



Intro to

**LINKERD**



An open source **service mesh** and [CNCF](#) project.

-  **36+** months in production
-  **3,750+** Slack channel members
-  **10,000+** GitHub stars
-  **150+** contributors
-  **Weekly** edge releases
-  **6-8 week** stable release cadence



NORDSTROM CHASE 

GoDaddy

Walmart 

STRAVA

 BIGCOMMERCE

 Expedia

OfferUp

ebay

Cisco  
webex

  
COMCAST

 planet.

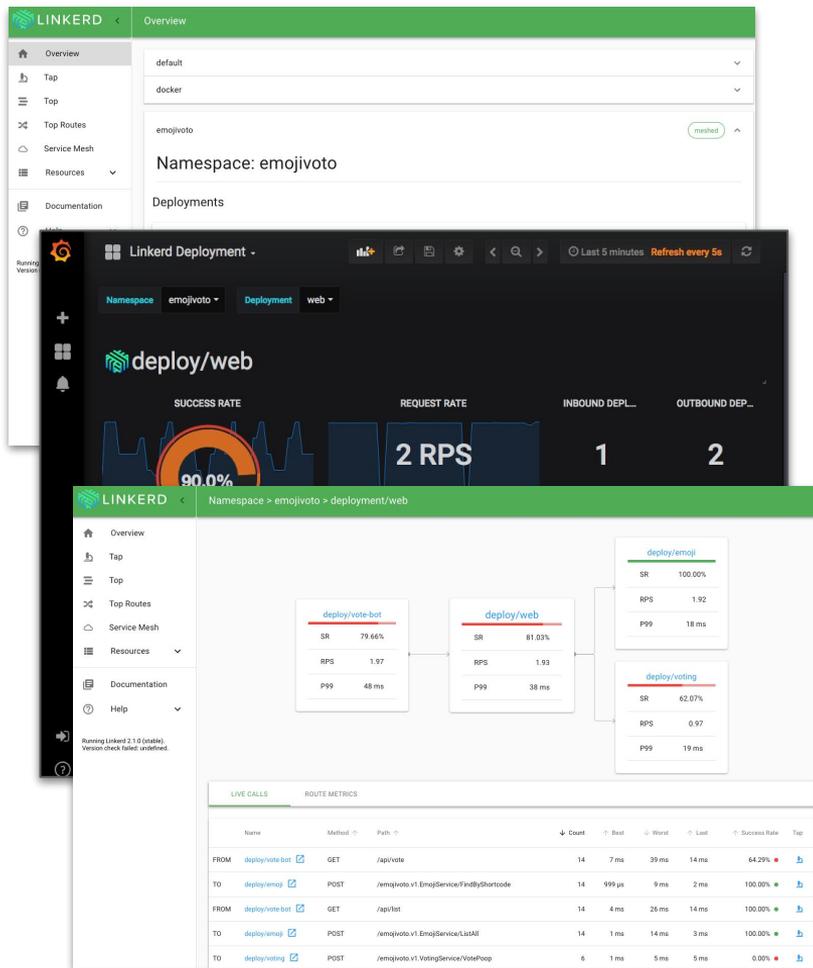
# What does Linkerd do?

⚡ **Observability:** Service-level *golden metrics*: success rates, latencies, throughput. Service topologies.

⚡ **Reliability:** Retries, timeouts, load balancing, circuit breaking\*

⚡ **Security:** Transparent mTLS, cert management and rotation, policy\*

In an ultralight package focused on **operational simplicity** first and foremost.



# Why should I care?

Linkerd gives ...

... **platform owners** (SREs, architects)

... the **observability, reliability,** and **security** primitives

... that are **critical** for cloud native architectures

... with **no developer involvement!**

Linkerd doesn't just solve technical problems, it solves **socio-technical problems**: by decoupling them from developers, it gives platform owners control over their destiny. 💪

👉 **Who?**

👉 **What?**

👉 **Why?**

👉 **The magic**



Further reading: [servicemesh.io](https://servicemesh.io)

# How was Linkerd designed?

In short, "do less, not more":

 **Just works:** Zero config, out of the box, for any Kubernetes app

 **Ultralight:** Introduce the bare minimum perf and resource cost

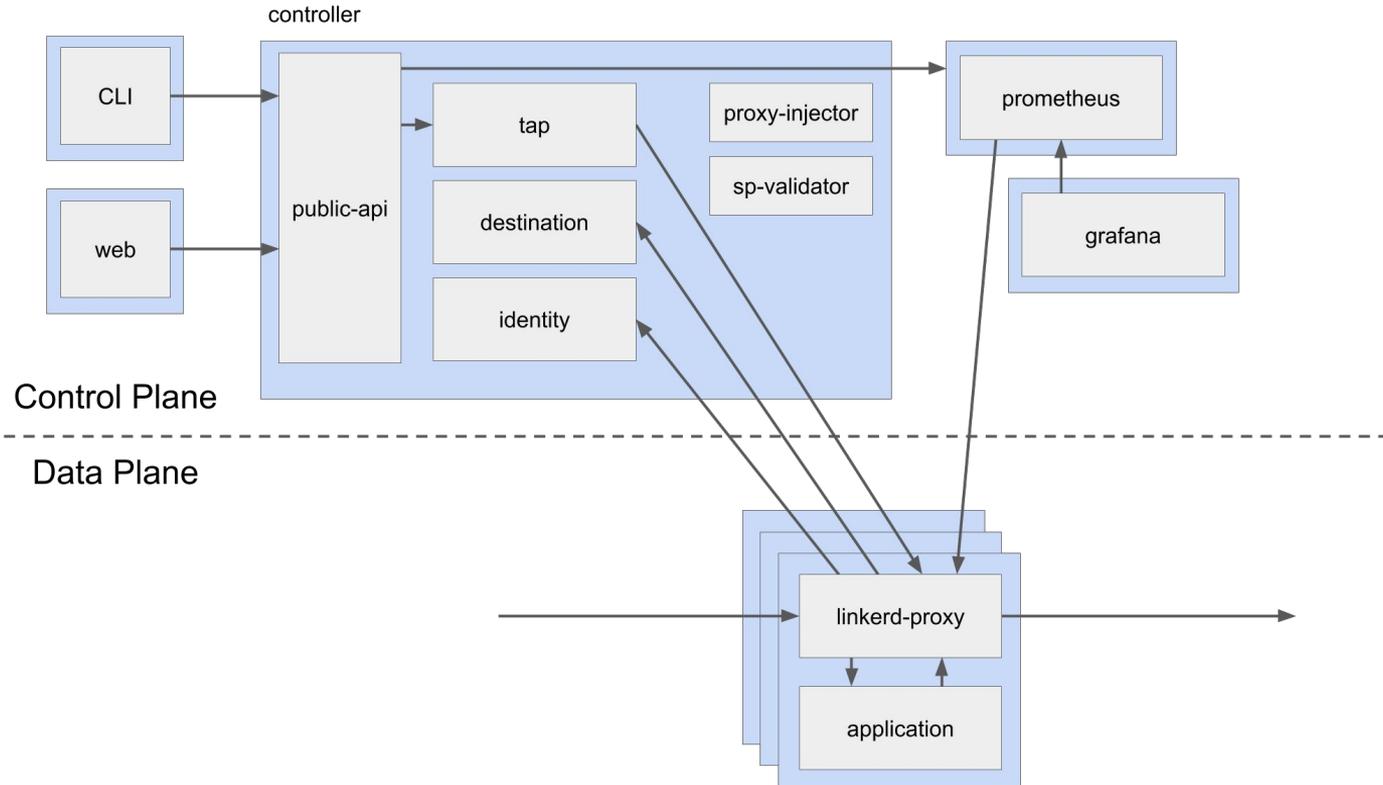
 **Simple:** Reduce operational complexity in every possible way

**Control plane:** Go. ~200mb RSS (excluding metrics data). (Repo: [linkerd/linkerd2](https://github.com/linkerd/linkerd2)).

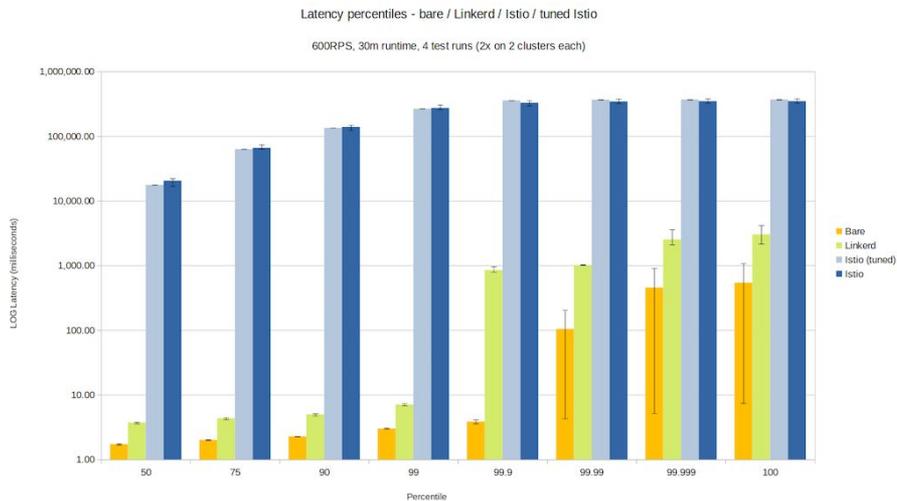
**Data plane:** Rust. <10mb RSS, <1ms p99 (!!!). (Repo: [linkerd/linkerd2-proxy](https://github.com/linkerd/linkerd2-proxy))

**Background reading:** [Linkerd v2: How Lessons from Production Adoption Resulted in a Rewrite of the Service Mesh](#) (InfoQ)

# Linkerd 2.x architecture



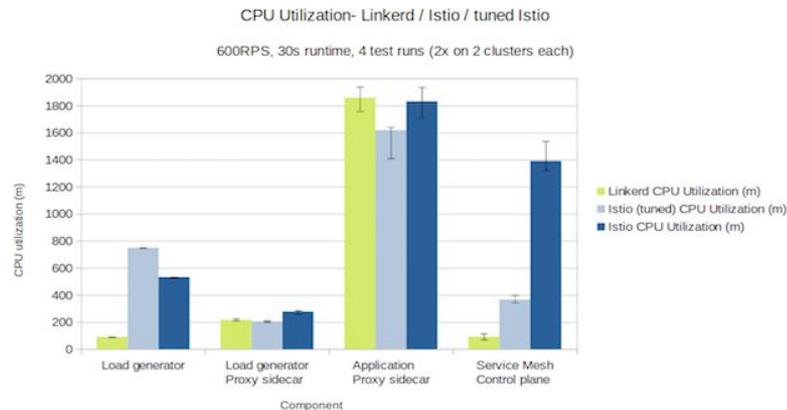
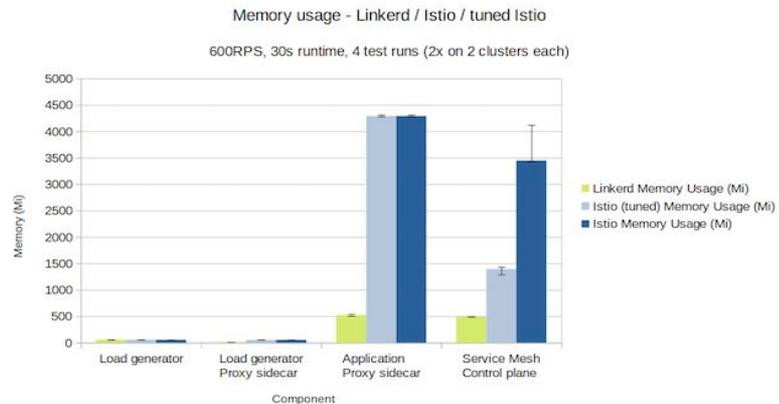
# How fast/small is it?



Tl;dr: really fast. Worse than "do nothing", but *significantly* smaller and faster than Istio.

Source:

<https://kinvolk.io/blog/2019/05/performance-benchmark-analysis-of-istio-and-linkerd/>



# Roadmap

## As of 2.6 (Oct 2019):

-  Distributed tracing, traffic shifting (blue/green, canaries), telemetry, retries, timeouts, proxy auto-injection, mTLS on by default for all HTTP, Helm charts, live header sampling that obeys RBAC, and much much more

## On the roadmap for 2.7 (EOY 2019):

-  mTLS for all all TCP traffic, thorough mTLS auditing, control plane cert rotation

## 2020:

-  Policy, mTLS enforcement, mesh expansion, multi-cluster, and lots lots more.

# Linkerd at Kubecon NA 2019 (San Diego)

## Tuesday

- **9:20am:** [Keynote: CNCF Project Updates](#) | Bryan Liles, Senior Staff Engineer, VMware
- **10:55am:** [Service Mesh: There and Back Again](#) | Jon Richards & Cody Vandermyn, Nordstrom
- **2:25pm:** [Intro to Linkerd](#) | William Morgan, Linkerd Maintainer
- **2:25pm:** [Enforcing Automatic mTLS With Linkerd and OPA Gatekeeper](#) | Rita Zhang, Microsoft and Ivan Sim, Buoyant

## Wednesday, November 20

- **2:25pm:** [There's a bug in my service mesh! What do you do when the tool you rely on is the cause?](#) | Ana Calin, Paybase and Risha Mars, Buoyant
- **3:20pm:** [OpenFaaS Cloud + Linkerd: A Secure, Multi-Tenant Serverless Platform](#) | Alex Ellis, OpenFaaS and Charles Pretzer, Buoyant
- **4:25pm:** [Deep Dive: Linkerd](#) | Oliver Gould, Linkerd Maintainer

## Thursday, November 21

- **3:20pm:** [Supercharge Your Microservices CI/CD with Service Mesh and Kubernetes](#) | Brian Redmond, Microsoft

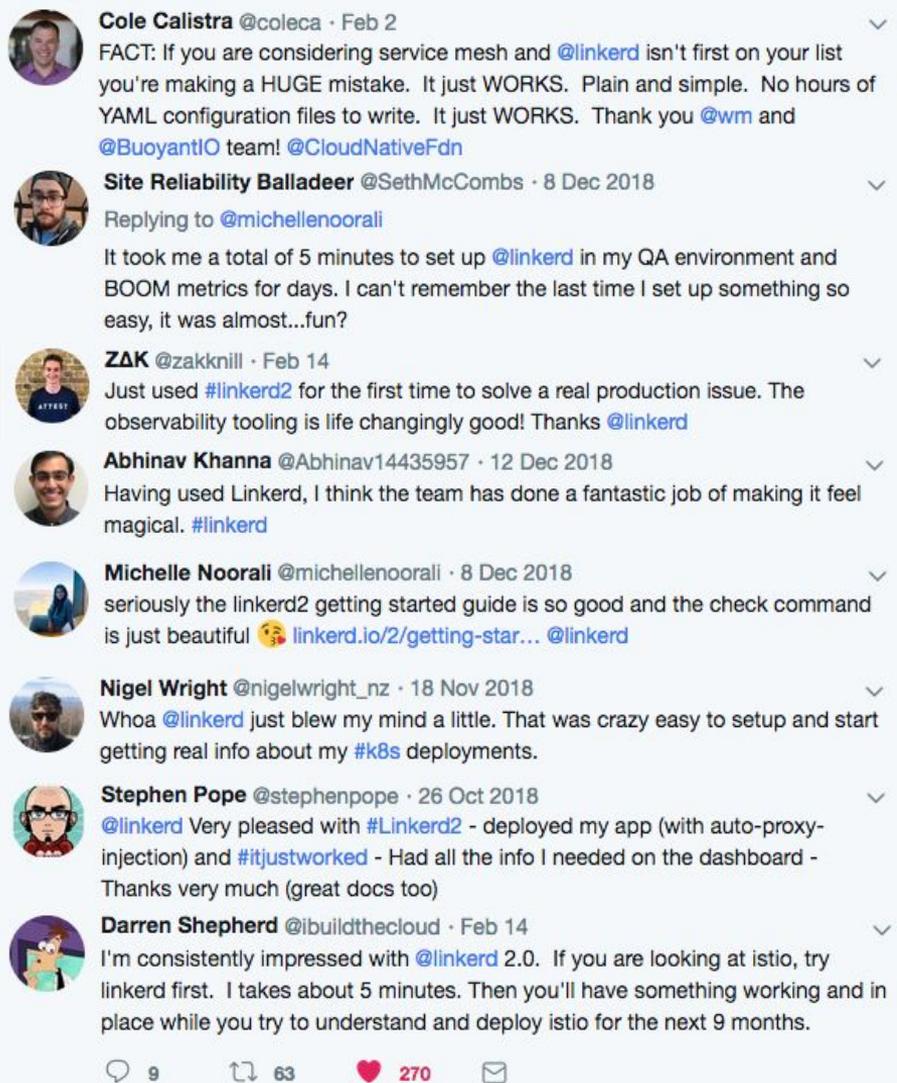
**Demo time**

# Get involved!

- ♥ Development is all on [GitHub](#)
- ♥ Thriving community in the [Slack](#)
- ♥ Formal announcements on the CNCF [mailing lists](#)
- ♥ Monthly [community calls](#)
- ♥ Formal [3rd-party security audits](#)

**Linkerd has a friendly, welcoming community! Join us!**

Linkerd is 100% Apache v2 licensed, owned by a neutral foundation ([CNCF](#)), and is [committed to open governance](#).



**Cole Calistra** @coleca · Feb 2  
FACT: If you are considering service mesh and @linkerd isn't first on your list you're making a HUGE mistake. It just WORKS. Plain and simple. No hours of YAML configuration files to write. It just WORKS. Thank you @wm and @BuoyantIO team! @CloudNativeFdn

**Site Reliability Balladeer** @SethMcCombs · 8 Dec 2018  
Replying to @michellenoorali  
It took me a total of 5 minutes to set up @linkerd in my QA environment and BOOM metrics for days. I can't remember the last time I set up something so easy, it was almost...fun?

**ZAK** @zakknill · Feb 14  
Just used #linkerd2 for the first time to solve a real production issue. The observability tooling is life changingly good! Thanks @linkerd

**Abhinav Khanna** @Abhinav14435957 · 12 Dec 2018  
Having used Linkerd, I think the team has done a fantastic job of making it feel magical. #linkerd

**Michelle Noorali** @michellenoorali · 8 Dec 2018  
seriously the linkerd2 getting started guide is so good and the check command is just beautiful 🥰 [linkerd.io/2/getting-star...](#) @linkerd

**Nigel Wright** @nigelwright\_nz · 18 Nov 2018  
Whoa @linkerd just blew my mind a little. That was crazy easy to setup and start getting real info about my #k8s deployments.

**Stephen Pope** @stephenpope · 26 Oct 2018  
@linkerd Very pleased with #Linkerd2 - deployed my app (with auto-proxy-injection) and #itjustworked - Had all the info I needed on the dashboard - Thanks very much (great docs too)

**Darren Shepherd** @ibuildthecloud · Feb 14  
I'm consistently impressed with @linkerd 2.0. If you are looking at istio, try linkerd first. It takes about 5 minutes. Then you'll have something working and in place while you try to understand and deploy istio for the next 9 months.

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# Appendix: History of Linkerd



Two parallel branches of development:

-  **Linkerd 2.x:** ultralight, zero-config, Kubernetes-first (active)
-  **Linkerd 1.x:** JVM-based and multi-platform (maintenance)