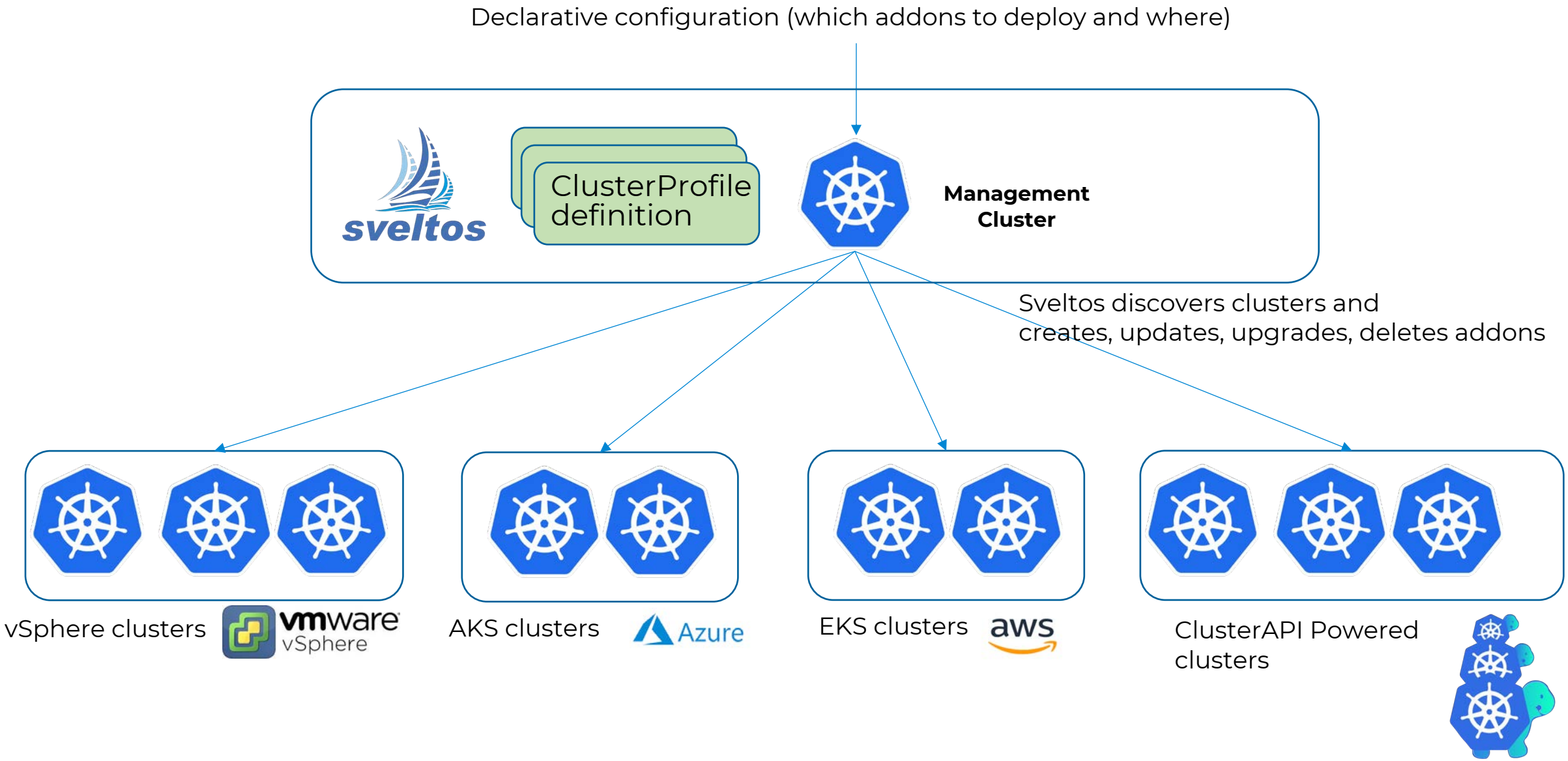
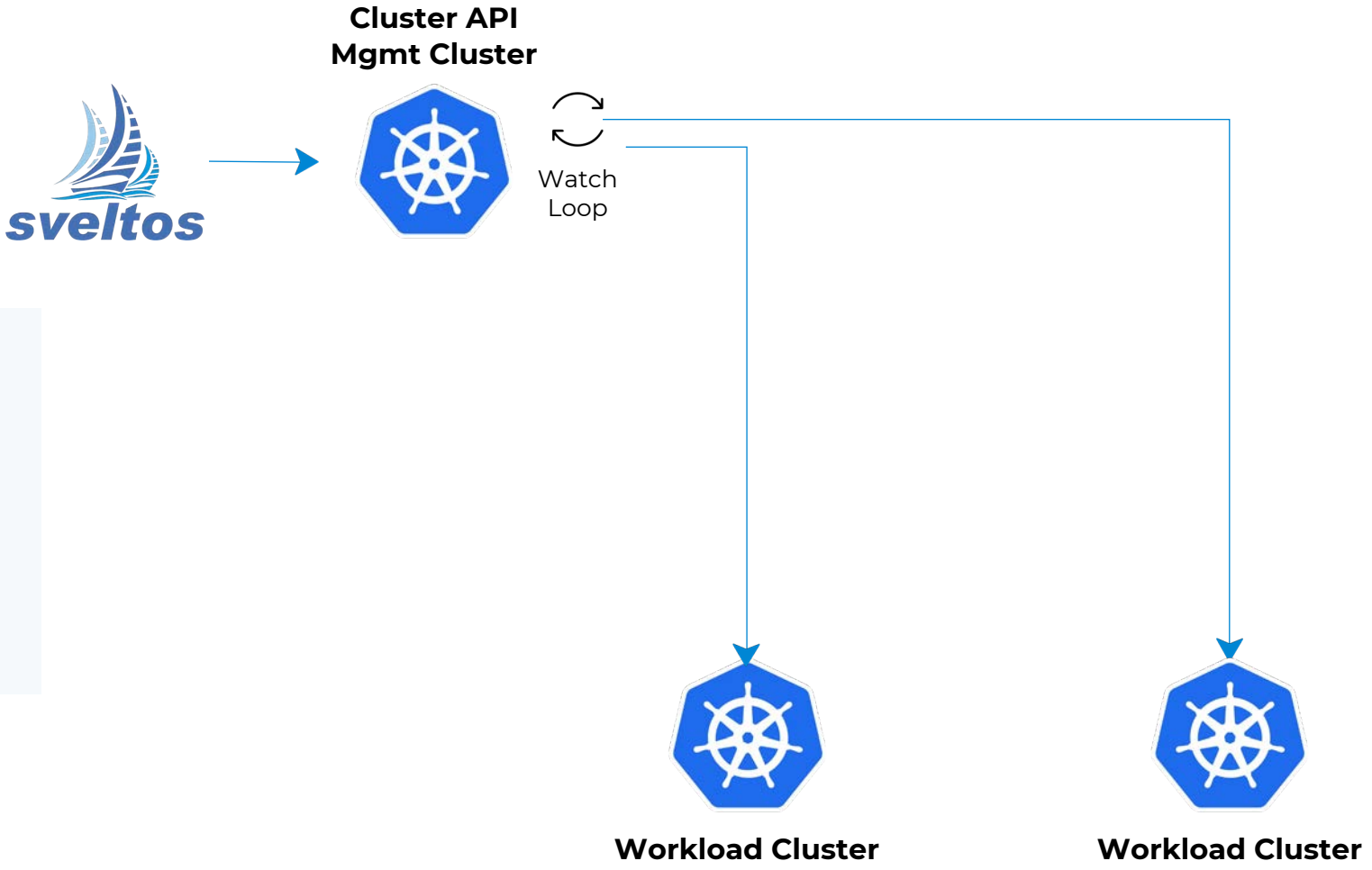
sveltos


Declarative configuration (which addons to deploy and where)
sveltos
ClusterProfile definition
Management Cluster
Sveltos discovers clusters and creates, updates, upgrades, deletes addons
vSphere clusters
vmware vSphere
AKS clusters
Azure
EKS clusters
aws
ClusterAPI Powered clusters

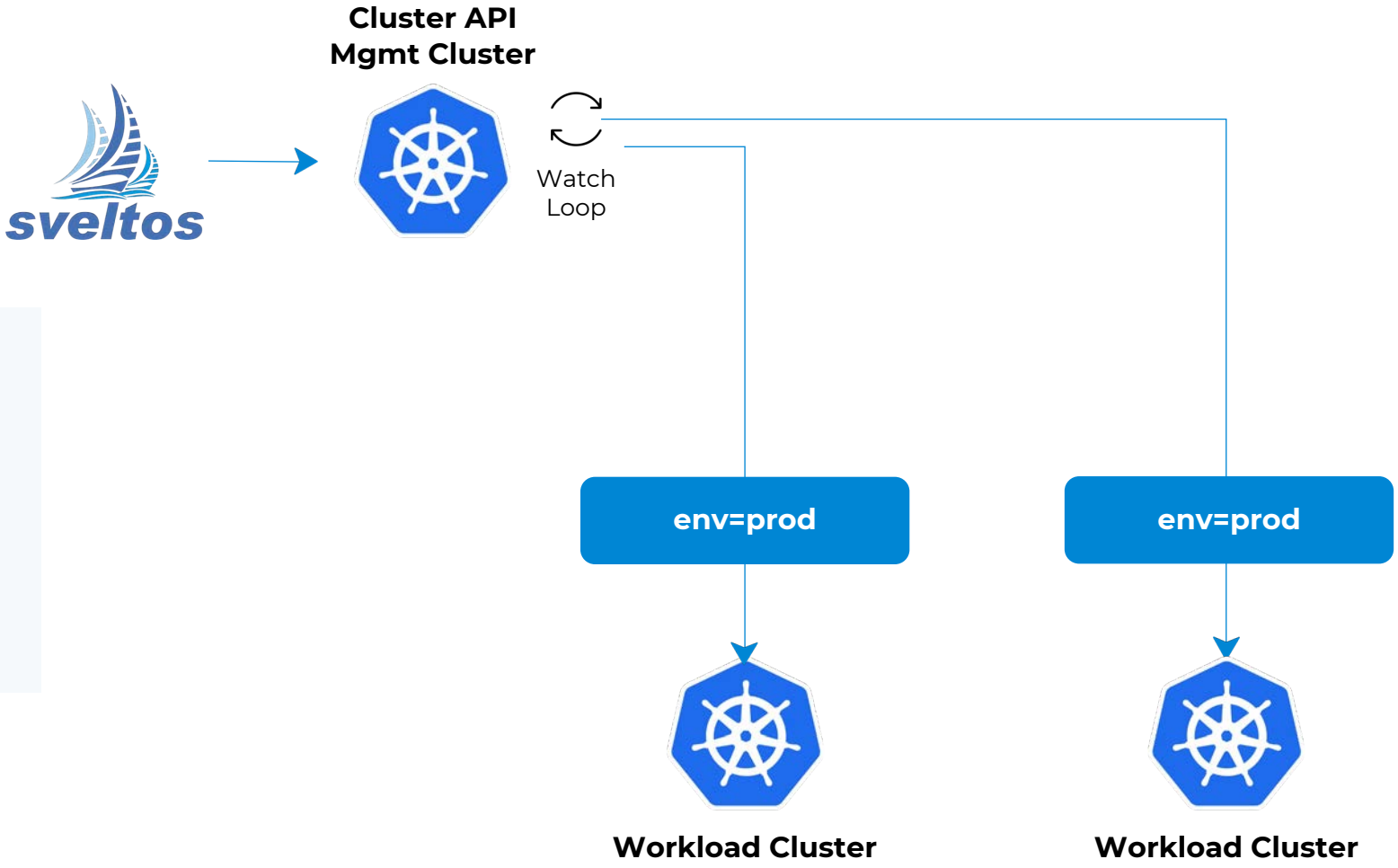
Project Sveltos - Policy Driven Software Lifecycle Mgmt



kubectl apply -f ...

```
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt



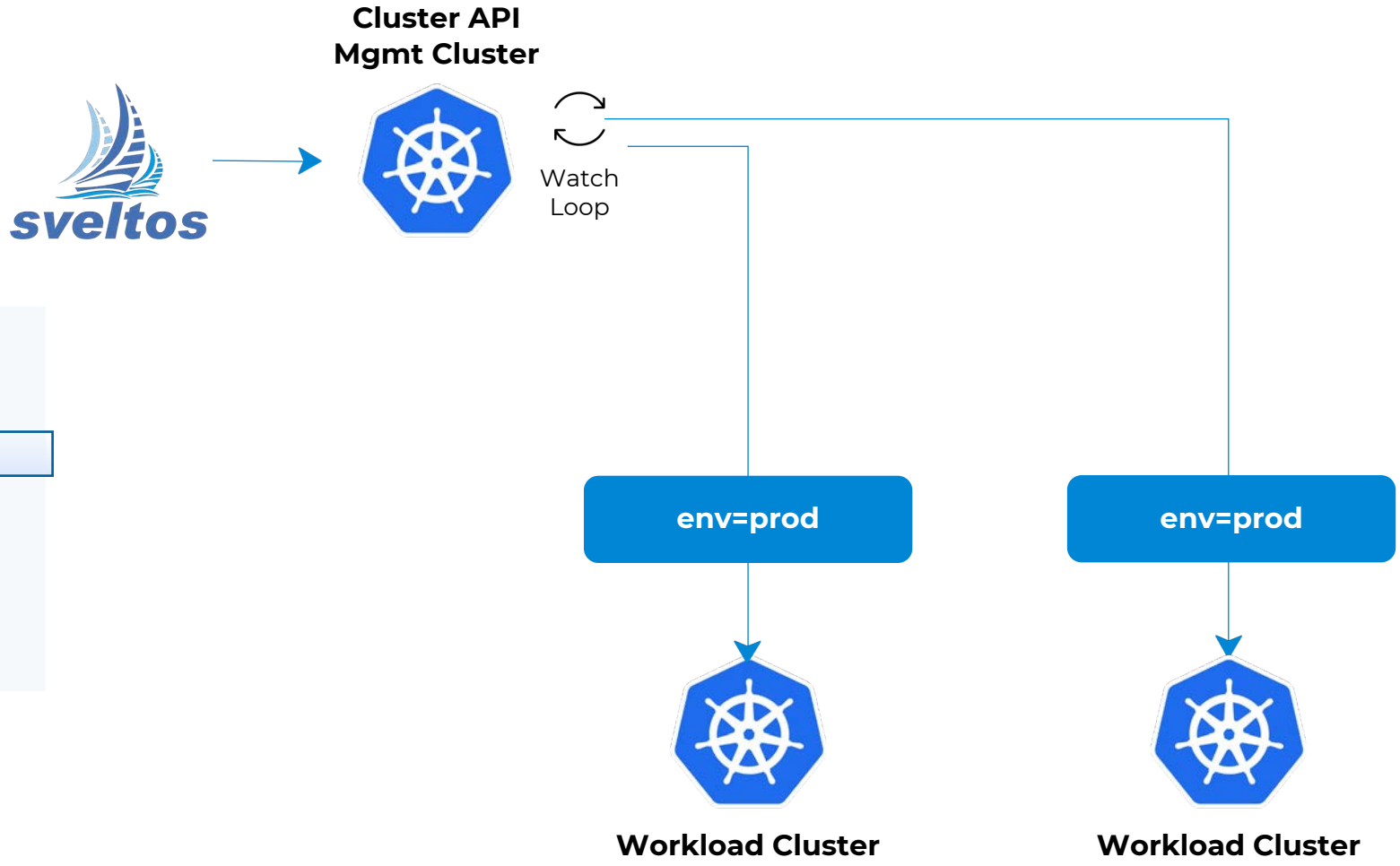
kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```

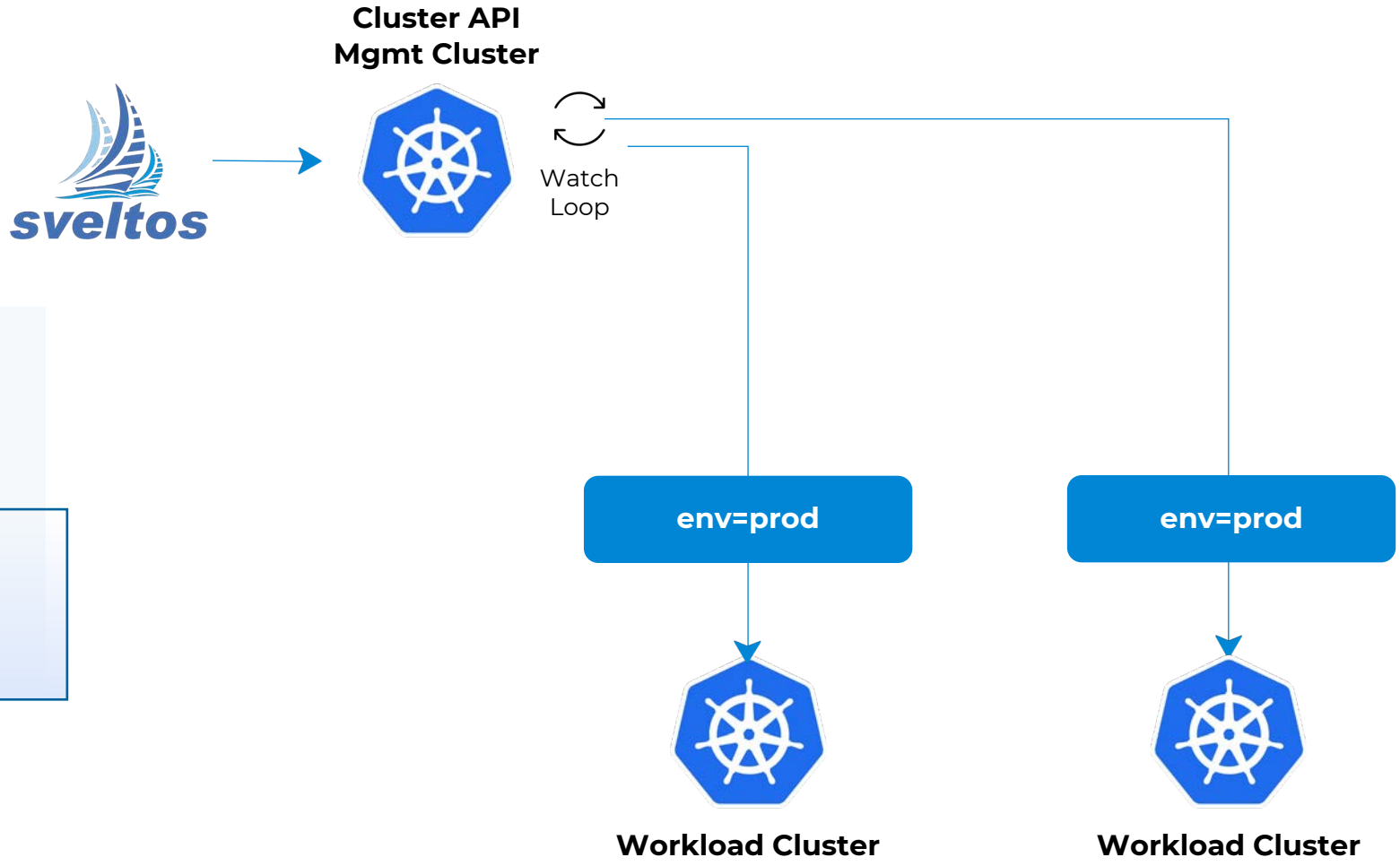
Project Sveltos - Policy Driven Software Lifecycle Mgmt

kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```



Project Sveltos - Policy Driven Software Lifecycle Mgmt



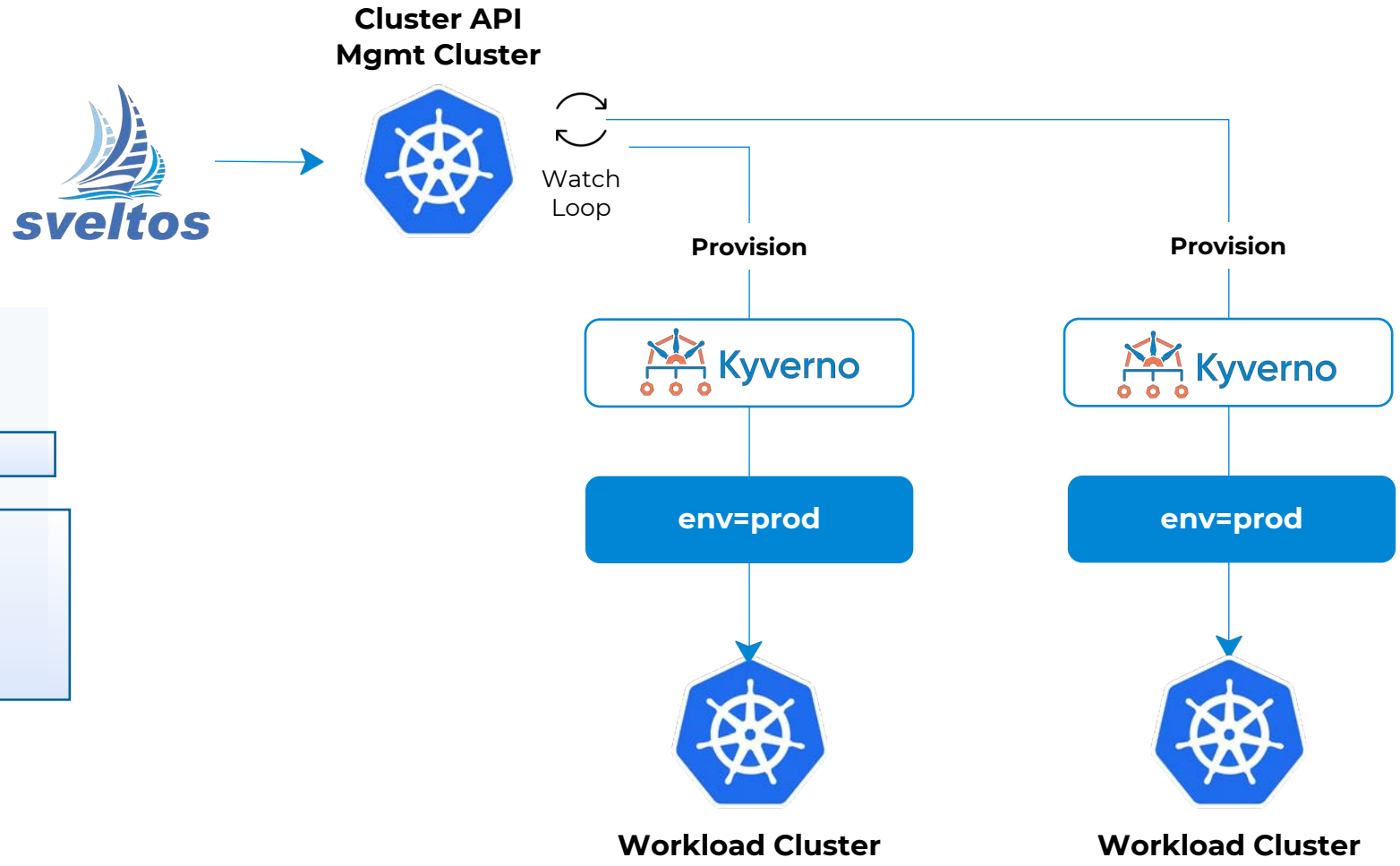
kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt

kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```



Project Sveltos - Policy Driven Software Lifecycle Mgmt

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-calico
spec:
  clusterSelector: env=fv
  helmCharts:
  - repositoryURL:    https://projectcalico.docs.tigera.io/charts
    repositoryName:   projectcalico
    chartName:        projectcalico/tigera-operator
    chartVersion:     v3.24.5
    releaseName:      calico
    releaseNamespace: tigera-operator
    helmChartAction:  Install
    values: |
      installation:
        calicoNetwork:
          ipPools:
          {{ range $cidr := .Cluster.Spec.ClusterNetwork.Pods.CIDRBlocks }}
            - cidr: {{ $cidr }}
              encapsulation: VXLAN
          {{ end }}
```

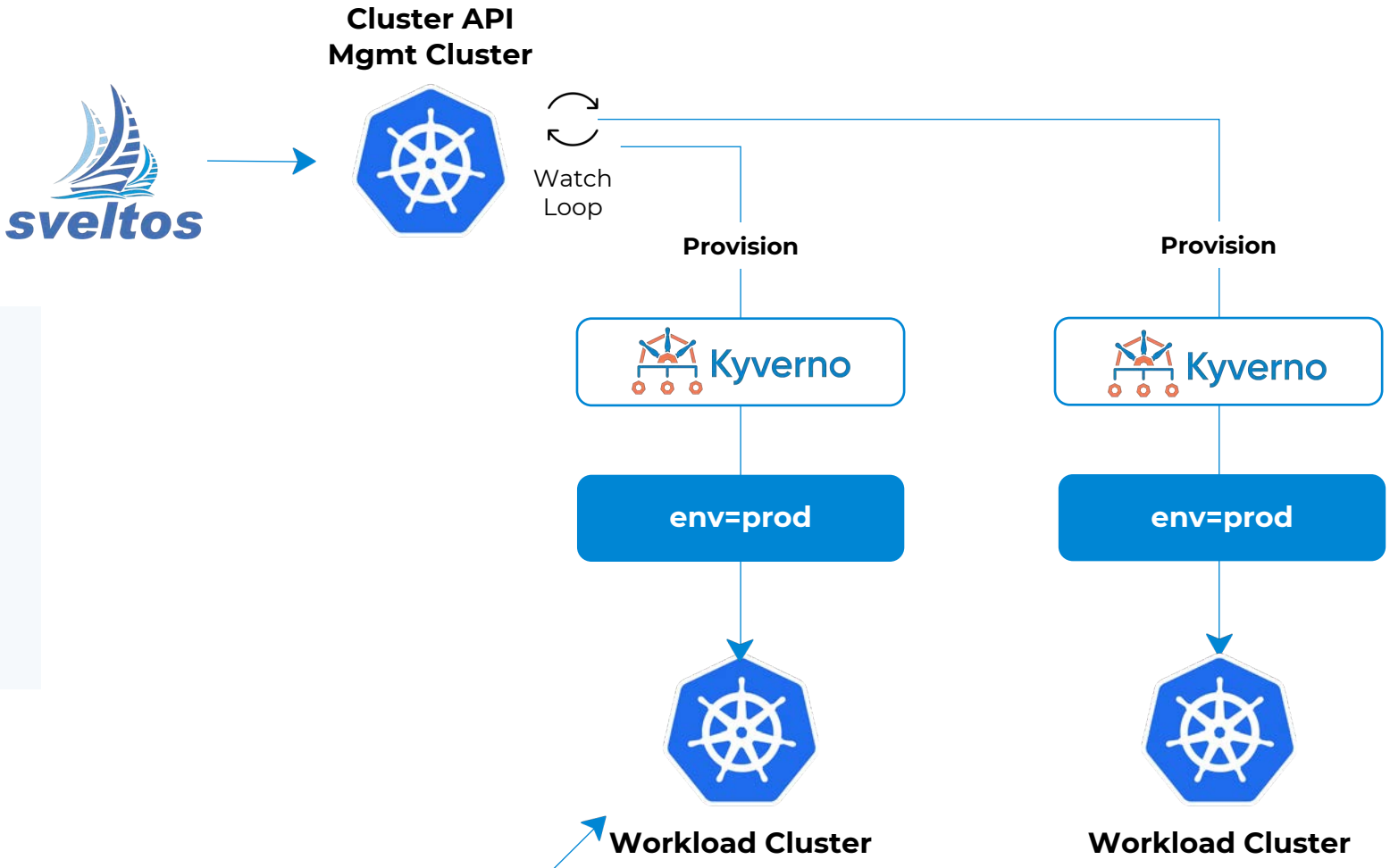
Can fetch data from management Cluster. Currently supported fetching from:

1. Cluster instance
2. Infrastructure Provider instance
3. KubeadmControlPlane instance
4. Secret

Project Sveltos – Configuration drift

kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```

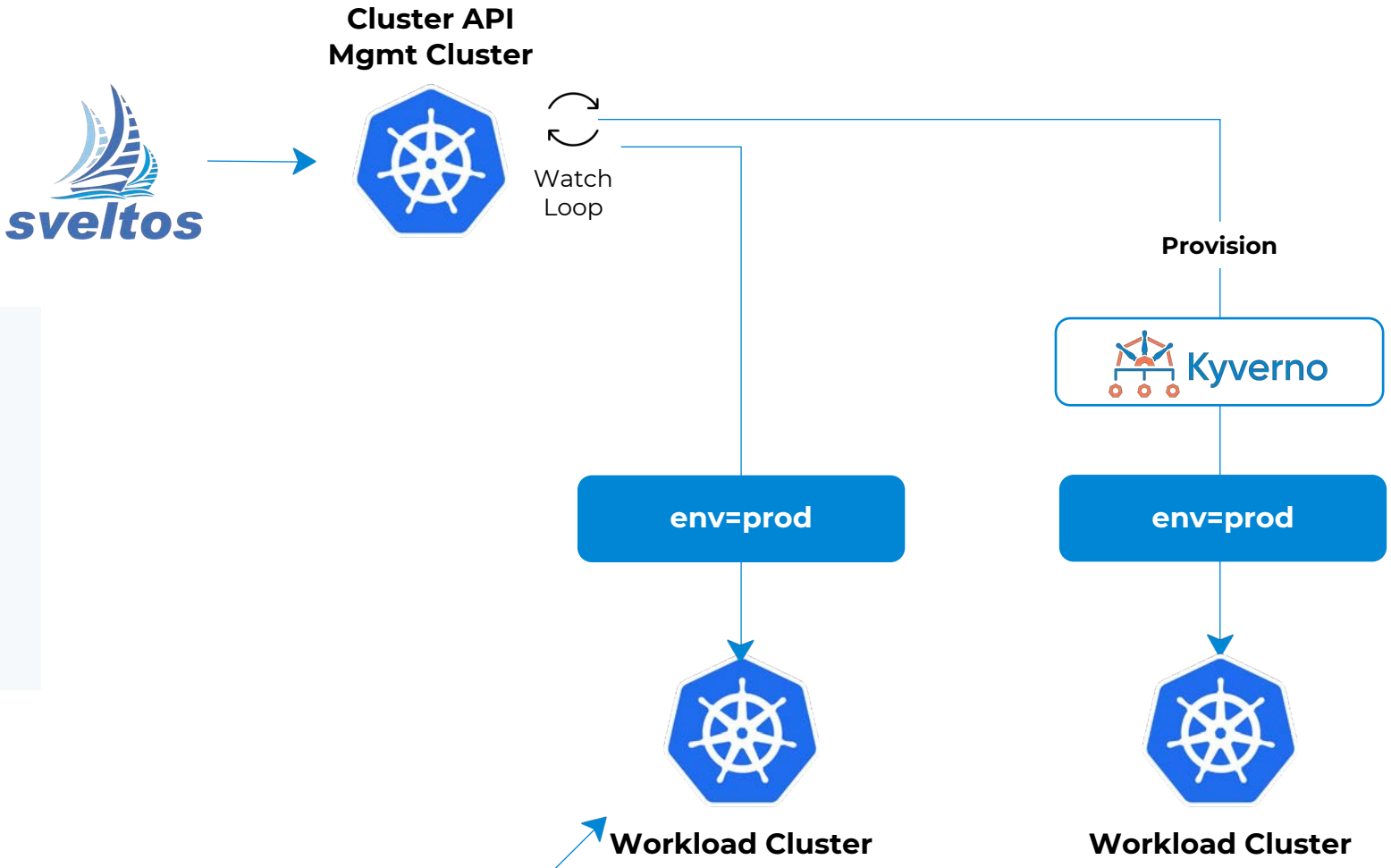


kubectl delete deployment –n kyverno kyverno

Project Sveltos – Configuration drift

kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```

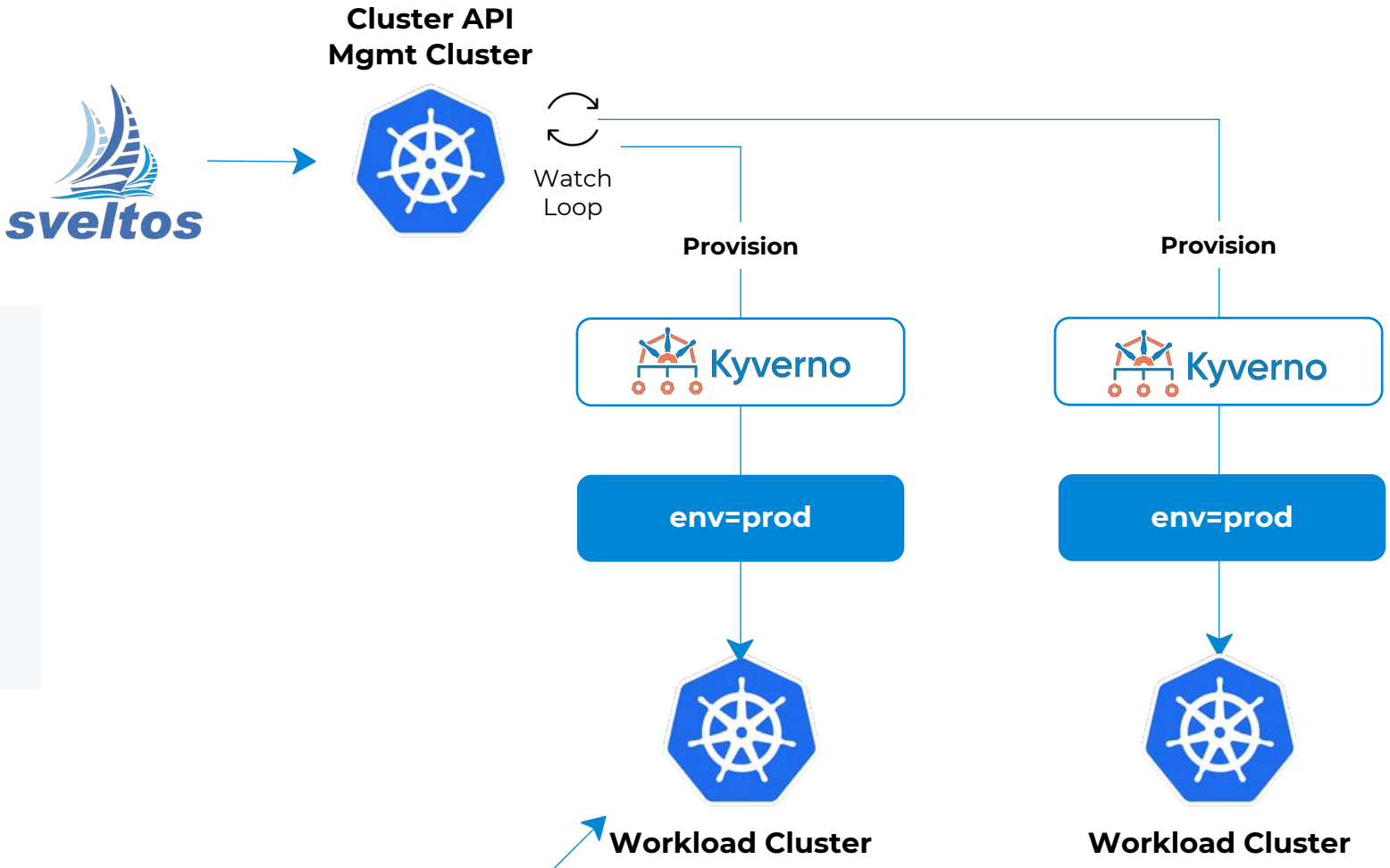


kubectl delete deployment –n kyverno kyverno

Project Sveltos – Configuration drift

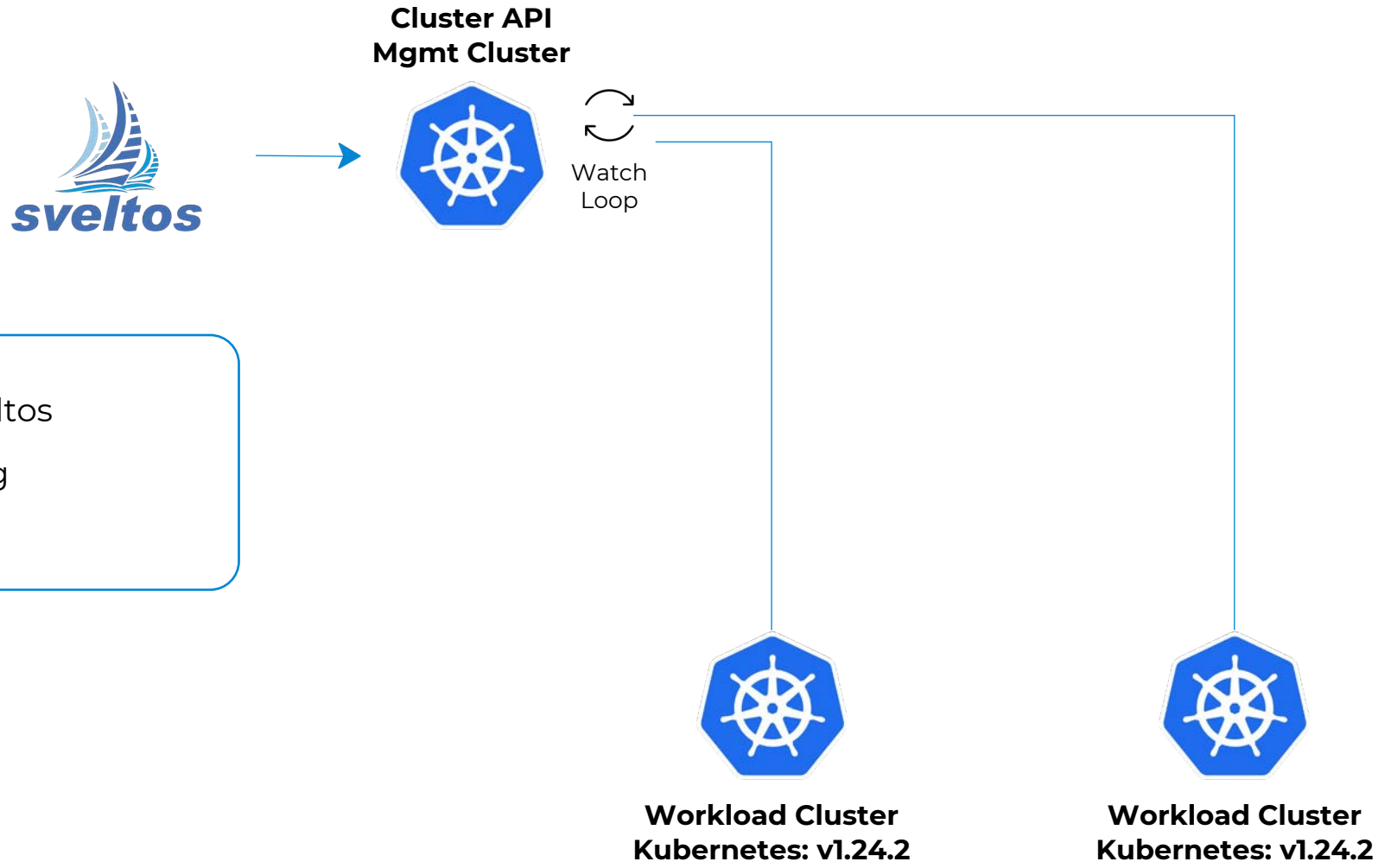
kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: demo
spec:
  clusterSelector: env=prod
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://kyverno.github.io/kyverno/
    repositoryName: kyverno
    chartName: kyverno/kyverno
    chartVersion: v2.5.0
    releaseName: kyverno-latest
    releaseNamespace: kyverno
    helmChartAction: Install
```



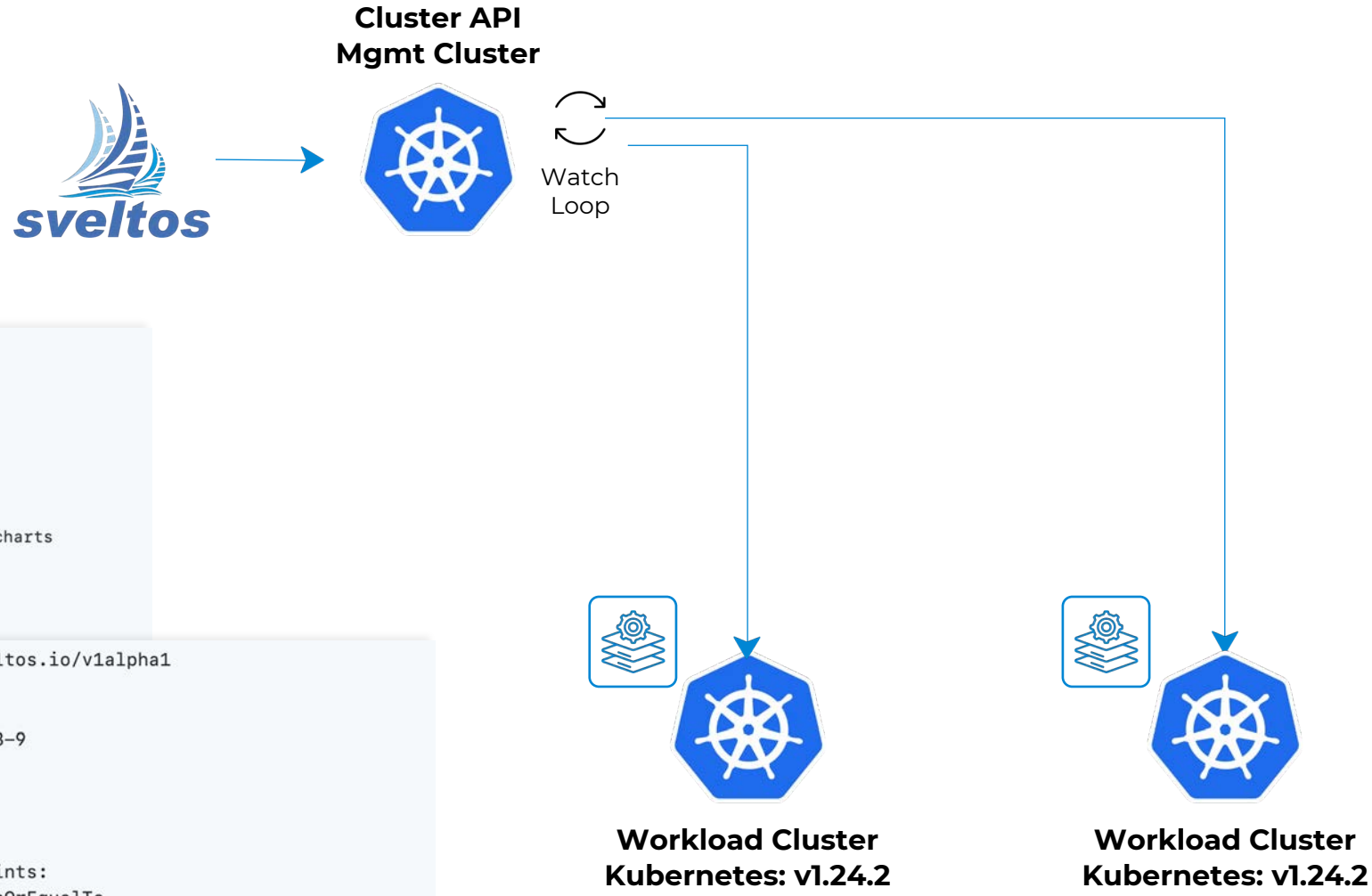
kubectl delete deployment –n kyverno kyverno

Project Sveltos - Policy Driven Software Lifecycle Mgmt



- Management cluster with Sveltos
- Two workload clusters running Kubernetes version v1.24.2

Project Sveltos - Policy Driven Software Lifecycle Mgmt

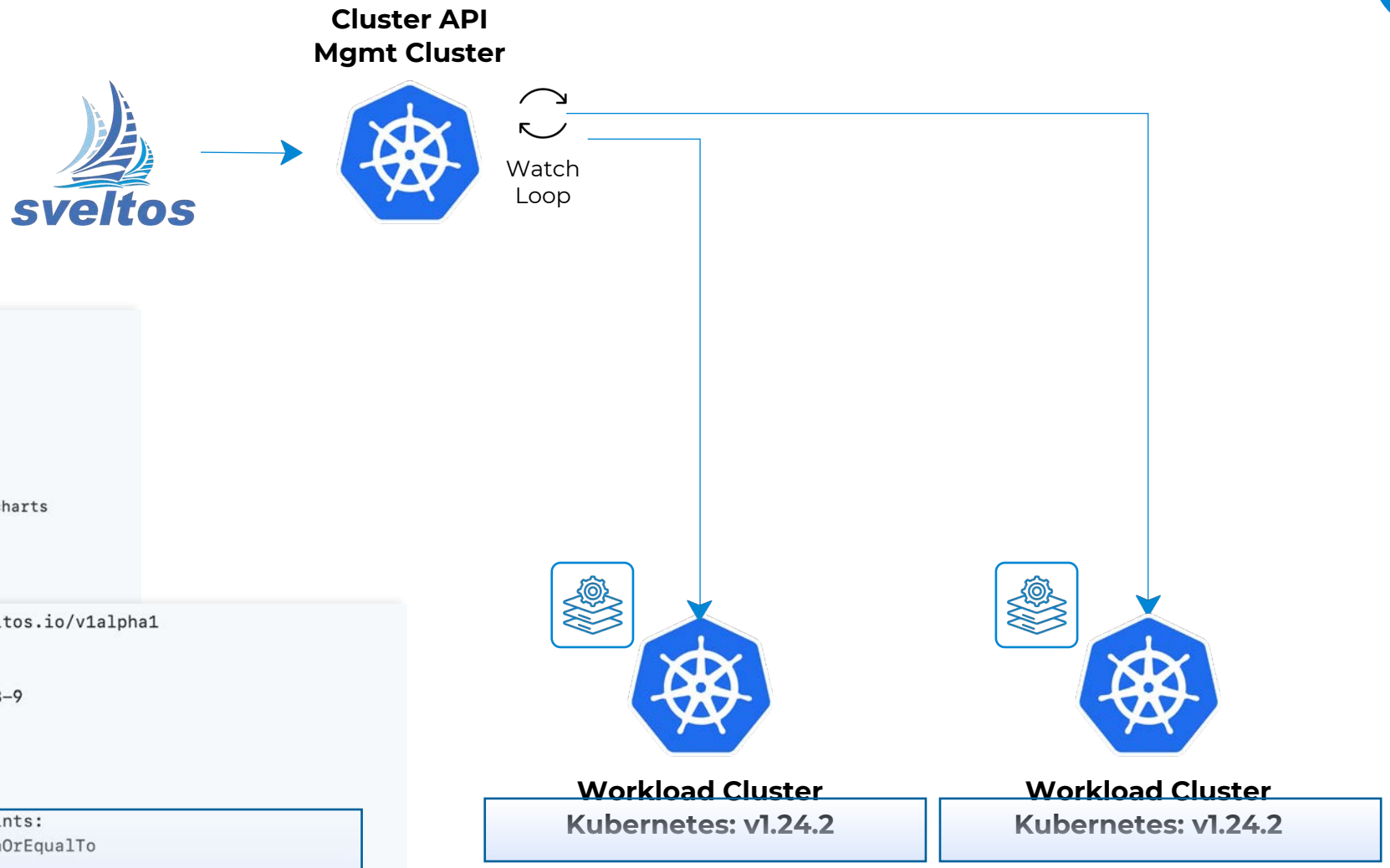


kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-9
spec:
  clusterSelector: gatekeeper=v3-9
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.9.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-9
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-9
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.24.0
  - comparison: LessThan
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt

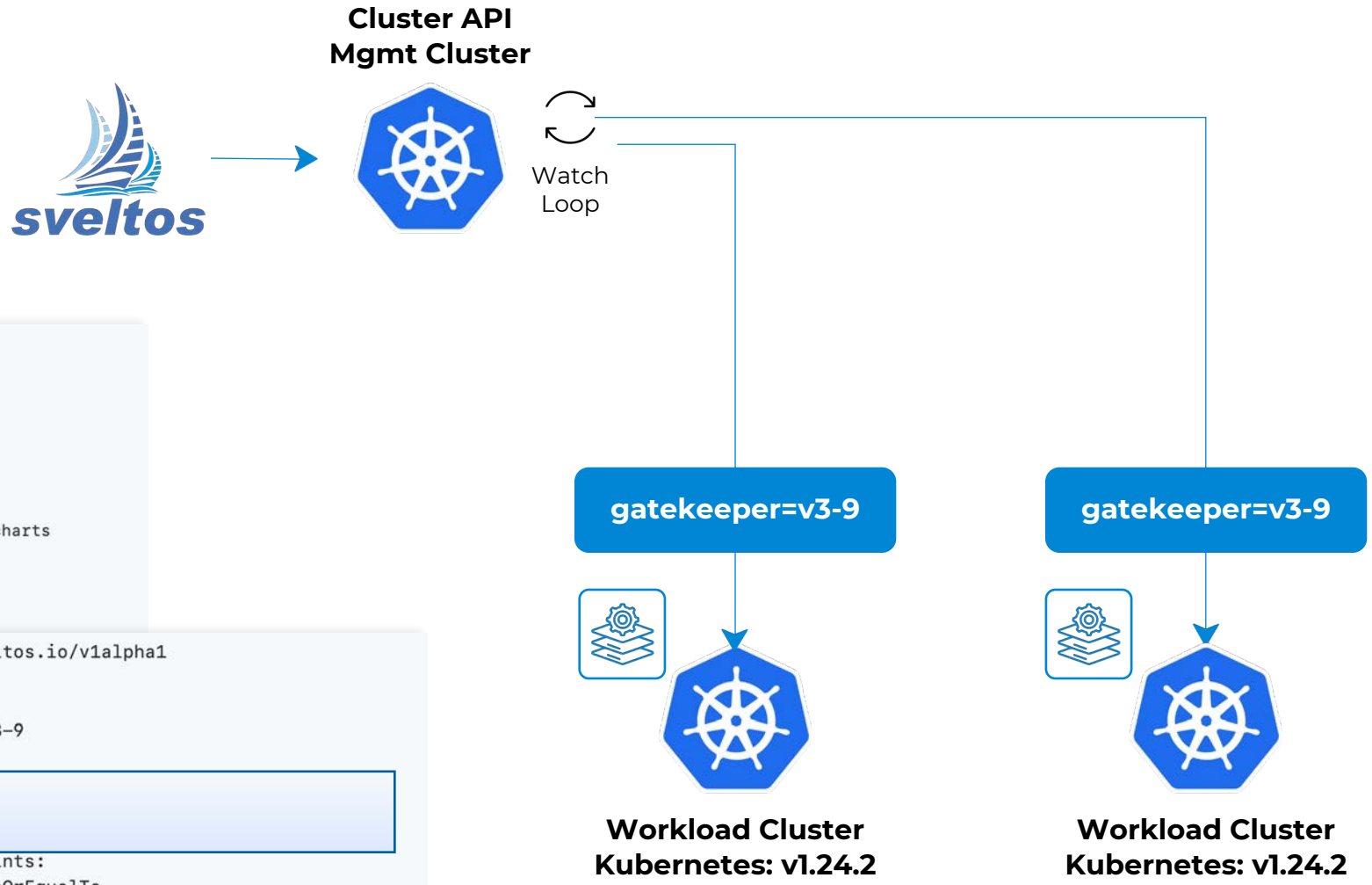


kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-9
spec:
  clusterSelector: gatekeeper=v3-9
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.9.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-9
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-9
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.24.0
  - comparison: LessThan
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt



kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-9
spec:
  clusterSelector: gatekeeper=v3-9
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.9.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

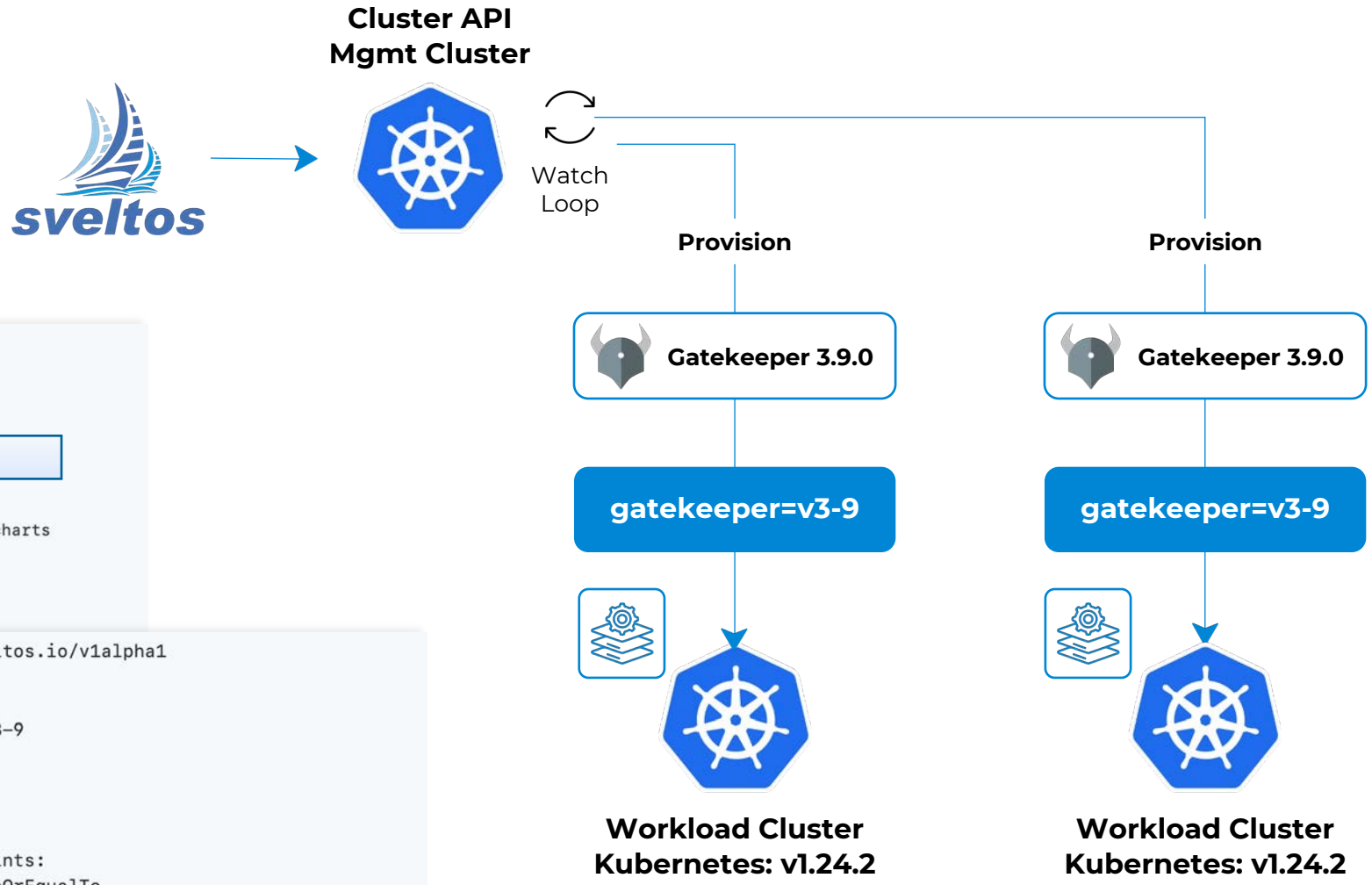
```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-9
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-9
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.24.0
  - comparison: LessThan
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt

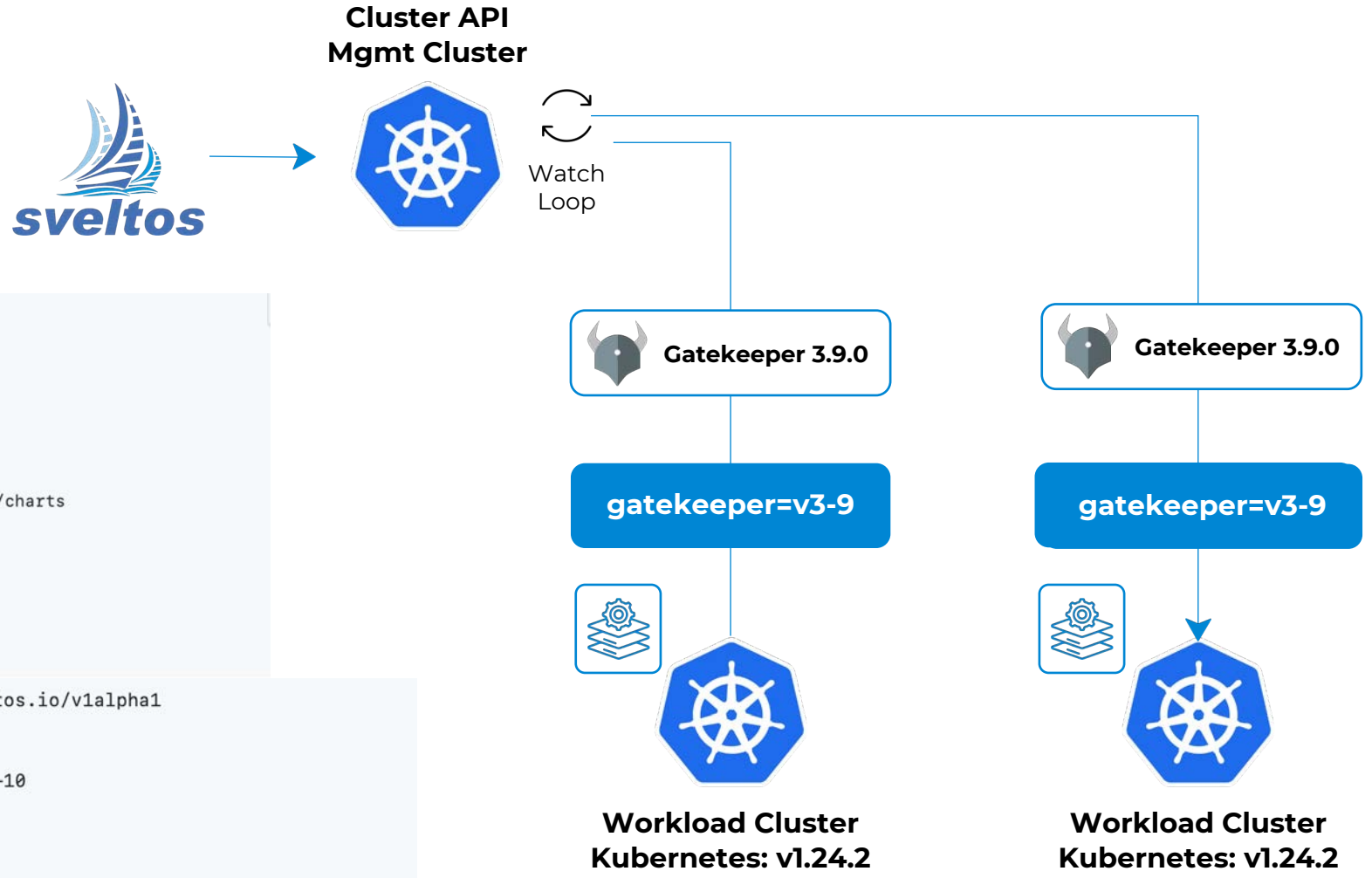
kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-9
spec:
  clusterSelector: gatekeeper=v3-9
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.9.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-9
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-9
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.24.0
  - comparison: LessThan
    version: 1.25.0
```



Project Sveltos - Policy Driven Software Lifecycle Mgmt

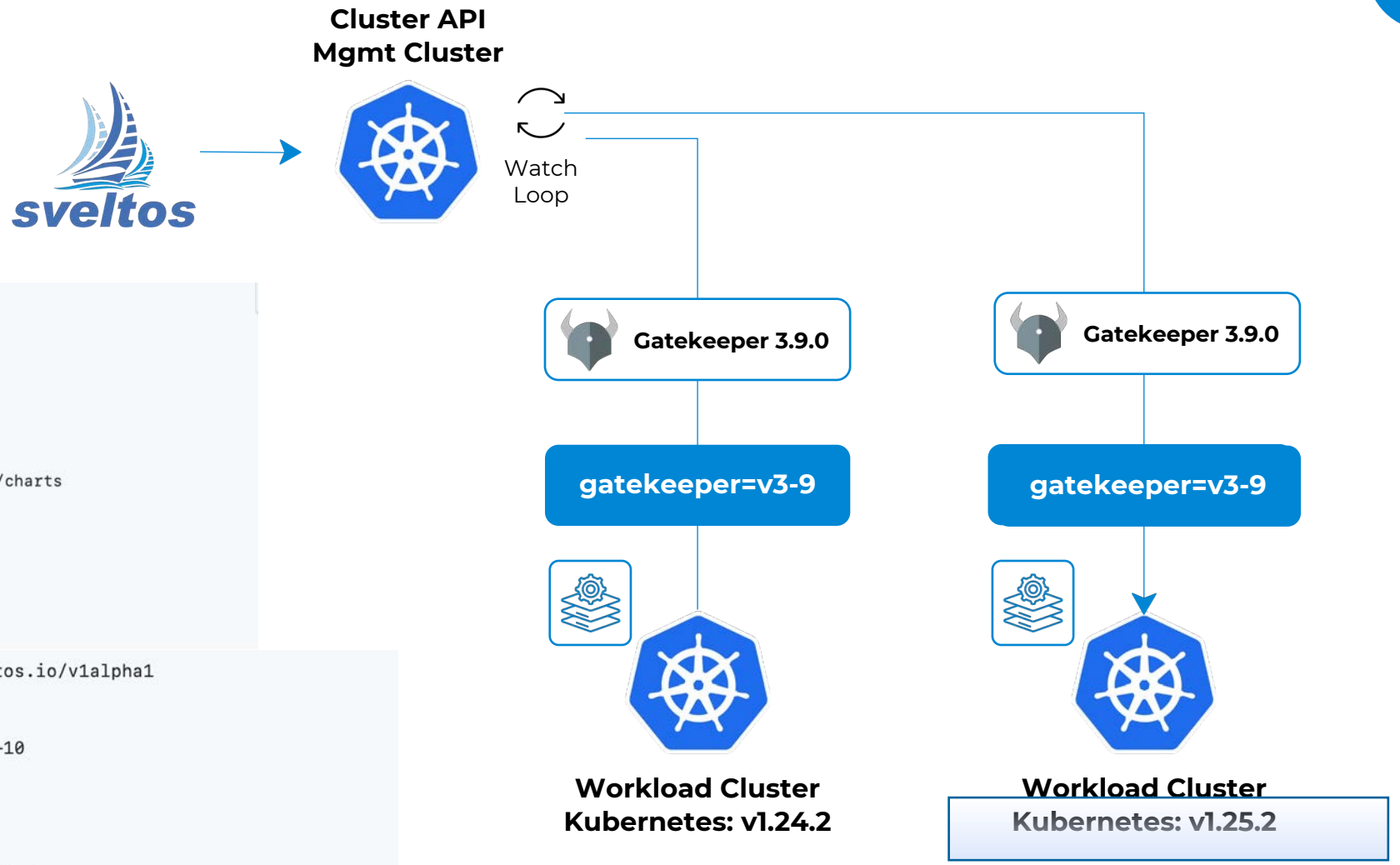


kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-10
spec:
  clusterSelector: gatekeeper=v3-10
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.10.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-10
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-10
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt

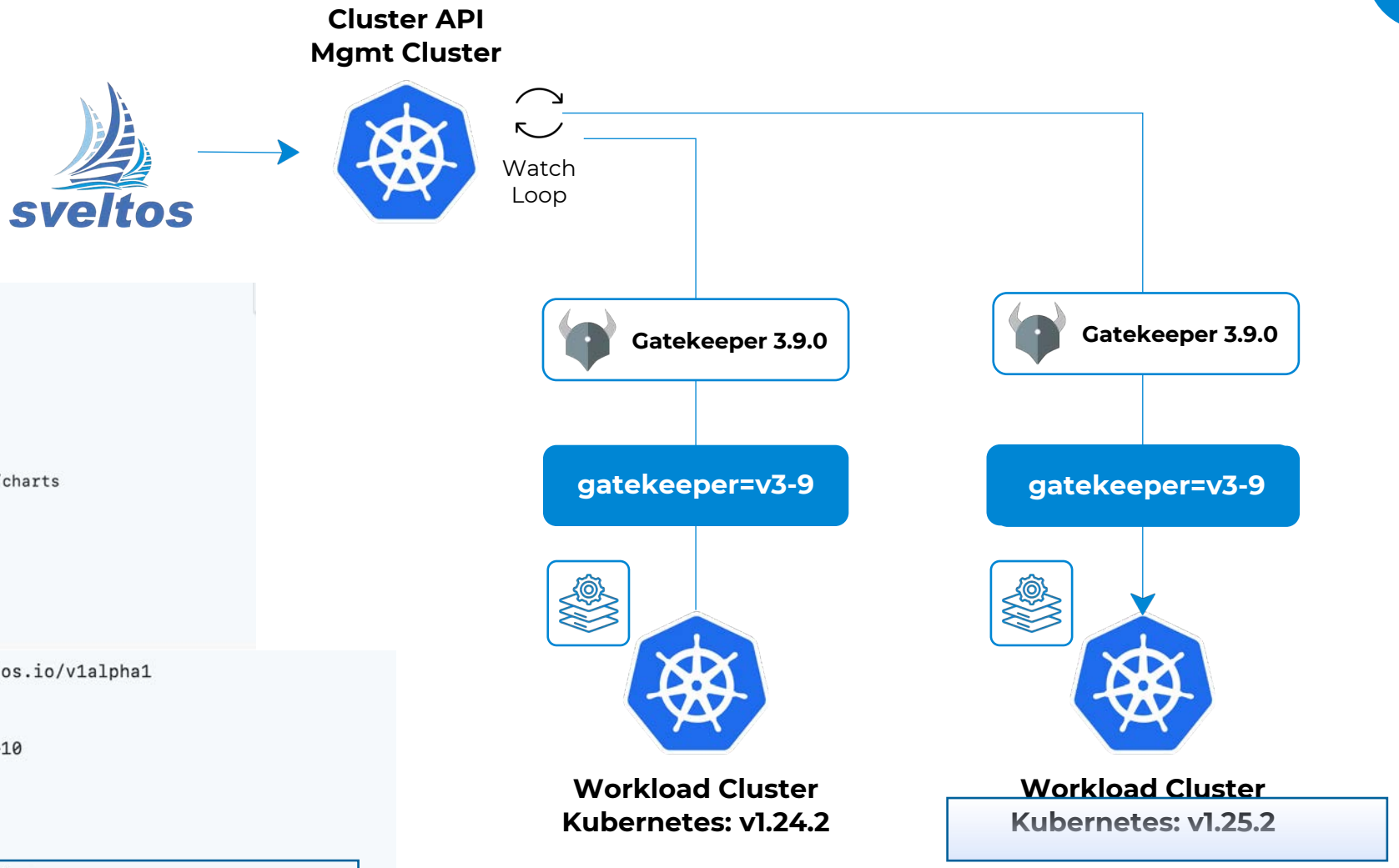


kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-10
spec:
  clusterSelector: gatekeeper=v3-10
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.10.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-10
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-10
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt

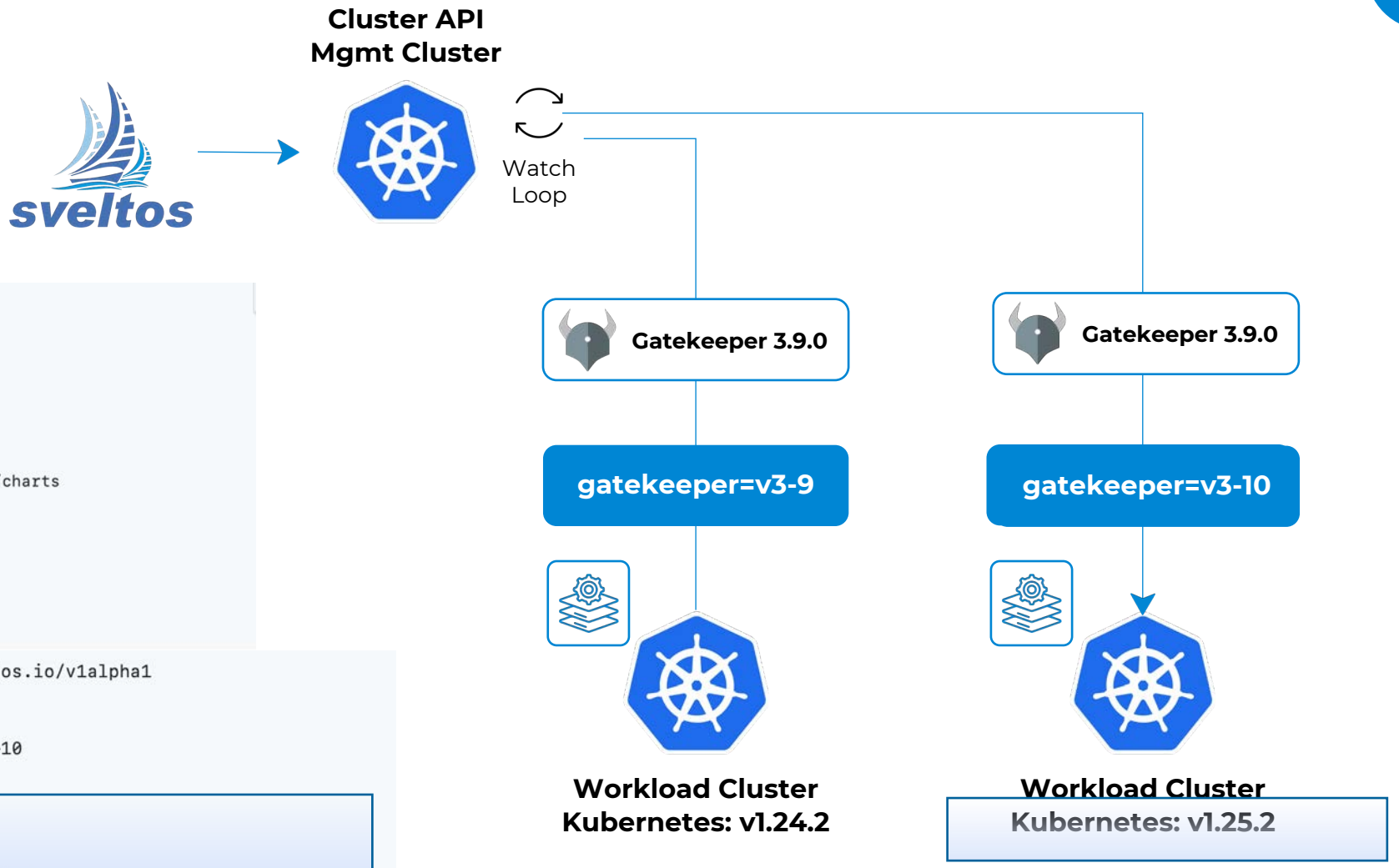


kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-10
spec:
  clusterSelector: gatekeeper=v3-10
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.10.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-10
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-10
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt

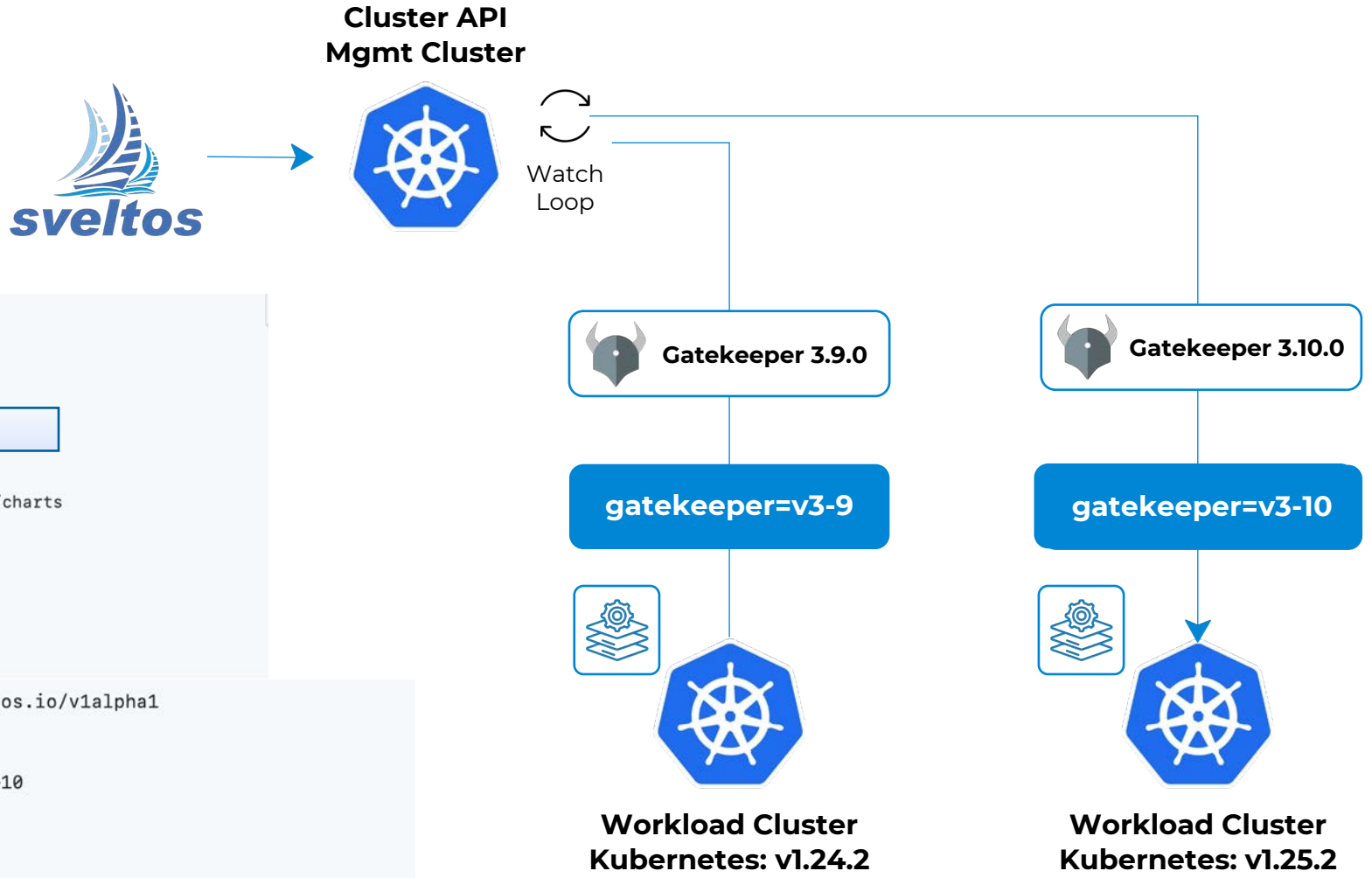


kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-10
spec:
  clusterSelector: gatekeeper=v3-10
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.10.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-10
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-10
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.25.0
```

Project Sveltos - Policy Driven Software Lifecycle Mgmt



kubectl apply -f ...

```yaml
apiVersion: config.projectsveltos.io/v1alpha1
kind: ClusterProfile
metadata:
  name: deploy-gatekeeper-3-10
spec:
  clusterSelector: gatekeeper=v3-10
  syncMode: Continuous
  helmCharts:
  - repositoryURL: https://open-policy-agent.github.io/gatekeeper/charts
    repositoryName: gatekeeper
    chartName: gatekeeper/gatekeeper
    chartVersion:  3.10.0
    releaseName: gatekeeper
    releaseNamespace: gatekeeper
    helmChartAction: Install
```

```yaml
apiVersion: lib.projectsveltos.io/v1alpha1
kind: Classifier
metadata:
  name: deploy-gatekeeper-3-10
spec:
  classifierLabels:
  - key: gatekeeper
    value: v3-10
  kubernetesVersionConstraints:
  - comparison: GreaterThanOrEqualTo
    version: 1.25.0
```

Snapshot and rollback

Sveltos can be configured to automatically store snapshot

```
apiVersion: utils.projectsveltos.io/v1alpha1
kind: Snapshot
metadata:
  name: hourly
spec:
  schedule: "00 * * * *"
  storage: /snapshot
```

A snapshot allows an administrator to perform the following tasks:
1.Live snapshots of the running configuration deployed by ClusterProfiles in each CAPI cluster;
2.Recurring snapshots;
3.Versioned storage of the configuration;
4.Full viewing of any snapshot configuration including the differences between snapshots;
5.Rollback to any previous configuration snapshot.

ProjectSveltos

- http://projectsveltos.io full documentation
- https://github.com/projectsveltos
- projectsveltos.slack.com