Considering Esports?

Best Practice Guide

Contents

BRITISH ESPORTS

ESPORTS UK:

Partnership with British Esports as their Preferred Networking Provider.

What is esports?

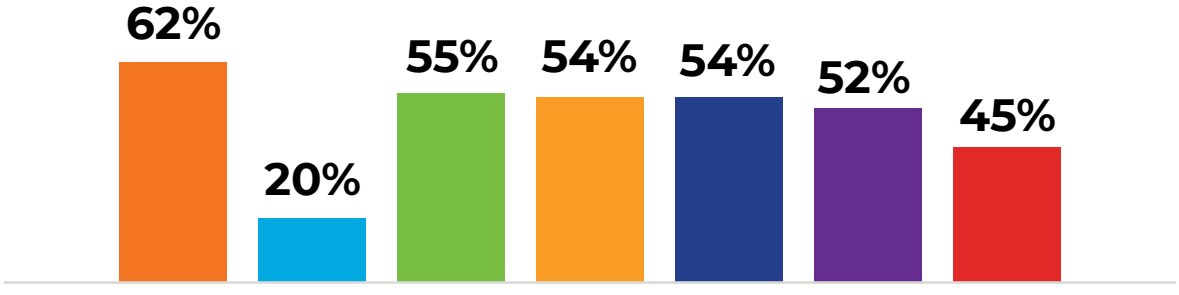
These are multiplayer video games played competitively for spectators.

Esports can help schools engage students and drive better outcomes:

- Players must agree to attend school to participate.
- Players must keep their GPA above minimum to participate.
- STEM curriculum includes esports to make the curriculum more engaging.
- Scholarships and financial benefits are available for students and schools.

From the 2022 report from FE News, a study conducted by Dell Technologies and Intel in the UK reveals that 69% of surveyed parents in the country think that children engaging in esports can acquire skills not typically obtained through traditional education methods. Among these parents believe that esports contributes to enhanced confidence, while the top skills they associate with esports participation include teamwork (62%), problem-solving (57%), and technological skills (55%). Additionally, FE News highlights the key skills UK parents believe children can develop through esports ranking them as follows[1]:

1. "Teamwork (62%)
2. Problem-solving (20%)
3. Technological skills (55%)
4. Confidence (54%)
5. Communication (54%)
6. Creativity (52%)
7. Leadership (45%)"[4]



[1] https://www.fenews.co.uk/education/new-data-reveals-parents-and-teachers-want-esports-in-schools/

Why esports is important in education

Esports is a rapidly expanding market, with additional opportunities to engage with Education customers.

- IT professionals should anticipate questions from students and teachers about the network's ability to support esports.
- Numerous sponsor and scholarship opportunities are available for those interested.
- Esports is a golden opportunity to re-energise students in the post-Covid era and after the shutdown.
- The RUCKUS platform provides alternative ways for students to interact in a more social setting, fostering a sense of community.
- We strongly believe in promoting collaboration and social involvement among students, enhancing their learning experience.
- The growth of the RUCKUS platform tracks the increasing interest and activity in gaming, reflecting the dynamic nature of this industry.

For students, esports offers a unique chance to hone high-level skills, while getting a sense of school pride and community. It is an innovative educational instrument, championing diversity and inclusivity. Moreover, it equips students with the necessary preparation for potential careers in the ever-evolving gaming industry.

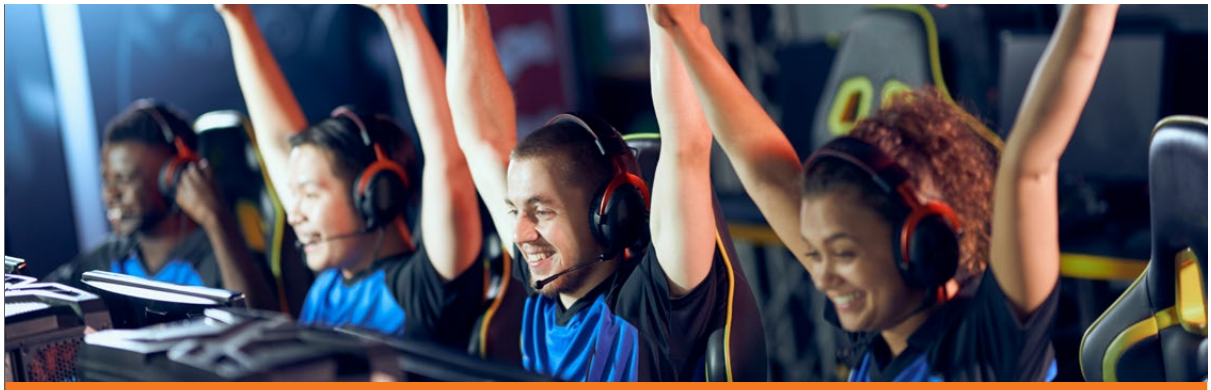
According to a 2023 article written by Adam McGowan, the advantages of esports go beyond just the game:

- "Enhanced career opportunities
- Boosted brainpower
- Teamwork and communication
- Entrepreneurial opportunities
- Education and scholarships
- Mental wellbeing
- Financial rewards"[5]

[4] https://www.linkedin.com/pulse/awesome-benefits-esports-its-more-than-just-fun-games-adam-mcgowan

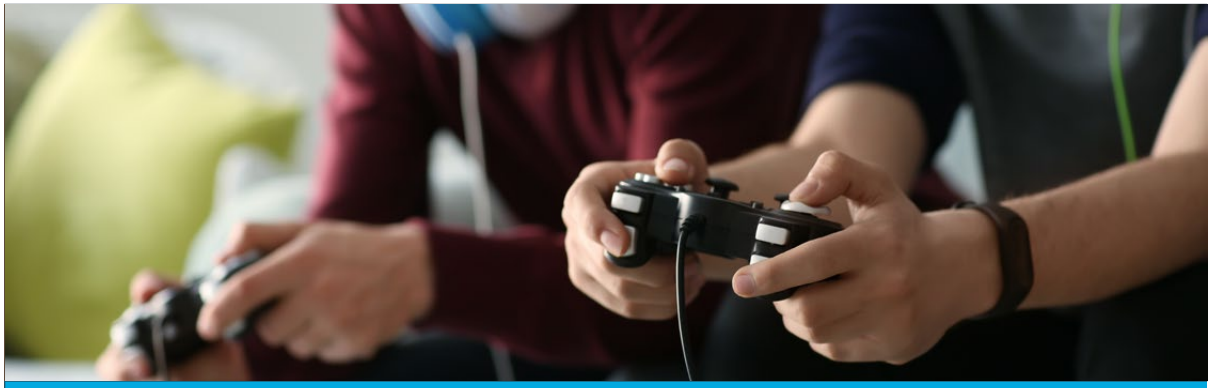
Considering options for an esports programme

Esports can be played in a variety of settings and styles, by different types of players. Most of the participants are individual, at-home users, but this presentation does not address them since those typically are retail customers. CommScope RUCKUS Networks serves two key types of players:



Esports teams

- Amateur and professional players
- Dedicated spaces, events, and hardware
- Practices and hosted competitions
- Less inclusive, specialised skills
- Hardware and network intensive



Club-based

- Casual gamers
- More inclusive for players
- Impromptu games and players
- Generally, not as performance intensive
- More players, fewer spectators
- Traditional esports demand wired connections, but this is changing with newer Wi-Fi® technologies
- Spectators currently over Wi-Fi
- Casual gaming (club) over tablets and more general PC's
- Individuals participate at home

Wiring model options

Esports can be delivered through a variety of wiring models. It can be provided via a traditional cable system, or through fibre to the classroom, featuring:

- A small compact switch in the classroom
- In-room distribution
- Dedicated ports

[5] https://www.linkedin.com/pulse/awesome-benefits-esports-its-more-than-just-fun-games-adam-mcgowan/

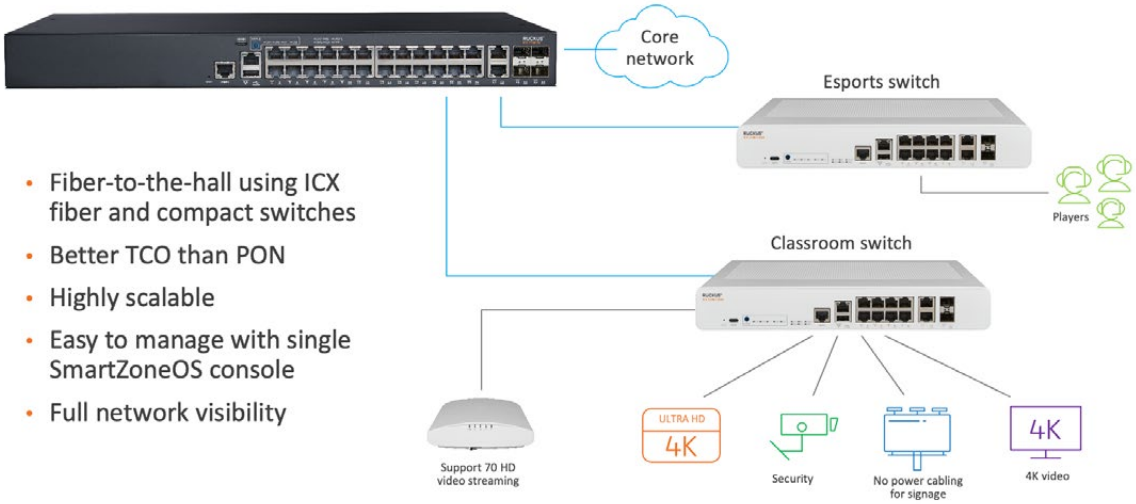
Utilising a fibre-to-the-classroom model for a separate gaming network offers numerous advantages. It provides a flexible design that can be tailored to specific needs and allows for physical separation of the networks, ensuring optimal performance and security. This approach maintains the integrity of the educational network while accommodating the unique requirements of gaming networks.

Having the access switch in the classroom allows customers to reroute/rerun patch cords to reconfigure the network dynamically without the need for an electrician/facilities.

Why schools choose RUCKUS for esports:

- Easy to set up a dedicated network.
- Future proofed
- Easy to make changes; no need for new wire pull.
- Add/remove player spaces, moving seats around in the classroom

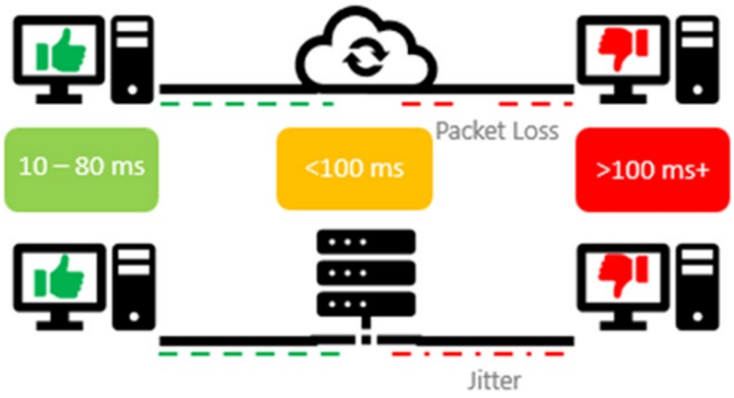
Network layout examples

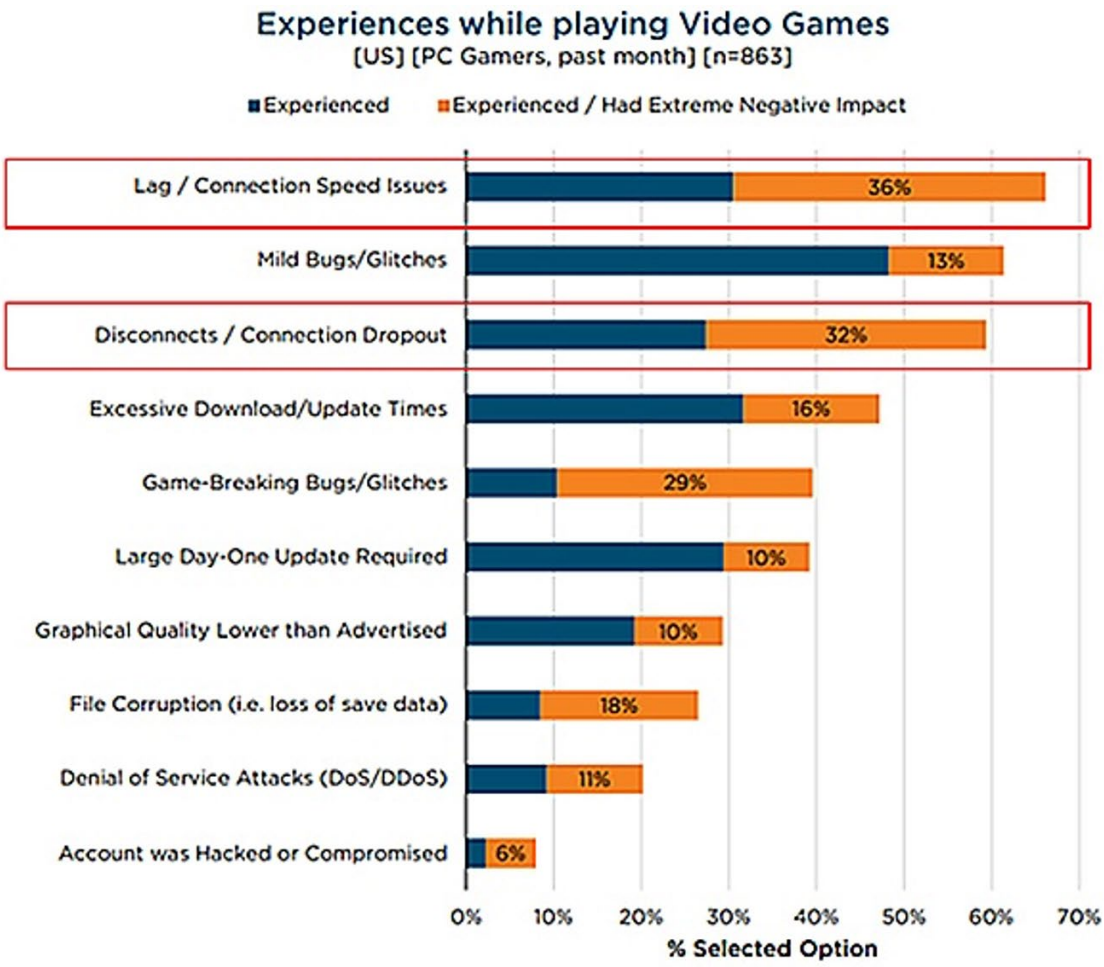


- Fiber-to-the-hall using ICX fiber and compact switches
- Better TCO than PON
- Highly scalable
- Easy to manage with single SmartZoneOS console
- Full network visibility

Things to consider for a winning esports network

Lag and disconnects are among the most common experiences for PC gamers, with two-thirds of gamers having experienced them. Over half of those who experience these issues indicate these were extremely detrimental to their gaming experience, or even caused them to stop playing.





Performance considerations

Consider these criteria when architecting an esports network. It should deliver:

- Adequate bandwidth and uplinks (multigigabit switching)
- Primary considerations are latency and jitter.
- Separate VLANS and SSID dedicated to esports.
- Gamers vs. spectators
  - Participants typically wired
  - QOS, for wired and wireless
  - Planning for a dense wireless environment

Network performance has an actual, measurable impact on the game. As network performance decreases, the chances of winning a match against an equivalently talented player drop. This was measured and verified by our own sponsored esports team, Philly Fusion.

Latency and jitter are everything and will affect wins and losses.

- Latency is the time (typically milliseconds in WAN) it takes for a packet to travel from sender to the receiver. High latency will cause delayed response, or delayed graphics.
- Jitter is time variation in network traffic. Consistency is crucial in gaming, video, and voice.
- Variations in time cause “sling-shotting” (Where gamers will see avatars standing still, then rushing forward to new position).

Security considerations

Like any network use case, esports must protect its users against cyberthreats. Security considerations vary for both the internal and gaming network.

Internal network

- Protect student and staff data
- Reduce likelihood of malware being propagated
- Ideally physically isolated
- If not, separate VLANs
- Separate firewall connections

Gaming network

- Protect the integrity of the game
- Hacks, cheats, and exploits
- DOS attack protection
- Maximize performance on the network
- Isolated, independent SSID

Security discussions should focus on two priorities; protecting the learning network, and protecting the integrity of the game.

The first decision is to use either the existing internal network or a dedicated gaming network, physically separate from the main network.

- Is your current network capable of supporting it?
- Are you comfortable with the security?

Validation and analytics - providing visibility into the network

Visibility into the network is essential for:

- Service assurance
- Service validation and verification

This is particularly important in larger environments.

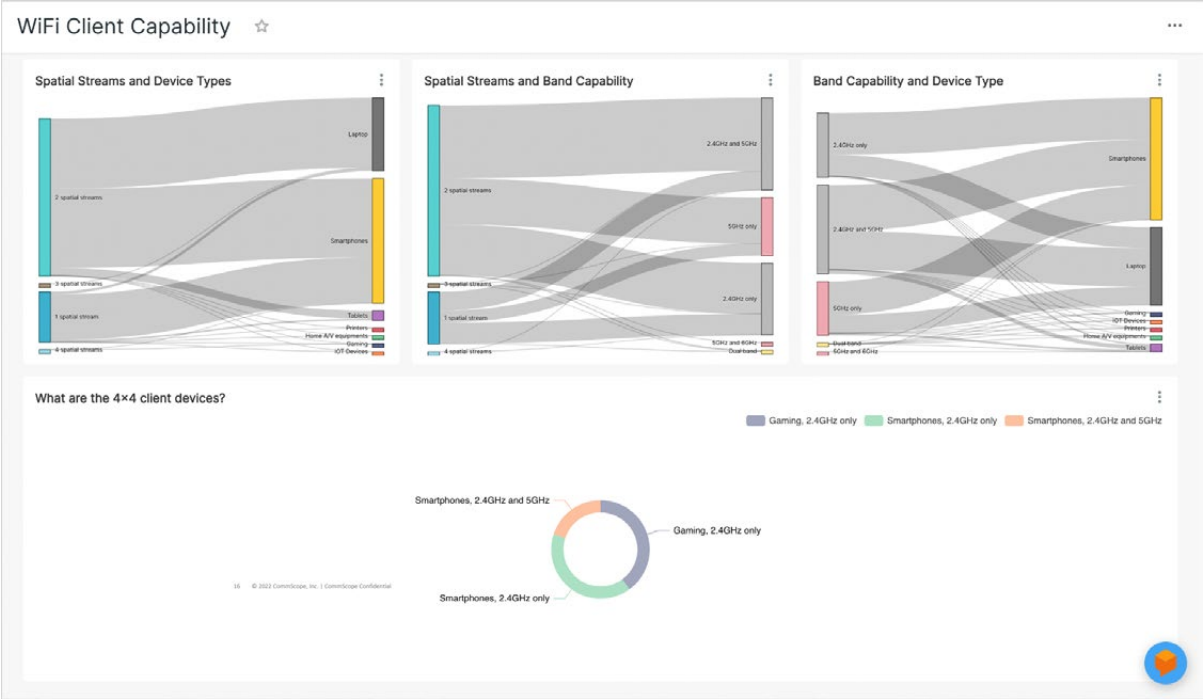
- Need to see who is using the network, and how
- Service Assurance ensure esports is not impacting learning.

Session Data by Device Type ☆

628 rows | 00:00:01.75 | JSON | CSV

OS Type	Device Type	Unique Client MAC Count	User Traffic (Total)	Avg RSS	Avg SNR	Session Count
iOS Phone	Smartphones	2.92k	505.74 GB	-61 dBm	33 dB	37.8k
Android	Smartphones	2.38k	187.37 GB	-59 dBm	32 dB	26.7k
Android 11	Smartphones	461	53.78 GB	-42 dBm	45 dB	17k
Windows (Mobile) 8/8.1/10	Laptop	303	140.29 GB	-56 dBm	38 dB	1.48k
Microsoft Windows/Windows 10.0.0	Laptop	138	98.99 GB	-49 dBm	48 dB	572
Apple iPhone/iOS 15.5.0	Smartphones	124	22.8 GB	-51 dBm	38 dB	1.31k
Chrome OS	Laptop	107	6.01 GB	-51 dBm	44 dB	159
Apple iPhone/iOS 15.6.0	Smartphones	93	58.22 GB	-54 dBm	36 dB	1.24k
Microsoft Windows/Windows XP.0.0	Laptop	69	4.74 GB	-50 dBm	38 dB	212
Google Chrome OS/Chrome OS 14695.107.0	Laptop	60	5.33 GB	-39 dBm	29 dB	143
Mac OS X	Laptop	58	37.65 GB	-54 dBm	40 dB	314
Generic Smartphone/Android 12.0.0	Smartphones	53	19.19 GB	-49 dBm	41 dB	516
Generic Smartphone/Android 11.0.0	Smartphones	51	8.55 GB	-54 dBm	40 dB	216
Google Chrome OS/Chrome OS 14695.85.0	Laptop	50	3.76 GB	-46 dBm	34 dB	89
Google Chrome OS/Chrome OS 14816.131.0	Laptop	41	8.76 GB	-58 dBm	29 dB	113
Generic Smartphone/Android 10.0.0	Smartphones	38	21.76 GB	-50 dBm	41 dB	169
Amazon Kindle	Tablets	34	5.45 GB	-51 dBm	44 dB	70
Xbox 360	Gaming	29	917.27 MB	-47 dBm	42 dB	212
Apple iPhone/iOS 15.4.1	Smartphones	28	2.62 GB	-45 dBm	41 dB	127
Microsoft Windows/Windows 10.0.0	Tablets	26	12.79 GB	-49 dBm	37 dB	81
Roku Streaming Stick	Home A/V equipments	26	125.21 GB	-54 dBm	37 dB	183

How is the wireless network being utilised?



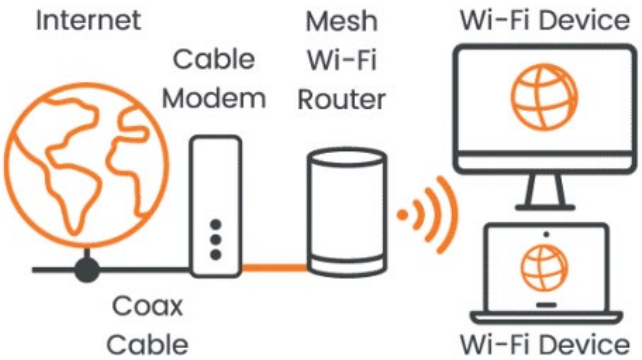
RUCKUS AI™ can also deliver value in other areas. It can help organisations understand how Wi-Fi is being used:

- Know which clients are performing best and what they can do with clients that are not optimised.
- Look at the network before and after changes, to make sure their changes did not have an adverse effect
- Know who is connecting and whether they are getting the best Wi-Fi experience possible
- Establish SLAs to guarantee performance
- Support change management
- Ensure esports is not impacting learning or teaching.

Best practice designs for an esports network

Club network

There are multiple options for deployment. This first is the simplest environment: a club space. This could be a classroom, utility room, or multipurpose room. This deployment offers limited player space but likely is more inclusive - supporting drop-in players for social and casual gaming rather than competition.



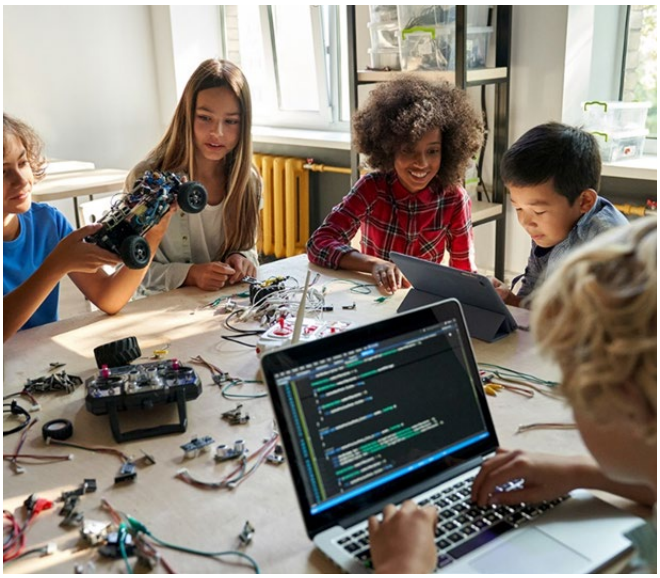
- Small permanent club space
- Utility or multipurpose room
- Support up to 20 players and up to 30 spectators.
- Likely more casual games and gamers
- Mix of tablets and laptops
- More wireless than wired
- Lower performance, less dense

Compact switch

- Fanless, 8-10 ports
- 1/10G fibre uplink
- Low PoE budget
- 1-2 Wi-Fi-6 access points (AP's), depending on size/shape of room
- 10 Ethernet cables
- Fibre and SFP for uplink
- Software/console to manage/configure network for esports requirements.
- Software/console to monitor quality and health of the network for esports endpoints
- Leverages fibre to the classroom.

STEM classroom network

The STEM classroom could be an ideal location to create a gaming space. It supports more regular use, events, and practices, but also practical usage for learning.



- Permanent, medium-sized venue
- Mixed use

STEM classroom

Amateur gamer team/club

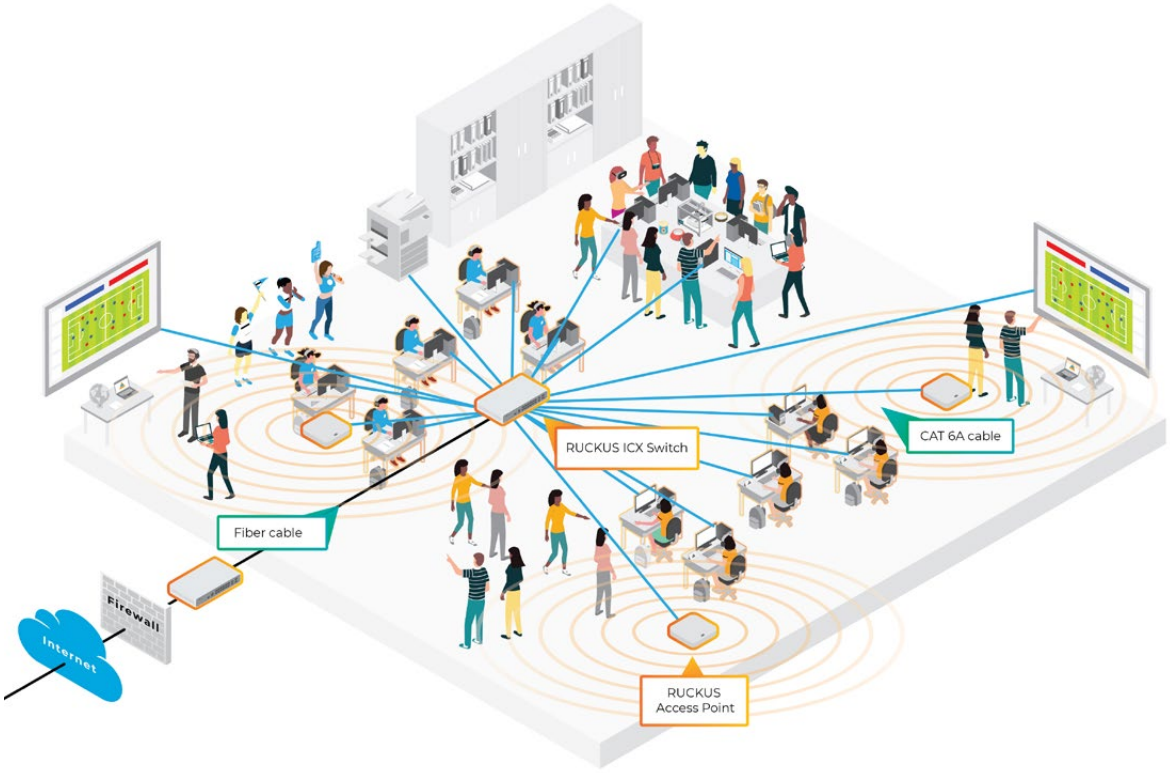
10 layers, 50 spectators

- More competitive environment
- Some tablets

- Higher performance PCs/laptops, possibly even consoles.

Specialised higher performance computers.

- Other uses, VR, visualisation, coding
- 48-port multigigabit switch
- 1/2.5/5 Gbit ports
- Higher PoE budget
- 10G uplink
- 2-3 Wi-Fi 6/6E access APs
- 24 equal length Ethernet cables
- Fibre and SFP+ for uplink
- Software/console to manage/configure network for esports requirements
- Software/console to monitor quality and health of the network for esports end points
- Fan noise consideration - enclosure needed since the switch port count will be larger, resulting in the need for a larger switch.



Quick pop-up

The pop-up is designed to be portable and easy to set up, with everything labelled and colour coded. It's built to support temporary (potentially remote) events, and it contains everything required.

Temporary ad hoc venue

Competitive weekend tournaments

Amateur events

Pro and semi-pro hosted events of 20 players, 100 spectators

- Easy to setup and teardown

- Portable, preconfigured
- Travelling case

One 24-port multi-gig switch

1/2.5/5 Gbit ports

- Higher PoE budget
- 24x 10-20M equal length Ethernet cables

2-3 APs

Potentially on stands

Options for uplink (internet access)

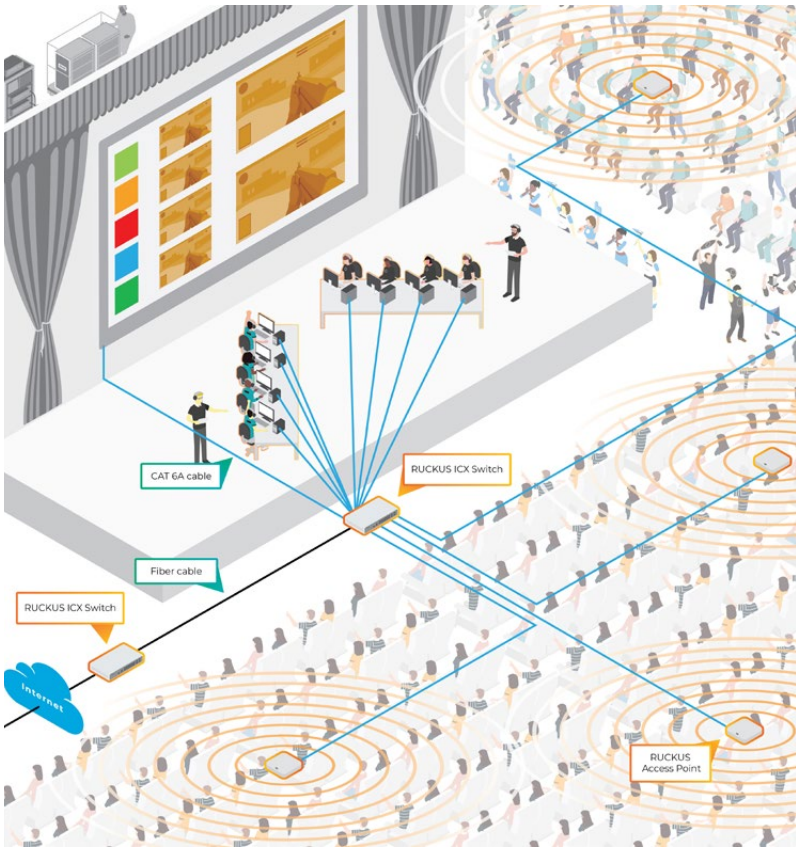
SFP/SFP+

Ethernet cable

Software/console to manage/configure network for esports requirements.

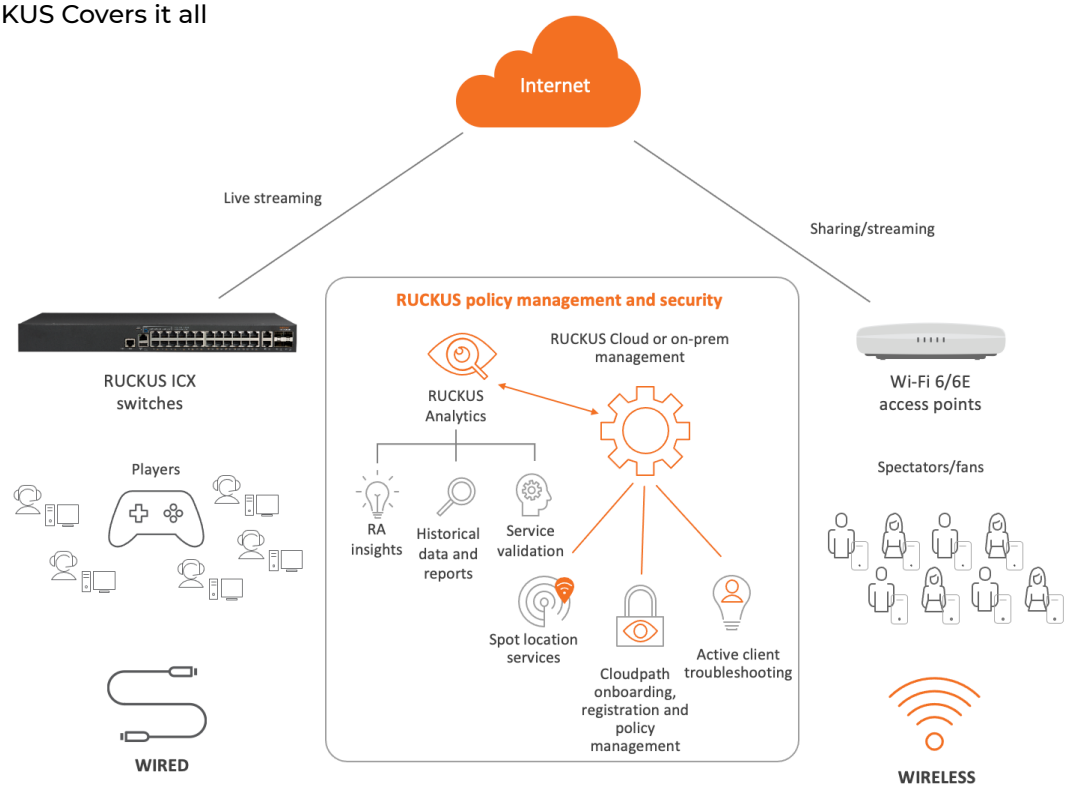
Large esports hosted events space.

- 2x 48-port multigigabit switches, stacked.
- Redundancy and density
- Higher PoE budget
- 4-5 Wi-Fi 6/6E/7 APs
- More wireless density
- 1/2.5/5 Gbit ports
- Up to 96x equal length Ethernet cables
- SFP+ uplink and stacking cables.
- UPS (optional)
- Software/console to manage/ configure network for esports requirements
- Software/console to monitor quality and health of the network for esports end points
- Software to capture and trend network traffic, other key statistics
- UPS useful if gamers using laptops, either wired or wirelessly



Powering the future of esports – how we do it

RUCKUS Covers it all



- RUCKUS has end-to-end high-performance solutions and can address all the requirements of an advanced gaming network, including:
- Multigigabit switching
- Analytics and service validation with RUCKUS AI
- Security profiles and easy onboarding with Cloudpath™ enrollment system
- Active, dynamic troubleshooting

RUCKUS' Wi-Fi 7 brings a new level of competitive edge to the esports arena

Here's how:

1. Unprecedented speed: With peak rates exceeding 40 Gbps, RUCKUS' Wi-Fi 7 offers four times the throughput of Wi-Fi 6. This means faster game downloads, smoother gameplay, and no frustrating lags or delays.
2. Multi-link operation: RUCKUS' Wi-Fi 7 uses multiple bands to simultaneously connect the AP and user device, significantly increasing throughput and improving connection reliability. This ensures that gamers can stay in the game, even during high-traffic periods.
3. Time-sensitive networking: RUCKUS' Wi-Fi 7 supports deterministic latency, ensuring that every move a gamer makes is executed in real time. This is crucial in competitive gaming where every millisecond counts.
4. Increased capacity: RUCKUS' Wi-Fi 7 can handle more devices at once, making it perfect for esports tournaments where multiple devices need to be connected simultaneously.
5. Future-proof: With RUCKUS' Wi-Fi 7, gamers can rest assured that their network is ready for the future of gaming. As games become more demanding, RUCKUS' Wi-Fi 7 will be able to handle it.

In essence, RUCKUS Wi-Fi 7 provides the speed, reliability, and capacity that esports enthusiasts need to stay competitive. It's not just about playing the game, it's about winning and, with RUCKUS Wi-Fi 7, gamers have the best tools to do just that.

Case Study

Compton Unified School District wins big in digital equity, inclusivity, and STEM career paths. USA

eBook-Higher-Education-EB-116634-EN.pdf

Collegiate esports

- Building an esports program doesn't require years of facilities planning and bottomless budgets. Or acres of valuable campus real estate. It can be set up quickly due to the flexibility which can be used virtually anywhere.

The three Rs

- Recruitment: Attract and retain students by showcasing a state-of-the-art digital campus.
- Reputation: Few programs in higher education appeal to such a wide audience and this can contribute to schools' reputation, especially if an early entrant.
- Revenue: Can help students through scholarships and tournament prizes.

Questions on esports

1. Are you just beginning your esports journey or are you ready to level up?

Test the waters. Starting small and including your students on the journey is a great way to facilitate learning and allow students to share their gaming expertise. Summer camps, afterschool events, and even home activities around scholastic esports are great ways to get started. As your levels increase, competition and even hosting events can broaden the students' learning potential by incorporating more STEM/STEAM curriculum. Ultimately, creating skills and proficiencies that could lead to potential collegiate scholarships and future careers.

2. How do you tie esports into your STEM curriculum?

While esports started out as a way of "playing together" - with the goal of establishing community, friendship, school spirit, and a sense of belonging- it has evolved into much more. Schools are now incorporating esports into their STEM curriculum and going beyond the game by having students explore and learn skills they could transfer to contexts outside of esports, such as coding, graphic design, broadcasting, marketing and much more.

3. Do you want esports traffic on your learning network?

When establishing your scholastic esports program, you need to create the gaming environment that meets your school's requirements. Whether your facility needs to support an afterschool gaming club, STEM-focused curricula, or in-depth competition and tournament play, your network needs and designs will vary. Turning physical classroom spaces into flexible learning spaces is crucial to support the digital learning transition. From the curriculum going digital, to the device proliferation, the influx of IoT sensors, distance learning, and now esports, these bandwidth consumers will require a reliable, mulitgig network that delivers an A+ performance.

4. Is your school network ready for esports?

The best network is an invisible network. It is a network where the experience for the user is seamless. While gaming in a MOBA (multiplayer online battle arena), having a stable internet connection is crucial and requires a wired network connection; however, innovations like Wi-Fi 6E allows for a broader spectrum of games (like Minecraft and Rocket League) to be part of the esports ecosystem. Handheld devices like the Nintendo Switch and other wireless consoles are gaining popularity in the middle and even elementary grade levels.

Esports sponsorship

Official sponsor of the Philadelphia Fusion professional Overwatch League team

We believe in esports. We're proud to be an official sponsor of the Philadelphia Fusion professional Overwatch League team. Esports is one of the fastest-growing sports in the world. It's demanding. It's global. And it's all about having the fastest connection and best technology.

Our Fusion partnership perfectly aligns with CommScope's leadership in ultra-fast connectivity solutions. Our communications networks connect people to the most advanced digital experiences, resources and amenities in premier global arenas like the Golden 1 Center, Carolina Panthers Stadium, and Daytona International Speedway. We'll be demonstrating to bandwidth-hungry Overwatch fans our unmatched expertise in enterprise networks and our leading portfolio of retail modems, routers, and gateways.

https://www.ruckusnetworks.com/esports/

About Ruckus Networks

Ruckus Networks, a CommScope business, builds and delivers purpose-driven networks that perform in the demanding environments of the industries we serve. Together with our network of trusted go-to-market partners, we empower our customers to deliver exceptional experiences to the guests, students, residents, citizens and employees who count on them.

www.ruckusnetworks.com

Visit our website or contact your local RUCKUS representative for more information.

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