**Overview:**

Consul is a service mesh solution providing a full featured control plane with service discovery, configuration, and segmentation functionality.

**Use Cases:**

- Service Registry

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- Health Monitoring

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- Dynamic Load Balancing

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- Secure Service-to-Service Communication

Graphical user interface, application

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- Layer 7 Traffic Management

Graphical user interface, application

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- KV Store

Diagram

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**Hardware Requirements (VMs & k8s):**

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**Network Requirements (VMs & k8s):**

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**Infrastructure Design (VMs & k8s):**

Diagram, schematic

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**Datacenter Design (VMs):**

- Single Datacenter

- Multiple Datacenters

- Consul Connect service mesh and multiple datacenters

**Datacenter Design (k8s):**

- Consul datacenter deployed in Kubernetes

- Consul datacenter with a Kubernetes cluster

- Multiple Consul datacenters with a Kubernetes cluster

**Production Readiness Checklist (VMs & k8s):**

1) Infrastructure Planning

2) Ports

3) Deployment:

- Consul Servers

- Consul Clients

**Networking (VMs & k8s):**

- DNS Caching

- DNS Forwarding

- Multiple Datacenters Federation

**Security (VMs & k8s):**

- Communication Encryption

- TLS Encryption

- ACL

**Monitoring & Failure Recovery (VMs):**

- Telemetry

- Backups

**Monitoring & Failure Recovery (k8s):**

- Telemetry

- Backups

- Layer 7 Observability