Securing your secrets using vault-k8s in Kubernetes — Part 1

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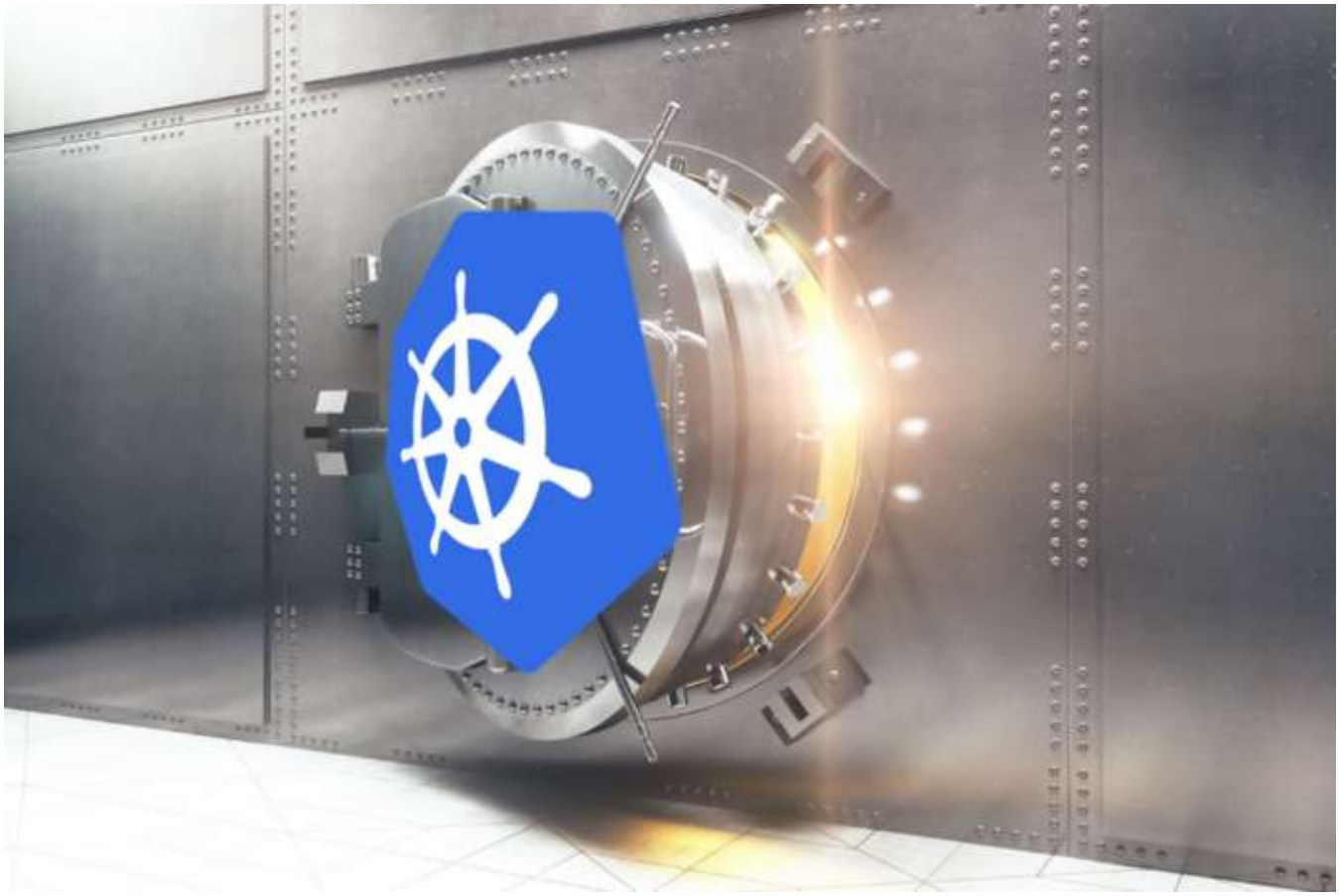
Jul 18, 2020 · 3 min read

Kubernetes secrets let you store and manage sensitive data such as passwords, ssh keys, Tls certificates, etc. However, there are few limitations to using the build-in secret management for Kubernetes. So, we often tend to rely on some third-party tools to handle secret management. One such tool is HashiCorp Vault. In this series of articles let's learn to secure our secrets using HashiCorp Vault-k8s in Kubernetes.



Integration of Vault and Kubernetes with vault-k8s

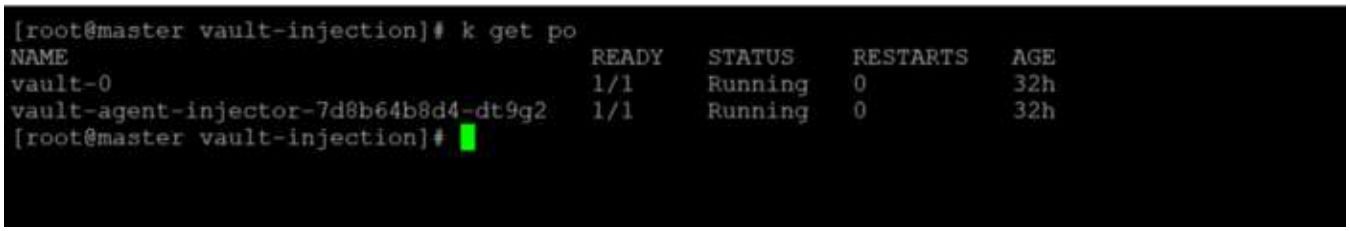
Installing vault in our cluster using Helm Chart :

1. Adding the helm repo for vault and Installing the helm chart:

```
helm repo add hashicorp https://helm.releases.hashicorp.com

helm install --name=vault --set='server.dev.enabled=true'
```

After the successful installation, you will find 2 pods running, lets exec in to our vault server to create our policies and roles



2. Creation of roles and policies and configuring the Kubernetes Auth Method.

```
kubectl exec -it vault-0 -- /bin/sh
```

Now let us configure the Kubernetes Auth Method

```
vault auth enable kubernetes

vault write auth/kubernetes/config \
   token_reviewer_jwt="$(cat
/var/run/secrets/kubernetes.io/serviceaccount/token)" \
   kubernetes_host=https://${KUBERNETES_PORT_443_TCP_ADDR}:443 \

kubernetes_ca_cert=@/var/run/secrets/kubernetes.io/serviceaccount/ca
.crt
```

Let’s create a policy called prod-policy and prod-role. Add the name of the service account and the namespace to which you want to give access over this secret and let’s create a secret called prod-secret.

```
vault policy write "prod-policy" -<<EOF
path "secret*" {
capabilities = ["read", "update"]
}
EOF

vault write auth/kubernetes/role/prod-role \
   bound_service_account_names=prod-sa \
   bound_service_account_namespaces=default \
   policies=prod-policy \
   ttl=1h

vault kv put secret/prod-secret username=pavankumar password=Kubeadm
```

Hurrah!!! We created our first secret and configured the access over this secret to our Kubernetes ServiceAccount (prod-sa). In the next article, we would be learning about **How to Inject the vault secrets into Kubernetes.**

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