

### SOLUTION BRIEF



## “THE EPIDEMIC OF YOUTH E-CIGARETTE USE” – U.S. SURGEON GENERAL, DECEMBER 2018

The need to cope with vaping is straining educational resources. Vaping in schools is a leading cause for out-of-school suspension. High school out-of-school suspensions cost the US \$35 billion annually, squeezing already tight district and school budgets as well as decreased national economic potential. Costs include added administrative oversight, remediation/counseling, parent meetings, credit recovery programs, increased truancy, increased criminal justice costs, and fewer graduates/reduced higher education enrollment, and a lower-skilled work force.

Monitoring for vaping is difficult. The residual odor is easy to mask, the visual signature is limited, and use in areas protected by personal privacy such as restrooms and locker rooms is common. Supervision by faculty may be limited by other priorities like teaching, the high costs for faculty monitoring, union contracts that limit responsibilities, or understandable privacy concerns. Restrooms are particularly difficult in that they preclude visual supervision by faculty or security cameras. Finally, vaping devices can look more like USB sticks rather than cigarettes.

## SMART CAMPUSES USE IOT TO BUILD SOLUTIONS

A vaping detection sensor connected over a Ruckus network enables a cost-effective means to directly target vaping use on campus. Ruckus has partnered with Soter Technologies to bundle select ICX PoE switches with FlySense™ sensors, Soter's real-time vaping, smoking and elevated sound incident detection solution. FlySense gives schools control of areas where they cannot place a camera. Soter's multi-sensor devices are capable of detecting vaping, as well as smoke and noise disturbances that may suggest violence or bullying. On detection, alerts are sent to Soter's cloud-based dashboard where notifications can be directed by text or email to school administrators or school resource officers (SRO), with simple and thorough customization of who gets what alerts on what schedule. Integration with the Ruckus IOT suite will enable sensors to trigger additional connected devices such as security cameras (outside of bathrooms), above-door lights or audible alarms.

FlySense multi-sensor vaping detectors are the kind of device that falls under the heading Internet of Things or IoT. IoT devices usually don't belong to an individual in the way a smart phone does, and usually have more specific uses. IoT devices are typically characterized by low bandwidth network traffic with a very high tolerance for network latency and uncertainty, so they can even have a low priority and work well.

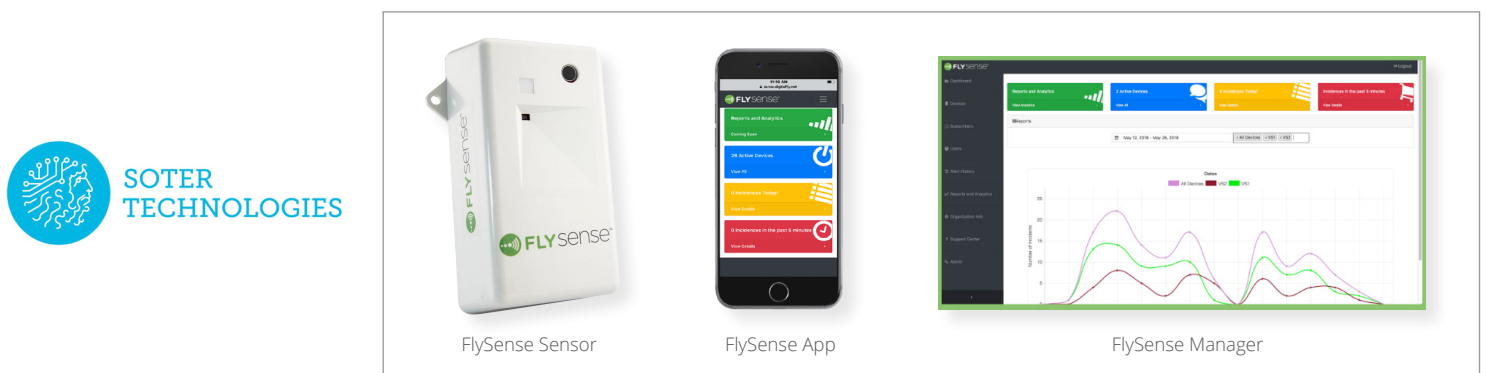


Figure 1. The FlySense system

## ADVANTAGES OF FLYSENSE NETWORKED VAPE SENSORS

### Let teachers teach instead of standing outside bathrooms

- Deter vaping in areas where privacy concerns are high or have limited supervision
  - Place FlySense monitors where cameras cannot go—bathrooms locker rooms, or other hotspots
  - Sound anomaly detection does not record sounds or conversations, but monitors decibel level, alerting on unusual patterns
  - Vape and smoke detection is no more invasive than traditional smoke detectors

## RUCKUS NETWORKS AND SOTER TECHNOLOGIES ENHANCE SCHOOL SAFETY

Today's school district administrators face a far more complex set of challenges than they did even a decade ago. In addition to providing a top-notch education, they must also ensure the safety and security of their students, faculty and staff in an unfortunately more complicated world. In the education space, Soter's Digital Fly product line includes a suite of school safety tools for detection and prevention of bullying, cyberbullying, vaping, and smoking. These products and services are making an impact in more than 500 schools internationally and have a proven record of identifying and averting threats—including being credited with saving the lives of students who were contemplating suicide.

Ruckus Networks elevates the digital learning experience with safe and reliable network access. The classroom of tomorrow promises an amazing education. Blended learning, flipped classrooms, video delivery of digital curriculum, video conference and other modern learning models can better engage students and help educators be more effective. We power the modern classroom with grade-A Wi-Fi and edge switching performance coupled with simple, market-leading secure onboarding and policy management. With the addition of the Ruckus IoT suite, that grade-A network can be leveraged to improve safety, lower facilities costs and reduce administrative and IT overhead.

Contact your Ruckus Networks reseller today and explore what we can do to help you navigate the available technology to provide a safe, and outstanding educational environment.

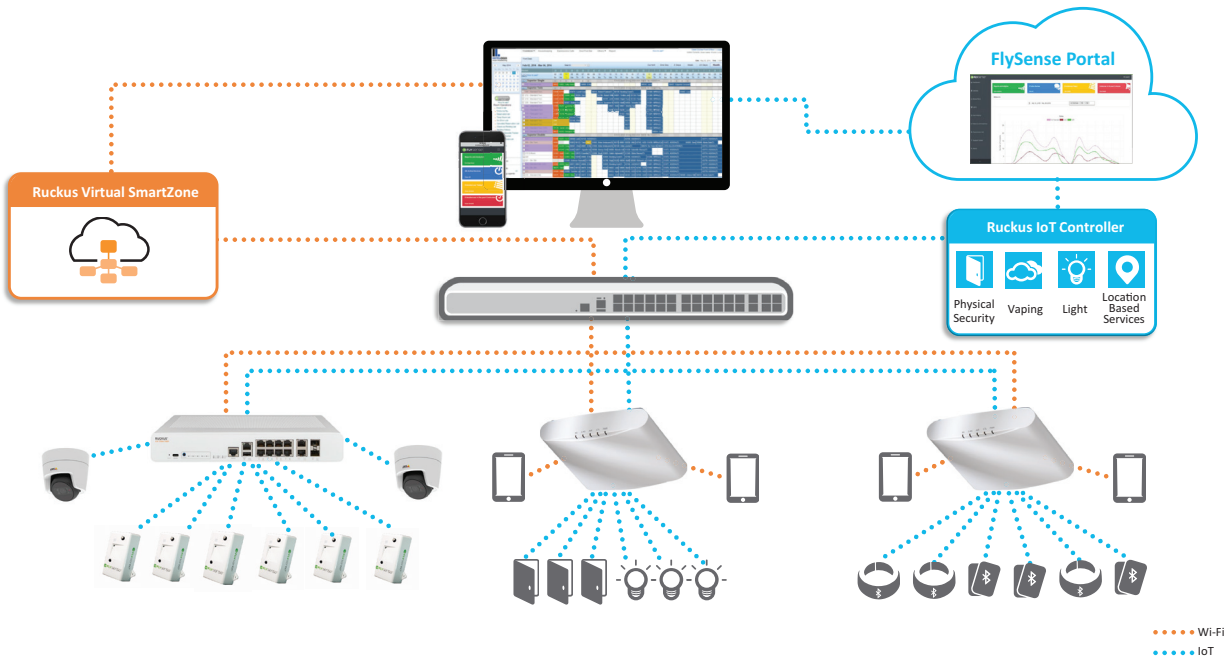


Figure 2. Example Ruckus and Soter IoT Architecture