

SE489 DevOps Engineering

Assignment 3



Assignment 3: Continuous Integration

1. What is Continuous Integration?
2. What is the role of Continuous Integration in DevOps?
3. Which BEST describes a deployment pipeline?
 - a. An automated version of the IT Service Management (ITSM) change management process
 - b. Automated process for managing software changes from check-in to release
 - c. Collection of tools that enable continuous integration
 - d. Sequence of value-adding activities required to design, build and deliver a product
4. Which of the following is required for Continuous Integration?
 - a. Automated unit, integration and acceptance testing
 - b. Automated release management
 - c. Continuous delivery pipeline
 - d. Deployment pipeline

5. Which DevOps practice relies on a deployment pipeline that enables push-button deployments on demand?
 - a. Continuous testing
 - b. Continuous integration
 - c. DevSecOps
 - d. Continuous delivery

6. For a new product, your team needs to develop a Deployment Pipeline. As part of Continuous Integration, you need to define the Commit stage of the pipeline. You discuss this stage with your team members. The Process Master says: "The Definition of Done should be defined during or before the Commit stage. When code is not Done when it is committed, the work should be stopped". Is this true?
 - a. Yes. If the work is not Done, the Process Master is not doing a good job. This should be solved immediately.
 - b. Yes. Work that is not Done should not be committed, because it does not add customer value.
 - c. No. The Definition of Done is only defined during customer meetings. Waiting for it would slow work too much.
 - d. No. Work in a Deployment Pipeline should always continue. If code is not Done, it just needs to be inactive.

7. Your company sells an online back-up service to its customers. Now, one of the customers has asked to implement new features in your service. They want the new features within a week, or they will seek business elsewhere. You believe that the new features are important and you know the Development team can build it quickly. However, you encounter the following problems:

- It takes a long time for bugs to be closed by testers.
- Testers are finding bugs that developers fixed a long time ago.
- The application can rarely be demonstrated to be working.
- Showcases rarely happen.

What is your problem and how should you solve it?

- a. You deploy buggy codes. You should solve this by increasing the understanding of the deployment process, increasing the collaboration and by working in a more disciplined manner.
- b. You have poor Configuration Management. You should solve this by increasing the collaboration between Development and Operations, by increasing monitoring and logging as well as virtualization.
- c. Your Continuous Integration process is not managed properly. You should solve this by speeding up automated tests and the Commit stage, and increase the understanding of the Continuous Integration process.
- d. Your testing strategy is not effective. You should solve this by automating tests and increasing the collaboration between testers and the rest of the team.

8. Which is a benefit of Continuous Integration within Effective DevOps?

- a. Extensive testing cycles before feature releases
- b. Long periods of time between feature releases
- c. More frequent and timely feature releases

9. A multinational organization is having many challenges in merging commits from their distributed locations into a central repository based in Dallas, TX. The distributed locations include Mexico City, Paris, San Diego and England. There have been inconsistent manners on when the regions are running their commits and at times it is not clear if some tests failed or not. There are four possible practices:

- 1. Do not check in on a broken build
- 2. Always run all commit tests locally before committing, or get your Continuous Integration server to do it for you
- 3. Wait for commit tests to pass before moving on
- 4. Do not comment out failing tests

Which of these are most applicable to make sure that the distributed locations address their current pain points?

- a. 1 & 2
- b. 1, 2 & 3
- c. 2 & 3
- d. 2, 3 & 4

10. A Development team is interested in DevOps. They are mainly interested in Continuous Integration (CI). They currently develop and maintain 3 major solutions and 4 smaller ones. They use Scrum practices. Each Sprint takes 4 weeks, creating an average of 1 committed release to the test environment each 10 or 15 days and 1 release to production per month. They want to create a qualitative business case for their management to support their investment and effort to create a CI practice. Which tangible benefits of CI help that business case most?

- a. Deploying to test environment once per day could increase business benefits and greatly decrease development costs.
- b. It helps the team spirit. As they are already using Scrum, CI will not generate measurable benefits for the business.
- c. It increases release stability and quality with better and automated testing, facilitating and increasing the overall release speed.
- d. Releasing to production once per day could increase business benefits and greatly decrease development costs.