Your Speaker Today:

- Reza Ramezanpour - Developer Advocate @ Tigera (Project Calico)

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Agenda ❯

- Calico overview

- A hybrid cluster

- Windows workloads

- Securing Windows workloads

- Demo

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01

Calico overview

PROJECT CALICO

https://projectcalico.org

@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
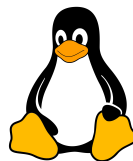
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PROJECT CALICO

eBPF   iptables

HNS

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02

A hybrid cluster

What is a hybrid cluster?

Hybrid environment

- Linux node (System)

- Windows Server 2019 or higher

- Kubernetes v1.21 or higher

- A CNI (psst try Calico)

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03

Windows workloads
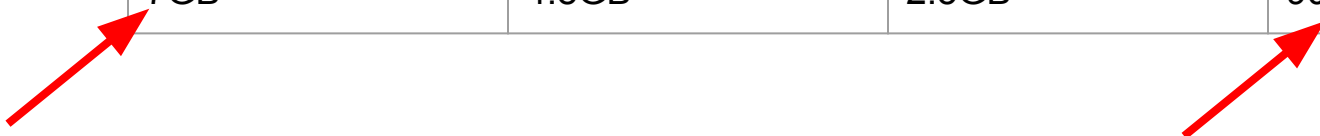
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Windows Containers

- Run anywhere *
- Deploy at scale
- Lightweight *
- Isolated *

It can be lightweight

Choose your base image wisely

Windows	Server (ltsc2022+)	ServerCore	NanoServer
7GB+	4.8GB+	2.5GB+	90M+

Kernel Compatibility

1909	multiarch	No Dockerfile	10.0.18363.1556	11/12/2019	05/11/2021
1909-KB5003169	multiarch	No Dockerfile	10.0.18363.1556	05/11/2021	05/11/2021
10.0.18363.1556	multiarch	No Dockerfile	10.0.18363.1556	05/11/2021	05/11/2021
1909-amd64	amd64	No Dockerfile	10.0.18363.1556	11/12/2019	05/11/2021
1909-KB5003169	amd64	No Dockerfile	10.0.18363.1556	05/11/2021	05/11/2021
10.0.18363.1556-amd64	amd64	No Dockerfile	10.0.18363.1556	05/11/2021	05/11/2021
1809	multiarch	No Dockerfile	10.0.17763.2928	11/13/2018	05/10/2022
1809-KB5013941	multiarch	No Dockerfile	10.0.17763.2928	05/10/2022	05/10/2022
10.0.17763.2928	multiarch	No Dockerfile	10.0.17763.2928	05/10/2022	05/10/2022
1809-amd64	amd64	No Dockerfile	10.0.17763.2928	02/12/2019	05/10/2022
1809-KB5013941-amd64	amd64	No Dockerfile	10.0.17763.2928	05/10/2022	05/10/2022
10.0.17763.2928-amd64	amd64	No Dockerfile	10.0.17763.2928	05/10/2022	05/10/2022

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Isolation

Windows Server 2022	Windows Server, version 20H2	Windows Server 2019	Windows Server 2016

Container base image OS version	Supports Hyper-V isolation	Supports process isolation
Windows Server, version 2022	✗	✗
Windows Server, version 20H2	✗	✗
Windows Server 2019	✔	✔
Windows Server 2016	✔	✗

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Securing Windows workloads

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Securing workloads
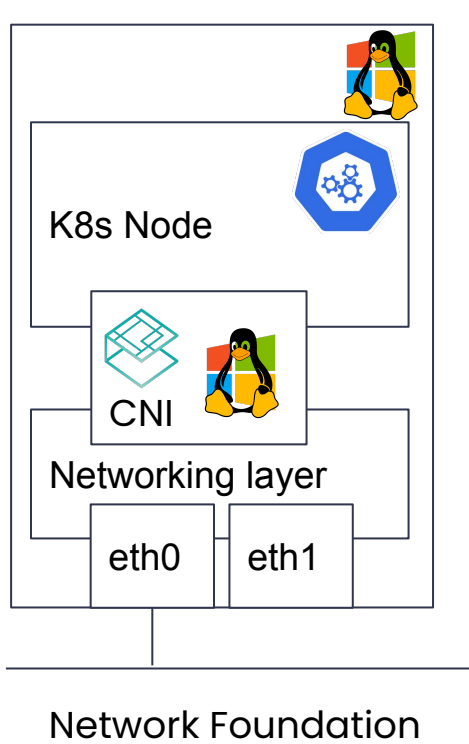
- Networking
- Policy engine

05

Demo (Azure Cloud)

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06

Demo (On-premises)

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Do-It-Yourself Resources

Stuff used for the demo:

https://github.com/frozenprocess/Tigera-Presentations/tree/master/2022-06-02.CNCF-securing-windows-workloads

When things are not working:

Github: https://github.com/frozenprocess

Twitter: https://twitter.com/fr0zenprocess

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

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Certified Calico Operator: Level 1

This course will cover how Kubernetes networking works, how to configure and manage a Calico network, and how to secure your Kubernetes cluster.

Enroll

Certified Calico Operator: AWS Expert

This course will contrast several options for deploying Kubernetes in AWS and examine how the default AWS networking works. It will also describe how to best configure and manage Calico in AWS, and how to use it to secure your AWS Kubernetes clusters.

Enroll

Certified Calico Operator: eBPF

This course will provide an introduction to eBPF and then describe Calico's eBPF pluggable data plane, reviewing the benefits and recommended scenarios for use, and demonstrating the data plane in live labs across multiple deployment scenarios.
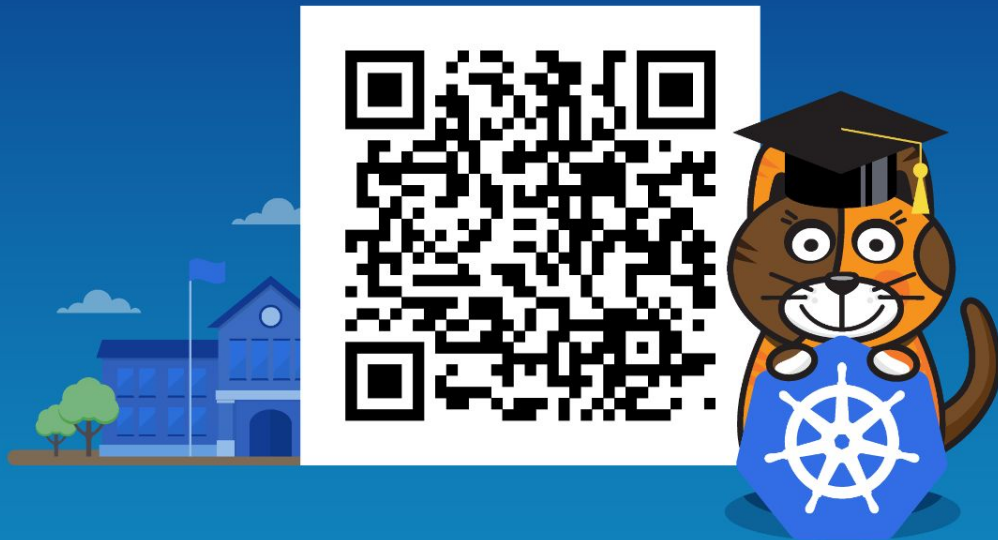
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Credits

Kubernetes.io
https://kubernetes.io/docs/tasks/administer-cluster/kubeadm/adding-windows-nodes/

Calico for WIndows
https://projectcalico.docs.tigera.io/getting-started/windows-calico/

AKS Netwokring
https://www.youtube.com/watch?v=JyLtg_SJ1lo

Kubernetes Windows (community)
https://github.com/kubernetes-sigs/sig-windows-tools
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containerd
https://github.com/containerd/containerd

Wincontiner workload
https://github.com/frozenprocess/wincontainer

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Thank you!

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