

Lecture Capture in Higher Education

Academic and Research Technologies

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Introduction

Students and faculty work in an environment with instant access to all varieties of media. As part of this evolving culture, Northwestern students are requesting recorded lecture material outside of their regularly scheduled classroom hours. Having this course material available for review is a service we, as an institution, wish to provide.

As we better understand the services and technology involved in supporting this new capability, our goal is to implement a cost effective and scalable solution. With this in mind, we thought it would be useful to understand the demand, direction and best practices of lecture capture services at other institutions.

In early February, we posted a survey to various lists and groups with questions we hoped would provide a better understanding of how we might proceed with expanding this service on the Northwestern campus (See Appendix 2).

We received 150 responses to the survey, filled out by representatives from thirteen countries. Most responses came from institutions in the United States, but others arrived from Australia, Canada, Chile, Egypt, Germany, Greece, Ireland, Israel, the Netherlands, New Zealand, Switzerland, and the United Kingdom.

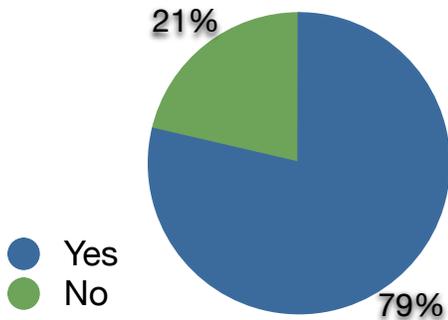
Summary

After reviewing the responses provided by our colleagues, we came to the following conclusions:

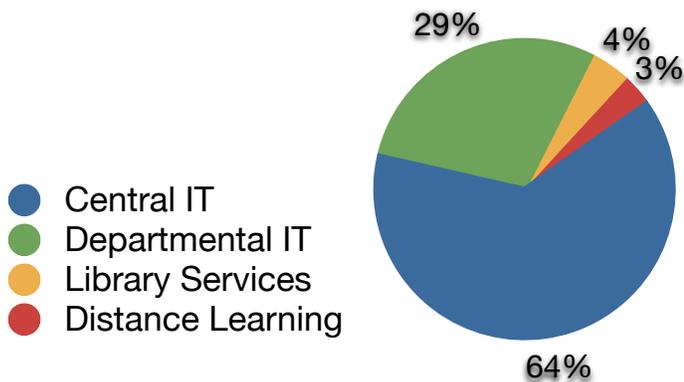
- Although the data indicates implementation is widespread, few have done so beyond a small number of classrooms.
- There appears to be a lack of standardization; no single method has shown itself to be more prevalent than another. There are no firmly established best practices for lecture content collection, manipulation, or delivery.
- The central IT organization appears to be the group most often leading the implementation and management of these services, although almost a third of the respondents indicate lecture capture is initiated and managed by individual schools, departments, and in some cases, individual faculty.
- Almost half of the institutions surveyed share content via their course management system. Just over half make a portion of their captured content publicly available.
- Just over half the respondents record video as part of the captured content. The other half focus on audio only, or audio and content.
- Only a quarter of the respondents have an automated system for lecture capture recording. Most systems require some level of hands-on support.

Questions 2 - 15 pertain only to those institutions currently providing lecture capture services.

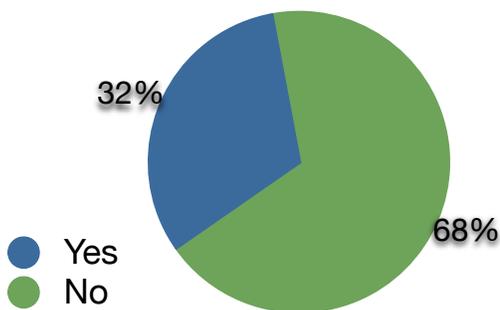
1. Is your University providing lecture capture services in any of its classrooms?



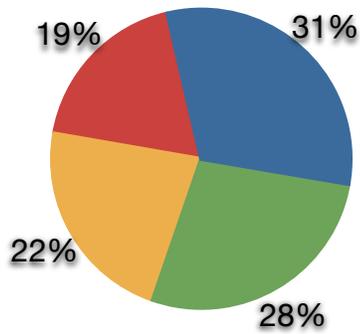
2. Which department or organization manages lecture capture services? There were many responses to this question with specific information; however, the details have been aggregated to closely match the categories.



3. Does your institution have a website discussing your current lecture capture setup? Please see Appendix 3 for the list of provided URLs.

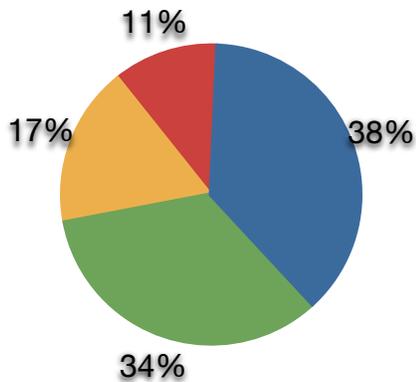


4. What is being recorded at your institution?



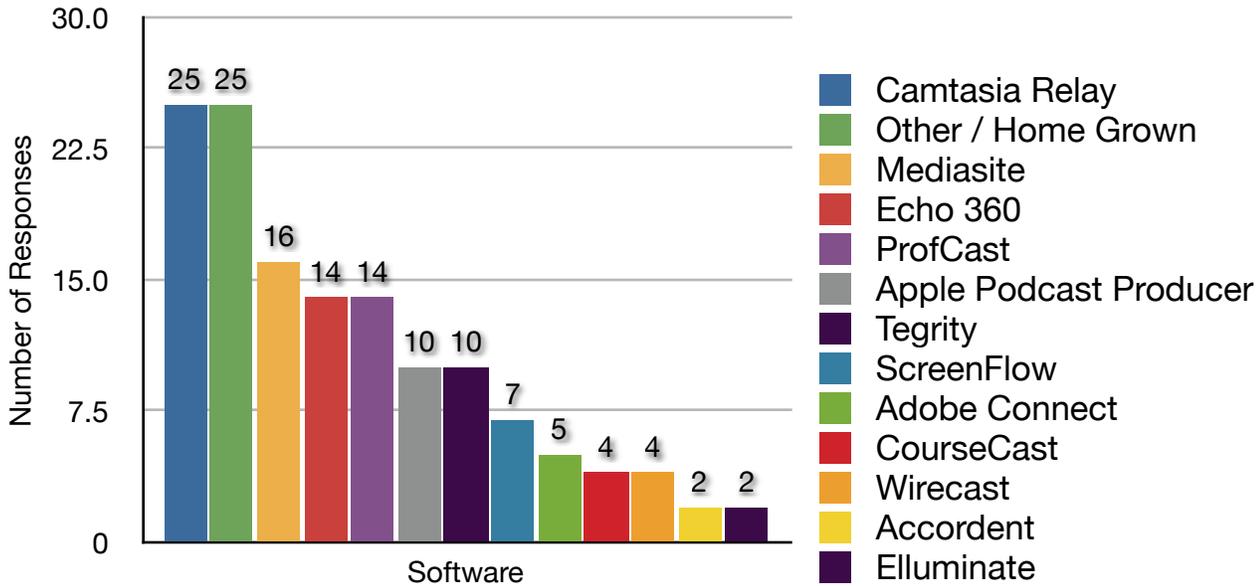
- Video, audio, and additional sources, such as a computer or document camera
- No video, only audio, and additional sources such as computer or document camera
- Audio and video only
- Audio only

5. On which kind of device is your content being captured?

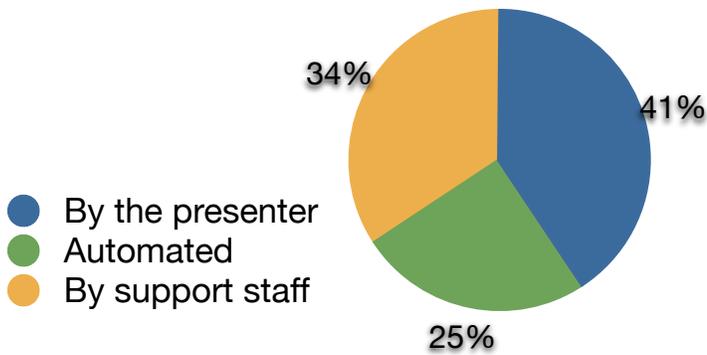


- Standard Mac or PC
- Commercially configured hardware (i.e. Echo 360)
- Digital Video Tape
- Other

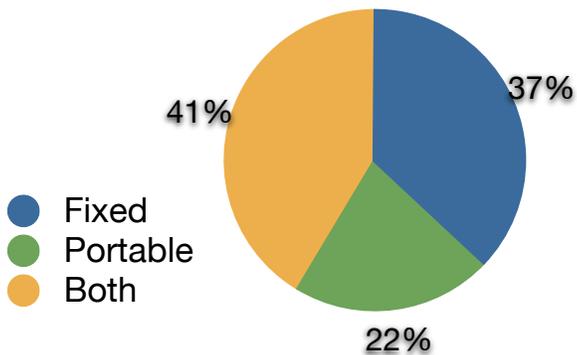
6. Which software do you use to capture your content?



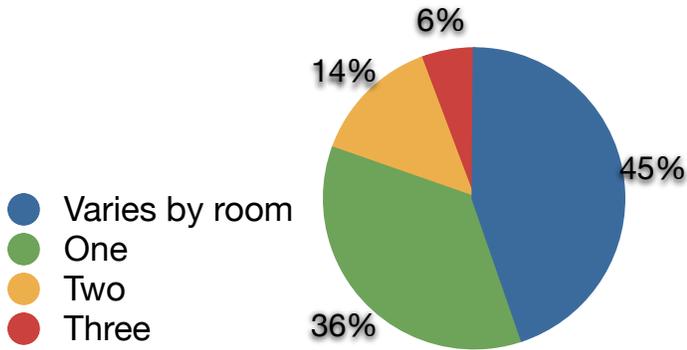
7. How is each lecture recording initiated?



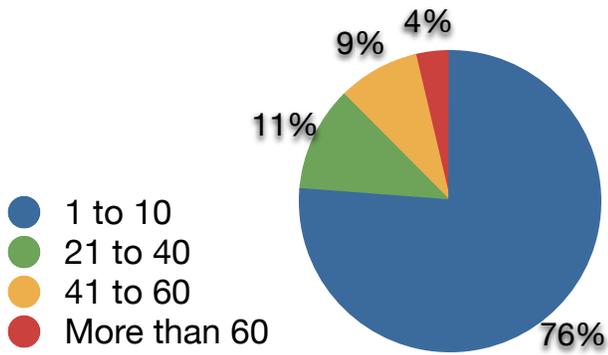
8. Is the in-classroom solution for lecture capture services fixed, portable, or both (cameras, microphones, software, etc)?



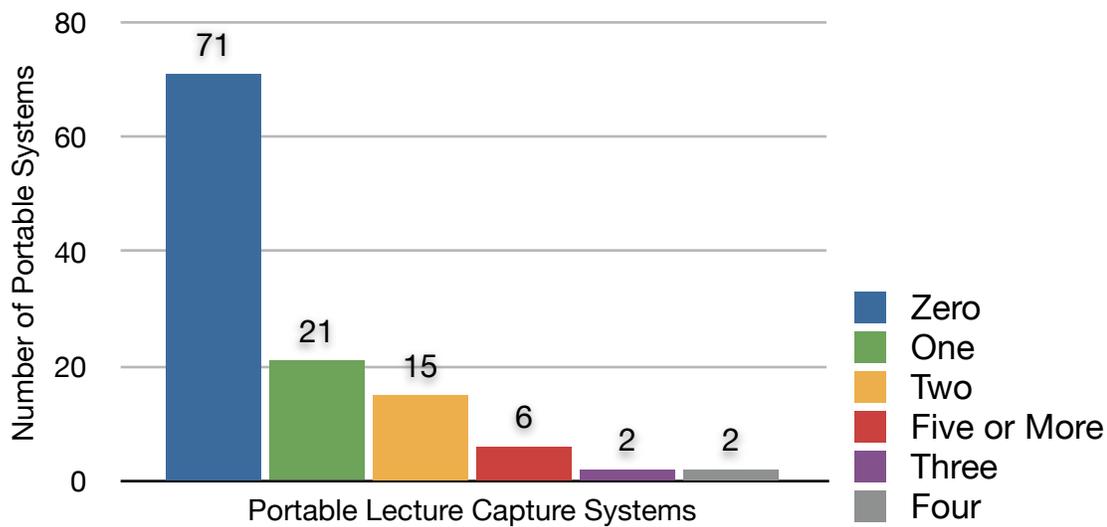
9. If your camera solution is fixed, how many are installed in each room?



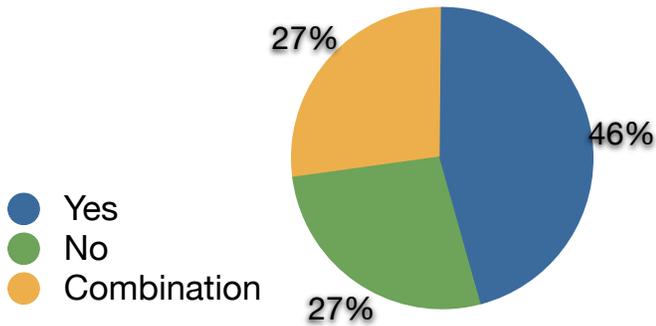
10. How many classrooms on your campus have this fixed camera solution?



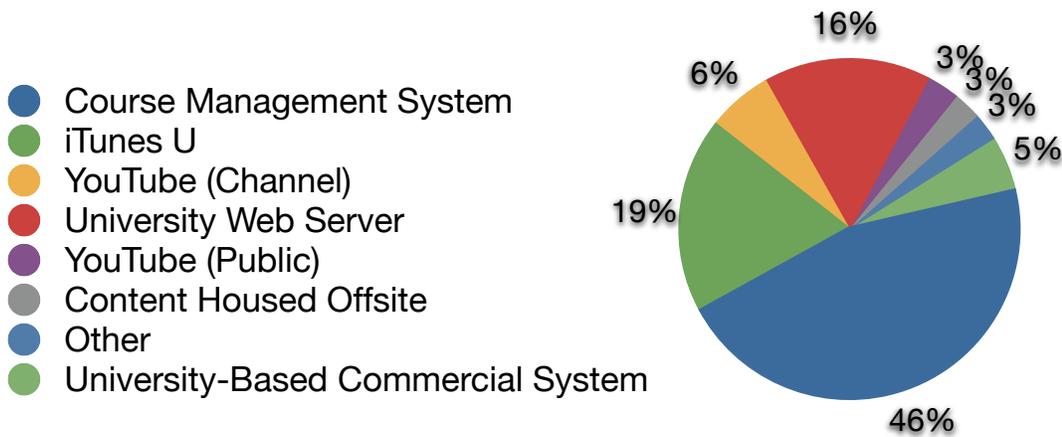
11. How many portable lecture capture systems do you have available for use?



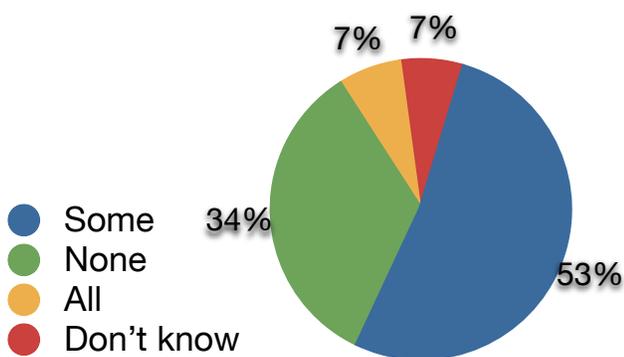
12. Is your school using a commercial product to facilitate distribution of the captured content?



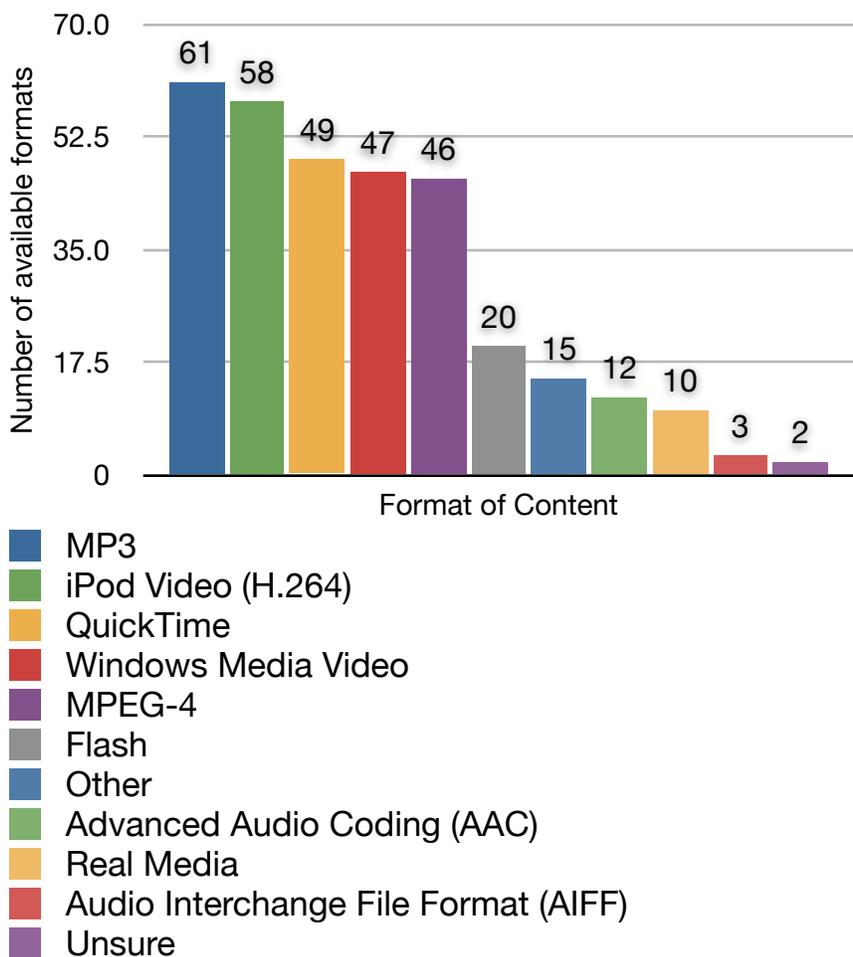
13. How is captured content made available? Multiple selections are possible.



14. How much of the captured content is publicly available outside your University?

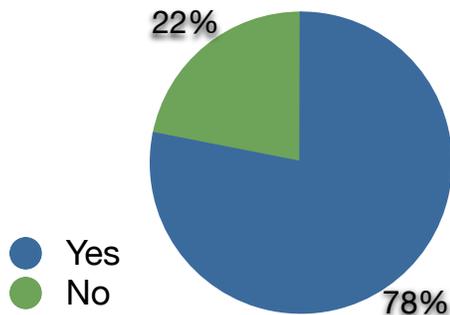


15. In which format(s) is the captured content available? Multiple selections are possible.



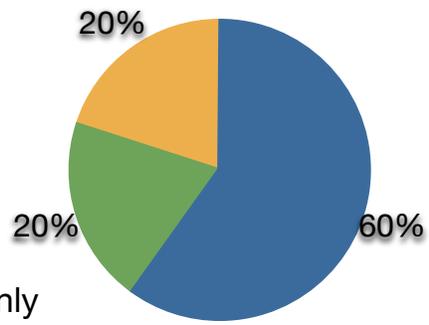
The following questions pertain only to those institutions not currently providing lecture capture services.

16. If you are not providing lecture capture services, is there a plan to add this capability?



17. If you plan to provide lecture capture services in the future, when do you plan to add that capability?

- In 2009
- In 2010
- Podcast/Audio services only



Appendix 1: Northwestern's Lecture Capture Model

LectureRecord and MediaSpace are Northwestern University's lecture capture, processing, and delivery programs supported by Northwestern University Information Technology's (NUI) Academic and Research Technologies (NU A&RT). Selected classes and lectures are currently being published from the Feinberg School of Medicine, the Kellogg School of Management, the Buffet Center for International and Comparative Studies, the Northwestern University School of Law, and many other departments as LectureRecord clients.

LectureRecord, at the classroom level, exists in two primary formats.

In larger classrooms, with a certain level of pre-existing technology (cameras, microphones, resident computers and projectors), lecture content is captured using software called ScreenFlow. ScreenFlow captures two streams: the presenter's audio and video, and the lecture content, such as Power Point or a document camera. They are then combined into a single integrated file, and after basic editing to prepare the transitions between the lecturer and content, that file is uploaded to MediaSpace for processing.

In low or no-tech locations, the presenter is recorded on a HD video camera equipped with a wireless microphone. The lecture content is synchronized with the video of the presenter in ScreenFlow. As before, basic editing is carried out before being uploaded to MediaSpace.

MediaSpace is a media publishing and management program developed by Northwestern.

The MediaSpace system processes and publishes finished LectureRecord media files that meet its minimum requirements. MediaSpace compresses and transcodes the media file to a customer defined output type (usually Flash), adds a Northwestern-branded open and close, allows the customer to enter metadata information, and provides a choice of publishing destination.

Streaming playback is available through a custom player/search window, which can be added to a course in the Blackboard Course Management System, Northwestern's YouTube channel, or any webpage via a provided link. Media files may be made available for complete download from a Blackboard course page, a customer's webpage, or iTunes U.

Appendix 2: Groups and Email Lists which received this survey

To reach as many Universities as possible, the survey link was posted to the following groups and lists:

- EduCause Instructional Technology list
- EduCause Learning Spaces list
- Facebook groups
 - Educational Technologists
 - E-Learning Professionals
 - Classroom 2.0 - EduCause Instructional Technology
- CIC Learning Technology Liaisons list
- Princeton's New Media Consortium (NMC) list
- MacEnterprise list
- AV-1 Audio/Visual list

Appendix 3: Web sites referenced for Lecture Capture

- <http://uvs.umn.edu/classcapture/>
- <http://www.itap.purdue.edu/tlt/>
- <http://www.itap.purdue.edu/tlt/BoilerCast/>
- <http://www2.oakland.edu/elis/illuminate.cfm>
- <http://www.med.unc.edu/education/administration/educational-initiatives/lecturecapture/classroom-lecture-capture>
- <http://at.ufl.edu/~video/main/streaming.php>
- <http://www.virtpresenter.org/>
- http://www.sacredheart.edu/pages/11011_mediasite_class_capture_system.cfm
- <http://www.ictp.tv/>
- <http://epage.gatech.edu/>
- <http://med.stanford.edu/irt/video/>
- <http://its.vanderbilt.edu/streaming/>
- <http://www.uccs.edu/math/video/>
- <http://www.uwyo.edu/InfoTech/wyocast/>
- <http://web.wharton.upenn.edu/publictechnology/>
- <https://learningspaces.njit.edu/category/support-services/online-services/camtasia-relay>
- <http://www.css.washington.edu/>
- <http://streaming.osu.edu/>
- <http://lectures.osumc.edu/>
- <http://www.sussex.ac.uk/its/soundsdirect/>
- <http://www.dent.umich.edu/itunes/>
- <http://www.adelaide.edu.au/myuni/deliver/>
- <http://information.anu.edu.au/daisy/infoservices/1645/603/607.html>
- <http://dld.anu.edu.au/>
- <http://delphi.louisville.edu/help/tegrity.html>
- <http://www.css.washington.edu/streaming>
- <http://www.replay.ethz.ch>
- <http://playmobil.origo.ethz.ch/>
- http://www.ucd.ie/itservices/teachinglearningit/lecture_capture/
- <http://lessons.di.uoa.gr/>
- <http://www.wlu.edu/x30040.xml>
- http://www.engr.wisc.edu/services/ems/class_recording.html
- <https://learningspaces.njit.edu/tutorials/relay.html>
- <http://www.infodiv.unimelb.edu.au/tss/lectopia/>
- <http://www.oit.duke.edu/web-multimedia/multimedia/dukecapture/>
- http://online.rit.edu/faculty/facilities/studio_g.cfm
- <http://www.bergen.edu/pages/3686.asp>
- <http://webcast.berkeley.edu/>
- http://www.opencastproject.org/content/berkeleys_next_generation_webcastpodcast_system/

Appendix 4: Brief description of in-classroom camera solution

- We do not have cameras in our standard classrooms that talk to Echo360. Some departmental classrooms have existing cameras that they are using to connect via the Echo360 appliance.
- We don't capture video - we capture audio and anything that comes through the projector (including PowerPoint slides, mouse movements, smart board movements, etc). We are piloting Echo360 for this academic year in 2 of our large lecture halls (which hosts all of our first and second year large format lectures).
- No Cameras
- DL classroom one in the front and one in the back. With MediaSite, one camera set up Future classrooms will have cameras installed at the back of the classrooms. Installing to take place 2010 in the education building.
- ND has one classroom outfitted with 3 cameras - no other classrooms have fixed cameras dedicated for videoconferencing or lecture capture use.
- Depends upon solution used. - ePresence - one camera - Connect - two cameras, one at audience, one at presenter (? not absolutely sure about that) - videoconferencing room - two cameras, one on audience, one on presenter, lecture material and one camera captured by Tandberg Content Server set up.
- No cameras used
- The equipment depends on the room. Some of our rooms are equipped with up to 3 cameras, vga-grabber, videoconference device etc. in others we only have one camera and the recording pc. We have different cameras.

- Most of them are Sony EVI Models (D31 and D70) in some newer rooms we use Sony BRC 300. In 3 larger rooms we use Panasonic AW-E650 cameras. If there is more than 1 camera there is a Panasonic video-mixer (or a Kramer AV-Switch with the BRC-300). The cameras are captured by Hauppauge PVR card.
- We have a PTZ camera installed in our larger classrooms and a portable camera that we bring into other rooms.
 - PTZ camera mounted towards the middle of the room and a camera mounted on a tripod in the back of the room.
 - Wirecast: Firewire camera connected to a Mac. Wireless lavalier mic through a USB interface. iCal events trigger an Applescript to start and stop recording. Elgato: VGA source (laptop or doc camera) and S-Video camera are sent to the PiP processor, so professor has choice of video only, projection only, or both side-by-side. That output is sent to the EyeTV device, along with room audio feed. EyeTV software allows for automatic scheduling of recording.
 - All 3 rooms directly wired to a recording studio. Remote rooms welcomed via codecs.
 - We use the same camera as is used by our VC system
 - Redundant automatic EyA system of synchronized audio-video-slides of a lecture.
 - Two rooms set up permanently for this system, we can also route audio, video, and computer signals from other rooms into the system, we also have taken IPVideo conferences and routed them into the Mediasite encoder
 - Incorporated in the two DL classrooms. Sony PTZ's controlled thru the Crestron interface.
 - Depends on which product. Mac mini with podcast producer does not use classroom camera for faculty talking head. Capture is whatever VGA is sent to projector with audio. After processing audio only, vodcast or podcast files sent to class website and or iTunes U site. Echo 360 and Mediasite rooms are generally DE spaces with cameras and operators.
 - for the classrooms using video, the video camera solution varies from an eyeball camera on the faculty laptop, to a mounted camera in the room.
 - switcher at the podium selects what's projected onto the screen. inputs at the podium are document camera, laptop, podium computer. at the back is a taper who selects what input goes to the Wirecast computer: camera 1 (big camera at back), camera 2 (fixed joystick cam), projector feed. video is pulled automatically from each encoder machine (different rooms) and then automatically turned into a video page based upon what coursenum is the file prefix.
 - Mediasite for fixed, Canon GL2 for mobile
 - Mini DV camera connected via Firewire to an iMac, which captures and compresses live via QuickTime Broadcaster.
 - Most classrooms have two cameras (audience/presenter) as well as one vga capture. Some had dual vga capture (e.g. dual symposium on dual projector)
 - <http://web.wharton.upenn.edu/publictechnology/app/general/policy.cfm?menu=PolGuide&subsection=vr>
 - This is a pilot, so we borrowed security cameras from the TV department. Will invest in better 3-chip cameras next academic year
 - Wolf Vision Document Camera
 - one camera gives a fixed picture of the podium/front of the room to capture the instructor. Digital images projected via data projector are captured separately as is audio and then re-combined for viewing.
 - Currently only our videoconferencing rooms and a couple other rooms have cameras installed. The number depends on the room size and configuration. The majority of lecture capture is done via a DV camcorder.
 - Fixed camera only gets far-off angle of professor -- not ideal
 - Relay captures the screen, and the Instructional Services department can record the lecture if asked.
 - Only available in 3 of our 8 lecture-capture rooms. It is a mounted camera positioned in the back of the room with a birds-eye view of the front of the classroom. It is only meant to serve as a point of reference for students and cannot be zoomed in on a podium.
 - One above the screen to capture laser pointer; one at the side for video conferencing.
 - We have one classroom that is setup with a motion-sensitive camera, contact matt at the lectern and an IR camera at the board for automatic close zooms. This system also has a wireless USB microphone. This video and audio outputs are fed into Tegrity along with a doc camera and laptop inputs.
 - One camera attached to the wall which is pointed at the instructor at the front of the room. There is a touch panel control to move the camera if the instructor wants to.
 - Crestron Control System controlling pan/tilt cameras (usually two) with recording using MediaSite Live technology. Faculty do not like this approach. Would prefer to have staff handle the technology and recording.
 - LCD p/t/z on back/front walls; fixed security style cameras
 - Classrooms - none audio only. Departmental then it is attended. There will be a central service in academic year 2009-10 with camera, it will be fixed, it may be commercial
 - security cam pointing at chalkboard
 - Permanently installed camera mounted from the ceiling.
 - Each large lecture hall can record audio and screen capture (not video of the professor) to iTunesU. If we need to record video (e.g., a visiting speaker, commencement, etc.) we have a videographer bring a portable setup.
 - We do not capture the presenter. Only the content on the computer/symposium, plus audio works very well
 - Newer classrooms have one camera at the back of the room focused on the professor; a few large auditorium rooms have cameras in the front, too. Older classrooms have no cameras.
 - Currently, where there are cameras installed, it is a studio environment and operators are managing the video.
 - Ceiling mounted camera, controllable by the user (zoom, pan, tilt) via a touch panel

- Sony EVI-D100 or Professional Panasonic on PTZ mount.
- Pan tilt zoom,
- Generally none. But some lecturer use a manually driven camera. Or in video-conference enabled venues there are several cameras.
- Small, analog PTZ camera system made by Vaddio
- We have a Nio-based tracking system, adapted from surveillance technology
- Currently using mounted handy-cam, plan to move to webcam with next version of Echo 360 software due out this Summer.
- Canon and Sony PTZ cameras
- One camera at back of room capable of automatically moving when instructor does and one camera that can capture students and a document camera
- Polycom video conferencing endpoints connect via H.323/H.239 to StarBak INV system
- Echo 360 appliances.
- Cameras are not used regularly in the classroom. The Class Representatives use a portable camera for some lectures.
- One classroom studio with 3 cameras, mics, mixer, camera switcher, camera controllers, recorders and videoconference codecs
- 2 or more robot cameras
- Sony BRC camera - DVR & Adobe Connect / Wimba
- Sony
- Polycom cameras
- Sony IP-Video ceiling mounted cameras and fixed Analog video cameras
- Fixed camera focused on lectern
- None yet - audio only. Videographer is provided for video capture, when needed.
- In some of our rooms, we use networked security cameras. Other rooms use Polycom cameras and others.
- Widely variable depending on the classroom
- The AV department is contacted when a lecture is to be recorded (with camera). They will set up the camera at that time.
- Various.
- The camera is mounted at the rear of the room. It is a remotely controllable P/T/Z camera that is integrated with the Crestron control system, and uses presets for common locations in the room.
- Combination of one and two fixed cameras connected to either a MediaSite box or some other transcoding device.
- Varies - UWIC have a few home grown solutions for specific purposes.
- Tracking cameras that follow movement from Vaddio
- Two wall mounted Sony SD cameras.
- We use PTZ cameras that are also used for video conferencing.
- We use a variety of technology solutions from portable cameras for non-installed classrooms to television broadcast setups (circa 1982). Depends on the room. Only five of our rooms have installed video-camera solutions. But we currently have over 35 other rooms outfitted for audio and VGA capture.
- We are just initiating Echo 360 here and are investigating cameras and microphones.
- Electronic Classroom already equipped with CCTV camera and use of webcams

Appendix 5: Descriptions of a portable hardware and software solution

- We use software (Camtasia Relay) as the portable solution
- We have Polycom and Elluminate--2 different solutions for different purposes.
- MediaSite
- MediaSite
- This is a beta system in development - uses a Mac Mini with custom software designed around Quicktime Pro for live capture of cable channel video feeds coming from campus cable system.
- Mediasite + camera / mics / cables.
- ePresence system vBrick system
- We use a standard video camera, hooked to the Medasite portable class capture device.
- Camtasia, Livescribe, and Sony digital recorder
- EyA: Mac Minis + Canon camera openEyA: Linux Ubuntu + canon camera
- Mediasite portable system
- Echo360 enhanced podcasting software is a software-only solution
- Only rare special requests are captured anywhere other than our main lecture halls. We don't have something for faculty to capture by themselves.
- VBrick-VBrick MPEG-2 stream to hardware multiplexer in NOC which feeds Osprey capture cards for Real, WM and Flash - Real and WM go to Helix server, Flash to (duh) Flash server

- Profs can use Relay/studio on their own with room audio feeding their own computer, or embedded instructor station.
- Usually is just a camera with miniDV recording, which is later played back and compressed live, but it is possible to have a laptop hooked up to the camera as well for live compression.
- See <http://www.mediasite.com>
- Sonic Foundry Mobile Unit, plus camera and wireless mic. Entire portable system is housed in a carrying case on wheels.
- There are two levels. One uses a web cam that the faculty take to the classroom and install. The other has technicians bring camera/s to the classroom for more complex setups. The instructor still selects the camera to record.
- Mac mini
- 20 "Smartcarts" are delivered to 29 classrooms around campus. 10 notebook based systems are available for sign out by instructors.
- We purchased an Accordant Capture Station, but due to departmental networking differences and configurations, we determined that leaving it in a central location and feeding it audio and video via videoconferencing hardware we were much more easily able to provide this service from essentially anywhere on campus. The price tag (~\$20k) has restricted us so far from purchasing more Capture Stations.
- Laptop with Echo 360 software
- Some Instructors use their own laptops, install relay on them, and they can take them to the class where they are teaching, so there is not a specific number of portable systems.
- Same as fixed but on a wheeled cart
- Portable solutions have been one-offs created by the professor. Most have been Mac users using ProfCast, Live Scribe pens, Smart Boards, ScreenFlow, and other software.
- We have a cart that holds the equipment (Mediasite recorder, document camera, that we can wheel around the building <http://spectrumfurniture.com/prd/lvl3.cfm?prodlid=10&catid=47&subcatid=20&subcat=195>)
- MediaSite Live Encoder/Profcast/Garageband/etc. with delivery by iTunes U
- Tegrity installs as an ActiveX control (Mac recording slightly different); uses most any USB connected device; asynchronously relays recordings back to central server
- One Echo360 / one mediasite
- Echo360 system in a rolling rack with other A/V gear to support it - wireless microphone, input switcher, etc.
- Portable Mediasite unit
- Custom packages in rolling cart. Two DV cameras and recorder. Mixer and two mics. Lights when needed. Dell computer with Osprey encoder using Real Producer to capture event for live and archived content.
- Digital video camera with external hard drive attached with audio input from lecture microphone system. AV staff member attempts to capture as much information by panning/zooming. Files top & tailed, processed and loaded onto streaming server. Currently no automated steps in the process.
- Users can upload any content (they've prepared offline) in any format they prefer for processing via a web form. Handheld audio recorders (dictaphones) are available for short-term loan.
- Usually either a department camera or voice recorder. These are then processed and made available to students.
- Tegrity captures anything that happens on the computer screen and synchronizes it to any audio fed to the computer. This can be as simple as a power point with an inexpensive mic, or a webcam and mic. to a dedicated video input card which captures external video, document cameras, etc, and the audio feed from our large Lecture Hall sound systems.
- Sony DVX 2100 camera connected by firewire to Dell laptop with CourseCast client networked to CourseCast server (on premises)
- PC-based homegrown.
- One or two cameras, radio mics, supporting visuals normally added in afterward. Webcast via Windows Media Encoder for live or VOD, or Flash if just VOD
- Echo 360 hardware, connected to an Elmo PTC-100S camera, an Azden 221-LT wireless microphone and the podium computer
- Apple laptop, sony camera, tripod, canopus interface.
- faculty may bring their laptops with Camtasia Studio, SnapZpro, ScreenView, or some other solution.
- Video camera, mic and student operator
- trcaster from newtek
- Polycom
- We have 19 smart carts (they are computers on wheels) that can be delivered to a number of classrooms on campus. They have microphones (some rooms have built-in mics) and the software. Some are even equipped with visualizers. In addition, we also have a number of laptops available for sign-out. These can be signed out with a mic and already have the software installed.
- Cart based MediaSite
- Echo360 Appliance on a cart with wireless Shure audio, audio mixer, flat panel display, Sony EVID type camera
- Sonic Foundry
- software based, equipment is purchased by department or individual faculty member
- 1 laptop, with Wirecast installed. Can then connect audio and video sources via USB, Firewire, or network IP. This service is provided by support staff, by request only.

- Adobe Connect can be installed and used on any instructor pc and they can use a webcam and headset to capture their audio video.
- Portable cart with a DV camera and microphones.
- Various.
- The 6 rooms are pre-wired for use with the one portable recorder, so all the IT support staff has to do it plug the echo360 device in to receive all media.
- Solutions include a variety of prosumer and professional cameras connected to either a MediaSite box or capturing to tape or drive.
- Tegrity has software that you load on a laptop. The hardware is a webcam and microphone.
- After setting up the camera/tripod, the prof puts on a wireless mic, then we take the videotape, capture it, sync the slides, and put it up streaming online.
- Windows laptop running Adobe Presenter - radio mic providing the audio input. A copy of the presenters presentation is loaded onto the laptop - whilst the presentation is being delivered the audio is matched to each slide by manually following main screen presentation on the laptop. In this way minimal editing is required before the finished article can be published on our Adobe Connect platform

Appendix 5: Any additional information you care to provide regarding lecture capture services on your campus, or at your institution, would be greatly appreciated.

- We are just getting started. We are targeting a three tier approach: Tier 1: Computer+Audio Software based, anytime/anywhere capture Software: Camtasia Relay or Adobe Connect Tier 2: Full classroom VGA signal (Computer+Doc Cam+ DVD+ aux) Autoscheduled start/stop Permanent classroom installations of Epiphan VGA Recorder May introduce AMX start/stop/pause control in future Also experimenting with Podcast Producer Tier 3: Full Classroom VGA signal plus cameras Installed in ITV (video conference) classrooms with multiple cameras switched by student operators MediaSite is current technology, ePresence is being evaluated
- We are in the beginning stages of class recording - mostly audio and some taping - we are looking to move forward and this survey's results would greatly help us.
- Purdue is running almost an exclusive software solution. Echo360 has an appliance but that is not what we are distributing to the classrooms. When the projected rolled out the goal was a software only solution. Since that time, there has been an interested in a small amount of appliance based solutions that can be deployed in some of the largest classrooms. Furthermore, there has been a significant push to have faculty use recorded lectures as out of class material and spend class time on discussion. This has worked in small classes but hasn't been adopted in larger lectures. Faculty are still weary of where there content goes and how it is distributed. We currently publish to iTunesU but the tab is private to the instructor. The instructor must take action to make the content available to his/her students or the public.
- Our classroom capture web site (<http://www.med.unc.edu/education/administration/educational-initiatives/lecturecapture/classroom-lecture-capture>) should give you a better idea of our project. Please let me know if you have any other questions.
- we are trying to build a lecture capture system that links up to iTunes U - currently testing Camtasia Relay for this purpose and a home grown system we are designing using a Mac Mini and QT Pro along with custom software.
- We will be transitioning to an automated capture system over the next 9 months. That system will rely upon two existing commercial systems we have in place, with code that we have written to tie the systems together. We will use WebSP from Lionis, which we have licensed for several years, to capture MPEG4 screencasts. Scheduling of recordings will be driving our of our detailed class scheduling system, Oasis from Schilling Consulting. The content will be published as RSS feeds within our homegrown CMS. We came up with this solution after reviewing commercial and open source options for 3 years. We decided that most of these systems are silos that don't communicate with other systems. So we integrated tools we already had to create a more integrated approach. This also means that we don't have to maintain a whole new system.
- Hi, Interested in seeing what kind of feedback you get. We hope to implement a solution in the near future. Thanks, Tim
- I am currently in the midst of architecting a completely new system from the ground up in a new facility that will be completed in the Summer 2010. I would be more than willing to speak with you about it and send diagrams along if you are interested. The new system will include many custom pieces as well as use Podcast Producer for workflows. Glve me a call or drop me an email.
- We started to develop the virtPresenter system in 2003. The main goal was to build a open source system that allows to record lectures with only a minimum of human intervention. The system is available over www.virtpresenter.org Examples of our recordings are under www.lernfunk.de
- My unit is on the D & M Proadvisory board....we had two lecture halls outfitted with D & M digital voice recorders and have two portable units for sign/out. If just audio capture,, this can be relatively inexpensive: companies like Belkin and Macally make microphones that plug into an instructors iPod...e.g. TuneTalk for iPod...retails for \$60-70 (at Best Buy) This product, according to Belkin's website is a "two high-quality omnidirectional microphones, the new TuneTalk Stereo lets you record memos, lectures, interviews, or conversations in full stereo Macally also has a similar product: iVoice: Voice capture would be the least expensive to implement and would be easiest for faculty to use (faster adoption) to

- upload to their blackboard course site. There are products that incorporate visual that are being looked into. Hope this helps, Arnie
- We have a larger Wirecast setup in our chapel: 3 PTZ cameras plus projection, allowing for live switching of events. We also use Wirecast to broadcast basketball games.
 - We are in pilot
 - For the very limited lecture capture we do at this time, we use traditional video cameras and student workers to man them. This tends to be logistically and practically a bit of a pain in the neck, but because the utilization is so limited (faculty are not required to do lecture capture programatically or for teaching portfolios) it is workable.
 - We also are looking into using Quindi to capture meetings.
 - EyA is a automated recording system with no human intervention. Lectures are not requested to press any tool or to carry out any special task
 - You may review our public catalog at: www.uwlax.edu/edtech/mediasite
 - UW Madison is a big place with many different departments, some of which are doing lecture capture. I work on about 300 General Assignment Classrooms, where we do not yet have lecture capture. We're currently working with the campus IT department to develop lecture capture based on Apple's Podcast Producer. We're planning on introducing lecture capture in 5 or so rooms for the Fall semester, starting in Sept. 09. From there, we would probably install lecture capture systems in new installations and retrofit whenever there is a demand.
 - We conducted a demonstration project in the spring 2008 semester with lecture capture in two large classrooms on our campus that will seat 200 and 150 students. Tegrity was placed in the 200 seat room and Mediasite in the 150 seat room. End of semester evaluations for both systems was very positive by the students; however faculty preferred the Tegrity system because of its mobility and the fact that they could record anytime/anywhere. One faculty member used the Tegrity system to create 10-15 learning modules for his students that they viewed outside of regularly scheduled class time. Based on this experience, we have recommended the installation of Tegrity as our capture solution in selected rooms throughout campus.
 - We are just in the beginning stages. It is more of a informative move to let the faculty know what is technically available. If it takes off (and we believe it will) then we will have to engage the administration to discuss the implications and impact on staffing/budgets. The initial response from the faculty is very positive.
 - Information from our website: EPAGE@Tech, a GT library-managed service, will provide a digital platform to disseminate GT-produced knowledge rapidly to information users at any time, in any Internet-ready location they reside, and will preserve that knowledge digitally for future learners to come. The Library provides video recording services for the alternative publishing of scholarly events, such as symposia, lectures, and speaker series. This service also includes the capture of non-concurrent conference events, such as keynotes.
 - We're struggling with figuring out a way to broadly deploy this technology. The licensing cost for this stuff is pretty steep.
 - We are currently in the process of piloting lecture capture technology and beginning to have the discussions about ownership within our organization with regards to the technology, support and training.
 - We don't just capture lectures - special events, training, symposia, etc. If someone wants it streamed on the web, we do it! And, we don't charge for the service...
 - We too are still testing the water to see what works, what doesn't and is cost effective.
 - Additional work is being done by tutors to provide learning objects for Math and Physics. An extensive collection of tutorial materials are being created to assist students and faculty in utilizing systems, including Moodle, Relay etc.
 - We did trials of Tegrity and Mediasite. Tegrity was highly preferred, but it was too cost prohibitive for us. We are now looking at Camtasia Relay, Podcast Producer, or a scratchbuilt system.
 - This was a pilot trial of Echo360. Our institution will pursue other options such as Camtasia and Captivate lecture authoring.
 - We have been surveying students and I'm happy to provide that data if you think it would be helpful.
 - General overview can be found here : <http://lectures.osumc.edu/TeleTeachingTool/index.html> Instructions for viewing here : <http://lectures.osumc.edu/ttt.html> (the .mov and .tvt do not have sound and require the .mp3 for viewing)
 - Were trying to find a solution now. Perhaps we're a little slow to get into this game. Weve been pleased so far with the solutions that have been available, especially the capture equipment. Cameras, mics and software all appear to be maturing together at a quick pace!
 - Weare currently piloting two systems to determine demand and best product.
 - We are using a Crom PZM-10 omni microphone installed in the lectern with very good results. This was to avoid the problems associated with lavilier mics. The mic goes into a single channel Rolls mic preamp.
 - For staff education we are creating QuickTime and Flash files using Podcast Producer. The Flash files are being created with an add on called Episode Podast.
 - We are currently investigating commercial, enterprise-level lecture capture solutions as our current system is not feasible for the long term.
 - We did quite a bit of research world wide before deciding to go with Camtasia and capturing the audio. We use the voice array mic for that so the presenter can walk around. we were restrained some what by budget as we wanted all of our class rooms to have recording facilities (60 rooms) It works incredibly well. Students love it, and so do presenters. There was a bigger uptake because the presenter was not visible. Any other extra material is posted on the web class page seperately , but there is not much of that as most images can be captured. We us the Sympodium notebook for writing notes, and scanned images. We do not use visual presenters..there is no need.
 - We like the Tegrity solution because it is software based. It is also really easy for our faculty to learn to use, and they don't need help from IT to record a class.

- We are definitely in the infancy with this. We have been experimenting on a number of fronts and don't have a single solution.
- DCRS is a legacy solution that was never developed past a prototype. The system requires a fair amount of human intervention to keep things moving smoothly, but works fairly well over all. We are currently evaluating Echo360 and closely watching the progress of Relay.
- We have a variety of capture systems on campus. We have everything from Echo360s to hand held video cameras. We are currently surveying our faculty and looking to find a campus wide standard that can be an affordable solution for all of our classrooms across campus.
- Nascent and not fully supported by the university yet in terms of policy. This service continues to get a lot of requests for use but there is not much interest in developing policies around the intellectual property issues, pedagogical issues or the potential competitive value of having lectures and events offered this way. I look forward to a time when more technologists who are supporting this kind of service can share and discuss the value of this technology.
- On occasion, we have utilized what was once Macromedia Breeze and is now Adobe Connect. We are part of a state-wide consortial license for this product and it has been re-branded as IHETS Interactive. IHETS who coordinates the connections, archives the sessions and facilitates the training website is <http://www.ihets.org>. This is currently being used for class capture for universities around the state of Indiana.
- I'm only peripherally involved, as an adjunct
- We are researching solutions and hope do pilot this semester- Spring 2009. Looking forward to survey results.
- Use the article mentioned in the survey for contact information of those working with lecture capture here at the UW: David Aldrich and Tim Betzel
- It is currently a solution being piloted in Spring 09.
- Piloting Panopto's CourseCast starting today. My supervisor, Al McCord, and I just finished a textbook chapter on this technology.
- Departments are developing their own solutions, but there is no centralized solution.
- This spring we will be piloting Apple's Podcast Producer as our lowest cost option since we currently have Mac server implemented and Mac OS available in most classrooms.
- Faculty has been slow to come on board - fear of being recorded and having their lecture, images out there.
- Our plan has shifted from simply providing lecture capture, to providing webcasting for our lecturers with the ability to archive. Still in budget cuts with nearly everything on hold. Hoping to glean info from this survey in the future?
- We use iPods for faculty-initiated audio capture; but we have no "classroom"-based comprehensive capture solution. Cost is an issue; as are concerns about cross-platform accessibility (we have both the Mac and Windows users). The field hasn't really settled on a solution/product that meets all of our needs. Currently doing some beta-testing with Podcast Producer.
- Lecture capture was initiated as a small scale project in one department. The students are really pushing the process and volunteer their time to make sure the lectures are getting captured and rendered for upload by the department representative.
- Remote controlled cameras are installed in 8 classrooms in the College of Engineering. The feeds from those cameras and the signal from the in-room projector are transmitted by fiber optics to a central control room, where a student can control the cameras and recording. Output can be recorded on Mediasite, videotape or streamed to whatever format necessary or desired.
- We are just piloting the use of Tegrity, but have not yet made a determination of the sustainability of the solution.
- We are currently listing the pros and cons between Sonic Foundry and Echo 360 and then hope to standardize
- Though it is typically used for online courses, we found that Elluminate can also serve as a very good class capture tool. Elluminate is putting other mechanisms in place so that we can save our files as mp3/mpeg4 files.
- We are looking for a campus-wide solution, but plan to place the first implementation in a new building on campus during Fall 2009.
- We have looked at Echo360, Tegrity, and SonicFoundry MediaSite and found them all very expensive and limited in scope. We will likely build our own custom system to deliver standard mpeg4 and mp3 files via iTunesU.
- Have been playing around with it. Interested in Free services like Panopto? something like that. Waiting perhaps from a Mandate from our Prosost, or perhaps our new Academic Success Center which is working on improving retention and our students first years experience. Getting intro courses captured might help with retention and overall success for our students.
- Independent silos of lecture capture are scattered through some schools and colleges. Little concerted effort has been done to look at pedagogical outcomes. In my assessment this is being done because it can be not so much because it should be. On the other hand, it would be difficult to assess what should be done without the digital artifacts to work with. Check out this article on Digital Asset Management to think about a more centralized approach to lecture capture. <http://www.nmc.org/pdf/2008-King.pdf>
- The University of Wisconsin-Madison is a large and decentralized campus with a variety of Schools, Colleges and departments managing their own services. For general assignment classrooms we are exploring Podcast Producer with interested campus partners.
- There are no low-cost readymade services on campus available to professors for regular/ weekly use. The IT department charges professors \$40/hr to send a camera operator to the class, (for me it would be \$80 because it is an evening class, so, overtime rates apply) and \$40/hr for postproduction editing. As a professor with 450 students, no extra time, and almost no budget to produce eleven 2hour lecture captures, I opted to hire a student videographer instead of having a teaching assistant (cost \$1000/term), and pay the IT department just to sync the video and presentation slides, and post on the streaming server (cost \$600/term, 1.25 hours per lecture). All editing was done on the fly, in camera, because of lack of funds. The result was a choppy video, which students were fine with, but they

- found it was impossible to watch wirelessly b/c the university bandwidth is too low, and it kept stalling. Students wanted to download Mp4 files, b/c they don't like realplayer or streaming video. This year I am moving to iTunesU and have secured a \$3000 grant to pay students to capture, edit, and ftp the vodcasts--which shd be a much improved user experience. IT will not be involved...but there is no lack of interested students to film/edit/post vodcasts because we are a film/media program with emphasis on production, and equipment on site that we can use at no extra cost (cameras/computes/software). Of course the grant is for one year only, so next year...? Hope this helps.
- This a fairly new venture for us, but has already proved useful for students and staff who miss or want to listen to a session. We don't use alot of video due to bandwidth issues - instead we take photos of the presenter where applicable and incorporate these into the Adobe Presenter skin. A good example is a presentation by our Chairman - audience capacity 100 - subsequent on-line audience 1120 in three months....
 - We are looing at the technology as a new build is in progress there are concerns as to what is being captured and why alongside quality.
 - I'm curious how many of your respondents are like us, with distributed support for heterogeneous systems. Sorry I couldn't give you better responses, but I don't think there's a single person on our campus who could speak for all the various instances we have in place.
 - We have student survey data regarding lecture capture should you need it in the future. Thanks!
 - Lecture capture emerged as a priority in our technology planning process this winter. At this point we are having conversations about it, rather than engaging in it, but it is clearly going to be a priority project (at least on a pilot basis) this fall. A significant reason for interest in lecture capture is that an increasing number of students are coming to faculty for one-on-one review of material that they did not understand. We hope that making recordings of class sessions available for independent student review and comment may reduce the load on instructors and time-shift student access to instruction to a time that works best for them. We are very early in our exploration of options.
 - We have just done an extensive assessment of vendors last semester and are currently working to integrate our new system. I would be happy to share our finding with you!
 - Currentlly planning on doing an evaluation of Camtasia Relay