

comparison report

Applied DevOps



September 27, 2023

Muhammad Junaid Afzal

20F-0229

**Comparison:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Feature** | **Jenkins** | **GitLab CI/CD** | **GitHub Actions** |
| **Hosted/Managed Service** | Self-hosted or Cloud | GitLab provides hosted service | Fully hosted by GitHub |
| **Integration with Git** | Supports all Git repositories | Integrated with GitLab repositories | Native Git integration |
| **Configuration** | Requires manual | Defined in **.gitlab-ci** | Configuration as code |
|  | configuration (Jenkins  pipeline scripts) | files in the repository | (**.github/workflows/**) |
| **Ease of Setup** | Can be complex, especially for beginners | Relatively easy to set  up, particularly in | Quick and easy setup |
| **Docker Support** | Requires additional configuration | Native Docker support | Native Docker support |
| **Parallel Builds** | Supports parallel job execution | Supports parallel job execution | Supports parallel job execution |
| **Script Language** | Uses Groovy language | Uses YAML language | Uses YAML language |

# Findings and Functionalities in JENKINS:

1. **Code Contributions:** Skilled software developers craft and submit code alterations to a dedicated version control system, such as Git.

2. **Continuous Monitoring:** Jenkins maintains vigilant watch over the version control system, perpetually scanning for newly introduced code modifications or specific events like code commits or pull requests.

3. **Automated Build:** Upon detecting a code change, Jenkins promptly instigates the automated build procedure. This encompasses the compilation of code, execution of a battery of tests, and the generation of executable artifacts.

4. **Comprehensive Testing:** Jenkins meticulously executes a suite of comprehensive tests to validate code integrity and compliance with established quality benchmarks. Any encountered test failures prompt immediate notification to the development team.

5. **Seamless Deployment:** In the event of successful test outcomes, Jenkins orchestrates the seamless deployment of the code to either a staging or production environment, thus making the updated software accessible to end-users.

6. **Performance Surveillance:** Jenkins further assumes the role of a vigilant sentinel by continuously monitoring the deployed application for anomalies, ranging from issues to performance fluctuations.

7. **Timely Feedback:** Throughout this streamlined process, Jenkins consistently furnishes real-time feedback to developers, facilitating the rapid identification and resolution of issues as they arise.

8. **Detailed Documentation:** Jenkins generates a wealth of comprehensive reports and logs for each build, offering invaluable insights for debugging purposes and serving as an indispensable tool for tracking the overall progress of software development and delivery endeavors.

By orchestrating this intricately choreographed sequence of tasks, Jenkins bestows the invaluable benefits of time efficiency and the mitigation of human errors upon the realm of software development and delivery.