EFFICIENT LOGGING SOLUTIONS WITH OPENTELEMETRY AND CLICKHOUSE

Islam Nurul Yakin
DevOps Engineer @SEVIMA

Yogyakarta, 19 July 2025

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Kita bakal ngobrolin apa ?

1. Problem yang dihadapi
2. Open Telemetry
3. Clickhouse
4. Demo

sumber: https://en.wikipedia.org/wiki/File:Clickhouse.png

sumber: https://opentelemetry.io/docs/

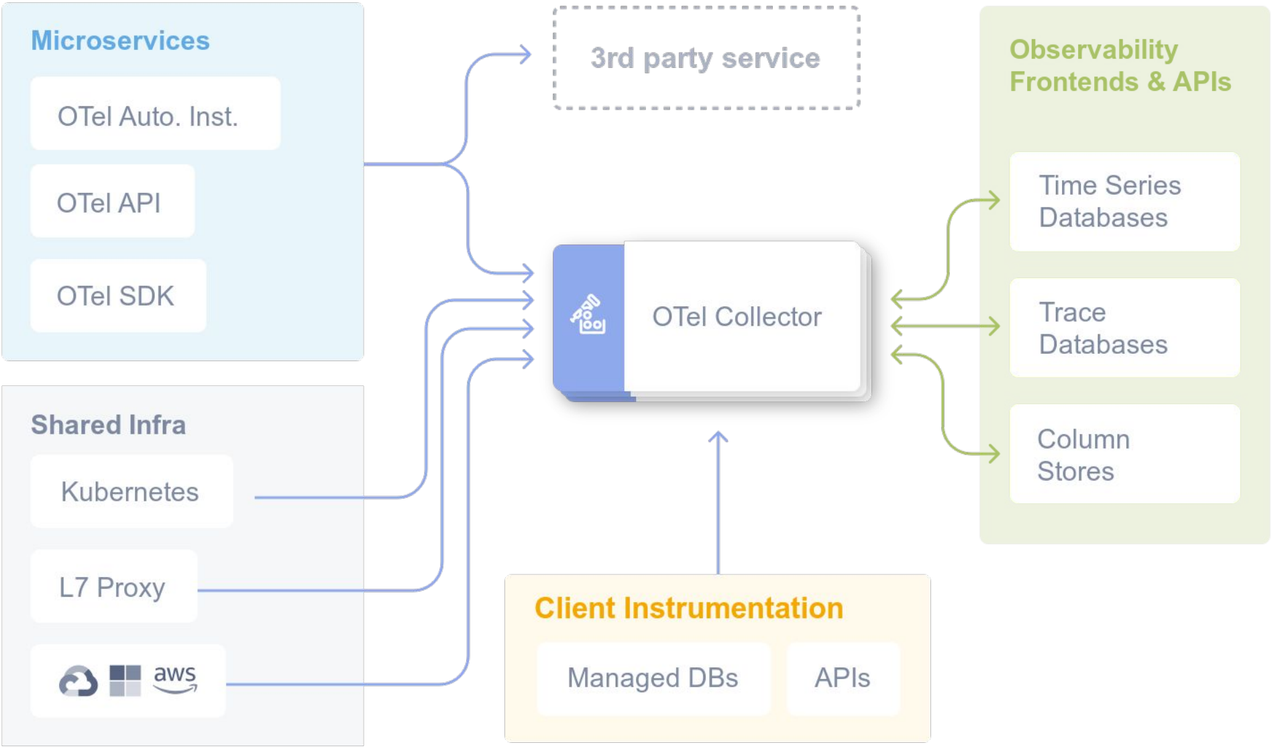
Disclaimer:

Pendapat yang diungkapkan sepenuhnya merupakan pendapat pribadi saya dan tidak mencerminkan pandangan atau pendapat perusahaan tempat saya bekerja.

Problem Statement

- Log tidak karuan tersebar diseluruh penjuru
- Setiap kali ada problem, ssh ke server
- Membutuhkan real-time monitoring

Kenalan dulu sama OpenTelemetry



sumber: https://opentelemetry.io/docs/

High-quality, ubiquitous, and portable telemetry to enable effective observability

Dev Ops

Simple nya

otel membantu dev/ops untuk melihat dan mengerti bagaimana aplikasi bekerja, apakah semuanya berjalan lancar, atau ada masalah yang harus diperbaiki. Jadi, otel memberikan "story" tentang apa yang terjadi di dalam aplikasi tersebut.

Jangan lupa kenalan sama ClickHouse

sumber: https://en.wikipedia.org/wiki/File:Clickhouse.png

ClickHouse® is a high-performance, column-oriented SQL database management system (DBMS) for online analytical processing (OLAP)

ohh columnar database….

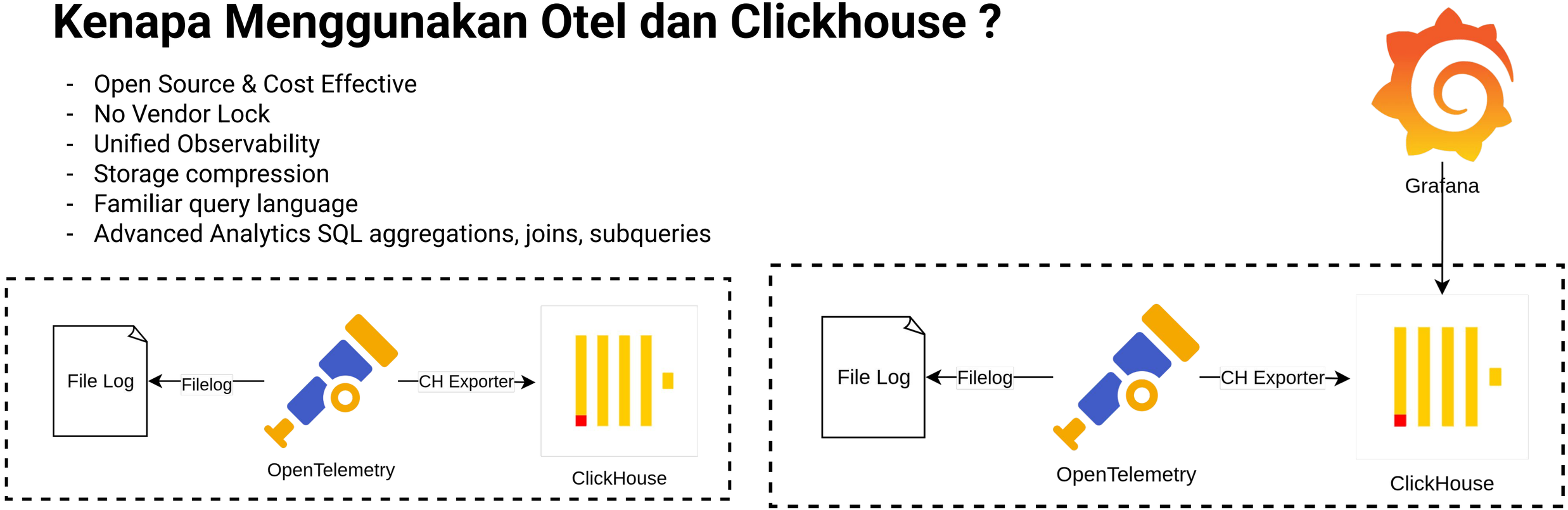
SQL Family

Beginner-friendly

Arsitektur sederhana

Kenapa Menggunakan Otel dan Clickhouse ?

- Open Source & Cost Effective
- No Vendor Lock
- Unified Observability
- Storage compression
- Familiar query language
- Advanced Analytics SQL aggregations, joins, subqueries



Simple oTel config

```yaml
receivers:
  filelog:
    include:
      - /var/log/nginx/access.log
    start_at: beginning
```

otel mempunyai banyak receivers,
dan bisa lebih dari 1. pada
sample kali ini membaca filelog

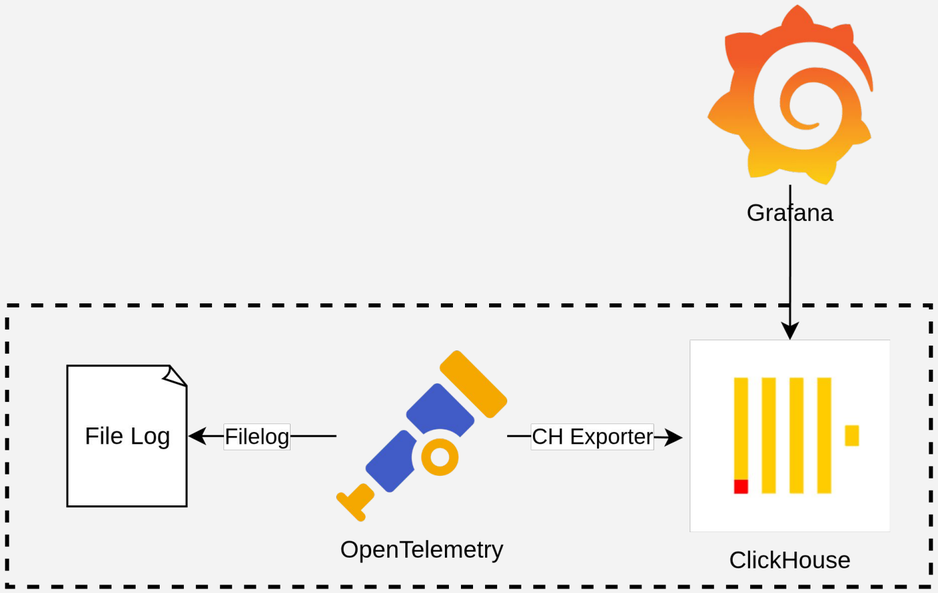
```yaml
service:
  pipelines:
    logs:
      receivers: [filelog]
      processors: [transform, resource, batch]
      exporters: [clickhouse]
```

Pipelines
mendefinisikan data dari diproses dari awal hingga akhir

```yaml
resource:
  attributes:
    - key: service.name
      value: inventory
      action: upsert
```

Transform
Ingin menambahkan label,
example nama services.

Clickhouse Pros…



Karena ch = olap dbms, create table lebih advanced, & complex analytics query.

Tapi…

ch tidak begitu Lightweight jika dibanding keluarga LGTM

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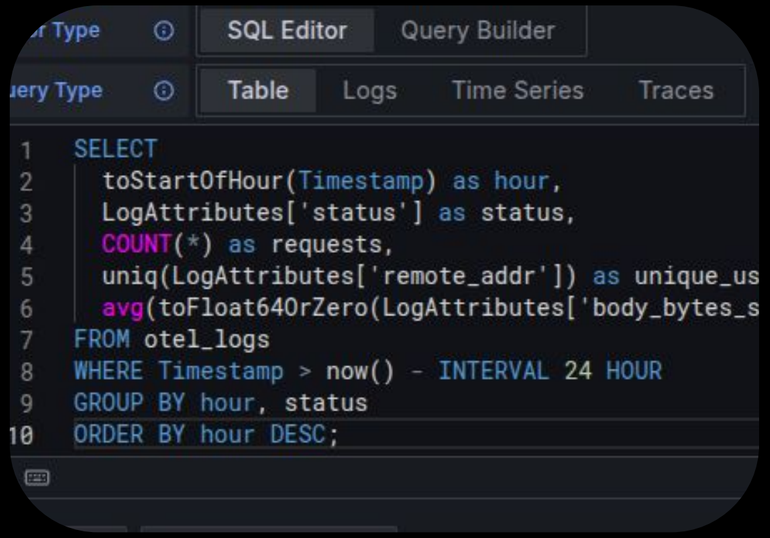
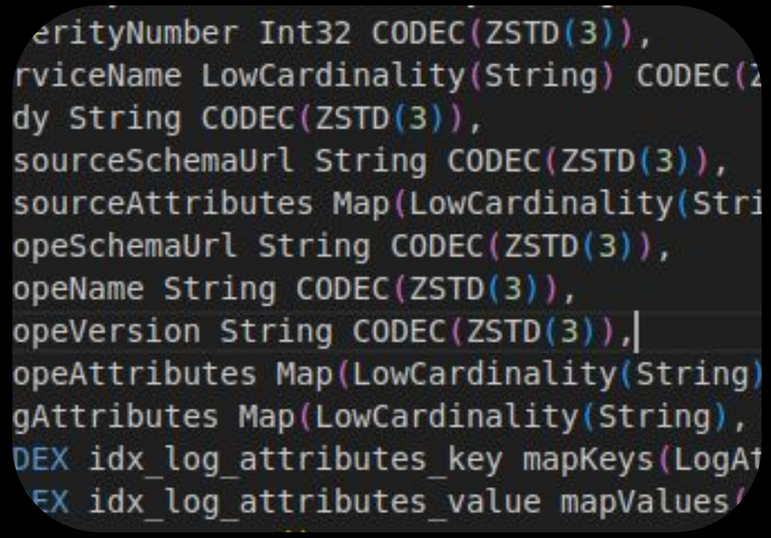
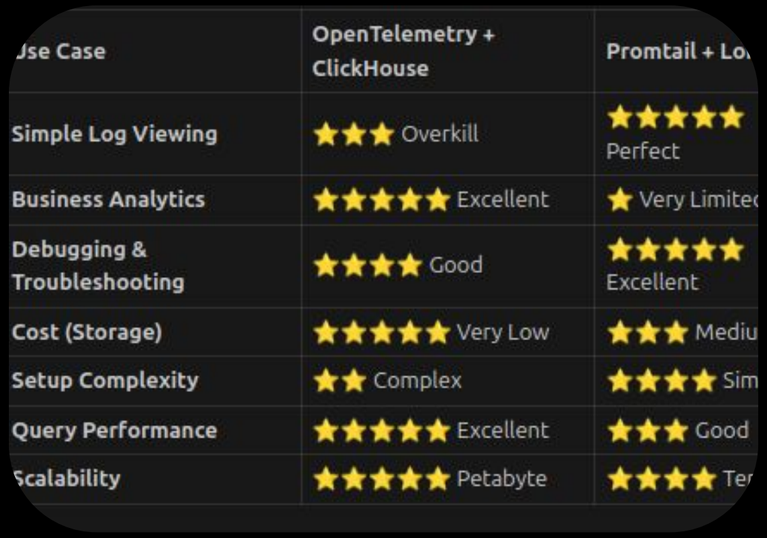
Pros



Complex Analytic Query



Low Cardinality ?



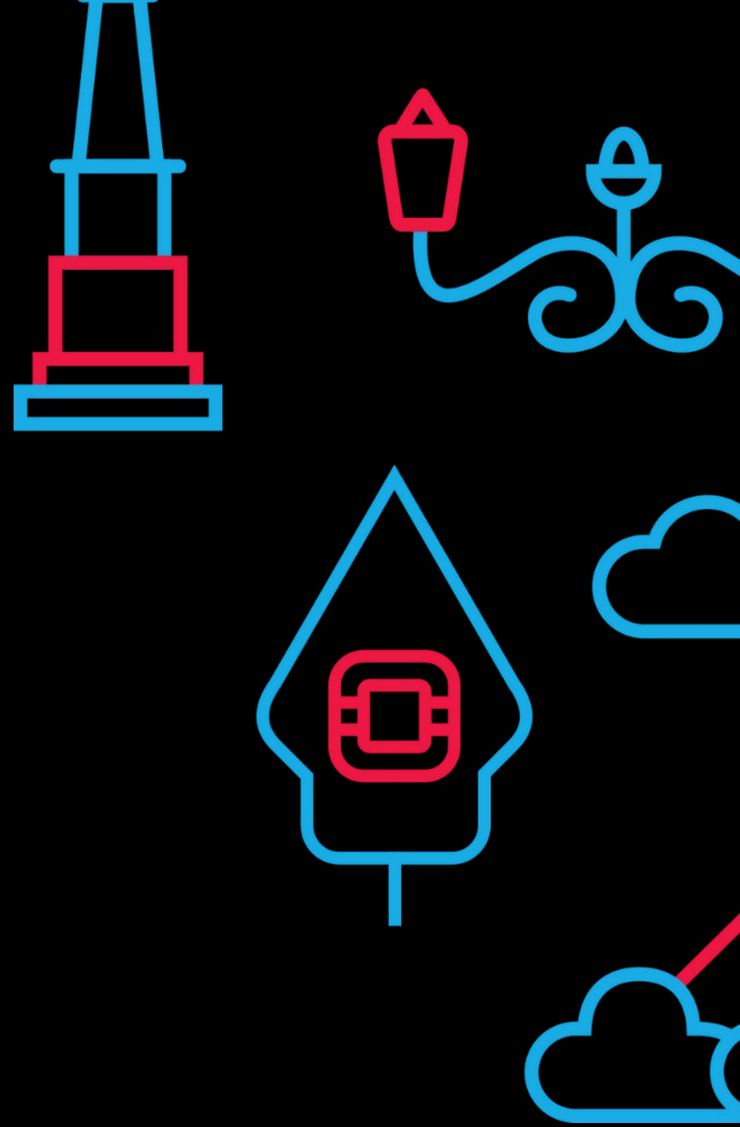
Use Case	OpenTelemetry + ClickHouse	Promtail + Lo
Simple Log Viewing	★★★ Overkill	★★★★★ Perfect
Business Analytics	★★★★★ Excellent	★ Very Limite
Debugging & Troubleshooting	★★★★ Good	★★★★★ Excellent
Cost (Storage)	★★★★★ Very Low	★★★ Mediu
Setup Complexity	★★ Complex	★★★★ Sim
Query Performance	★★★★★ Excellent	★★★ Good
Scalability	★★★★★ Petabyte	★★★★ Ter

simple log viewing?

Yu Demo Yu

Github

THANK YOU



EasyStack open cloud computing

AMD

datacomm flexi WOWRACK

ZConverter Cloud

SIVALI CLOUD TECHNOLOGY

boer technology

NASHTAGROUP

nevacloud

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