CREATING A WINNING K-12 ESPORTS INFRASTRUCTURE

Spectrum
ENTERPRISE

Esports, or competitive video gaming, is exploding in popularity — and this phenomenon is reaching many K-12 schools. In fact, the number of schools taking part in the High School Esports League (HSEL) grew from around 200 in fall 2017[1] to more than 3,000 in January 2019 — a 1,400 percent increase.[2] As of January 2021, HSEL was up to 3,100 schools.[3]

There are compelling reasons for high schools and even middle schools to create an esports program. For instance, gaming is an important part of the culture of today's youth, and esports is a way to engage students who otherwise wouldn't participate in school activities. Esports also helps students learn valuable skills like leadership and teamwork, and it can prepare them for STEAM careers. Esports can even provide an avenue for students to earn college scholarships.[4]

A successful K-12 esports program relies on many components, such as a knowledgeable faculty adviser and support from school administration. A well-equipped esports infrastructure — including the space, furnishings, computers and connectivity that students will use to compete — is also essential.

This white paper examines the core components of an esports infrastructure that will position your program for success.

The importance of a well-equipped arena

While colleges and universities are investing thousands of dollars in building state-of-the-art esports facilities to recruit and retain students, in K-12 education, an esports "arena" can be as simple as a school computer lab. But regardless of how simple or complex your arena is, careful consideration should be paid to the space and how it's equipped.

Your arena is the place where your esports teams will gather to practice and compete in matches. Although you'll likely stream matches live online through a platform such as Twitch, you might want to have fans attend matches in person to cheer on your teams.

In addition, you might let students use your arena for recreational gaming when it's not being used by your esports teams. And, educators might use the space to teach courses on game design and other facets of the esports industry.

A well-equipped arena can help make your esports teams more competitive. It can support academic programs and deepen student engagement.

Three steps to success

Creating an effective esports arena is a total team effort that involves school leadership, the IT department, and other stakeholders working together. Here are three critical steps in the process.

Set a vision

As with any other initiative, success begins by articulating a vision for your esports program. You can't arrive at your destination without a clear understanding of where it is. Some questions to help guide you include:

> A well-equipped arena can help make your esports teams more competitive. It can support academic programs and deepen student engagement.

Spectrum▸
ENTERPRISE

- What are your goals for an esports program?
- How many gaming titles and tournaments do you hope to compete in?
- How will you recruit and develop team members? How will you build and sustain interest in the program?
- How will students use your esports arena? Will it be used for academic instruction as well as competition?

Plan for your needs

Once you understand the goals for your esports program, you can plan your infrastructure needs. Here are some key factors to consider.

Space: Where will your arena be located? This decision will be dictated in part by your budget and the spaces you have available. Think about how many team members you expect to have, and whether you want to host live spectators during matches — making sure the space you choose can accommodate seating for everyone.

When determining the size of your esports teams, you should know that each game has a different team size requirement. For instance, League of Legends® and SMITE® require five starting players, while Rocket League® requires three. Students who aren't competing in matches can assume other roles, such as "shoutcasting" (or calling the action) during live matches or running the team's social media accounts.

Survey students and/or hold a meeting after school to gauge interest and determine how many teams you'll be able to form — and for which games. Use this information to help plan your esports arena.

Equipment: Each player should have a competition station that includes a gaming computer; a large-screen monitor at least 24 inches in diameter, with a minimum refresh rate of 144Hz (144 times per second); a keyboard; adjustable gaming mouse; headset with a microphone; and a gaming chair. You'll also want to equip your esports facility with a large interactive screen for coaching and teaching purposes, as well as the tools needed to shoutcast live matches.

Spectrum ►
ENTERPRISE
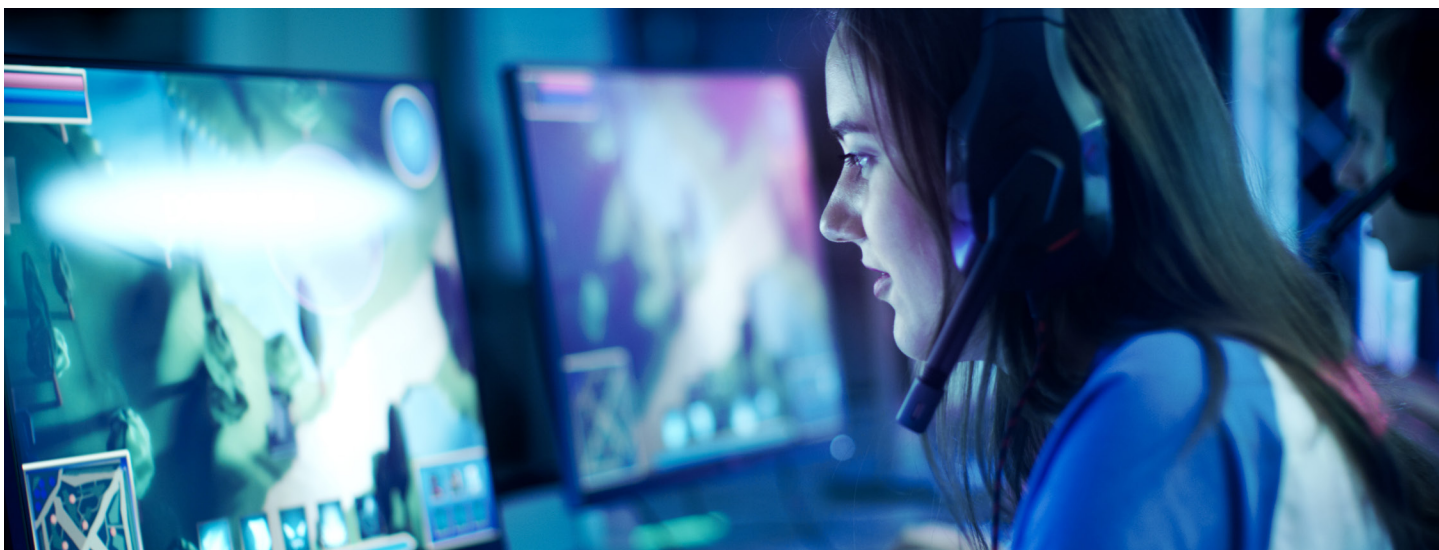
While the hardware requirements may vary from game to game, the High School Esports League recommends the following specifications for gaming computers:[5]

Feature	Minimum spec	Recommended spec
Operating system	Windows 7 64-Bit (SP1) or Windows 10 64-Bit	Windows 10 64 Bit (latest Service Pack)
Central processing unit	Intel Core i3-4340 or AMD FX-6300	Intel Core i5-2500K or AMD Ryzen R5 1600X
Memory	8GB RAM	12GB RAM
Hard drive	175GB HD space	175GB HD space
Video	NVIDIA GeForce GTX 670 / GeForce GTX 1650 or Radeon HD 7950	NVIDIA GeForce GTX 970 / GTX 1660 or Radeon R9 390 / AMD RX 580
Sound card	DirectX compatible	DirectX compatible

Connectivity: Reliable, high-speed connectivity is essential for competing in esports tournaments. Latency or lag time in a school's internet connection can interfere with the success of a gaming match.

Your gaming computers should have a wired connection to the internet for optimum reliability. Ideally, this connection should occur via a dedicated circuit that is only used for gaming, so there are no bottlenecks or delays caused by other traffic on your network. You should also have an emergency backup plan, such as a failover circuit that you can use if your main connection fails.

Your arena's internet connection should have at least 1 Gbps of bandwidth, with a ping rate of 20 milliseconds or less. If your connectivity solution can scale easily, then you can add more bandwidth if you find that you need additional capacity.

Choose a partner
Given the importance of reliable connectivity to the success of an esports initiative, the right network service provider can make or break your program.

In choosing a connectivity solution for your esports arena, look for a knowledgeable and experienced company that is not just a vendor but a true partner in your initiative. Here are some questions to guide you:

• Does your network service provider have broad experience in designing connectivity solutions for K-12 clients, and for esports programs in particular?

• Do your provider's solutions come with a guaranteed service level agreement (SLA) to ensure speed and reliability?

• Do your provider's solutions easily scale to accommodate changing needs?

The right network service provider can make or break your esports program.

Spectrum
ENTERPRISE

Spectrum Enterprise: The esports partner you're looking for

With a private fiber network backed by strong security and an exceptional service level agreement (SLA), Spectrum Enterprise can equip your esports arena with the reliable, high-speed connectivity you need. And with Spectrum Enterprise, you don't just get a technology vendor, you get a proven industry partner who's committed to the success of your esports program.

Fiber Internet Access: Get dedicated connectivity up to 100 Gbps backed by network redundancy, an industry-leading SLA and proactive, 24/7/365 monitoring to ensure uptime and gaming performance.

Managed Security Service: Protect your gaming connection with a fully managed solution that includes a firewall and unified threat management (UTM), intrusion detection and prevention, anti-malware, anti-virus, event log management and more.

DDoS Protection: Guard against malicious volumetric attacks designed to overload your gaming connection with world-class DDoS threat identification and mitigation.

Ensuring success

Your esports program can help to more fully engage students in their education, while teaching them valuable life and workforce skills.

To be effective, however, your program needs the right infrastructure — including a well-designed space to compete, equipped with modern gaming technology and reliable, high-speed connectivity. Partnering with an experienced and dedicated service provider like Spectrum Enterprise can help ensure the success of your esports initiative.

Learn more about how Spectrum Enterprise can help you create a winning esports infrastructure.

Learn more

1. Calvin Hennick, "Esports Programs Start to Pop Up in K-12 Schools," EdTech Magazine, Jan. 11, 2019.
2. Chris Burt, "Generation Esports: Serving high schools, middle schools and more," District Administration, August 6, 2020.
3. Highschoolesportsleague.com, accessed Jan. 8, 2021.
4. Rebecca Heilweil, "College Esports Players Are Cashing in Big," Wired, Jan. 21, 2019.
5. "Minimum system requirements," High School Esports League, 2019.

About Spectrum Enterprise
Spectrum Enterprise, a part of Charter Communications, Inc., is a national provider of scalable, fiber technology solutions serving America's largest businesses and communications service providers. The broad Spectrum Enterprise portfolio includes networking and managed services solutions: Internet access, Ethernet access and networks, Voice and TV solutions. Spectrum Enterprise's industry-leading team of experts works closely with clients to achieve greater business success by providing solutions designed to meet their evolving needs. More information about Spectrum Enterprise can be found at enterprise.spectrum.com.

Spectrum▶
ENTERPRISE