INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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<u>HASHICORP CONSULTRAINING</u>

- 1 **Introduction to Consul**

  - Overview of Consul's purpose and features
  - Understanding Consul's architecture
  - Installation and setup

- 2 **Service Discovery**

  - Registering services with Consul
  - Discovering services using DNS or HTTP
  - Health checking services
  - Failover and load balancing

- 3 **Key/Value Store**

  - Using Consul's key/value store for configuration management
  - Consul's consistency model
  - Securing and encrypting data in the key/value store

- 4 **Service Mesh**

  - Introduction to Consul Connect
  - Service segmentation and traffic management
  - Secure service-to-service communication with mutual TLS
  - Traffic splitting and routing

- 5 **Multi-Datacenter Deployments**

- Federating Consul clusters across multiple data centers
- Consul WAN gossip protocol
- Managing configuration and consistency across data centers

- 6 **Integration with Other Tools**

  - Using Consul with other HashiCorp tools like Terraform, Vault, and Nomad
  - Integrating Consul with Kubernetes
  - Automation and scripting with Consul's API and CLI

- 7 **Monitoring and Logging**

  - Monitoring Consul itself
  - Integrating Consul with monitoring and logging systems like Prometheus and ELK stack
  - Alerting and troubleshooting

- 8 **Best Practices and Use Cases**

  - Design patterns for using Consul in real-world scenarios
  - Case studies and examples of successful Consul deployments
  - Best practices for security, scalability, and reliability

- 9 **Hands-On Labs and Exercises**

  - Practical exercises to reinforce concepts learned
  - Setting up and configuring Consul in various scenarios
  - Troubleshooting common issues and challenges

1o: Consul Architecture and Core Concepts

- Review of Consul architecture and its components
- Understanding the Consul data model
- Advanced service discovery techniques
- Consul agent modes and their use cases
- Best practices for deploying Consul in production environments

11 : Service Mesh with Consul

- Introduction to service mesh concepts
- Implementing service mesh using Consul Connect
- Secure service-to-service communication with mutual TLS
- Traffic splitting and routing with Consul intentions
- Observability and monitoring with Consul service mesh

12 : Advanced Consul Networking

- Deep dive into Consul network segmentation
- Configuring and managing Consul WAN federation
- Advanced use cases for Consul ACLs
- Secure communication between Consul clusters
- Consul network architecture patterns and best practices

13 : Consul and Kubernetes Integration

- Installing and configuring Consul on Kubernetes
- Leveraging Consul service mesh in Kubernetes environments
- Consul Kubernetes operator: deployment and management
- Consul service catalog integration with Kubernetes services
- Monitoring and managing Kubernetes workloads with Consul

14 : Consul Enterprise Features

- Overview of Consul Enterprise features
- Multi-datacenter deployment strategies with Consul Enterprise
- Advanced Consul UI features and customization options
- Performance tuning and optimization in Consul Enterprise
- Disaster recovery planning and implementation with Consul Enterprise

15 : Consul Advanced Use Cases

- Implementing complex service discovery patterns with Consul
- Dynamic configuration management with Consul KV store

- Advanced Consul monitoring and alerting techniques
- Integrating Consul with other HashiCorp products (Vault, Nomad)
- Real-world case studies and hands-on exercises

16 : Consult Best Practices and Troubleshooting

- Best practices for deploying and managing Consul at scale
- Common pitfalls and how to avoid them
- Troubleshooting techniques for Consul deployments
- Performance optimization tips and tricks
- Future trends and advancements in Consul ecosystem