



BATCH : Batch 85

LESSON : **Kubernetes**

DATE : 12.11.2022

SUBJECT : **Kubernetes Networking
Part 2**



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Kubernetes Networking

Cluster Networking

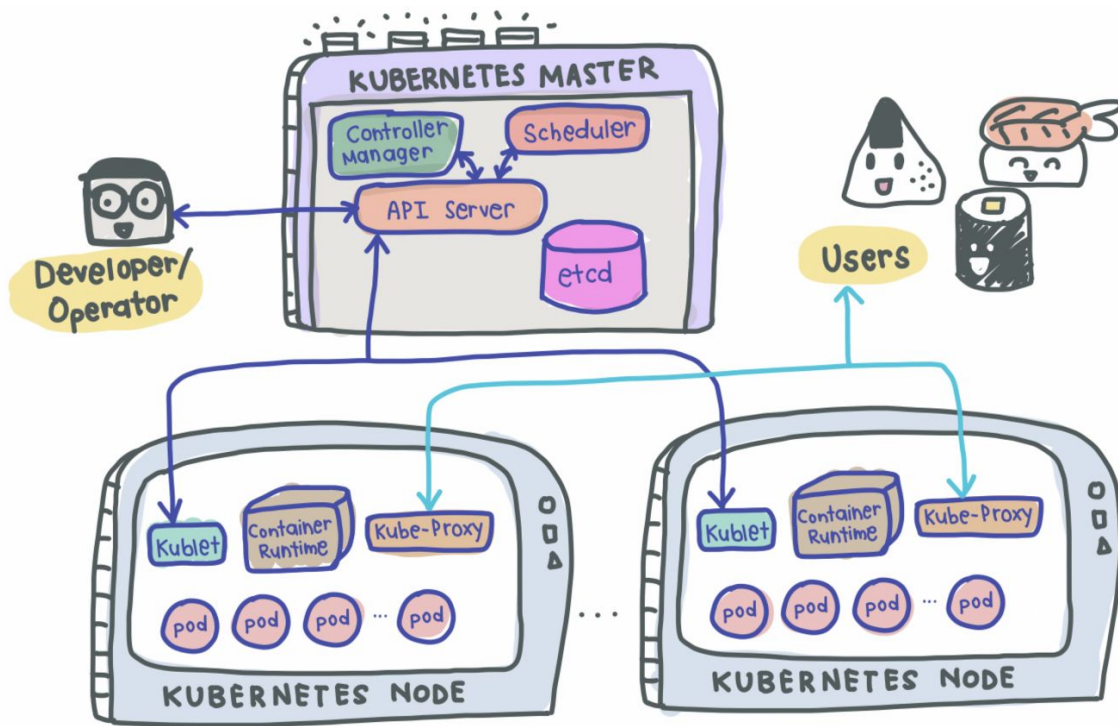
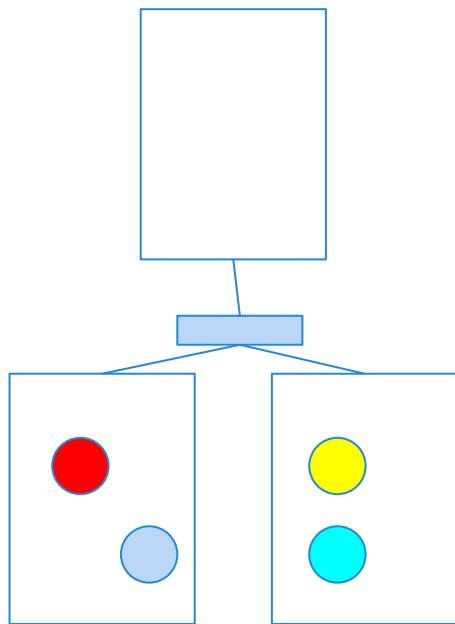
Service Types



NETWORKING



Cluster Networking





Cluster Networking

There are 4 distinct networking problems to address:

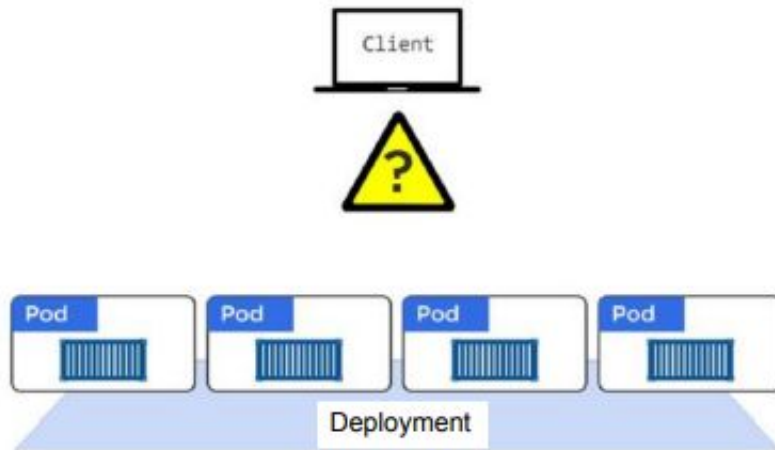
- ◆ Container-to-container communications:
- ◆ Pod-to-Pod communications:
- ◆ Pod-to-Service communications: this is covered by services.
- ◆ External-to-Service communications: this is covered by services.



Services

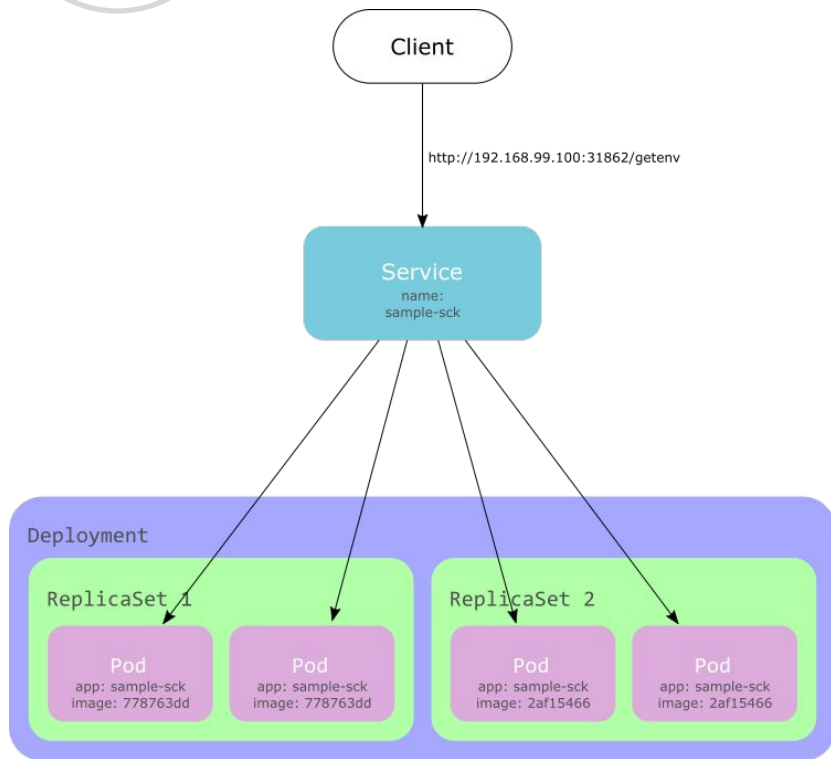
Thanks to plugins, pods can communicate over IP addresses, however ..

Pods are not reliable





Services

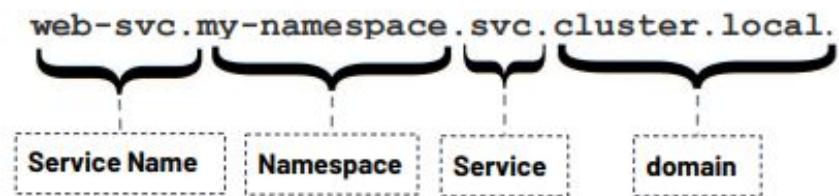


- A Service offers a single DNS entry for a containerized application managed by the Kubernetes cluster
- The Service is associated with the Pods, and provides them with a stable IP, DNS and port. It also loadbalances requests across the Pods.
- Service logically groups Pods and defines a policy to access them. This grouping is achieved via Labels and Selectors.



Service Discovery

- Kubernetes has an add-on for DNS, which creates a DNS record for each Service and its format is



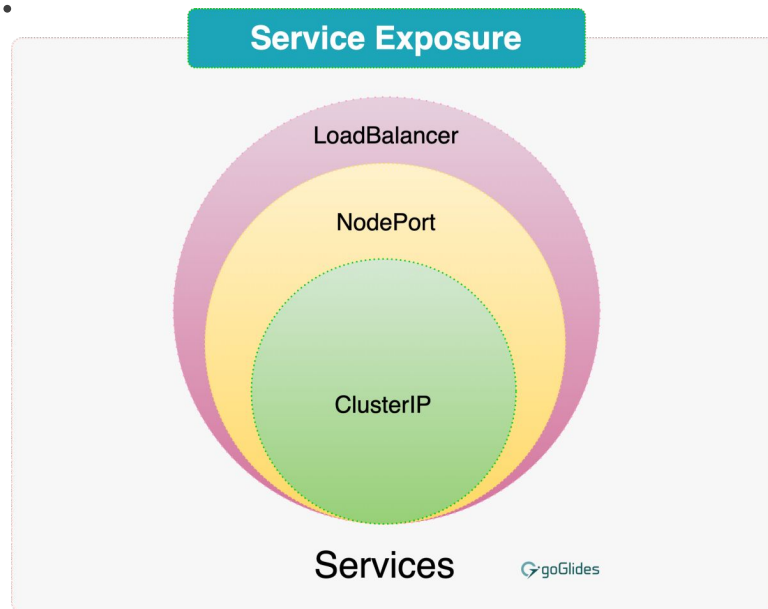
- Services within the same Namespace find other Services just by their names.
- If we add a Service `redis-master` in `my-ns` Namespace, all Pods in the same `my-ns` Namespace lookup the Service just by its name, `redis-master`.



Service Types

There are 4 major service types:

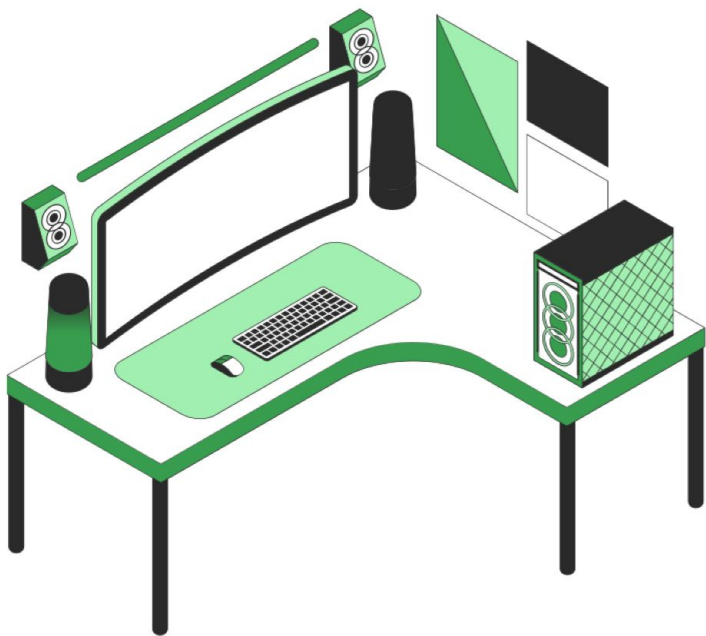
- ClusterIP (default)
 - **Network inside cluster**
- NodePort
 - **Network coming from Internet, usually for Frontend**
- LoadBalancer
 - **Used by cloud provider**
- ExternalName





Labels and loose coupling

- Labels and Selectors use a key/value pair format.
- Pods and Services are loosely coupled via labels and label selectors.
- For a Service to match a set of Pods, and therefore provide stable networking and load-balance, it only needs to match some of the Pods labels.
- However, for a Pod to match a Service, the Pod must match all of the values in the Service's label selector.



Do you have any questions?

Send it to us! We hope you learned something new.