Kubernetes 101

SPIT KAVACH - April 2023

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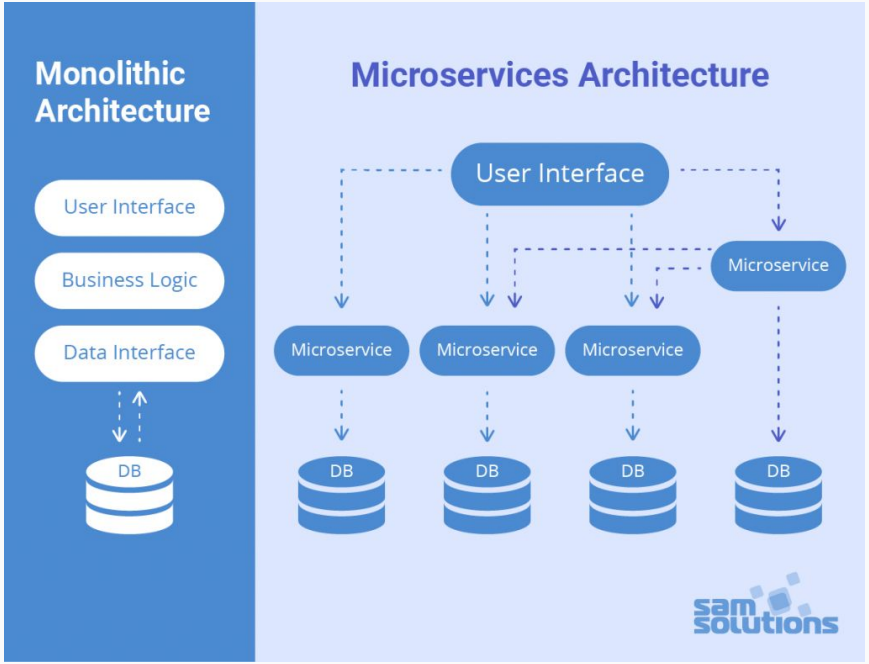
Monolith Applications Vs Microservices

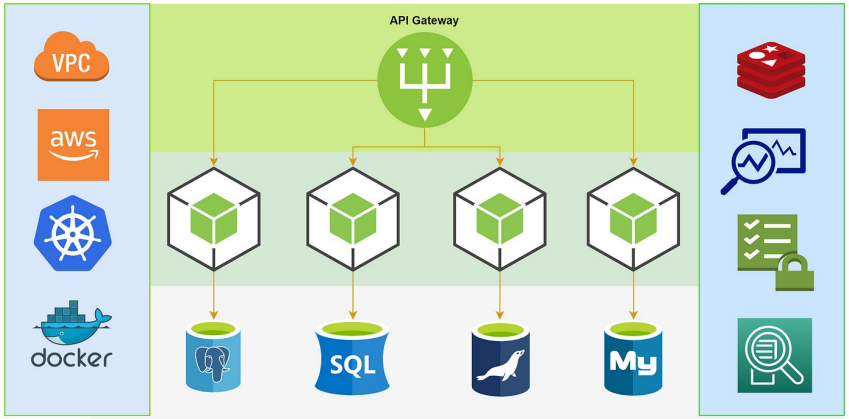


Drawbacks of Monolith Structure

- Testing is harder in this systems
- Not really cost effective
- Redeploy after one major update
- Due to tight coupling can run into downtime difficulties
- One bug can become a nightmare

The beauty of Microservices

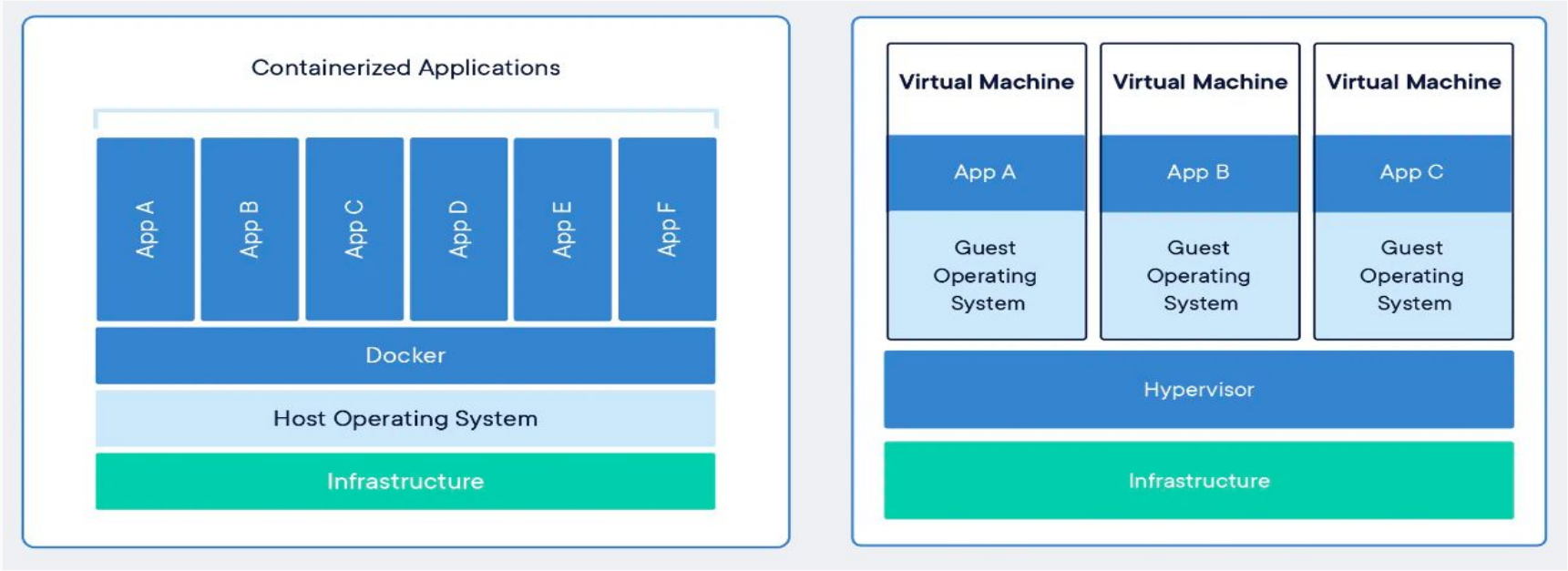
- Scalable
- Very much cost effective
- Less pain while testing compared to Monolith structure
- Changes can be deployed pretty smoothly even after a minor update or bug fix
- Easily adapt with emerging and new technology stacks



What are Containers ?

Containers are lightweight packages of your application code together with dependencies such as specific versions of programming language runtimes and libraries required to run your software services.

Containers Vs Virtual Machine



Container Orchestration

Container orchestration is the automation of much of the operational effort required to run containerized workloads and services.

Advantages

- Container deployment.
- Rollouts.
- Service discovery.
- Storage provisioning. .
- Load balancing and scalability.
- Self-healing for high availability. .
- Support and portability across multiple cloud providers.
- Growing ecosystem of open-source tools.

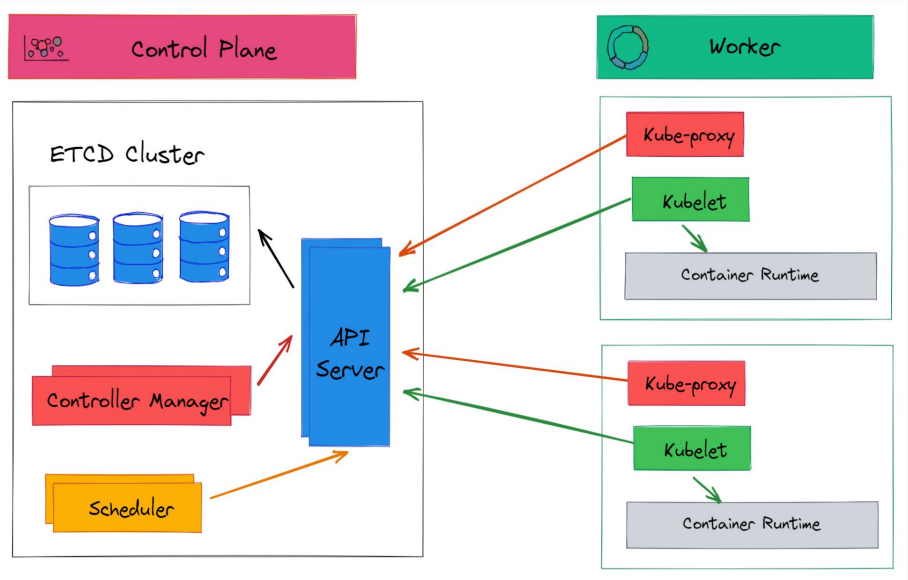
Kubernetes

Kubernetes, also known as K8s, is an open-source system for automating deployment, scaling, and management of containerized applications.

- Increased DevOps efficiency for microservices architecture
- More portability with less chance of vendor lock-in
- Automation of deployment and scalability
- App stability and availability in a cloud environment
- Open-source benefits of Kubernetes

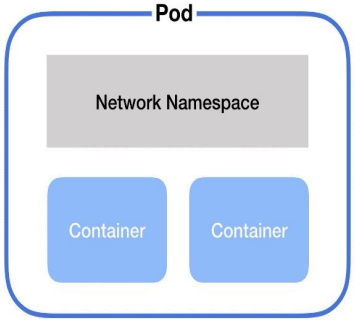
Architecture of Kubernetes

Kubernetes is made up of a control plane and one or more worker nodes. The control plane consists of several components, including the Kubernetes API server, etcd, the controller manager, and the scheduler. The worker nodes are responsible for running the containers that make up the application. Each worker node runs a container runtime, such as Docker or CRI-O, as well as a Kubernetes component called the kubelet, which communicates with the control plane to manage the containers.



What’s in a Pod ?

Pods are the smallest deployable units of computing that you can create and manage in Kubernetes.



Let’s get our hands dirty

Installing minikube and docker

Creating a Kubernetes cluster

Deploying an application to kubernetes

Thank You!

Say hi to me!

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