Getting Started with Livestreaming

Livestreaming an event, whether a worship service or Bible study, can seem like a daunting prospect. Simply explained, it's the process of sending and receiving video in real time over the internet. Like any process of this type, it can be explained in terms understandable to the non-expert or in the more precise terms of the technical deep dive. At the risk of oversimplifying, this article will describe in non-technical language the basics of the livestream process, and the equipment required to get started.

How Does Livestreaming Work?

Think of livestreaming as a journey from sender to receiver with three parts: 1) capturing content, 2) encoding it, and 3) distributing it to the viewer over a stable internet connection. It begins with a camera and microphone, which is built into many smart phones, tablets, and laptop or desktop computers. The video and audio signals travel via ethernet cable or Wi-Fi to an encoder contained in a software program available for free or as a paid subscription, or a hardware device. Next the content is encoded, converting the raw video and audio to a format that can be streamed over the internet, and then distributed to the viewer via an open platform such as Facebook Live or YouTube Live or through a closed-platform service that requires a subscription and may restrict who can view it.

Capturing Content

Built-In Camera

The easiest way to capture the video and audio for livestreaming is by using a smart phone, tablet, or laptop that has a built-in camera and microphone. Most people are familiar with hand holding a smart phone or using a selfie stick in order to shoot video, but for the purposes of livestreaming worship, more stability is needed. This can be attained by mounting the camera on a small tripod. Although the camera on most smart phones is quite good, the audio can sound tinny without an external microphone attached. Search the internet for tools to adapt mobile devices for shooting video (search term: "smartphone video kit with tripod and microphone"). Additionally, laptops have poor quality audio that would benefit from the addition of an external microphone.

Stand-Alone Camera

Here several options are available priced low to high. At the low end is a dedicated livestream camera such as the Mevo Start Live Streaming Camera (about $400). More costly is a professional video camcorder capable of livestreaming, with the least expensive models ranging between $1,300 and $2,000 for the Canon XA Series of cameras, with JVC offering JVC GY-HM250 4K UHD Streaming Camcorder for about $1,700 and the JVC 4K UHD House Of Worship Streaming Camcorder Version for about $2,300. Note: these camcorders require the purchase of a separate video capture device to feed the video signal to a laptop. A third option is the PTZ (or pan-tilt-zoom) camera, so called for its ability to pan left to right, tilt up and down, and zoom in from across the room. The

"...AND THANKS TO THE CAMERA AND MICROPHONE BUILT INTO MY COMPUTER, THE WHOLE CONGREGATION CAN SEE AND HEAR US RIGHT NOW!"

camera is operated by remote control, and some models allow the operator to dial in a number of preset positions, which allows for multiple camera shots with a single camera. The camera is small and can be mounted on walls, ceilings, or any number of discrete locations. The PTZOptics Gen 2 series costs between $1,700 and $1,800.

A Stable Internet Connection

Before video content can be sent, a stable internet connection is required. For this reason, upload speed is important. Anyone who streams movies may be familiar with download speed, but upload speed has to do with sending data, not receiving it. First, make sure the computer is plugged into an outlet, not using battery power, otherwise it may run at 50% or 25% of normal speed. Second, use an ethernet cable that is Category 5 (Cat 5) or higher to hardwire the connection to the modem. While Wi-Fi can be used, an ethernet cable enables a better speed and more consistent signal. Finally, do a speed test using a free online speed testing site such as speedtest.net, speedof.me, or testmy.net. Most consultants recommend an upload speed of 5 Mbps or greater.

Encoding

Encoding is converting raw video to a format that can be delivered over the internet. Most mobile devices have a built-in encoder, but laptop and desktop users will require encoding software. Download OBS Studio, a free, open source software program, or use subscription software such as Wirecast, vMix, or Livestream Study. A moderately powerful computer, at least 8 GB RAM is required, and 16 GB is preferable. Most encoding software options are able to also perform live video mixing, which is switching between multiple cameras or microphones in the midst of a livestream event.

Distributing

The final step on the livestream journey is the video platform that delivers the content to the viewer, called a Content Delivery Network (CDN). Among open platforms, Facebook Live and YouTube Live are the most popular, though Twitter and Instagram have livestream function as well. For those who are undecided between YouTube and Facebook, a service called Restream ($20 per month) allows streamers to send the signal to both platforms at once. Closed platforms, such as Vimeo Livestream, Dacast, and Streamingchurch.tv, are available by subscription and allow control over where and how the stream is presented.[1]

What about Video Conferencing?

For smaller groups or for more interaction, video conferencing platforms such as Zoom, Skype, Facebook Rooms, or Google Meet offer another option. Zoom, the most popular service, offers a free account for hosting meetings of up to one hundred participants and forty minutes duration, with paid plans ($15 and $20 per month) allowing more participants and offering more features. Whether free or paid, most video conferencing platforms offer features such as screen sharing, chat, and whiteboard. Unlike livestreaming formats, video conferencing allows persons without computer access to dial in. However, a video conference is not public like Facebook or YouTube, which can be discovered by social media users who are not already church members. In contrast, an email invitation with a link is required to participate in a video conference worship service, though a Zoom or other video conference can be configured to be pushed to Facebook or YouTube.

Here to Stay

According to a recent survey, the average consumer watches about ninety minutes of online video content per day. Eighty percent would rather watch a livestream video about a business or organization than read a blog or social media post. They feel it's more engaging to watch something live than pre-recorded.[2] This data may motivate church leaders to go deeper, learn more, and livestream more events as opportunities permit.

Resources

"How to Live Stream A Sunday Service," PTZOptics, video, https://www.youtube.com/watch?v=vRFhC3jFyZ8

"How To Live Stream Video: A Beginner's Survival Guide," Ephiphan Video, https://www.epiphan.com/blog/how-to-live-stream-for-beginners/

"Live Streaming Setup For Small Churches," Jake Gosselin, video, https://www.youtube.com/watch?v=9TKsLQYagYA&t=39s

Paul William Richards, *Helping Your Church Live Stream*, Self-published. Available in hard copy on Amazon or as a free PDF download at https://ptzoptics.com/church-book/

Technologies for Worship magazine, Special Edition, Streaming Handbook, http://online.tfwm.com/

1. For a comparison of streaming platforms, see "7 Best Platforms to Live Stream Your Church Service in 2020," Dacast, https://www.dacast.com/blog/7-best-live-streaming-services-for-your-church/

2. Amir Shahzeidi, "Top Ten Online Video Trends to Leverage in 2020 [Infographic]," January 2, 2020, *Digital Doughnut*, https://www.digitaldoughnut.com/articles/2019/december/top-10-online-video-trends-to-leverage-in-2020.