Blue Green Vs Canary Deployment

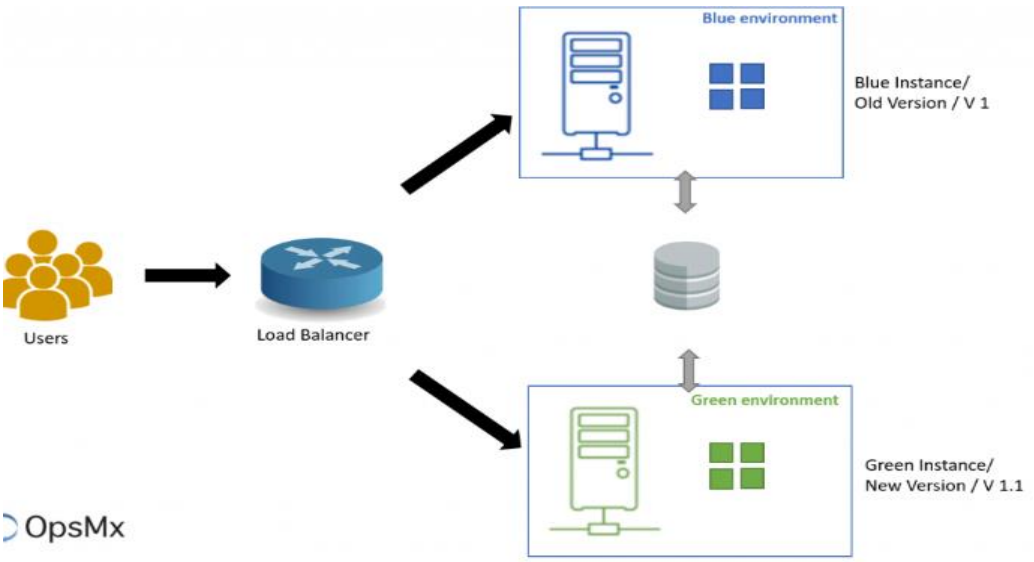
Introduction:

In software delivery, there are different deployment strategies that can be used for deploying any applications. Implementing the right deployment strategy is a critical part of a complete and well-functioning deployment.

BLUE GREEN DEPLOYMENT:

Definition: Blue green deployment is an application release model that gradually transfers user traffic from a previous version of an app or micro service to a nearly identical new release—both of which are running in production.

- In this strategy, we create two separate, but identical environments.
- One environment (blue) is running the current application version and one environment (green) is running the new application version.
- Using a blue/green deployment strategy increases application availability and reduces deployment risk by simplifying the rollback process if a deployment fails.
- Once testing has been completed on the green environment, live application traffic is directed to the green environment and the blue environment is deprecated.



The Benefits of implementing Blue-Green deployments:

- **Seamless customer experience**: Users don't experience any downtime.
- **Instant rollbacks**: We can undo the change without adverse effects and go back to the previous best state.
- **No upgrade-time schedules for developers**: Need not wait for low traffic windows to deploy the updates.

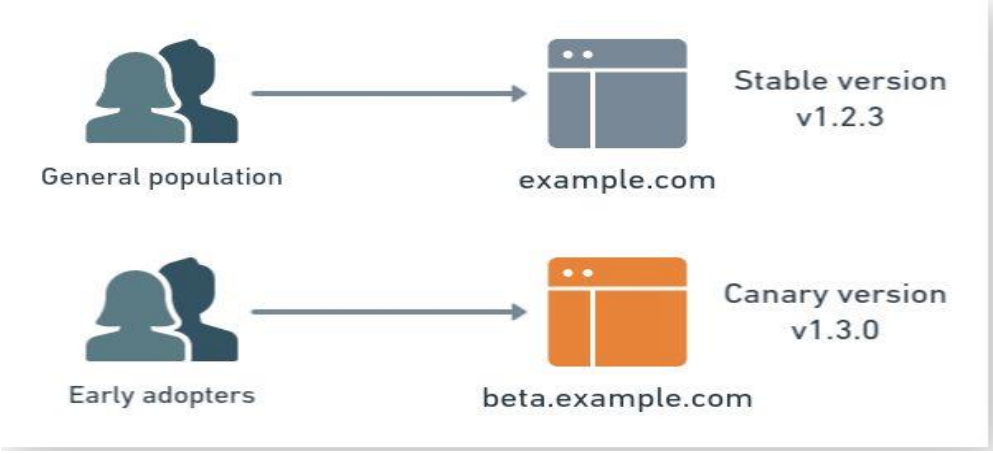
Challenges:

- **High infrastructure costs**: Organizations that have adopted a Blue-Green strategy need to maintain an infrastructure that doubles the size required by their application.
- **Code compatibility**: Developers need to ensure that each new update is compatible with the previous environment.

CANARY DEPLOYMENT:

Definition: A canary deployment, or canary release, is a deployment pattern that allows you to roll out new code/features to a subset of users as an initial test.

- It is the practice of making staged releases.
- We roll out a software update to a small part of the users first, so they may test it and provide feedback.
- Once the change is accepted, the update is rolled out to the rest of the users.
- Canary deployments show us how users interact with application changes in the real world.



Benefits of Canary Deployments

- **A/B testing**: we can use the canary to do A/B testing. In other words, we present two alternatives to the users and see which gets better reception.
- **Feedback**: we get invaluable input from real users.

Challenges

- **Frustration**: The first group using the canary will find the worst bugs.
- **Complexity**: Canary deployments share the same complexities as blue-green deployments - having many production machines, migrating users, and monitoring the new system.

Comparison- Blue Green Vs Canary Deployments:

- Blue Green Deployment would be the best choice when the code is thoroughly tested, the chance of failure is low, and there is a need to switch all users at once.
- Canary is probably a better choice when there is low-to-decent chance of failure, when an experimental feature is implemented.