FIREFLY

Cisco Partner
Platinum Learning
Premier Integrator
Operational Technology Supplier

ISOVALENT-ELITE

Coming soon...

DURATION: 4 DAYS | **PRICE:** USD - | **CLCs:** - | **CE:** -

COURSE CODE: ISOVALENT-ELITE | **FORMAT:** Lecture & Lab

COURSE DESCRIPTION

Modern cloud-native environments demand a new approach to networking, security, and operations. As Kubernetes adoption continues to accelerate, engineers must understand how to design, deploy, secure, and operate dynamic application platforms that go far beyond traditional networking models — a shift where Cisco, through the Isovalent-built Cilium platform, now sits at the center.

ISOVALENT-ELITE is an official Cisco course, developed exclusively by Firefly, delivering comprehensive instructor-led training on the complete lifecycle of enterprise Cilium deployments — built on the eBPF-powered networking, security, and observability platform created by Isovalent, now part of Cisco. Across nine in-depth modules and extensive hands-on labs, students progress from Kubernetes networking fundamentals to advanced Cilium architecture, installation and deployment strategy, identity-based policy enforcement, service exposure and egress control, encryption and performance tuning, Hubble-driven observability, ClusterMesh multi-cluster networking, and Tetragon-powered runtime security operations.

Designed around real-world enterprise scenarios, Isovaltent-Elite focuses on the practical deployment strategies, operational best practices, and troubleshooting techniques that Cisco and Isovalent field teams rely on to confidently deploy and manage Cilium-powered Kubernetes environments across on-premises, hybrid, and multi-cloud infrastructures.

TARGET AUDIENCE

This course is designed for professionals responsible for designing, deploying, securing, and operating Kubernetes networking platforms, including:

- Network Engineers
- Cloud Infrastructure Engineers
- Platform Engineers
- Security Engineers
- Kubernetes Administrators

- DevOps Engineers
- Site Reliability Engineers (SRE)
- Solutions Architects
- Technical Consultants supporting cloud-native infrastructures

PREREQUISITES

Basic knowledge of Linux, Kubernetes, and container networking is recommended. Prior experience with Cilium is not required.

COURSE OBJECTIVES

Upon completion of this course, students will be able to:

- Understand cloud-native networking principles and Kubernetes networking architecture.
- Explain how eBPF enables high-performance networking, security, and observability within Kubernetes.
- Design and deploy Cilium as the primary networking platform for Kubernetes clusters.
- Select appropriate deployment models, routing strategies, and IP Address Management (IPAM) options.
- Implement identity-based security using Cilium Network Policies.
- Configure secure service exposure using Gateway API, LoadBalancer Services, and egress controls.
- Deploy and manage advanced networking features including routing, encryption, and high-performance datapaths.
- Design and operate multi-cluster Kubernetes environments using Cilium Cluster Mesh.
- Monitor, troubleshoot, and optimize Kubernetes networking using Hubble observability tools.
- Apply enterprise best practices for deployment, upgrades, validation, and day-to-day operations.

DETAILED COURSE STRUCTURE

Module 1 – Foundations

- Datacenter foundations
- Traffic and security patterns
- Containers and Kubernetes networking
- Cilium and eBPF
- Distribution and production planning

Module 2 – Kubernetes Fundamentals

- Application evolution and containers
- Kubernetes control plane and objects
- Services, exposure, configuration, and storage
- Service networking, kube-proxy, and CNI
- Hands-on Lab

Module 3 – Enterprise Architecture

- Enterprise platform context
- Cilium platform capability
- Enterprise use cases
- Architecture and eBPF mechanics

Module 4 – Deployment & Operations

- Deployment strategy and readiness
- Components and node integration
- Validation, inspection, and rollback
- IP address management design
- CNI lifecycle and routing modes
- Service handling and KPR
- Upgrades and change validation
- Hands-on Lab

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Module 5 – Connectivity & Networking

- External communication model and packet lifecycle
- Service exposure and Gateway API
- External reachability and routing integration
- Service Mesh and Cluster Mesh context
- Egress control and policy-driven internet access
- Hands-on Lab

Module 6 – Security Policies

- Why the policy model matters
- Identity-based enforcement
- Policy types and structure
- Examples, demos, and policy operations
- Hubble policy troubleshooting
- Datapath internals
- Hands-on Lab

Module 7 – Encryption & Authentication

- Transparent Encryption
- High-Performance Datapath and Load Balancing
- TLS and PKI Foundations
- Cilium Mutual Authentication and Gateway mTLS
- TLS Interception
- Demo and Integrated Lab

Module 8 – Multi-Cluster & Observability

- Cluster Mesh and Multi-Cluster Fundamentals
- Global Services, Cross-Cluster Identity, and Service Exposure
- Public Cloud and Hybrid Network Design
- Hubble Observability Architecture
- Hubble Operations, Metrics, and SIEM Integration
- Hands-on Lab

Module 9 – Runtime Security & Troubleshooting

- Tetragon and Runtime Security Visibility
- Troubleshooting and Diagnostics Framework
- Production Readiness Notes
- Continuation – Hubble Observability

Instructor Led Training

To view the schedule and secure your site

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