

Enabling Schools with Reliable Internet

ingenious: Future-Ready, Secure, and Scalable
Connectivity for Intelligent Schools



Reliable connectivity is essential for modern education, yet many schools—especially in rural and underserved areas—struggle with limited broadband access. Satellite technology bridges this gap, offering fast, scalable, and resilient internet where traditional networks are impractical.

With low-latency satellite services like LEO (Low Earth Orbit) constellations, schools can now achieve latency as low as 20-40ms, ensuring smooth online learning and real-time collaboration via Google Classroom, Zoom, and Microsoft Teams.

Plug-and-play deployment, scalable bandwidth, and end-to-end security enable schools—whether in remote districts or urban expansion areas—to stay connected without limits. Used as a primary connection or redundant failover, satellite internet ensures digital equity and future-ready learning environments.

Secure, High-Performance Networks for Intelligent Schools



Flexible Access Designs for Every School

ingenious offers customized connectivity solutions based on school location and needs:

- ✓ Urban Schools → Fiber-first solutions with xDSL and broadband redundancy.
- ✓ Suburban Schools → Hybrid fiber, broadband, and 5G/LTE backup for increased resiliency.
- ✓ Rural Schools → Primary satellite connectivity (Starlink, Kuiper) with 5G/LTE backup and additional broadband where available.



Built-In Security & Network Optimization

Connectivity alone is not enough. Schools need intelligent security and network performance to ensure a safe learning environment. Our solutions integrate Cisco SD-WAN, Cisco Meraki, and Fortinet to provide:

- ✓ Centralized network management for real-time control.
- ✓ Zero Trust Security ensuring only authorized users and devices access critical systems.
- ✓ Threat protection and content filtering for safer student browsing.

By aligning with Research and Education Network (REN) standards, we ensure decentralized security, automated risk mitigation, and end-to-end data encryption for every school.



Scalability to District-Level Connectivity

Beyond individual school solutions, ngenious Access Designs enable seamless expansion to the district level, allowing for:

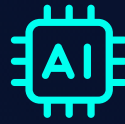
- ✔ Pooling of resources to optimize cost efficiency and maximize connectivity capabilities.
- ✔ Centralized support and management to streamline operations and enhance network reliability.
- ✔ Unified security policies across all schools within the district, ensuring consistent compliance and safety standards.
- ✔ Collaboration between students and teachers across different schools, creating a shared virtual learning environment as if they were working in the same location.

Customizable Access Designs

To meet the varying needs of schools, ngenious offers three distinct access design configurations: **XS01, XS02, and S02**. These in-house solutions provide scalable connectivity options tailored to different levels of resiliency, performance, and redundancy. Whether a school requires a single connection setup, dual connectivity for failover, or full hardware redundancy, our access designs ensure reliable and secure internet access.

Ready to future-proof your school's connectivity? Contact us today to create a customized connectivity plan for your school or district.

[Contact us](#)



Future-Ready Education Networks

Modern schools require IoT-driven security, AI-powered surveillance, and cloud-based learning tools. With ngenious solutions, schools can build their Intelligent Edge:

- ✔ Deploy AI-driven security solutions (weapon detection, crowd surveillance, vape monitoring).
- ✔ Enable smart IoT sensors for real-time alerts and campus automation.
- ✔ Optimize bandwidth for seamless online learning and administrative applications.



Access design XS01

Single connectivity bundle for small schools with up to 200 students



A cost-effective, secure internet solution designed for small educational institutions.

Urban Schools

In well-connected ISP areas, ngenious provides fiber-first access designs for reliable, high-speed internet tailored to educational needs.

Options:

- ☑ **Primary Line:** Fiber
- ☑ **Primary Line:** Broadband

Suburban Schools

For suburban locations, ngenious offers fiber, broadband, and Wi-Fi point-to-point solutions. Where unavailable, 5G or Starlink satellite ensures uninterrupted access.

Options:

- ☑ **Primary Line:** Fiber
- ☑ **Primary Line:** Broadband
- ☑ **Primary Line:** Wi-Fi Point-to-Point
- ☑ **Primary Line:** 5G
- ☑ **Primary Line:** Starlink

LEO satellite benefits: High bandwidth, low latency, and reliable service.

Rural Schools

For rural locations, ngenious delivers primary satellite internet via Starlink, Viasat, and other GEO satellite providers. Backup options include 5G, LTE, broadband, or xDSL. uninterrupted access.

Options:

- ☑ **Primary Line:** Starlink
- ☑ **Primary Line:** xDSL

LEO satellite benefits: High bandwidth, low latency, and reliable service.

Advanced Security & Performance

ngenious' SASE solution with SD-WAN delivers enterprise-grade security, centrally managed and CIPA-compliant.

Security Features:

- ☑ URL Content Filtering & Threat Prevention
- ☑ Virus Protection & Local Internet Breakout
- ☑ Centralized Orchestration for Seamless Management

Optimized for Schools:

- ☑ Cost-effective, fast connectivity compared to traditional MPLS lines
- ☑ Direct internet access with centralized security controls
- ☑ Scalable from town to district and state levels

Intelligent Extensions for Smart Schools

IoT Integration: Real-time monitoring for buildings, inventory, maintenance, and secure access. **AI-Powered Camera Systems:** Advanced surveillance for object detection, behavioral monitoring, weapon carry alerts, and gunshot detection.

Access design XS02

Dual Connectivity Bundle for Medium Schools (Up to 500 Students)



A single device solution with resilient internet lines, ensuring uninterrupted connectivity.

Urban Schools

In well-covered ISP areas, ngenious delivers fiber-first access designs tailored to education institutions, integrating broadband and xDSL for enhanced bandwidth and resiliency.

Options:

- ✓ **Primary Line:** Fiber | **Secondary Line:** Broadband
- ✓ **Primary Line:** Fiber | **Secondary Line:** xDSL

Suburban Schools

For suburban areas, ngenious deploys hybrid fiber, broadband, and Wi-Fi point-to-point options. Backup solutions include broadband or 5G/LTE for added resiliency.

Options:

- ✓ **Primary Line:** Fiber | **Secondary Line:** Broadband
- ✓ **Primary Line:** Fiber | **Secondary Line:** Starlink
- ✓ **Primary Line:** Wi-Fi Point-to-Point | **Secondary Line:** 5G

Low-Earth Orbit (LEO) satellite options like Starlink ensure high bandwidth, low latency, and reliability.

Rural Schools

For rural locations, ngenious provides primary satellite internet via Starlink, Viasat, and other GEO satellite providers. Backup options include 5G, LTE, broadband, or xDSL.

Options:

- ✓ **Primary Line:** Starlink | **Secondary Line:** LTE
- ✓ **Primary Line:** Starlink | **Secondary Line:** xDSL

LEO satellite benefits: High bandwidth, low latency, and reliable service.

Advanced Security & Performance

ngenious' SASE solution with SD-WAN provides enterprise-grade security with centralized management, ensuring compliance with CIPA regulations.

Security Features:

- ✓ URL Content Filtering & Threat Prevention
- ✓ Virus Protection & Local Internet Breakout
- ✓ Centralized Orchestration for Seamless Management

Optimized for Schools:

- ✓ Fast, reliable, and cost-effective compared to traditional MPLS lines
- ✓ Direct internet access at each site with centralized security controls
- ✓ Scalable across town, district, and state levels

Intelligent Extensions for Smart Schools

IoT Integration: Smart environmental monitoring, real-time inventory, building automation, and secure personal access. **AI-Powered Camera Systems:** Advanced surveillance for object detection, behavioral monitoring, weapon carry alerts, and gunshot detection.

Access design S02

Fully Redundant & Resilient Connectivity Bundle for Large Schools and Universities



A high-performance, fully redundant connectivity solution for large educational institutions requiring maximum reliability and security.

Urban Schools

In well-connected ISP areas, ngenious delivers fiber-first access designs for scalable, resilient connectivity, integrating broadband and xDSL for added redundancy.

Options:

- ✓ **Primary Line:** Fiber | **Secondary Line:** Broadband
- ✓ **Primary Line:** Fiber | **Secondary Line:** xDSL

Suburban Schools

For suburban environments, ngenious deploys hybrid fiber, broadband, and Wi-Fi point-to-point solutions. Backup connectivity options include broadband, 5G, or Starlink satellite.

Options:

- ✓ **Primary Line:** Fiber | **Secondary Line:** Broadband
- ✓ **Primary Line:** Fiber | **Secondary Line:** Starlink
- ✓ **Primary Line:** Wi-Fi Point-to-Point | **Secondary Line:** 5G

LEO satellite benefits: High bandwidth, low latency, and reliable service.

Rural Schools

For rural and remote areas, ngenious provides primary satellite internet via Starlink, Viasat, and other GEO satellite providers. Backup options include 5G, LTE, broadband, or xDSL.

Options:

- ✓ **Primary Line:** Starlink | **Secondary Line:** LTE
- ✓ **Primary Line:** Starlink | **Secondary Line:** xDSL

LEO satellite benefits: High bandwidth, low latency, and reliable service.

Advanced Security & Performance

ngenious' SASE solution with SD-WAN delivers enterprise-grade security with centralized management, ensuring compliance with CIPA regulations.

Security Features:

- ✓ URL Content Filtering & Threat Prevention
- ✓ Virus Protection & Local Internet Breakout
- ✓ Centralized Orchestration for Seamless Management

Optimized for Large Institutions:

- ✓ Fast, redundant, and cost-effective compared to traditional MPLS lines
- ✓ Direct internet access at each site with centralized security controls
- ✓ Scalable across town, district, and state levels

Intelligent Extensions for Smart Schools

IoT Integration: Smart automation for buildings, environmental monitoring, real-time inventory, and secure access. **AI-Powered Camera Systems:** Advanced surveillance for object detection, behavioral monitoring, weapon carry alerts, and gunshot detection.