Volume 5

EVOLUTION

By Epiphan Video

Cloud production

Are you on board ?
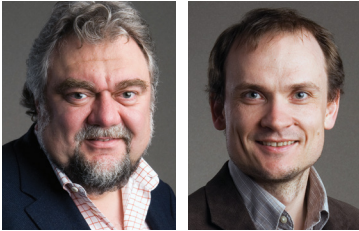
epiphan video

Cloud production is taking off. Are you on board?

Mike Sandler, President & CEO, and Misha Jiline, CTO

From its conception, the cloud has provided much fuel for the imagination. What could we achieve with ready access to such a vast store of computing power? What efficiency and flexibility might we unlock by migrating our data and activities to this boundless environment?

Cloud technology has since caught up to these fantasies. Today, a whole range of cloud-enabled activities once reserved for the imagination are a reality – including remote video production. From anywhere in the world, it's now possible to access professional-grade hardware to stream, record, switch, and mix events of every scale.

Leading the way on this frontier is Epiphan Cloud, our robust platform for remote production and device management. With Epiphan Cloud, every Pearl owner can enhance their on-premises hardware with remote access and operation capabilities. Effectively, this tool gives you the power to put the right people in the right places, virtually and physically, and address longstanding challenges around repeatability and reliability.

For a sense of the possibilities, look no further than our customers. One example is Corporate Events Online (CEO), an Illinois-based event technology and services company that can now supervise and support locally hired operators and crews from a distance (page 32). Another is Jeremy Prudhomme, owner of the Ottawa-based JEEMAN Productions, who was able to ramp up efficiency and create new revenue streams by operating Pearl-powered studios completely remotely (page 26). With the model Prudhomme devised, a single intern can run a full-time production studio for underserved markets – realtors, financial advisors, small business owners, and others.

Cloud-based services are essential in our mission to remove the traditional barriers to high-quality video. Because the future is hybrid, our Pearl hardware will continue to serve as best-in-class edge devices, forming a secure and open ecosystem with Epiphan Cloud that empowers and imbues creators with the irresistible freedom of choice.

On page 10, you will find a teaser for the latest addition to this ecosystem: Epiphan Unify. If the potential of this new offering excites you, we encourage you to request access to the private preview.

As cloud technology continues to transform how we live and work, it would be prudent to reflect on the question we pose on the cover of this issue and at the head of this article: Are you on board? If your answer is no, it is not too late. We would be happy to lend our support with a free 15-minute consultation (epiphan.com/request-a-consultation). Because there are opportunities for all of us waiting in the cloud.

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Hybrid event production:
Three steps to success

Physical events with virtual components have grown in popularity in the past couple of years. So-called "hybrid events" add flexibility to the program, but they also introduce complexity, requiring a production approach that may be quite different from what you're used to. So, what are the keys to successful hybrid event production? Read on to discover our three steps to a winning hybrid event.

What is a hybrid event?

Hybrid events blend virtual and in-person elements – on the viewer side, contributor side, or both. With hybrid events, you can reach audiences worldwide and accommodate contributors and attendees who can't (or won't) travel. Another advantage? A venue's maximum capacity no longer has to dictate the number of attendees! But there's more to it than just deciding to "go hybrid". First, you'll need to figure out what you're trying to achieve.

Step one: Get clear on your goals

Take some time to clarify what you're trying to accomplish with your event. Specifically, ask yourself what you mean by "hybrid event," and what you want the features of your event to be.

There are three important areas to consider.

Contributors

For the purpose of this article, a contributor is anyone who adds content to the event. Where they are as the event is happening will have important implications for your production.

The question is: Will your contributors be in-person, online, or a blend of both?

Viewers

Viewers are people who attend the event as it's happening. Will your viewers be in-person, online, or a blend of both?

Do you want them to be able to interact with other viewers or contributors, such as asking questions or chatting among themselves as your event unfolds? Or will they merely receive information from your contributors?

Output

It's equally important to consider the content you're putting out with this hybrid event. Where will this content go? Specifically, where will viewers tune in? Facebook or YouTube? Both? A specialized hybrid event platform?

Step two: Ensure you have the right components

Based on what you found out in step one, your hybrid event should be taking shape. For example, maybe it'll just be the contributors who are remote, and all the attendees will be in person. Whatever the case, the specifics of your contributors, viewers, and content output will determine the gear and resources you'll need to pull it off.

There's a further three areas to consider here.

Team

The organization of your team will play a big part in deciding what components to use. Here's a few questions to think about:

- Who is producing the event? One person, or multiple people?
- Where will they be located? On-site, or off (i.e., working remotely)?
- How will your team communicate?

Network

Here's a key component that's often overlooked – with disastrous results. You can plan the slickest event in the world with 4K cameras, lighting, and professional audio mixing. But if the venue's network can't handle that much bandwidth, you'll be reduced to a choppy stream full of stutters and stops.

How best to avoid this outcome? Plan ahead, and know your venue. Are you providing the network, or is the venue providing a network? And if the venue is providing the network, are you sure it's robust enough?

Equipment

This is where the features of your hybrid event come into play. For example, if you want viewers to be able to ask questions in real time via text, you'll need a platform with a chatroom feature. You could further enhance this by displaying their questions as titles via NDI or another method. Also, if you were planning to send your content to multiple platforms at once, you'd want to make sure you had an encoder with the processing power to handle simultaneous streams – not to mention the bandwidth.

If your production crew is remote, make sure they have what they need to take control of your hybrid event from a distance. That means a cloud-based platform like Epiphan Cloud, a VPN, a network tunnel, or another remote control solution.

Complex audio routing may also be necessary, for example, if there are in-room participants or an in-room audience who needs to be able to hear your remote contributors.

Choose your encoder wisely

Of all the gear contributing to your production, the most important is your encoder. Hardware and software encoders have different advantages. While software can have a lower upfront investment, we believe that hardware encoders are the right choice for hybrid event production.

Whatever you choose, make sure it has the capability to deliver based on your requirements.

Epiphan Pearl Mini™ – The most reliable all-in-one video production system that's small in size and big on pro features

Step three: Choose a setup that fits your goals

So now you know what you're doing and how you plan to do it. This next and final step is all about defining your exact hybrid event production setup.

Hybrid events can have unique demands:

- **Multi-encoding –** Do you need to stream to multiple platforms? Do you have a system capable of this, and one that can send streams of differing quality if need be?
- **Broad integration and protocol support –** Can you support the correct protocols, like Secure Reliable Transport (SRT)?
- **Remote access and control –** Must someone be at the venue to control switching? Or is there the need for them to work off-site?

Sample production setups

Here are some sample setups that may work for your hybrid event production, depending on your goals. Note that Pearl devices are used in the examples, but these setups could work with other encoding devices as well.

Hybrid event space

In this example, the producers are on-site using Pearl-2 to handle live switching and other production tasks. On location are multiple cameras, mixed audio, and a laptop with a slide deck. Remote contributors are sending an NDI feed from Zoom Rooms to Pearl-2.
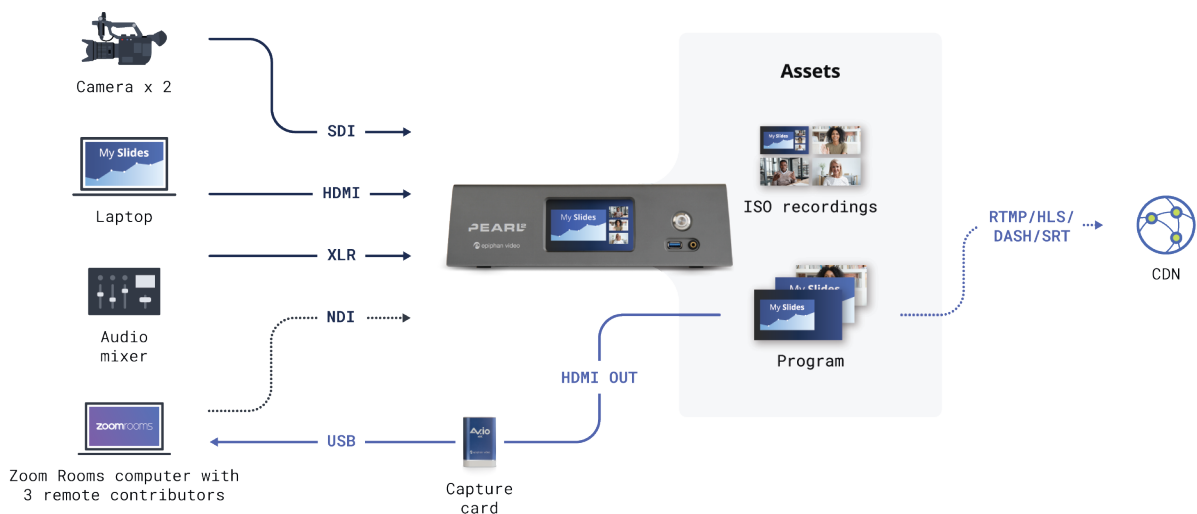
Off-site production environment

This is an example of a hybrid event setup where the producer is remote. Using Epiphan Cloud, the off-site producer or production team can bring in remote contributors over SRT and also switch between the in-room sources and any layouts you've prepared.

Plus, not only can Pearl-2 record individual contribution files for post-production, it can even send a video back to remote contributors for confidence monitoring while the producer switches layouts remotely.
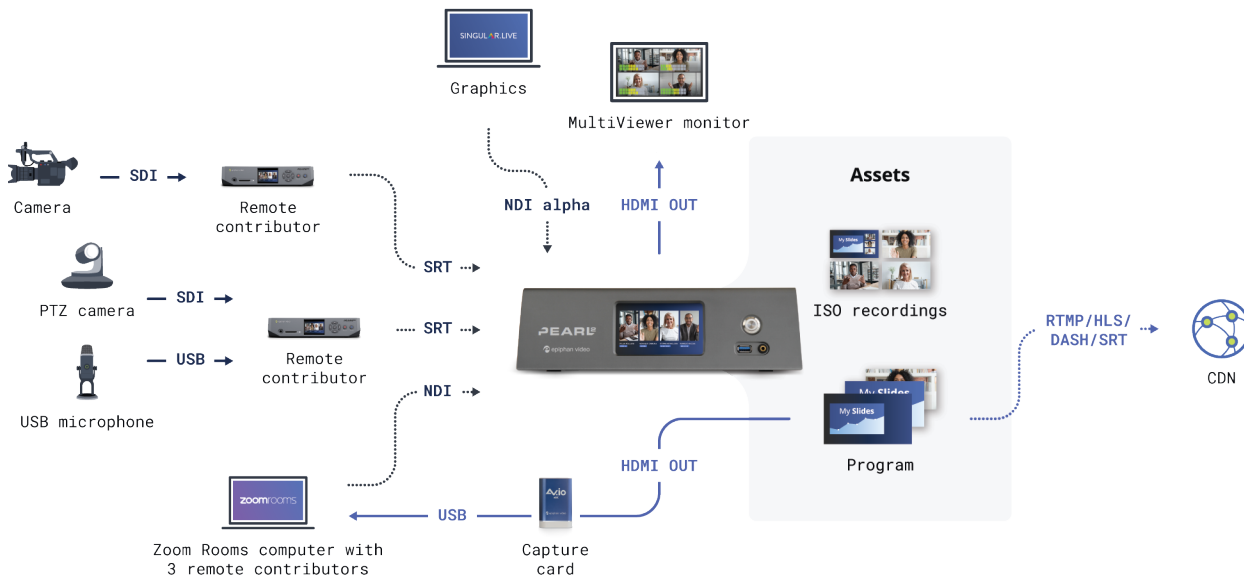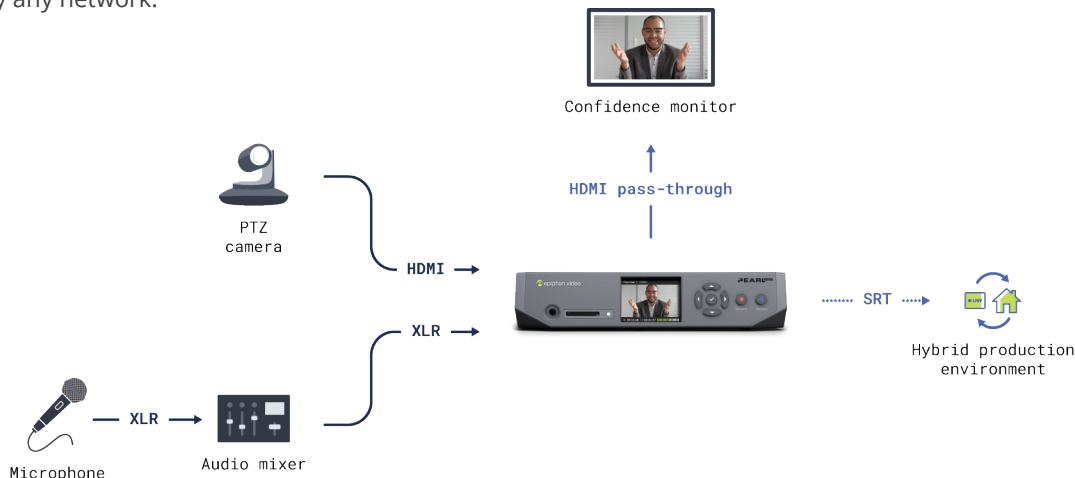

Sample contribution setups

A little planning and preparation here can prevent major headaches during a live event. The right contributor setup will ensure your contributors' video and audio quality match the rest of your content.

Basic contributor

You can configure Pearl Nano before shipping it off to your contributor or remotely through Epiphan Cloud once it's set up and online. With pro-quality gear connected to Pearl Nano, you'll see a drastic improvement over a basic laptop webcam and built-in microphone. This is especially true if you take advantage of SRT, which we strongly recommend for remote contribution since it can deliver exceptional image and audio quality over virtually any network.

Hybrid event contribution studio

Here we have a more sophisticated contributor setup. Two cameras, a microphone, and a laptop are all feeding into a Pearl Mini, which supports SRT just like Pearl Nano.

A remote contributor can switch between sources or layouts themselves, or a hybrid event production team can do so for them remotely. If a contributor does want to handle their own multi-camera switching, Pearl Mini makes it simple with a giant touch screen for maximum ease of use.

Confidence monitor

HDMI OUT

Camera x 2

SDI

XLR

Microphone

HDMI

Computer

SRT

Hybrid production environment
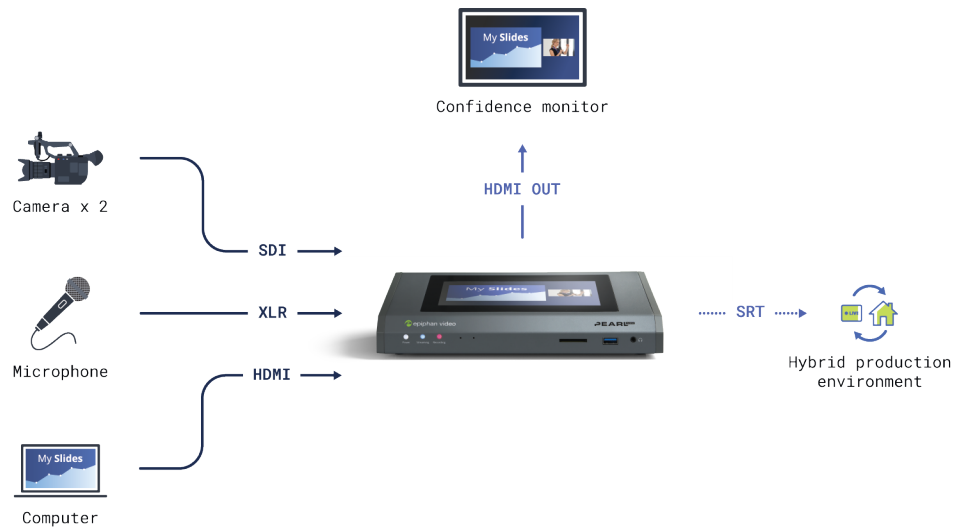
For seamless hybrid event production, choose Pearl

It's best to choose a hardware encoder like Epiphan's Pearl devices for your hybrid event production instead of a software encoder. You're better served using a system that was built from the ground up for live streaming and recording instead of general-purpose hardware full of parallel software and processes competing for resources.

Discover the power of Pearl

Pearl offers everything you need to produce a successful hybrid event. See epiphan.com/compare-pearl-systems for details on which Pearl devices might be right for your next event.
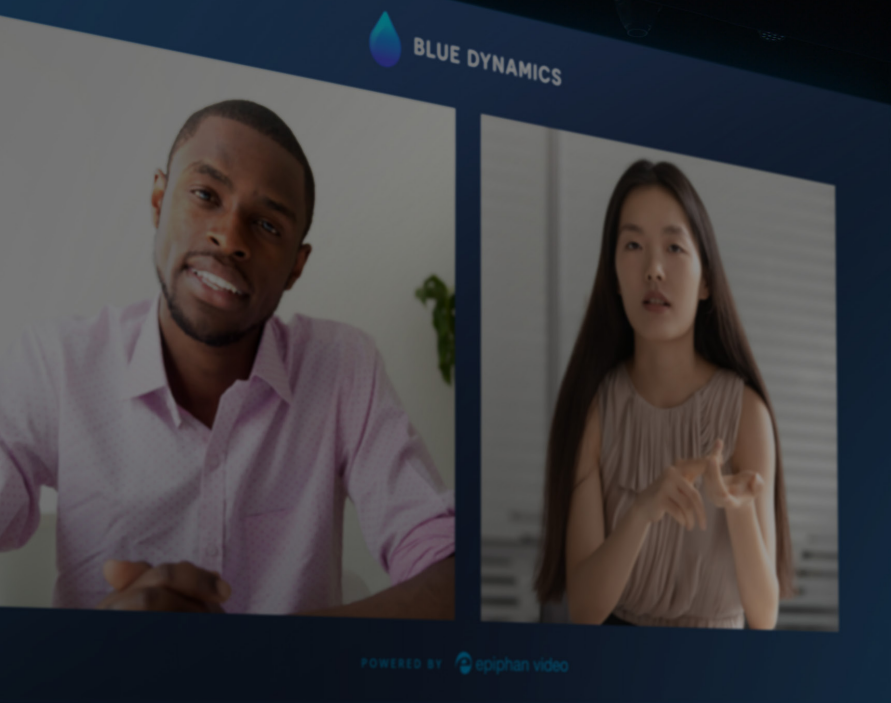
Pearl Nano SRT encoding powers live auction broadcasts across four time zones

Heffel Fine Art Auction House, the world's premier seller of Canadian art, needed a way to virtually bring together its Vancouver, Toronto, and Montreal offices for its semi-annual auction events. As an intuitive and high-performance SRT encoder, Pearl Nano enabled a hybrid auction with real-time bidding between the multiple offices, almost 2,500 miles apart – all while meeting the prestigious art dealer's exacting standards for video quality.

The problem: Connecting three remote locations for a hybrid event

Heffel auction house wanted to host a hybrid auction event to include remote bidding participation with its Vancouver, Toronto, and Montreal offices. In the past, Heffel organized large, centralized auctions semi-annually. Heffel's consignment specialists would travel from their offices to the event and participate in the bidding in person.

Facing travel restrictions and physical distancing requirements, Heffel turned to live video technology for a solution. The idea was to build a video bridge to enable simultaneous bidding across all three offices.

As a premium auction house, Heffel has high standards when it comes to video production value. Low latency and high fidelity were the key requirements for the remote contribution solution, so high-compression solutions such as video conferencing were ruled out early on.

The information services department in charge of the event production settled on Secure Reliable Transport (SRT) technology for remote video contribution. SRT is an open-source video transport protocol that can deliver a high-quality, low-latency video experience across the public Internet. To take full advantage of SRT contribution, the team needed a reliable SRT encoder at each office location.
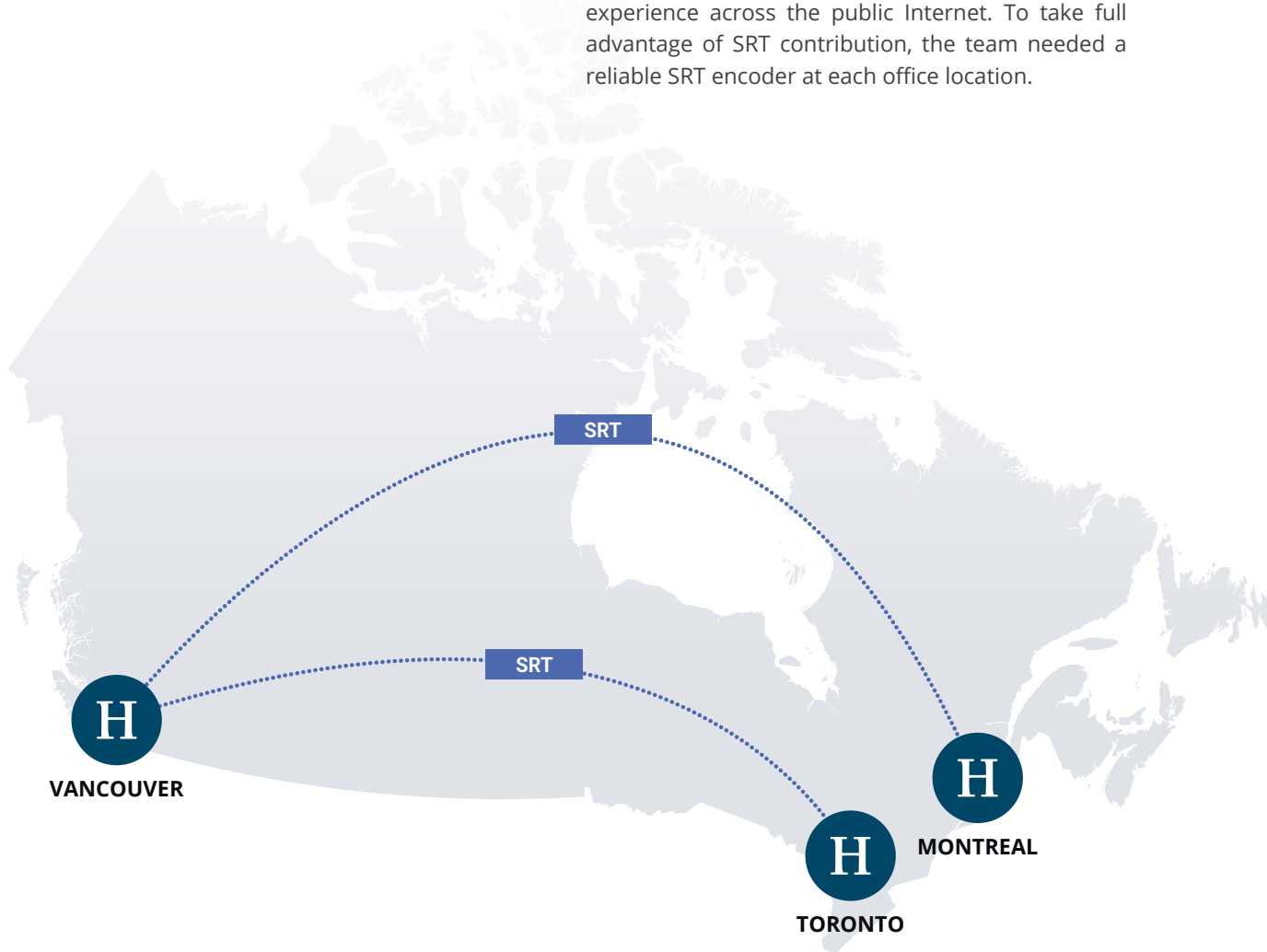
The solution: Pearl Nano, the perfect-fit remote contribution encoder
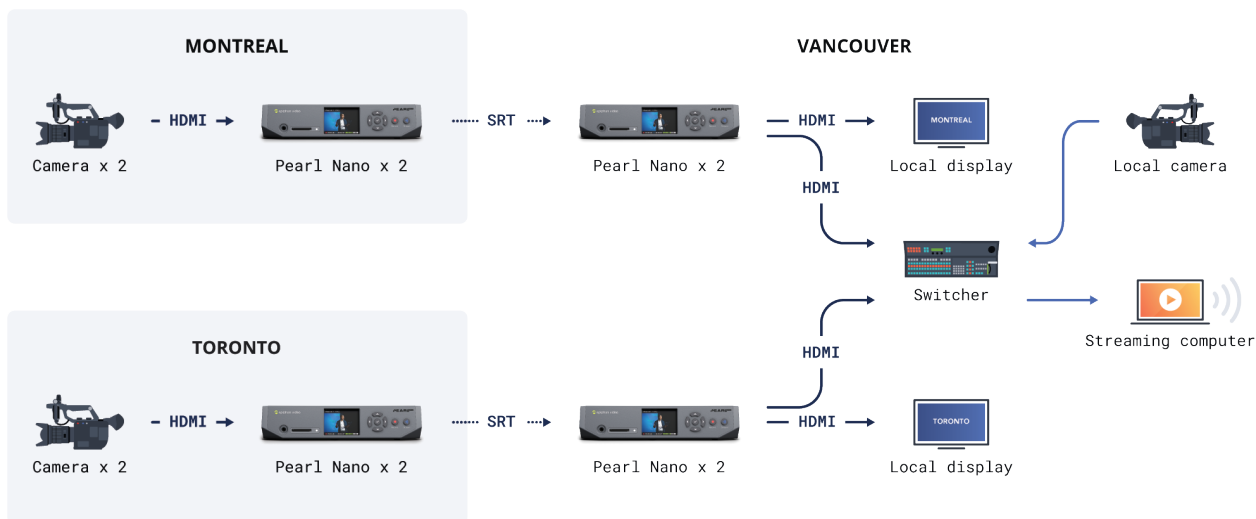
The team at Heffel chose Pearl Nano for SRT contribution. The head of information services, Goran Urosevic, favored Pearl Nano because it was easy to preconfigure and ship to the Toronto and Montreal offices. Heffel's staff at all of the satellite offices found setup to be intuitive.

The setup featured four Pearl Nano units at the Vancouver production studio receiving dual SRT feeds from the Toronto and Montreal offices. The Vancouver studio produced a low-latency live stream for the consignment specialists at the satellite offices to watch and participate in the live bidding. By adjusting the encoders' SRT settings, the information services team achieved sub-four-second latency for the live stream.

"Nano's compact and rugged design made it easy to ship. At the other end, all the teams had to do was connect the camera and the audio system to the encoder and power it on."

Goran Urosevic
Director of Information Services at Heffel

The results: Outstanding remote contribution for a remarkable hybrid auction

Reaffirmed brand image

Heffel's brilliant reputation comes from continuously striving for excellence in all aspects of work. By choosing Pearl Nano for reliable, high-performance video contribution, Heffel delivered a hybrid auction event experience to match its high standards and the audience's expectations.

Improved auction performance

The low-latency contribution solution delivered by Pearl Nano and SRT helped Heffel craft an experience similar to that of an in-person auction event, allowing bidding thousands of miles apart in real time. By using modern technology, Heffel preserved the sense of excitement and urgency of an in-person auction and set new records throughout the event.

Higher cost-effectiveness

The Nano-powered solution helped Heffel lower operational costs for each auction event. The ability to participate remotely freed the satellite office consignment specialists from traveling to a central auction location, saving time and money.

Peace of mind for the IT team

The option to preconfigure and ship Pearl Nano units to the satellite office for a simplified setup experience meant one less thing to worry about for Heffel's information services team. In addition, the device's proven reliability made Urosevic feel confident in the remote contribution solution during such a high-stakes event.

"Pearl Nano just works from the moment you turn it on to the moment you power it off. We had zero issues during the event."

Goran Urosevic
Director of Information Services at Heffel

Heffel

About Heffel Fine Art Auction House

Canada's art market leader, Heffel Fine Art Auction House has an outstanding reputation for handling exceptional works from all around the world. With the largest and most experienced team of specialists in the country, Heffel's live, hybrid, and online auctions attract collectors from across the globe.

The perfect fit for remote SRT contribution

Easily connect remote locations over high-quality, low-latency video with Pearl Nano and SRT. For full product details, visit epiphan.com/nano.
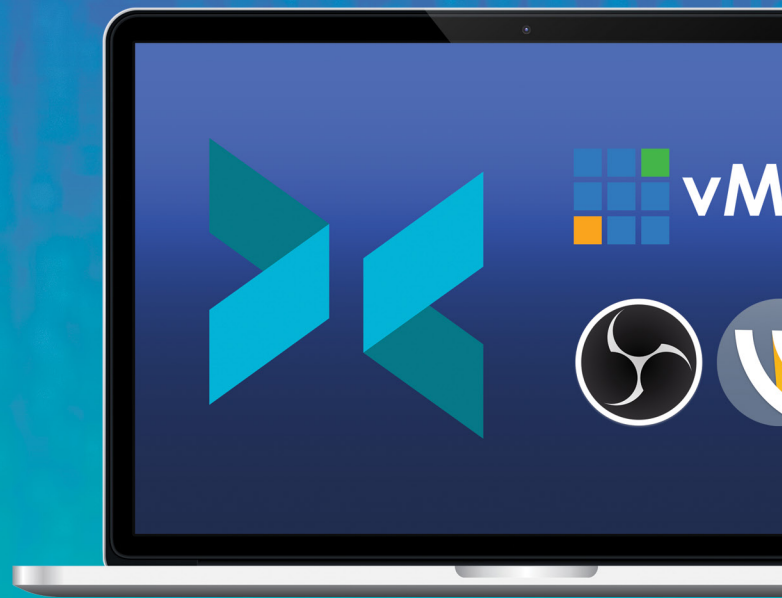
Hardware vs. software encoding: Which is best for your project?

You've run into the inevitable question of whether you should use a software application or a dedicated appliance for video encoding. It's a question with big implications – for your workflows, your budget, your prospects of success. So it's no surprise if it's a question you face with some trepidation.

A good understanding of the pros and cons of each encoding method is key to making the best choice for you, your team, and your clients. This article will give you that understanding so you can confidently decide between hardware encoding and software encoding for any project.

Video encoding 101

"Software encoder" and "hardware encoder" can mean different things to different people. For that reason, let's clarify what we mean here:

- A **software encoder** is a streaming or recording application that works on a general-purpose computer running an operating system like Windows or macOS. Streaming software like OBS Studio, vMix, and Streamlabs are a few popular examples.

- A **hardware encoder** is a standalone appliance that's purpose-built for live streaming and video recording. Epiphan Pearl-2, Pearl Mini, and Pearl Nano are a few such devices on the market.

With that cleared up, let's dive into the differences between these two types of encoders.

Option 1: Software encoding

Probably the biggest plus in favor of software encoding is availability. Chances are you already have most of what you need to record or stream out video via software: a laptop or desktop computer, a webcam, and a built-in or external microphone. All that's missing from that list is the application. In the case of an open-source software solution like OBS, that comes at no cost.

Speaking of cost, that's another advantage of software encoding – some of the time. It's often the more frugal option for casual, low-pressure productions. But if we're talking about a professional production where video quality is paramount and multiple cameras are involved, that's where this point gets a little muddy. To match the performance of a hardware encoder out of the box, you could easily spend as much or more in upgrades and add-ons to your software streaming rig.

Option 2: Hardware encoding

Hardware encoders set the bar pretty high over software-based setups. The advantages they bring are often essential for professional-level productions, or if your goal is to create broadcast-quality videos or live streams that are sure to impress and engage.

Where exactly do hardware encoders have an edge? In four key areas:

- Performance
- Flexibility
- Reliability
- Serviceability

Hardware encoders offer better performance

A hardware encoder will generally run more smoothly than a computer built with general-purpose parts. This is especially true when it comes to handling multiple high-end sources or when you're sending content to multiple streaming platforms (e.g., YouTube, Facebook Live, and LinkedIn Live all at once). That's because hardware encoders are tailor-made for streaming and recording. Every component inside was handpicked or designed specifically for the task, and every bit of processing power is dedicated to it.

The same goes for the underlying software running on a hardware encoder. Standard computer operating systems have to support web browsing, word processing, graphic design, gaming, and any other number of tasks a user might partake in. Compare that to a hardware encoder's operating system, which is fully specialized and fine-tuned for live streaming and recording. This is possible because there's no need for a hardware encoder to do anything else.

Hardware encoders are more flexible out of the box

Most hardware encoders sport multiple video inputs that let you directly connect mirrorless cameras, camcorders, and other high-end equipment. The same goes for audio: on some appliances, you'll even find inputs for professional audio devices (i.e., XLR, TRS).

With inputs built right into your video encoder, it's far easier to create professional-quality video. On the other hand, software-encoder setups tend to be limited to USB. That means you're stuck using webcams and microphones that just aren't suitable for professional contexts.

Of course, you can purchase capture cards to bring non-USB signals into your computer and a front-end audio interface to use professional audio gear. But this adds more components and cables, and each one is a potential point of failure. It also complicates setup and teardown, and it means more things to keep track of and possibly lose during travel.

Hardware encoders are more reliable

Imagine this: you're at the helm of a major production. Everything is humming along when, suddenly, the screen turns a deep blue and you're faced with a horrifying message: "A problem has been detected and Windows has been shut down to prevent damage to your computer."

This isn't an event reserved for an AV producer's nightmares. It's a very real possibility when using a software encoder since there's a host of other processes and programs running alongside your streaming application, driving up your CPU usage and sporting agendas of their own. The dreaded message that interrupts your production could just as well be an OS update or an antivirus pop-up.

Compare this to a hardware encoder, which is built from the ground up for streaming and recording. This is true of the underlying software, too, which means there are no competing or extraneous processes. That's not to say hardware encoders never experience hiccups, but it's far less likely.

Hardware encoders are easier to service

Have you ever had this experience? You run into a glitch with some computer software, so you pick up the phone and dial the vendor's customer support line. The vendor says the culprit is a part in your computer, Component A. You call up the manufacturer of Component A, and they say the problem is actually Component B. You phone the maker of Component B, and, of course, they point the finger at Component A.

It's a frustrating circle to be stuck in, and you can avoid it completely with a hardware encoder. That's because hardware encoders are designed and assembled by a single manufacturer who acts as your one point of contact. This makes getting your system repaired or replaced a relatively pain-free process.

Hardware vs. software: Which is better?

To sum up: software encoders are only suitable for low-pressure productions. For professional broadcasts, or if your goal is to wow your audience with high-quality video and audio, you'll want a dedicated appliance handling your encoding.

Looking for the perfect hardware encoder?

Our Pearl family of hardware encoders are durable, easy to use, and rigorously tested for long-term reliability. Check out **epiphan.com/ products** for more details.

How to build the ultimate in-house video studio

Tired of relying on studio rentals, external crews, or pop-up setups for your video production? An in-house studio is a great solution. And with a Pearl system as your production hub, you can count on professional results every time.

The ideal in-house studio workflow

The key to great-looking productions is to go beyond webcams and software applications to a dedicated production system paired with high-end cameras and professional audio equipment. To get the most mileage out of your in-house studio, your setup should also be easy for anyone in your company to use.
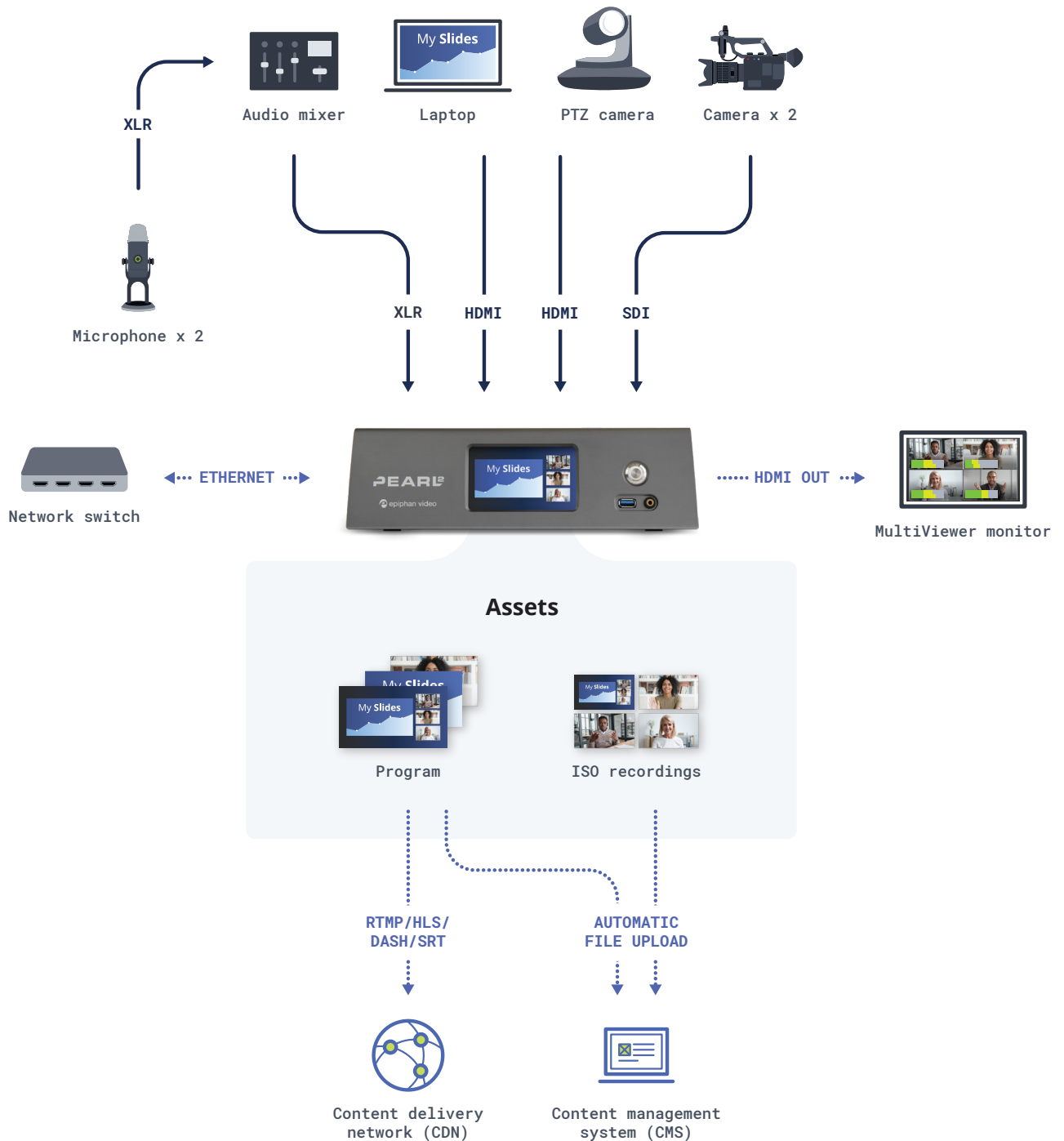
Checklist
The ultimate space for video

☐ **Production system**

Pearl-2 supports the most applications, but Pearl Mini makes a great alternative with its giant touch screen that's perfect for shared spaces.

☐ **Camera(s)**

Choose purpose-built PTZ or studio camcorders for best results and minimal fuss. Ensure a clean HDMI or SDI output for all cameras.

☐ **Camera support**

Fixed tripods or permanent wall, ceiling, or truss mounts will protect your gear from damage and eliminate tripping hazards.

☐ **Microphone(s)**

High-quality audio is a must (XLR or TRS). In a fixed studio setting, mounted cardioid or shotgun mics are best.

☐ **Audio mixer**

Enable users to control and mix multiple audio sources, adjust volume and tone quality, and convert analog and digital sources.

☐ **Lighting**

Temperature-adjustable LED panels can balance to natural light sources and achieve a high Color Rendering Index (CRI) for pro-quality video.

☐ **Acoustic treatment**

Sound dampening panels, acoustic foam, blankets, carpeting, and soft furniture will minimize audio reflections.

☐ **Network**

Use a dedicated network, switch, and Ethernet connection for production equipment. WiFi is acceptable for presenters' laptops, tablets, etc.

☐ **Power and cables**

Ensure sufficient power and use high-quality cabling for maximum reliability. Add channels and converters as needed.

☑ **Perfect for**

Webinars   Podcasts   Product demos

Video ads   Executive communications

Video training   Media appearances

Setting up your studio

Beyond the components we've outlined here, what you'll need in your studio depends on your plans. Consider:

- **The kind of content you're making.** For instance, product videos might benefit from a turntable for 360-degree filming.

- **How many contributors will be in the studio at once.** This will affect camera placement, audio, lighting, and other elements. Be sure you have enough microphones for everyone.

- **What other sources might make it into your productions.** If your on-camera talent want to share their screens, reserve an input or two on your production system for this.

Choosing your space

Another key factor to take into account is the size of the space. Choose a room that's big enough to fit all your gear while allowing good lighting and depth of field. The size, features, and contents of your studio will impact audio considerations as well. Do what you can to keep outside noise from making it into your productions, and use sound dampening panels and acoustic blankets to help control echo and reverberations.

Designing your set

Reinforce your branding by choosing props, colors, and fonts that match your brand identity. Pearl's custom layout builder gives you the tools to create perfect, on-brand layouts for your productions. And it's super easy to use thanks to the intuitive drag-and-drop interface.

Ensuring reliability

If you plan to produce live content, make sure any in-room production equipment is connected to a robust network (a dedicated line, if possible). Also be sure to check with your company's IT team to see if there are any security protocols or other factors that could affect your productions.

Placing your producer

Where will your production team sit? In studio and off-camera? In a control booth or an adjacent office? Somewhere off-site? Epiphan Cloud lets you access and control Pearl systems from anywhere there's an Internet connection. A remote producer does introduce the need for a communications backchannel, however.

Creating your content

With your studio set up and tuned, it's time to start producing stellar live streams and recorded content.

Operating Pearl

There are multiple ways to control a Pearl production system:

- Via Pearl's **built-in screen** for basic configuration, control,and live switching

- Using the web-based **admin panel** for deeper configuration and control

- With **Epiphan Live**, a mobile-optimized interface ideal for live switching and confidence monitoring on tablets or within a web browser

- Using **Epiphan Cloud** for remote access, configuration, and control

What option is best will depend on how near your producer or production team is to the system. If Pearl is close by, the built-in screen can double as a confidence monitor for at-a-glance verification of video and audio sources. If your producer is working off-site, Epiphan Cloud makes it simple to access and operate Pearl systems from any location – no VPN or network tunnels required.

Streaming your content

Most content delivery networks (CDNs) specify what settings to use for best results. You can find these easily on Google with a search term like "YouTube encoding settings." With Pearl, you can even stream to multiple destinations at once. Just be sure to configure each stream separately, based on the recommended encoding settings for the destination CDN.

Need to bring your Pearl programs into a video conferencing platform like Zoom or Microsoft Teams? It's easy with an Epiphan AV.io capture card. Simply connect your Pearl system to the capture card via HDMI and to your computer via USB. Then you can leverage Pearl's recording and streaming, custom layouts, live switching, and other capabilities to enhance your VC-based productions.

Storing your recordings

Even for live productions, it's good practice to record as well in case the on-demand version would benefit from some post-production work. Pearl has more than enough processing power for this.
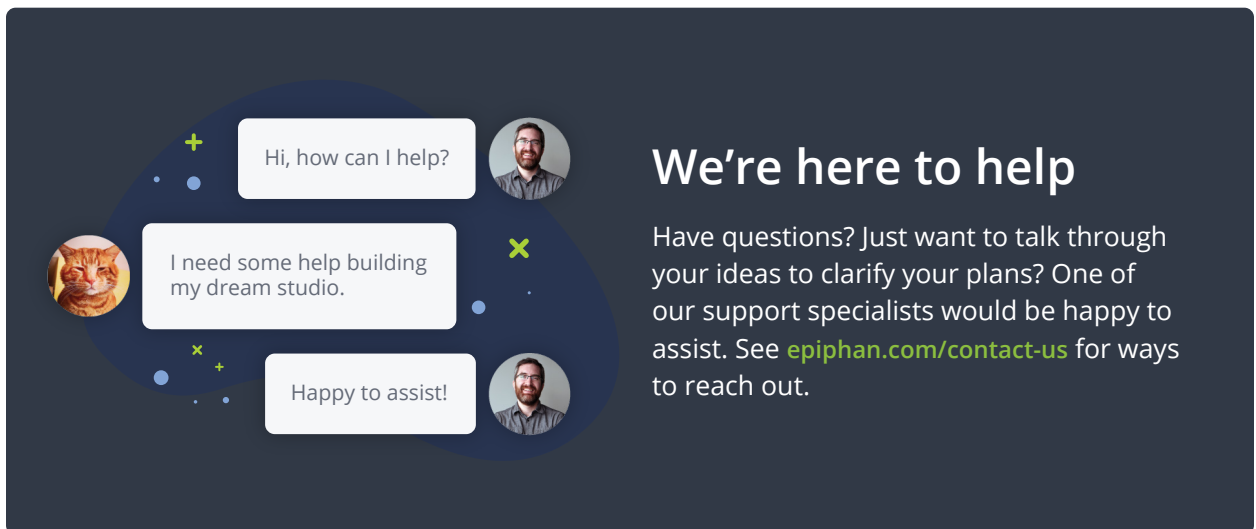
When it comes to storing your recordings, you have options with Pearl:

- Internal SSD (Pearl-2) or SD card (Pearl Mini)

- Connected USB drive

- Local server or network-attached storage device

- Automatic upload to Panopto, Kaltura, or YuJa via direct integration

Results you can count on

With your very own video studio, you're in good position to reap the many rewards of engaging, high-quality video content. No more calling around to rent out a production space. No more time-consuming setups or teardowns. And with a versatile and reliable Pearl system at the heart of your studio, you can count on great results whether you're producing a webinar, a training video, or a product reveal.

We're here to help

Have questions? Just want to talk through your ideas to clarify your plans? One of our support specialists would be happy to assist. See epiphan.com/contact-us for ways to reach out.

Video production company ramps up operations with cloud-enabled efficiency

Ontario-based video production company JEEMAN Productions set up several one-touch video studios to scale and streamline its content production. At the heart of the solution are Pearl hardware and Epiphan Cloud, a cloud-based tool for remote production and device management.

The challenge: Too much to create, too little time

JEEMAN Productions founder Jeremy Prudhomme faced an enviable challenge: fast-growing demand for his video production services. More and more clients were coming to him looking for short, vodcast-style marketing videos. There was only one problem: while the videos themselves were short and straightforward, the process of creating them was anything but.

The assigned video producer would either travel to the client's location, or the client would travel to Prudhomme's studio for the shoot. In the former scenario, the producer would spend significant time traveling, setting up gear, shooting the content, tearing down, transferring the recordings from the storage media, and traveling back. In the latter, the set would have to be booked for that client for the entire day, limiting production capacity significantly. Either way, a short, five-minute final cut would typically take five long hours to produce.

As demand continued to grow, Prudhomme was running out of production resources. He had to find a way to boost production capacity and, ideally, simplify on-demand video creation.

The plan was to build automated, one-touch video studios where clients could go and start recording on their own. Naturally, adequate remote oversight would be essential to ensure the captured footage is excellent quality.

On the camera display:

00:08:24:13 ISO 640 WB 4400K TINT 0 AC

PREVIEW

45min   No card

The solution: Flawless remote production with Epiphan Cloud

Prudhomme found the remote production solution he was looking for in Epiphan Cloud and Pearl hardware. Pearl encoders capture high-quality footage from the studio cameras and microphones, while Epiphan Cloud gives full remote access to device settings, controls, and storage.

"I can access the hardware from anywhere in the world. Easy access to files from anywhere is huge for me."

Jeremy Prudhomme
Founder of JEEMAN Productions

The team at JEEMAN Productions built several self-serve video studios, outfitting each one with professional lights, cameras, microphones, and a Pearl hardware encoder. Epiphan Cloud serves as the backbone for remote production control.

Epiphan Cloud gives the team complete remote access to the studio encoders via the public Internet, including Pearl configuration, audio and video source monitoring, and even live switching. Producers can log in to any studio Pearl through Epiphan Cloud and configure the device as though it were right there in front of them.

JEEMAN Productions uses Pearl Mini hardware encoders with Epiphan Cloud to power one-touch video studios.

Video production company ramps up operations with cloud-enabled efficiency
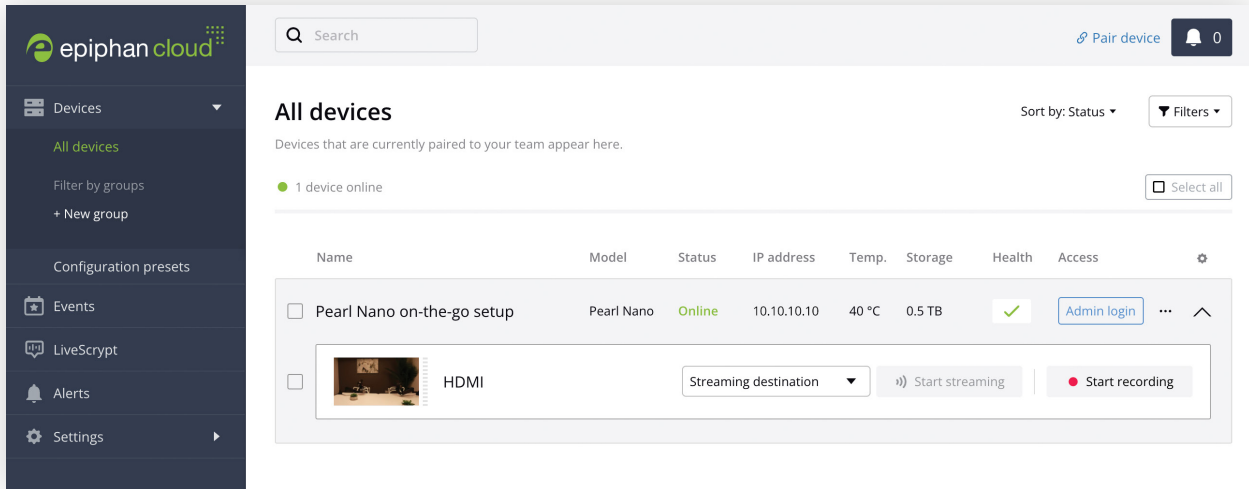
Inside the Epiphan Cloud UI for one of JEEMAN Productions' self-serve studios

Producers can make sure the recording is running smoothly by monitoring the process and tweaking settings on the fly. The recorded files are remotely accessible from a connected Pearl's internal storage. Producers can download the footage immediately and begin post-production without any delay.

The results: Boosted production capacity with ultraefficient video creation

To date, Prudhomme has launched four self-serve studios and has plans to build more. Thanks to these new automated recording spaces, JEEMAN Productions was able to not only meet the demand for video content but also onboard several new clients.

Aside from helping Prudhomme grow his business, Cloud-powered remote production studios delivered other impressive benefits.

Time-efficient operations

The new studios significantly increased the company's video production capacity. Before, the team could only travel to one shoot location at a time, whereas now they can receive and edit footage from four different studios simultaneously. The model has potential to continue growing as more studios are added.

Cloud-powered studios take the legwork out of video production. Now there's no need for the producers to travel to the client's location, set up, and tear down equipment.

The team can work on multiple projects in tandem. With on-site production simplified, producers can focus on efficient post-production. And with video files available from anywhere, Prudhomme can easily outsource to more video editors regardless of their physical location.

Fast content turnaround

Thanks to Epiphan Cloud, producers can download the footage remotely, start editing right away, and deliver the final product faster than before. With remote file download, there's no need to fuss around with SD cards or other storage media.

Full-confidence remote production

Remote producers know they'll get the best raw footage possible with full visibility into inputs and channels on every device. Epiphan Cloud's remote switching feature enables the team to produce live and recorded programs from a distance.

"Epiphan Cloud embodies the potential and possibilities of easy content creation. It's the future of video creation."

Jeremy Prudhomme
Founder of JEEMAN Productions

About JEEMAN Productions

Founded in 2019, JEEMAN Productions is an Ontario-based creative production company that is dedicated to creating compelling visual content. JEEMAN Productions' talented filmmakers deliver work of every scale and genre, from single-camera studio interviews to multi-camera, multi-crew commercial shoots.

Epiphan Cloud brings production peace of mind with full visibility into remote events

Corporate Events Online (CEO) is an event streaming service and platform provider that supports high-profile virtual and hybrid events all over the world. The company deploys Pearl streaming encoders for remote operation by local crews, which means CEO specialists don't always have direct access to their streaming encoders.

# The problem: Troubleshooting streaming issues from thousands of miles away

CEO provides streaming services for virtual and hybrid training sessions, product launches, national sales meetings, and investor conferences for Fortune 1000 companies across the globe. These are high-stakes events with no room for error. And because they typically take place across multiple venues, the CEO team can't always send a specialist to every location to manage live streaming directly.

The company relies on locally hired operators to set up and deploy preconfigured Pearl units. The trouble is that these operators aren't always familiar with Pearl gear and may require remote support from a CEO specialist. Such remote supervision can be cumbersome, especially in critical situations.

To mitigate the added risk and complexity of the remote layer, CEO needed a way to access its fleet of Pearl video encoders remotely. The company found the perfect solution in Epiphan Cloud.

The solution: A powerful online configuration and monitoring platform for all Epiphan devices

Epiphan Cloud gives CEO team members full access to key device statistics like system load, device temperature, and storage usage. They can also enter any device's UI via remote login for full access to device settings. The team finds having access to Pearl's network diagnostics tool particularly useful for checking local bandwidth remotely.
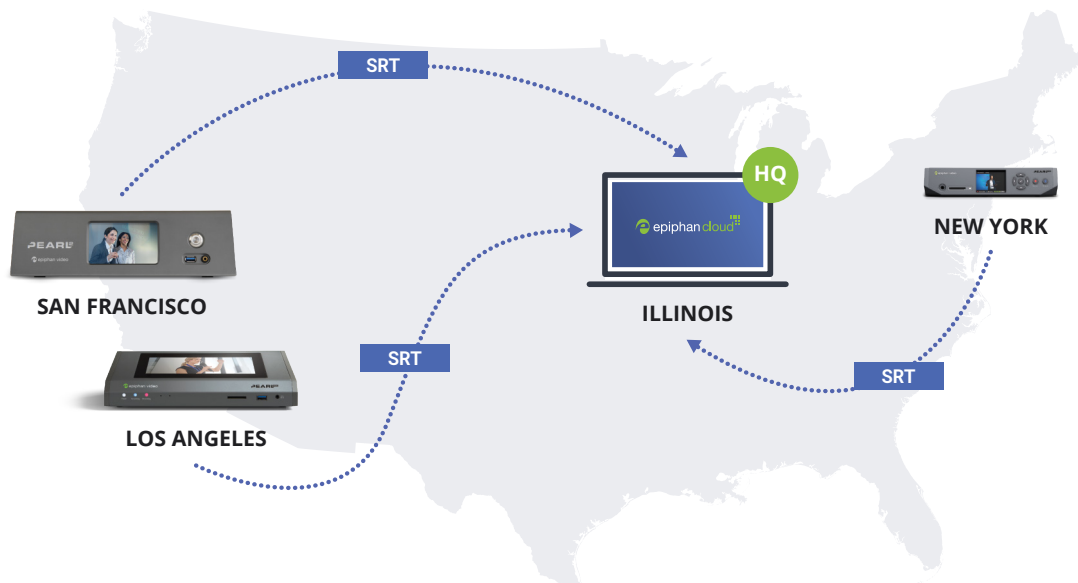
In-app alerts and warnings let the team know if device vitals or stream health are in danger so they can react immediately to fix the situation. "We use alerts a lot," says President of CEO Jim Fiore. "We like that each alert includes enough detail to help us isolate the problem along with a list of solutions so we can take action."

Remote CEO specialists work in parallel with local Pearl operators to troubleshoot issues quickly and efficiently. Local Pearl operators also receive access to Epiphan Cloud so they too can leverage the crucial insight it offers into device and stream health.

"Epiphan Cloud puts our eyes and ears on site. It allows us to control the outcome of the event. We can do all the same things through Cloud as we could if the device was right there in front of us."

Jim Fiore
President at Corporate Events Online

Results: Full visibility, full confidence

Peace of mind

Full remote visibility into its Pearl fleet of encoders has given CEO confidence about the success of their events. The team knows Epiphan Cloud's informative and timely warnings will help them address any issue right away. It's like having insurance on your professional reputation.

No local operational knowledge required

With Epiphan Cloud, local operators' experience and technical proficiency with Pearl is a non-issue. All the remote operator needs to do is get the device online; CEO specialists can take care of the rest.

Multi-event, multi-venue management

Epiphan Cloud grants CEO the ability to be in many places at once. In a recent example, a single CEO specialist based in the Chicago area was managing multiple devices during a simultaneous event in California and New York State. By enabling the company to operate at multiple venues at the same time, Epiphan Cloud helps CEO run as a small yet efficient team.

Efficient and centralized device management

With CEO's sizeable fleet of 18 Pearl devices, managing each unit individually would be inconvenient and inefficient. Epiphan Cloud provides one platform for all Pearl devices, streamlining configuration and maintenance with time-saving tools such as multi-device firmware updates.

Be there when you can't with Epiphan Cloud

Epiphan Cloud gives you a window into your Pearl-powered productions wherever you are with full remote control, 24/7 device monitoring, and more. Check out **epiphan.com/cloud** to learn how Epiphan Cloud can empower your remote productions.

About Corporate Events Online

Since 2004, Illinois-based Corporate Events Online (CEO) has led thousands of successful events and has become the go-to technology and services provider for some of the world's most respected organizations. Learn more at **joinceo.com**.

How to make lecture capture easy for everyone

Lecture capture is essential. But the technology that makes it possible can be a pain to manage for IT teams and faculty alike. Happily, there's a better way forward: a streamlined, hands-free lecture capture workflow that delivers high-quality lecture recordings that are sure to keep students engaged.

Read on to learn how to make this concept real.

Set the standard for lecture capture

A webcam and built-in microphone won't cut it if you hope to impress and engage students. You must transcend what's merely serviceable with professional-quality gear. At the same time, you need to keep your solution accessible to faculty of all levels of technical expertise and reasonable for IT to manage. Put a Pearl hardware encoder at the center of your lecture capture efforts and you can have it all.
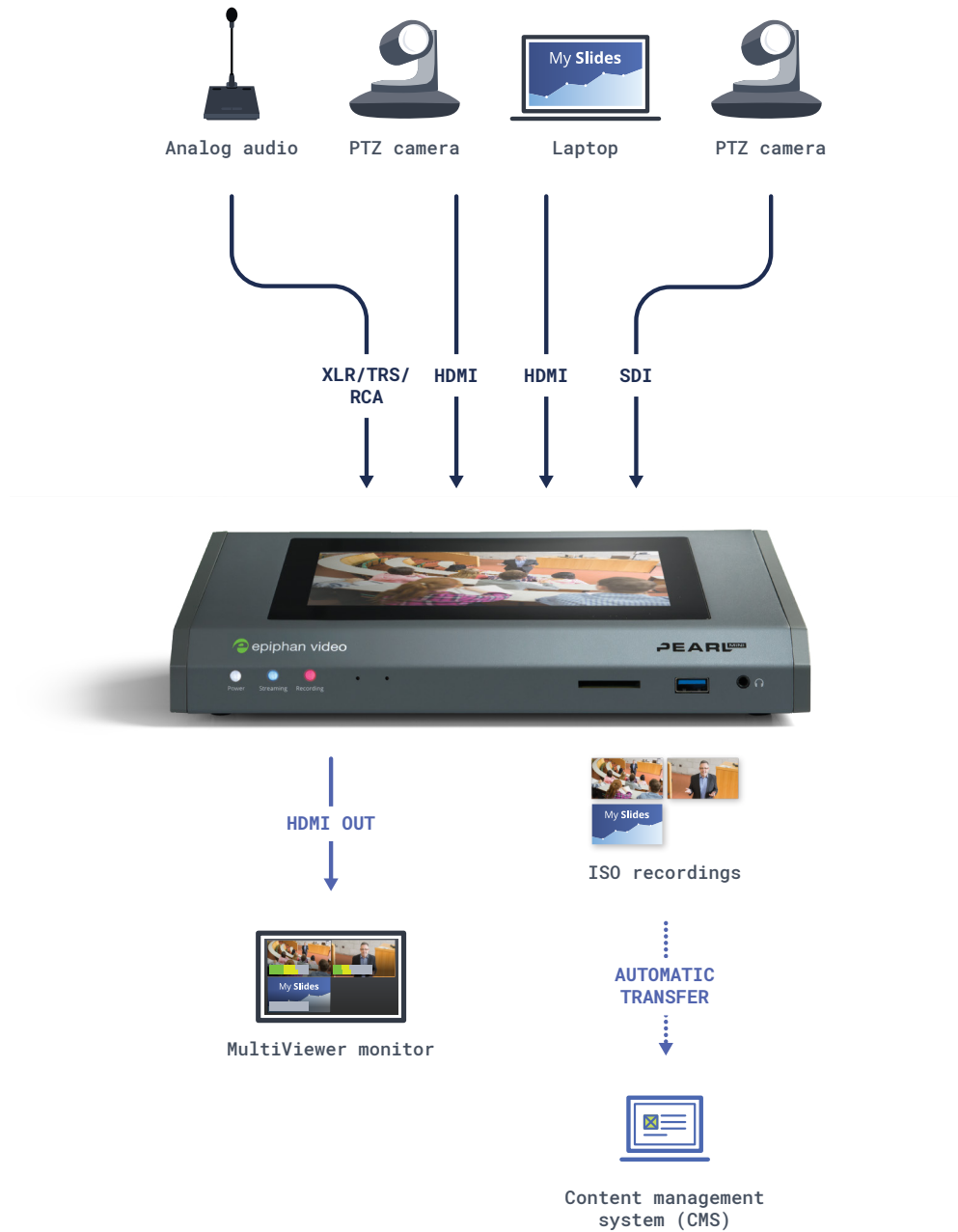
Checklist

The hands-free lecture capture workflow

☐ **Production system**

Pearl Mini features a giant touch screen for maximum ease of use. For courses that need more inputs or NDI, Pearl-2 makes an excellent upgrade.

☐ **Confidence monitor**

Verify your video and audio with a glance at Pearl's built-in screen, or use MultiViewer to display up to six sources on an external monitor.

☐ **Audio mixer or in-room audio**

Control and mix multiple audio sources, adjust volume and tone quality, and convert sources, or feed an in-room audio system directly into Pearl.

☐ **Centralized device management**

Centralize the management and monitoring of your encoders with a cloud-based platform like Epiphan Cloud to save tons of IT time.

☐ **Busylight (optional)**

Visually indicate to students and anyone else in the classroom that streaming and/or recording is underway.

☐ **Camera(s)**

For best results, use one or more pan-tilt-zoom (PTZ) cameras for unmatched flexibility.

☐ **Microphone(s)**

Attach a lavalier mic to instructors, or set up room-scale array or beam-forming microphones to capture the instructor and in-class questions.

☐ **Content management system (CMS)**

Easily streamline and automate recording transfers through Pearl's direct integration with Kaltura, Panopto, or YuJa.

☐ **Controller (optional)**

Integrate Pearl with a Crestron or other third-party controller to trigger functions from it. A great option if Pearl's touch screen is out of reach.

Equipping your classroom(s)

To mirror the in-classroom experience as closely as possible, take stock of the courses that have lecture capture as a component and list the equipment you'd need to capture every element of every lesson. What exactly you need can vary with:

- **The kind of class.** Certain subjects may require specialized equipment (e.g., a document camera or video microscope for a chemistry lab).
- **Nature of the coursework.** Classes with lots of hands-on demonstrations benefit from multiple cameras (e.g., one for close-ups and another a wide-angle shot of the professor and whiteboard).
- **Supplemental materials.** To incorporate slide decks, videos, and the like, you'll need a way to capture a laptop screen (e.g., a hardware encoder with HDMI inputs).

If any of your courses use equipment with DVI or VGA output ports, such as a medical imaging machine, an Epiphan DVI2USB 3.0 capture card will let you bring those signals into Pearl.

Perfecting your audio

Poor audio is a sure way to make students tune out. Opt for a professional array microphone system, beamforming microphones, or a wireless lavalier or table mic with XLR or USB connectivity. If there's an existing in-room audio system, ensure whatever encoder you choose is compatible.

Also consider how to capture questions from students in class. The instructor can always repeat the question before answering, but an array microphone system or handheld microphone is another option.

Integrating your systems

Maximum efficiency demands tight integrations between your content management system (CMS), learning management system (LMS), and lecture capture solution.

Pearl production systems directly integrate with the industry-leading Kaltura, Panopto, and YuJa platforms, letting you streamline your CMS-supported workflows for even more efficient content production and management. Users can authenticate to your school's platform through Pearl Mini's touch screen to automatically push recordings to their folders after unscheduled events.

The Pearl Crestron Control Module makes it easier to integrate Pearl hardware into your school's Crestron AV systems as secure and reliable lecture recording devices. Most of the coding is done for you, letting you build on Crestron's robust code base to enable secure API control over HTTP or HTTPS.

Securing your campus network

To keep your network safe, favor gear that's designed to work with your existing network policies rather than requiring exceptions that could leave your network vulnerable.

A bevy of advanced security features ensure Pearl systems are secure additions to your campus IT network, including:

- LDAP integration
- 802.1x network access control
- RTMPS
- SSL certification

Letting students know the cameras are rolling

It might be a policy or requirement at your institution to inform in-class students that streaming or recording is underway. If that's the case, invest in a USB status light to visually indicate when lecture recording is in progress. Pearl Mini supports select models from Busylight and Delcom Products.

Making device management a breeze

Time is everything when you have multiple devices to manage. Save your IT team the trouble of trekking across campus to access your lecture recorders by opting for systems that include centralized, cloud-based device management.

Epiphan Cloud offers:

- **Centralized configuration and monitoring:** Access, configure, and control paired Epiphan devices from Epiphan Cloud's intuitive dashboard.

- **24/7 monitoring and alerting:** Learn of any lecture capture issues immediately with Epiphan Cloud's always-on monitoring and customizable alerting system.

- **Easy deployment:** Simplify deployment and keep your campus network secure with 802.1x and LDAP authentication and other advanced features.

Recording lectures

With your classrooms equipped for world-class lecture capture, it's time to start generating the content that will drive your students' success.

Creating a hands-free experience

The dream lecture capture workflow is one where all an instructor has to do is walk into the room and start teaching. Then there'd be no need for faculty to work with the lecture recorder, cutting down training time substantially if not completely.

You can make it happen with the help of a CMS that lets you schedule your lecture recorders to start streaming and/or recording based on your school's course calendar.

Pairing the right device to your preferred CMS makes this process a whole lot easier. For instance, Pearl systems integrate directly with Panopto, Kaltura, and YuJa. Comprehensive integration streamlines setup significantly and unlocks a number of other workflow enhancements such as touch-screen authentication and control (e.g., hitting a button to pause a recording, or adding time to a session that runs long).

Automating file management

Direct CMS integration with your encoder also has the benefit of automating file uploads. After a scheduled event wraps up, the encoder will automatically send any lecture recordings to the right place on the platform.

And what about unscheduled events? No problem. Faculty can use Pearl Mini's built-in touch screen to authenticate to the CMS (via a virtual keyboard). The system will send any resulting recordings to the correct folder to minimize administration time.

Simplifying control with operator mode

If your lecture capture setup involves instructors interacting directly with Pearl Mini, you can choose what touch-screen menu options are available to users to minimize errors and confusion.

Promoting confidence in the classroom
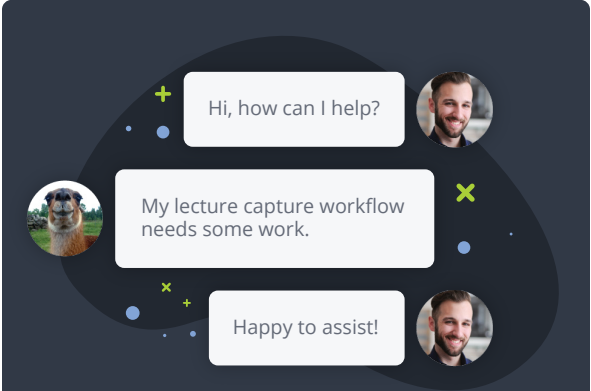
Instructors appreciate a confidence monitor so they can confirm at a glance that the lecture recording is going smoothly. Being able to quickly see, for example, that their laptop screen is properly connected and recording is an asset for efficiency and for peace of mind.

You have a few options here:

- Treat Pearl Mini's built-in touch screen as a confidence monitor, if the encoder will be near the instructor (e.g., on a lectern).

- Send your lecture capture program or a single source via HDMI to an external display that the instructor can reference easily.

- Set up a multi-source confidence monitor with Pearl's MultiViewer (available as an HDMI output) on an external display.

Results you can count on

Intuitive enough for faculty to use without hours of training. Professional quality with long-term reliability. Low maintenance and simple for staff to manage. Compatible with your campus network and other tech. All while justifying the budget spend. This Pearl-powered workflow does it all, giving you the tools you need to record high-quality, uncompressed video of lectures and seminars for on-demand viewing.

Hi, how can I help?

My lecture capture workflow needs some work.

Happy to assist!

Lecture capture questions? We have answers.

Whether you're looking to improve your existing lecture capture setup or put into action what we've recommended here, we're always happy to talk things through. Visit **epiphan.com/contact-us** to learn the different ways to reach out.
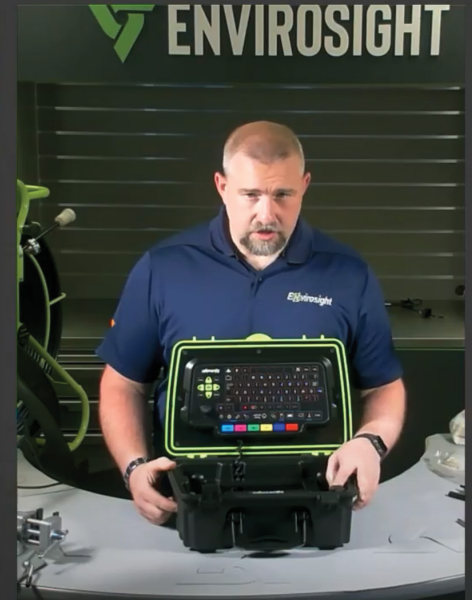
JAMES NYSTRAND

Creating a top-notch production environment for interactive remote training

To deliver high-quality remote video training to customers, the team at Envirosight built a state-of-the-art video production facility at the company's headquarters in Randolph, New Jersey. At the heart of Envirosight's in-house video production studio is **Pearl-2**, the all-in-one recording, streaming, and switching encoder. Pearl-2 captures every moment of each training session, enabling effortless switching between multiple sources for the live production and flawless recordings for post-production.

The need: Convenient and cost-effective interactive production

Envirosight provides robust inspection solutions for sewer assets. The technical sophistication of the product lineup compels the company to devote significant resources to product support and training. Pre-pandemic, Envirosight frequently organized in-person training events across the United States, travelling with the demo equipment. However, restrictions on travel urged the company to rethink this model and find a way to deliver support and training remotely.

The company's initial live virtual training solution, featuring a video conferencing app, a switcher, and multiple cameras, provided limited presentation capabilities. Capturing multiple angles was essential for a clear presentation, but with this setup the presenter had to manually switch between cameras

during the conference call. The interactive aspect also added complexity to the timing and flow of the presentation. At the same time, significant audio issues made it difficult for trainees to hear and understand the information.

All of these factors added up to a challenging experience for the presenter. Additionally, this initial setup lacked the polished feel Envirosight wanted to associate with its brand.
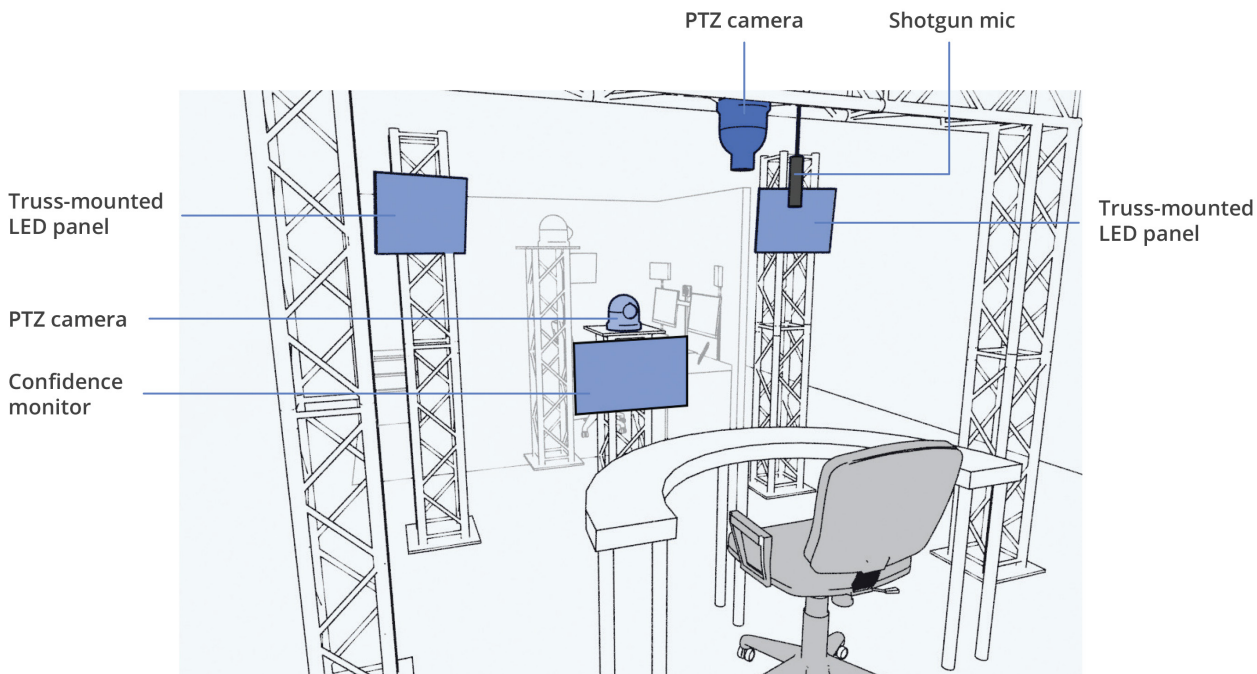
To resolve these challenges, Envirosight needed a streamlined and professional-quality production solution for virtual training. The solution had to feature multiple professional audio and video inputs and a simple, seamless way to switch between them.

The solution: An in-house video studio powered by Pearl-2

After evaluating various options, the team at Envirosight opted to build their in-house video production studio with Pearl-2 at the center. Pearl-2's intuitive user experience gave the team confidence that they could master the production side independently.

Envirosight set up a video production facility with three training zones. Each zone featured multiple professional cameras, a laptop, and a microphone source connected directly to a dedicated Pearl-2 for mixing and switching.

PTZ camera   Shotgun mic

Truss-mounted
LED panel

Truss-mounted
LED panel

PTZ camera

Confidence
monitor
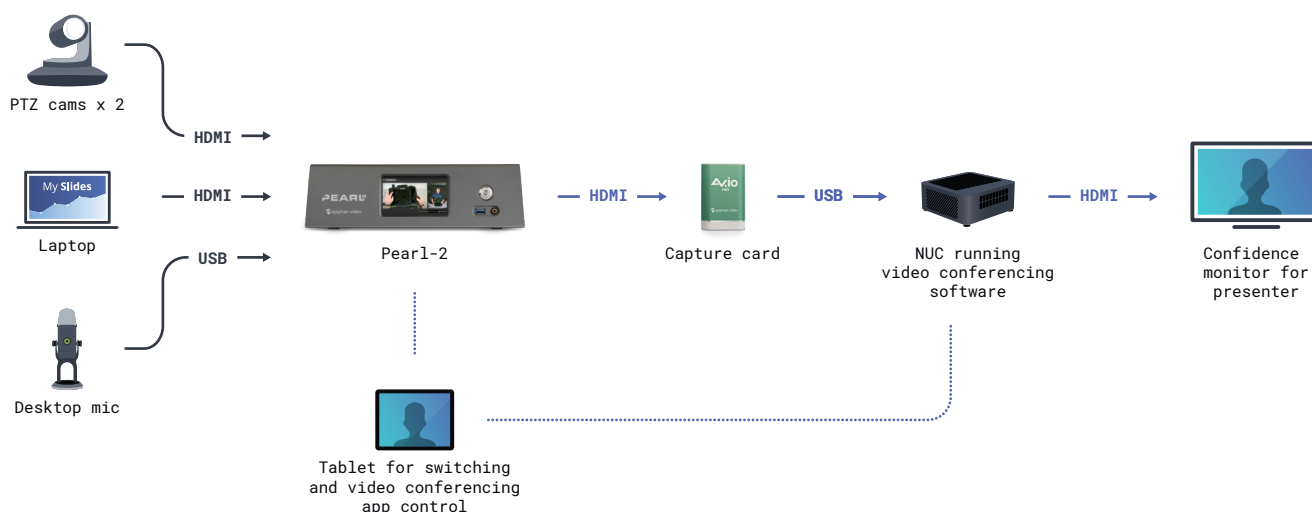
During live training, a team member acts as producer, switching between the various sources per the presenter's cues.

The mixed program goes to a host computer running video conferencing software via a capture card. The live attendees see a polished video production through the video conferencing app, all while still being able to interact with the presenter. Working together with the producer, the presenter can interact with the audience and answer questions in real time.

Pearl-2 simultaneously records the mixed program and all isolated camera angles (ISOs). The team at Envirosight takes advantage of the unit's flexibility to transfer files from the internal storage to a local storage for post-production and sharing.

"When we learned that we could record ISOs on Pearl, we felt like we'd hit the jackpot on content. Whether we use the footage or not, we have it, and we know that we can use it later to create fast plays or any other collateral we need. We hit record on all our ad hoc sessions, knowing that we can use this video material later on."

Jim Adams
Director of Product Management at Envirosight

The result: A remote video production powerhouse for live training

The new production studio, built around Pearl-2, was the powerful and intuitive solution Envirosight was looking for.

Streamlined video creation process

With Pearl-2, content creation for the Envirosight team is effortless. Production begins at the touch of a button as soon as the presenter walks in and starts the demo. During the session, easy switching between various views and layouts guarantees clear and professional content presentation. And Pearl-2 records every moment, making the content instantly available for post-production and sharing.

Massive financial and time savings

The Pearl-powered studio allowed Envirosight to continue engaging with customers without traveling long distances with heavy equipment. When it came to video production, Pearl-2's intuitive user interface made it easy to master the controls, allowing the team to run in-house productions instead of hiring outside specialists. Ultimately, Pearl-2 helped achieve broadcast-level quality without broadcast-level production costs.

Training scheduling flexibility

The always-on and ready-to-go Pearl-2 production studio means significant scheduling flexibility for Envirosight. The team can schedule as many online events as necessary and even organize ad hoc sessions – a far more efficient approach than planning and traveling to in-person events.

Broader customer reach

Remote training can attract a larger, more geographically diverse crowd than in-person training. Now Envirosight can engage with more customers simultaneously, without traveling a mile outside the office. After each live session, the recording becomes a branded digital asset ready for distribution.

Poised for on-premises production

The pandemic forced Envirosight to rethink how they approach product demos and training. Today, the team is fully adapted to the remote video training process. They plan to continue to take advantage of the benefits and savings the on-premises video studio and Pearl-2 made possible. "We want this to be the preferred way to do things," says Jim Adams.

"The footprint of the Pearl-2 is amazing for what it puts out. We've used every input on the Pearl-2, from lavalier and shotgun mics to PTZ and web cameras. Everything just works."

Jim Adams
Director of Product Management at Envirosight

About Envirosight

Envirosight provides advanced solutions for wastewater inspection, including mainline crawlers, survey cameras, and sewer inspection trucks. Since 2001, its equipment has been trusted as some of the most rugged and reliable in the field. The Envirosight team shares a commitment to essential infrastructure for healthier and safer communities, always holding themselves to a higher standard.

Best-in-class production solutions for your organization

Equip your business with reliable and versatile Epiphan hardware encoders for onboarding and training videos, company town hall meetings, virtual conferences, and other enterprise video applications. Learn more at **epiphan.com/solutions-for-corporate**.

Epiphan Pearl Nano™

Use as a powerful and reliable video distribution device, contribution encoder, or streamer and recorder add-on to a full production switcher.

4K

4096 × 2160 - 30 fps

Epiphan Pearl Mini™

Simplify your lecture capture or live event production. Record, stream, and switch multiple HD inputs simultaneously.

HD

1920 × 1200 - 60 fps

Epiphan Pearl-2™

Powerful, all-in-one live production system with 4K HDMI, 12G-SDI, NDI, and the capacity for six simultaneous 1080p channels.

4K

4096 × 2160 - 30 fps

Epiphan Pearl-2™ Rackmount

All the same features as Pearl-2 but designed for installation in a rack.

Epiphan AV.io 4K™

Capture 4K over HDMI in perfect fidelity or use hardware scaling to capture any resolution needed for your application.

4K

4096 × 2160 - 30 fps
1920 × 1080 - 60 fps

Epiphan AV.io HD™

The simplest way to capture HDMI, VGA, or DVI video sources at resolutions up to 1080p.

HD

1920 × 1080 - 60 fps

Epiphan AV.io SDI™

Works seamlessly with your SDI video sources, including SD-SDI, HD-SDI, and 3G-SDI.

HD

1920 × 1080 - 60 fps

Epiphan DVI2USB 3.0™

Get precision video capture control over color space, cropping, resolution, and scaling for any device with HDMI, DVI, or VGA output ports.

HD

1920 × 1200 - 60 fps

Epiphan SDI2USB 3.0™

Rugged and portable video grabber for AV professionals looking to capture 3G-SDI, HD-SDI, and SD-SDI signals.

HD

1920 × 1080 - 60 fps
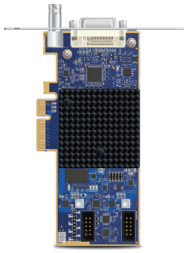
Epiphan DVI2PCIe Duo™

Internal PCIe capture card captures lossless video from dual-link and single-link DVI video sources, as well as VGA, HDMI, and SDI video sources with audio from SDI and HDMI sources.

HD

2560 × 1600 - 85 fps
2048 × 2048 - 85 fps
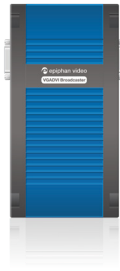
Epiphan VGADVI Broadcaster™

Capture, combine, and stream audio plus full HD and SD video. A quiet and portable video recorder for DVI, HDMI, VGA, DisplayPort, S-Video, and composite sources.
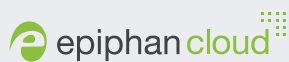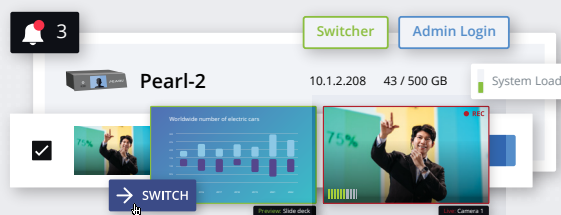
HD

1920 × 1200 - 30 fps

Epiphan LiveScrypt™

Real-time automatic transcription with built-in professional audio inputs, making it easier to achieve accurate AI-based transcription.

Live speech-to-text transcription

epiphan cloud

Remote production and more

Create broadcast-quality video wherever you are.

INSIDE EPIPHAN

Remote work, remote production, remote destinations

At heart, we're a team of inveterate travelers scattered across the globe. And although the pandemic put a damper on international travel, it didn't stop us from exploring our own "backyards."

Thus, we took off exploring the great outdoors of our home countries – places so remote that social distancing was a non-issue. We discovered hidden, breathtaking places we may not have visited otherwise. We wanted to share a few of those with you here.

Off the clock

Stéphane Charlebois

Logistics Specialist, Operations

When Stéphane isn't taking care of Epiphan's essential shipping, receiving, and other logistical needs, chances are you can find him by a lake – or on one, in winter – with a fishing rod in hand (probably an Abu Garcia).

"Being outdoors, the tranquility, the water, the sounds of nature, the rush when your line goes down, sharing stories with friends and families, trying out new lakes, traveling across Canada — there's a lot to love about fishing, which is why I try to make it out as often as I can."

Favorite hobby moment

On his October 2021 honeymoon in Comox (Vancouver Island), British Columbia, Stéphane made his biggest catch yet: a Chinook Salmon measuring 33 inches and weighing around 22 pounds!

LIVE @ epiphan

TWICE MONTHLY ON
THURSDAY
3PM ET

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Practical tips and expert advice for pro AV

epiphan.com/webinars