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HACK CLUB

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Introduction to Git, GitHub and CI/CD

Topics to be covered today:

Git

- What is version control?
- Why git?
- How to download and possible problems
- Basic commands
- Pro tips

GitHub

- What is GitHub?
- Why WE need it?
- Navigation basics
- Basic tools
- Become PRO user
- Additional features

CI/CD

- What is continuous integration and deployment?
- Why WE need it?
- How to setup?
- GitHub Actions

Git

Version Control System

A version control system (VCS) is a program or set of programs that tracks changes to a collection of files.

Git is a fast, versatile, highly scalable, free, open-source VCS.

Its primary author is Linus Torvalds, the creator of Linux.

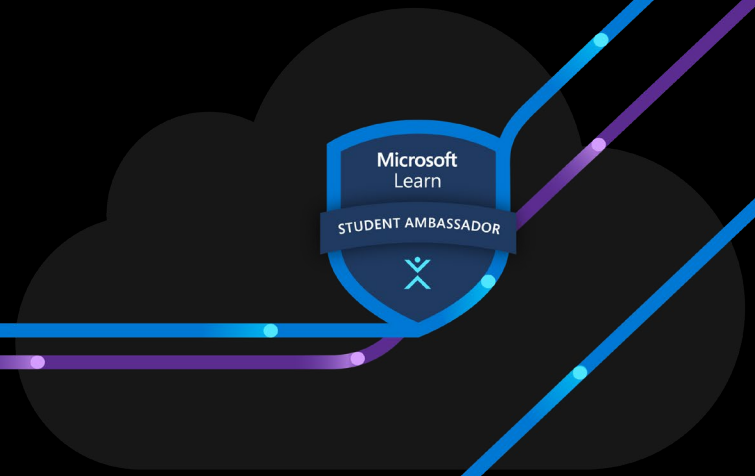
Basic Terminology used with Git:

- Working tree/directory
- Repository [Repo]
- Hash
- Commit
- Branch
- Remote
- Basic Commands

Website : Git (git-scm.com)

Demo

Slides.com



GitHub

Cloud Platform

GitHub is a cloud platform that uses Git as its core technology.

GitHub simplifies the process of collaborating on projects and provides a website, more command-line tools, and overall flow that developers and users can use to work together.

Key features of GitHub:

- Issues
- Discussions
- Pull Requests
- Notifications
- Actions
- Forks
- Projects

Website : github.com

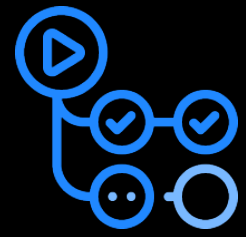
Demo

CI/CD

DevOps Practice

Continuous integration (CI) is the practice of automating the integration of code changes from multiple contributors into a single software project. **Builds**, **Tests** and **Integrate** code.

Continuous Deployment (CD) is a software release process that uses automated testing to validate if changes to a codebase are correct and stable for immediate autonomous deployment to a production environment. **Deliver** + **Deploy**.

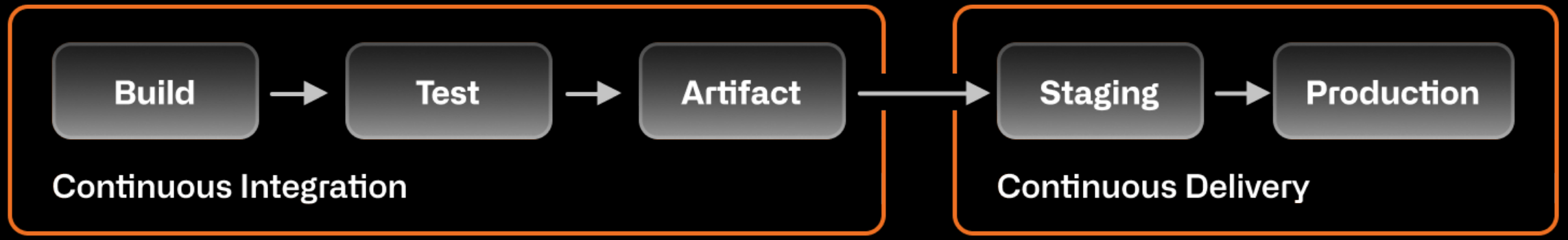


Continuous Integration

A CI process is a process in which software is developed by multiple sources and is automatically integrated via an established procedure.

The flow might go something like this:

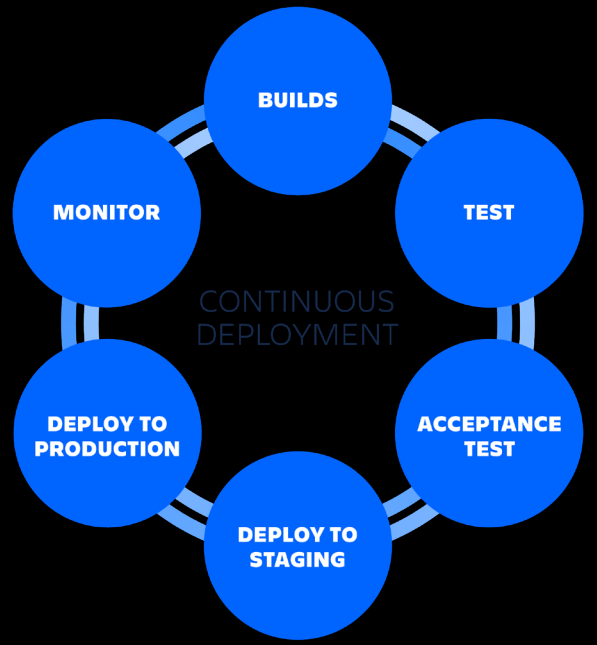
1. Push to Git
2. A process is triggered
3. The relevant branch is pulled, the app is built, and tests are run
4. The results of this process are sent to whom it concerns



Continuous Deployment

A CD process is a process that usually follows the merge process.
It takes the newly merged version and usually does the following:

1. Runs tests [End-to-End]
2. Creates an artifact and stores it
3. Deploys to production
4. Runs post-production E2E tests



Benefits of CI/CD

Development Velocity

Ongoing feedback allows developers to commit smaller changes more often, versus waiting for one release.

Stability and Reliability

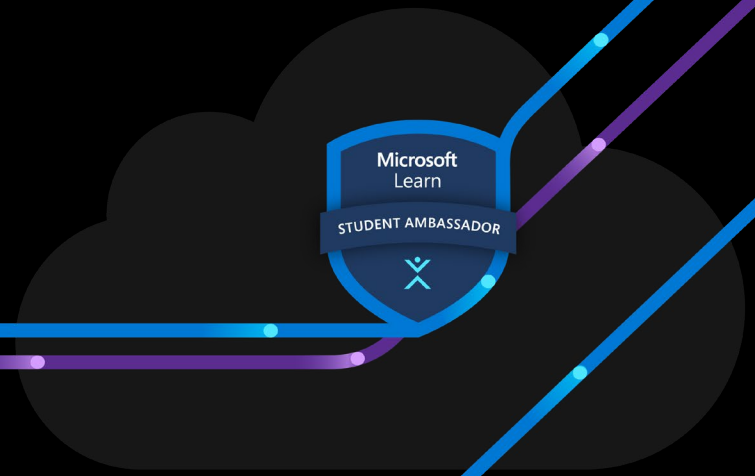
Automated, continuous testing ensures that codebases remain stable and release-ready at any time.

Business Growth

Automated, continuous testing ensures that codebases remain stable and release-ready at any time.

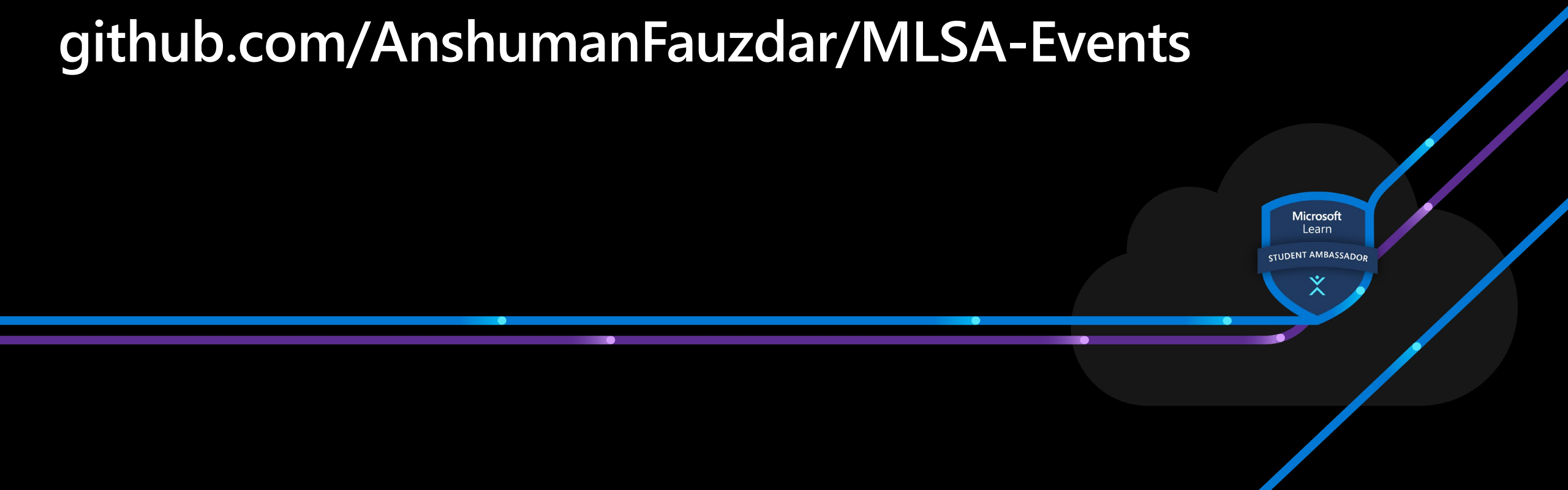
Demo

Slides.com



To retrieve resources and additional resources of this event please refer to

github.com/AnshumanFauzdar/MLSA-Events



Thank You