Webcasting 101

A Simple How-To Guide to Get Your Worship Service Broadcasting and Recording via Live Webcast for under $2,000

Prepared by Pastor Rob Guenther
pastorguenther@gmail.com

I.   Reasoning and Rationale for Webcasting at All

a. **Distance** – Our membership is spread out across the Kenai Peninsula some traveling to worship from Homer, AK over 1.5 hrs. away. With travel being both costly and sometimes dangerous I want a way to take the message of the Sunday service to the Peninsula when it is difficult for the Peninsula to come to the Sunday service.

b. **Work Schedules** – Many of our own members work on the north slope of Alaska on the oil platforms. Their schedules of several weeks on the slope and several weeks at home on the Peninsula make it difficult for them to stay connected. The webcast would offer them an opportunity to worship "with" their brothers and sisters of Grace even when they're away from home. Others work on Sunday mornings. The webcast gives them an opportunity to be a part of the worship service when they cannot attend.

c. **Visitors** – I believe the webcast offers a less intimidating "visit" of a friend or co-worker of our own members where they can "try us out" from the safety and comfort of their own homes. The Word can go to them when they're intimidated at the thought of coming to the Word. Then as the Word does its mighty work, we can encourage them to join us in person and in Bible Class.

d. **Laziness** – The biggest objection that I heard to broadcasting our worship services online is that it would give members the excuse to skip worship services. They would instead stay at home when they could worship with us. But how do you motivate the apathetic to come to worship? With Law and Gospel—the very Law and Gospel they will receive by watching the service online. Each week I thank our members and guests for worshiping with us, but I also thank those who joined us via the webcast inviting them to join us in person whenever they're able.

II.   Equipment

a. **Camera – Cost ~$800**
The Sony EVI-D70 is one recommended by our WELS Tech guys in Milwaukee: (cf. http://blogs.wels.net/welstech/ or, more pecifically, http://welstechwiki.wels.net/page/Video+Cameras): http://www.amazon.com/exec/obidos/ASIN/B000V5T4BU/wwwvseecom-20 We went with a brand new Sony EVI-D70. But it could be purchased it used at significant savings through Ebay: http://shop.ebay.com/?_from=R40&_trksid=p5197.m570.l1313&_nkw=Sony+EVI+D70&_sacat=See-All-Categories

b. **Bracket – Cost ~$50**
I'm sure that cheaper solutions could be found, but we wanted the camera to look aesthetically pleasing so we bought the wall-mount that is made for the camera. (cf. http://www.bhphotovideo.com/c/product/684181-REG/Vaddio_535_2000_205B_Thin_Profile_Wall_Mount.html)

c. **Cat5/6 Cable – Cost ~$10**
This cable will allow you to put the computer in the corner of the room or in another room altogether. You'll also need the balun to connect the camera to Cat5 and the Cat5 back to the computer. But Cat5 (or Cat6) will carry video, audio, power and control for a pretty good distance. We're running less than 100 ft. so I'm not sure how far you can go without needing a signal booster of some sort. But 100ft. or less is no problem at all. Cable can be found cheap online or at a local Radio Shack. Ours was donated.

d. **Balun Convertor – Cost ~$100-220**
    We went with a cheaper ($100) video/power balun to connect the camera to the computer over Cat5. But in hindsight, I wish we'd gone with this Control/Video/Power balun so the camera could be controlled from the computer as well as from the remote. As it is, with the camera in one room and the computer in another, the camera operator is running blind, unable to see what the camera sees. It would have been much better if they could see what they're doing. I'm still considering an upgrade to this one: http://www.ebay.com/itm/USB-Visca-Control-Video-Power-Balun-Cable-Extender-CAMERA-SONY-EVI-D100D70D30PTZ-/180903744263?pt=US_Security_Cameras&hash=item2a1eb41307#ht_2406wt_952

e. **Video Capture Card – Cost ~$50-70**
    After initially trying a cheaper $10 USB capture stick purchased online we upgraded to this name brand, Roxio VHS to DVD Capture stick and had much improved performance: http://www.google.com/products/catalog?hl=en&tok=mv3VP78m-_AJAVHM8zTJpQ&cp=16&gs_id=8&xhr=t&q=Roxio+Vhs+to+dvd&safe=off&biw=1422&bih=1025&bav=on.2,or.r_gc.r_pw.r_cp.r_qf.,cf.osb&ion=1&um=1&ie=UTF-8&tbm=shop&cid=475576437546822907&sa=X&ei=RavjT8i2I-bl6QHQuLnQCg&sqi=2&ved=0CKsBEPMCMAQ

    Now there's Roxio VHS to DVD Capture 3 available for $70 (run a search on Google or Ebay. It's also available at Sam's Club or Costco, which is where I originally found it), which I'm sure has improved performance.

f. **Optional Splitter and Transmitter – Cost ~$30-130**
    You wouldn't need this for webcasting, but we also bought a cheap wireless audio/video transmitter/receiver so we could hook up a "closed circuit" TV in our nursery so we could simultaneously send the video there, broadcast live, and record the video on the web. Here's one like we bought: http://www.ebay.com/itm/2-4GHz-Wireless-Audio-Video-AV-Transmitter-Receiver-2-4-/330729211028?pt=LH_DefaultDomain_0&hash=item4d00ff4494#ht_5097wt_952

g. **Computer – Cost $400-2,000**
    We had a computer donated, so we didn't need to purchase one, but requirements are really minimal. A USB 2.0 port brings in the video from the balun. A line in slot in a standard sound card brings audio in from our sound system. The computer doesn't even need to be very fast as the broadcasting and recording isn't done locally but on the web. A fast internet connection (especially upload speed) is much more important than a fast computer.

h. **Sound Board -- $???**
    We already had a sound system receiving sound from our microphones and transmitting it to speakers in the nursery and the narthex. We simply took sound out from the sound board into the line in slot on the computer.

What We've Spent at Grace (so far)…

Item	Cost
Video Capture USB	$16.40
Sony Video Camera	$843.78
Mounting Bracket	$42.90

Video/Power Balun	$97.80
Video Capture USB*	$44.99
A/V Transmitter	$34.40
A/V Splitter	$18.59
Total =	$1,098.86

* We bought a second, higher-quality capture stick.

III. Set Up

a. <u>Computer</u>

Not too much setup is needed, actually. Download the free Ustream Producer software and install. (cf. http://www.ustream.tv/producer) Install the Roxio Video Capture stick software and plug the stick into a USB port. Then connect the Cat5 to the balun, and the "video out" from the balun into the "video in" slot in the video capture stick. Connect audio out from the soundboard into line in or "audio in" slot in the video capture stick. (cf. also balun diagram below)
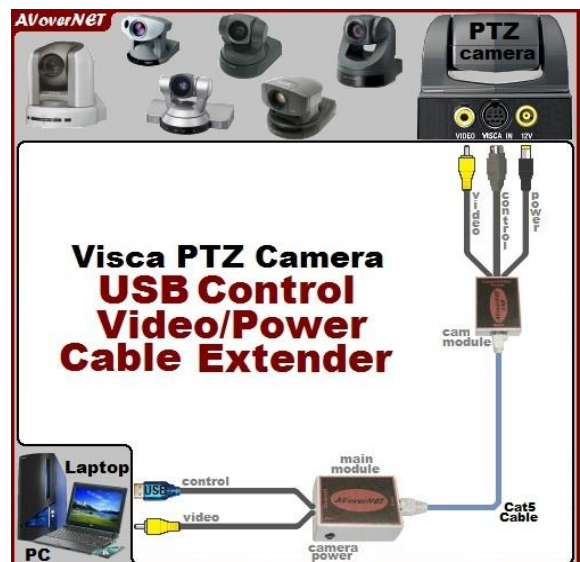

b. <u>Camera</u>

i. Mount the camera…

in the center of the back wall. You can adjust the angle and zoom from the controls later. A single screw holds the camera to the wall mount and is very secure.

ii. Connect Balun using this simple diagram (to the right):

iii. Connect CAT5/6.

This was probably the most difficult step because we had to feed the cable through the ceiling tiles and drill a small hole through a firewall, then patch the wall to meet fire code. But because of the balun, we could run one cable instead of two (video and power) and avoided running electrical wires through the wall.

iv. Preset

We set up the camera with the six preset camera angles.

(cf. camera manual for how-to and cf. below in "Operation" for the angles we selected and variations.)
Basically, we panned and zoomed to where we'd want the various shots and saved them in the remote.

c. Sound

We bought a few more microphones at Radio Shack and placed them on the altar, in the lectern/pulpit, and bought a handheld wireless mic for school programs and a lapel mic for me to wear for Bible Class and Sunday worship liturgy. These all go into our sound board and from the sound board into our speaker and into the video capture stick. From the sound board we adjust the levels of keyboard and various mics.

d. Software

i. Ustream Producer (and Ustream.tv)

Besides the drivers for the video capture stick, all we use is Ustream Producer. This free software connects our audio/video feed to the web to broadcast live while recording. We chose this software because of ease of use, because we can simultaneously broadcast and record (unlike Vimeo), because it allows us to record an unlimited length (unlike YouTube), and because it's free to use (with ads).
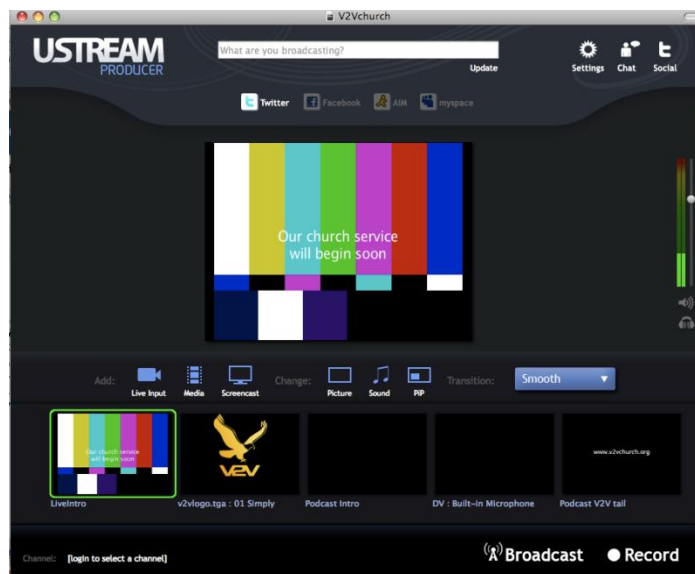
Once it's set up, it takes one click to sign-in, one click to broadcast, one click to record. It's that easy!

With Ustream Producer, you can save image files and multiple cameras (if you have them) as well as transitions and music files to play. We usually start with a splash screen with our church logo and after displaying it for a few seconds, we switch to the video capture.

ii. Social Networks

Another useful feature of Ustream Producer is the ease with which you can send push notifications. Once you get a free ustream.tv account you can link that account to your church's Facebook page and Twitter account. After you're done recording you can update your status at both sites with a click.

iii. Website

We use FinalWeb.net for our webhost, which makes it really easy to embed the viewer right at our site. Find your Ustream.tv channel page and copy the "embed" link from the share button in the bottom right corner of the video.
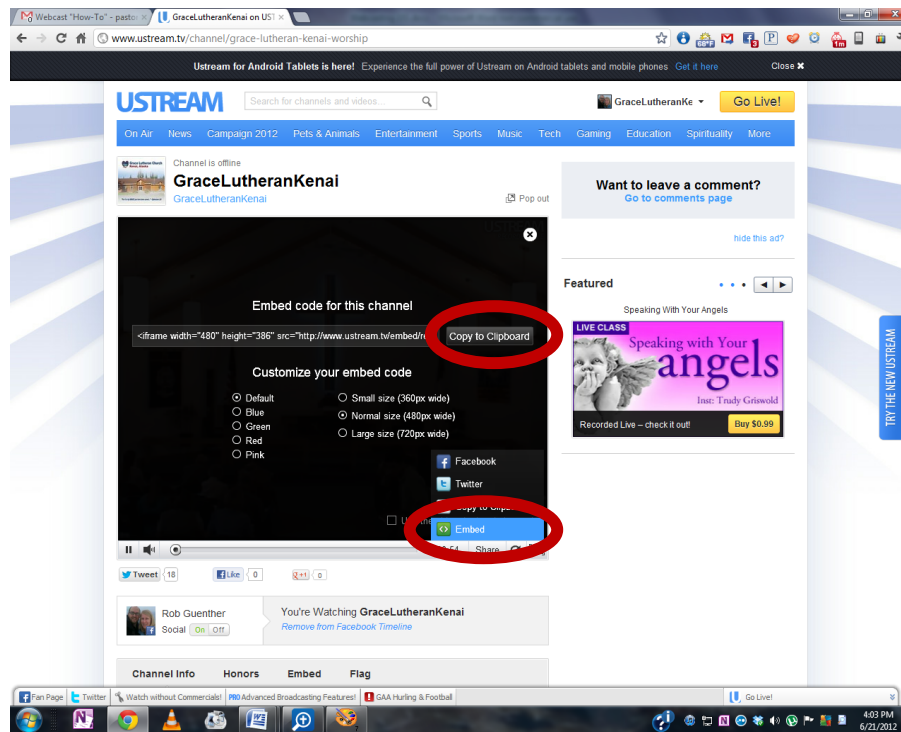
From Final Web create a new page without images and click the "Source" button. Then paste the script in to the site. From the FinalWeb tools page, create a friendly URL that people can remember. We tell people they can watch our service live or recorded at www.GraceLutheranKenai.com/webcast.

We've added a few instructions, a link to a bulletin, to WKW (who so generously provided a grant for us to purchase the equipment) and a Google Doc (now Google Drive – cf. drive.google.com. Also, cf. below on Tracking Results.) form for guests to fill out online. There's nothing to update since the Ustream player automatically embeds the live broadcast or the most recent recording.

IV. Operation

The weekly operation is relatively simple and requires only three steps:

1) Log in to Ustream Producer (Select remember username and password the first time and you never have to remember it again. Just click "Login" at the startup screen.) and click "Start Broadcasting" and "Start Recording."
2) Control the camera angles by pressing six preset buttons at the appropriate time. These are the six presets we have with directions as to when to press which button. The first box has been printed out and taped to the remote. The second has been given to every volunteer who controls camera angles.

1) Wide Shot (for Hymns)
2) Altar Area (for Liturgy)
3) Pulpit (for Lessons and Sermon)
4) Front Step (for Children's Message)
5) Baptismal Font
6) Bible Class

1.   Preservice - "camera" 1
2.   Introduction to the service - c2
3.   Opening hymn - c1
4.   Liturgy - c2
5.   First lesson - c3
6.   Sung response - c1
7.   Second lesson - c3
8.   Children's message - c4
9.   Hymn of the day - c5
10. Sermon, creed - c3
11. Offering - c1
12. Prayer - c2
13. Communion/Hymn - c1
14. Prayers and blessing - c3
15. Closing hymn - c1
16. Announcements - c2
17. Dismissal - c1

If you have separate pulpit and lectern, you'll want to add the other. Perhaps if you have Bible Class in another room or no children's message, you could use a camera preset. Again, if I had to do it over again, I'd purchase the **Control**/Video/Power balun instead of just the Video/Power balun so that the presets could be controlled by the computer instead of by remote alone.

I also ask the volunteers to put fresh batteries in the remote from time to time when the camera is slow to respond. (The range that the remote works from decreases as battery power decreases.)

3) Click "Stop Recording" and name the file. (Usually, I name the file after the sermon or service theme and put the sermon text and Sunday of the church year in the keywords field so it can easily be found by search later.) Then click "Stop Broadcasting."

After this is done I usually send out a Facebook and Twitter notification from home to let people know that a new service has been recorded and uploaded. That's all that's required from week to week.

V.   Website

At the website, we include the following on our webcast page (www.GraceLutheranKenai.com/webcast):

• An Embedded Video Player. Guests can visit our website (rather than Ustream) to get the weekly video of worship automatically updated.

- An online "Guest Register" using a Google Doc (Google Drive) form. I set up notifications from the form so that I get an email as soon as someone fills out the form.
- A link to our online giving through Vanco Services that those who want to support our ministry or give their offerings online can do so easily.
- A link to a .pdf of our bulletin.
    - When I create the bulletin on my computer, the newer versions of Microsoft Word have an option to save as a .pdf.
    - I save as a .pdf to a Dropbox folder (cf. www.dropbox.com) and name it "bulletin.pdf."
    - I created a link from that Dropbox file and posted it on the website.
    - Then each week I save over the file renaming it "bulletin.pdf." I don't need to change the link online that way and it's automatically updated for those who join us online.

VI.   Tracking Results

We use various methods to track viewers and statistics:

- First, the online "Guest Register" gives us the most information about those interested in learning more about Grace. We ask for name, number, email address (to add them to our sermon email list), and how they heard about us. These names are quickly added to our prospect list and we follow up with them that week (usually on Sunday evening or Monday morning). This is most useful in finding out who's visiting, whether members or friends or visitors. We get a regular amount of all three.
- Google Analytics also tracks information for those who view the webcast at our website. It tells us geographical location, internet speed, what browser they used, and other useful information. This does give a false bounce rate however since some may visit the podcast site only to exit to the Ustream page right away and watch video there.
- For that reason, we use Ustream's own internal tracking. This includes how many people view our webcast on which days and times and for how long.

    Note: On the last page of this guide there is a report of the initial 4 months of our webcast. The first graph shows our hits on our webcast page at our website (using Google Analytics). The second graph shows first time visitors and the number of hours of webcast watched (using Ustream's reporting).

That's about all there is to know about the webcast program we have at Grace. I'm sure there's more to learn, but we have what we need to get the Word out to our members, to our community, and to the world (quite literally!). Thanks for taking the time to read through this guide to starting a webcast. I hope that it's been helpful to you and that it might assist you in some small way to help spread the Word of God's rich Grace to us in Christ. Please let me know if I can be of further assistance and don't hesitate to email (pastorguenther@gmail.com) or call me (907-690-1660) if you have questions or comments. And please feel free to share tips or tricks that you've found useful that we might be able to use to improve this service. Thanks! And Lord's richest blessings on your ministry!

In Him,
Rob Guenther

January 2012 Report on WKW Grant Given to Grace Lutheran Kenai to begin a Webcast…

Since we've begun our webcast in August of 2011, we've had…

- Over 452 hits at our webcast landing page.
- Those hits have come from 300 unique viewers in 9 states and 4 countries.
- And they're being made from a variety of devices: not just PC's, but iPhones, Androids, and even a Wii.
- Those viewers have stayed to watch almost 50 hours of live, streaming video.
- And that doesn't count the dozens of hours of recorded material that we make available online.

And the webcast equipment has been used in a variety of ways…

- Of course, we use it to broadcast our weekly worship services.
- But we also broadcast our Sunday morning Bible Class.
- And our midweek Bible Class, inviting viewers to text their questions for live interaction.
- We broadcast our school programs which working parents and distant grandparents love.
- And we've broadcast several weddings allowing out of state "guests" to "attend."

We've been working to make many improvements….

- The video quality has been slightly improved with a new video capture device, though the quality must remain low due to low bandwidth in Alaska.
- We've improved the sound quality by fine tuning the sound system to capture not only the lapel mike, but also the entire congregation letting viewers to hear hymns being sung and feel more connected.
- We've been working on better tracking our viewers and can now tell where they're coming from, how long they stay on the site, what connection speed and browser they use with Google Analytics.
- With most of the "bugs" worked out of the system, now we're working on advertising our webcast via a series of email ads, commercials and a series of radio ads that will reach a 50,000 daily listener average on the entire Kenai Peninsula. Please keep this campaign in your prayers!

Our target audience is a broad base:

- Our primary audience is our members, many of whom work on the oil fields on the North Slope of Alaska. The webcast has helped them stay connected not only to the Word, but to their brothers and sisters in church.
- But we're also glad to hear that members friends, not yet ready to come to church with them, are watching the webcast at work and at home. And family and friends outside of Alaska tune in to worship services, especially to see a wedding or to see their grandkids sing in worship. One grandma in Wisconsin wrote: *"I just watched the webcast and it was awesome! I got a peak at the grandkids during the children's sermon and it made me feel like I was sitting in the church watching this...not 3000 miles away. Thank you Grace Lutheran for making this all possible!!!!!!!!!!!!"*

Thanks to WELS Kingdom Workers for making this all possible as each viewer hears the message of God's forgiving grace given to us through his Son, Jesus. Thanks for helping us to get the Word out!

In Him,
Rob Guenther, Pastor

Grace Lutheran Church, Kenai, Alaska
For questions or comments call 907-690-1660 or email pastorguenther@gmail.com.

Note: Our Thanks to WKW is expressed at the top of our webcast landing page for all to see with a link directly to the WKW site: *"Thanks to a special grant from WELS Kingdom Workers for providing the equipment needed, we're now able to offer you a live webcast of our Sunday morning worship service. For more information on WKW, visit www.welskingdomworkers.org."*
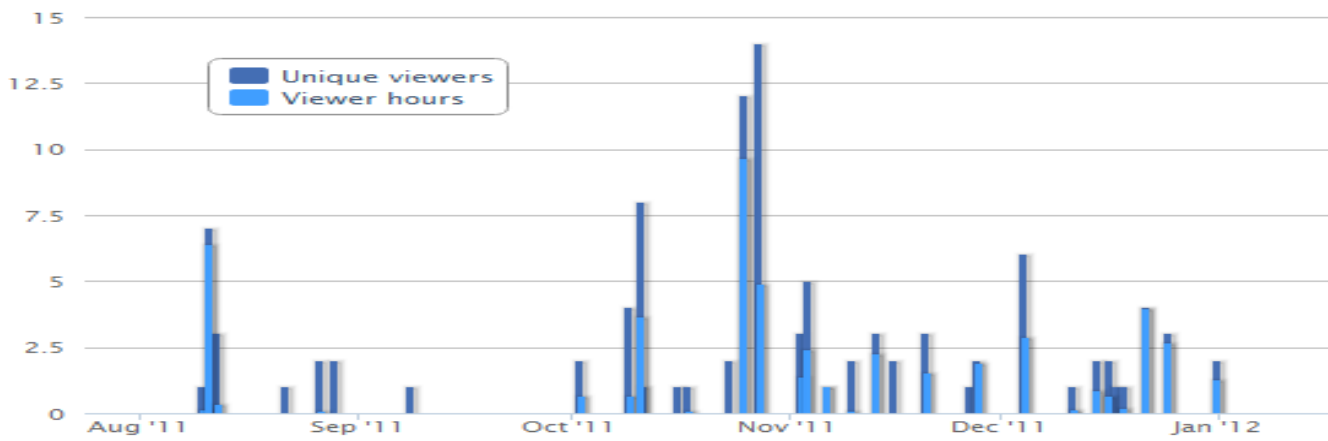
Our Webcast Page Hits from August 1, 2011 to December 31, 2011…

Pageviews	Unique Pageviews	Avg. Time on Page	Bounce Rate	% Exit
● 452	300	00:02:53	70.37%	46.24%
% of Total: 10.04% (4,502)	% of Total: 8.57% (3,501)	Site Avg: 00:01:51 (55.99%)	Site Avg: 63.21% (11.32%)	Site Avg: 47.58% (-2.82%)

Graph Mode: Line Chart   Compare Metric   Graph By:
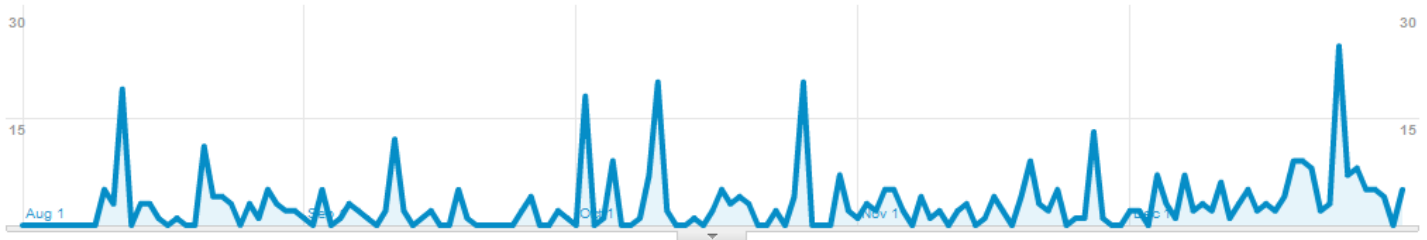
Hours of Live Video Watched from August 1, 2011 to December 31, 2011…

106 Unique Viewers   **169** Peak Views   **49.7** Viewer Hours

Where Our Viewers are Coming From…

Top States

Alaska	285
California	64
Wisconsin	28
New York	11
Washington	7
Arizona	5
Texas	5
Georgia	4
Illinois	4

Other Countries

New Zealand	3
Canada	1
India	1