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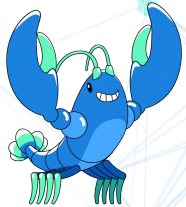
Creators of LINKERD

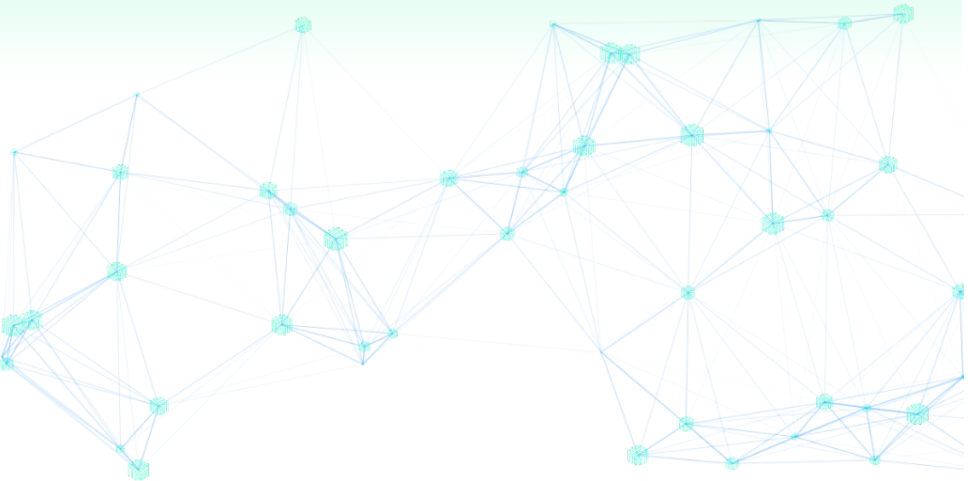
Yes, Linkerd Does Windows!

Zahari Dichev, Linkerd Maintainer

Flynn, Technical Evangelist for Linkerd



What's on the agenda?



- **Really? Kubernetes on Windows?**
  - how does this work?
- **Really? Linkerd on Windows?**
  - how does this work?
- **What did it take to get here?**
- **What's next?**
- **DEMO!**
- **Gotchas**

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How do you follow along?

- https://github.com/BuoyantIO/service-mesh-academy/tree/main/linkerd-and-windows
- **To follow along, you'll need to Linkerd `enterprise-2.19.0`**
- You'll also need a free Buoyant ID from https://enterprise.buoyant.io/

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How do you follow along?

- Zahari will be demoing using an AKS cluster, but any cluster with at least one Windows node should work.
- To state the obvious, you'll need Windows containers for your Windows nodes. 🙂

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How do you follow along?

You need **kubectl**
(https://kubernetes.io/docs/tasks/tools)

And you need **Linkerd 2.19** installed on your cluster. (There are instructions on this in the repo.)

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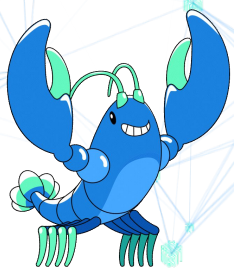
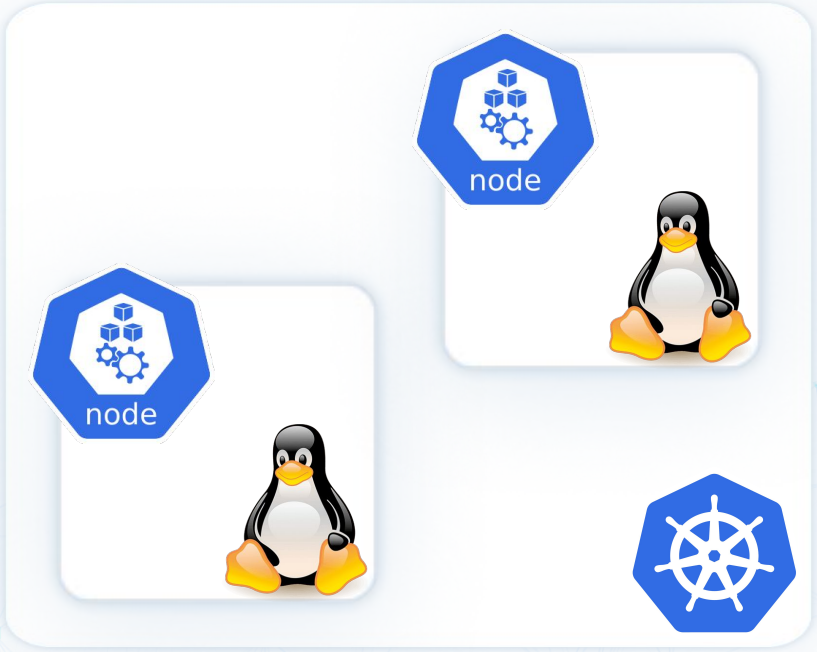
Kubernetes on Windows?



Yes, Kubernetes Does Windows

A Kubernetes cluster is built out of *nodes*.

Nodes are basically machines, typically running Linux.

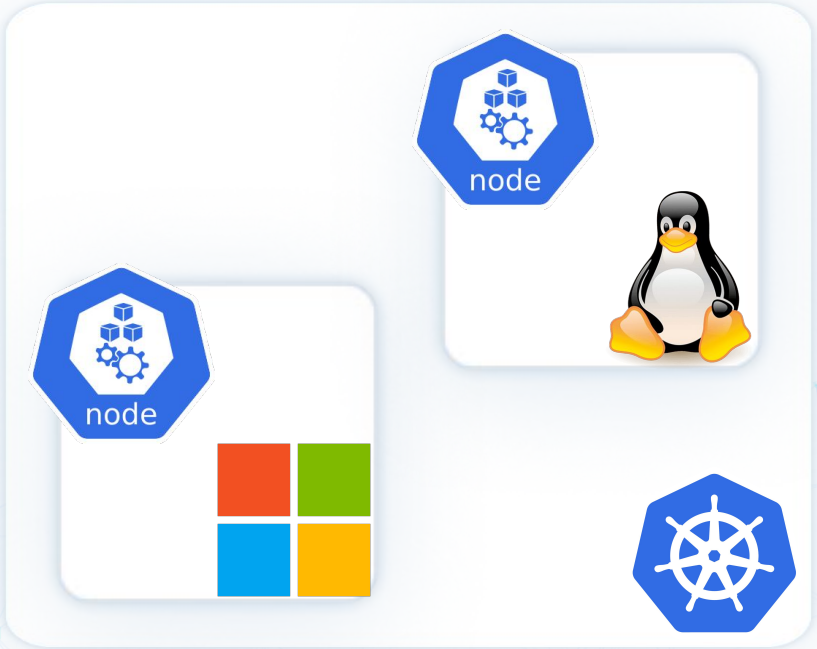


Yes, Kubernetes Does Windows

Windows nodes are a thing too, though!

(This isn't new; it was considered production-quality in Kubernetes 1.14, way back in 2019.)

The Kubernetes control plane only runs on Linux, so you can't have a Windows-only cluster yet.



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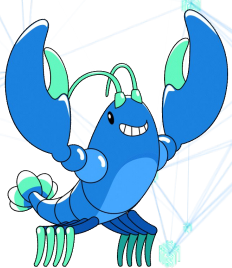
Linkerd on Windows?



Yes, Linkerd Does Windows

Linkerd is a **service mesh**.

***service mesh**, n:*

- An infrastructure layer providing security, reliability, and observability at the platform level, uniformly, across an entire application.

Nothing about this description is tied to Linux, so sure, why not use a mesh on Windows?

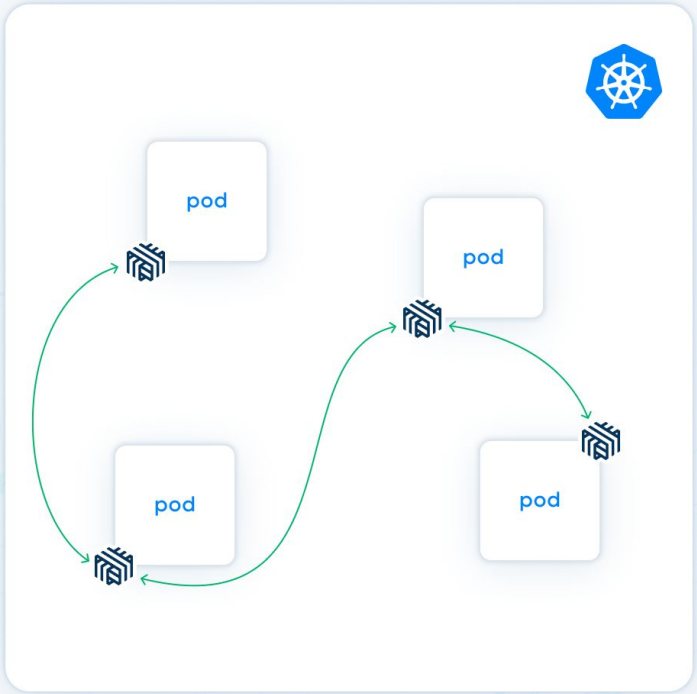
The devil, as always, is in the details.

Yes, Linkerd Does Windows

Linkerd takes over network communications at the platform level; this is how it does its magic.

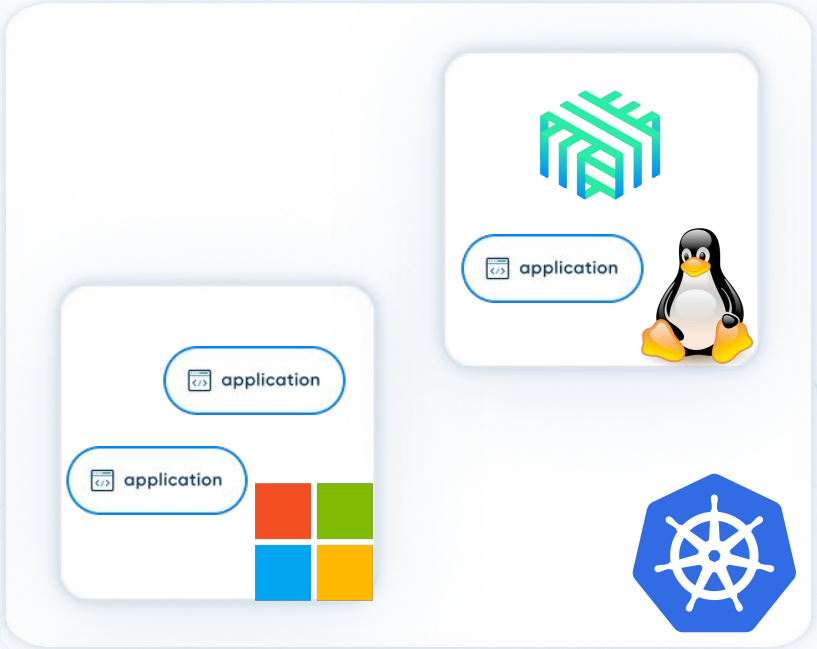
The mechanisms for doing that are completely different on Linux and Windows.

The saving grace here is that Linkerd doesn't actually rely on trusting the network.



Yes, Linkerd Does Windows

One important gotcha: the Linkerd control plane, like the Kubernetes control plane, has to run on Linux.



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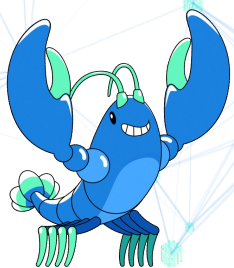
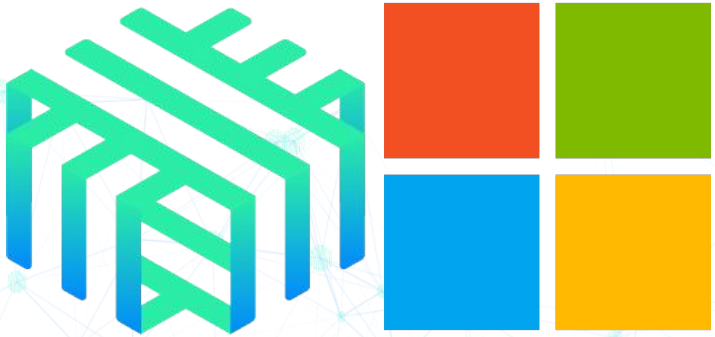
What did it take to get here?



Development Work

Again, the devil is in the details. A sampling:

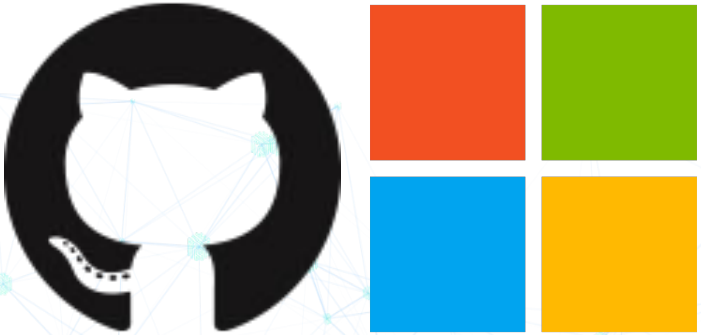
- `original_dst` changes
- proxy lifecycle work
  - network validator
  - shutdown signals
- CNI plugin work
  - init containers can't work
- CNI plugin vs cloud providers



Build System Work

The build system needed quite a lot of work to produce the artifacts we need.

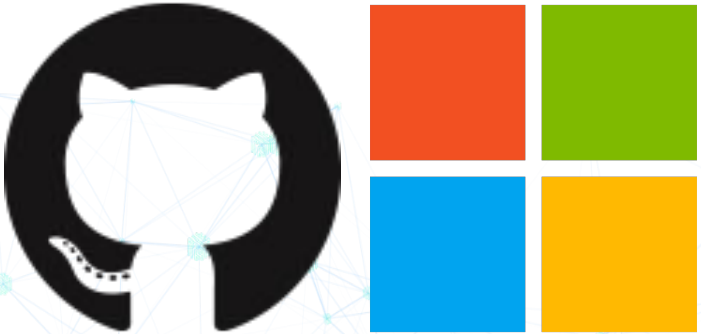
- CI on Windows is… interesting.
- Yes, you can set up GitHub Actions on Windows runners.
- No, it's not much fun.
- Including Windows containers in multiarch images is also weird.



Testing!

Testing relied on knowledge from building.

- Setting up mixed Linux/Windows clusters in GitHub Actions is weird enough, so we end up using cloud provider cluster at the moment.
  - We haven't yet had bandwidth to look into things like k2s.



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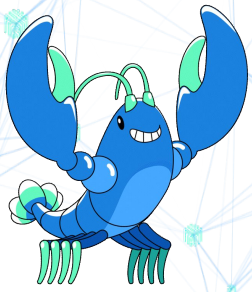
DEMO 🤞



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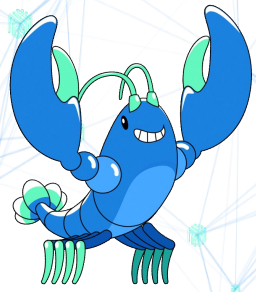
Gotchas



Gotchas

- The biggest one is one we already mentioned: you have to run the Linkerd control plane on Linux.

Tell us how we can improve!

Your feedback matters!

(We promise it won't take more than a few minutes, and it will help us tremendously — thank you! 🙂)

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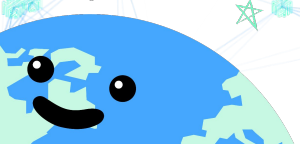

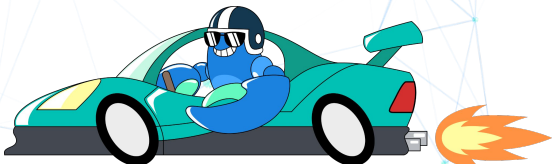

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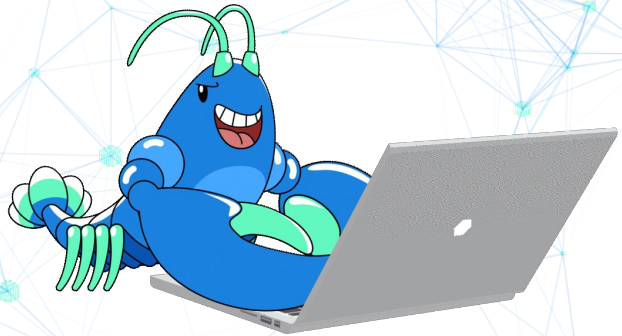
Up Next on January 15

A Guide to Linkerd Production Readiness

by Phil Henderson

SIGN UP TODAY!
buoyant.io/sma



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Q&A

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Thanks much!

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