
KubeCon
CloudNativeCon
OPEN SOURCE SUMMIT
China 2019

Manage Kubernetes Clusters Everywhere

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Kubernetes presents an opportunity to unify operations across infrastructure

Bene fie ons

- C y d gh
  re n a uc
- In vC cy
  st d a n
- E rc ec
  p an ctu

Dev

Datacenter

Cloud

Branch

Edge

How to deliver Kubernetes-as-a-Service

Level 1

- Deliver a full-featured container management platform that integrates the cloud native technologies and ecosystem

App Catalog
CI/CD
Monitoring & Logging
Access Control
Orchestration & Scheduling
Service Mesh
Secrets and Security
Container Registry
Container Engine
Network & Storage
Compute Infrastructure

HELM
OperatorHub.io
Jenkins
Bamboo
Prometheus
fluentd
Microsoft Active Directory
SAML
kubernetes
linkerd
envoy
Istio
HashiCorp Vault
Twistlock
aqua
clair
JFrog Artifactory
Nexus
HARBOR
docker
containerd
Calico
flannel
PROJECT LONGHORN
aws
vmware
Microsoft Azure

How to deliver Kubernetes-as-a-Service

Level 2

- Introduce multi-cluster management

GKE, EKS, AKS, ACK,CCE,TKE…

Centralized policy management

- Centralized auth/RBAC
- Centralized image, network, pod, cluster security policy

Multi-cluster applications

- Global LB and DNS
- Multi-cluster networking: Submariner
- Multi-cluster storage: Longhorn

How to deliver Kubernetes-as-a-Service

Level 3

- Expand Kubernetes footprint everywhere (cloud, data center, and edge)

Kubernetes at the edge

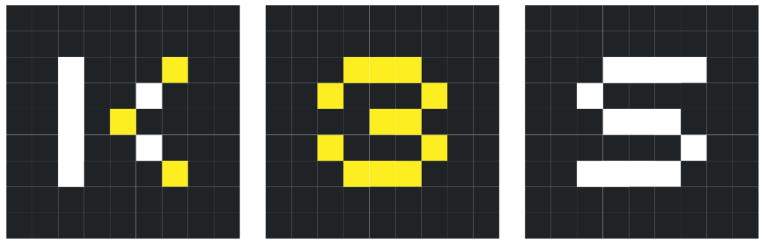
- K3s, K3OS, and fleet manager

Single app clusters

- Kubernetes as the new app server

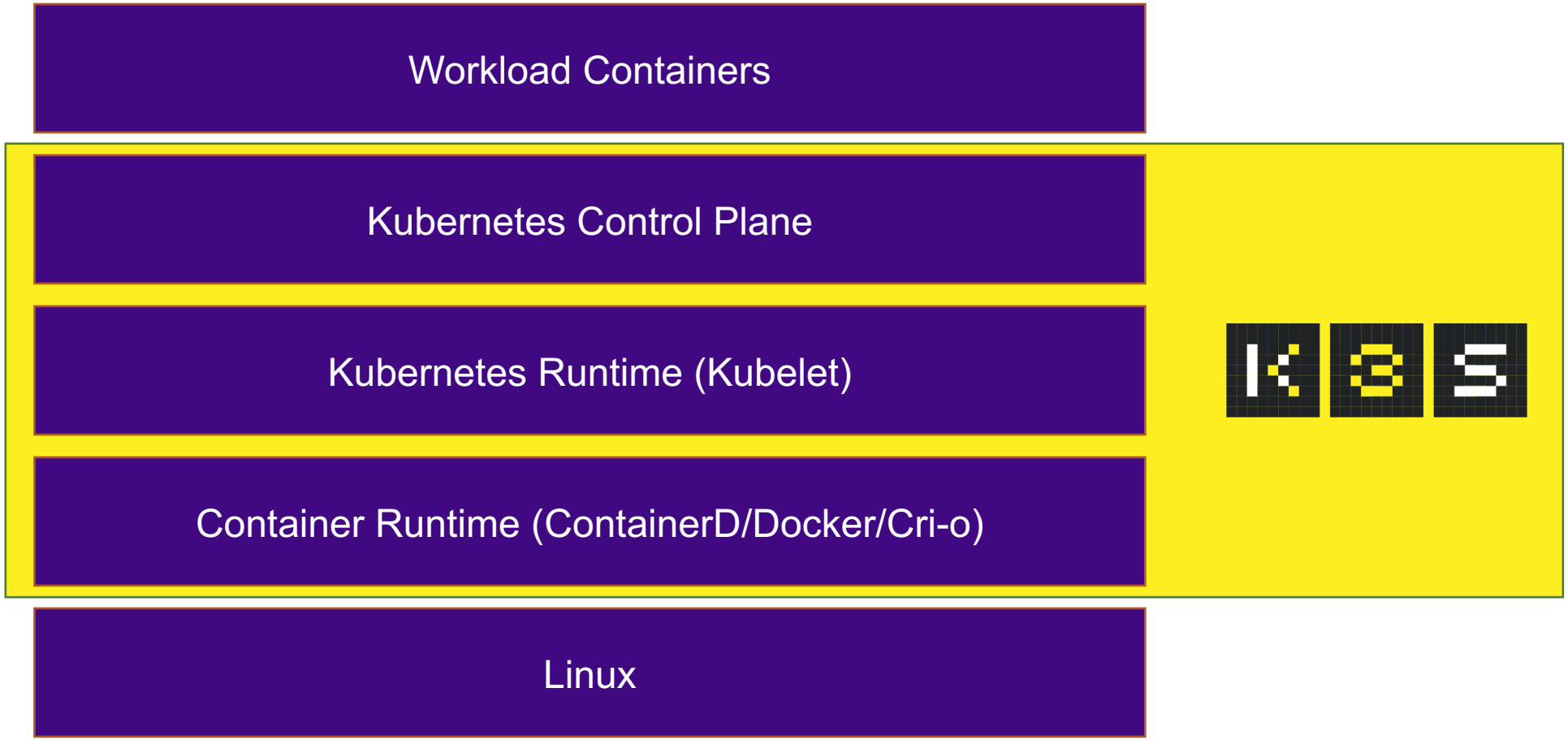
Windows containers and VMs

K3s – a micro distribution of Kubernetes



- Lightweight certified Kubernetes distro
- Built for production operations
- 40MB binary, 250MB memory consumption
- Single process w/ integrated Kubernetes master, Kubelet, and containerd
- SQLite in addition to etcd
- Simultaneously released for x86_64, ARM64, and ARMv7
- Open source project

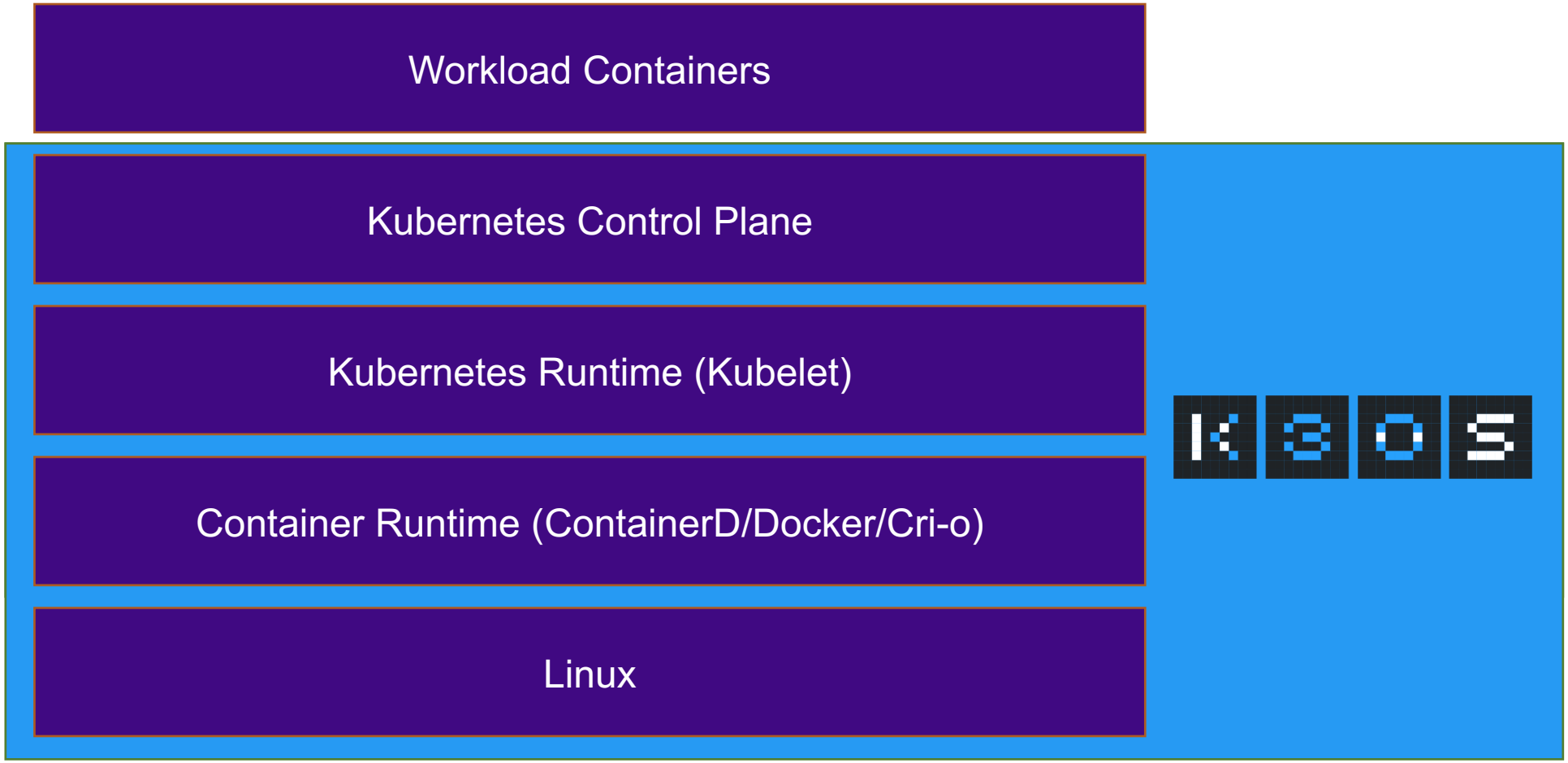
Understanding the Software Stack on a Single Kubernetes Host



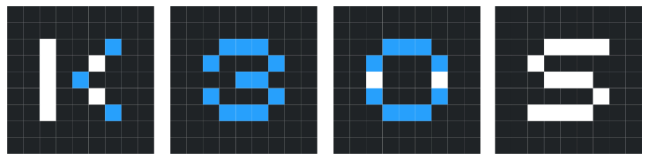
Why build a Linux distribution for k3s

- Create a single integrated unit that included everything necessary to run Kubernetes
- Integrate Kubernetes, ContainerD and Linux Kernel patches into a single process managed by Kubernetes
- Control the footprint – just enough OS to run Kubernetes
- RancherOS wasn't the right solution because it was Docker based

Understanding the Software Stack on a Single Kubernetes Host

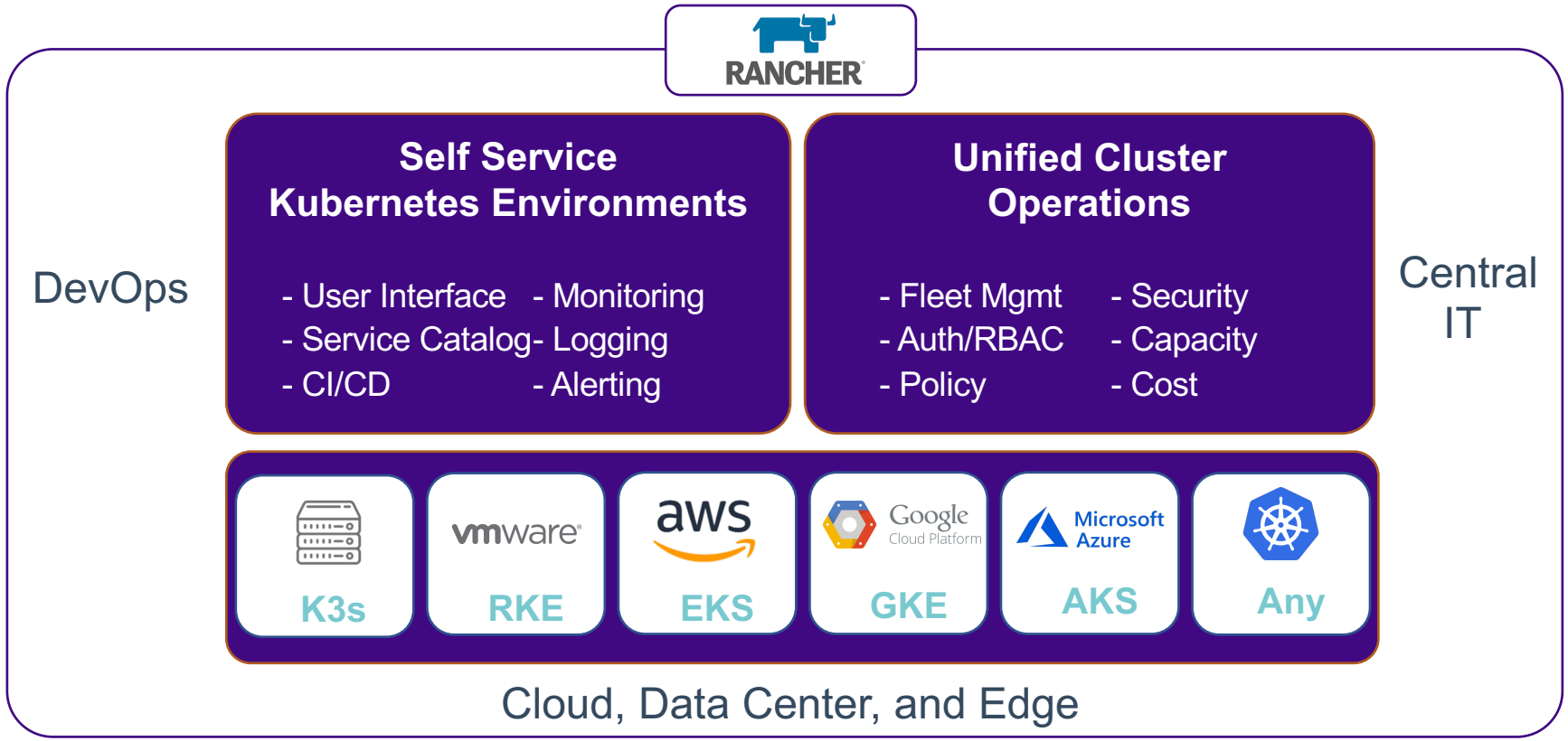


Introducing k3os



- Just enough Linux to run k3s
- Boots in less than 10 seconds
- Based on Ubuntu Kernel
- Integrated management with k3s
- Currently available on x86_64. ARM64, and ARMv7 coming soon
- Open source project

Demo


RANCHER
DevOps
Self Service Kubernetes Environments
- User Interface
- Service Catalog
- CI/CD
- Monitoring
- Logging
- Alerting
Unified Cluster Operations
- Fleet Mgmt
- Auth/RBAC
- Policy
- Security
- Capacity
- Cost
Central IT
K3s
RKE
EKS
GKE
AKS
Any
Cloud, Data Center, and Edge