Video Technology Report

The purpose of this document is to define the various video technologies and identify their respective use on a College campus

1.) Video Conferencing

Videoconferencing provides two-way, interactive audio and video communications between two or more end points. In the past decade, videoconferencing technology and products have advanced along multiple fronts – including the move to IP networks that provide higher bandwidth, lower costs, and vastly improved connection reliability; the evolution from low resolution to high resolution images and now to high definition (720p and 1080p) video; and equally important - the advances from tinny, low bandwidth (3 kHz) AM-quality audio to 7, 14, and even 22 kHz wideband, stereo, spatial audio that is equivalent to CD quality, greatly improving speech intelligibility while vastly reducing "meeting fatigue." Most high end standard definition conference room videoconferencing systems typically operate at 384kbps – 1.5 Mbps; high definition videoconferencing systems typically operate at 2 Mbps.

a. Desktop Solution

Desktop Video Conferencing is handled with a personal computer, using a webcam and microphone attached to the computer and video conferencing software. Some solutions use software that allows the computer to communicate to other Video Conferencing endpoints, while other solutions, such as Skype, are stand-alone services, requiring all participants to connect using the same software.

TCNJ's supported application for these services is Vidyo which is a hybrid of the two, allowing for connection of a mixture of VidYo service users and hardware endpoints. For more information or to sign up for a Vidyo account, visit us online at www.tcnj.edu/~mtss

b. Classroom Solution

Video conferencing in the classroom can similarly be divided into several categories. The first classroom option is to create a dedicated video conferencing classroom. Such a room would be outfitted with one or more cameras, microphones (generally mounted in the ceiling or on the table tops) and an array of monitors for viewing the conference. Generally, these systems would also integrate the ability to connect other common instructional technologies, such as a computer for displaying Powerpoint and other data, a DVD player, and a document camera.

A portable classroom solution could consist of a portable video conferencing codec, with a detachable camera and microphones, which can be easily connected to the projection and sound systems in a classroom. Similarly, a software video conferencing solution could be used on a laptop or a classroom's computer.

TCNJ currently supports the video conferencing technology in Kendall Hall 133 which can seat up to 18 people. Also available is the option for portable equipment to be rolled into your classroom/seminar room and connected to the existing A/V infrastructure.

c. Telepresence

Telepresence solutions use video and audio conferencing components as well as other "arts and sciences" to create a two-way immersive communications experience that simulates an in-person, interactive encounter. The technical requirements are greater for these rooms.

1. High quality audio and video: If the experience is to emulate a meeting with the participants directly in the room, then the audio must be clear, without noise, intelligible, echo-free and of sufficient volume. The video images should also be life size, clear and noise free.

2. Simplicity: One of the two major complaints with traditional video conferencing is that video calls are too complex to setup and operate. Telepresence solutions typically include no user-configurable settings (call speed, camera pan-tilt-zoom) or confusing remotes to confuse the client

3. Increased network bandwidth: Many vendors today are recommending 10-15 Mbps connections for each telepresence room.

Currently TCNJ does not have a Telepresence facility on campus

2.) Web Streaming

a. Live Service

Live web streaming provides the ability to send a live video and audio feed in digital format over the campus network. This can be done for several purposes, to send video to select locations on campus for simulcast or overflow purposes, to send video on campus so anyone on campus can watch the event, or to send the event to the Internet to allow anyone online the ability to watch the event. This can be done with a variety of hardware, software and service combinations. Hardware encoder/streamers such as a VBrick system can be used to encode video and audio from a source (such as a video camera) and stream it to the network, this can also be done using a PC or Mac with the appropriate video capture hardware and encoding software installed on it. The streams can then be played back on computers with the appropriate playback software installed or in certain situations a set-top box. Streaming to the public internet can be done with a hardware encoder or computer by opening up the firewall to allow access to the device over the internet or by relaying the stream to an outside hosting service that would host the stream and handle the bandwidth needs of making the stream available to a potentially very large number of people. Live video streaming can also be done through a web-based service such as LiveStream or uStream, which would require a computer with the appropriate video capture hardware and typically relies on a Flash-based software interface.

b. On Demand

A Video On Demand server would allow for instant, online access to stored video. In addition to a server for storing the video and streaming it over the internet, the system would need to incorporate a content management feature to allow the videos to be searched. Examples of Video On Demand servers would be YouTube or NJVid. These systems could potentially include a log-in system to allow certain content to be viewed only by authorized viewers.

3.) Lecture Capture

Lecture capture typically involves recording video, audio and/or capturing computer presentations in a classroom or other learning environment; sometimes performing light editing (adding chapters or titles or other helpful elements); and encoding to a file format that can then be played on a computer or other digital device, such as a “smartphone” , tablet or other media player. This file is then uploaded to a server that can be accessed by students for download or consumption over the internet.

a. Classroom Capture

Is a solution that captures classroom based activities in a digital format that is then available for download or consumption over the internet.

TCNJ Does NOT Currently Have A Classrom Capture Capability

b. Screen Capture

Is a solution that captures computer based presentations, such as powerpoints with narration or computer tutorials, in a digital format that is then available for download or consumption over the internet. There are many applications that can facilitate this process, such as Jing, Camtasia, Adobe Captivate, Adobe Presenter, MS Powerpoint and more.

c. Audio Capture

Is a solution that captures audio converting it to a digital format that is then available for download or consumption over the internet. This category includes mp3 files, podcasts and more. Some applications that help facilitate audio capture are applications such as Audacity, Cool Edit, Freecorder and more.

Screen Capture and Audio Capture Facilities Are Available Through Instructional Technology Services