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| Input Contribution |
| Meeting ID\* | RDM 51 - 14 Sep |
| Title:\* | Proposed solution for LS from ITU-T SG20 terms and definitions |
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| Date:\* | 2021-09-14 |
| Input related to\* | TP-2021-0065 LS on ITU-T SG20 terms and definitions |
| Intended purpose ofdocument:\* | [x]  Decision[x]  Discussion[ ]  Information[ ]  Other <specify> |
| Impacted other TS/TR(s) | TS-0001, TS-0003, TS-0011 |
| Decision requested or recommendation:\* | A proposed way forward on the ITU-T SG20 suggestion to avoid the definition of “application layer” specific to M2M.  |
| Template Version: January 2020 (do not modify) |

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# Introduction

This contribution discusses the suggestion (see below) from ITU-T SG20 in their LS in document TP-2021-0065 LS on ITU-T SG20 terms and definitions, and proposes a way forward in oneM2M.

Clause 2 referes to text from selected oneM2M specifications.

Clause 3 summarizes the questions to be answered and clause 4 lists potential actions to be decided.

## The Suggestion

“ITU-R Working Party 5A has brought to the attention of ITU-T Study Group 20 that generic terms (i.e., terms that are applicable in multiple fields) are being used and defined in a specific area of study. This could be a bit confusing when known terms, such as ‘application layer’, are being used and defined in a manner specific to M2M.

It is therefore suggested defining terms and definitions in a more specific way, for instance, try to define the more specific term “M2M application layer”, rather than the broad term “application layer”, which is already defined in [Recommendation ITU-T X.519](https://www.itu.int/rec/T-REC-X.519/en): “Information technology - Open Systems Interconnection - The Directory: Protocol specifications” as “The top layer of the OSI seven layer model representing the semantics of the communication.”

ITU-T SG20 looks forward to cooperating with oneM2M on matters of common interest.”

### Appearance of the term „application layer” in oneM2M Specifications

### TS-0001 Functional Architecture V2.30.0

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**Definitions:**

**(**source: TS-0001 Functional Architecture V2.30.0**)**

**application layer:** comprises oneM2M Applications and related business and operational logic

**common services layer:** consists of oneM2M service functions that enable oneM2M Applications (e.g. management, discovery and policy enforcement)

**common services function (CSF):** informative architectural construct which conceptually groups together a number of sub-functions

**network services layer:** provides transport, connectivity and service functions

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5.1 General Concepts

Figure 5.1-1 depicts the oneM2M Layered Model for supporting end-to-end (E2E) M2M Services. This layered model comprises three layers: Application Layer, Common Services Layer and the underlying Network Services Layer.

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**Figure 5.1-1: oneM2M Layered Model**

[…]

The oneM2M functional architecture in figure 5.2.1-1 comprises the following functions:

**Application Entity (AE):** Application Entity is an entity in the application layer that implements an M2M application service logic. Each application service logic can be resident in a number of M2M nodes and/or more than once on a single M2M node. Each execution instance of an application service logic is termed an "Application Entity" (AE) and is identified with a unique AE-ID (see clause 7.1.2). Examples of the AEs include an instance of a fleet tracking application, a remote blood sugar monitoring application, a power metering application, or a controlling application.

[…]

6.3 Security Aspects

oneM2M TR-0008 [i.25] on Analysis of Security Solutions for the oneM2M System differentiates security domains related to the transport layer (Underlying Network), service layer (M2M common services) and Application Layer. It also considers possible trust scenarios involving these different security domains, and investigates countermeasures to threats that potentially affect the security of the M2M System.

### TS-0003

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6.1.2.2.1…. M2M Application Layer

*6.2.1.1 Authentication*

This component provides authentication services to the Application Layer. Annex B provides a general description of Authentication mechanisms.

6.2.4 Identity Protection

Identity Protection provides services to the Application Layer such as pseudonyms and protecting the anonymity of transactions.

*6.2.5.0 Introduction*

The Sensitive Data Handling service provides certain Sensitive Functions to the Application Layer.

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### TS-0004:

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5.4.1 Introduction

Primitives are common service layer messages exchanged over the Mca, Mcc and Mcc' reference points.

There are two use cases:

communication between an Originator and a Receiver which are collocated on the same M2M Node (e.g. ASN or MN) in the Common Service layer;

communication between an Originator and a remote Receiver via an Underlying Network.

In the first use case the primitives may be exchanged directly between the Originator and Receiver processes.

In case of using an IP-based Underlying Network as illustrated in Figure 5.4.1‑1, the primitives are mapped to application layer communication protocols such as HTTP, CoAP, MQTT or WebSocket which use TCP or UDP on the transport layer. The specification of primitives, however, is independent of underlying communication protocols and allows introduction of bindings to other communication protocols.

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### TS-0002

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| SER-016 | The oneM2M System shall be able to support non repudiation within the M2M service layer and in its authorized interactions with the network and application layers. | Implemented in Rel-1  |

### TS-0011

No definition for application layer. But:

**Application Entity:** represents an instantiation of Application logic for end-to-end M2M solutions

### Discussion

### Definition of application layer in TS-0001

Can we agree to avoid the specific definition of “application layer” in TS-0001

**application layer**: comprises oneM2M Applications and related business and operational logic

and use the generic term application layer and / or define the term **M2M application layer?**

### Align use of Application Layer in TS-0003

Use the term M2M Application Layer consistent.

Need to define the term M2M application layer in TS-0011?

### Term Application Entity in TS-0011 and in TS-0001 – need to align?

The Term Application Entity is defined in TS-0011 (see above) and described in TS-0001.

### Next Steps

Follow up on findings – i.e.

1. agree to:
* Do nothing (not recommended)
or
* Change definition of application layer in TS-0001 as suggested *(which releases?)*
* Align terminology in TS-0003 (consistent use of M2M application layer) *(which releases?)*
* No action required with regard to definition (TS-0011) resp description (TS-0001) of Application Entity
1. Draft a reply LS to ITU-T and inform them about the discussion and (possible) actions taken.