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Foreword

This Technical Committee Reference Technical Report (TCR-TR) has been prepared by the Business Telecommunications (BTC) Technical Committee of the European Telecommunications Standards Institute (ETSI).

A TCR-TR is a deliverable for use inside ETSI which records output results of ETSI Technical Committees (TC) or Sub-technical Committees (STC) studies which are not appropriate for European Telecommunication Standards (ETS), Interim European Telecommunication Standards (I-ETS), or ETSI Technical Report (ETR) status. They can be used for guidelines, status reports, co-ordination documents etc.. They shall also be utilized by the TC with overall responsibility for a study area for co-ordination documents (e.g. models, reference diagrams, principles, structures of standards, framework and guideline documents) which constitute the agreed basis for several, if not all, TCs and STCs to pursue detailed standards.

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1 Scope

This Technical Committee Reference Technical Report (TCR-TR) defines the work areas and contents of the standardization work programme for Corporate Networks (CNs). The aim is to manage and co-ordinate the European standardization process spread over various technical bodies (TCs, STCs) inside ETSI and outside ETSI (ECMA).

2 References

For the purposes of this TCR-TR, the following references apply:

[1] Bons de Commande BC-IT 74 ... 77

[2] ITAEG-T M-IT-05

[3] SRC5 Report

[4] VPN Task Group Report (DTR/BTC-005)

[5] ETS 300 415 (1994): “Private Telecommunication Network (PTN); Terms and definitions”.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this TCR-TR, the following definitions apply:

Corporate telecommunication Network (CN): Sets of equipment (Customer Premises Equipment (CPE) and/or Customer Premises Networks (CPN)) which are located at geographically dispersed locations and are interconnected to provide networking services to a defined group of users (based on SRC5 Report [3]).

NOTE 1: Since there are two managed projects in ETSI, i.e. Cordless Terminal Mobility (CTM) and Corporate Telecommunication Network (CTN), whose acronyms are difficult to distinguish in audible conversation and thus are likely to be confused, it has been decided to replace the acronym CTN by **CN** (**C**orporate telecommunication **N**etwork).

NOTE 2: According to ETS 300 415 [5] telecommunication facilities of a “defined group” or a “predetermined set of users” are called “private” telecommunication facilities. Since private telecommunication typically applies to corporations, private telecommunication standards are considered a subset of the corporate telecommunication network standards area.

Virtual Private Network (VPN): That part of a CN that uses shared switched network infrastructures provided by one or more third parties (see ETS 300 415 [5]).

Private Telecommunication Network eXchange (PTNX): A nodal entity in a private telecommunication network that provides automatic switching and call handling functions used for the provision of telecommunication services. The nodal entity can be implemented by one or more pieces of equipment located on the premises of the private network administrator or by equipment co-located with, or physically part of, a public network (see ETS 300 415 [5]).

Integrated Services Private Branch eXchange (ISPBX): The implementation of a PTNX offering Integrated Services Digital Network (ISDN)-like capabilities, separate from public network equipment (see ETS 300 415 [5]).

Integrated Services CenTralized eXchange (IS-CENTREX, ISCTX): The implementation of a PTNX offering ISDN-like capabilities, as part of public network equipment (see ETS 300 415 [5]).

3.2 Abbreviations

For the purposes of this TCR-TR, the following abbreviations apply:

CN	Corporate telecommunication Network
CTM	Cordless Terminal Mobility
INMS	Integrated Network Management System
ISCTX	Integrated Services CenTralized eXchange
ISPBX	Integrated Services Private Branch eXchange
ITAEG-T	Information Technology Advisory and Experts Group on Telecommunications
IVN	Inter-Vening Network
JEEC	Joint ECMA/ETSI Committee
LAN	Local Area Network
MAN	Metropolitan Area Network
PDH	Plesiochronous Digital Hierarchy
PTNX	Private Telecommunication Network eXchange
SDH	Synchronous Digital Hierarchy
SRC	Strategic Review Committee
TMN	Telecommunication Management Network
VPN	Virtual Private Network
WAN	Wide Area Network

4 Title of the project

The project is titled: “Corporate telecommunication networks standardization”.

5 Proposer and sponsor

The Strategic Review Committee on Corporate Telecommunication Networks (SRC5) has stated that the ETSI work programme as relevant for this area needs to be harmonized and properly co-ordinated across various experts groups being involved within ETSI and ECMA. Consistently, SRC5 recommended that the ETSI work programme on corporate telecommunication networks be managed as an ETSI project under the responsibility of TC BTC.

ETSI TA18 has approved this recommendation and assigned the task of managing corporate telecommunication network activities within ETSI to TC BTC, and to carry out this as an ETSI Project following the concept of ETSI project management.

Within BTC this task is carried out by a project management consisting of a project manager and a project support team, mainly recruited from STC BTC1, see respective terms of reference in annex A.

6 Content of the CN project

The CN Project covers the standardization activities related to corporate telecommunication networks. This standardization area has been investigated by a SRC5 in 1992 and 1993 to help ETSI in building its work programme on CN.

SRC5 identifies six major topics as being of highest current interest to CN users:

- enhanced voice;
- Virtual Private Networks (VPNs);
- mobility;
- High-Speed/Local Area Network (LAN);
- multi-media;
- CN management.

Beside these major topics, also inherited work items of ITAEG-T M-IT-05 [2] are considered part of the CN project. There is some overlap between the work programme of ITAEG-T M-IT-05 [2] and the standardization topics of SRC5 Report [3] anyhow. The CN project thus covers also:

- CN scenarios;
- CN performance.

The major topics have been made subprojects, with the exception of MULTI-MEDIA, which has become an ETSI project of its own. No activities in this area are kept in the CN project.

On the other hand, “mobility” is part of the CN project, however, restricted to intra-CN related work items and to interworking related work items with public networks (CN MOBILITY). Other mobility topics are part of the CTM project.

For easier orientation, figure 1 shows an overview of a principal CN.

The figure represents the simplest form of a typical example, the attachment of a CN to the public ISDN, the use of a public ISDN equipment based VPN, and an Inter-Vening Network (IVN).

Although other solutions, e.g. a VPN based on dedicated data networks, are not depicted, the same principles apply.

The CN in this example consists of two Private Telecommunication Network eXchanges (PTNXs). Although in the trivial case a CN need to consist of one PTNX only, also more complex configurations can be constructed by applying the same principle in multiple ways.

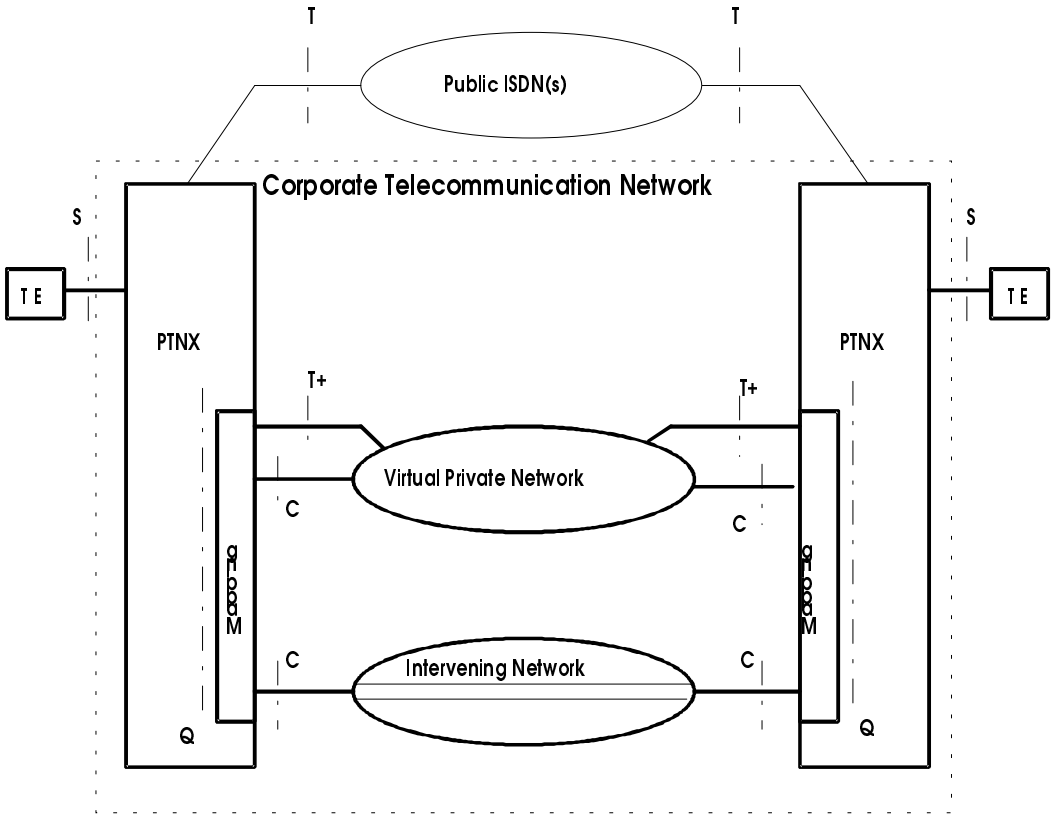

Figure 1: Overview of a principal CN (example)

The two PTNXs are interconnected via three different means:

- the public network (in this example: a public ISDN, via T reference points); this interconnection is external to the CN;
- a VPN, via T+ reference points and C reference points;
- an IVN, via C reference points.

The latter two are within the CN, although the switching and/or transmission equipment typically is owned by third parties, e.g. a public network operator.

The term PTNX is a generic term covering both, implementations on the customer premises (PBX) and in the public network (CENTREX) (see ETS 300 415 [5]). In the latter case no physical interfaces will be standardized at the T, T+ and C reference points.

The CN standardization activities cover all relevant specifications on the definitions of terminology, architectural aspects, numbering, services (descriptions at all three stages, including signalling), performance, etc..

6.1 Enhanced voice and non-voice services

For the ease of project management, also non-voice services have been included into this subproject.

Thus, this subproject encompasses work on:

- CN basic and supplementary services for the support of voice and non-voice applications;
- interworking of these services with those of the public network;
- interaction of these services with other services of the public and/or private network.

These aspects are to be taken account of in service descriptions, signalling requirements and signalling protocols as shown in table 1.

Table 1: Substructure of the enhanced voice subproject

Bon de Commande	Subject	Responsible STC
BC75 B	Signalling procedures (basic and suppl. services) at T-RP	ECMA TC32/TG14
BC75 C	Signalling procedures (basic and suppl. services) at Q-RP	ECMA TC32/TG14
BC75 D	Signalling procedures (basic and suppl. services) at S-RP	ECMA TC32/TG14

The chairman of ECMA TC32 acts as the contact person.

6.2 VPNs

The base for this subproject is the report of the VPN Task Group Report (DTR/BTC-005) [4], of which part A was approved by TA 20 as an ETR. The completion of its part B is still pending.

The assignment of work items to TCs NA and SPS has been provisionally drafted, see annex F.

The chairman of the VPN Task Group acts as the contact person.

6.3 CN mobility

CN mobility topics as applicable to intra-CN related work items and to interworking related work items with public networks are covered by the BTC1 terms of reference.

The chairman of the BTC1 subgroup on CN mobility acts as the contact person.

6.4 High-speed/LAN

This subproject addresses work specific to CN requirements and solutions for the support of High Speed and LAN based services. It covers:

- integrated services operating at bearer rates in excess of 64 kbit/s in both, customer premises limited scenarios (LAN) and Metropolitan Area Network (MAN)/ Wide Area Networks (WANs).
- architectural models characterizing the means of providing end-to-end services spanning LAN, intervening WAN and destination LAN segments;
- LAN specific components of the enhanced voice and non-voice subproject to provide a common signalling and management, peer-to-peer, UNI and NNI for various high speed and multi-media services;
- realization of these capabilities over current Plesiochronous Digital Hierarchy (PDH) and Synchronous Digital Hierarchy (SDH) based leased line bearers, including a migration plan for the use of B-ISDN bearer services as they become available;
- accommodation of established LAN specific numbering and addressing schemes, within the frame work defined by the CN scenarios subproject.

The chairman of BTC4 acts as the contact person.

6.5 CN management

This subproject encompasses work on CN specific requirements and solutions for network management. It covers:

- Integrated Network Management System (INMS) capable of managing the objects obeying to the Telecommunication Management Network (TMN) architecture as well as to the ISO network management architecture as well as to the Internet network management architecture; all three architectural models will exist and need to be catered for in CN related network management standards;
- multiple types of MIBs need to be employable in parallel ("protocol conversion" and "MIB adapter" are required);
- management protocols need to be developed on a peer-to-peer based management interworking principle;
- the description of managed objects for CN functional components as required for:

  - networking in End- and Transit-PTNXs, including those of VPNs;
  - the management of services in CNs.

This subproject applies to the management aspects of the CN which include, inter alia:

- PTNXs and their on-premises, active and passive line plant;
- intervening networks employed by that CN;
- interconnecting means (e.g. VPN capabilities of public network equipment which is dedicated to that CN).

At the moment the CN network management subproject is limited to the areas listed above. Some elaboration on these items will include:

- public ISDN equipment as part of CN in the form of an ISCTX and/or of virtual transit switching equipment:

  1) management of physical equipment;
  2) managing CN services;
  3) conflict of public and private management requirements (shared equipment);
  4) CNs which encompass multiple public ISDNs (e.g. international CN).

- IVN:

  1) balancing CN call management with public ISDN restrictions;
  2) role of dedicated transmission networks (e.g. SDH).

The chairman of ECMA TC32/TG12 acts as the contact person.

6.6 CN scenarios

This subproject encompasses work in the course of CEC Bons de Commande[1]. BC 74 A, B & C, BC 75 A and BC 76 A. In particular, it covers the following standardization fields:

- numbering and addressing;
- base definitions (e.g. reference configurations) for the specification of interworking between exchanges of a CN;
- methodologies for the description of CNs and their services;
- terminology;
- approaches for building CNs using public network infrastructure;
- signalling protocols for the establishment and maintenance of interworking scenarios.

In addition, the same standardization fields with regard to High Speed/LAN are included in this subproject.

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1 SOGITS Working Document Nr. 243.1, Brussels, 2.8.1988

The standardization fields require, as appropriate, the development of ETRs, TC-TRs, TCR-TRs and ETSs.

Table 2: Substructure of the CN scenarios subproject

Bon de Commande	Subject	Responsible STC
BC 74	Configurations, models, definitions	BTC1
A	Reference configurations This includes SRC5 Rec. VPN8 (single user's/small installation's access to VPN functionality)	BTC1
B	Architectural models for all practical scenarios	BTC1
C	Definition of terms This includes SRC5 Rec. VPN1 (Definition of "VPN")	BTC1
BC75 A	Signalling procedures and protocols for networking scenarios	ECMA TC32/TG14
	Functions required for networking scenarios	ECMA TC32/TG13
BC 76 A	Numbering, addressing, routeing	ECMA TC32/TG13

The chairman of STC BTC1 acts as the contact person.

6.7 CN performance

This standardization field is to a certain degree covered by “old” work items based on Bons de Commande BC-IT 74 ... 77 [1].

In particular, values need to be allocated to transmission and grade of service related network parameters in the VPN context, as part of the overall CN budget SRC5 Report [3].

Further details to be provided.

The chairman of STC BTC2 acts as the contact person.

7 Objectives

The objective of the project is to get, in the context of corporate telecommunication networks, a complete set of documents (European standards and technical reports) covering all aspects of inter-operability between multi-vendor elements such as ISPBXs, leased lines, public network capabilities such as VPN (including CENTREX), and interworking with relevant public networks services.

7.1 Phased approach

The CN project has been set up at a time when work based on a precursor project (i.e. ITAEG-T M IT-05 [2]) has already achieved an advanced status. Numerous documents under the classical headers “Private Telecommunication Networks (PTN)” and “Business Telecommunications” are already approved or at least in an advanced drafting state.

7.2 Review of existing work items (Milestone 0)

The CN project started with a bottom-up approach work, i.e. the collection of existing work items, irrespective of their status (i.e. whether they were already finalized or still in progress or even not yet started). This activity reflects Milestone 0 (status: finalized).

7.3 CN taxonomy (Milestone 1)

The next step was the top-down approach identification of necessary, not yet planned work items.

To ease this a loan was taken by the “old” information technology advisory and Experts Group on Telecommunications (ITAEG-T) planning tool which consisted of a taxonomy structured overview of standardization activities.

The CN taxonomy is structured in a decadic, in principle open-ended, classification of standardization subjects, see annex B. Each end-point of the “branches” or “twigs” can be split into subbranches or subtwigs if and when this becomes necessary. The taxonomy approach thus provides two advantages:

- logical order within a decadic structure;
- flexibility for enhancements (or reductions) at any time.

The CN taxonomy expands on those branches and twigs where high standardization activities are expected, and it refrains from splitting where no standardization activities are expected, at least not at this time. This latter applies, e.g., to a certain degree to the area of data communication. The reason for this is in the fact that a number of CN solutions are already on the market, based on the use of dedicated data networks.

Currently, the CN taxonomy contains some 400 twigs. Of these some 100 are “blind”, i.e. the corresponding subject does not indicate a distinct work item but a heading. As an example: “supplementary services” is a heading (main-twig), followed by some 20 work items (twigs) such as name identification, call diversion, etc..

The establishment of the CN Taxonomy reflects Milestone 1 (status: finalized, except for its maintenance).

7.4 Planning tool (Milestone 2)

The relatively high number (over 300) of expected work items requires a planning tool for their management. The CN Planning Tool consists of the CN Taxonomy plus additional information from the ETSI Database and some Project-specific information.

The CN Taxonomy has been cast into a database, with the twig and main-twig numbers (“clauses”) acting as a primary key. This guarantees that no two or more entries can be accommodated under the same twig number (should this become necessary, the twig would be split into the next lower decadic level).

The clauses are linked with the work items of the ETSI Database (ETSI DB). This linkage allows to import from the ETSI DB a large amount of relevant information such as title (if the subject has already materialized in a ETSI document), status, target dates, responsible TC/STC, etc..

CN project-specific information consists of entries such as project status and target dates required from the project. For easier handling the planning tool has been structured according to the ECMA/ETSI infrastructure (structure of ETSI/ECMA committees).

NOTE: In so far the planning tool is also relevant to Joint ECMA/ETSI Committee (JEEC).

The planning tool has been discussed with the most affected TCs, i.e. BTC and its STCs, and ECMA TC32 and its Task Groups.

The flexibility of the CN planning tool allows the production of information filtered, selected and sorted under various aspects as needed for:

- status lists;
- list of work items to be created, or to be stopped (if obsolete);
- list of work items according to target dates;
- etc..

The establishment of the CN planning tool reflects Milestone 2 (status: finalized, except for the updates of its entries).

7.5 VPN (Milestones 3, 4 and 5)

For this subproject no activities have been started, except for some preparatorial work within BTC1 (DTR/BTC-01001) and related liaisons with other STCs, e.g. NA6. The base document for clarification in the whole area is the VPN Task Group report (DTR/BTC-0005) which has been TA-approved only in October 1994 (TA20).

Although the revised version of the VPN Task Group report (then to become a TCR-TR) is only scheduled for the end of 1995, standardization activities need urgently be derived from the current ETR.

Milestone 3 corresponds to the initialization of activities to be performed by TC SPS, and Milestone 4 to those of TC NA.

Milestone 5 is the revised version of the VPN Task Group report which is due in the end of 1995.

Further project activities consist of monitoring the work in the STCs of both TCs. These will be defined later.

7.6 Further milestones

Further milestones will cover the remaining subprojects, e.g. CN-MOBILITY, ENHANCED VOICE, etc.. Initialization and monitoring related milestones will be provided in the course of ongoing maintenance of this TCR-TR.

8 Justification

There is a strong market need for meeting requirements of corporations, end-users, CN managers, service providers (typically public network operators) and equipment suppliers, under their individual perspectives, for corporate telecommunication networks. In the modern economy world the globalization of corporative activities becomes more and more important. This is not only restricted to Europe, but is of world-wide significance.

Standardization in the CN field needs to ensure inter-connectivity and inter-operability between all CN elements and externally provided ("out-sourced") services, thereby taking account of international multi-vendorship in an international competitive environment.

9 Time schedule

The planned time to reach the a satisfactory completion of the standardization process based on the current requirements SRC5 Report [3] is 3 years for the development of a first set of ETSs.

NOTE: However due to the need for world-wide CNs requiring world-wide inter-connectivity and inter-operability, international standards (ISO/IEC JTC1 and ITU-T) are the ultimate target. This may result in additional time at the end of which European standards will have to be aligned with the outcome of the international standardization areas.

The detailed schedule for milestones is:

- Milestone 0: June 1994;
- Milestone 1: August 1994;
- Milestone 2: January 1995;
- Milestone 3: April 1995;
- Milestone 4: July 1995;
- Milestone 5 end 1995;
- further milestones to be defined.

10 Global context

Work related to CN standardization is also going on in organizations outside Europe, e.g. in ITU-T and in ISO/IEC JTC1. An overview of the most important subjects will be provided in the course of maintaining the TCR/TR.

11 Resource requirements

The following committees are considered to be involved in the European environment (ETSI and ECMA):

Table 3

TC	STC
BTC	BTC1, BTC2, BTC4
NA	NA1, NA2, NA6, ECTM, STAG
SPS	SPS1, SPS3, SPS5
TM	TM2
ECMA TC32	TG12, TG13, TG14

Annex A: Terms of reference for CN project management (provisional)

The CN project manager is empowered to further investigate the feasibility and the priorities of the following:

- to manage and co-ordinate the standardization process for Corporate telecommunication Networks in close co-operation with the TC BTC Chairman;

- to define work areas and content of standardization work programme in consultation with the Programme Advisory Committee for TC BTC and TA approval and give visibility of the work programme to external bodies;

- to follow consultation, to allocate in detail the specifications drafting work to appropriate ETSI committees, according to the guidance given by TA, TCC or JEEC;

- to propose a set of subprojects, where appropriate, taking into account already existing management groups such as BTC VPN, etc.;

- to manage technical coherence between the various committees and to ensure the consensus on each draft specification;

- to contact TC Chairmen, STC Chairmen and PROs involved to monitor progress - i.e. the achievement of milestones - and take relevant actions to ensure timely completion;

- to report to TC BTC and TA;

- to work in close co-operation with the BTC support team recruited from STC BTC1 membership and, where appropriate, with the BTC management, etc.;

- to work in close co-operation with the ETSI Secretariat in order to keep the ETSI database updated with regard to the ETSI work programme to draw the necessary links between milestones of related work items.

  NOTE: Administrative support from the ETSI Secretariat will be needed.

Annex B: CN taxonomy

Clause	Subject
1	General
1.1	Taxonomy Document on possible PTN Standards
1.2	PTN Glossary of Terms
1.3	Guidelines and Methods
1.3.1	Methods for the Specification of Basic Services and Supplementary Services
1.3.2	CCITT/ITU-T Recs. and other standards applicable for PTNs
1.4	Functional requirements
1.4.1	General principles and service aspects (ECMA-TR/57)
1.4.2	Mobility principles and classfication
2	Services
2.1	Stage 1
2.1.1	Basic Services
2.1.1.1	Bearer services
2.1.1.1.1	Circuit-mode 64 kbit/s unrestricted
2.1.1.1.3	Circuit-mode 3,1 kHz audio
2.1.1.1.6	Packet mode
2.1.1.1.4	Circuit-mode speech
2.1.1.1.5	Multi-rate bearer service
2.1.1.2	Teleservices
2.1.2	Supplementary Services, Overview Document
2.1.2.1	Number Identification services (ISSD)
2.1.2.2	Name Identification services (NA-SD)
2.1.2.3	Call Forwarding (CF-SD)
2.1.2.4	Call Transfer (CT-SD)
2.1.2.5	Multi-level Precedence and Preemption (MLPP-SD)
2.1.2.6	Call Completion CCBS/CCNR (CC-SD)
2.1.2.7	Do Not Disturb (Override)(DND(O)-SD)
2.1.2.8	Call Offer (CO-SD)
2.1.2.9	Call Intrusion (CI-SD)
2.1.2.10	Advice of Charge (AOC-SD)
2.1.2.11	Conference CONF
2.1.2.12	In-Call Modification IM (IM-SD)
2.1.2.13	User-to-user Signalling UUS
2.1.2.14	Night Service (NS-SD)
2.1.3	Additional Network Features, Overview Document
2.1.3.1	Path Replacement
2.1.3.2	Source Routeing
2.1.3.3	Route Restriction
2.1.3.4	Alternate Routeing indication
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2.2.1	Basic Services
2.2.1.1	Bearer services
2.2.1.1.1	Circuit-mode 64 kbit/s unrestricted
2.2.1.1.3	Circuit-mode 3,1 kHz audio
2.2.1.1.6	Packet mode
2.2.1.1.4	Circuit-mode speech
2.2.1.1.5	multi-rate
2.2.1.2	Teleservices
2.2.2	Supplementary Services
2.2.2.1	Name Identification services
2.2.2.2	Call Forwarding
2.2.2.3	Call Transfer
2.2.2.4	Multi-level Precedence and Preemption
2.2.2.5	Call Completion CCBS/CCNR (CC-SD)
2.2.2.6	Do Not disturb (Override) DND/DNDO
2.2.2.7	Call Offer
2.2.2.8	Call Intrusion (CI-SD)
2.2.2.9	Advice of Charge
2.2.2.10	Conference CONF
2.2.2.11	In-Call Modification IM
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4.2.3.4 Call Transfer (QSIG-CT)
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9 High Speed/LAN
11 CN Performance
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10.3 Management Protocols
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2.2.3.6 Call Interception (ANF-CINTSD)
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4.2.3.17 Recall (QSIG-RE)
4.2.3.15 Serial Call (QSIG-SE)
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4.2.3.18	Additional Information Presentation (QSIG-AIP)
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7.4.1.1.3.4	Ordinary 2-wire leased line (A2O)
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7.4.1.1.2.5	Special Quality 2-wire leased line (A2S)
7.4.1.1.3.5	Special Quality 2-wire leased line (A2S)
2.1.1.1.2	Circuit-mode 64 kbit/s unrestricted with tones and announcements (T/A)
2.2.1.1.2	Circuit-mode 64 kbit/s unrestricted with tones and announcements (T/A)
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7.4.1.1.1.6	Ordinary 4-wire leased line (A4O)
7.4.1.1.2.6	Ordinary 4-wire leased line (A4O)
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7.4.1.1.2.7	Special Quality 4-wire leased line (A4S)
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5.1.2.1.3	Frame mode
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5.1.2.1.1	Circuit mode (TSIG BC)
5.1.2.2	Generic functional procedures (TSIG-GF)
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5.1.2.3.1.1	Calling Line Identity Presentation (CLIP)
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5.1.2.3.3	Call Transfer (CT)
5.1.2.3.4	Call Completion
5.1.2.3.4.1	On Busy
5.1.2.3.4.2	On No Reply
5.1.2.3.5	Advice of charge
5.1.2.3.6	Conference
5.1.2.3.7	In-Call Modification
5.1.2.3.8	Closed User Group
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7.8.2.1.2.3	Stage 3
7.8.2.1.2.3.1	Protocol at the T+ and the C reference points
7.8.2.1.2.3.2	Protocol at the N* reference point
7.8.2.1.3	VPN features
7.8.2.1.4	Security/Authentication
7.8.2.1.5	Management of VPN Transit-Node Functionality
7.9	VPN, non-64 kbit/s ISDN-based
7.8.3.1	Extension line
7.8.3.1.1	Direct access
7.8.3.1.2	Indirect access with full attachment network capabilities
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7.8.3.1.2.1.3	Stage 3
7.8.3.1.2.1.3.1	Protocol at the S/T reference point
7.8.3.1.2.1.3.2	Protocol at the N* reference point
7.8.3.1.2.2	Security/Authentication
7.8.3.1.2.3	Management related to the attachment network
7.8.3.1.3.1	Off-premises access function through attachment network
7.8.3.1.3.1.1	Stage 1
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7.8.3.1.3.1.3	Stage 3
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7.8.3.1.3.1.3.2	Protocol at the N* reference point
7.8.3.1.3.2	Security/Authentication
7.8.3.1.3.3	Management related to the attachment network
7.8.1.3.1	CN requirements
7.8.1.3.2	CN numbering plan
7.8.1.3.3	Support of private numbering plan SS
7.8.1.3.4	Numbering for the interconnection of VPN and public networks
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7.8.1.3.7	Carrier selection
7.8.1.3.6	Distinction of multiple instances of VPN
7.8.1.3.6.1	Principle
7.8.1.3.6.2	Signalling at the C and the T+ reference points
7.8.1.3.6.3	Signalling at the N* reference point
7.8.1.3.6.4	Signalling at the Q reference point
7.8.1.3	VPN Numbering
7.8.1.1.2	Definition of CN
7.4.1.1.1.10	n*64 kbit/s
7.4.1.1.2.10	n*64 kbit/s
7.4.1.1.3.10	n*64 kbit/s
8.1.4	Applicability of supplementary services to CTM and PUM

Annex C: CN Planning Tool

Clause	Subject	ECMA-WI	ECMA Doc	ETSI-WI	STD_TYPE	DOC_NB	Rec Text
1	General						
1.1	Taxonomy Document on possible PTN Standards			DTR/BTC-01030	TCRTR		
1.2	PTN Glossary of Terms			DE/BTC-01023	ETS	300 415	
1.3	Guidelines and Methods						
1.3.1	Methods for the Specification of Basic Services and Supplementary Services	32-11	134	DE/ECMA-00111	ETS	300 387	
1.3.2	CCITT/ITU-T Recs. and other standards applicable for PTNs			DE/BTC-01025	ETS		
1.3.3	Code of practice for network planning			DTR/BTC-01029	ETR		
1.4	Functional requirements						
1.4.1	General principles and service aspects (ECMA-TR/57)			DTR/BTC-01026	TCRTR	018	
1.4.2	Mobility principles and classfication			DE/BTC-01033	ETS		Support of NA/TG-MOB scenarios
2	Services						
2.1	Stage 1						
2.1.1	Basic Services						
2.1.1.1	Bearer services						
2.1.1.1.1	Circuit-mode 64 kbit/s unrestricted	13-01	142				
2.1.1.1.2	Circuit-mode 64 kbit/s unrestricted with tones and announcements (T/A)						
2.1.1.1.3	Circuit-mode 3,1 kHz audio	13-01	142				
2.1.1.1.4	Circuit-mode speech	13-01	142				
2.1.1.1.5	Multi-rate bearer service						
2.1.1.1.6	Packet mode	13-30					
2.1.1.1.7	Frame mode						
2.1.1.1.8	Cell mode (ATM)						
2.1.1.2	Teleservices						
2.1.2	Supplementary Services, Overview Document	13-09	TR/60	DE/ECMA-00002			
2.1.2.1	Number Identification services (ISSD)	13-02	148				ETSI to encourage standards which support business users
2.1.2.2	Name Identification services (NA-SD)	13-04	163				ETSI to encourage standards which support business users
2.1.2.3	Call Forwarding (CF-SD)	13-05	173	DE/ECMA-00006	ETS	300 256	ETSI to encourage standards which support business users
2.1.2.4	Call Transfer (CT-SD)	13-07	177	DE/ECMA-00004	ETS	300 260	ETSI to encourage standards which support business users
2.1.2.5	Multi-level Precedence and Preemption (MLPP-SD)						ETSI to encourage standards which support business users
2.1.2.6	Call Completion CCBS/CCNR (CC-SD)	13-11	185	DE/ECMA-00007	ETS	300 365	ETSI to encourage standards which support business users
2.1.2.7	Do Not Disturb (Override)(DND(O)-SD)	13-16	193	DE/ECMA-00013	ETS	300 363	ETSI to encourage standards which support business users
2.1.2.8	Call Offer (CO-SD)	13-14	191	DE/ECMA-00008	ETS	300 361	ETSI to encourage standards which support business users

2.1.2.9	Call Intrusion (CI-SD)	13-15	202	DE/ECMA-00010	ETS	300 425	ETSI to encourage standards which support business users
2.1.2.10	Advice of Charge (AOC-SD)	13-13		DE/ECMA-00009	ETS		ETSI to encourage standards which support business users
2.1.2.11	Conference CONF	13-12		DE/ECMA-00011	ETS		ETSI to encourage standards which support business users
2.1.2.12	In-Call Modification IM (IM-SD)	13-23		DE/ECMA-00018	ETS		ETSI to encourage standards which support business users
2.1.2.13	User-to-user Signalling UUS	13-25		DE/ECMA-00021	ETS		ETSI to encourage standards which support business users
2.1.2.14	Night Service (NS-SD)	13-33		DE/ECMA-00085	ETS		ETSI to encourage standards which support business users
2.1.2.15	Serial Call (SESD)	13-26		DE/ECMA-00075	ETS		Multivendor Attendant Services
2.1.2.16	Call Distribution to Attendant (CDA-SD)	13-27		DE/ECMA-00081	ETS		Multivendor Attendant Services
2.1.2.17	Recall (RESD)	13-29		DE/ECMA-00100	ETS		Multivendor Attendant Services
2.1.2.18	Additional Information Presentation (AIPSD)	13-32		DE/ECMA-00079	ETS		Multivendor Attendant Services
2.1.2.19	Message Waiting Indication (MWISD)	13-38					ETSI to encourage standards which support business users
2.1.3	Additional Network Features, Overview Document	13-09	TR/60				ETSI to encourage standards which support business users
2.1.3.1	Path Replacement	13-06	175	DE/ECMA-00014	ETS	300 258	ETSI to encourage standards which support business users
2.1.3.2	Source Routeing			DE/ECMA-00015	ETS		ETSI to encourage standards which support business users
2.1.3.3	Route Restriction			DE/ECMA-00017	ETS		ETSI to encourage standards which support business users
2.1.3.4	Alternate Routeing indication			DE/ECMA-00069	ETS		ETSI to encourage standards which support business users
2.1.3.5	Common information interchange (ANF CMNSD)	13-21		DE/ECMA-00070	ETS		ETSI to encourage standards which support business users
2.1.3.6	Call Interception (ANF-CINTSD)	13-22		DE/ECMA-00089	ETS		ETSI to encourage standards which support business users
2.1.4	Multi-Vendor Attendant Services (MPASD)	13-35		DE/ECMA-00083	ETS		Multivendor Attendant Services
2.2	Stage 2 Description						
2.2.1	Basic Services						
2.2.1.1	Bearer services						
2.2.1.1.1	Circuit-mode 64 kbit/s unrestricted	13-01	142				
2.2.1.1.2	Circuit-mode 64 kbit/s unrestricted with tones and announcements (T/A)						
2.2.1.1.3	Circuit-mode 3,1 kHz audio	13-01	142				
2.2.1.1.4	Circuit-mode speech	13-01	142				
2.2.1.1.5	multi-rate						
2.2.1.1.6	Packet mode	13-30					

2.2.1.1.7	Frame mode						
2.2.1.1.8	Cell Mode (ATM)						
2.2.1.2	Teleservices						
2.2.2	Supplementary Services						
2.2.2.1	Name Identification services	13-04	163				ETSI to encourage standards which support business users
2.2.2.2	Call Forwarding	13-05	173	DE/ECMA-00006	ETS	300 256	ETSI to encourage standards which support business users
2.2.2.3	Call Transfer	13-07	177	DE/ECMA-00004	ETS	300 260	ETSI to encourage standards which support business users
2.2.2.4	Multi-level Precedence and Preemption						ETSI to encourage standards which support business users
2.2.2.5	Call Completion CCBS/CCNR (CC-SD)	13-11	185	DE/ECMA-00007	ETS	300 365	ETSI to encourage standards which support business users
2.2.2.6	Do Not disturb (Override) DND/DNDO	13-16	193	DE/ECMA-00013	ETS	300 363	ETSI to encourage standards which support business users
2.2.2.7	Call Offer	13-14	191	DE/ECMA-00008	ETS	300 361	ETSI to encourage standards which support business users
2.2.2.8	Call Intrusion (CI-SD)	13-15	202	DE/ECMA-00010	ETS	300 425	ETSI to encourage standards which support business users
2.2.2.9	Advice of Charge	13-13		DE/ECMA-00009	ETS		ETSI to encourage standards which support business users
2.2.2.10	Conference CONF	13-12		DE/ECMA-00011	ETS		ETSI to encourage standards which support business users
2.2.2.11	In-Call Modification IM	13-23		DE/ECMA-00018	ETS		ETSI to encourage standards which support business users
2.2.2.12	User-to-user Signalling UUS	13-25		DE/ECMA-00021	ETS		ETSI to encourage standards which support business users
2.2.2.13	Night Service	13-33		DE/ECMA-00086	ETS		ETSI to encourage standards which support business users
2.2.2.14	Serial Call (SESD)	13-26					Multivendor Attendant Services
2.2.2.15	Call Distribution to Attendant (CDASD)	13-27					Multivendor Attendant Services
2.2.2.16	Recall (RESD)	13-29					Multivendor Attendant Services
2.2.2.17	Additional Information Presentation (AIPSD)	13-32					Multivendor Attendant Services
2.2.2.18	Message Waiting Indication (MWISD)	13-38					ETSI to encourage standards which support business users
2.2.3	Additional Network Features (ANFs)						
2.2.3.1	Path Replacement	13-06	175	DE/ECMA-00014	ETS	300 258	ETSI to encourage standards which support business users
2.2.3.2	Source Routeing			DE/ECMA-00015	ETS		ETSI to encourage standards which support business users
2.2.3.3	Route Restriction			DE/ECMA-00017	ETS		ETSI to encourage standards which support business users
2.2.3.4	Alternate Routeing indication			DE/ECMA-00069	ETS		ETSI to encourage standards which support business users
2.2.3.5	Common Information Interchange (ANF CMNSD)	13-21		DE/ECMA-00070	ETS		ETSI to encourage standards which support business users

2.2.3.6	Call Interception (ANF-CINTSD)	13-22					ETSI to encourage standards which support business users
2.2.4	Multi-Vendor Attendant Services (MPASD)	13-35		DE/ECMA-00083	ETS		Multivendor Attendant Services
2.3	Stage 3 Descriptions						
3	User-Network Interfaces (S Reference Point, Signalling Issues)						
3.1	Layer 1						
3.1.1	Basic rate access						
3.1.2	Primary rate access						
3.2	Layer 2	14-01	105				
3.3	Layer 3						
3.3.1	Basic call						
3.3.1.1	Circuit mode (SSIG-BC)	14-02	106				
3.3.1.2	Packet mode	14-42		DE/ECMA-00043	ETS		
3.3.1.3	Frame mode						
3.3.1.4	Cell mode (ATM)						
3.3.2	Generic functional procedures	14-31		DE/ECMA-00026	ETS		ETSI to encourage standards which support business users
3.3.3	Key-Pad Stimulus Procedures (SSIG-KP)	14-05	156				ETSI to encourage standards which support business users
3.3.4	Feature Key Stimulus Procedures (SSIG-FK)	14-07	161	DE/ECMA-00027	ETS	300 240	ETSI to encourage standards which support business users
3.3.5	Supplementary Services						
3.3.5.1	Number Identification services (SSIG-ID)	14-06	157				ETSI to encourage standards which support business users
3.3.6	Additional Network Features (ANFs)						
4	Intra-Network Interfaces (Q Reference Point, Signalling Issues)						
4.1	Layer 2						
4.1.1	Circuit mode type IVN	14-03	141				
4.2	Layer 3 protocols						To focus on QSIG as the PAN-European standard
4.2.1	Basic call						
4.2.1.1	Circuit mode (QSIG-BC)	14-16	143				
4.2.1.2	Packet mode	14-43		DE/ECMA-00068	ETS		
4.2.1.3	Frame mode						
4.2.1.4	Cell mode (ATM)						
4.2.2	Generic functional procedures (QSIG-GF)	14-09	165	DE/ECMA-00045	ETS	300 239	ETSI to encourage standards which support business users
4.2.3	Supplementary services						ETSI to encourage standards which support business users
4.2.3.1	Number Identification services	n.a.	n.a.	n.a.			ETSI to encourage standards which support business users
4.2.3.2	Name Identification services (QSIG-NA)	14-08	164				ETSI to encourage standards which support business users
4.2.3.3	Call Forwarding (QSIG-CF)	14-10	174	DE/ECMA-	ETS	300 257	ETSI to encourage standards which support

				00048			business users
4.2.3.4	Call Transfer (QSIG-CT)	14-12	178	DE/ECMA-00047	ETS	300 261	ETSI to encourage standards which support business users
4.2.3.5	Multi-level Privilege and Preemption (QSIG-MLPP)						ETSI to encourage standards which support business users
4.2.3.6	CCBS/CCNR (QSIG-CC)	14-17	186	DE/ECMA-00049	ETS	300 366	ETSI to encourage standards which support business users
4.2.3.7	DND/DNDO (QSIG-DND(O))	14-20	194	DE/ECMA-00054	ETS	300 364	ETSI to encourage standards which support business users
4.2.3.8	Call Offer (QSIG-CO)	14-18	192	DE/ECMA-00052	ETS	300 362	ETSI to encourage standards which support business users
4.2.3.9	Call Intrusion (QSIG-CI)	14-19	203	DE/ECMA-00053	ETS	300 426	ETSI to encourage standards which support business users
4.2.3.10	Advice of Charge (QSIC-AOC)	14-22		DE/ECMA-00051	ETS		ETSI to encourage standards which support business users
4.2.3.11	Conference (QSIG-CONF)	14-38		DE/ECMA-00050	ETS		ETSI to encourage standards which support business users
4.2.3.12	Incall Modification (QSIG-IM)	14-29		DE/ECMA-00057	ETS		ETSI to encourage standards which support business users
4.2.3.13	UUS (QSIG-UUS)	14-26		DE/ECMA-00074	ETS		ETSI to encourage standards which support business users
4.2.3.14	Night Service (QSIG-NS)	14-23		DE/ECMA-00059	ETS		ETSI to encourage standards which support business users
4.2.3.15	Serial Call (QSIG-SE)	14-30					Multivendor Attendant Services
4.2.3.16	Call Distribution to Attendant (QSIG-CDA)	14-27		DE/ECMA-00104	ETS		Multivendor Attendant Services
4.2.3.17	Recall (QSIG-RE)	14-24		DE/ECMA-00102	ETS		Multivendor Attendant Services
4.2.3.18	Additional Information Presentation (QSIG-AIP)	14-40					
4.2.3.19	Message Waiting Indication (QSIG-MWI)	14-52					ETSI to encourage standards which support business users
4.2.3.51	Interactions (QSIG-IA)	14-21	204	DE/ECMA-00063	ETS	300 427	ETSI to encourage standards which support business users
4.2.4	Additional Network Features (ANFs)						
4.2.4.1	Path Replacement (QSIG-PR)	14-11	176	DE/ECMA-00055	ETS	300 259	ETSI to encourage standards which support business users
4.2.4.2	Source Routeing			DE/ECMA-00060	ETS		ETSI to encourage standards which support business users
4.2.4.3	Route Restriction			DE/ECMA-00056	ETS		ETSI to encourage standards which support business users
4.2.4.4	Common Information Interchange (QSIG-CMN)	14-39					ETSI to encourage standards which support business users
4.2.4.5	Call Interception (QSIG-CINT)	14-25		DE/ECMA-00103	ETS		
4.2.5	Break-IN/Break-OUT						To develop standards for break-in/break-out
4.2.6	Multi-Vendor Attendant Services						Multivendor Attendant Services
4.2.7	Protocol Profiles						

4.2.7.1	Radio Paging Equipment	14-44			
4.2.8	Mobility Support				
4.2.8.1	Incoming CTM Call Handling ANF (QSIG-CTMI)	14-45	DE/ECMA-00113	ETS	Support of NA/TG-MOB scenarios
4.2.8.2	Outgoing CTM Call Handling ANF (QSIG-CTMO)	14-47			Support of NA/TG-MOB scenarios
4.2.8.3	Location Registration (QSIG-CTLR)	14-46	DE/ECMA-00112	ETS	Support of NA/TG-MOB scenarios
4.2.8.4	Cordless Terminal Authentication	14-51			Support of NA/TG-MOB scenarios
5	InterNetwork Interfaces				
5.1	PTN --- Public ISDN (T Reference Point; Signalling aspects)				
5.1.1	Layer 2				
5.1.1.1	Circuit mode type ISDN				
5.1.2	Layer 3 protocols				
5.1.2.1	Basic Call				
5.1.2.1.1	Circuit mode (TSIG BC)				
5.1.2.1.2	Packet Mode				
5.1.2.1.3	Frame mode				
5.1.2.1.4	Cell mode (ATM)				
5.1.2.2	Generic functional procedures (TSIG-GF)				
5.1.2.3	Supplementary Services				
5.1.2.3.1	Number Identification Services				
5.1.2.3.1.1	Calling Line Identity Presentation (CLIP)				
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5.1.2.3.4	Call Completion				
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6	End-to-End Protocols				
6.1	Channel aggregation		DTR/BTC-04004	ETR	
7	Network Aspects				
7.1	Architecture				
7.1.1	Architectural models for PTNs				
7.1.2	Reference configurations for PTN				
7.1.2.1	Reference configuration for PTNX		DE/BTC-01022	ETS	300 475-1
7.1.2.2	Reference Configuration for HS-PTNX		DE/BTC-04....		
7.1.2.3	Reference Configuration for PTNX - Extension Line		DE/BTC-01040	ETS	
7.1.2.4	Reference configuration for PTNX - Integrated Scenario				
7.1.2.5	Gateway and Interworking aspects				
7.1.2.6	Reference configurations for DECT Air Interface				

7.2	Network scenarios							
7.2.1	Overlay Scenarios, Principles and Classification				DE/BTC-01028	ETS		
7.2.1.1	Functions of IVNs providing circuit mode IPCs leased lines				DE/BTC-01018	ETS		
7.2.1.2	Functions of IVNs providing circuit mode IPCs through public ISDN				DE/BTC-01019	ETS		
7.2.1.3	Functions of IVNs providing circuit mode IPCs through DCC				DE/BTC-01020	ETS		
7.2.1.4	Functions of IVNs providing packet mode IPCs through PSPN or ISDN				DE/BTC-01021	ETS		
7.2.1.5	Functions of IVNs providing packet mode IPCs via UUS							
7.2.2	Integrated Scenarios, General				DTR/BTC-01001	TCRTR		Support of flexible CTN architecture by peer-to-peer protocols between PBX and VPN; standardization to be based on QSIG to be compatible with leased lines.
7.2.2.1	Integrated Scenarios, Principles and Classification				BTC-01032			
7.3	PTNX Functions to handle specific Scenarios							
7.3.1	Specific scenarios descriptions, Overview (TR/Mapping)		13-10	TR/65	DE/ECMA-00012			
7.3.1.1	Functions corresponding to IVNs providing circuit mode IPCs circuit mode (CM)							
7.3.1.1.1	Static type IVNs		13-28	MAPP/CM-stat				
7.3.1.1.2	Dynamic type IVNs			MAPP/CM-dyn				
7.3.1.2	Functions corresponding to IVNs providing packet mode IPCs (X.25-like)			Mapp/PM				
7.3.1.3	Functions corresponding to IVNs providing packet mode IPCs (UUS-based)		13-37	Mapp/UUS				
7.4	Open Network Provisions for PTNs							
7.4.1	Leased lines							
7.4.1.1	Detailed Specifications							
7.4.1.1.1	Network Interface Presentation							
7.4.1.1.1.1	2048 kbit/s digital unstructured (D2048U)				DE/BTC-02018			
7.4.1.1.1.2	2048 kbit/s digital structured (D2048S)				DE/BTC-02021	ETS	300 418	
7.4.1.1.1.3	64 kbit/s unstructured (D64U)				DE/BTC-02024	ETS	300 288	
7.4.1.1.1.4	Ordinary 2-wire leased line (A2O)				DE/BTC-02027	ETS	300 448	
7.4.1.1.1.5	Special Quality 2-wire leased line (A2S)				DE/BTC-02029	ETS	300 449	
7.4.1.1.1.6	Ordinary 4-wire leased line (A4O)				DE/BTC-02031	ETS	300 451	
7.4.1.1.1.7	Special Quality 4-wire leased line (A4S)				DE/BTC-02033	ETS	300 452	
7.4.1.1.1.8	34 Mbit/s digital structured leased line (D34S)				DE/BTC-02053	ETS		
7.4.1.1.1.9	140 Mbit/s digital structured leased line (D140S)				DE/BTC-02057	ETS		
7.4.1.1.1.10	n*64 kbit/s				DE/BTC-02067	ETS		
7.4.1.1.2	Connection Characteristics							
7.4.1.1.2.1	2048 kbit/s digital unstructured (D2048U)				DE/BTC-02019			
7.4.1.1.2.2	2048 kbit/s digital structured (D2048S)				DE/BTC-02022	ETS	300 419	
7.4.1.1.2.3	64 kbit/s unstructured (D64U)				DE/BTC-02025	ETS	300 289	
7.4.1.1.2.4	Ordinary 2-wire leased line (A2O)				DE/BTC-02027	ETS	300 448	
7.4.1.1.2.5	Special Quality 2-wire leased line (A2S)				DE/BTC-02029	ETS	300 449	
7.4.1.1.2.6	Ordinary 4-wire leased line (A4O)				DE/BTC-02031	ETS	300 451	

7.4.1.1.2.7	Special Quality 4-wire leased line (A4S)			DE/BTC-02033	ETS	300 452	
7.4.1.1.2.8	34 Mbit/s digital structured leased line (D34S)			DE/BTC-02054	ETS		
7.4.1.1.2.9	140 Mbit/s digital structured leased line (D140S)			DE/BTC-02058	ETS		
7.4.1.1.2.10	n*64 kbit/s			DE/BTC-02068	ETS		
7.4.1.1.3	Terminating Equipment Interface						
7.4.1.1.3.1	2048 kbit/s digital unstructured (D2048U)			DE/BTC-02020			
7.4.1.1.3.2	2048 kbit/s digital structured (D2048S)			DE/BTC-02023	ETS	300 420	
7.4.1.1.3.3	64 kbit/s unstructured (D64U)			DE/BTC-02026	ETS	300 290	
7.4.1.1.3.4	Ordinary 2-wire leased line (A2O)			DE/BTC-02028	ETS	300 450	
7.4.1.1.3.5	Special Quality 2-wire leased line (A2S)			DE/BTC-02028	ETS	300 450	
7.4.1.1.3.6	Ordinary voice band 4-wire leased line (A4O)			DE/BTC-02032	ETS	300 453	
7.4.1.1.3.7	Special Quality 4-wire leased line (A4S)			DE/BTC-02032	ETS	300 453	
7.4.1.1.3.8	34 Mbit/s digital structured leased line (D34S)			DE/BTC-02055	ETS		
7.4.1.1.3.9	140 Mbit/s digital structured leased line (D140S)			DE/BTC-02059	ETS		
7.4.1.1.3.10	n*64 kbit/s			DE/BTC-02069	ETS		
7.4.1.2	General Studies						
7.4.1.2.1	2B+D Leased Lines			DTR/BTC-02051	ETR		
7.4.1.2.2	n*64 kbit/s Leased Lines			DTR/BTC-02052	ETR		
7.5	Network capabilities						
7.5.1	Bearer capabilities and connection types						
7.5.2	Synchronization						
7.5.2.1	Methods and Technical Requirements						
7.5.2.2	Synchr. Management Procedures						
7.5.2.3	Signalling Protocol for Synchr. Management	14-37					
7.5.3	Terminal selection and compatibility checking principles						
7.6	Numbering, addressing and routeing						
7.6.1	Addressing Requirements						
7.6.1.1	Addressing capabilities of PTNs	13-03	155	ECMA-155	ETS	300 189	
7.6.1.2	Addressing requirements on public networks						
7.6.2	Routeing functions in PTNs						
7.8	VPN, 64 kbit/s ISDN-based						
7.8.1	General						
7.8.1.1	Special Definitions						
7.8.1.1.1	Definition of "VPN"			DE/BTC-01023	ETS	300 415	Definition of "VPN"
7.8.1.1.2	Definition of CN						
7.8.1.2	VPN Functional Architecture						VPN Architecture
7.8.1.3	VPN Numbering						
7.8.1.3.1	CN requirements						
7.8.1.3.2	CN numbering plan	13-03	155	ECMA-155	ETS	300 189	
7.8.1.3.3	Support of private numbering plan SS			DE/NA-010004	ETS		
7.8.1.3.4	Numbering for the interconnection of VPN and public networks			DTR/NA-021103	ETR	033	
7.8.1.3.5	Principle for numbering interworking between private and public networks			DE/NA-021302			
7.8.1.3.6	Distinction of multiple instances of VPN						
7.8.1.3.6.1	Principle						

7.8.1.3.6.2	Signalling at the C and the T+ reference points			
7.8.1.3.6.3	Signalling at the N* reference point			
7.8.1.3.6.4	Signalling at the Q reference point			
7.8.1.3.7	Carrier selection	DTR/NA-010034	ETR	
7.8.2	VPN Transit-Node Functionality			
7.8.2.1	VPN access			Support of flexible CTN architecture by peer-to-peer protocols between PBX and VPN; standardization to be based on QSIG to be compatible with leased lines.
7.8.2.1.1	PTN service-independent transport			Standardization of transport mechanisms to ensure feature transparency in VPNs
7.8.2.1.1.1	Stage 1			
7.8.2.1.1.2	Stage2			
7.8.2.1.1.3	Stage 3			
7.8.2.1.1.3.1	Protocol at the T+ reference point			
7.8.2.1.1.3.2	Protocol at the N* reference point			
7.8.2.1.2	PTN service interaction			Mapping of DSS1/SS#7 functionality onto QSIG, to ensure that work items raised under 13 through 16 above are reflected in DSS1 and SS#7
7.8.2.1.2.1	Stage 1			
7.8.2.1.2.2	Stage 2			
7.8.2.1.2.3	Stage 3			
7.8.2.1.2.3.1	Protocol at the T+ and the C reference points			
7.8.2.1.2.3.2	Protocol at the N* reference point			
7.8.2.1.3	VPN features			
7.8.2.1.4	Security/Authentication			
7.8.2.1.5	Management of VPN Transit-Node Functionality			
7.8.3	VPN End-Node Functionality (Centrex)	DTR/BTC-01032		VPN Architecture
7.8.3.1	Extension line			
7.8.3.1.1	Direct access			
7.8.3.1.2	Indirect access with full attachment network capabilities			
7.8.3.1.2.1	Off-premises access function through attachment network			
7.8.3.1.2.1.1	Stage 1			
7.8.3.1.2.1.2	Stage 2			
7.8.3.1.2.1.3	Stage 3			
7.8.3.1.2.1.3.1	Protocol at the S/T reference point			
7.8.3.1.2.1.3.2	Protocol at the N* reference point			
7.8.3.1.2.2	Security/Authentication			
7.8.3.1.2.3	Management related to the attachment network			
7.8.3.1.3	Indirect access with restricted attachment network capabilities			
7.8.3.1.3.1	Off-premises access function through attachment network			
7.8.3.1.3.1.1	Stage 1			
7.8.3.1.3.1.2	Stage 2			
7.8.3.1.3.1.3	Stage 3			

7.8.3.1.3.1.3.1	Protocol at the S/T reference point			
7.8.3.1.3.1.3.2	Protocol at the N* reference point			
7.8.3.1.3.2	Security/Authentication			
7.8.3.1.3.3	Management related to the attachment network			
7.8.4	Break-IN/Break-OUT			To develop standards for break-in/break-out
7.8.5	Single users / small installations			Single user / small installation access to VPN functionality
7.8.6	Security			
7.9	VPN, non-64 kbit/s ISDN-based			
8	Mobility Aspects			
8.1	General Principles			
8.1.1	Internal Mobility of PTN users and of cordless terminals			
8.1.2	Interworking with other networks	DTR/BTC-01007	TCRTR	Support of NA/TG-MOB scenarios
8.1.3	Applicability of the PTN basic call to CTM and PUM	DTR/BTC-01024		Support of NA/TG-MOB scenarios
8.1.4	Applicability of supplementary services to CTM and PUM			
8.1.5	Service Profile of mobile PTN users	DE/BTC-01057	ETS	Support of NA/TG-MOB scenarios
8.1.6	GAP			
8.2	UPT			Support of NA/TG-MOB scenarios
8.2.1	Interworking between PTNXs and public networks (phase 1)	DTR/BTC-01008	TCRTR	Support of NA/TG-MOB scenarios
8.2.2	Interworking between PTNXs and public networks (phase 2)	DTR/BTC-01034	TCRTR	Support of NA/TG-MOB scenarios
8.3	Service and ANF Descriptions			Support of NA/TG-MOB scenarios
8.3.1 (ANFs)	Stage 1 Descriptions for Suppl. Services and Additional Network Features			Support of NA/TG-MOB scenarios
8.3.1.1	Cordless Terminal Mobility - Roaming (Location Handling)	BTC-01010		Support of NA/TG-MOB scenarios
8.3.1.2	Cordless Terminal Mobility - Handover	BTC-01014		Support of NA/TG-MOB scenarios
8.3.1.3	Cordless Terminal Mobility - Call Handling Procedures	BTC-01035		Support of NA/TG-MOB scenarios
8.3.1.4	Cordless Terminal Mobilty - Authentication	BTC-01037		Support of NA/TG-MOB scenarios
8.3.1.5	PTN User Mobility - dynamic registration	DE/BTC-01012	ETS	Support of NA/TG-MOB scenarios
8.3.1.6	PTN User Mobility - Call Handling Procedures	DE/BTC-01016	ETS	Support of NA/TG-MOB scenarios
8.3.2 (ANFs)	Stages2 Descriptions for Suppl. Services and Additional Network Features			Support of NA/TG-MOB scenarios
8.3.2.1	Cordless Terminal Mobility- Roaming (Location Handling)	DE/BTC-01011	ETS	Support of NA/TG-MOB scenarios
8.3.2.2	Cordless Terminal Mobility - Handover	DE/BTC-01015	ETS	Support of NA/TG-MOB scenarios
8.3.2.3	Cordless Terminal Mobility - Call Handling Procedures	DE/BTC-01036	ETS	Support of NA/TG-MOB scenarios
8.3.2.4	Cordless Terminal Mobilty - Authentication	DE/BTC-01038	ETS	Support of NA/TG-MOB scenarios
8.3.2.5	PTN User Mobility - dynamic registration	DE/BTC-01013	ETS	Support of NA/TG-MOB scenarios
8.3.2.6	PTN User Mobility - Call Handling Procedures	DE/BTC-01017	ETS	Support of NA/TG-MOB scenarios
9	High Speed/LAN			
9.1	General			
9.1.1	Architectural Aspects	DTR/BTC-04001	ETR	148
9.1.2	Reference Configuration			
9.1.3	Operational and Interconnection Aspects	DTR/BTC-	ETR	

				04002		
10	CN Network Management					
10.1	General					
10.1.1	Management Framework	12-01	TR/54			To take note of needs of distributed management
10.1.2	Guidelines for the definition of managed objects	12-03		DE/ECMA-00106	ETS	Adoption of ISO Managed Objects principle
10.1.3	Information modelling	12-04		DTR/ECMA-00107	ETR	
10.1.3.1	Networking Scenarios	12-07				
10.1.3.2	Managed Element Interfaces (MMEI)					Activities on Management of Managed Element Interfaces (MMEI)
10.1.4	Interworking public/private network	12-06				
10.1.5	Billing Information Interface					To consider the need of standardising a billing information interface
10.2	Management Services	12-02		DTR/ECMA-00105	ETR	Identification of Customer Network Management Services
10.3	Management Protocols	12-08				
10.3.1	SNMP	12-10				To take note of INMS work
10.4	Real Parts					
10.5	Outsourced Parts					
10.6	Security					To take note of security aspects
11	CN Performance					
11.1	General					
11.2	Performance of the VPN					Network performance parameters for VPNs
11.2.1	Transit Node					
11.2.2	End Node (Centrex)			DE/BTC-02048	ETS	
11.3	Overall Performance					
11.3.1	Voice					
11.3.1.1	General					
11.3.1.2	Loudness Rating			DE/BTC-02003	ETS	300 283
11.3.2	Data					
11.3.2.1	General					
11.3.2.2	Packet Mode Services (X.31 case B and dedicated networks)			DTR/BTC-02008	TCTR	
11.3.2.3	Frame Mode Services (ISDN, B-ISDN, and dedicated networks)			DTR/BTC-02043	TCTR	
11.4	Portion boundaries, reference connections and reference events					

Annex D: CN standardization areas and items resulting from the SRC5 recommendations

CTN standardization areas and items resulting from the SRC5 recommendations

Progress report

(Status: 23.2.95)

This update includes comments raised at TCC19 and at BTC16.

NOTE: The general requirements resulting from SRC5 Recommendations MR-1, MR-2, GR-1 through GR-8, NM-4, and EV-7 (with regard to any type of service such as voice, data, multi-media, bearer services) are to be respected in general for the production of standards.

1 - 11		*Recommendations on ETSI process*	*Not included in this overview*				
12	VPN1	Definition of "VPN"	Covered by WI BTC-01023	BTC	BTC 1	3.2.94	
			ECMA will take part in discussions	ECMA		24.11.93	
			is being considered by VPN Task Group. NA1 and NA6 are involved in the standardization of VPN services	NA		29.11.93	
			covered by ETS 300 415	BTC		10.1.95	Closed
13	VPN-2	VPN Architecture	Partly covered by BTC-01001 Further WIs need to be defined	BTC	BTC 1 BTC 1	3.2.94 27.10.94	
			ECMA will take part in the discussions	ECMA		24.11.93	
			Public Data Networks should be included in the list of networks to interwork with. A TCR-TR with an ETSI work programme for VPN standardization is being cirulated for comments. NA6 is starting work on this subject.	NA		27.10.94	
			Covered by CN Management 7.8.1.2	BTC	BTC1	10.1.95	
14	VPN-3	Peer-to-peer Network Management for VPNs	Identification of new work items Development of new standards	BTC		3.2.94	
			ECMA TC32 TG12 will contribute to NMCT activity in this field	ECMA	TA/SPS/ ECMA TC32	24.11.93	
			Further clarification of the scope and approach of this Rec. is needed (by TG/NMS). Possible involvement of NA4	NA		29.11.93	

			Several Tax.-Clauses have been identitfied within CN Management	BTC	NA/STAG	10.1.95	Tax.-Clauses: 7.8.3.1.2.3; 7.8.3.1.2.3; 7.8.2.1.5
15	VPN-4	Standardization of transport mechanisms to ensure feature transparency in VPNs	to be based on stage 2 of the PTN standards on service descriptions	BTC	SPS	3.2.94	
			ECMA will support SPS	ECMA	SPS	24.11.93	
			A more precise definition of "feature transparency" (including a specific list of features) is needed by TG/VPN. Involvement of NA will be deferred until this clarification.	NA		29.11.93	
			Several Tax.-Clauses have been identitfied within CN Management	BTC	SPS, NA	10.1.95	Tax.-Clauses 7.8.2.1.1.1 to NA1; 7.8.1.1.2 to SPS1/NA6; 7.8.2.1.1.3.1 to SPS5; 7.8.2.1.1.3.1 to SPS1
16	VPN-5	Network performance parameters for VPNs	BTC/TM; TM is proposed as the lead TC for transmission aspects	BTC	BTC 2/TM	3.2.94	see remark from 15.7.94
			ECMA TC32 will define the necessary signalling to support the QoS parameters defined by BTC2	ECMA	BTC 2	24.11.93	
			Leading Group should be NA and TM. BTC to provide CTN requirements (Note: As the definition of VPN is still to be finalized, the final role of the TCs will be clarified later.)	NA	NA & TM	29.11.93	
			TM has expertise in transmission aspects; TM 2 presently has WIs on transmission delay and jitter, wander, network synchronization	TM	BTC 2	15.7.94	TM 2 contributes

			ETR 004 (Overall transmission aspects of a private branch network for voice connections....) has been prepared by BTC2. Clarification with BTC1 will take place whether further work is required.	BTC	BTC2	23.2.95	
17	VPN-6	Support of flexible CTN architecture by peer-to-peer protocols between PBX and VPN; standardization to be based on QSIG to be compatible with leased lines.	Covered by BTC-01001	BTC	BTC1	3.2.93	
			No extra ECMA activity	ECMA		24.11.93	
			SPS should also be involved	NA		29.11.93	
			New Tax.-Clause identified by CN Management	BTC	SPS5	10.1.95	Tax.-Clause 7.8.2.1.1
18	VPN-7	Mapping of DSS1/SS#7 functionality onto QSIG, to ensure that work items raised under 13 through 16 above are reflected in DSS1 and SS#7	Fully supported by BTC	BTC	SPS, with advice by ECMA	3.2.94	
			To be based on private network standards. Assistance by ECMA TC32 required.	ECMA	SPS, with assistance by ECMA	24.11.93	
			New Tax.-Clause identified by CN Management	BTC	SPS, with assistance by ECMA	10.1.95	Tax.-Clause 7.8.2.1.2
19	VPN-8	Single user / small installation access to VPN functionality	Off-premises extension; covered by BTC-01001 Also proprietary and/or stimulus procedures need to be supported.	BTC	BTC, SPS	3.2.94	

			To be based on private network standards. Assistance required by ECMA TC32.	ECMA		24.11.93	
			Concern about support of proprietary solution; NA6 is starting work on this subject.	NA		29.11.93 27.10.94	
			New Tax.-Clause identified by CN Management	BTC	BTC1	10.1.95	Tax.-Clause 7.8.3.1
20	MOB-1	Accelerate work items relating to mobility which were postponed at TA 17	Closed by TA18 (relevant work items endorsed)	BTC		3.2.94	
21	MOB-2	Support of NA/TG-MOB scenarios	To be checked by CTN P.M.. Stage 1 & 2 finalized by BTC1; stage 3 at Q being developed by ECMA TC32; stage 3 within the VPN: SPS; access profile by RES 3	BTC	BTC1; ECMA TC32; SPS for the VPN part of a CTN; Access profiles by RES 3	3.2.94	
			CTM project started.	NA	NA	27.10.94	
22	MOB-3	Improve co-ordination, esp. with users (Application of Template Model in the Mobility Area)	To create a project team	BTC	NA/MOB	3.2.94	Belongs to ETSI CTM Project
			Concern about the value added by the Template Model compared with I.130. This issue should be considered by NA/TG-DASH, who are harmonizing architectures and service description approaches across ETSI. BTC is encouraged to participate in NA/TG-DASH.	NA		29.11.93	

			Mr. Hébert: The Template Model is only relevant for users when expressing their requirements on standardi-zation. It does not apply to the standardization process itself.	SRC5		10.2.94	
			Short discussion in NA/TG/DASH revealed diffculties in using the Template Model to identify critical issues. The model may be used to provide overall composite views of results when obtained. In the DASH opinion the process implicit in the Template Model may be useful within PAC.		NA Chairman	31.5.94	Resolves issue raised on 29.11.93
23	MOB-4	Accelerate allocation of frequencies	Not applicable, see TA 18 statement on Rec. 23				
24	NM-1	Provide a focus for Network Management within ETSI ("NM Co-ordination Team", NMCT)	NMCT accepted by TA18; a TG to be set up to make a proposal to TA19	TA 18		6.10.93	
			ECMA TC32 TG12 is involved	ECMA	NMCT	24.11.93	TG on NM proposes a separate Group
			An important issue is the co-ordination if ETSI contributions to ITU-T, e.g. SG4 (Q.23), as well as the participation in JCG TMN.	NA	NA4	29.11.93	TC NA proposed a group linked to NA4
			NA4 instructed by TA20 to organize such a group (renamed ECTM).	NA	NA4	27.10.94	
25	NM-2	Adoption of ISO Managed Objects principle		BTC	ECMA	3.2.94	
			Premature; ISO work is still unstable	ECMA	ECMA	24.11.93	

26	**NM-3**	**To take note of INMS work**		**BTC**		**3.2.94**	
			Support by ECMA TC32 which will participate	**ECMA**	**NMCT**	**24.11.93**	
			Information is needed on INMS	**NA**		**29.11.93**	
27	**NM-4**	**To take note of group activities in API field**		**BTC**	**NMCT**	**3.2.94**	**To be clarified**
28	**NM-5**	**To take note of needs of distributed management**		**BTC**	**NMCT/**	**3.2.94**	**To be clarified**
			ECMA is already active in this field	**ECMA**			
			the need for a TCR-TR, as expressed in TCC15 (93)93, is doubted. The issues are covered under current standardization work.	**NA**		**29.11.93**	
29	**NM-6**	**Activities on Management of Managed Element Interfaces (MMEI)**	**ECMA is already in contact with the Internet Engineering Task Force, with respect to CTN Management.**	**ECMA**	**ECMA TC32 TG12**	**24.11.93**	
30	**NM-7**	**Identification of Customer Network Management Services**	**To raise a TCR-TR (as approved by TCC)**	**BTC**	**BTC/ ECMA TC32**	**3.2.94**	

			Clarification on CNMS is needed. BTC should lead in establishing management requirements specific to CTNs. NA should lead in efforts to minimize divergence in management principles, architecture and services. Defining the management and service aspects of the interface between private and public networks should be done in co-operation between NA and BTC.	NA	BTC, NA	29.11.93	
31	NM-8	To take note of security aspects	To identify needs in a TCR-TR	BTC	NA/STAG	3.2.94	
			In collaboration with ECMA TC36	ECMA	NA/STAG	24.11.93	
32	NM-9	To consider the need of standardising a billing information interface	To identify needs in a TCR-TR	BTC	NA	3.2.94	
			Leading role should be in NA. NA4 has initiated a group in charging aspects.	NA	NA	29.11.93	
33	EV-1	Multivendor Attendant Services	Work is already allocated. TR on Service Harmonization may have impact in future.	BTC	ECMA TC32	3.2.94	
			ECMA TC32 to take note when prioritizing work in spring 1994	ECMA	ECMA TC32	24.11.93	
			NA involvement needed. Service descriptions should use the principles described in ETR 010 (Annex C). Some services have already been standardized by ETSI.	NA	ECMA TC32	29.11.93	

34	**EV-2**	**Ensure accuracy in charging (billing:>>> out of scope of ETSI)**		**BTC**	**NA**	**3.2.94**	
			Billing is outside the scope of ETSI. A number of standards are defined to inform the user, either at the start of a call, during a call, or at the end of a call, of the actual charges of the call. A new work item has been included in the NA1 work programme to cover *Advice of Charge on User Request*. Need to clarify what is required in addition.	**NA**	**NA**	**29.11.93**	
35	**EV-3**	**ETSI to refrain from developing standards for Voice Mail and Voice Response; instead to adopt existing standards from other bodies**	**Supported; it needs to be checked which standards have been developed by whom in this area.**	**BTC**	**ECMA for signalling; HF for control procedures; TE for impact on terminal capabilities.**	**3.2.94**	
			ECMA TC32 will consider this when prioritizing work in spring 1994	**ECMA**		**24.11.93**	
			Reference to "other bodies" should be more explicit	**NA**		**29.11.93**	
36	**EV-4**	**ETSI to refrain from developing standards for CSTA; instead to adopt existing standards from ECMA**	**The NA comment is not in line with the TA18 decision.**	**BTC**	**ECMA**	**3.2.94**	

			ECMA to propose the means by which ETSI could endorse the ECMA CSTA standards.	ECMA	ECMA	24.11.93	
			The development of CSTA is being progressed as part of the TASC activity in ITU-T SG11. ETSI activities should focus on supporting this work. CSTA standards developed for PABXs do not consider IN functionalities. ITU-T SG11 (TASC) takes account of the overall subject (including IN). If IN functionalities are to be considered, then NA6 must be involved.	NA	ITU-T	29.11.93	
37	EV-5	ETSI to encourage standards which support business end-users	Work is already allocated. TR on Service Harmonization may have impact in future.	BTC	ECMA TC32	3.2.94	
			ECMA to take note when prioritizing work in spring 1994	ECMA	ECMA TC32	24.11.93	
			NA involvement needed. Service descriptions should use the principles described in ETR 010 (Annex C). Some services have already been standardized by ETSI.	NA	ECMA TC32	29.11.93	
38	EV-6	To develop standards for break-in/break-out	regulative aspect is outside ETSI; VPN architecture covered by BTC-01001; signalling to be covered by ECMA TC32;	BTC	BTC1; ECMA TC32	3.2.94	
			ECMA to take note when prioritizing work in spring 1994	ECMA	ECMA TC32	24.11.93	ECMA for QSIG

		Further clarification on the scope of the proposed standards is needed. NA (NA4 for QoS and network performance parameters; NA2 for interworking; NA6 for CS-2 issues) and possibly SPS involvement is needed.	NA	NA; SPS	29.11.93	CTN PST takes the term "performance" in the SRC5 Rec. as relating to the execution of the function, not as QoS related (see details in SRC5 report).
		New Tax.-Clauses identified by CN Management	BTC	NA; SPS	10.1.95	Tax.-Clauses 7.8.3.1.2 and 7.8.3.1.3
39	EV-7 To focus on QSIG as the PAN-European standard					has become a general requirement
40	LAN-1 Accelerate work on development of IC_NNI for interconnecting LANs	Refers to public networks	BTC	NA	3.2.94	
41	LAN-2 Accelerate work on development of IS_NNI for interconnecting LANs	IN-NNI and IS-NNI concepts require further clarification. NA is responsible for definition of bearer services.	NA	NA	29.11.93	
		Refers to public networks	BTC	NA	3.2.94	
42	LAN-3 Accelerate work on interface specs. for PDH leased lines (2, 34 and 140 Mbit/s)	IN-NNI and IS-NNI concepts require further clarification. NA is responsible for definition of bearer services.	NA	NA	29.11.93	
		covered by existing BTC4 wok items and deliverables	BTC	BTC 4	3.2.94	
		TM has detailed knowledge in this area	TM	BTC 4	15.7.94	TM3 contributes
43	LAN-4 Initiate work on interface specs. for SDH leased lines (155 and 622 Mbit/s)	Clarification with TM3 is needed.	BTC	BTC/TM	3.2.94	Clarification see comment from TM, 15.7.94

			Mandate being negotiated with CEC	TM	TM 3	15.7.94	
44	LAN-5	Continue work on unstructured leased lines	Clarification with TM3 is needed.	BTC	BTC/TM	3.2.94	
			the concept of unstructured digital lines does not apply to SDH technology.	NA		29.11.93	
			This type of leased line does not allow network operators to provide appropriate management as expected by customer!	TM	BTC 4	15.7.94	TM3 possibly contributes
45	LAN-6	Determine ETSI position on the BONDING group (n x 64 kbit/s)	The bonding technique has been accepted in JTC1	BTC	BTC 4	3.2.94	BTC 4 investigates in IEEE solutions, in addition to bonding.
			NA has approved an ETS on n*64 bearer service, and TE is working on the n*64 kbit/s provided by terminals end-to-end without network impact	NA		29.11.93	
			STCs TE4 and TE5 will contribute to the work, based on work already completed by TE/AVM and TE4 on channel aggregation, and will prepare status reports.	TE		10.2.94	

		The CEC has given a standardization mandate to ETSI on channel aggregation (BC-T-310). TA has assigned this to TC TE. The mandate contains a recommendation to align the ETSI standard with standards and recommendations of ISO/IEC and ITU-T. The present TE4 work item DE/TE-04029 follows this principle, and is well in line with the CEC mandate. The benefit is that a minimum set of interworking between audiovisual procedures and the BONDING procedures can be standardized. A stable draft ETS is available within STC TE4. This ETS is now approved by TC TE to go to public enquiry.	TE		18.10.94	
46	LAN-7	Accelerate planned work on IS_NNI and IC_NNI for frame relaying		BTC	NA	3.2.94	
			IN-NNI and IS-NNI concepts require further clarification. NA is responsible for definition of bearer services.	NA	NA	29.11.93	
47	LAN-8	To recognize in-progress CCITT standards on frame relay		BTC	NA	3.2.94	

			ETSI (NA2, NA5) has been active in providing contributions (and Rapporteurs) to ITU-T. ETSI contribution does not duplicate ITU-T work, but ensures the inclusion of European requirements in world-wide standards. NA2 is the focal point in ETSI for co-ordination of work on Frame Relay standards.	NA	NA	29.11.93	
48	LAN-9	Accelerate work on interworking between ATM networks and others		BTC	NA	3.2.94	
			NA5 activities on interworking include ETSs for MANs (approved), Frame Relay (to be approved shortly) and ISDN (pending contributions).	NA	NA	29.11.93	
			NA5 activities on Frame Relay are approved.		NA Chairman	31.5.94	
			Interworking ETSs for Frame Relay are approved.	NA		27.10.94	
49	LAN-10	Accelerate work on service-dependent functions		BTC	NA	3.2.94	
			NA5 activities on AAL for CBDS (ETS out for public enquiry) and FRBS (approved).	NA	NA	29.11.93	
50	LAN-11	Accelerate work on call control procedures for services based on cell relay technologies		BTC	SPS	3.2.94	
			Leading role should be in SPS, supported by NA	NA	SPS	29.11.93	

51	**LAN-12**	**To consider the need to standardize multiple end-to-end protocols over the same bearer service**		**BTC**	**NA**	**3.2.94**	
			NA5 has initiated studies to indicate preferences on how to support end-to-end protocols over CBDS and ATM. An ETR (or TCR-TR) will be issued.	**NA**	**NA**	**29.11.93**	
			Two ETSs have been approved.	**NA**		**27.10.94**	
52	**LAN 13**	**To start work on application layer addressing, relationship with network layer addressing independent of locations**	**To be clarified. NA2 and ECMA TC32 should take lead for addressing issues. Also BTC4 needs to be involved. A TCR-TR should be developed jointly, under the leadership of NA2.**	**BTC**	**NA2, ECMA TC32 BTC4**	**3.2.94**	
53	**MULT-1**	**Support of multimedia applications by <u>existing</u> networks**	**Prime responsibility within NA (NA2). Support needed from other groups (e.g. NA5: CBDS, NA7: UPT,...).**	**NA**	**NA**	**29.11.93**	
				BTC	**TE**	**3.2.94**	
			NA1 is working on a base document on multimedia.	**NA**		**27.10.94**	
			TC TE confirms that this work will be carried out by STC TE10.	**TE**	**TE10**	**10.2.94**	

			NA5 activities include documents on media coding and studies on how to support multimedia services on ATM by choosing suitable AALs as well as network architecture studies for providing interactive multimedia to residential users. NA6 is studying long term solutions.		NA	31.5.94 27.10.94	Replaces NA5 Comment from 29.11.93
			This recommendation is discharged by the creation of STC TE10.	TE		18.10.94	Closed
54	MULT-2	To produce a focus for multi-media activities	TE has set up the Multi-Media Project. BTC 4 is involved.	BTC	TE	10.2.94	Error correction
			TE has set up STC TE10 and appointed a Project Manager on multimedia.	NA		29.11.93	
			This recommendation is discharged by the creation of STC TE10.	TE			
			This recommendation is discharged by the creation of STC TE10.	TE		18.10.94	Closed
55	MULT-3	To implement Recommendation #54	Common subproject with TE10 (Multi-Media)	BTC	TE	10.2.94	Error correction
			TE has set up STC TE10 and appointed a Project Manager on multimedia.	NA		29.11.93	

	This recommendation is discharged by the creation of STC TE10. There is no need for shared responsibility with BTC4, as TE10 is a co-ordinating committee, and many STCs other than BTC4 are involved in Multimedia.	**TE**		**10.2.94**	
	This recommendation is discharged by the creation of TE10	**TE**		**18.10.94**	**Closed**

Annex E: Circular letter 1053 on private network standardization

Summary:

ETSI has signed contracts with external bodies with regard to its responsibility on private network standardization.

It is necessary that the existence of these contracts and their impact on the daily work in ETSI are made aware to ETSI officials (TC Chairmen, STC Chairmen, ...) and member delegates, since these contracts bind the whole of ETSI with this regard.

It is also necessary that ETSI officials and member delegates respect these contracts in all their ETSI activities.

1 Contracts

These contracts are:

- ETSI committed to accept Bons de Commande IT-74 to IT-77;
- the settlement of the private telecommunications network field between CENELEC, ETSI and ECMA (16.1.1991);
- the agreement on co-operation in the work activity for standardization in the field of telecommunications (26.4./2.5.1991), between ETSI and ECMA establishing JEEC, a decisive joint ECMA/ETSI committee;
- the JEEC decisions;
- liaison with ISO/IEC JTC1;
- agreement between ETSI and CEN on the conversion of international standards produced by JTC1/SC6/WG6 into ETSs.

1.1 Bons de Commande

The Bons de Commande cover private networks and their components, and define:

- private networks can consist of PABXs and/or private network services offered by the public telecommunication networks;
- this includes subjects like VPN and CENTREX.

The Bons de Commande require the production of standards for:

- private network architecture, numbering, routeing, methodology;
- basic and supplementary private network services, down to protocol level at the terminal interface and at the interface between PTNXs;
- interworking of services with those of public networks and vice versa;
- performance within private networks and for overall-connections passing through public and private networks.

ETSI committed on the Bons de Commande at ITSTC.

1.2 The settlement of the private telecommunications network field between CENELEC, ETSI and ECMA

This contract endorses the above commitment according to subclause 1.1 binding to ETSI. In particular, it puts an onus on all TCs to take care of interworking with private networks.

1.3 The co-operation agreement between ETSI and ECMA

Within the framework of subclause 1.2, ETSI stepped into the co-operation agreement which ECMA had with CENELEC. This required that the allocation of work between ETSI and ECMA be under the control of a common paritary committee. As a consequence the Joint ECMA/ETSI Committee (JEEC) has been founded. JEEC's work includes, but is not limited to, partitioning of standardization work between ECMA and ETSI.

1.4 JEEC decisions

In principle, JEEC decisions are binding for ETSI and ECMA. Exceptionally, there may be the need for ratification by the ETSI TA and by the ECMA GA.

1.5 Liaison with JTC1

ETSI has applied for A liaison with JTC1, the main reason being that ETSI can use JTC1's so called fast track procedure to forward ETSs to be endorsed as international standards. In order to avoid arguments at international level whether Europe would deserve a single vote only rather than multiple national votes, the fast track procedure shall only be used in very exceptional cases. Since ECMA committed to provide its long standing experience on this subject to JEEC, JEEC has decided that any fast track intention be approved by JEEC before it is actually initiated.

1.6 Conversion of international standards produced by JTC1/SC6/WG6 into ETSs

In Europe the regular mirror body for JTC1/SC6/WG6 is CENELEC. However, aligned with the contract under subclause 1.2, CENELEC has delegated this role to ETSI for the SC6/WG6 part of JTC1. ETSI has, so far, stepped into the CENELEC/JTC1 arrangements. These require that international standards developed by SC6/WG6 be converted by ETSI into European standards, i.e. ETSs.

2 CN standardization situation in ETSI

Based on 5 years experience in the standardization of private networks/corporate networks in ETSI, a number of problems have been encountered. As the objective of this document is to draw the attention mainly to the contractors part as mentioned in clause 1, not detailed cases are referred to here.

3 Measures to be taken

It is proposed that the following measures be taken:

- this document shall be distributed by the TC Chairmen through the mailing lists of their TCs and STCs, together with the urgent request that the TC and STC members have to respect the ETSI external and internal contracts for all their ETSI related activities;

- any activities infringing the contracts ETSI has signed are to be abandoned. If members indicate that they cannot adhere to the contracts, the ETSI Officials are obliged to bring the case up to the TCC Chairman.

Annex F: Assignment of work items to TCs NA and SPS

(Draft)

TC	No	Subject	Description	Relevant Documentation	Del.	Liaisons
NA	1	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing full CN services support (so called “registered access”). Clause 7.8.3.1.2.1.1	Stage 1 description of an ANF providing alternately the access and safe transportation mechanism for access signalling and user information to a pre-determined CN, or to the public ISDN. The ANF shall allow for the use of an authentication mechanism. The ANF shall be applicable to primary rate and basic access and shall allow for the provision of a passive bus in the latter case.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	BTC1
	2	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing CN services support, possibly restricted by the capabilities of the intervening public network equipment (so called “remote access”). Clause 7.8.3.1.3.1.1	Stage 1 description of an ANF providing the access and safe transportation mechanism for CN access signalling and user information. The ANF shall allow for the use of an authentication mechanism. The ANF shall be applicable to primary rate and basic access and shall allow for the provision of a passive bus in the latter case.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	BTC1
	3	PTN service-independent access mechanism to a VPN transit function (T+ reference point). Clause 7.8.2.1.1.1	Stage 1 description of an ANF providing the access and safe transportation mechanism for intra-CN signalling and user information. The ANF shall allow for the use of an authentication mechanism. The ANF shall be applicable to primary rate and basic access. In the latter case, only point-to-point mode of operation is required.	DTCRTR/BTC-01001 ECMA TR/65	ETS	BTC1, ECMA TC32/TG13

	4	Principle for the distinction between multiple instances of VPN Clause 7.8.1.3.6.1	A standardized approach is required in the case of multiple VPN providers involved in the provision of one VPN, in which case this information needs to be interchanged between their equipment. In addition, this information needs also be interchanged with PBX equipment providing multiple virtual PBXs to multiple customers (so called multi-tenancy).	DTCRTR/BTC-01001	ETS	BTC1
	5	Authentication mechanism to prevent unauthorized indirect access by a user to a CN. Clause 7.8.3.1.2.2	The mechanism should support the ANF mentioned under subject No. 1 above. Since the intermediate public network equipment can be assumed to have similar capabilities as the CN, automatically performed processes should be investigated running without intervention of the user of the terminal equipment.	DTCRTR/BTC-01001	TCR/TR	BTC1, TE
	6	Authentication mechanism to prevent unauthorized indirect access by a user to a CN. Clause 7.8.3.1.3.2	The mechanism should support the ANF mentioned under subject No. 2 above. Since the intermediate public network equipment may have restricted capabilities such as an analogue PSTN, audible user guidance (speech announcement) and the entry of password information via MFPB signals should be investigated	DTCRTR/BTC-01001	TCR/TR	BTC1, HF
SPS	7	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing full CN services support (so called “registered access”). Clause 7.8.3.1.3.2.1.2	Stage 2 description of an ANF providing alternately the access and safe transportation mechanism for access signalling and user information to a pre-determined CN, or to the public ISDN. The ANF shall allow for the use of an authentication mechanism.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	BTC1
	8	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing CN services support, possibly restricted by the capabilities of the intervening public network equipment (so called “remote	Stage 2 description of an ANF providing the access and safe transportation mechanism for CN access signalling and user information. The ANF shall allow for the use of an authentication mechanism.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	BTC1

		access"). Clause 7.8.3.1.3.2.2.2				
	9	PTN service-independent access mechanism to a VPN transit function (T+ reference point). Clause 7.8.2.1.1.2	Stage 2 description of an ANF providing the access and safe transportation mechanism for intra-CN signalling and user information. The ANF shall allow for the use of an authentication mechanism. IN- and non-IN-based approaches should be investigated.	DTCRTR/BTC-01001 ECMA TR/65	ETS	BTC1
	10	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing full CN services support (so called "registered access"). Clause 7.8.3.1.2.1.3.1	Protocol of an ANF at the S/T reference point, alternately to public ISDN access signalling invoked at the S/T reference point to establish the access and safe transportation mechanism for access signalling and user information to a pre-determined CN. The ANF shall allow for the use of an authentication mechanism. The ANF shall be applicable to primary rate and basic access and shall allow for the provision of a passive bus in the latter case.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA TC32/TG14
	11	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing full CN services support (so called "registered access"). Clause 7.8.3.1.2.1.3.2	Protocol of an ANF at the N* reference point, alternately to public ISDN access signalling invoked at the S/T reference point to establish the access and safe transportation mechanism for access signalling and user information to a pre-determined CN. The ANF shall allow for the use of an authentication mechanism.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA TC32/TG14 TE

	12	Indirect both-way access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing CN services support, possibly restricted by the capabilities of the intervening public network equipment (so called “remote access”). Clause 7.8.3.1.3.1.1	Protocol of an ANF at the S/T reference point, additionally to public ISDN access signalling invoked at the S/T reference point to provide access and safe transportation mechanism for CN access signalling and user information. The ANF shall allow for the use of an authentication mechanism. The ANF shall be applicable to primary rate and basic access and shall allow for the provision of a passive bus in the latter case.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	BTC1, HF
	13	Indirect access mechanism for user equipment to public network equipment based CN end-nodes (Centrex), providing CN services support, possibly restricted by the capabilities of the intervening public network equipment (so called “remote access”). Clause 7.8.3.1.3.1.2	Protocol of an ANF at the N* reference point, additionally to public ISDN access signalling invoked at the S/T reference point to establish the access and safe transportation mechanism for access signalling and user information to a pre-determined CN. The ANF shall allow for the use of an authentication mechanism.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA/TC32/TG14
	14	PTN service-independent access mechanism to a VPN transit function (T+ reference point). Clause 7.8.2.1.1.3.1	Protocol at the T+ reference point to allow defined information flows supporting PTN services to be interchanged transparently across the interface at the T+ reference point.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA/TC32/TG14 (essential!)
	15	PTN service-independent access mechanism to a VPN transit function (T+ reference point). Clause 7.8.2.1.1.3.2	Protocol at the N* reference point to allow defined information flows supporting PTN services to be interchanged transparently across the interface at the N* reference point.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA TC32/TG14
	16	VPN active support of PTN service functionality Clause 7.8.2.1.2.3.1	Protocol at the T+ and the C reference point to co-operate in the support of PTN services.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA/TC32/TG14 (essential!)

	17	VPN active support of PTN service functionality Clause 7.8.2.1.2.3.2	Protocol at the N* reference point to co-operate in the support of PTN services.	DTCRTR/BTC-01001 DTR/BTC-00005, DTR/BTC-00006	ETS	ECMA TC32/TG14

History

Document history		
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