1. Need for Kubernetes
2. What exactly it is & what its not?
3. How does Kubernetes work?
4. Use-Case: Kubernetes @ Pokemon Go
5. Hands-on: Deployment with Kubernetes

What are containers?

- Containers are packages of software that contain all of the necessary elements to run in any environment.
- In this way, containers virtualize the operating system and run anywhere, from a private data center to the public cloud or even on a developer’s personal laptop.
- From Gmail to YouTube to Search, everything at Google runs in containers. Containerization allows our development teams to move fast, deploy software efficiently, and operate at an unprecedented scale.

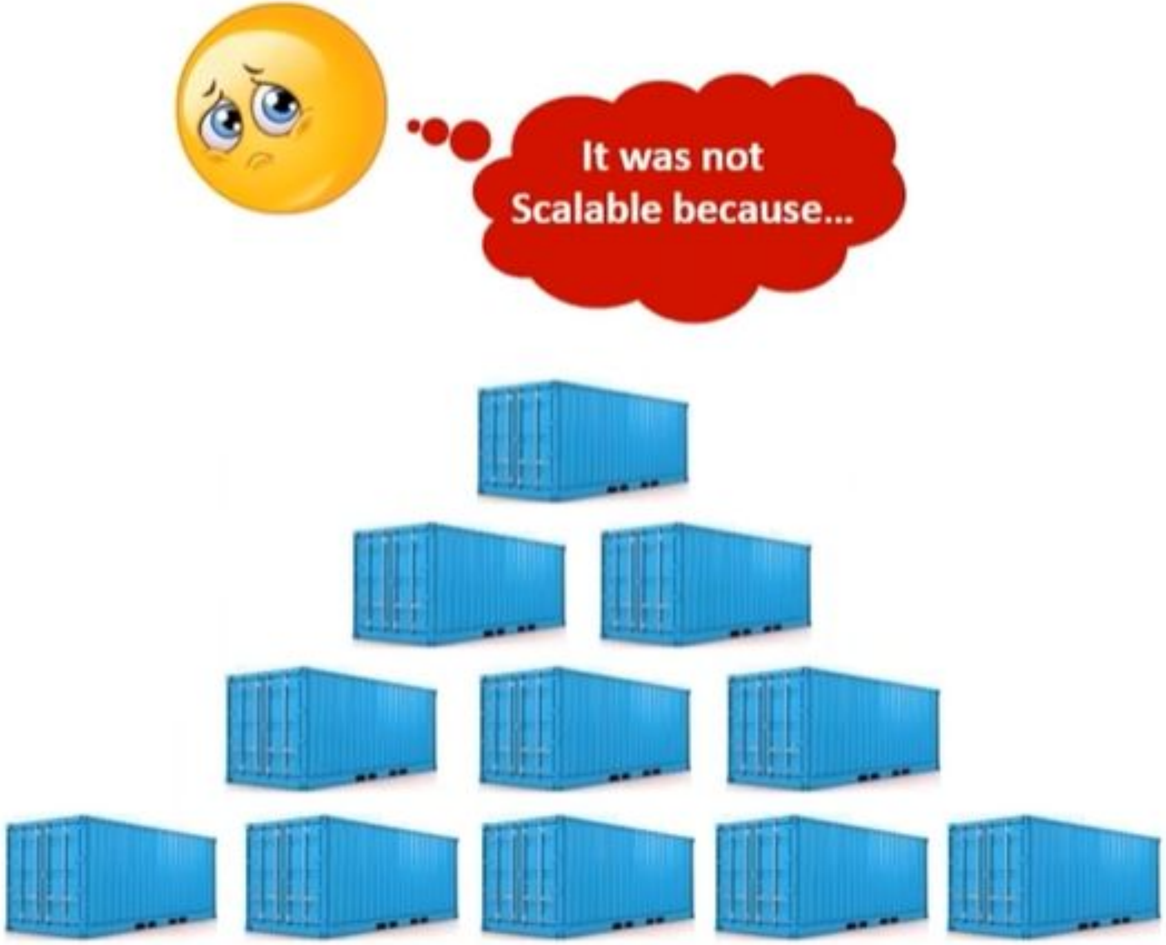
Containers Are Good...

Both ***Linux Containers*** & ***Docker Containers*** isolate the application from the host.

But.....Not easily Scalable...

FASTER, RELIABLE, EFFICIENT, LIGHT-WEIGHT & SCALABLE.

Problems With Scaling Up The Containers



1. Containers could not **communicate** with each other
2. Containers had to be **deployed appropriately**
3. Containers had to be **managed carefully**
4. **Auto scaling** was not possible
5. **Distributing traffic** was still challenging

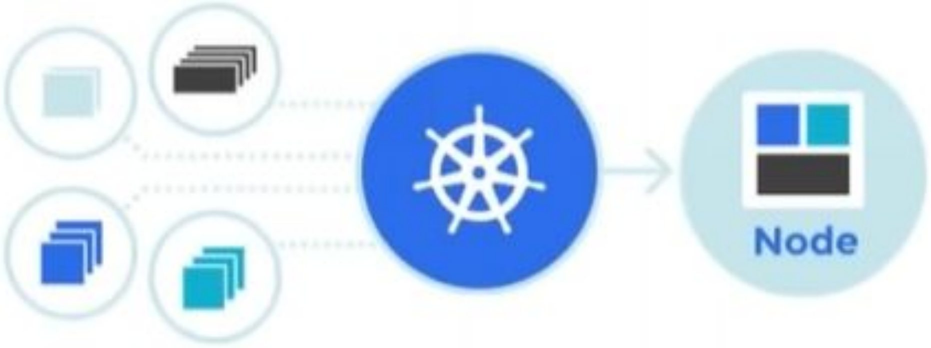
A Container Management Tool !!!

Kubernetes is an open-source **Container Management** tool which automates *container deployment, container (de)scaling & container load balancing*.

***Benefit**: Works brilliantly with all cloud vendors: **Public, Hybrid & On-Premises**.*

More About Kubernetes

- Written on Golang, it has a huge community because it was first developed by Google & later donated to **CNCF**
- Can group 'n' no of containers into one logical unit for managing & deploying them easily



Reference: https://kubernetes.io/

Features Of Kubernetes

1. Automatic Binpacking
2. Service Discovery & Load Balancing
3. Storage Orchestration
4. Self Healing
5. Secret & Configuration Management
6. Batch Execution
7. Horizontal Scaling
8. Automatic Rollbacks & Rollouts

Kubernetes 'IS NOT'

To be compared **vs. Docker**

For containerizing apps

For applications with simple architecture