A guide for

Broadcasting worship online

from a church building

THE CHURCH OF ENGLAND
Diocese of Leeds

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Introduction

Introduction and summary of this pack

The COVID-19 pandemic has presented a number of new challenges and opportunities. Never before has the church had to rely so much on technology and the internet to enable worship to be accessible, despite the initial closure of our buildings.

At the end of March churches across the Diocese of Leeds, and indeed the country, were quick to adapt and have since discovered the possibilities that the online world has for them to reach a new audience and become more discoverable to a population that is increasingly inhabiting the online space. Now, as churches begin to open their buildings to host services with congregations once more, a new missional horizon online continues to present itself.

This pack is here to offer advice and suggestions for churches...

This pack is here to offer advice and suggestions for churches looking to broadcast their services and events from a place of worship. It includes some of the options available with regards to equipment, a list of definitions, key things to consider before investing money and doing a broadcast online, real life case studies from some of our churches, FAQs and suggestions to ensure your broadcast is inclusive.

First steps

List of definitions

Live stream - the transmission of a live video that an audience can watch in real time over the internet. This is commonly done on a website or social media platform such as Facebook or YouTube.

Video recording - a recording of both the visual and audible components of an event that can be broadcast at a later time.

Facebook/YouTube Premiere - a feature on both social media platforms that allows you to upload and schedule pre-recorded videos that are then broadcast as if they are live.

Buffering - Before a video can play, a certain amount of pre-loading data must be downloaded to stream.

Capture Cards/Devices - Hardware devices that convert the analogue video signal coming from a camera into a digital format that a computer can read and understand.

Audio Mixer - A controller that takes in and combines various audio sources and allows the user to route each audio signal to a proper output and adjust each source's levels. Can also be referred to as a sound mixer, mixing desk, or simply a mixer.

> **There are different ways of broadcasting a church service...**

HDMI - Stands for high definition multimedia interface. HDMI refers to the cable and connector that allows high-quality transmission of video and audio data from one device to another.

Ethernet - a hardwired internet connection; it also refers to the physical plugs and sockets used to create the hardwired network.

Tripod - a 3-legged stand to support and hold steady a video camera or recording device.

Key Consideration at the start

What type of broadcast is best to for your church?

There are different ways of broadcasting a church service. The two prominent ways are to live stream or record. Before making this decision it is important to consider a number of factors, such as your setting and the facilities/resources your church currently has. For example, will you be able to access the internet from the church building? If not then live streaming will not be an option, however, pre-recording a service does not require an internet connection. These recordings could then be shared later on.
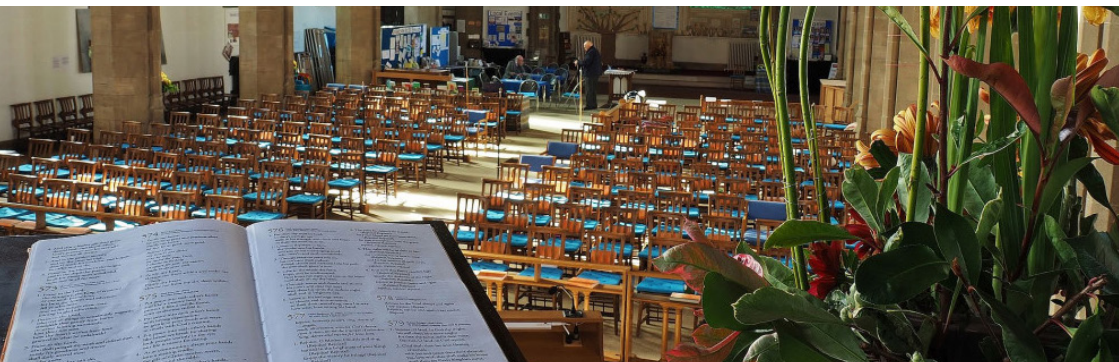
Furthermore, each type of broadcast requires a certain skill set and budget, along with a slightly different type of experience. Before purchasing any equipment or employing a company to complete an AV installation, it is important to think what solution suits your churches budget, technical expertise, online congregation and mission the best.

Permissions for introducing equipment

Enabling worship to be broadcast from your church may require changes or equipment to be fixed to the building. If so then the necessary permissions will be required. Make sure to read the Frequently Asked Questions section of this document to find out more and who to contact before carrying out an installation.

Licences for broadcasting worship

When uploading video content to online platforms such as Facebook, YouTube and a website, it is important to take copyright rules and laws into consideration. This is particularly applicable when performing

music and displaying other audio/visual content. Before broadcasting a worship service it is important to make sure you have the appropriate licence in place for your church. To find out more about licences please visit the Frequently Asked Questions section.

How can we make our system future proof?

It is common for many churches to only have one person who is 'good with the technology', whether that be audio or visual. However, if churches are serious about long term streaming of services, then they will need at least two people willing to be trained to understand how things work so that the equipment doesn't become unusable if that tech savvy person leaves. You never know what is around the corner and having more than one person who can operate your broadcasting system is the best way to become future proof. This is another reason for many churches to keep things as simple as possible and also to experiment with portable equipment before committing to fixed cameras and screens.

> **When it comes to the equipment needed to broadcast a worship service, there are a variety of options...**

Broadcasting set ups

When it comes to the equipment needed to broadcast a worship service, there are a variety of options available depending on your budget. Generally speaking the more expensive the setup, the greater the picture and sound quality will be. However, this often involves a more complicated and less user friendly set up.

Here are three options to consider, each with a different level of cost and complexity. They include a rough estimate of the cost and the types of hardware and software to buy. Each of the set ups will enable you to live stream or record a church service. If you only wish to do video recording then there is no need to purchase the equipment highlighted in green. The costings below presume that you already have a smart phone, tablet or computer. The cost will be significantly increased if one of these needs to be purchased.

There are other options available when it comes to potential set ups and this is by no means an exhaustive list. For example, we'd encourage you to read the case studies below, which offer further suggestions when it comes to set ups.

Furthermore, if your budget allows and you don't have the necessary expertise to purchase and install a complicated live streaming set up, there are AV companies out there who can help. Please find more details under the FAQ below called 'What further help is there available?'

1) **Beginner**
Cost: £20 - £50

Equipment:
- Smart Phone or Tablet with a camera
- Tripod
- Lapel microphone

2) **Intermediate**
Cost: £400 - £700

Equipment:
- PC or Mac computer
- Camera – a number of different types of camera can be bought to broadcast a service. See the equipment explainer below for more details about what cameras are available.
- Video Capture Card – this may not be needed depending on the type of camera bought.
- Camera tripod
- Lapel or shotgun microphone
- Live stream or video editing software

3)   Advanced
Cost: £1,500 - £2,000

Equipment:
* PC or Mac computer
* Cameras x2 - a number of different types of camera can be bought to broadcast a service. See the equipment explainer below for more details about what cameras are available.
* Audio interface - some churches will already have a sound system with a mixing desk. If this is the case, the best way to achieve high quality sound for the live stream is by using a cable to connect the mixer to the computer via an audio interface.
* Audio mixer

> **If your budget allows... their are AV companies out there who can help.**

* Microphones
* Cables to connect microphones and instruments to the audio mixer
* Video Capture Card – this may not be needed depending on the type of camera bought.
* Live stream or video editing software

Equipment explainers

Camera – There are a number of different options available when it comes to cameras. The type of broadcast you wish to produce and the budget you have will have a big bearing on the type of camera you look to buy. If you have a recent smart phone or tablet, these will come with good quality cameras that can be used for streaming and recording. However, if you wish to up the quality, something like a DSLR camera can be a good option. To use one of these for streaming, they need to be connected to a laptop and that is where the video capture card comes in. Furthermore, if you wish to purchase something solely for live streaming, many big manufacturers have designed cameras specifically for that purpose that don't come at a big price. If you would like a further discussion about what cameras you can buy, please feel free to email communications@leeds.anglican.org

PC or Mac computer - this acts as the hub for a live stream. The camera is connected and the computer runs the necessary online software needed to do a live stream. It is important that the computer/laptop you use or purchase has the right specification to operate a live stream or edit video. Both activities would be difficult to do with a less expensive computer that doesn't have a suitable processor, and the right amount of memory and RAM. Make sure to research different options and check a laptop/computer is suitable for streaming before you buy it.

Video Capture Card - cameras like the ones suggested in the second set up require a capture card in order to go live from a computer. The video feed from the camera is sent via a HDMI cable (£10 - £20), which is connected to the capture card that plugs into the computer via USB. This enables the feed from the camera to connect to the computer.

Camera tripod - If you don't wish to have the camera permanently set up, purchasing a good tripod to sit the camera on is a must. Tripods can often adjust to around 6ft and result in a still, smooth image.

Live stream software - online platforms such as Facebook and YouTube allow users to stream direct to their websites. However, it is recommended that you use specialist, external software to operate the live stream from a computer. This enables vision mixing between camera and other sources, such as switching between screens during the live stream, perhaps showing one that has been pre-made with a Bible verse on for example. We recommend using one of the three options below.

- OBS - free to download for Mac or PC
- Ecamm Live - available on subscription for Mac
- vMix - available on subscription for PC

Microphones – To improve the sound quality of a video recording or live stream the best way is to purchase or connect external microphones that you may already have. For a simple set up with one person talking, a lapel mic can be a cost effective and straight forward solution. To capture sound more broadly other microphones, such as a shotgun mic, might work better than a lapel mic. However, if you are wanting to go more advanced and capture sound from multiple sources, the best way is to connect an audio mixer to the computer. If you have a digital mixer this can be connected to the laptop directly, but if you don't that is where an audio interface comes in. Once connected, depending on the size of your audio mixer, any number of microphones and instruments can be fed into the audio of your live stream/video recording.

Being Inclusive

Those leading services should be encouraged to acknowledge, engage with and recognise that there are worshippers present who are not in the building. Make sure to welcome these people, explain things for them and include them in creative ways.

• Include content from people not present – the reading or prayers could be pre-recorded by someone who is attending online, and shown in the service.

• An online host could be appointed to engage with those watching online, replying to comments and overseeing the online content during the service.

> **Include content from people not present... the reading or prayers could be pre-recorded**

Additional thought will need to be given to the things we might previously have done that will not work for those online.

Consider viewers who may be hard of hearing or have certain disabilities. Some, like the Church of England, include signing in their service and use subtitles to enable those groups of people to be able to follow the service. It is important to consider others with different disabilities also, making your broadcast as accessible as possible to those who may for example be autistic or have low vision. More advice on how you can take account of people's needs can be found at www.leeds.anglican.org/disability-inclusion.

Church Case Studies

Here are examples of different broadcasting set ups from three churches in our diocese. Each explains the type of equipment they use, the journey they have been on to get to where they are and any useful tips they have learnt along the way.

All Saints Church, Pontefract
Revd Mark Watkins
Their journey

At the start of the coronavirus pandemic the vicar at All Saints, Revd Mark Watkins, decided to start church broadcasting life simply. With the building closed, Mark began by recording video clips, for the Sunday service, from his living room on an iPad. Using a video editing application on the tablet, Mark was then able to upload the recording to All Saints YouTube channel, scheduling it to be published on a Sunday morning. Although the service wasn't live, it meant the congregation were still able to view something at home with relatively little cost and expertise required by those producing the services.

When church buildings were allowed back open, All Saints decided they wanted to start live streaming their Sunday service, enabling a hybrid event with people physically attending and watching online at the same time. Because YouTube as a platform does not allow users (unless they have over a certain amount of followers) to stream straight from a phone or tablet, All Saints had to think of a more technical solution, using a mix of equipment that they already had, along with one or two new purchases.

Live streaming set up

All Saints soon discovered that YouTube will allow anyone to live stream from their platform as long as it was operated from a laptop or desktop computer. So the Revd Mark Watkins uses his Macbook Pro. It has a built-in camera and microphones that can be used for a simple setup. However, some software is needed to supply the Video to YouTube. For this they use OBS. It is an open source program, and seemed a bit daunting at first as there is no printed guide available, although, it is free and very stable.

To capture the video and audio for the live stream, All Saints decided to use an external camera and an external sound source. The camera is a Logitech Streamcam, designed to do exactly what it says - be a camera to provide a video output for streaming. It can be used in Portrait or Landscape mode, so is easy to adapt for either Facebook or YouTube, and has a USBc connector, so an adapter may be needed with older Laptops.

For sound they use a mixer with a digital USB output that can take multiple inputs, allowing them to have two radio microphones, a feed direct from the Music Group's mixer and a feed from a simple Bluetooth receiver. This is quite advanced, and to start with you could use the built-in microphone on the Streamcam.

Lessons they have learnt
Lighting - As bright as you can make it, from the front. You do not want a lot of back-light. Diffused front lighting is best so shadows are softer.

Sound - In a small room try hanging duvets or similar things around the walls to dampen sound reflections. In a big room or church you will get echoes, and these really go odd online - so get the microphone as close as you can to the source of the sound, - the speaker's mouth or other sound source, so that these echoes are not picked up.
Use a stand or holder for the tablet, phone and for microphones too if you can. Also on the tablet or phone, don't use the front-facing, 'FaceTime' camera. It is nowhere near as good as the lens on the back of the phone.

Keep it simple to start with - Use a built in camera and microphone and see how you go. A Laptop on the back of the Altar pointing at you is fine if you are going to do everything from that place. When you're ready to improve, get the sound right first. You don't need an 8 plus channel mixer! Just one good microphone with the correct connections for your tablet, phone or laptop and a lead long enough to reach close to where you are. And when speaking, don't mumble!

Be Prepared - Once you have the set-up ready turn it all on 30 minutes before you intend to start broadcasting. Check it is all working. Then, 15 minutes before the service is due to begin make the stream live. This eliminates any start-up glitches and gives time for the stream to settle and gives you chance to re-start if it is not working, If all is well, play a little background music or something but remember not to leave an 'Open Microphone' on if the church is open and people are coming in!

St Wilfrid's Church, Harrogate
Fr Gary Waddington
Before the Pandemic and lockdown, St Wilfrid's Harrogate hadn't live-streamed a service before. So they came at this as novices. Their vicar, Fr Gary Waddington, explained that it's been a steep learning curve, but as a church they got there. So what did they do and what have they learned?

Broadband
This is the vital foundation: check your Wi-Fi upload speed. We quickly discovered the 'standard' broadband in the parish office wasn't good enough. Most platforms need you to have an upload speed of 2Mb/s. Anything less and your stream will keep stopping while the video buffers. Since there's no fibre broadband where we are (so we couldn't just upgrade), the solution was 4G data. We found that we ate through a mobile phone data allowance – so eventually got a stand-alone 'Data only' SIM card which gives us an unlimited data allowance. We bought a "MiFi" box, which is about the size of a credit card – and it acts as a mobile Wi-Fi router. The advantage with this is, we can move it around

our very large building, but it needs no wires, doesn't need 'installing' and therefore doesn't need a faculty.

Licences
If you're going to broadcast any music, you'll need licences. We've fast discovered most pre-recorded music is a no-no – unless it's been specifically made available for churches to use as part of live-streams. For us, the essentials have been what the Church of England uses: a CCL livestream licence (we've tacked this onto our existing CCL licence package) and a 'One Licence' licence. These pretty much cover everything – but again, avoid commercial recordings unless you have specific permission to use them: whilst you can use these as part of services, if you livestream, you'll get your feed cut off by the platform you use.

Platform
We went with Facebook as the parish already has a page. Facebook live means you can livestream direct to your Facebook page really easily. YouTube is a popular platform, but you need a set number of subscribers before you can livestream, and recently, there have been

issues with 'time slots' being imposed (so your advertised 11am service might not go out until 11.45am). We've not tried zoom for a service – we simply went with the platform we already had.

Equipment

We started off with just an iPhone perched on a table. Then we graduated to the iPhone on a tripod (much easier!). Then we 'upgraded' to a dedicated fixed livestream camera (we use a system called Meevo). This works really well for us. The camera links to an iPhone app which is then the control unit. The camera is small and static – but we can zoom in and out, without anyone having to touch the camera – it all works from the app. The iPhone (or tablet) you use then also works as a secondary microphone, and feeds into the audio from the camera itself. (You can even add other phones etc. into the sound feed!) For us, that means there's no intermediary computer required: it's just Camera-Wi-Fi-iPhone(s).

Last thoughts

The system we use, because it doesn't need cables or hard installation is faculty free. So that's really helped. We now have a few people who can work the app – it's pretty intuitive and once set up properly, works really well.

We've deliberately tried not to be too clever. We've tried to know our limits! And we've taken care to remind people that we're livestreaming a church service – we're not a professional audio-visual firm, or a TV crew. That's helped set expectations: and people here are really grateful that we can do what we can do. Our other advice flows from that. As Bishop Nick says: this isn't a competition. Do what you can, and if

you can't, that's fine. The parish down the road might have graphics, and multi-camera positions – but that might not be for you. When in doubt keep it simple, and if it works for you, stick with it. But most of all practice. Work out how to make it work for you. And it's not as terrifying as you might think it is.

Fountains Church, Bradford

Jonny Mansfield

At Fountains church we currently film our services in segments during the week which is then all compiled together and premiered on a Sunday. We use Facebook and YouTube's premiere function which allows us to upload and schedule the service during the week ready for Sunday.

Here's a little bit about how the service is pulled together each week.
Tuesday evenings we record worship with the band. We record instruments and mics using a USB interface (Focusrite Scarlett 18i) into Logic Pro on a laptop. Visuals are recorded with two cameras. One is locked off on a tripod facing the worship leader and the other is held by a camera operator that moves around the band capturing the musicians. During the week the audio is mixed together and then stitched together with the two video clips cutting between the angles to create some variation.

With the worship finished we then film the talk and leading parts of the service on a Wednesday. We use just one camera for this and record audio with a mic on a boom pole, again using the USB interface into a laptop.

Once everything is recorded we sync the audio with the video, add in the worship and some graphics at various points in the service, for example for any notices etc. The service is edited with Final Cut Pro which is a paid software but similar programs are free including iMovie or Filmora. The finished service is then exported and uploaded to Facebook and YouTube and scheduled for Sunday afternoon.

FAQs

How do I get internet/Wi-Fi into my church?

If the church already has a telephone line, then contact your service provider who should be able to arrange a Wi-Fi connection to the church through the phone line. It will take longer, but you might also want to shop around for deals or if your telephone provider does not have high speed internet in your area.

It will take longer, but you might also want to shop around for deals or if your telephone provider does not have high speed internet in your area.

If the church does not have a telephone line, choose a service provider such as BT, Virgin, TalkTalk or any of the many internet service providers available. Shop around to see which quote and service is best for your church and situation. Live-streaming church services will probably need super-fast or fibre optic broadband, otherwise the

bandwidth will not be fast enough to stream clearly, with the quality and reliability more likely to be compromised.

Once you have selected a service provider, they will contact an engineer (usually from BT Openreach) to arrange for the line to be fitted. Running a new wire for Wi-Fi or telephone will require some form of permission from the Chancellor of the Diocese. The engineer should then contact you to discuss the cable route for the wire.

If churches are serious about long term streaming... they will need at least two people willing to be trained

If the engineer gets in touch with a date for fitting the wire without discussing the cable route beforehand, you will need to contact them to clarify cable runs with them before they arrive so that you avoid the situation of the engineer arriving and works being done without permission. Some wires can be run from nearby telephone poles (which will have a visual impact), some may need to be placed underground through the churchyard (where there may be burials). The engineers will advise on the straightest route possible, as more bends in the cabling may compromise the quality of the connection. However, it is important at this stage to ensure that if a cable is going through a churchyard containing burials, it follows an existing disturbed route where possible, for example along the line of a path. Graves must not be disturbed, including passing the wire between graves as there may still be the possibility of disturbing remains. If you have any concerns about the installation and the visual impact or impact on burials, contact the DAC for further advice.

Once you have established a cable route with the engineer, contact the Registry by email to ask the Chancellor whether he will give Minor Works Directions for the works. The email should include a description of the works, the cable runs and where the cable will enter the church. If the Chancellor responds positively, the works can begin. There may be certain conditions in the Directions that you should ensure you address before undertaking the work.

How much should I buy? Which broadcasting set up would work best?

Much of this can depend on your budget and what resources and expertise you have at your church. The first step will be to sit down, look at what your church wants to achieve, its budget and to think carefully about whether your church is wanting a long or a short term solution. Some churches will not want to continue broadcasting services, via live stream or pre-recording, for longer than a few months/a year. Other churches may decide that this is the future and will therefore be prepared to spend more time and money on better equipment and training people in the congregation to achieve this. If your church is starting from nothing, begin with a simple set up, like the beginners one above, and get used to that first. As you become more confident, the more advanced you will be able to get by improving the sound and picture quality.

On the other hand, if you are already broadcasting at a basic level there are a number of pieces of equipment that could take you onto the next level. For example, by purchasing an external camera, a lapel

microphone to produce better sound quality for the speaker or operating your live stream from a computer. Explore some of the more advanced set ups above and read the case studies to find different ideas.

How do I make sure my church broadcast is in line with data protection?

Sharing worship services online can be a brilliant way to reach a wider audience. However, it is important to bear in mind concerns related to privacy and data protection. People's personal data must be protected and this includes visual images of attending members of the congregation. Here are a few ways to respect people's privacy whilst live streaming.

• **Raise awareness**. While there is generally no reasonable expectation of privacy in a worship service that is open to the public, it's a good idea to let attendees know that services will be broadcast. This way, they can determine the amount of information they're comfortable providing if, say, they want to make a prayer request or share a health update regarding a fellow member of the congregation. You can accomplish this through signs and/or notices in the church's bulletin, newsletter, electronic newsletter and other communications.

• **Create "no video" zones**. Designate specific places or areas within the church building where video does not reach so members who don't want to appear on video can comfortably gather there.

• **Get permission**. Exercise particular care with children and

vulnerable adults. Avoid putting their names and images on the live stream, or, at the very minimum, proceed only with appropriate authorisation. Also be mindful about personal prayer requests and health updates – these should only be streamed with the consent of the individual in question.

How do I safeguard children and vulnerable adults?

Because it is hard/impossible to control who sees images broadcast online, children and vulnerable adults must be protected. Here are a few ways this can be done, some of which are similar to those suggested when protecting people's privacy.

> **Provide an area of church which is not visible in the recording / streaming, and clearly mark out this area...**

•   Provide an area of the church which is not visible in the recording/ streaming and clearly mark out this area for people.

•   All families with children or young people attending should be made aware of this area so that they are not visible on the recording/streaming, unless appropriate permission has been granted for a particular child or young person.

•   This area should also provide for members of the congregation who may prefer to attend in privacy and may not wish their whereabouts to become known publically.

- Anyone coming forward to receive communion should also not be visible in the recording/streaming.

- Relaying or recording sound only is unlikely to cause an issue as individuals in the congregation will not normally be identifiable.

Do I need permission for introducing equipment?

The introduction of portable AV or streaming equipment does not require any type of faculty permission as it is included within 'List A' of the faculty legislation. Apart from the advantage of not requiring permission, portable equipment can offer an opportunity for experimentation with positioning of equipment. This could be helpful as you get adjusted to streaming services as it gives time to work out what's best before making any more permanent decisions about placement.

If you do need to affix equipment or permanent wiring to the church building, this will require permission and you should seek the advice of the Diocesan Advisory Committee for the Care of Churches (DAC) before carrying out any installation. The DAC can also offer the services of its AV adviser if you want some help in thinking in detail about any installation. For more information, contact the DAC Secretary: lisa.mcintyre@leeds.anglican.org or Tel: 0113 353 0277 or visit: www.leeds.anglican.org/dac.

What licence do I need to be able to broadcast worship online?

Christian Copyright Licensing International (CCLI) introduced a streaming licence in mid-March 2020. It is available to any church which holds a CCLI Church Copyright Licence, which the majority of Church of England churches do. For many churches, this licence will cover them for their broadcasting activity. However, if your church is hosting a stream/recording on their own website, they will need the PRS for Music Limited Online Music Licence (LOML) in addition to the CCLI Streaming Licence. Permission should also be sought from the owner(s) of any other creative works included in the service. This can include music, images and text.

What further help is there available?

After reading this pack, if you are still in need of help when it comes to permissions and understanding more about introducing an internet connection to your church, the Diocesan Advisory Committee for the Care of Churches (DAC) and their audio-visual (AV) advisers are on hand to help.

If you wish to have a discussion about licences, broadcasting equipment and online platforms like Facebook, Richard Earnshaw our Digital and Social Media Officer can be contacted on communications@leeds.anglican.org.

A number of companies can be employed to supply and install AV equipment for churches. If you don't feel confident purchasing and installing your own equipment we would recommend approaching one of these companies. The DAC keeps a list of reputable AV and sound companies who have installed systems in churches in our diocese. To receive a list of these companies please contact the DAC. Parish Buying have also evaluated and compiled a list of reliable companies for churches to use that can be found on their website.

But very truly I tell you, it is for your good that I am going away. Unless I go away, the Advocate will not come to you; but if I go, I will send him to you.

John 16:7

Streaming services has gone from being a luxury item to a necessity for many churches. This guide will help you explore your options in terms of budget and set-up, and will steer you through some of the technical elements of the process.

Produced in collaboration between the Diocese of Leeds DAC and Communications Team.

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Diocese of Leeds

Loving.
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Resources and advice are available from the diocesan website:
www.leeds.anglican.org