JENKINS

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INTRO

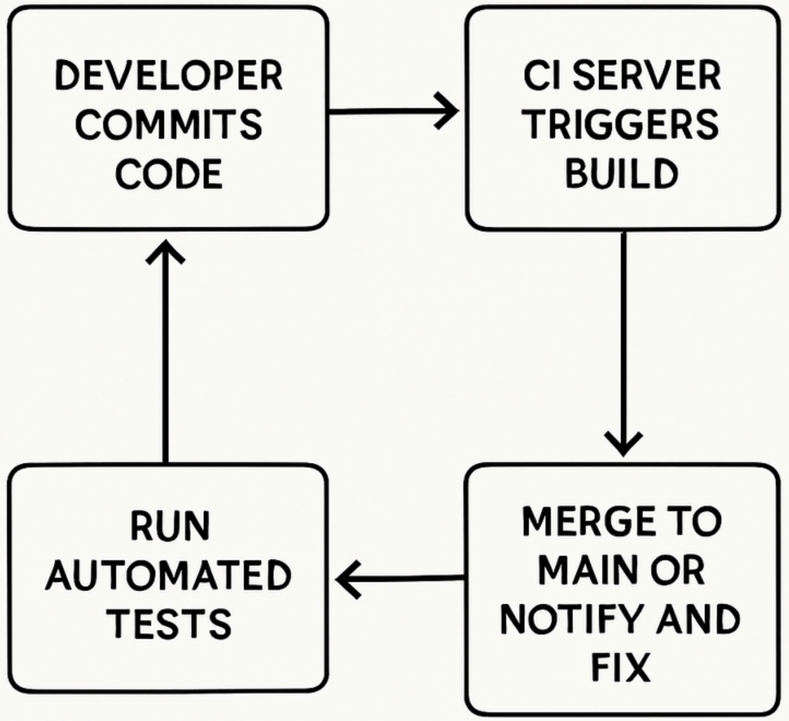
- What is Jenkins ?
- What is continuous integration and continuous delivery?
- Architecture of Jenkins
- Setting up Jenkins on a local machine

JENKINS

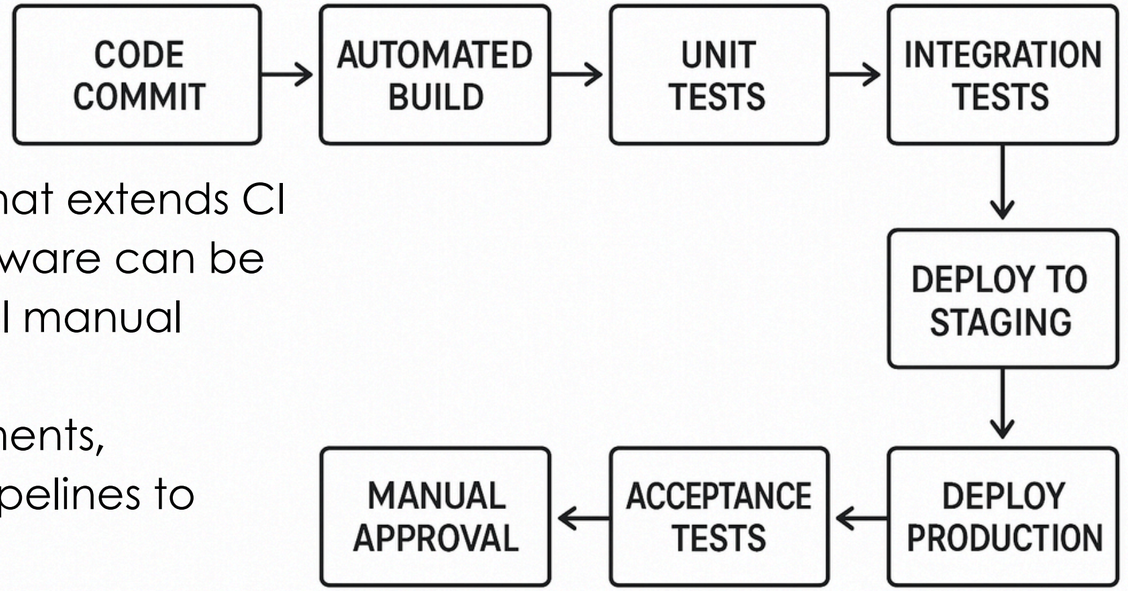
- Jenkins is an open-source automation server for building, testing, and deploying software.
- It supports Continuous Integration (CI) and Continuous Delivery (CD) pipelines.
- Key features: Hundreds of plugins for integration with tools like Git, Docker, and Maven.
- Benefits: Automates repetitive tasks, detects issues early, and speeds up development cycles.

CONTINOUS INTEGRATION

- A practice where developers integrate code changes frequently into a shared repository.
- Automated builds and tests run on each integration to catch errors early.
- Advantages: Reduces bugs, improves code quality, and maintains a always-deployable state.
- Core principle: Commit often, integrate often, automate everything



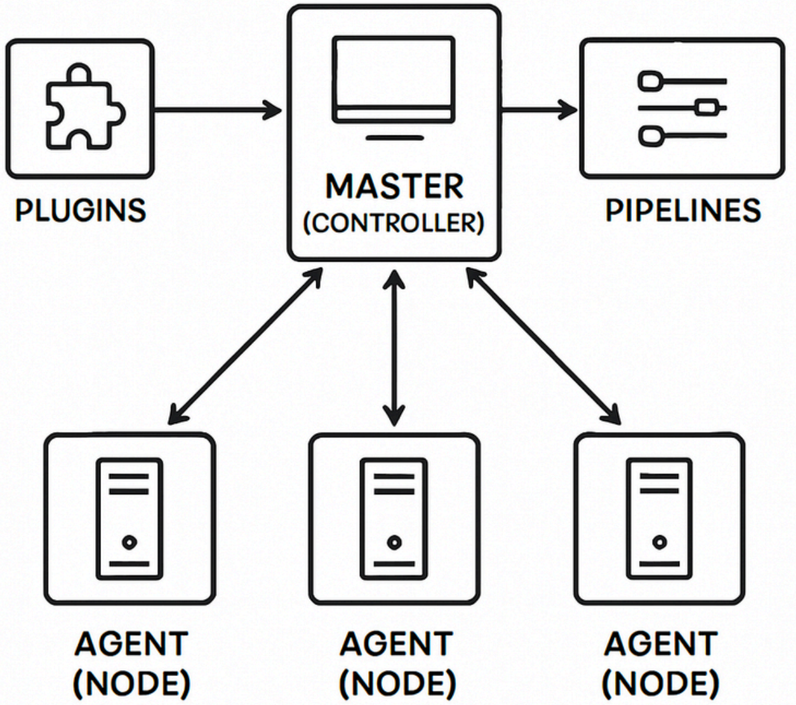
CONTINOUS DELIVERY



- Continuous Delivery (CD) is a DevOps practice that extends CI by automating the release process, ensuring software can be deployed to production at any time with minimal manual intervention.
- It involves automated testing in staging environments, configuration management, and deployment pipelines to make releases reliable and frequent.
- Benefits: Reduces deployment risks, enables faster feedback from users, and supports rapid iterations while maintaining quality.
- Key Difference from CI: CI focuses on integration and testing; CD adds automated delivery up to (but not always including) production deployment.

JENKINS ARCHITECTURE

- Master (Controller): Central server that schedules jobs and manages configurations.
- Agents (Nodes): Distributed workers that execute builds on different machines/environments.
- Plugins: Extend functionality (e.g., for SCM, notifications, or cloud integrations).
- Pipelines: Code-based workflows defining build stages, using Jenkinsfile for version control.



SETUP AND INSTALLATION

CONCLUSION

- Jenkins is a powerful tool that can be utilized to achieve CI/CD and accelerate deployment.
- Bridges development and operations by automating workflows.
- Enables frequent code integration, reducing integration delays.

HOMEWORK

- Explore Jenkins git integration
- Create a simple repo and setup Jenkins-Github integration.

THANK YOU