**3GPP TSG-SA5 Meeting #158 *S5-246767rev1***

Orlando, USA, 18 - 22 November 2024

**Source: NTT DOCOMO, China Mobile**

**Title: pCR TR28.869 Placement of cloud native NFs in NFV**

**Document for: Approval**

**Agenda Item: 6.19.6**

# 1 Decision/action requested

***In this box give a very clear / short /concise statement of what is wanted.***

# 2 References

1. 3GPP TR 28.869 v1.1.0 Study on cloud aspects of management and orchestration.

# 3 Rationale

The contribution proposes to add a solution about VNF location management information in ETSI NFV.

# 4 Detailed proposal

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

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| **1st Change** |

5.3.1 Use case #1: Placement of cloud native NFs

5.3.3.1 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.

5.3.3.2 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.

5.3.3.x Potential solutions

##### 5.3.3.x.1 Location management information in ETSI-NFV

This solution considers the NFV-MANO approach for managing the placement of a particular NF in the cloud at the time of deployment. According to ETSI GS NFV-IFA 011 [22] the attributes "nfviConstraint", "requestedAdditionalCapabilities" and "mcioConstraintsParams" in the Vdu information element, outlined in clause 7.1.6.2.2, defines the scope of deployment constraints in terms of capabilities necessary for the virtualised resources and/or containerized workloads conforming a cloud-native VNF. The same document also provides details on the use of affinity/anti-affinity scopes, along with related information on how to force deployments affinity in Annex B.

ETSI GS NFV-IFA 036 [26] clause 4.2.8 provides information on how to manage the container clusters to create rules and scope for containerized workload placement.

Furthermore, ETSI GS NFV-IFA 013 [23] enables a consumer of NFV-MANO, like the 3GPP management system, to provide input requirements in various NS/VNF LCM operation about location constraints to be considered for the placement of NS and VNF.

Location constraints, as specified in stage 3 solutions of the ETSI GS NFV-IFA 013 [23], provide the capability to represent locations in various forms, such as a country code, as a civic address combined with a country code, or as an area, that can also be combined with a country code. The same ETSI GS NFV-IFA 013 [23] specifies the NFVI Capacity Information interface, which enables the 3GPP management system to query information about NFVI capacity associated to infrastructure.

Currently, capacity information exposed by NFVO to the 3GPP management system is associated to logical identifiers of VIM and CCM functions. The present solution proposes that NFV-MANO should also provide actual location information to the 3GPP management system. This would enable the 3GPP management system matching with location constraints information at deployment time already available on the ETSI GS NFV-IFA 013 [23]. The solution proposes that, as part of the NFVI capacity services provided by the NFV-MANO, additional data is added in respective information elements to provide location information and associate such information to the logical identifiers of VIM and CCM functions.

Editor’s Note: update the solution description to better reflect the impact to the 3GPP management system.

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| **End of Changes** |