Continuous Delivery/Deployment in Action: Case Studies and Impact

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Netflix Continuous Delivery

Netflix creates its own tools to help manage deployments:

- Spinnaker (continuous delivery), Chaos Monkey(testing), Titus(container management)

They make their cloud infrastructure more safe/secure by automating failure and continuous testing
Netflix created a tool that is a script that runs continually in all environments, causing chaos by randomly shutting down server instances.

Benefits

- They can move fast by eliminating a lot of processes and procedures
- Accelerate innovation within the organization
- Faster feedback and troubleshooting loops
- Reduction of issues and outages caused by bad deployments

Amazon - Continuous Deployment

Devs don't actively examine deployments - pipeline monitors key metrics and can rollback if needed.

Pipelines modelled as code that can inherit common configurations.

Source Changes: Multiple Pre-Production environments that pipeline validates changes for.

Build: Unit and integration tests automated by pipeline.

Testing: Developer validates tests and reviews code (checks the program has been tested thoroughly and changes are backwards compatible incase of a need for rollback) before the code is pushed to the main branch, where the deployment pipeline then triggers automatically.

Incorporating "bake time" into production: Stagger deployment to production in stages, based on region. This process allows issues to be mitigated -

"Sometimes a negative impact caused by a deployment is not readily apparent. It's slow burning; it doesn't show up immediately during the deployment, especially if the service is under low load at the time. Each prod stage in the pipeline has bake time, which is when the pipeline continues to monitor the team's high-severity aggregate alarm for any slow-burning impact after a deployment is completed and before moving on to the next stage." - Clare Liguori, a principal software engineer at AWS.

Automated processes are carefully built to work in the best way for the business, not an afterthought.

Amazon(CD) VS Netflix(CI)

Amazon (Continuous Delivery):

Frequent Releases: Amazon can release updates more often, keeping the shopping experience fresh and exciting for customers.

Agile Adaptation: They can respond quickly to customer needs and market changes, staying ahead of competitors.

Faster Feedback Loops: Continuous Delivery allows Amazon to gather customer feedback rapidly and make necessary improvements promptly, for example reviews or stars.

Fast Bug Fixes: Amazon can address and fix bugs swiftly, providing a smoother user experience.

Netflix (Continuous Integration):

Automated Testing: Netflix can ensure that changes to their streaming platform don't introduce errors or issues.

Rapid Development: CI allows Netflix to develop and integrate new features quickly, reducing time-to-market.

Collaboration: CI fosters collaboration among team members, leading to better coordination and faster development cycles.

Continuous Improvement: Netflix continuously integrates and tests changes, allowing for constant enhancements and innovations.

Alternative Ways of Working:

Continuous Delivery (Amazon):

Periodic Releases: An alternative approach would be releasing updates less often, resulting in longer intervals between new features and bug fixes.

Continuous Integration (Netflix):

Manual Integration: An alternative approach would be integrating changes manually, which can be time-consuming and error-prone.

Infrequent Testing: Another alternative is conducting testing less frequently, which increases the risk of introducing bugs or issues.

Netflix uses a special tool called Continuous Integration to test their platform and add new things quickly. They work together as a team to make sure everything is good.

Amazon uses Continuous Delivery to update their website a lot. They give us new things and fix problems fast, so we have a fun and smooth shopping experience.

Both Netflix and Amazon make sure everything is good and give us new things fast.