

# Substance Church Online Streaming

*As we navigate this era of an all digital church, there have been lots of questions on how Substance has set up online streaming. Below is a document put together by one of our creative and brilliant IT staff members, Adam Frey.*

This is a broad overview of a very complex streaming system. I will try to cover the following areas but every church's system will probably be slightly different. This is by no means the exact equipment you will need but rather what we do and some recommendations.

- How our technology is set up
- How it functions / back end
- Technology redundancy to prevent failures for streaming on Sundays
- Contact info for more questions / coaching

## How is our technology setup?

Let's start with the most important part. Getting your service to the internet.

We use a Hardware/software system called Living As One. There are many different systems out there, but in my opinion this is one of the, if not the current best system for streaming. It is relatively simple to use, not overly expensive for the features it offers, but most importantly, it is about as stable of a streaming system you can get **and** it can survive extended internet issues, such as short or long losses of service.

These last few weeks, many churches have had intermittent or complete loss of service. The largest reason for this is due to most churches using facebook or youtube for their event streaming. While these are great FREE services, they are also FREE services with no support or guaranteed service. They are also the most used services out there right now and thousands of churches that have never done live streaming before are now using them. Because of this extreme influx of people and traffic, both of these systems are being overloaded and are not ready for this huge influx of traffic on Sundays. Therefore churches that use these services will have issues.

If your church doesn't have the finances to move to a dedicated streaming service provider, you are at the mercy of services like facebook and youtube. If however you have a budget or can create a new budget based on current events, I highly recommend not using these services as your main way of communication. One major benefit that Living As One has over these free services is that their service runs off the Amazon cloud. We stream our services through their cloud servers to Life Church's online streaming platform as well as have the ability to stream directly to our own website. This system is incredibly more stable as we have dedicated

bandwidth and service. If Youtube, Facebook, and Life Church all go down, we can still send our service, albeit not as fancily, directly to our website.

This is the core part of our system and what makes it more stable than most systems. There are other pieces that Living As One also offers that help with a reliable stream, but you can contact them and get more info if you want. ([www.livingasone.com](http://www.livingasone.com))

## **How it functions / back end**

Our entire system is very complex, but the cloud view of it is that we have a camera, media playback device, and graphics computer that we connect to a video switcher. We then send that stream to an audio embedding device where we combine the video and audio from our soundboard. This combined stream then goes to our Living As One encoder. If anyone wants specific info on our exact hardware and why we use it vs other hardware, please see the contact info area. There are so many different hardware vendors and options out there that to try and cover them all and the different pieces of hardware is impossible.

I will say though that a core company we use is Blackmagic Design. Their hardware has been, for the most part, very reliable, incredibly cheap for how good it is, and can give you almost all the equipment you need to duplicate our core system for as cheap as a few thousand, all the way to our exact system of tens of thousands. Most of this cost is not needed for online streaming only as ours is designed for a live event, streaming, and post editing.

A few thousand may seem very expensive, and there are even cheaper options available, but the saying “you get what you pay for” applies here to. Enough said. (Our pastors would add that the impact of technology fails in service on a Sunday are extremely significant; is not just a loss in income from a poor experience, but its a loss in evangelism and invite culture; meaning, you will lose thousands of dollars in giving if the product and technology continues to fail)

## **Technology redundancy to prevent failures for streaming**

This is a very loaded question. How do you determine redundancy? Ultimately in order to have a fully redundant system you have to spend a HUGE amount of money. Why? Because you have to double or ideally, triple all of your equipment, internet service, locations and even power backup options.

We don't even do this, and there are very few churches that do. Instead of even thinking about this option, look at what core parts are most likely to fail, or what pieces could fail and you could work around. Also what parts of your stream are the most important? Most would say the sermon is the most important. So what parts could fail that would still enable you to communicate the most important parts of your stream?

Here is a list of my personal most important pieces to a streaming system.

1. Video encoder/streamer or even two different providers such as (Living As One, ustream, livestream....many others)
2. Internet service providers (get two in case one goes down. You don't need much to stream and \$45 a month is cheap for extra service.)
3. Camera/microphone (probably the least likely thing to fail, but core to the system.)
4. Switcher (you don't have to have one as you can connect a camera with audio directly to a encoder, but it's nice to have)
5. Video playback hardware of computer (for slides/pre recorded video)

If you have the finances to duplicate hardware these are the most important parts to duplicate. But your number one priority is how you get your video streaming live online. Also, you don't have to be "live". Making a pre recorded video and uploading it to youtube or vimeo, are great options that are very inexpensive and people can still experience your service, even if it's not live.

A list of core equipment and links we use is as follows. This is overkill for most churches, i.e under 1000 attendees with no, or basic live local campus feeds. But the principle can be applied to most churches.

- Switcher - <https://www.blackmagicdesign.com/products/atemconstellation>
- Playback Hardware (for prerecorded content) - <https://www.blackmagicdesign.com/products/hyperdeckstudio>
- Camera - <https://www.blackmagicdesign.com/products/blackmagicursabroadcast>
- Second Camera - <https://www.blackmagicdesign.com/products/blackmagicmicrostudiocamera4k>
- SDI Router - <https://www.blackmagicdesign.com/products/smartvideohub>
- Web Encoder - <https://livingasone.com/>

- Audio is a bit complex, but basically we use a Yamaha system and Dante network converted to XLR audio that we embed in a Teranex AV to send to the Web Encoder. There are many different options for this.
- Audio Embedder/many other things you probably don't need - <https://www.blackmagicdesign.com/products/teranex>
- Slides/lower 3rds/other video content when needed - <https://resolume.com/>

**Contact info for more questions / coaching**

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