

# Certified Kubernetes Administrator Course

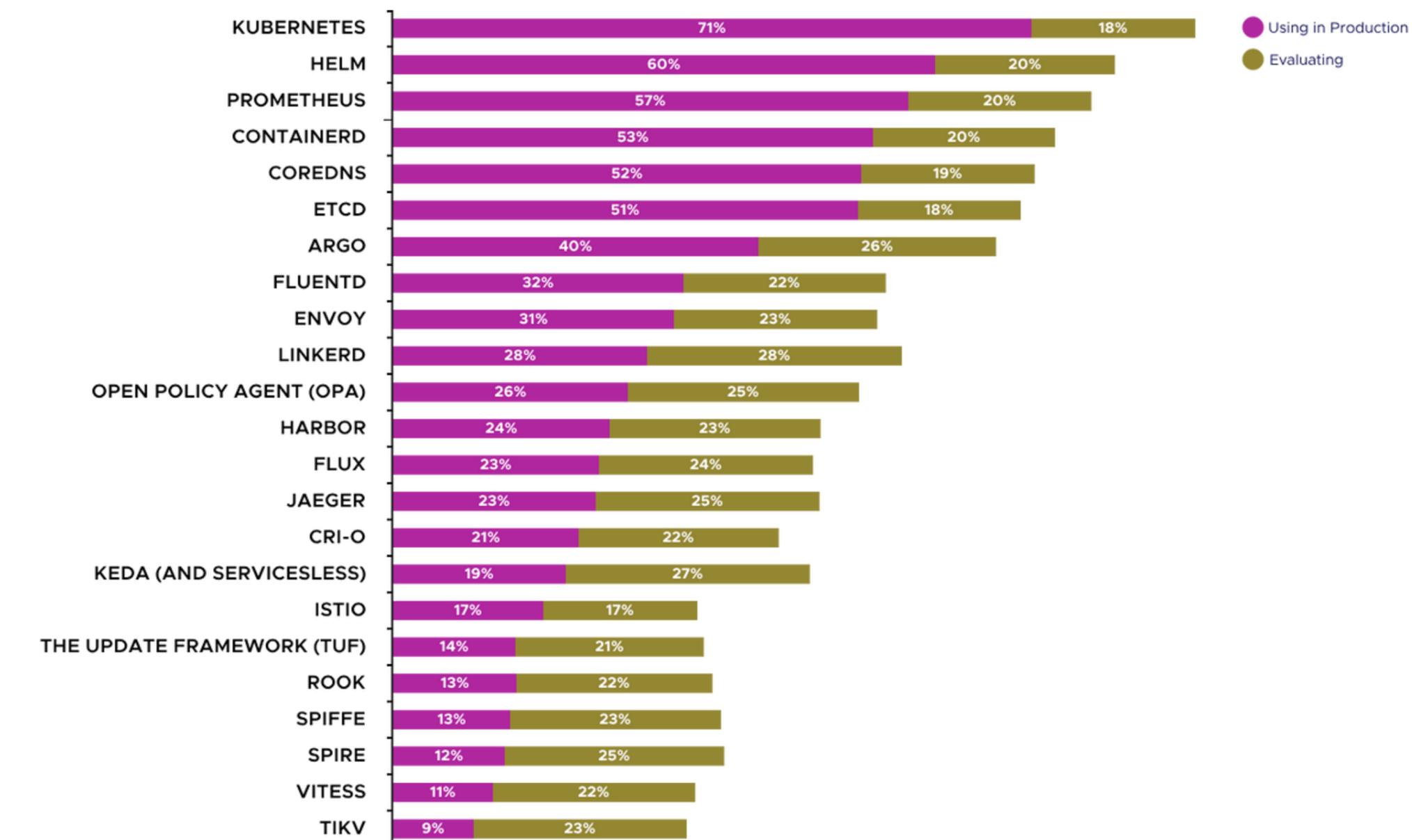
Presenter: Mr. Cloud Book

# What is Kubernetes?

- Open-source container orchestration platform
  - Automates deployment, scaling, and management of containerized applications
  - Originally developed by Google, now maintained by CNCF
  - Provides a robust ecosystem for cloud-native applications

# Why Kubernetes Matters

- Enables efficient resource utilization
  - Facilitates microservices architecture
  - Ensures high availability and fault tolerance
  - Supports multi-cloud and hybrid cloud deployments
  - Accelerates development and deployment cycles



# Kubernetes in the Industry

- Fastest growing technology in cloud computing
  - 80% growth in job searches year-over-year
  - Adopted by 89% of companies in production environments (CNCF Survey 2023)
  - Supported by all major cloud providers (AWS, Azure, GCP)
  - Critical component in DevOps and SRE practices



# Key Kubernetes Concepts

- Pods: Smallest deployable units
  - Services: Network abstraction for pod access
  - Deployments: Declarative updates for pods and ReplicaSets
  - Namespaces: Virtual clusters for resource isolation
  - ConfigMaps and Secrets: Configuration management

Survey By CNCF

# Kubernetes Architecture

- Control Plane: Manages the cluster state
  - - API Server, Scheduler, Controller Manager, etcd
  - Worker Nodes: Run containerized applications
  - - Kubelet, Container Runtime, kube-proxy
  - Add-ons: DNS, Dashboard, Networking, etc.

# Kubernetes Ecosystem

- Container runtimes: Docker, containerd, CRI-O
  - Networking: Calico, Flannel, Cilium
  - Service Mesh: Istio, Linkerd
  - Package Management: Helm
  - CI/CD Integration: Jenkins, GitLab, ArgoCD

# Course Overview

- Understanding core Kubernetes concepts
  - Hands-on experience with cluster setup and management
  - Deep dive into Kubernetes components and architecture
  - Best practices for security, networking, and storage
  - Preparation for the Certified Kubernetes Administrator exam

# Unique Course Features

- Interactive coding exercises in live Kubernetes environment
  - Real-world scenarios and problem-solving challenges
  - Comprehensive coverage of CKA exam objectives
  - With your own free Kubernetes

# 60-Day Free Kubernetes Cluster

- We help you create a Kubernetes cluster for training
  - Free of cost or at minimal cost for 60 days
  - 99% under your control – not managed by us
  - Learn at your own pace within the 60-day period
  - Hands-on experience with a real Kubernetes environment

# Flexible Learning

- Access to training materials for 60 days
  - Self-paced learning – study whenever you want
  - Practice on your personal Kubernetes cluster
  - Combine theoretical knowledge with practical application