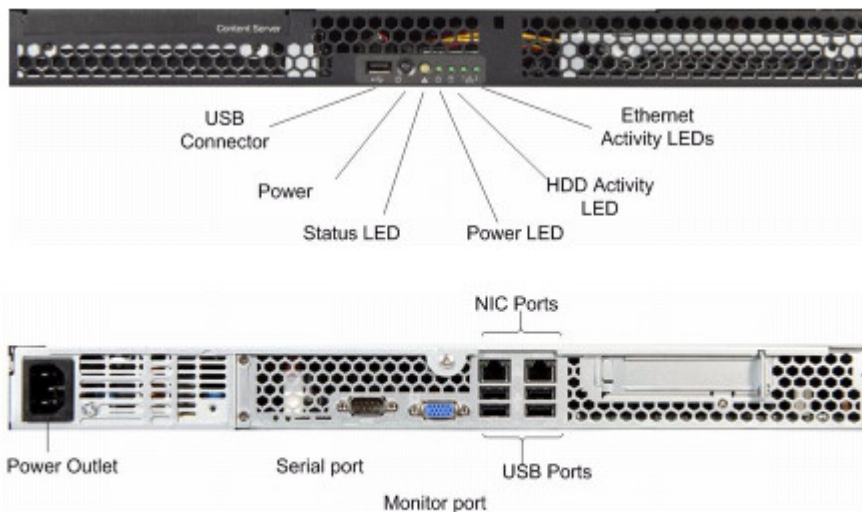


TEST REPORT CISCO TELEPRESENCE CONTENT SERVER (TCS)

[PDF version \(optimised for print\)](#)



GENERAL

PERIOD

December 2012 / January 2013

SW VERSION

The test was carried out with the software version v5.3 Build 3316. "2 Live Broadcast", "Cluster Enabled", "Premium Resolution" and "5 Recorded Calls" were the installed options.

DEVICE CLASS

This device is a recording, streaming and replay / on call replay solution for video conferences and MCU conferences. Furthermore, it supports user and rights management and provides several output formats, e.g. for terminal mobile devices. Apart from that, ports to several media servers are provided, e.g. for additional streaming.

SCOPE OF DELIVERY

The system is supposed to be mounted in a server rack and is delivered with all the necessary cables.

BANDWIDTHS

The system facilitates calls according to H.323 and SIP with bandwidths of up to 4000 kbps for each recording.

INSTALLATION

Mounting the device in a server rack was not tested. The Cisco TelePresence Content Server (TCS) runs in a Windows Server 2003. It is accessed via terminal emulator over a serial port or directly at the Windows Server 2003 to set the IP address. The web interface of the TCS can be accessed via the adjusted IP address.

Alternatively, the Windows Server 2003 can be accessed using the Windows program Remote Desktop Connection, provided the IP address is known.

It is important to note that a network cable is only to be connected to port NIC 1, otherwise the TCS does not function properly.

TEST

CONFIGURATION SETTINGS IN GENERAL

Basic settings concerning gatekeepers, NAT, static ports respectively range of ports and SIP can be established using the web interface of the TCS. Apart from that, it is possible to set the IP address to access the web interface alternatively. The menus can be switched to various languages. It may be necessary to upload a language pack beforehand. The TCS can automatically send an e-mail when a recording is finished. A sender address and access to the respective SMTP server is required.

Apart from that, standard values can be set for the recording alias and for the media servers of the output formats in live streaming and on-demand replay. The bit rate range of the available transcoding values is 150 - 512 kbps ("small"), 512 - 1152 kbps ("medium") and maximum ("large").

GATEKEEPERS

The TCS can be registered with a gatekeeper. Registration with the public gatekeeper of the DFN was always successful. The TCS can be registered with the gatekeeper in two different modes: either as terminal device or as gateway. Notwithstanding which mode is chosen, the TCS is always registered with a H.323 ID and an E.164 number. In terminal mode, the TCS can register up to 25 additional H.323 IDs and E.164 numbers for so-called recording aliases (saved recording settings). In gateway mode, no additional registrations are carried out. The H.323 IDs and E.164 numbers, which are assigned to recording aliases, are only used internally.

The web interface of the TCS is used to call a terminal device or the MCU. This works faultlessly. Selecting the recording aliases, type of call (H.323, SIP), call bandwidth and PIN for MCU conference is possible.

When calling the TCS from a terminal device or from the MCU, there are considerable difficulties. It is important to distinguish whether the terminal device respectively the MCU and the TCS are in the same gatekeeper zone or not:

- When different gatekeeper zones are used, the TCS cannot be called via E.164 number because the alias matching does not work. Calling via IP address is possible. In that case, the standard recording alias is used. An invitation to a DFN MCU conference is neither possible via E.164 number (because of the prefix) nor via IP address, due to the fact that the MCU call is not recognized as a call via IP address by the TCS. That is why no appropriate recording alias can be found and the TCS aborts the connection. The gateway mode is an exception, the TCS could be called from the MCU via IP address.
- If terminal device and TCS are registered in the same gatekeeper zone, calls via E.164 number work faultlessly in terminal mode. The recording is then started with the settings from the respective recording alias. Calls via IP address to the TCS are also possible. In that case, the standard recording alias is used. In the gateway mode of the TCS, only the IP address and the E.164 number can be called, the standard recording alias is used. Other E.164 numbers or a call-through to the internal E.164 numbers were not possible.

USERS AND ROLES

For the authentication of users of the TCS either locally, via a domain or via LDAP can be chosen. Groups are not possible when locally is used though. Apart from that, local users have to be registered as Windows Server 2003 users first. Only then they can be registered successfully with the TCS. A guest access for the TCS can be set up. Every user of the TCS has exactly one of the following three roles:

- **Site Manager:** This role has all administrative capabilities and those the other roles possess.
- **Creator:** A creator can start recordings with their own recording aliases. These recording aliases have to be created first by a Site Manager. Apart from that, a creator can view and edit their own recordings or those that have been shared with them.
- **Viewer:** A viewer can only view and edit recordings that have been shared with them.

RECORDING ALIAS (RECORDING SETTINGS)

Recording settings are stored in the TCS as so-called recording aliases by Site Managers. There are two different kinds of recording aliases:

- **Personal Recording Aliases:** They can be used by the respective owner and the Site Managers. There is the option to choose whether the recordings made with it should be published automatically and therefore be available to all permitted users. Apart from that you can choose the users who are allowed to view or edit the recordings made with the recording alias. You can also define an access password.
- **System-wide Recording Aliases:** They can be used by all Site Managers and Creators. The respective recordings are published automatically and can be viewed by all users who are logged in.

Every recording alias has a H.323 ID and an E.164 number, which are used for dialling in terminal mode (see keyword Gatekeepers). A recording alias consists of a template, a call configuration and additional metadata (name, description, speaker, location, copyright, key words for searching, category). Metadata can be left blank.

The output formats are determined in a template. It specifies whether there should be live-streaming, if the live streams are re-transcoded for better quality and which on-demand formats are offered. Options are general download, download for terminal mobile devices (Ipod and Zune), playback in the web interface of the TCS and output to different media servers (Media Experience Engine 3500, Show and Share, Podcast Producer, iTunes U).

The call configuration determines the connection settings: H.239 and encryption can be switched on and off, the call bandwidth can be adjusted in intermediate steps from 128 - 4000 kbps and a maximum recording time can be set. The following codecs can be selected/deselected: video: H.261, H.263, H.264, audio: G.711, G.722, G.722.1, AAC-LD, with the exception of H.261 and G.711, which have to be activated invariably.

Cisco TelePresence Content Server
View Recordings
Management

Diagnostics Recordings Recording setup Configuration

Edit call configuration

Save Save as Return

Call configuration

Name *

Dual video capabilities

Dual video enabled

Call options

Supported call speeds (kbps) 128 192 256 384 512 768 1024 1280 1536 1920 2048 2560 3072 4000

Maximum call length (minutes)

Support encryption

Advertized codecs

Video codecs H.261 H.263 H.264

Audio codecs G.711 G.722 G.722.1 AAC-LD

Save Save as Return

LIVE STREAMING AND ON DEMAND PLAYBACK / TRANSCODING

The TCS can make at maximum 5 recordings simultaneously, two of whom can be executed as live streaming. The TCS itself only facilitates live streaming with Windows Media - Silverlight. Ports to the following media servers are provided though: Windows Media Streaming Server, QuickTime - / Darwin Streaming Server, Wowza Media Server for Flash, Cisco Video Streamer, Media Experience Engine 3500 Server, Show and Share Server, Podcast Producer Server, iTunes U Server.

For the transcoding and the subsequent on-demand replay the following formats can be used: MPEG4 Flash, MPEG4 Quicktime and Windows Media. As options for the output size there are "audio only", "small", "medium" and "large" (see Configuration Settings in General). It is also possible to transcode to new formats later. Transcoding recordings to different formats needs about 14-20% workload of the CPU (Quad-Core), load-independent, and ca. 150 MB working memory. A transcoding queue shows the current state and upcoming transcodings in the web interface of the TCS.

Additionally, it is possible to upload recordings to the TCS.

AUDIO/VIDEO - LOAD TEST

Recordings and live streams are of very good quality. When live-streaming with the internal Windows Media Streaming Server, there are time delays of 20 - 45 seconds. The transcodings in Windows Media have a resolution of up to 1920x1080 with 60 fps, 1920x540 with a second H.239 dual-channel. The transcoded Flash and QuickTime recordings are of lower, but still good resolution.

The TCS maintains very good quality for the recordings and live streams even under full load. However, only half of the transcoding of 5 parallel recordings of 2.5 hours with 6 output formats each, that is 30 transcodings overall, could be finished in three days.

H.239

For recording the H.239 channel, one of the following four methods is used, which are set in the template (see keyword Recording Alias): Switching between video channel / H.239 channel, picture in picture, In parallel (16:9 can be forced) or On top of each other. The latter two methods are not possible with recordings for terminal mobile devices.

The quality of the H.239 recordings is outstanding, even when the TCS is under full load.

SIP

The TCS could be registered with an SIP server without any problems. Calling out via SIP works faultlessly, incoming SIP calls were not possible.

DIRECTORY - / FILE STRUCTURE

The TCS has 2 hard drives. On the first one, the Windows Server 2003 is installed with the program files of the TCS, the second hard drive, with about 400 GB, is reserved solely for the TCS data. A recursive overview of the data can be found [here](#). The internal data base of the TCS can be found in the folder \database. It is locked under working condition.

Various recordings can be found in \data: Imported recordings in \data\imports, recordings to download in \data\download and recordings for playback in the web interface of the TCS in \data\media or \data\www. File names of recordings mainly consist of two groups of digits with 12 or 8 digits, where the first group of digits increases with the time of recording. The meaning of the second group of digits is unknown. Live streaming data is saved under \livedata following similar name conventions.

Thumbnails of the recordings can be found in \data\www\slides. The names of the folders match the links in the web interface of the TCS.

CONNECTION TO EXTERNAL MEMORY

For the connection to an external memory (NAS), the TCS has to be registered with a domain. This is done by means of the Windows Server 2003. A TCS Wizard on the Windows Server 2003 performs the installation step by step and checks for erroneous or missing configuration. For the TCS, a user of the domain with administrative rights has to be created. Apart from that, the server and the path to the files has to be provided. In the test, the installation of NAS could not be completed though as the TCS and the Windows Server 2003 need access to the domain under the same IP address.

MISCELLANEOUS

It is possible to access various log files via the web interface of the TCS.

The files to download and for replay in the web interface of the TCS are transcoded separately, which consequently takes twice as much time.

There were problems with the playback of recordings that were transcoded in Flash and Quicktime in the web interface of the TCS in several browsers. The transcoded files on the TCS are error-free though.

DOCUMENTATION

We would like to thank the companies Cisco and MVC Mobile VideoCommunication GmbH for providing the test equipment.

Manufacturer: Cisco

Contact Person: MVC Mobile VideoCommunication GmbH

Supported General Standards	H.323, SIP, H.239
Audio Encoding	G.711, G.722, G.722.1, AAC-LD
Video Compression	H.261, H.263, H.264
Bandwidth	H.323, SIP up to 4000 kbps per recording
