

A decorative graphic on the left side of the slide, consisting of a network of light blue lines and circles, resembling a circuit board or a neural network, extending from the top and bottom edges towards the center.

DISTRIBUTED AND CLOUD COMPUTING

LAB14 KUBERNETES



kubernetes

WHAT CAN KUBERNETES DO?

- With **modern web services**, users expect **applications to be available 24/7**, and developers expect to **deploy new versions** of those applications **several times a day**.
- **Containerization** helps package software to serve these goals, enabling applications to be released and updated without downtime.
- **Kubernetes** helps you make sure those containerized applications run where and when you want, and helps them find the resources and tools they need to work. Kubernetes is a production-ready, open source container orchestration platform designed by Google.



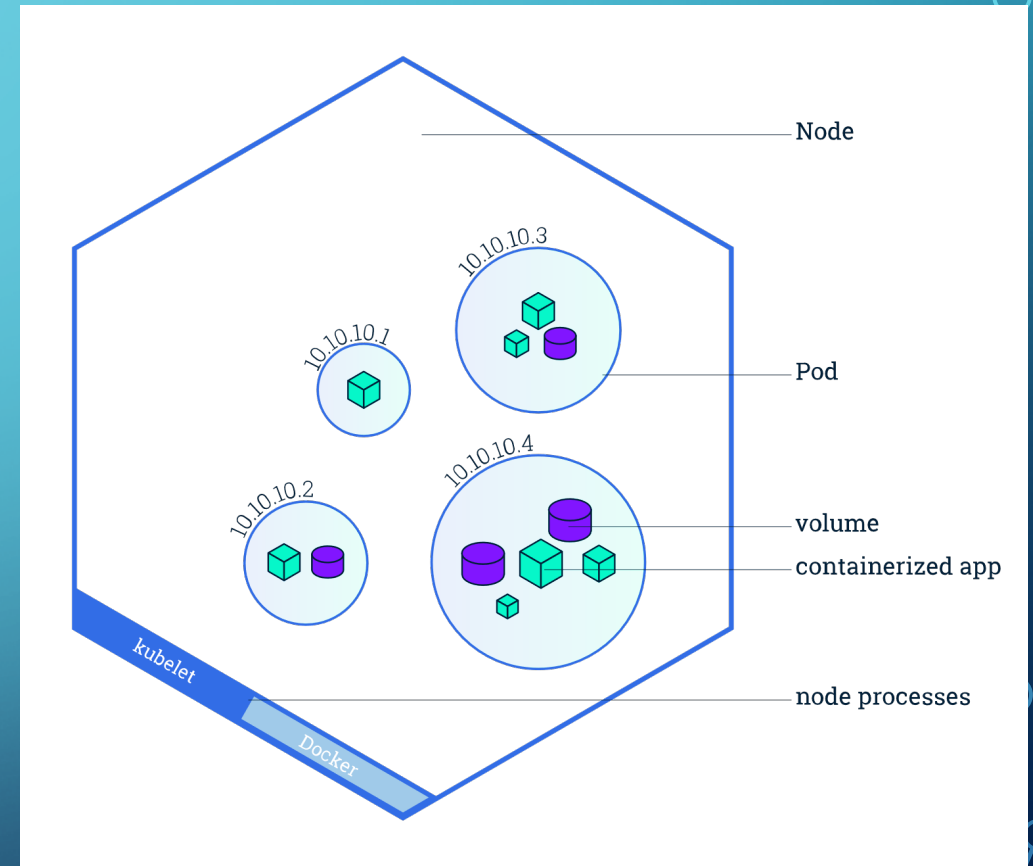
kubernetes

KUBERNETES

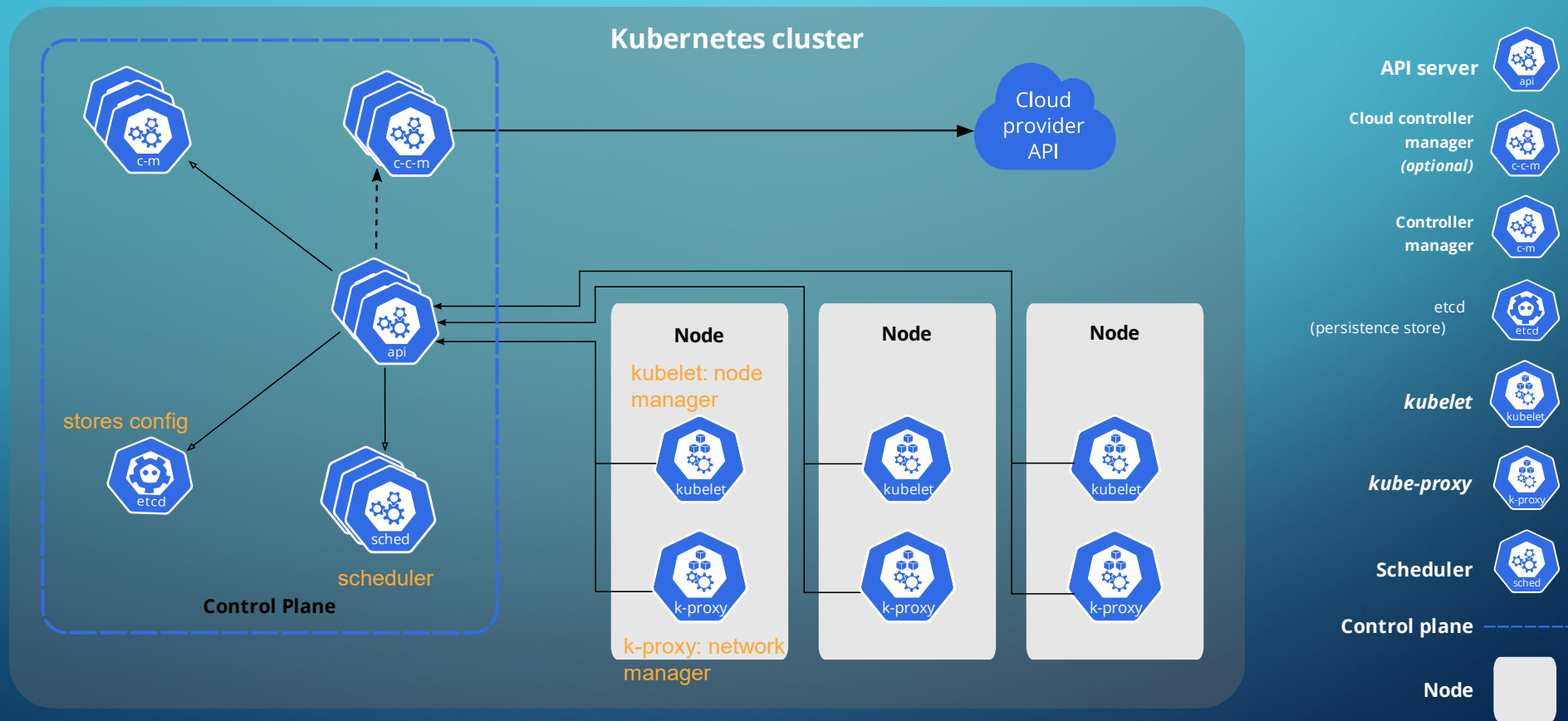
- Kubernetes, also known as k8s, is an open-source system for automating deployment, scaling, and management of containerized applications.
- Kubernetes supports:
 - Service discovery and load balancing
 - Storage management and scheduling
 - Automated bin packing
 - Self healing

TERMS

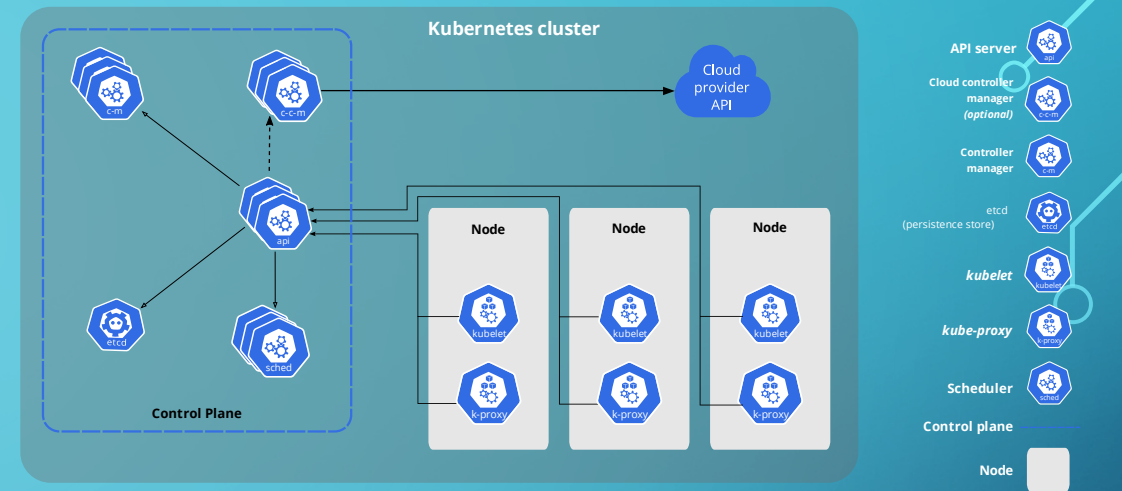
- **Pod:** Pods are the smallest deployable units of computing that you can create and manage in Kubernetes.
- **Node:** A physical machine or virtual machine
- **Job:** A Job creates one or more Pods and will continue to retry execution of the Pods until a specified number of them successfully terminate.



ARCHITECTURE



ARCHITECTURE



- What k8s does: Place containers into pods, run pods on different nodes
- Management and control of cluster resources and jobs are managed by the **Control Plane**
- Node components: kubelet and kube-proxy

TRYING KUBERNETES ONLINE

- <https://kubernetes.io/docs/tutorials/kubernetes-basics/>