



## Hawaii Safeguards Schools Statewide Using Intrusion Protection Systems from TippingPoint

*The Challenge: In 2004, officials at the Hawaii Department of Education (HIDOE), the oldest public school system west of the Mississippi, confronted what school districts nationwide dread. The notorious Blaster worm struck the local area network (LAN) of one of its 275 K-12 schools and spread like wildfire across the district's wide area network (WAN). The worm flooded HIDOE's entire infrastructure with packets, infecting schools throughout the state and forcing the system to shut down for several days. Quickly, HIDOE had to dispatch IT teams to each infected school to manually cleanse their PC's and LANs of the malicious software.*

The attack was a costly lesson. HIDOE's schools rely heavily on its wired and wireless LAN/WAN infrastructure for teaching and administration, and the statewide school district could not afford another attack. Despite this, it remained saddled with legacy intrusion detection systems that notified administrators only after a virus or worm struck the infrastructure.

To gain proactive protection, HIDOE required sophisticated security solutions at every school's WAN gateway, as well as at some 50 business sites linked to its network. However, Hawaii's unique geography posed a management nightmare. As the nation's 10th largest school district with 183,000 students and 20,000 employees, HIDOE had to protect 300+ remote sites distributed over 6,000 square miles across the state's seven islands. It needed a centrally managed solution to avoid shuttling IT staff from island to island to monitor each site's security system. It also wanted to control bandwidth, throttling applications like instant messaging

or non-educational downloads that distract students in class and consume bandwidth.

Moreover, at its Honolulu data center, HIDOE needed to bolster the core of its vast networking infrastructure as school networks play an increasing role in learning and teaching. All Web access from each classroom at every site, for example, passes through the core to the district's large Internet gateway. The existing core switch, a 3Com Switch 7700 platform, served effectively as a concentration point for the entire system, providing both routing and Gigabit switching, but HIDOE wanted a solution with even greater capacity to reliably support growing volumes of traffic without latency or congestion.

### Why\_3Com\_Solutions

After dismissing anti-virus software solutions because of their ineffectiveness against spyware and Denial of Service (DoS) attacks, HIDOE assessed intrusion prevention systems (IPS) from McAfee, Juniper Networks and TippingPoint, a division of 3Com. Following comprehensive testing,

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**K. Kim**  
Telecom Director  
Hawaii Dept. of Education

the school district determined that TippingPoint solutions offer the most pervasive protection, simplest management and superior value.

“TippingPoint provided an enterprise security solution we can manage from a central location and a track record no other vendor can match,” said K. Kim, telecom director for HIDOE. “Because we built our network with 3Com systems, we know 3Com products perform well, enabling us to make our decision with even more confidence.”

Deployed between the 3Com router and central switch at each HIDOE site, as well as its Internet portal, the TippingPoint IPS blocks malicious packets at line-rate gigabit speed via its Application Protection feature, deterring spyware, worms, viruses, phishing, Trojans, and DoS attacks from entering the network. It defends routers, switches, VoIP systems and other infrastructure components from targeted attacks and traffic anomalies using Infrastructure Protection. It also throttles non-mission critical applications that consume bandwidth and IT resources using Performance Protection.

HIDOE also saves the cost of sending IT personnel to each school to manage the security solutions by using four TippingPoint Security Management Systems (SAS's). A hardened appliance with an intuitive graphical interface that lets HIDOE easily view and control multiple TippingPoint platforms, the SMS permits IT staff to configure, monitor and manage every IPS from a single site. They further enhance protection by enabling the district to collect comprehensive real-time reports and graphs on traffic, blocked attacks, and network hosts and services.

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Weekly, and more often when required, HIDOE's SMS platforms automatically update the security

filters of its many distributed IPS systems using the TippingPoint Digital Vaccine® real-time inoculation service. With barely any administrator intervention, HIDOE always keep its entire statewide networking infrastructure safe against online threats, even zero-day menaces.

HIDOE also relies on the SMS to ban instant messaging and peer-to-peer communications among its schools using the bandwidth management capabilities of its TippingPoint security solutions. IT staff set the systems to limit available bandwidth for streaming video and FTP communications, ensuring that unnecessary student downloads do not constrict Web access for legitimate academic uses.

To bolster connectivity at its data center, HIDOE selected the standards-based, 10- Gigabit-ready 3Com Switch 8800 for its market-leading throughput, scalability and availability. The powerful enterprise-class system, according to Kim, “offers a winning combination of price and performance and deploys smoothly into our existing network.” Today, even during peak usage, the Switch 8800 ensures that mission-critical applications, such as the district's massive student information system, teacher online interactive video training program and virtual Internet classroom field trips, run free of latency and congestion. The switch's rich security features complement the TippingPoint IPS by ensuring that all users are authenticated and by preventing unauthorized Layer 3 traffic from traversing the network. The core switch also gives HIDOE the business continuity assurance it requires through its redundant load-sharing switching fabrics and power supplies.

3Com Switch 7700 and 5500G solutions power the networks at most of HIDOE's schools and remote facilities, handling all traffic between the LAN and the WAN with advanced switching and routing at Gigabit speed. Their support for virtual LANs (VLANs) prevents student access to private administrative data or music downloads by segregating educational and administrative traffic at each site. These modular systems, which scale

to 10-Gigabit speed, have Gigabit links to 3Com Switch 5500 and 4400 10/100 systems in wiring closets, ensuring students and teachers of rapid access to educational applications, resources and Web resources.

As students and faculty rely increasingly on advanced multimedia learning, professional development and administrative applications, HIDOE has begun to extend the power of its Switch 8800 and 7700 systems to the edge of its school networks by introducing stackable 3Com Switch 5500 solutions. These enterprise-class devices offer Gigabit and 10- Gigabit connectivity to local 3Com Switch 7700 devices, uniquely providing an easy-to-deploy, high-value solution with the same levels of performance and scalability of the most robust corporate networks. Thanks to their power and versatility, they even form the network core for smaller schools.

The 3Com Switch 5500 solutions also share the same operating system as the district's 3Com core switches, allowing administrators to efficiently manage each school's switching and routing infrastructure from a single management platform. Moreover, the district relies on their functionality to improve performance and control. Using OSPF (Open Shortest Path First), for example, the systems automatically find the shortest paths to routers on school LANs to deliver applications and resources to classrooms as rapidly as possible.

Taking advantage of 3Com's portfolio breadth to provide fast and reliable end-to-end solutions, HIDOE also uses 3Com Router 5232 systems to securely link each LAN to the WAN and provide embedded firewalls, traffic filtering and support for VPNs. 3Com Wireless LAN Access Point 8750 solutions deliver high-speed, secure classroom connectivity that supports a comprehensive and secure communications network throughout the school district.

To further ensure network availability at its schools, HIDOE enjoys hardware replacement, telephone technical support, and the latest software upgrades with the 3Com Express extended warranty service. Moreover, HIDOE ensured a smooth and rapid implementation of its TippingPoint IPS by contracting 3Com Global Services to install the platform. For an extra measure of protection, HIDOE relies on the 3Com Guardian extended warranty service, which provides a four-hour response time for on-site support and replacement hardware.

### Benefits\_Summary

With the deployment of TippingPoint security solutions, HIDOE has been free of crippling attacks from worms, viruses and other online risks. The systems pre-emptively deter malicious software from entering the school networks, ensuring connectivity is safely available for students, faculty and administrators. The IPS platforms are also continually and automatically updated to ward off both established and emerging threats. Moreover, they let HIDOE control how students use bandwidth, minimizing the distraction of improper messaging or downloads.

"Even though we can't disinfect every laptop before it's connected to our networks, the TippingPoint solutions still protect our classrooms from all manner of hazards, including zero-day threats," said Kim. "Additionally, their centralized management makes them a high-value solution for large, distributed enterprises like ours. We can manage our security easily and economically, avoiding the cost of having a team of security professionals on-staff. With the addition of our TippingPoint platforms, 3Com has given us a secure, enterprise-wide network that is a safe online environment for teaching and learning in our schools."

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