HashiCorp Vault

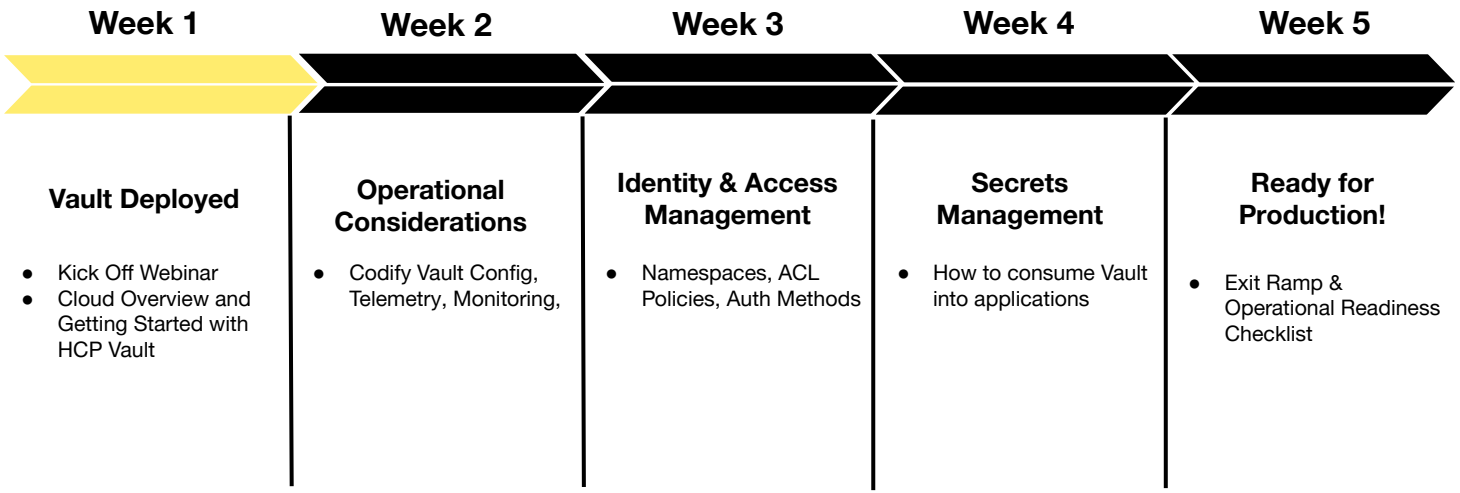
HCP Vault Getting Started

8/10//2022

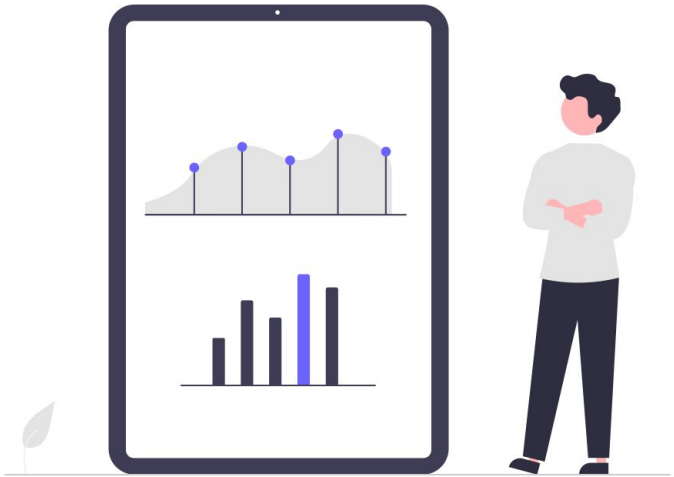
Agenda

- HashiCorp Cloud Platform Overview
- HCP Vault Overview
- Demo
- Next Steps

HCP Vault Path to Production



Poll time



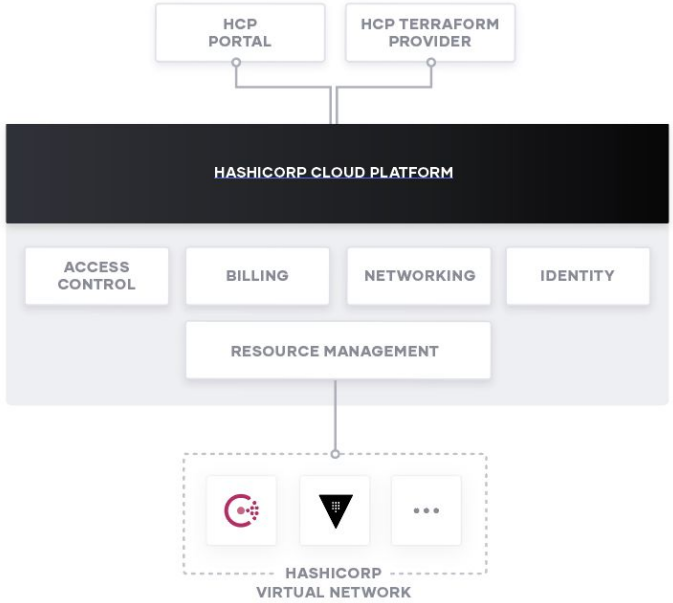
Which milestone(s) are you actively working on?

HashiCorp Cloud Platform Overview

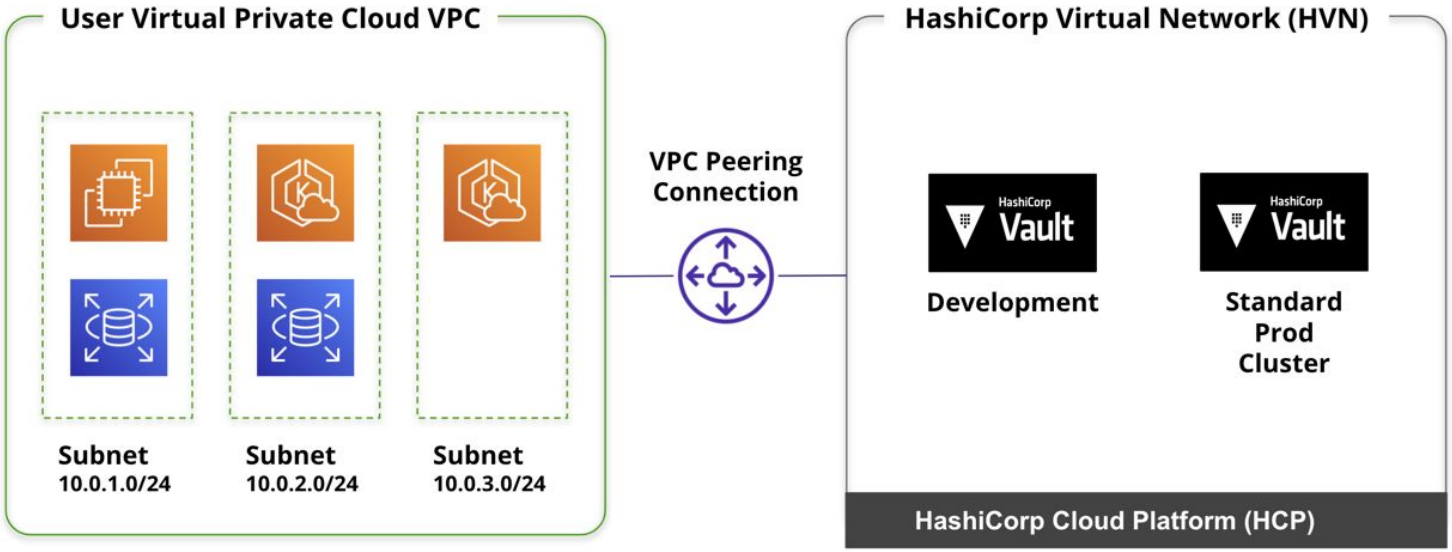
HCP Architecture

HCP consists of two main components, the control plane and data plane. The control plane is where you will manage your HCP Vault deployment.

The data plane contains all of your resources managed by HCP. Your HCP Vault clusters will be isolated into their own VPC managed in a HashiCorp Virtual Network.



HashiCorp Virtual Network (HVN)



Regions

Supported AWS Regions

Name	Identifier
US - Oregon	us-west-2
US - Virginia	us-east-1
Europe - Ireland	eu-west-1
Europe - London	eu-west-2
Europe - Frankfurt	eu-central-1
APAC - Singapore	ap-southeast-1
APAC - Sydney	ap-southeast-2

Access Controls HCP Platform

RBAC

The HCP console supports the capability to control permissions via RBAC roles.

MFA

When using the email based authentication, you can integrate with an MFA provider. This will increase the security of your HCP account and your companies data.

Add Users

Email based authentication allows you to invite additional users to join your organization. SSO integration is also available.

HCP RBAC Permissions

	Viewer	Contributor	Admin
Add and delete users			X
Manage user permissions			X
View users	X	X	X
Manage service principles			X
View current billing status	X	X	X
Create, edit, and delete HCP resources		X	X
View HCP resources	X	X	X

Single Sign-On

HCP supports federating identity from your trusted identity provider as an alternative to Github or email-based options. Currently, HCP supports Okta as an external IDP.

- Learn more about SSO at https://cloud.hashicorp.com/docs/hcp/sso

Automate HCP using Terraform

Automate through codification. The HCP provider for Terraform can manage the full lifecycle of your HCP resources. By managing your HCP infrastructure as code you will be able to build repeatable configurations that could be included as part of your build pipelines.

SLA

HashiCorp will use commercially reasonable efforts to maximize the availability of HashiCorp Cloud services, and provides uptime guarantees as detailed below. This Service Level Agreement (“SLA”) applies only to HashiCorp Cloud services at the Enterprise tier or above and does not apply to any other product offered by HashiCorp (Excludes development tier clusters).

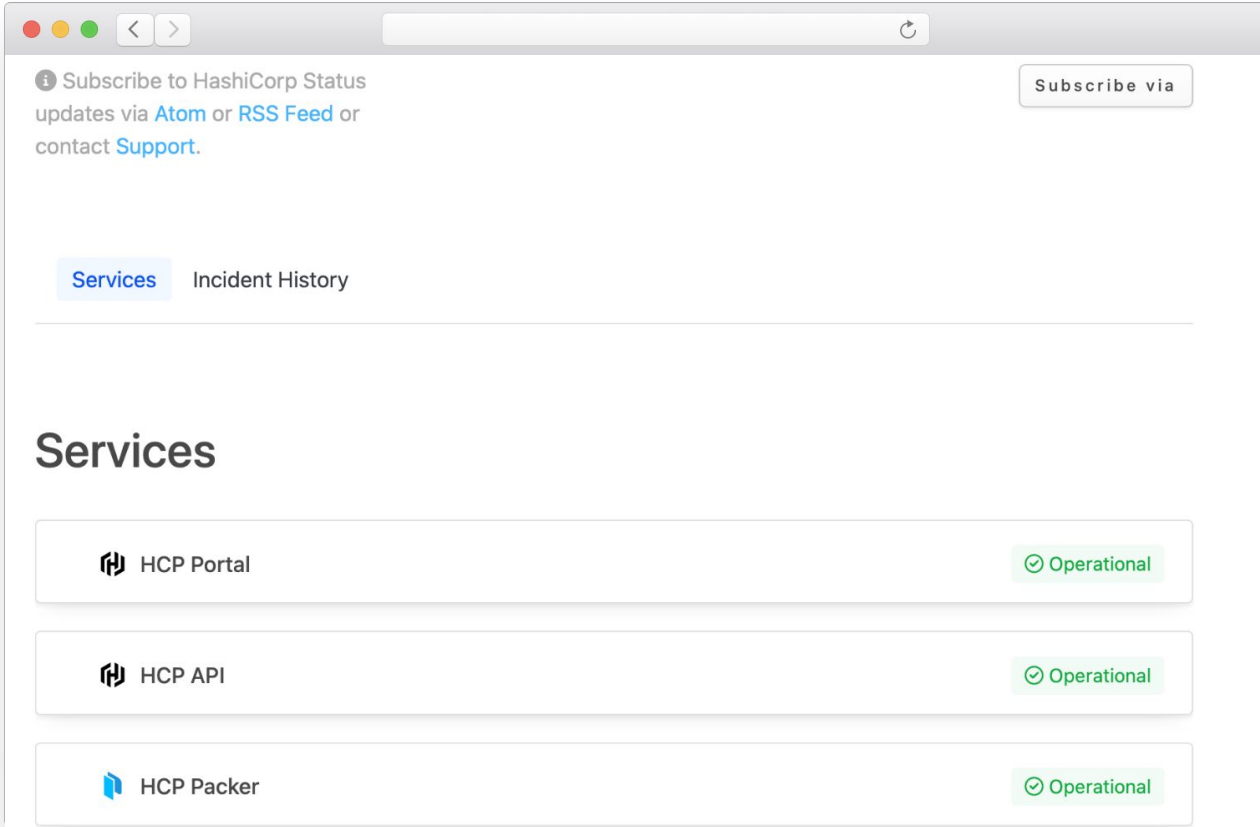
If we do not achieve and maintain the Quarterly Uptime Percentages set forth in the table below, then you may be eligible for the following Service Credit(s).

Quarterly Uptime Percentage	Service Credit
< 99.9% but >= 99.5%	10%
< 99.5% but >= 99%	20%
< 99%	30%

SLA included as a reference and is subject to change. Latest applicable SLA can be found at https://cloud.hashicorp.com/sla

Monitor HCP Status

status.hashicorp.com



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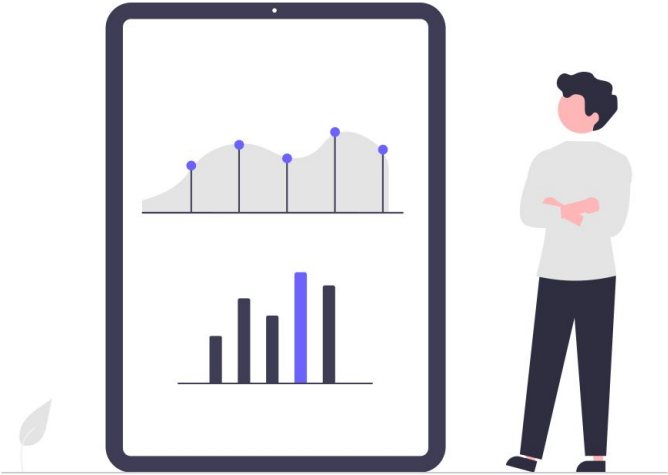
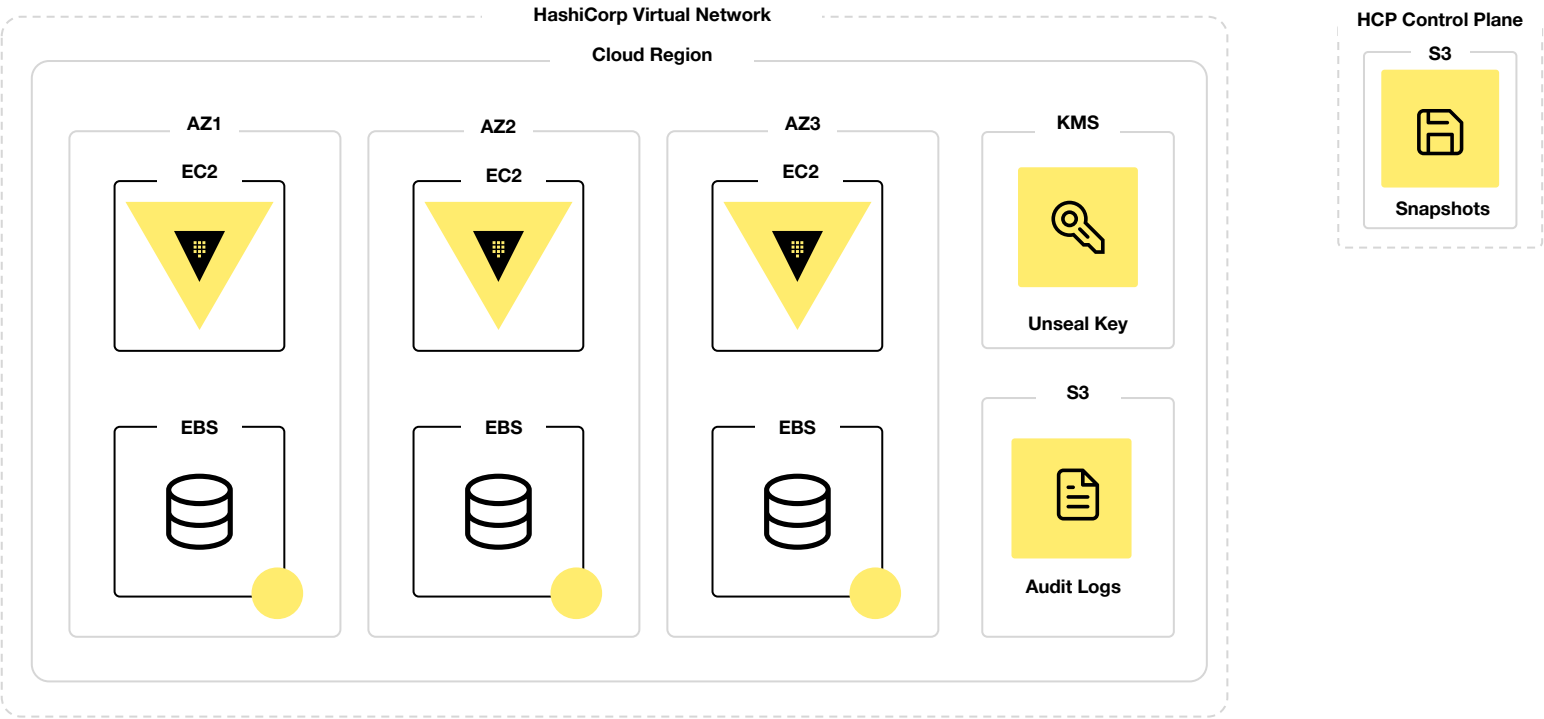


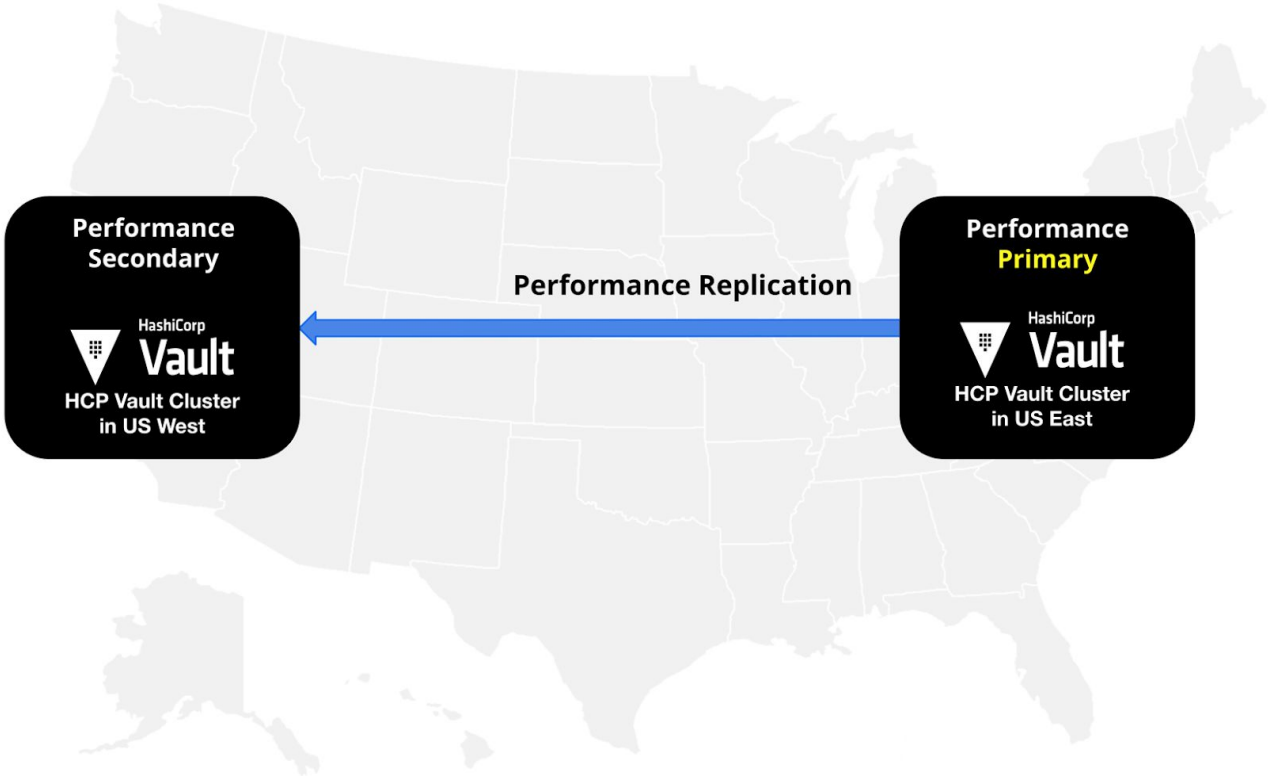
Q: Have you activated your HCP Organization?

Getting Started with HCP Vault

HCP Vault Architecture



HCP Vault Plus Architecture



HCP Vault vs Self-managed

	Self-managed	HCP Vault
Infrastructure provisioning	Customer managed	HashiCorp managed
Infrastructure operations	Customer managed	HashiCorp managed
Vault updates	Customer managed	HashiCorp managed
Seal	Customer managed	HashiCorp managed
Auth Methods and Secrets Engines	All	Subset currently validated
Vault configuration	Customer managed	Customer managed

HCP Vault Tiers

Development	Starter	Standard	Plus
Designed to get started quickly for small projects, proof-of-concepts, non-production workloads.	Designed as affordable, production-ready clusters with clients included to get started quickly.	Clusters designed to scale with the demand of running production workloads.	Designed for high availability replication of secrets and policies across multiple data centers.
1 Node Cluster	**3 Node Cluster Tiers**		
Extra Small	Small	Small Medium Large	Small Medium Large

HCP Vault Tiers

		Max Clients	vCPU	Memory	Storage	High Availability	Rate Limit	Performance Replication
Pre-Production Tiers	**Development**	25	2	1 GiB	Snapshots & audit logs not supported	1 node cluster	60 requests/sec	No
Production Tiers	**Starter**		2	8 GiB	5 GB storage, 250 GB for snapshots & audit logs	3 node cluster	200 requests/sec	No
	Standard / Plus Small	No Limit	2	8 GiB	15 GB storage, 1 TB for snapshots & audit logs		400 requests/sec	Plus Only
	Standard / Plus Medium		4	16 GiB	30 GB storage, 5 TB for snapshots & audit logs		No Limit	
	Standard / Plus Large		8	32 GiB	50 GB storage, 10 TB for snapshots & audit logs			

HCP Vault Security

Cluster Hardening

HCP Vault clusters adhere to our production hardening guidelines. This ensures that each cluster has E2E TLS, firewall restrictions to only inbound TCP/8200, restricted storage access, and no clear text credentials. Refer to our production hardening guide for all hardening practices.

Root Tokens

During creation of an HCP Vault cluster, a root token is generated during the initialization process. This token is used to create the

- initial authentication methods
- define policies
- establish trust with the HCP control plane.

This token is revoked once setup is completed.

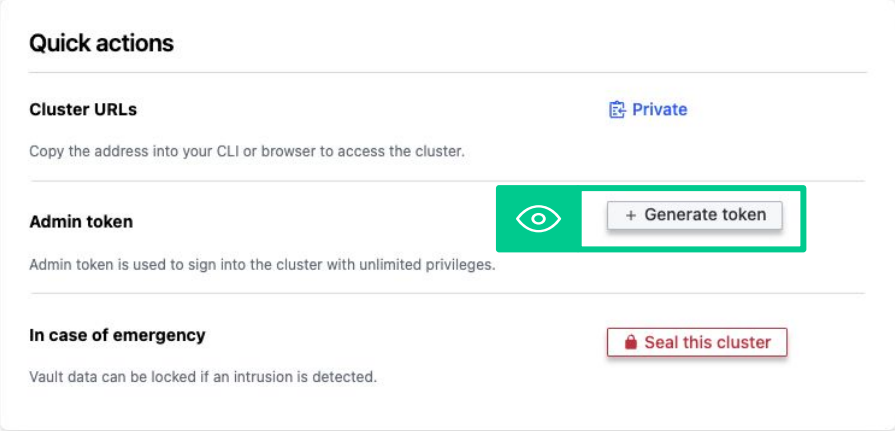
Vault Data

Vault's data is encrypted and stored in an account-specific Amazon Elastic Block Store (EBS) in the same region as the cluster.

Snapshots are stored in HashiCorp managed, encrypted Amazon S3 buckets in the US. When downloading, audit logs are sent to US to be concatenated for download.

Admin Token

Admin tokens are similar to root tokens and should only be used during initial setup of an HCP Vault cluster or in the event that you do not have access to the cluster. This token is highly privileged and can access all endpoints within your cluster. Once a token is generated it is only valid for 6 hours.



Initialization Process

1

Operator creates HCP Vault cluster

Vault Operator → HCP Portal

2

Operator generates admin token

Vault Operator → Generate Admin Token

3

Operator sets up first authentication method, and basic policies

Vault Operator → Vault UI/CLI/API

4

Operator revokes admin token.

Vault Operator → Revoke Admin Token

Authentication Methods

Supported Authentication Methods

To date, HCP Vault has been validated to work with the listed authentication methods. Additional authentication methods beyond the ones listed can be enabled, however operators may encounter limitations with configuration or functionality.

Human	Machine
Azure AD	**AWS EC2**
Okta	**AppRole**
GCP (without G Suite option)	**Kubernetes**
Github	*JWT*
OIDC	*AWS IAM*
LDAP	
User/Pass	

Bold: Verified and supported
Italicized: Unverified auth method

Secrets Engines

Supported Secrets Engines

To date, HCP Vault has been validated to work with the listed secrets engines. Additional secrets engines beyond the ones listed can be enabled, however operators may encounter limitations with configuration or functionality.

Secrets Engines
Key/Value (V1 & V2)
AWS
Transit
RDS PostgreSQL
Mongo Atlas
Snowflake DB

Constraints

Root Namespace

No access is granted to the root namespace. When you access an HCP Vault cluster you will be within the admin namespace.

Admin Token Policy

The admin policy used for admin tokens generated in the HCP portal is located in the admin namespace. It is viewable and editable by customers however it should not be edited.

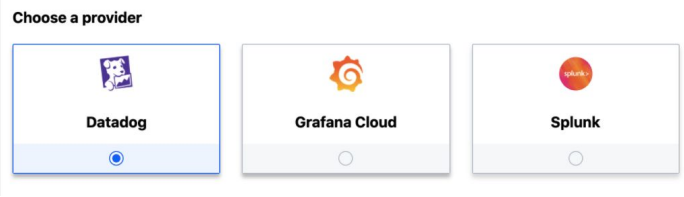
Additional constraints can found here.

Cluster Deletion

Deletion of an HCP Vault cluster is a permanent, irreversible action

Currently, when deleting an HCP Vault cluster all data stored in the data plane is removed. This includes all snapshots and audit logs.

Audit logs can be exported in one hour increments from the HCP Portal. We recommend streaming audit logs to Datadog, Grafana, or Splunk for audit log retention.

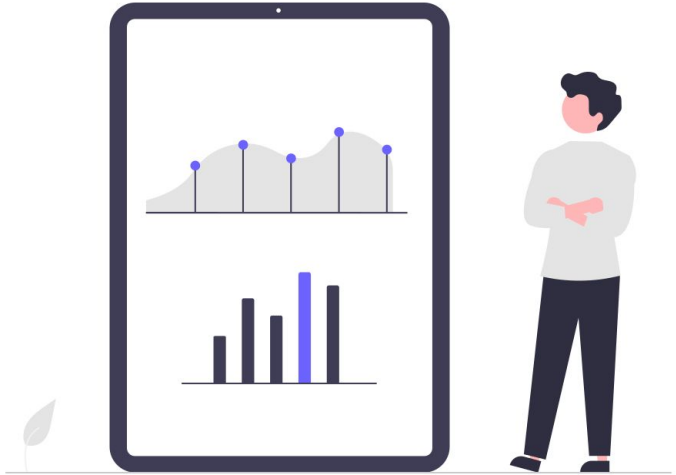


Performance Considerations

Profile Workloads
As you scale the adoption of Vault throughout your organization, you will have varying workloads access Vault. Telemetry monitoring should be leveraged to ensure proactive monitoring of Vault Cluster resources. Additionally, as you onboard new applications/services/teams/users to Vault, take time to profile the usage patterns to ensure optimal authentication and consumption patterns are used.

External Systems
Depending on the Authentication Methods and Secrets Engines used by your organization, you will likely have dependency on other external systems for Vault requests to be completed. Ensure telemetry is enabled on those services and proactively monitor for performance issues.

Poll time



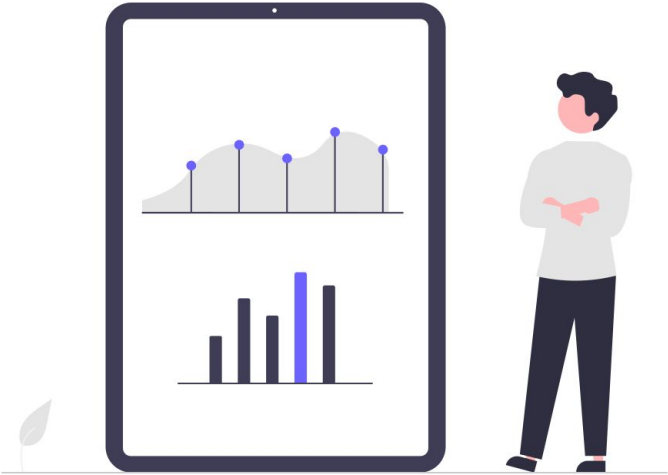
Q: Have you profiled your workloads?

Demo

Demo

- Accessing HashiCorp Cloud Platform
- Navigating HCP Portal
- Create a HashiCorp Virtual Network
- Create a HCP Vault Cluster
- Create a Vault Operator policy
- Enable initial authentication method for Vault Operator
- Create a Vault Namespace
- Enable KV Secrets engine and write a secret

Poll time



Q: Are you ready to create your first HCP Vault Cluster?

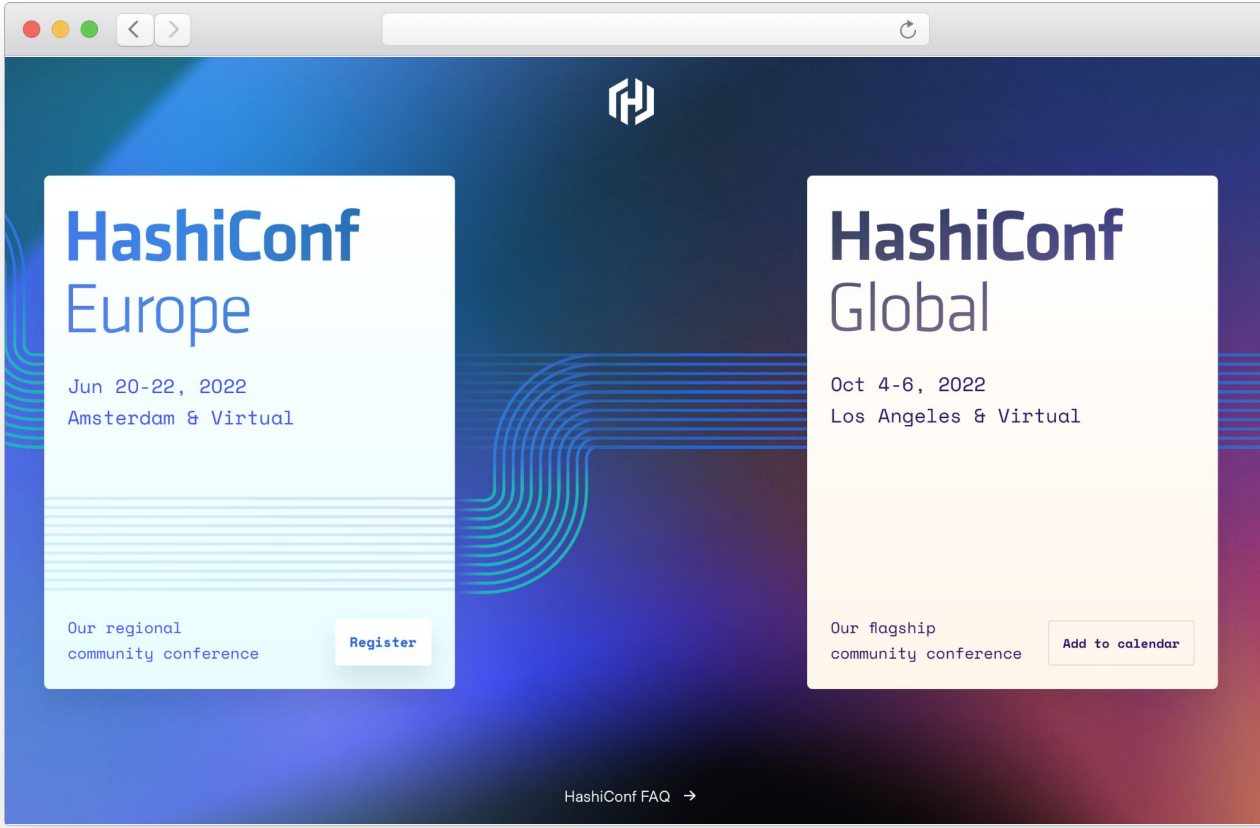
Next Steps

Next Steps

- Upcoming Schedule:
  - Week 3 - HCP Vault - Operationalize your HCP Vault Clusters
  - Week 4 - HCP Vault - Identity and Access Management Strategy

HashiConf

https://hashiconf.com



Need Additional Help?

Customer Success

Contact our Customer Success Management team with any questions. We will help coordinate the right resources for you to get your questions answered.

customer.success@hashicorp.com

Technical Support

Something not working quite right? Engage with HashiCorp Technical Support by opening a new ticket for your issue at Hashicorp Support.

Thank You

customer.success@hashicorp.com
www.hashicorp.com