



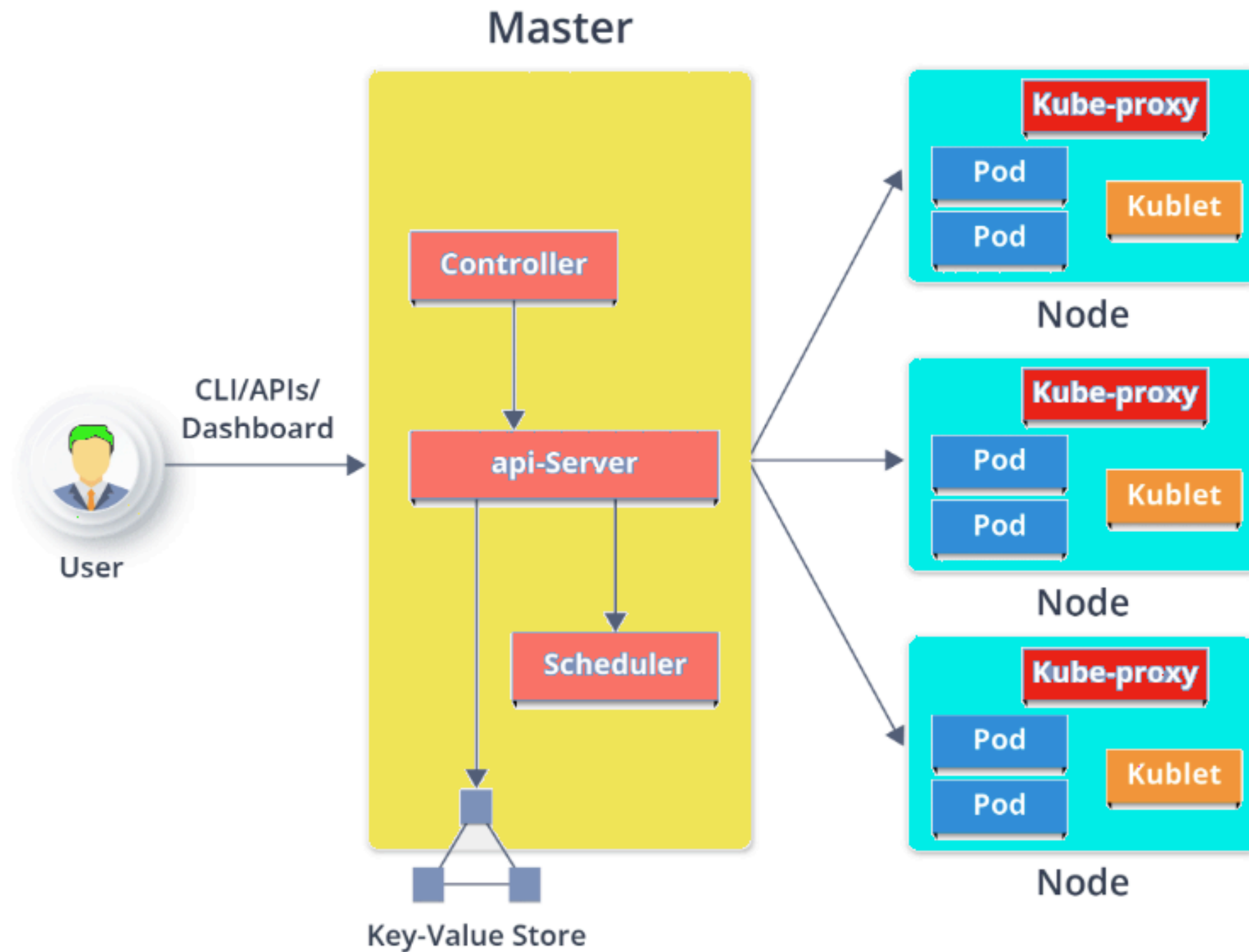
kubernetes

Kubernetes Architecture Overview

KUBERNETES : Architecture

- **Kubernetes** follow the **Master - Slave(Worker)** Node Architecture.
- **Master Node** : Responsible for the management of Kubernetes cluster. Entry point for all administrative tasks.
- **Kubernetes** can have Multi-Master Architecture.

KUBERNETES : Architecture



KUBERNETES : Architecture

- **API Server** : API server is the entry point for all the REST commands used to control the cluster.
- Interaction Point with Kubernetes.

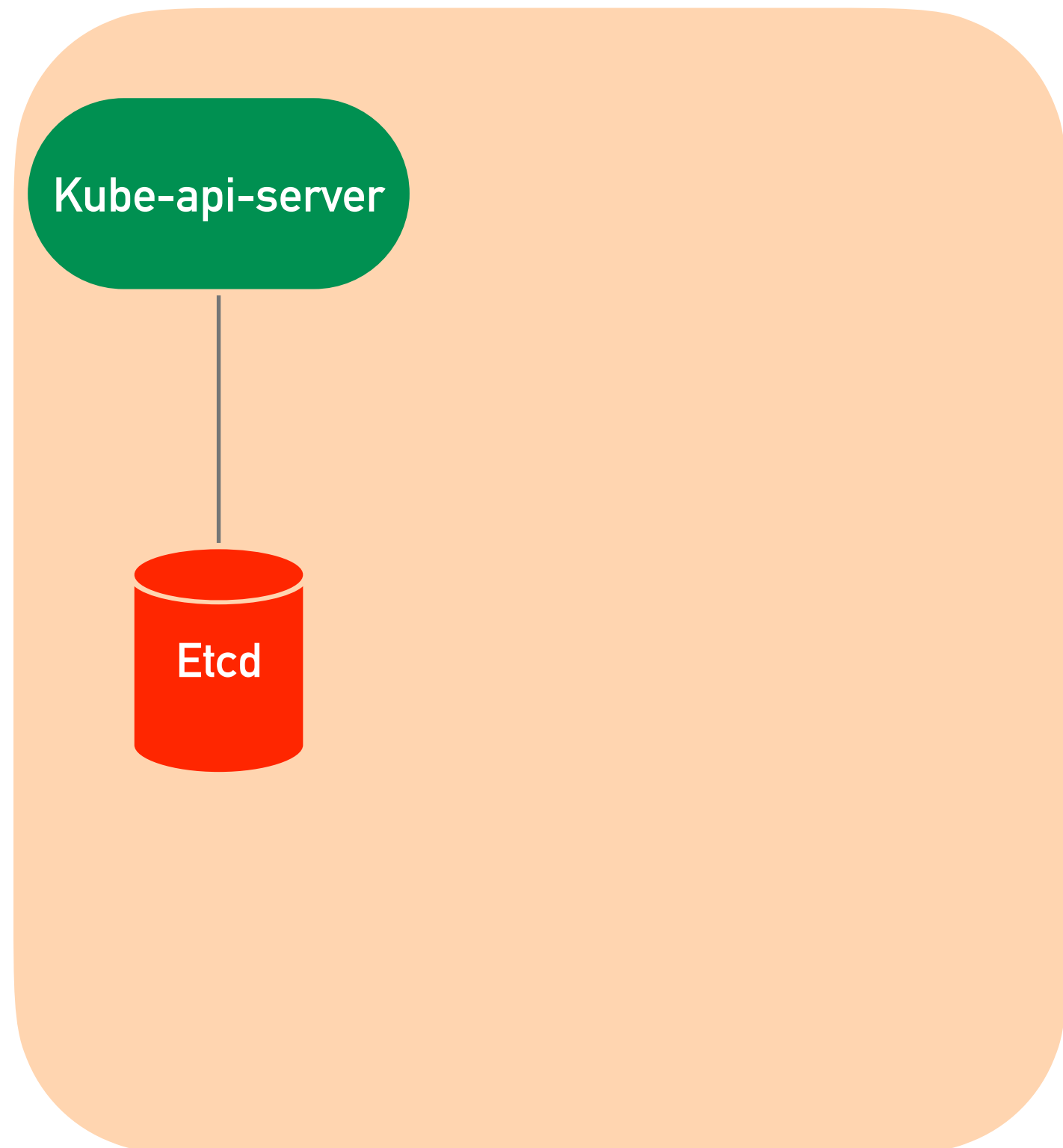


The diagram shows a large, light-orange rounded rectangle representing the Kubernetes control plane. Inside the top-left corner of this rectangle is a smaller, dark-green rounded rectangle. The text 'Kube-api-server' is written in white inside the green rectangle.

Kube-api-server

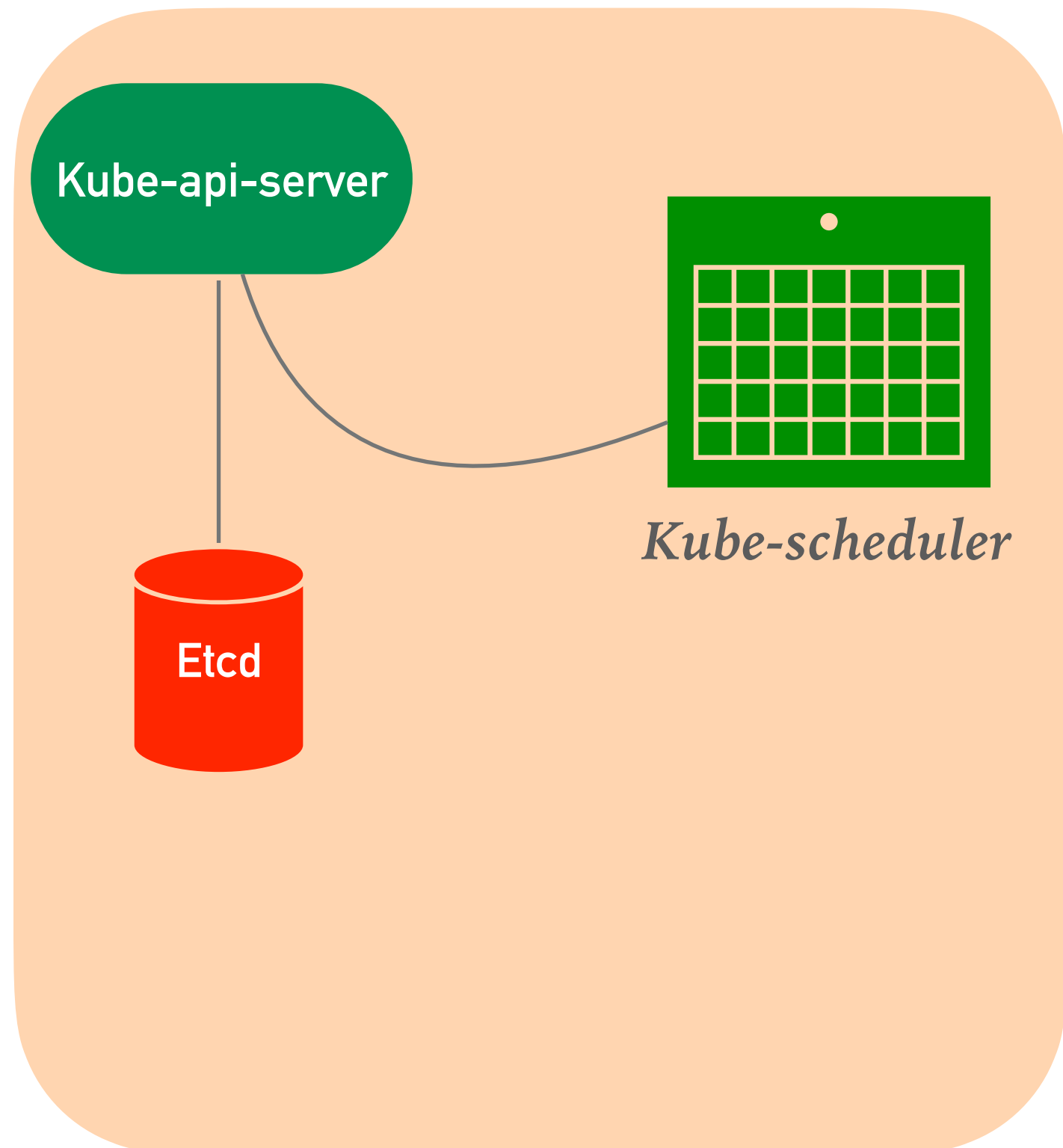
KUBERNETES : Architecture

- **Etcd** : Distributed key-value store which stores the cluster state.
- Used as Back-End for K8s.
- Provides high availability of Data related to Cluster State.



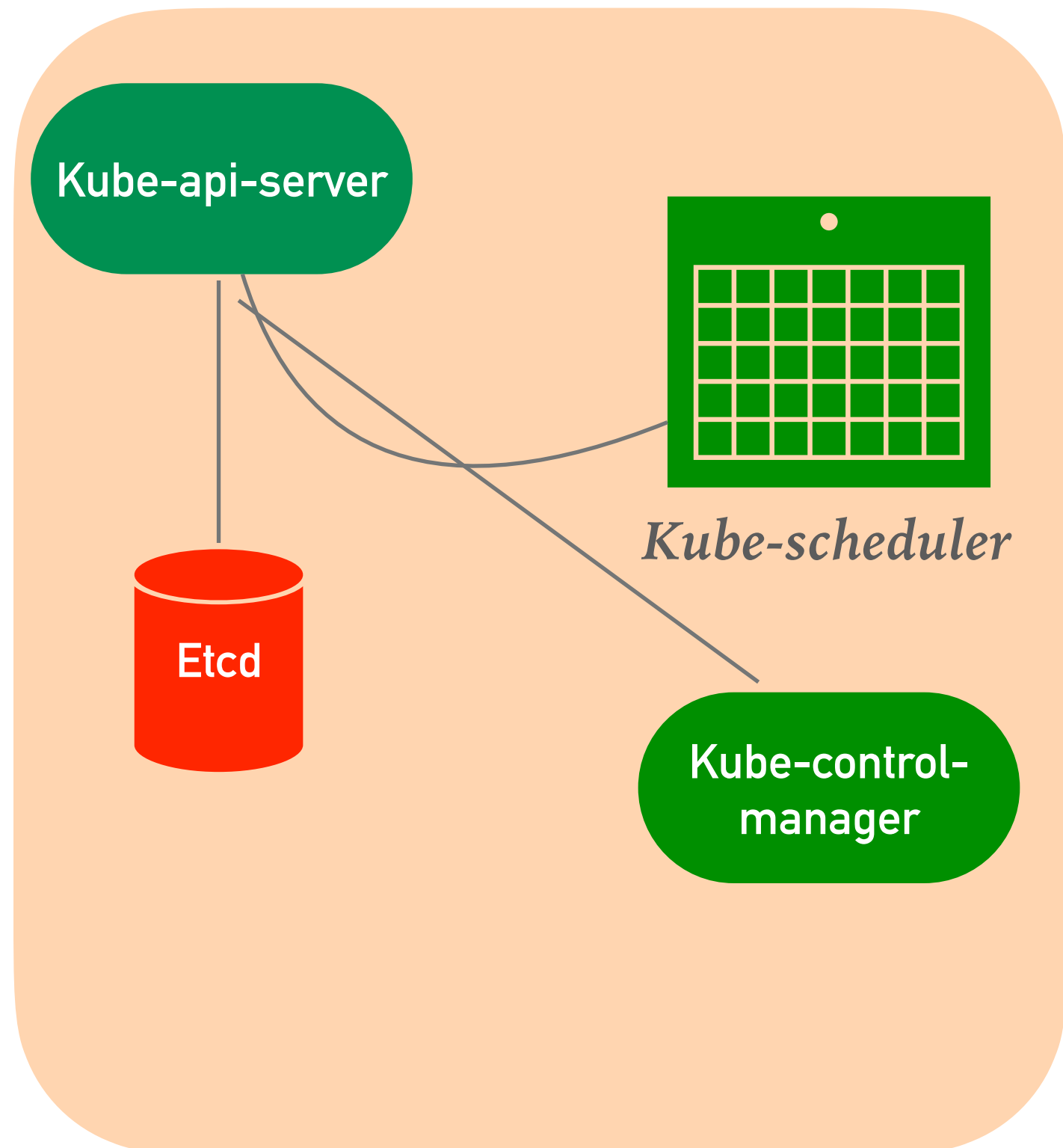
KUBERNETES : Architecture

- **Scheduler :** Regulates the tasks on slave nodes. Stores the resource usage information for each slave node.



KUBERNETES : Architecture

- **Controller** : Runs multiple Controller utility in single process.
- Carry on Automated tasks in K8s Cluster.



KUBERNETES : Architecture

- **Worker Node** : It's a physical server or you can say a VM where the container managed by the Cluster Run.
- Worker nodes contain all the necessary **services to manage the networking** between the containers, communicate with the master node, and assign resources to the scheduled containers.
- **Kubelet** : K8s Agent executed on the worker nodes.
- Kubelet gets the configuration of a Pod from the API server and ensures that the described containers are up and running.

KUBERNETES : Architecture

- **Pods** : Is a group of one or more containers with shared storage/network, and a specification for how to run the containers.
- Share the Same Shared content and same IP but reach other Pods via LocalHost.
- Single Pod can Run on Multiple Machines and Single Machine can Run Multiple Pods.

KUBERNETES : Architecture

- **Kube-Proxy** : Kube-proxy runs on each node to deal with individual host sub-netting and ensure that the services are available to external parties.
- Kube-proxy acts as a network proxy and a load balancer for a service on a single worker node.

Will see you in Next Lecture...

Thank you!

A close-up photograph of a hand holding a black marker, completing the word 'Thank you!' in a cursive script on a white surface. The hand is positioned on the right side of the frame, with the index and thumb fingers visible, holding the marker. The marker is black with a silver band. The text 'Thank you!' is written in a fluid, cursive style, with the exclamation mark being the final stroke. The background is a plain, light-colored surface.

See you in next lecture ...