Software Engineering
Week # 10

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Continuous Integration

Continuous integration (CI) is the practice of automating the integration of code changes from multiple contributors

Merge code changes into a central repository

Builds and tests then run.

A source code version control system is the crux of the CI process.
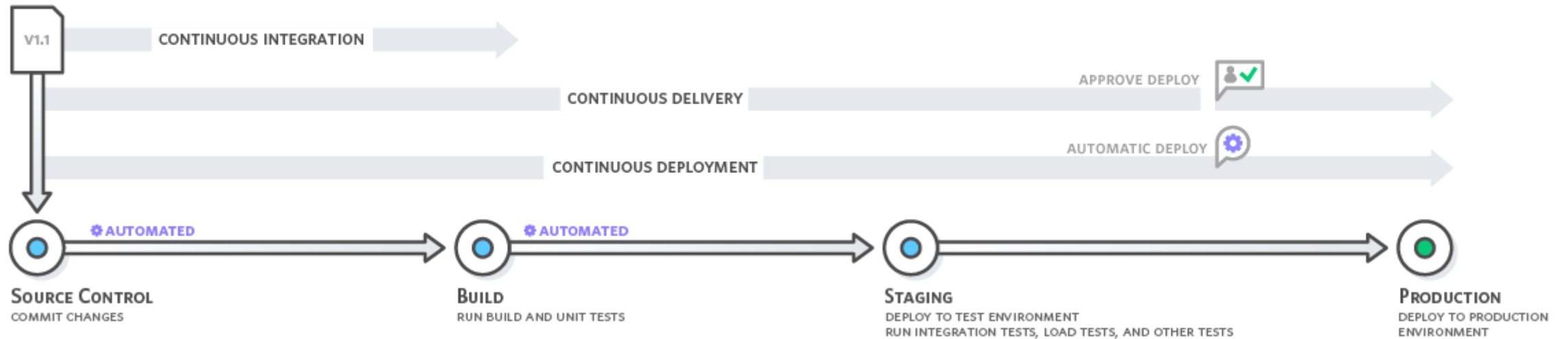- Automated code quality tests
- Syntax style review tools

Why ?

In the past, developers on a team might work in isolation for an extended period of time.

This made merging code changes difficult and time-consuming

Bugs accumulating for a long time without correction

These factors made it harder to deliver updates to customers quickly.

How it works?

Maintain a code repository

Version control systems are a category of software tools that helps in recording changes made to files by keeping a track of modifications done in the code.

Software product is developed in collaboration by a group of developers

Efficiently communicate and manage(track) all the changes

A separate branch is created for every contributor who made the changes

Changes aren't merged into the original source code unless all are analyzed as soon as the changes are green signaled they merged to the main source code

Benefits of version control

Enhances the project development speed by providing efficient collaboration,

Leverages the productivity, expedites product delivery, and skills of the employees through better communication and assistance,

Reduce possibilities of errors and conflicts meanwhile project development through traceability to every small change,

Employees or contributors of the project can contribute from anywhere irrespective of the different geographical locations through this VCS,
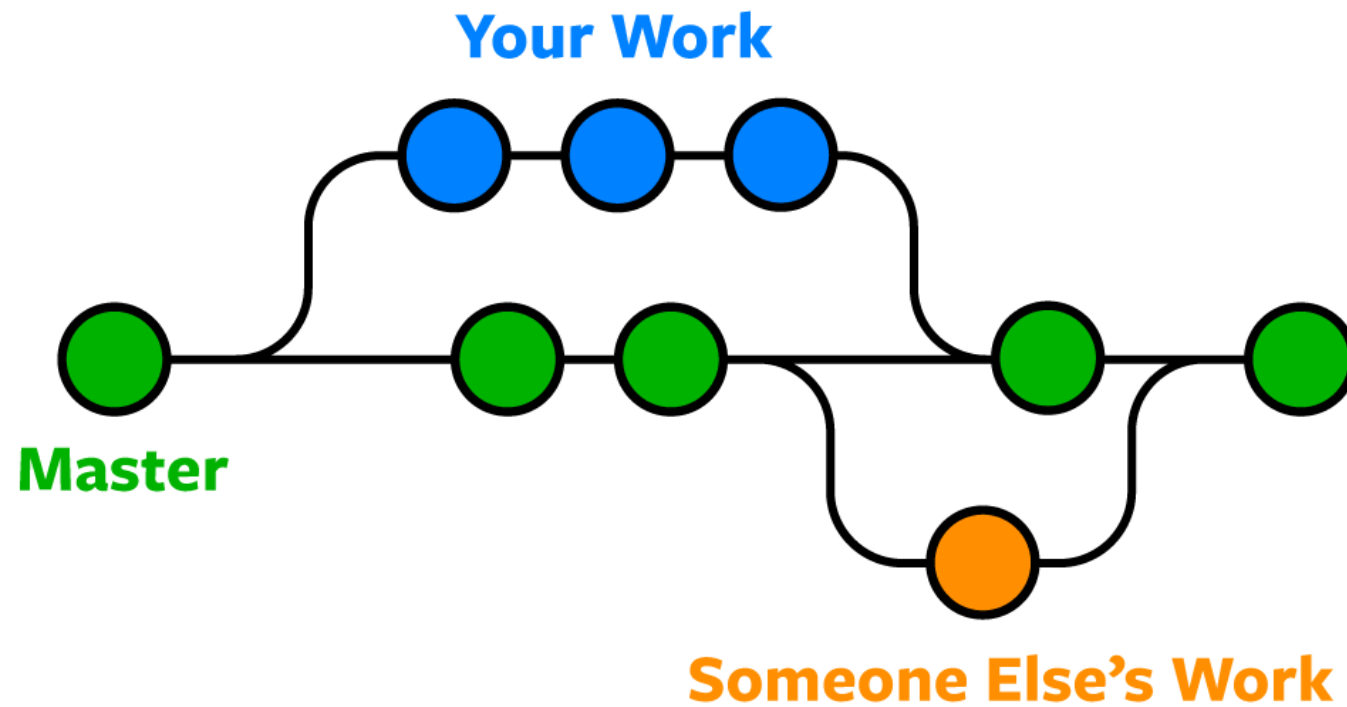
For each different contributor to the project, a different working copy is maintained and not merged to the main file unless the working copy is validated. The most popular example is Git, Helix core, Microsoft TFS,

Helps in recovery in case of any disaster or contingent situation,

Informs us about Who, What, When, Why changes have been made.

Branching

Continuous Deployment

Continuous deployment is a strategy in software development where code changes to an application are released automatically into the production environment.

Continuous deployment relies heavily on automation to ensure that changes are deployed consistently and reliably.
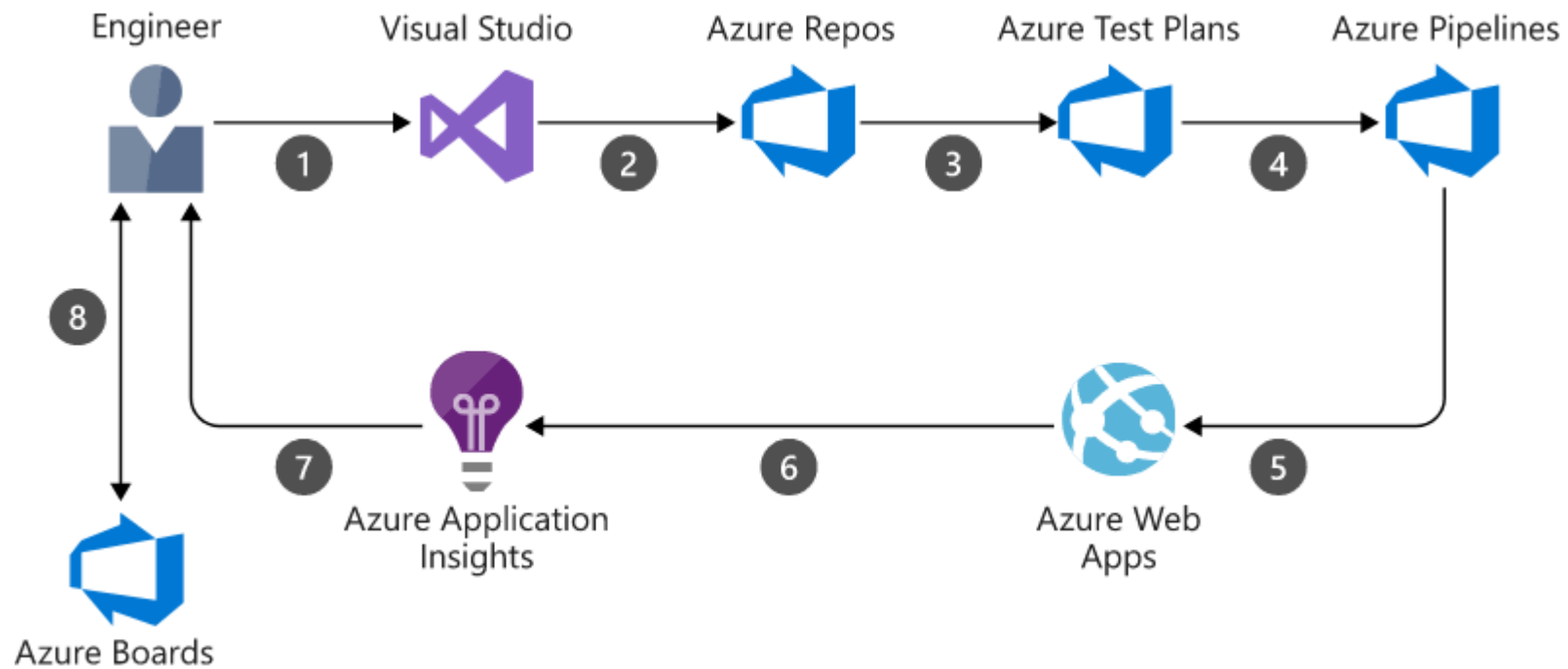
The code is executed with minimal downtime

Reduced development risks.

Enhanced collaboration. Continuous deployment encourages teams to provide regular input so the product can be enhanced and improved through iteration.

Complete Picture

Brief Demo