**3GPP TSG-SA5 Meeting #142-e *S5-222259***

**e-meeting, 4 - 12 April 2022**

**Source: Huawei**

**Title: Move clause 6.4 scenario specific IntentExpectation to clause 6.2**

**Document for: Approval**

**Agenda Item: 6.6.3**

# 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 v1.0.0”.

# 3 Rationale

Current structure for cluse 6:

6 Stage 2 definition for Intent Driven Management

6.1 Management operation for Intent (MnS component type A)

6.2 Information model definition for Intent (MnS component typeB)

6.3 Procedures for intent management

6.4 Scenario specific IntentExpectation

Clause 6.4 scenario specific IntentExpectation is part of 6.2 Information model definition for Intent (MnS component typeB), it proposes to to move clause 6.4 to 6.2 and renumber as 6.2.2.

# 4 Detailed proposal

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

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| **1st Change** |

## 6.2 Information model definition for Intent (MnS component typeB)

### 6.2.1 Generic Information model definition

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| **2nd Change** |

### 6.2.2 Scenario specific IntentExpectation definition

#### 6.2.2.1 Scenario specific IntentExpectation definition

##### 6.2.2.1.1 Radio Network Expectation

###### 6.2.2.1.1.1 Definition

Radio Network Expectation is an IntentExpectation which can be used to represent MnS consumer's expectations for radio network (RAN SubNetwork) delivering and performance assurance.

The Radio Network Expectation is defined by utilizing the construct of the generic IntentExpectation <<dataType>> with set of allowed values and concrete dataTypes specified.

Following are the specific allowed values when implemented the IntentExpectation for Radio Network Expectation.

|  |  |
| --- | --- |
| **Attribute Name** | **Allowed Values** |
| objectType (CM) | RAN SubNetwork |
| objectInstance (CM) | DN of the RAN SubNetwork |

Note: following are the qualifier description for attribute "objectType" and "objectInstance":

- In case of the intent expectation is not for a specific RAN SubNetwork instance or/and MnS consumer have no knowledge of the DN of this RAN SubNetwork instance, the attribute "objectType" needs to be specified;

- In case of the intent expectation is for a specific RAN SubNetwork instance and MnS consumer have the knowledge of the DN of this RAN SubNetwork instance, the attribute "objectInstance" needs to specified.

###### 6.2.2.1.1.2 ObjectContexts

Following provides the concrete ObjectContexts for Radio Network Expectation based on the common structure of ObjectContext. The properties of the attributes in the following table should be same with properties of ObjectContexts defined in clause 6.2.1.3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| coverageAreaPolygonContext | O | T | T | F | F |
| coverageTACContext | O | T | T | F | F |
| pLMNContext | O | T | T | F | F |
| nRFqBandContext | O | T | T | F | F |
| rATContext | O | T | T | F | F |

###### 6.2.2.1.1.3 ExpectationTargets

Following provides the concrete ExpectationTargets for Radio Network Expectation based on the common structure of ExpectationTarget. The properties of the attributes in the following table should be same with properties of ExpectationTargets defined in clause 6.2.1.3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| WeakRSRPRatioTarget | O | T | T | F | F |
| LowSINRRatioTarget | O | T | T | F | F |
| AveULRANUEThptTarget | O | T | T | F | F |
| AveDLRANUEthptTarget | O | T | T | F | F |
| LowULRANUEThptRatioTarget | O | T | T | F | F |
| LowDLRANUEThptRatioTarget | O | T | T | F | F |

##### 6.2.2.1.2 Service Support Expectation

###### 6.2.2.1.2.1 Definition

Service Support Expectation is an IntentExpectation which can be used to represent MnS consumer's expectations for service deployment.

The Service Support Expectation is defined utilizing the constructs of the generic IntentExpectation <<dataType>> with set of allowed values and concrete dataTypes specified.

Following are the specific allowed values when implemented the IntentExpectation for Service Support Expectation

|  |  |
| --- | --- |
| Attribute | Allowed Values |
| ObjectType (CM) | ServiceSupport |
| objectInstance (CM) | DN of the ServiceSupport |

Note: following are the qualifier description for attribute "objectType" and "objectInstance":

- In case of the intent expectation is not for a specific service instance or/and MnS consumer have no knowledge of the DN of this service instance, the attribute "objectType" needs to be specified;

- In case of the intent expectation is for a specific service instance and MnS consumer have the knowledge of the DN of this service instance, the attribute "objectInstance" needs to specified.

###### 6.2.2.1.2.2 ObjectContexts

Following provides the concrete ObjectContexts for Service Support Expectation based on the common structure of ObjectContext. The properties of the attributes in the following table should be same with properties of ObjectContexts defined in clause 6.2.1.3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute Name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| edgeIdenfiticationId | CM | T | T | F | F |
| edgeIdenfiticationLoc | CM | T | T | F | F |

Note: following are the qualifier description for attribute "edgeIdentificationId" and " edgeIdentificationLoc":

- In case of the Service deployment is needed at a particular edge data network, the attribute " edgeIdentificationId " needs to be specified;

- In case of the Service deployment is needed at a particular location, the attribute "edgeIdentificationLoc" needs to be specified;

###### 6.2.2.1.2.3 ExpectationTargets

Following provides the concrete ExpectationTargets for Service Support Expectation based on the common structure of ExpectationTarget. The attribute properties defined in the table below should be same with the properties defined for ExpectationTargets in section 6.2.1.3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| dlThptPerUE | O | T | T | F | F |
| UlThptPerUE | O | T | T | F | F |
| dLLatency | O | T | T | F | F |
| uLLatency | O | T | T | F | F |

Editors Note: the target defined are not the complete list. Definition of more targets is FFS.

###### 6.2.2.1.2.4 ExpectationContext

Following provides the concrete ExpectationTargets for Service Deployment Expectation based on the common structure of ExpectationTarget. The attribute properties defined in the table below should be same with the properties defined for ExpectationTargets in section 6.2.1.3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Attribute Name** | **Support Qualifier** | **isReadable** | **isWritable** | **isInvariant** | **isNotifyable** |
| serviceStartTime | O | T | T | F | F |
| serviceEndTimeTarget | O | T | T | F | F |
| coverageAreaTAList | O | T | T | F | F |
| uEMobilityLevel | O | T | T | F | F |
| resourceSharingLevel | O | T | T | F | F |
| maxNumberofUEs | O | T | T | F | F |
| activityFactor | O | T | T | F | F |
| uESpeed | O | T | T | F | F |

Editors Note: the context defined are not the complete list. Definition of more targets is FFS.

#### 6.2.2.2 Attribute definition

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| coverageAreaPolygonContext | It describes the coverage areas for the RAN SubNetwork that the intent expectation is applied in the form of polygon.  CoverageAreaPolygonContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "CoverageAreaPolygon"  -contextCondition: "With the range"  -contextValueRange: a list of CoverageArea defined in TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| coverageTACContext | It describes the coverage areas for the RAN SubNetwork that the intent expectation is applied in the form of TAC.  CoverageTACContext is a Context including attributes: contextAttribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "CoverageAreaTAC"  -contextCondition: "With the range"  -contextValueRange: a list of nRTAC defined in TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| plMNContext | It describes the PLMN(s) supported by the RAN SubNetwork that the intent expectation is applied.  PLMNContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "PLMN"  -contextCondition:"With the range"  -contextValueRange: a list of PLMNId defined in TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| nRFqBandContext | It describes the nRFqBands supported by the RAN SubNetwork that the intent expectation is applied.  nRFqBandContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "NRFqBand"  -contextCondition: "With the range"  -contextValueRange: a list of NRFqBand expressed as string. Valid frequency band values are specified in sub-clause 5.4.2 in 3GPP TS 38.104. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| rATContext | It describes the RAT supported by the RAN SubNetwork that the intent expectation is applied.  RATContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "RAT"  -contextCondition: "With the range"  -contextValueRange: a list of ENUM with allowed value: UTRAN, EUTRAN and NR. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| WeakRSRPRatioTarget | It describes the downlink weak coverage ratio target for the RAN SubNetwork that the intent expectation is applied.  WeakRSRPRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.  Following are the allowed values:  -targetName: "WeakRSRPRatio"  -targetCondition: "is less than"  -targetValueRange: integer with allowed value [0,100].  -targetContext: WeakRSRPContext | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| WeakRSRPRatioTarget.WeakRSRPContext | It describes the threshold for downlink weak RSRP of the RAN SubNetwork that the intent expectation is applied.  WeakRSRPContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "WeakRSRPThreshold"  -contextCondition: "is less than"  -contextValueRange: Float. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| LowSINRRatioTarget | It describes the low SINR ratio target for the RAN SubNetwork that the intent expectation is applied.  LowSINRRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.  Following are the allowed values:  -targetName: "WeakRSRPRatio"  -targetCondition: "is less than"  -targetValueRange: integer with allowed value [0,100].  - targetContext: LowSINRContext | type:ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| LowSINRRatioTarget.LowSINRContext | It describes the threshold for low SINR for RAN SubNetwork that the intent expectation is applied.  LowSINRContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "LowSINRThreshold"  -contextCondition: "is less than"  -contextValueRange: integer. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| AveULRANUEThptTarget | It describes the average UL RAN UE throughput target for RAN SubNetwork that the intent expectation is applied.  AveULRANUEThptTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.  Following are the allowed values:  -targetName: "AveULRANUEThpt"  -targetCondition: "is greater than"  -targetValueRange: integer | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| AveDLRANUEThptTarget | It describes the average DL RAN UE throughput target for RAN SubNetwork that the intent expectation is applied.  AveDLRANUEThptTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.  Following are the allowed values:  -targetName: "AveDLRANUEThpt"  -targetCondition: "is greater than"  -targetValueRange: integer | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| LowULRANUEThptRatioTarget | It describes the low UL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied.  LowULRANUEThptRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.  Following are the allowed values:  -targetName: "LowULRANUEThptRatio"  -targetCondition: "is less than"  -targetValueRange: integer with allowed value [0,100].  -targetContext: LowULRANUEThptContext | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| LowULRANUEThptRatioTarget.LowULRANUEThptContext | It describes the threshold for the low UL RAN UE throughput of the RAN SubNetwork that the intent expectation is applied  LowULRANUEThptContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "LowULRANUEThptThreshold"  -contextCondition: "is less than"  -contextValueRange: Float. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| LowDLRANUEThptRatioTarget | It describes the low DL RAN UE throughput ratio target for the RAN SubNetwork that the intent expectation is applied.  LowDLRANUEThptRatioTarget is an ExpectationTarget including attributes: targetName, targetCondition and targetValueRange.  Following are the allowed values:  -targetName: "LowDLRANUEThptRatio"  -targetCondition: "is less than"  -targetValueRange: integer with allowed value [0,100].  -targetContext: LowDLRANUEThptContext | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| LowDLRANUEThptRatioTarget.LowDLRANUEThptContext | It describes the threshold for the low DL RAN UE throughput of the RAN SubNetwork that the intent expectation is applied  LowDLRANUEThptContext is a Context including attributes: contextAtrribute, contextCondition and contextValueRange.  Following are the allowed values:  -contextAttribute: "LowDLRANUEThptThreshold"  -contextCondition: "is less than"  -contextValueRange: Float. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| serviceStartTime | This describes the start time at which the service shall be available. This contributes to the selection of the appropriate edge data network to be used for service deployment.  Following are the allowed values:  -contextAttribute: "serviceStartTime"  -contextCondition: "is equal than"  -contextValueRange: start time stamp | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| serviceEndTime | This describes the end time after which the service shall not be available. This contributes to the selection of the appropriate edge data network to be used for service deployment.  Following are the allowed values:  -contextAttribute: "serviceEndTime"  -contextCondition: "is equal than"  -contextValueRange: end time stamp | type:Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| edgeIdenfiticationId | This identifies the edge network where the service need to be deployed. This should be used when the edge identification is known to the consumer  Following are the allowed values:  -contextAttribute: "edgeIdentificationId"  -contextCondition: "is equal than"  -contextValueRange: EDNidentifier as defined in 28.538. | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| edgeIdenfiticationLoc | This identifies the location where the service need to be deployed. This should be used when the edge identification is not known to the consumer  Following are the allowed values:  -contextAttribute: "edgeIdentificationTarget"  -contextCondition: "is equal than"  -contextValueRange: geographical target location. This will take a form of either single latitude & longitude or a TAI | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| dlThptPerUE | See clause 6.3.1 of TS 28.541 | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| UlThptPerUE | See clause 6.3.1 of TS 28.541 | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| dLLatency | See clause 6.3.1 of TS 28.541 | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| uLLatency | See clause 6.3.1 of TS 28.541 | type: ExpectationTarget  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| coverageAreaTAList | See clause 6.3.1 of TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| uEMobilityLevel | See clause 6.3.1 of TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| resourceSharingLevel | See clause 6.3.1 of TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| maxNumberofUEs | See clause 6.3.1 of TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| activityFactor | See clause 6.3.1 of TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |
| uESpeed | See clause 6.3.1 of TS 28.541 | type: Context  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: False  isNullable: True |

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| **2nd Change** |

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| **End of Changes** |