



Feature Flags

The Art of the IF and Deployment

<https://github.com/codebytes/feature-flags>



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Agenda

- **What are Feature Flags?**
- **Why use Feature Flags?**
- **Operationalizing Flags**
- **Demos**

What is a Feature Flag?

Feature Flags are also known as Feature Toggles.

Feature flags can be simple configuration settings with Boolean, string or other values.

What Are Feature Flags?

Lets find out

- Booleans in the code
- Config values checked in

Basics

```
bool featureFlag = true;  
if (featureFlag) {  
    // Run the following code  
}
```

What Are Feature Flags?

Dynamic toggling based on some information and rules

Dynamic

```
bool featureFlag = isBetaUser();  
  
if (featureFlag) {  
    // Run the following code  
}
```

Why Use Feature Flags?

Feature Flags have different uses

 **Minimize Disruption to Customers**

 **Progressive / Incremental Rollouts**

 **A/B Testing - Hypothesis Driven Development**

 **Kill Switch**

 **Calendar Events**

Feature Flags have different uses

 Allow Users to Opt In

 Block Users

 Subscriptions

 Advanced Users

 Maintenance Mode

 Load Management

 Code Separation

 Sunset / Shut Off

Not all Flags are the same

Short Term

- These are used to roll out new features or conduct experiments.
- They can be found anywhere, and can be more complex.
- They should be cleaned up after the rollout or experiment.

Not all Flags are the same

Long Term

- Features can start out as flags and become business rules.
- Feature flags can turn into *Operational Flags*.
- You can leverage patterns instead of just an *if* statement
 - Strategy Pattern
 - Visitor Pattern
 - Command Pattern

Operationalizing Flags

Deployment vs Release

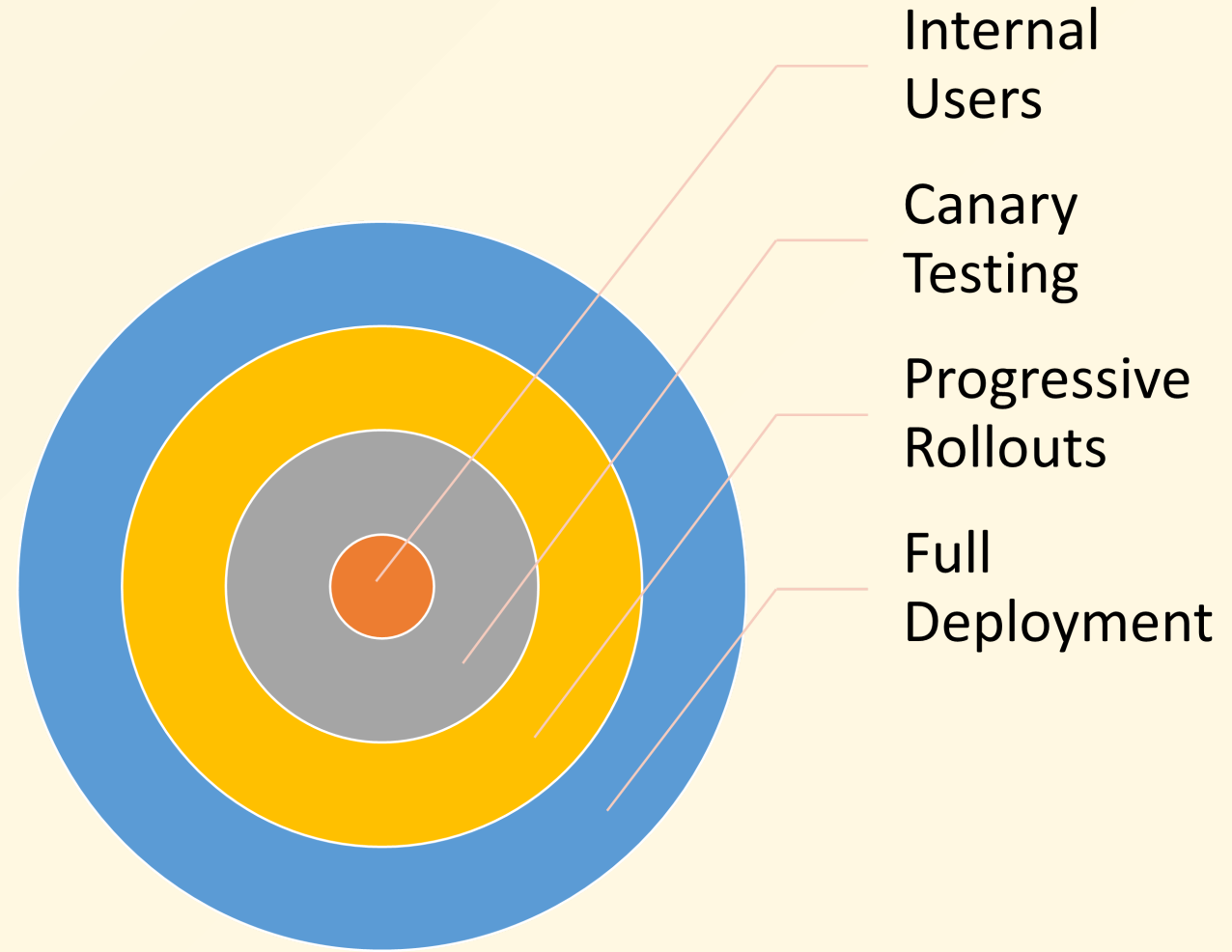
Deploy

- Low Risk, repeatable and routine
- Installed on Production
- Doesn't mean features are in use

Release

- Higher Risk
- Business decision
- Enables access to a feature
- Allows experimentation

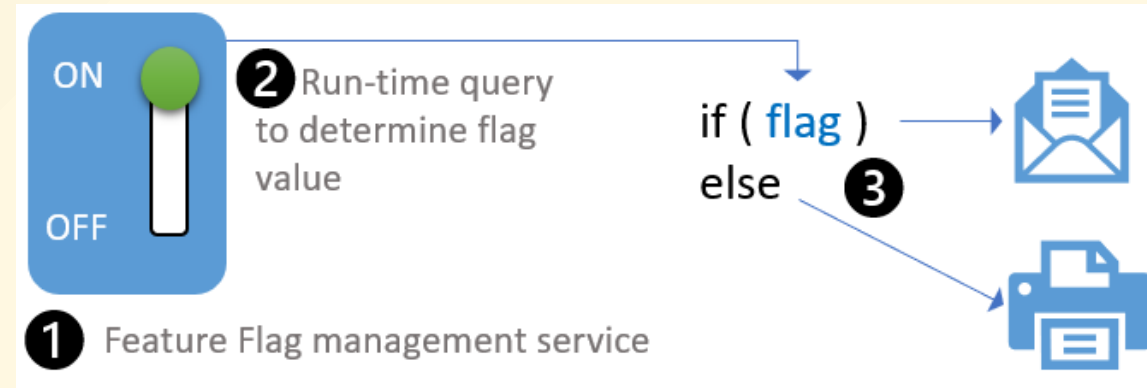
Limit the Blast Radius of Change



Its all about control

How do you turn it on and off?

- Per checkin?
- Per server?
- Per user?
- Dynamically?



Flag Targeting

Targeting	Percentages	Triggers
 Time  Region  User Details	 10%/90%  50%/50%	 Rise in failures  Load

Feature Flag Downsides

- Feature Flags are Technical Debt As Soon as You Add Them
- As you add flags, it can be harder to support and debug the system.
[https://github.com/launchdarkly/featureflags/blob/master/2 - Uses.md](https://github.com/launchdarkly/featureflags/blob/master/2-Uses.md)

Flag Best Practices

- Have a naming convention for short or long term flags
- Use meaningful names with long descriptions
- Have a central location for flags, one place to look at available flags
- The development team should share flags and configurations at the end of a sprint so that the right configuration is released.
- NEVER re-purpose a feature flag
- Deprecate unused features and their flags

Knight Capital and Feature Flags

- In 2012, Knight Capital Group suffered a trading loss of \$440 million in 45 minutes due to a software glitch.
- The glitch was caused by the release of new software code that was not fully tested before being deployed to production.
- The code included an old feature that had been previously disabled, but was inadvertently reactivated by the new release.

DATA - SQL/JSON Models

- Be additive, never change existing fields
- If you have to remove a field, obsolete it until there is no possibility of rollback
- Separate the data model from the business logic

Feature Flag Providers

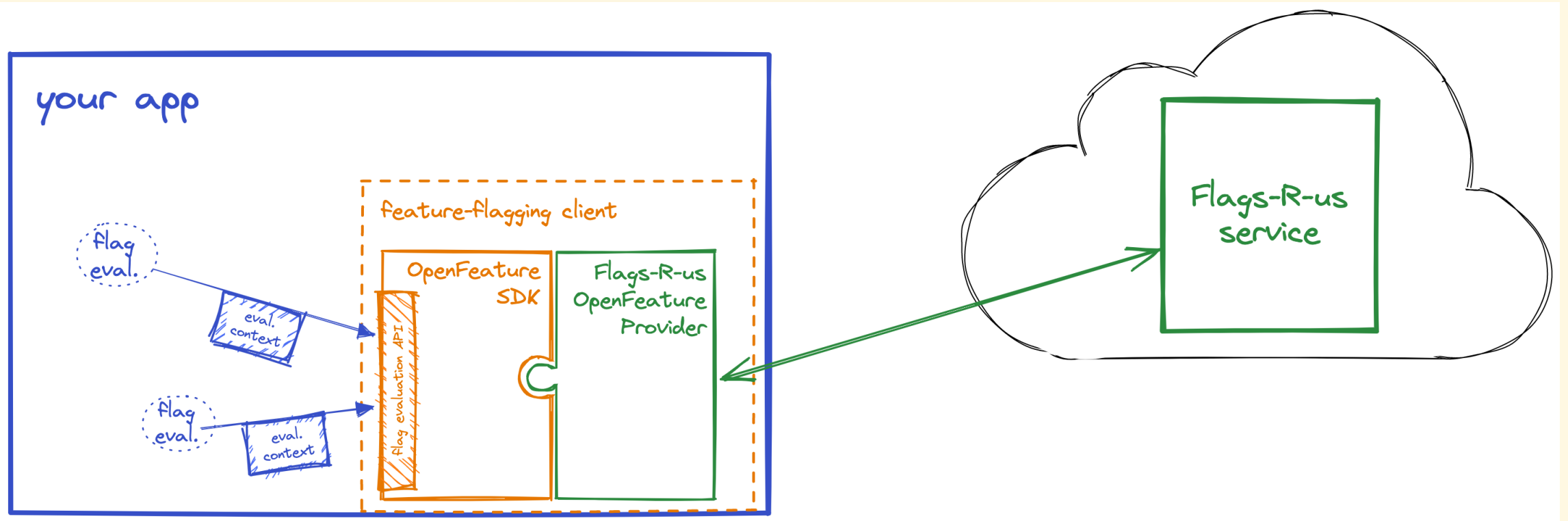
- Azure App Configuration
- Launch Darkly
- Split
- Optimizely
- Molasses
- Flagship
- GrowthBook
- Apptimize
- Taplytics
- Harness

OpenFeature

OpenFeature is an open standard for feature flag management. OpenFeature provides a unified API and SDK, with extensibility for open source and commercial offerings.

<https://openfeature.dev/>

OpenFeature



Demos

Questions

[Chris Ayers](#)



Resources

Links

- <https://github.com/microsoft/FeatureManagement-Dotnet>
- <https://docs.microsoft.com/en-us/azure/azure-app-configuration/>
- <https://github.com/codebytes>

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