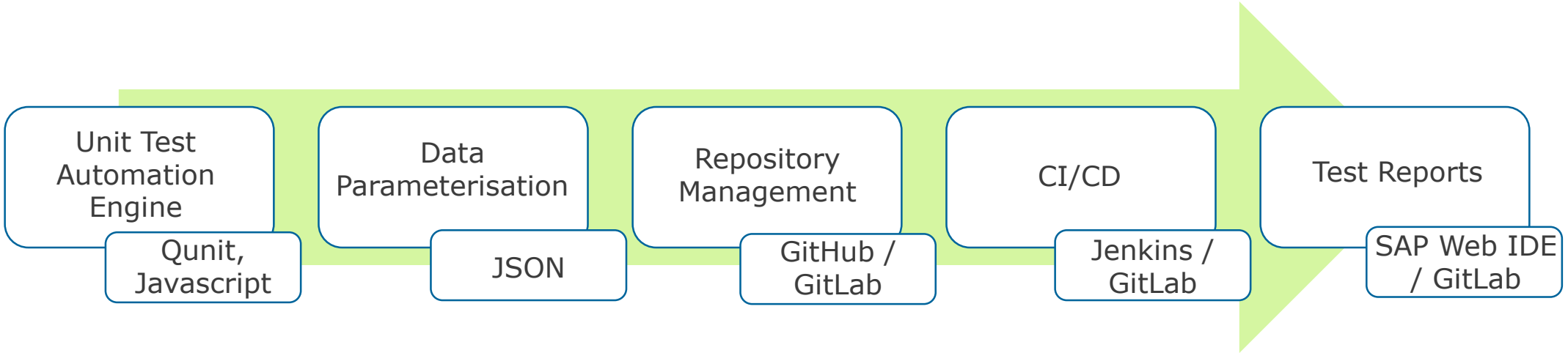
© 2018 Capgemini. All rights reserved.

DevOps Tools Landscape



© 2018 Capgemini. All rights reserved.

Unit Test Automation Framework



- Automatic generation of calling script that links individual unit tests and executes for defined coverage
- Wider code coverage

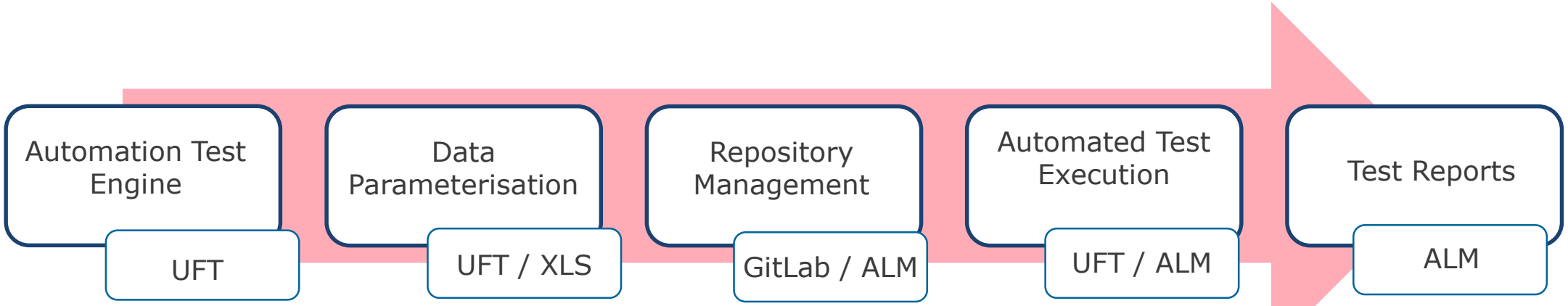
- Executes unit test for vast data sets
- Ability to either build data within SAP WebIDE or import from xls.
- Wider data coverage

- Automatic identification of updates in the repository and enables delivery pipeline
- Manage access authorisations for developers and testers to execute tests for particular projects.

- Scalable to further develop an utility that could generate automatic emails for test reporting

© 2018 Capgemini. All rights reserved.

UI Test Automation Framework



- Objects mapped using the built in object recognition tool
- Automation Test Scripts can be written in UFT using VBScript
- Function Library can be used to store commonly used Functions
- Add-ons provide flexibility to test a variety of web services
- Integration with Quality Centre (ALM)
- Up to date with latest technologies

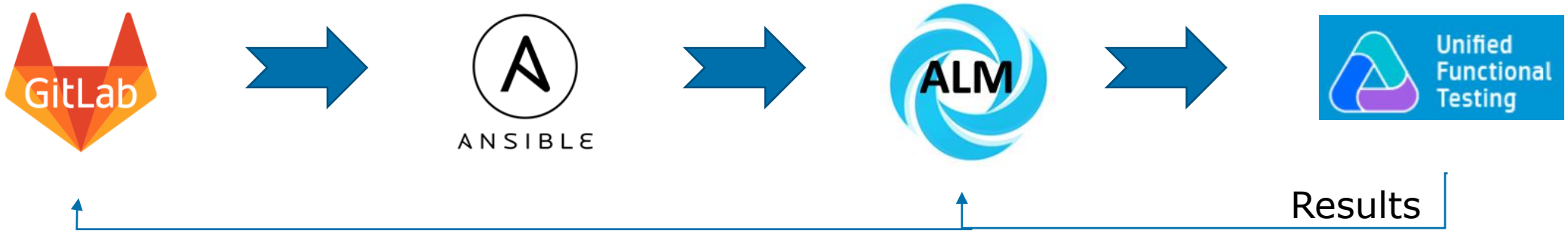
- Enables importing local and global data sheets
- Support test data import from xls sheets
- Executes a single automation script for multiple data sets
- A single script needs to be updated if changes are required
- Wider data coverage

- UFT integration with ALM
- Customizable framework to suit business needs
- Batch run makes regression test execution easy
- Tracks defects
- Report Generation

- Auto report generated on test execution
- Integrates with ALM and enables defect life cycle management
- Customised HTML report can be generated to enable integration with any dashboard reporting tool

© 2018 Capgemini. All rights reserved.

UI Test Automation Framework – Application Health Check



Pipeline Schedule: runs pipelines in future, repeatedly for specific branches or tags.

UFT script for Update Claim (Earnings) is scheduled to be executed every hour.

Ansible job configured in Development Tower gets kicked off and makes an API call to ALM.

Ansible Job then kicks off UFT test in ALM.

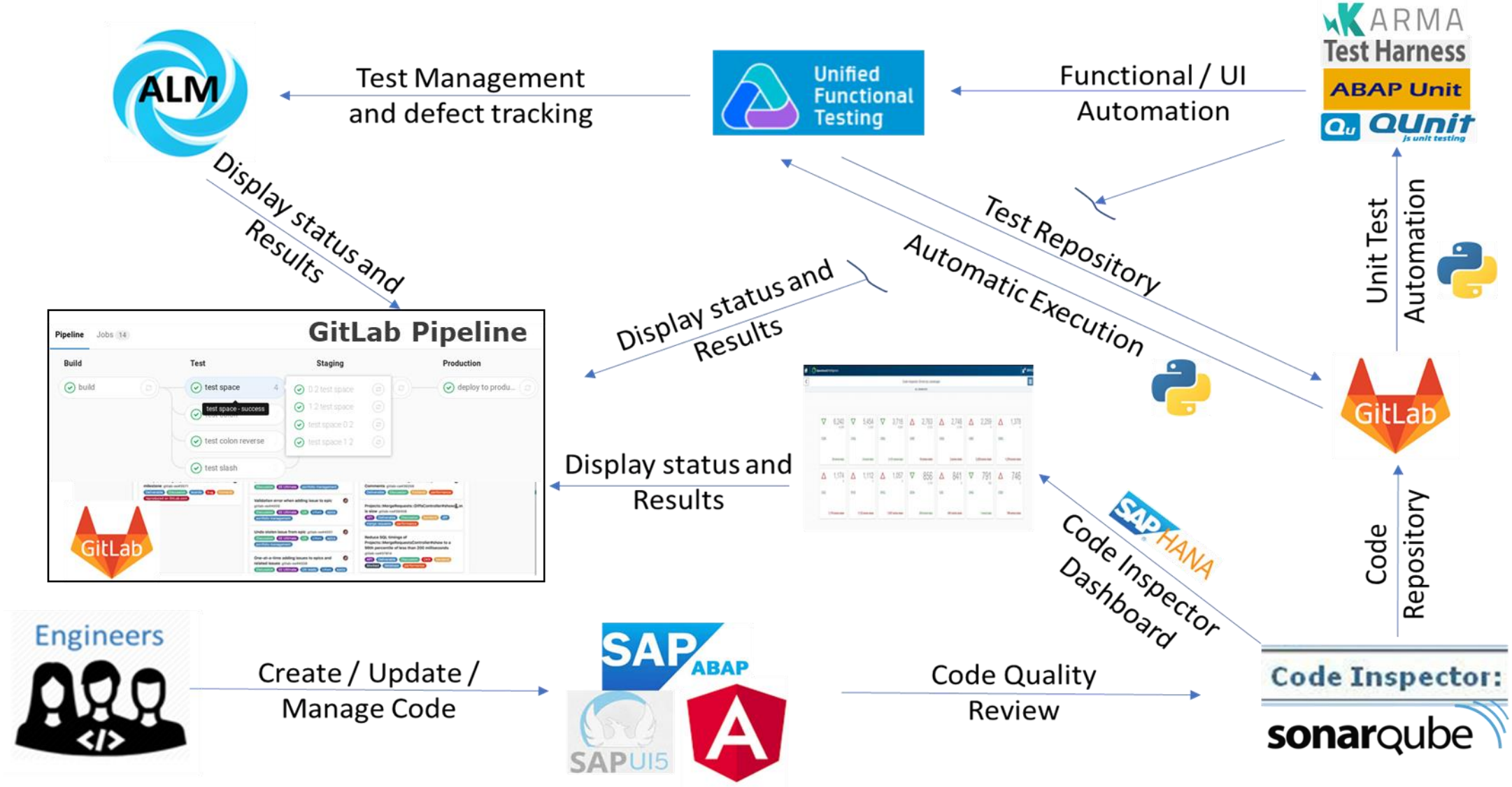
A new test instance is created in ALM and is set for execution.

UFT test execution is triggered for the automated test run.

Test results are posted back into ALM and GitLab with the test execution status – Pass / Fail

© 2018 Capgemini. All rights reserved.

Overarching Architecture

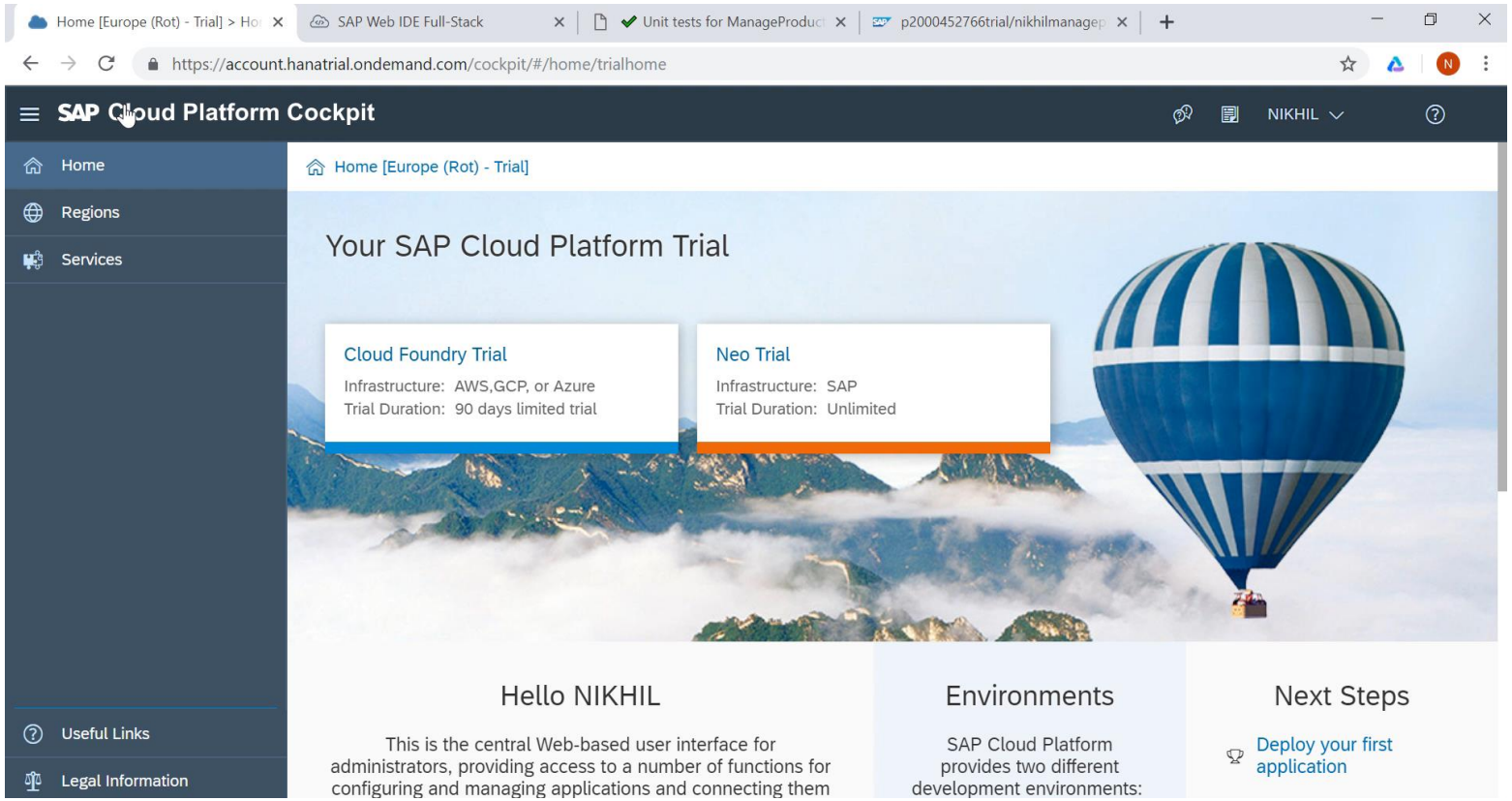


© 2018 Capgemini. All rights reserved.

Framework Implementation

Unit Test Framework

- **SAP Cloud cockpit**

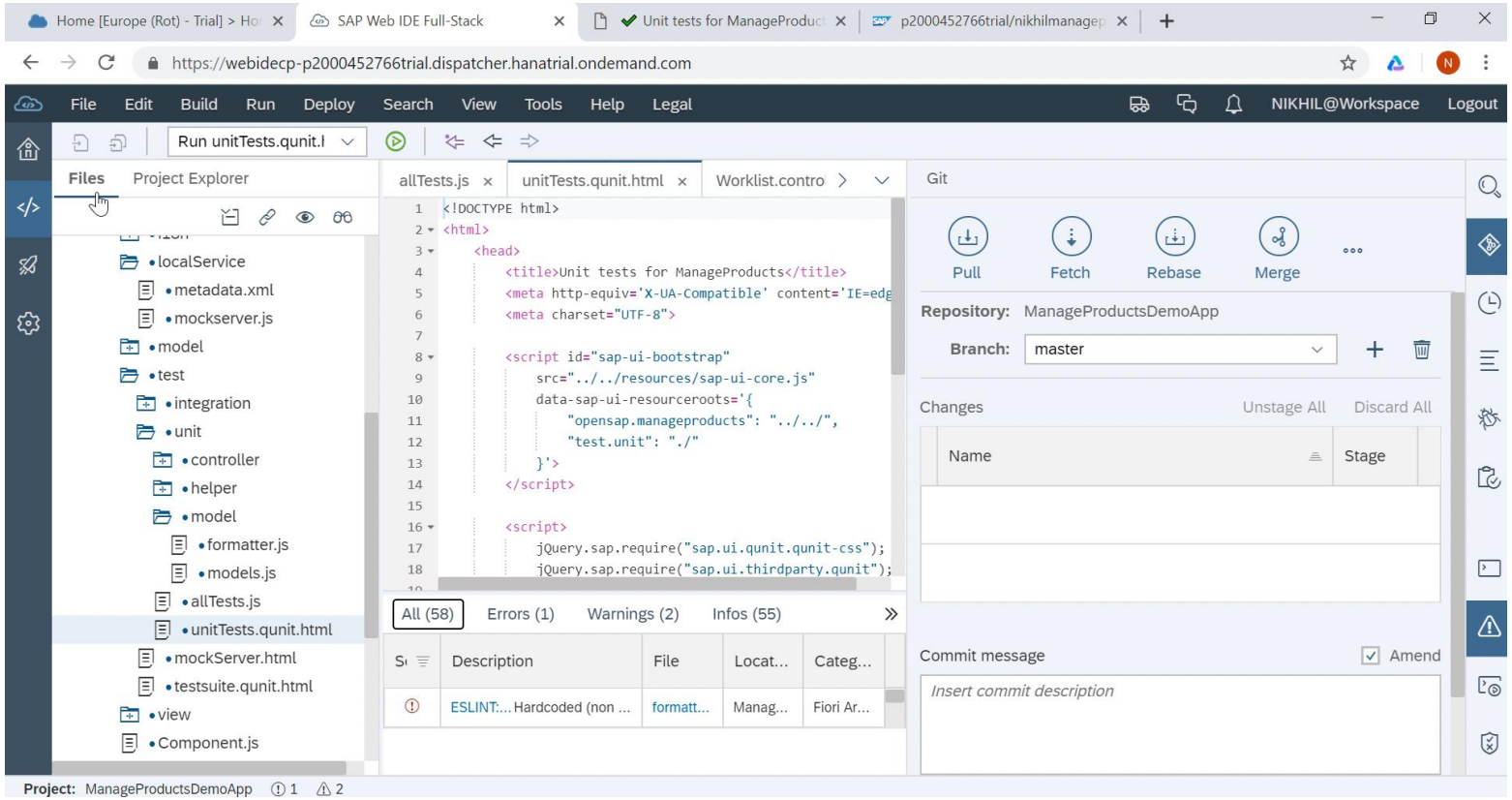


© 2018 Capgemini. All rights reserved.

Unit Test Framework

- **SAP Cloud cockpit**

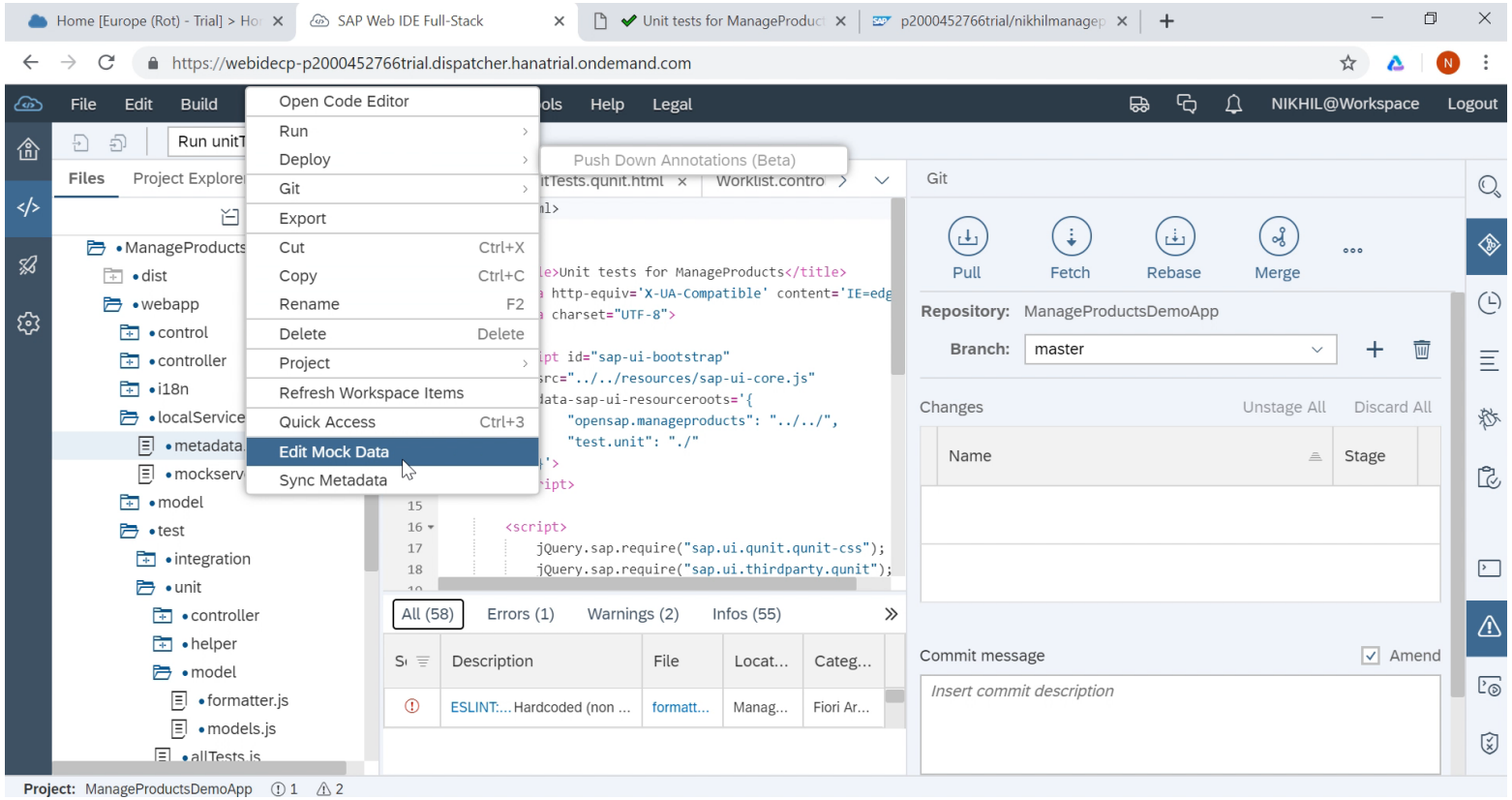
- **Automation Engine**



© 2018 Capgemini. All rights reserved.

Unit Test Framework

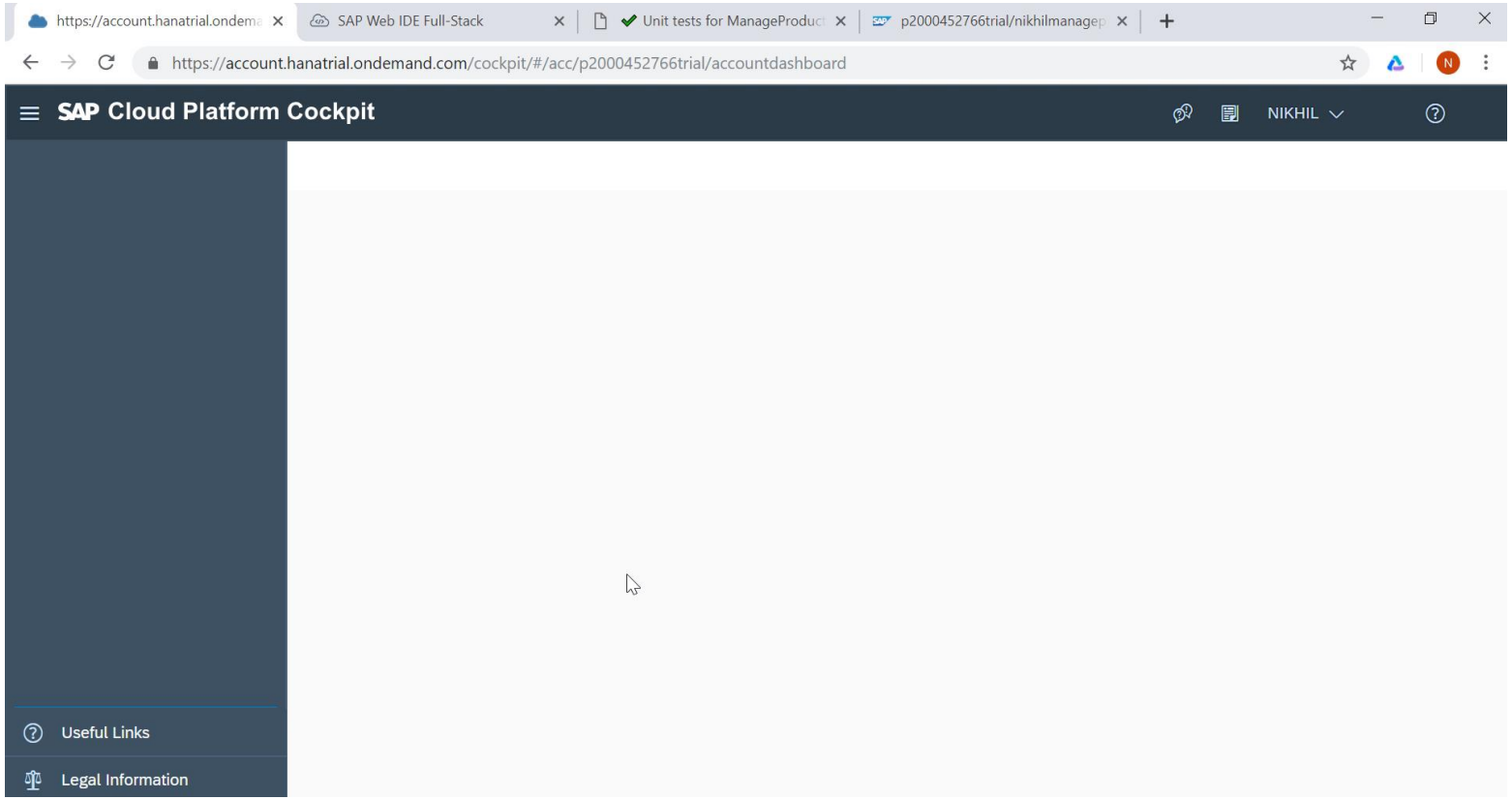
- **SAP Cloud cockpit**
- **Automation Engine**
- **Data Parameterisation**



© 2018 Capgemini. All rights reserved.

Unit Test Framework

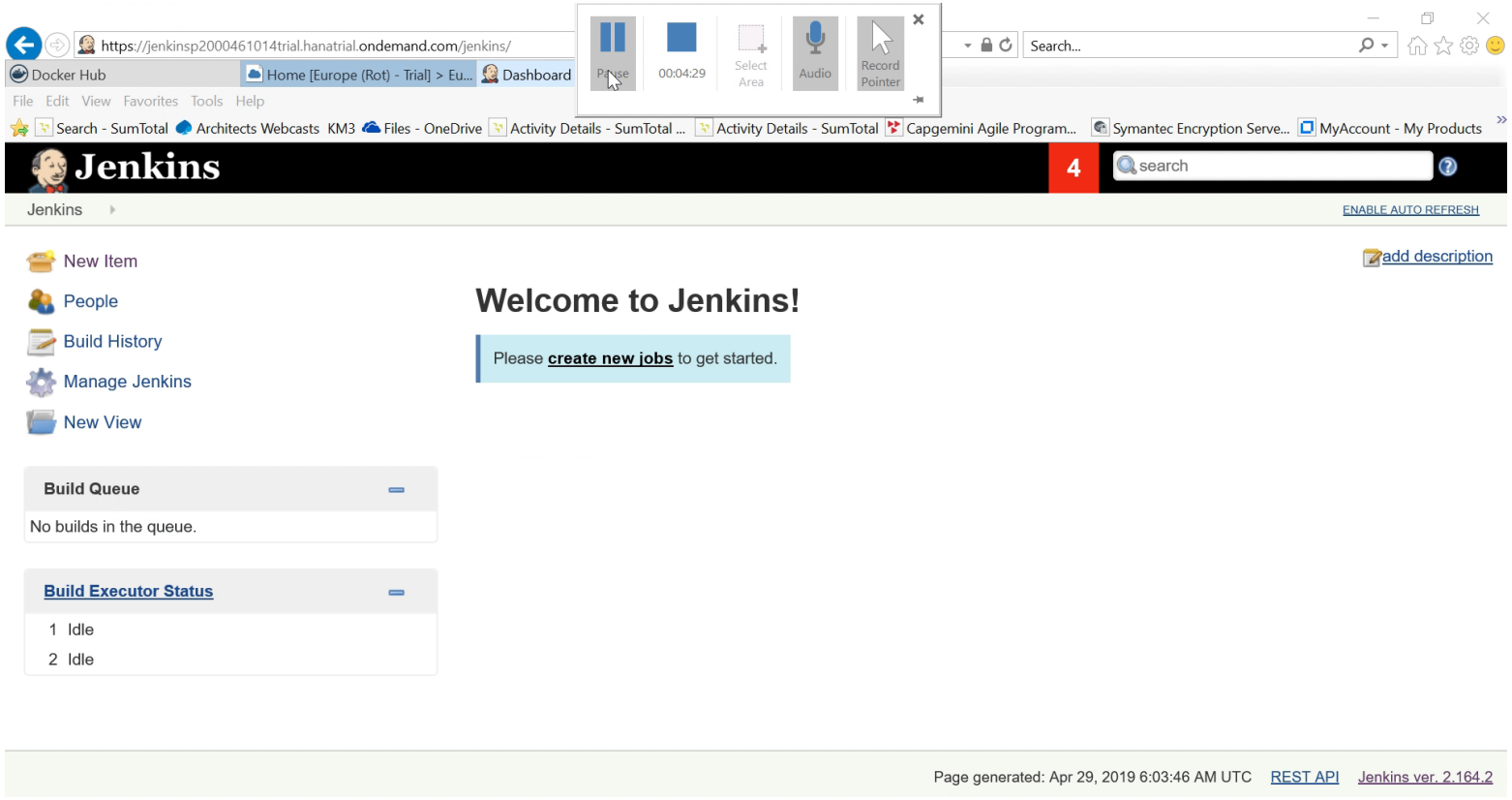
- **SAP Cloud cockpit**
- **Automation Engine**
- **Data Parameterisation**
- **Git in HANA**



© 2018 Capgemini. All rights reserved.

Unit Test Framework

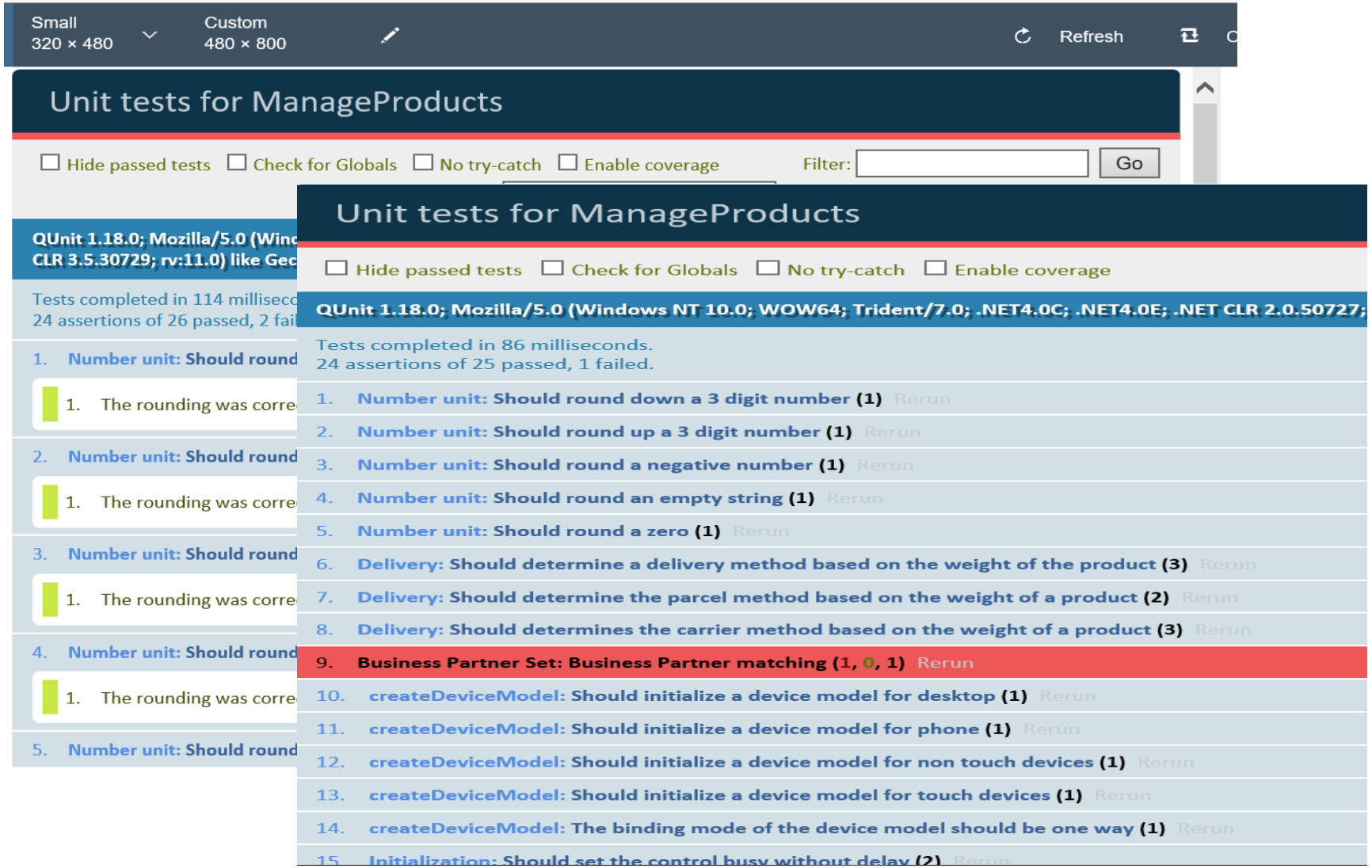
- **SAP Cloud cockpit**
- **Automation Engine**
- **Data Parameterisation**
- **Git in HANA**
- **Jenkins for CI/CD**



© 2018 Capgemini. All rights reserved.

Unit Test Framework

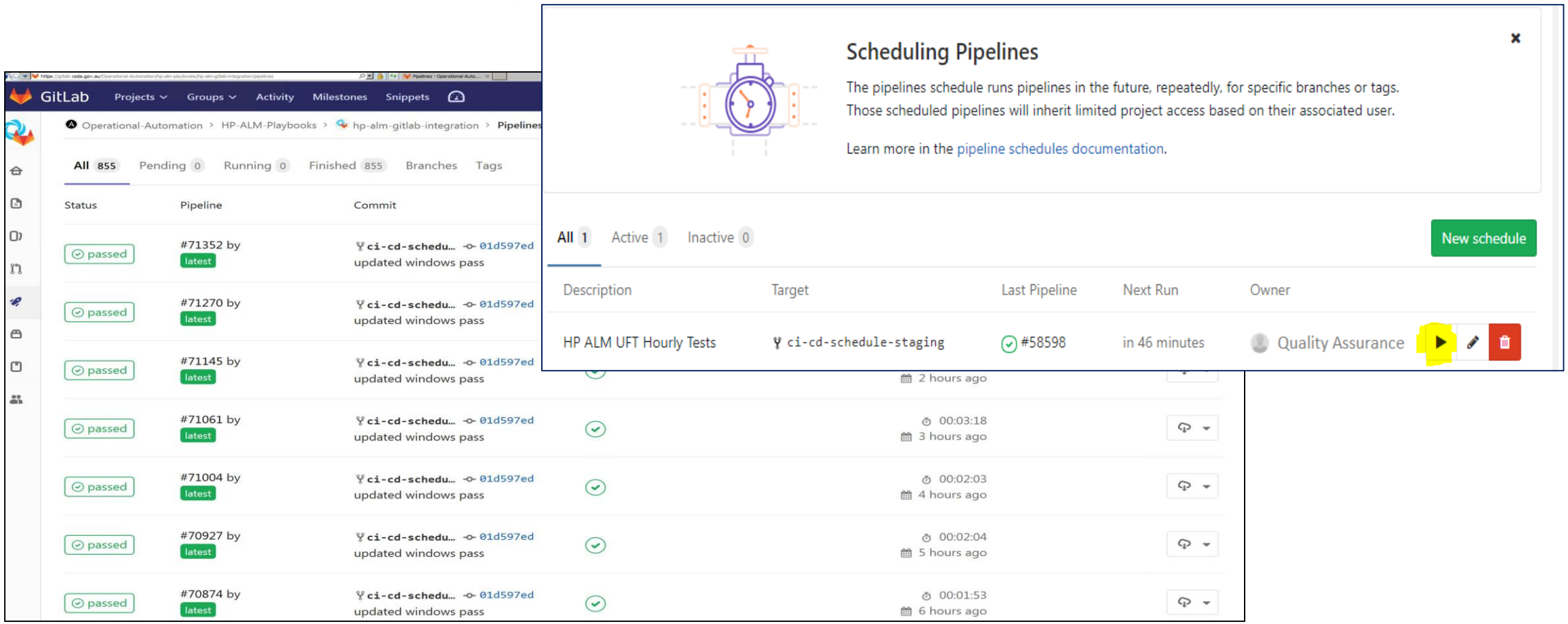
- **SAP Cloud cockpit**
- **Automation Engine**
- **Data Parameterisation**
- **Git in HANA**
- **Jenkins for CI/CD**
- **Reports in SAP IDE**



© 2018 Capgemini. All rights reserved.

UI Test Framework – Application Health Check

- GitLab CI/CD Scheduled Pipeline

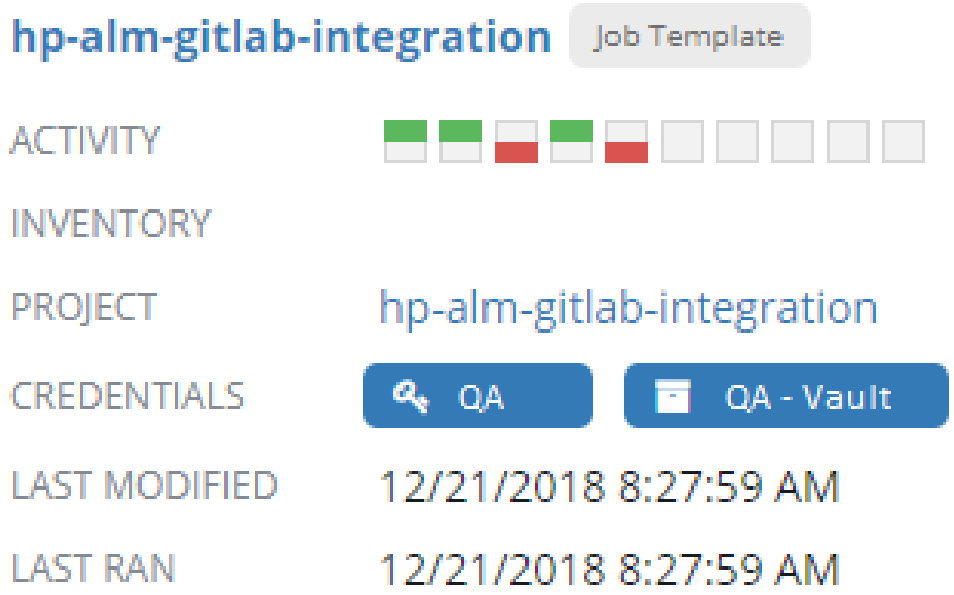


© 2018 Capgemini. All rights reserved.

UI Test Framework – Application Health Check

- GitLab CI/CD Scheduled Pipeline

- Ansible job – REST API call to ALM



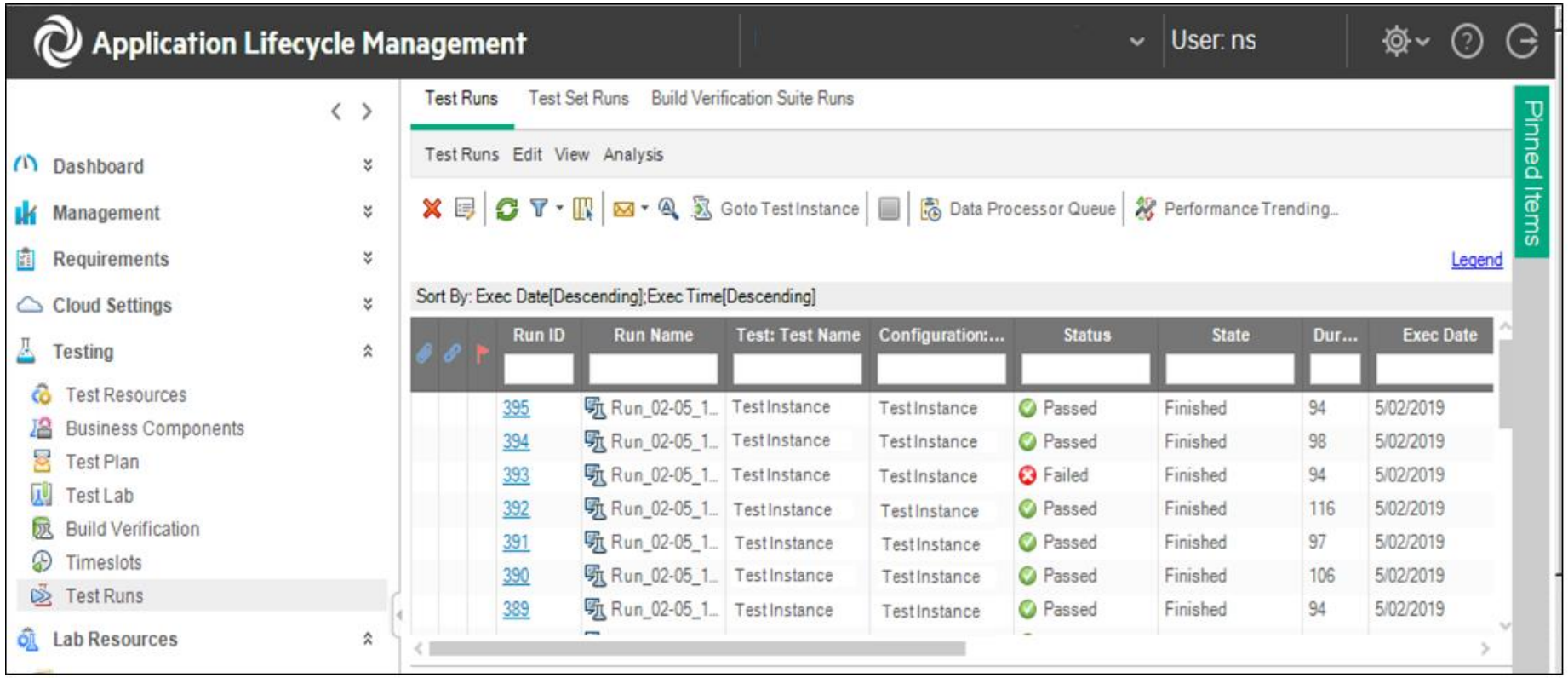
© 2018 Capgemini. All rights reserved.

UI Test Framework – Application Health Check

- **GitLab CI/CD Scheduled Pipeline**

- **Ansible job – REST API call to ALM**

- **Test Set in ALM**



© 2018 Capgemini. All rights reserved.

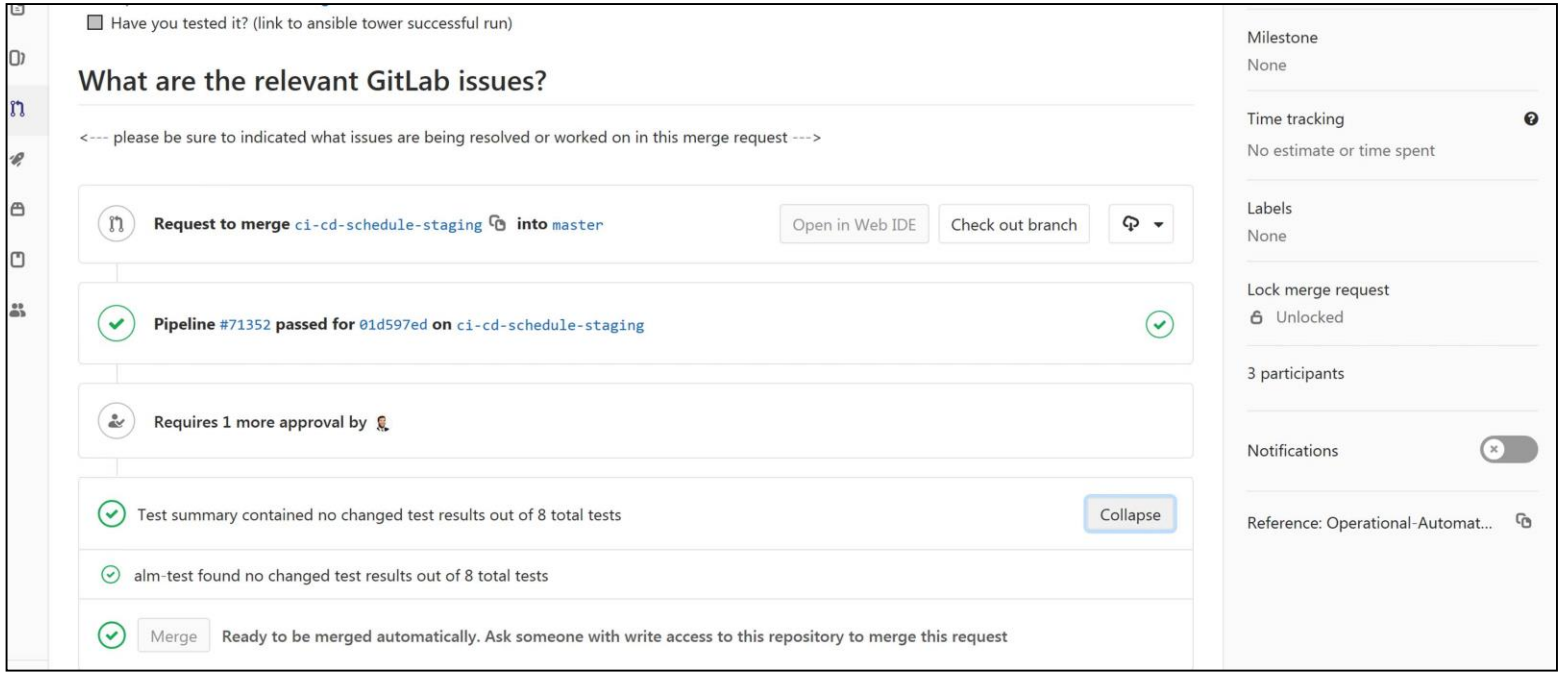
UI Test Framework – Application Health Check

- **GitLab CI/CD Scheduled Pipeline**

- **Ansible job – REST API call to ALM**

- **Test Set in ALM**

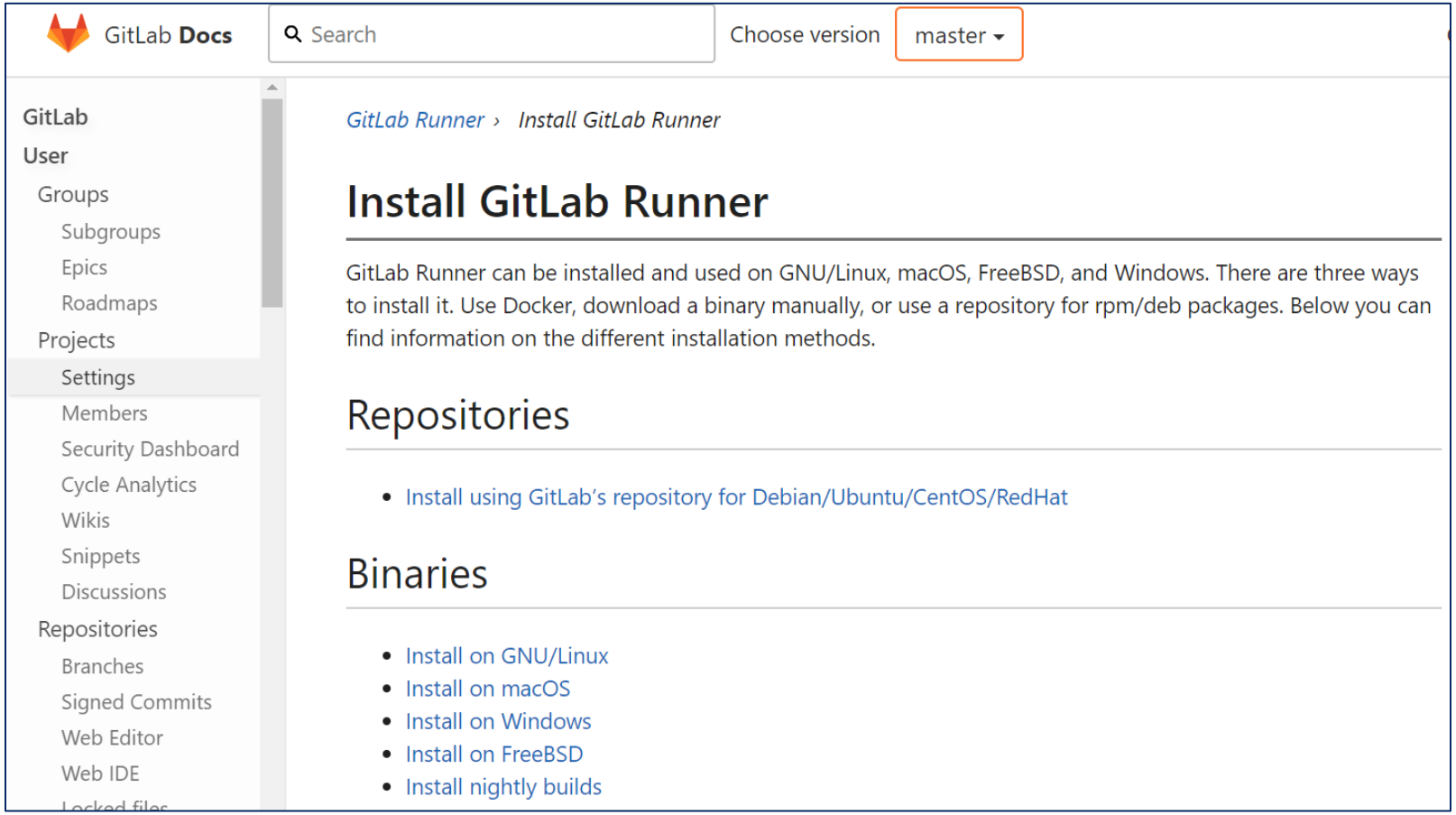
- **Test Results in GitLab**



© 2018 Capgemini. All rights reserved.

Challenges Faced

- Installing GitLab Runner https://docs.gitlab.com/runner/install/



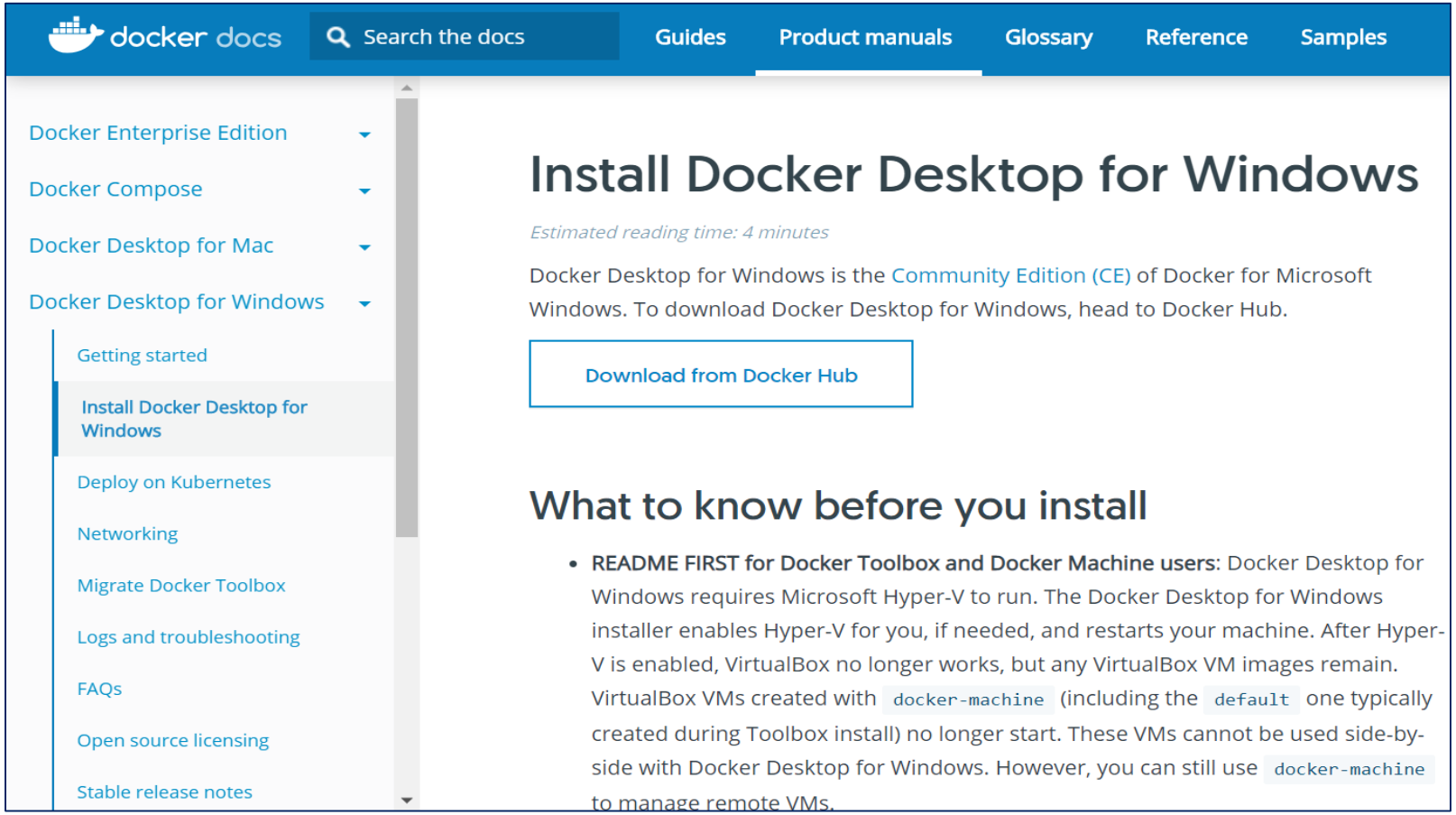
© 2018 Capgemini. All rights reserved.

Challenges Faced

- **Installing GitLab Runner**

- **Installing Docker**

https://docs.docker.com/docker-for-windows/install/



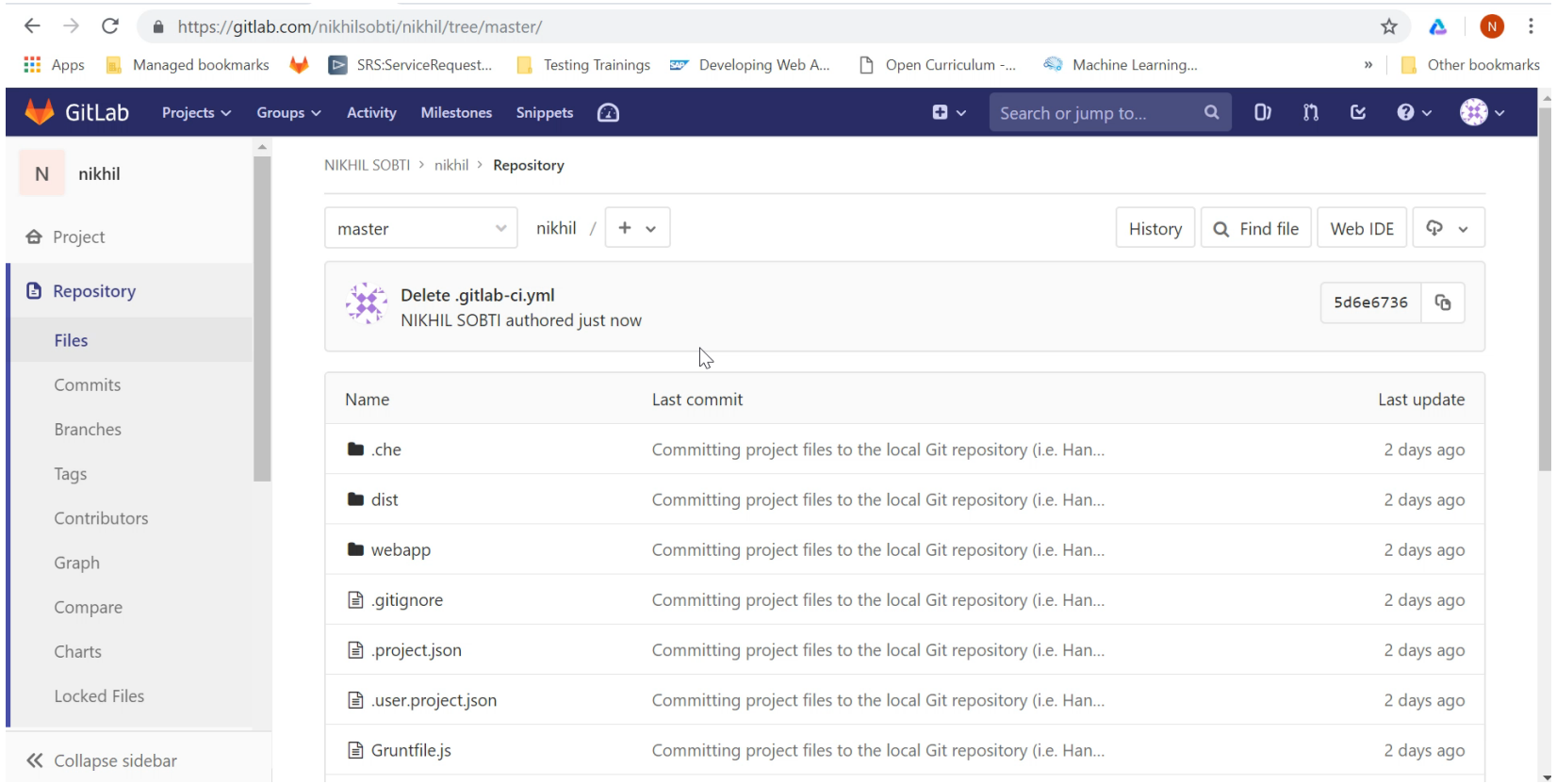
© 2018 Capgemini. All rights reserved.

Challenges Faced

- **Installing GitLab Runner**

- **Installing Docker**

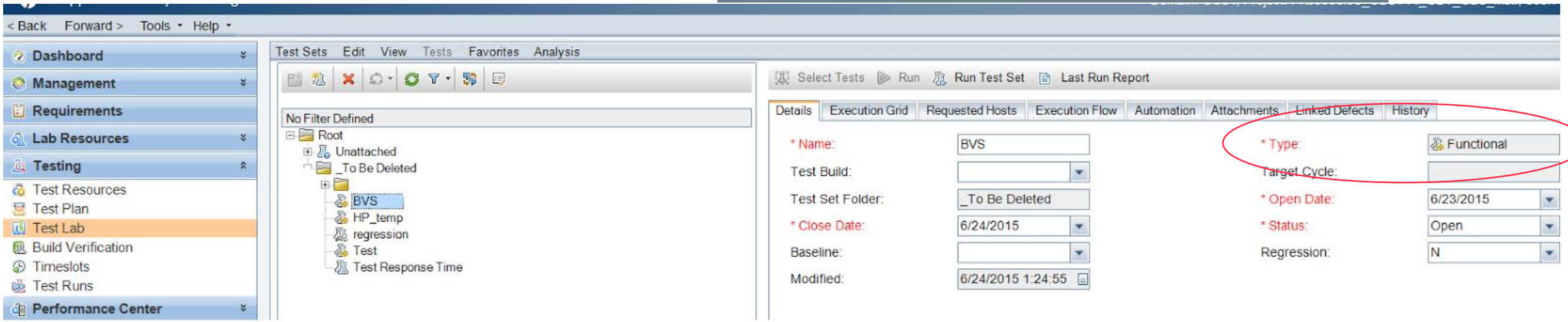
- **Creating YAML File**



© 2018 Capgemini. All rights reserved.

Challenges Faced

- **Installing GitLab Runner**
- **Installing Docker**
- **Creating YAML File**
- **Integrating GitLab & ALM**



© 2018 Capgemini. All rights reserved.

Questions

Contact Details

Pete Miller
Head of South Australia, Capgemini
Email pete.miller@capgemini.com
Linkedin https://au.linkedin.com/in/peter-miller-64019b8

Snehal Pujara
Manager, Capgemini
Email snehal.pujara@capgemini.com
Linkedin https://au.linkedin.com/in/snehalpujara

Nikhil Sobti
Sr. Consultant, Capgemini
Email nikhil.sobti@capgemini.com
Linkedin https://www.linkedin.com/in/nikhil-sobti-1a313934/

© 2018 Capgemini. All rights reserved.

People matter, results count.

About Capgemini

With more than 190,000 people, Capgemini is present in over 40 countries and celebrates its 50th Anniversary year in 2018. A global leader in consulting, technology and outsourcing services, the Group reported 2016 global revenues of EUR 12.5 billion. Together with its clients, Capgemini creates and delivers business, technology and digital solutions that fit their needs, enabling them to achieve innovation and competitiveness. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

Learn more about us at

www.capgemini.com

This message contains information that may be privileged or confidential and is the property of the Capgemini Group.
Copyright © 2018 Capgemini. All rights reserved.

Rightshore® is a trademark belonging to Capgemini.

This message is intended only for the person to whom it is addressed. If you are not the intended recipient, you are not authorized to read, print, retain, copy, disseminate, distribute, or use this message or any part thereof. If you receive this message in error, please notify the sender immediately and delete all copies of this message.