**3GPP TSG-SA5 Meeting #141-e *S5-221132***

**e-meeting, 17 -26 January 2022**

**Source: Huawei,Nokia, Deutsche Telekom,AsiaInfo**

**Title: Align the description for general concept of intent content**

**Document for: Approval**

**Agenda Item: 6.4.9**

# 1 Decision/action requested

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

# 2 References

[1] 3GPP draft TS 28.312: “Management and orchestration; Intent driven management services for mobile networks v0.7.0”.

# 3 Rationale

This contribution proposes to address the following issues in related to description for general concept of intent content.

**Issue#1**: Address the following Editor's Note. It proposes to use the general term "context" to align with intent model defination. The term "context" is more general which can include constraint, condition and filtering information.

Editor’s Note: whether using the context or constraint is FFS, which needs to discuss together with intent definition.

**Issue#2:** Address the following Editor's Note. It proposes to remove this Editor's Note.

Editor's note: Alignment with other organization is to be considered.

**Issue#3**: The usage of terminology "Intent Expectation", "ExpectationTarget" and "ExpectationObject" are not aligned. It proposes to align the terminology used in clause 4.5 General concept of Intent Content.

**Issue#4**: Some wording update to make the description more clear.

# 4 Detailed proposal

It proposes to make the following changes to TS 28.312[1].

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| **1st Change** |

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

**Intent:** the expectations including requirements, goals and constraints given to a 3GPP system, without specifying how to achieve them.

Editor's note: Alignment with other organization is to be considered.

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| **2nd Change** |

## 4.5 General concept of Intent Content

### 4.5.1 Intent Expectation

In the most basic form, a consumer may use an intent to express to the producer the need for:

"an object O with characteristics S".

Where the characteristics S reflect the requirements, goals and contexts for an object.

The object may be a 3GPP managed object like a network slice, subnetwork (e.g. radio network) or other objects like a service. The consumer may desire the same requirements, goals and contexts for multiple objects with the same properties, in which case the intent may be stated for a list of objects as

"objects {O1,O2, …ON} with characteristics S"

However, the consumer may wish to express different requirements, goals and contexts for objects with different properties. It is in that case necessary to distinguish the requirements, goals and contexts to be achieved for each set of objects with the same properties. Correspondingly, the combination of requirements, goals and contexts for each set of objects with the same properties is the Intent Expectation. Also the consumer may wish to distinguish the requirements, goals and contexts for different objects with the same properties, in this case, the combination of requirements, goals and contexts for each object instance may be contained in a separate Intent Expectationor requirements, goals and contexts for the multiple object instances may be combined in a single Intent Expectation.

### 4.5.2 Expectation Targets

For a given intent expectation, the desired characteristics of the object(s) are the expectation targets to be achieved. The expectation targets may include the metrics that characterize the performance of the object(s) or some abstract index that expresses the behavior of the object(s). A given intent expectation may include multiple expectation targets on the same object or on different objects with the same properties. A consumer may for example require for the Network Slice object(s) that User throughput > 5Mbps and latency < 1ms.The expectation targets may also be context specific, i.e. the intent may require a specific expectation targets given a specific target context. As such with the characteristics as a combination of expectation targets and target contexts, the intent expectation may be stated as

"ensure that for

Expectation Object O,

Expectation Target\_1 is T\_1, Target Context\_1 is C\_1

 ….,

Expectation Target\_m is T\_m, Target Context\_k is C\_k;

Each expectation target expresses an aspect of the characteristics of the object under consideration, i.e. it expresses a desired characteristics on a specific object. Each of the object characteristic may be desired to be equivalent to a specific value or constrained to a value or a range of values, e.g. as listed in Table 1. The combination of the name of characteristic (or simply the targetName), the condition constraining the characteristic and the value or value range for the characteristic is the target, i.e. the Expectastion Target is the tuple

Expectation Target = [targetName, condition, value range]

Table 1: Examples of Expectation Targets for different Objects

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| **Example of Expectation Targets** | **ExpectationObject**  | **targetName** | **Condition** | **Value range** |
| example 1 | Slice | Coverage area | Is at least | 40km radius |
| example 2 | Communication Service | User throughput | Is greater than | 2Mbps |

### 4.5.3 Expectation Objects

The object (s) for which a given expectation is addressed can be expressed with the object's identifier. This may, however, not always be adequate (e.g., if the consumer does not have or know the identifiers of the object) or may be cumbersome for some intents. For example, it may be easier to state "all slices in city ABC" as opposed to listing the individual slices. As such it may be easier to identify the objects by stating the object context information that filters and identifies the desired objects. The objectContext is in form of a context list whose entries are each a tuple (attribute, condition, value range). For example, in the case of "all slices in a city" there is an object context, which is the tuple "location, =, city\_ABC" and "objectType=slice".

### 4.5.4 Context

Each target may be constrained to only be achieved for a very specific set of constraints. For example, the consumer may state that: *"ensure that handoverFailureRate < 2% if Load > 80%"*, where the target *"HandoverFailureRate < 2%"* is only to be achieved only in the context *"Load > 80%"*.

Similar to the target, the context is also a tuple of < attribute, condition, value range > but where the values having a different semantics.

Although contexts and targets have the same structure, to distinguish between what must be achieved and the context which is only to be considered as required conditions, the Context has to be explicitly stated separate from the target. For example, if the consumer may wish that the Radio Link Failure rate (RLF) is less than 2% when the load is more than 50%. If the context (i.e. load > 50%) is not explicitly stated/modelled as context, the producer could interpret the request to mean (RLF<2% and load > 50%).

For a given expectation, the specific list of targets may be desired to be achieved for given combined contexts, i.e., besides the Target, an expectation may state a list of contexts which apply to all targets within the intent expectation. Similarly, there may be contexts that apply to all expectations within a given intent. Correspondingly, both Intent expectations and intents should be modelled to contain aggregate contexts that apply to all the contained sub elements.

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| **End of Changes** |