**3GPP TSG-SA5 Meeting #155 *S5-243194***

Jeju, South Korea, 27 - 31 May 2024

**Source: Microsoft, Rakuten Mobile, AT&T**

**Title: pCR 28.869 New use case on placement of cloud-native NFs**

**Document for: Approval**

**Agenda Item: 6.19.6**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP TR 28.869 v0.2.0 Study on cloud aspects of management and orchestration

# 3 Rationale

This contribution proposes to add a new use case on placement of cloud-native NFs to clause 5.3.

A distributed cloud can enable new use cases by providing better performance and QoS, especially lower latency. It can enable use cases like self-driving cars, which may not be possible in a traditional cloud. This requires NF instances to be deployed across different edge clouds, whose locations are selected to meet QoS requirements.

An operator’s network may consist of many sites, including multiple cloud sites, edge sites and private cloud sites. For an operator deploying an NF, there are various parameters that impact in which cloud or edge site to deploy the NF (primarily the geographical serving area and the NF performance criteria). When an NF is deployed as part of a network slice, the slice profile contains information that provides the 3GPP management system (e.g., network orchestrator) enough information to decide the location of the site for the NF to be deployed. However, when an operator chooses to deploy an NF or a set of NFs independent from a slice profile, then there is a need to provide this information to the 3GPP management system. Without providing the 3GPP management system the information about the location of the site explicitly, the orchestrator makes the decision where to deploy the NF based on the implicit information in the NF characteristics and requirements (provided in the descriptor), which may or may not match the operator’s desired location.

This use case introduces the option for the operator to provide the desired location for deployment of an NF.

# 4 Detailed proposal

It proposes to make the following changes to TR 28.869 [1].

|  |
| --- |
| **1st Change** |

## 5.3 Support of different cloud deployment scenarios

Editor's Note: This clause describes the use cases, issues, requirements, and solutions related to WT-3.

### 5.3.x Use case #x: Placement of cloud native NFs5.3.x.1 Description

The distributed cloud deployment types enable the network to be deployed across different geographical locations. In this use case CSPs use the information about the available placement locations and resources in each, if available, to select the optimal location(s) for an NF. This provides the NOPs/CSPs with the choice of where a particular NF can be placed at the time of deployment. The parameters that can impact the choice of placement include geographical service area, performance in terms of latency and available bandwidth, as well as level of deployment complexity. In order to support distributed cloud deployments, the 3GPP management system needs to provide the capability for NOPs/CSPs to learn the available deployment locations.

Note: The mechanism to indicate the preferred placement of a particular NF is already supported by use of attribute ‘locality’ in the ManagedNfProfile datatype.

### 5.3.x.2 Potential requirements

**REQ-1:** The 3GPP management system should be able to collect information about the available deployment locations.

NOTE: The granularity of the location information is FFS.

### 5.3.x.3 Potential solutions

### 5.3.x.4 Evaluation of solutions