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## SAFETY PATROL: UTILIZING TECHNOLOGY TO IMPROVE RESPONSE TIMES IN EMERGENCY EVENT SITUATIONS

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## SAFETY PATROL: UTILIZING TECHNOLOGY TO IMPROVE RESPONSE TIMES IN EMERGENCY EVENT SITUATIONS

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### ABSTRACT

Mass shootings have, tragically, been on the rise in recent years and, heartbreakingly, those incidents can and do take place on school grounds. Techniques are presented herein that support a Safety Patrol facility that accelerates emergency services response times and equips first responders with the critical information that is required to act quickly in an emergency situation. According to the presented techniques, after an emergency event (such as a gunshot, a fire alarm, etc.) is detected, a network may react to the notification of that event by automatically creating a new Wi-Fi service set identifier (SSID) named FirstResponders and generating a splash page for first responder login. After successfully logging in, the presented techniques provide an overview of a facility (through floor plan maps) and identify the locations of video cameras which may be selected to receive live video feeds. Additionally, according to the presented techniques detected events may be displayed on a floor plan along with timestamps to provide historical situational awareness and equip first responders with not just information regarding what occurred where, but also access to the live feeds depicting what is currently happening.

### DETAILED DESCRIPTION

Mass shootings, which may be characterized as an incident of targeted violence where four or more people are injured or killed through the use of a firearm (including a pistol, a shotgun, an assault rifle, or a machine gun), have, tragically, been on the rise in recent years. According to the Gun Violence Archive website, in the United States there were 690 such incidents in 2021 and 648 such incidents in 2022.

Heartbreakingly, those incidents can and do take place on school grounds. According to the Education Week website, since 2018 there have been 150 school

shootings where at least one person was killed or injured. No family should ever experience the tragic, preventable loss of a child through such an incident.

Technology is able to do more to improve emergency services response times and equip first responders with critical information, both of which are vital to resolving a situation and saving lives.

In an active shooter situation, every second counts. Time is of the essence when it comes to notifying law enforcement and first responders of the unfolding situation. Further, providing those individuals with accurate, real-time information is critical to their ability to successfully assess the situation and act with precision. During the investigation into the May 31st, 2022 Uvalde, Texas school shooting, it was determined that many lives could have been saved had there been a better sharing of information between the different responding agencies and had there been better information available as to what was happening inside the building (in particular regarding the shooter along with an understanding of where additional potential victims may have been located).

The military knows well that information is the key to winning a battle. And network equipment vendors empower schools and businesses with information through their networks as well as their Internet Protocol (IP) cameras and sensors. As a result, those vendors could be part of a solution that provides first responders with key information to help them assess and respond to attacks. Additionally, that same solution could be used in other, similar, events that require situational awareness by first responders (such as, for example, firefighters responding to a burning building).

In support of the solution that was described above, techniques are presented herein that provide situational awareness to first responders arriving on the scene of an emergency by allowing them to quickly and easily tap into a network and receive floor plans along with a timeline of detected events, including where those events occurred in relation to the floor plan. Aspects of the presented techniques allow first responders to watch video footage surrounding the detected events as well as to see and hear live camera footage. The capabilities that are offered by the presented techniques significantly improve the ability for first responders to quickly gain situational awareness and respond when arriving at an unknown and chaotic scene.

The techniques presented herein, which will be described and illustrated in the below narrative, support a number of novel capabilities.

First, a network may take an action and respond to the detection of an emergency event (such as, for example, a gunshot, a fire alarm, a lockdown procedure trigger, etc.). Second, the action that was noted above may encompass creating a Wi-Fi service set identifier (SSID) named FirstResponders and presenting a captive portal splash page to allow for logging in. Third, after a successful login floor plans may be displayed along with the detected events with timestamps and their location on a floor plan. Fourth, camera footage surrounding the events and live camera feeds may also be accessed.

Consider an illustrative example in which a gunman walks into a school and begins firing a weapon. At the first gunshot, the system can detect the sound of gunfire (by, for example, leveraging known audio profile techniques) and, in response, can initiate 'Safety Patrol' logic through which the network can trigger various actions that can accelerate emergency services response times and may also help to equip first responders with critical information that can enable them to act quickly in an emergency situation. In some instances, in-ceiling cameras may detect the gunfire sounds and notify a cloud service to create and record the emergency event.

During a first step, the network triggered actions can include creating a new open SSID named FirstResponders (as depicted in Figure 1A below) and, during a second step, the network triggered actions can include deploying a captive portal splash page that contains a notification regarding the capabilities that are available and that requests user authentication information for accessing a first responder's network (as depicted in Figure 1B, below).

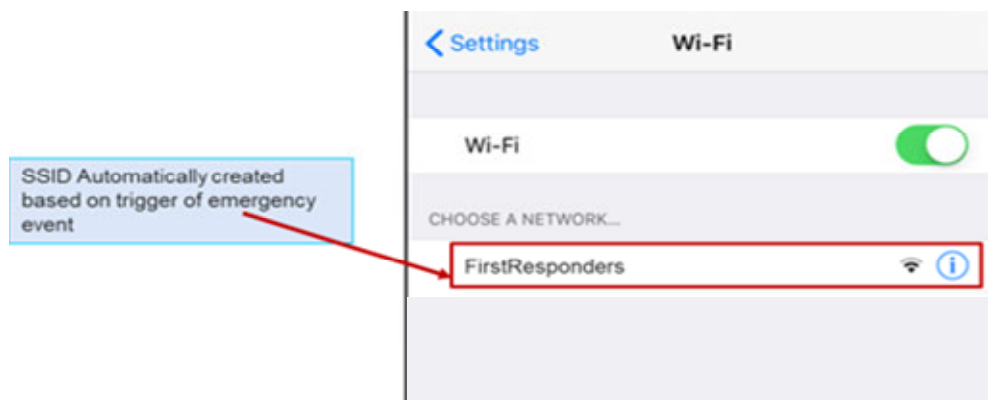


Figure 1A: Step 1

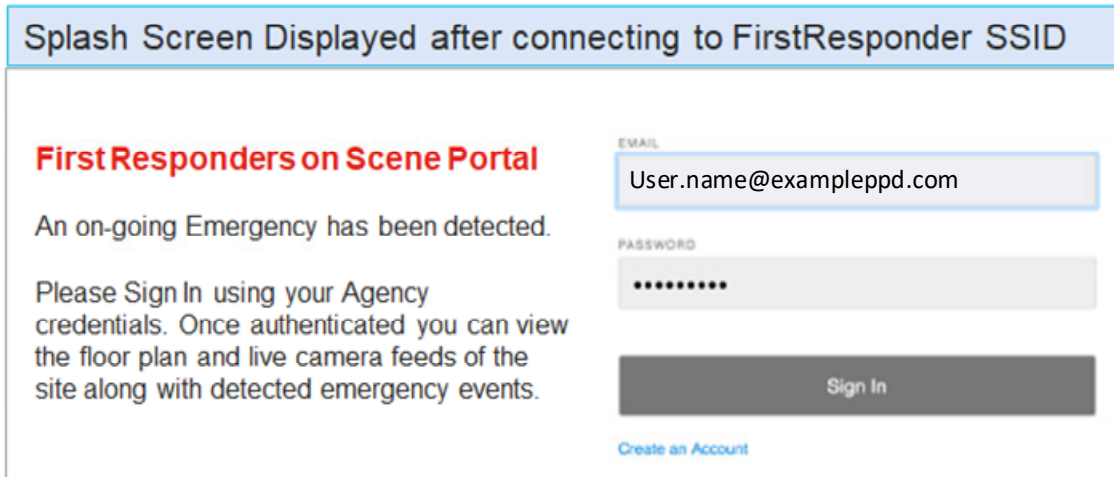


Figure 1B: Step 2

During the above-described process, federated authentication may be employed so that each agency is able to authenticate back to their own systems. Upon successful authentication, a redirect may be enabled to present a dashboard (which will be described and illustrated below) to a user. Additionally, a dynamic Domain Name System (DNS) entry may be created for a first responder’s domain to take users to the dashboard.

Figure 2, below, depicts elements of an exemplary dashboard according to aspects of the techniques presented herein and reflective of the above discussion.

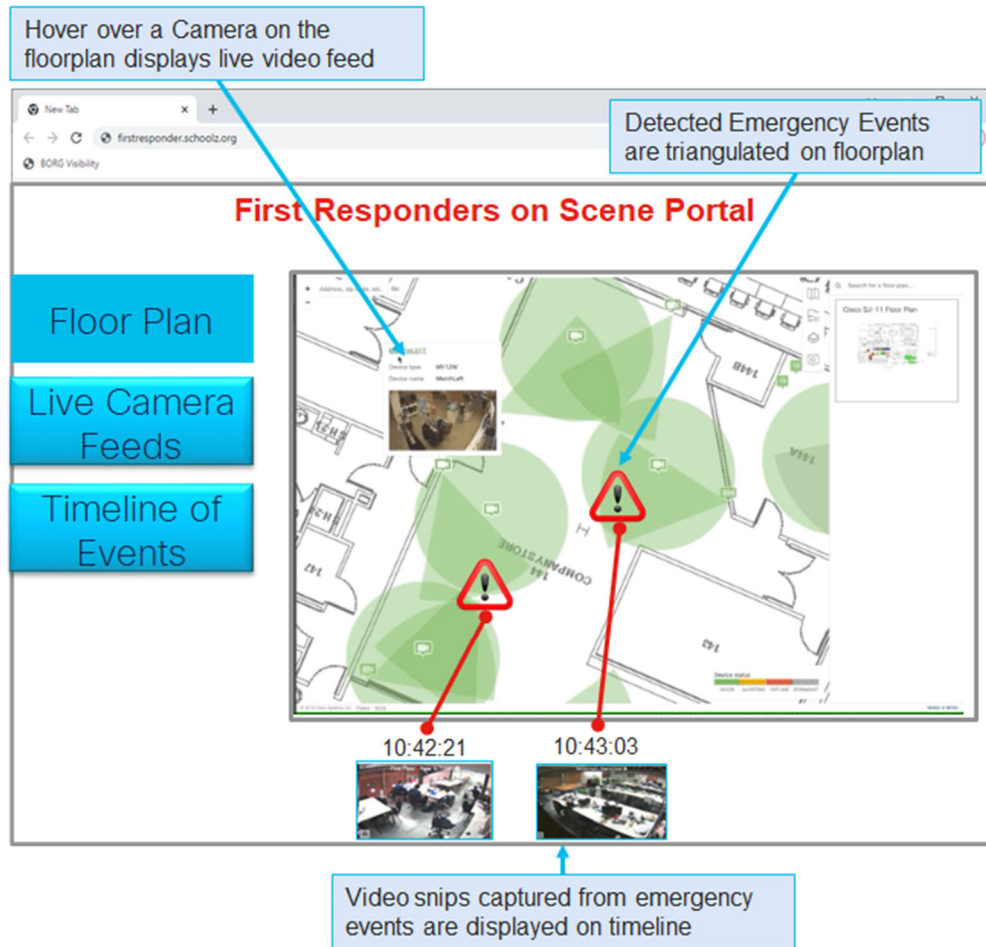


Figure 2: Exemplary Dashboard

The exemplary dashboard that is shown in Figure 2, above, provides first responders with situational awareness and allows them to quickly orient themselves regarding what triggered the emergency indication, where the emergency was detected, and when the emergency was triggered. Additionally, the dashboard may provide video footage that was captured at the time around the emergency event, a timeline (if more than one emergency event took place), access to live feeds from cameras in the building, and contact information for facilities personnel.

It is important to note that the techniques presented herein, as described and illustrated in the above narrative, leverage certain existing capabilities (including the detection of an emergency event (such as a gunshot, a fire alarm, etc.), the triangulation of an event, and the recording of an event) to enhance how a network reacts to a detected event and what it does to leverage the combined resources of the network to enable first

responders. In brief, a network may, according to the presented techniques, respond to a detected emergency event by providing the key information that is necessary to equip first responders by aggregating the information for display on a portal or splash page. The presented techniques connect the dots between existing network equipment vendor technology and ancillary technology in an innovative and novel way, saving precious minutes in these unthinkable, but sadly, very real situations.

By combining the above-described technologies in a novel way, the techniques presented herein allow first responders to arrive on a scene with information in hand, reducing the time that would be spent on collecting situational information and reducing potential misinformation. The detailed, real-time information that may be provided allows first responders to react quickly and prioritize evacuation or interception actions to avoid additional escalation or severity.

The techniques presented herein may be applied or employed in a number of ways. For example, an authenticated user may share a link to a cloud-hosted dashboard (as described and illustrated above) with individuals who are not at a scene but who may be, for example, at a command center. Such an action may allow access to the portal from remote locations that are outside of the local Wi-Fi range and may allow for the sharing of the portal to other users. Additionally, a system according to the techniques presented herein may implement a subscription or notification mechanism through which emergency response agencies may be automatically notified of events where those notifications may include access to the same portal that was created in response to the emergency in addition to the locally created network changes.

In summary, techniques have been presented herein that support a Safety Patrol facility that accelerates emergency services response times and equips first responders with the critical information that is required to act quickly in an emergency situation. According to the presented techniques, after an emergency event (such as a gunshot, a fire alarm, etc.) is detected, a network may react to the notification of that event by automatically creating a new Wi-Fi SSID named FirstResponders and generating a splash page for first responder login. After successfully logging in, the presented techniques provide an overview of a facility (through floor plan maps) and identify the locations of video cameras which may be selected to receive live video feeds. Additionally, according to the presented techniques

detected events may be displayed on a floor plan along with timestamps to provide historical situational awareness and equip first responders with not just information regarding what occurred where, but also access to the live feeds depicting what is currently happening.