

Capturing audio and video on the cheap

Clint Savage
Utah Open Source Foundation
(<http://utos.org>)

Event Revolution
(<http://eventrevolution.com>)

How to keep the 'wife' happy while buying lots of electronic equipment

- Why spend lots of \$\$?
- You really don't want her to be 'this' mad
 - AT YOU!

Note: 'wife' implies you are married, but this could apply to your girlfriend, boyfriend or platonic life partner.



My Goals

- Record Local User Group (LUG) meetings and share in real-time.
- Record Events and share in real-time.
- Provide a podcast afterward somewhere online
- Create an Audio/Video Kit that can be distributed easily
- Simple setup / Tear down
- \$ (AKA Cheap)

WARNING!

- I am not a professional audio or video engineer
- These are just **my** experiences
- I am here to share my experiences, not convince you that my way is the best way.
 - It probably isn't the best way, but it works for me and might for you as well!

Where I started

- Audio Only
 - Simple \$7 microphone from Radio Shack
- Posting the podcast afterward
 - <http://podcasts.utos.org>
- Used audacity to put in a little intro audio
 - Very simple tool, works on all platforms (Linux, Mac, Windows)
 - Multi-track editing, clipping, noise removal, etc.

Next, I explored streaming

- Streaming using Shoutcast compatible server
 - Icecast 2.x (<http://icecast.org>)
 - Still only did audio
 - Started to investigate how to do video
- Streaming clients varied (and there are a lot available)
 - ices2
 - darkice
 - Several audio players stream to Shoutcast compatible servers

The audio needed improvement

- Out to Guitar Center I went:
 - Purchased an Alesis 8 Channel USB mixer
- Online to Amazon I went:
 - Purchased an Audio Technica lavalier remote microphone set
 - Purchased a 1/8” dynamic microphone
- Out to Radio Shack I went:
 - Purchased two lavalier remote microphone sets
 - Purchased several 1/8” to 1/4” adaptors
 - Purchased a few 1/4” to XLR adaptors

Requests for Video

- Clearly, video was important
 - Several listeners to the UTOS Podcasts were wondering why there was no video
- There are limitations
 - Streaming video requires a lot of bandwidth
 - Streaming client is around 100% more bandwidth
 - Those watching the stream live would cause the server to increase its load based upon the number of viewers
- Several considerations
 - Podcast video, stream audio
 - Stream at **much** lower quality, podcast high quality

Video for Cheap

- In January 2010, video became a reality
 - But it was a long road!
- Several questions along the way
 - What hardware do I need?
 - What software do I need?
 - How do I capture the screen and video?
 - Do I need to use firewire, or will USB work?
 - Etc., etc...
 - Can I do it for cheap?

Video Hardware

- DV camera
 - Canon ZR80 MiniDV Camcorder
- Webcams
 - Most any webcam works
 - Even the one built-in to your laptop
- Screen capture
 - vga2usb from Epiphan.com (great detail, but \$\$\$)
 - Scan converter/EasyCAP (\$, but detail suffers)
- Desktop
 - This one is uniquely useful

Video Capture Software

- In Windows and Mac, the choices are there, but they cost \$\$
- Using Linux, I could save hundreds by using already existing free software solutions:
 - Video Editors: Kdenlive, Kino, Pitivi
 - Screen Capture Software: Istanbul, gtk-RecordMyDesktop
- None of the free solutions provide streaming capability out-of-the-box

Introducing FreeSeeR

open source video studio in a backpack

- Two fellows from Canada
 - Thanh Ha, Andrew Ross
- Record presentations, dv video and desktop, audio too!
 - Very flexible
 - Built on completely free libraries
 - Currently doesn't work on Winders (yet!)
- <http://fosslc.com/drupal/freeseer>
- <http://www.fosslc.org/drupal/node/667> (demo)
- <http://github.com/fosslc/freeseer> (source code)

FreeSeeR – The Future

- FreeSeeR is designed for recording conferences
 - But it's much more versatile!
- Currently, FreeSeeR is lacking a few features
 - Streaming (v3.0)
 - Windows support (v3.0)
 - Session info from RSS (v3.0)
- Future features discussed
 - Multiple video sources
 - Picture-In-Picture,
 - Swap sources, etc.
 - Automatic upload for podcast
 - Prepending intro data and logos could also be done

Audio Hardware Resources

- Alesis MultiMix 8 USB (\$129)
 - http://www.bhphotovideo.com/c/product/341021-REG/Alesis_MULTIMIX_8_USB_MULTIMIX_8_USB.html
- Alesis MultiMix 4 USB (\$76)
 - http://www.bhphotovideo.com/c/product/598914-REG/Alesis_MULTIMIX_4_USB_MultiMix_4_4_Channel_Audio.html
- Audio Technica Remote Lavalier Microphone (\$52)
 - <http://www.amazon.com/Audio-Technica-ATW-R250-T8-VHF-Receiver/dp/B000UV8KT2>
- Radio Shack Wireless Lapel Microphone (\$50)
 - <http://www.radioshack.com/product/index.jsp?productId=2131022>
- Crown Pressure Zone Microphone (\$69)
 - <http://www.amazon.com/Crown-Sound-Grabber-Condenser-Microphone/dp/B0002H0ER0>

Video Hardware Resources

- DV Camera (\$125)
 - <http://www.camcorderinfo.com/content/canon-zr80-camcorder-review.htm>
- vga2usb frame grabber (\$300)
 - <http://www.epiphan.com/products/frame-grabbers/vga2usb/>
- Scan Converter / EasyCAP (~\$50)
 - <http://www.dealextreme.com/details.dx/sku.15223>
 - <http://www.dealextreme.com/details.dx/sku.26319>

Questions??

- Feel free to contact me:
 - [herlo1@gmail](mailto:herlo1@gmail.com) (email)
 - <http://sexysexypenguins.com> (my website)
 - #utos, #freeseer, #uphpu (irc.freenode.net)
 - @herlo (twitter/facebook/etc)
- If you want to help and/or learn these tools:
 - Join Utah Open Source's Volunteer Member program
 - Record LUGs and open source events
 - File Bugs on FreeSeeR
 - Document, Test, Rinse and Repeat