



# Spring Boot Microservices

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Beginner to Guru

What is the Cloud?



## What is the Cloud?

- The 'Cloud'?
- The Cloud is not a physical object, but more of a concept.
- The 'Cloud' allows you to use virtual servers and services.
- The 'Cloud' abstracts the physical underlying hardware and services
- Amazon Web Services for example:
  - Allows provisioning in zones - a physical region made of many data centers, appearing as one







## Cloud != Virtual Machines

- Virtual Machines are easy to provision in cloud environments
- SFG Website runs on a AWS Virtual Machine
- This is not 'Cloud' Computing
- Virtualization is not Cloud Based Architecture
- Subject of heated debates!





## Cloud Based Architectures

- Microservices are a key aspect of Cloud Based Architectures
- Cloud based architectures focus on abstraction, redundancy, and avoidance of single point of failures
- For example saving a file to AWS S3
  - File is copied to multiple servers, and in multiple data centers before the 'save' is confirmed.
  - Thus protected from server failure, and even loss of a data center.



## Microservices in Cloud Based Architectures

- Typically multiple instances of microservices are deployed in a cloud environment
- Important to reliability of the application as a whole
  - If a service instance is terminated, another running instance can assume the workload
- Netflix as a tool called Chaos Monkey who's job is to randomly terminate components to ensure there are no single points of failure



## Common Microservice Deployment Tools

- This is very large and diverse area!
- AWS Beanstalk
- AWS ECS / EKS
- Kubernetes
- Docker Swarm
- Red Hat OpenShift
- Cloud Foundry



