SOLUTION BRIEF

Fortinet SD-Branch: Centralized Security for Highly Distributed Networks Linking K-12 School Buildings and Campuses

Executive Summary

K-12 school districts' rapid adoption of new technologies is placing a new set of burdens on the districts' IT teams, who are tasked with securing distributed and diverse technology environments on limited budgets while needing to maintain administrative control from a single, centralized location. To help K-12 IT teams address these challenges, Fortinet delivers an integrated, centrally managed solution. Fortinet SD-Branch consolidates network and wireless access controls and security capabilities within an easy-to-manage secure platform that provides visibility and protection for the rapidly expanding array of endpoint devices connecting to school networks at the WAN edge. SD-Branch provides each remote location with its own defenses, yet the network access layer as a whole is consolidated within a single solution.

40.7 million more students have access to the internet in their classrooms today than they did in 2013 and 98.3% are connecting at speeds that meet or exceed the 100 Mbps per student goal set by the Federal Communications Commission (FCC).[3]

Only 12% of school districts have one or more full-time employees whose sole responsibility is IT or network security.[4]

FortiGate NGFW Featuring Secure SDWAN—Recommended by NSS Labs[5]

- Blocked 100% of evasions and achieved 99.9% effectiveness
- Industry-best total cost of ownership (TCO)—10x better than the competition
- Highest quality of experience for VoIP and video applications among all solutions tested

New Challenges in Securing Complex Networks of K-12 Educational Institutions

While digital transformation (DX) creates a wealth of opportunity for technology directors in K-12 educational environments, it also requires them to navigate complex new challenges, to balance sometimes-competing priorities, and to accomplish all of this with limited resources. K-12 school districts are rapidly adopting new eLearning solutions such as digital textbooks, online assessments, and teacher-created videos and interactive lessons in "flipped classrooms" that may increase student engagement and improve learning outcomes.

They are also incorporating Internet-of-Things (IoT) devices to boost the efficiency of lighting and climate-control systems in school buildings and are adding networked facility monitoring and physical security solutions. With the rise of IoT, growing relianceupon Software-as-a-Service (SaaS) learning applications, and more and more student-owned devices connecting to school networks, K-12 school districts are also seeing unprecedented expansion in the size of the attack surfaces their IT environments present.

Yet districts continue to be responsible for safeguarding student records, protecting students from cyberbullying, preventing them from accessing inappropriate content on the internet, and conforming to unique regulatory compliance requirements. For example, the Children's Internet Protection Act (CIPA) mandates that schools establish internet safety policies and enforce them through technology controls if they are to remain eligible for E-rate discounts on telecommunications and information services.[1]

Despite these mounting challenges, educational budgets have remained relatively flat in recent years.[2] Many districts are still trying to make do with aging or past end-of-life hardware and networking equipment, and most have small staffs, necessitating that they operate efficiently and manage network security centrally, even though their infrastructures are often spread across multiple school buildings or campuses.

Fortinet SD-Branch: A Solution That Fits the IT Environments of Today's K-12 Schools

Fortinet delivers network security and access technologies, protecting school districts across the U.S. and around the globe with tightly integrated security platforms. Fortinet next-generation firewall (NGFW) and broader Security Fabric capabilities work together to enable the IT departments in K-12 schools to create easy-to-manage, high-performing, converged security architectures that extend the Fortinet Security Fabric to dispersed locations.

Fortinet SD-Branch is the industry's first unified WAN edge, secure Wi-Fi, and switching and access control solution. SD-Branch consolidates networking and security capabilities into a single solution that protects all exposures in distributed environments, making it optimally suited for school districts where classrooms may be located in multiple buildings that are miles apart. Fortinet SD-Branch includes FortiGate NGFW, FortiNAC network access control, FortiSwitch, and FortiAP access points. This unique combination of technologies extends NGFW security capabilities throughout the network access layer and seamlessly integrates LAN and WAN platforms.

Within SD-Branch, FortiNAC provides automated discovery, classification, and security of IoT devices at their point of entrance to the network. It can also be used to secure large and varying numbers of student-owned endpoints, providing contextual information about devices, users, and applications, and monitoring all activity in real time. Integration with FortiGate eliminates any need for a dedicated server in each deployment location.

Fortinet SD-Branch enables components to be managed centrally via a single pane of glass for security and access, reducing complexity and easing the administrative burden. Without additional licensing fees or the need to purchase additional network traffic sensors, IT departments will see reduced TCO as well as time savings.

Fortinet SD-Branch Benefits Schools, Districts Students, Educators, and Administrators

IT directors in K-12 schools stand to realize a number of benefits from improving security at the level of the individual school and classroom. With Fortinet SD-Branch, firewalls, switches, and wireless access control capabilities are integrated into a single, consolidated solution, making it easier for school districts operating with lean resources to administer dispersed infrastructures from one central location. A broad array of devices, from student-owned laptops to Chromebooks, can all be onboarded and managed within a single platform, making the goal of secure one-to-one computing easier to realize.

Because global policies are enforced at the local access layer and across all endpoint devices, it is possible to monitor and filter network traffic for inappropriate or dangerous content in real time. This enables a school's team to ensure student safety whenever they access the internet or other electronic communications via any part of the network. Unknown devices are automatically isolated, and granular policies can be set to ensure that students can access all the learning resources that they need—and none that might be harmful.

Fortinet SD-Branch improves performance and agility at each deployment location, making it possible for teachers to take advantage of video and other bandwidth-intensive learning applications in their classrooms while managing risks proactively at the edge. Because SD-Branch components also incorporate real-time threat intelligence and automated incident response capabilities, schools' IT teams can better protect their environments by orchestrating rapid responses to detected attacks and newly discovered threats.

A Security-driven Approach to DX in K-12 Schools

K-12 school networks are often comprised of multiple remote locations, each needing to grant access to a heterogeneous mix of student-owned and district-owned devices, and each confronting a unique set of security risks. SD-Branch is a natural extension of the Fortinet Security Fabric that enables these devices to obtain secure, real-time access to school network resources, while providing administrators with comprehensive visibility into and control over all devices connecting to the network.

[1] "Children's Internet Protection Act (CIPA)," Federal Communications Commission website, accessed July 1, 2019.

[2] "The Condition of Education 2018," U.S. Department of Education National Center for Education Statistics, May 2018.

[3] "2018-2019 Annual Infrastructure Report," Consortium for School Networking, accessed July 1, 2019.

[4] "2018 State of the States Survey," Education Superhighway, October 2018.

[5] Nirav Shah, "Fortinet Secure SD-WAN Gives the Performance of a Lifetime, Recommended by NSS Labs," Fortinet, August 9, 2018.

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