



OST

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gNMIc Operator

Network Monitoring with the gNMIc Operator

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Computer Science

Introduction

Introduction



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- 2026 Graduates of BSc in Computer Science at OST
- Bachelor thesis: *gNMlc Operator – Development of a mechanism for target auto-discovery*
- Intro streaming telemetry → Live Demo → Questions

SNMP and Streaming Telemetry

SNMP – the golden Standard?

- Retrieve data through periodic polling
- Pull-based approach can't account for router workload.
- Inefficient data collection
- Unoptimized data aggregation
- Difficulties scaling efficiently

Streaming Telemetry

- Subscribe to YANG-paths
- Router decides when to push data
- gNMI – gRPC Network Management Interface by Openconfig
- Reliable delivery by using gRPC

Introduction

gNMlc and the gNMlc Operator

gNMlc

- Command-line client for gNMI
- gNMI operations Capabilities, Get, Set, and Subscribe
- gNMlc server that acts as a telemetry collector
- Operational challenges
 - Manual configuration file changes
 - Not highly available

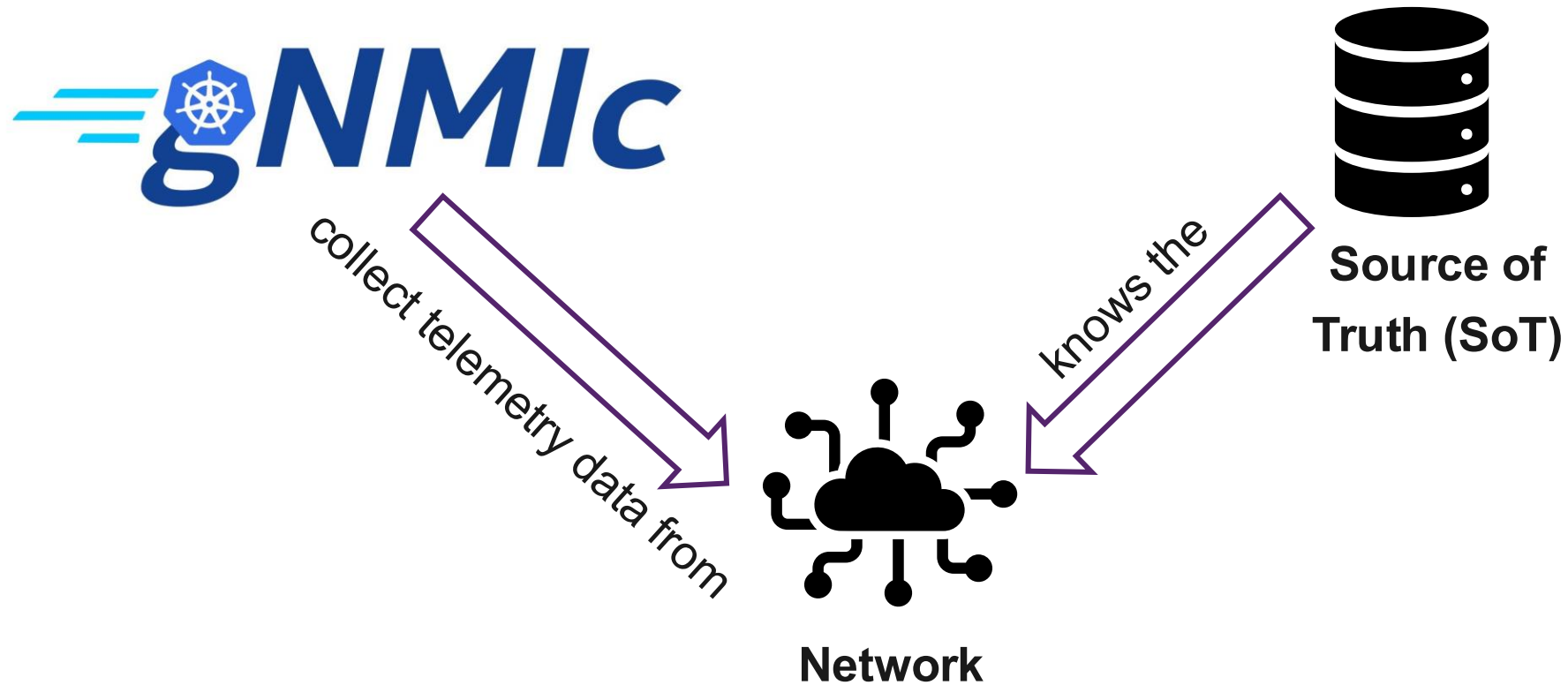
gNMlc Operator

- gNMlc as a Kubernetes Operator
- Advantages
 - Declarative configuration
 - High availability
 - Constant reconciliation cycle
- Open-source project started in 2026

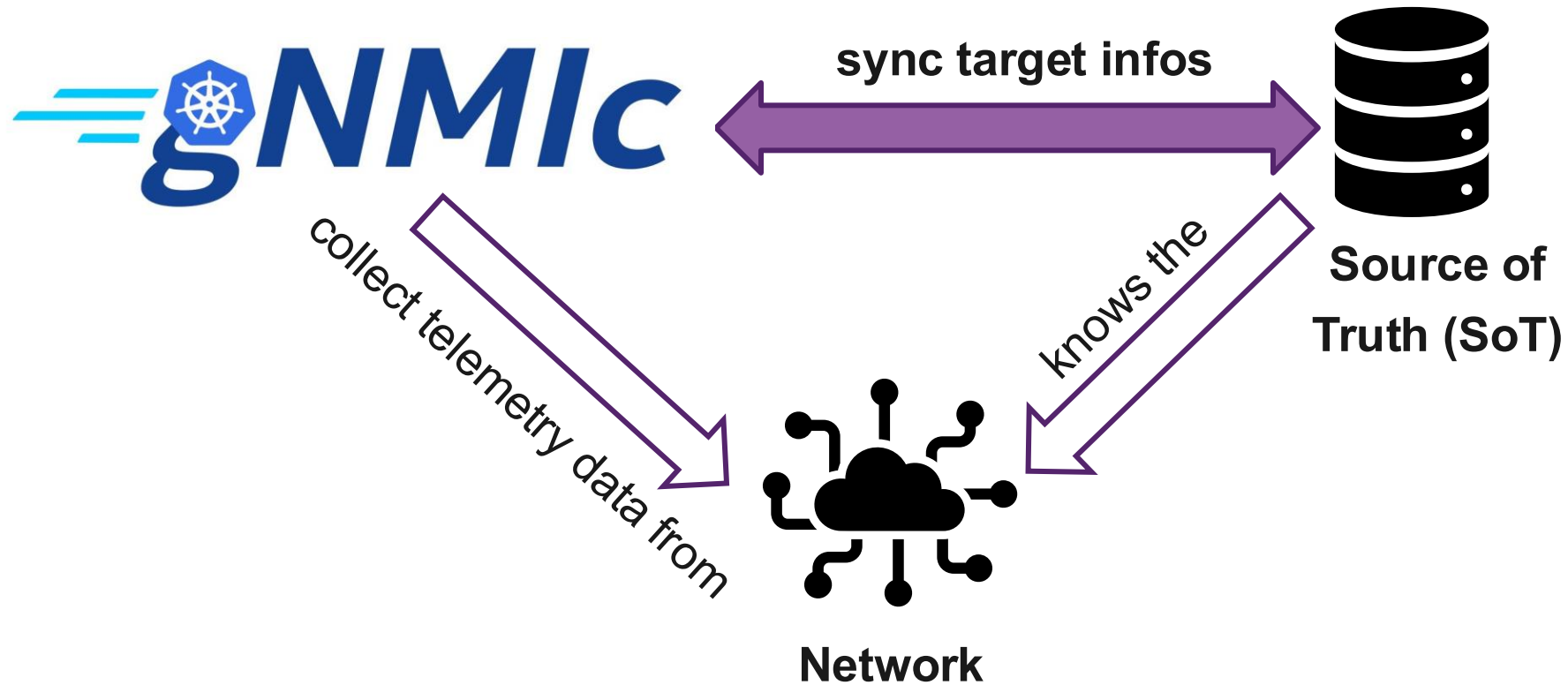
The Bigger Picture



The Synchronization Gap



Towards Dynamic Target Management



Demonstration

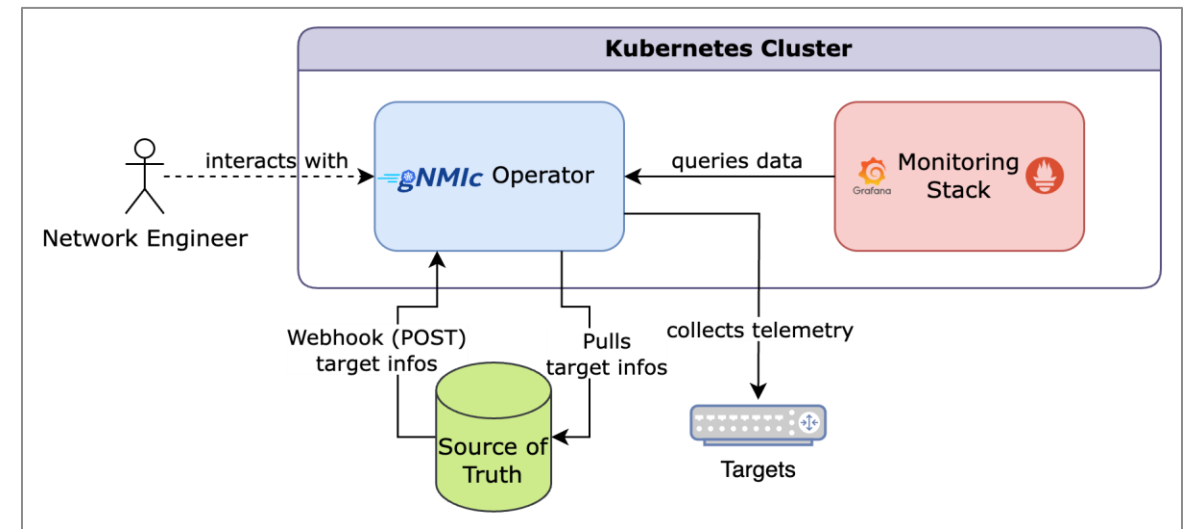
gNMlc Operator Auto-Discovery Demonstration

- Targets run in containerlab
- Monitoring stack Prometheus/Grafana
- Source of Truth is NetBox

Demonstration Overview

- Create gNMlc Operator resources
- Pull targets via Export Template
- Push updates via Webhook

- Both are added as examples in the [gNMlc Operator docs](#).



Closing

Closing

gNMIc Operator

- <https://github.com/gnmic/operator/>
- <https://operator.gnmic.dev/>

Bachelor thesis

- Not published on eprints.ost.ch yet
- We will send you a copy if you want!
 - roman.weber@ost.ch

Question time!

Or ask us later during the beer and burger part.

Thanks for listening!