

# Wi-Fi Offload for K–12

## Reliable Student Connectivity Without the Cost and Complexity of Cellular Infrastructure

### Executive Summary

Connectivity in K–12 is foundational to instruction, safety, and administration. Students and staff rely on mobile devices across classrooms, common areas, athletic facilities, administrative spaces, and outdoor campus environments, including performing arts venues, bus pickup/drop-off zones, etc. When indoor cellular coverage is inconsistent or device density increases, schools can face communication and mobility gaps that are difficult to solve with traditional cellular infrastructure.

Wi-Fi offload offers a practical way to improve mobile connectivity using trusted Wi-Fi infrastructure that districts already manage. Instead of investing in a separate cellular system, schools can extend the value of their existing network to support more reliable campus-wide connectivity.

For K–12 leaders, the advantage is clear: Better support for learning continuity, staff communications, campus safety, and operational efficiency without adding a costly, complex cellular infrastructure project.

### WHAT IS WI-FI OFFLOAD?

Wi-Fi offload enables continual, secure connectivity for mobile devices using both cellular and Wi-Fi networks. Transitions are automatic between the network using technologies such as Passpoint™ and OpenRoaming®.

For users, the experience is seamless. Devices can connect automatically without manual login, helping mobile connectivity feel more consistent in places where indoor cellular coverage is weak, congested, or difficult to improve economically.

For schools, Wi-Fi offload should be viewed as a complement to the district-managed network, which remains the primary platform for instructional access. Offload extends the value of that infrastructure for mobile-first connectivity scenarios.

### WHY HIGHER EDUCATION SHOULD CARE

- **Learning continuity:** Digital curricula, collaboration tools, testing platforms, and cloud-based learning depend on consistent connectivity across the campus.
- **Student and staff safety:** Reliable mobile access supports staff and school resource officer coordination and communications, emergency safety notifications, visitor management, incident response coordination and situational awareness in hallways, common areas, athletic spaces, and outdoor locations.
- **Lean IT operations:** Most districts are expected to support a growing number of users, devices, and applications without proportional staffing increases. Wi-Fi offload extends existing operational processes rather than introducing another network platform to deploy and manage.
- **Cost predictability:** Wi-Fi offload aligns more naturally with planned refresh cycles, bond programs, and E-rate-oriented network modernization than dedicated cellular systems.
- **District-wide scalability:** A standards-based approach can be repeated across multiple schools with consistent policy and centralized management.
- **Student device reality:** Students increasingly carry mobile devices that move continuously throughout the school day. Wi-Fi offload helps districts make better use of existing wireless infrastructure while supporting mobile-first communication patterns.



## WI-FI OFFLOAD VS DAS

Districts evaluating indoor cellular improvement may consider Distributed Antenna Systems (DAS) or similar dedicated cellular systems. While these can address specific coverage issues, they often introduce cost, coordination, and operational complexity that is difficult to justify across a school district.

| DAS Challenges                                             | Wi-Fi Offload Benefits                                                                                                             |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| High capital cost                                          | Leverages managed Wi-Fi infrastructure already being deployed or refreshed, no dedicated CapEx requirement.                        |
| Long carrier coordination and approvals process            | Carrier involvement is a standards-based roaming agreement, not a per-site RF build.                                               |
| Complex cellular RF design, construction, and deployment   | Deployed with familiar Wi-Fi skills IT, MSP, and property teams already have.                                                      |
| Long timelines and multi-party dependencies                | Deploys on the existing network using Passpoint or OpenRoaming (no multi-party rollout) in weeks not months.                       |
| Added operational burden and refresh complexity            | One network to manage, no separate system to maintain.                                                                             |
| Limited coverage flexibility/hard to re-tune after install | Coverage and capacity scale on the existing Wi-Fi platform; tune radios or add APs and cabling as demand grows.                    |
| Carrier/technology lock-in                                 | Operator-neutral and standards-based supporting any participating carrier and evolves with Wi-Fi standards; no per-carrier rework. |

## PRACTICAL DEPLOYMENT APPROACH

1. **Build the Wi-Fi foundation.** Ensure strong coverage and capacity across classrooms, administrative offices, libraries, cafeterias, gyms, auditoriums, outdoor gathering spaces, and high-traffic common areas.
2. **Enable secure offload.** Use Passpoint and OpenRoaming to support automatic, secure connectivity for eligible mobile devices and trusted identities.
3. **Operate with policy and segmentation.** Use centralized management, traffic separation, and consistent policy control to protect security, performance, and operational simplicity.

## MARKET-SPECIFIC LENS: BUILT FOR DISTRICT REALITIES

K–12 technology teams are often responsible for many buildings, varied campus layouts, and lean day-to-day operations. A successful offload strategy must therefore be repeatable, secure, and easy to manage across sites.

- **Standardize** policies, onboarding, security controls, and operational workflows across elementary, middle, and high school campuses to reduce administrative burden and improve consistency.
- **Maintain** clear separation between instructional, administrative, guest, and offload traffic.
- **Prioritize** coverage in safety-sensitive and high-use areas such as front offices, hallways, cafeterias, gyms, pickup/drop-off zones, and outdoor areas.
- **Integrate** offload planning into normal Wi-Fi modernization rather than treating it as a separate project.

## Cambium's ONE Network Approach

Cambium enables Wi-Fi offload through a unified ONE Network architecture that integrates Wi-Fi, switching, security, WAN/backhaul options, and centralized management through cnMaestro™ Network Management. This gives organizations centralized visibility, policy enforcement, segmentation, and operational consistency across sites.

For K–12 environments, this unified approach helps districts support secure, scalable networking across multiple schools while preserving centralized visibility and operational consistency for lean IT teams.

### KEY ADVANTAGES

- Centralized management through cnMaestro
- Secure onboarding using standards-based offload capabilities
- Policy enforcement and traffic segmentation
- Scalable performance across simple and complex environments
- Simplified deployment and provisioning
- Reduced operational complexity compared to multi-vendor or cellular-centric approaches

## The Bottom Line

For K–12 schools and districts, Wi-Fi offload is a practical way to improve mobile connectivity without the cost and complexity of DAS or dedicated cellular infrastructure.

It supports learning continuity, strengthens staff communications, improves mobile access across campus, and extends the value of district Wi-Fi investments. For districts evaluating alternatives to DAS, Wi-Fi offload offers a more scalable and operationally efficient path forward.

Cambium makes that possible through our unified ONE Network approach that simplifies deployment, centralizes operations, and extends the value of existing Wi-Fi investments.

## Find Out More

See how Wi-Fi offload works in our guided demo:

<https://www.cambiumnetworks.com/guided-demos/wi-fi-offload-with-passpoint-cnmaestro/>

## About Cambium Networks

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

