**3GPP TSG-SA5 Meeting #148eS5-233323**

Electronic meeting, Online, 17 -25 April 2023

**Source: Ericsson, Deutsche Telekom**

**Title: Discussion paper on applicability of service profile parameters for intent**

**Document for: Approval, Information, Discussion**

**Agenda Item: 6.7.4**

# 1 Decision/action requested

***The group is asked to endorse the detailed proposal in section 4.***

# 2 References

[1] [TS 28.541](https://portal.3gpp.org/desktopmodules/Specifications/SpecificationDetails.aspx?specificationId=3400) Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3

[2] [TS 22.104](https://www.3gpp.org/ftp/Specs/archive/22_series/22.104/22104-j00.zip) Service requirements for cyber-physical control applications in vertical domains

[3] [NG.116](https://www.gsma.com/newsroom/wp-content/uploads/NG.116-v8.0.pdf) GSMA Generic NetworkSlice Template

# 3 Rationale

The service profile represents the MnS consumer requirements that needs to be fulfilled by an MnS producer. The producer treats the service profile as a flat list of attributes without knowledge how these are grouped. The ServiceProfile attributes are documented in TS 28.541, see reference [1] and shown in Table 3.1

Table 3.1 ServiceProfile attributes [1]

|  |  |  |  |
| --- | --- | --- | --- |
| Mandatory attributes | Optional attributes | | |
| plmnInfoList | maxNumberofUEs | uLThptPerSlice | survivalTime |
| sST | coverageArea | uLThptPerUE | radioSpectrum |
|  | dLLatency | dLMaxPktSize | reliability |
|  | uLLatency | uLMaxPktSize | maxDLDataVolume |
|  | uEMobilityLevel | maxNumberofPDUSessions | maxULDataVolume |
|  | networkSliceSharingIndicator | kPIMonitoring | nBIoT |
|  | availability | userMgmtOpen | synchronicity |
|  | delayTolerance | v2XCommModels | positioning |
|  | dLDeterministicComm | termDensity | sliceSimultaneousUse |
|  | uLDeterministicComm | activityFactor | energyEfficiency |
|  | dLThptPerSlice | uESpeed | nssaaSupport |
|  | dLThptPerUE | jitter | n6Protection |

An interface to an MnS producer in an intent-based solution may not need to support the full set of service profile attributes, as some of the requested capabilities are implicitly supported by an intent-based solution or for some other reason.

The pLMNInfoList is an attribute in ServiceProfile, however in an Intent based solution the pLMNInfoList does not need to be part of the consumer request, the input from a consumer would be the PLMNId, while the producer fulfils the request by using an existing NetworkSlice or creating a new NetworkSlice and maintains the inventory of S-NSSAIs belonging to that PLMN. The PLMNId input parameter would be mapped to the Object context

The attributes defined in ServiceProfile can be categorized as different types (of requirements), representing different aspects of the NetworkSlice that is expected to be used to fulfil the requirements.

The first type of requirements are the parameters capturing performance of a NetworkSlice, the performance requirements should be measurable and monitored to allow an MnS consumer to assess if that NetworkSlice has met and or is meeting the performance requirements.

The second type of requirements are the influence quantities. While performance parameters include availability, reliability, latency, and throughput (data rate), influence quantities are not essential for the performance of a NetworkSlice but affect its performance. An influence quantity may describe an aspect of the size (dimensioning) of a NetworkSlice, within which the performance requirements must be met.

The third type of requirement is functional, used in similar way as it is used in NG.116, see reference [3].

NOTE: The different parameters describing performance and influence are documents in TS 22.104, see reference [2] clause 5.2, 5.3, 5.4 and 5.5 for the different type of communication services.

Table 3.2 ServiceProfile mapped to Intent

|  |  |  |
| --- | --- | --- |
| **ServiceProfile attribute** | **Type of requirement** | **Intent** |
| pLMNInfoList | Provisioning | Not applicable in intent |
| sST | Provisioning | ObjectContext |
| maxNumberofUEs | Influence | ExpectationContext |
| coverageArea | Performance | ExpectationTarget |
| dLLatency | Performance | ExpectationTarget |
| uLLatency | Performance | ExpectationTarget |
| uEMobilityLevel | Influence | ExpectationContext |
| networkSliceSharingIndicator | Provisioning | ObjectContext |
| availability | Performance | ExpectationTarget |
| delayTolerance | Influence | ExpectationContext |
| dLDeterministicComm | Influence | ExpectationContext |
| uLDeterministicComm | Influence | ExpectationContext |
| dLThptPerSlice | Performance | ExpectationTarget |
| dLThptPerUE | Performance | ExpectationTarget |
| uLThptPerSlice | Performance | ExpectationTarget |
| uLThptPerUE | Performance | ExpectationTarget |
| dLMaxPktSize | Influence | ExpectationContext |
| uLMaxPktSize | Influence | ExpectationContext |
| maxNumberofPDUSessions | Influence | ExpectationContext |
| kPIMonitoring | Provisioning | Not applicable in intent |
| userMgmtOpen | Configuration of the Provisioning (of users) | Not applicable in intent |
| v2XCommModels | Functional | ObjectContext |
| termDensity | Influence | ExpectationContext |
| activityFactor | Influence | ExpectationContext |
| uESpeed | Influence | ExpectationContext |
| jitter | Jitter only has meaning in context of latency (Target) | TargetContext |
| survivalTime | Influence | ExpectationContext |
| radioSpectrum | Functional | ObjectContext |
| reliability | Performance | ExpectationTarget |
| maxDLDataVolume | Influence | ExpectationContext |
| maxULDataVolume | Influence | ExpectationContext |
| nBIoT | Functional | ObjectContext |
| synchronicity | Functional | ObjectContext |
| positioning | Functional | ObjectContext |
| sliceSimultaneousUse | Provisioning | ObjectContext |
| energyEfficiency | Performance | ExpectationTarget |
| nssaaSupport | Functional | ObjectContext |
| n6Protection | Functional | ObjectContext |

From Table 3.2 it can be observed that not all ServiceProfile parameters are mapped to Intent. The summarized list can be found in Table 3.3.

Table 3.3 ServiceProfile parameters not applicable to intent

|  |  |  |
| --- | --- | --- |
| **ServiceProfile attribute** | **Type of requirement** | **Reason** |
| kPIMonitoring | Provisioning | Performance of Intent is automatically reported by the FulfilmentInfo attribute. Each ExpectationTarget, includes a FulfilmentInfo report.  The performance monitoring is automated when using intent. Each network slice will be monitored on the performance according to expectationTargets, therefore KPIMonitoring is not needed |
| userMgmtOpen | Configuration of the Provisioning (of subscribers) | Not applicable to the provisioning of NetworkSlice.  This is requirements on whether the NSC itself should be able to provision subscribers to the network slice. I.e., this is a requirement on the subscriber provisioning not on the network slice. |
| PLMNInfoList | Provisioning | Not applicable as this parameter is not configurable by consumer |
|  |  |  |

# 4 Detailed proposal

The group is asked to endorse Table 3.3 in clause 3; the KPIMonitoring and userMgmtOpen in ServiceProfile are not needed for intent expectation for network slice and PLMNInfoList cannot be used as is.