

Video Teleconferencing (VTC) Technology Brick and Pattern V1.0

Status of this Memo

This memo establishes a standard for the NIH architecture community. Distribution of this memo is unlimited.

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1 Introduction

The intent of this NIHRFC is to establish a set of standards, including a pattern and a brick, for implementing video teleconferencing (VTC) technology at the National Institutes of Health (NIH).

2 Video Teleconferencing (VTC) Technology

2.1 Background

With video teleconferencing technology, two or more people at different locations can see and hear each other simultaneously, often times even sharing computer applications for collaboration. Video teleconferencing uses audio and video telecommunications to bring people at different sites together for a meeting. This can be as simple as a conversation between two people in private offices (point to point) or involve several sites (multi-point) with more than one person in large conference rooms at different sites.

3 Video Teleconferencing (VTC) Technology at the National Institutes of Health (NIH)

3.1 Introduction

In order to ensure the successful integration of new VTC technology infrastructure, primarily supported by the Center for Information Technology (CIT), organizations implementing VTC technology must comply with the established endpoint specifications of the VTC infrastructure. An **endpoint** is a terminal, gateway or multipoint control unit (MCU). Terminals are the conference rooms on the local area network (LAN) that provide real-time, two-way video and audio communications. These standards and specifications were determined through market and independent research.

For additional information about VTC technology at NIH, please review [Informational NIHRFC0032, "Video Teleconferencing \(VTC\) Technology at the National Institutes of Health."](#)

4 Video Teleconferencing (VTC) Pattern

Description:

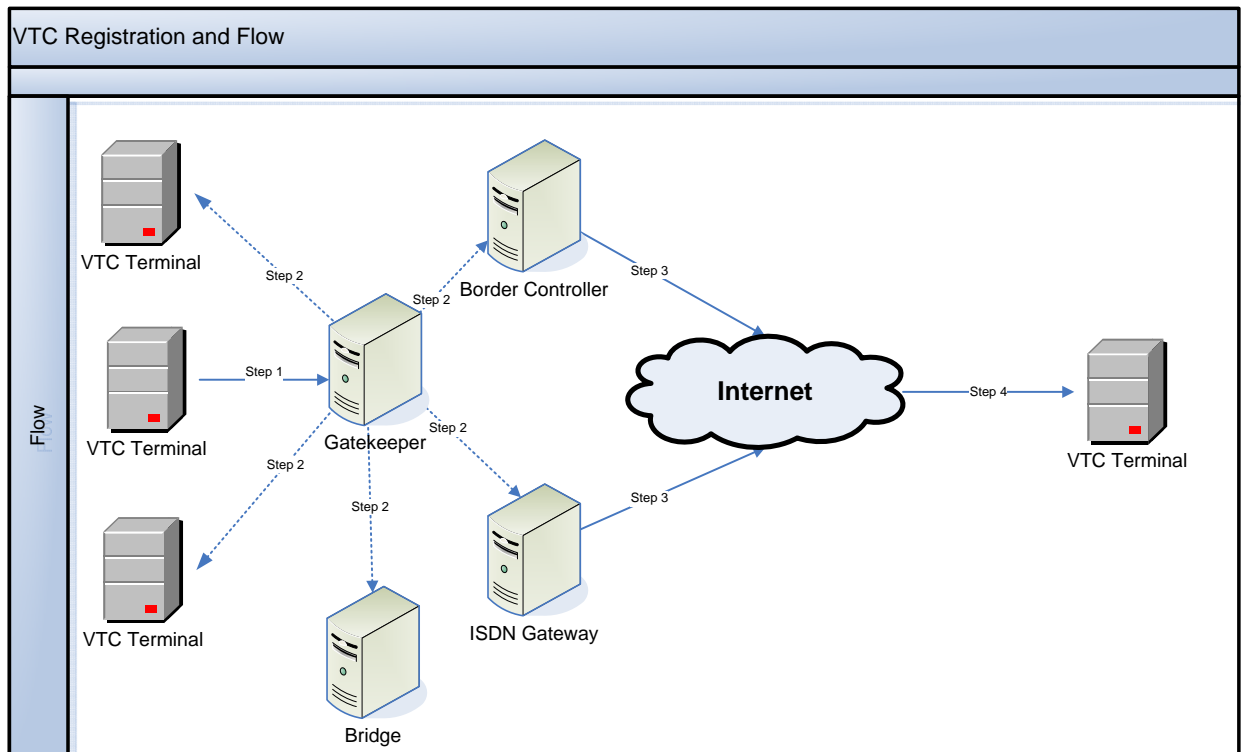
Step 1: The Video Teleconferencing (VTC) Terminal, or endpoint, initiates a call to Gatekeeper. A **Gatekeeper** is an optional component in the H.323 system which is used for admission control and address resolution.

Step 2: The Gatekeeper will determine the best route to the dialed VTC system.

- If it is a direct call within its internal network, it will directly route the call.
- If it is a multipoint (more than one unit connecting), the Gatekeeper will use the bridge to connect.
- If the connection is outside the NIH network via IP (H.323), the system will go through a Border Controller.
- If the connection is an ISDN endpoint (H.320), the Gatekeeper will route the call to the ISDN Gateway.

Step 3: The call will travel through the Internet/External Network to connect to the dialed system.

Step 4: The unit will connect to the final VTC Terminal, or endpoint.



Benefits:

- Enables successful passing through of the NIH border firewall
- Allows VTC administrators to remotely manage endpoints
- Provides a standard naming convention for all endpoints
- Supplies dedicated telephony services
- Certifies capability with endpoints to the NIH VTC infrastructure and network in general
- Complies with International Telecommunication Union – Telecommunications Standardization Sector (ITU-T) defined recommendations for VTC

Limitations:

- N/A

5 Video Teleconferencing (VTC) Endpoint Brick

Video teleconferencing technology allows two or more people at different locations to see and hear each other simultaneously, often times even sharing computer applications for collaboration.

Endpoints are used to facilitate video telecommunication. An endpoint is a terminal, Gateway or multipoint control unit (MCU). Terminals are the clients on the local area network (LAN) that provide real-time, two-way video and audio communications.

Baseline Environment (Today)	Tactical Deployment (0-2 years)	Strategic Deployment (2-5 years)
<ul style="list-style-type: none"> International Telecommunication Union - Telecommunications Standardization Sector (ITU-T) Recommendation H.320 and H.323 at 384k ITU-T Recommendations H.320 and H.323 at 768k High Definition (HD) Session Initiated Protocol (SIP) 	<ul style="list-style-type: none"> ITU-T Recommendations H.320 and H.323 at 768k High Definition (HD) Session Initiated Protocol (SIP) 	<ul style="list-style-type: none"> ITU-T Recommendations H.320 and H.323 at 1MB High Definition (HD) Session Initiated Protocol (SIP) 3G Mobile Telepresence
Retirement Targets (Technology to eliminate)	Containment (No new deployments)	Emerging (Technology to track)
	<ul style="list-style-type: none"> International Telecommunication Union - Telecommunications Standardization Sector (ITU-T) Recommendation H.320 and H.323 at 384k 	<ul style="list-style-type: none"> Integration of H.320 and H.323 web collaboration Desktop VTC
Comments		
<ul style="list-style-type: none"> Tactical and Strategic technologies were selected to leverage NIH's investment in protocols that are a proven fit for NIH's known future needs. Leveraging baseline protocols in the future will minimize the operations, maintenance, support and training costs for new products and services. Some baseline protocols have been designated retirement and containment. These protocols are either not as widely or successfully deployed at NIH, or they do not provide as much functionality, value, or Total Cost of Ownership as the selected tactical and strategic technologies. Please contact the CIT VTC group at NIHVTCadmin@mail.nih.gov to obtain VTC Endpoint information and registration/installation forms. 		

6 References

Please reference [Informational NIHRFC0032, "Video Teleconferencing \(VTC\) Technology at the National Institutes of Health"](#) for a more detailed description of the VTC infrastructure, endpoint specifications and current VTC practices at NIH.

For additional information about the International Telecommunication Union - Telecommunications Standardization Sector (ITU-T), please visit <http://www.itu.int/ITU-T/index.html>.

For a list of all the applicable ITU-T Recommendations, please visit <http://www.packetizer.com/ipmc/h323/standards.html>.

7 Contact

To contact the NIHRFC Editor, send an email message to EnterpriseArchitecture@mail.nih.gov.

Please contact the CIT VTC group at NIHVTCadmin@mail.nih.gov to obtain VTC Endpoint information and registration/installation forms.

8 Security Considerations

Although this NIHRFC involves changes to security architecture procedures for video teleconferencing, the information contained in this document does not compromise security considerations at NIH.

9 Changes

Version	Date	Change	Authority	Author of Change
0.1	2/25/2008	Original Document	N/A	Matthew Amodio, NIH OCITA
0.2	2/26/2008	-Updated NIHRFC header. -Removed references to CIT requirements. -Clarified document as an NIH-wide standard, not a CIT standard. -Minor copy edits. -Updated brick points	NIHRFC0001	Steve Thornton, NIHRFC Editor
0.3	2/28/2008	-Reviewed NIHRFC Editor changes. -Addressed comments.	NIHRFC0001	Matthew Amodio, NIH OCITA
0.4	4/14/2008	-Made document less technical per request	NIHRFC0001	Matthew Amodio, NIH OCITA

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		of the Chief IT Architect -Decided to make two documents (one with only the Brick and Pattern, and another Informational NIHRFC for Video Teleconferencing)		
0.5	6/17/2008	-Added Rubin Sloan as a Technical Writer -Referenced informational NIHRFC0032, "Video Teleconferencing Technology at the National Institutes of Health"	NIHRFC0001	Matthew Amodio, NIH OCITA
0.6	8/11/2008	-Prepared document for publication to the NIH community for comment -Numbered document	NIHRFC0001	Matthew Amodio, NIH OCITA
0.7	9/16/2008	-Added comment from the NIH community and response -Updated Brick with input from the Chief Information Architect	NIHRFC0001	Andrew Park, NIH OCITA
1.0	9/24/2008	- Document approved by Architecture Review Board	Architecture Review Board (9/24/2008)	Andrew Park, NIH OCITA

Date	Comment	Response	Author of Response
9/16/2008	I would only object to requiring endpoints to be H.261 compliant, as this codec at 18 years old is well past its 'best used by' date, has been supplanted by H.263 and particularly H.264 codecs; and maintaining a requirement of H.261 compliance discourages the use of LifeSize endpoints, which are often much less expensive than other manufacturer's endpoints.	The H.261 codec is part of the ITU based standard and is still recommended under the H.323 umbrella which is currently in force. H.261 is the base interoperability point of connection for any video conference call, which is a guarantees service, or a solid connection point during "CAPS" negotiation. NIH does support the usage of Lifesize endpoints because "modern" video conferencing codecs still support H.263 and above.	Rubin Sloan, NIH VSCT Andrew Park, NIH OCITA

10 Authors' Addresses

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