



# Consul, Vault, and k8s

# ITEMS

Hashicorp and Kubernetes  
Consul Servers and Agents in k8s  
Vault HA on GKE  
Consul Connect and non-k8s Resources



# Hashicorp and Kubernetes





# Consul Integrations

Helm Charts

Consul Server in k8s

Consul Agents in k8s

2-way Catalog Sync

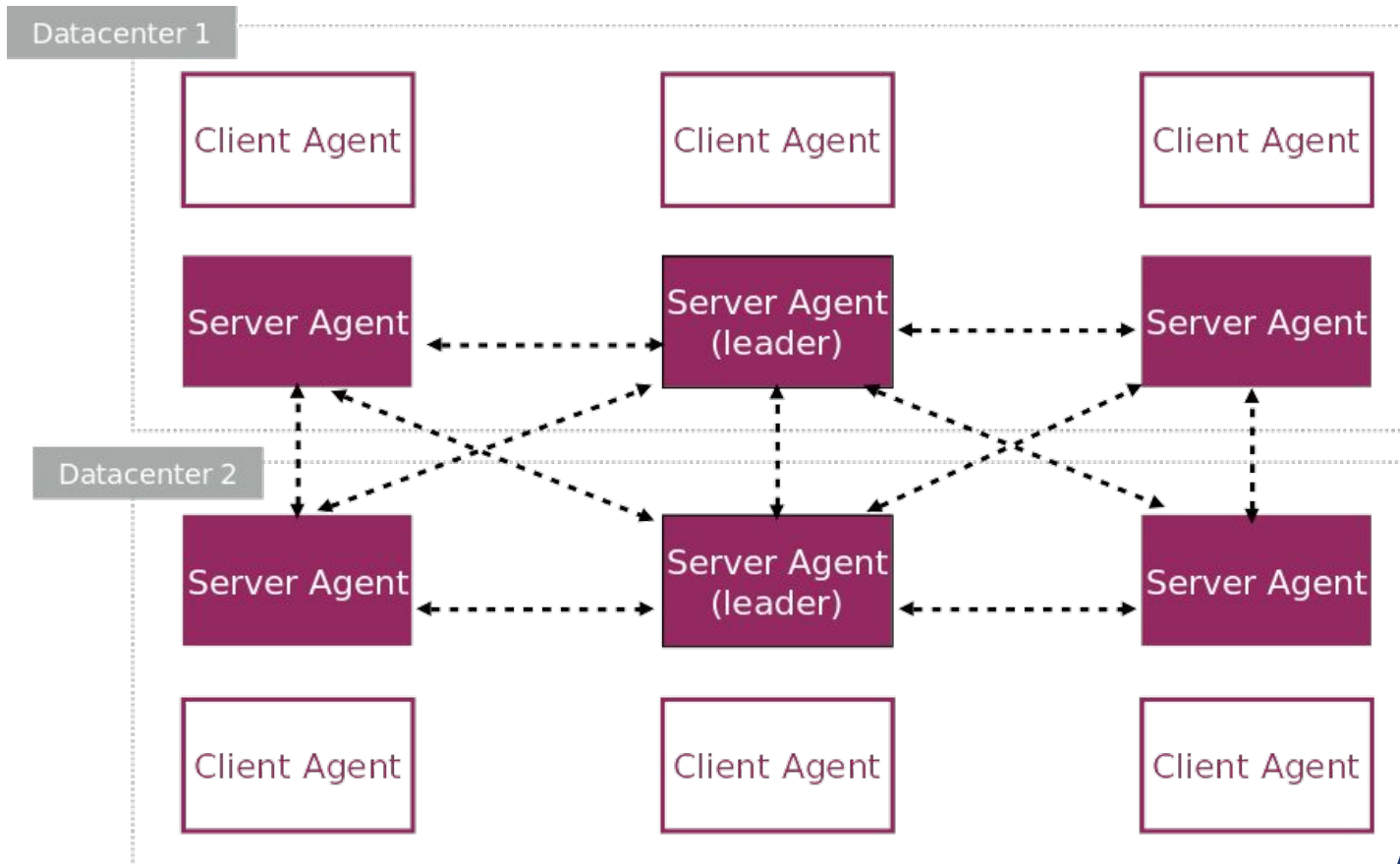
Consul Connect



# Vault Integrations

Kubernetes Authentication  
Sidecars for Auto Secret Fetch

# Consul and Kubernetes Service Mesh Architecture



# Delegated DNS Domain

```
; <> DiG 9.11.2-P1-RedHat-9.11.2-1.P1.fc26 <> hugdemo.arctiq.ca NS +noall +answer
;; global options: +cmd
hugdemo.arctiq.ca.      0      IN      NS      consul-0.node.cs1.hugdemo.arctiq.ca.
hugdemo.arctiq.ca.      0      IN      NS      consul-1.node.cs1.hugdemo.arctiq.ca.
hugdemo.arctiq.ca.      0      IN      NS      consul-2.node.cs1.hugdemo.arctiq.ca.
```

```
; <> DiG 9.11.2-P1-RedHat-9.11.2-1.P1.fc26 <> consul.arctiq.ca +noall +answer
;; global options: +cmd
consul.arctiq.ca.       299    IN      A       35.203.81.231
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
consul-public	LoadBalancer	10.11.252.168	35.203.81.231	53:32674/UDP,8600:31836/UDP	2d10h



# Pod Architecture

NAME	READY	STATUS	RESTARTS	AGE
consul-0	1/1	Running	0	2m17s
consul-1	1/1	Running	0	2m7s
consul-2	1/1	Running	0	108s
consul-agents-6bdcz	1/1	Running	0	2m20s
consul-agents-b7nqp	1/1	Running	0	2m11s
consul-agents-h9mc7	1/1	Running	0	2m22s
consul-agents-l2b4j	1/1	Running	0	2m11s
consul-agents-pftlf	1/1	Running	0	2m23s
consul-agents-z82hp	1/1	Running	0	2m14s
consul-sync-69c4678984-t22jk	1/1	Running	0	3h10m

# Consul Mesh

Node	Address	Status	Type	Build	Protocol	DC	Segment
consul-0	10.8.2.33:8301	alive	server	1.3.0	2	cs1	<all>
consul-1	10.8.3.26:8301	alive	server	1.3.0	2	cs1	<all>
consul-2	10.8.1.33:8301	alive	server	1.3.0	2	cs1	<all>
consul-agents-6bdcz	10.8.5.23:8301	alive	client	1.3.0	2	cs1	<default>
consul-agents-b7nqp	10.8.3.25:8301	alive	client	1.3.0	2	cs1	<default>
consul-agents-h9mc7	10.8.0.21:8301	alive	client	1.3.0	2	cs1	<default>
consul-agents-l2b4j	10.8.2.32:8301	alive	client	1.3.0	2	cs1	<default>
consul-agents-pftlf	10.8.4.22:8301	alive	client	1.3.0	2	cs1	<default>
consul-agents-z82hp	10.8.1.32:8301	alive	client	1.3.0	2	cs1	<default>

A black magic hat with a red band sits on a dark surface. A wand with a silver tip and black handle lies to the left. A large number of small, five-pointed gold stars are falling from the hat's brim. A playing card, the four of diamonds, is propped up against the front of the hat.

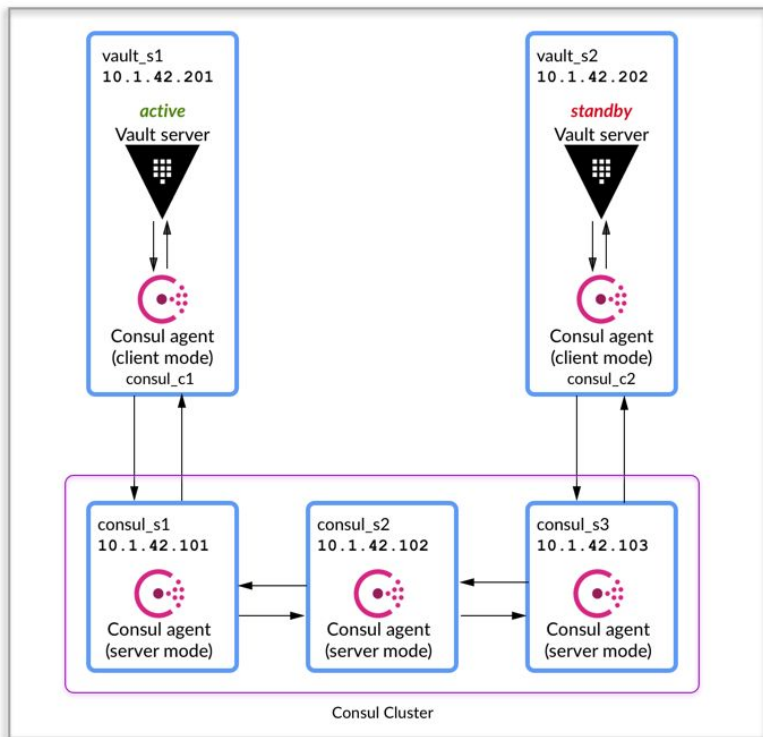
# Demo Time!

A vintage black rotary telephone with a 'CALL EXCHANGE' label is positioned on the left. To its right, a magnifying glass with a wooden handle is focused on a document that has 'TOP SECRET' and 'CONFIDENTIAL' printed in red. A fountain pen lies on the document below the magnifying glass. The entire scene is overlaid with a semi-transparent blue filter.

# Vault HA on Kubernetes



# Reference Architecture



# Vault HA Status

Key	Value
---	-----
Recovery Seal Type	shamir
Sealed	false
Total Recovery Shares	5
Threshold	3
Version	0.11.1.1
Cluster Name	arctiq-vault
Cluster ID	df601f33-71e6-79c3-fb24-41fc38186c92
HA Enabled	true
HA Cluster	https://10.11.246.226:8201
HA Mode	active

	Value
	-----
	shamir
	false
	5
	3
	0.11.1.1
	arctiq-vault
	df601f33-71e6-79c3-fb24-41fc38186c92
	true
	https://10.11.246.226:8201
	standby
Active Node Address	https://10.11.246.226:8200

# Vault Audit

```
▼ {
  insertId: "uis3ulfft72xi"
  ▼ jsonPayload: {
    ▼ auth: {
      accessor: "hmac-sha256:91b82e2dbbdeea2eef64be45c66bc96b37146a92b5ec67993c594dc2244dbaa6"
      client_token: "hmac-sha256:1a71327769bd5d51e8f33c3d05b682feee763488c0c3787d067cbd7e0df872d4"
      display_name: "root"
      entity_id: ""
      metadata: null
    }
    ▼ policies: [
      0: "root"
    ]
    ▼ token_policies: [
      0: "root"
    ]
  }
  error: ""
  ▼ request: {
    client_token: "hmac-sha256:1a71327769bd5d51e8f33c3d05b682feee763488c0c3787d067cbd7e0df872d4"
    client_token_accessor: "hmac-sha256:91b82e2dbbdeea2eef64be45c66bc96b37146a92b5ec67993c594dc2244dbaa6"
    data: null
    ► headers: {...}
    id: "916483ef-3fe2-2f40-8428-8e20d7028b2d"
    ► namespace: {...}
    operation: "read"
    path: "sys/internal/ui/mounts/cloud-provisioners/test"
```

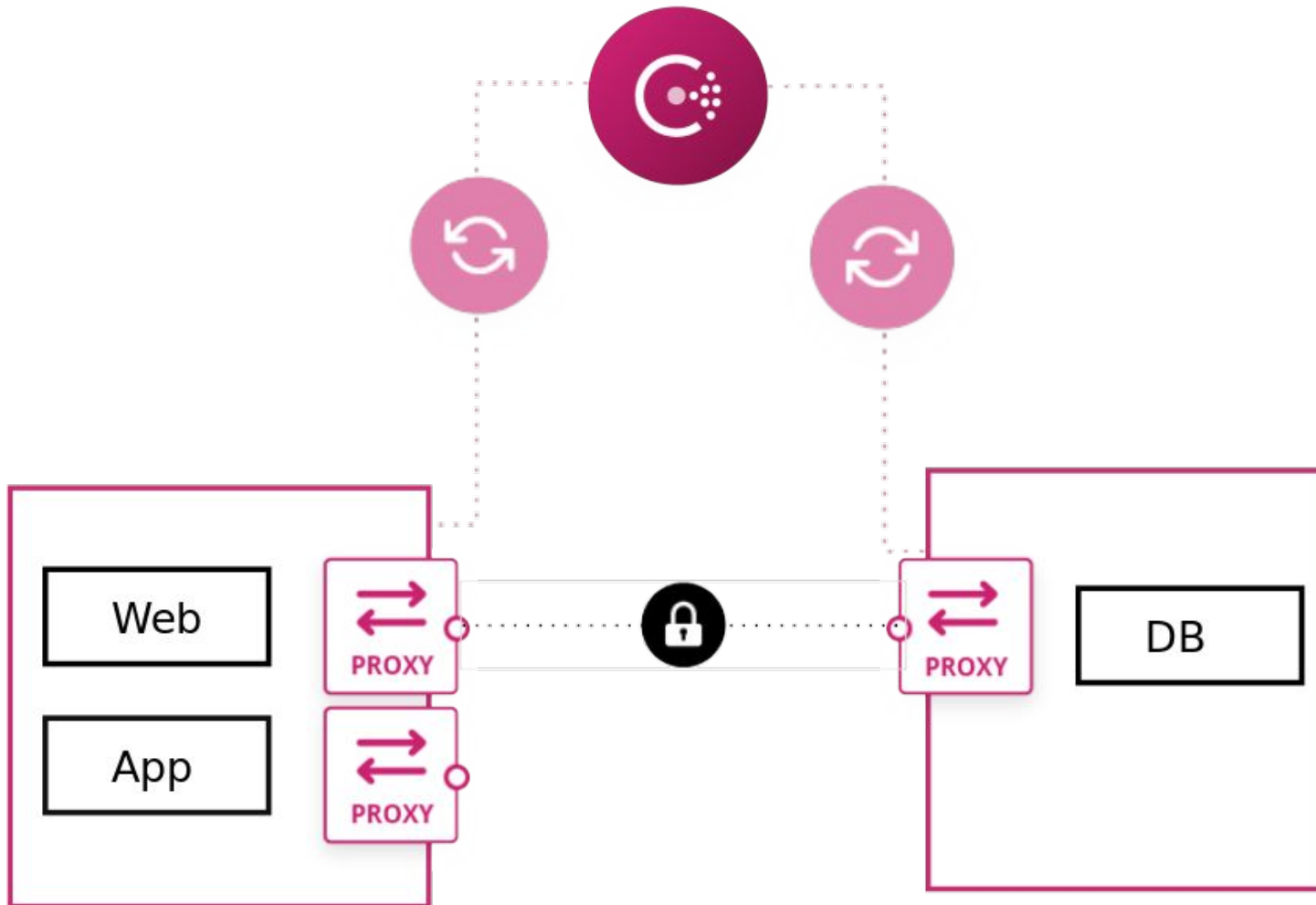
A black magic hat with a red band sits on a dark surface. A black wand with a silver tip lies to the left of the hat. A large number of small, five-pointed gold stars are falling from the brim of the hat into the air. A playing card, the four of diamonds, is propped up against the front of the hat.

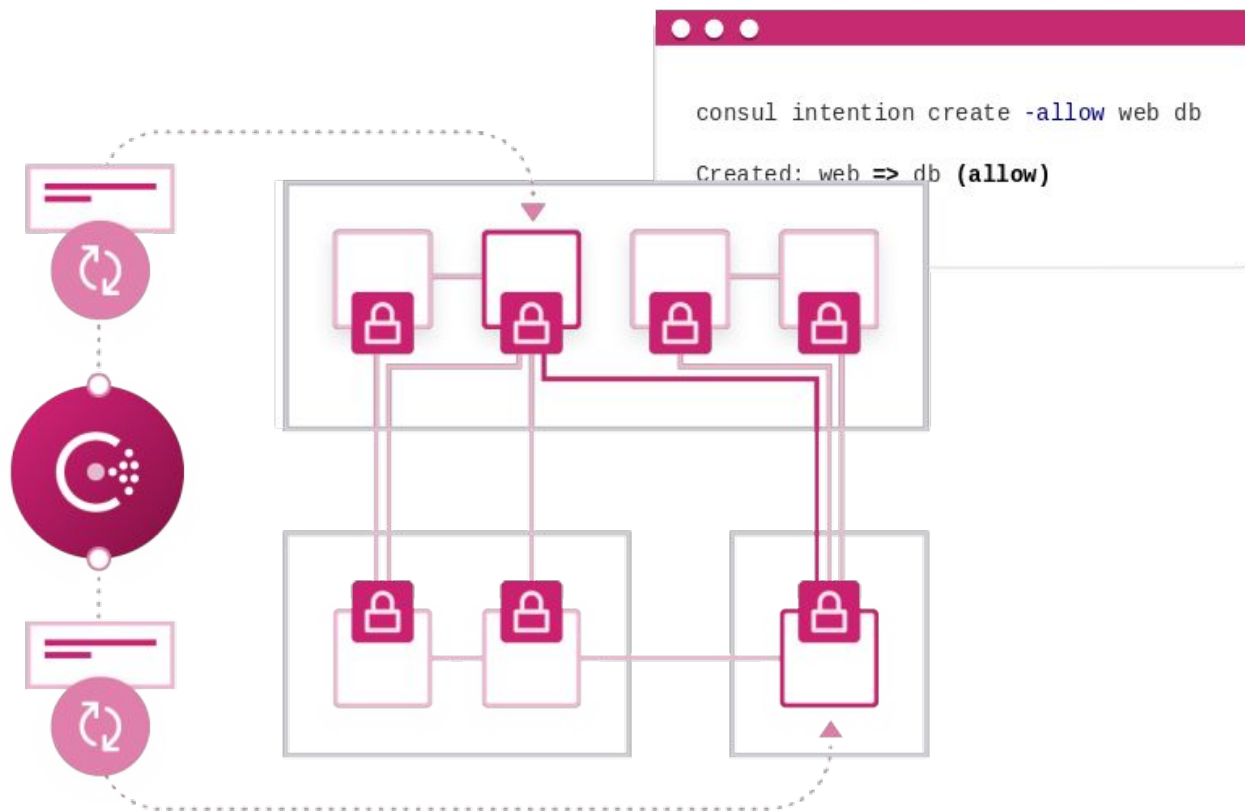
# Demo Time!



A blue-tinted background image showing two hands from different people reaching towards each other and connecting two interlocking puzzle pieces. The puzzle pieces are a dark purple color. The text 'Consul Connect' is overlaid in white, centered between the two hands.

# Consul Connect





# Integration Options

**Standard Consul Proxy**

**Envoy Proxy**

**Automatic Kubernetes Injection**



A black magic hat with a red band sits on a dark surface. A black wand with a silver tip lies to the left of the hat. A large number of small, five-pointed gold stars are falling from the brim of the hat, creating a cascading effect. A playing card, the four of diamonds, is propped up against the front of the hat.

# Demo Time!

THANK YOU