

# LINKERD



An open source **service mesh** and <u>CNCF</u> project.







**100+** contributors

Weekly edge releases

6-8 week stable release cadence



### NORDSTROM CHASE •

GoDaddy Walmart :

**STRAYA** 











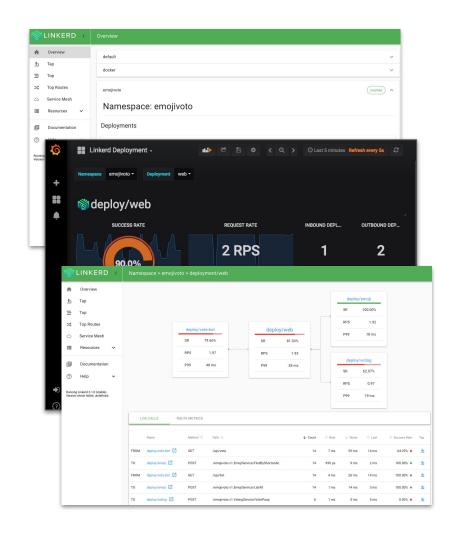




### What does Linkerd do?

- 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) **Who?** 

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

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

... with **no developer involvement! The magic** 

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











### How is Linkerd designer?

In short, "do less, not more":

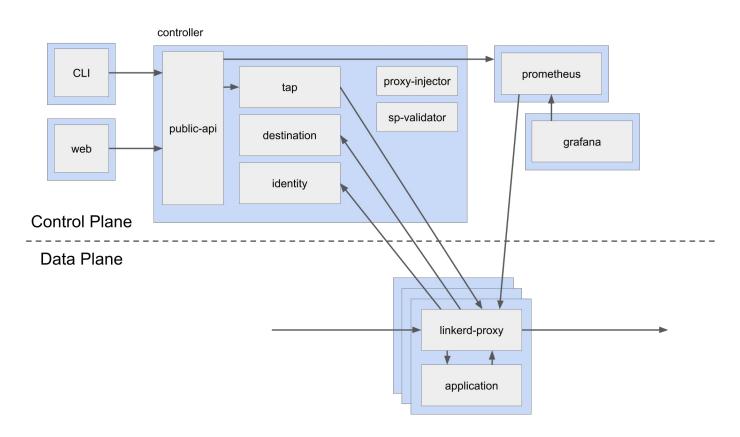
- Lagrangian Lagrangian
- Land the bare minimum perf and resource cost
- **Simple:** Reduce operational complexity in every possible way

Control plane: Go. ~200mb RSS (excluding metrics data). (Repo: <u>linkerd/linkerd2</u>).

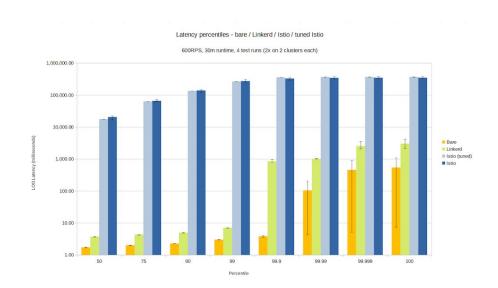
Data plane: Rust. <10mb RSS, <1ms p99 (!!!). (Repo: linkerd/linkerd2-proxy)

**Background reading**: <u>Linkerd v2</u>: <u>How Lessons from Production Adoption Resulted in a Rewrite of the Service Mesh</u> (InfoQ)

### **Linkerd 2.x architecture**



### How fast/small is it?



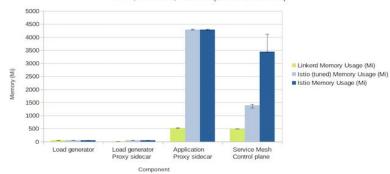
Tl;dr: really fast. Not as fast as "no service mesh", but significantly smaller and faster than Istio.

#### Source:

https://kinvolk.io/blog/2019/05/performance-benchmark-analysisof-istio-and-linkerd/

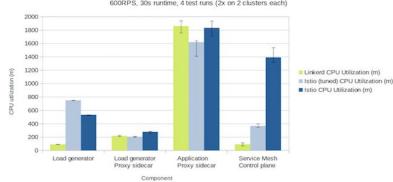
#### Memory usage - Linkerd / Istio / tuned Istio





#### CPU Utilization- Linkerd / Istio / tuned Istio

#### 600RPS, 30s runtime, 4 test runs (2x on 2 clusters each)



### 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.

### **Get involved!**

- Development is all on <u>GitHub</u>
- Thriving community in the <u>Slack</u>
- Formal announcements on the CNCF mailing lists
- Monthly <u>community calls</u>
- Formal <u>3rd-party security audits</u>

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

Linkerd is 100% Apache v2 licensed, owned by a neutral foundation (<u>CNCF</u>), and is <u>committed to open governance</u>.



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?



ZΔK @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 inkerd.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-proxyinjection) 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. I 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.











### **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)