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Technical Specification

Broadband Radio Access Networks (BRAN); HIPERACCESS; Packet based Convergence Layer; Part 1: Common Part



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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This Technical Specification (TS) has been produced by ETSI Project Broadband Radio Access Networks (BRAN).

It defines the functionality required for the support of packet services over HIPERACCESS [2]. Separate ETSI documents provide details on the system overview, data link control layer, radio link control sublayer, other convergence sublayers and conformance testing requirements for HIPERACCESS.

The Packet based Convergence Layer is split into two parts, a Common Part and a Service Specific Part. The Common Part describes the functionality for adapting variable length packets/frames to the fixed size data units used at the Data Link Control (DLC) layer [1] while the Service Specific Part describes the functionality required to support a certain protocol, e.g. Ethernet or IP. It is envisioned that several, independent, Service Specific Convergence Sublayers (SSCS) will be defined in the future as market requirements develop. The SSCSs all use the services of the Common Part and the DLC.

The present document is part 1 of a multi-part deliverable covering the Packet based Convergence Layer, as identified below:

Part 1: "Common Part";

Part 2: "Ethernet Service Specific Convergence Sublayer".

Further SSCSs may be added in the future.

1 Scope

The present document is applicable to HIPERACCESS equipment supporting packet services, such as Ethernet, IEEE 1394 [4] or IP.

The present document does only address the functionality required to transfer variable length packets/frames over the radio interface between an HIPERACCESS Access Point and Access Terminal. It does not address the requirements and technical characteristics for wired network interfaces at the Access Point and at the Access Terminal.

The Packet based Convergence Layer stack consists of a Common Part, defined in this document, and Service Specific Parts that are defined in separate documents. The Service Specific Convergence Sublayers all use the services provided by the Common Part and the HIPERACCESS Data Link Control (DLC) layer [1].

The task of the Common Part of the Packet based Convergence Layer is to adapt variable length packets/frames to the fixed data unit size used in the HIPERACCESS DLC layer [1].

The present document does not address the requirements and technical characteristics for conformance testing. These are covered by separate documents.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

- [1] ETSI TS 102 000: "Broadband Radio Access Networks (BRAN); HIPERACCESS; DLC protocol specification".
- [2] ETSI TR 101 177: "Broadband Radio Access Networks (BRAN); Requirements and architectures for broadband fixed radio access networks (HIPERACCESS)".
- [3] ETSI TS 102 115-1: "Broadband Radio Access Networks (BRAN); HIPERACCESS; Cell Based Convergence Layer; Part 1: Common part".
- [4] IEEE 1394 (1995): "IEEE Standard for a High Performance Serial Bus".
- [5] ITU-T Recommendation I.363.5: "B-ISDN ATM Adaptation Layer specification: type 5 AAL".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

Protocol Data Unit (PDU): data unit exchanged between entities at the same ISO layer

Service Data Unit (SDU): data unit exchanged between adjacent ISO layers

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AAL	ATM Adaptation Layer
AP	Access Point
ATM	Asynchronous Transfer Mode
CL	Convergence Layer
CPCS	Common Part Convergence Sublayer
DLC	Data Link Control
ETSI	European Telecommunications Standards Institute
HA	HIPERACCESS
IP	Internet Protocol
PDU	Protocol Data Unit
RLC	Radio Link Control
SDU	Service Data Unit
SSCS	Service Specific Convergence Sublayer

4 Convergence Layer architecture

4.1 General

The Packet Based Convergence Layer (CL) resides on top of the Data Link Control (DLC) layer. The task of this Convergence Layer is to adapt the service requirements of Packet Based applications to the services offered by the HIPERACCESS DLC layer.

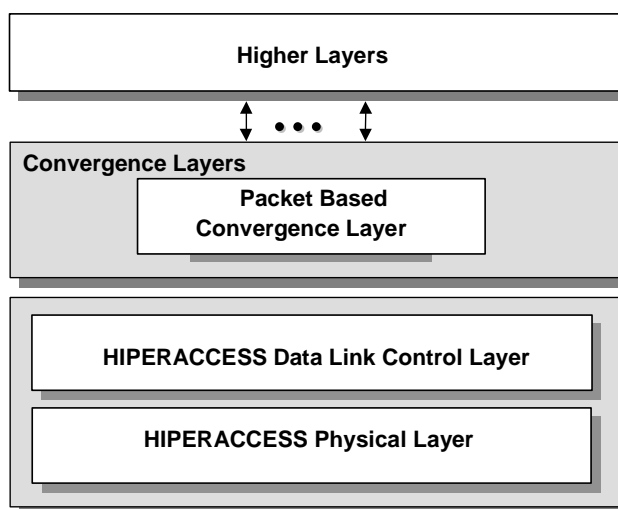


Figure 4.1: HIPERACCESS Convergence Layers

4.2 Packet based Convergence Layer architecture

Figure 4.2 shows the protocol stack for handling packet-based applications within HIPERACCESS.

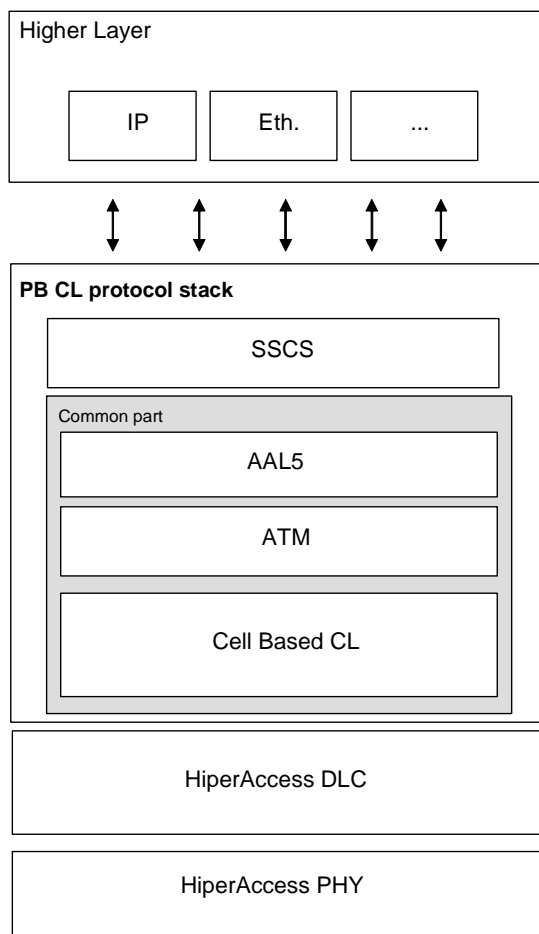


Figure 4.2: Packet based CL protocol stack

The Packet Based Convergence Layer adapts packet based application data to HIPERACCESS DLC relying on the Cell Based Convergence Layer.

The ATM Adaptation Layer type 5 [5] has the task to adapt the variable length frames to the Cell Based ATM structure. Once an ATM cell is constructed, it is passed through the HA Cell Based CL as described in [3].

History

Document history		
V1.1.1	September 2002	Publication