Cluster Setup

- Metal LB
- nginx Ingress Controller

Metal LB

This section is to get metallb setup and working for a bare metal setup.

Let create the namespace

```
kubectl create namespace metallb-system
kubectl label namespace metallb-system pod-security.kubernetes.io/enforce=privileged
```

We will use helm for ease of upgrades and the initial install. First, we need to add the repo.

```
helm repo add metallb https://metallb.github.io/metallb
```

Now, install metallb with helm.

```
helm install metallb metallb/metallb -n metallb-system
```

We need to choose a pool of IP addresses that metal lb can hand out for the type LoadBalancer. In my case, I really just want this for nginx ingress. We need to create the following yaml file to apply to the API.

```
apiVersion: metallb.io/v1beta1
kind: IPAddressPool
metadata:
  name: main-pool
  namespace: metallb-system
spec:
  addresses:
  - 192.168.249.10-192.168.249.11
---
apiVersion: metallb.io/v1beta1
kind: L2Advertisement
metadata:
  name: l2-lb
  namespace: metallb-system
```

Lets verify everything is up and running.

```
kubectl get pods -n metallb-system
```

nginx Ingress Controller

After installing metallb we can move on to the ingress part of setup. My preferred choice is nginx. We will also get this ready for monitoring with Prometheus.

Create the namespace.

```
kubectl create namespace ingress-nginx
kubectl label namespace ingress-nginx pod-security.kubernetes.io/enforce=privileged
```

We will use helm to install nginx. This will help with upgrades in the future. Note the extra values for Prometheus.

```
helm upgrade --install ingress-nginx ingress-nginx --repo
https://kubernetes.github.io/ingress-nginx --namespace ingress-nginx --set
controller.metrics.enabled=true --set-string
controller.podAnnotations."prometheus\.io/scrape"="true" --set-string
controller.podAnnotations."prometheus\.io/port"="10254"
```

After a little bit of time, we can check the status of the namespace. The important part to note is the service/ingress-nginx-controller. It should have an External-IP provided by metallb.

```
kubectl get all -n ingress-nginx
```

> Example Output:

```
NAME                                        READY   STATUS              RESTARTS   AGE
pod/ingress-nginx-controller-8b8b9f598-jqxcr   1/1     Running             0          23m

NAME                                       TYPE           CLUSTER-IP      EXTERNAL-IP
PORT(S)                      AGE
service/ingress-nginx-controller           LoadBalancer   10.109.19.205   192.168.249.10
80:32588/TCP,443:30617/TCP   23m
service/ingress-nginx-controller-admission   ClusterIP      10.100.21.15    <none>
443/TCP                      23m
service/ingress-nginx-controller-metrics     ClusterIP      10.107.12.193   <none>
10254/TCP                    23m
service/prometheus-server                    NodePort       10.97.78.93     <none>
```

```
9090:32631/TCP               5s

NAME                                       READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/ingress-nginx-controller   1/1     1            1           23m
```