

E2E Network Slicing – DCAE impacts in Jakarta release

DCAE – Impacts for Network Slicing

- **Capacity based NSI/NSSI Selection**

- A **new API** in Slice Analysis MS will be exposed to provide the details requested by OOF
- This API calculates the available resources in RAN NFs, converts and sends these details in the form of slice configuration to OOF
- Available resources are calculated from the PM data from RAN NFs. This requires the storage of PM data into DES.

- **Slice Analysis MS <-> CPS Integration**

- **Minor changes/bug fixes** in Slice Analysis MS are expected as part of CPS integration

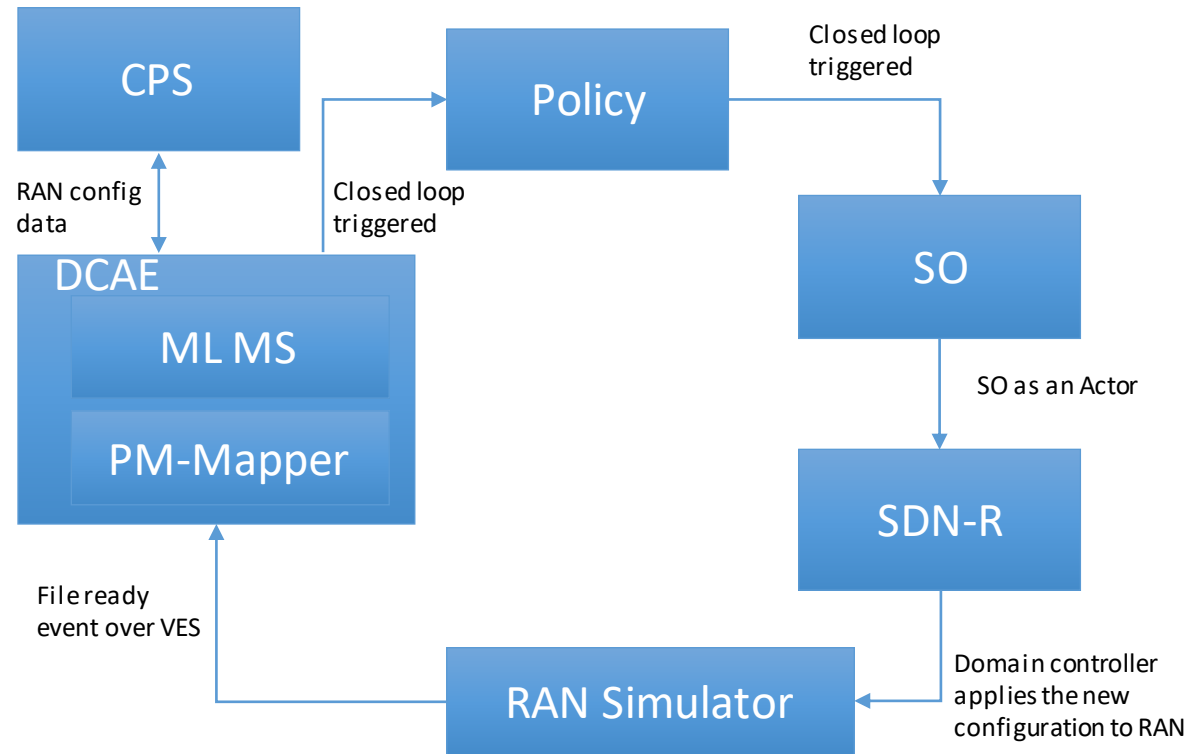
DCAE – Impacts for Network Slicing (Continued)

- **IBN Based Closed Loop**

- A new ML based microservice written in Python will be onboarded to DCAE
- This MS learns from the historical data (PDU Sessions in this case) and suggests the configuration to the cells for a particular slice based on its prediction
- This requires the PM data (PDU Sessions) from RAN NFs and this will be used as a training data set for the MS
- Predicted configuration should help to configure more or less maxNumberOfConns in the cell based on “*Number of PDU Sessions requested to setup, Number of PDU Sessions successfully setup & Number of PDU Sessions failed to setup*”
- Predicted configurations should be in an alignment with the intent for that particular slice

DCAE – Impacts for Network Slicing (Continued)

- IBN Based Closed Loop

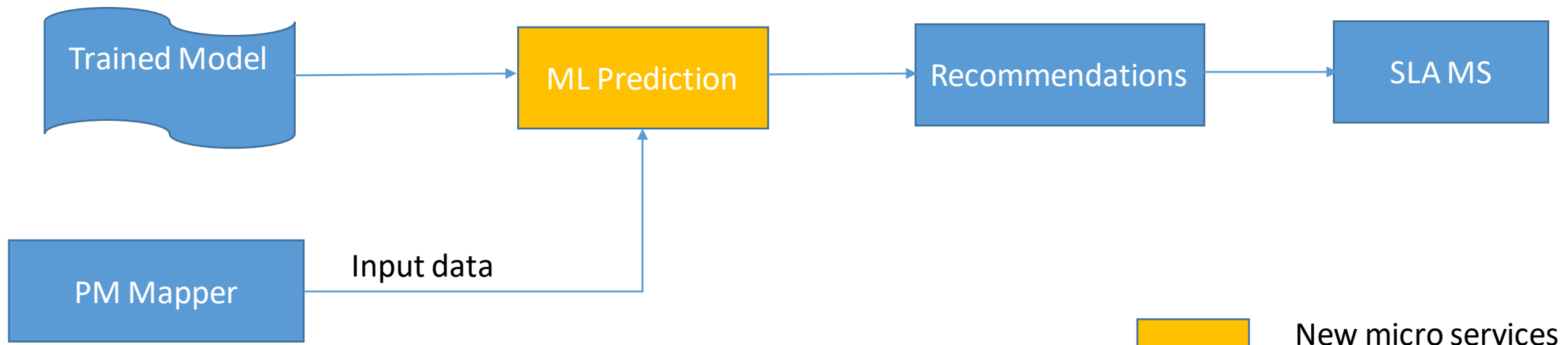


IBN Based Closed Loop – ML MS enhancements

- ML Training



- ML Prediction



IBN Based Closed Loop – ML MS enhancements

Machine Learning – Training

A new microservice will be required to do the following functionalities.

- Read data from RAN Simulator in batches
- Parse the data (Pre-processing)
- Train the model
- Export the model

For this release, the model will be downloaded to the local machine under the directory /tmp/model

Data for training:

Number of PDU Sessions requested to setup, Number of PDU Sessions successfully setup & Number of PDU Sessions failed to setup

IBN Based Closed Loop – ML MS enhancements

Machine Learning – Prediction

- A new microservice will be introduced to do the prediction from the trained model. The predicted configuration should be aligned with the intent.

The new service will

- parse the input data (Pre-processing)
- do the prediction
- post process the output data

Predicted Outcome:

maxNumberOfConns to be configured in cells for a Slice

- This microservice interacts with Slice Analysis MS and control loop is triggered by Slice Analysis MS using policy.

DCAE – Impacts for Network Slicing (Continued)

- NFRs

<https://wiki.onap.org/display/DW/R10+Global+Requirements+Contribution+by+Network+slicing+use+case>

- EPIC:

<https://jira.onap.org/browse/DCAEGEN2-3021>

DCAE – Impacts for Network Slicing (Continued)

- **IBN based Closed loop in TN Slicing**
 - To be covered by Henry



ONAP

OPEN NETWORK AUTOMATION PLATFORM

Thank You!