

Stream Like a Pro: A Comprehensive Guide to Live Streaming Success

So you want to learn more about the exciting world of live streaming...

Over the past few years, the popularity of live streaming has exploded, with more and more people turning to this medium to share their experiences, connect with audiences, and build communities in real-time over the internet.

Whether you're a content creator, business owner, news or sport broadcaster, seeking to stream a religious service, or simply a fan of live streaming, this guide is designed to give you an overview of the technology that powers this phenomenon. From the basics of how live streaming works to the latest advancements in the field, we'll explore everything you need to know to understand this exciting and rapidly evolving technology.

We break down the technical requirements and equipment needed for live streaming at four production levels, from basic to advanced. At each level, we'll discuss the types of content typically produced and how the TriCaster® systems offers flexible, feature-rich streaming solutions suitable for productions at all levels. But first, let's start with diving into what live streaming means.



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WHAT IS LIVE STREAMING?

In a simple definition, live streaming is a technology that allows people to broadcast real-time video and audio content over the internet to an audience. With live streaming, the content is captured and transmitted in real-time, supporting the ability of viewers to watch the broadcast as it happens, rather than having to download the content to watch later. Live streaming is used for a variety of purposes, such as sharing events, concerts, sports, news, educational content, and more.

It has become increasingly popular in recent years, due to the widespread availability of high-speed internet connections, the growth of social media platforms, and the development of sophisticated live streaming technologies.

Live streaming has transformed the way people consume and share content, and it has opened up new opportunities for businesses, content creators, and individuals to connect with audiences in real-time. There are a few levels to live streaming, depending on the production needs.

LEVEL 1: THE LIVESTREAMER

Level 1 represents live streaming in its most basic form. Business meetings, round tables, speaking events and discussions all sit at this level. These can be hosted by small businesses, institutional users, enterprises, government officials, teachers and individual content creators.

At level 1, the streaming setup is as simple as it gets. A camera, microphone and streaming device provide everything you need to get

started. Commonly used cameras include webcams, smartphones and USB-connected cameras. For audio, most will rely on a simple USB microphone or the built-in camera or computer microphone. Indeed, the roles of camera, audio and streaming device can be covered with a single internet-connected computer or smartphone.

The single-camera setup means there's no need for a hardware or software switcher, and these productions often forgo dedicated production lighting setups. In many cases, the stream host will double as the camera operator. All of this means a single person can produce a simple and successful Level 1 stream.



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LEVEL 2: THE BASIC BROADCAST

The next level of livestreaming adds a bit of polish and professionalism to the basic streaming setup. Level 2 live streaming includes broadcasts from educational institutions, churches, enterprises, small sporting events, small-scale broadcasts and government agencies.

While Level 1 streams usually include only one camera, Level 2 streams add a second — and sometimes even a third — camera to the mix. Most often, these are budget-friendly mirrorless cameras, but remote-operated Pan-Tilt-Zoom (PTZ) cameras are a great option, especially for productions with small teams. After all, the more cameras you have, the more camera

operators will be needed to run them. PTZ cameras, however, can be operated remotely. More cameras also mean more tripods or other camera support.

Complementing the additional camera angles, Level 2 productions will also employ a basic production lighting setup. Like in other types of production, good lighting is an easy way to achieve a more professional-looking image. Dedicated microphones and audio capture devices offer another upgrade between Level 1 and Level 2 streams.

All of this extra gear introduces a problem not present at Level 1: You need a way to switch between inputs. The solution is to add a basic livestream switcher to the

streaming setup. A switcher allows you to manage which audio and video inputs are presented to the livestream audience. Switchers come in both hardware and software versions, but the function is the same in either case.

Media sources can connect to the switcher via HDMI, SDI or USB connections, but NDI® (Network Device Interface) offers the simplest way to connect an input. It uses a standard network connection to connect video and audio inputs to the streaming device which means fewer cables to run and faster set-up overall.



Powerful Production

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LEVEL 3: THE MID-LEVEL PRODUCTION

Moving up another level, we find the mid-level corporate production livestreams, higher-end church live streams, and sports and news broadcasts. As you might guess, Level 3 live streaming productions have a larger budget than productions at either Level 1 or Level 2. They also rely on more technically advanced gear to meet the expectations of audiences, and to better engage audiences.

Typically, a Level 3 production will use more than three cameras, and these are usually higher-quality broadcast cameras or PTZ cameras. These productions will also invest more in professional production lighting and high-quality dedicated microphones.

At the core of the Level 3 live streaming setup is a powerful switcher. In addition to switching between different video and audio feeds, the switcher also needs to support live titles and graphic overlays as well as audio mixing.

LEVEL 4: THE ADVANCED PRODUCTION

At the top of our live streaming hierarchy is the advanced production. At this level, we find advanced multi-productions, enterprise events, major league sports and national broadcasts — these streams require the most sophisticated setup of all.

Typical Level 4 livestream productions will use a collection of professional video broadcast cameras — at least three but possibly many more. These will include remote motion-control cameras for dollying, tracking and more. Remote control cameras make the stream more dynamic without adding much to the production crew workload.

Along with more advanced camera control, Level 4 productions will also include state-of-the-art sound recording and mixing gear. Stage lighting is often used, as well, giving Level 4 productions the sleek look typical TV audiences have become accustomed to.

Finally, like in Level 3 production, Level 4 streaming demands a powerful production switcher that supports audio mixing as well as live graphics and titles. More complicated live streams may require more features to provide a better user experience and to meet the needs of the content creators and viewers. Here are a few reasons why:

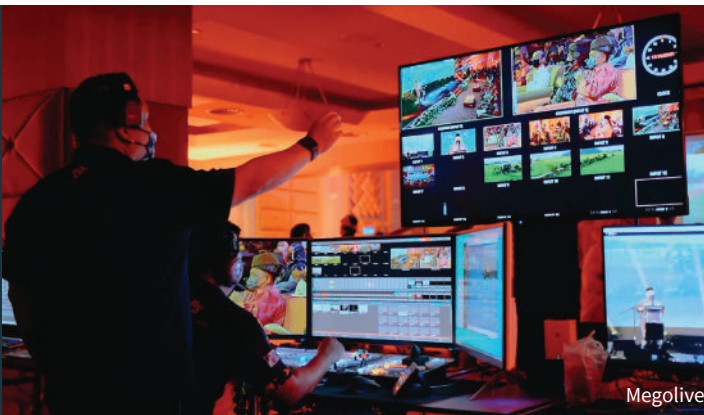
1. Audience size: The larger the audience, the more features may be required to manage the stream. For example, features like chat moderation, audience engagement tools, and video quality options may be necessary to ensure a smooth and enjoyable experience for viewers.

2. Content complexity: If the content being streamed is more complex, such as a video game tournament or a music performance, then more features may be needed to capture and broadcast the content effectively. This may include additional camera angles, special effects, or real-time data overlays.

3. Interactivity: Some live streams may require more interactivity between the content creators and the viewers. This may include features like live polls, audience Q&A sessions, or even the ability to request certain content to be streamed.

4. Monetization: Live streaming can be a source of revenue for content creators, and more features may be necessary to monetize the content effectively. This may include features like sponsorships, ad integration, or the ability to sell merchandise directly from the stream.

Now that we've shared an overview of the different types of live streaming and the technical demands at each level, let's take a look at the specific equipment that will help you reach your live streaming goals. With today's increased demand for live streaming, there is a growing need for robust and reliable streaming technology. That's where the TriCaster comes in.



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WHY TRICASTER®?

The TriCaster is one of the most trusted and reliable multi-camera video production systems designed specifically for live production. Here are some reasons why a TriCaster can be a good choice for live production:

1. All-in-one solution: A TriCaster is an all-in-one solution that combines the functions of a video switcher, graphics generator, video recorder, and streaming encoder into a single device. This makes it a very convenient and efficient solution for live production, as it eliminates the need for multiple pieces of hardware and software.

2. Easy to use: TriCasters are designed to be user-friendly, with an intuitive interface and easy-to-use controls. This makes it easy for operators to switch between cameras, add graphics, and control other aspects of the production, even under pressure and in fast-paced live environments.

3. High-quality output: TriCasters are capable of producing high-quality video output, with support for multiple HD and 4K video inputs, and a variety of video output formats. This ensures that the production looks professional and polished, even when streamed online or viewed on large screens.

4. Customizable: TriCasters are highly customizable, with the ability to add and customize graphics, animations, and transitions, and even create custom macros to automate common tasks. This allows operators to create a unique and engaging production that stands out from the crowd.

Overall, a TriCaster is the top choice for any live production because of its all-in-one solution, ease of use, high-quality output, and customizable features. It can save time and effort in setting up a live production and can produce professional results for any live stream.



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TRICASTER FOR ENTERPRISE

Enterprise livestreams can range from simple to complex. However, whether you're hosting a Level 1 stream or a Level 4 professional broadcast, TriCaster offers a wealth of useful features.

For example, the TriCaster 1 Pro comes with Live Call Connect, which allows you to bring in virtual guests using any video conferencing software. This means you can seamlessly add unique voices and perspectives to your stream. Live Call Connect currently supports callers using Skype, Microsoft Teams, Facebook Live, Zoom, Discord or Slack, and you can mix and match callers from different video conferencing software in a single call.

The TriCaster 1 Pro's Live Story Creator feature offers another way to easily enhance your stream. This feature allows you to use Microsoft Word to create a script for your live production, complete with triggers for different actions. Then, once you load the

script into the TriCaster 1 Pro, it carries out the show automatically.

For conference presentations, connecting PTZ cameras to the TriCaster 1 Pro offers a big advantage: You can operate these cameras remotely. For quality PTZ camera options, look to the Vizrt PTZ3 UHD and the PTZ3. The Vizrt PTZ3 UHD offers 4K 60p video capture along with professional XLR audio inputs, ease-in and ease-out movements and NDI connectivity. The PTZ3 supports video capture up to 1080p at 60 fps. And, of course, both cameras are compatible with the TriCaster 1 Pro.

Managing all of these various inputs is easier with a dedicated hardware control panel such as the TriCaster Flex. This NDI-native control surface enables tactile audio and video mixing along with PTZ control and talkback for communicating with production staff on the event floor.

[Danske Bank – Why TriCaster was the choice of production system for video and live broadcasts](#)



We set ourselves to deliver professional video productions and live broadcasts from our studio over the Internet. Technical solutions had to be efficient, scalable, and easy to use, from the bank's Norwegian head office in Trondheim, and with the possibility of remote control from other locations.



*Anders Oskar Bråthen,
Commercial Transformation Lead,
Danske Bank.*



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TRICASTER FOR EDUCATION

Like enterprise streams, educational livestreams can benefit from the flexibility of TriCaster systems, whether it's the desktop TriCaster Mini X all the way up to the TriCaster 2 Elite. Live Call Connect makes it easy to create a dynamic and engaging educational livestream. And for students learning how to stream, Live Story Creator can help automate production.

As always, adding NDI-connected PTZ cameras like the Vizrt PTZ3 UHD or PTZ3 to the setup is another way to elevate the production, while the Flex Control Panel helps presenters and producers easily manage various inputs.

Educators find Viz CaptureCast especially appealing. CaptureCast enables teachers to present using a camera, screen or document while simultaneously capturing the lecture as a recording. Streams can include inputs from multiple media sources in multiple locations.

Designed for educators, CaptureCast supports both single-session recording and full courses with searchable metadata to make content accessible and easy to find. CaptureCast also allows the stream to be published across multiple platforms simultaneously including powerful integration with leading Learning Management Systems.

Cranfield University's hybrid learning earns top marks with Vizrt and NDI



By embracing the NDI and TriCaster approach we've delivered technical innovations in line with Cranfield University's technology mission; we've launched a new professional standard for live-online video production; and we've built the foundation of a new revenue stream for live online education at Cranfield.



*Toby Thompson,
Studio Director of Cranfield
Broadcast and Record.*



Dayalbagh Educational Institute

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TRICASTER FOR SPORTS

While enterprise and education livestreams usually occur indoors, sports broadcasting takes livestreaming out into the field. Sports streaming also comes with some unique requirements, whether at the high school, college or the professional level.

For instance, live audiences want to see how their team performs throughout the game and more than ever want live-data brought into the broadcast to enhance the viewer experience. To meet this need, the TriCaster 2 Elite offers the LivePanel feature. This allows broadcasters to drive virtual scoreboards and also offers integration with popular scoreboard systems through its datalink function. Datalink empowers users to connect to scoreboard data feeds and drive internal live graphics from scoreboard data. The TriCaster 2 Elite also offers a collection of Virtual Sets to professionalize your sports desk commentary. Plus, the TriCaster 2

Elite's built-in replay feature is a great way for simple sports live streams to showcase the most exciting moments.

For more demanding productions, Viz 3Play 3P2 offers impressive functionality for complex multi camera sports broadcasts. This end-to-end IP setup enables real-time sports replay, slow motion and zoom support, all in a cost-effective package. Pair 3Play 3P2 with the 3Play Control Panel for a more intuitive switching experience.

Along with a robust switcher, PTZ cameras are essential for capturing the action for your audience. Sports broadcasts, in particular, benefit from the Vizrt PTZ3 UHD's 30-times zoom. Plus, the PTZ3 UHD camera captures 4K 60p video, pristinely to perfectly showcase fast-moving athletes.

Butler University's New Esports Park
Harnesses Vizrt Technology



Our facility required adaptable livestream technology which was easy to understand and use. This was especially important given our efforts to host various livestream competitions while also providing students with hands-on production experience and learning opportunities. The versatility of the Vizrt production products was extremely attractive for this reason.



*John Lacheta,
Butler University's Manager
of Facilities and Operations*



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TRICASTER FOR BROADCAST

While enterprise, education and sports live streams each represent a specific type of streaming with predefined needs, broadcast streams are much more general and must be ready for anything.

Features like Live Call Connect and Live Story Creator are still essential, but broadcasters often need even more flexibility. For instance, broadcast live streaming gear needs to allow streamers to import their own motion graphics and will usually require support for multiple inputs and outputs.

For these broadcasts, the TriCaster 2 Elite offers 32 simultaneous external video inputs and eight independent HD or two UHD video mix outputs. Broadcasters can also import custom graphics to tailor streams' looks to their liking.

To make these streams easier to manage, it's helpful to invest in a dedicated control surface. Vizrt offers a number of options,

including the Vizrt 2-Stripe Control Panel, the 4-Stripe Control Panel and the Flex Control Panel. Having tactile control over your stream allows for quicker, more intuitive adjustments to the stream, so you can be more responsive to the various demands of the broadcast.

Along with a control surface, broadcast streams need to accept video inputs from many different camera sources. Like in other streaming setups, PTZ cameras like the Vizrt PTZ3 UHD and the PTZ3 are essential. However, broadcast streams can also take advantage of NDI technology to easily add a variety of video inputs.

With the NDI|HX camera upgrade, broadcasters can turn third-party cameras into an NDI-compatible source. That means cameras can send in video from wherever there's a network connection. On top of that, the NDI|HX Camera Application for Android and iOS allows direct live video input from a smartphone or tablet.

[Arirang TV builds Smart Live Studio with NDI and TriCaster 2 Elite](#)



Since we are pursuing a new future-oriented broadcasting format, it is essential to implement a low-cost and high-efficiency XR production environment, so we were looking for an IP-based production studio environment that could be effectively linked with an XR solution capable of real-time rendering and synthesis. We chose NDI and Vizrt technology because it was a suitable technology to adapt to new media technologies such as XR and other convergence services.



*Kim Hyung-soon, Arirang TV
Convergence Technology Center.*



Arirang TV

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TRICASTER FOR HOUSE OF WORSHIP

With an increasing demand for accessible worship services no matter where a congregation wants to tune in from, house of worship live streaming continues to improve and expand. Like other forms of streaming, houses of worship benefit from the flexibility and automation that the TriCaster systems provide.

For instance, the TriCaster Mini X and Mini 4K are both highly-accessible streaming systems that deliver everything you need to get started in a compact, portable package.

TriCaster Mini systems are perfect for small town churches that need a simple way to reach their parishioners. For more sophisticated multi camera productions,

the TriCaster TC1, 1 Pro and 2 Elite offer more functionality with additional inputs and features.

When it comes to control surfaces for house of worship live streams, the TriCaster Flex Control Panel is a great option. It's also compatible with every TriCaster in the lineup, making it a good investment, even if you plan to upgrade your TriCaster system in the future.

To complete the setup, the Vizrt PTZ3 UHD and PTZ3, along with other NDI-enabled inputs, allow for dynamic live productions, even when staff and resources are in short supply.

[Bidwell Presbyterian Church](#) engages younger generations and integrates their services with technology using [TriCaster](#).



Using Vizrt technology, and using this equipment, allows you to reach more than just your immediate community. It allows you to reach the hard-to-reach or the hurting. They can access it from their phone, they can access it from their computer.



*Miykael Goodwin,
Director of Technology at
Bidwell Presbyterian Church*



Bidwell Presbyterian Church

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LIVE STREAMING AT EVERY LEVEL, FOR ANY STREAMING NEED

Now that you are equipped with an understanding of the different levels of livestreaming and the technology that enables them, you're ready to create your own high-quality livestream! From single-camera webcasts to multi-camera sporting events and beyond, live streaming has something to offer every producer and audience. The key is finding the right tools for your particular streaming needs.

The TriCaster stands out as a reliable and powerful all-in-one solution for live production.

With the TriCaster, content creators and broadcasters can produce professional-looking video content that engages audiences and delivers messages effectively, efficiently, and in a more engaging manner. As the demand for live streaming continues to grow, the TriCaster, and the rest of Vizrt's innovative range of live production technologies, are

sure to play an important role in shaping the future of video production and distribution.

Don't miss out on the opportunity to create professional and engaging live streams that will captivate your audience!

[Contact us](#) today to schedule a sales call and learn more about how Vizrt's solutions, including [TriCaster](#), can take your live streaming to the next level.

Contact us



MONSTER DIVE Studio