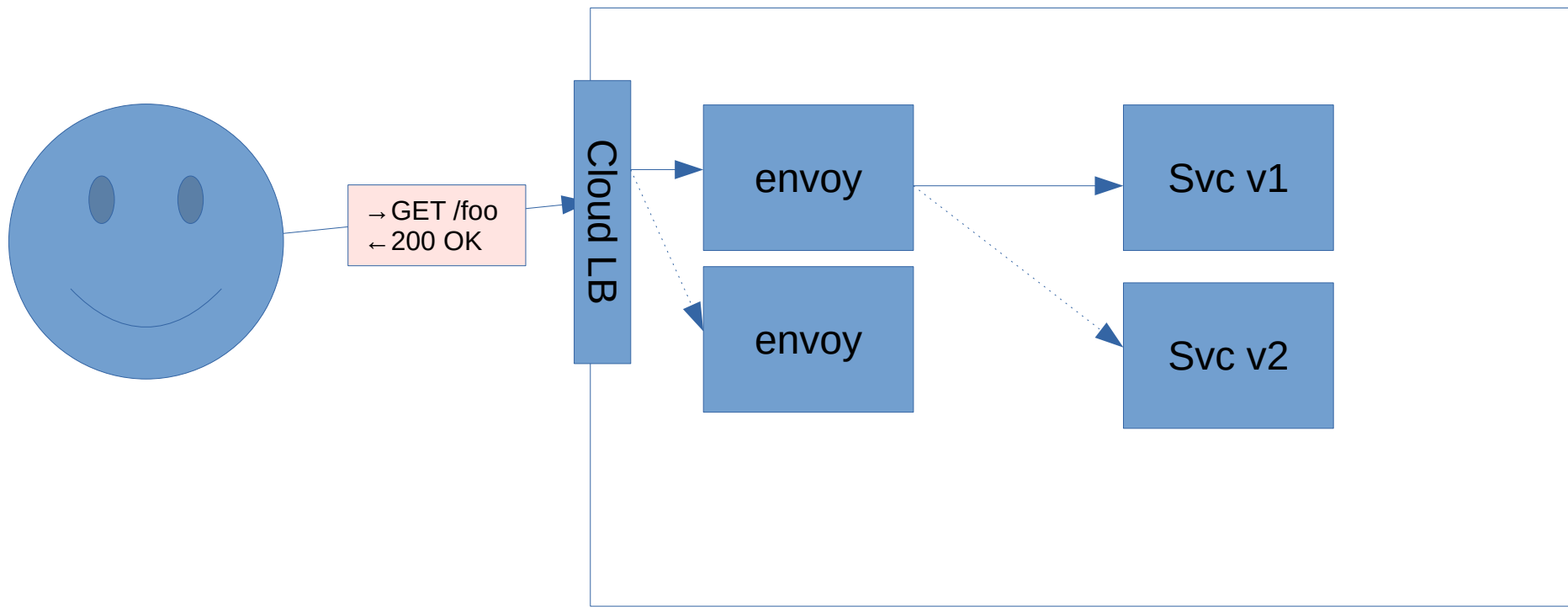


Hitless Deploys

Goal

- Happy users when deployments happen



General Strategy

- Components need to know the state of components they depend on
- We can use health checks to signal other components that they should drain requests
- We can combine retries on specific errors
 - (connection refused for example)

- User can perform retries to the cloud
- LB health checks edge gateway
- Edge gateway / envoy performs health checks and retries to service



Cloud LB

edge/envoy

Service

This means that...

- We need to configure envoy to understand the health of the pods it sends traffic to
- We need to configure the cloud LB to understand the health of envoy

Why is it hard?

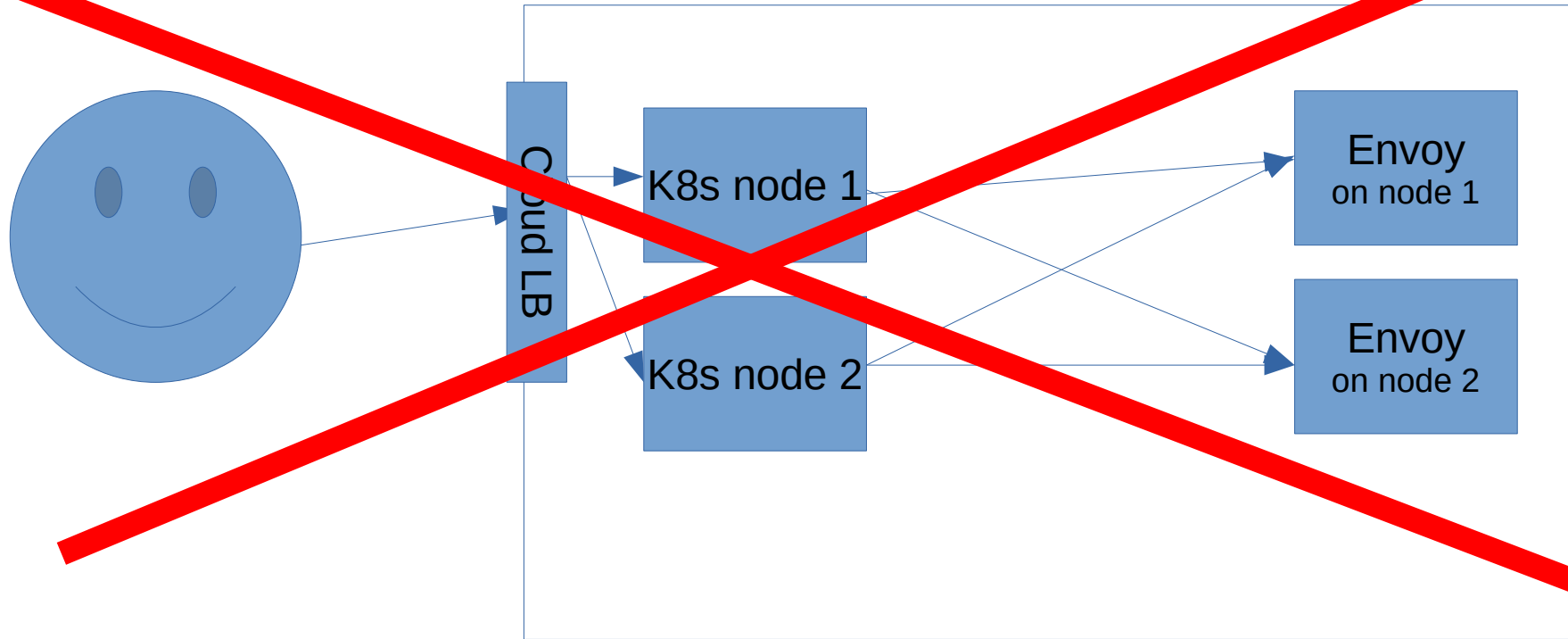
- Lots of moving parts
- Often cloud load balancer is not k8s aware
- Envoy (on its own) is not k8s aware
 - (A control plane can make envoy k8s aware)

Cloud LB → Envoy

- The Cloud LB needs to know the health state of envoy
- Cloud LB usually are not k8s aware, and designed to work with Vms / ASGs

Failed attempt

- Cloud LB health checks to Node Port Ingress



What to do then?

- Check if your cloud integrates with k8s.
 - On GKE, use native vpc cluster. This gives the pods routable ips.
- Cloud LB Health check to the same node should end in the same pod. Consider:
 - DaemonSet with host port / host networking
 - Deploy at most one envoy to a node and use ExternalTrafficPolicy: local
- On envoy – configure the health check filter

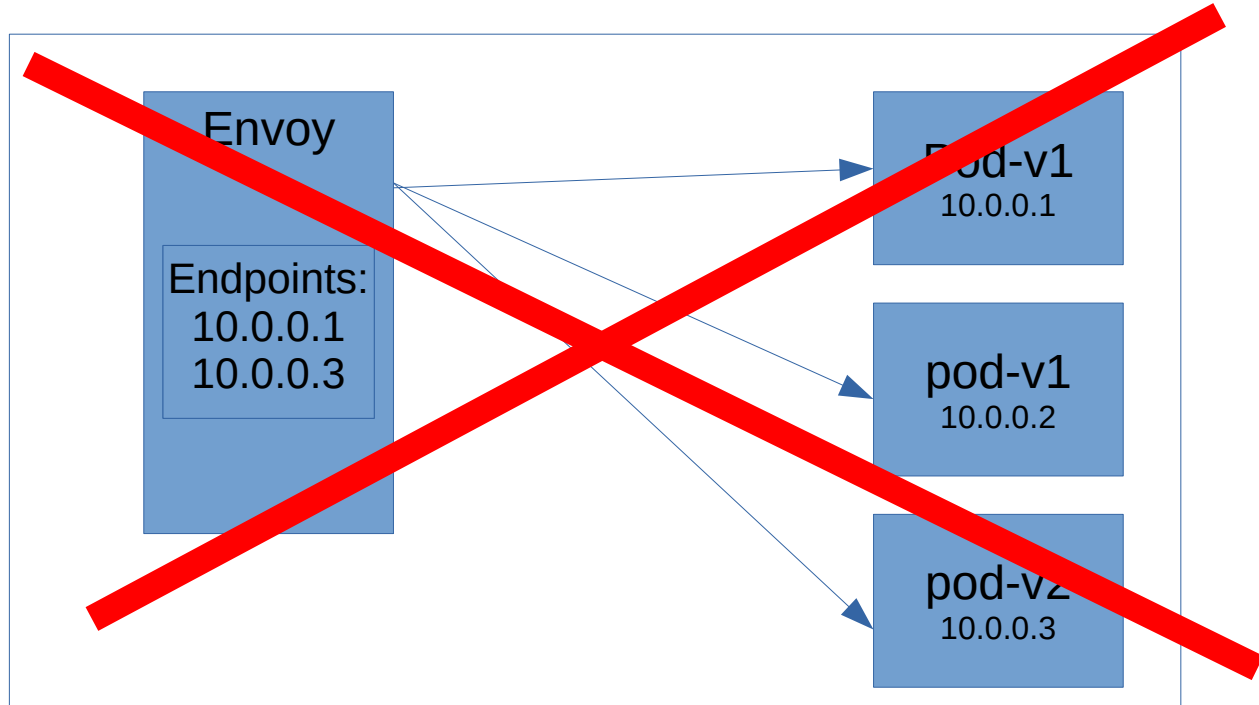
Envoy → Upstream

- Envoy needs to know the health state of the pods
- Envoy is not aware of k8s readiness/liveness probes*
- Eventual Consistency

* though the control plane can propagate this information to envoy using EDS.

Failed attempt

- Re-deploy with no draining
- Especially with small number of pods, or if re-tries are not configured
- Eventually consistent



What to do then?

- On SIGTERM from k8s, Pod should start failing health checks, draining connections gracefully
 - Service mesh can potentially help here failing health checks *automatically*
- Exit after drain period
- On envoy – configure health checks and retries

Demo

- We will review:
 - Health check filter
 - Health checks
 - Re-tries