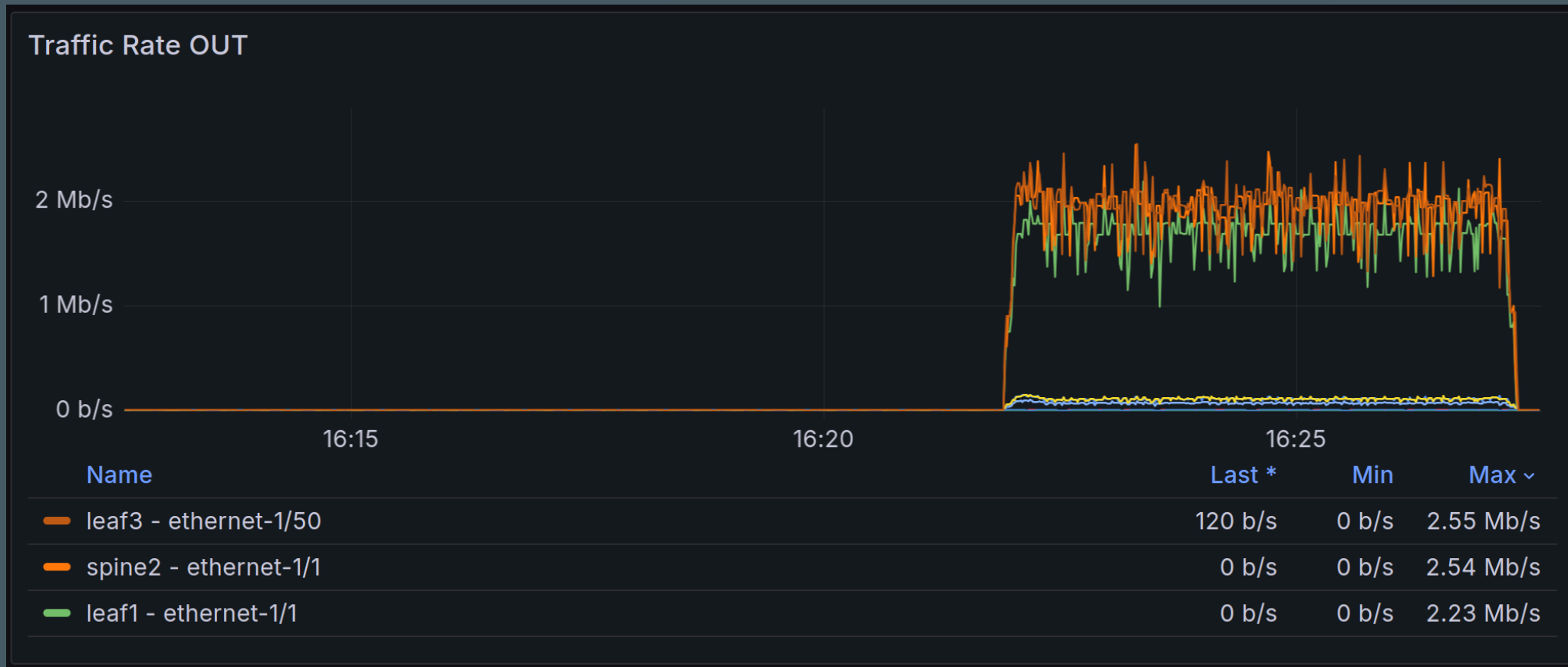


Streaming Telemetry

See and Understand

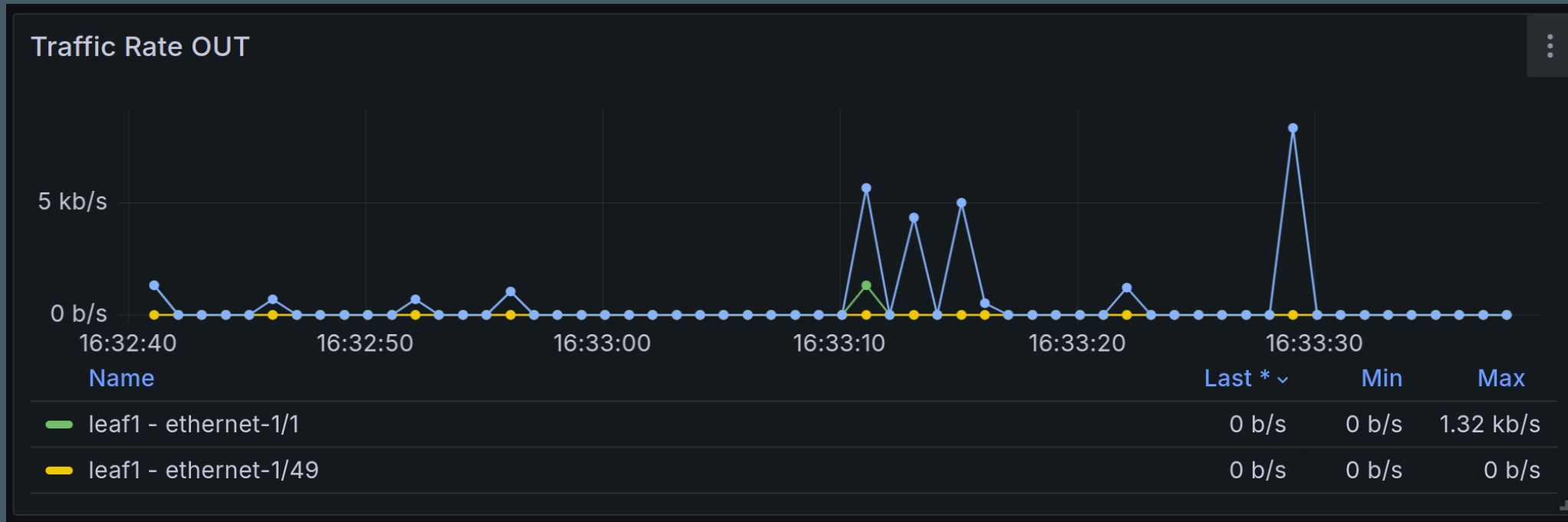
Live Demo

Demo - Interface statistics



Demo - Granularity

```
ping -i 2 -s 500 -c 3 && ping -i 2 -s 1000 -c 1
```



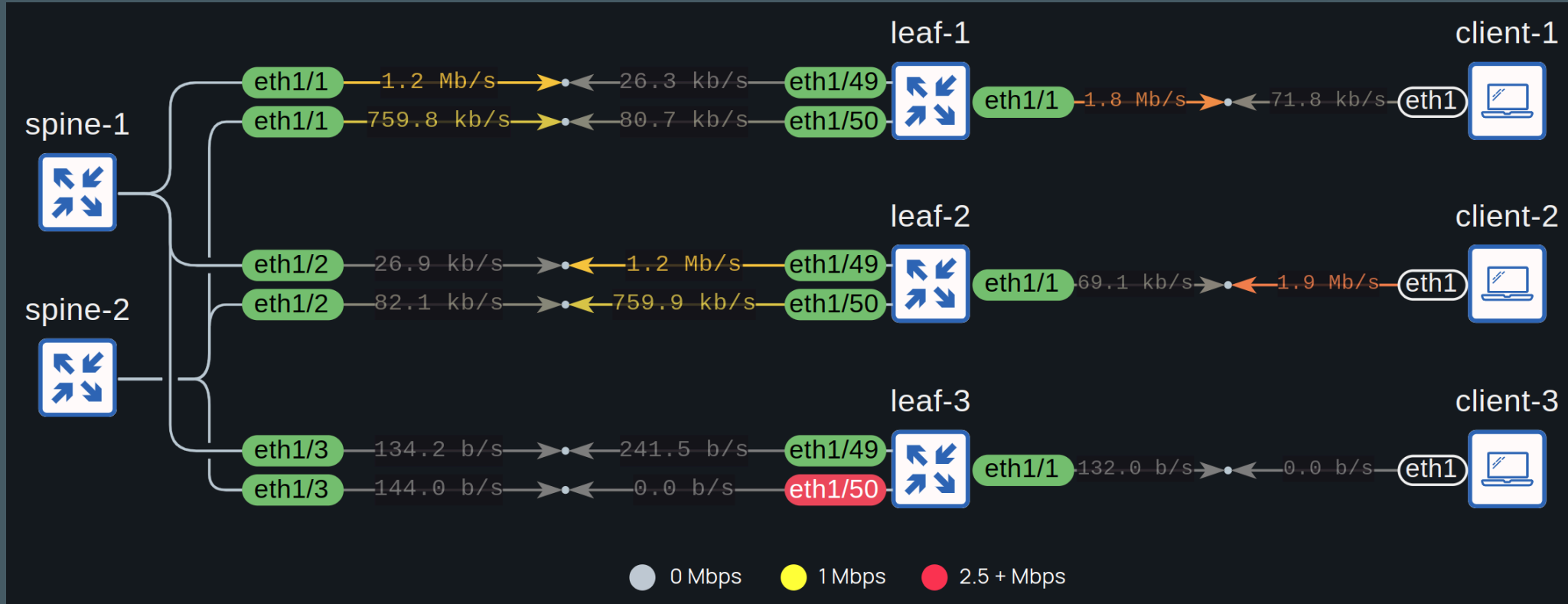
One second interval!

Demo - Interface status



*String values

Demo - Network Map



Demo - BGP statistics

Total number of BGP peers



| Name | Last * | Min | Max |
|-------|--------|-----|-----|
| leaf1 | 4 | 4 | 4 |
| leaf2 | 4 | 4 | 4 |
| leaf3 | 4 | 4 | 4 |

Number of BGP peers in Up state



| Name | Last * | Min | Max |
|--------|--------|-----|-----|
| leaf1 | 4 | 0 | 4 |
| leaf2 | 4 | 0 | 4 |
| leaf3 | 4 | 2 | 4 |
| spine1 | 6 | 0 | 6 |

Number of BGP peers in NON-Up state



| Name | Last * | Min | Max |
|--------|--------|-----|-----|
| leaf1 | 0 | 0 | 4 |
| leaf2 | 0 | 0 | 4 |
| leaf3 | 0 | 0 | 2 |
| spine1 | 0 | 0 | 3 |

Possibility: Table views

| Prefix | Nexthops | Interface | Protocol |
|----------------|------------|-----------|----------|
| 0.0.0.0/0 | 10.255.1.1 | Null0 | Static |
| 10.0.1.0/24 | 10.255.1.1 | | BGP |
| 10.0.123.0/24 | 10.255.1.6 | | BGP |
| 192.168.0.0/23 | 10.255.1.1 | | BGP |

See content of any table in a given point in time (RIB, ARP, MAC etc...)

Possibility: Table view comparison

| Prefix | Nexthops | Interface | Protocol | Action |
|-----------------|--------------|-----------|----------|---------|
| 172.16.250.1/32 | 10.255.100.2 | | Static | Added |
| 172.16.250.2/32 | 10.255.100.2 | | Static | Added |
| 192.168.0.0/23 | 10.255.1.1 | | BGP | Removed |
| 192.168.1.0/23 | 10.255.1.1 | | BGP | Added |

Compare two timestamps (i.e. 30 mins ago)

gNMI

Characteristics:

- Uses **gRPC** protocol
 - highly efficient (binary protocol, efficient encoding)
 - secure (TLS)
- Can be used both to **configure** and **monitor** network devices
- **YANG** Based data models (standard & vendor specific)

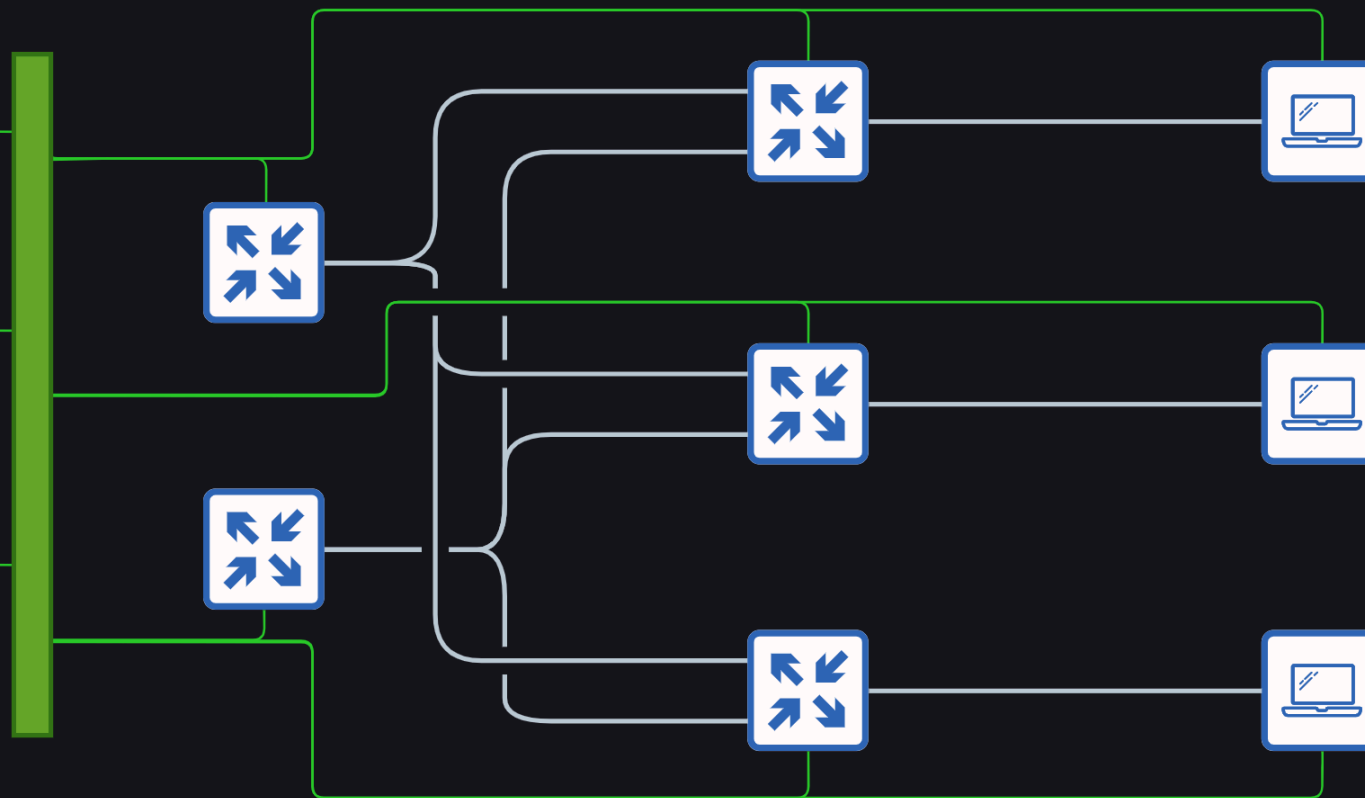
How demo was made?

Github Codespaces + containerlab

gNMIc

Grafana

InfluxDB



Play it yourself



1) Open:

<https://github.com/JaakkoRautanen/telemetry-demo>

2) Click **Run in Codespaces** button

3) Type `sudo clab deploy` in the terminal in browser

Keep streaming - stop polling!