

CNI Plugins for Kubernetes

Calico:

- **Networking Model:** Calico uses BGP (Border Gateway Protocol) routing to provide network connectivity for containers and pods. It allows for the creation of a flat network where each pod gets a unique IP address.
- **Network Policies:** Calico offers powerful network policy enforcement, allowing you to define rules for controlling the traffic between pods based on labels and selectors.
- **Security:** Calico provides robust network security features, making it suitable for multi-tenant and security-conscious environments.
- **Use Case:** Calico is often used in environments where network isolation, security, and policy enforcement are crucial, such as multi-tenant clusters or those with strict compliance requirements.

Flannel:

- **Networking Model:** Flannel is known for its simplicity. It provides overlay networking by assigning a subnet to each node, and pods communicate using these subnets.
- **Performance:** Flannel is lightweight and suitable for small to medium-sized clusters where simplicity and performance are priorities.
- **Use Case:** Flannel is commonly used in scenarios where ease of setup and basic networking functionality are more important than advanced network policy enforcement.

Cilium:

- **Networking Model:** Cilium combines networking and security into a single solution. It uses eBPF (extended Berkeley Packet Filter) for deep packet inspection, enabling advanced routing and security features.
- **Network Security:** Cilium provides fine-grained security controls, including API-aware security, DDoS protection, and encryption between services.
- **Performance:** Cilium is designed for high-performance environments and can handle complex network policies while minimizing latency.
- **Use Case:** Cilium is well-suited for environments that require both advanced networking features and robust security, such as microservices architectures and cloud-native applications.