



# Kubernetes Services

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## **Pod IP Address Assignment:**

- When a pod is created, it receives an IP address.
- If the pod is deleted and recreated on a different node, its IP address changes.
- Dynamic IP addresses make it challenging to directly access the application running inside the pod.

## **Purpose of Services:**

- Services enable communication with applications inside and outside the cluster.
- They act as an intermediary to connect pods and external users.
- Services provide a stable endpoint for accessing pods, irrespective of their IP address changes.
- Services use labels and selectors to route traffic evenly across pods.

## **Types of Services:**

### **a. NodePort:**

- Exposes the service on a static port on each node.
- Allows external access to the service using the node's IP and assigned port.

### **b. ClusterIP:**

- Exposes the service on an internal IP address within the cluster.
- Accessible only from within the cluster and not from external sources.

### **c. LoadBalancer:**

- Automatically provisions an external load balancer to distribute traffic to the service.
- Enables external access to the service by distributing traffic across multiple pods.

### **d. ExternalName:**

- Maps the service to an external DNS name.
- Allows the service to be accessed through the provided DNS name.