

# ITU-T

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

# Y.3100

**Corrigendum 1**  
(04/2018)

SERIES Y: GLOBAL INFORMATION  
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS,  
NEXT-GENERATION NETWORKS, INTERNET OF  
THINGS AND SMART CITIES

Future networks

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Terms and definitions for IMT-2020 network

**Corrigendum 1**

Recommendation ITU-T Y.3100 (2017) –  
Corrigendum 1

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# Recommendation ITU-T Y.3100

## Terms and definitions for IMT-2020 network

### Corrigendum 1

#### Summary

Recommendation ITU-T Y.3100 describes essential terms and their definitions for IMT-2020 network to provide a general common understanding for ITU-T IMT-2020 related standard documents. It can be used as a guideline for the further development of IMT-2020 related documents.

The terms defined in this Recommendation will constitute a reference for other ITU-T IMT-2020 related standard documents.

Corrigendum 1 corrects an inconsistency in clause 3.2.6.

#### History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T Y.3100	2017-09-13	13	<a href="http://handle.itu.int/11.1002/1000/13349">11.1002/1000/13349</a>
1.1	ITU-T Y.3100 (2017) Cor. 1	2018-04-25	13	<a href="http://handle.itu.int/11.1002/1000/13617">11.1002/1000/13617</a>

#### Keywords

IMT-2020, definitions, network slice, network softwarization, orchestration, terms.

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\* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

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In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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# Recommendation ITU-T Y.3100

## Terms and definitions for IMT-2020 network

### Corrigendum 1

*Editorial note: This is a complete-text publication. The modifications introduced by this corrigendum are shown in revision marks relative to Recommendation ITU-T Y.3100 (2017).*

#### 1 Scope

This Recommendation contains common terms and definitions to provide a general understanding for IMT-2020 standard documents and a guideline for the development of IMT-2020 related documents.

This Recommendation provides terms and definitions, which are considered particularly suitable and applicable to the development of IMT-2020 standard documents and have already been defined in published ITU-T Recommendations and other relevant specifications. New terms are also defined as required in this Recommendation.

#### 2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T Y.1714] Recommendation ITU-T Y.1714 (2009), *MPLS management and OAM framework*.
- [ITU-T Y.2011] Recommendation ITU-T Y.2011 (2004), *General principles and general reference model for Next Generation Networks*.
- [ITU-T Y.2012] Recommendation ITU-T Y.2012 (2006), *Functional requirements and architecture of the NGN release 1*.
- [ITU-T Y.3011] Recommendation ITU-T Y.3011 (2012), *Framework of network virtualization for future networks*.
- [ITU-T Y.3300] Recommendation ITU-T Y.3300 (2014), *Framework of software-defined networking*.
- [ITU-T Y.3321] Recommendation ITU-T Y.3321 (2015), *Requirements and capability framework for NICE implementation making use of software-defined networking technologies*.
- [ITU-T Y.4406] Recommendation ITU-T Y.4406/Y.2016 (2009), *Functional requirements and architecture of the NGN for applications and services using tag-based identification*.
- [ITU-R M.2083-0] Recommendation ITU-R M.2083-0 (2015), *IMT Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond*.

## 3 Definitions

### 3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

**3.1.1 control plane** [ITU-T Y.2011]: The set of functions that controls the operation of entities in the stratum or layer under consideration, plus the functions required to support this control.

**3.1.2 data plane** [ITU-T Y.2011]: The set of functions used to transfer data in the stratum or layer under consideration.

NOTE – In the ITU-T IMT-2020 related standard documents, "User plane" is used preferentially rather than "Data plane".

**3.1.3 functional architecture** [ITU-T Y.4406]: A set of functional entities used to describe the structure of an NGN. These functional entities are separated by reference points, and thus, they define the distribution of functions. The functional entities can be used to describe a set of reference configurations. These reference configurations identify which reference points are visible at the boundaries of equipment implementations and between administrative domains.

**3.1.4 logical resource** [ITU-T Y.3011]: An independently manageable partition of a physical resource, which inherits the same characteristics as the physical resource and whose capability is bound to the capability of the physical resource.

NOTE – "independently" means mutual exclusiveness among multiple partitions at the same level.

**3.1.5 management plane** [ITU-T Y.2011]: The set of functions used to manage entities in the stratum or layer under consideration, plus the functions required to support this management.

**3.1.6 network virtualization** [ITU-T Y.3011]: A technology that enables the creation of logically isolated network partitions over shared physical networks so that heterogeneous collection of multiple virtual networks can simultaneously coexist over the shared networks. This includes the aggregation of multiple resources in a provider and appearing as a single resource.

**3.1.7 software-defined networking** [ITU-T Y.3300]: A set of techniques that enables to directly program, orchestrate, control and manage network resources, which facilitates the design, delivery and operation of network services in a dynamic and scalable manner.

**3.1.8 user plane** [ITU-T Y.1714]: Refers to the set of traffic forwarding components through which traffic flows.

NOTE – "User plane" is referred to as "transport plane" in other ITU-T Recommendations.

**3.1.9 virtual resource** [ITU-T Y.3011]: An abstraction of physical or logical resource, which may have different characteristics from the physical or logical resource and whose capability may be not bound to the capability of the physical or logical resource.

**3.1.10 virtualized network function** [ITU-T Y.3321]: A network function whose functional software is decoupled from hardware, and runs on virtual machine(s).

### 3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

**3.2.1 backhaul**: A network path between base station systems and a core network.

**3.2.2 evolved IMT-advanced RAT**: The enhanced version of IMT-advanced radio access technologies (RAT).

NOTE – IMT-advanced is the ITU's official terminology for so-called LTE-advanced.



**3.2.3 fixed mobile convergence:** In the context of IMT-2020, the capabilities that provide services and applications to end users regardless of the fixed or mobile access technologies being used and independently of the users' location.

**3.2.4 fronthaul:** A network path between centralized radio controllers and remote radio units of a base station function.

**3.2.5 functional entity:** (Based on the definition given in [ITU-T Y.2012]) An entity that comprises an indivisible set of specific capabilities. Functional entities are logical concepts, while groupings of functional entities are used to describe practical, physical implementations.

**3.2.6 IMT-2020:** (Based on [ITU-R M.2083-0]) Systems, system components, and related technologies aspects that ~~support to~~ provide far more enhanced capabilities than those described in [b-ITU-R M.1645].

NOTE – [b-ITU-R M.1645] defines the framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000 for the radio access network.

**3.2.7 management:** In the context of IMT-2020, the processes aiming at fulfilment, assurance, and billing of services, network functions, and resources in both physical and virtual infrastructure including compute, storage, and network resources.

**3.2.8 network function:** In the context of IMT-2020, a processing function in a network.

NOTE 1 – Network functions include but are not limited to network node functionalities, e.g., session management, mobility management and transport functions, whose functional behaviour and interfaces are defined.

NOTE 2 – Network functions can be implemented on a dedicated hardware or as virtualized software functions.

NOTE 3 – Network functions are not regarded as resources, but rather any network functions can be instantiated using the resources.

**3.2.9 network slice:** A logical network that provides specific network capabilities and network characteristics.

NOTE 1 – Network slices enable the creation of customized networks to provide flexible solutions for different market scenarios which have diverse requirements, with respect to functionalities, performance and resource allocation.

NOTE 2 – A network slice may have the ability to expose its capabilities.

NOTE 3 – The behaviour of a network slice is realized via network slice instance(s).

**3.2.10 network slice blueprint:** A complete description of the structure, configuration and work flows on how to create and control a network slice instance during its life cycle.

NOTE – A network slice template can be used synonymously with a network slice blueprint.

**3.2.11 network slice instance:** An instance of network slice, which is created based on a network slice blueprint.

NOTE 1 – A network slice instance is composed of a set of managed run-time network functions, and physical/logical/virtual resources to run these network functions, forming a complete instantiated logical network to meet certain network characteristics required by the service instance(s).

NOTE 2 – A network slice instance may also be shared across multiple service instances provided by the network operator. A network slice instance may be composed of none, one or more sub-network slice instances which may be shared with another network slice instance.

**3.2.12 network softwarization:** An overall approach for designing, implementing, deploying, managing and maintaining network equipment and/or network components by software programming.

NOTE – Network softwarization exploits the nature of software such as flexibility and rapidity all along the lifecycle of network equipment and/or components, for the sake of creating conditions that enable the re-design

of network and services architectures, the optimization of costs and processes, self-management and bring added values in network infrastructures.

**3.2.13 orchestration:** In the context of IMT-2020, the processes aiming at the automated arrangement, coordination, instantiation and use of network functions and resources for both physical and virtual infrastructures by optimization criteria.

**3.2.14 orchestrator:** In the context of IMT-2020, an entity that fulfils orchestration functions.

**3.2.15 PDU session:** In the context of IMT-2020, an association between a user equipment (UE) and a data network that provides a protocol data unit (PDU) connectivity service.

NOTE – The type of the association includes IP type, non-IP type and Ethernet type.

**3.2.16 physical resource:** A physical asset for computation, storage and/or networking.

NOTE – Components, systems and equipment can be regarded as physical resources.

**3.2.17 service instance:** An instance of a service that is realized within a network slice.

NOTE 1 – A service may be represented by one or more service instances.

NOTE 2 – A service instance may be provided by the network slice operator or a third party.

**3.2.18 third party (3rd party):** In the context of IMT-2020, with respect to a given network operator and network end-users, an entity which consumes network capabilities and/or provides applications and/or services.

NOTE 1 – An example of 3rd party, a virtual network operator (VNO) may use capabilities exposed by a network operator, e.g., to manage specific network slices. Another example of 3rd party, a service and/or application provider (e.g., an over the top (OTT) player) may provide applications and/or services to enhance the network capabilities.

NOTE 2 – Network end-users are not regarded as 3rd parties.

## **4 Abbreviations and acronyms**

This Recommendation uses the following abbreviations and acronyms:

IMT	International Mobile Telecommunications
NGN	Next Generation Network
PDU	Protocol Data Unit
OTT	Over The Top
RAT	Radio Access Technologies
UE	User Equipment
VNO	Virtual Network Operator

## **5 Conventions**

None.

## Bibliography

- [b-ITU-R M.1645] Recommendation ITU-R M.1645 (2003), *Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000*.
- [b-FG IMT2020-Gap] ITU-T TD 208 (PLEN/13) (2015), *Report on Standards Gap Analysis*.  
<http://www.itu.int/en/ITU-T/focusgroups/imt-2020/Pages/default.aspx>





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