Why CI/CD?

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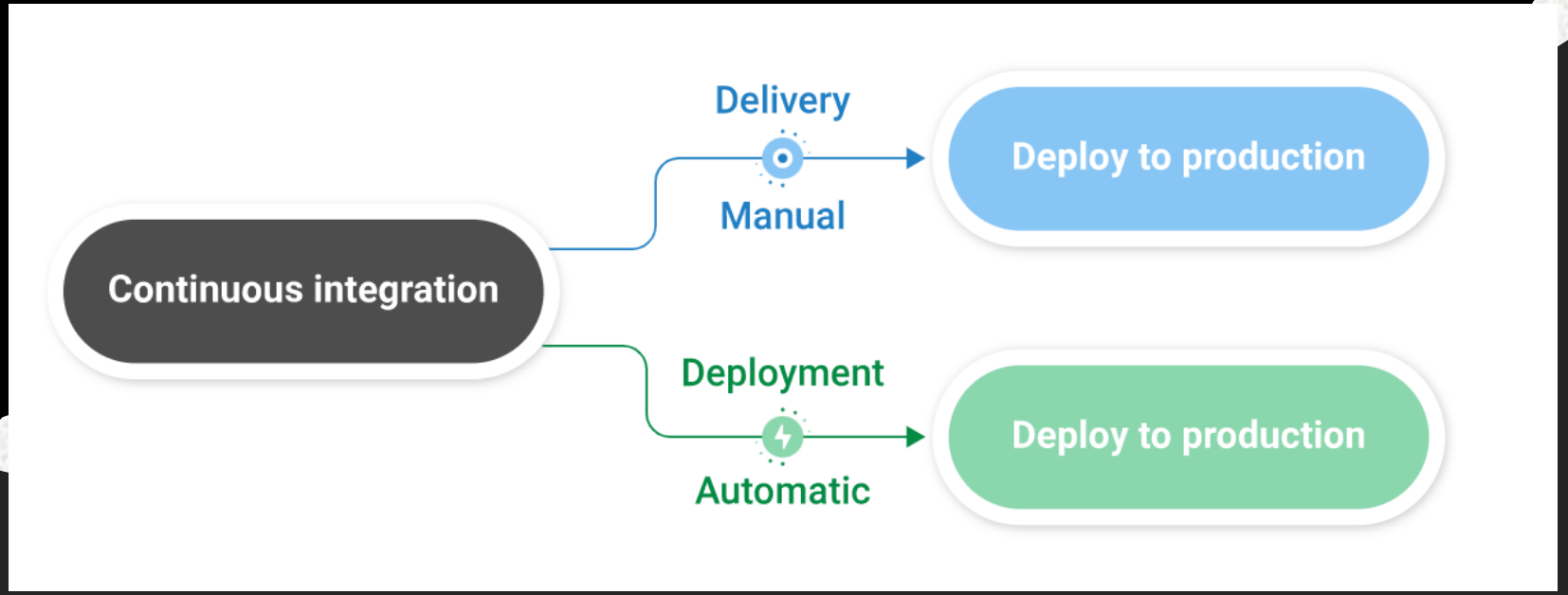
- **Continuous Integration:** The practice of merging all developers' working copies to a shared mainline several times a day.

- **Continuous Delivery:** An engineering practice in which teams produce and release value in short cycles.

- **Continuous Deployment:** A software engineering approach in which the value is delivered frequently through automated deployments.



Benefits :

Reduce Cost

- Less developer time on issues from new developer code by Catch Compile Errors After Merge.
- Less infrastructure costs from unused resources by Automate Infrastructure Cleanup.

Avoid Cost

- Less bugs in production and less time in testing by Catch Unit Test Failures.
- Prevent embarrassing or costly security holes by Detect Security Vulnerabilities.
- Less human error, Faster deployments by Automate Infrastructure Creation.

Benefits :

Increase Revenue

- New value-generating features released more quickly by Faster and More Frequent Production Deployments.
- Less time to market by Deploy to Production Without Manual Checks.

Protect Revenue

- Reduced downtime from a deploy-related crash or major bug by Automated Smoke Tests.
- Quick undo to return production to working state by Automated Rollback Triggered by Job Failure.

We can get the maximum benefit from CI/CD by below Best Practices:

Fail Fast : Set up your CI/CD pipeline to find and reveal failures as fast as possible. The faster you can bring your code failures to light, the faster you can fix them.

Measure Quality: Measure your code quality so that you can see the positive effects of your improvement work (or the negative effects of technical debt).

Only Road to Production: Once CI/CD is deploying to production on your behalf, it must be the only way to deploy. Any other person or process that meddles with production after CI/CD is running will inevitably cause CI/CD to become inconsistent and fail.

Maximum Automation: If it can be automated, automate it. This will only improve your process!

Config in Code: All configuration code must be in code and versioned alongside your production code. This includes the CI/CD configuration files!