

Lab as Code With Containerlab Through Users Eyes

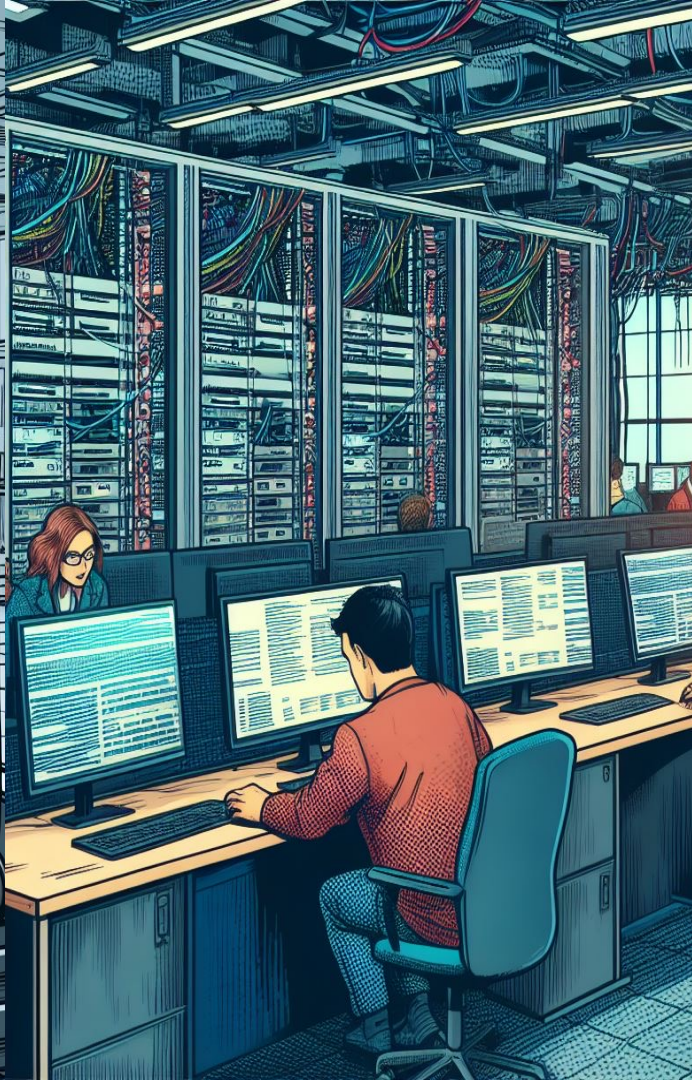
Roman Dodin
Product Line Manager

 @ntdvps

November 16th, 2023
LINX 120

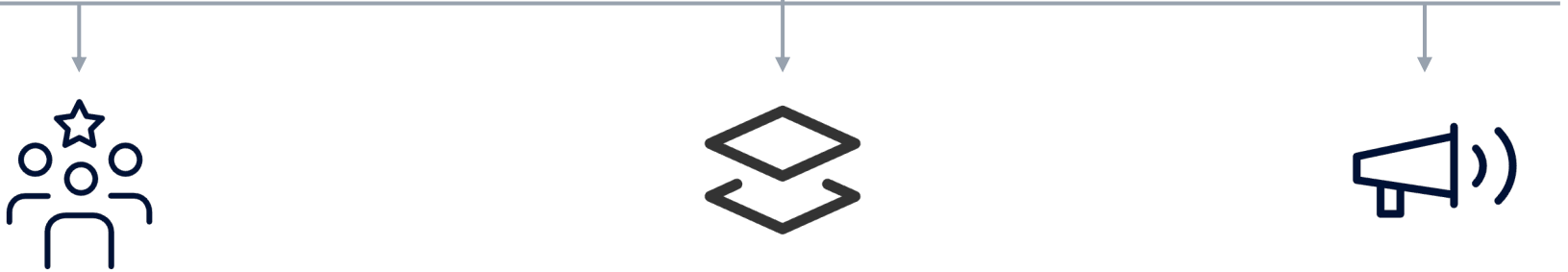


NOKIA



Why “as code”?

git

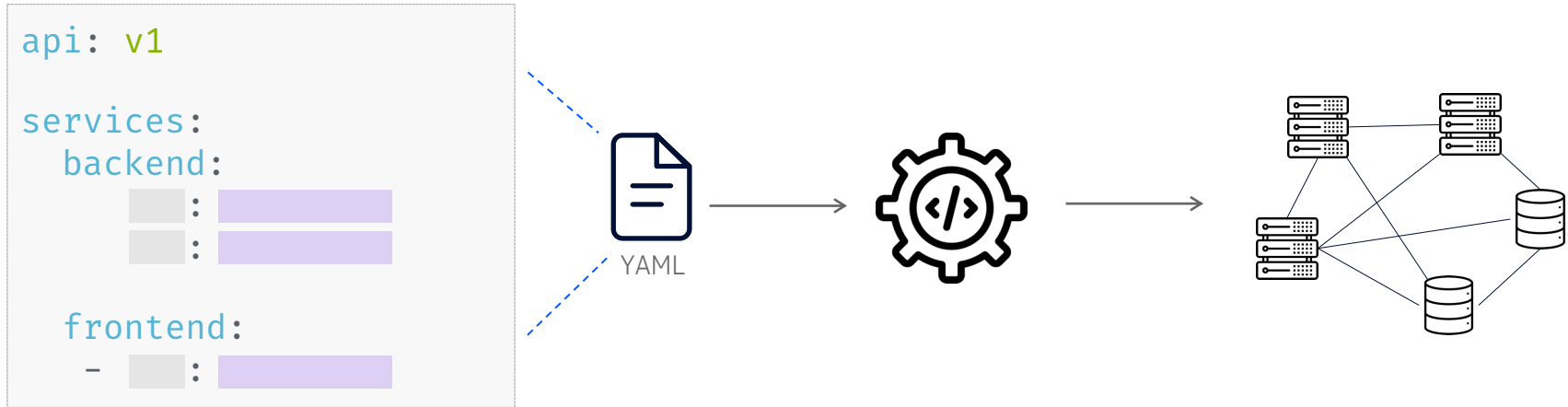


Collaboration

Versioning

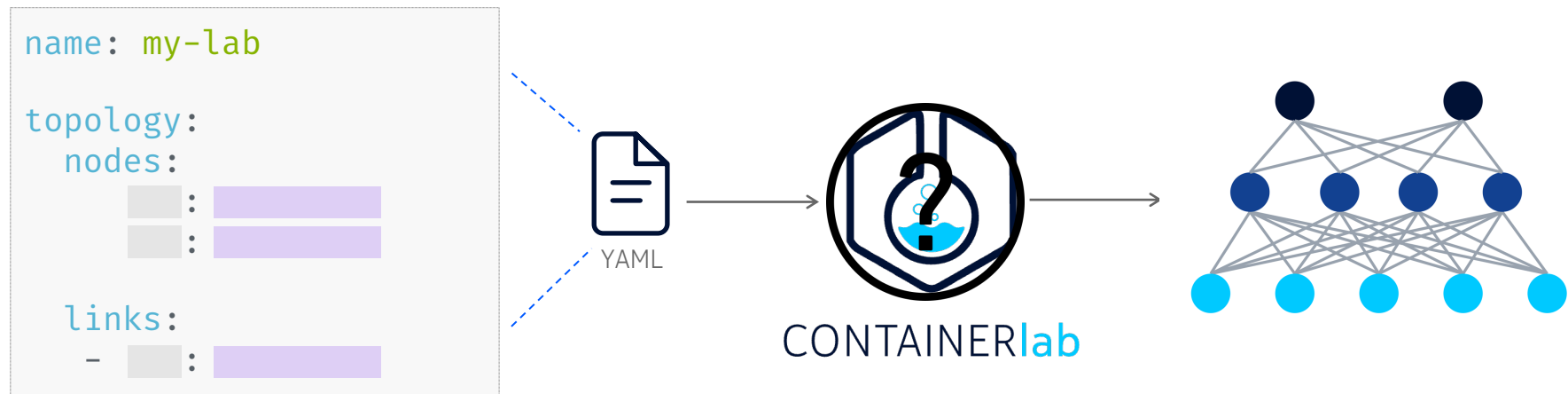
Sharing

Infrastructure as Code



Lab as Code

Declarative labs as code with containers




containerlab.dev

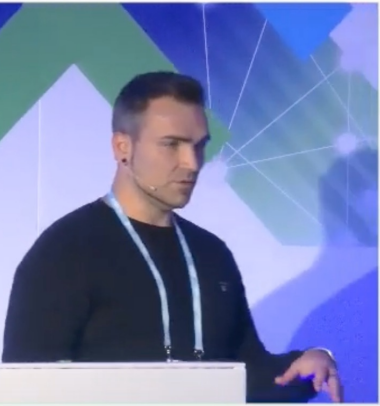
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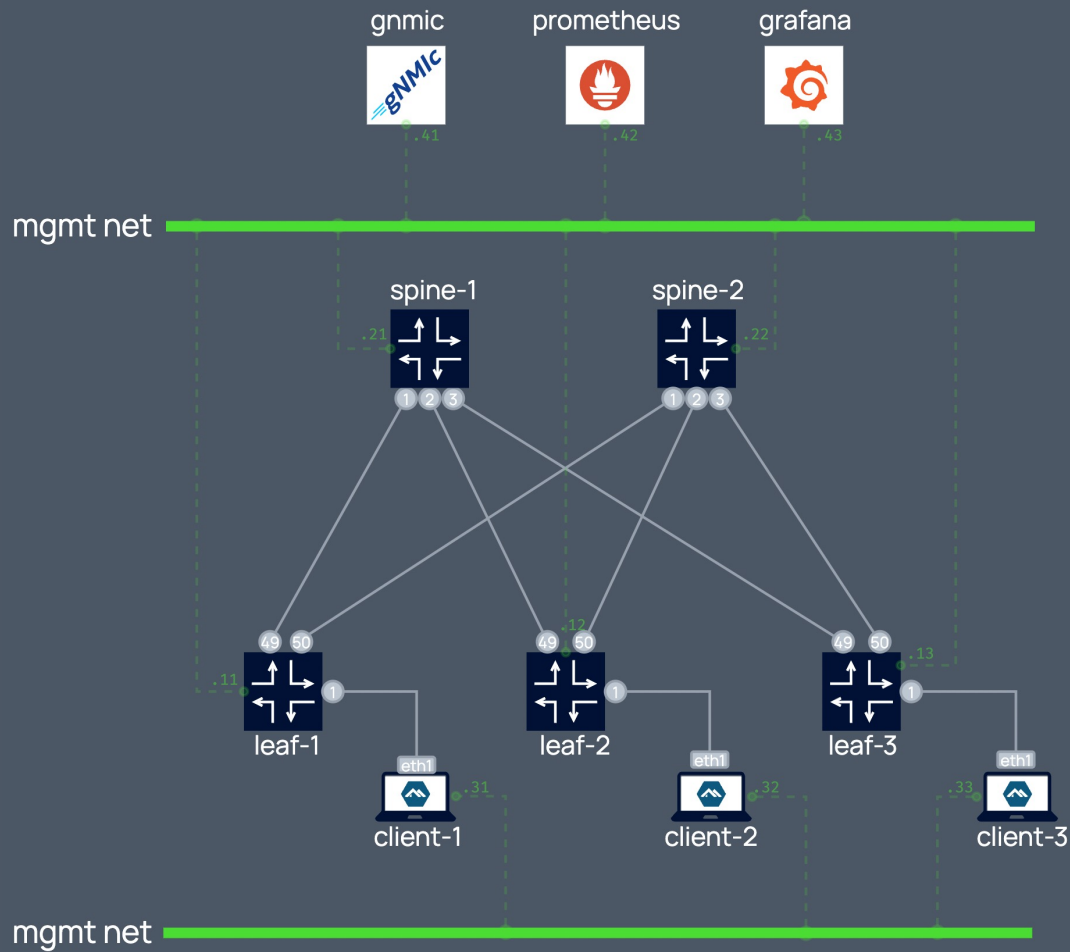


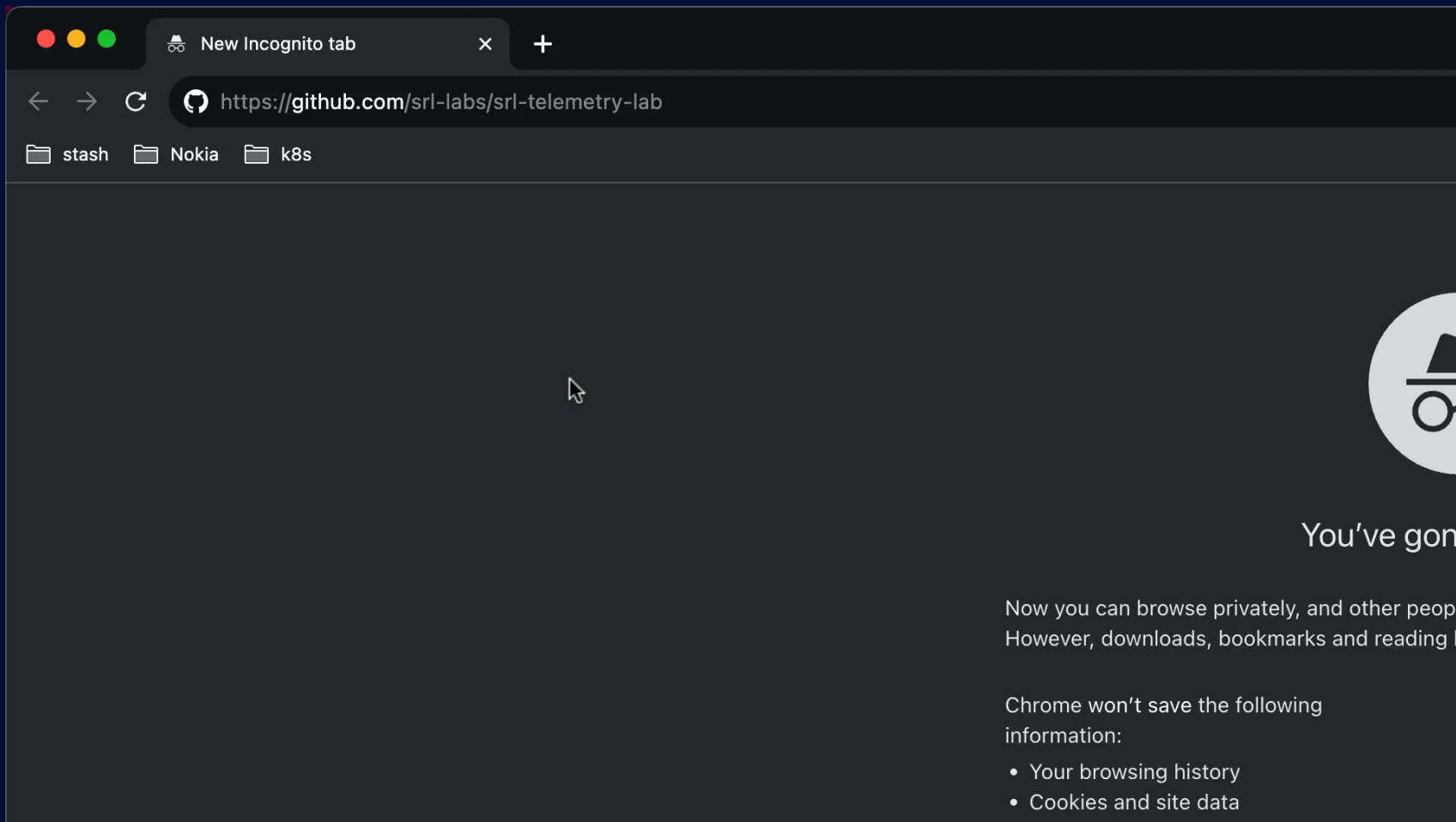
CONTAINERlab

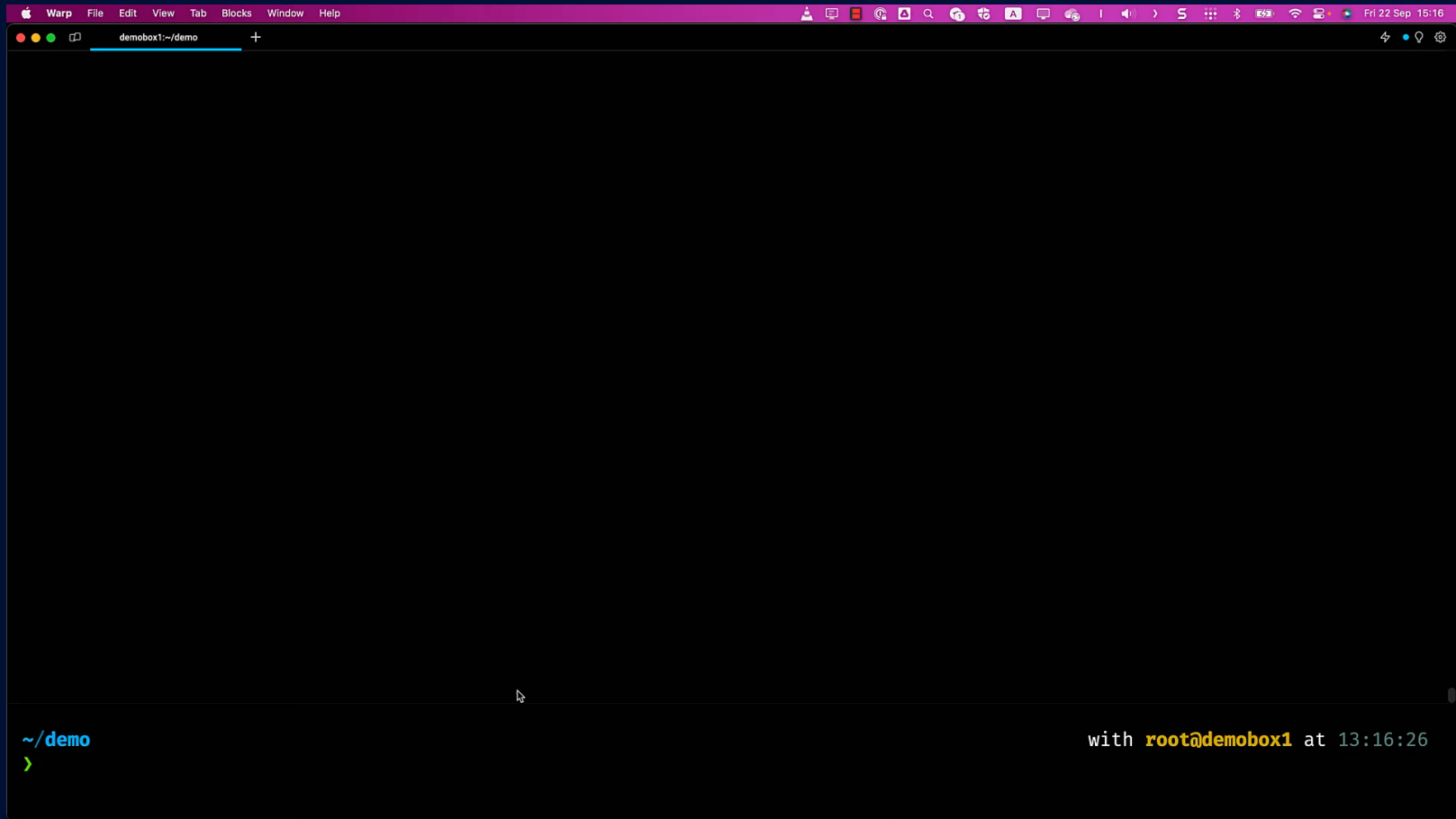
DevOps approach to network labs

Roman Dodin  @ntdvps
LINX117









st.clab.yml M st.clab.yml

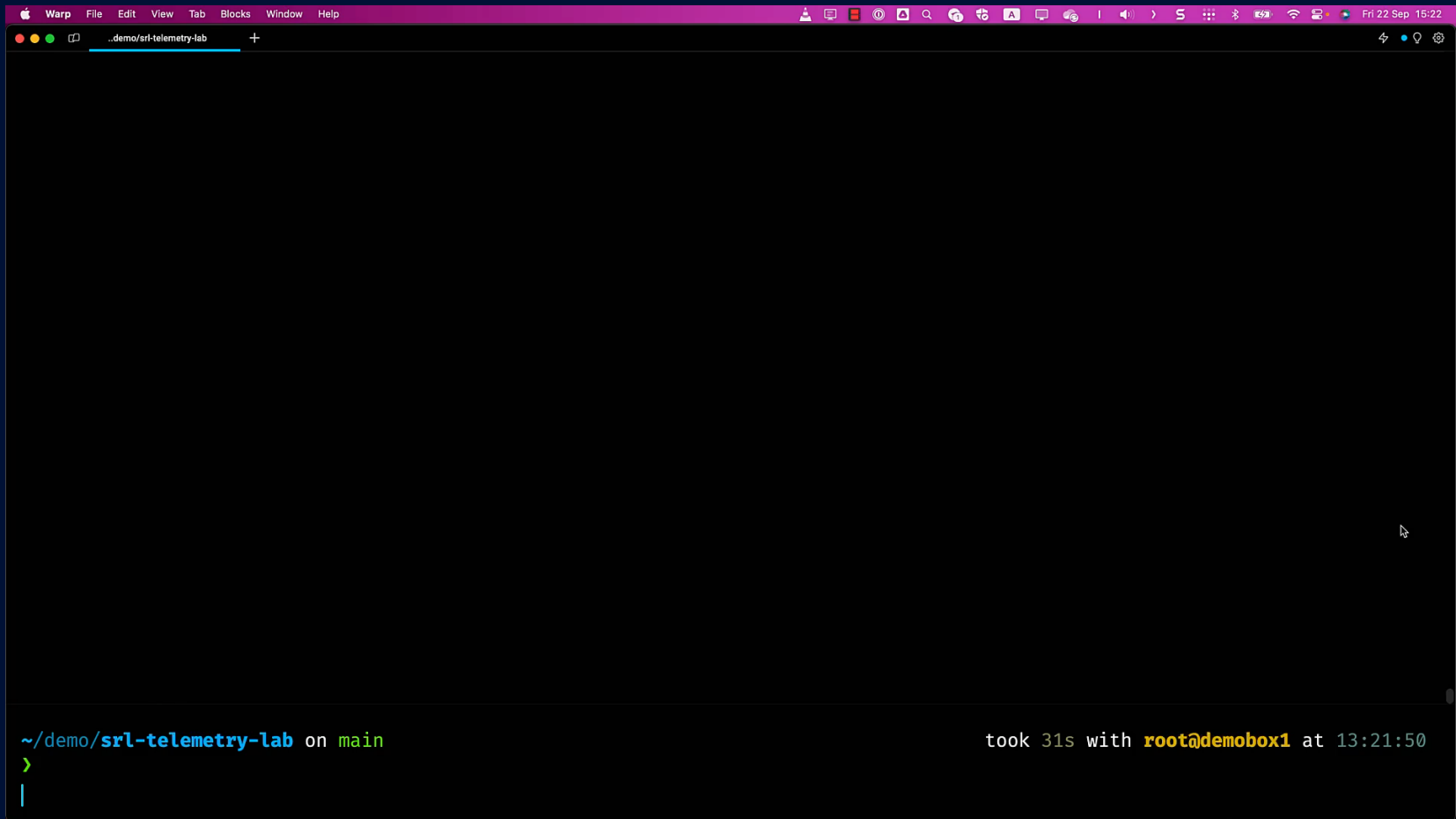
🔍 □ × ...

```
nodes:
  ### SPINES ###
  spine1:~
  spine2:~
    type: ixrd3l
    group: spine
    startup-config: configs/fabric/spine2.cfg
    mgmt-ipv4: 172.80.80.22

  ### LEAFS ###
  leaf1:~
    startup-config: configs/fabric/leaf1.cfg
    mgmt-ipv4: 172.80.80.11
    group: leaf
  leaf2:~
  leaf3:~

  ### CLIENTS ###
  client1:~
    kind: linux
    mgmt-ipv4: 172.80.80.31
    exec:
      - ip address add 172.17.0.1/24 dev eth1
      - ip -6 address add 2002::172:17:0:1/96 dev eth1
      - iperf3 -s -p 5201 -D > iperf3_1.log
      - iperf3 -s -p 5202 -D > iperf3_2.log
    group: server
  client2:~
  client3:~

  ### TELEMETRY STACK ###
  gnmic:~
    kind: linux
    mgmt-ipv4: 172.80.80.41
    image: ghcr.io/openconfig/gnmic:0.30.0
    binds:
      - gnmic-config.yml/gnmic-config.yml:ro
    cmd: --config /gnmic-config.yml --log subscribe
    group: "10" # group 10 is assigned to the nodes of a telemetry stack
```

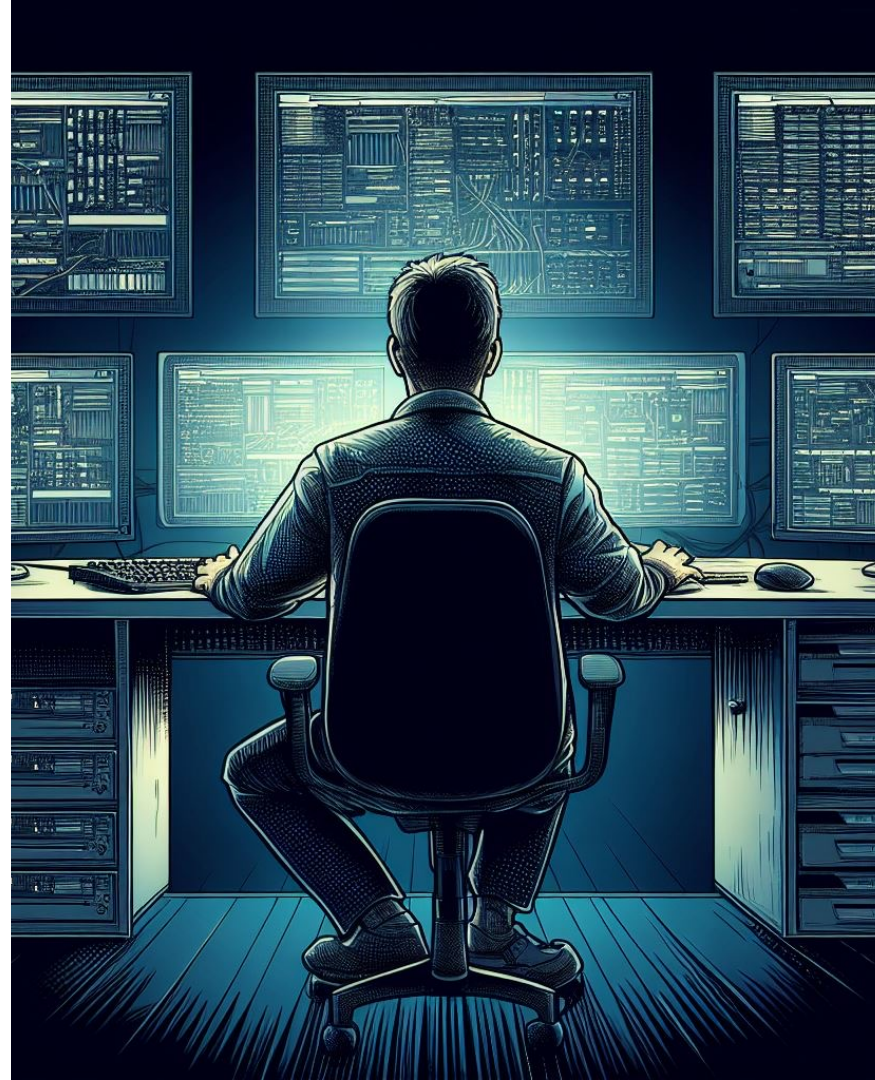


The image shows a terminal window titled "demo/srl-telemetry-lab" with a dark background. The terminal displays a shell prompt and a command execution summary. The prompt is "~ /demo/srl-telemetry-lab on main" followed by a green prompt character ">". Below the prompt is a vertical bar "|". To the right of the prompt, the text "took 31s with root@demobox1 at 13:21:50" is displayed.

```
~/demo/srl-telemetry-lab on main                                took 31s with root@demobox1 at 13:21:50
>
|
```

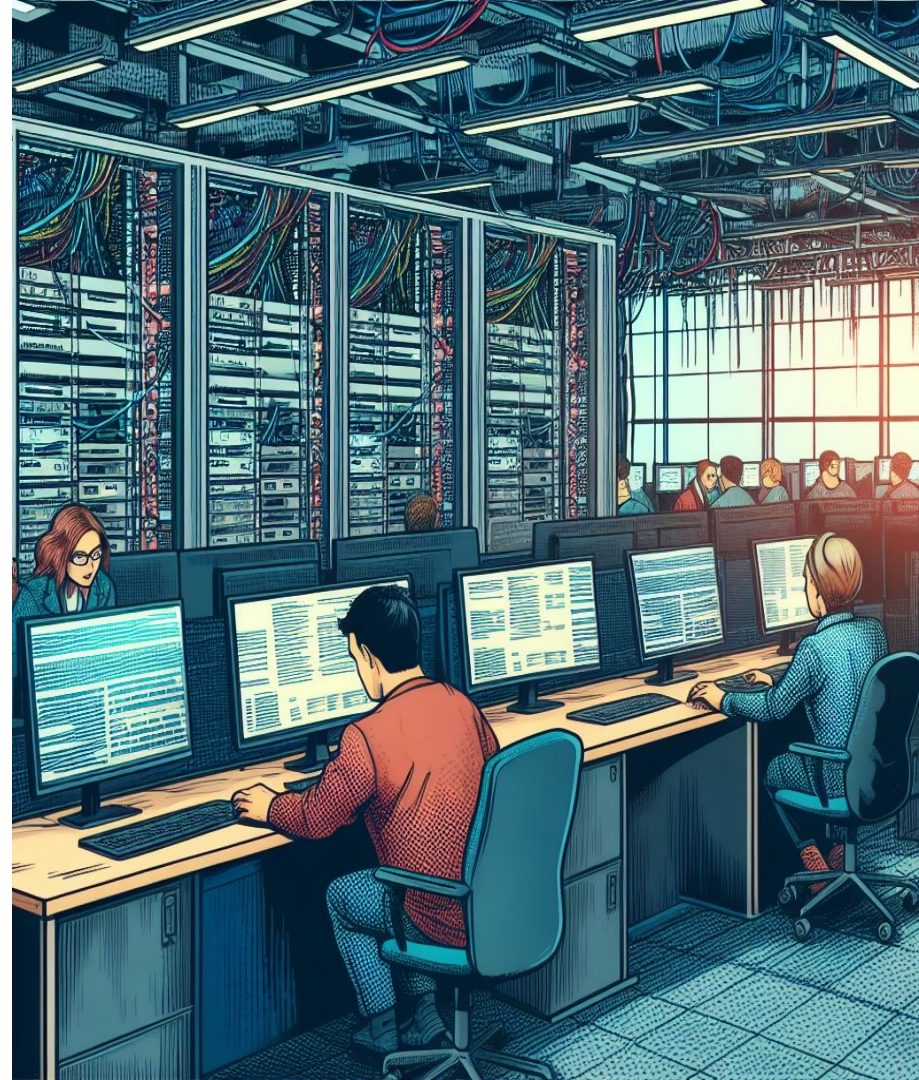
A Solo Network engineer

- 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

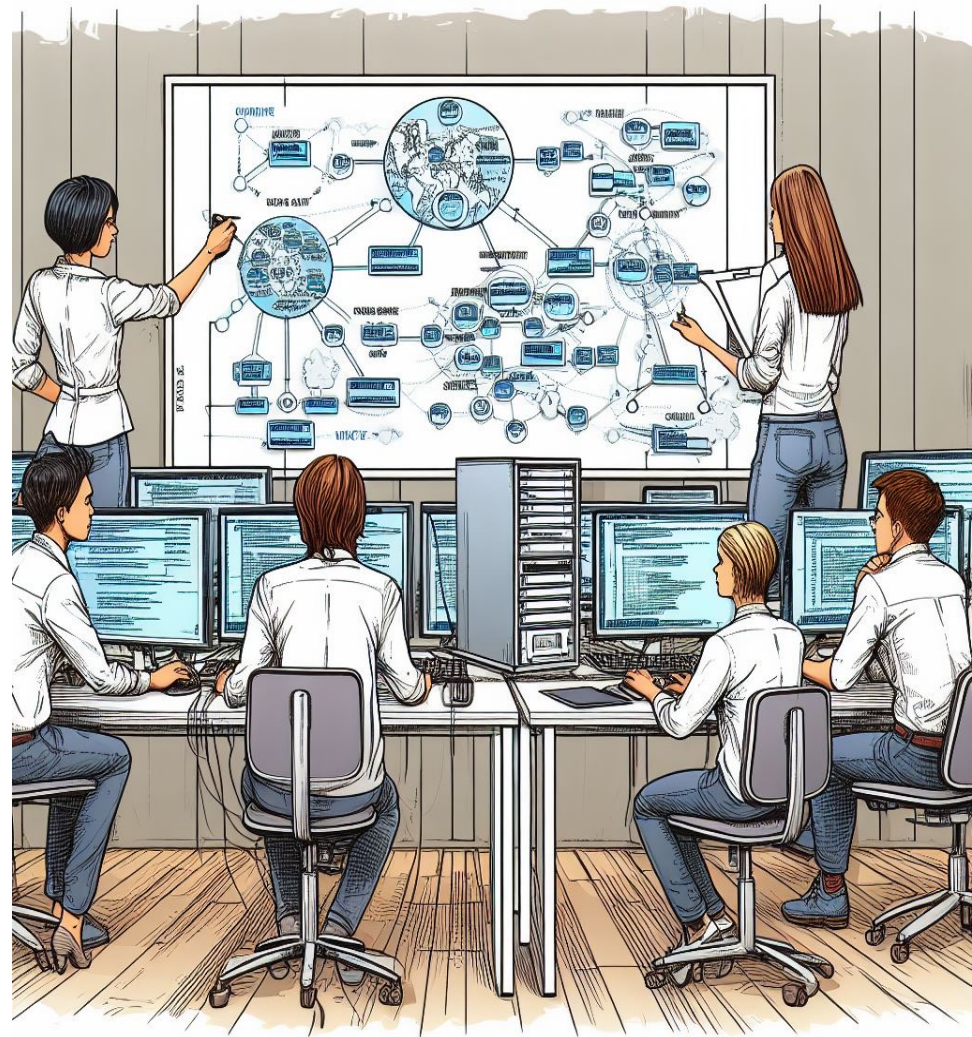
- **Collaborative** approach to build labs with peer review enabled by GitHub/GitLab
- Resource friendly and infra-agnostic.
- **Centralized datastore** of labs and images.
- Cross-team lab sharing.
- CI/CD



Software Engineering Team

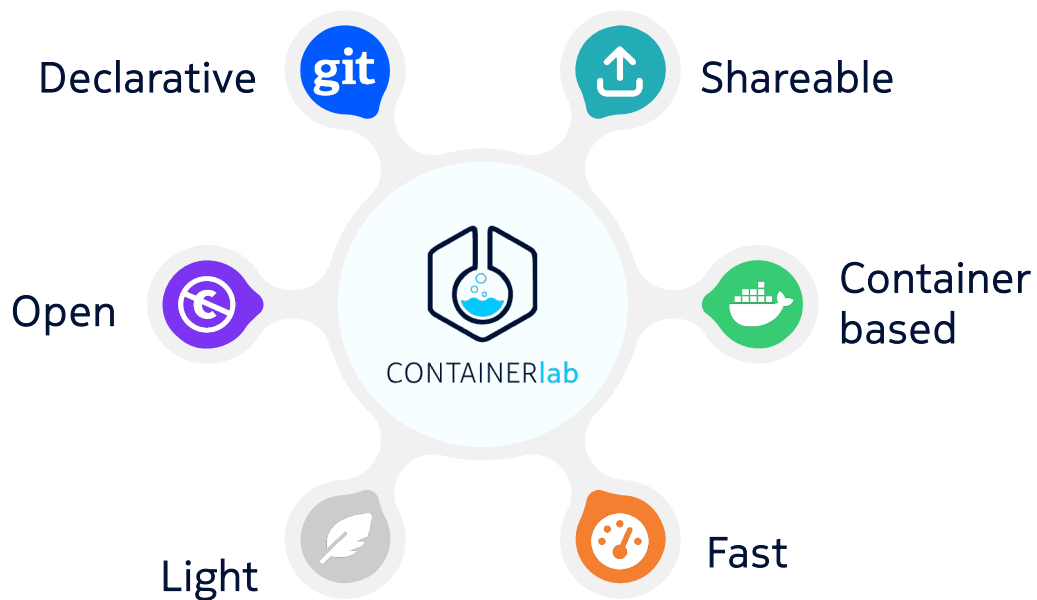
Developing Network-centric Solutions

- **Cross-domain lab sharing** with network engineering providing labs for software teams
- **Centrally managed datastore** of network topologies and images with granular access control and strict versioning.
- **Personal disposable labs** for developers sourced by network engineering team.



Containerlab

“Lab as code” one repo at a time



115K

Installations

80

Contributors

22

Supported
NOSes

25

Releases in
12mo



CONTAINERlab

<https://containerlab.dev>

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