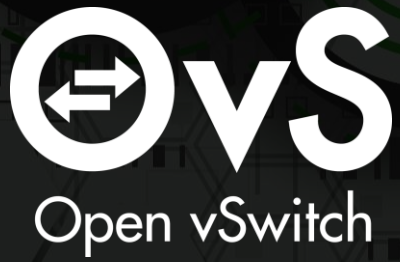



Bhanuprakash Bodireddy
Maryam Tahhan
Intel

# OvS-DPDK keepalive

# Outline

- Problem space
- Barometer
- Use Case Example
- OvS-DPDK Keepalive
- Collectd,  Ceilometer
- Future work
- Demo
- Summary

# Problem space

- Telecom Networks should be incredibly reliable.
- Stringent SLAs

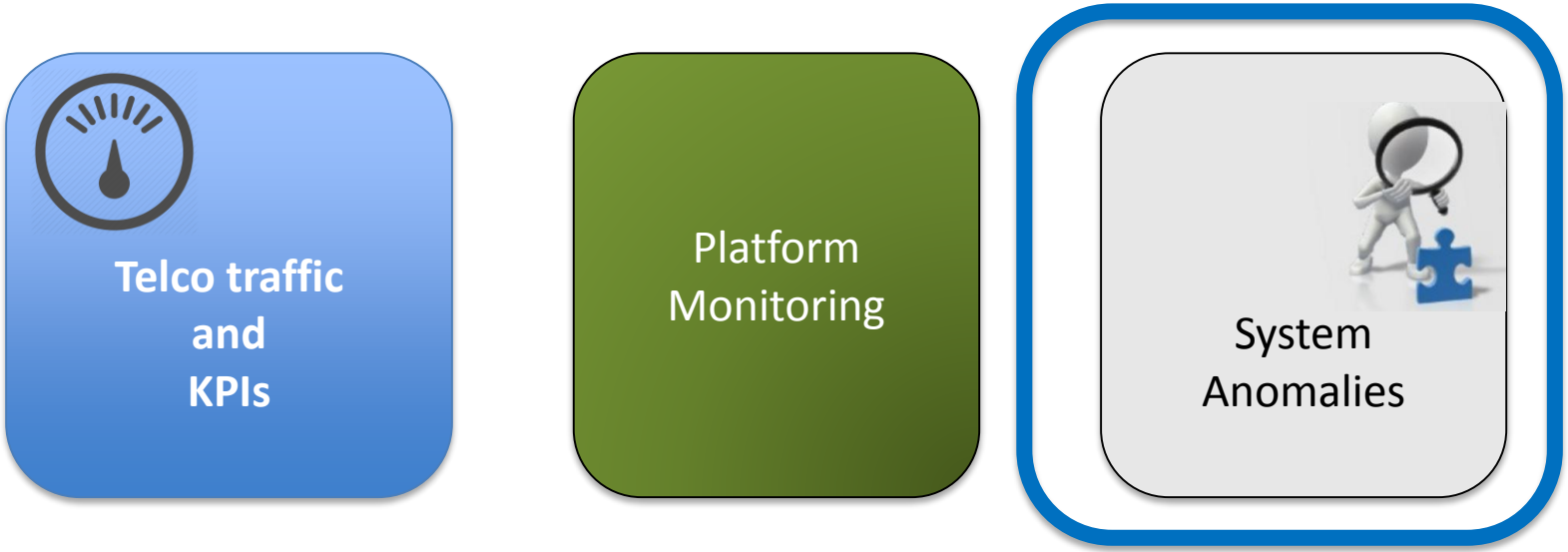
| Downtime in year | 36.5 days | 7.3 days | 3.65 days | 17.52 hours | 52.56 minutes | 5.26 minutes | 31.5 secor |
|---|---|---|---|---|---|---|---|
| Availability | 95% | 98% | 99% | 99.8% | 99.99% | 99.999% | 99.9999% |

- Service Credits: ~30% if under 99% availability[1]
- For cloud service providers OvS-DPDK is a compelling solution.
- Need for service assurance(SA) platforms.

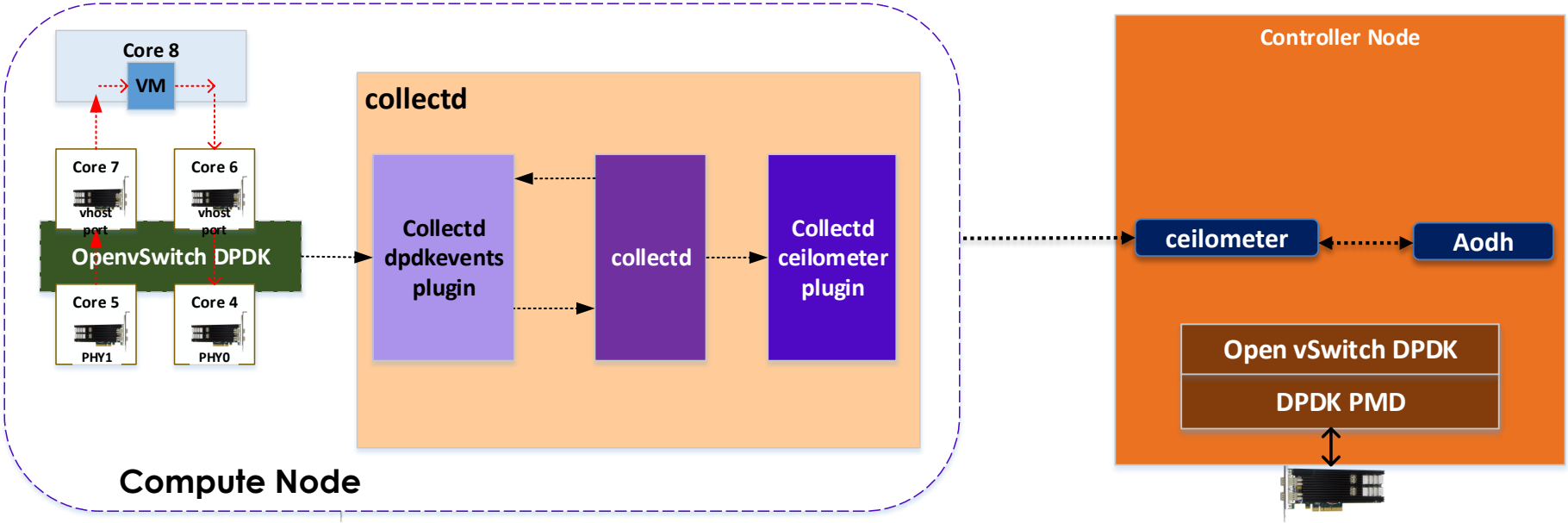
[1] https://aws.amazon.com/ec2/sla/

# Barometer: The project formerly known as (SFQM)

- Enable interfaces to support NFVI monitoring.
- Statistics and events gathered in-service.



# Use case


Core 8
VM
Core 7
Core 6
vhost port
vhost port
OpenvSwitch DPDK
Core 5
Core 4
PHY1
PHY0
Compute Node
collectd
Collectd dpdkevents plugin
collectd
Collectd ceilometer plugin
Controller Node
ceilometer
Aodh
Open vSwitch DPDK
DPDK PMD

# Components


DPDK
DATA PLANE DEVELOPMENT KIT

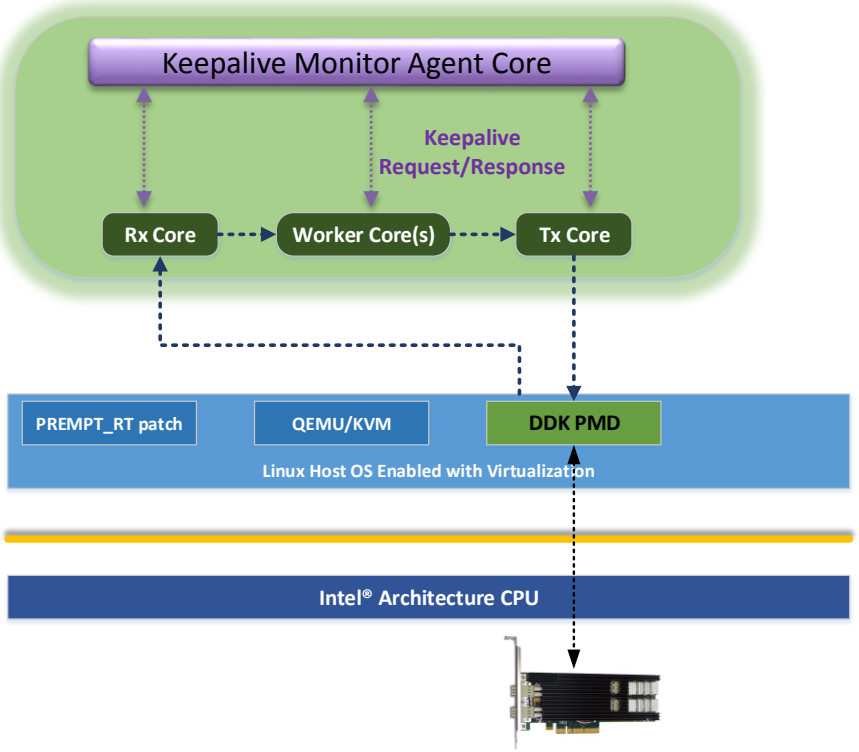

openstack
CLOUD SOFTWARE


collectd

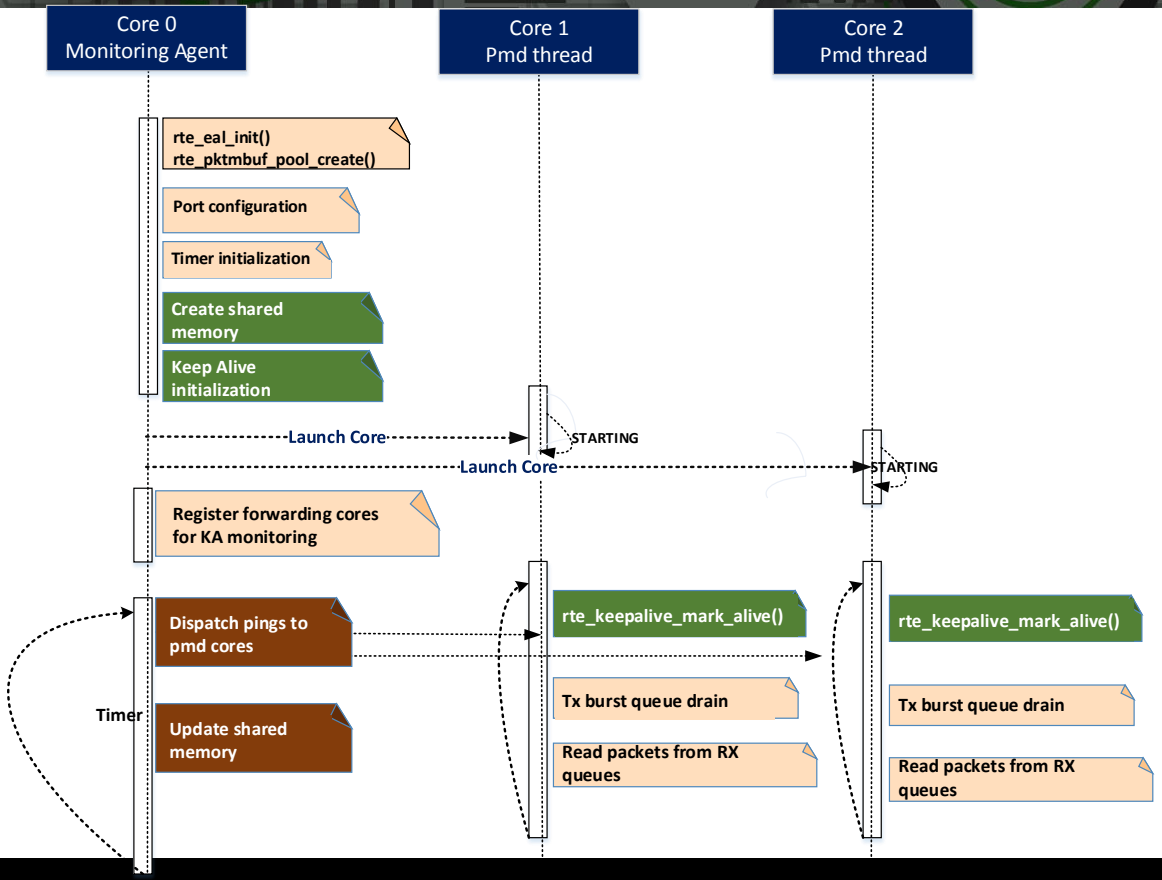

OPNFV

# DPDK Keepalive

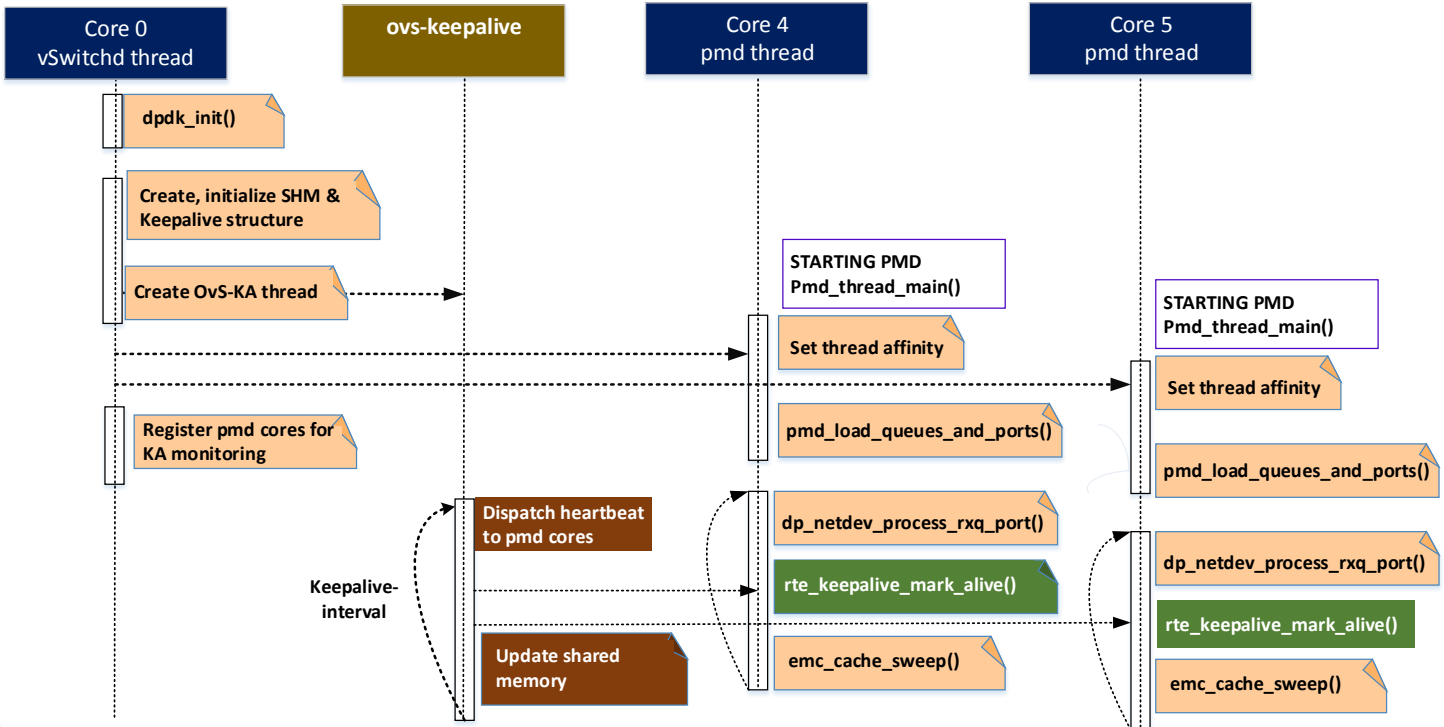
- Packet Ordering Application
  - RX core, Worker Core(s), TX core
- Heartbeat for packet processing cores to detect failures
- KA agent monitor the Packet processing cores.



# DPDK Keep Alive cont.



# OvS DPDK Keep Alive



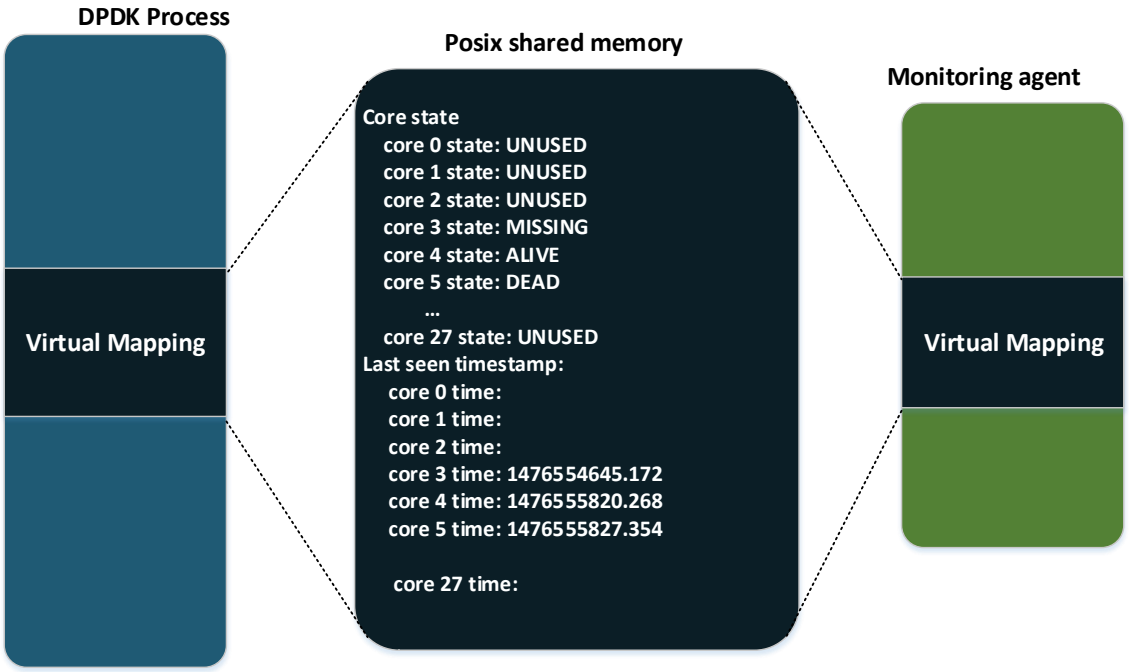

**$ ovs-vsctl set Open_vSwitch . other_config:dpdk-keepalive=true**

**$ ovs-vsctl set Open_vSwitch . other_config:dpdk-keepalive-interval="10"**

# Monitoring Agent

Core State:
- UNUSED[0]
- ALIVE[1]
- DEAD[2]
- GONE[3]
- MISSING[4]
- DOZING[5]
- SLEEP[6]

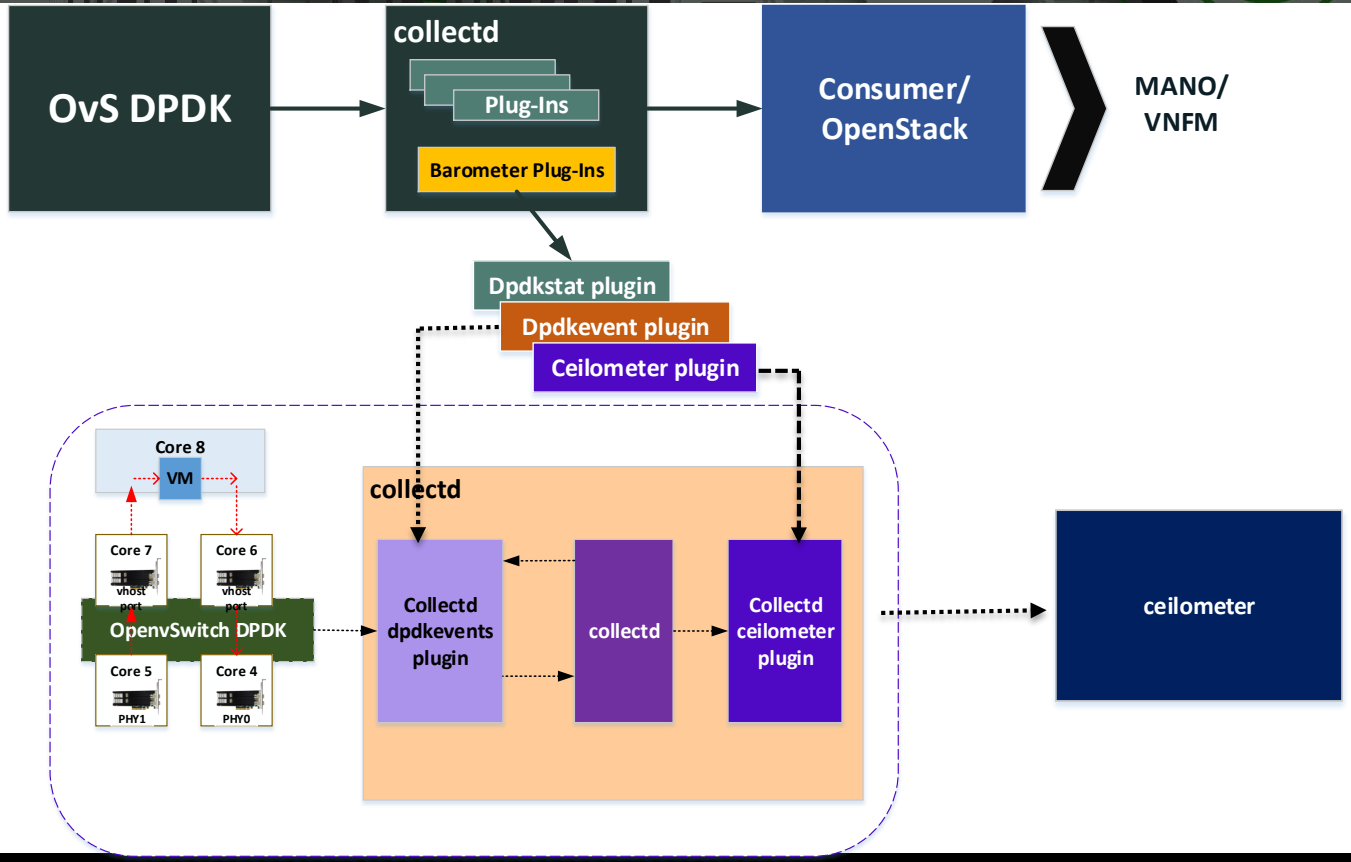
Time stamp: epoch time



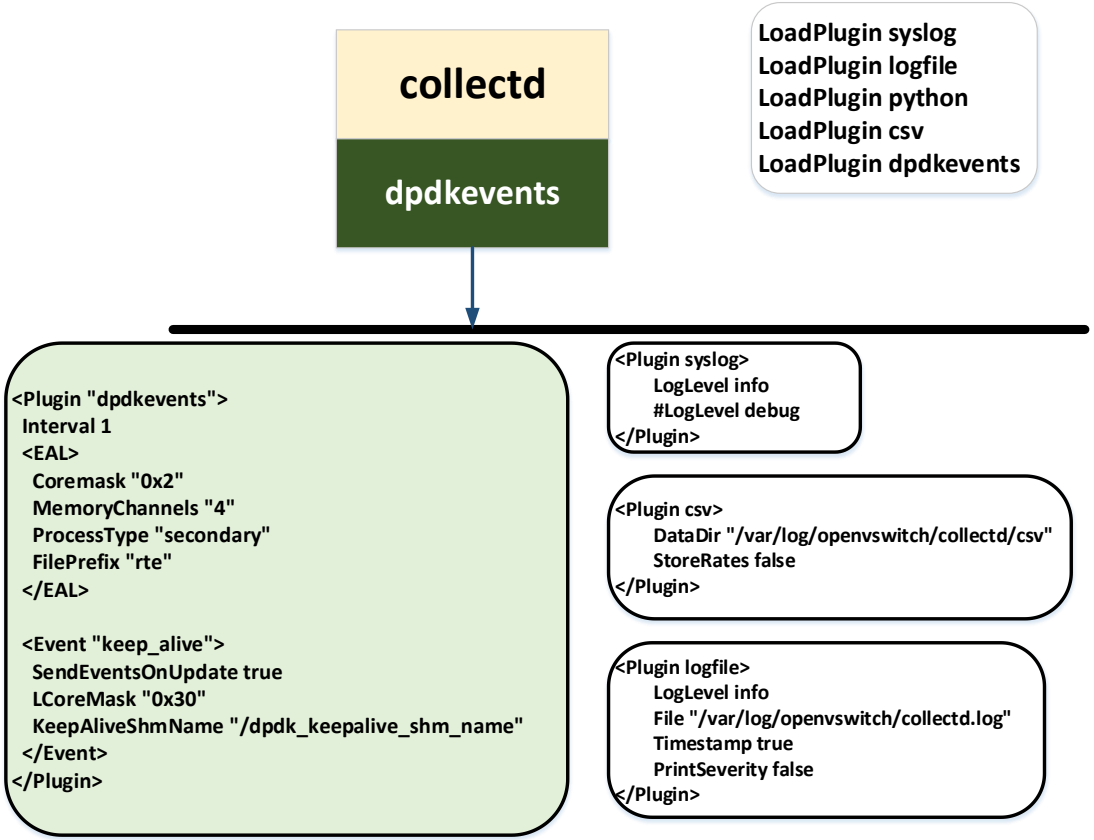
# Collectd

- Collects time series data.
- open-source, GPL v2 licensed.
- Platform independent.
- 100+ plugins with powerful networking features.
- Easily extensible.
- Doesn’t generate graphs but can write to csv files.

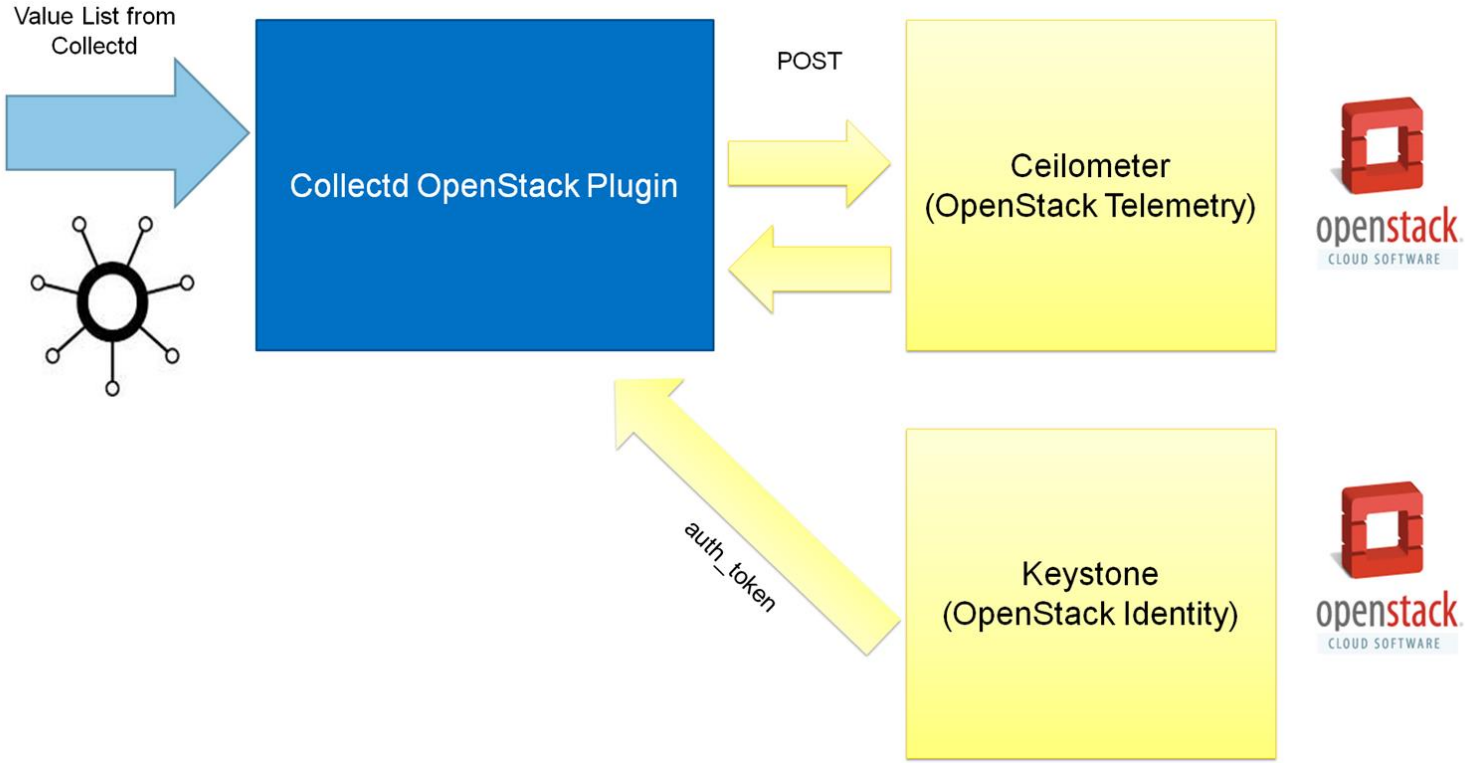
# Monitoring OvS DPDK with collectd



# Collectd plugins



# Ceilometer


Value List from Collectd
Collectd OpenStack Plugin
POST
Ceilometer (OpenStack Telemetry)
openstack CLOUD SOFTWARE
auth_token
Keystone (OpenStack Identity)
openstack CLOUD SOFTWARE

# Future work

- OVS stats plugin
- OVS events plugin Pull Request – OVS agnostic plugin that monitors the link status of OVS connected interfaces

# DEMO

# Summary

**“Trying to manage a complex cloud solution without a proper telemetry infrastructure in place is like trying to walk across a busy highway with blind eyes and deft ears.”[1]**

1 https://azure.microsoft.com/en-us/blog/cloud-service-fundamentals-telemetry-basics-and-troubleshooting/