

Telemetry Ingestion in PNDA*

Intel® Platform Service Assurance

Ingesting Platform Service Assurance telemetry into Platform for Network Data Analytics (PNDA)* promotes automatic discovery and reaction to events in networks.



[PNDA](#) is the scalable, open source big data analytics platform for networks and services that enables storage and analytics on collected data. It is a cluster build with Apache* technologies including Kafka*, Hadoop*, Spark*, and others. With its [Deployment Manager](#), data scientists are able to deploy analytic applications and execute them on the platform. PNDA is also being [integrated](#) into the Open Network Automation Platform (ONAP)* project as part of Data Collection, Analytics, and Events (DCAE) to provide its analytics services to the ecosystem.

There are multiple versions of PNDA. For example, Red PNDA* is a lightweight flavor that could be run on a laptop and used for evaluation and analytics apps development. Bigger flavors like Pico PNDA* or standard PNDA targets more robust development and learning, closer to production use cases.

The daemon [collectd](#) is a mature system statistics collection mechanism widely used across the industry. It consists of the core daemon and a set of read/write plugins to collect/push telemetry respectively. Its pluggable architecture enables the collection of chosen metrics with read plugins. Write plugins push data into northbound layers, such as databases, and send data over the network, including PNDA.

Collectd acts as an eye for this system while PNDA acts as a brain, memorizing and understanding aspects of given input. Analytics applications can discover, for example, anomalous data in continuous data streams, which may trigger reactions in controller components. Those components help to enable closed loop automation.

Feature Description

Use collectd as a collector daemon to gather and ingest telemetry into PNDA for which entry points are Kafka topics. Telemetry from collectd can be written in two possible formats:

- [Apache Avro*](#) format (preferred) - collectd writes data to a Logstash* instance using a [network plugin](#). Logstash on input gets data using [collectd codec](#). It performs data transformation to PNDA AVRO schema and writes data into a Kafka topic using [AVRO codec](#) on output. In this scenario, a separate translator is required.
- collectd raw json format- [write kafka plugin](#) can write data directly into Kafka topic.

Consumer applications can access data from Kafka topics and perform analysis on collected data.

Feature Data Sets

Data sets are provided by configured read [collectd plug-ins](#).

Feature Dependencies

The metrics publishing feature depends on these features running on the platform:

- PNDA cluster
- Logstash* (for AVRO encoding)

Configuration

Configuration is performed in the collectd instance. In the case of AVRO, encoding is performed in the Logstash instance.

Example configuration using [collectd write_kafka](#) and/or the [network plugin](#) plus [Logstash](#) is similar to [Figure 1](#).

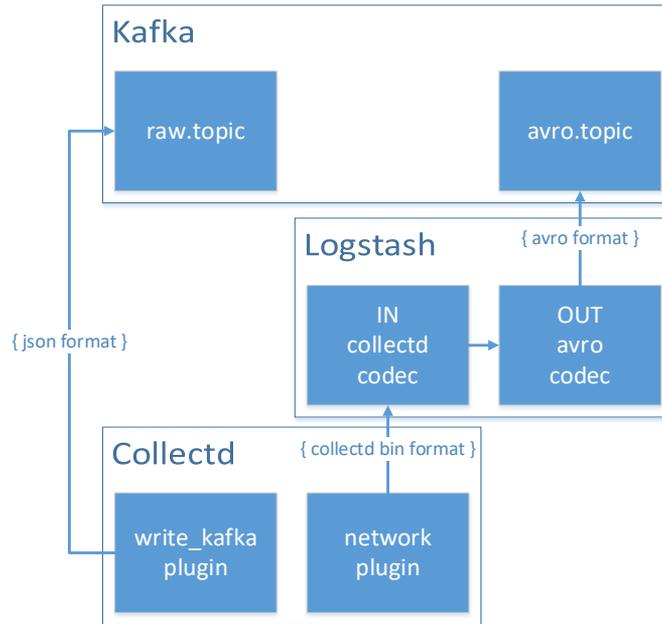


Figure 1: Data Format Flow

REFERENCES

TITLE	LINK
Ref 1: PNDA	http://pnda.io/
Ref 2: PNDA use cases	http://pnda.io/usecases
Ref 3: PNDA ONAP integration	https://wiki.onap.org/display/DW/Integrating+PNDA
Ref 4: Apache AVRO*	https://avro.apache.org/
Ref 5: collectd	https://collectd.org/
Ref 6: collectd list of plugins	https://collectd.org/wiki/index.php/Table_of_Plugins
Ref 7: collectd write_kafka	https://collectd.org/wiki/index.php/Plugin:Write_Kafka
Ref 8: collectd network plugin	https://collectd.org/wiki/index.php/Plugin:Network
Ref 9: OPNFV Barometer	https://wiki.opnfv.org/display/fastpath/Collectd+Metrics+and+Events
Ref 10: Logstash avro codec	https://www.elastic.co/guide/en/logstash/current/plugins-codecs-avro.html
Ref 11: Logstash collectd codec	https://www.elastic.co/guide/en/logstash/current/plugins-codecs-collectd.html



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