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SERIES Q: SWITCHING AND SIGNALLING

**Technical Report TRQ.2800: Transport control
signalling requirements – Signalling
requirements for AAL type 2 to IP interworking
Capability Set 1**

ITU-T Q-series Recommendations – Supplement 44

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Supplement 44 to ITU-T Q-series Recommendations

Technical Report TRQ.2800: Transport control signalling requirements – Signalling requirements for AAL type 2 to IP interworking Capability Set 1

Summary

This Supplement to the Q-series Recommendations contains a Technical Report that specifies the general aspects of AAL type 2 to IP interworking signalling requirements for the development of AAL type 2 to IP signalling interworking Capability Set 1 (CS-1).

This Supplement identifies what can be viewed as the capabilities for AAL type 2 to IP signalling interworking.

Source

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FOREWORD

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Supplement 44 to ITU-T Q-series Recommendations

Technical Report TRQ.2800: Transport control signalling requirements – Signalling requirements for AAL type 2 to IP interworking Capability Set 1

1 Scope

This Supplement contains the signalling requirements for the AAL type 2 to IP interworking for the Capability Set 1 (CS-1). These requirements support the establishment, maintenance, modification, and clearing of concatenations of AAL type 2 links with an IP connections in a mixed AAL type 2 and IP environment. It is applicable to closed and controlled IP networks that are connected to AAL type 2 networks. The scope of this Supplement is limited to the requirements of signalling to support the shaded area of Figure 1.

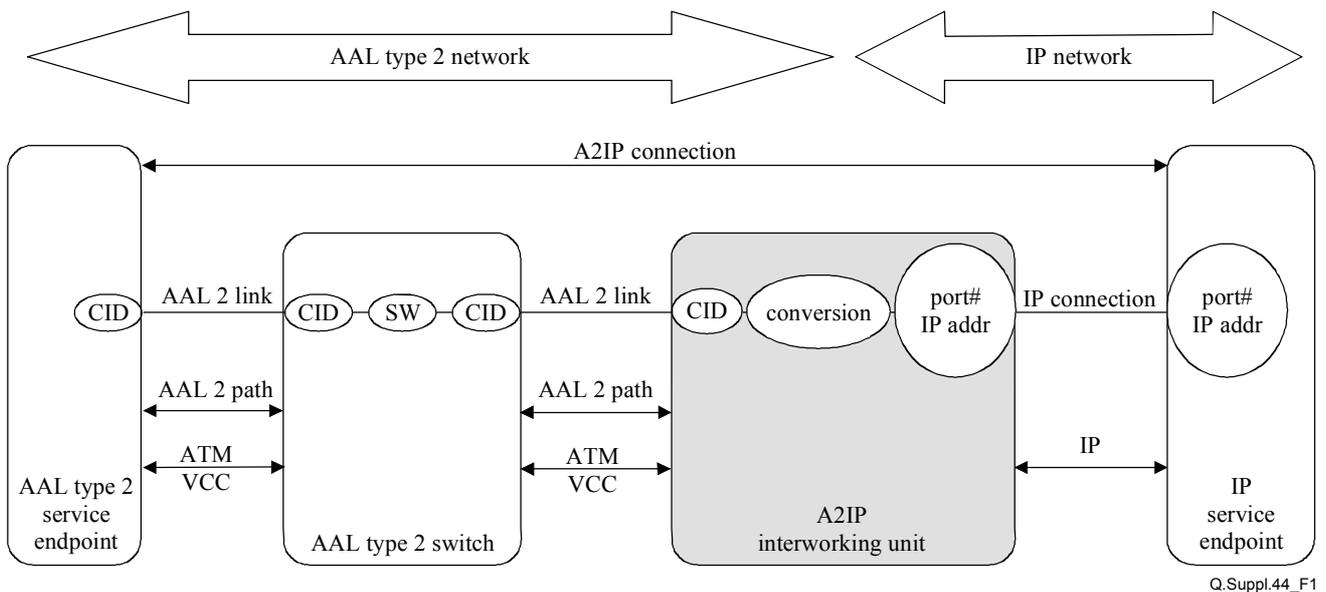


Figure 1 – Scope and definition of terms used in AAL type 2 to IP signalling interworking

2 References

- [1] ITU-T Q-series Recommendations – Supplement 33 (2000), *Technical Report TRQ.2401: Transport control signalling requirements – Signalling requirements for AAL type 2 link control capability set 2*.
- [2] ITU-T Recommendation I.366.1 (1998), *Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL type 2*.
- [3] ITU-T Recommendation I.366.2 (2000), *AAL type 2 service specific convergence sublayer for narrow-band services*.
- [4] ITU-T Recommendation X.200 (1994), *Information technology – Open Systems Interconnection – Basic reference model: The basic model*.
- [5] ITU-T Recommendation X.210 (1993) | ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic reference model: Conventions for the definition of OSI services*.

- [6] ITU-T Recommendation X.213 (2001) | ISO/IEC 8348:2002, *Information technology – Open Systems Interconnection – Network service definition.*
- [7] ITU-T Recommendation E.164 (1997), *The international public telecommunication numbering plan.*
- [8] IETF RFC 3550 (2003), *RTP: A Transport Protocol for Real-Time Applications.*
- [9] IETF RFC 768 (1980), *User Datagram Protocol.*
- [10] ITU-T Recommendation Q.2630.1 (1999) *AAL type 2 signalling protocol – Capability Set 1.*
- [11] ITU-T Recommendation Q.2630.2 (2000) *AAL type 2 signalling protocol – Capability Set 2.*
- [12] ITU-T Q-series Recommendations – Supplement 43 (2003), *Technical Report TRQ.2415 – Transport control signalling requirements – Signalling Requirements for IP connection control in radio access networks Capability Set 1.*
- [13] ITU-T Recommendation I.366.2 (2000), *AAL type 2 service specific convergence sublayer for narrow-band services.*

3 Definitions

This Supplement is based upon the concepts developed in ITU-T Recs X.200 [4] and X.210 [5]

In addition to definitions given in TRQ.2415 [12] and TRQ.2401 [1], this Supplement defines the following terms:

3.1 A2IP interworking unit: The A2IP interworking unit provides the user plane conversion between AAL type 2 and IP transport (RTP [8] on UDP [9] or UDP [9] only). The interworking unit terminates AAL type 2 links and IP connections. There is no served user associated with an A2IP interworking unit.

3.2 A2IP connection: The logical concatenation of one or more AAL type 2 links and an IP connection between an AAL type 2 service endpoint and an IP service endpoint. From the perspective of a Capability Set 1 (CS-1) [10] and Capability Set 2 (CS-2) [11] AAL type 2 service endpoint, an A2IP connection cannot be distinguished from an AAL type 2 connection.

3.3 A2IP signalling interworking function: The A2IP signalling interworking function resides in an A2IP interworking unit and provides the interworking between the AAL type 2 signalling protocol and the IP connection control protocol.

4 Abbreviations

This Supplement uses the following abbreviations:

A2IP	AAL type 2 – IP
AAL	ATM Adaptation Layer
AAL 2	ATM Adaptation Layer type 2
ATM	Asynchronous Transfer Mode
CS-1	Capability Set 1
CS-2	Capability Set 2
IP	Internet Protocol
IWU	Interworking Unit

QoS	Quality of Service
RTP	Real-time Protocol
SSADT	Service Specific Assured Data Transfer sublayer
SSSAR	Service Specific Segmentation and Reassembly sublayer
SSTED	Service Specific Transmission Error Detection sublayer
UDP	User Datagram Protocol

5 Requirements

The AAL type 2 to IP signalling interworking requirements for capability set 1 (CS-1) are provided in this clause.

5.1 General

The A2IP signalling interworking function shall terminate the AAL type 2 signalling and the IP connection control signalling. The signalling shall interwork without direct interactions with either an AAL type 2 served user or an IP served user. The A2IP signalling interworking function shall provide signalling support for the user plane conversion between AAL type 2 and IP transport.

5.2 Addressing

The A2IP signalling interworking function shall provide the mapping of the Destination Service Endpoint Address. Values may be passed through unchanged or with format conversion (E.164 [7] to X.213 [6] and vice versa) or derived by address translation from the received destination service endpoint address.

5.3 Mapping of AAL type 2 link characteristics to IP connection characteristics

The A2IP signalling interworking function shall provide the mapping of IP connection characteristics parameters and AAL type 2 link characteristics parameters.

5.4 Control of AAL type 2 to IP connection conversion

The signalling support for the user plane conversion between AAL type 2 and IP transport shall take into account any signalling parameters relevant to the user plane conversion, e.g. there may need to be some form of segmentation/re-assembly function.

5.5 Served user information

The A2IP signalling interworking function shall transparently convey information that is only of relevance to served users like:

- a) Served user transport information;
- b) Served user generated reference information;

i.e. without changes in content or format and without examination.

5.6 Support of AAL type 2 service specific convergence sublayers

Support of I.366.2 [3], [13] is beyond the scope of this Supplement.

Support of I.366.1 [2] Service Specific Transmission Error Detection sublayer (SSTED) and Service Specific Assured Data Transfer sublayer (SSADT) is beyond the scope of this Supplement.

I.366.1 [2] Service Specific Segmentation and Reassembly sublayer (SSSAR) shall be supported by the A2IP signalling interworking function.

5.7 Connection resource modification

The A2IP signalling interworking function shall support the interworking of connection resource modifications initiated by either served user associated with an A2IP connection.

5.8 QoS

The A2IP signalling interworking function shall provide the mapping of IP QoS parameters and ATM / AAL type 2 QoS parameters.

5.9 Signalling protocols

The signalling protocol in the AAL type 2 network shall be Q.2630.2 [11].

The signalling protocol controlling the IP connection shall be a protocol based on the requirements in TRQ.2415 [12].

5.10 Delay and efficiency requirements

Operation of the A2IP signalling interworking function must be as efficient as possible to support applications where terminal handovers are required. The following items shall be taken into consideration to optimize performance:

- processing and conversion of AAL 2 to IP (and vice versa) messages (i.e. minimal delay);
- external interaction should be kept to a minimum.

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