



A Guide for Church Live Streaming

(Version 1.0)

Created by
Fr. Ryan Paetzold
frryan@stsbepiscopal.org

What is this guide?

This guide is to help congregations think about different solutions to meet livestreaming needs. Every congregation is different, and every budget is different, but the hope is that the explanations and examples contained in this guide may be helpful for churches trying to put together a live-streaming solution.

I large expect this guide to be updated as I receive questions or requests for more information, so check stsbepiscopal.org/live-streaming-guide/ for the latest version. If you have any questions, feel free to email me at frryan@stsbepiscopal.org. I will do my best to reply to any emails I receive.

-Fr. Ryan Paetzold+

Example Setup #1 - Mevo Setup

Cost: Approximately \$399

Required Equipment: Mevo Start (\$399), a compatible cell phone or tablet, a wifi connection

Technical Knowledge Required: Low

Special Notes: Mevo also sells a Mevo Start 3-pack for \$999 as well as additional accessories such as an adapter for an ethernet connection.



The [Mevo Start](#) is essentially a single 4K camera. A cell phone or tablet is required to connect to the camera to see the picture, select the shot, and to livestream to a number of possible platforms. Because the Mevo Start is essentially a 4K camera, different shots can be composed by touching the video screen on the cell phone or tablet which will crop the 4K shot down to 1080p (the highest quality you can stream or record is 10800p). You can also pinch to zoom or expand the given shot on the video stream to more finely tune the image on the livestream.

Pros:

- Cost effective. A great value.
- Easy to setup up.
- Does not require a control room/area.
- Can be used remotely utilizing a device cellular network (for example, at a cemetery).
- Cameras can be added as necessary (currently up to three cameras) and used with Mevo's multicam app (which also allows the use of graphics, unlike Mevo's standard application which requires an extra paid service to utilize graphics).
- Works with phones and tablets on iOS or Android as a controlling device assuming the device is not out-of-date.
- A range of audio options including the camera's built-in microphone, the microphone on the controlling device, or a line-in/microphone connected to either the device or the camera.
- Can utilize NDI to wirelessly connect to compatible switchers (such as OBS).

Cons:

- Can be challenging to fine tune image quality.
- Dependent on wifi connectivity (unless utilizing the ethernet adapter). If there is a lot of traffic on the wifi network, the stream can become interrupted.
- Image quality is not as good as high-end video cameras.
- Larger screens are helpful in setting up shots.
- Some platforms (Facebook, for example) sometimes change their connection protocols without notice which sometimes require software upgrades for the camera at unexpected times.
- Cannot integrate video clips.

Example use scenario:

St. Michael's uses three Mevo Cameras. During the week, two Mevo cameras are use in the Nave for weekday Masses, while one Mevo remains in the church's chapel for evening prayer; on Sunday's, all three cameras are moved into the Nave for the Sunday Mass. The cameras are all on tripods and controlled using a Galaxy S7 tablet by a congregant in one of the first pews. The services are live-streamed to Facebook. Graphics are pre-downloaded to the tablet and utilized as fullscreen images before the services begin in order to share announcements and directions for finding worship materials on the church's website, along with directions for how to make an online donation.

Example Setup #2 - Video Camera Setup

Cost: Expensive, but varies with the quality and capabilities of the system.

Required Equipment: Camera(s), and encoder are required. Additional components such as added cameras, camera control systems, a video switcher, soundboard, and computer graphics can all be added in a variety of configurations.

Technical Knowledge Required: High

Special Notes: This model offers the greatest level of customization and capability but with significant drawbacks in terms of cost, technical knowledge, and required personnel to operate.

This type of setup can become complex, require a number of people to run, and are likely to be very expensive. In general, these systems are often overkill for anything but the largest congregations, but can offer exceptional quality and capabilities.

Pros:

- Scalable. Can add capabilities and quality to the setup as needed.
- Setup allows potential for highest quality and maximum capabilities.
- Can integrate video clips, graphics, and can integrate with existing projection systems within the church.
- Able to be controlled remotely.
- Allows for interaction via chat between personnel controlling the livestream with those watching the livestream.
- As a result of being highly customizable, the system is tailored directly to the needs of the given congregation.
- Ultimately, this system is capable of being adapted to meet any livestreaming needed from graphic and video integrations, to many professional-level cameras.

Cons:

- Most expensive option, though the cost scales with capabilities and quality of the system (as well as the financial and personnel capabilities of the congregation).
- Complex. This system will have a number of components that grows with the capabilities of the system.
- These systems typically involved at least one computer which adds to the technical support needed.
- These systems typically require more than one person to operate. For example, one person might control the camera(s) and choosing which video source is live,

while another person controls graphics and/or sound, another person might be monitoring livestream chat, etc.

- Multiple components inherently increase the amount of technical knowledge needed to maintain the system. For example, knowledge of each component is required including cameras, encoders, video switchers, audio boards, microphones, computer system, software, etc.
- Likely requires a designated space from which to control the equipment.
- Likely requires running cables and wires.

Example use scenarios:

St. Stephen's uses three cameras [[Canon VIXIA HF R800](#)].

The cameras are tripod mounted and are stationary except for one camera manually controlled by the person running the livestream at their small workstation. The cameras connect by cable to the video switcher [[ATEM Mini Pro HDMI Live Stream Switcher](#)] connected to a video monitor. The switcher has a built-in video encoder and streams to Youtube via and ethernet connection. The system is setup before each service and torn down after each service. They have used the setup in other locations to livestream other events.



*Note noted, hardware encoders that run utilize a wifi network do exist but are not used in these setups. **Approximate cost: \$1,400**

St. Peter's Church utilizes a setup with three cameras [[PTZOptics PT30X-SDI](#)] and controls the pan, tilt, and zoom of each camera with a controller [[PTZOptics PT-JOY-G4 IP/Serial Joystick Controller \(4th Gen\)](#)]. The video lines connect to a Windows 10 PC via a video capture card



[[DeckLink Duo 2](#)]. The PC all brings in an audio line from a soundboard, as well as images from the church's projection screen (song lyrics, Scripture passages, and prayers).



The free and open source [Open Broadcasting Software](#) (OBS) is used as the video switcher, as well as to overlay graphics. OBS is also used a software encoder to send the live video stream to Restream.io to stream to multiple platforms at once.

Approximate cost: \$8,000 plus a subscription to Restream.io, and various software packages for graphics.

Example Setup #3 - Using Phones & Tablets as a Multi-Camera Setup

Cost: Inexpensive if using preexisting or donated mobile devices. Subscription prices range.

Required Equipment: “Switcher” for iOS (\$45 per month) or ManyCam for Windows/macOS (Starting at \$29 per year), a computer running Windows or macOS, mobile devices, IP cameras.

Technical Knowledge Required: Moderate.

Special Notes: This model offers a multi-camera setup utilizing maybe devices that a congregation might already have access to. Users sometimes experience issues with low framerates from individual devices.

Pros:

- Can repurpose existing mobile devices.
- Can integrate video clips and graphics.

Cons:

- Especially if using mobile devices as cameras, wifi interference and congestion can be a problem.
- Can have framerate issues.
- Requires the use of a computer, and as a result, someone to operate the computer.
- Subscription plans might become costly.

Example use scenario:

Holy Redeemer Church utilizes the cameras of donated cellphones that are placed around the Nave to record services. The church use tripods and other stands to hold the cellphones. One person utilizes a laptop running ManyCam to switch between the cameras as well as other video sources, and to add graphics as the video stream is broadcast to Facebook.