Barometer Home

Project: Barometer

The ability to monitor the Network Function Virtualization Infrastructure (NFVI) where VNFs are in operation will be a key part of Service Assurance within an NFV environment, in order to enforce SLAs or to detect violations, faults or degradation in the performance of NFVI resources so that events and relevant metrics are reported to higher level fault management systems. If fixed function appliances are going to be replaced by virtualized appliances the service levels, manageability and service assurance needs to remain consistent or improve on what is available today.

As such, the NFVI needs to support the ability to monitor:

1. Traffic monitoring and performance monitoring of the components that provide networking functionality to the VNF, including: physical interfaces, virtual switch interfaces and flows, as well as the virtual interfaces themselves and their status, etc.
2. Platform monitoring including: CPU, memory, load, cache, thermals, fan speeds, voltages and machine check exceptions, etc.

All of the statistics and events gathered must be collected in-service and must be capable of being reported by standard Telco mechanisms (e.g. SNMP), for potential enforcement or correction actions. In addition, this information could be fed to analytics systems to enable failure prediction, and can also be used for intelligent workload placement.

The output of the project will provide interfaces to support monitoring of the NFVI

- "SW Fastpath Service Quality Metrics" project proposal
- SFQM Scope Adjustment Proposal and Rename

Key Project Facts

Meetings:

- [https://wiki.opnfv.org/display/meetings](https://wiki.opnfv.org/display/meetings)
- Meeting logistics:
  - Topic: OPNFV Projects’ Personal Meeting Room
  - Join from PC, Mac, Linux, iOS or Android: [https://zoom.us/j/5014627785](https://zoom.us/j/5014627785)
  - Or iPhone one-tap:
    - US: +16699006833,5014627785# or +16465588656,5014627785#
    - Or Telephone:
      - Dial(for higher quality, dial a number based on your current location):
        - US: +1 669 900 6833 or +1 646 558 8656 or +1 877 369 0926 (Toll Free) or +1 855 880 1246 (Toll Free)
      - Meeting ID: 501 462 7785
    - International numbers available: [https://zoom.us/zoomconference?m=cpvYf3PSXuESVw8UnsBwch31JgoOq2JC](https://zoom.us/zoomconference?m=cpvYf3PSXuESVw8UnsBwch31JgoOq2JC)

Project Lead: Matthias Runge

Mailing List: no mailing list - use opnfv-tech-discuss and tag your emails with [barometer] in the subject for easier filtering.


Note: This repository provides a demo implementation. It is not intended for production use and has not been tested for this.

Gerrit: [https://gerrit.opnfv.org/gerrit/#/q/project:barometer](https://gerrit.opnfv.org/gerrit/#/q/project:barometer)

JIRA Project: barometer

JIRA: [https://jira.opnfv.org/projects/BAROMETER/issues/](https://jira.opnfv.org/projects/BAROMETER/issues/)

Cl: Barometer CI

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Release Planning: Barometer Release Plan

How to contribute to barometer: How to contribute to Barometer

Testing: Testing with Functest

Presentations and Demos:
- collaborative_development_projects_opnfv_intel_hf_testbed_-__quickstart_vpn__-docx
- softwarefastpathmetricsdemoprague.docx
- Demo at OPNFV Summit 2015 https://prezi.com/kjv6o8ixs8e/software-fastpath-service-quality-metrics-demo/ Showing detailed DPDK error metrics
- Demo at OPNFV Summit 2016 https://prezi.com/db3rv0yq7brk/sfqm-demo-at-opnfv-summit-2016/ Showing Infrastructure monitoring and failover action when problem is detected
- OvS-DPDK Keep Alive + Monitoring Frameworks (Collected, Snap) https://www.youtube.com/watch?v=1hW5ILU6mrQ
  - Standalone demo https://www.youtube.com/watch?v=DmSIXS_IUEY
- VES ONAP Demo (with collectd) https://www.youtube.com/watch?v=ZoxcJ4mUwJU
- OPNFV Community Demo Beijing 2017 https://www.youtube.com/watch?v=TRqbW9YYyWA&lit=3s

Development Updates

Barometer Development Updates

Collectd Plugin Summary + Status

Documentation

Barometer user guide

VES plugin updates

Installing and configuring InfluxDB and Grafana to display metrics with collectd
Collectd 101
Collectd advantages, disadvantages and a few asides
Collectd how to implement a simple plugin
Collectd integration with prometheus

Discussion Topics
Discussion Topics - DMA, etc.
Monitoring Agents Comparative Study
Runtime analysis of the monitoring agents methodology
Collectd Abstraction Layer usecases
CPU Utilisation Case Study

Metrics and Schema
Monitoring, Metrics and Events Requirements High Level List
Collectd Metrics and Events
Metrics and Schema Mappings

Collectd plugin Design
RDT Cache plugin High Level Design
PMU plugin High Level Design
IPMI plugin HLD
Open vSwitch plugins High Level Design
DPDK Plugins High Level Design
Hugepages Plugin High Level Design
Libvirt Plugin High Level Design Document
SNMP Agent HLD
PCIe Errors High Level Design
RAS/mcelog Plugin High Level Design
Open vSwitch - Virtual switching reporting of interface telemetry via sFlow - High Level Design
Open vSwitch Virtual switching MIB Support and reporting of flow telemetry via IPFIX - High Level design
Open vSwitch - Virtual switching reporting of flow telemetry via sFlow - High Level Design

Collectd plugin Test plans
OvS Plugins Executed Tests
Ovs with DPDK Executed Tests
DPDK Stat Plugins Executed Tests
DPDK Events Plugin Executed tests
Hugepages Plugin Executed Tests
RDT Cache Plugin Executed Tests
Memory RAS Plugin Executed Tests
IPMI events executed tests
IPMI Analog Sensors Executed Tests
Libvirt Executed tests
vHost devices executed tests
PCIe RAS Executed Tests
Intel PMU Executed Tests
RAS Other Executed Tests

Barometer containers

Barometer Containers

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