

CI/CD-Intro and benefits

Presented by/ Hazem Zeir

What's CI/CD?

- Continuous integration (CI) and continuous delivery (CD) are the processes that are used to build, package, and deploy your application. Basically, it lays out some practices to follow in order for the code you write to more quickly and safely get to your users and ultimately generate value.
- Continuous Integration (CI) is a development practice that helps ensure that software components work together. CI allows you to continuously integrate code into a single shared and easy to access repository.
- Continuous delivery (CD) is the ability to deploy your integrated code into production without the need of human intervention. CD allows you to take the code stored in the repository and continuously delivery it to production.

CI/CD Piepline

A CI/CD pipeline workflow usually consists of the following discrete steps:

· Phase 1: Commit

When developers complete a change, they commit the change to the repository.

· Phase 2: Build

Source code from the repository is integrated into a build.

• Phase 3: Automate tests

Automated tests are run against the build. Test automation is an essential element of any CI/CD pipeline.

· Phase 4: Deploy

The built version is delivered to production.

Why use CI/CD?

CI/CD practices can lead to big advantages:

- 1. **Reduce costs:** Using automation in the CI/CD pipeline helps reduce the number of errors that can take place in the many repetitive steps of CI and CD.
- 2. **Smaller code changes:** One technical advantage of CI and CD is that it allows you to integrate small pieces of code at one time. This helps developers to recognize a problem before too much work is completed afterward.

Why use CI/CD?

- 3. **Faster release rate:** Failures are detected faster and as such, can be repaired faster, leading to increasing release rates.
- 4. **Fault isolations:** Designing your system with CI/CD ensures that fault isolations are faster to detect and easier to implement.
- 5. **More test reliability:** Using CI/CD, test reliability improves due to the bite-site and specific changes introduced to the system, allowing for more accurate positive and negative tests to be conducted