A Visual Guide to Calico eBPF Data Plane Validation

https://www.tigera.io/blog/a-visual-guide-to-calico-ebpf-data-plane-validation/

I want to validate that the eBPF data plane is suitable, running, and healthy in my Kubernetes/Calico cluster.

Check Prerequisites /Limitations [4]

- Yes
- Unsupported; use the iptables data plane

The cluster is not yet using eBPF; see [4]

Set "kubernetes-services-endpoint" correctly in "tigera-operator"

Yes

Check that "linuxDataplane" is set correctly to "BPF" [3]

- Yes
- No

Check the "iptables" data plane - everything may still work (depending on kube-proxy, for example) but you are not using eBPF for forwarding

The cluster is not yet using eBPF; see [4]

Check that "kubernetes-services-endpoint" CM exists in "tigera-operator" and is correct [5]

- Yes
- No

Check that "kubernetes-services-endpoint" CM exists in "kube-system" and is correct [5]

- Yes
- No

Set "kubernetes-services-endpoint" correctly in "kube-system"

Yes

Check your Kubernetes nodes have the BPF filesystem correctly mounted [1]

- Command returns "0"
- Command returns "1"

Check whether kube-proxy is properly configured [6]

- Command returns > "0"
- Command returns "0"

Is kube-proxy a DaemonSet? [6]

- Yes
- No

It should be disabled as below - see [6]

Configure kube-proxy appropriately [6]

Done

Your Kubernetes/Calico cluster is running the eBPF data plane and everything looks optimal

How was Calico installed?

Is a tigera-operator namespace present?

- Yes
- No

Check "bpfEnabled" is set correctly to "true" [3]

- Yes
- No

This is an invalid configuration - you should consider disabling eBPF [2] or remove the unsupported nodes

Calico continues to use the iptables data plane - everything may still work (depending on kube-proxy, for example) but you are not using eBPF for forwarding

Calico's eBPF data plane will work but pods will temporarily lose connectivity when Calico is restarted and host endpoints may be left unsecured. You should fix this (usually with systemd or by editing "/etc/fstab", depending on your distro)

Are all nodes unsupported?

- Yes
- No

Your Kubernetes/Calico cluster is running the eBPF data plane and everything looks optimal


Inspired by Daniele Polencic's great https://learnk8s.io/troubleshooting-deployments - thank you! The eBPF logo by the eBPF Foundation is licensed under CC-BY-4.0.