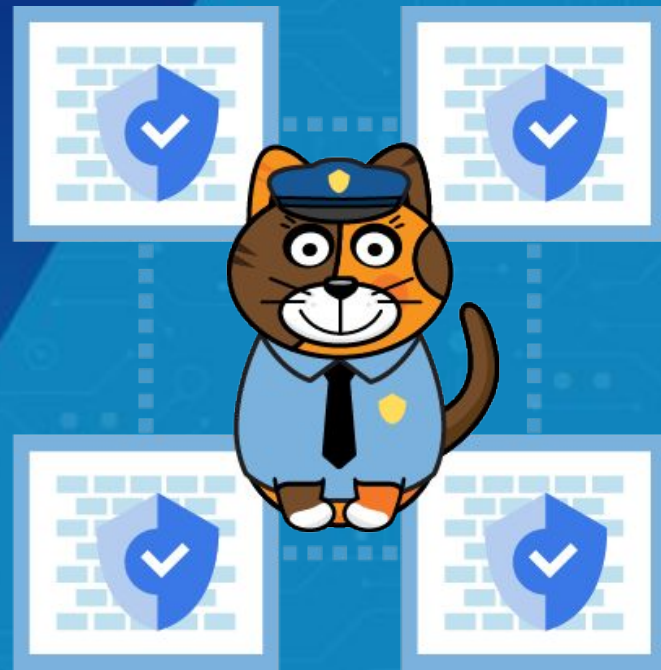


# Calico

## A Brief introduction

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Thursday, Jan 27, 2022



# Your Speaker Today:

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- Reza Ramezanzpour – Developer Advocate @ Tigera (Project Calico)
- Huge fan of testing in production
- I usually use an `allow-all` policy to secure my workloads.
- I'm always learning. Let's connect!



# Agenda



- Project calico overview
- What is Calico?
- Kubernetes network policy
- Calico network security policy
- Shift-Left
- Demo

**01**

## **Calico overview**

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# What is Project Calico?

- Free
- Open source
- Networking and security solution
- Much much more!



# PROJECT CALICO

<https://projectcalico.org>

 [@projectcalico](https://twitter.com/projectcalico)

 <https://github.com/projectcalico/community>

 <https://slack.projectcalico.org>

 <https://discuss.projectcalico.org>

**6000+**

Slack channel members

**150+**

Contributors

**1,000,000+**

Nodes powered by Calico every day

# 02

## What is Calico?

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Introduction to Calico

# Calico is a CNI implementation

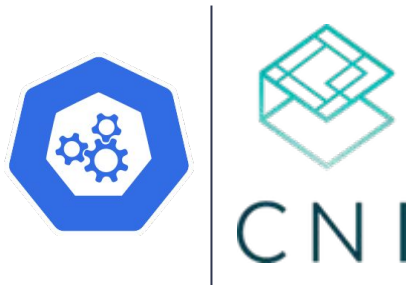
---

- Network connectivity between workloads.
- Network security policy enforcement between workloads.



# What is a CNI?

---



1. Network configuration format
2. Execution protocol
3. Execution of network configurations
4. Plugin delegation
5. Result types



**CLOUD NATIVE**  
COMPUTING FOUNDATION

# Calico is not just a

---

- IP address management (IPAM)
- Encapsulation support “IPIP, VXLAN”
- Border gateway protocol (BGP) support
- A Pluggable dataplane “Standard Linux (IPtables), eBPF, VPP, NHS (Windows only)”



**03**

## **Kubernetes network policy**

---

# Kubernetes policy

## An example of K8s deny policy

```
apiVersion: networking.k8s.io/v1
kind: NetworkPolicy
metadata:
  name: default-deny
spec:
  podSelector: {}
  policyTypes:
  - Ingress
  - Egress
```



**04**

**Demo!**

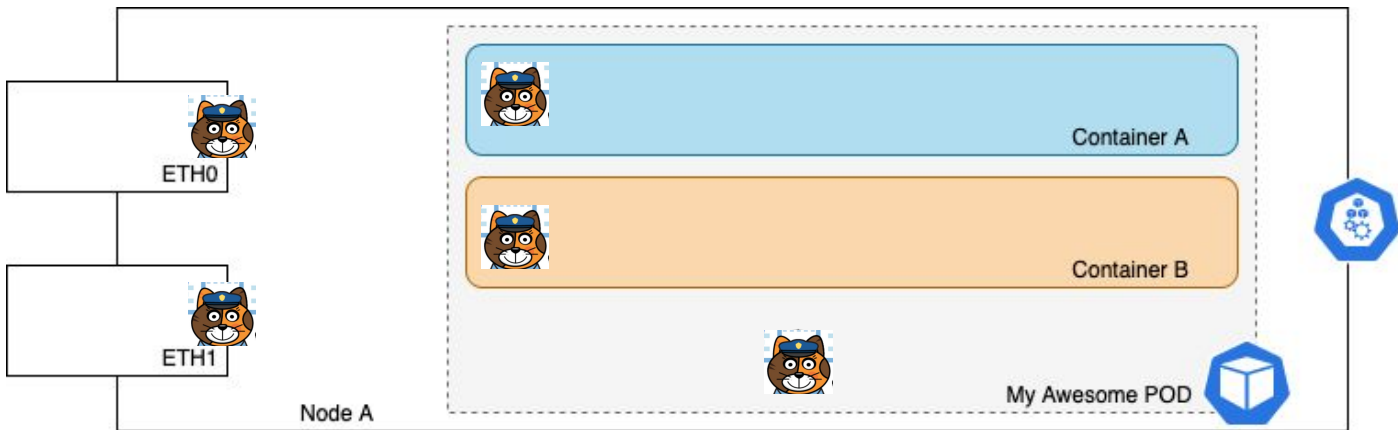
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**05**

## **Calico network policy**

---

# Why is there a need for Calico?



# Two type two rule them all!

---

- Calico Network policy
- Calico Global network policy



# Calico policy

An example of Calico  
Global Network Policy



```
apiVersion: projectcalico.org/v3
kind: GlobalNetworkPolicy
metadata:
  name: default-deny
spec:
  selector: all()
  types:
    - Ingress
    - Egress
```



**06**

**Demo!!**

---

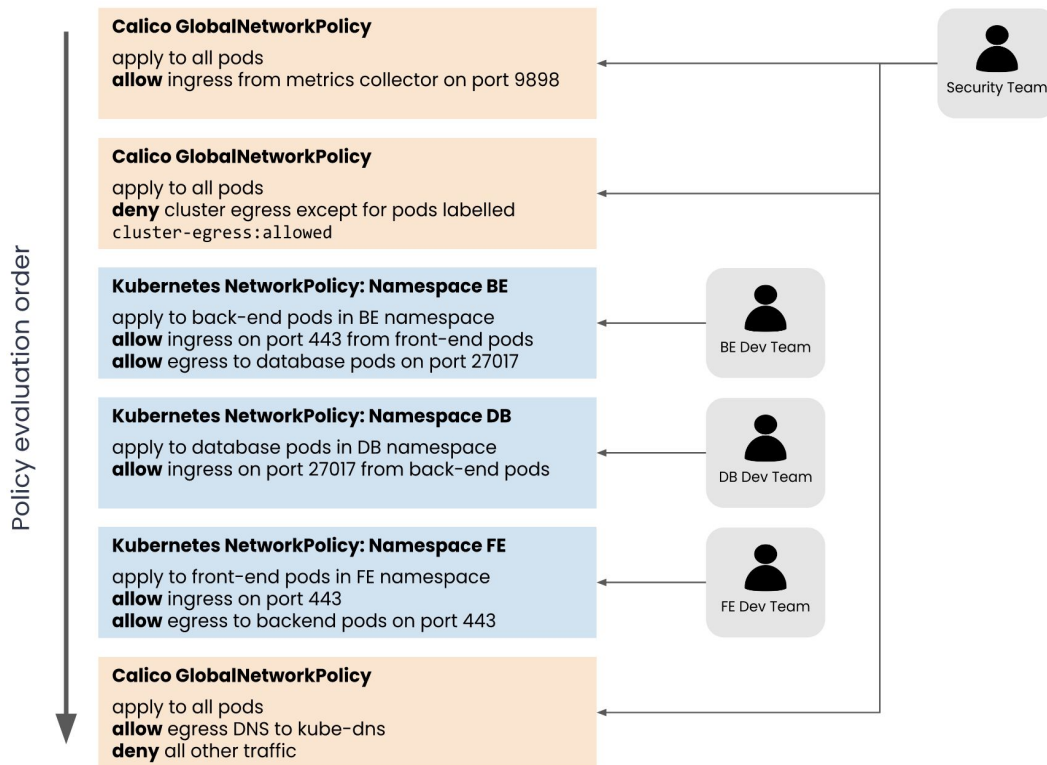
**07**

**Shift-left**

---

# Shift-left

Security first



**08**

**Demo again!!!**

---

# Do-It-Yourself Resources

Stuff used for the demo:

<https://github.com/frozenprocess/Tigera-Presentations/tree/master/2022-02-21.Van-meetup-Intoduction-to-calico>

How to integrate Kubernetes RBAC and Calico to achieve "Shift-Left" Security

<https://www.tigera.io/blog/how-to-integrate-kubernetes-rbac-and-calico-to-achieve-shift-left-security/>

When things are not working:

Github: <https://github.com/frozenprocess>

Twitter: <https://twitter.com/fr0zenprocess>

Linkedin: <https://www.linkedin.com/in/rramezanpour/>



# Credits

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CNI Specifications

<https://github.com/containernetworking/cni/blob/master/SPEC.md>

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Kubernetes network policies

<https://kubernetes.io/docs/concepts/services-networking/network-policies>

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Stars application

<https://github.com/mesosphere/star>

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Kubernetes network policies

<https://kubernetes.io/docs/concepts/services-networking/network-policies>



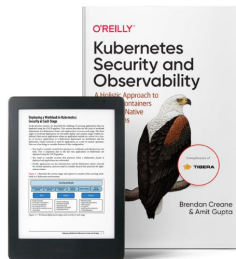
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# Thank you!



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