INTERNATIONAL TELECOMMUNICATION UNION

**TELECOMMUNICATION STANDARDIZATION SECTOR**

STUDY PERIOD 2017-2020

**SG2-LS62**

**STUDY GROUP 2**

**Original: English**

**Question(s):** 7/2 Geneva, 4-13 July 2018

**Ref.: SG2-TD474-R1/GEN**

**Source:** ITU-T Study Group 2

**Title:** LS on cooperation on REST-based network management framework

**LIAISON STATEMENT**

**For action to:** 3GPP SA5

**For comment to:** -

**For information to:** ITU-T SG15

**Approval:** ITU-T SG2 meeting (Geneva, 13 July 2018)

**Deadline:** November 15, 2018

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**Keywords:** REST; management framework;

**Abstract:** This document contains the liaison ITU-T SG2 sends to 3GPP, informing them about the creation of two new work items on REST-based management framework, and invite co-operations on this topic. This document also expressed the opinions about URI format of the current 3GPP TS 32.158(V0.1.0).

During the ITU-T SG2 plenary meeting held in Geneva, 4-13 July 2018, we decided to start two new work items under the topic of REST-based network management framework, which are as follows:

| Number | Title | Status | Questions |
|---|---|---|---|
| ITU-T X.rest | Guidelines for defining REST-based managed objects and management interfaces | Initiation | Q7/2 |
| ITU-T Q.rest | REST-based management services | Initiation | Q7/2 |

Question 7/2 is looking forward to cooperating with 3GPP SA5 for the progress of these two work items in the future. Contributions on creating these two new work items are attached to this liaison.

During our meeting, we also briefly reviewed your current draft 3GPP TS 32.158 (V0.1.0) document. Based on what we learned from the current draft, we also provided some comments about resource naming in TS 32.158 clause 4.2 and 4.3, for your consideration.

(1) In the current version(V0.1.0) of your REST Solution Sets, the slash "/" in the RDN is used as the separator between the naming attribute name and the naming attribute value. Your Original RDN is defined as the following:

```
RDN = "/"{namingAttribute} "/" {namingAttributeValue}
```

But we think this method will bring certain difficulties to background URI parsing and users' readability. For the background parsing, attribute names and attribute values can only be determined by the order, which may cause more difficulty for a parsing program; for users, when a URI has a deep containment relationship, the readability will become poor, because it is difficult to determine whether the part is an attribute name or an attribute value, if this part is considered without context. Especially when collection resource is involved, which may not have attributeValues, it will be hard to tell what a part separated by a "/" actually represents, does it represent an attributeName, an attributeValue, or a collection resource name?

(2) Based on the above analysis, we suggest replacing the slash "/" in the RDN with either an equal sign "=" or a dot "." as the role separator, so that the attribute name is in front of the separator, and the attribute value is after the separator. Different RDNs forming an DN are still separated by a slash "/" (called part separator), which can be parsed by the REST platform automatically. In this case, the attribute names and attribute values of the same level are bound together by the role separator ( the equal sign or the dot sign), and are not subject to the occurrence order in the URI, which can be processed in a unified way by the URI parser, and has a better readability.

In general, we suggest:

```
RDN = "/" {namingAttribute} "=" {namingAttributeValue}   or,
RDN = "/"{namingAttribute} "." {namingAttributeValue}
```

Examples:

```
…/SubNetwork=centrelNet/ManagedElement=ME1/ENBFunction=ENB2, or

…/SubNetwork.centrelNet/ManagedElement.ME1/ENBFunction.ENB2
```

(3) We know that a REST API is composed of three distinct resource archetypes, including collection resource, individual resource and task resource, and each resource should align to just one of these. A task resource represents an action that cannot be mapped to a standard CRUD method. However, there is only the naming of individual resources in the current TS 32.158 (V0.1.0). We suggest that the naming of collection resources and task resources be added on the basis of individual resources naming.

It would be appreciated if the above comments and suggestions can be considered in your future meetings.

Attachments:

- The proposal to create a new work item on “Guidelines for defining REST-based managed objects and management interfaces” (SG2-C103)
- The proposal to create a new work item on “REST-based management services” (SG2-C104)

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