DELL Technologies

DELL TECHNOLOGIES LIVESTREAMING SOLUTIONS FOR EDUCATION

Engage remote and in-class learners with live, interactive instruction

Dell Technologies helps empower educators to transform how they teach and how students learn with next-generation livestreaming solutions for education.

This guide covers:

"Technology is the backbone of this new epoch of 'EdTech,' allowing teachers and students to connect via live streamed sessions, app-fueled experiences, and even virtual field trips."

—Stephanie Walden, Contributor, Dell Technologies Perspectives Blog

THE ROLE OF LIVESTREAMING IN EDUCATION

The hybrid approach to education: Obstacles and opportunities for improving student success

Many schools have migrated to a hybrid model of teaching and learning. To help students and educators adapt, there is a pressing need for technologies that provide seamless interactivity and collaboration between teachers, in-class students, and remote students. These technologies must also be flexible enough to enable schools to adapt to changing circumstances as schools transition between in-person to hybrid to remote.

It's not just about fulfilling an immediate need. There is a long-term need to prepare students to succeed in our fast-paced, connected digital world by equipping them with the skill sets required to interact virtually. With technologies like livestreaming, education is no longer confined to the four walls of the classroom. A distinct advantage of livestreaming is that it helps to remove geographic barriers to learning, empowering students to expand their reach by interacting not just with their remote and in-class peers and teachers but also with other students, mentors, and contacts from around the world.

The shift to livestreaming as a means to educate remote and hybrid students from K-12 to higher education is presenting unique challenges:

CHALLENGES FOR STUDENTS

- Engaging with their teacher or instructor during class time
- Staying engaged during asynchronous learning
- Developing a sense of school community and their place in it

CHALLENGES FOR TEACHERS

- Streaming while monitoring remote students
- Conveying course material in a dynamic way
- Managing technical issues during live instruction
- Providing a consistent experience by delivering audibly and visually rich content to all students regardless of their locations

CHALLENGES FOR IT

- Providing enough bandwidth to deliver reliable, consistent real-time streaming access
- Managing and maintaining security

With Dell Technologies, you can implement a livestreaming solution that addresses these challenges head on. Our approach includes working with key decision makers to develop a strategy that addresses both short- and long-term objectives so that the solution is scalable and is designed to last for years to come. Together, we determine the right mix of technology and training—selecting from a complete end-to-end portfolio of livestreaming solutions and services—ultimately resulting in a solution that empowers students and educators to get the most out of their livestreaming experiences.

Technology considerations

As with any major change to teaching and learning, simplicity is key. Aim for a flexible, agnostic livestreaming solution that can adapt to your existing classroom technology and your teachers' and students' needs and capacities, both now and in the next few years. There is no "one-size-fits-all" bundle, so be sure to gather input from your teaching community to help define your vision and needed functionalities, taking into consideration these six critical hardware and software requirements:

1 TEACHER AND STUDENT DEVICES

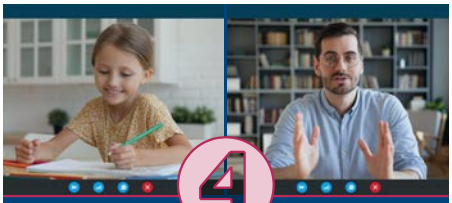
Consider the capabilities of the teachers' and students' built-in cameras, microphones, and speakers. Also assess the type of Internet/ Wi-Fi support for each group as well as teaching software, security, and videoconferencing software.

2 EXTERNAL CLASSROOM CAMERA

The camera should be HD quality or higher with the ability to capture a wide field of view so that teachers can move as needed. Many have built-in microphones and speakers for convenience and simplicity.

3 EXTERNAL TEACHER MICROPHONE AND SPEAKERS

Determine whether you want to limit classroom background noise or if you want to allow students in the classroom to speak to students at home. Speakers in the classroom allow students at home to discuss, chat, and easily share with students in the classroom.

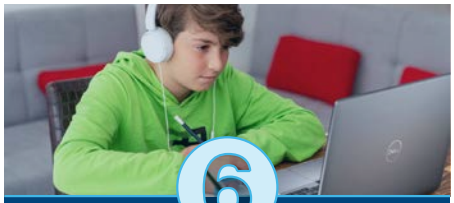


4 VIDEOCONFERENCING SOFTWARE

The teacher uses a camera and microphone in the classroom to livestream classroom activities to the remote students through a videoconferencing application. Identify which videoconferencing application is best. Some options include Microsoft Teams for Education, Google Meet, and Zoom.

5 SECURITY AND ACCESS

Understand the security features of each tool in place and ensure each student is granted appropriate access to the required tools. Be sure to consider the privacy needs of both in-person and remote learners, and have teachers and students adjust their respective camera positions accordingly.



6 BROADBAND CAPACITY

Access in the classroom and at home should be strong, especially in cases where advanced technologies are being used. Consider prioritizing network traffic on campus. Be aware of access capacity in the household. For instance, are remote students using hardwired connections or LTE? Reference **this guide** from the FCC.

FROM BASIC TO ADVANCED SETUP OPTIONS

Livestreaming configurations for the classroom

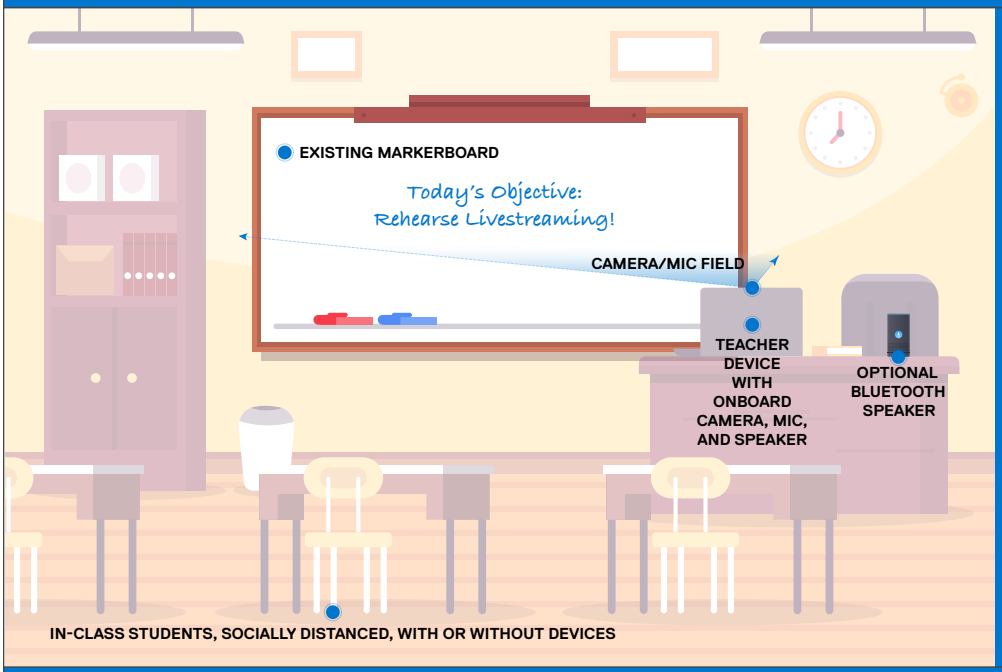
Although livestreaming configurations come in all shapes and sizes, here are just some of the more common configurations based upon the type of teaching/learning environment:

1. BASIC SETUP | IDEAL FOR INSTRUCTOR-LED SCENARIOS

In this scenario, the teacher or professor leverages a whiteboard, markerboard, or chalkboard in front of the camera and the remote and in-class students watch and follow along. The needed equipment includes:

- Teacher laptop with built-in camera, microphone, and speaker
- Virtual conferencing application (Zoom, Meet, Teams)
- Optional: Bluetooth speaker connected to the teacher's laptop

AN EXAMPLE OF A BASIC LIVESTREAMING SETUP



SOLUTIONS FOR A BASIC SETUP

For Teachers:

Dell Latitude 5000 Laptop

For Remote Students:

Dell Chromebook 3100 2-in-1

The basic option is best suited for schools with lean budgets needing a phased implementation approach.

BASIC SETUP

ADVANTAGES

- Simple, easy-to-learn setup
- Meets privacy parameters, as the teacher will be the only person on camera
- Controls are always in the teacher's hands

BASIC SETUP

DISADVANTAGES

- Difficult to see all the students on the laptop screen
- Difficult to screen share or whiteboard

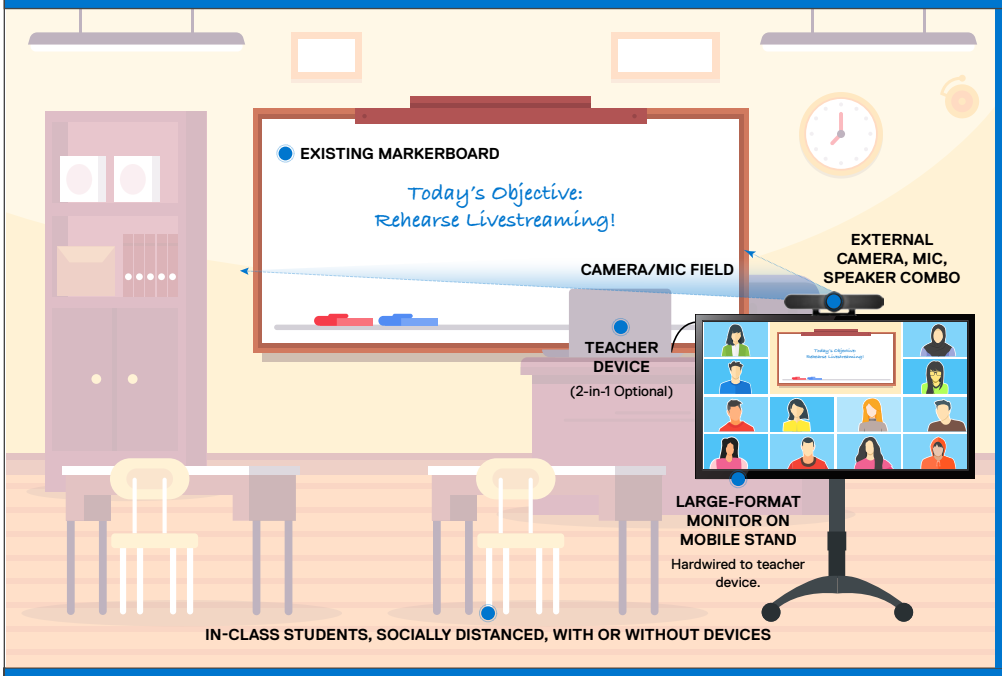
SETUP OPTIONS (CONTINUED)

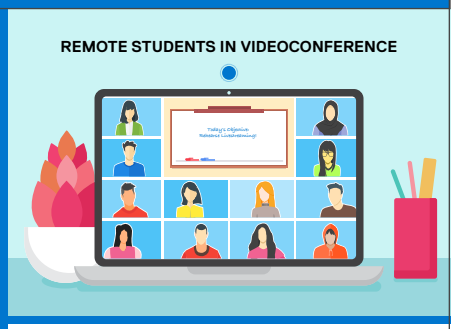
2. INTERMEDIATE SETUP | IDEAL FOR INSTRUCTOR-LED WITH A MODERATE DEGREE OF STUDENT INTERACTIVITY

Students screen share a presentation while the teacher and other students watch/interact. The teacher runs the virtual conferencing app from a computer that is hardwired into a large-format monitor. The needed equipment includes:

- Large-format monitor (LFM)
- Computer hardwired into the monitor, either teacher's laptop or dedicated PC (e.g., Dell OptiPlex Micro)
- If a dedicated PC, consider a wireless keyboard and mouse for mobility
- Camera/mic/speaker that can pick up the teacher anywhere in the room and transmit remote students' voices (e.g., Logitech MeetUp)
- Virtual conferencing application (e.g., Zoom, Meet, Teams)
- Optional: mobile stand for the LFM

AN EXAMPLE OF AN INTERMEDIATE LIVESTREAMING SETUP





SOLUTIONS FOR AN INTERMEDIATE SETUP
(in addition to Basic Setup solutions on Page 5)

Dell 75 4K Interactive Touch Monitor with Mobile Stand

Logitech MeetUp HD Video and Audio Conferencing System

The intermediate option is best for schools looking for a true videoconferencing solution without a significant investment.

INTERMEDIATE SETUP

ADVANTAGES

- Easier to view remote students
- LFM can be used for whiteboarding
- Ability to screen share

INTERMEDIATE SETUP

DISADVANTAGES

- Not mobile
- The computer is tethered to the monitor

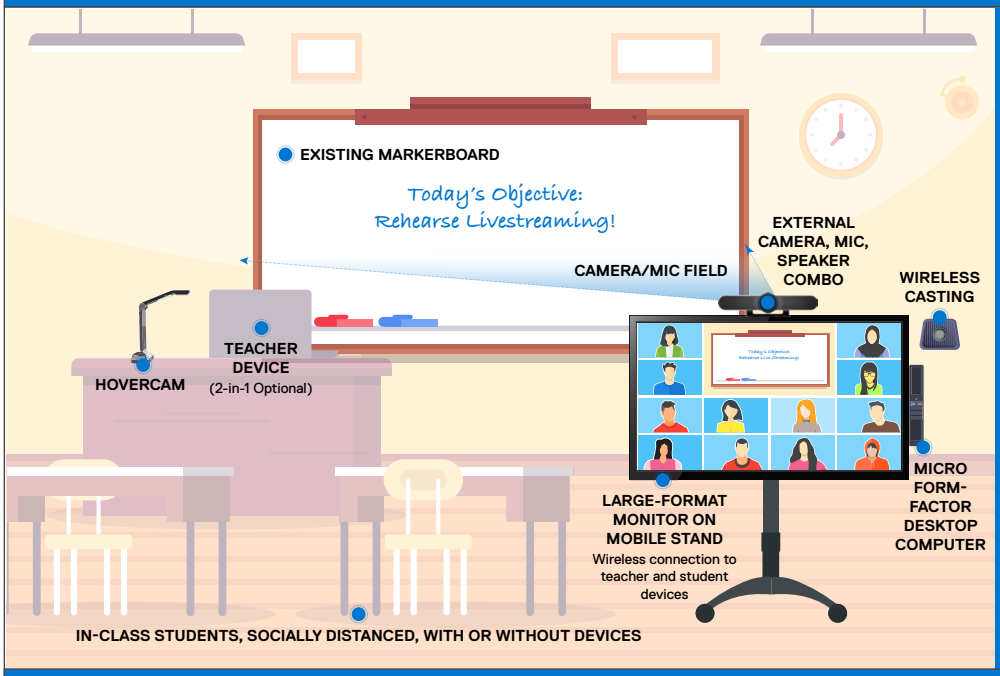
SETUP OPTIONS (CONTINUED)

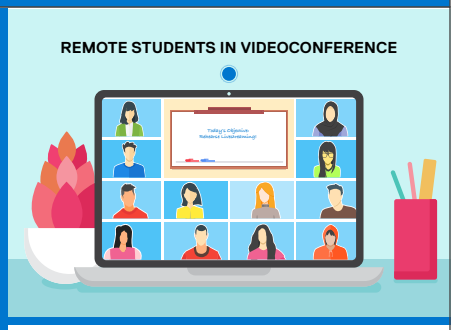
3. ADVANCED SETUP | IDEAL FOR A FULLY INTERACTIVE CLASSROOM

The teacher and students use a tool together (e.g. Padlet, Kahoot) while also livestreaming video and audio. The teacher moves around the room on camera. Both the teacher and in-class students can wirelessly cast to the LFM via an external casting device. The teacher runs the virtual conferencing app on a laptop or via a Dell OptiPlex Micro Form-Factor desktop. The needed equipment includes:

- Large-format monitor (LFM)
- Wireless casting device (e.g., the Screenbeam 1000 EDU allows for 4K app-free wireless screen sharing to the LFM from any device)
- Computer connected to the LFM through the wireless connection, either the teacher's laptop or a dedicated PC (e.g., Dell OptiPlex Micro)
- If a dedicated PC, consider a wireless keyboard and mouse for mobility
- Camera/mic/speaker that can pick up the teacher anywhere in the room and transmit remote students' voices (e.g., Logitech MeetUp)
- Virtual conferencing application (e.g., Zoom, Meet, Teams)
- Optional: Document camera (e.g., HoverCam Ultra 8), a mobile stand for the LFM, and a capture card to allow the wireless casting device to flow through the dedicated PC without changing the input

AN EXAMPLE OF AN ADVANCED LIVESTREAMING SETUP





SOLUTIONS FOR AN ADVANCED SETUP
(in addition to Intermediate Setup solutions on Page 6)


Dell OptiPlex Micro Form-Factor Desktop


Screenbeam 1000 EDU 4K Wireless Casting


HoverCam Ultra 8 Document Camera

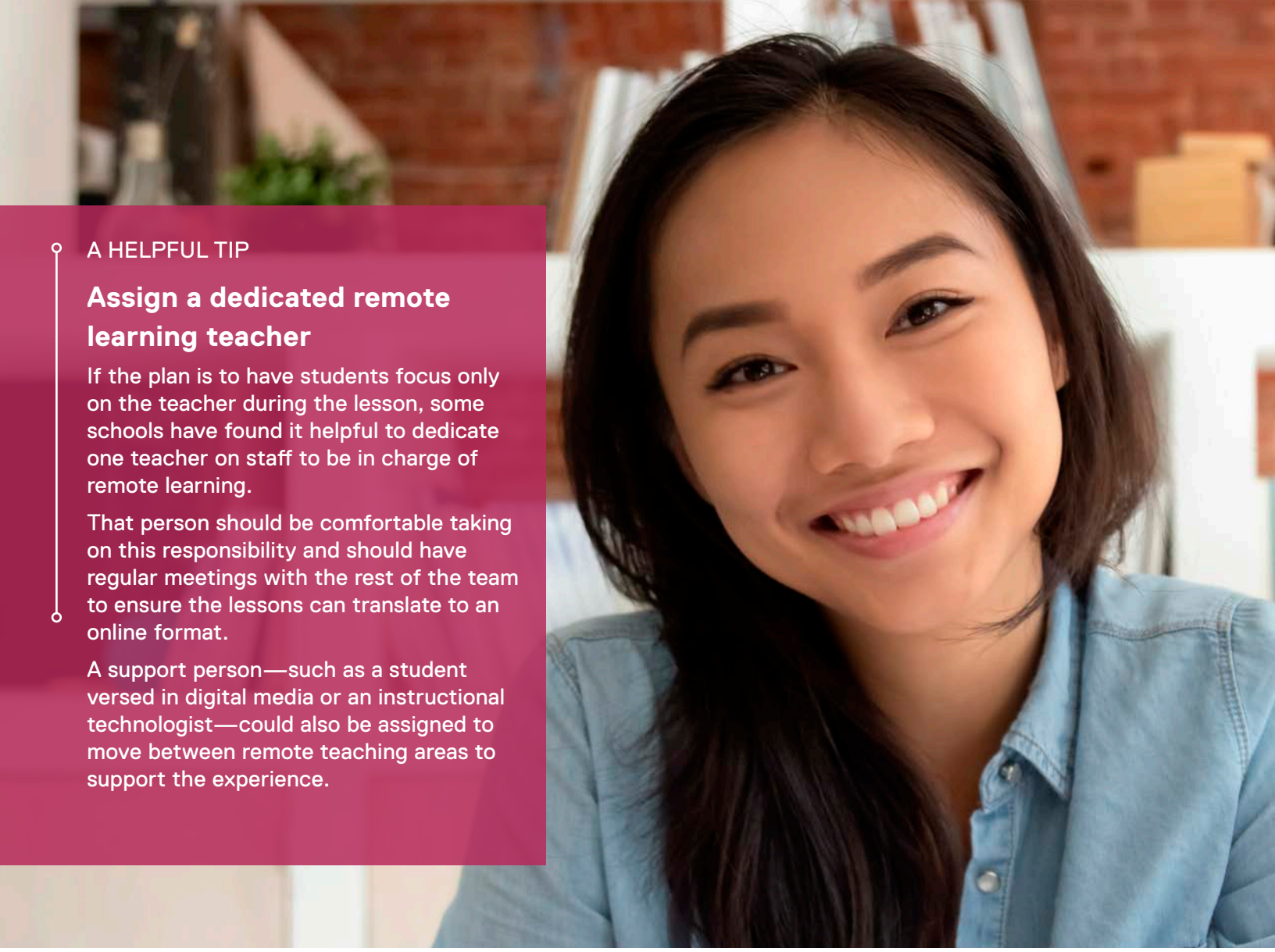
The advanced option is best for technologically confident educators and schools looking for the most flexible 21st-century solutions.

ADVANCED SETUP
ADVANTAGES

- Mobile teacher
- Easier to view remote students
- LFM can be used for whiteboarding
- Ability to screen share

ADVANCED SETUP
DISADVANTAGES

- Complexity
- Potential for incorrect use if proper training is not provided



A HELPFUL TIP

Assign a dedicated remote learning teacher

If the plan is to have students focus only on the teacher during the lesson, some schools have found it helpful to dedicate one teacher on staff to be in charge of remote learning.

That person should be comfortable taking on this responsibility and should have regular meetings with the rest of the team to ensure the lessons can translate to an online format.

A support person—such as a student versed in digital media or an instructional technologist—could also be assigned to move between remote teaching areas to support the experience.

FROM THE EDUCATOR'S PERSPECTIVE

Managing the livestreaming experience

Educators need to focus on delivering course materials and interacting with their students as they would in class, not troubleshooting hardware and software issues. These are just a few helpful tips that educators can take to help ensure a seamless livestreaming experience:

- Plan for rehearsal time to make sure teachers can fluently move between applications and hardware as they teach. Set aside time for dedicated rehearsal sessions so that teachers can implement new approaches throughout the school year. This can be done in small groups during planning sessions or in situations where other teachers and/or coaches can provide valuable feedback and support.
- Consider getting help from teacher assistants, co-teachers, instructional coaches, and occasionally, trusted students to help offload tasks during livestreaming. For example, a co-teacher could monitor the chat while the teacher is speaking.
- Ask students for feedback, especially your remote students to ensure that they are getting the most from the livestreaming experience.
- Spend time making sure teachers understand how to get the most out of the videoconferencing software, including the use of security features and breakout rooms.
- Many schools use applications such as GoGuardian to help teachers communicate directly with students and keep them focused on learning activities.

START SMALL AND GROW

Getting started

Although there is a tendency to buy into the latest technologies, it's recommended that you start small and grow. If the plan is to focus initially only on the teacher during the lesson or if you're concerned about working through the complexities or providing access, it might be helpful to test different livestreaming setups across individual classrooms until all involved are more comfortable with the process. Here are a few phased approaches to help ensure a successful livestreaming classroom experience:

- **Set up a remote learning studio**
  - As a low-budget option that allows you to test varying configuration options and develop the needed skills over time, consider setting up a remote learning studio in one classroom and rotating teachers in as needed.
  - Involving digital media students is a great way to offer instrumental hands-on experience to those students while providing educators with the needed technical support during live sessions.
  - Make it grade-level specific. For example, an elementary studio should mirror a typical K-5 classroom, integrating similar manipulatives and classroom scenery. Think of it as "The Set."
- **Prerecord lessons**
  - Prerecording takes the burden off of the instructor to multitask.
  - Some options for recording sessions include Screencastify, Captivate, etc.
- **Opt for a multipurpose, mobile setup that extends the utility of livestreaming beyond the classroom**
  - Beyond classroom use, the livestreaming solution could be used for streaming live events like graduation ceremonies, athletic events, school debates, or theater productions.
- **Implement innovative approaches over time to transform education**
  - Deliver virtual academies with blended learning experiences.
  - Optimize homebound instruction strategies.
  - Host STEM-industry virtual tours and meetings with experts.
  - Provide equitable access to all students with intra-district course delivery across campuses.
  - Offer dual-credit and credit-recovery courses.

WE'RE HERE TO HELP

Dell Technologies Education Strategists are available to talk through the possibilities and optimize your teacher and student experiences as they navigate this new territory. Our experienced team can be thought partners on topics such as:

- Integrating synchronous and asynchronous learning opportunities
- Managing recordings for ease of access and security
- Understanding equity and privacy concerns, including maintaining confidentiality and adhering to contractual and legal requirements
- Visualizing creative ways to implement livestreaming technology beyond your current needs

DELL Technologies

Education continuity with Dell Technologies livestreaming solutions

Find out more about how you can equip your teachers, faculty, and students to connect, collaborate, and interact seamlessly with Dell Technologies livestreaming solutions. Our Education Strategists are available to help you navigate and determine the right solution to fit your school's needs, from simple instructor-led environments to more complex, interactive classrooms. Our comprehensive portfolio of livestreaming solutions is designed to scale as you grow—ensuring the solution is capable of adapting to both short- and long-term changes in remote, hybrid, and in-class instruction. With Dell Technologies next-generation livestreaming solutions, you can empower educators to deliver a seamless experience to remote students while equipping our next generation with critical skill sets needed to thrive in our digital, connected world.

Learn more about our K-12 solutions

Explore our solutions for higher education.

Contact one of our education experts.

Connect with us.