FIGURE 6/T.523

Example of mode switch

FIGURE 5/T.523

Example of mode switch

FIGURE 4/T.523

Example of data entry in type 4

(Duplex)

7.4.3.5Switching of entry type

The entry type is modified by the EH when sending a D-MODIFY, D-CREATE, D-DELETE or D-REBUILD for the DATA-ENTRY-PROGRAM-SE.

After sending such a D-MODIFY, the EH may send further VIA operations via DTAM manipulation, if required, and should send the token, even when switching to data entry type 4, in order to indicate to the LH the end of entry type redefinition and to permit echoing of characters (if any).

When receiving a primitive which redefines the data-entry type, the LH should stop sending information and consider all information from the videotex user as typed ahead information. The sending of information is resumed when receiving the data token. If the new defined data entry type is 1, 2 or 3, the token remains assigned to the LH until the entry is entirely performed. If the new defined data entry type is 4, the token is immediately sent back to the EH.

The echoing of characters is started after the reception of the data token depending on the value of the echo attribute. The echoing is stopped in modes 1, 2, 3 when sending back the data token after completion of the data entry. The echoing is only stopped in mode 4 after redefinition of a new data entry mode (or modification of the echo attribute).

Examples are given in Figures 5/T.523 and 6/T.523.

FIGURE 3/T.523

Example of data entry in type 2

(Data collection: half duplex)

7.4.3.4Operation of data entry in duplex mode (type 4)

When the data entry type attribute of the DATA-ENTRY-PROGRAM-SE is set the data entry type 4, the LH sends the entered data and the termination reason in D-TYPED-DATA with the termination reason associated. The data token remains assigned to the EH. An example is given in Figure 4/T.523.

When the EH resets the data entry type attribute to another type (1, 2 or 3) under the condition that both modes are available at the LH, the LH stops sending data in D-TYPED-DATA and uses again D-MODIFY to send the entered data. The EH ignores the possible colliding D-TYPED-DATA.

FIGURE 2/T.523

Example of data entry in type 1 or 3

(Information retrieval or on the fly: half duplex)

Display is performed by VIA operations, defined in Recommendation T.564, initiated by the external host on the display structure.

To perform VIA operations on the display structure the EH uses D-CREATE, D-MODIFY, D-DELETE or D-CALL service primitives under data token control.

7.4.3Manipulation of data entry information

7.4.3.1General

The Recommendation T.564 defines the following four types of data entry:

1) data entry type 1 --- information retrieval;
2) data entry type 2 --- data collection;
3) data entry type 3 --- data entry on the fly;
4) data entry type 4 --- duplex data entry.

These data entry types are categorized into half duplex mode (data entry type 1, 2 and 3) and duplex mode (data entry type 4).

The EH may use D-CREATE, D-MODIFY, D-DELETE, D-CALL to perform VIA operations on each structure element of the data entry structure, except modifying the RESULT-SE and its associated content portion.

Half duplex mode of data entry provides the dialogues between the LH and the EH under the data token control. Data entry is performed from the LH by VIA operations via DTAM manipulation (D-MODIFY) on the data entry structure. In this case the EH should give the data token to the LH to perform data entry.

Duplex mode of data entry is not dependent upon the token control. Data entry is performed from the LH by the use of typed data and the data token is always located at the EH side.

7.4.3.2Management of data entry mode

The management of the data entry modes is bound to the following rule:

i) the LH issues the parameter of "data entry mode" to indicate the data entry capabilities at the LH side in the DTAM association establishment phase. This parameter is a choice of (a) half duplex mode, (b) duplex mode and (c) half duplex and duplex modes;
ii) the EH recognizes the capabilities of data entry mode which is capable to be managed by the LH. It is not necessary to inform the LH of the EH capabilities of the data entry mode;
iii) if the LH indicates the only half duplex mode and selects the application based on the duplex mode, the EH may refuse to connect with the selected application from the LH;
iv) if the LH indicates the only duplex mode and selects the application based on the half duplex mode, the EH may refuse to connect with the selected application from the LH;
v) if the LH indicates both modes, all the applications based on the half duplex or duplex modes are available to the LH.

7.4.3.3Operation of data entry in half duplex mode (type 1, 2, 3)

In data entry type 1 or 3, the entered data are sent from the LH to the EH using D-MODIFY for the RESULT-SE and the content portion associated to the RESULT-SE. In data entry type 2, the entered data are sent from the LH to the EH using D-MODIFY for the RESULT-SE and the content portions associated with the entered fields and the RESULT-SE (if necessary).

The EH gives the token to the LH to enable the LH to send the entered data.

The LH gives the token to the EH after having completed the data entry (i.e. after having initiated the appropriate D-MODIFY corresponding to the SEs concerned with data entry). Examples are given in Figure 2/T.523 and Figure 3/T.523.

iv) typed data transmission.

6.2ACSE functionalities

The basic functionalities of the association control service element defined by Recommenda- tions X.217 and X.227 are used.

6.3Presentation functionalities

The kernel functional unit is used as defined by Recommendation X.216 and X.226. Recommenda- tions X.208 and X.209 are used for the definition of abstract notation and basic encoding rules of abstract notation respectively for DM-1.

6.4Session functionalities

The kernel functional unit, two ways alternate functional unit and typed data functional unit are used in accordance with Recommendations X.215 and X.225.

7Communication procedure for DM-1

7.1General communication procedure

The general communication procedure for videotex gateway application is defined in line with the basic procedure in Recommendation T.432. The procedure consists of:

- application-association establishment;
- application-association termination;
- application-association abort;
- data transmission.

7.2Application-association establishment

A communication normally begins with the establishment of application-association from the LH or EH DTAM user to initialize the communication environment and to set the initial parameters and the VIA structures being used. The initial data token is assigned to the EH DTAM user. After the establishment of application-association, both DTAM users move to the data transmission phase.

7.3Application-association terminate and abort

The DTAM application-association may be normally terminated by either the LH or the EH DTAM user subject to the owning of the data token. The DTAM application-association may also be abruptly terminated by either the LH or the EH DTAM user or provider using the appropriate DTAM abort services.

7.4Data transmission

7.4.1General

Videotex gateway application provides the following communication functions in the data transmission phase:

1) manipulation of display information;
2) manipulation of data entry information;
3) manipulation of application control memory information;
4) manipulation of special terminal facilities information;
5) manipulation of administrative information;
6) exchange of over limit information (for further study);
7) transmission of asynchronous message.

FIGURE 1/T.523

A model of communication application profile DM-1 for videotex interworking

5.3The owner of the data token, managed by the DTAM token control function, is able to manipulate ODA and operational structure documents which are directly mapped from VIA operations defined in the Recommendation T.564.

5.4The manipulation provides the operations which can be applied to one or more constituents of the ODA document and/or the operational structure. In this profile, these operations do effect addition, deletion or modification of constituent to a document which existed identically between both hosts.

5.5When the data token belongs to the LH DTAM user, only modify operations on operational structure are allowed to be used by the LH DTAM user. On the other hand, the EH DTAM user is able to use all of the operations defined in DTAM when it has the data token.

6Basic communication requirements for DM-1

DM-1 is defined under the following OSI communication environment. Mapping rules of DTAM APDUs into/out of the ACSE and presentation layer are used as defined in the Recommendation T.433.

6.1DTAM functionalities

The following DTAM functionalities defined in Recommendation T.432 are basic requirements for this communication profile DM-1:

i) document unconfirmed manipulation by using create, modify, delete and call operations;

ii) association use control;

- Rec. T.101: International interworking for videotex services
- Rec. T.430 Series: Document transfer and manipulation (DTAM)
- Rec. T.504: Document application profile for videotex interworking
- Rec. T.541: Operational application profile for videotex interworking
- Rec. T.564: Gateway characteristics for videotex interworking
- Rec. X.215: Session service definition for open systems interconnection for CCITT applications
- Rec. X.225: Session protocol specification for open systems interconnection for CCITT applications
- Rec. X.216: Presentation service definition for open systems interconnection for CCITT applications
- Rec. X.226: Presentation protocol specification for open systems interconnection for CCITT applications
- Rec. X.217: Association control service definition for open systems interconnection for CCITT applications
- Rec. X.227: Association control protocol specification for open systems interconnection for CCITT applications
- Rec. X.208: Specification of abstract syntax notation one (ASN.1)
- Rec. X.209: Specification of basic encoding rules for abstract syntax notation one (ASN.1)

4Definitions

Terms and their definitions are defined by the Recommendations listed above.

5Overview of communication profile DM-1

5.1Communication profile DM-1 defines the communication functionalities which provide a real time remote document manipulation on ODA and operational structure documents by create, delete, modify and call operations between videotex gateways under OSI ACSE and presentation communication support functions (normal mode defined in Recommendation T.432). These operations are the unconfirmed type of manipulation.

5.2This profile defines the communication model which consists of the local host DTAM user and the external host DTAM user as illustrated in Figure 1/T.523. Either the LH or the EH is capable of managing the initiation and termination of application-association. At the association establishment phase, initial VIA structures are automatically generated in both hosts.

COMMUNICATION APPLICATION PROFILE DM-1
FOR VIDEOTEX INTERWORKING

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1Scope

1.1The T.400 Series of Recommendations generally defines open document architecture (ODA), document architecture operations and DTAM service/protocol for document architecture transfer and manipulation under the telematic communication environment.

1.2This Recommendation defines a communication application profile DM-1 for document unconfirmed manipulation to specify an interactive communication profile based on DTAM between videotex gateway systems.

1.3The use of Recommendations X.215/X.225, X.216/X.226, X.217/X.227 for this communication profile is described in this Recommendation.

2Field of application

2.1The communication application profile DM-1 enables document manipulation for documents which are represented in accordance with the document application profile defined by Recommendation T.504, and the operational application profile defined by Recommendation T.541.

2.2The ODA documents that are manipulated should be in formatted form.

2.3The field of application of this Recommendation is the international videotex interworking service between videotex gateways, representing the external host (EH) and the local host (LH).

2.4Videotex communication procedure is based on the model defined in this Recommendation in accordance with the Recommendation T.564 which defines gateway characteristics for videotex inter- working.