# ITU-T SG11 기고서

ITU—Telecommunication Standardization Sector

Study Group 11

Geneva, 5-23 September 1994

Question(s) : 15/11
Working Party : 2/11

**SOURCE : KOREA**

**TITLE :** Comment on Party state in Q.297x

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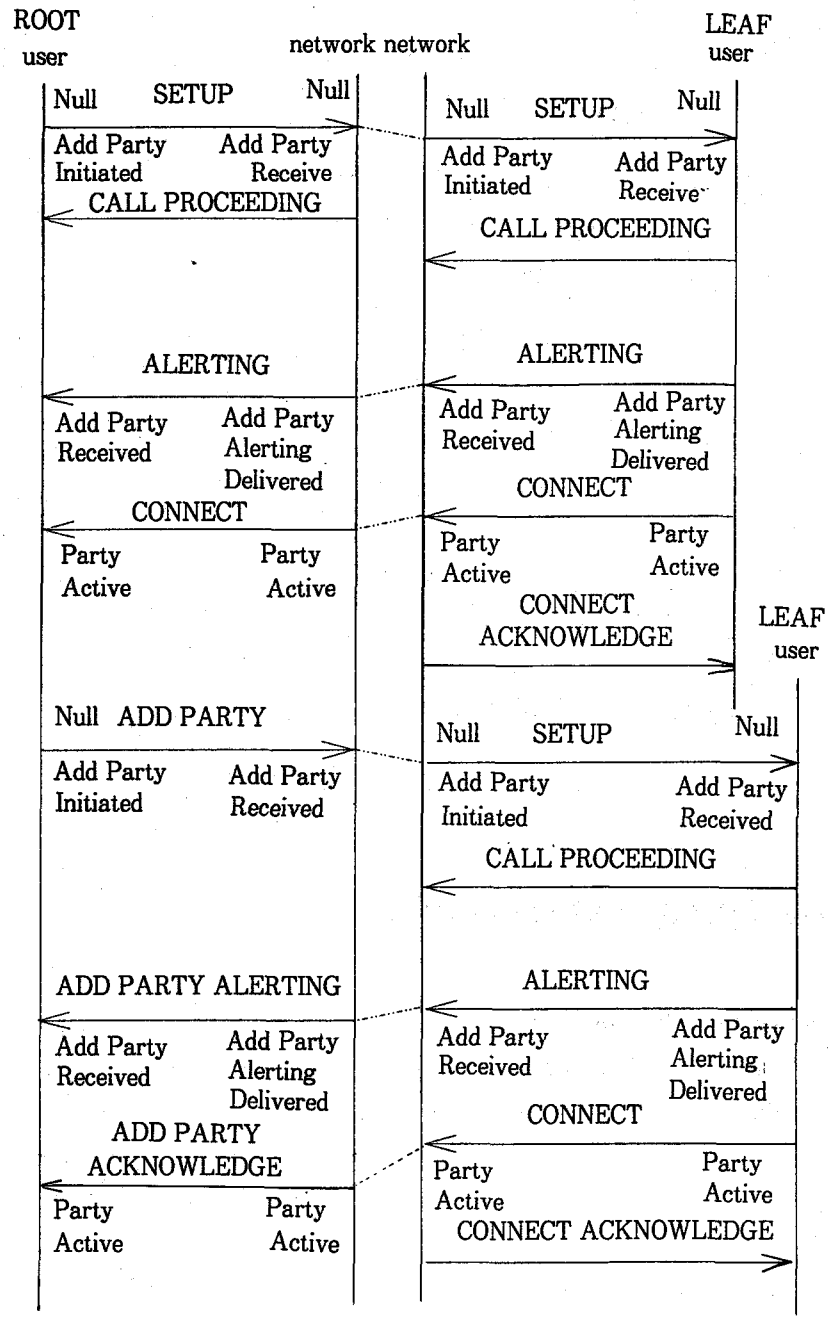
## ABSTRACT

According to the current Q.297x, the party state of user is different from that of network at the originating interface and at the detination interface. But, the call state of user is same as that of network at the originating interface and at the destination interface. My suggestion in modify the party state in Q.297x like as the call state in Q.2931.

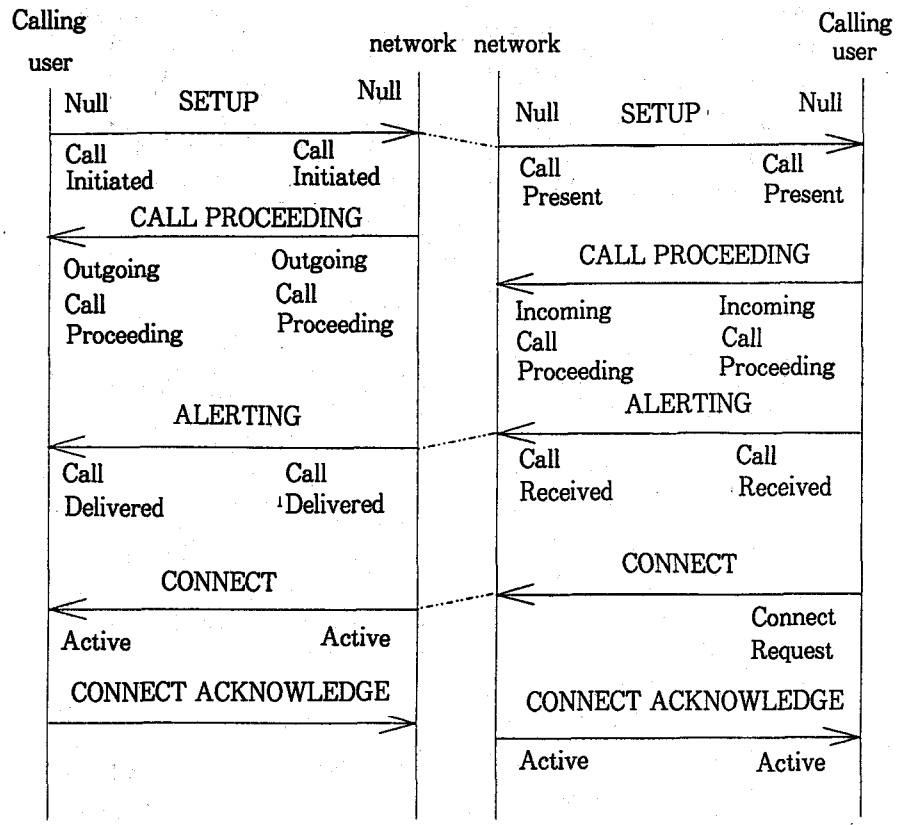
# 1. Party state according to Q.297x(1994. 06 Edinburgh)

The party state in Q.297x can be summnarized as follows:



## 2. Call state according to Q.2931(1993. 12 Geneve)

The call state in Q.2931 can be summarized as follows:

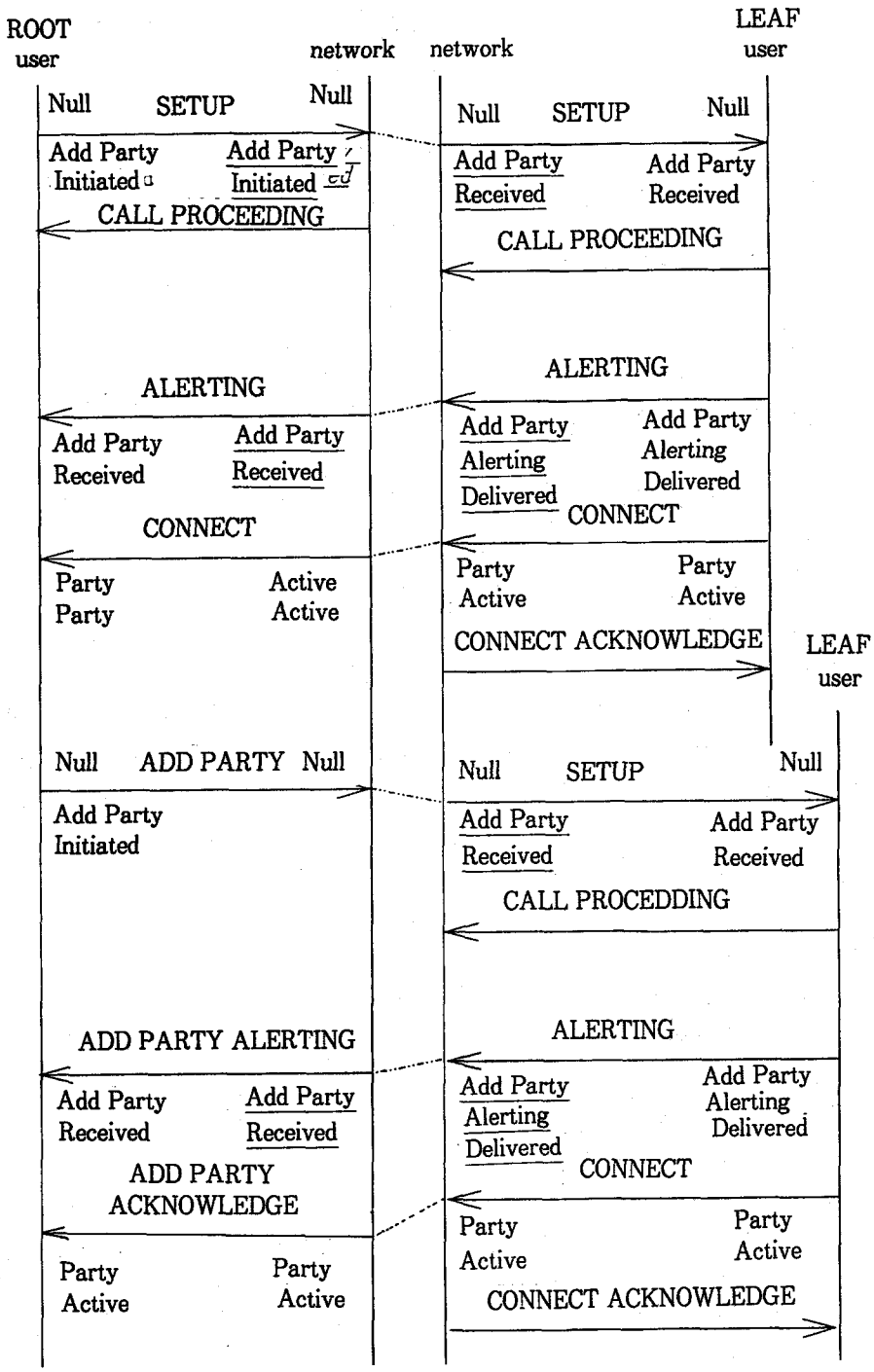



## 3. Suggested party state in Q.297x

You can see that the call state of user and that of network are same at originating interface and at destination interface in Q.2931. But, the party state of user and that of network are different at the originating interface and at destination interface in Q.297x

I would like to change the party state of network side at originating interface and at destination interface because the party state of user and that of network will be same.

## Suggested Party state in Q.297x



ITU—Telecommunication Standardization Sector

Study Group 11 Delayed Contribution No. D.
WP5
Geneva, 5—23 September 1994

Question(s) : 24/11

**SOURCE : KOREA(REPUBLIC OF)**

**TITLE :** $V_B$ Interface for the support of Broadband Access Network

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**Abstract**

This contribution discusses what kind of $V_B$ interfaces will be applied to suppport the broadband access network. $V_{B5}$ is proposed for an ATM interface between broadband Access Network and ATM Local Exchange.

# 1. Introduction

In Recommedation Q.512, interface $V_5$ is defined for a digital interface between Access Network (AN) and Local Exchange for the support of the following access types:
—analogue telephone access,
—digital access(ISDN basic access, ISDN primary rate access),
—other analogue access or digital access for semi-permancent connections

Interface $V_5$ is separated into two interfaces, $V_{5.1}$ and $V_{5.2}$ Interface $V_{5.1}$ has no concentration capability. On the other hand, interface $V_{5.2}$ has on-demand bearer channel allocation capability. ATM access type is not currently defined in the access network with interface $V_5$.

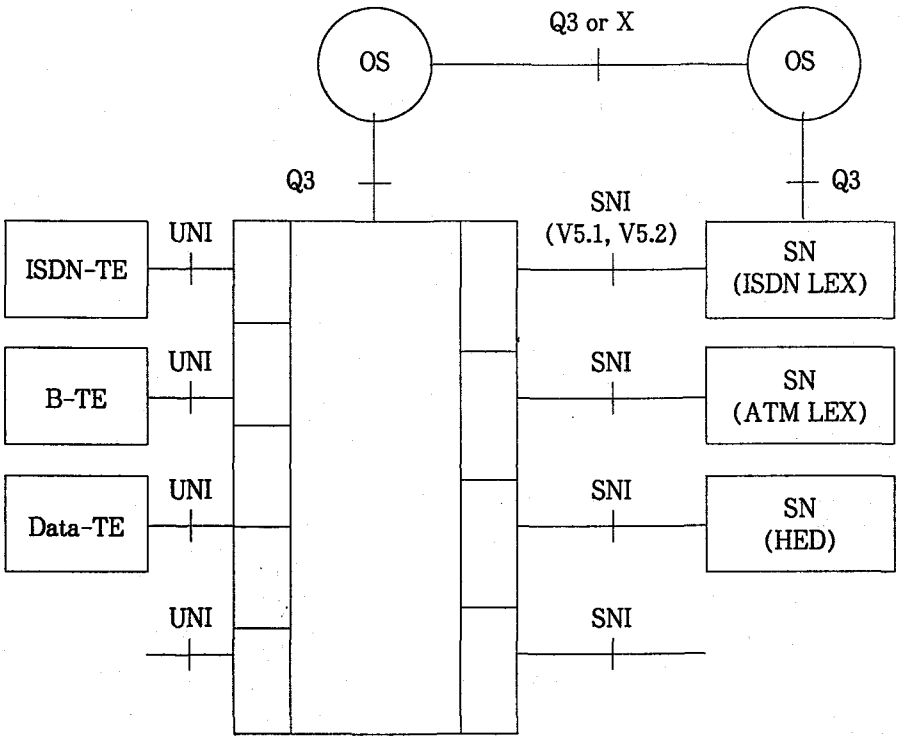
In ITU-T Q.14/13 group, G.9XX base line document descries general Access Network functional architecture and related functions. According to the AN definition of the G.9XX, the AN comprises those entities (such as cable Plant, Transmission factilities, etc) which provide communication

services between different locations. One of the locations is at a Service Node Interface(SNI) and each of the other locations is at a single User Network Interface(UNI). The SNI is a generic term for an interface to connect a particular Service Node.

This contributio discusses what kind of $B_B$ interfaces will be applied for the support of the broadband Access Network in chapter 2. New $V_B$ interface is proposed for an ATM interface between AN and ATM LEX in chapter 3.

## 2. Discussion

The folowing diagram defined in Q.14/13, shows the AN architecture and the related interfaces.




The major functions of the Access Network mainly directed by management plane are listed below:

—provision of v arious access for users to telecommunication services are actually provided by the

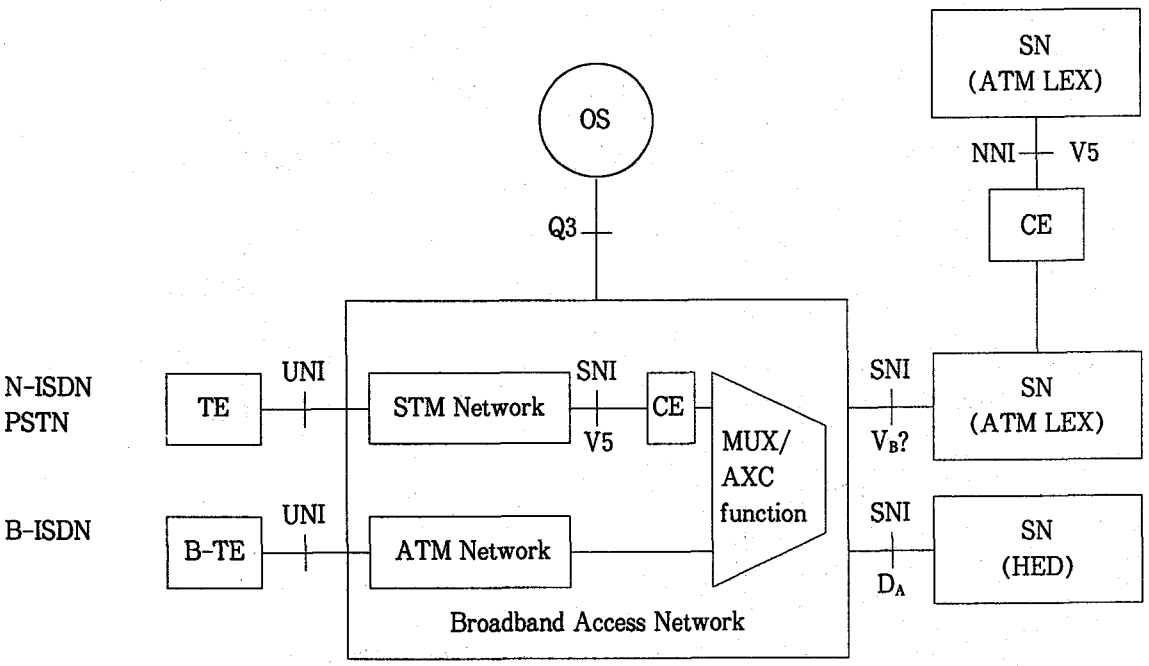
service node, e.g. statically or dynamically bearer channel allocation,

- interaction with SN management functions for the provision of port status information, the blocking and activation of the port,
- interaction with system management functions which cover configuration control, performance monitoring, and fault detection through TMN Q3 interface

What kind of $B_B$ interfaces will be applied for the ATM-LEX SNI in the broadband Access Network? This existing $V_B$ interfaces, for example $V_{B2}$, $V_{B4}$, $V_{B6}$ will be enough for the avove question. The reasons why the existing $V_B$ interfaces will not support the SNI of broadband Access Network, are as follows:

- the existing $V_B$ interfaces just support ATM access type,
- dynamic bearer allocation mechanism, such as bearer connection control of $V_{5.2}$ interface, is not defined in the existing $V_B$ interfaces.

The following figure shows one example of the broadbnad AN architecture and related interfaces, when the Circuit Emulation(CE) function for non ATM access types is performed in the AN.




## 3. Proposal

This contribution proposes that $V_{B5}$ interface, ATM-LEX SNI, be defined for the support of the support of the broadband Access Network in Recommendations Q.50A and Q.51A. $V_{B5}$ interface will be separated into $V_{B5.1}$ and $V_{B5.3}$ whether or not the dynamic bearer allocation mechanism is required.

ITU—Telecommunication Standardization Sector

Study Group 11 Delayed Contribution No. D.
WP5
Geneva, 5－23 September 1994

Question(s) : 24/11

**SOURCE : KOREA(REPUBLIC OF)**

**TITLE :** Interface $V_{BI}$ for low bit or middle range bit rate

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**Abstract**

Interfaces for the B-ISDN digital access section are currently based on 155 520 kbit/s or 62080 kbit/s. This contribution proposes that a low or middle range bit rates be reflected in the $V_{BI}$ interface.

# 1. Introduction

In the last ITU-T SG 13 meeting, each primary hierarchy level(1.5Mbit/s and 2Mbit/s) was adopted for a low bit $S_B/T_B$ interface. It is expected that a middle range bit rate will be selected among three candidate bit rates(17, 34, and 51 Mbit/s) in the next November meeting.

This contribution proposes that bit rates lower than 155,520kbit/s be considered in the $V_B$ reference point. The interface $V_{BI}$ chapters of the Recommendation Q.51A are revised for the support of these low bit rate and middle range bit rate.

# 2. Proposal

## 2.1 Subrate interfaces lower than 155,520kbit/s flr $V_{B1}$

The $V_{B1}$ interface for a B-ISDN access digital section may be used to support a single broadband customer access. According to the bit rate of up stream and down stream, this $V_{B1}$ interface is currently classified into 4 different $V_{B1}$ interfaces. To reflect the ITU-T SG13 standard activity for low bit rate and middle range bit rate at the $S_B/T_B$ interface, this contribution proposes that the bit rates lower than 155,520kbit/s be considered in the interface $V_{B1}$. These subrates will allow to offer ATM base services at a very low cost for a single broadband customer access. The following table shows that possible combinations of severa 1 transfer capabilities for $V_{B1}$ interface.

〈Table 1〉 Interface $V_{B1}$ transfer capabilities

| bit rate<br>sym/asym. | up stream<br>(kbit/s) | down stream<br>(kbit/s) | existing<br>$V_{B1}$ I/F |
|---|---|---|---|
| Symmetrical | low | low | |
| | middle | middle | |
| | 149 760 | 149 760 | $V_{B11}$ |
| | 599 040 | 599 040 | $V_{B13}$ |
| Asymmetrical | low | middle | |
| | low | 149 760 | |
| | middle | 149 760 | |
| | low | 599 040 | |
| | middle | 599 040 | |
| | 149 760 | 599 040 | $V_{B12}$ |
| | middle | low | |
| | 149 760 | low | |
| | 149 760 | middle | |
| | 599 040 | low | |
| | 599 040 | middle | |
| | 599 040 | 149 760 | $V_{B14}$ |

## 2.2 Text revision of the $V_{BI}$ interfaces to reflect subrates

If these subrates(a low bit rate and a middle range bit rate) are introduced into the $V_{BI}$ interface, then various $V_{BI}$ interfaces will be appeared according to the symmetrical or asymmetrical characteristics.

According to the above table, there ar e 4 possible symmetrical $V_{BI}$ interfaces and 12 combinations of asymmetrical $V_{BI}$ interface. It is some dull to indentify and describe all 16 possible $V_{BI}$ interfaces separately in the Recommendation Q.51A. To consider two kinds of subrates, we propose a revised text for $V_{BI}$ interface in the Annex of this contribution. The revised text is based on the existing $V_{BI}$ interface description of the Recommendation Q.51A.

# 3. Conclusion

This contributio proposes that a low bit rate and a middle range bit rate be introduced into the V $_{BI}$ interface. To refect these subrates subrates for the interface $B_{BI}$, we present a revised text based on the existing $V_{BI}$ interface description of the Recommendation Q.51A,

—Annex

## 5.2 Interface $V_{BI}$

### 5.2.1 General

Interface $V_{BI}$ may be used at the $V_B$ reference point to connect a B-ISDN access digital section for the provision of a single broadband customer access with symmetrical or asymmetrical bit rates. Asymmetrical $V_{BI}$ interface will be used for the provision of ATM distribution signals in the down stream or up stream direction.

### 5.2.2 Funcional characteristics

The functional description of interface $V_{BI}$ illustrated in figure 4 and the following functional requirements are defined.

#### 5.2.2.1 Interface structure and transfer capability

The interface is symmetrical or asymmetrical, and the combination of transfer capabilities for $V_{BI}$ interface is shown in table 1.

Table 1/Q.51A

Combination of transfer capabilities for $V_{B1}$ interface

| bit rate<br>sym/asym. | up stream<br>(kbit/s) | down stream<br>(kbit/s) | |
|---|---|---|---|
| Symmetrical | low | low | |
| | middle | middle | |
| | 149 760 | 149 760 | |
| | 599 040 | 599 040 | |
| Asymmetrical | low | middle | |
| | low | 149 760 | |
| | middle | 149 760 | |
| | low | 599 040 | |
| | middle | 599 040 | |
| | 149 760 | 599 040 | |
| | middle | low | |
| | 149 760 | low | |
| | 149 760 | middle | |
| | 599 040 | low | |
| | 599 040 | middle | |
| | 599 040 | 149 760 | |

note) : selection of the feasible transfer capabilities is for furher study

### 5.2.2.2 Cell header format and encoding

For tihs interface the coding scheme at the User Network Interface(UNI) as described in Recommendation I.361 is used.

### 5.2.2.3 Operation and maintenance

Operation and maintenance principles are defined in Recommendation I.610. Physical layer OAM functions for low bit rate and middle range bit rate are for furher study.

### 5.2.3 Physical medium characteristics

"The text in this section is the same what is described in the Recommendation Q.51A"

### 5.2.4 Virtual channel and virtual path allocation

"The text in this section is the same what is described in the Recommendation Q.51A"

### 5.2.5 Signalling

The meta-signalling procedures are defined by Recommendation Q.2120. The on-demand signalling procedures are define by Recommendation Q.2931. In addition the signalling aspects for distribution services as specified in Recommendation I.211 must be taken into account.

ITU—Telecommunication Standardization Sector

Study Group 11 Delayed Contribution No. D.

Text available only in English

Geneva, 5—23 September 1994

Question(s) : 10/11

**Source : Electronics and Telecommunications Research Institute, Korea**

**Title :** Expliciti error handling procedure in the Null, Release Request, Release Indication state of Q.2931

**Abstract**

When receiving an unexpected, unrocognized message or a message with one or more unrecognized information element or unrecognized information element contents, the explcit error handling We also propose to correct the syntax of 5.6.9. b)

# 1. Introduction

When an unexpected, unrecognized message or a message with one or more unexpected, unrecognized information element or information element with unrecognized contents is received, if the action indicator field of a message type information element or the other information element is set to Clear call, the receiver shall clear the call in accordance with procedure of clause 5.4. If the call is already in the clearing phase (Release Request or Release Indication), the adaptation of clause 5. 4 is inappropriate.

# 2. Proposal

## 1) It is Proposed to correct the first and second paragraph of the clause 5.7.1. as follows.

If an unexpected or unrecognized message type lis received, the following procedures are applica-

ble in any other state than the Null state.

If the action indicator bits of the instruction field of a Message type information element are set to "clear call", in any other state than the Release Request and Release Indication state the call shall be cleared in accordnace with procedure of subclause 5.4.3 or 5.4.4 except that a Cause information element indicating cause #97, "message type non-exitent or not implemented", or cause #101, "message lnot compatible with call state" shall be sent. When in the Release Request of the user side or in the Release Indication of the network side, the receiver shall take no action and remain in the same state. When in the Release Request of the network side or in the Release Indication of the user side, the receiver shall send RELEASE COMPLETE with Cause information element indicating cause #97, "message type non-exitent or not implemented", or sause #101, "message not compatible with call state", and move to the Null state.

## 2) It is proposed to correct the subclause 5.7.2 a) as follows.

a) action indicator field = Cear call

If the action indicator field is equal to "clear call", in any other state than the Release Request and Release Indication state the call shall be cleared according to the procedures defined caluse 5.4 except that that the Cause information element shall contain cause #99, "Information element non-existent or not implemented" or sause #100, "invalid information element contents". When in the Release Request of the user side or in the Release Indication of the network side, the receiver shall take no action and remain in the same state. When in the Release Request of the network side or in the Release Indication of the user side, the receiver shall send RELEASE COMPLETE with Cause information element indicating cause #99, "information element non-existent or not implemented", or cause #100, "invalid information element contents", and move to Null state.

## 3) It is Proposed to correct the clause 5.6.9 b) as follows.

b) For calls in the establishment phase (states N1, N3, N4, N6, N7, N8, N9, U1, U3, U4, U6, U7, U8 and U9)shall be maintained according to the procedures contained in other part of clause 5.

ITU—Telecommunication Standardization Sector

Study Group 11

Geneva, 5－23 September 1994

Question(s) : 15/11
Working Party : 2/11

**SOURCE : KOREA**

**TITLE :** The procedure of dropping a party initiated by a user and adding a party at the destination interface, in Q.297x

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**ABSTRACT**

This contribution suggest some modifications of the call/connection control procedure for the point-to-multipoint, especially for adding and dropping a party. The subclause 5.2.2.5.1.1 that describes the response of adding a party must be changed in the case that the user is an ATM endpoint. And the procedure of dropping a party of calling user and that of called user is somewhat different, because that right of the calling user to release the call is different from that of the called user. We would like to revise the procedure of dropping a party.

# 1. Introduction

On last Edinburgh meeting, the Rec Q.297x which specifies the essential features, procedures, messages for the point-to-multipoint call/connection control has been changed. In this contribution, we suggest some modifications of the call/connection control procedure for the point-to-multipoint, especially for adding a party at the destination interface and dropping la party. For adding a party at

the destination interface, the network will indicate the arrival of an add party request at the destination user-network interface by sending a SETUP message if the link state is either Null or in a clearing state. So, I propose that the subclause 5.2.2.5.1.1 be changed, reflection this fact. And also, I suggest that the procedure of dropping a party of a calling user and that of a called user be specified separately.

# 2. Proposals

## 2.1 Procedures applicable at the destination B and TB reperence point when the user is an ATM endpoint.(5.2.2.5.1.1. of Rec. Q.297x

The netowk will indicate the arrival of an add party request at the user-network interface by transferring a SETUP or ADD PARTY message accroge the interface. Then the network sends a SETUP message with a new Call Reference value accross the UNI if the link-state is either Null, Releae Request, Release indication or in a clearing state. (subclause 5.2.1) And a leaf terminal which expects to never terminate more than one party of a point-to-multipoint call need only to maintain the link-state.(subclause 2.1) Unless the user, and ATM endpoint, at the destination interface is joined in the point-to-multipoint call, the link state is either NULL or in a clearing state. Therefore the user, an ATM endpoint, receives a SETUP message, not a ADD PARTY message for the arrival of an add party request. So, we propose that the subclause 5.2.2.5.1.1 be modified as an Annex 1.

## 2.2. Dropping a party initiated by a user

Apart from the exceptions identified in 5.3.2 and 5.5, the user shall initiate dropping a party by sending a RELEASE or DROP PARTY massage. The calling user shall transfer a PELEASE or a DROP PARTY message when the user wants to drop a party. But the called user, especially an ATM endpoint, shall initiate dropping itself by sending a RELEASE message because the called user maintain only the link-state and is joined in the point-to-multipoint call via a SETUP message. So in this contribution, we propose that the procedure of dropping a party be modified.

The user at the originating interface shall initiate dropping a party by sending a RELEASE or a DROP PARTY message. And the called user, which is not an ATM endpoint, shall also use a RELEASE or a DROP PARTY message. However, the called user that is an ATM edpoint has to initiate dropping a party(itself) by sending only a release message. And the Root shall use a RE-

LEASE message when:

* The calling user wants to drop all parties of a call.
* There is only one party to the call on this interface.

According to these facts, we propose that the procedure of dropping a party by the user be specified separately at the calling user and the called user, as Annex2. And we propose that the subclause 5.3.6 be removed, because the procedure of dropping all parties is included in this procedure.

# 3. Conclusion

In this contribution, we propose for the point-to-multipoint call/Iconnection that the procedure of adding a party at the destination interface be modified as in Annex 1 and the procddure of the dropping a party be specified and modified separately in the calling user and the called user as in Annex 2.

## Annex 1

5.2.2.5.1.1 Procedures applicable at the destination SB and TB reference point when the user is an ATM endpoint.(5.2.2.5.1.1. of Rec. Q.297x)

When the calling user receives the add party request via a SETUP message, the setup procedure of 5.2/Q.2931 shall be sued for the response for the SETUP message.

## Annex 2.

The procedures of dropping a party initiated by the user

**5.3.3.1 Dropping a party initiated by the calling user**

The calling user shall initiate clearing a call by sending a RELEASE message and dropping a party by the Root. The network shall respond to the RELEASE message as specified in subclause 5. 3.3.

A RELEASE message is used to initiate dropping a party by the calling user when:

The calling user wants to drop all paries of a call.

There is only one party to the call on this interface.

When a RELEASE message is sent to the network, the normal clearing procedures of 5.4/Q.2931 shall be used and all parties(for this call) on this interface are dropped(i.e., enter the Null party-

state and stop all party-state timers.)

When the network receives a RELEASE message:

* Any parties in the Drop Party Initiated orand Drop Party Received party-state shall enter the Null party-state
* Any parties in the Add Party Received, Add Party Alerting Received, Ad Party Alerting Delivered party-state or the Active party-state shall be dropped towards the remote user with the cause contained in the RELEASE message or cause #31, *Normal unspecified* if no cause is included in the Release message. That is, the network release the call(i.e, all of the links) towards the remote user via RELEASE message.
* Parties in the Add Party Initiated party-state shall be placed on the add party queus.
* If there are add party requests queued on the add party queue, the network shall transmit one of the add party requests as a SETUP message with a new call reference value and the same information element values as the privious call. After the network receives the CONNECT message for this SETUP message, the network shall transmit ADD PARTY massage using this new call reference value for the remaining add party requests on the add party queue.)

Note—After sending a RELEASE message, and while in the Release Request link-state, the user shall ignore any ADD PARTY messages pertaining to that call reference until the call reference is available for reuse.

A DROP PARTY message is used to initiate dropping a party by the calling user when:

* The party is in the Active, Add Party Alerting Received, Add Party Initiated party-states and
* There are other parties to the call on this interface in the Add Party Initiated, Add Party Alerting Received, or Active party-state.

After sending a DROP PARTY message the user shall start timer T398(the value of timer T398 is specified in 5.3), and enter the Drop Party Initiated party-state.

If two or more parties associated with the call are either in Active, Add Party Initiated, Add Party Alerting Received, Add Party Alerting Delivered, or Add Party Received party-state, this message then prompts the network to release the endpoint reference and to initiate procedures for dropping a party along the path to the remote user. Once the network has released the endpoint reference used for the party has been released, the network shall: send a DROP PARTY ACKNOWLEDGE message to the user.; and enter the Null party-state.

If all other parties associated with the call are in the Null party-state, a Drop Party Initiated party-state, or a Drop Party Received party-state, this message then prompts the network to release the endpoint reference, enter the Null party state for that party, and to initiate procedures for

dropping the party along the path to the remote user. Once the network releases the endpoint reference used for the party has been released, the network shall send a RELEASE message to the user with cause '#31, *normal, unspecifiel*.

Note—The DROP PARTY ACKNOWLEDGE message has only local significance and does notimply and acknowledgement of dropping from the remote user.

On receipt of the DROP PARTY ACKNOWLEDGE message the user shall: cancel timer T398,; release the endpoint reference,; and return to the Null party-state. If all parties on the call at the interface are in the Null, Drop Party Initiated, or Drop Party Received party-state, the user shall release the call by sending a RELEASE message.

If timer T398 expires:

If one or more parties associated with the xall are in the Active, Add Party Initiated, Add Party Alerting Received (Add Party Alerting Delivered, Add Party Received party-state is excepted from this contents), the user shall: send a DROP PARTY ACKNOWLEDGE message to the network with the cause number originally contained in the DROP PARTY message,; and enter the Null party-state. In addition, the user may indicate a second cCause information element with cause #102, *recovery on timer expiry*. Equipment may use implementation-dependent recovery procedures, such as initiating status enquiry procedures, to verify that the party has been dropped.

If all parties associated with the call are in the Null, drop Party Received, or Drop Party Initiated party-state, the user shall: send a RELEASE message to the network with the cause number originally contained in the DROP PARTY message. In addition, the user may indicate a second cause information element with cause #102, *recovery on timer expiry*.

### 5.3.3.2 Dropping a party initiated by the called user(at the destination interface)

The called user which is an ATM endpoint shall initiate dropping a party by sending a RELEASE message. And the user which is not an ATM endpoint shall send a RELEASE message to the remote user if all other parties associated with the call in this interface are in the Null party-state, a Drop Party Initiated Party-state, or a Drop Party Received party-state.

When a RELEASE message is sent, the normal clearing procedures of 5.4/Q.2931 shall be sued and all parties (for this call) on this interface are dropped(i.e., enter thr Null party-state and stop all party-state timers.)

If other parties associated with the call in this interface are either in Acive, Add Party Received, Add Party Alerting Delivered party-state, the user which is not an ATM endpoint initiates the procedure of dropping this party to the remote user(calling user).

TSS
STUDY GROUP 11

Delayed Contribution
English only

Geneva, September 1994

Question : 6(Intelligent Network Capability Sets)

**Source : Republic of Korea(ETRI)**

**TitleI :** Handling of Protocol Errors in INAP

**ABSTRACTION**

This contribution proposes the needed method with which ONAP definitely recognize protocel error situations checked by the remote INAPl.

# 1. INTRODUCTION

In general, error situations in the protocol of IN application layer could be calssified into two cases as the followings:

—reports of failure responeses to operation classes 1 and 2,

—reports of protocol errors to success and failure reponses, or operation classes 1, 2, 3 and 4.

First, relevant errors in Q.1218 were already defined to report failure responses to operation classes 1 and 2. In the end, a name and a cause to each error case could be sended to a remote node that transfered operations. This case is called an operation error in the contribution for convenience sake.

Second, as depicted in Q.773, there were two types of protocol errors, TCAP-CSL and TCAP-user component errors. In the end, types and causes of protocol errors could be sended to a remote node that transfered operations or responses. This case is called a component error in the contribution. According to this Recommenation, the followings show protocol errors to be checked in a TCAP-user;

—in case of receiving Invoke component

• duplicate invoke ID

- unrecognized operation
- mistyped parameter
- resource limitation
- initiating release
- linked response unexpected
- unexpected linked operation

—in case of receiving Return Result component

- mistyped parameter

—in case of receiving Return Error component

- unrecognized error
- unexpected error
- mistyped parameter

It is, especially in case of the mistyped parameter among various component errors, general to identify possibilities of protocol errors of tag, length and contents of information elements in application layer protocols. Because all these cases may be only treated as a mistyped parameter not including diagnostic information, it is difficult to analyze whether the protocol error happes in any information of the component, and in any component of several ones.

In case that similar INAPs are inplemented in several networks or single network, this means that haw to handle after a prorocol error happens is not easy if the exact status of the protocol error may not be notified, based on the information element sended and received between nodes.

This contribution proposes how to handle the second error case that is a component error. A functional element could recognize the exact status of protocol error based on the method as far as possible between both INAP implements.

# 2. BACKGROUNDS

## 2.1 An Example of ISUP

In seveal messages(ACM, CPG, CFN, FRJ, REL, RLC) of included, and the detailed format of this parameter in Recommendation Q.850 was defined. Cause value within the parameter means the reason why shows the cause of sending ISUP messages or DSS1 messages. As an example, in case of "0010101(21)" of cause value, that has the meaning of release of the call due to limitation of a supplementary service, and may include additional information as a diagnostic one.

| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
|---|---|---|---|---|---|---|---|---|
| 1<br>Ext | Rejection reasion | | | | | Condition | | Octets X* |
| User specific diagnostic | | | | | | | | X+1* etc<br>(Note 1) |
| IE<br>type | information element idetifier | | | | | | | X+2* etc<br>(Note 2) |

Note 1—This octet may be present only if octet x indicates user specific diagnostic

Note 2—this octet may be present only if octet x indicates information element missing or information elements contents are not sufficient.

## 2.2 Situations of INAP

As an example applicable to the proposal of this contribution, an Analyzed Information operation in Q.1218 was defined like the followings:

〈Analyzed Information operation definition〉

Analyaed Information =OPERATION
ARGUMENT
ERRORS Analyzed Information Arg
Missing Customer Record,
Missing Parameter,
SYstem Failure,
Task Refused,
Unex pected Components Sequence,
Unex pected Data Value,
Unexpeced Parameter

〈Analyzed Information Arg parameter definition〉

Analyzed Information Arg =SEQUENCE
Dp Specific Common Parameters (0) Dp Specific Common Parameters,
dialled Digits (1) Called Party Number OPTIONAL,
calling Party Business Group ID (2) Calling Party Business Group ID

| | |
|---|---|
| OPTIONAL, | |
| calling Party Subaddress | (3) Calling Party Subaddress OPTIONAL, |
| calling Facility Group | (4) Facility Group OPTIONAL, |
| calling Facility Group Member | (5) Facility Group Mamber OPTIONAL, |
| original Called Party ID | (6) Original Called Party ID OPTIONAL, |
| prefix | (7) Digits OPTIONAL, |
| redirecting Party ID | (8) Redirecting Party ID OPTIONAL, |
| redirection Information | (9) Redirection Information OPTIONAL, |
| route List | (10) Route List OPTIONAL, |
| travelling Class Mark | (11) Travelling Class Mark OPTIONAL, |
| extensions | (12) SEQUENCE SIZE(0..MAX) OF |
| Extension Field OPTIONAL | |
| feature Code | (13) Feature Code OPTIONAL, |
| [Melbourne, Mar. 1994] | |
| access Code | (14) Accesscode OPTIONAL, |
| [Melbourne, Mar. 1994] | |
| carrier | (15) Carrier OPTIONAL, |
| [Melbourne, Mar. 1994] | |

**〈Dp Specific Common Parameters parameter definition〉**

| | |
|---|---|
| Dp Specific Common Parameters | =SEQUENCE |
| service Address Information | (0) Service Address Information, |
| bearer Capability | (1) Bearer Capability OPTIONAL, |
| Called Party Number | (2) Called Party Number OPTIONAL, |
| calling Line ID | (3) Calling Party Number OPTIONAL, |
| calling Partys Category | (4) Calling Partys Category OPTIONAL, |
| IPPSP Capabilities | (5) IPSSP Capabilities OPTIONAL, |
| IP Aviolable | (6) IP Available OPTIONAL, |
| ISDN Access Related Information | (7) ISDN Access Related Information |
| OPTIONAL, | |
| CG Encounterd | (8) CG Encountered OPTIONAL, |
| location Number | (9) Location Number OPTIONAL, |
| service Profilel dentifier | (10) Service Profilel dentifier OPTIONAL, |
| terminal Type | (11) Terminal Type OPTIONAL, |

| | |
|---|---|
| extensions | (12) SEQUENCE SIZE(0..MAX) OF Extension Field OTIONAL |
| charge Number | (13) Charge Number OPTIONAL, [Washington, Jun. 1994] |
| serving Area ID | (14) Serving Area ID OPTIONAL, [Washington, Jun. 1994] |

〈Service Address Information parameter definition〉

| | | |
|---|---|---|
| Service Address Information | =SEQUENCE | |
| service Key | (0) Service Key, | |
| misc Call Info | (1) Misc Call Info, | |
| trigger Type | (2) Trigger Type | [Washington, Jun. 1994] |

In the operation definition above, at the melbourne meeting of March this year, three optional parameters were added in Analyzed Information Arg, at the Washington meeting of June this year, two optional parameters were added in Dp Specific Common Parameters, and one mandatory parameter "Trigger Type" was added in Service Address Information. This phenomenon of additions and deletions in parameters takes place especially in Intelligent Network application protocols rater than in other No.7 protocols. It is the reason that Intelligent Network applicaion protocols have the close bearing on supplymentary services in telecommunication networks. parameters included in operations and errors have the possibility of modification and could not be always coincided between nodes because implementation scope is determined according to the requirements of a system or a network. In the end, unconditionally to notify the mismatch of parameters using only a mistyped parameter is difficult to complement the implementaion, or to recognize the situations between them.

# 3. PROPOSALS

## 3.1 Procedure

An operation including supplementar information against component error may be inserted within the same transaction message that transfers a Reject component. In case that a protocol error happens in the course of sending the diagnostic information, it has local effect. In case that a protocol error happens after a dialogue association ends, a functional element may send relevant components using an unstructured dialogue.

### 3.1.1 Sending of diagnostic information against a component error

In case that an error is checked in the received component, the functional element inform its remote element of a component rejection using a TC-U-REJECT request primitive. In addtion, the functional element sends supplementary information by using a Diagnostics Report operation to the source from which the component was received. Supplementary information in the respective protocol error may include the followings:

| | |
|---|---|
| −duplicate invoke ID | : the duplicate invoke ID |
| −unrecognized operation | : the unrecognized operations code |
| −mistyped parameter | : all parameters received |
| −resource limitation | : not applicable |
| −initiating release | : not applicable |
| −linked response unexpected | : the linked-to and linked operation code |
| −unexpected linked operation | : the linked-to and linked operation code |
| −unrecognized error | : the unrecognized error |
| −unexpected error | : the unrecognized error |

In case of a mistyped parameter, all the parameters in the erroneous component as a supplementary information may be extracted, and an exact reason against the mistyped parameter and position information of the wrong octet may be included.

## 3.2 Operation Defintion

Diagnostics Report =OPERATION
  ARGUMENT
    Diagnostics Report Arg
  SSF < − > SCF, SCF < − > SDF, SCF < − > SRF

This operation is used to send supplementary information when a component error happens in a functional element.

| | |
|---|---|
| Diagnostics Report Arg | =SEQUENCE |
| component Position | (0) INTERGER (1..10) DEFAULT 1, |
| received Info | (1) OCTET STRING (SIZE (1..127)), |
| additional Informaion | CHOICE |
| Linke To Opration | OPERATION, |
| added info Of Mistyped Para | (0) Added Info Of Mistyped Para |
| OPTIONAL | |

```
Added Info Of Mistyped Para          =SEQUENCE
  first Octet Position               (0) INTEGER (1..127),
  last Octet Position                (1) INTEGER (1..127),
OPTIONAL,
  Mistyped Para Types                (2) Mistyped Para Types DEFAULT
tag Error

Misty ped Para Types                 =ENUMERATED
  tag Error(0),
  length Error(1),
  contents Error(2)
```

# 4. CONCLUSION

If this contribution turns out to be appropriate, the following sections may be complemented in Q. 1218. Detailed descriptions to these text, how to send the supplementary information when an operation error happens, and applicableness to Q.1214 are for further studies.

- section 2.1 : addition of an operation definition
- section 2.3 : addition of INCS-1 data types
- section 3.3 : addition of an operation code
- section 3.3 : addition of an operation procedure