

Continuous Integration / Continuous Deployment

Benefits and Fundamentals

Fundamentals

- **Continuous Integration (CI):**
- CI refers to a development practice where little incremental additions to source code are developed and merged into the main source code, tested and analyzed to ensure these changes are ready for use else the changes are revoked.
- **Continuous Deployment (CD):**
- CD is the next logical step after a successful CI, it involves provisioning production environment, a more comprehensive tests and the delivery of new feature changes done to the application at CI stage.
- **Continuous Delivery:**
- Refers to a practice that incorporates both CI and CD. Ensuring products and features gets to users quickly

Benefits of CI/CD

- **Automatic Testing:** Because broken code never makes it pass CI phase, and There is isolation of the cause of broken code, a correction is done much more quicker which translates to lower times of debugging which directly **Increases revenue** since developers will be occupied with improving product.
- **Automatic Smoke Testing:** smoke testing ensures there is minimal to no downtime with the product. Increasing customer satisfaction which directly **increases revenue**.

Benefits...

- **Automatic analysis of security:** CI phase performs security vulnerability testing. This helps to **avoid costs** of litigation from data breaches and overall raises confidence of having a secure product
- **Automatic Infrastructure Creation:** Because CD is automated there is no risk of human error, This helps to **avoid costs** from time lost and unfit infrastructure.

Benefits...

- **Automatic Infrastructure Cleanup:** with CI/CD, most operations are automated, infrastructure creation and removal inclusive. This helps to **reduce costs** from unused resources by maintaining only the required resources needed to serve the product adequately.