



# Education

AI-driven networks: Transforming education





# TRANSITION TO DIGITAL LEARNING

In many ways, connectivity and access to the internet has transformed education at all levels. The ability for students to access learning materials online as well as for instructors to share lessons and collaborate has revolutionized teaching and learning. Where education used to be concentrated in school buildings, it can now be accessed by millions of people (almost) anywhere.

# 1.9 million

Nearly 1.9 million US homes with children do not have access to the internet

[https://nces.ed.gov/programs/digest/d22/tables/dt22\\_702.12.asp](https://nces.ed.gov/programs/digest/d22/tables/dt22_702.12.asp)



8% of households with children had a computer available sometimes, rarely or never

<https://usafacts.org/articles/internet-access-students-at-home/>



2.8 million homes with children can access the internet only via a smartphone

[https://nces.ed.gov/programs/digest/d22/tables/dt22\\_702.12.asp](https://nces.ed.gov/programs/digest/d22/tables/dt22_702.12.asp)



4% of public schools surveyed did not provide digital devices to students in need during the 2022–2023 school year

<https://thejournal.com/articles/2022/09/27/nearly-half-of-schools-providing-home-internet-access-to-students-who-need-it-this-school-year.aspx>



**58%** Of schools say that they are in Phase 3



### LAB

CURRENT 1%  
DESIRED 0%

PHASE  
**1**

#### ACCESS

- Lab-centric classrooms

#### USAGE

- Small files/PDFs

#### INFRASTRUCTURE

- Classroom switch
- 10/100Mbps edge
- 1Gbps backbone

### TEACHER

CURRENT 26%  
DESIRED 2%

PHASE  
**2**

#### ACCESS

- Teacher-centric classrooms

#### USAGE

- Interactive E-Books
- Google Docs / Office 365

#### INFRASTRUCTURE

- Wi-Fi 5 (Cloud-managed)
- 1 Gbps edge with PoE
- 10 Gbps backbone

### STUDENT

CURRENT 58%  
DESIRED 32%

PHASE  
**3**

#### ACCESS

- Student-centric classrooms
- Secure campus / remote access

#### USAGE

- Courseware and denser files
- VR, video and gaming

#### INFRASTRUCTURE

- 2.5 Gbps Wi-Fi 5
- 2.5 Gbps edge with 60W PoE
- 10/40 Gbps backbone

### COMMUNITY

CURRENT 11%  
DESIRED 40%

PHASE  
**4**

#### ACCESS

- Community and industry (Smart Cities)
- Collaboration between schools and nations
- Outdoor Connectivity (School bus Wi-Fi)

#### USAGE

- Video conferencing and streaming
- Synchronous and Asynchronous learning
- Esports

#### INFRASTRUCTURE

- Wi-Fi 6 and CBRS (indoor & outdoor)
- 5 Gbps edge with 90W PoE+
- 40 Gbps backbone

### GLOBAL

CURRENT 4%  
DESIRED 13%

PHASE  
**5**

#### ACCESS

- Global / Internet of things

#### USAGE

- Virtual classrooms
- Pervasive computing

#### INFRASTRUCTURE

- Cloud Analytics
- Wi-Fi 6 + LTE + IoT
- 5/10 Gbps edge
- 100 Gbps backbone

# A FAST AND RELIABLE NETWORK IS **NO LONGER OPTIONAL.**

Don't let your campus network become a roadblock. Invest in a wired and wireless network that supports future-ready technologies and delivers proven performance, reliability and scale for schools.

## **THE DIGITAL CLASSROOM OF TOMORROW PROMISES AN OUTSTANDING EDUCATION. IS YOUR NETWORK READY?**

The classroom of tomorrow promises an outstanding education. Blended learning, digital curriculum and other modern learning models can better engage students and help educators be more effective.

With this digital transformation, lesson plans now depend on consistent, reliable connectivity to the school Wi-Fi® network. Instead of leaving tools locked in the classroom, students walk in the door with their Chromebooks, tablets or other devices every morning, and take them home each night.

As such, IT administrators are currently facing three major concerns.

### **FUTURE NETWORK PERFORMANCE**



#### **DELIVERING 6 GHz BAND WILL BECOME A NECESSITY.**

In addition to the billions of existing Wi-Fi 6E clients, Wi-Fi 7 devices are expected to grow to 2.1 billion by 2028. These will need to use the 6 GHz Wi-Fi band to operate efficiently.

*(reference: <https://www.wi-fi.org/news-events/news-room/wi-fi-alliance-introduces-wi-fi-certified-7>)*

### **SECURITY AND STUDENT DATA PRIVACY**



#### **PROTECTING STUDENT DATA FROM MISUSE OR BREACH.**

Cybercriminals are increasing their attacks on U.S. K-12 public schools and districts. From 2016–2022, these institutions experienced at least 1,619 cybersecurity-related incidents, including ransomware attacks, data breaches, phishing, and denial-of-service attacks.

*(reference: [https://tech.ed.gov/files/2023/08/DOEd-Report\\_20230804\\_-508c.pdf](https://tech.ed.gov/files/2023/08/DOEd-Report_20230804_-508c.pdf))*

### **TRANSITION TO DIGITAL LEARNING**



#### **BUILDING A NETWORK DESIGNED FOR BLENDED LEARNING.**

Although nearly three-fourths of school districts now meet the FCC recommended bandwidth goal of 1 Mbps per student (or 1 Gbps per 1,000 students), approximately 54 million public school students still lack adequate bandwidth to access all available digital learning opportunities.

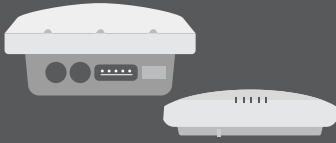
*(reference: [Connect K•12's 2023 Report on School Connectivity](#))*



# WHY CHOOSE RUCKUS FOR YOUR SCHOOL PROJECT

As your school continues its digital transformation to 1:1 mobile learning, RUCKUS Networks helps you address the top three challenges of school IT: network scaling, securing student data privacy, and network reliability for digital instruction. **Our goal is to help you provide a safe and reliable learning environment.**

## Reliable Wi-Fi (indoor and outdoor)



Our passion is highlighted by 100+ RF patents that provide the strongest wireless connections and enable our access points (APs) to automatically adapt to non-ideal placement or changing conditions. Moreover, it has been independently proven that only RUCKUS can sustain 60 HD video streams with just one AP. Supporting more students with fewer APs means significant savings for your school.

Add the outdoor APs to your network and you'll get not just connectivity outside, but also additional safeguards for the campus when coupled with IoT security solutions.

## Scalable switching



ICX® switches support long distance stacking on regular fiber links and requires no proprietary cables. Multi-chassis trunking (MCT) support on stacking provides a high availability active-active network scaling up to 300+ clients. In addition, entry level switch uplinks support 25GbE to avoid any bottleneck as the wireless network is upgraded to Wi-Fi 7 APs.

## Simple security



We make securing every connection to your school network easy, with identity-based policies that facilitate rapid guest access on-boarding. This means an end to passwords and trouble tickets for Wi-Fi access.

## Easy cloud



By utilizing the latest in AI, manage the entire network from a single pane of glass.

## Optimal for Chromebooks



Our RUCKUS Cloudpath® Chrome Extension enables simple network provisioning with a single click – and verifies which Chromebooks are school property. Plus, we also support CIPA compliance by allowing the restoration of content filtering for HTTPS traffic.

## Future proof



Our ICX access switch uplinks can be upgraded without replacing the switch. ICX switches support MCT with stacking which helps deliver less than sub second downtime due to adding/removing/ upgrading switches in a production environment.

## Affordable multigigabit



Our purpose-built multi-gigabit APs and switches are designed to work together. Our ICX 8200 Entry Level switch offers 8x25GbE SFP28 or 48x1GbE Rj45 ports, with maximum power budget of 1480W.



# ESPORTS: GOING BEYOND THE GAME

On a wicked fast network

**Esports isn't all about gaming. Scholastic esports goes beyond the game.** The life lessons and skills that can be achieved through competitive gaming and STEM-based curriculum can provide the best student outcomes. That is why we're proud to sponsor the Philadelphia Fusion professional Overwatch League team.

## 87%

87% of parents in the U.S. stated they found that video games can be educational.

(reference: <https://www.statista.com/statistics/1087599/parents-opinions-video-games/>)

## 45M

The number of esports viewers in the U.S. surpassed 45 million in 2023.

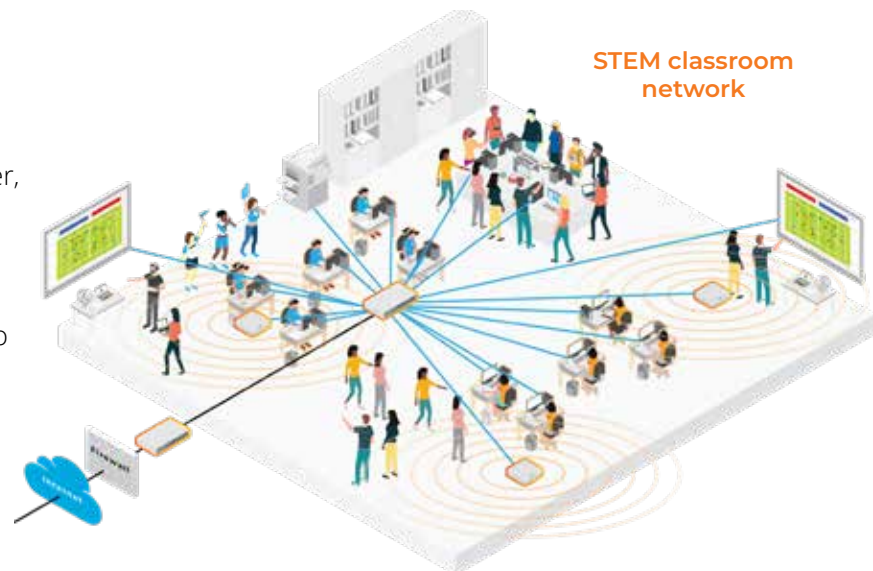
(reference: <https://explodingtopics.com/blog/esports-statistics>)

## 70%

70% of gamers say that gaming provides social and emotional benefits because it helps them stay connected to others.

(reference: <https://www.eschoolnews.com/digital-learning/2024/02/08/esports-students-classroom-seriously/>)

Whether you're looking to level up your classroom or host an esports event, our network solutions can support the esports beginner/enthusiast with a smaller, pop-venue configuration or an amateur level striving to become professional, with an in-classroom design with an esports tournament-ready auditorium. Our advanced, patented technologies will allow students to participate even from home. To learn more about our esports network solutions, visit our esports website at [ruckusnetworks.com/esports](https://ruckusnetworks.com/esports)





# ON-CAMPUS SAFETY IN SCHOOLS

Providing school safety and security through your Wi-Fi network

## Enhancing video surveillance

With a high-capacity, high-performance network, schools and school districts can support their high-definition video surveillance systems and provide real-time monitoring and recording of campus activities.



## Supporting emergency communication systems

A stable and dependable wireless network can provide reliable and efficient communication systems by delivering emergency messages quickly and effectively the moment an emergency arises.

## Access control systems

RUCKUS Networks solutions support advanced access control systems, allowing education campuses to deploy sophisticated technology that can prevent unauthorized access to school buildings and facilities.





# **AT RUCKUS, WE UNDERSTAND THAT EACH SCHOOL DISTRICT HAS UNIQUE NEEDS AND CHALLENGES.**

Our team of experts will work closely with you to understand your specific needs and design a network solution that meets those needs. We're committed to helping K-12 school districts enhance on-campus safety through advanced network technology.

# RELIABLE SCHOOL CONNECTIVITY: **RUCKUS NETWORKS**

The RUCKUS product portfolio of Wi-Fi, switching, IoT, LTE, powered fiber, Category 6A solutions, software and SaaS lets you deliver a great end-user connectivity experience while reducing the amount of time you spend managing the network. And because RUCKUS packs more capability into every network element, you can build that network at a lower cost per connection.



## RUCKUS SMARTZONE™ NETWORK CONTROLLER



- Wired/wireless management
- Visual connection diagnostics
- Powerful new mapping tool
- COE as service provider
- Customization with open APIs

## CLOUDPATH SOFTWARE



- Easy Chromebook on-boarding
- HTTPS inspection for CIPA
- Prevents password lockouts
- BYOD and 1:1 policies
- Dynamic PSK™
- Granular policy guest access

## RUCKUS ONE™ NETWORK ASSURANCE PLATFORM



- AI-driven network management of all devices
- Service assurance via incident identification, prioritization, and suggested resolution
- AI-driven radio resource management and channel planning
- Automatic management of performance KPIs
- Security and policy management through single pane of glass

## ACCESS POINTS (INDOOR & OUTDOOR)



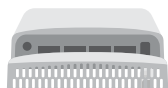
- All students connect reliably
- Fewer APs needed per school
- Non-stop VR, gaming and video streaming Network
- Multi-gigabit (2.5GbE) uplink
- Outdoor AP stats

## ICX SWITCHES



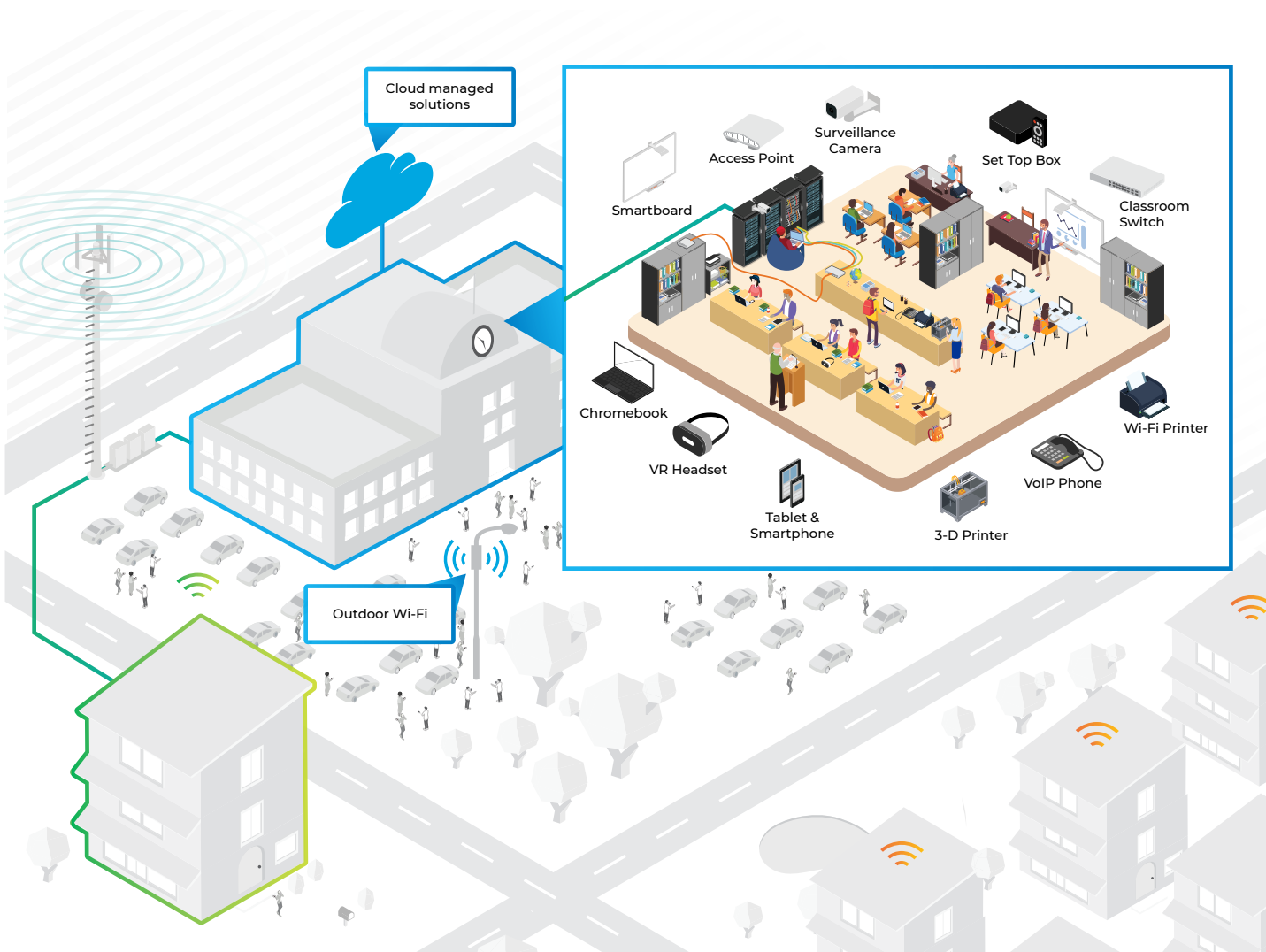
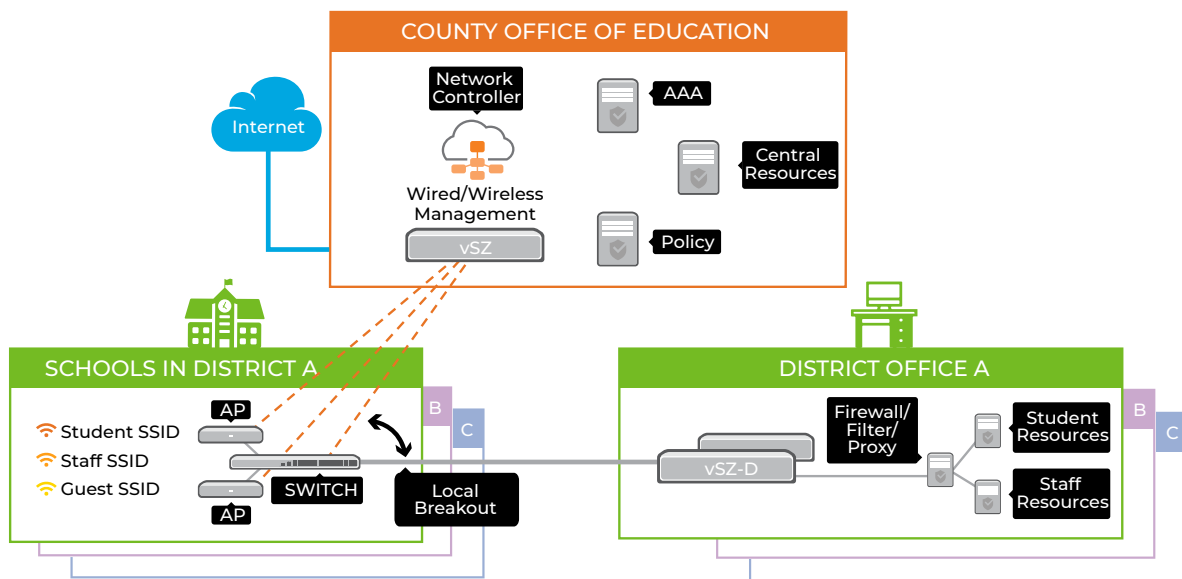
- Silent classroom switches
- Leading power density (up to 90 W)
- Upscaling to 1/10/25/40/100 GbE
- Hitless failover and ISSU
- Multigigabit options even in compact switches
- Long-distance, stackable entry-level switches up to 25 Gb uplinks

## RUCKUS® IoT SUITE



- Add IoT during or after install
- Keep your AP investment
- Reduce IoT complexity and cost
- Great for STEM learning
- Go green, save green

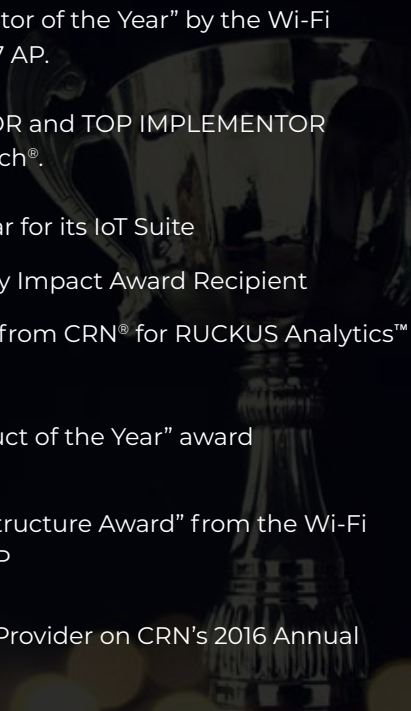
# HOW DOES THIS FIT IN MY SCHOOL?





## RUCKUS INDUSTRY RECOGNITION

RUCKUS Networks has long been an active participant of leading standards committees and alliance organizations. Participating in these groups has allowed RUCKUS to develop solutions that drive benefits to our customers today while creating solutions that are a sound investment for tomorrow. By upholding these values and commitments, the RUCKUS portfolio of products and services have been recognized among the best in the industry.

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- 2024** The Wi-Fi Awards bestows RUCKUS with “Innovator of the Year” by the Wi-Fi Awards for introducing the R770, the first Wi-Fi 7 AP.
  - 2023** RUCKUS designated as LEADER, TOP INNOVATOR and TOP IMPLEMENTOR among 14 WLAN solution vendors by ABI Research®.
  - 2020** RUCKUS won the IoT Sensor Company of the Year for its IoT Suite  
RUCKUS named as Wi-Fi Alliance® 2020 Industry Impact Award Recipient  
RUCKUS receives a 2020 Tech Innovators Award from CRN® for RUCKUS Analytics™ and its R750 AP
  - 2019** RUCKUS ICX 7850 switch wins CRN's “2019 Product of the Year” award
  - 2018** RUCKUS wins the “Best Wireless Network Infrastructure Award” from the Wi-Fi Broadband Alliance (WBA) for its Wi-Fi 6 R730 AP
  - 2016** RUCKUS recognized as a Best-in-Class Channel Provider on CRN's 2016 Annual Report Card  
RUCKUS wins the Wireless Broadband Alliance (WBA) Wi-Fi Industry Awards for “Best Converged Network Infrastructure” and “Distinguished WBA Member” for its technology.

# E-RATE:

# UNIVERSAL SERVICE PROGRAM FOR SCHOOLS AND LIBRARIES

E-Rate is a Federal initiative that provides schools and libraries across the U.S. with affordable access to broadband and telecommunication services and solutions via approved funding mechanisms. It's administered by the Universal Service Administrative Company (USAC) for the Federal Communications Commission (FCC).

## How can my school apply?

An eligible school or library must submit a request for goods and services to the USAC. The USAC posts these requests on its website for competitive bidding. Then, the school or library will select the most cost-effective eligible products and services and apply to the USAC for approval. After the USAC issues a funding commitment, the applicant or vendor submits a request for reimbursement of approved discounts. Discounts range from 20 to 90 percent and are based on the poverty level of the schools.

## Where can I get help with my application?

If you have any questions about the E-Rate program, you can reach out to the [RUCKUS E-Rate helpdesk here](#) or use these resources to help guide you:

### [Six Steps for a Successful E-Rate Season Infographic](#)

Includes a step-by-step guide for E-Rate filings

### [E-Rate for digital learning page](#)

for product eligibility, E-Rate updates, ordering guides, case studies, and documents

### [Education Network Solutions Product Guide](#)

covers specific E-Rate RUCKUS product solutions



## About RUCKUS Networks

RUCKUS Networks 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](http://www.ruckusnetworks.com)

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

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