TEST REPORT TANDBERG MOVİ / VCS

GENERAL

Period of time
25th of November 2009 - 25th of January 2010

SW version
Client:
Movi Desktop Client: 3 RC1
(current 3.1 bzw. version 4)
Server:
VCS: X5 (from 2009/12/15 - before X4.3), TMS: 12.5 (from 2009/12/15 - before 12.2)

Device class
Client Server system for SIP and H.323 (the test system enables 100 concurrent calls and 10 concurrent H.323 calls)

Scope of delivery
Tandberg VCS (Video Communication Server): 19” rack component
Tandberg TMS (Tandberg Management Suite): Windows2003 server component

Bandwidth
Client: Movi 3 enables bandwidths up to 2 Mbit/s, which the user can configure on his own if required. The administrator can determine and regulate the available bandwidth of the clients centrally by the Provisioning functions of the TMS.

INSTALLATION

Client:
The installation of the Movi 3 client is easy and uncomplicated. After installation, only the details of the registered server (IP address of the VCS as well as the name of the SIP domain) and the user data (name and password) must be entered. By an individualized installation with previously defined parameters, this can also be carried out automatically.

Server:
The VCS is installed as 19" rack component and must be configured during initial operation with the according network information. Afterwards, several settings have to be made in the web interface to control the call behaviour of the registered clients. Thus, so-called call rules are generated, which follow the existing dial plan and therefor enable also H.323 calls next to SIP calls.
The TMS was installed as software component on a Windows 2003 server, the VCS had to be registered in the management system. A user database was not linked in the test. All test participants were manually created and configured in the TMS.

### TEST

#### Operation

![Client Interface](attachment:image)

**Client:**

The surface is very clear and well structured, the operation is intuitive. All important functions are easily accessible. A dial-up can be carried out via contact list by selection of the desired target as well as with an input box. In our test scenarios, connections per E.164 were also possible next to standard SIP calls.

During connection, the self-image is displayed as Picture-in-Picture and is freely placeable or can be disabled inside the window. In the upper right corner of the window, the functions "Connection statistics" and "Always in foreground" are implemented. The statistics menu is a half transparent overlay over the remote system's video and does therefor not interfere the connection (screenshot). The activity bar in the lower area of the video window provides further functionality, such as to show and hide the self image, enable and disable camera, mute the microphone, regulate the volume, enable full screen, start an own presentation, a numeric key pad for DTMF tones or the functionality for hanging up. The according icons are clearly recognizable. After a short period of mouse and keypad inactivity, this button bar is taken to the back. Starting the data presentation, a window appears in which the application that has to be transmitted can be selected, releasing the desktop is not possible with Movi. When a PowerPoint presentation is started in full screen mode, there is an automatic system information to transmit the presentation in the Movi client (screenshot). The mouse pointer is not transmitted, so a tool for pointing to important items in the presentation is missing. Videos can also not be transmitted. If an H.239 presentation is received, it also appears in the video window, the remote system's video is then displayed as Picture-in-Picture (screenshot). The arrangement of the single images is flexible and can be changed according to the user's desire.
The client collaborates very well with the integrated notebook cameras and thus enables a video resolution of 640x480 pixel (VGA) in sending direction in most cases. In our tests, the Logitech 9000 Pro was used, which also sent in VGA resolution. Only when using the Tandberg Precision HD USB camera, a resolution of 1280x720 pixel with 30 pictures per second is possible in sending direction. This camera was developed exclusively for Tandberg Movi and Microsoft Communicator and offers an excellent quality of sound and picture for those products, however, the price of about 400 € is very high for a USB camera (especially since the camera's full range of functions is not supported in other applications). A detailed description of the Tandberg Precision HD USB is available here.

The echo compensation of the Movi client gives very good results, which is why the use of integrated hands-free microphones could be possible.

Server:

The control of both systems is carried out via a web interface which sticks consistently to the visualization of all Tandberg products. The operation of the Video Communication Server and the Tandberg Management Suite turn out as intuitive and well controllable after a short period of familiarization, all important functions are clearly recognizable and easily configured. A detailed evaluation of the functionality and operability of TMS can be found here.

It must be considered that the Management Suite is responsible for the user administration and that the Video Communication Server undertakes the control of all media streams at the time of the call. The VSC also provides gatekeeper functionality and supply of an SIP registrar. Moreover, the transformation from SIP to H.323 and backwards is carried out by the VCS, which is why the VCS is very quickly at its limit by those so-called "Traversal Calls" (at most 10 Traversal Calls could be carried out on the test system simultaneously). It is possible to increase this capacity by using several clustered VCS.

In order to establish the connectivity to the services of the German National Research and Education Network (DFN), the VCS had to be embedded as gatekeeper in the gatekeeper structure of the DFNVC. This was done by a so-called Neighboring. All end devices, which have to be administered by the VCS, must register at the VCS, therefore no ther gatekeepers can be used for the Movi clients.

Audio/Video
In almost all tested connections, a successful connection setup could be carried out to the remote systems in test. Only exception was the Desktop Client Polycom PVX. Here, the connection setup was possible only in one direction (Movi receives PVX call).

In general, the audio quality was constantly convincing, in most cases high quality broad band codecs (AAC-LD, G.722.1) were used, whereupon the audio quality can be rated as very good. Exceptions here were the remote systems Mirial Softphone and LifeSize Room, with which only G.711 was connected, as well as Sony PCS-XG80, which in fact had AAC-LD negotiated, but was defective and therefore could not convince concerning quality.

The video quality was always high and in all connections, H.264 was used, the frame rate was always between 25 to 30 pictured per second. In sending direction, Tandberg Movi either reached a resolution of 720p (1280x720 pixel) or VGA (640x480 pixel) according to the characteristic of the remote system in test. When usual customary USB webcams are operated with the Movi client (in the tests, a Logitech Pro 9000 was used), the video resolution in sending direction is VGA. When the "Tandberg Precision HD USB camera" is used, Movi sends the video in HD resolution 720p with 30 frames per second in excellent quality (see screenshot on the right side). An exception was the Sony PCS-G70 system, with which only CIF (352x288) was transmitted in sending and receiving direction.

**Data presentation**

Slide transmission via H.239 (respectively BFC in SIP connections) was carried out with 720p/H.264 respectively with XGA/H.263+ or H.263 in very good quality. Exceptions were the remote systems Sony PCS XG-80 and Sony PCS-G70. Here, no reception was possible on Movi side and sending was only possible with heavy error formation. LifeSize Room was not able to receive a data presentation and in connections to Polycom PVX, presentations are recommendable only limited due to the low quality.

**Video files from desktop can not be transmitted with Movi.**

**MCU**

The cooperation with the MCU from Codian within the DFNVideo Conference service worked without problems and in very good quality. Calls to Codian MCU took place in very good quality with the video codec H.264 and a resolution of 720p in sending and receiving direction using the HD USB camera (standard webcams send H-264 in VGA resolution to the Codian MCU).

**Miscellaneous**
The T andberg Movi3 system could not realize URI dialing according to Annex O (e.g. via "004910097918168@mcu.vc.dfn.de"). Also no SIP calls to the Codian MCU could be carried out. Calls to the MCU were always realized as Traversal Calls from SIP to H.323. By an according configuration of the call rules in VCS, this can eventually be regulated.

The connection encoding worked in all connections except with Mirial Softphone.

In the field of Firewall Traversal and NAT Traversal, T andberg provides an advanced solution by using a second Video Communication Server (the so-called VCS Expressway) as tunnel terminal point for end devices which are located outside of the protected area (see adjacent graphic).

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**CONCLUSION**

The product Tandberg Movi3 stands out mainly by its very simple installation and configuration and wins over by a very clear and intuitive user surface, which is comprehensible also for laymen. The quality of the connection in video and audio was excellent with the Tandberg Precision HD webcam and even with standard cameras, the software gave very good results. Also connections to the DFNVC MCU worked well.

Since the system is based on the Session Initiation Protocol (SIP) in connection to the Video Communication Server, calls to other systems which support H.323 can only be carried out under high capacity, which is why the number of those so-called Traversal Calls is strictly limited (on the used test system 10 simultaneous Traversal Calls at most). Since the demand of H.323 calls is higher in heterogeneous video conference surroundings as well as in the DFNVC environment, this call limitation will quickly be reached. The use of a VCS within a logically enclosed construction as "Inhouse" solution would be possible, whereat the VCS is used as registrar for all used systems.

The Firewall difficulty respectively NAT difficulty is not resolvable trivial also with the Tandberg system, particularly not when different systems from differently secured systems have to communicate. As Traversal solution, Tandberg offers a further VCS (the so-called VCS Expressway), which was not provided for the test.

The configuration of the VCS in consideration of the call rules that have to be realized in that is very extensive and requires an appropriate time of familiarization. In our test, it was not possible with the Desktop clients to directly select IP addresses, remote systems could only be called with according E.164 Alias.

Also in the field of Content Sharing, deficits were visible. The software can not release the complete desktop, for example, and it lacks a pointing function during the transmission of slides (the mouse pointer is not transmitted). Moreover, the option to transmit video files is missing.

**Documentation**

Manufacturer: Tandberg
Distributor: MVC

We thank the mentioned companies for providing the test components.