**3GPP TSG-SA5 Meeting #154 *S5-242018d1***

Changsha, China, 15 - 19 April 2024

**Source: China Mobile, Huawei, TIM, ZTE**

**Title: Add concepts for TR 28.915**

**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 v0.1.0”.

# 3 Rationale

This contribution proposes to add concepts related to Network Digital Twin in the 3GPP management system.

# 4 Detailed proposal

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

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| **1st Change** |

# 4 Concepts and background

4.1 General description

Digital twin technology provides robust support for emerging technologies by creating a comprehensive virtual mapping of the corresponding physical network process, utilizing models, operational history, and additional data.

3GPP already uses the Network Resource Model (NRM) to model the attributes of a mobile network. The concept of Network Digital Twin adds the ability to also model the behavior of a mobile network. This behavior is modelled by emulating or simulating a complete mobile network or limited aspects of a mobile network.

Network Digital Twin(NDT) may be used as a replica of a mobile network, in order to learn how an actual mobile network would behave in certain scenarios,without causing any changes to the actual 3GPP network. To provide meaningful results, the Network digital twin needs to emulate (or simulate) the behavior of the 3GPP network, so that the result of the operations on the virtual replica are a good approximation to similar operations on the actual network. The standardization for an NDT focuses on implementation independent aspects of a network.

Digital twin technology has potential scenarios in enhancing the 3GPP management system. For example, the NDT can help for efficiently simulation of the network operation, the configuration and policy decided by the 3GPP management system can be verified before the deployment. By using this Network Digital Twin, the 3GPP management system can obtain verification results and optimize configurations, thereby avoiding failures in the actual network. This approach benefits the optimization of network management in the telecommunications industry, reduces the cost of study and development of new technologies, and shortens the study and development cycle of new technologies.

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| **End of Changes** |