

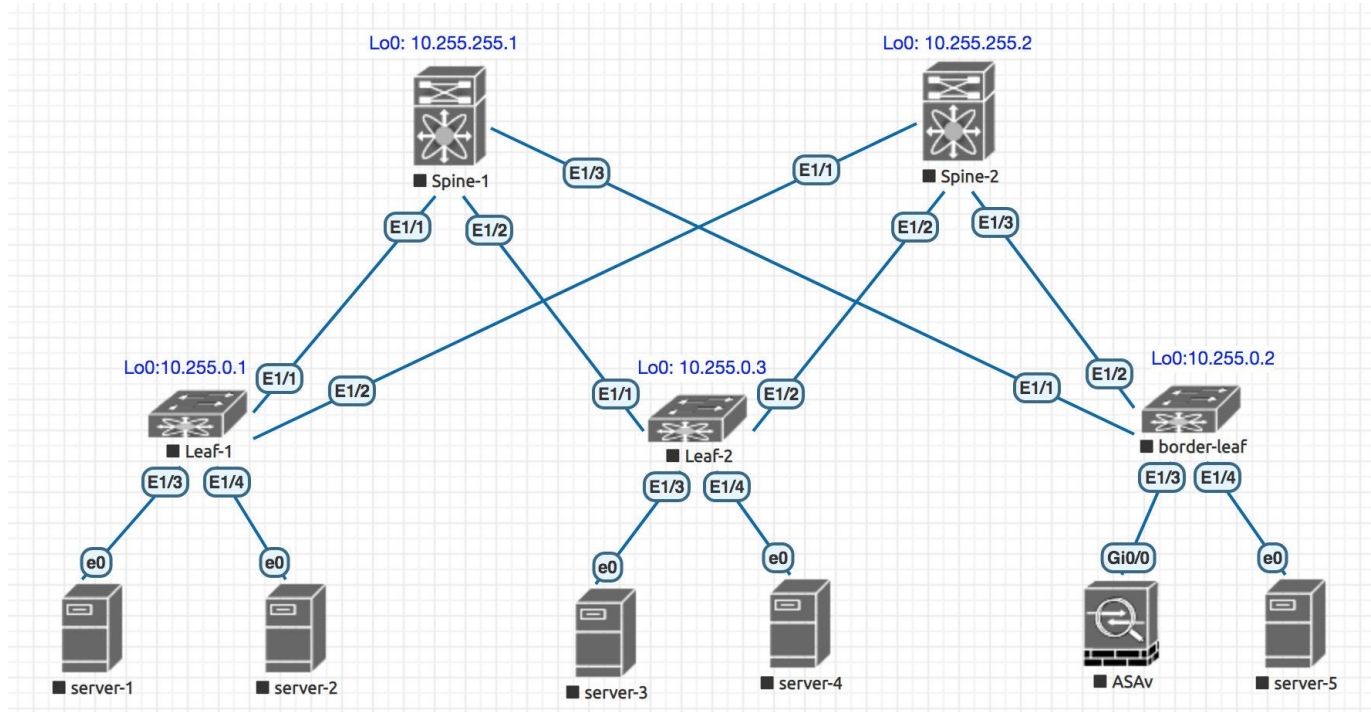
Containerlab ...and how people use it

Roman Dodin

 @ntdvps

NOKIA

How do we (typically) run labs?



Pic from [reddit](#)

What else do you need?

Declarative
format

What else do you need?

Declarative
format

Git friendly

What else do you need?

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format

Portability

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CI/CD
Integration

What else do you need?

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Lightweight

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Easy to
share

CI/CD
Integration

What else do you need?

Declarative
format

Open Source

Portability

Container-
centric

Lightweight

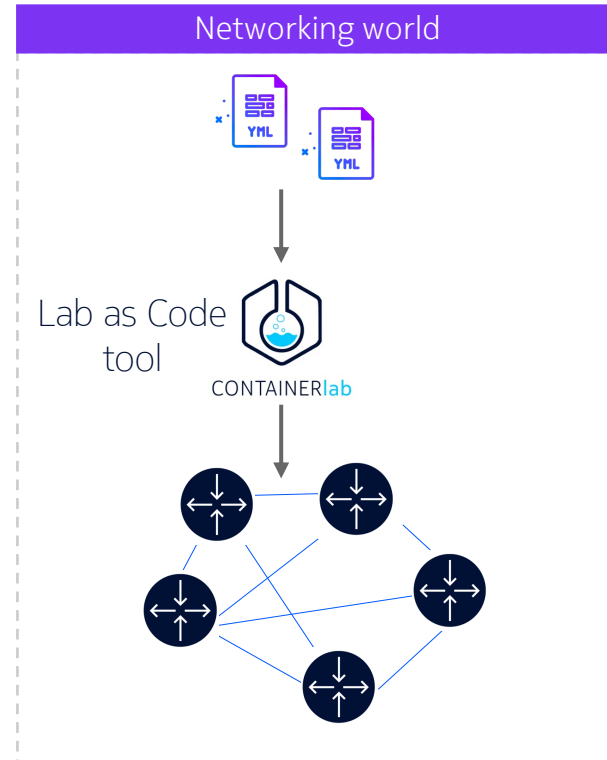
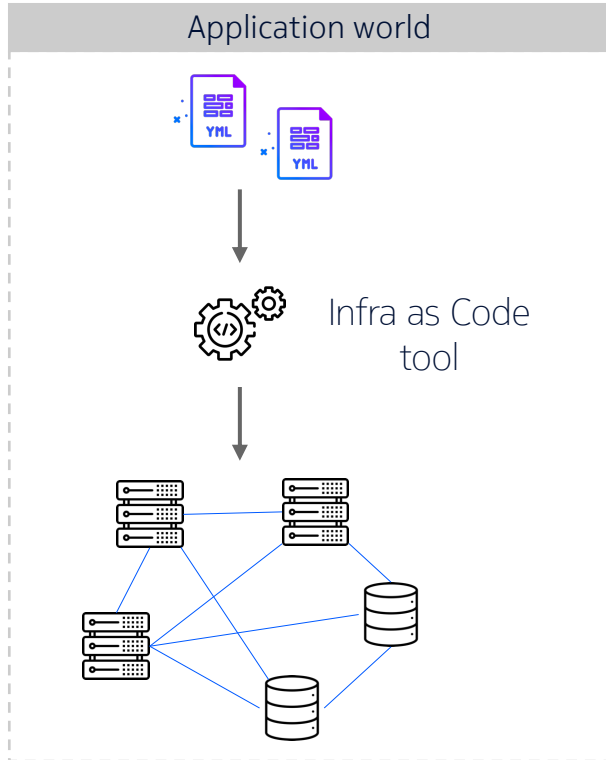
Git friendly

Easy to
share

CI/CD
Integration

Lab as Code

Paving the declarative way



Topology file

Nodes and links

topology definition

```
name: mylab

topology:
  nodes:

    r1:
      kind: nokia_srlinux
      image: ghcr.io/nokia/srlinux:23.3.1

    r2:
      kind: vr-nokia_sros
      image: sros:23.3.R1
      license: license.txt

  links:
    - endpoints: ["r1:e1-1", "r2:eth1"]
```

logical view



Containerlab node types

Containerized Network OSes

- Sourced by the vendor
- Fast to spin up
- Small footprint
- Shareability and versioning

A current trend is to move away from VM packaging towards containers for new NOSes

NOKIA
SR Linux

JUNIPER
NETWORKS
cRPD

ARISTA
cEOS

CISCO
XRd

NVIDIA
cVX

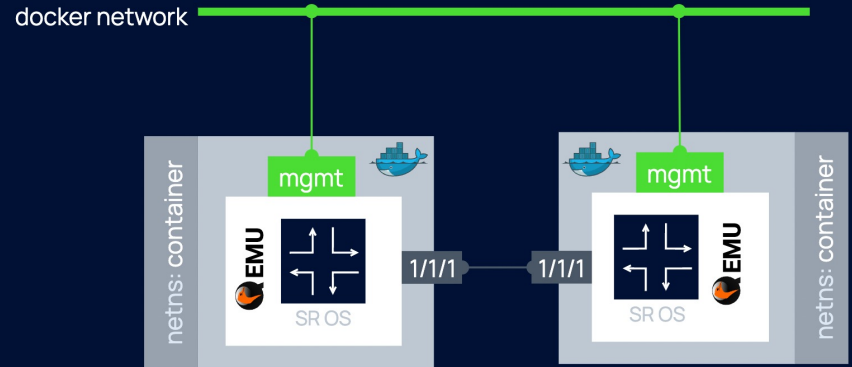
KEYSIGHT
TECHNOLOGIES
IXIA-c

and others...

Containerlab node types

Virtual machines in container packaging

- Traditional Network OS packaged as a VM
- Integrated with containerlab through vrnetlab open-source project
- Onboard existing VM-based NOSes



Containerlab node types

Regular container images

- All available container images
- Emulating clients
- Hundreds of network-focused software
 - Telemetry, logging stacks
 - Peering software
 - Flow collectors
 - etc



Get / Set / Subscribe / Collect



Prometheus



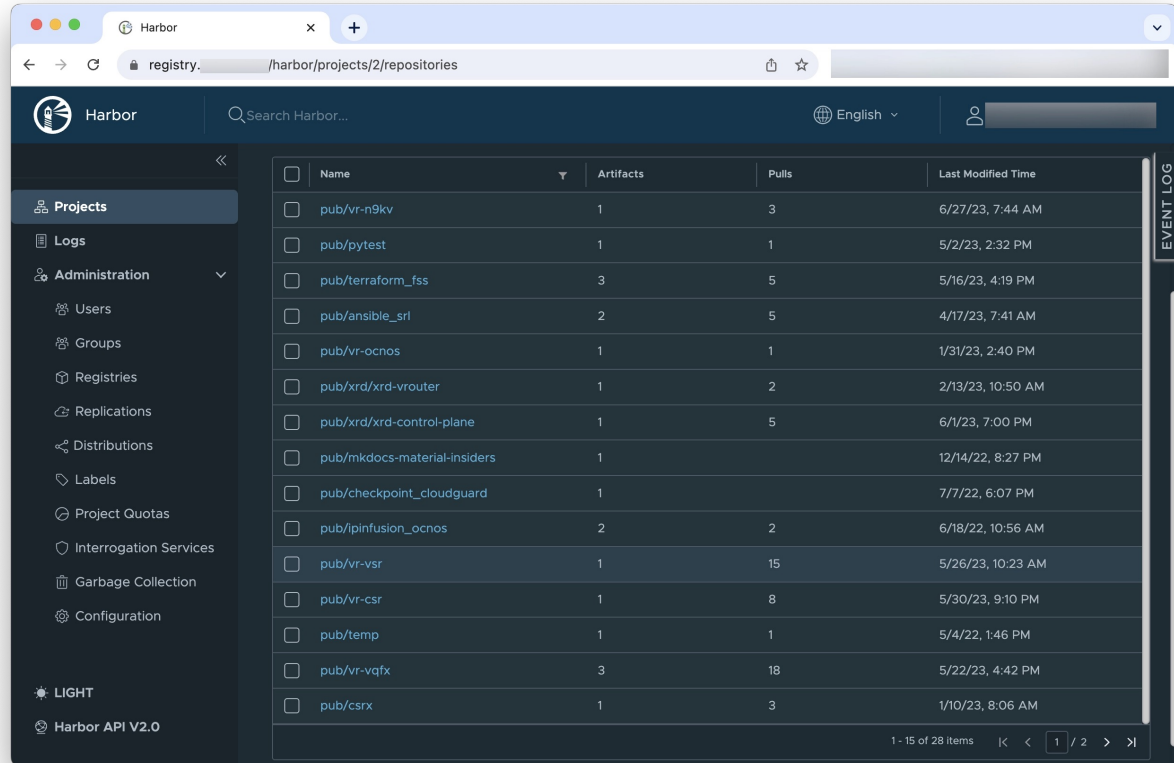
influxdata



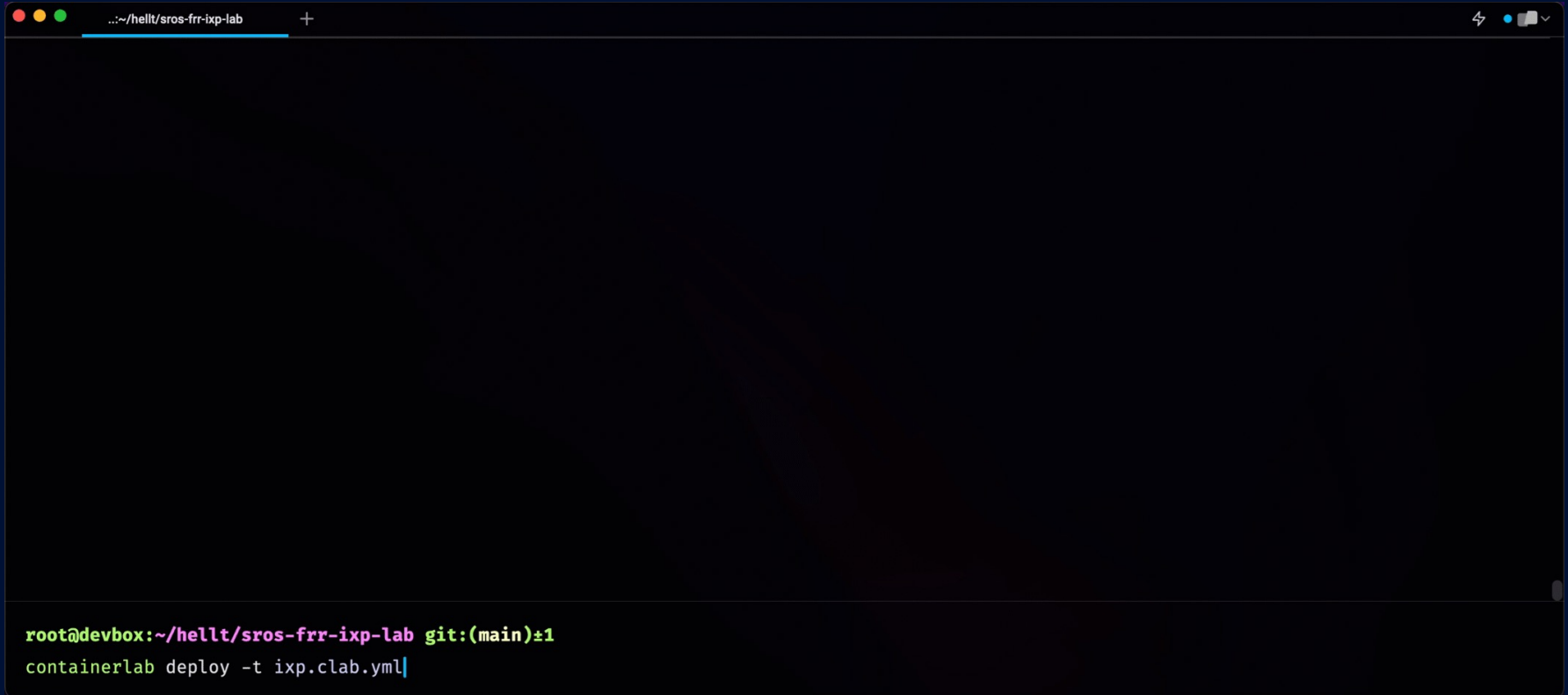
Container registry

Taking back control over your images

- Central repository of image
- Version control (tags, SHA)
- Seamless containerlab integration
- Granular access control



Deploying a lab



A terminal window with a dark background. The title bar shows the path `~/hell/sros-frr-ixp-lab` and a plus sign. The terminal content shows a prompt `root@devbox:~/hell/sros-frr-ixp-lab git:(main)±1` followed by the command `containerlab deploy -t ixp.clab.yml`.

```
root@devbox:~/hell/sros-frr-ixp-lab git:(main)±1
containerlab deploy -t ixp.clab.yml
```

You Are A Solo Neteng

- A **lightweight, open & free** tool to quickly spin up disposable labs.
- Building lab portfolio through **Git** repositories.
- Easy **integration** with plethora of containerized tools
 - Flow collectors, Route servers, Traffic generators
- Infrastructure **agnostic**.



Network Engineering Team

- **Collaborative** approach to build labs with peer review enabled by GitHub/GitLab
- Resource friendly and infra agnostic.
- **Centralized datastore** of labs and images.
- Cross-team lab **sharing**.
- **CI/CD**

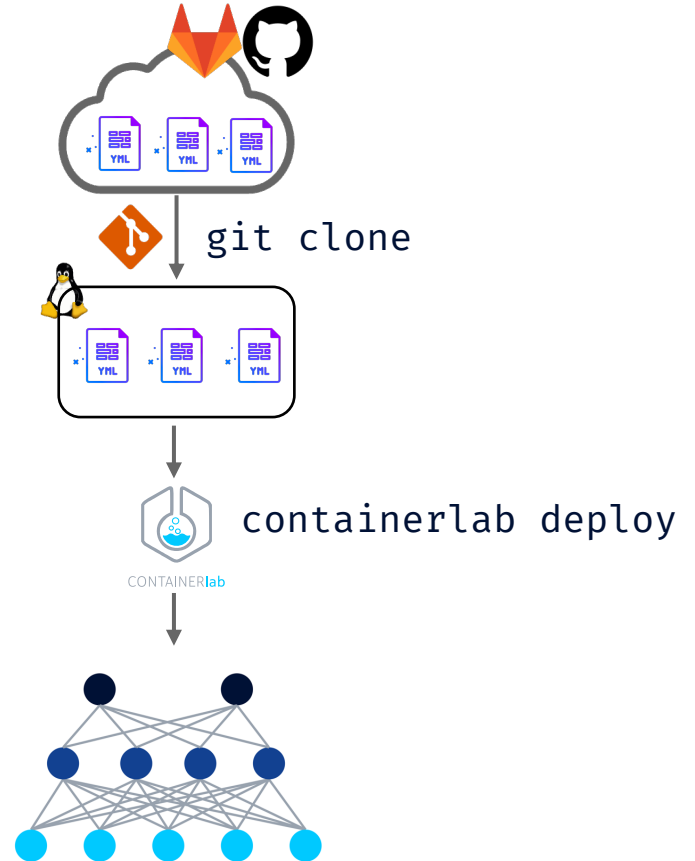
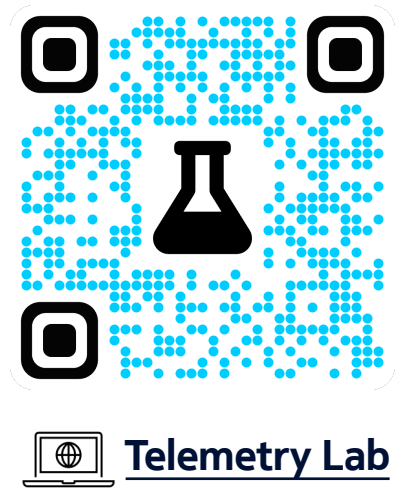


You Are A Partner/Integrator/Vendor

- **1-click share** process for your labs demonstrating a use-case/solution
- **Collaborative** approach for shared labs.
- **Centrally managed datastore** of labs and images with granular access control.
- Portfolio of use cases any customer can launch on their own.



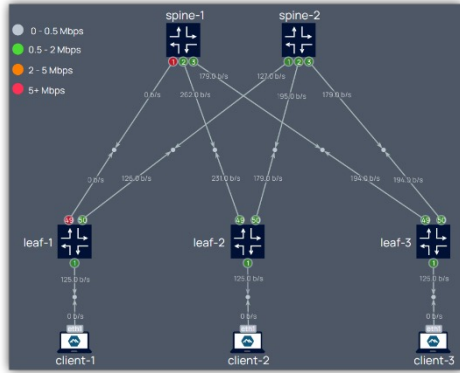
Lab As Code



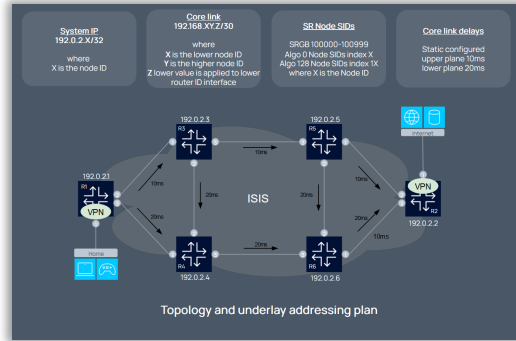
Labs We've Built For The Community



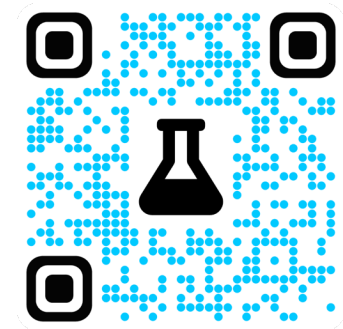
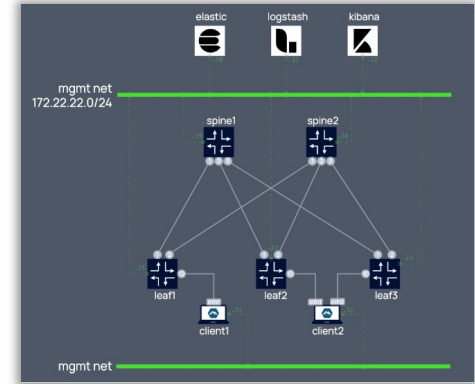
SR Linux Telemetry



Segment Routing



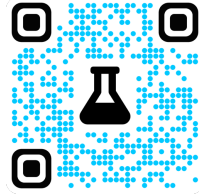
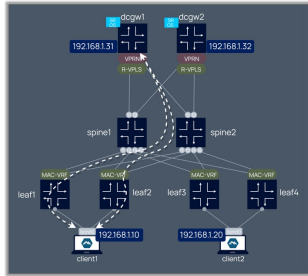
ELK Logging



Labs We've Built For The Community



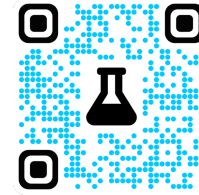
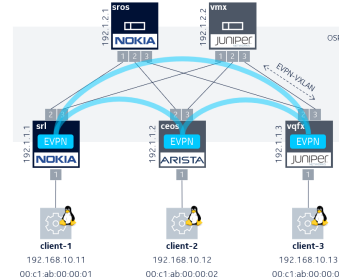
Nokia EVPN Interop



[srl-labs/nokia-evpn-lab](https://github.com/srl-labs/nokia-evpn-lab)



Multivendor EVPN



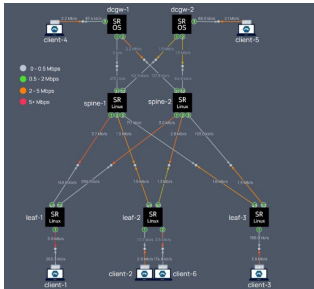
[srl-labs/multivendor-evpn-lab](https://github.com/srl-labs/multivendor-evpn-lab)



CONTAINERlab



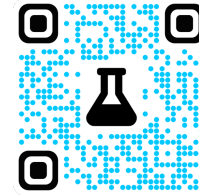
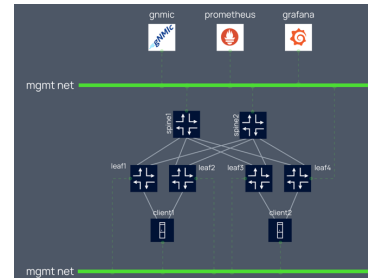
SR Linux & SROS Telemetry



[srl-labs/srl-sros-telemetry-lab](https://github.com/srl-labs/srl-sros-telemetry-lab)



SR Linux Oper-Group



[srl-labs/opergroup-lab](https://github.com/srl-labs/opergroup-lab)



**THIS IS
THE WAY***

* For some of you



CONTAINERlab

<https://containerlab.dev>