
LIGR
GET STARTED WITH
LIVE STREAMING
IN THE CLOUD

CONTENTS

01

INTRODUCTION

THE WORLD OF LIVE STREAMING

Thanks to the internet, it has never before been more accessible for consumers to access the content they want, when they want, across all categories of media.

Elite sporting organisations have mainly taken advantage of this, by providing the offering of; up to the second live stats, live video coverage and video highlights. This offering has provided and unparalleled, immersive experience to fans, that they have never before experienced.

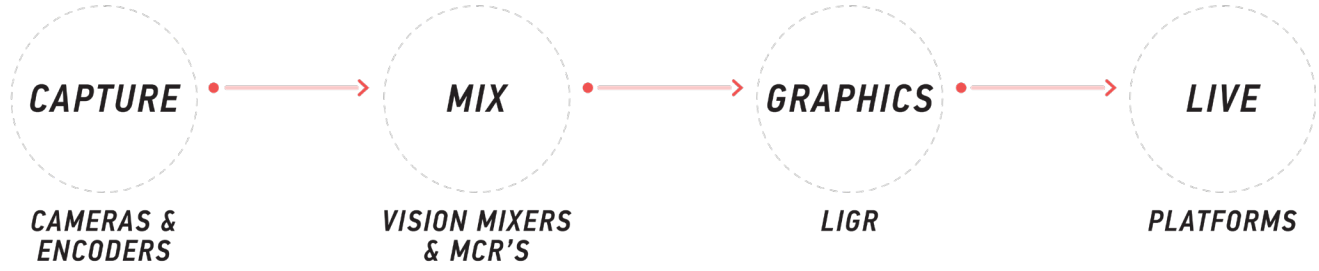
The problem for sub-elite and grassroots sporting organisations, is that trying to match the level of offering to fans that elite organisations can offer, is expensive and resource-heavy. That is until now.

Live streaming has seen a massive rise in popularity, in turn, this has fueled a surge in technologies to not only feed this demand for live streaming but to make it easier than ever to achieve! The barriers are falling; costs are down, easy-to-use equipment is available, and cloud-based live streaming management platforms, (like LIGR) now exist.

No matter your budget or expertise, LIGR wants to help you start live streaming your sport. By providing you with the knowledge and a platform that gives YOU easy-to-use tools to live stream like a pro!

WHAT WE WILL COVER?

By the end of this eBook, you will be ready to start your live streaming journey, we will cover 4 key areas of education, talking about the different hardware, software and platforms that make up a live stream.



02

HAVING A PLAN

It is excellent that you have dived in to start learning about how to live stream!

This is a new world of endless possibilities, a world that is disrupting the traditional distribution of live content around the globe, and this is a world you are now a part of it!

Before we get started it is important to consider these things:

01 How often will you be streaming? (Will you stream one game a month or thirty games a month?)

02 Will you use a production company to execute your live streams? Or execute your live streams internally?

03 What is your budget? How will you fund your live streams short and long term?

04 What human resources do you have available?

05 Will you be streaming with a single camera? Or would you like to start big with a multi-camera production?

06 From what facilities will you be streaming?

- *a.* Will you have access to a grandstand?
- *b.* OR, are you just streaming from a field with no infrastructure?

07 What platform will you use to deliver your live stream to viewers?

- a. Social media?
- b. Will you be streaming to an OTT?

08 How will you promote your streams?

- a. You need to let the world know, think about how to spread the word. Some options to consider:
  - i. Social media marketing
  - ii. Word of mouth

Note the answers to these questions down; they will come in handy when making a game plan to kick off your streaming empire!

03

CAPTURE - HARDWARE.

Hardware, the first port of call on your live streaming journey.

Hardware can come in many shapes, sizes and technology levels; this is great for choice! But this can make the right decision quite the headache, with so many different options and different technology levels. So, let's break it down.

You'll be pleased to know that you can get streaming with just **TWO** critical pieces of hardware:

- A camera (with tripod): to capture the live-action.
- And, an encoder: to send the live video to your viewers.

CAMERAS.

Let's get started with the action-capturer, the camera.

With such a plethora of camera choices in the market, you may be thinking "Where do I start?", but not to worry, let's break it down.

01 Zoom:

A long motorized zoom (20x zoom or more), is key to getting close enough to the action for your live stream audience.

Having a motorized zoom will make the action of zooming easy to control and smooth for the viewer.

Using manual zoom lenses, such as those seen on DSLR cameras, are not suitable for live sports production as they are clunky to operate.

02 Resolution:

The resolution of your camera is important in ensuring you deliver a high-quality image to viewers of your live stream.

A camera with a resolution of at least 1920x1080 pixels (FULL HD) or higher is best aligned with today and future standards.

Tip: To future proof, buy a camera with 4K resolution capabilities

03 Camera Outputs:

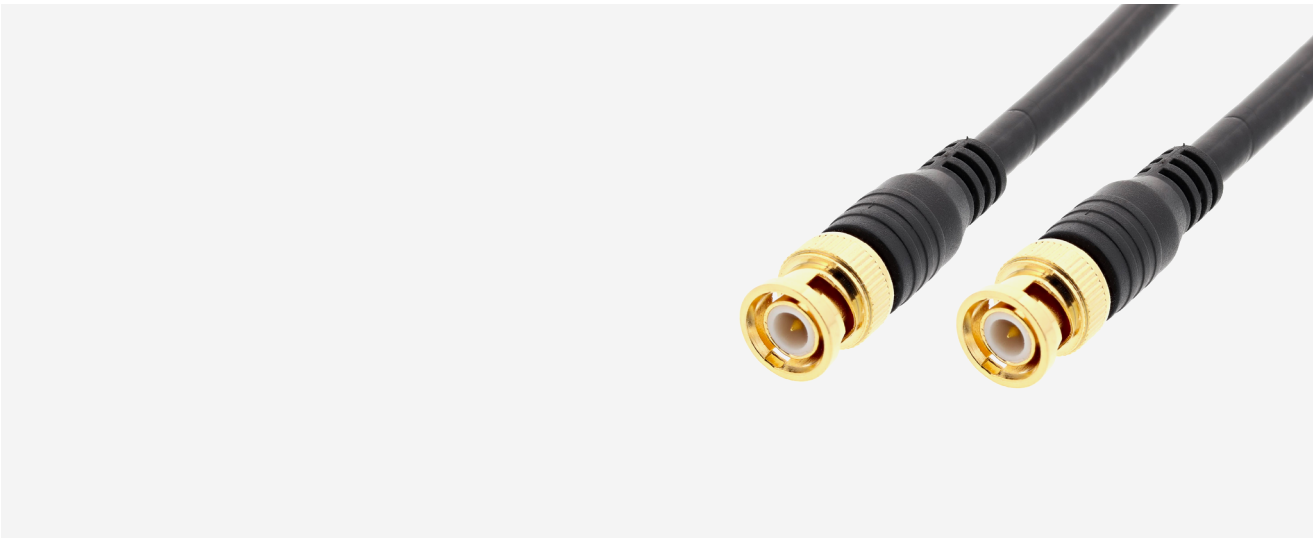
It is best to compare camera outputs and vision mixer/encoder inputs to check they are compatible before purchase; however, here are two of the most common connection types that your camera choice should have.

HDMI can come in a couple of different connection sizes, such as **HDMI** Mini and **HDMI** Micro. Both types deliver more or less the same capability, Be sure to check what kind of connection size your camera has, to ensure you obtain the correct cabling.

—HDMI (High-Definition Multimedia Interface) is a common consumer-grade camera output

Another popular connection type (more commonly seen on professional equipment) is SDI (Serial Digital Interface). SDI can come in a few different types which can affect the quality of the image it is capable of delivering.

HD-SDI and **3G-SDI** are some of the more SDI standards, both capable of delivering high-definition video.



—HD-SDI and 3G-SDI are some of the more SDI standards

04 Pricing:

Camera price-points are wide-ranging, here is a brief breakdown of what you will find when it comes to budgeting for your camera:

- **CHEAP (Under $1,000):**

  A price point that is excellent for the home consumer, with features such as HD Video, a high megapixel count, auto-focus and more. The cameras also provide a highly automated feature set and workflow, allowing anyone to use them.

  Live streaming is undoubtedly possible with cameras in this price range, but you may hit some roadblocks as they are not usually well equipped for live sports production.

- **GETTING STARTED ($1,000-$3,000):**

  A perfect price range to look in when gearing up to live stream sports.

  This range of cameras offers a hybrid of easy-to-use and professional features.

  Cameras such as Canon's XA series and Sony's PXW series fit this category.

- **MID-RANGE ($3,000-$5,000):**

  You've fallen in love with live streaming sports, and you want more!

  Look to this range for higher resolutions, better camera sensors and more. We recommend an advanced understanding of cameras before purchasing in this category.

- **HIGH-RANGE ($5,000+):**

  If you are looking to enter the big leagues, well, it is only up from here!

  With some professional cameras costing upwards of $100,000, this category is indeed for the camera enthusiast.

MOUNTING YOUR CAMERA.

It is crucial to consider the positioning of your camera and how you will smoothly and efficiently capture the action.

01 Tripods:

Tripods, like cameras, come in many different types and build qualities. Most tripods all achieve a similar result: to provide a stable and secure position for your camera that allows for smooth pan and tilt action of the camera.

When searching for a tripod, you will notice a wide variation in prices. Here is a brief breakdown of what to expect:

- **CHEAP (Under $100):**

  A basic (usually a plastic) tripod, with a plastic pan and tilt head. Great for the home user, not so great for prolonged live video capture.

- **GETTING STARTED ($100-$250):**

  You can usually find some great deals in this price range, look for a tripod with the keywords “fluid video pan and tilt head tripod.”

  While build quality may still be questionable in the lower end of this price bracket, this is a fantastic price range to look for when you are just getting started.

- **MID-RANGE ($250-$500):**

  Now we are getting serious; when you want to step it up, this price range will allow for a higher quality purchase.

  Bringing smoother pan and tilting action through high-quality tripod heads, which can significantly assist when capturing live sport.

- **HIGH-RANGE ($500+):**

  The possibilities are endless, from here-on, you are getting into the big leagues and if you have the money to spend you will be greeted with very high build quality and premium pan and tilting action.

02 Position

The positioning of your camera is key to ensuring you capture all of the action. An excellent reference for how to position your camera best, for the sport you are live streaming is to check out how the pro's do it on a TV broadcast.

A general rule is to ensure you can see the entire field of play unobstructed and the camera can pan and tilt unimpeded to follow the game.

—Using football (soccer) as an example; a centred side-on view works best.

03 Elevation

Say you were to capture the game from the sidelines of the field of play at ground level. You will notice that the field of play, it looks 2D when watching back on a monitor - making it hard for the viewer to determine what is happening in the game.

An elevated position allows for an extra dimension to be seen at home (on a monitor). The camera position does not need to be bird's eye (top-down), more so, a sideline view that is at least 3-5 meters off of the ground.

If you are using a tripod, some onsite positions to consider (assuming that the locations are safe):

- The top-level of an onsite grandstand
- The balcony or second floor of an onsite building
- An elevated hill or some other natural formation that provides enough elevation

If you do not have access to any existing safe elevated position, not to worry! There is a solution.

A portable camera mast can be acquired to raise your camera to an elevation of approximately 4-5 meters. Think of the mast like a very tall tripod.

The mast comes with a remote control camera pan and tilt head, so you can comfortably control the camera from ground level to follow the action.

Most masts are quick and straightforward to set up. Email us info@ligrsystems.com to receive a list of known suppliers.

—Compact stadium live streaming solution

ENCODERS.

The beating heart of your live stream, this device is responsible for taking the video from your camera and sending it to the world.

There are a couple of different types of encoders and both are capable of achieving the same result, where they differ is in how they complete the job, in this eBook we will concentrate on hardware encoders.

Hardware Encoder

A hardware encoder is a standalone device that usually has a connection to the internet via a mobile link and can power itself via an internal battery.

These devices are by far the easiest and arguably the most reliable way to send your live video from onsite out to your fans watching on their devices.

They are also great for when you are capturing the action with a single camera and a single camera operator, as it allows for an effortless setup with minimal equipment and fuss.

One of the more common encoders used is the LiveU Solo.

—LiveU Solo is a common encoder that's widely used and has a good track record

With a single HDMI input (on the base model), the ability to connect to the internet via a mobile connection and an internal battery, it offers a quick and easy live stream setup for a single camera/person operation.

While the Solo is not only device that exists in the market, it is indeed widely used and has a good track record.

Some other common hardware encoder brands are:

TVU

Teradek

With all the hardware information in your hands, you can now head out and make some informed decisions on what kit you are going to purchase to undertake your live streaming journey!

If you still have some questions in nailing down what you need for your particular project, not to worry, we are here to make it easy!

Please send us your questions to info@ligr.live

04

MIX - VISION PROCESSING.

Once your live vision is captured by your camera, it needs to go somewhere before being delivered to your audience.

In this section, we will talk about two of the more common ways to process your vision.

- Vision Mixers
- Hardware based
- Software based

Before segwaying into cloud based mixers and MCRs and their workflows.

WHAT IS A VISION MIXER?

To quote Wikipedia directly, a vision mixer is:

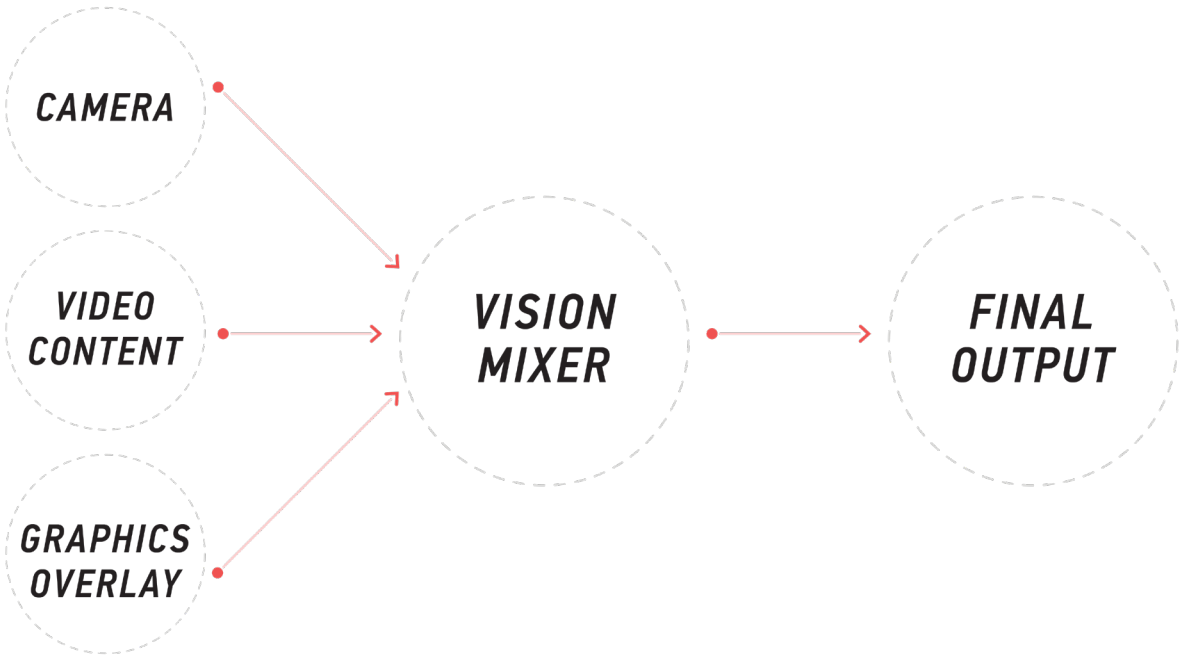
“A vision mixer is a device used to select between several different video sources and, in some cases, compositing video sources together to create special effects.”

Vision mixers are excellent for elaborate productions that require finite control over the final live stream output. For example, streams with:

- Multiple cameras
- Large commentary teams
- Pre-recorded video content
- Flexible schedules - when you are ‘playing by ear.’

In saying that, vision mixer can still be useful for simple productions. For instance, when you have a single camera and all you need to do is overlay a single LIGR graphics overlay on the vision before sending out the final live stream output.

Here is the basic flow of how a vision mixer works:



HARDWARE VISION MIXER.

Hardware vision mixers have been around since the inception of the vision mixer, using dedicated hardware to enact vision mixing. The design of the hardware vision mixer has not changed much over the years as well, keeping the same basic layout of buttons.

The hardware vision mixer is usually the way to go if you are looking to keep things traditional and manual; although there is nothing wrong with taking this direction, you may find incompatibility issues with new and emerging technologies and you may find that your productions require both, more human resources and more equipment resources to make things work.

—Professional hardware vision mixer in a TV control room

Reliability

The hardware vision mixer is built to mix vision, nothing else meaning it can be, arguably the most reliable type of vision mixer money can buy. However, this does bring along a set of limitations that may not be present with other types of vision mixers, with a couple of examples being cost barriers and feature limitations

Cost

The first thing you will notice about hardware vision mixer is their cost, this cost can be attributed to a number of factors, however, the most common factors would be the lack of mass production in comparison to consumer hardware products and the specialist nature of the hardware inside the devices.

- **CHEAP (Under $1,000):**
  With not a lot to choose from this price range, you may find it hard to find what you are looking for; expect simple devices that can handle no more than two inputs and with only consumer grade connections such as HDMI.

  If you are just starting out and looking to experiment with very basic live streaming, this may be perfect price range to look.

  Click here to see some of the latest vision mixers in this price range

- **GETTING STARTED ($1,000-$4,000):**

  Taking things up a notch, we step into a price range with much more choice; you'll find small, yet powerful, prosumer grade vision mixers.

  Bringing simple features such as: support for SD and HD video, multiple inputs and outputs, multiple types of inputs and outputs (both HDMI and SDI), a choice of transitions, and keyers.

  Some even pack features such as: audio mixers, the ability to be controlled by software and more.

  A great place to look if you are just starting out with streaming and wanting to get serious about it.

  Click here to see some of the latest vision mixers in this price range

- **MID-RANGE ($4,000-$10,000):**

  You want to grow your production, add more cameras, have a more stable setup; this range is where you can step things up even more.

  While mid-range may not necessarily bring extra features to the table, it does offer a greater amount of the same features; more inputs and output, more transitions etc.

  In some cases, you may see extra features, such as a built-in encoder; meaning you can live stream directly to the internet without the need for a computer or external encoder. The streaming services and streaming features these internal encoders support can vary. Please check what the vision mixer can support before purchase.

The vision mixers may even support greater resolutions, like FULL HD and even 4K video.

Click here to see some of the latest vision mixers in this price range

- **HIGH-RANGE ($10,000+):**

If you have an unlimited budget, you can basically spend an unlimited amount of money on a hardware vision mixer. TV grade vision mixers can run into the hundreds of thousands of dollars.

What you may find here is not necessarily the addition of extra features, more so, you will just be paying for more inputs and outputs and a more reliable piece of hardware.

This is probably not the greatest range to start your streaming journey, but when you have finally created you successful live streaming empire, this is probably the perfect range to look to upgrade your gear.

Click here to see some of the latest vision mixers in this price range

Features

An overview of the pro's or the features of a hardware vision mixer:

- Reliable dedicated hardware
- All physical inputs/outputs, buttons and knobs - may be easier to understand than software.
- Great for simple/manual productions
- Be exposed to how live productions have been mixed for decades

Limitations

Some of the cons or the limitations:

- Price vs features can sometimes not make logical sense
- And on top of the above, they are general expensive
- Most of the time incompatible with new and emerging technology such as HTML5 graphic overlays
- Usually large and bulky - not great for non-permanent setups
- Sometimes a steep learning curve to even achieve the most basic functions

SOFTWARE VISION MIXER.

Versatile, cost-effective and can be used on your existing computer; this is the software vision mixer.

In the beginning, software vision mixers were seen as somewhat of a gimmick; they were inherently unstable and required a computer of a somewhat high power level to function adequately.

Nowadays software vision mixers have improved leaps and bounds, offering unparalleled feature sets compared to their traditional hardware counterparts; they are also extremely cost-effective and even free in some cases, making the cost barriers to entry almost non-existent.

One major difference between software and hardware vision mixers is that the software mixer does not have any native video inputs, this means that a video capture card is required to bring the camera signal into the computer the software vision mixer is running on.

—Blackmagic capture card

Although; we are now also seeing ‘hybrid’ systems, where a custom made computer is manufactured to have the physical attributes of a hardware mixer and work hand in hand with the vision mixing software to be sold together, in an attempt to compete against the stability of a hardware mixer while offering the feature set of software.

—NewTek Tricaster

Reliability

Software vision mixers have been known to encounter stability issues for a number of different reasons, however, this is quickly becoming a thing of the past as technology improves.

Cost

A key feature of the software vision mixer: cost-effectiveness, with some even being free or open-source.

The price ranges of the software vision mixer are not quite as clear-cut as hardware, with a good example being in the case of OBS, an open-source piece of software, having a greater set of features than some comparable paid pieces of software. Although, feature-sets are not always necessarily the main value of a product, with other factors such as customer support and guaranteed product support contributing to the final cost of the product.

Here are some examples of the more common software vision mixers:

OBS | COST : $0

OBS: Free and open-source software for video recording and live streaming.

No cost, no problems; download and jump in. By far the best option for the beginner or the budget-conscious streamer.

Check out more here:
https://obsproject.com/

vMix

VMIX | COST : $60-$1200

vMix: A Software Video Mixer and Switcher that utilizes the latest advances in computer hardware to provide live HD video mixing, a task previously only possible on expensive dedicated hardware mixers.

vMix in many ways is a complete live streaming solution, with price points and product offerings to meet all budgets and production types.

Read more here:
https://www.vmix.com/

NEWTEK TRICASTER | COST: STARTING FROM $6K

Arguably one of the most advanced solutions on the market; the Tricaster. Sold together as a hardware/software package, the Tricaster is taking on the hardware mixer by offering feature-rich vision mixing software running on a custom made PC, that is tailored to do the job.

Cost-wise, the systems are out of reach for most and is only really an ideal solution for advanced productions, with multiple cameras and bespoke production needs.

Read more here: https://www.newtek.com/

Features

Specific features vary from product to product, but at the software vision mixers heart, they all achieve the same result, and that is mixing your vision sources together.

Software vision mixers in general though, offer:

- Greater flexibility
- The choice of choosing your own hardware

- Cost-effectiveness
- And, in most cases, a greater feature-set

Limitations

With all this talk on how great the software vision mixer is, it is important to note that they are not the absolute panacea and do face some limitations.

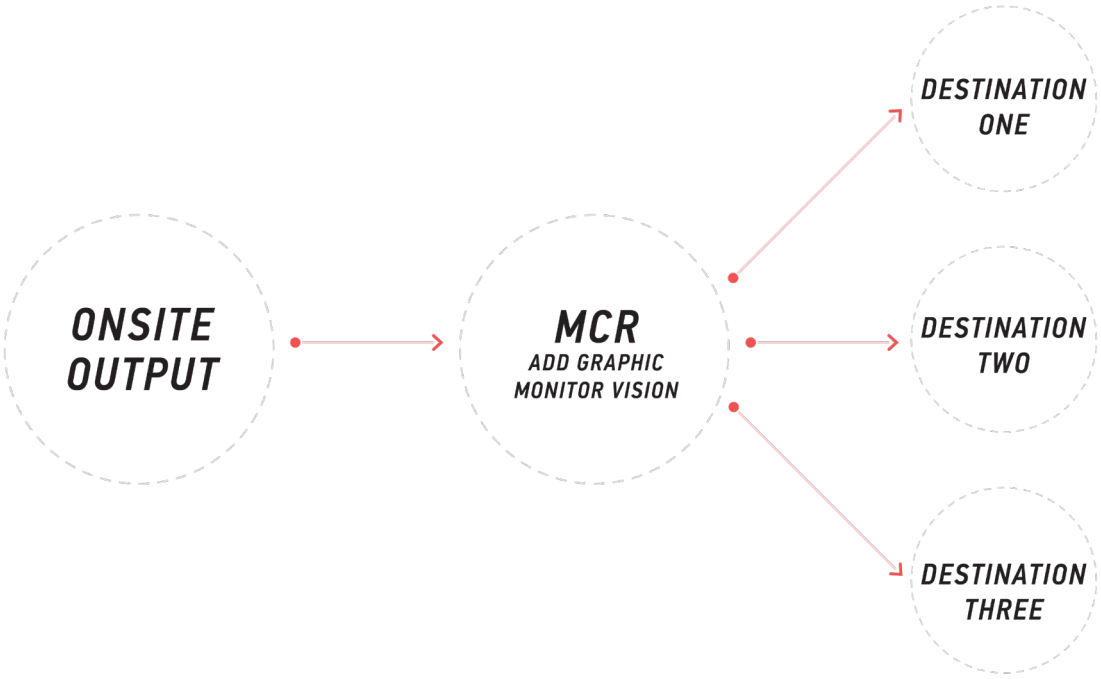
As a direct comparison to the hardware vision mixer; a key limitation of a software vision mixer running on a standard PC is the lack of physical connections to connect camera and audio sources to the mixer. This means the user will need to acquire a video capture card to feed what the camera is seeing, into the PC and then onto the software vision mixer. The cost of this accessory, compared to the more expensive hardware mixer, is far less.

Tip: Software vision mixers with built-in encoding can also be used in place of a hardware encoder.

WHAT IS AN MCR?

Master Control Room

A master control room is somewhat similar to a vision mixer, however, think of an MCR in reverse. It takes one single input, does some minor processing and then sends the signal to one or more final destinations.



MCR's are great for productions of all sizes and types as they can remove simple, yet resource-heavy tasks from onsite and process these in one central location that already has the resources in place to accomplish the tasks. Some examples of benefits:

- Send one live feed from onsite instead of many. Let the MCR do all the heavy lifting to get the video to its final destinations and significantly reduce the expensive internet bandwidth you need onsite.
- Adding graphics and live stream watermarks/logos offsite in an MCR can free up resources on an onsite vision mixer and make the job of vision mixing much simpler and more manageable.
- If the live feed from onsite to the MCR fails, the MCR can enact a failsafe (such as a backup pre-recorded video) to ensure the live stream doesn't go down for viewers watching the stream.

Traditionally MCR's have been very hardware intensive operations. Because of this dependency on hardware, this has made MCR's expensive to deploy and operate, which has made employing the benefits of an MCR into most live productions unattainable due to their cost... That is, until now! (Segway to cloud-based tech)

—Image of a master control room or MCR

05

LIVE! FROM THE CLOUD.

CLOUD-BASED VISION MIXER, AND MCR'S

Now, don't let the words above scare you off! There is absolutely nothing to be afraid of here, and by the end of this chapter, you will consider the cloud a good enough friend to accompany for 'a' wine.

First up, we will cover some basic terminology to make sure we are all on the same page. If you find you are familiar with any of these initial topics, feel free to skip.

CLOUD VISION MIXERS AND MCR'S.

As the world becomes better connected and bandwidth limitations are removed, we are seeing more and more technologies making the move to the cloud.

Vision mixers and MCR's are making this move, with platforms available and ready to use now! Let's talk about the benefits, the current limitations and generally how these emerging technologies can streamline your workflow, reducing setup times and cutting costs.

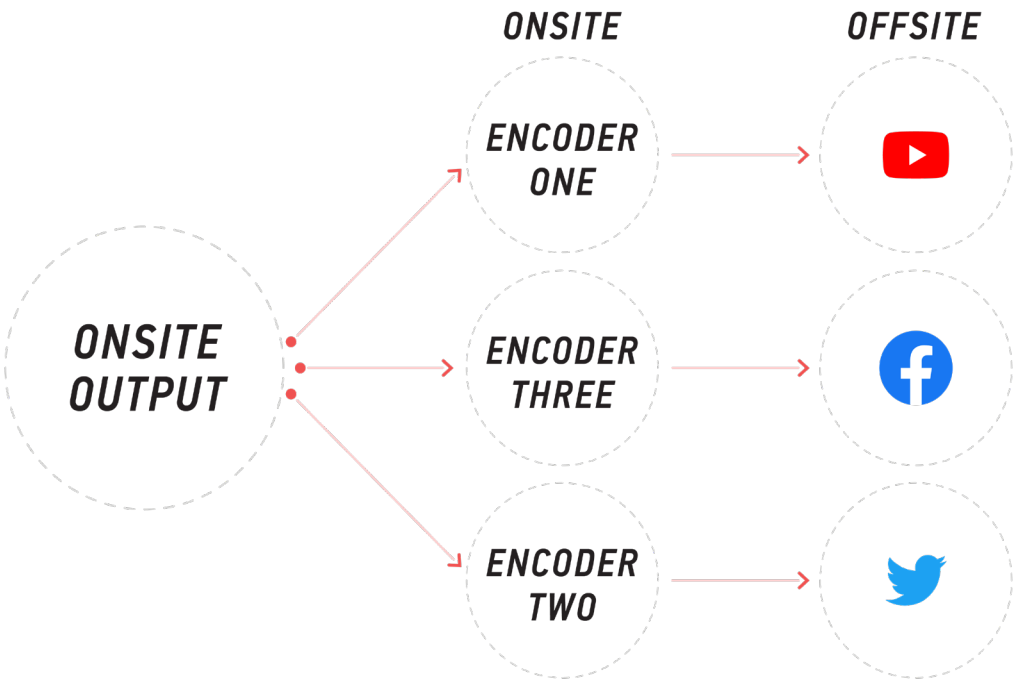
The Benefits

Many of the cloud-based platforms available today have combined the functionalities of a vision mixer and an MCR into their platforms, bringing TV level capabilities to live productions of all sizes.

Bandwidth

By far the greatest benefit of the cloud-based MCR (or streaming distribution platform) is the cut-down in bandwidth required to distribute your content to multiple platforms.

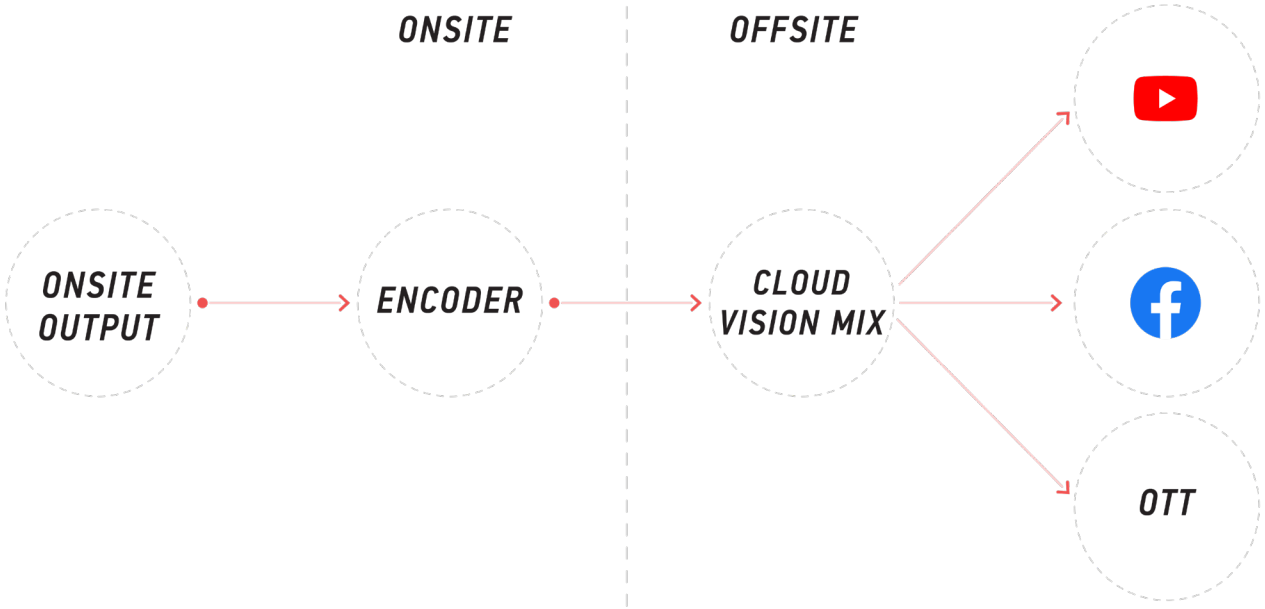
In the past, a common way to deliver a live stream to multiple destinations would be to send multiple streams from onsite to each streaming platform you want to deliver your stream to.



—Example of a traditional streaming process to multiple platforms

You may be familiar with this issue, it can be a problematic, bandwidth-intensive process that delivers lackluster results.

Nowadays platforms exist that solve this issue, by taking one single stream from onsite and then from the ‘cloud’, distributing this stream across the internet to the destinations you specify.

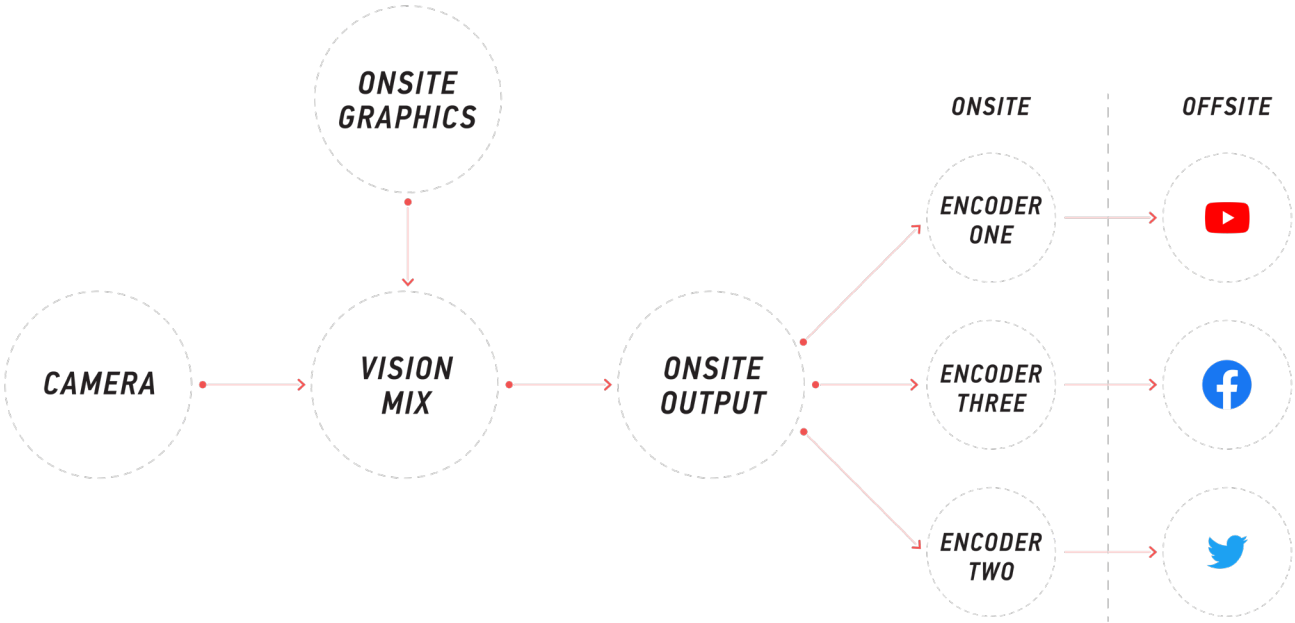


—Example of using a cloud to make the streaming process to multiple platform efficient

Along with significant improvements in hardware encoders, these cloud-based platforms significantly improve the quality of live content for viewers, while making your life easier.

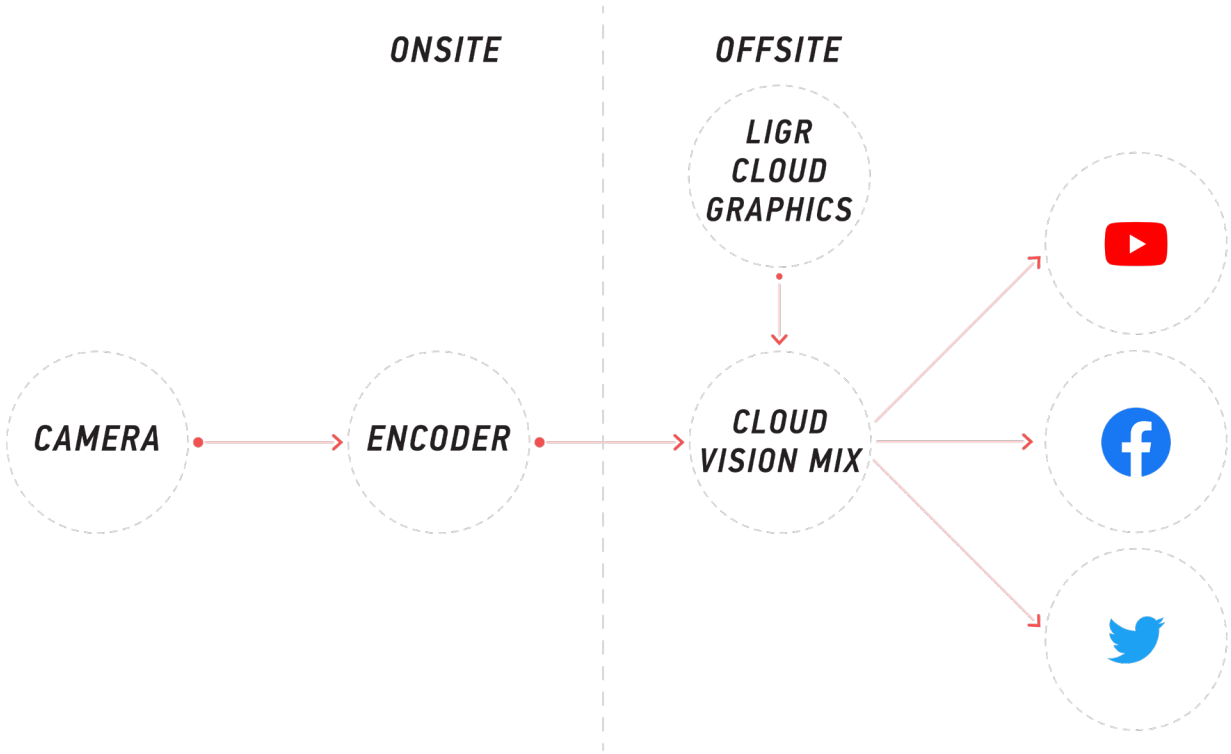
Cutting Down on Hardware:

Another significant benefit of most of these platforms is the ability to remove large, clunky, hardware vision mixers and processing devices from simple onsite productions.



—A simplified example of a tradition live stream workflow

Armed with ONLY a camera and a hardware encoder onsite, you can send this clean video feed to the cloud and add live graphics and watermarks with LIGR, and more, before sending onto your viewers.



—An example of the new cloud-based workflow for single-camera streams - to multiple platforms.

Setup times are slashed, costs are significantly reduced and best of all, no more learning complicated vision mixers just to achieve simple tasks.

Usually, encoders are associated with the last leg of live streaming and that is to deliver the final product to the viewer. In this case, we are using an encoder in the second step of the process. The encoder will take our vision from our onsite camera (or multiple cameras for larger productions) and send this to our cloud-based vision mixer, to be mixed into the final output (graphics applied etc.) before being sent to the viewer directly from the cloud.

A vision mixer in the cloud fundamentally functions the same as a physical, onsite vision mixer. The main difference is how it receives/accesses its vision sources and how you access the control surface.

The internet - the backbone of any live stream, and also the gateway to anything located in the 'cloud'. Compared to onsite hardware, where assets are stored on physical drives on site, cloud-based tech hosts everything in the cloud (offsite), this means you need to get all your vision, pre-recorded content and graphics up into the cloud, and this is easily achievable via simple upload methods the platforms offer. An additional benefit to have all of your assets in the cloud is redundancy - no more faulty hard drives or forgetting to bring drives along; upload everything before game day and have it available instantly for input into your live stream.

Platforms

As with any emerging technology, new platforms are popping up all the time. Here are some of the better-known platforms being used by sporting organisations, production companies and broadcasters around the globe:

- **Cloudmix**

  "CLOUD BASED LIVE STREAM PRODUCTION
  Mix live in the cloud and send to multiple platforms. No cables - no stress"

  Read more: https://www.cloudmix.tv/

- **Grabyo**

  " The cloud platform for live video production and editing"

  Read more: https://about.grabyo.com/

- **Tellyo**

  "LIVE VIDEO CLIPPING, EDITING, STREAMING, PRODUCTION AND DISTRIBUTION"

  Read more: https://tellyo.com/

- **Easylive.io**

  "The all-in-one live streaming production studio fully cloud-based"

  Read more: https://easylive.io/en/

As with all product offerings, again, specific feature-sets can vary, however, most of the above platforms offer the same core features, being:

- Cloud-based distribution of video - send one feed to multiple platforms
- Basic cloud-based vision mixing
- Live, cloud-based, video clipping and basic editing function

In conclusion, cloud-based vision mixers and MCRs can be a great way to lower production costs and reach maximum efficiency with you live productions. Reducing bump-in times and compatible expenditure of expensive hardware by moving these functions to the cloud.

06

LIVE GRAPHICS.

A Brief History

Live graphics or broadcast graphics are a type of motion graphic that is produced in real time. This type of graphic is used frequently across live broadcast television and is generated with a system called a character generator (CG).

Historically character generators (CG) were a complex device that produced rather simple results. Early systems were developed in-house by large broadcasters (such as the BBC in the UK and CBS in the USA), to meet their own specific needs.

https://www.bbc.com/

Today's Traditional Workflow

Nowadays broadcasters no longer use proprietary internal technologies; rather they enlist the products and services of companies that specialize in graphics hardware/software and broadcast designers that create/build the graphics in said products.

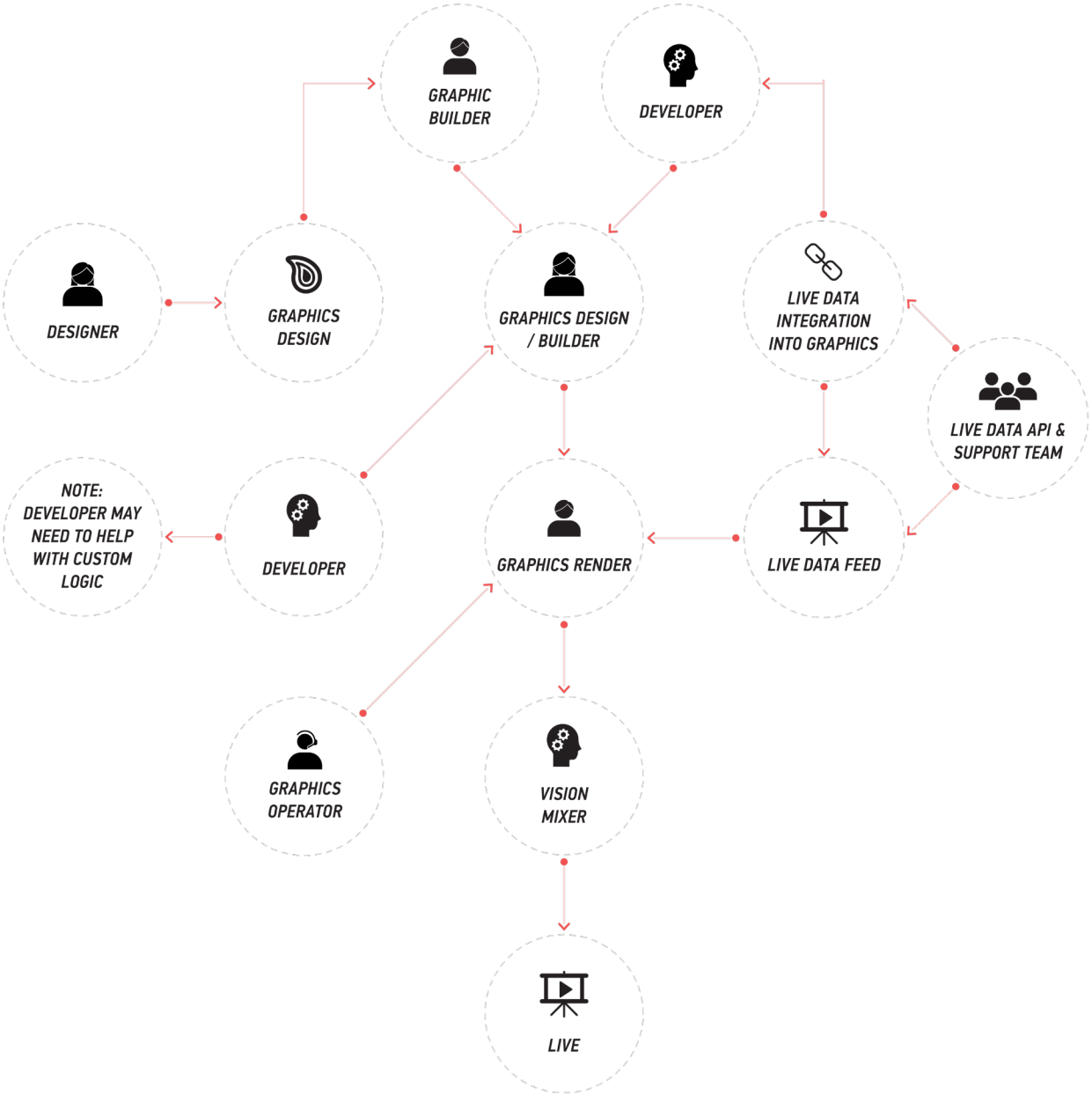
These graphic technology providers offer a suite of highly advanced products to achieve the results desired by TV networks and broadcasters. Because of the advanced nature of these products, television professionals

usually require intense training on how these companies' technology works. Some professionals even specialize in particular software from one single company, where their title may directly reflect what their specialization is, for example: **Viz Broadcast Designer.**

In the case of a **Viz Broadcast Designer** - the term "Viz" in their title refers to a company called "Vizrt", a large company that supplies live graphics technology for television (more on them later). "Broadcast Designer" is the generic title for a person that, put simply, creates graphics for television. The terms together suggest that the broadcast designer specializes in creating graphics for television within Vizrt's systems.

Vizrt is not the only company that develops graphics technologies for the television industry. Many companies large and small occupy the TV graphics technology space, all with competing technologies built upon the same fundamental workflows.

The people and processes involved in getting a live TV graphics package to air:



—This is a simplified example and may not be accurate representation of all workflows.

Some large companies that develop competing technologies to service the need for television graphics include:

Vizrt has been a television industry technology provider of graphics and TV automation solutions for the past 20 years. With a large footprint across many TV networks around the globe - there is a high chance that Vizrt has something to do with many of the live broadcasts you have seen on TV.

ChyronHego (formerly known as Chyron or Chiron) is known as somewhat of a pioneer of broadcast graphics, with origins of their technology stretching as far back as 1966. To emphasize on this, Chyron is so ingrained into the television industry that to some professionals, live on-air lowerthird graphics are simply referred to as a "Chryon".

Well-known for their audio composing software: Pro Tools and their industry standard non-linear editing software: Media Composer - Avid is a popular technology provider for the TV and entertainment industry that has been around for many years.

Maestro is their suite of broadcast graphics software - powering broadcast graphics across television globally.

Ross, a Canadian company founded in the 1970's is a supplier of both hardware and software for live TV and events. Ross is best known for their hardware, manufacturing equipment for all facets of television production.

Xpression is their main line of graphics products, usually sold as a hardware/software bundle at the time of writing.

These companies' technologies can all usually produce comparable results when it comes to standard on-air graphics - dependent on the expertise of the professional using the technology. Some limitations and differences may be observed across the technologies when it comes to producing more complex graphics such as augmented and virtual reality graphics - to name a couple.

The technologies that these companies develop have been responsible for some of the most impressive live graphics results in live TV to date and they have laid the foundations for what is the industry standard of live graphics capability for live productions. However, the results always come at the expense of complexity and of course monetary cost.

TV Graphics Solutions and Live Streaming

Live broadcast is expensive and requires a specialist skill set from many that work in the industry. Live graphics is an area of broadcast where that problem is exacerbated, with expensive, complex hardware/software that requires highly skilled teams of people to produce the required graphics. While these products are great for the well-funded television productions they serve, they do not translate very well into the live streaming world, for a few reasons:

Cost

Is by far the biggest contributing factor to these products being blocked from entering the live streaming world. With many of the solutions from these companies costing many thousands of dollars. And that is just for the software/hardware cost, it is not factoring in the cost of specialist staff to operate the products.

Resources (Staff)

While these products can produce some very impressive results, this does come at the cost of complexity and complex software requires highly skilled professionals to operate. Simply, these products are not easy to use and professionals may spend months to years learning only the fundamentals of the products and hence, it may take multiple years to gain an advanced understanding of the products.

Time

The world of live streaming is an agile environment - teams are small, and projects move fast! Again, this severely goes against traditional television workflows. Productions in the live streaming world do not have time to learn complex software or take the time required to build graphics packages within these softwares.

Graphics in Live Streaming:

Producing live graphics for streaming within the budgetary constraints that surround this medium has always been a feat achieved with some good ole fashioned improvisation. Vision mixers have always provided some basic functionality to allow for in-stream graphics; and in the early days of live streaming, resourceful operators would capitalized on these basic functions

to achieve some rather impressive live graphic results with the limited resources available.

As live streaming grew in popularity and as live streamers were becoming some of the biggest users of software vision mixers, the companies that developed these vision mixers moved to fill this gap in live graphics capability by building live graphics builders and engines within their vision mixing software.

vMix is a software based vision mixer developed by StudioCoast PTY LTD in 2009. This software allows you to create dynamic live productions. It allows you to input cameras, videos, music, titles, streams, PowerPoint, replays into your production that you can then display on large screens, record, and stream.

It has the ability to integrate with a 4K video production software solution which permit you create quality graphic production at a cost much lower than the traditional video production workflows.

Open Broadcaster Software (OBS) is a free and open source software package that has been in operation since 2012 for recoding and live streaming. Due to its increasing popularity, it is now referred to as OBS studio. OBS will encode a live video feed into the appropriate format for streaming through OVP (Online Video Platform) and it can be operated from any type of computer.

NewTek Tricaster is a video tool that helps deliver quality content to its viewers easily and comfortably. This software is owned by NewTek, Inc. which have been acquired by Vizrt on April, 2019. The whole package gives you the tools every video into an artistic masterpiece and make even the smallest presentation captivate viewers' attention.

This in turn has fuelled the development of standalone graphics solutions for live streaming, with some allowing for the complexity of TV within reach of a live stream budget.

Singular. Live is an advanced interactive digital overlay platform for any broadcaster who wants their content more engaging and captivating to viewers. Singular has been serving the industry for the past 6 years as it allows user to create broadcast-quality overlays from a web browser. Singular is a cloud-based platform that can be only be accessed online. The platform can burn the live video in real time and can be updated at any time.

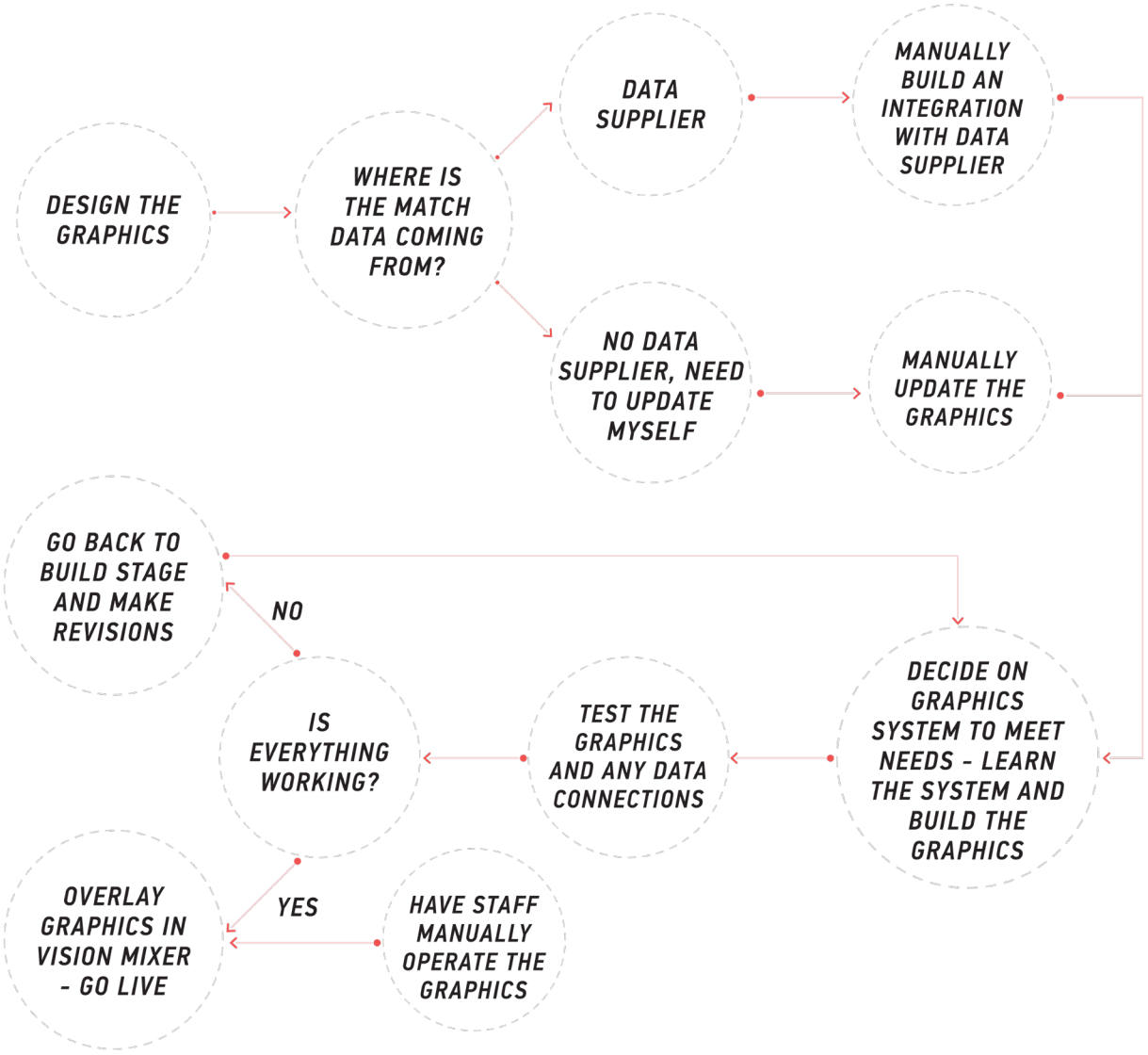
Flowics is a graphic tools used by streamers, content creator, and broadcasters to create quality content that captivates, retain viewers so as to monetize across all digital environments. Flowics's SaaS platform features a unified dashboard that bridges the gap between digital and broadcast teams by managing and measuring all audience engagement and monetization initiatives. It is used by

professionals because of its ability to create engaging visual experiences live graphic production.

Holographics is an application that was launched in 2019 by Stream my Event. This application can be integrated with the popular vision mixers including vMix, OBS and others supporting HTML overlay. Holographics gives room for industry-standard key and fill output to video switchers including Grass Valley, For-A, Blackmagic and other Vendors.

Functionality of these solutions has been mostly inspired by traditional broadcast graphics workflows, in the sense of - there is a graphics build process (sometimes fast-tracked by pre-built templates), then a manual operator required to operate the graphics when live etc.

A traditional live graphics workflow consists of:



The Problem:

The solutions that have been dreamt up by companies to try to fill the gap present in the world of live streaming graphics has come to suffer from some of the same problems that trying to port TV solutions into the streaming world has faced. That again is **resources (staff), time** and on top of that **quality**.

Resources (Staff):

While live streaming graphic solutions do not necessarily share the same complexities as tv level solutions, they still require someone to build the graphics package and with most live streaming productions operating with small, multi-disciplined crews in comparison to television, this means valuable manpower will be taken up for potentially days to build the graphics package. Which brings us into **time**.

Time:

Time is money and money is time - live streaming is an agile environment and requires efficient workflows and crews to keep costs low while keeping output quality high. Traditional graphics build processes are not suited to these requirements. Having a crew member or even in some cases an owner/operator of a production company, spending days building a graphics package in something like vMix is just not viable. And not being able to spend time building a graphics package results in rushed work and in turn a lack of quality in the final product.

Quality:

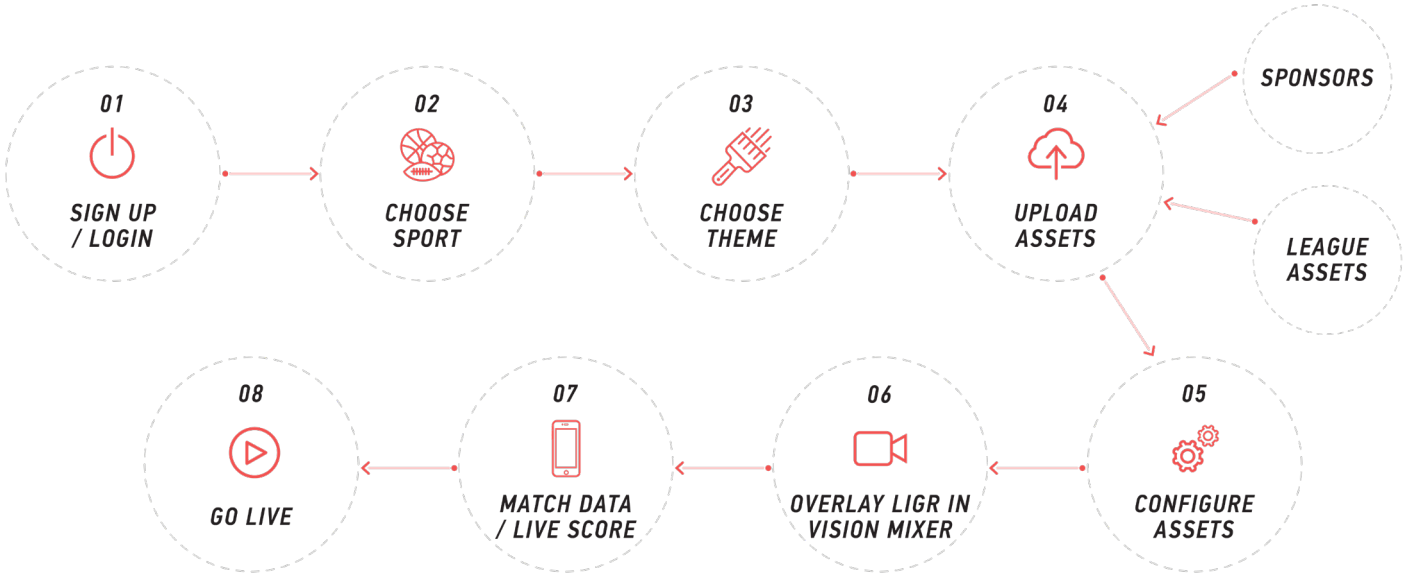
Rushing a build or having a person without the adequate skill set building the graphics package results in very lackluster results - and this outcome in live stream graphics is increasingly apparent. Many have come to expect and accept the poor quality graphics that are present on most live streams today.

The Solution:

This is where LIGR comes in; a solution WAS needed, and LIGR has created it. LIGR's live graphics solution is arguably the easiest to use live graphics system on the planet. Effortless, TV-Quality, live graphics that you can literally get up and running in minutes, something the world thought they would never see, but it is here!

A cloud-based, templated, tv-quality graphics system; a completely new way of executing live stream graphics for sport.

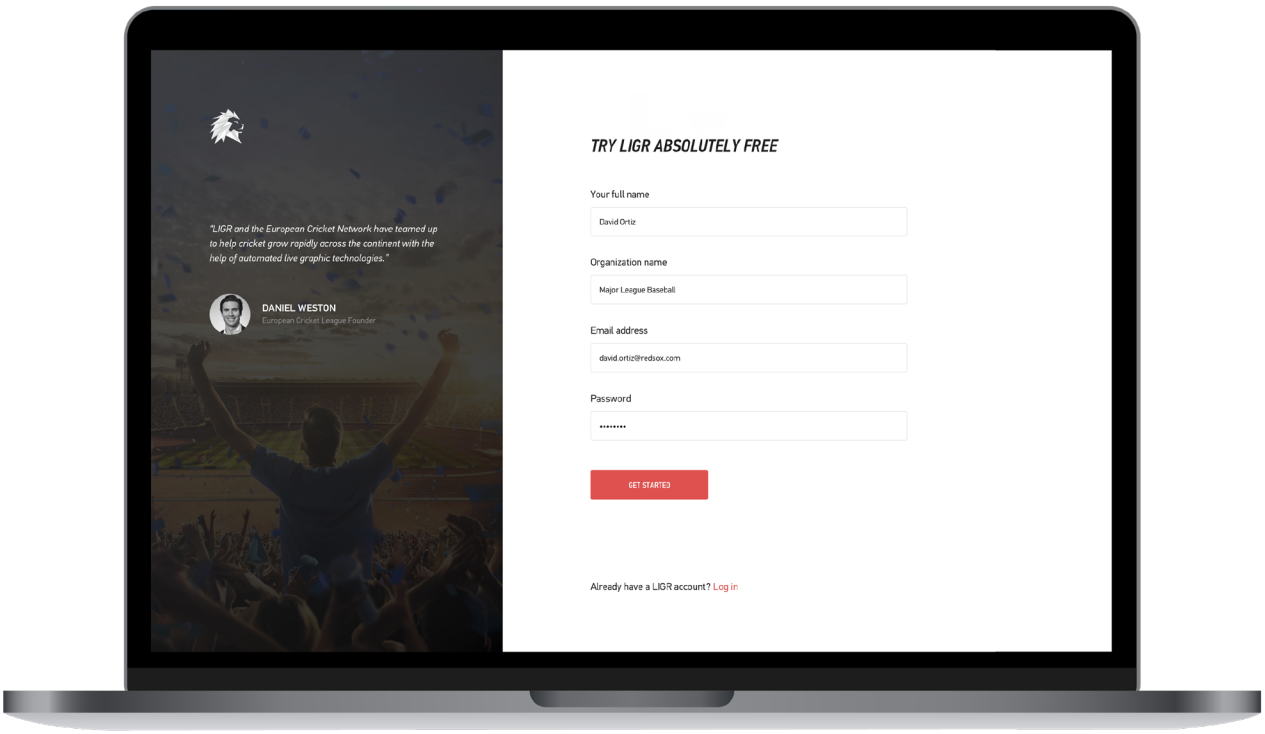
GOING LIVE WITH LIGR IS EASY



Let's break down the steps to show just how easy it is:

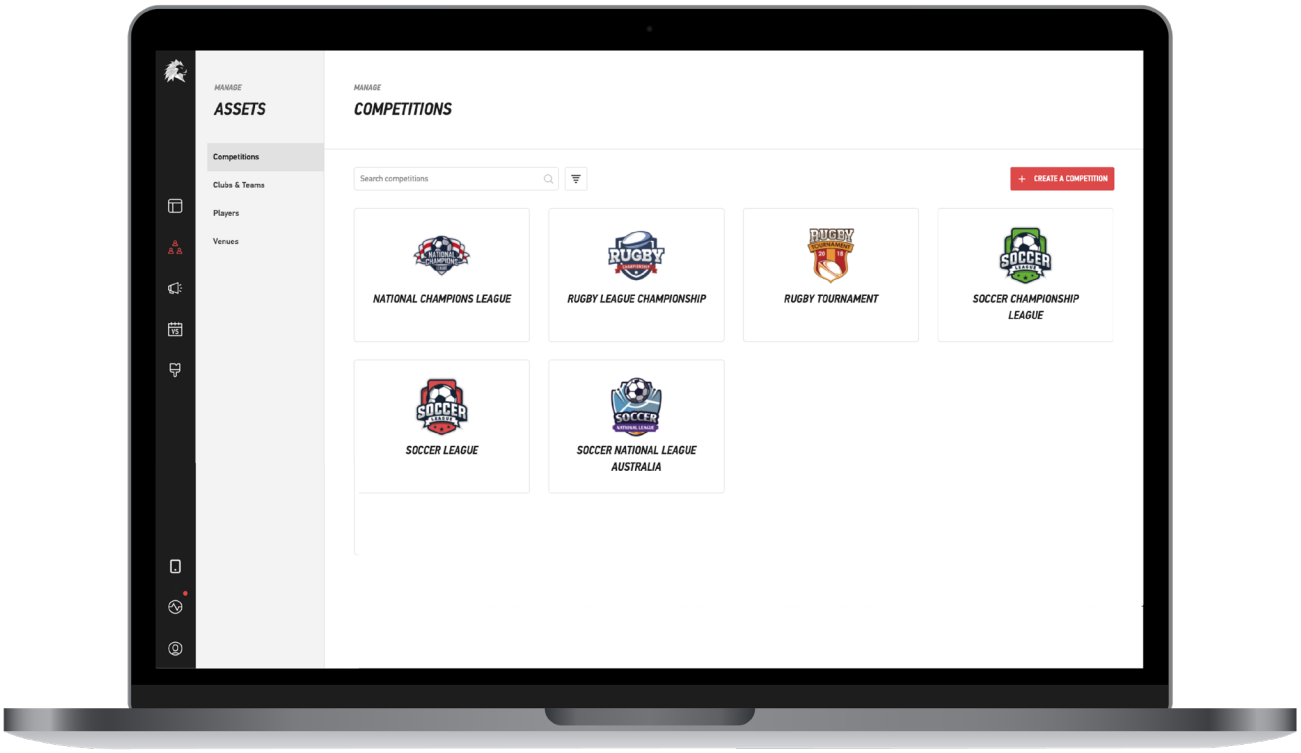
01 Sign Up / Login:

You are greeted with a stunning sign up page - LIGR collects a few minor details and then you are on your way.



02 Choose Your Sport / Create Your Competition:

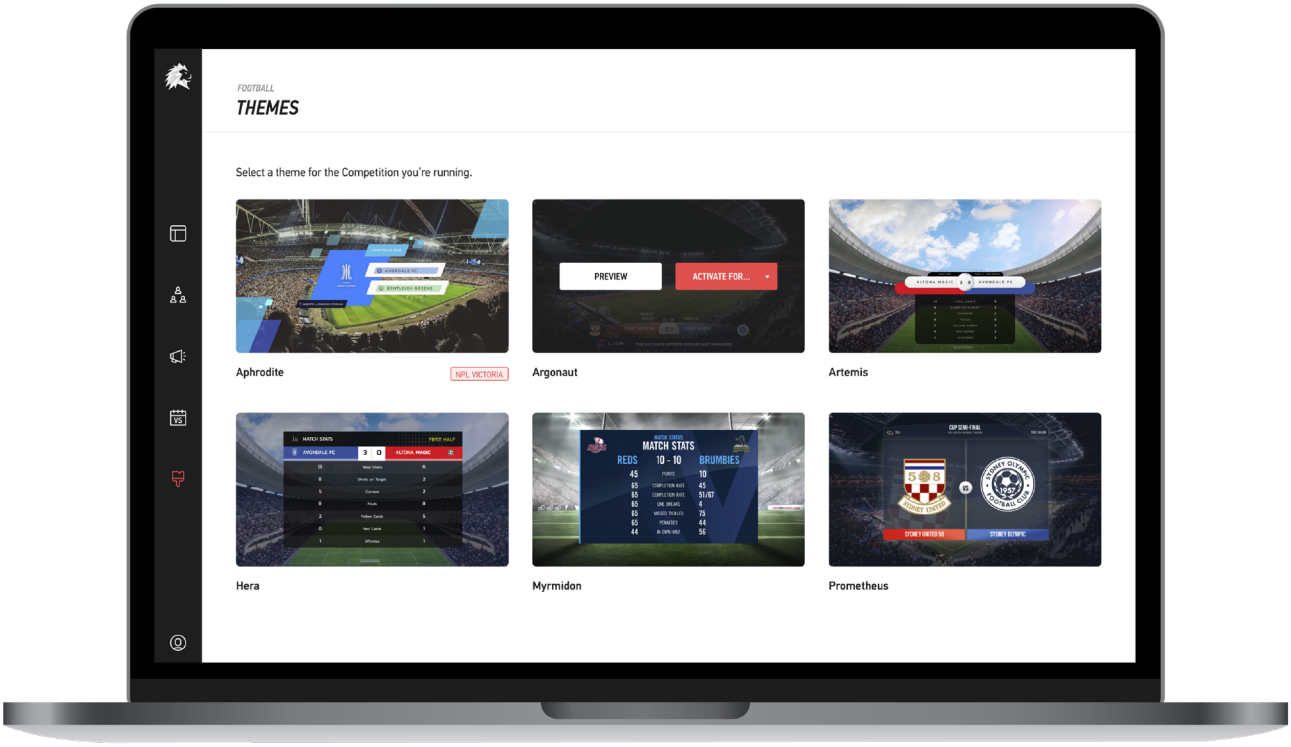
LIGR supports all the most common sports and then some. Choose the one you want to live stream and create the competition.



Is the sport you want to stream missing? Let LIGR know and we will work to get it onto the platform!

03 Choose Your Desired Theme:

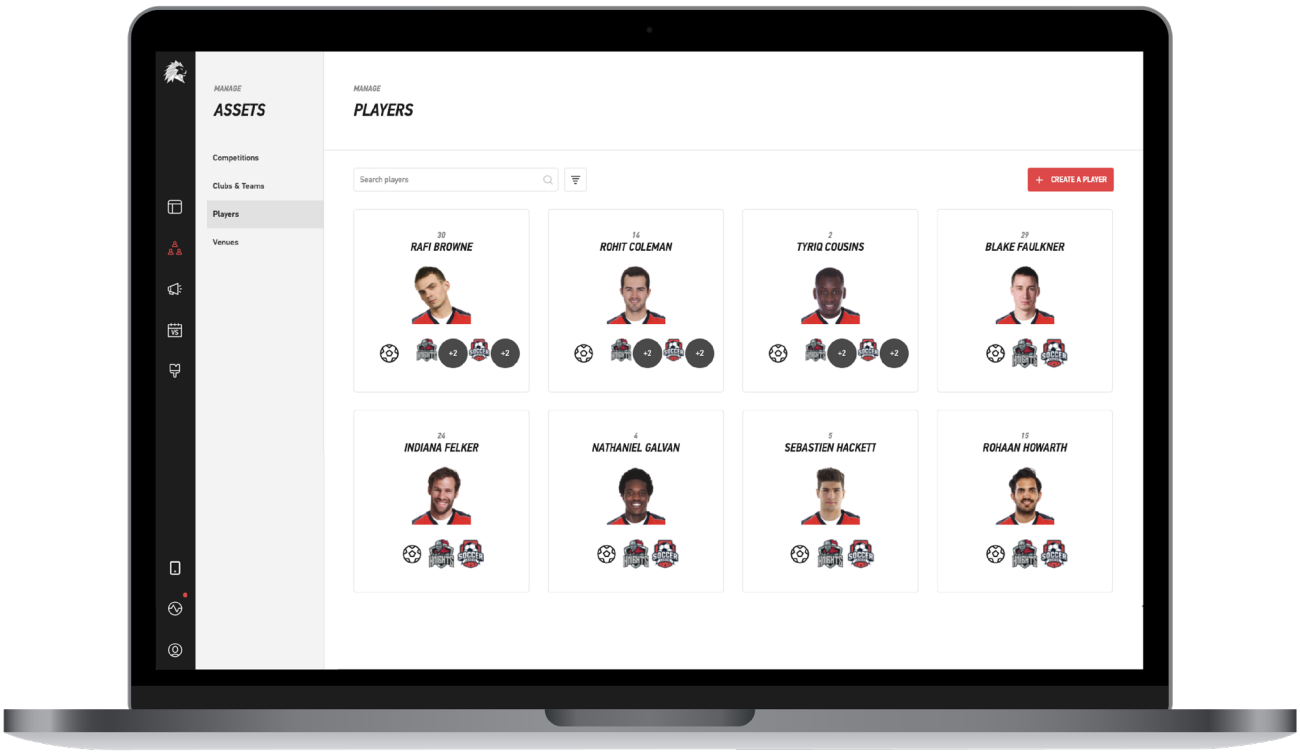
LIGR removes the manual and time heavy process of designing and building graphics, instead, we give you a selection of TV quality graphic themes to choose from, with new themes being added to the platform all the time. All of which are designed to display rich match data, to bring viewers closer than ever to the action.



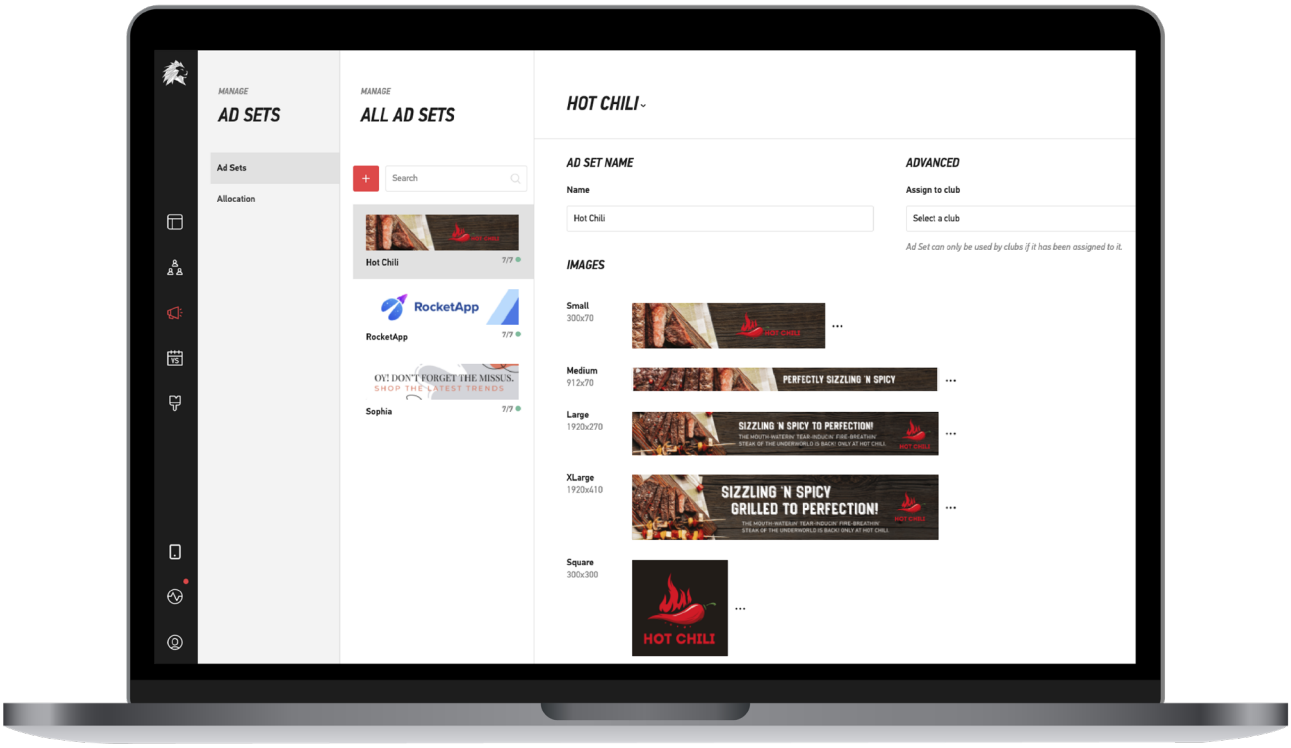
Look like a pro, without the hard work. Effortless, TV-quality, live graphics.

04 Upload Your Assets and Configure Your Assets:

Team logos, player head shots, team colours and more. Customize the graphics to your desired look.



Want to display advertising and monetize your live stream? No problems! LIGR's easy-to-use, yet powerful in-stream advertising functionality has everything you need!



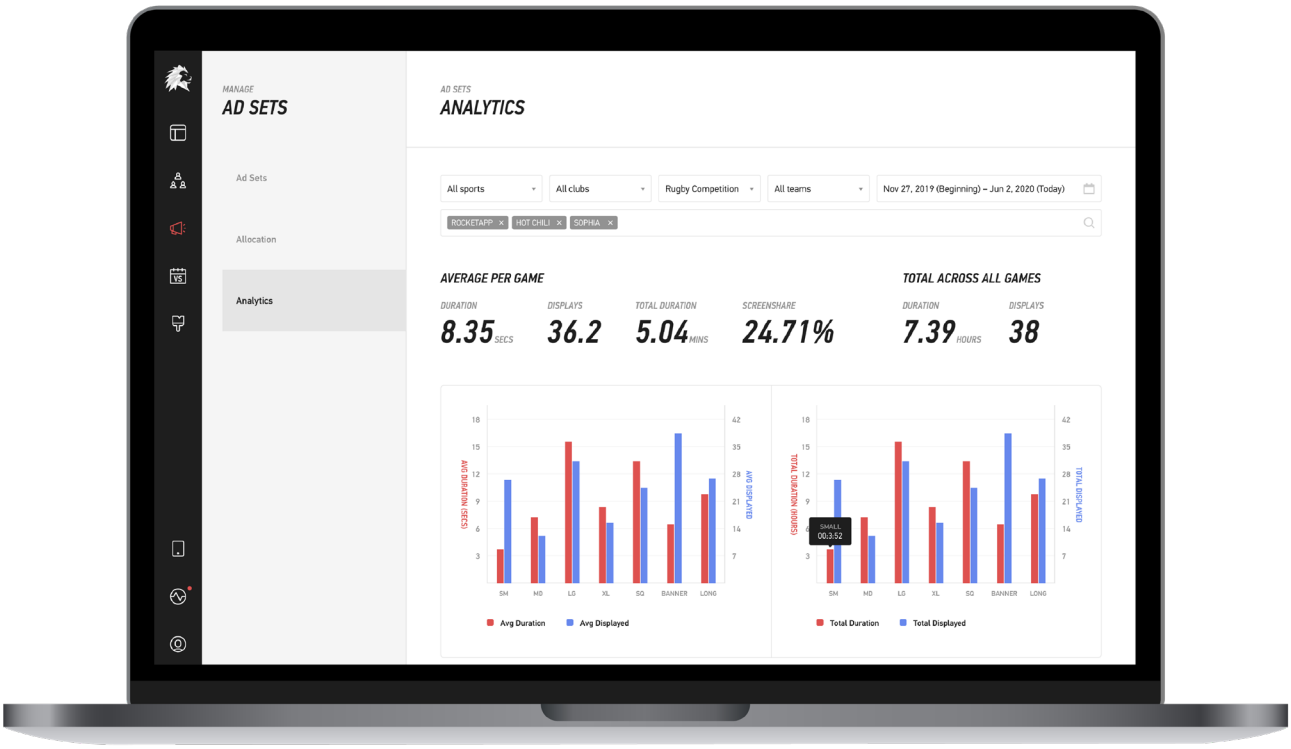
Simply:

01 Upload your advertisements

02 Tell LIGR how often and when you want them displayed

03 Watch the magic happen

04 Review in-depth ad reporting right in the LIGR dashboard-showing when and for how long each ad was displayed. Useful info to show your sponsors their money is well spent AND to help you attract new sponsors to your live stream!



Need help preparing your assets? LIGR has a plethora of tips and tricks on how to prepare your assets to look their best. We've got you covered!

05 Overlay LIGR on Your Stream:

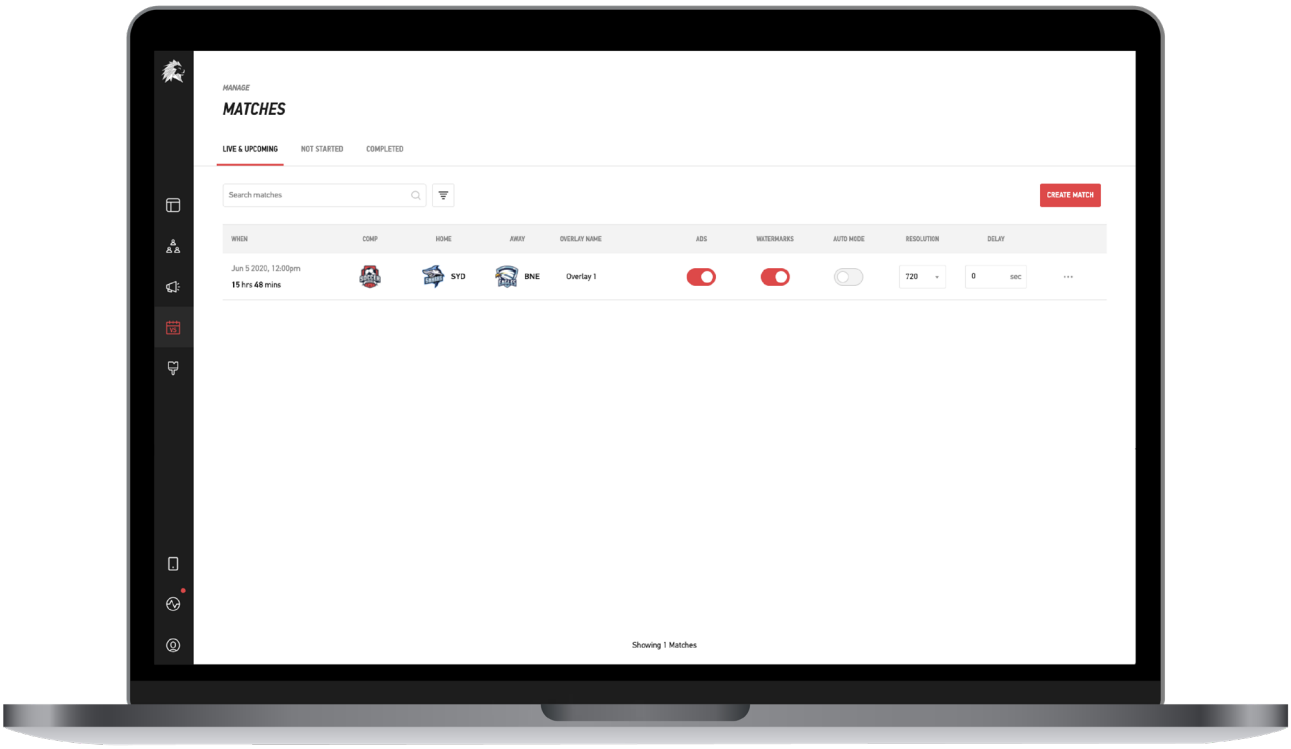
Applying a LIGR graphics overlay to your live stream is easy. With the ability to work with your workflow, the system is modern and flexible. LIGR requires NO onsite hardware and NO onsite graphics operator or expertise.

Simply:

01 Generate the graphics URL in LIGR

02 Copy the graphics URL and paste it into your vision mixer

- *a* Depending on your vision mixer, the process can vary. In most cases you want to look for a "Web Browser Overlay". We will talk more about this later in WORKFLOWS.


MANAGE
MATCHES
LIVE & UPCOMING
NOT STARTED
COMPLETED
Search matches
CREATE MATCH
WHEN
COMP
HOME
AWAY
OVERLAY NAME
ADS
WATERMARKS
AUTO MODE
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DELAY
Jun 5 2020, 12:00pm
15 hrs 48 mins
SYD
BNE
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720
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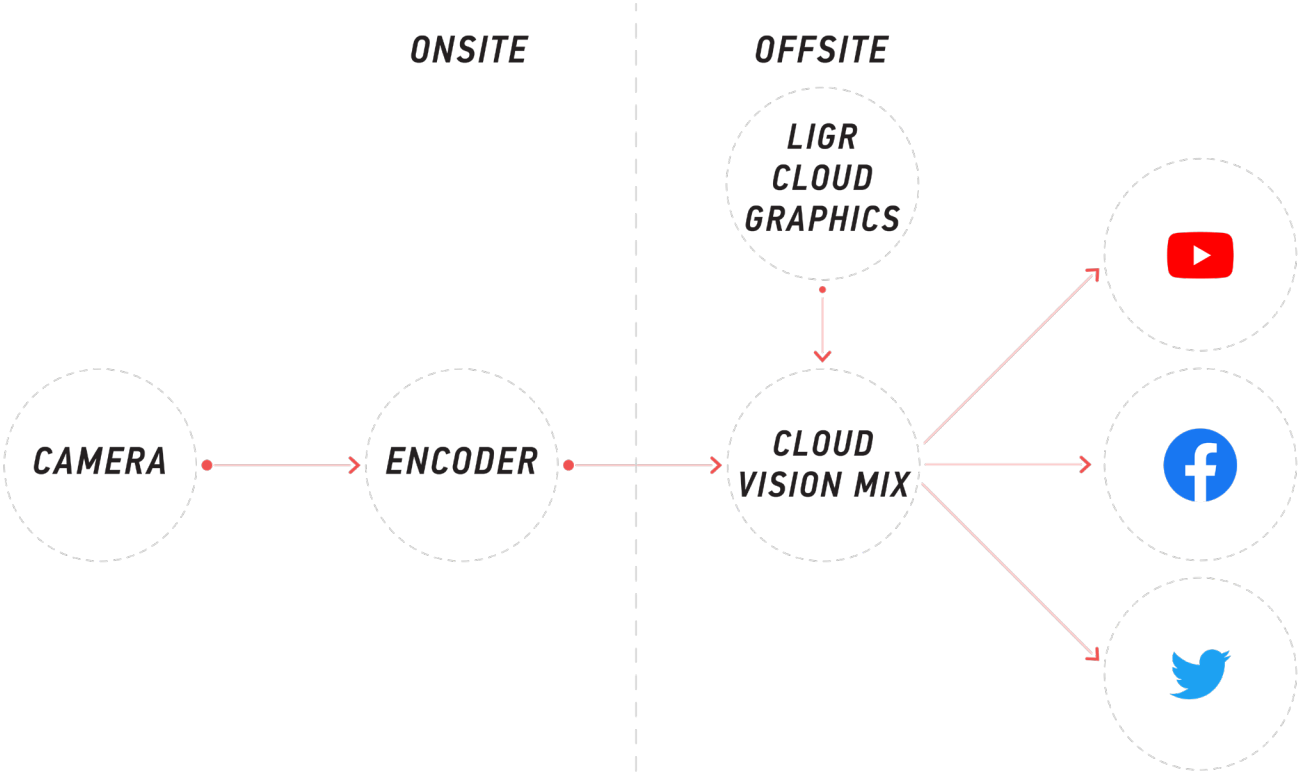
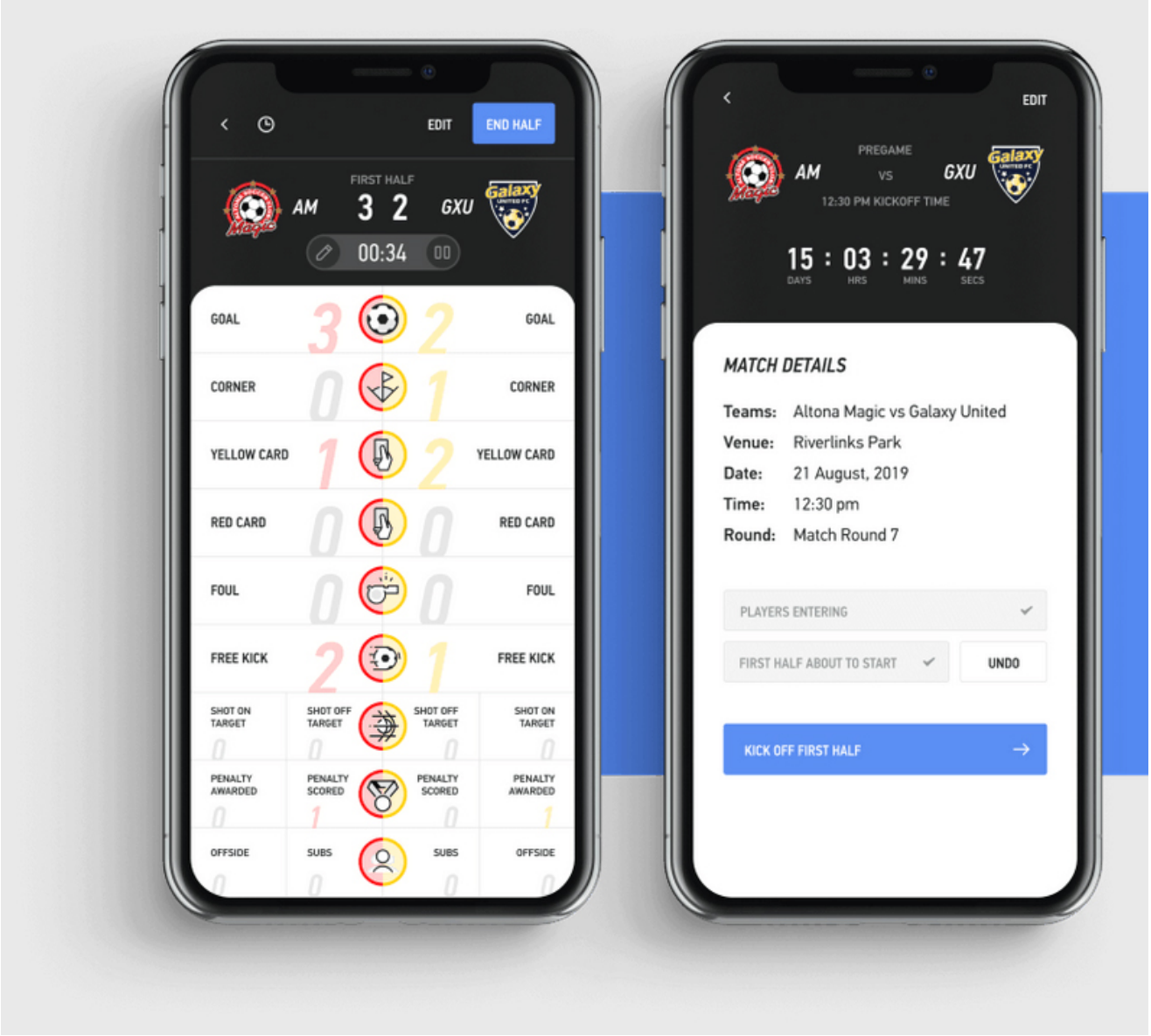
sec
Showing 1 Matches


ONSITE
OFFSITE
LIGR
CLOUD
GRAPHICS
CAMERA
ENCODER
CLOUD
VISION MIX

06 Live Score or Data Supplier?

LIGR can power your sports live stream graphics with match data in a couple of different ways; our LIGR LiveScore app or external data from your official data supplier.

We have our LIGR LiveScore app, a simple mobile app where you or the person you nominate keeps score of the game and the graphics automatically trigger on your live stream. No highly-skilled graphics operator required!



LIGR also integrates with all leading official data suppliers, we can use this data to power and trigger the graphics. Ideal for a completely hands free operation, let the data do the work for you.

For more advanced users, LIGR also has an API where you can build an integration between LIGR and your own data source to power LIGRs graphics with data.

07

LIVE STREAMING PLATFORMS.

WHAT IS A LIVE STREAMING PLATFORM?

A live streaming platform or service is a place where you can publish/host your live stream for viewers to be able to watch.

SOCIAL MEDIA

In recent years, social media platforms have introduced live streaming functionality to their platforms. Now, in most cases, this functionality is more slated for the non-technical user wanting to go live from their smartphones, however, there is also real advantage for organizations that want to live stream their sports matches.

To list a few of the larger platforms that now support live streaming:

Facebook - Primarily a social networking service that allows you to connect with friends and family. Live streaming was introduced to Facebook in 2015/16 and is now known as Facebook Watch.

YouTube - a community for video content creators to share what they create. With video at heart, it was only natural that YouTube introduced live streaming to their platform, and so they did; with it first being offered to users in around 2011.

Twitter - Centred around fast-paced, short text-based updates that you can share with your followers. Twitter introduced live streaming for their users in around 2018.

Instagram - A place to share photos, video and "stories" with your followers. Users have been able to live stream on the platform via Instagram's "stories" functionality since around 2016.

The Positives:

In the case of Facebook, with around 2.5 billion active users, live streaming to this platform can make it very easy for an organization to reach all of their fans and attract new engagements rather easily.

People on these platforms usually love to stay on them, so the more content that can be natively accessed via their favourite social media networks the better!

Although streaming on social media can be a very easy way to reach many people, there are some things to consider:

In-Stream Advertising:

Some platforms may restrict you from showing your own advertising in your stream, with certain platforms even shutting down your stream if you are caught.

This is a condition of social media platforms offering you their service for free. They make their income by showing advertisements to their users. If users were to potentially take advertising spend away from the platform, by offering sponsors the ability to advertise within their live streams that they are streaming on the social media platform, this would not be good for business.

Some platforms do offer a solution to this, for instance, YouTube and Twitter offer a service whereby they offer a revenue split for advertising that is shown on your content. There are usually eligibility requirements to be a participant in this offer, and you should check the conditions of the platform you wish to stream on before making any final decisions.

Branding and Viewer Management:

While you can make limited changes so you can brand your social media presence appropriately, such as changing a profile picture or cover photo. The social media networks branding is still very much at the forefront and in most cases will overpower anything you upload.

Viewer management is another component that is limited on social media - trying to enforce things such as paywalls (charging a viewer to watch your

stream) or collecting viewer details (such as contact information) is very limited and may not be possible at all.

Understanding and Commercializing Your Audience:

While the viewership you attract to your live stream may be large on social media, the downside is that you never truly know who is watching and for how long.

Social media platforms may give you some limited functionality around paid re-targeting to your live stream viewers, however, you still do not know who is watching, as this information is under the control of the social media platform.

Viewership analytics on social platforms is another grey area, while the platform will tell you total numbers of viewers, impressions and so forth, it is all rather nonspecific and the actual conditions that trigger a view count can be even more cryptic. This results in viewership analytics that can be somewhat useless, especially when it comes to attempting to commercialize your live stream.

Platforms like Netflix and Disney+ always know who is watching what, this makes it easy for these platforms to tailor their content to what their viewers like to watch. These platforms also have their viewer's contact information readily available, allowing them to directly promote to their viewers any new content that is available on their platforms. This doesn't mean that you need to go out and build your own streaming platform, thankfully there are content delivery platforms available that give you this type of functionality (read more in the next chapter).

Conclusion

While streaming on social media platforms have the benefits of reaching many millions of people for free, this does come at the cost of viewer and commercialization control. If you are seeking more control, you may like to consider an OTT platform, read more below.

OOT PLATFORMS:

Essentially, an over-the-top (OTT) service is a way of delivering content to viewers that bypasses traditional delivery methods, such as broadcast television or subscription television and delivers the content directly to the viewer via the internet. Some notable examples of OTT services are Netflix and Disney Plus.

For you as a live streamer, setting up your own OTT service to deliver your live content to viewers can have many notable benefits in comparison to streaming to social media networks. Think of an OTT as your own personal television channel, you control the content, you control who sees it and you control how you fund it; all you need to do is pay for the technology to host your channel.

First let's talk about the benefits, before moving onto what technology is available to power your OTT.

Monetization of Your Stream:

As discussed in the In-Stream Advertising section of Social Media Live Streaming, many social networks will restrict you from displaying any advertising in your stream. Streaming to your own OTT doesn't have this problem - you control what and how you want to advertise.

Viewer Management and Control:

You have complete control over who can view your live stream. Setup controlled access methods, such as:

- Paywalls: where the user has to pay to access your content
- Authenticated access: your content can only be accessed by registered users of your platform
- Geo-blocking: set access so only viewers from particular geographical locations can view.

The ability to have these types of controls can also allow you to gather much more insight into who is watching your content. Requiring a person to register as a user before watching your content is a great way to do this.

Understanding Your Audience:

Collecting contact information via users who register to watch is invaluable in ensuring you can keep them up to date on all things new on your OTT and re-target content to them that they may be interested in based on their watching habits etc.

This is information you cannot get from live streaming on social media - you may get general insights on age and location demographics and the social network may let you re-target your viewers to ads you have paid money to have on their platform. Other than that, you are in the dark.

Complete Branding Control:

Make your platform look exactly the way it needs to, with complete customization over the branding of your OTT. There may be some minor limitations, depending on the OTT technology you use, but in most cases, you have complete control.

Create websites, apps and more for your hosted content - you can make yourself your own Netflix.

Conclusion

Delivering content to large audiences of people via an OTT platform may not be as straightforward as streaming to social media and allowing their algorithms to spread your content far and wide, however, an OTT platform gives you the complete control that is required to properly commercialize your content.

FINAL WORDS.

We have covered a lot here in this eBook and some may say we are only just scratching the surface, this is true! However, you should now have an understanding of all the fundamental pieces that make up successful live sports production.

Now, all that is left to do is to dive in and begin your journey and LIGR is here to help you on that journey every step of the way.

For more great content on all things live streaming, broadcasting, live graphics, sponsorship and more, be sure to check out our blog: https://ligr.blog

ABOUT LIGR

LIGR is a new breed of automated graphics and broadcast management software that offers TV-quality sports graphics but with no need for hardware, designers, skilled graphics operators, or developers. And because our solution is out-of-the box, we get you up and running in minutes.

Since 2016, we've been offering live graphics solutions to sporting organisations and the production companies that serve them. We've helped these companies dramatically improve the quality of their live streams and monetize through powerful in-stream advertising. For one live game or thousands. Simultaneously and across entire seasons. Accessible to broadcasts and live streams of all budgets.

Since inception, we've produced graphics for over 10,000 sports games—automatically—all across the globe with over 1,000 sponsor adsets uploaded into our platform. We've saved over 100,000 hours of graphics operation, design and development. That's the equivalent of more than $20 million saved and over $1 million in sponsorship money activated.