# Observability Framework
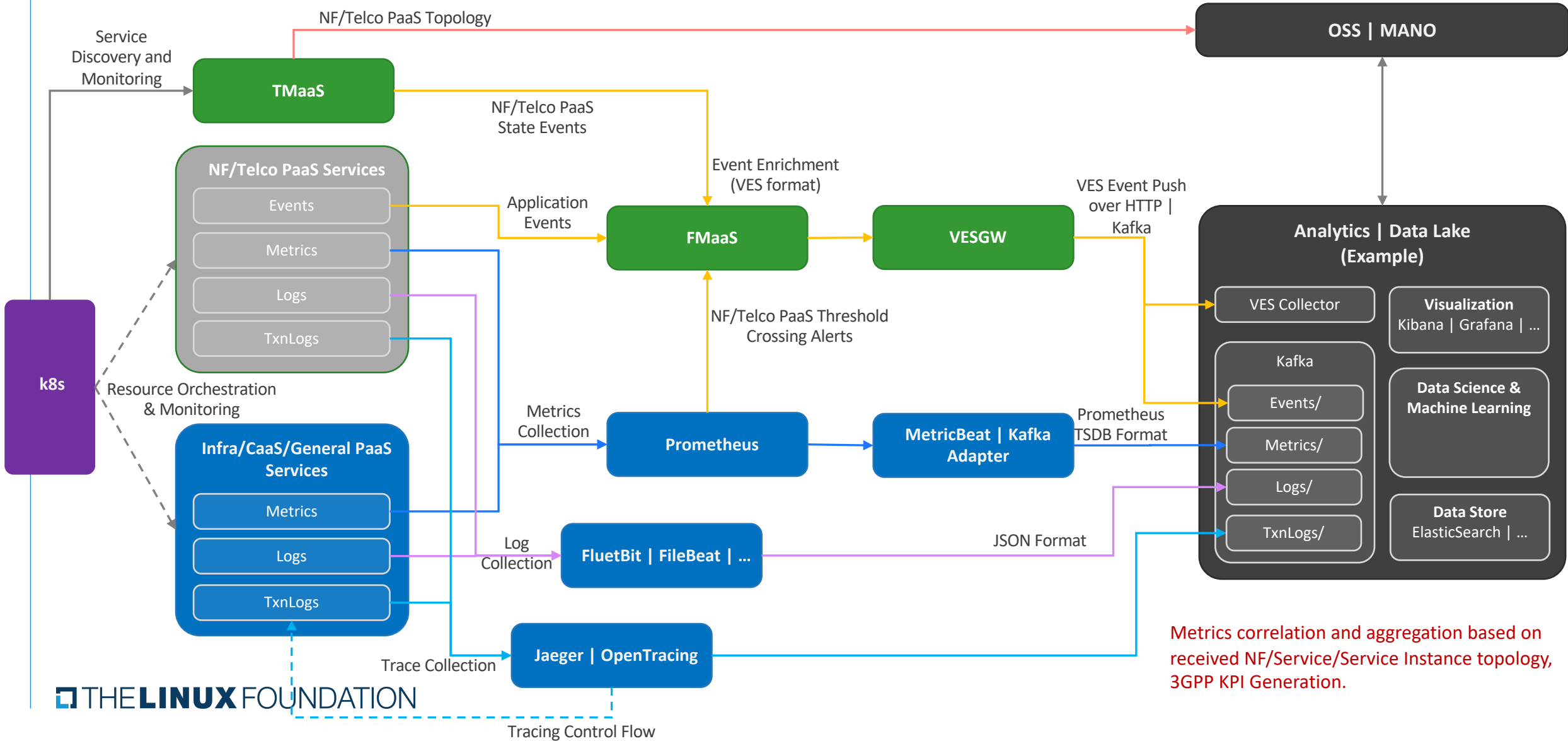
April 23, 2021

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# Observability Framework
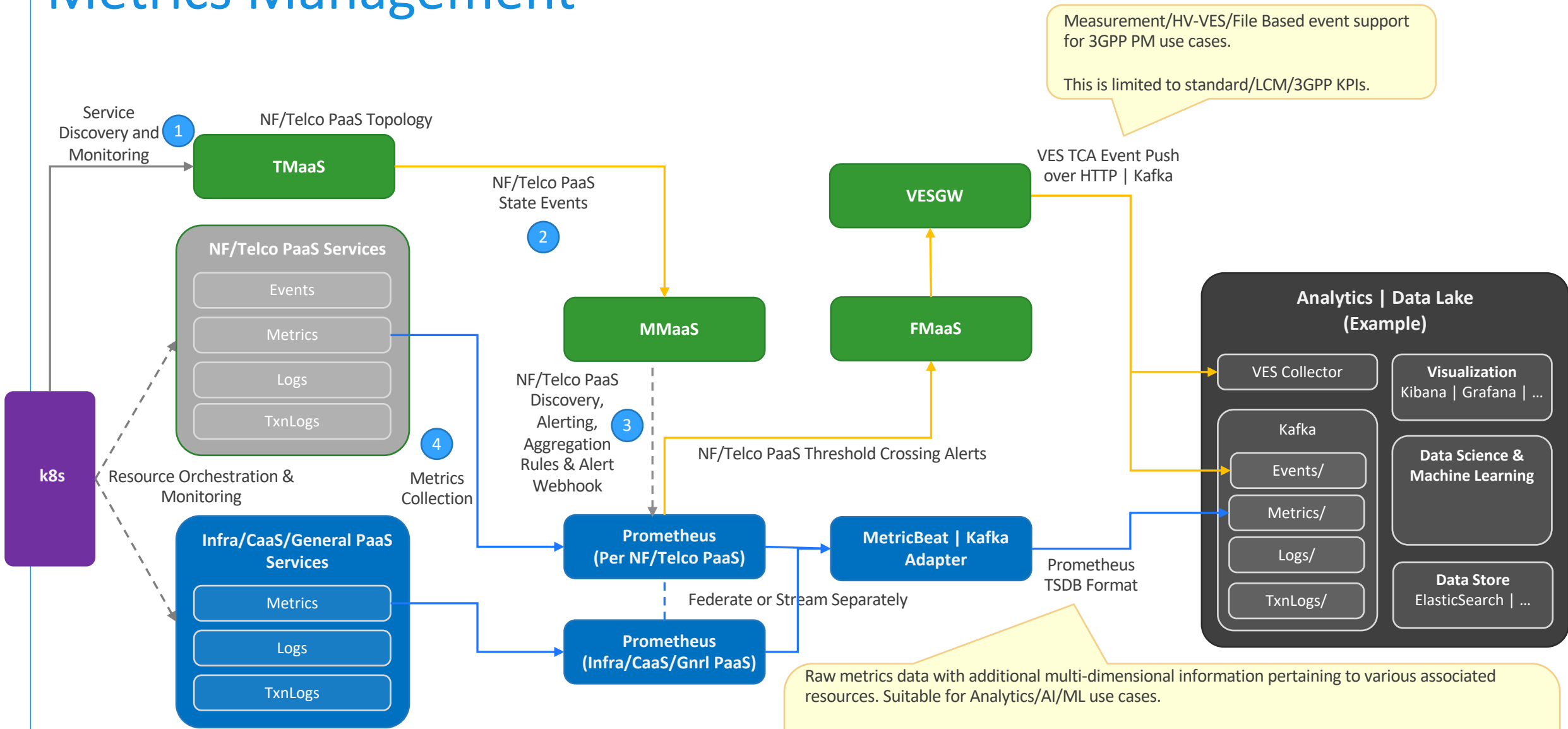
**OSS | MANO**

Service Discovery and Monitoring

NF/Telco PaaS Topology

**TMaaS**

NF/Telco PaaS State Events

**NF/Telco PaaS Services**
- Events
- Metrics
- Logs
- TxnLogs

Event Enrichment (VES format)

Application Events

**FMaaS**

VES Event Push over HTTP | Kafka

**VESGW**

**k8s**

Resource Orchestration & Monitoring

NF/Telco PaaS Threshold Crossing Alerts

**Analytics | Data Lake (Example)**

VES Collector

**Visualization**
Kibana | Grafana | ...

Kafka
- Events/
- Metrics/
- Logs/
- TxnLogs/

**Data Science & Machine Learning**

**Infra/CaaS/General PaaS Services**
- Metrics
- Logs
- TxnLogs

Metrics Collection

**Prometheus**

**MetricBeat | Kafka Adapter**

Prometheus TSDB Format

**Data Store**
ElasticSearch | ...

Log Collection

**FluetBit | FileBeat | ...**

JSON Format

Trace Collection

**Jaeger | OpenTracing**

Tracing Control Flow

Metrics correlation and aggregation based on received NF/Service/Service Instance topology, 3GPP KPI Generation.

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# Metrics Management

Service Discovery and Monitoring ① NF/Telco PaaS Topology

**TMaaS**

NF/Telco PaaS State Events

②

**NF/Telco PaaS Services**
- Events
- Metrics
- Logs
- TxnLogs

③

Resource Orchestration & Monitoring

**k8s**

④ Metrics Collection

**Infra/CaaS/General PaaS Services**
- Metrics
- Logs
- TxnLogs

NF/Telco PaaS Discovery, Alerting, Aggregation Rules & Alert Webhook

**MMaaS**

**Prometheus (Per NF/Telco PaaS)**

Federate or Stream Separately

**Prometheus (Infra/CaaS/Gnrl PaaS)**

NF/Telco PaaS Threshold Crossing Alerts
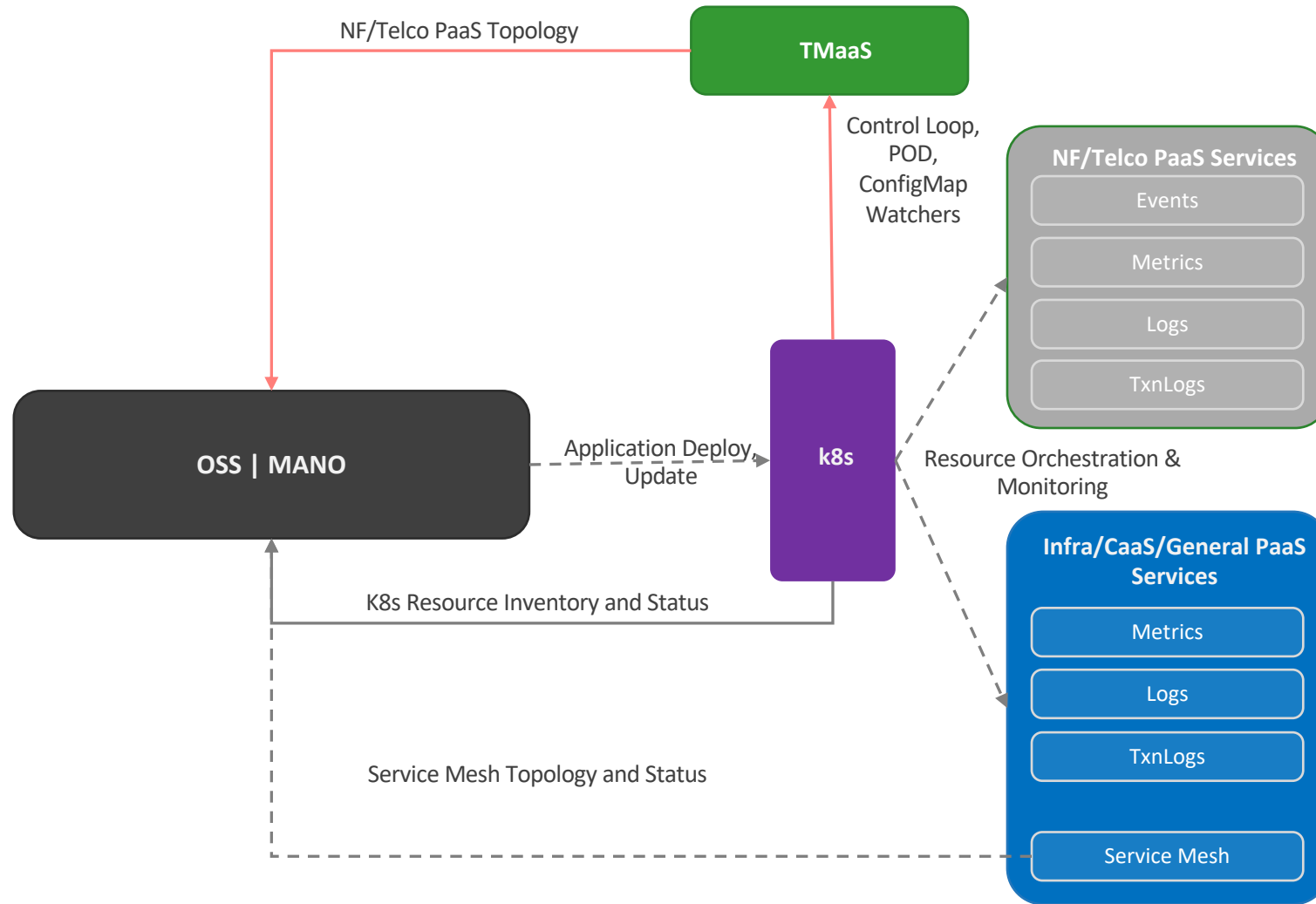
**FMaaS**

**VESGW**

VES TCA Event Push over HTTP | Kafka

Measurement/HV-VES/File Based event support for 3GPP PM use cases.

This is limited to standard/LCM/3GPP KPIs.

**MetricBeat | Kafka Adapter**

Prometheus TSDB Format

**Analytics | Data Lake (Example)**

- VES Collector
- Kafka
  - Events/
  - Metrics/
  - Logs/
  - TxnLogs/
- **Visualization** Kibana | Grafana | ...
- **Data Science & Machine Learning**
- **Data Store** ElasticSearch | ...

Raw metrics data with additional multi-dimensional information pertaining to various associated resources. Suitable for Analytics/AI/ML use cases.

A suggestion is to support this interface and integration native on OSS/MANO platforms such as ONAP. The Analytics platform could then generate 3GPP KPIs and reports, which is possible based on the various multi-dimensional resource information available in Prometheus data.

Ex. Apart from Slice, NF, NFS, NFSI identifier information, RAN CU/DU can inject gNB ID, ECGI, etc.

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# Topology Management



NF/Telco PaaS Topology

TMaaS

Control Loop, POD, ConfigMap Watchers

NF/Telco PaaS Services
- Events
- Metrics
- Logs
- TxnLogs

OSS | MANO

Application Deploy, Update

k8s

Resource Orchestration & Monitoring

K8s Resource Inventory and Status

Service Mesh Topology and Status

Infra/CaaS/General PaaS Services
- Metrics
- Logs
- TxnLogs
- Service Mesh

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# Thank You

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