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A Lesson in Excellence: U.S. School District Builds a Secure, High-Performing Network on the Fortinet Security Fabric

Located in northern San Diego County, California, Encinitas Union School District (EUSD) is a leader in K-6 public education. Serving approximately 4,500 students and 1,000 staff members, including 400 teachers, EUSD manages nine schools, a specialized STEM campus known as the Farm Lab DREAMS Campus, and a central administrative office. Committed to unlocking the potential of each learner, EUSD has been at the forefront of integrating technology into education, being among the first in the nation to achieve a one-to-one iPad-to-student ratio.

Over the past 12 years, the district has undertaken a strategic initiative to bolster its cybersecurity infrastructure. This initiative is proving more important than ever in what is an increasingly challenging cybersecurity landscape. Particularly significant is the cessation of funding for public sector bodies like the Multi-State Information Sharing and Analysis Center, which has in the past facilitated the exchange of cybersecurity best practices among 1,700 state, local, tribal, and territorial (SLTT) government entities. With the loss of such organizations, school districts must look to their own resources and partner networks to bolster network and data security.

Leveraging Intuitive and Cost-Effective Cybersecurity Solutions

Fortinet has established itself as one such strategic partner for EUSD. Whenever a cybersecurity system reaches the end of its life, the district evaluates the vendor landscape to identify solutions that offer the best balance of performance and cost-efficiency. Nathan Short, director of information technology at EUSD, remarks, "Our partnership with Fortinet began with our initial switch to FortiGate Next-Generation Firewalls [NGFWs]. The difference in usability between Fortinet and our previous vendor was immediately apparent. This shift significantly eased the management of our network, reducing the need for extensive training that was once necessary with our legacy systems. Additionally, Fortinet's solutions were more cost-effective."

Building on the positive experience with FortiGate NGFWs, EUSD next adopted the FortiMail email security system. "Our previous spam filter was complex and cumbersome, so we limited management privileges to only select staff members," explains Short. "Fortinet's user-friendly interfaces have transformed our approach, empowering our entire staff to actively manage and tailor FortiMail settings. They can now effectively block spam and adjust rule sets to meet specific needs, enhancing our overall email security."

Encinitas
UNION SCHOOL DISTRICT

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Details

Customer: Encinitas Union School District

Industry: Education

Location: California, United States

Business Impact

- User-friendly interfaces democratize IT and empower staff
- Comprehensive support across unified communications (UC) software and hardware
- Simplified, automated device management
- Value-add UC features and functionality improve operations

Modernizing Unified Communications

Recently, EUSD has again turned to Fortinet for help, this time to modernize its aging unified communications infrastructure. The district faced significant security vulnerabilities due to its outdated VoIP phone systems, which also hindered backend upgrades, including to its Microsoft Exchange servers. The system was also difficult to manage and required labor-intensive tasks such as transferring phone configurations, modifying extensions, or troubleshooting dialing routes.

"We evaluated five potential vendors to upgrade our system," explains Short, "but we came across a common challenge: many vendors excelled in software integration but fell short on hardware support. This was a crucial factor, as we sought a system that was both intuitive and user-friendly and comprehensively supported across both software and hardware."

Simplifying UC Management

Consequently, the district chose FortiVoice Secure Unified Communications, operated on a virtual machine (VM) server, to integrate calling, conferencing, chat, and mobile support. FortiVoice was swiftly deployed to nearly 500 end-users, and Fortinet addressed any challenges that emerged during the implementation promptly. Each user has a feature-rich FortiFone IP desktop phone with many flexible configuration options and key functions like loudspeaker and all-call capabilities..

The simplicity and user-friendliness of the system were key drivers behind EUSD's purchasing decision. Short explains: "Previously, routine tasks such as renaming a device or modifying extension settings required extensive time from our systems administrator, who had to use a cumbersome interface. With FortiVoice, it takes just moments to transfer complete phone configurations, including saved buttons and other customizations."

System updates, which once came with significant disruption and required frequent reboots, are now streamlined. Firmware updates deploy automatically across the district, and reprogramming devices for new classrooms or offices is now a simple, digital procedure. "FortiVoice has not just replaced our old phone system; it has revolutionized our approach to communications, simplifying operations and management across the board," says Short.

Empowering Users with Valuable New Features

Today, EUSD staff benefit from the wide range of features that come with FortiVoice, including remote voicemail access, simplified call routing, and loudspeaker and broadcast modes, which enable teachers to communicate with all students concurrently.

FortiVoice has also proved highly beneficial in supporting the district's enhanced 911 (E911) processes, as the device profiles are enriched by information including extension number, the teacher's name, the classroom number, and other specific site details, which are crucial during emergencies.

Additionally, FortiVoice includes a function that automatically connects designated district personnel directly to the live 911 call. "This immediate connection ensures that there is no delay in communication and that the district's response team is instantly aware of the situation, allowing us to act swiftly and effectively. The feature has already proved itself to be indispensable to our staff and won them over to the FortiVoice system," adds Short.

Business Impact (cont.)

- 90% UC cost savings compared to competing vendor's system
- $30,000 savings from integrated wireless network monitoring
- More than 75% reduction in time spent managing the wireless network
- Improved reliability and performance of the wireless network
- Enhanced security across the Fortinet Security Fabric

Solutions

- FortiGate Next-Generation Firewall
- Fortinet Secure SD-WAN
- FortiSwitch
- FortiAP
- FortiVoice Secure Unified Communications
- FortiFone
- FortiMail
- FortiAnalyzer

Services

- FortiGuard AI-Powered Security Services Unified Threat Protection Bundle

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The system has also been simple to roll out to staff. "Instead of extensive training sessions, we distilled Fortinet's documentation into a concise one-pager. This quick reference guide has proven sufficient for our users to get up and running on the new system without the need for lengthy training," says Short.

The district's transition to FortiVoice also represented a significant financial win. Initially projected as a $250,000 initiative, the project finished under budget. In contrast, comparable proposals using a well-known alternative system were estimated between $2.1 to $2.5 million. Using the higher estimate, EUSD has benefitted from approximately 90% cost savings by partnering with Fortinet for its UC system.

Upgrading the Wireless Network

Historically, EUSD's Wi-Fi network was deployed with an overly complex structure that included upwards of 60 different service set identifiers (SSIDs). The system was also very expensive, requiring an additional license of approximately $30,000 a year for basic wireless monitoring.

Performance was also an issue. Short explains, "We are situated near Palomar Airport, which emits signals that disrupt the DFS [dynamic frequency selection] channels on our Wi-Fi. Consequently, our older access points were frequently forced off their designated channels, typically being reassigned to the lowest 5 GHz channel 36. This resulted in significant and recurrent disruption."

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The Significant Cost and Time Savings of FortiAPs

Today, EUSD has deployed 700 FortiAP wireless access points to reinvigorate its wireless network. Managed through the FortiGate NGFWs over a single pane of glass, the FortiAPs are easy to set up and run. Short explains: "We recently enabled the automatic update feature on our firewalls, which cascades updates to the access points. This measure has significantly streamlined our efforts, reducing the time we spend on managing access points by more than 75%." Moreover, with network visibility achieved through the FortiGate NGFWs, EUSD no longer needs to buy an additional monitoring license, immediately saving the district $30,000 each year. The FortiLink protocol in FortiOS also extends Fortinet Security Fabric protection to the district's secure Ethernet-wired LAN infrastructure, which consists of 150 FortiSwitches.

Meanwhile, network support staff time has been freed up around state testing periods. In the past, the district had to closely monitor bandwidth during state testing to ensure the network would perform when required. The improved visibility and management provided by FortiAPs allow for a more hands-off approach, ensuring that the network can handle high-demand periods without constant oversight.

Additionally, the district has begun implementing new bandwidth management strategies, such as designating "no YouTube" days to reduce bandwidth consumption during state testing and other critical periods to ensure that network resources are not strained by non-essential traffic. FortiAPs and Fortinet Secure SD-WAN support this proactive approach through intuitive application control policies.

A Reliable, Stable Wireless Network

With FortiAPs, Wi-Fi performance also significantly improved, and Palomar Airport no longer interferes with the smooth running of the network. "I would estimate that before FortiAPs, we were performing manual resets on random APs at least once per week across multiple sites—some worse than others, based on proximity to the airport. The FortiAPs dynamically adjust and readjust as required to seamlessly maintain network stability without causing disruptions," says Short.

Supporting many devices simultaneously, the FortiAPs provide more than enough capacity for EUSD's needs. Short explains: "Typically, our classrooms accommodate 20 to 30 students, meaning the FortiAPs operate well within their capacity during regular class sessions. Moreover, this surplus in capacity proves invaluable during special events, such as teacher seminars, where attendance might surge to 50 or 60 individuals in a single classroom."

EUSD is primarily using the single-gigabit connections on their access points, opting not to use the 2.5-gigabit connections available. This setup has enabled EUSD to daisy-chain Apple TVs in classrooms directly into the access points. "Previously, these devices were connected wirelessly; however, by hardwiring them directly to the access points, which in turn are hardwired into the broader network, we have been able to boost performance and reduce the need for additional labor and wiring costs associated," adds Short.

The Benefits of the Fortinet Security Fabric

More broadly, EUSD benefits from consolidating its firewalls, wireless access points, switches, UC, and other systems on the Fortinet Security Fabric. Short comments: "The transition to Fortinet's network infrastructure has significantly enhanced the district's security and operational efficiency. With just a few clicks, we can monitor the entire network, easily identifying which systems are patched, which updates are pending, and what actions need to be taken. This level of transparency and control is a massive improvement from our previous experiences."

EUSD's primary FortiGate NGFW is equipped with comprehensive security features, including zero-day protection and frequent updates to the command-and-control database—sometimes multiple times per day—through the FortiGuard AI-Powered Security Services Unified Threat Protection (UTP) bundle. "Basic content filtering is also managed directly from the FortiGates," adds Short, "further securing our network and simplifying our security operations. This protection ensures that our district is safeguarded against a wide array of cyberthreats, providing peace of mind and a safer learning environment." The FortiAnalyzer data analytics platform also helps Short consolidate and automate security operations across the Security Fabric.

Short concludes: "Fortinet excels in developing top-notch products. Honestly, everything from Fortinet has exceeded our expectations, and my team is extremely satisfied with their performance. We have been very happy with our choice."

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