

Mass Notification

Integrating and Automating Communication
for Situational Awareness

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Introduction

When an emergency occurs — from a tornado to an armed intruder — confusion and panic often follow and so do communication breakdowns, delayed responses and costly mistakes. Whether an act of God or man-made, the first few minutes of any unfolding threat will be critical in determining its outcome. Of course, no one wants to think about an event with mass losses occurring, but today's societal realities require increased diligence and proactivity, not just reactivity. The mindset has to shift from one of denial, as in "it won't happen here" to one of readiness, as in "we know what's happening, where it's happening, and what to do about it."

Inadequate vulnerability assessments, poor planning against identified risks, and lack of training and evaluation lead to safety and security failures. Emergency preparedness and response planning is a continuous process that requires constant review and improvement. The right information has to reach both on- and off-site responders so they can make informed decisions to protect life safety, property and overall business operations.

If you can **read**, **hear** and **see** what's happening in and around your organization, you can **do** something about it. Then you can **analyze** response times and protocols to identify problems and continuously improve safety and security. Such integration and automation through a common alerting engine creates situational awareness, ensuring that all alarm systems, communication networks and devices, and response plans work in tandem. Such interoperability also means that legacy technology investments don't have to be ripped out and replaced. In fact, the tools already in place increase in value and ROI.



Read



Hear



See



Do



Analyze



What Is Situational Awareness?

Originally a military term referring to a pilot's operational status and knowledge of immediate threats, today the term has broad applications in any environment. Within an IT context, situational awareness refers to real-time information about what's happening in and around a given facility, multi-building campus or enterprise. This knowledge is made possible by integrating disparate alarm and communication systems for centralized monitoring, alerting and reporting.

With situational awareness as a risk management strategy and technology framework, details about potential threats or unfolding incidents is delivered automatically and in real time to key individuals, select groups or entire populations so they can act quickly and in accordance with predefined emergency protocols. Removing or at least reducing human error — the weak link in emergency response — creates more time to diffuse a situation and ensure it's managed correctly.

Situational awareness isn't complicated, but it can be challenging because of the various alarm systems already at work in a given environment. In addition, communication infrastructure has moved from rudimentary to super charged — from radios, handsets and pagers to smartphones, tablets and a variety of other screens. But with computer-telephony integration (CTI) and robust middleware, every sensor, alarm and communication end point can be unified. Instead of a generic nomenclature, detailed alerts, including the nature of the alert plus location data, are delivered according to an organization's predefined business rules.

It all starts with the situation. Whatever it is — from a life-and-death scenario to a blown fuse — information must be conveyed in real time to those most likely to be affected, as well as the people responsible for investigation, containment and remediation. What's dangerous in and around your organization? What actions should be taken to respond quickly to those likely threats? With a universal alerting engine for situational awareness, any physical threat or deviation from normal operations will trigger an alert to on- and off-site responders or other constituencies based on predefined modes and actions, or "if this, then that" scenarios, critical information that can improve response in terms of both the right action and the right timing.



Defining the “Mass” in Mass Notification

Following a terrorist attack in Saudi Arabia in 1996 that killed or wounded nearly 300 people, primarily U.S. Air Force personnel, the Department of Defense issued an official document outlining the need for mass notification, defining it as “... the capability to provide real-time information and instructions to people in a building, area, site or installation using intelligible communications including visible signals, text and graphics, and possibly other tactile or communication methods.”



Example of mobile dashboard with various alert types, pre-programmed to deliver detailed information to predefined contacts

Since then, mass notification has become a buzzword within the emergency communication and response industry, as well as a key application of situational awareness technology. It ensures that real-time, detailed information about a triggering event goes to those who need to know. It also enables alerts to be set up according to different event types. For example, one alert can signal a fire so occupants know to evacuate immediately, while another indicates a tornado, which means occupants need to shelter in place. Alerts also can be programmed to activate sirens or strobe lights, as well as send out instructions via phone calls, texts, emails, PA announcements, etc. This sort of layered, event-triggered mass notification provides redundancy, which is critical to life safety.

Mass notification also can be campaign-triggered, meaning tailored to a specific group. For instance, sending automated alerts to engineering versus security. An organization also can use this situational awareness functionality to broadcast non-emergency information. If a university student’s meal plan is about to expire, a phone call, text and/or email can be set up to notify said student so arrangements can be made for renewal. Modes and actions, or the “if this, then that” scenarios, can be used to drive awareness transactions regarding any situation deemed important to your organization — from matters of life safety and security to matters of revenue.

For reaching a large number of stakeholders, the telephone remains a relevant and effective means of communication. Mass dialing to landlines and mobile phones gives an organization the ability to make large volumes of calls, automatically triggered by event type. For example, a school or government complex can use this capability to announce inclement weather warnings, closings, schedule changes, etc.

Of course, for all of this to work correctly an organization must define who comprises the “mass” in mass notification, the appropriate layers of redundancy, and the forms of alerting. Once the protocols and escalation paths have been identified, alerting is automatic. But you always have the ability to send alerts on demand if unplanned events or changes occur, in addition to making updated announcements as an unfolding situation changes.

Does It Work?

It doesn't matter what you want to know or how you want to know. It just matters that you want to know. By creating a single platform for situational awareness, you'll ensure that critical communications reach your intended audiences, depending on event type, group type and the nature of the information that needs to be shared. Again, it all goes back to modes and actions that an organization defines based on its risk assessment and emergency response plans. Following are some examples of how various organizations have integrated and automated communication for greater situational awareness.

Nova Scotia Community College

NSCC uses situational awareness technology at 13 campuses across the Canadian province. The college uses automated alerting about emergencies or urgent public safety matters to notify and provide instructions to campus security, emergency responders, executives and other staff, and of course students. NSCC has improved campus safety, security and environmental monitoring by:

- Using mass notification based on specific scenarios to public address systems, emails, texts, two-way radios, phones, networked computers, and digital signage (e.g., wall boards) with horns and strobe lights in industrial areas (e.g., garages, welding and pipefitting shops)
- Setting up emergency pull stations to initiate lockdowns and the associated alerts
- Giving mobile duress pendants (aka panic buttons) to personnel so they can summon immediate help
- Integrating fire panels with data pushed directly to key on- and off-site responders
- Monitoring building infrastructure and control systems (e.g., temperature and humidity sensors in server rooms, temperature sensors in food stores, and sensors on HVAC systems, boilers, water pumps, etc.)

Sandusky Fire Department

The fire department in Sandusky, Ohio, serves more than 29,000 permanent residents, with summer bringing up to 50,000 visitors to the city's Cedar Point Amusement Park, making efficient mass notification critical to emergency management. The city decided to deploy a new platform for inter-departmental communications, replacing a paging system with a more flexible and cost-effective situational awareness system. Integrated with the city's fiber optic network, the technology is used to automatically:

- Send alerts and campaign-style messages to employees via cell phones, home phones, pagers, emails, two-way radios and public address systems
- Contact employees individually or as functional groups, such as and including the dive team, hazmat team, rope team, officers, paramedics and firefighters, via both voice and text messaging
- Generate messages to other individuals and groups, including city commissioners, department heads and media

Wilson Workforce Rehabilitation Center

WWRC in Fishersville, Virginia, is an open campus surrounded by elementary, middle and high schools, plus a residential area. To improve emergency preparedness and response, WWRC uses situational awareness technology to rapidly alert staff, clients and visitors of imminent danger and aid in how personnel respond during and after an emergency. Specifically, the center:

- Uses automatic, area-specific or event-specific distribution and activation of multiple emergency messages
- Broadcasts alerts via live and recorded voice messages to landlines and mobile phones, text messages, audible announcements to the outdoor courtyard, strobe lights in secluded areas and digital signage (e.g., wall boards)

Getting Started

Numerous life safety, security and environmental monitoring systems are at work in and around any facility at any given time. But they usually operate independent of one another, in silos, with no monitoring so they only provide local alerting in the form of buzzers, lamps or annunciation panels. A fire alarm goes off when smoke is detected, but it doesn't tell occupants where the fire is or where the nearest exits are located so the safest evacuation route can be determined. But with a universal alerting/mass notification engine, triggering events like a fire alarm can be harnessed to drive awareness transactions — aka alerts — with specific details about an unfolding situation and how to address or avoid it.

Duress alerting is often the first step an organization takes when implementing situational awareness. It's both easy and cost-effective to deploy both fixed and mobile duress systems, enabling help to be summoned quickly — whether that's because a student is having an allergic reaction, a residence hall door is ajar, a theft is being attempted, or a suspicious person has been seen. Wide-area mobile duress uses cellular-based help buttons with GPS tracking to enhance safety and security in large, outdoor areas or remote locations.

And the same smart networks, devices and software that power fixed and mobile duress also make it possible to integrate every existing life safety, security and environmental system by simply adding new sensors. Random alarms from these disparate systems then can be converted into detailed alerts for delivery to the right people on the right devices so they can address an unfolding situation in the right way. Access control systems, fire panels, water sensors and cigarette busters in restrooms, temperature monitors in cafeteria and medical-grade refrigerators, motion detectors at eye-wash stations in science and medical labs — each stand-alone system can be integrated with a single yet powerful situational awareness and response engine.

Situational awareness is a big concept, but the purpose is simple: prevent ignorance-based loss of life and property and prevent costly business disruptions whenever possible. Often the hardest part of a big job is just getting started, so we've listed some steps your organization can take to begin addressing your situational awareness and mass notification needs:

- Appoint a cross-functional team.
- Inventory your communication assets.
- Outline your existing communication protocols.
- Determine your gaps.
- Strategize about how technology can fill those gaps.
- Engage a provider that can help map the right solution to your specific infrastructure and needs.

