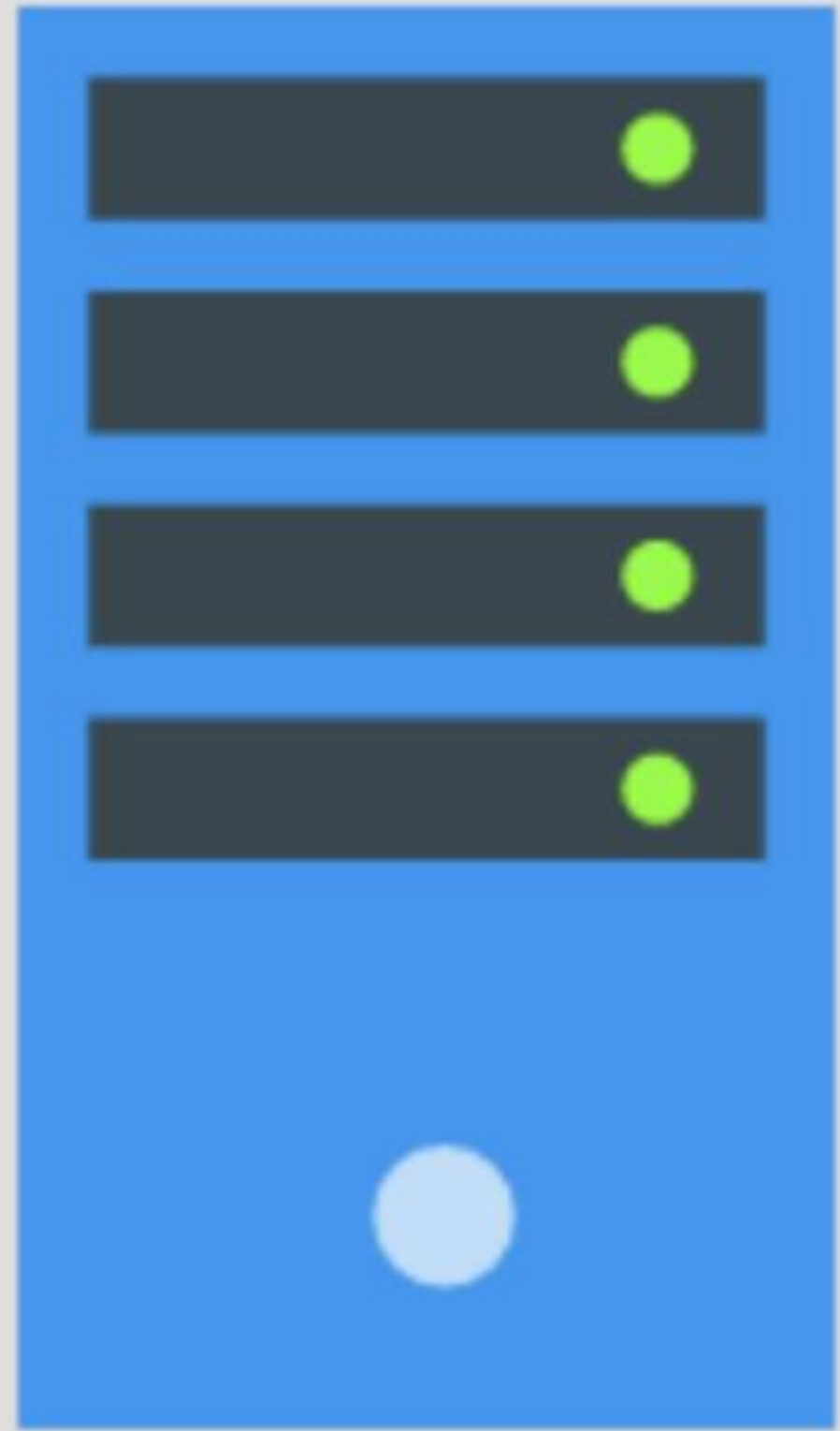


K8s Docker and KubeSphere for Novice

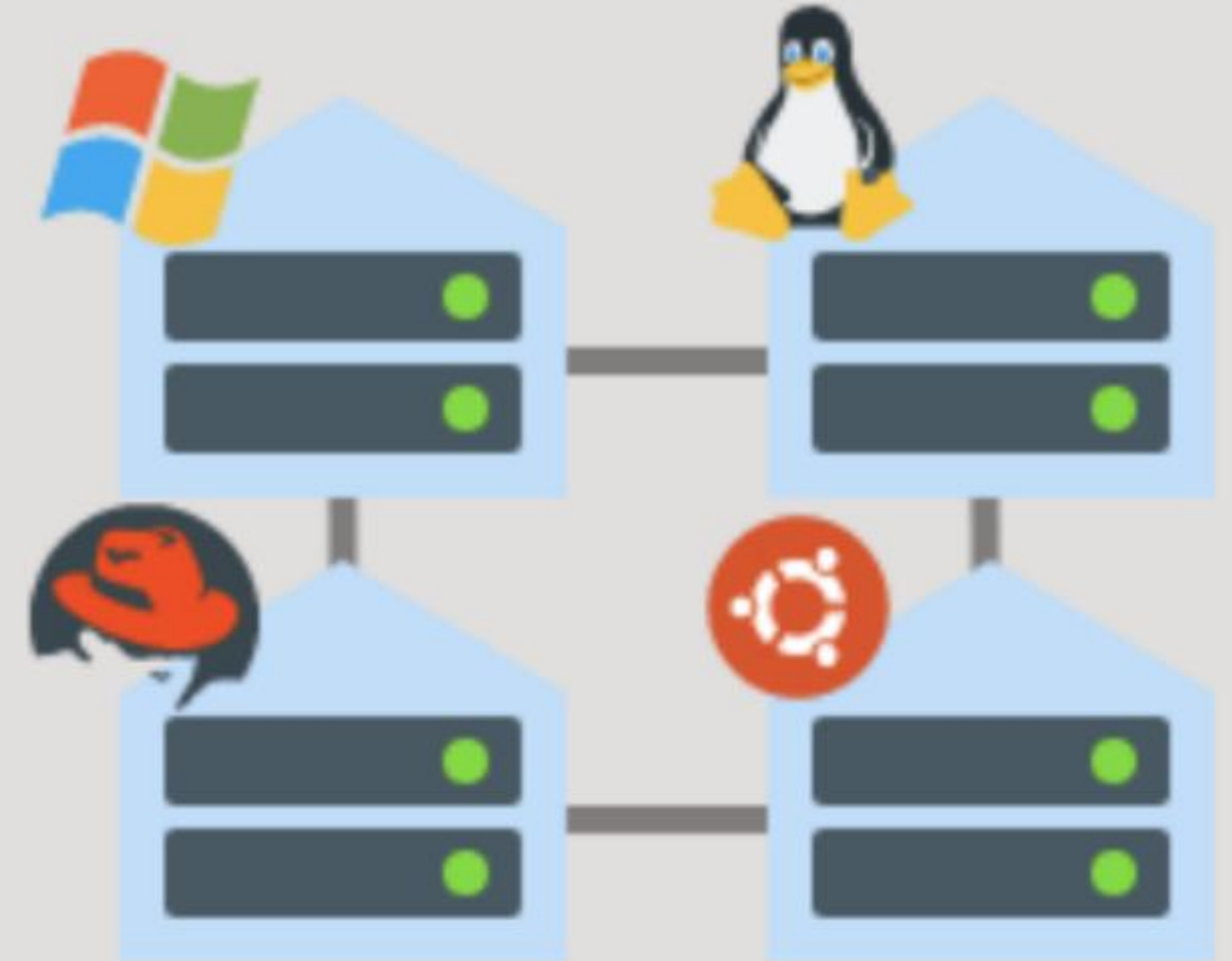
—— Feynman Zhou ——

KubeSphere Community Manager, CNCF Ambassador

Before K8s: What is Virtual Machine

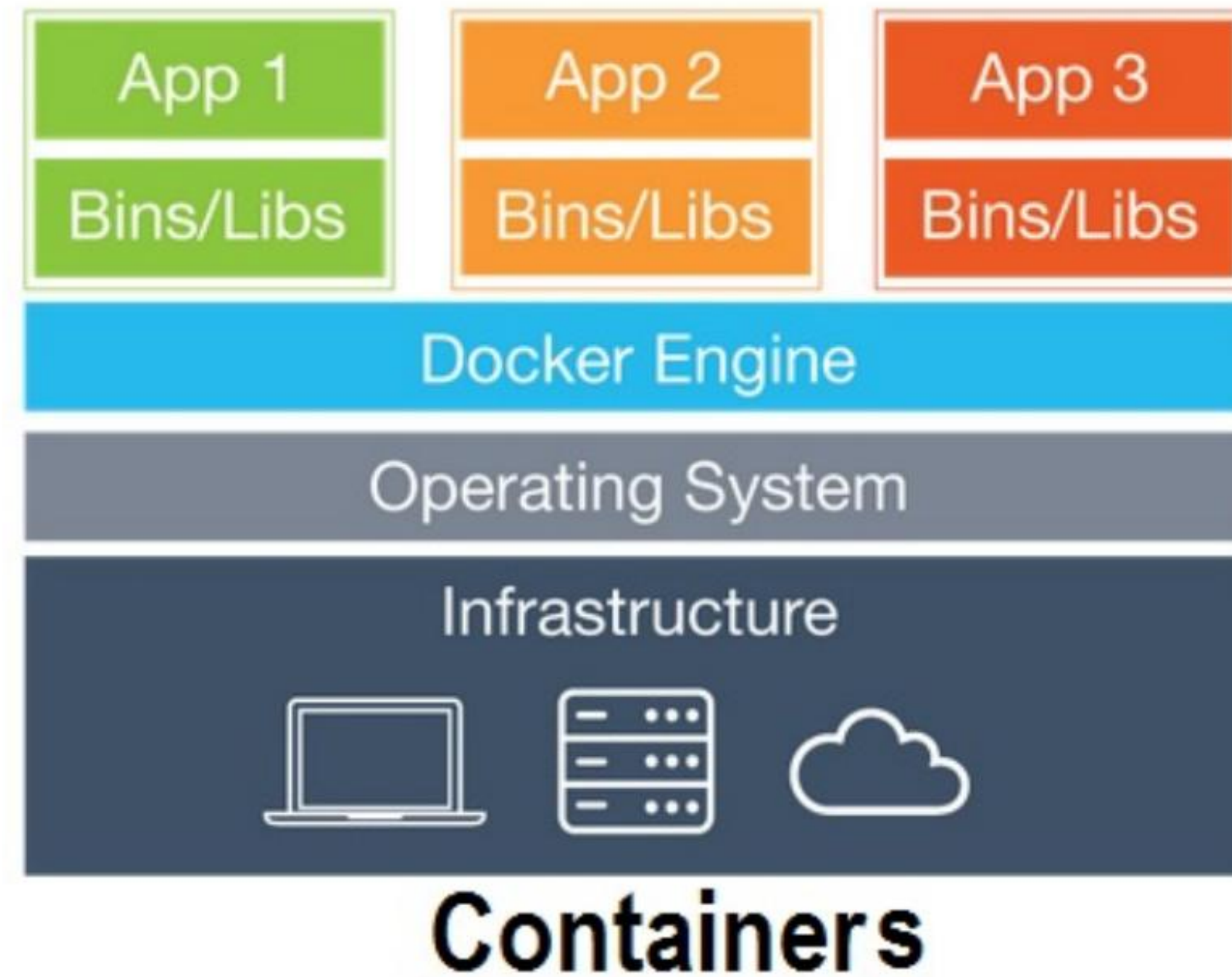
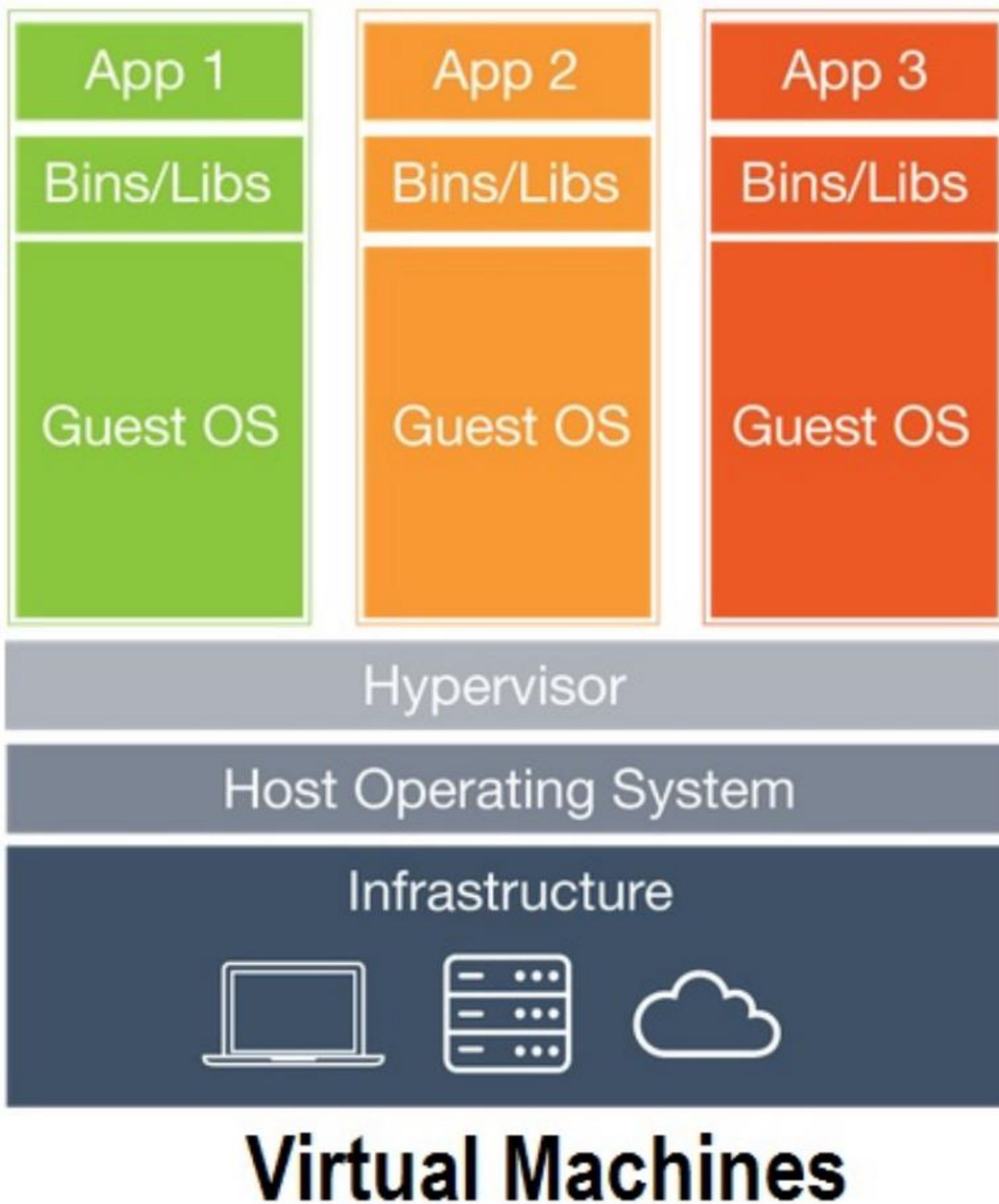


Bare metal server



Virtual machines

Before K8s: What is Virtual Machine

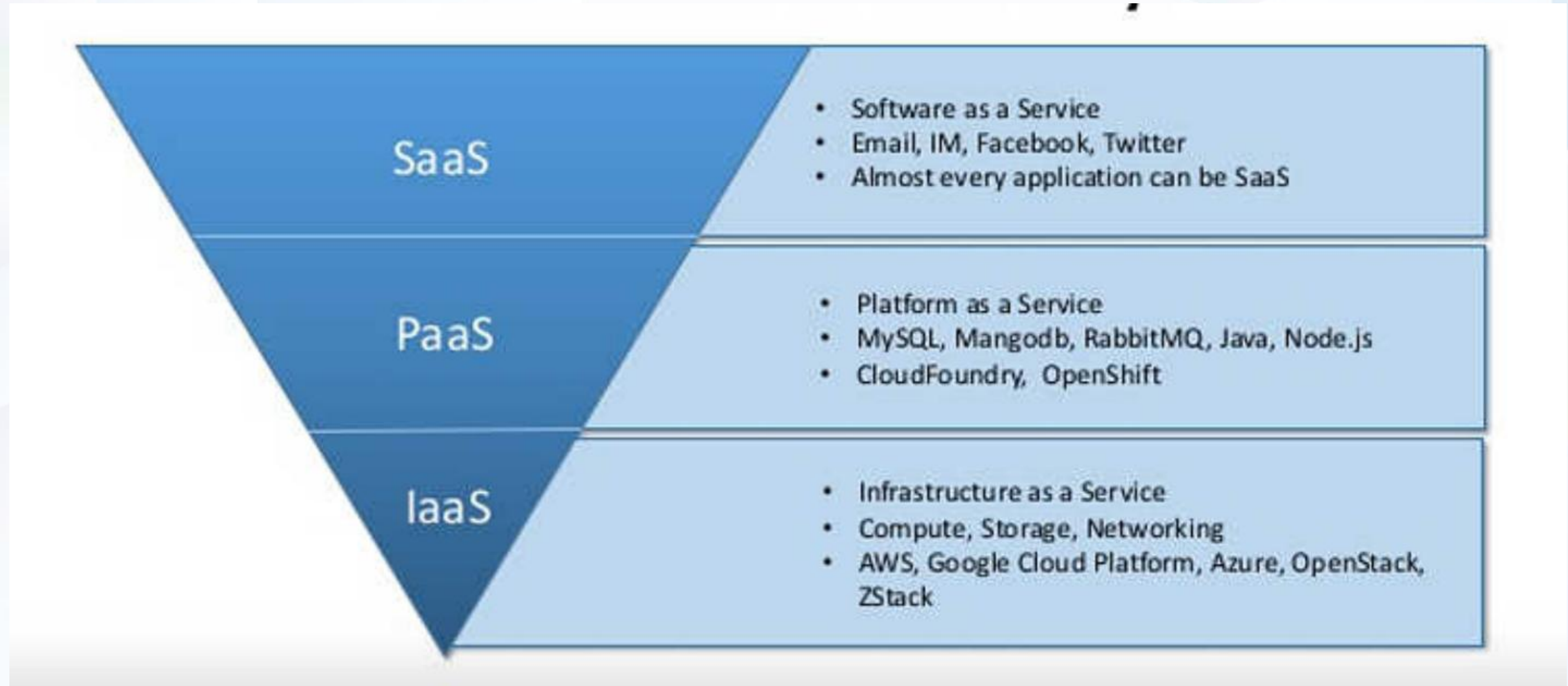


IaaS & PaaS & SaaS ?

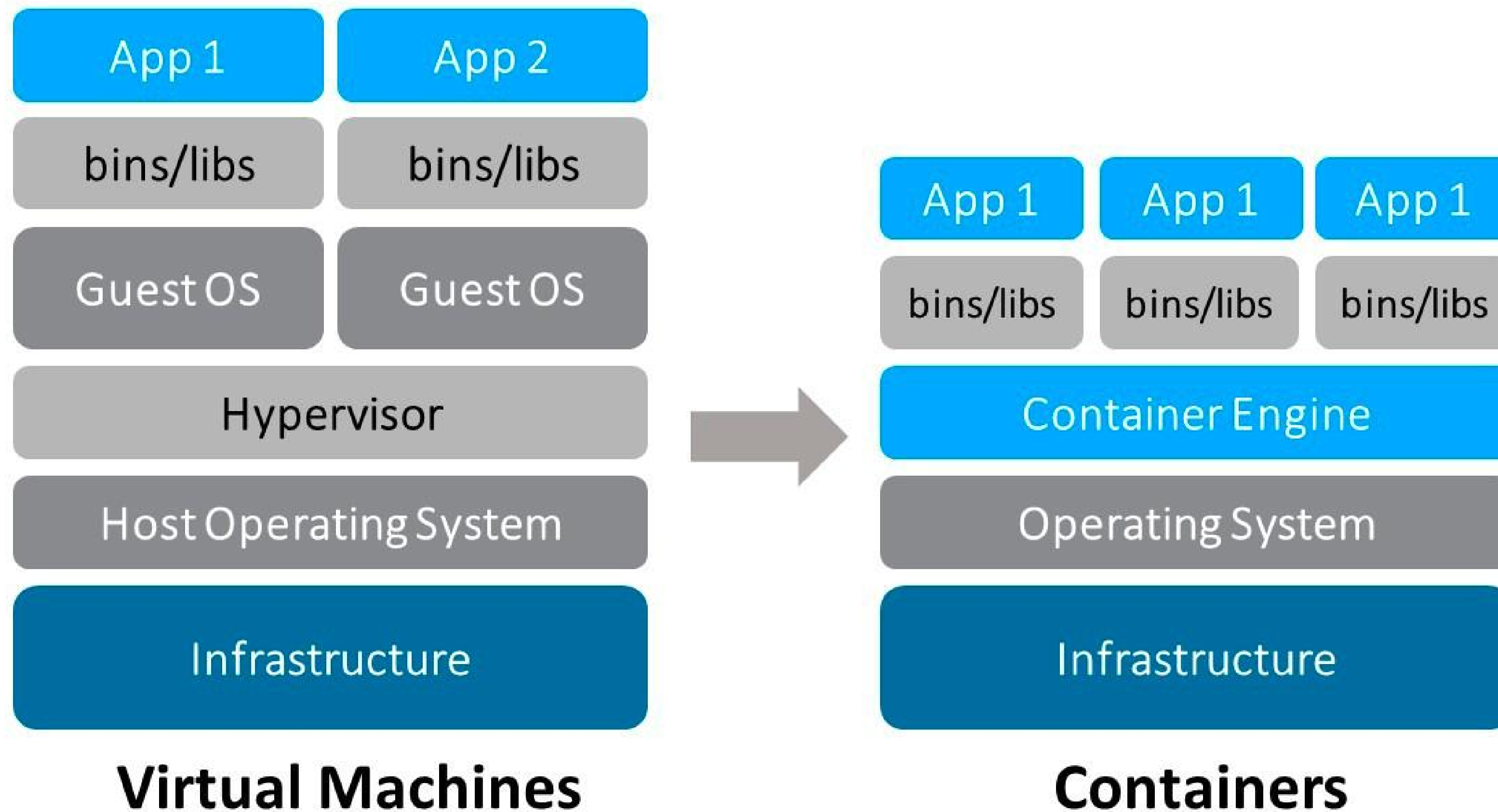
End Users

Developers

IT Admins



What is Docker Container



What is Kubernetes



What is KubeSphere

KubeSphere is a **distributed operating system managing cloud native applications** with Kubernetes as its kernel, and provides a plug-and-play open architecture for third-party applications seamless integration to boost its ecosystem.



github.com/kubesphere

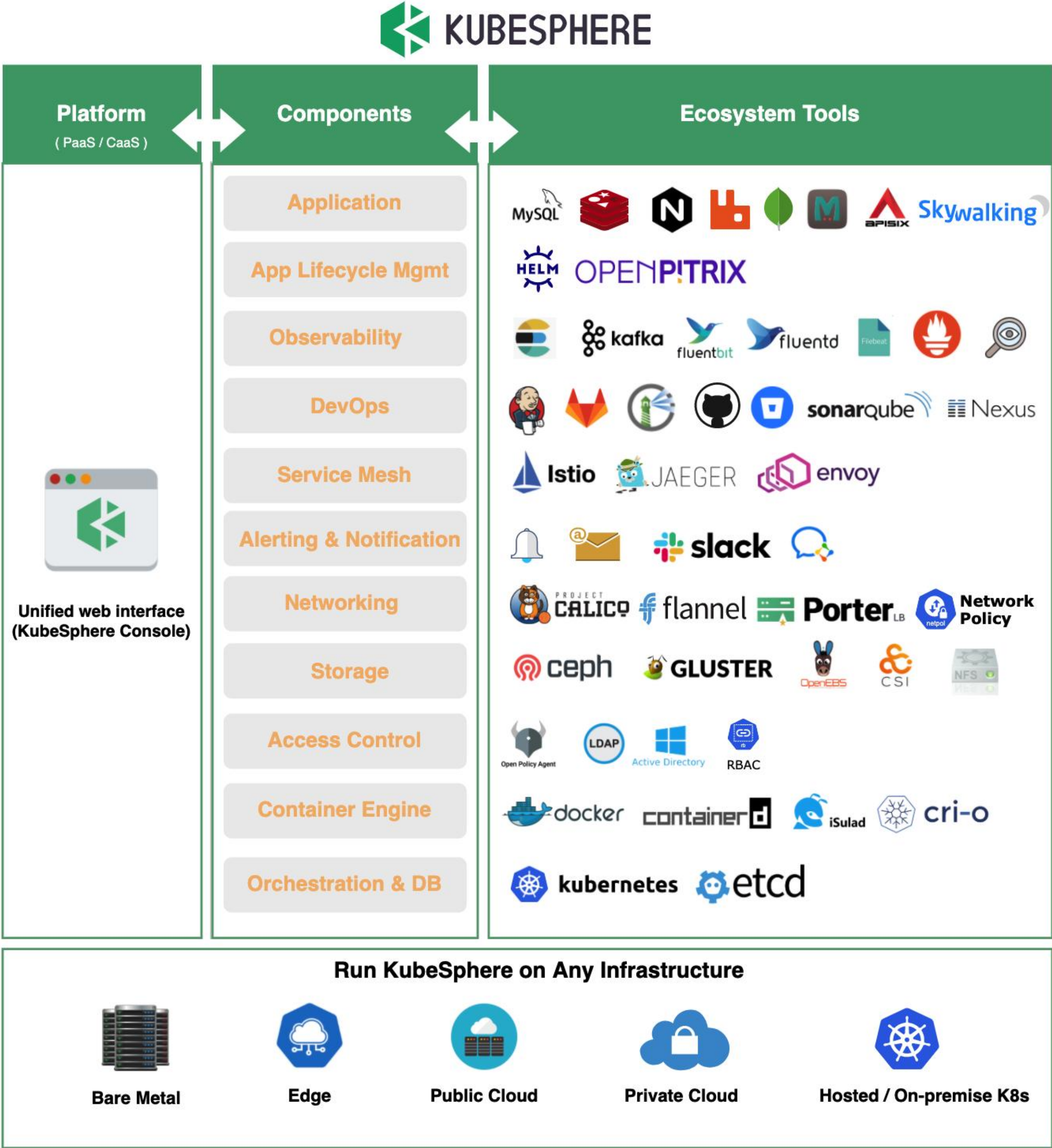


kubesphere.io

Architecture

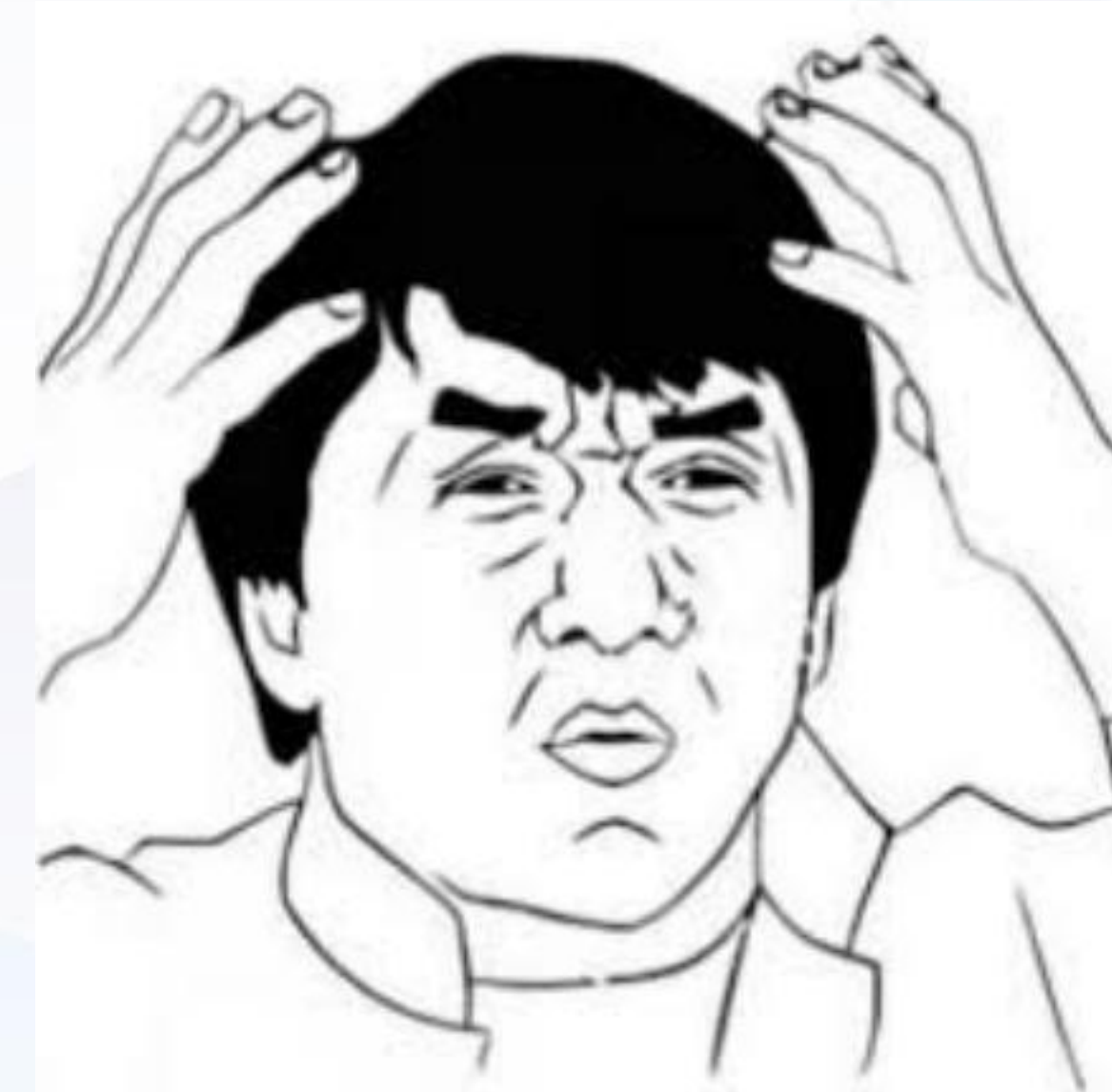


Ecosystem Tools




Pain Points of adopting Kubernetes in Production


- High Learning Curve
- Kubernetes Cluster Bootstrapping
- Application Lifecycle Management
- Security and Multi-tenancy
- Exposing Kubernetes Service
- Network and Storage Provision and Management
- Integrated DevOps solutions
- Multi-cluster Management
- Cloud Native Observability
- Health Check and Detect
-



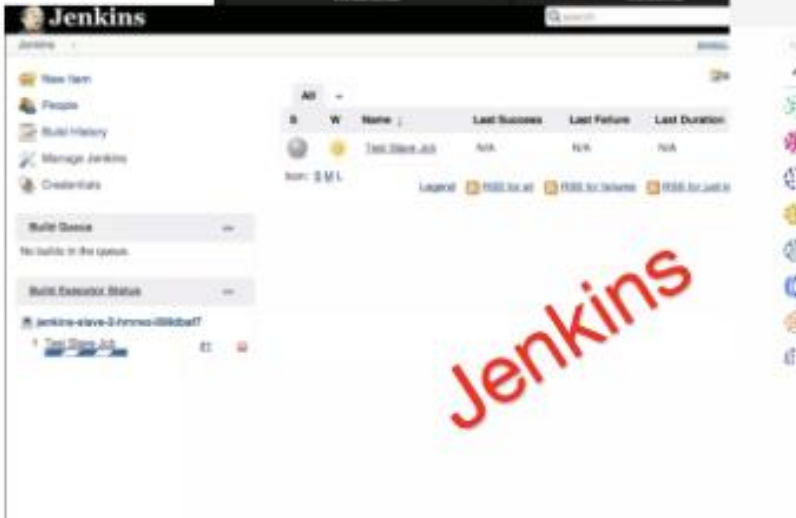
There is a lot of open source solutions and ecosystem, But....



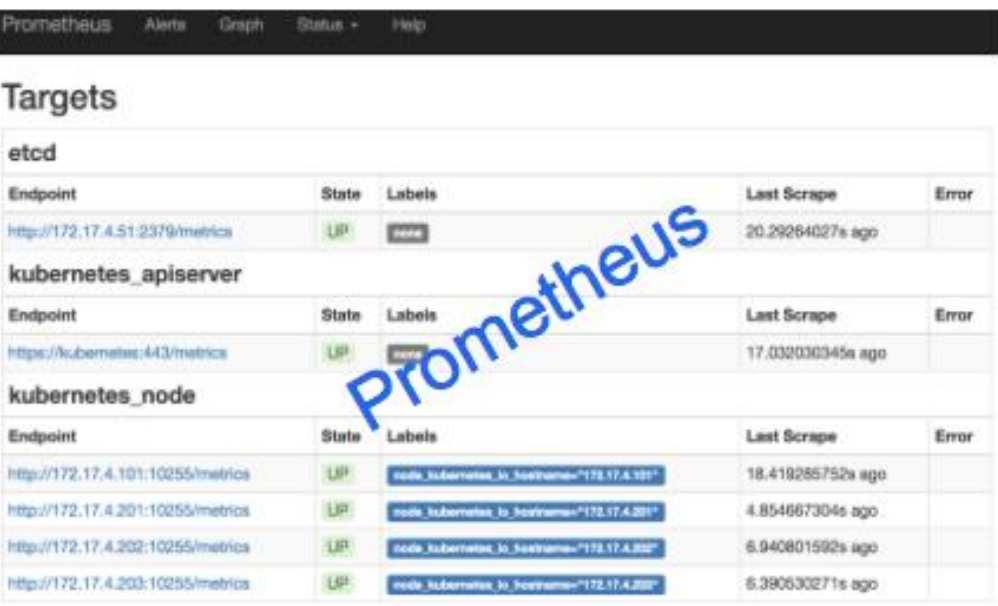
Elasticsearch



Grafana

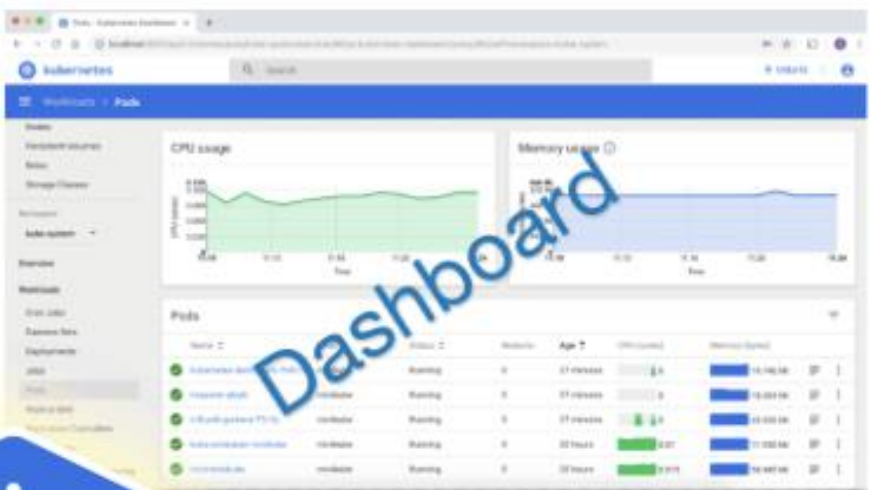


Jenkins




Prometheus

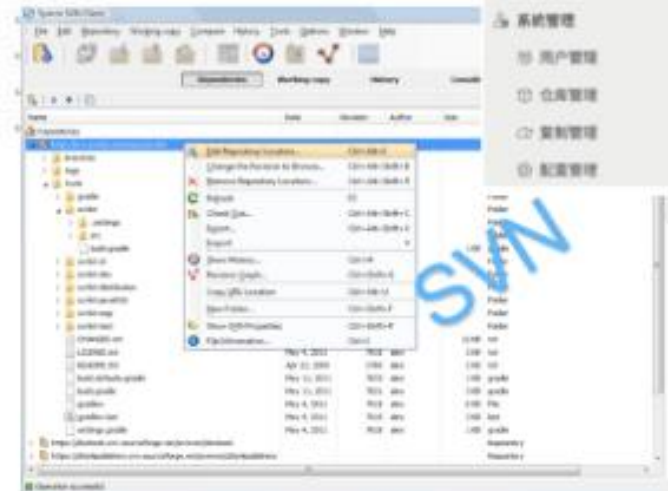
Targets	State	Labels	Last Scrape	Error
etcd				
Endpoint	State	Labels	Last Scrape	Error
http://172.17.4.51:2379/metrics	UP		20.29264027s ago	
kubernetes_apiserver				
Endpoint	State	Labels	Last Scrape	Error
https://kubernetes:443/metrics	UP		17.032030345s ago	
kubernetes_node				
Endpoint	State	Labels	Last Scrape	Error
http://172.17.4.101:10255/metrics	UP	node.kubernetes.io/hostname="172.17.4.101"	18.419286752s ago	
http://172.17.4.201:10255/metrics	UP	node.kubernetes.io/hostname="172.17.4.201"	4.854667304s ago	
http://172.17.4.202:10255/metrics	UP	node.kubernetes.io/hostname="172.17.4.202"	6.940801592s ago	
http://172.17.4.203:10255/metrics	UP	node.kubernetes.io/hostname="172.17.4.203"	6.390630271s ago	




kubectl
Dashboard
kubernetes




GitLab



SNM




Harbor




SonarQube

Quality Gate	Bugs & Vulnerabilities	Leak Period: last 30 days started a month ago
Failed	622 Bugs, 46 Vulnerabilities	11 New Bugs, 2 New Vulnerabilities
Code Smells	Coverage	
258d Debt, 11k Code Smells	50.8% Coverage, 1.3k Unit Tests	
5d New Debt, 133 New Code Smells	56.9% Coverage on 769 New Lines to Cover	



istioctl
calicoctl
Istio



HELM

Comparison to Kubernetes: on the Shoulder of a Giant

		Kubernetes	KubeSphere
Installation		Online & Complicated	Simple, support both online & offline (Kubekey)
UI		K8s dashboard and kubectl command	User-friendly wizard web UI
Multi-Tenancy & Security		Supported by kubectl and yaml without UI	Compatible with K8s RBAC with UI enhancement, Network Policy, OAuth & LDAP
App Management		No	Application lifecycle management and App store
CI/CD		No	Yes, built-in Jenkins pipelines and S2i & B2i
Service Mesh		No	Yes, Istio-based microservice framework
Observability		Configured manually and accessed through different portals outside	Out-of-box monitoring, logging, k8s events and auditing, alerting and notification
Storage/Network		Different open-source options with mass maintenance effort required	Intuitive web console for installing and managing popular open source solutions

Q&A

- 1.AWS是不是和 QingCloud 是同级概念？
- 2.集群的理解，用户通过容器去控制在 AWS 或者 QingCloud 预置的集群？
- 3.QKE和 KubeSphere 有什么区别？
- 4.云、公有云、私有云、混合云的区别和联系
- 5.软件、操作系统、容器、工作负载、服务器、镜像、应用的依赖项等概念和联系
6. 容器的数量、尺寸、Linux容器、隔离怎么去理解？

- 1.集群在 KubeSphere 和 Cloud 上有什么不同吗，怎么理解集群？
- 2.订阅的概念，订阅为什么只能和一个集群绑定？
- 3.KubeSphere 开源产品和商业产品具体指的是？
- 4.Azure、QingCloud、AWS 和 KubeSphere 的关系？

- 1.容器，集群，节点之间的关系
- 2.host 集群和 member 集群之间的关系，各自的作用
- 3.裸金属服务器与服务器的区别，什么情况需要将容器部署到裸金属服务器上



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