Fundamentals and benefits of CI/CD to get build, and deploy automation for cloud-based software products

## Fundamentals: CI

- Continuous integration (CI) is an agile and DevOps best practice where developers integrate their code changes early and often to the main branch or code repository.
- The goal is to reduce the risk of seeing "integration hell" by waiting for the end of a project or a sprint to merge the work of all developers.
- Since it automates deployment, it helps teams meet business requirements, improve code quality, and increase security.

## Fundamentals : CD

- The goal of continuous delivery is to establish an optimized end-to-end process, enhance the development to production cycles, lower the risk of release problems and provide a quicker time to market.
- Like the main codebase, the company can version control its architecture, infrastructure and scripts as well. Everything! Having one source of truth and a reliable one gives you a stable foundation to build your processes upon.
- It is a repeatable and reliable process. So developer can automate project builds, tests and even releases. Configuration can change almost everything regarding the project resources.

## Top 9 Business values of CI/CD

- ✓ Increased Efficiency:
  - CI/CD enables developers to push code changes more frequently and efficiently. By automating the build, test, and deployment process, they can focus on their code and features, rather than on the process.
- ✓ **Increased Quality**: CI/CD helps to ensure that code changes are properly tested before they are deployed to production. By automating the testing process, potential bugs can be found and fixed more quickly, before they have a chance to impact users.
- ✓ Reduced Costs: CI/CD can help to reduce the costs associated with software development by automating repetitive tasks. In addition, by increasing the frequency of code deployments, the overall time to market can be reduced.

- Improved Customer Satisfaction: By increasing the quality of software releases and reducing the time to market, CI/CD can help to improve customer satisfaction.
- ✓ Increased Agility: CI/CD can help to increase the agility of a software development team by allowing them to quickly respond to changes in customer requirements. In addition, by automating the build, test, and deployment process, the team can focus on their code and features, rather than on the process.
- ✓ Reduced Risk: CI/CD can help to reduce the risk of software development by automating the build, test, and deployment process. In addition, by increasing the frequency of code deployments, the overall time to market can be reduced, which can help to reduce the risk of customer dissatisfaction.
- ✓ Less Time to Market: It can help increase the speed to market. By automating the build, test, and deploy process, teams can save a lot of time and effort that would otherwise be spent on manual tasks. Additionally, CI/CD can help ensure that software products are always up-to-date and compliant with the latest standards.