Fully Automated Software Quality Assurance and Deployment in Digital Transformation Processes

Ahmed Adnan Aqrawi[1], Maalidefaa Moses Tantuoyir[2], Abdul-Razzaq Adnan Aqrawi[2], Bilal Ahmed Bhatti[2]

[1]Schlumberger
[2]Carnain

Abstract

The design and use of dynamic open ecosystems for software development and deployment has gained significance in the E&P sector, especially within digital transformation projects. Platforms that support technology companies in managing, communicating, and tracking the completion of business actions to produce customer satisfaction, reduce time, and cost are vital for a successful transformation. We propose a fully automated, cloud-based platform for managing applications and enhancing the customer experience. We do so by improving on the feedback and status of applications/extensions obtained by the product owners throughout the quality assurance (QA) and deployment processes. This is significant in reducing redundant communication between the platform users and administrators and provides a real-time update about the status of all submissions for both parties.

We will demonstrate the design and implememtation of an application management life-cycle system that manages applications through automated quality checks and testing before deployment and publication. Applications that are designated for deployment in the cloud go through a second stage of acceptance testing after approval during on-premises testing. These processes are manual or semiautomated today because there are challenges between life-cycle management and QA processes in the cloud. To eliminate the communication gap and back-and-forth updates between QA and the developers, we proposed a fully automated feedback loop between the cloud environment and life-cycle management system. We will focus on two aspects for this automation. One, creating a feedback loop to the developers on the image-testing stage in the cloud. Second, a synchronization of a successful or failed pull request for each application and for which platform version they execute.

In this work, the need for multiple communication systems would be removed and a centralized platform with all updated and needed information would be made available. The automated workflow would result in increased efficiency from the perspective of the QA work, improved data management strategy, and better management of customer satisfaction, and would truly be a step change for managing a digital transformation.