VIDEOTEX SERVICE

SPECIFICATIONS

NO. V IVTS-01/02.AUG94

TELECOMMUNICATION ENGINEERING CENTRE
KHURSHIDLAL BHAWAN, JANPATH
NEW DELHI - 110 001
INDIA
1.0 GENERAL
This document defines the parameters of videotex service e.g. scope of service, its architecture and major components, bearer capabilities, service description, quality of service, basic elements of equipment for the videotex service to be provided by any service provider.

2.0 SERVICE DEFINITION AND SCOPE
A Videotex service is an interactive service which provides, through appropriate access by standardized procedures, for users of videotex terminals to communicate with data bases and other computer based applications via telecommunication networks. The videotex service will follow the CCITT Recommendations F.300.

The videotex service will include the following set of characteristics.

i) Information will be generally in an alphanumeric and / or pictorial form and may be supplemented by audio.

ii) Information shall be stored in a data base.

iii) Information shall be transmitted between the data base and users by telecommunication networks.

iv) Displayable information shall be presented on a visual display device.

v) Access shall be under user's direct or indirect control.

vi) It should be possible to create and modify information in the data base.

vii) The service shall be user friendly.
viii) The service shall have data base management facilities, so that information providers can create, maintain & manage data bases and to manage Closed User Group facilities.

ix) The service shall have facility for computer based applications e.g. data processing, computer games etc.

The network may be Public Switched Telephone Network (PSTN), or Packet Switched Public Data Network (PSPDN. The characteristics and functions of videotex services are specified to ensure that users of a videotex service are able to access videotex services in other countries operating in accordance with Recommendations T.100 and T.101 and other relevant CCITT Recommendations.

3.0 SERVICE BEARER CAPABILITIES.

3.1 Information Transfer Attributes

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<th>Videotex centre to Videotex Centre or external computer</th>
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<td>Circuit / packet / leased</td>
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<td>9.6kbps (PSTN / PSDN / leased)</td>
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<td>centre</td>
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<td>Upto 9600 (Leased)</td>
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<td>3.1.3 Information Transfer Capabilities</td>
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<td></td>
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<td>Multi Point</td>
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4.0 QUALITY OF SERVICE

4.1 Performance objectives for Signaling:

The main component of the videotex terminal is built-in modem which shall conform to the TEC specification number given in Clause No.7.5

4.2 QUALITY OF SERVICE OBJECTIVES

4.2.1 Availability

i) Availability of service:

Service should preferably be available 24 hours a day. When a service is unavailable (e.g. scheduled closure or temporary
failure), then the user should be informed of this and when the service will be (or is expected to be) available. Service should be available to all subscribers who log in for Videotex service.

ii) Availability of applications:
Applications accessible via the international link should preferably be available 24 hours/day. Applications which are not available all the time should indicate their hours of availability on the user screen in menu. This information be also reported in the directory.

iii) Call Establishment:
The time between the user request for a foreign service and the reception of the first response from this foreign service should typically be not more than 10 seconds. When the call cannot be established, the reason should be reported to the user in an understandable manner (e.g. foreign service not operating, temporary saturation etc.) This should give guidance to the user about action to be taken retry immediately, retry later, contact network operator etc).

iv) Call retention:
The international session should not time out in the event of a remote application not responding to a user's input in less than 10 minutes. This does not preclude the local time out for user's inactivity detection according to national practices.

4.2.2 INFORMATION TRANSFER
i) Transmission characteristics
For all configurations the bit error rate above transport layer should be better than 10 exp -6 but 10 exp -8 should be aimed for end to end. The statistical delays due to network errors should be in the range of 5-10 seconds.

In case of transmission failure the user should be advised accordingly.

ii) Response times
The median response time during the session should be less than 3 seconds for information retrieval and typically not more than 10 seconds in case of any transaction. The response times in all cases include the network transmission delays. If conversion is provided, then longer response times would be acceptable. Applications which take more than 10 seconds to respond should preferably send reassurance messages.
iii) Data integrity
When interworking between two videotex service providers using different data syntaxes, degradation of the display quality may occur due to the data syntax conversion process, but care should be taken to minimize loss of essential (textual) information.

5.0 SERVICE DESCRIPTION

5.1 GENERAL
videotex service is a combination of television and computer technology. It is a two way interactive communication with visual display of text and graphics over the normal telephone line. It is different from the broadcast mode. Teletext service wherein the user has to wait for the cycle of information transmitted. In the videotex service the display of required information is at the control of user. The system would be interactive in that the users request for information or service is actually sent to, received by and acted on by a centralised computer. In short Videotex service is a user friendly means of information retrieval from computer data bases over the PSTN.

5.2 VIDEOTEX SERVICE FACILITIES
A videotex service facility at application layer implementation, provides specific, clearly defined facilities to videotex users. Following Videotex Service Facilities shall be provided.

5.2.1 VIDEOTEX INFORMATION RETRIEVAL
A Videotex Information retrieval facility in which user obtains information by means of a dialogue with a data base shall be provided.

5.2.2 VIDEOTEX TRANSACTIONS
A Videotex Transaction facility which allows users to create and modify information stored in a data base shall be provided.

Access to these facilities may require special functions and procedures to authenticate the authority to access.

5.2.3 VIDEOTEX MESSAGING
A Videotex service facility which allows users to communicate with each other by storing messages in a commonly accessible data base. These stored messages may either be retrieved by the user or delivered automatically.
5.2.4 VIDEOTEX CONFERENCING

A videotex service facility, which by providing routing and switching functions, enables users to send and receive messages in a conversational manner. This does not preclude direct terminal to terminal messaging using the existing network.

5.2.5 VIDEOTEX DATA PROCESSING

A videotex service facility which allows the user to employ processing and storage capacity at the host computer.

5.2.6 VIDEOTEX TELESOFTWARE

A videotex service facility which allows a host computer to deliver a program and/or data to a videotex terminal in order to have it processed in this equipment.

6.0 PROCEDURES

The users and Information Providers of Videotex Service shall have to register with the service provider. The service provider will have a centrally controlled network management centre which will allot the user individually:

   i) The User number
   ii) Password
   iii) Personal Password

When the user wants to withdraw from the service, he will interact with the service provider who will in turn withdraw his user number, password etc.

6.1 PROVISIONING AND WITHDRAWAL

All the necessary users' equipment such as Videotex terminal, moderns, etc shall be arranged by the user /service provider.

However, the service provider will have to clearly indicate the resources (such as DELs, leased lines, modem) to be hired, taken on lease from DOT as per the anticipated users' demand.

6.2 PROCEDURES SPECIFIC TO THE SERVICE

The procedure specific to the service will be provided by the service provider to the users with necessary documentation.
6.3 CHARGING

The network will have a Network Management Centre to provide the user the requisite bills and if the other existing network such as Inet, ISDN etc is interfaced, suitable charging information will be provided.

6.4 INTERWORKING REQUIREMENTS / INTERACTION WITH OTHER SERVICES

The interworking of Videotex service with other services such as Telex, Teletex, PSPDN, ISDN should be provided by the service provider as per CCITT Recommendations F.300.

6.5 INTERNATIONAL INTERWORKING OF VIDEOTEX

Videotex interworking allows a videotex terminal in a given country to interact in real time with a videotex application located in a different country. The gateways of two countries are connected via PSPDN, dedicated lines.

7.0 BASIC ELEMENTS OF EQUIPMENT

The details given below here may be considered as guidelines and main components are shown in figure enclosed.

Hardware

1) Videotex host computer
2) Videotex Access Point (VAP)
3) Multi-Protocol Packet switch
4) Asynchronous /synchronous modems
5) Videotex Terminals with built in modems

Software

Videotex host computer software

7.1 VIDEOTEX SYSTEM DESCRIPTION

The characteristics and functions of Videotex system should be as specified in the CCITT Recommendations F-300. The users of videotex service should be able to access videotex service in other countries in accordance with CCITT Recommendations T.100 & T.101.

The system shall be expected to support standard communication protocols e.g. CCITT X-25, IBMSNA, BISYNC etc, distributed data processing and online data base management capabilities. It should be possible to provide for small capacity increases, merely by enhancing memories, adding disks etc. depending upon the future demands. The expansion must be capable of taking place without program conversion or operating system redesign.
The system should support simultaneous local and remote batch, time
shared, interactive communication, data base applications and distributed
data acquisition using system mini/micro computer attachments.

7.2 HOST COMPUTER DESCRIPTION

The Videotex Service Provider has to work out his computer configuration
as per numbers of Information Provider, users, expansion, options etc.

a) Preferably there shall be a dual host computer (Hot Standby) and a
Network Management Centre (NMC).

b) It shall support X.25 ports, asynchronous ports which may be
expanded on requirements.

7.3 VIDEOTEX ACCESS POINT

a) The Videotex access point (VAP) shall support high speed X-25 port
and numbers of simultaneous videotex terminal users on asynchronous
lines PSTN 2 wire dial up) and concentrate these multiple terminals
over one X-25 port across a packet switch to videotex server (X-25
host). All terminal ports shall support RS-232 & V-24 physical
connection for modern connection as well as DIN direct connection.

b) It shall support CCITT X-3, X-28, X-29, X-25 protocols.

c) It shall facilitate handling of multi-standard (Cept-II, ASCII,
Prestel) terminals.

d) It shall support Asynchronous line speed upto 9.6Kbps and X-25
line speed upto 19.2Kbps

e) It shall have network management support functions like display
welcome page, user Id / Password collection, display service
selection pages, routing to appropriate service, restrict invalid
access.

7.4 MULTI-PROTOCOL PACKET SWITCH

a) The packet switch shall support CCITT X-3, X-25, X-28 and X-29
protocols.

b) It shall support connection to V.24 / V.28 / V.29 / V.32 and RS-
232 C interface through PSTN, PSDN, ISDN and direct connection.

c) It shall support even, odd, no parity and hunt facility.
7.5 MODEMS

The modems used shall conform to the TEC specification no. G/MOD-03/01.MAY93 and shall be interfaced approved.

7.6 VIDEOTEX TERMINALS

The videotex terminal shall conform to the TEC specification no. G/VTT-01/01.DECE89 and shall be interface approved.

8.0 SUPPLEMENTARY SERVICE

A Videotex service shall support the Closed User Group as supplementary service.

9.0 INTERFACES

9.1 PSTN interface:

The signalling & interface specifications shall conform to the relevant clauses of section B, Volume Z of TEC specification No. G/LLT-01/02.MAR94

9.2 PSDN Interface:

CCITT recommendations X.25 protocol is to be provided with the possibility of selecting some parameters among those defined below:

Physical level: Speeds: 2.4, 4.8, 9.6, 19.2 Kb/s

(level 1) : Interface : RS 232 C

Link level : LAPB

(level 2) : Byte Aligned

single link procedure

Module B frame sequencing

Variable window size (k) : 1-7

Variable ACK timer (T1) : 0.1 - 20 Sec

in the steps of 0.1 sec

Response Time (T2) <= 0.3 sec.

Variable I-frame size (N1) : 131+2

Number of repeat request (N2) : 10
Packet level : virtual Call Service

Logical channel by access rate

for 19.2 kb/s : upto 48
for 9.6 kb/s : upto 20
for 4.8 kb/s : upto 8
for 2.4 kb/s : upto 4

module 8 packet sequence numbering

window size : 2 or 3

Maximum packet : 128 bytes
size
IP & USER CONNECTIVITY WITH VIDEOTEX SYSTEM

- IPS
- ON LINE EDITING/UPDATE (PAGE BY PAGE)
- IP VT TERMINAL

- 1200/15 BPS
- 2 WIRE DIAL UP

- IP PC WITH VT EMUL/V23 MODEM

- 1200/15 BPS
- 2 WIRE DIAL UP

- OFF LINE EDITING & ON LINE BULK UP DATE

- USERS

- DEDICATED VT TERMINAL
- PC WITH VT EMULATION & V23 MODEM CARD
- TV WITH VT DECODER & V73 MODEM
  - CURRENTLY NOT CONSIDERED

- IP EXTERNAL PC
- X-25 PCXNET SYNCH MODEM
- LEASED LINE FOR IP (UP TO 9600 BPS)

- X-25 SYNCH MODEM

- MV 3400
- ASYNC PORTS (8)

- 52 PORTS
- V-23 MODEM RACK
- VAP

- 8 PORTS
- X-25 SYNCH MODEM

- 32 PORTS
- V-23 MODEM RACK
- X-25 SYNCH MODEM

- MV 3400
- ASYNC PORTS (8)

- 32 PORTS
- V-23 MODEM RACK

- LEASED LINE FOR IP (1200 OR 2400 BPS)

- REMOTE IP-PC
- ASYNC MODEM