DevOps

Week 09

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Canary releases

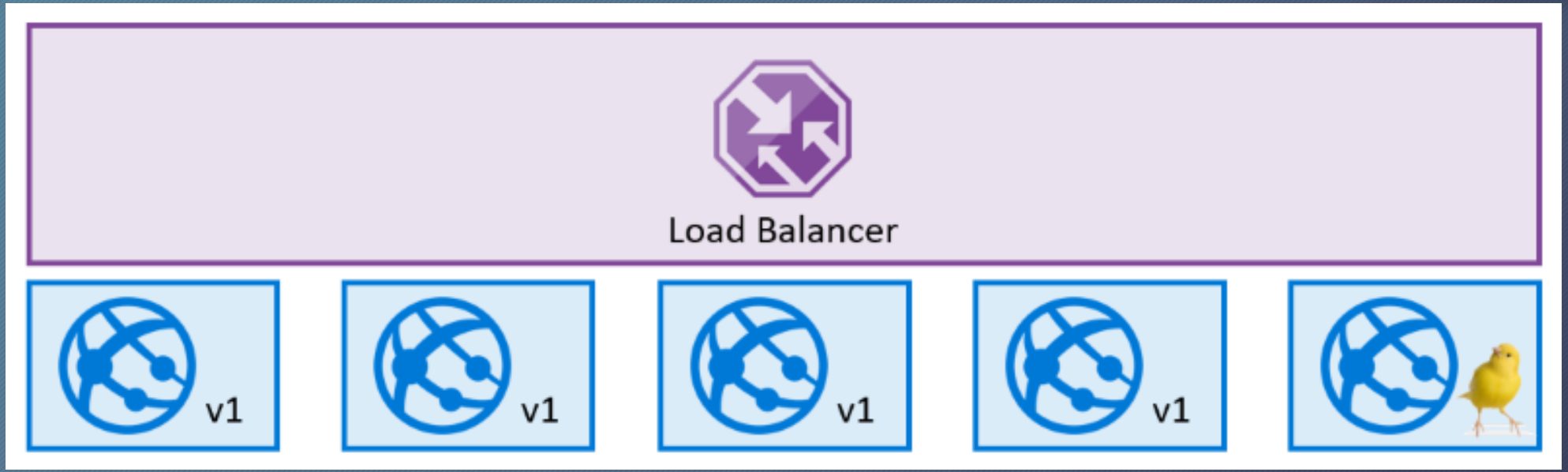
- The purpose of the canary was to identify the existence of toxic gasses. The canary would die much sooner than the miner, giving them enough time to escape the potentially lethal environment.

- A canary release is a way to identify potential problems without exposing all your end users to the issue at once. The idea is that you tell a new feature only to a minimal subset of users. By closely monitoring what happens when you enable the feature, you can get relevant information from this set of users and either continue or rollback (disable the feature).

- If the canary release shows potential performance or scalability problems, you can build a fix for that and apply that in the canary environment.

- After the canary release has proven to be stable, you can move the canary release to the actual production environment.

Canary releases



- Canary releases can be implemented using a combination of feature toggles, traffic routing, and deployment slots.
  - You can route a percentage of traffic to a deployment slot with the new feature enabled.
  - You can target a specific user segment by using feature toggles.

Controlling your canary release

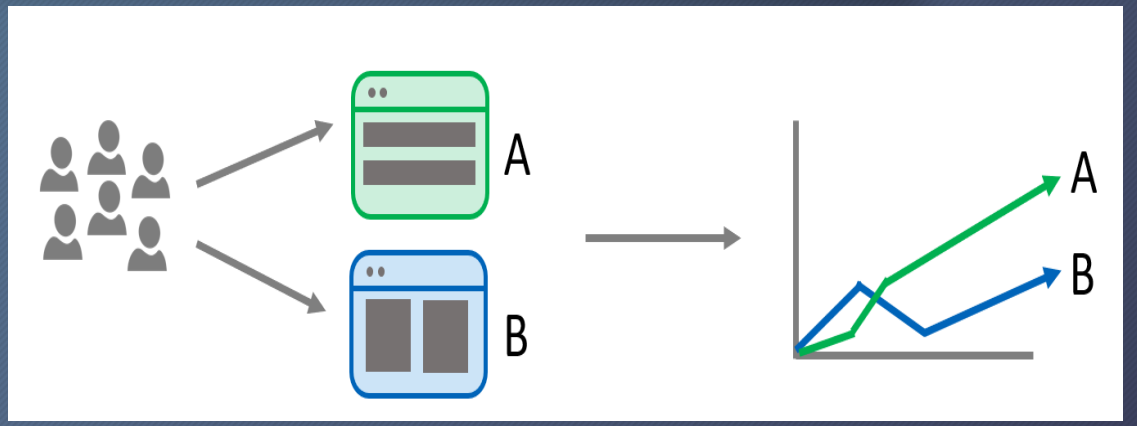
- Using a combination of feature toggles, deployment slots, and Traffic Manager, you can achieve complete control over the traffic flow and enable your canary release.
- You deploy the new feature to the new deployment slot or a new instance of an application, and you enable the feature after verifying the deployment was successful.
- Next, you set the traffic to be distributed to a small percentage of the users.
- You carefully watch the application's behavior, for example, by using application insights to monitor the performance and stability of the application.

Dark launching

- Dark launching is in many ways like canary releases. However, the difference here's that you're looking to assess users' responses to new features in your frontend rather than testing the performance of the backend.
- The idea is that rather than launch a new feature for all users, you instead release it to a small set of users. Usually, these users aren't aware they're being used as test users for the new feature, and often you don't even highlight the new feature to them, as such the term "Dark" launching.
- A Company builds and launches rockets to launch satellites. When they have a new version of a sensor, they install it alongside the old one. All data is measured and gathered both by the old and the new sensor. Afterward, they compare the outcomes of both sensors. Only when the new one has the same or improved results the old sensor is replaced.

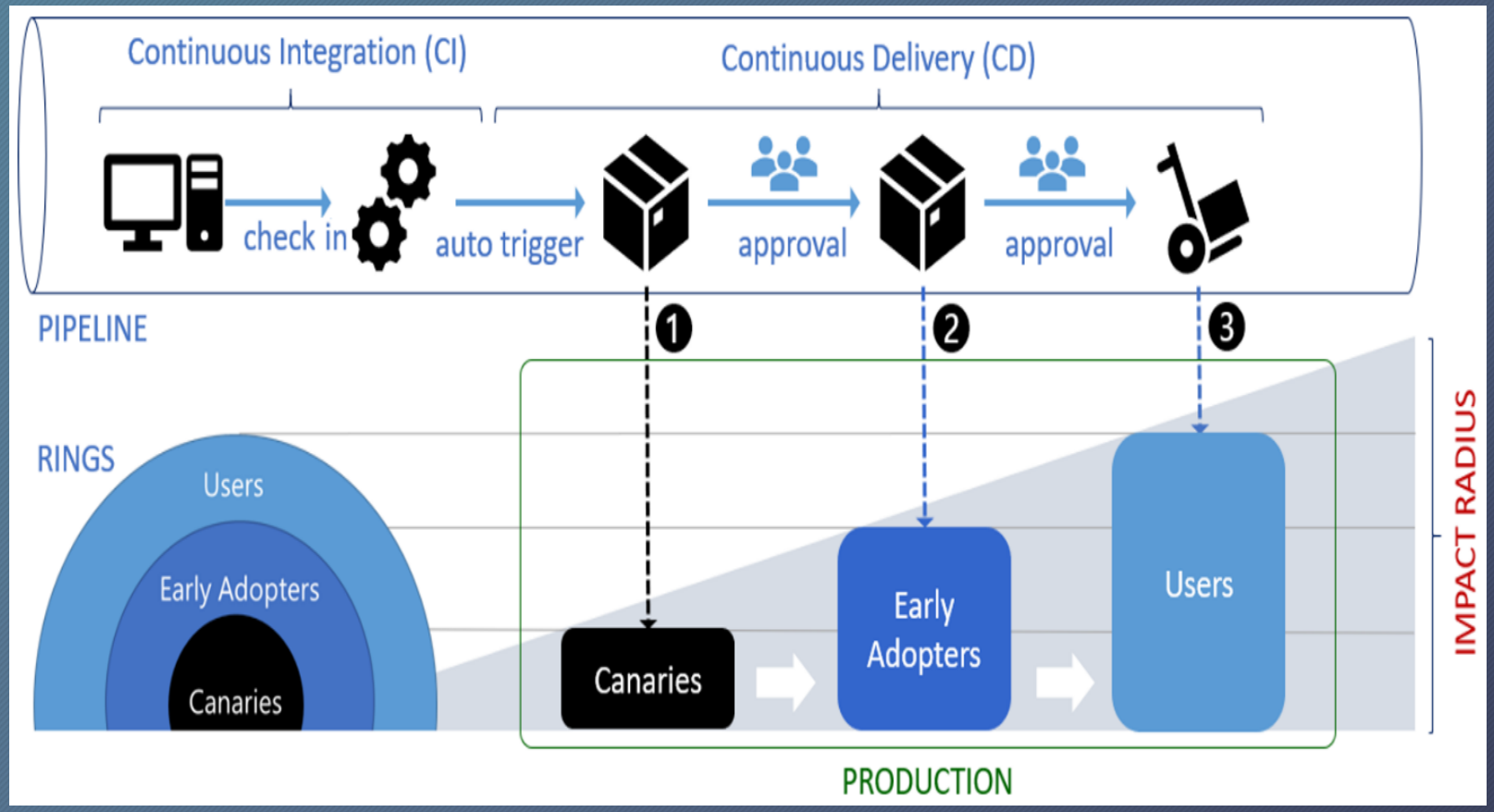
A/B testing

- A/B testing (also known as split testing or bucket testing) compares two versions of a web page or app against each other to determine which one does better.
- A/B testing is mainly an experiment where two or more page variants are shown to users at random.



- Also, statistical analysis is used to determine which variation works better for a given conversion goal.
- A/B testing isn't part of continuous delivery or a pre-requisite for continuous delivery. It's more the other way around.
- Common aims are to experiment with new features, often to see if they improve conversion rates.

Deployment Rings



Deployment Rings

- Progressive exposure deployment, also called ring-based deployment
- They support the production-first DevOps mindset and limit the impact on end users while gradually deploying and validating changes in production.
- Impact (also called blast radius) is evaluated through observation, testing, analysis of telemetry, and user feedback.
- In DevOps, rings are typically modeled as stages.
- Rings are, in essence, an extension of the canary stage. The canary release releases to a stage to measure impact. Adding another ring is essentially the same thing.
- With a ring-based deployment, you first deploy your changes to risk-tolerant customers and progressively roll out to a more extensive set of customers.
- The Microsoft Windows team, for example, uses these rings.

Deployment Rings