

Activity Report of Asia-Pacific Medical Network Project in Kyushu University Hospital

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<https://doi.org/10.15017/8300>

出版情報：「超高速ネットワークを利用したアジア遠隔医療プロジェクト」 TEMDEC活動報告. 1, pp.1-114, 2005-03. AQUA事務局

バージョン：

権利関係：

4. Instruments / Technical tips

Here, we explain how to start a teleconference using “DVTS” environment.

(1) Basic & simple configuration

- A teleconference can be started with very simple system configuration.
Required items are shown in Table 4-1.

Table 4-1 Items required




| <i>Item</i> | <i>Figure</i> | <i>Specifications</i> |
|-------------------------------|---|---|
| Digital Video Cam-coder |  | <ul style="list-style-type: none"> - IEEE1394 (or FireWire, i.Link) interface - Built-in or external microphones |
| Personal Computer |  | <ul style="list-style-type: none"> - Desktop or notebook type, running Microsoft Windows XP® - High-speed CPU (ex. Pen-IV, III, M, Celeron over 2GHz) - 256-512MB RAM minimum - Higher class graphic cards or chips (ex. ATi, nVIDIA recent models) - Minimum display resolution of 800x600 - Fast Ethernet interface or Gigabit Ethernet interface - IEEE1394 (or FireWire, i.Link) interface - Stereo audio output interface - RGB or DVI output interface |
| Projector & Screen (optional) |  | <ul style="list-style-type: none"> - Minimum display resolution of 800x600 - Brighter light source - RGB or DVI input interface |

Table 4-1 Items required (Cont'd)









| <i>Item</i> | <i>Figure</i> | <i>Specifications</i> |
|------------------------|---|---|
| Speaker with amplifier |  | <ul style="list-style-type: none"> - Stereo RCA type pin-jack or mini-jack type inputs |
| Microphone |  | <ul style="list-style-type: none"> - Unidirectional sensitivity |
| Ethernet Cable |  | <ul style="list-style-type: none"> - UTP (Category 5 or 6) cable |
| IEEE1394 Cable |  | <ul style="list-style-type: none"> - 4pin-4pin or 4pin-6pin cable (depending on PC interface type) - At least 3m long |
| Audio Cable |  | <ul style="list-style-type: none"> - Stereo RCA type pin-plug or mini-plug (depending on PC and speaker interface type) |
| Display Cable |  | <ul style="list-style-type: none"> - D-sub 15pin type cable or DVI type cable (depending on PC and projector interface type) |

Table 4-1 Items required (Cont'd)

| <i>Item</i> | <i>Figure</i> | <i>Specifications</i> |
|------------------------------------|---|--|
| DVTS software |  | <ul style="list-style-type: none"> - Freely downloadable at http://www.sfc.wide.ad.jp/DVTS/software/win2000/setup-0.0.1-1.exe (for WindowsXP® only) - English is supported |
| Network, connected to the Internet |  | <ul style="list-style-type: none"> - Ethernet - Over 35Mbits/s end-to-end available bandwidth is needed |

- Technical tips relating to each of the above are shown in Table 4-2.

Table 4-2 Technical tips

| <i>Item</i> | <i>Descriptions</i> |
|-------------------------|---|
| Digital Video Cam-coder | <ul style="list-style-type: none"> - A built-in microphone is too sensitive for teleconference use because it causes acoustic feedback (howling). That is why it is not recommendable to use a built-in microphone. - External microphones should be used. |
| Microphone | <ul style="list-style-type: none"> - It should have uni-directionality and low sensitivity to avoid acoustic feedback. |
| Personal Computer | <ul style="list-style-type: none"> - Global IP address must be assigned for each PC. - It should have advanced graphics ability, because the DVTS process demands large graphics resource. - It is not recommendable to use built-in graphics chip sets such as i815, i845G etc. - If there are no PCs that have sufficient processing power, two PCs may be used: one is for sending and the other for receiving separately. |
| Network | <ul style="list-style-type: none"> - DVTS software consumes about 35Mbits/sec bandwidth. - Traffic in excess of 35Mbits/sec must be transmitted throughout from a sending site to a receiving site. Any bottleneck on the way to the remote site prevents effective functioning of the DVTS software. - Transmission of such heavy traffic to the Internet requires network system configuration adjustment and international negotiation by network administrators. |

- Connection of devices is shown as Figure 4-1 and Figure 4-2.

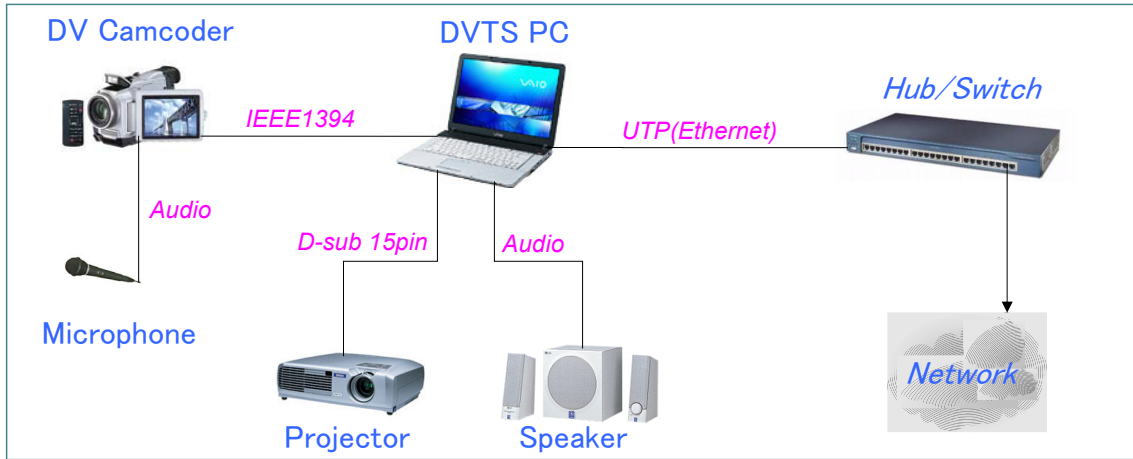


Figure 4-1 Basic system configuration

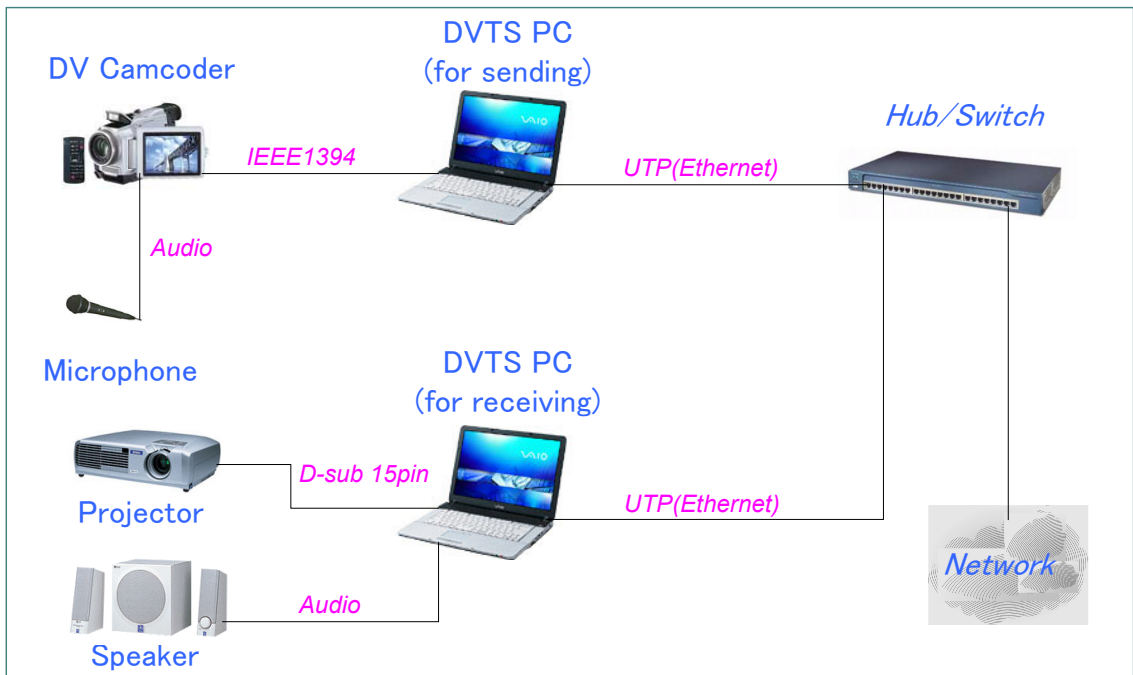









Figure 4-2 Basic system configuration (separated DVTS PC)

(2) Advanced configuration

- To make the teleconference more comfortable, an advanced configuration should be built. In addition to the basic configuration, the items shown as Table 4-3 below are required.

Table 4-3 Items required

| <i>Item</i> | <i>Figure</i> | <i>Specifications</i> |
|--|---|---|
| D/A converter |  | - Converts S-Video (or Video) signal into DV signal, and vice versa |
| Scan converter (optional) |  | - Converts PC's RGB output into S-Video (or Video) or DV signal - Also supports D/A converter function |
| Audio mixer |  | - Multi input channels & multi output buses |
| Video mixer (optional) |  | - Multi input channels and multi output channels - Supports S-Video signal - Supports transition, picture-in-picture, multi-divided image |
| Echo canceller Feedback destroyer (optional) |  | - Detects and cancels acoustic feedback |
| Projector & Screen (optional) |  | - Displays sending image |
| VPN Gateway (optional) |  | - Manages IPsec based VPN - Running on RedHat Linux |

- Technical tips relating to each of the above are shown in Table 4-4.

Table 4-4 Technical tips

| <i>Item</i> | <i>Descriptions</i> |
|--------------------------------------|--|
| D/A converter Scan converter | <ul style="list-style-type: none"> - Capable of converting DV signal into S-Video or Video, S-Video or Video into DV, and also, S-Video into Video, Video into S-Video. This device is convenient for signal conversion. - The scan converter, like the D/A converter, can convert RGB signal into S-Video and Video signal and is convenient for presentation using a PC. |
| Audio mixer | <ul style="list-style-type: none"> - It should have multi-output buses to avoid acoustic feedback. - Although the audio mixer can mix all audio sources, each output channel must be composed independently so that it will not cause acoustic loop. - For example, the output channel for a remote site should be composed of audio sources only except from the remote site itself. |
| Video mixer | <ul style="list-style-type: none"> - The video mixer device can handle sending various images and is therefore very effective and appealing to the audience. - For example, transition of two images, picture-in-picture image, multi-divided image etc. |
| Echo canceller Feedback destroyer | <ul style="list-style-type: none"> - This will be used to ensure unfailing cancellation of acoustic feedback - It is not, however, so effective when using at a local site alone. - To make sure of cancellation of acoustic feedback, it should be used at both ends (local site and remote site) simultaneously. |
| Projector & screen | <ul style="list-style-type: none"> - This is used for displaying sent images. - Provides both the presenter and the audience with images of themselves during the conference. |
| VPN Gateway | <ul style="list-style-type: none"> - This is used to keep all traffics secure over the Internet. - When performing live surgery or other confidential demonstration, this device is mandatory. |

- Connection of devices is shown as Figure 4-3.

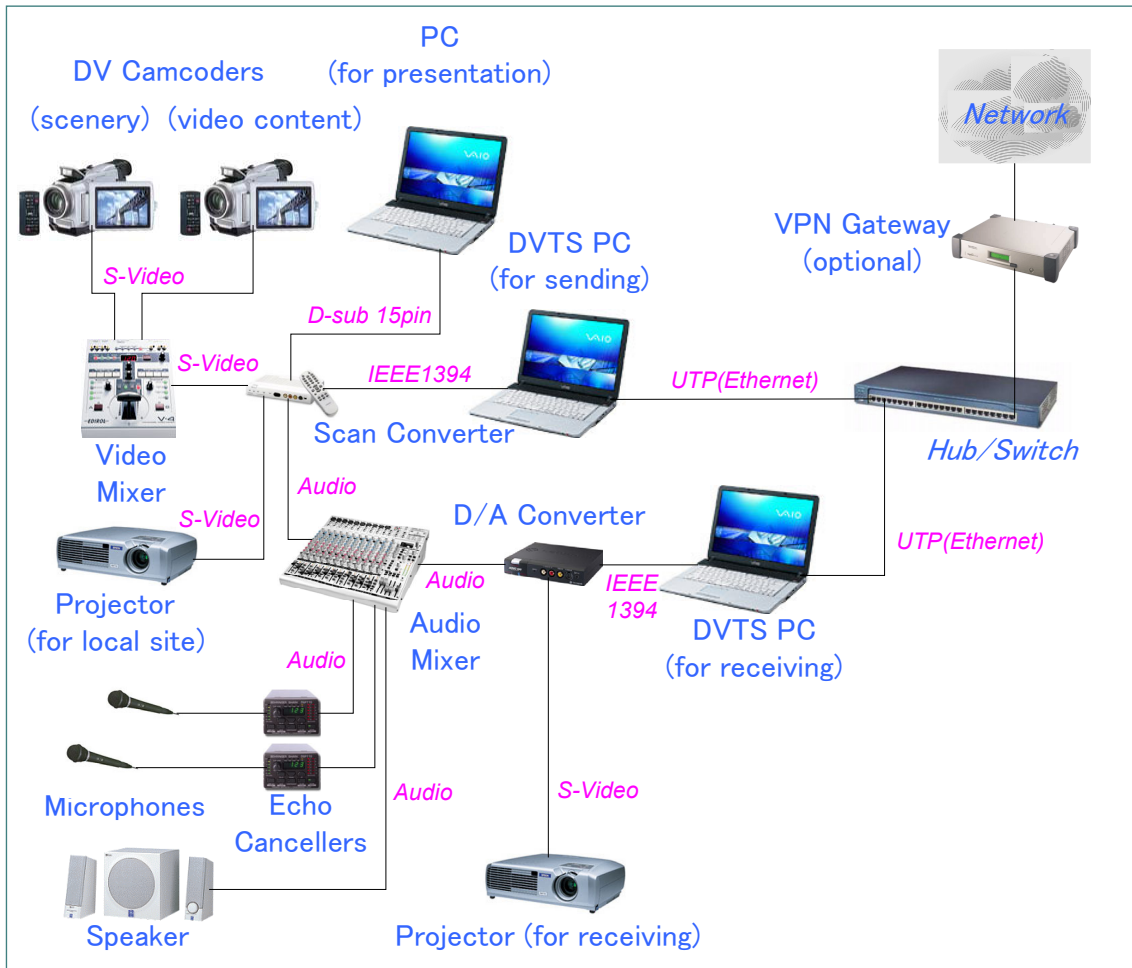


Figure 4-3 Advanced system configuration