



LFN Developer & Testing Forum

XGVela

Information Model and APIs

XGVela Team



Agenda

- Scope
- Configuration Management
- Topology and Inventory Management
- Fault Management and Notifications
- Performance Management

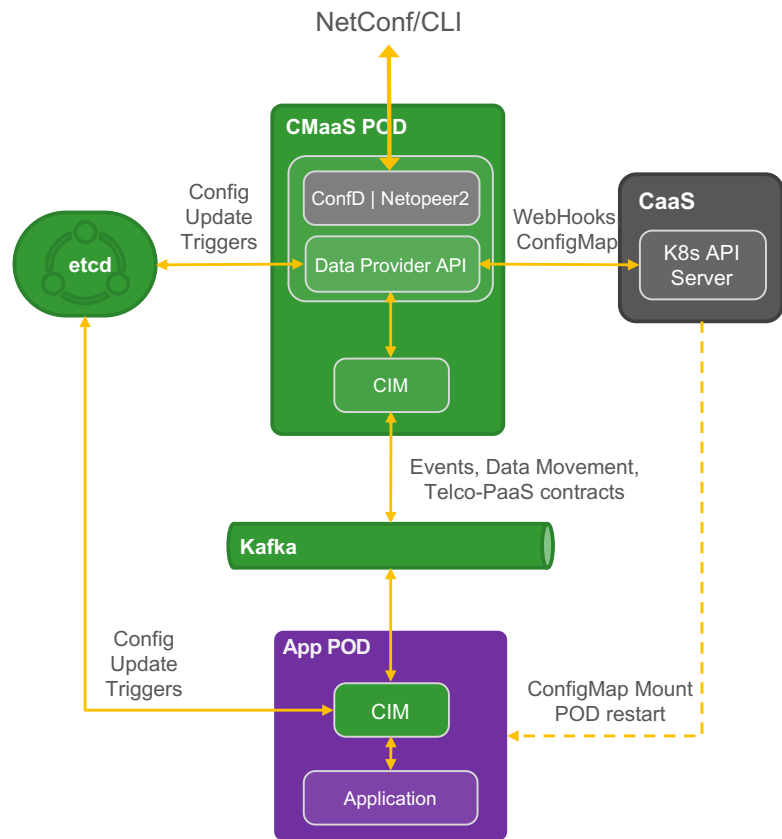
Following are the initial focus areas for XGVela Information Modeling and APIs,

- CMaaS: Configuration management framework and APIs
- TMaaS: Topology, Inventory and APIs for Managed Entities
- FMaaS: Fault Management, Eventing framework, Notifications, Alarm Management APIs
- MMaaS: Performance management with Prometheus for data collection. Additionally, VES 'measurement' and 'hvMeas' events for closed loop integration with MANO

CMaaS (Configuration Management as a Service)

- Application configuration
 - is designed and consumed by the individual applications
 - is vendor and Application specific
 - Vendor may choose to align with 3GPP models using Yang
- Seed code
 - Yang is supported data model for configuration (RFC 7950)
 - NetConf is the management protocol and API (RFC 6241)
 - JSON is the supported encoding for configuration (RFC 7951)

CMaaS: Seed code



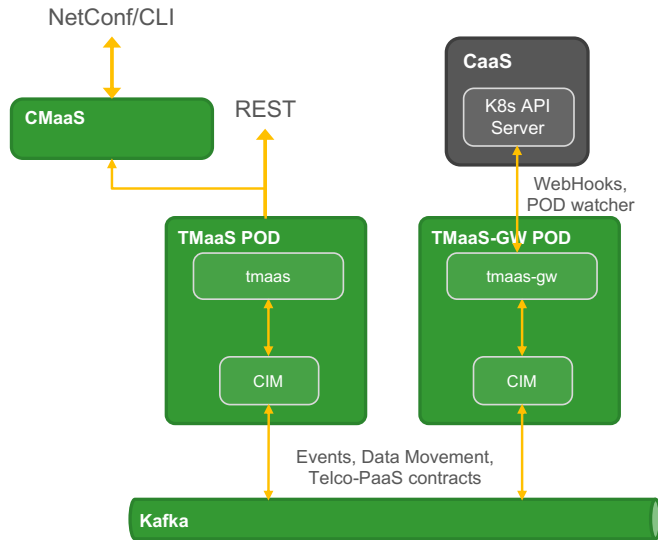
- Netopeer2 integration is ongoing. A future release might support option for the end user to pick between ConfD or Netopeer2.
- NF/NFC configuration are stored in ConfigMap. Addresses Day-0, 1 delivery.
- Watches k8s for NF deployment/update.
- On new NF deployment, loads any management configuration yang and json from ConfigMap and provisions the NetConf server module.
- Day-2 configuration changes are delivered via k8s rolling update or by direct API calls to application containers via etcd and CIM per application need.

TMaaS (Topology Management as a Service)

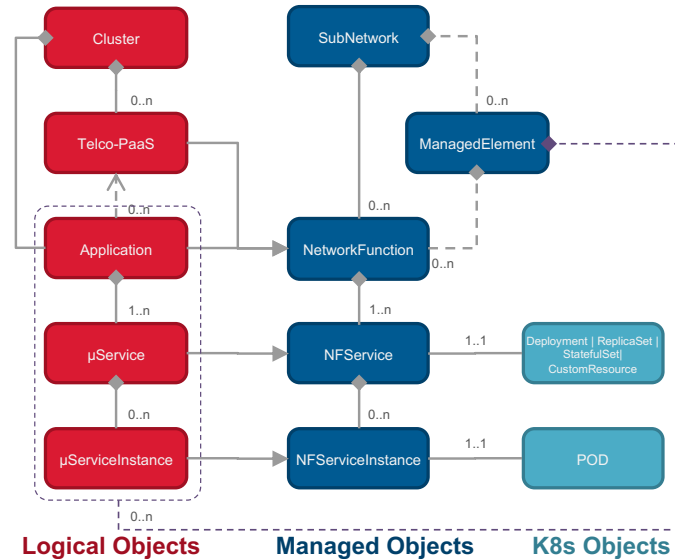
- XGVela builds CNF resource inventory as per tmforum information model (IG1217, TM634, TM639)
 - XGVela may need access to the CNF catalogue. Certain key LCM and policy related information are present in the catalogue or could be injected to k8s resource specifications as annotations or CRDs
- XGVela implements APIs to operate and get CNF topology and resource inventory information.
- Seed code
 - Implements a customised Yang data model based on 3GPP TS 28.622
 - Topology data can be queried over NetConf

TMaas: Seed code

<https://github.com/XGVela/tmaas>
<https://github.com/XGVela/tmaas-gw>



- Watches k8s for NF deployments, updates
- Constructs/updates ManagedObjects (extended from 3GPP)
- Employs ETSI states for NF and NFC



Logical Objects

Managed Objects

K8s Objects

ETSI NF States,

- NULL
- INSTANTIATED_NOT_CONFIGURED
- INSTANTIATED_CONFIGURED_ACTIVE
- INSTANTIATED_CONFIGURED_INACTIV
- E

Correlated from k8s probes and resource events,

- Startup Probe
- Liveness Probe
- Readiness Probe
- ...

POD annotation

```

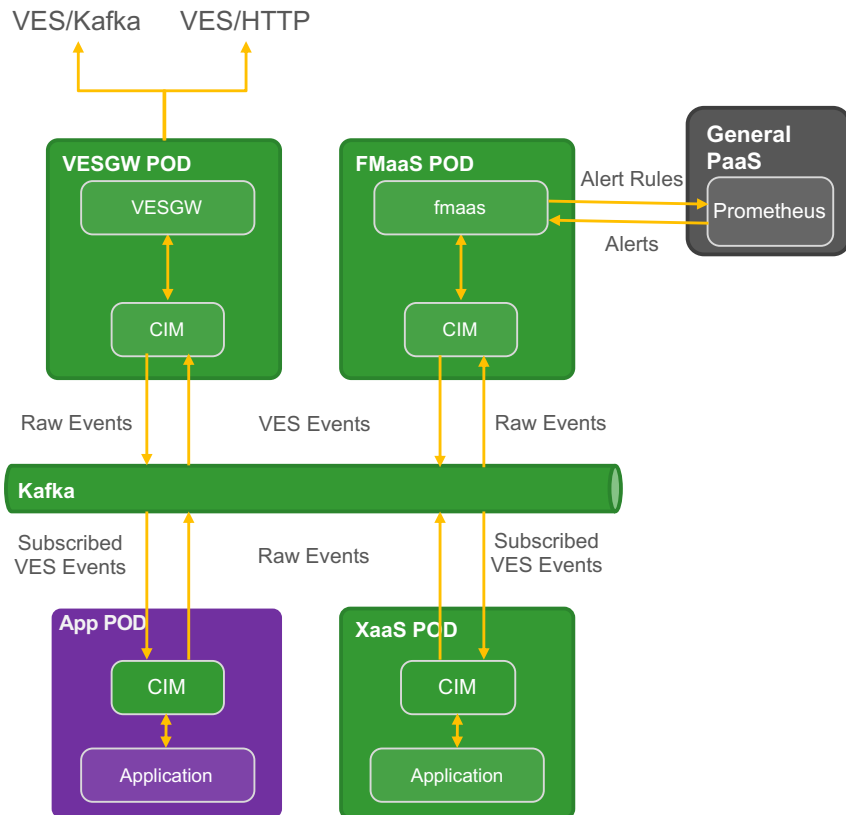
xgvela.org/tmaas {
  telcoPaasId: <>
  dnPrefix: <>
  nfId: <>
  vendorName: <>
}
  
```

FMaaS (Fault Management as a Service)

- XGVela conforms to ONAP VES specification for event format and notification (ONAP VES)
- XGVela conforms to tmforum APIs for alarm management (TM 642)
- XGVela implements event framework for applications to generate and subscribe to events.
- Seed Code
 - Events are formatted as per ONAP VES 7.1
 - Notification overs REST (as per ONAP VES 7.1) or Kafka transport

FMaaS: Seed code

<https://github.com/XGVela/fmaas>

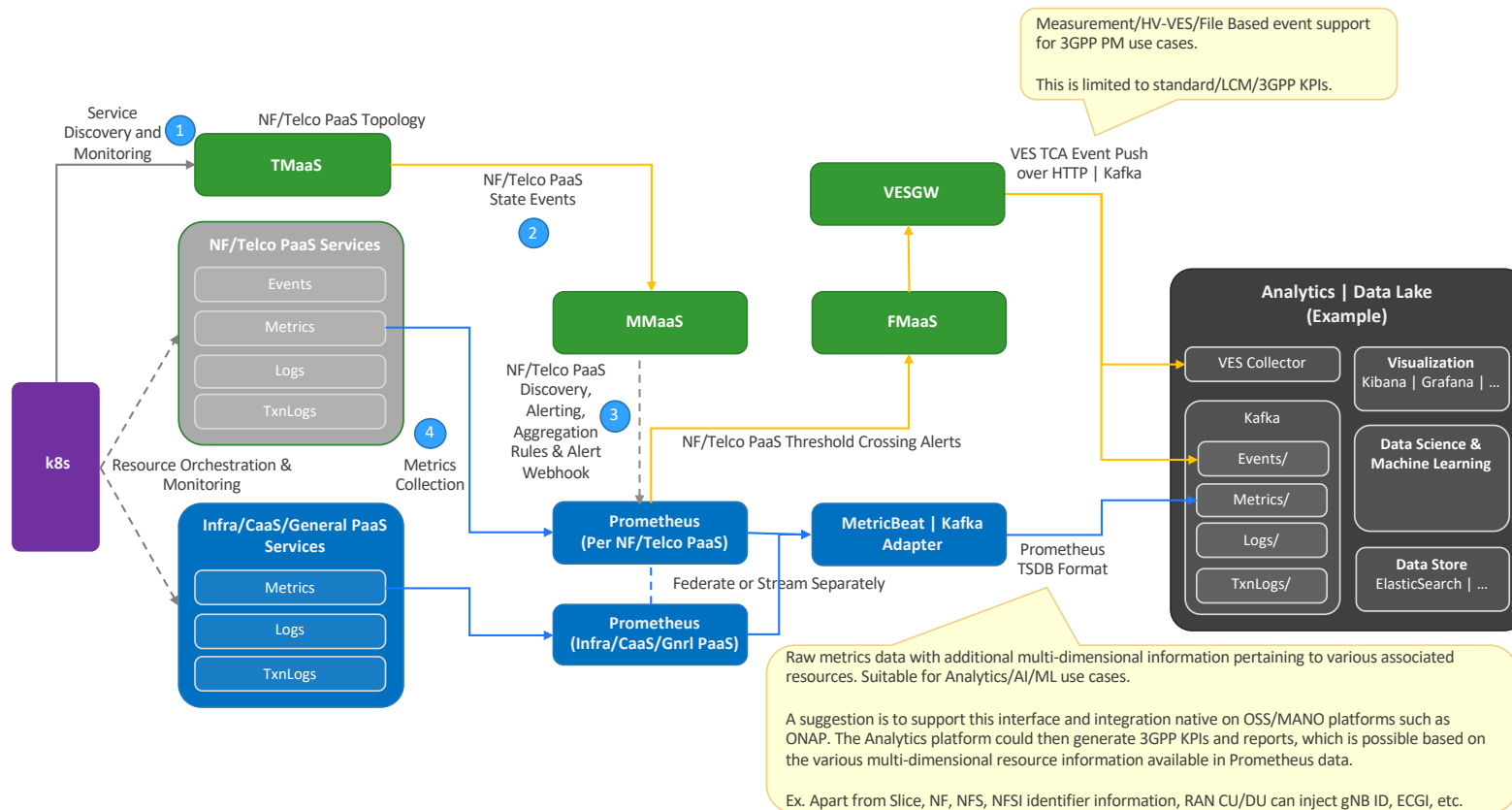


- Implements VES 7.1 specifications. Following domains are supported currently,
 - Fault
 - Heartbeat
 - Notification
 - TCA Alerts
 - Measurement
- Interfaces with applications via CIM and with Prometheus for TCA.
- Enriches and correlates events.
- VESGW implements notification service and supports push towards a VES collector or Kafka endpoints.
 - Primarily ONAP/VESPA extended to run in PaaS, outside of the NFs and supporting multiple NF streams.
- CIM provide APIs for applications to subscribe to and get notified about certain events based on nfld, category or eventName.

MMaaS (Metrics Management as a Service)

- Prometheus for data collection
 - All containers support REST endpoint and expose metrics using [Prometheus exposition format](#)
 - Suitable for high volume and multi-dimensional data collection in a flexible format for Analytics
- ONAP VES 'measurement' and 'hvMeas' events for certain closed loop LCM integrations with MANO.
- Seed code
 - Supports VES 'measurement' event
 - Automatically configure Prometheus CRDs for Service/Pod discovery, TCA and recording rules.

MMaaS: Seed code





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