

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Y.2012

Amendment 1
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SERIES Y: GLOBAL INFORMATION
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS
AND NEXT-GENERATION NETWORKS

Next Generation Networks – Frameworks and functional
architecture models

Functional requirements and architecture of the
NGN release 1

**Amendment 1: Instantiation of NGN reference
points**

Recommendation ITU-T Y.2012 (2006) – Amendment 1

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Recommendation ITU-T Y.2012

Functional requirements and architecture of the NGN release 1

Amendment 1

Instantiation of NGN reference points

Summary

Amendment 1 to Recommendation ITU-T Y.2012 (2006) clarifies the high-level conceptual view of the NGN architecture through an instantiation of NGN reference points.

Source

Amendment 1 to Recommendation ITU-T Y.2012 (2006) was agreed on 25 January 2008 by ITU-T Study Group 13 (2005-2008).

FOREWORD

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Functional requirements and architecture of the NGN release 1

Amendment 1

Instantiation of NGN reference points

Insert the following text at the end of clause 7:

NOTE 6 – Since Figure 1 is drawn from a high-level conceptual point of view, instantiation of the NGN reference points is useful to clarify the specific role of the NGN reference points in terms of service offering and the physical implementation entailed. An instantiation of NGN reference points is given in Appendix III.

Add a new Appendix III, as follows:

Appendix III

Instantiation of NGN reference points

III.1 Introduction

Figure 1 shows an overview of the NGN functional architecture that allows the support of NGN services. Since Figure 1 is drawn from a high-level conceptual point of view, instantiation of the NGN reference points is useful to clarify the specific role of the NGN reference points in terms of service offering and the physical implementation entailed. Figure III.1 below describes the instantiation of NGN reference points, which are derived from the high-level overview in Figure 1.

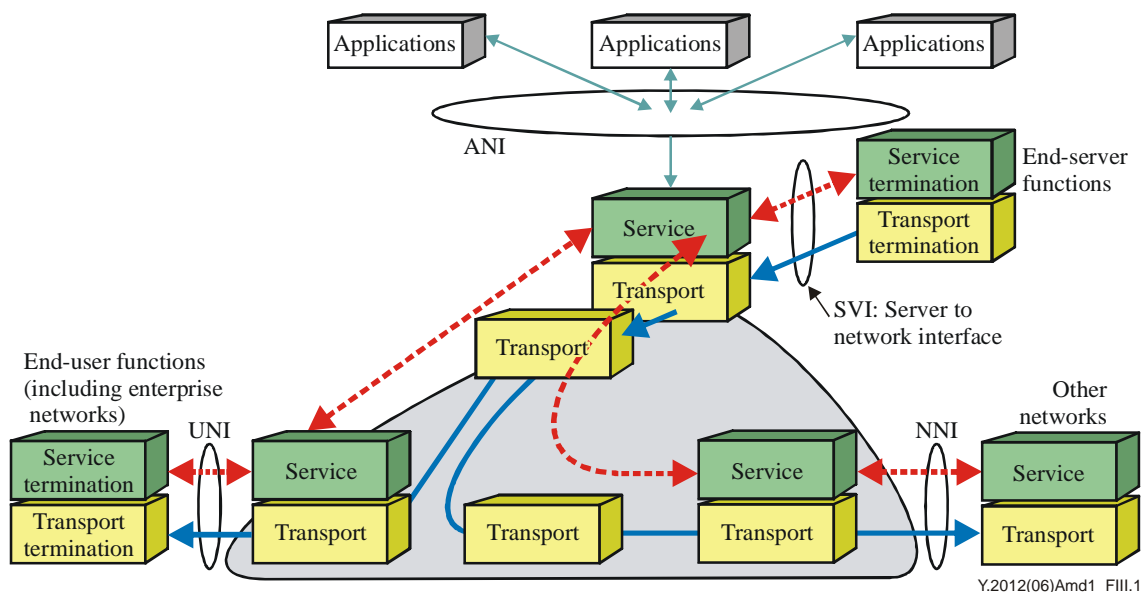


Figure III.1 – Instantiation of NGN reference points

III.2 Scope

The purpose of this appendix is to help understanding of the three interfaces in Figure 1, in particular, the application network interface (ANI) regarding media exchange.

This appendix also introduces the new interface, the server-network interface (SVI), which appears as an instantiation of NGN reference points. This instantiation is effective only when a service partner, which is modelled as end-server functions, is classified separately from ordinary customers, which are modelled as end-user functions. The SVI does not preclude any use of UNI, NNI and ANI, when such classification is not considered.

In this appendix, UNI is assumed to support enterprise customers as well, which requires aggregation of multiple end-users. Further instantiation of UNI dedicated for enterprise customers is under study.

III.3 Rationale to consider SVI

In comparison to an ordinary customer, the following requirements are identified to support service partners. The service partners will be content providers, data information providers and application service providers.

- Larger capacity than ordinary customers in terms of transport and signalling resources such as physical transmission capacity, maximum number of simultaneous sessions, and maximum session establishment/release rate.
- Media flow injection that should be multicast in the network; this injection allows a connected entity to play the role of a multicasting source (root) in addition to an ordinary sink (leaf) role.
- Customized policy different from that for ordinary customers; this includes the level of trust which is derived from different physical configurations (hosting, connection with dedicated and secured lines, and so on).
- Unrestricted server role in terms of client/server model; for instance, SIP is modelled by the client/server model. An ordinary customer does not need or must not play the role of a server for specific functions such as registrar and presence server, whereas a server residing in a service partner should be allowed to do so.

To meet these requirements, the SVI is introduced in this appendix.

III.4 Rationale to clarify ANI

Since Figure 1 shows no media flow across the ANI, the ANI may be interpreted as a control-level interaction without media interactions such as voice and video. To clarify this point, one particular instantiation is given in this appendix.

III.5 Instantiation of NGN reference points

Figure III.1 shows the instantiation of NGN reference points. In this figure, "termination" is labelled at end-user functions and special end-user functions called end-server functions. This is to highlight the specific nature of these functions, which is the absolute source or sink of the media stream.

The NGN supports a reference point to the end-user functions called the user-to-network interface (UNI), which provides a channel for interactions and exchanges between end-user functions and NGN elements.

In this instantiation, UNI is assumed to support enterprise customers as well, which requires aggregation of multiple end-users. Further instantiation of UNI dedicated for enterprise customers is under study.

The NGN supports another reference point to other networks called the network-to-network interface (NNI), which provides a channel for interactions and exchanges between the NGN and other networks.

In addition to UNI and NNI, the NGN can support a third reference point to the end-server functions called the server-to-network interface (SVI), which provides a channel for transport-level media exchange and service-level signalling interaction between the connected entity and NGN elements. The end-server functions include a content-generating function, which is an ultimate source or sink of multimedia content, such as a server device that acts as a content source, data storage, or application. The explicit identification of the SVI and connected end-server functions is useful, when it is focused on the support of server-type end-system holders.

This is a realization of a service provider access interface (SPAI), which is specified in [b-ITU-T Y.140]. In particular, the SVI corresponds to the SPAI for class 2 service providers and brokers.

The SVI has the following characteristics at least:

- It allows the connected entities to exchange media flows.
- It allows the connected entities to exchange signalling flows at the service control level.
- It accommodates content source as a connected entity, which expects the network to multicast the injected media flow.
- It allows flexible and customizable configurations and policy rules to meet a wide range of end-server requirements in terms of resource capacity, signalling profile and operational rules, including security.
- It allows the connected entities to play full server roles in a client/server model, in particular in signalling interaction.

The main body of this Recommendation defines the application network interface (ANI) as follows:

"Application network interface: Interface which provides a channel for interactions and exchanges between applications and NGN elements. The ANI offers capabilities and resources needed for the realization of applications".

Since Figure 1 shows no media flow across the ANI, the ANI may be interpreted as a control-level interaction without media interactions such as voice and video. The ANI should be interpreted as a point of vertical interactions between different layers, which allows media injection. On the other hand, UNI, NNI and SVI are a point of horizontal interactions between different entities consisting of a couple of layers. When a media flow is provided in conjunction with ANI interactions, UNI, NNI or SVI should be used to show such interactions.

The way to implement the SVI at the detailed functional entity level needs further study.

Add the following item to the Bibliography:

[b-ITU-T Y.140] Recommendation ITU-T Y.140 (2000), *Global Information Infrastructure (GII): Reference points for interconnection framework*.

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