Master Node

A handful of master processes
Much more important

API Server
An entry point to k8s server

Controller Manager
keeps track of what's happening in the cluster

Scheduler
Ensures Pods placement
Scheduler decides on which node new pod should be scheduled

Etcd
Key-value store (It has all the configuration data)
Kubernetes backing store

Worker Nodes

Higher workload
Much bigger and more resources

Kubelet

Virtual Network
Creates one unified machine

Main Kubernetes components :

- POD
- Service
- Ingress
- ConfigMap
- Secret
- Deployment
- Stateful
- DaemonSet

Node - Virtual or Physical Machine

POD

- Smallest unit in Kubernetes
  - Abstraction over the container (Abstraction of Containers)
  - Usually 1 application per Pod
  - Each POD gets its own IP address
  - Each POD can communicate with other PODs using an Internal IP address
  - New IP address on the re-creation of POD

Service and Ingress

Service will have a permanent IP address (Communication)

Service works as a Load Balancer as well

Lifecycle of Pod and Service not connected

The application should be accessible through the browser. For this, you need to create an external service

http://node-ip:port

For secure protocol and domain name **Ingress is required.**

Ingress
Route traffic into cluster

is another service. The first request will come to Ingress and Ingress will forward to Service.

ConfigMap and Secret

External configuration of your application

ConfigMap is for non-confidential data only

Secret used to store secret data (cortosis in citi)

Reference secret in Deployment/Pod

Volumes:

Data storage

Storage on local or remote, outside the k8s cluster

Deployment and StatefulSet

Deployment

Define blueprint for pods

Specify how many replicas you want to have

You create deployments

Abstraction of Pods

For Stateless apps

StatefulSets

For STATEFUL apps or databases

(MySQL, MangoDB, elastic

Kubernetes Configuration

Each configuration file has 3 parts

a. metadata
b. specification
c. status (Automatically generated and added by Kubernetes !)

apiversion:
kind:
metadata:
spec:

Attributes of "spec" are specific to the kind

Etcd holds the current status of any k8s component!

YAML configuration files

Human friendly data serialization standards for all programming languages

Strict Indentation

Store the config file with your code