**3GPP TSG-SA5 Meeting #156 *S5-244692d1***

Maastricht, Netherlands, 19 - 23 August 2024

**Source: Huawei**

**Title: Add new solution for** **NDT support to network automation**

**Document for: Approval**

**Agenda Item: 6.19.5**

# 1 Decision/action requested

***The group is asked to discuss and approval.***

# 2 References

[1] 3GPP draft TR 28.915: “Management and orchestration; Study on management aspects of Network Digital Twin v0.3.0”.

[2] SP-231727 "New Study on management aspects of Network Digital Twin"

# 3 Rationale

This contribution proposes to add a new solution for NDT support to network automation for TR 28.915 based on [1].

NDT has scenarios such as modeling and evaluation which are related to automation function. Based on the discussion in previous meetings, NDT can be external to MnF or integrated into MnF. But there is no discussion about the detailed solution for the scenario of NDT integrated into MnF. In this tdoc, a solution is provided to try to illustrate the possible procedure of NDT enable the network automated functions (e.g. analytics) to support modeling and evaluation scenarios.

# 4 Detailed proposal

It proposes to make the following changes to TR 28.915[1].

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| **1st Change** |

## 5.5 Use case 5: NDT support to network automation

### 5.5.1 Description

NDTs may be used to support many automation use cases. An NDT may be integrated into a network automation function, or it may be external to the network automation function. In the case where the NDT is external to the network automation function, it should be possible for the network automation function to define and configure into the NDT the scenario that should be modelled and simulated by the NDT. Then the NDT should implement the defined scenario, simulate it, and subsequently provide an output representing the statues of different network metrics for the simulated scenario

In the case of the option 1 in clause 4.2.2, NDT capabilities (e.g., modeling and evaluation) may support related analysis step in the network automated functions when applicable. The network automation functions may use the NDT outputs to perform part of their functionality.

### 5.5.2 Potential Requirements

REQ-NDT-1: The NDT should support a capability to model the behavior of the network and provide the outcomes of such modelling to consumers.

REQ-NDT-2: The NDT should support a capability enabling an Mns consumer to define the network scenario that should be modelled and simulated.

REQ-NDT-3: The NDT should support a capability to provide an output representing the statues of different network metrics for the simulated scenario

REQ-NDT-4: The NDT should support a capability to enable the network automation function to invoke NDT capabilities.

### 5.5.3 Potential Solutions

### 5.5.3.x solution x

Management function in this solution that includes two logic functions which are NDT and automation capabilities (e,g., MDA) can provide the MnS for NDT MnS consumer. Management function in this solution can be an automation function providing MDA capability. The creation of NDT instance is the internal process.



Figure 5.5.3.x-1: procedure of NDT support to network automation

1. MnS consumer sends a request with indication information for NDT capabilities (e.g., analytics type, reporting target and reporting method, etc) to a management automation function. The indication information for NDT can be a specific analytics capability, such as an analytics type for signaling storm evaluation and configuration verification.
2. Based on the received request, the management automation function creates an NDT instance in case of no NDT instance exists for this request.

- NDT scope: the area of actual mobile network or the managed object that needs to be simulated or emulated in NDT. For instance, a geography area, a network slice, etc.

- Modeling data: the data that collected for NDT, e.g., PM data as defined in TS 28.552/28.554, CM data as defined in TS 28.541/28.622, etc.

1. In parallel, the management automation function collects the data from the managed entities.
2. The management automation function performs evaluation (e.g., signaling storm evaluation or configuration verification).
3. The management function reports the evaluation results (e.g., MDA report) to MnS consumer.

### 5.5.4 Evaluation of solutions

The solution #x is proposed to support the scenario that NDT is integrated within the network automation functions. The REQ-NDT-4 is satisfied and this solution is feasible for normative work.

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| **End of Changes** |