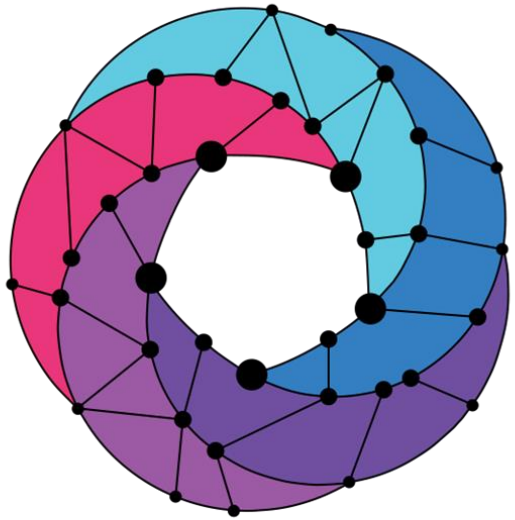

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OSM#10 Hackfest
Monitoring Network Functions

Atul Agarwal
(Altran)

ETSI

Service Assurance MDG

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Main components

Auxiliary/ Optional

MON

- Covers the basic uses cases, with a solid architecture to expand them easily.
- Opportunities to enhance usability.

POL

- Designed around the autoscaling use case.
- Starting to cover VNF alarms.

PLA

- Provides computation of optimal placement of NFs over VIMs
- Considers cost of compute/network

Prometheus

- OSM's TSDB for metrics since REL5
- Opportunities to enhance multi-tenancy to match new RBAC capabilities.

Grafana

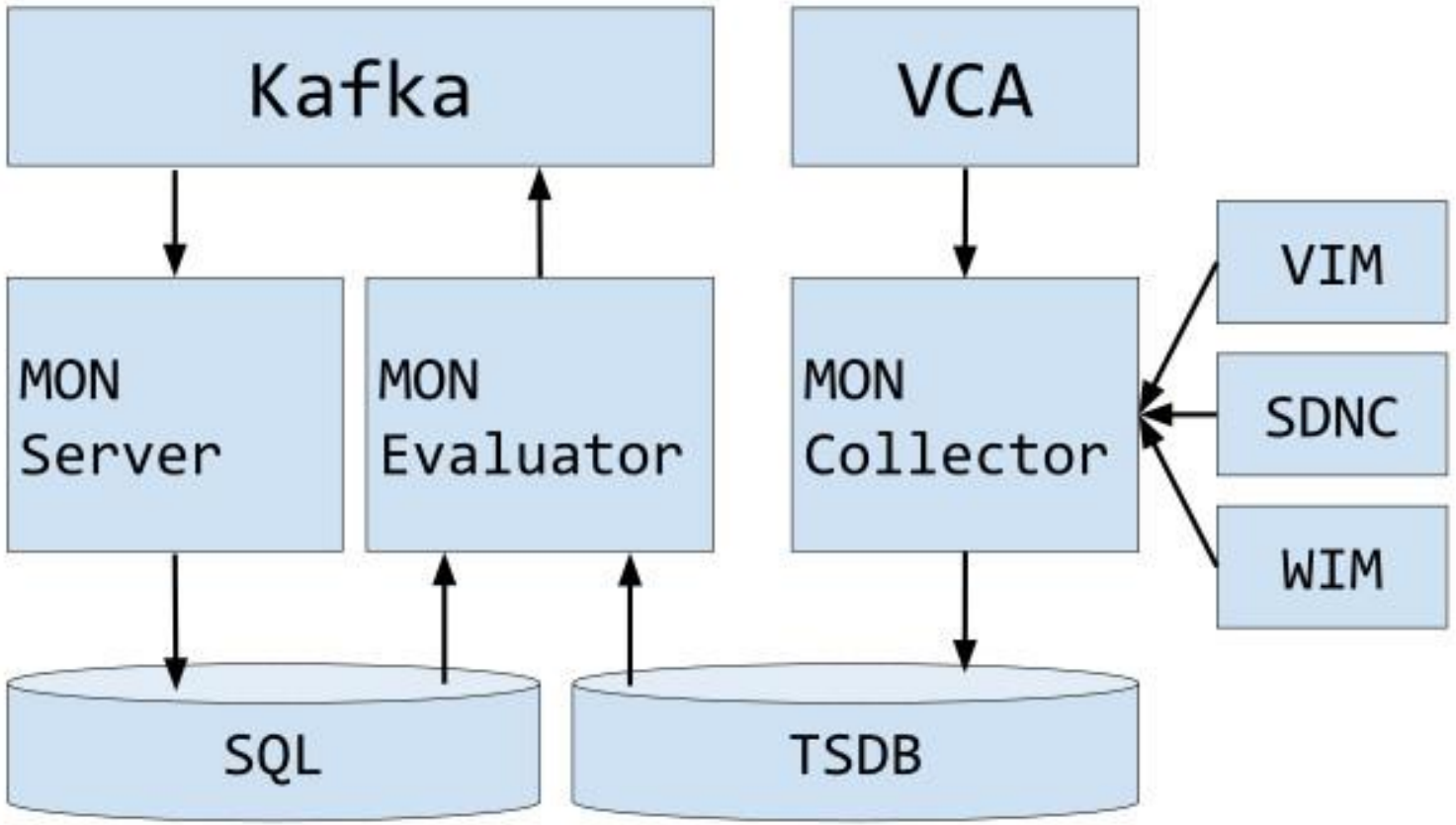
- Integrates seamlessly with Prometheus.
- Great tool for enhancing usability of the system's Service Assurance

ELK

- Proved seamless integration with OSM.
- Main use case remains at log processing where stack is used.

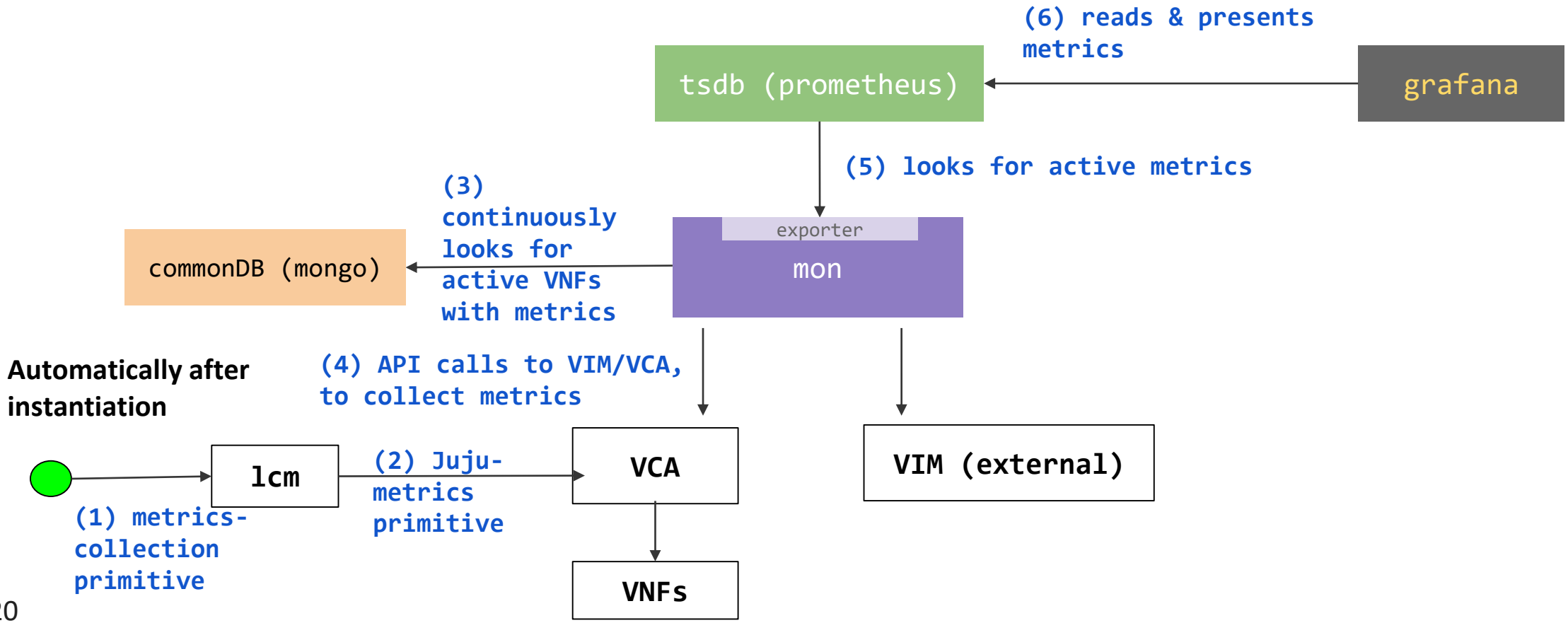
MON Architecture

Formal documentation: https://osm.etsi.org/gitlab/osm-architecture/osm-arch-doc/blob/master/04-mon.md



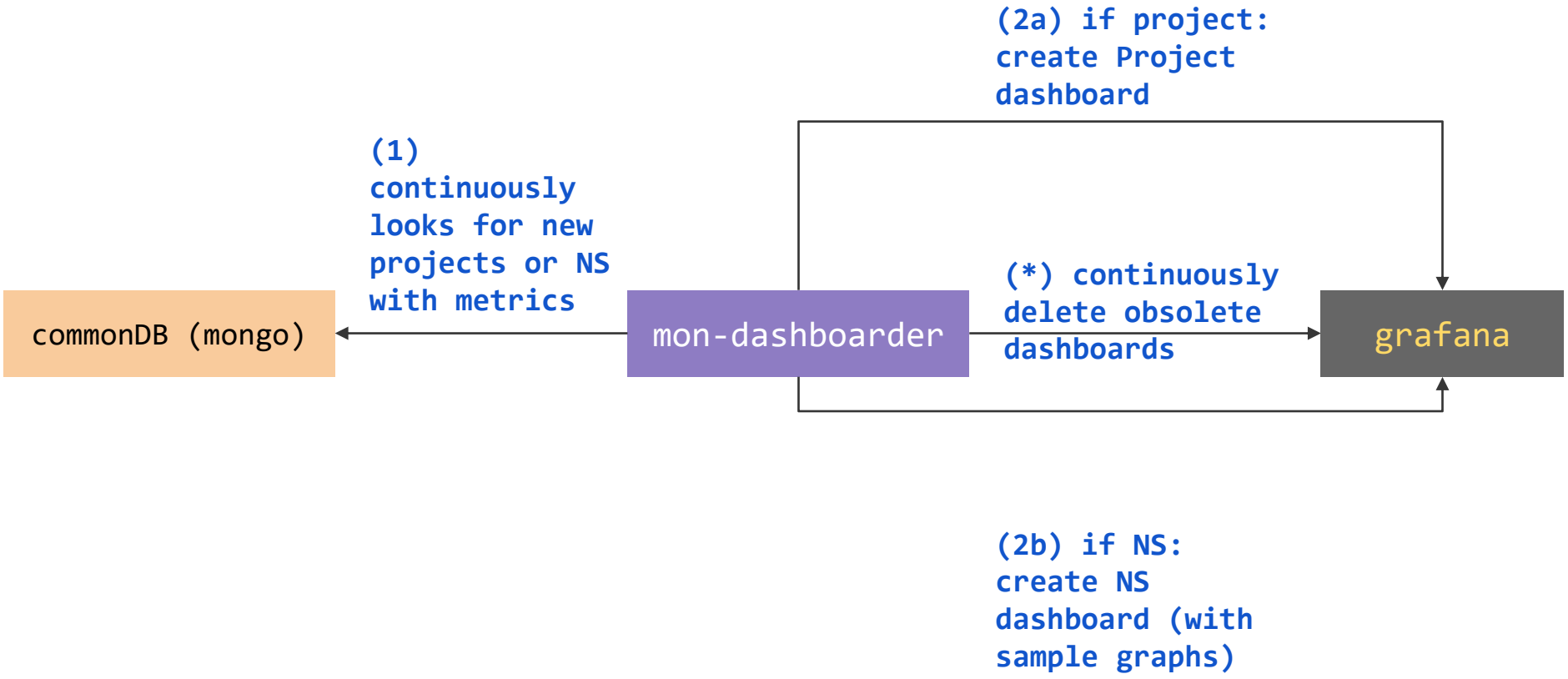
Collection & Dashboards for Metrics

When launching a new instance of a Network Service or Slice Instance (n x VNFs) which is described with the collection of VNF Metrics that come from infrastructure (NFVI), the following components interact.



Automatic Dashboards

When creating Projects or Network Services, Grafana dashboards are created automatically and the following elements interact.



Metrics Collection

```
monitoring-param:
        -   aggregation-type: AVERAGE
            id: agw_cpu_util
            name: agw_cpu_util
            vdu-monitoring-param:
                vdu-monitoring-param-ref: agw_cpu_util
                vdu-ref: magma-agw-vdu
        -   aggregation-type: AVERAGE
            id: agw_memory_util
            name: agw_memory_util
            vdu-monitoring-param:
                vdu-monitoring-param-ref: agw_memory_util
                vdu-ref: magma-agw-vdu
        -   aggregation-type: AVERAGE
            id: agw_packets_received
            name: agw_packets_received
            vdu-monitoring-param:
                vdu-monitoring-param-ref: agw_packets_received
                vdu-ref: magma-agw-vdu
        -   aggregation-type: AVERAGE
            id: agw_packets_sent
            name: agw_packets_sent
            vdu-monitoring-param:
                vdu-monitoring-param-ref: agw_packets_sent
                vdu-ref: magma-agw-vdu
```

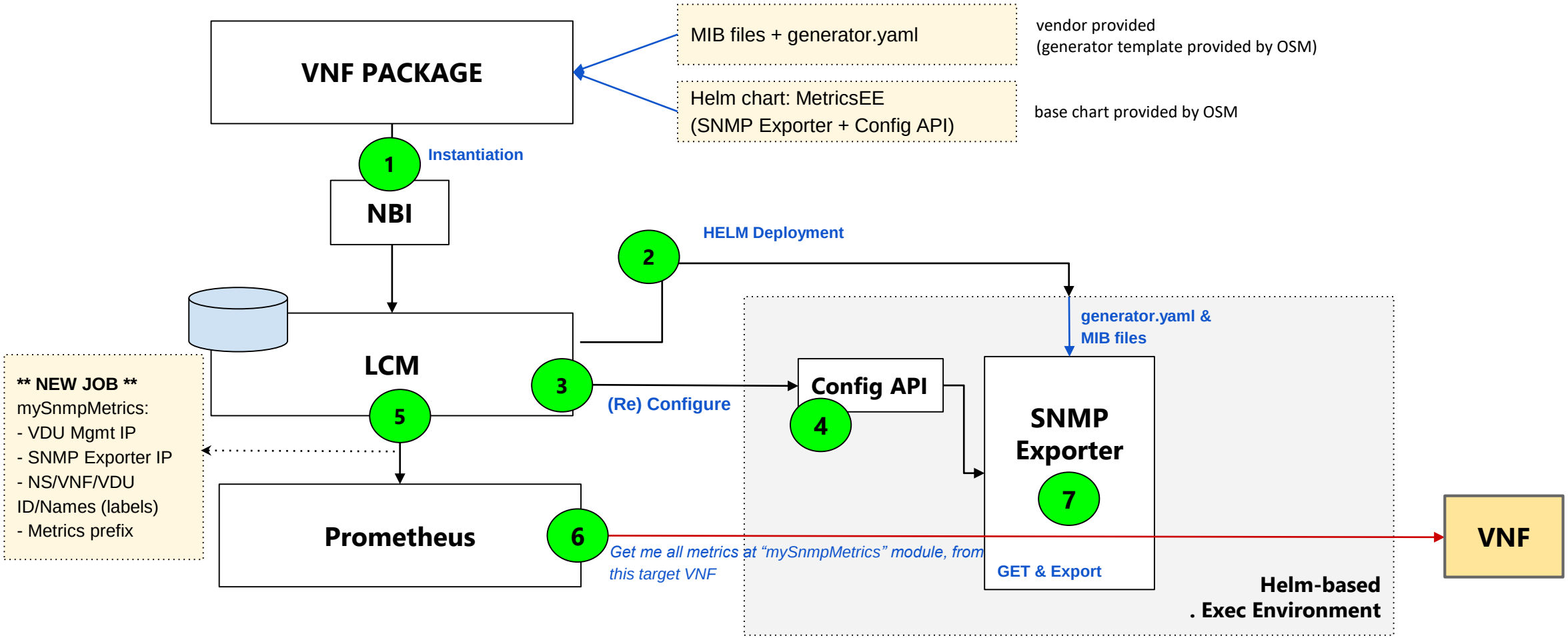
- VDU Metric Collection from VIM

Metrics collection

Prometheus collects the following metrics from “MON Exporter”

Metrics Collection @ OSM				
Metric	**Collection type**	**Behavior**	**KPI**	**Labels**
VIM Status	Infrastructure	By default	status (up/down)	vim_id
SDNC Status			status (up/down)	sdnc_id
VM Status	VNF		status (up/down)	nsr_id, vnf_member_index, vdu_name
VDU CPU Utilization		Enabled by descriptor	utilization, rate, etc.	
VDU Memory Utilization				
VDU Packet forwarding				
VNF Metrics through Juju *(to be deprecated)*				

VNF Indicator Collection



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Hands-on!

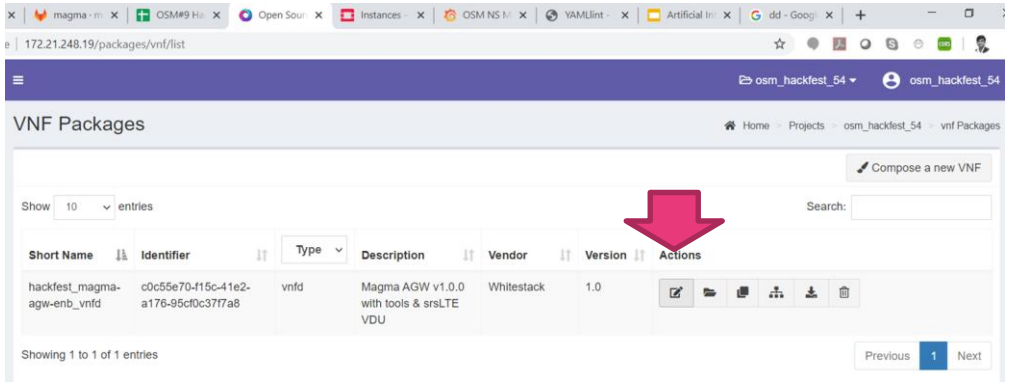
VNF Monitoring

ETSI

Let’s play with metrics and (auto)dashboards!

```
monitoring-param:
-   aggregation-type: AVERAGE
  id: agw_cpu_util
  name: agw_cpu_util
  vdu-monitoring-param:
            vdu-monitoring-param-ref: agw_cpu_util
            vdu-ref: magma-agw-vdu
-   aggregation-type: AVERAGE
  id: agw_memory_util
  name: agw_memory_util
  vdu-monitoring-param:
            vdu-monitoring-param-ref: agw_memory_util
            vdu-ref: magma-agw-vdu
-   aggregation-type: AVERAGE
  id: agw_packets_received
  name: agw_packets_received
  vdu-monitoring-param:
            vdu-monitoring-param-ref: agw_packets_received
            vdu-ref: magma-agw-vdu
-   aggregation-type: AVERAGE
  id: agw_packets_sent
  name: agw_packets_sent
  vdu-monitoring-param:
            vdu-monitoring-param-ref: agw_packets_sent
            vdu-ref: magma-agw-vdu
```

- In the VNF Package editor add the following lined in YAML after line #8



Let’s play with metrics and (auto)dashboards!

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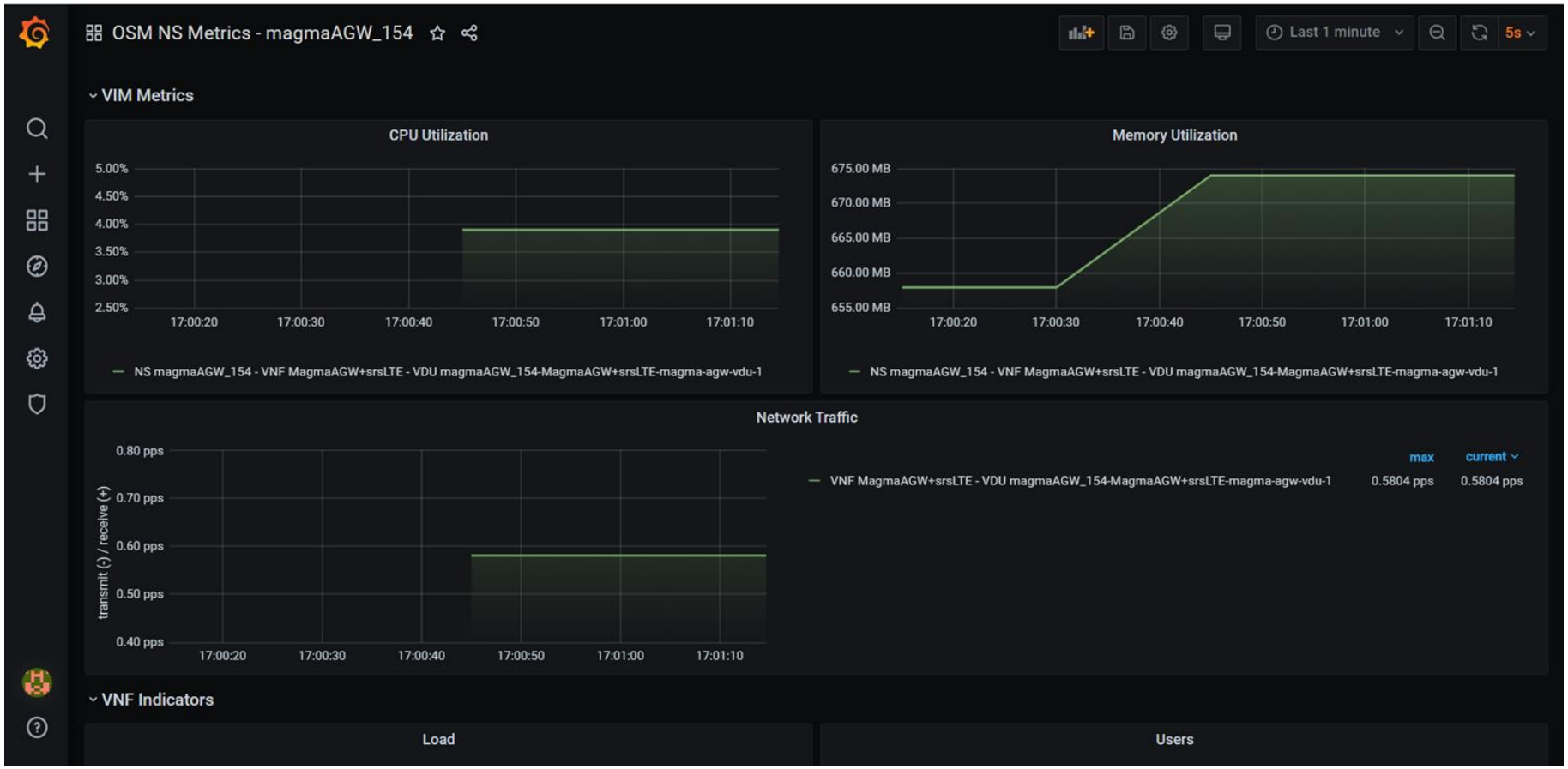
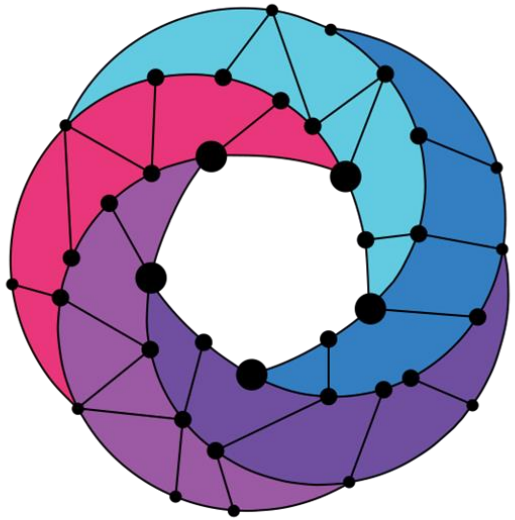
Metrics collection is starts (5 to 10 minutes due to current collection period





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