

Technology Trends Improving Safety in the Workplace

How to Implement a Framework
for Real-time Situational Awareness
and Response Management

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Introduction

One of the benefits of being a technology veteran is that you see a lot of trends over a lot of years, or in my case, decades. When I had my first bag phone with a backpack for the battery case, people mocked me mercilessly. Obviously folks changed their minds and cellular took off. Remember *Star Trek's* Captain Kirk walking around with his communicator? That used to be science fiction; now it's just science with more mobile phones in circulation around the planet today than toothbrushes.

From our perspective, the promise of technology is in prevention — as in preventing bad things from happening or at least facilitating the appropriate response if an emergency does occur. The good news is that a risk management strategy and technology framework does exist to detect threats automatically and initiate the appropriate responses. This approach is called **situational awareness**, and it leverages several current technology trends to improve communication, reduce confusion and panic, and prevent delayed responses and costly mistakes.

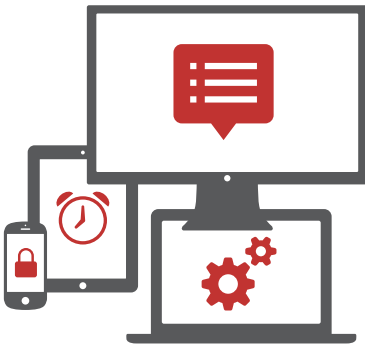


What Is Situational Awareness?

Situational awareness is a simple concept, yet people often miss it or over complicate it. 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. At its essence, situational awareness refers to real-time information about what's happening in and around a given facility/campus/enterprise. This knowledge is made possible by integrating disparate alarm and communication systems for centralized monitoring, alerting and reporting.

Converged Connectivity

Convergence refers to the confluence of voice, data, wireless, and even body area networks that provide an unprecedented level of connectivity. The beauty of the World Wide Web is the “world-wide” part, so there’s Wi-Fi in buildings and cellular outside of buildings for roaming and handoff from office to home and anywhere in between. The meshing of networks and devices has created the Internet of Things, with Cisco’s Internet Business Solutions Group predicting some 25 billion devices will be connected by 2015, and 50 billion devices will be connected by 2020.



The power of this persistent connection makes it possible to do all sorts of great things. But life safety applications should always be on a dedicated mesh network. It’s okay to use a data network to send out alerts, via e-mail for example, but alerts also should go out via landlines, smartphones, radios, public address systems, and digital signage, such as wall boards, CCTVs and tablet-based kiosks.

Using multiple communication end points ensures redundancy, which is critical for life safety. However, monitored sensors — from emergency call stations and fire alarms to access control and intrusion detection — should never be placed on an IP network because there are too many failure points (e.g., routers, PoE, cabling and access points).

Redundancy is critical to life safety.

Mobility

Connectivity actually facilitates mobility, which has serious life safety implications for any business. For example, **Toyota Motor Manufacturing, Indiana, Inc.** uses mobile duress in its Princeton plant’s welding and storage areas to give crews the ability to call for assistance without exiting their forklifts and tuggers. **West 57th by Hilton Club** in New York City also has given wireless “help” pendants to engineering, housekeeping and security staff.



Mobile dashboards are pre-programmed to meet customer needs for situational awareness and response.

A button press automatically sends an alert to the appropriate responders. In addition to the pendant ID, alerts also include the approximate location to improve response times because those needing help can be found more quickly. So it’s not just grandma’s alert button anymore, as numerous industries begin to adopt mobile duress technology to enable immediate assistance.

That’s because the first few minutes of an emergency are critical in determining the outcomes. Therefore, it’s imperative that accurate and detailed information quickly reaches true first responders — management and employees on site — as well as outside emergency services, if needed. Alerts must be delivered to the people best qualified to respond, so driving information to as many screens as possible is key — especially the personal screens most of us carry at all times.

Turning mobile devices like our smartphones into command and control centers through pre-programmed, intuitive dashboards gives users more time to respond to, or move away from, a potential threat. With such mobile situational awareness, users can respond to situations as they unfold, initiate alerts and associated response plans more effectively, and escalate/notify others as necessary — all from one interface in the palms of their hands.

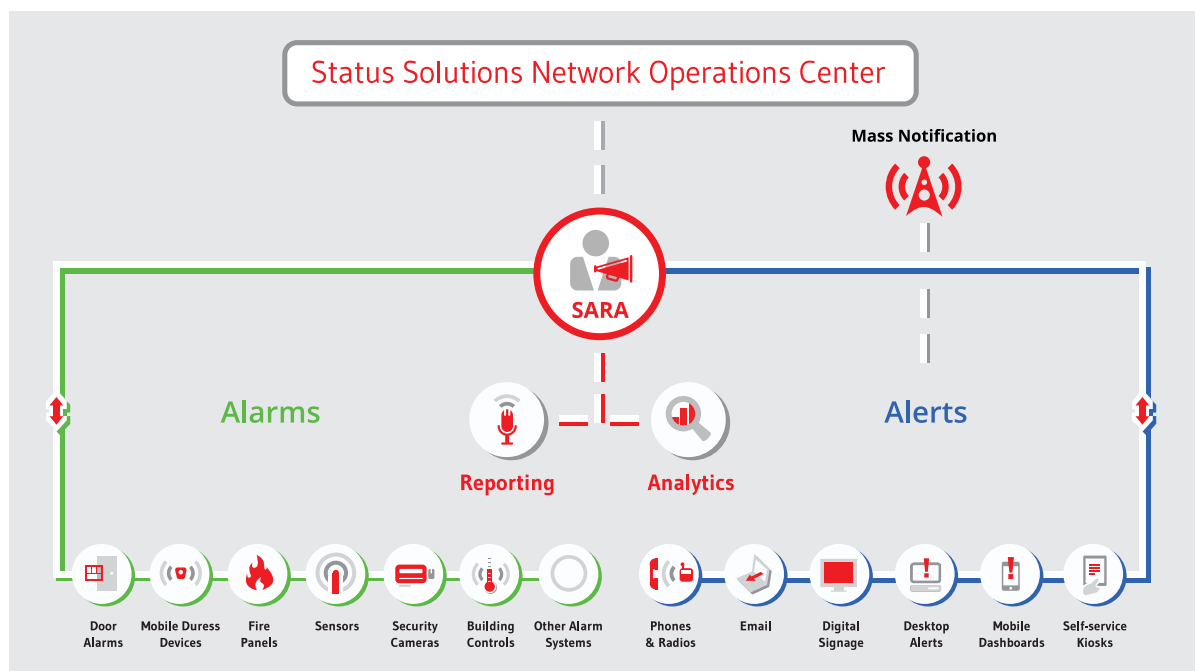
Interoperability

In any given facility at any given time, multiple life safety and security systems are at work. However, these usually operate independent of one another, in silos, and unmonitored systems generally 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 indicate where the fire is or where the nearest exits are located so the safest evacuation route can be determined. But today's smarter networks and devices, plus the right software to tie all of them together, make it easier and more cost-effective to create a safety and security bubble over a single facility, wide-area campus, or entire enterprise.

With expertise in computer-telephony integration (CTI) and robust middleware, disparate alarm and communication systems work in concert to ensure that key personnel, select groups or entire populations receive specific information about an unfolding situation and how to respond. Therefore, existing alarm and communication systems don't have to be ripped out and replaced. Legacy technology investments can be unified and sometimes expanded to ensure critical information reaches both on- and off-site responders or other audiences based on predefined protocols, or modes and actions (e.g., if this, then that).

Alarm and communication interoperability/unification takes a facility from reactionary and piecemeal to holistic and strategic in terms of emergency alerting and response management. Stand-alone alarms are converted into detailed alerts delivered to the right people on the right devices so they can address an unfolding situation in the right way.

And by adding video paging through security camera integration, live video can be pushed to desktops and mobile devices. In fact, video will be a game changer for both awareness and analytics. For example, using facial recognition to determine whether or not someone is supposed to be in a certain area, and whether they're recognized as a staff member, legitimate visitor or intruder.



Architecture diagram of our Situational Awareness and Response Assistant (SARA) with various inputs and outputs

Automated Situational Awareness



Eyes on a triggering event through video paging enhances situational awareness and response.

Originally a military term referring to a pilot's operational status and knowledge of immediate threats, situational awareness now also refers to real-time knowledge about what's happening in and around a given facility/campus/enterprise. This knowledge is made possible by integrating disparate networks, devices and systems for one awareness experience through centralized monitoring, alerting and reporting. With a common alerting engine, triggering events can be harnessed to drive awareness transactions, aka alerts, with specific details about an unfolding situation.

The world's communication infrastructure has moved from rudimentary to supercharged — from radios, handsets and pagers to smartphones and tablets, a proliferation of screens for sharing information to keep people safe. Being able to read, hear and see what's happening in and around an organization enables the right things to be done in response. Then response times and protocols can be analyzed to identify problems and improve safety compliance.

Terrorist attack, fire, tornado — these types of events prove the need for right-now awareness. Of course, no one wants to believe that an incident with mass losses will happen, but what if it did? Knowing the environment and what could be dangerous in and around it can reduce impacts and enable faster response. Automated situational awareness creates time to prevent and/or respond to any number of potential safety threats in and around the workplace.



Mike MacLeod is president of Status Solutions. With degrees in both biology and forestry, Mike combines the scientific method with 25 years of business acumen to bring new technologies to market. Before co-founding Status Solutions in 2001, he spent more than a decade in the telecommunications industry, including serving as president of Comdial's enterprise solutions division.

Contact us at info@StatusSolutions.com or **866-846-7272** to request more information or schedule a site assessment from one of our valued business partners. Discover how you can implement situational awareness to improve life safety, security, environmental monitoring and mass notification.