

What Is Multi-platform Serverless?



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Outline



IaaS Outages & Risks

- Failures
 - Azure, Google Cloud Platform and AWS
- Cloud failures - lessons learned

Multi-platform Architectures

- Overview
- Components

Other Resilient Architectures

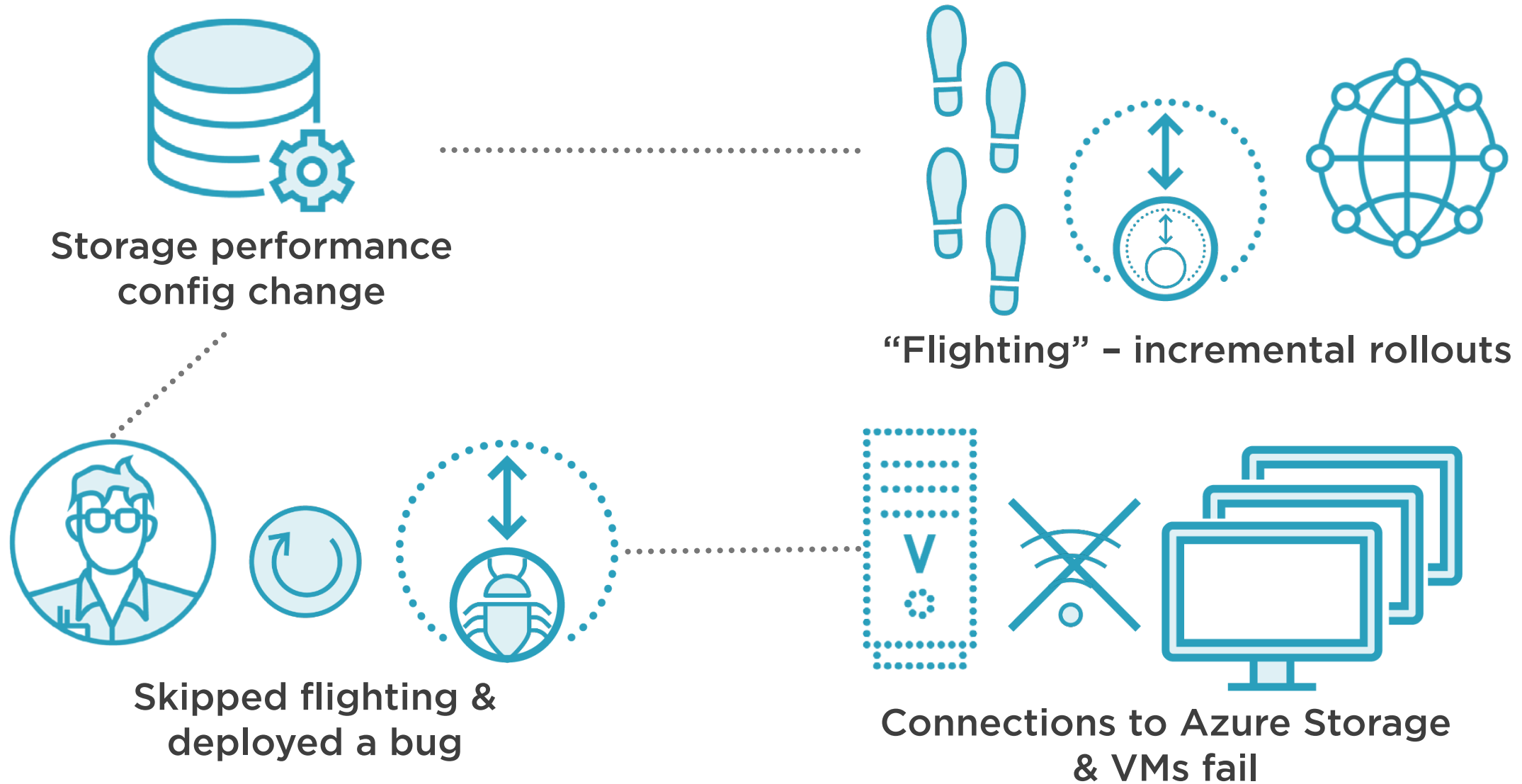
- Examples
- Best practices



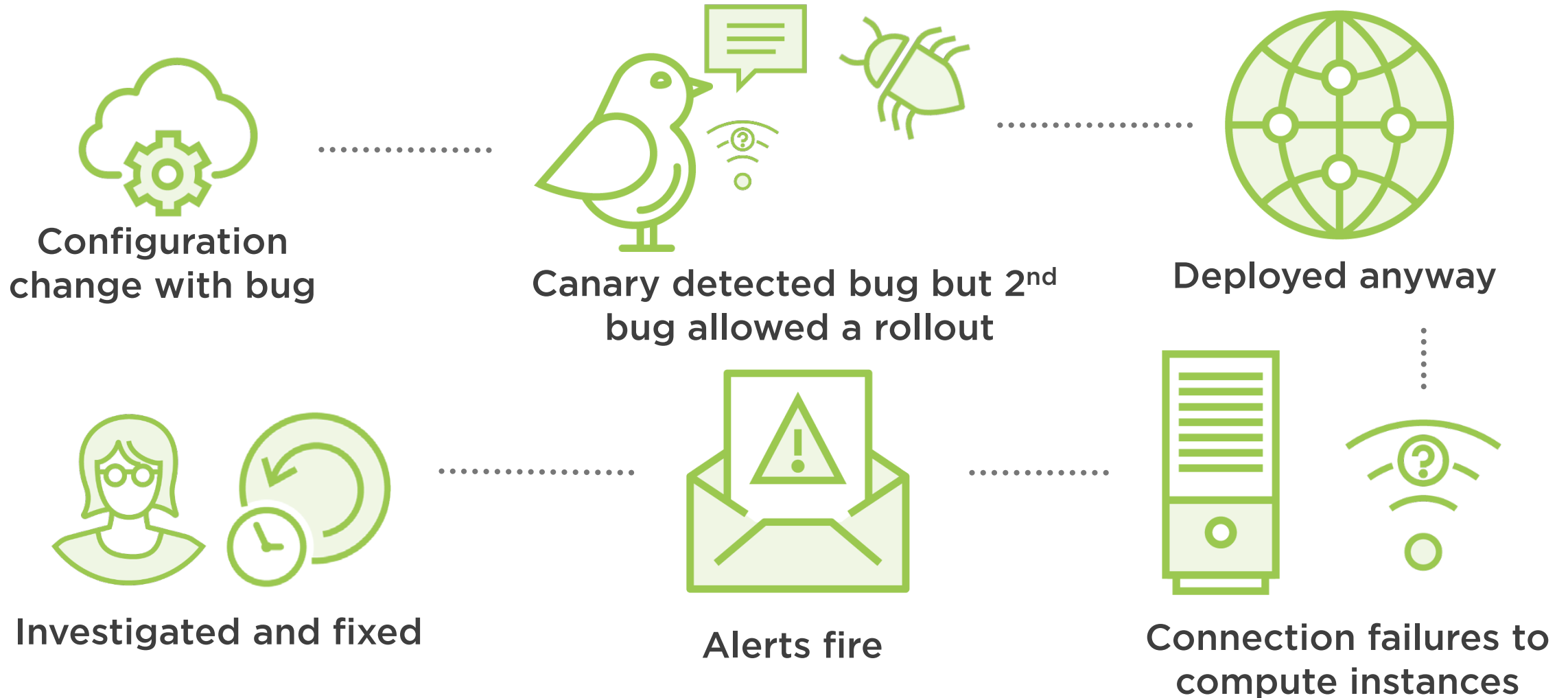
laaS Outages & Risks



Azure Failure - Nov. 18, 2014



Google Cloud Failure Apr. 11, 2016

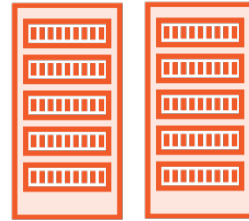


AWS Failure Feb. 28, 2017

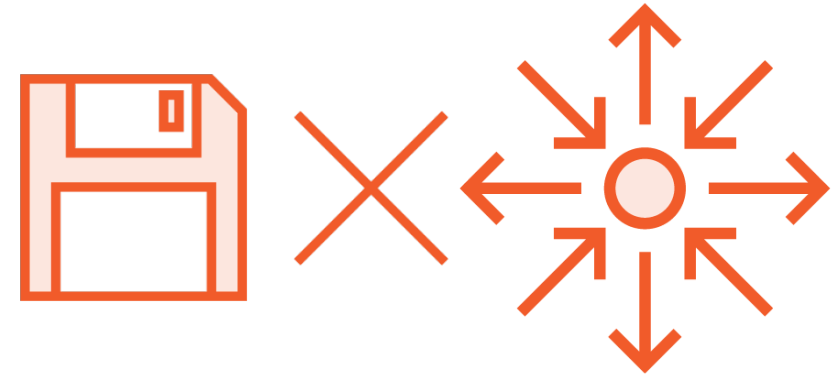


AWS billing systems

.....

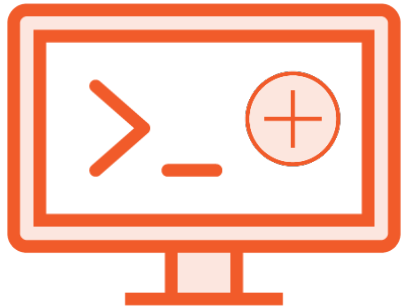


Tried to remove a few related servers



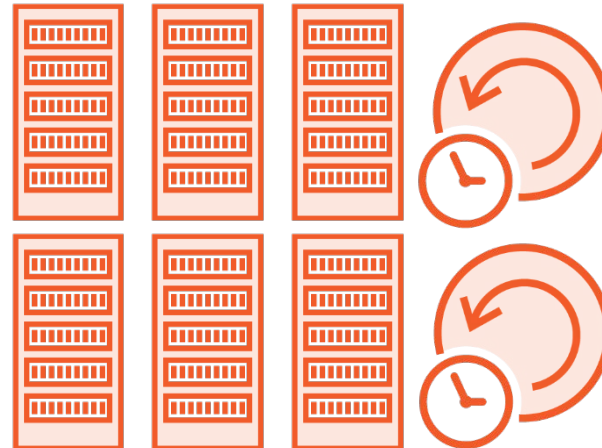
Connections to S3 fail

⋮



Typo in command

.....



Removed many

.....



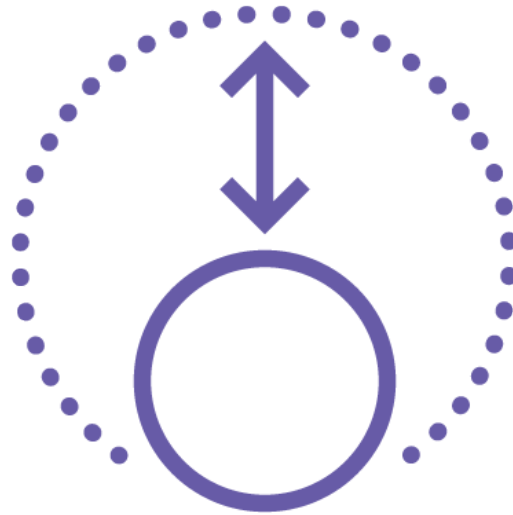
Including core S3 systems



Cloud Failures - Lessons Learned



**Bugs Happen -
Be Prepared**



**Principle of
Least Privilege
& Safer Systems**



**Have a Plan for
Failures**



**IaaS Can Fail
(but so can
anything)**



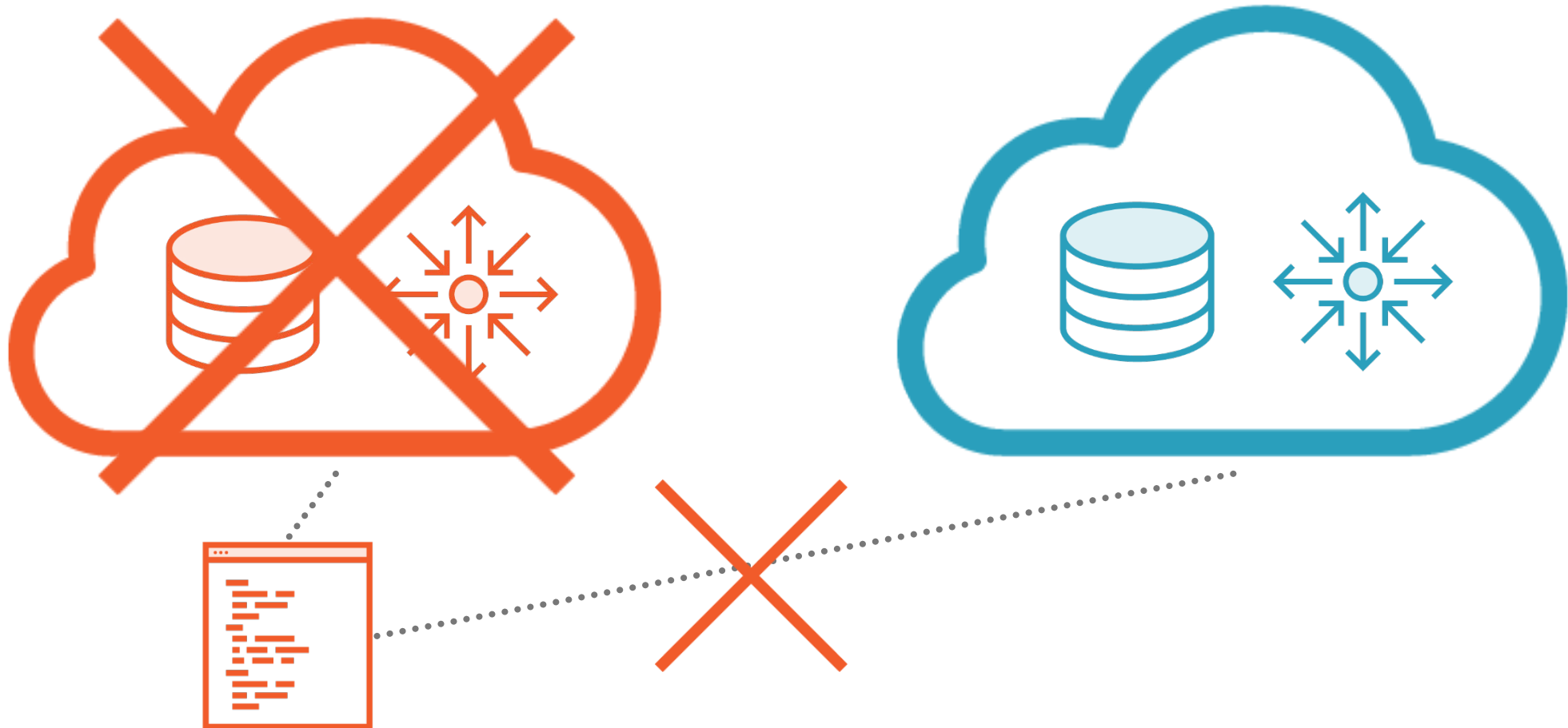
Multi-platform Architectures



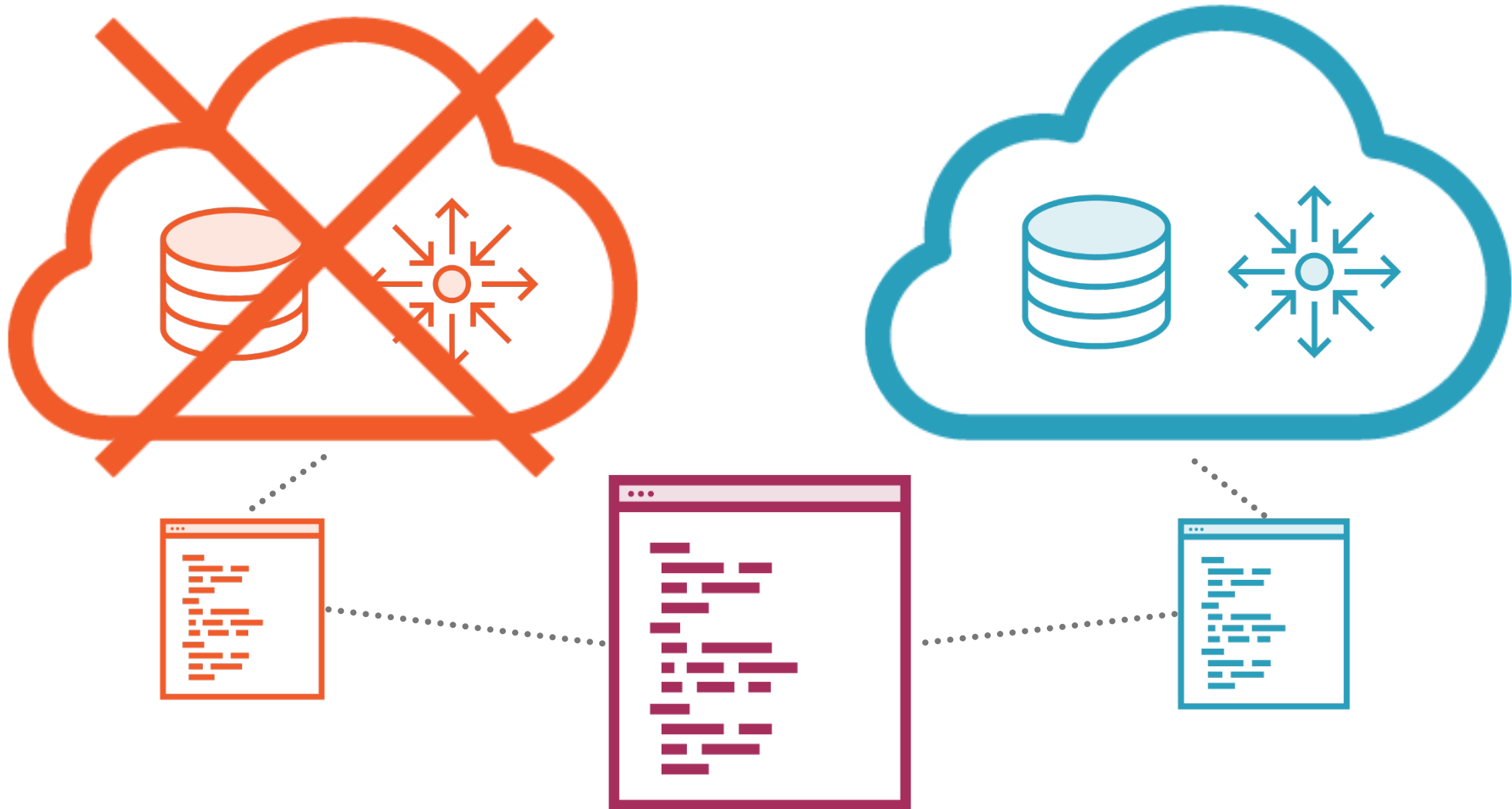
Infrastructure Independence



Infrastructure Independence



Infrastructure Independence

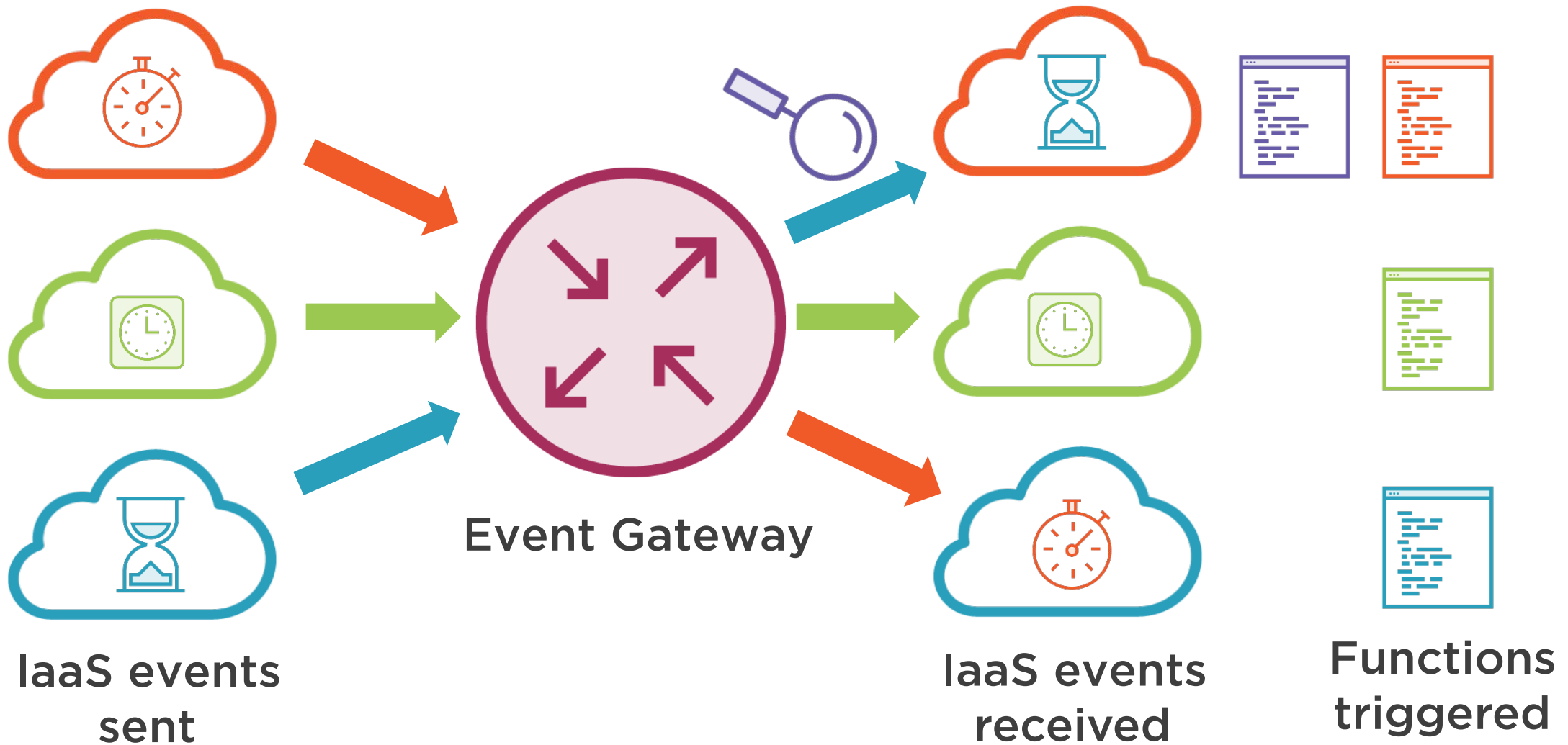


“Share cross-cloud functions and events with AWS Lambda, Microsoft Azure, IBM OpenWhisk and Google Cloud Platform.”

- serverless.com



Serverless, Inc.'s Event Gateway



Multi-platform Components



Generalized
Code



Platform-specific
Helper Libraries



IaaS SDKs



IaaS Services



Other Resilient Architectures



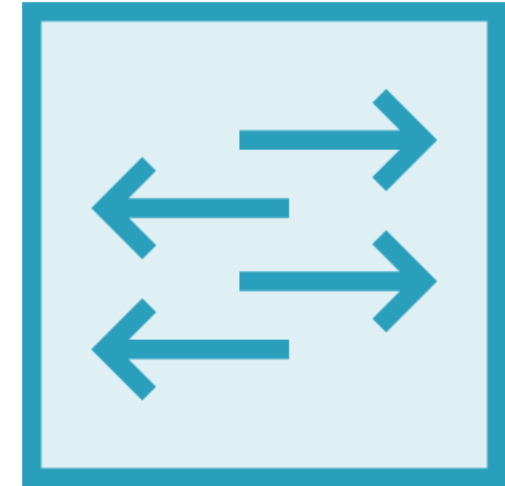
Examples of Resilient Architectures



**Auth0 – Multi IaaS
Providers**



**Availability Zones &
Regions (AWS)**



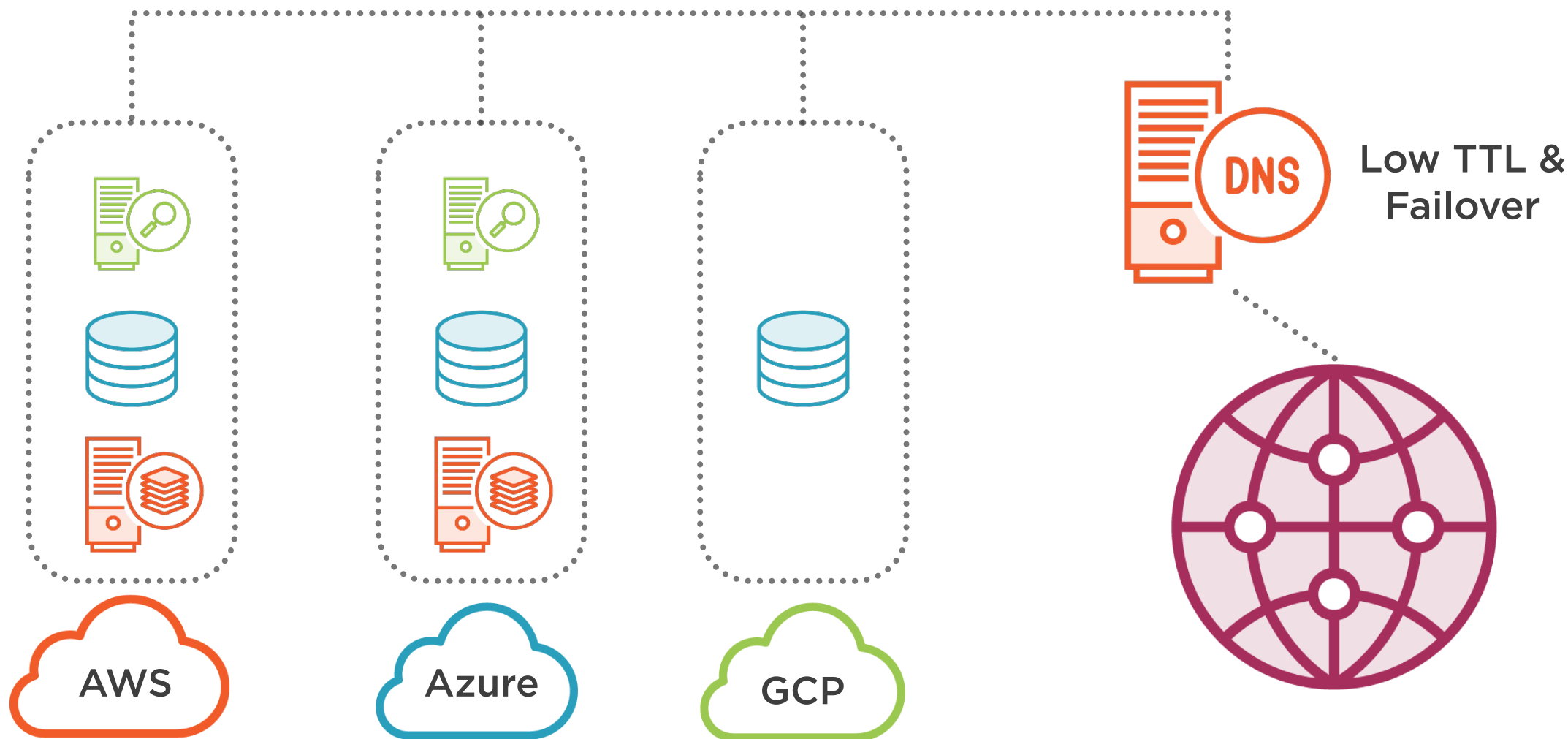
DNS Failover

We run Amazon on the west coast, we run Azure on the East coast, and if one fails we just move to the other one - we have Amazon as our primary

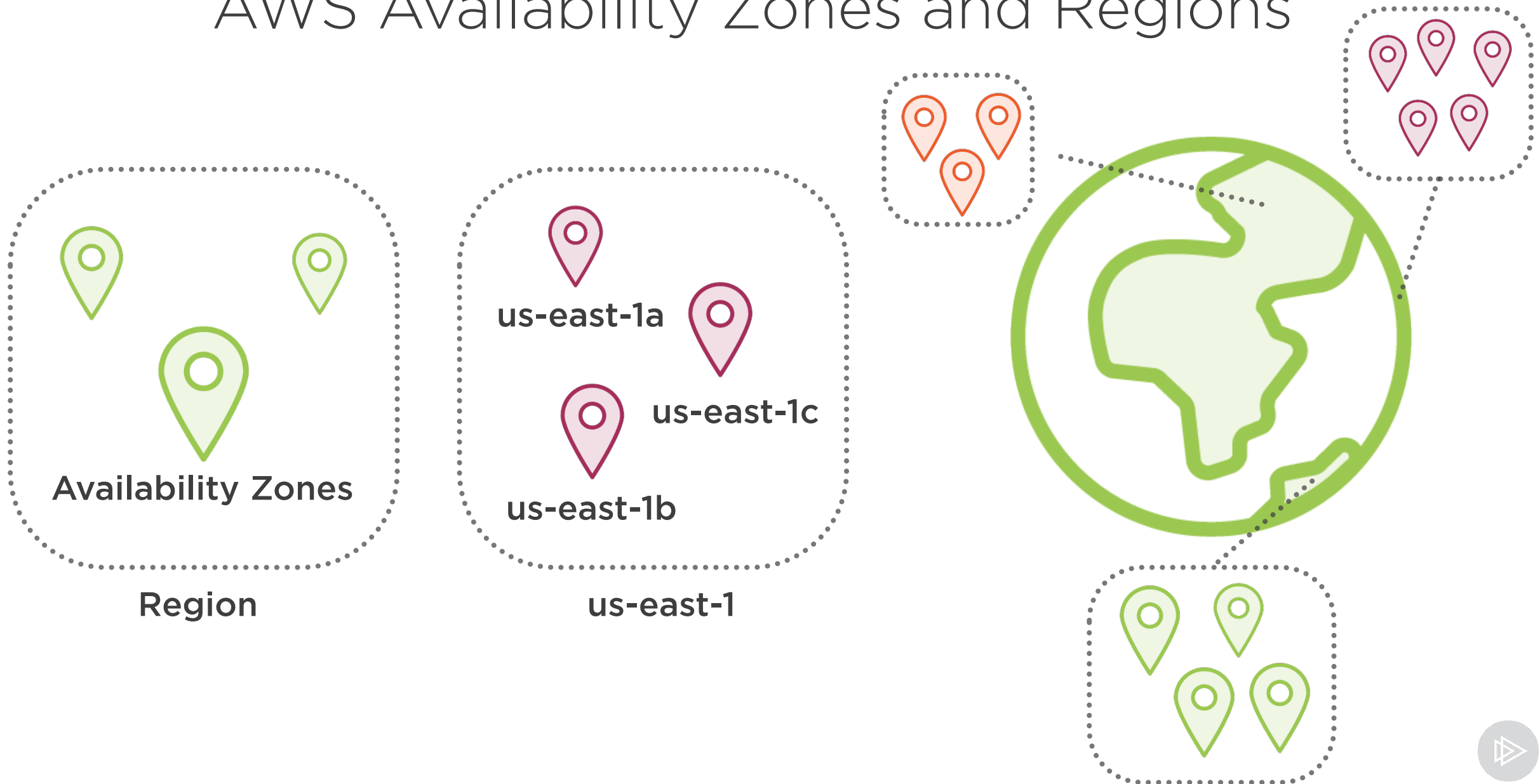
- **Damian Schenkelman (Auth0 Director of Engineering)**



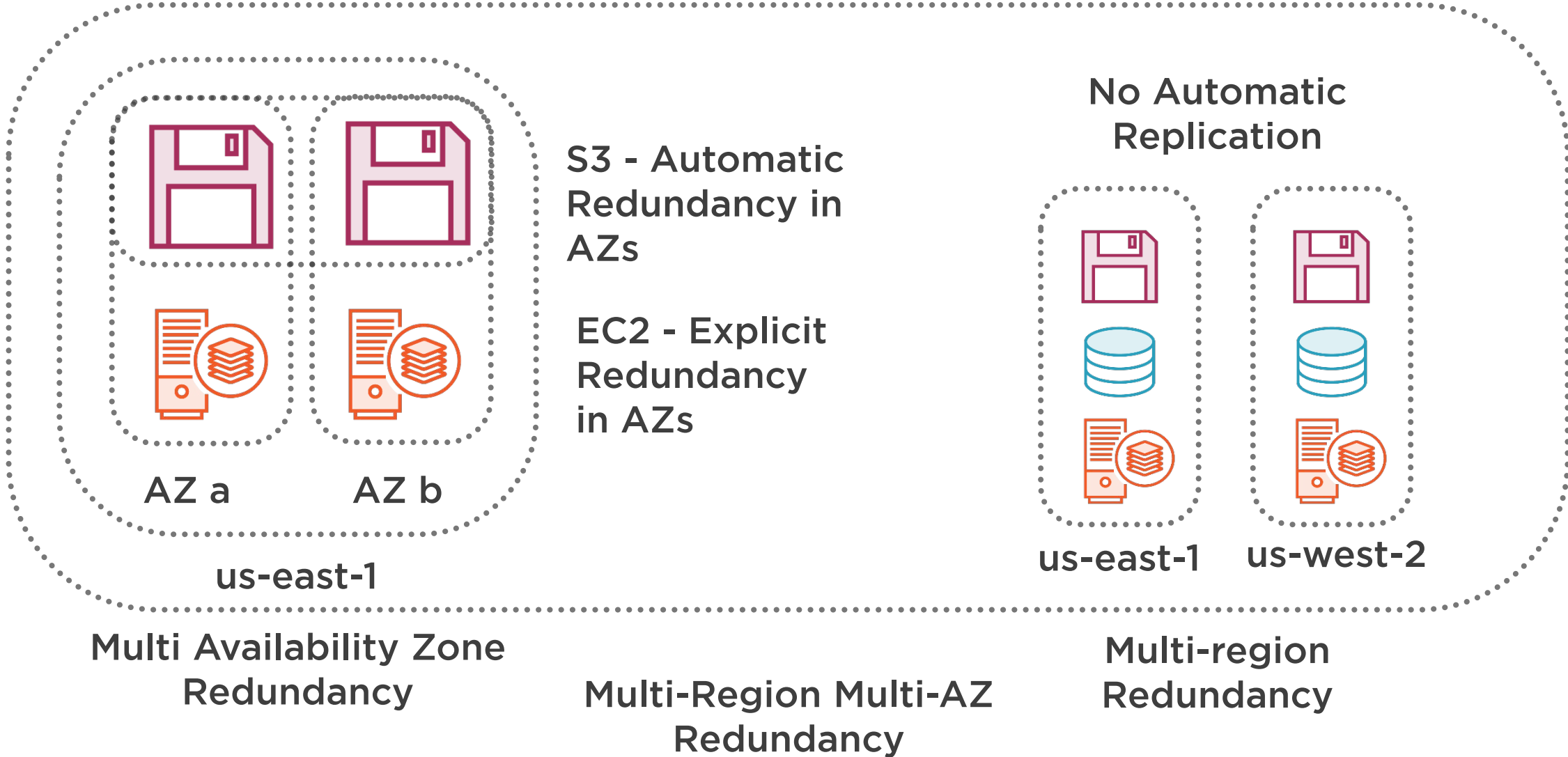
Auth0 Example



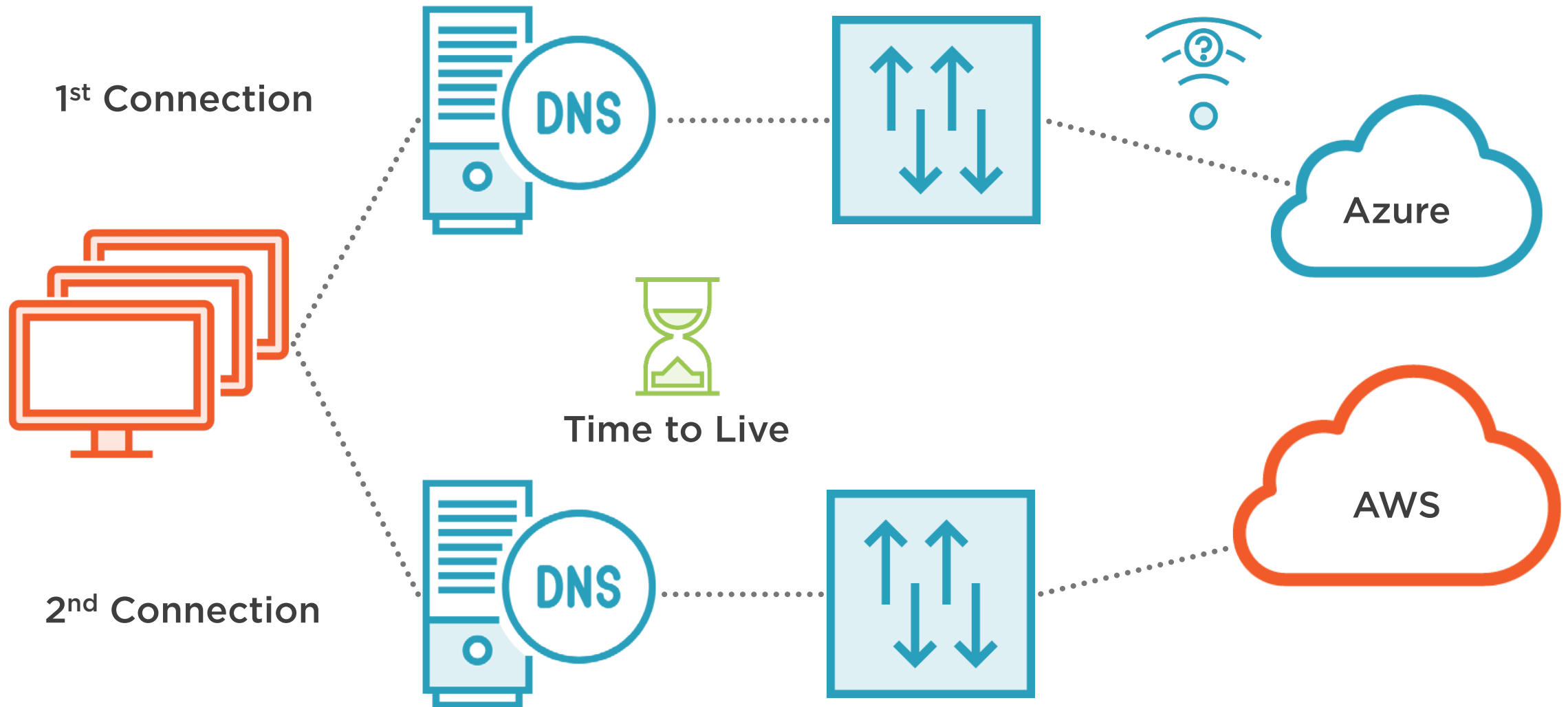
AWS Availability Zones and Regions



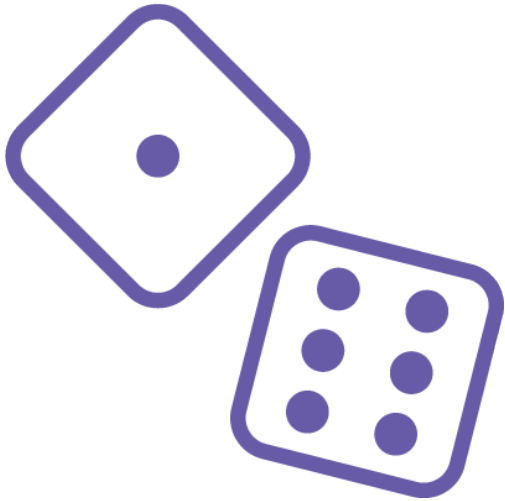
AWS Availability Zones and Regions



DNS Failovers



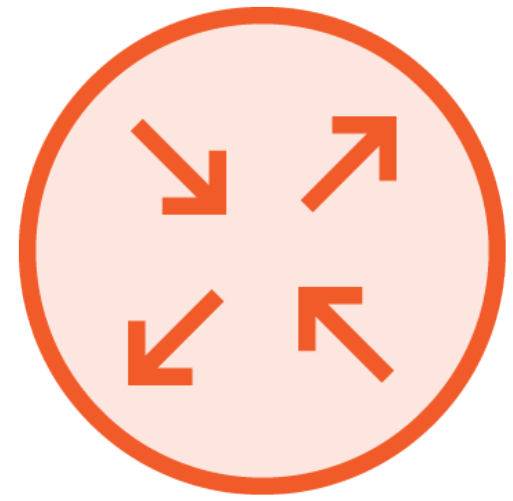
Best Practices



Assess Your Risks



Backups



Appropriate Failsafes

Review



Serverless Concepts

- Multi-platform architectures
- Resilient architectures
- Best practices

What Next?

- Building Serverless applications
- Lambda internals - Introduction to AWS Lambda
- Serverless on other IaaS providers

