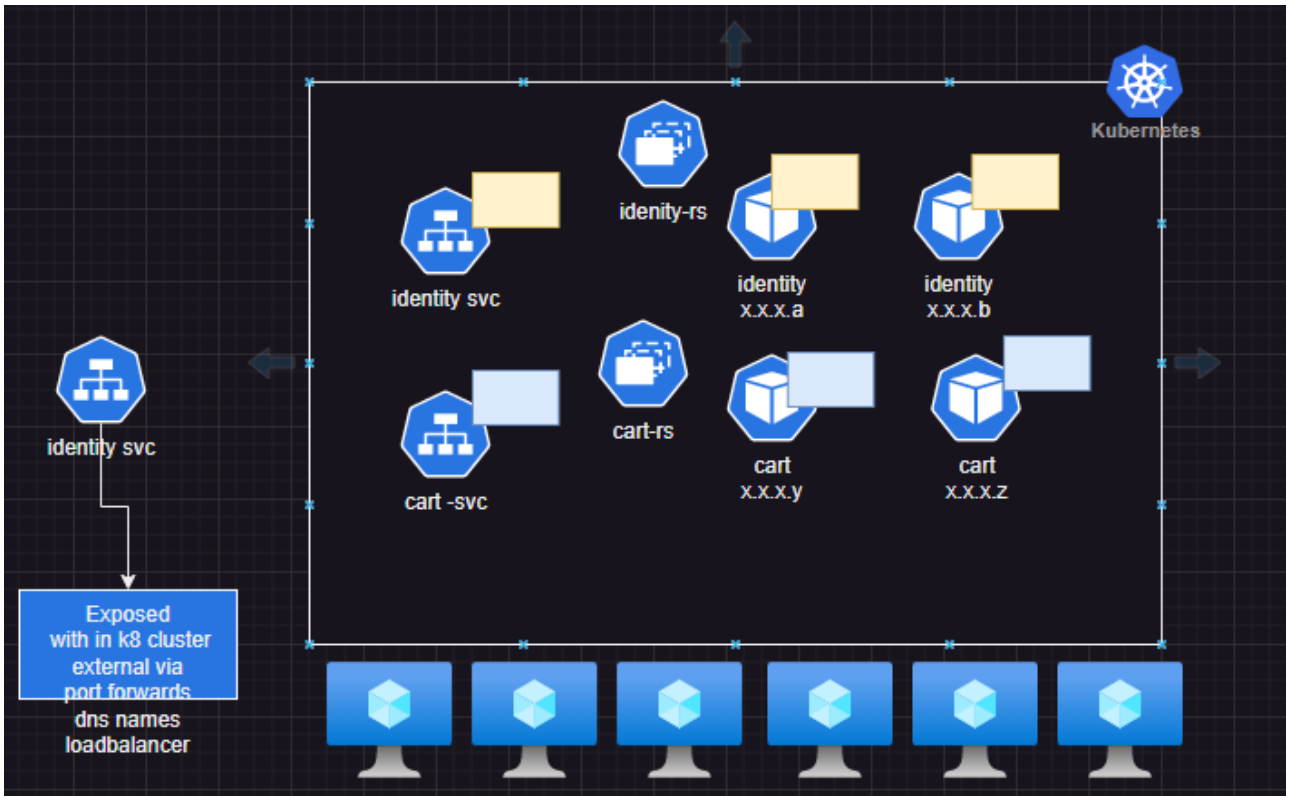
Exposing Applications in k8s cluster

- This can be acheived by k8s services Refer Here



- Each service gets a name and ip address (virtual ip address)
- k8s service get as ip which is collection of endpoints
- Internal ip address of the service is called cluster ip and generally external ips or names can also be given in the case of managed k8s clusters.
- service types Refer Here
- Ensuring the service forwords the requests to right pods or working pods is done by health probes.

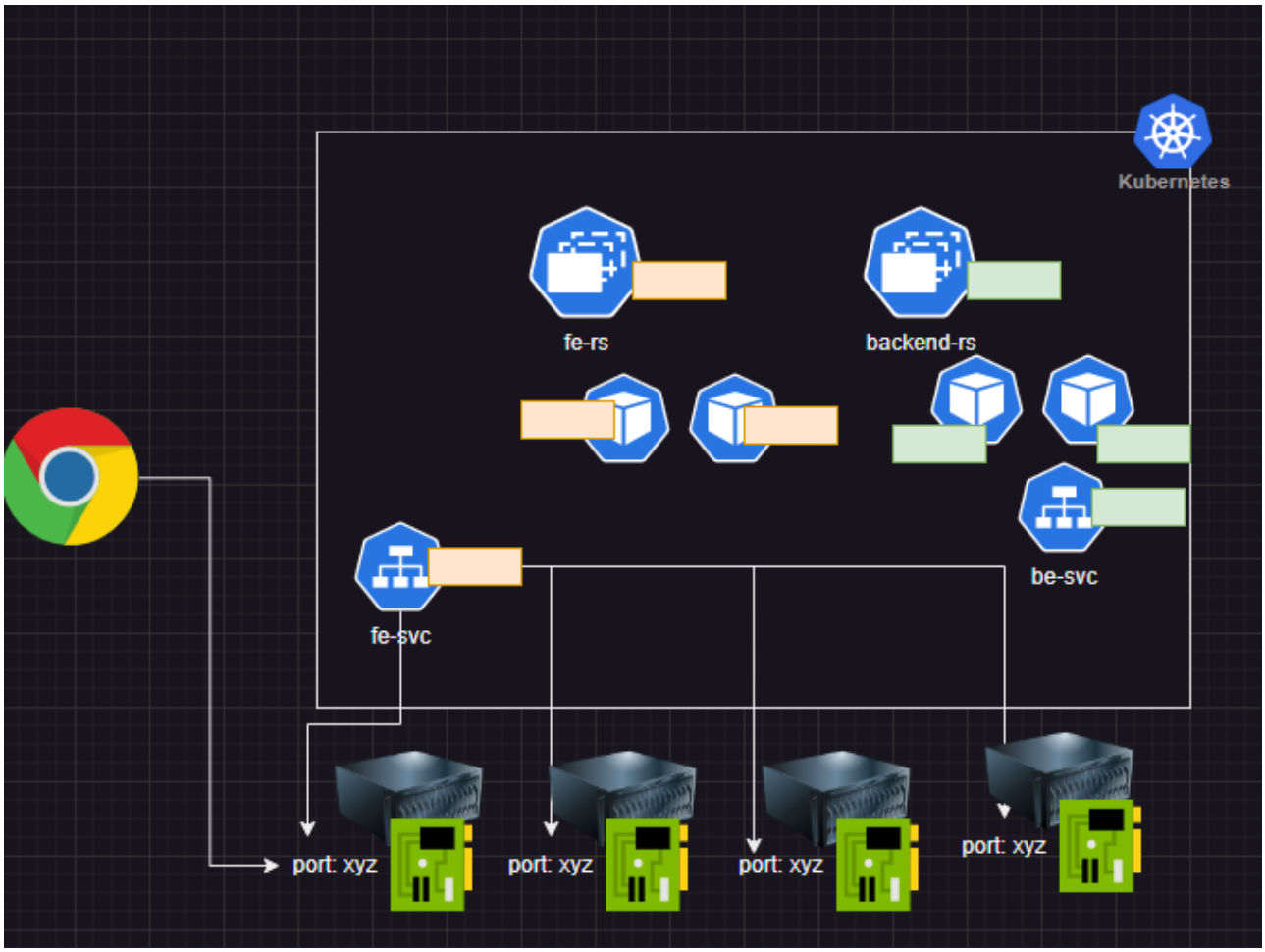
Health probes in k8s:

- Refer Here for official docs
- We have 3 types of health probes
  - liveness probe:
    - it checks for health of application in Pod
    - if this fails the container will be restarted.
  - Readiness Probe
    - it checks health of application
    - if this check fails the service will not forward requests to this pod.
  - Startup probe
    - it checks if the application is started or not
    - this is used to restart time taking startups
    - if this fails the container will be restarted.
- Probes can be done in k8s via multiple ways Refer Here

- command probe: we will be executing a command and based on return code the application health is determine
- tcp probe: we send tcp request
- HTTP Probe: we send http request here we have status codes
  - 1xx: information
  - 2xx: success
  - 3xx: redirection
  - 4xx: client errors
  - 5xx: server errors
- gRPC Probe: we send grpc request

Service Demo

- Overview



- Node port info Refer Here

- Refer Here for the changes

```
controlplane $ ls
demo
controlplane $ kubectl apply -f demo/
service/be-svc created
replicaset.apps/be-rs created
service/fe-svc created
replicaset.apps/fe-rs created
controlplane $ kubectl get all
NAME              READY   STATUS              RESTARTS   AGE
pod/be-rs-9rhk9   0/1     ContainerCreating   0          10s
pod/be-rs-hjv5f   0/1     ContainerCreating   0          10s
pod/fe-rs-jnt48   0/1     ContainerCreating   0          9s
pod/fe-rs-m856h   0/1     ContainerCreating   0          9s

NAME                 TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)        AGE
service/be-svc       ClusterIP   10.110.36.103   <none>        80/TCP         10s
service/fe-svc       NodePort    10.110.167.28   <none>        80:31523/TCP   10s
service/kubernetes   ClusterIP   10.96.0.1       <none>        443/TCP        6d20h

NAME                    DESIRED   CURRENT   READY   AGE
replicaset.apps/be-rs   2         2         0       10s
replicaset.apps/fe-rs   2         2         0       10s
controlplane $
```

- Lets include liveness and readiness probes in backend and frontend pods Refer Here for changes

Job and CronJob

- Refer Here for cron job and Refer Here for job
- Jobs refer to container which will go into completed state after some time i.e. they finish execution.
- If this job has to be executed every day on schedule then we create cronjobs Refer Here for changes.

Pod Phases

- Refer Here