Emergency Communications at Smaller Colleges

Executive Briefing
October 12, 2007

Martin Ringle
Chief Technology Officer
Reed College

Events such as 9/11, the Northridge earthquake, Hurricane Katrina, the threat of a pandemic and, most recently, the Virginia Tech shootings, have spurred colleges and universities to establish emergency preparedness plans. Common to all such plans is a strategy for maintaining communication during times of crisis. Schools with student populations of three thousand or less—particularly residential institutions—have needs and resource constraints that may differ somewhat from those of large universities. It is important, therefore, for small colleges to identify emergency communications strategies that are more than just scaled-down versions of large university models.

Emergencies come in many different sizes and shapes. Natural events — such as hurricanes, blizzards, ice storms, wind storms, earthquakes, fires, floods, epidemics — and human actions — such as power outages, chemical spills, reactor malfunctions, bomb threats, gunmen, rapists, or terrorists may pose a variety of different communications challenges. However, some communication needs are common to all types of emergencies.

What problem(s) are we trying to solve?

While much attention has been paid to mass notification, a comprehensive communications strategy must address all of the following areas:

- communication among decision-makers and key personnel
- mass notifications to the college community
- communication between the college and the world

Communication among decision-makers — During an emergency situation, it is imperative that decision-makers[1] — the *emergency management team* — communicate promptly with one another to assess the situation and decide upon appropriate measures. Decision-makers must also be able to communicate effectively with *key personnel* such as residence hall advisors, campus safety officers, health center staff, and others.

[1] The composition of the *emergency management team* may vary, depending on the nature of the emergency. In addition to the president and senior officers, the team may include the head of campus security, the head of facilities, the head of health services, etc. To be properly prepared for emergencies, colleges need to identify the appropriate team members for different types of emergencies.

College community notification — Once an emergency situation has been evaluated, information and directives need to be distributed quickly and effectively to students, faculty, staff, and campus visitors.

Communication between the college and the world — During the course of an emergency it may be vital for the college to communicate with external groups such as emergency services personnel, parents, the media, and people visiting the campus for conferences or other reasons.

Complicating factors

Emergency communications strategies need to account for a variety of potential complicating factors, both intrinsic and incidental. Such factors may include:

- loss of power within the campus, neighborhood, or region
- campus network or telecommunications equipment failure
- regional network or cellphone failure
- unavailability of decision-makers or key personnel
- inadequate or poorly understood procedures

Power outage — During an emergency situation, communication channels such as email, web announcements, and public address systems may fail due to power loss at the campus, neighborhood, or regional level. During major events, such as earthquakes, power outages may be abrupt, widespread and prolonged. Even minor, relatively brief events may involve power outages that can disrupt normal communication channels.

Equipment failure — The failure of key pieces of equipment, such as servers, switches, and other network hardware, during an emergency situation can paralyze some campus communication channels. It is not uncommon, for example, for computing devices to fail in emergencies due to loss of adequate climate control.

Network or cellphone failure — Emergency communication strategies that rely on cellphones or external data networks can be crippled by regional events such as hurricanes or earthquakes. Cellphone traffic during such an event can quickly overwhelm carrier capacity and make it difficult or impossible to obtain a signal, especially during the early moments of a crisis.

Unavailability of personnel — During an emergency, decision-makers and other key personnel may be traveling or otherwise unable to participate directly in emergency management discussions.

Inadequate or poorly understood procedures — The most immediate and common reaction to an emergency situation is confusion. In order for an emergency communications strategy to be effective, it must be as simple as possible and thoroughly

understood by decision-makers and key personnel. Regular review and practice are needed to ensure that procedures will be followed during a crisis.

Channels for Decision-Makers and Key Personnel

In our eagerness to take advantage of the latest and best communication technologies, we should not overlook the simplest means of contact: face-to-face conversation. When a crisis arises, the most natural thing for senior officers to do is assemble in a familiar location such as a cabinet room or the president's office. Alerting decision-makers to an emergency situation, especially after hours, may require immediate telephone contact.

Phones — It is important to maintain a current list of all relevant home, office, and cell phone numbers. Ideally, this contact information should be stored in "speed dial mode" in cell phones and other devices by each decision-maker. Getting the word to everyone quickly may require a "phone tree" sequence or, if the number of decision-makers is large, a mass notification system (as discussed below).

Conference utility — If an emergency occurs after hours, if travel is impacted by a natural disaster, or if key decision-makers are not in residence, then a pre-established emergency "conference call number" is a good idea. Such a utility allows all relevant decision-makers to initiate or join an emergency conversation.

Radios — In order to deal with emergency situations that interrupt conventional communication methods (phones, cell phones, email, etc.) it is useful to have a pool of radios to provide multi-way conversation within the campus perimeter. Such devices are routinely used by campus safety officers and facilities staff. Having additional units on hand allows members of the emergency management team to be in touch with those personnel as well as with one another.

Mass Notification to the College Community

Once decision-makers have determined the scope of an emergency situation and have decided on the guidance they wish to give to the community, it is vital for them to be able to disseminate that information quickly. Again, a combination of low-tech and high-tech strategies may be useful.

Word-of-mouth — Sending runners to key locations on campus may seem primitive but experience has shown it to be among the quickest and most reliable ways to disseminate information on small campuses.

Public address equipment — Portable loudspeakers, voice components of fire alarm systems, and campus chimes can contribute to a mass notification strategy. However, their value may be limited. Audibility of public address systems (both portable and fixed) is often limited with an attendant loss of critical information. Likewise, campus

chimes, while highly audible, can do little more during an emergency than prompt people to seek other information channels.

Mass email — In many circumstances, mass email messages to the campus community have the power to reach a great number of people in a very brief amount of time.

Web announcements — Web page announcements, especially if coupled with automatic (RSS) feeds, may be a useful way to reach the community if the emergency extends over a considerable amount of time. For example, in a case such as flooding, a web page with regular status reports, guidance about shelters and medical assistance, maps showing evacuation routes, and other information, could be extremely helpful. Pre-developed web pages that can be activated with little or no modification during specific emergencies are worth the investment of preparation time.

Emergency notification systems — Communications that must be as close to instantaneous as possible, are best achieved through a mass emergency notification system. Such systems are capable of delivering thousands of messages — via voice, text (SMS) and email — in a matter of minutes. Colleges may purchase and manage these systems themselves or they may contract with an external service provider. One advantage of an in-house solution is that the college has complete control over the database of student, faculty, and staff contact information. However, in-house systems suffer from several disadvantages: (a) sending thousands of simultaneous messages places a significant burden on the college's outgoing trunk lines, hence delivery can be significantly slowed; (b) if the campus emergency involves damage to infrastructure or loss of electrical power, the mass notification system may be unusable; and (c) the cost of acquiring and maintaining an in-house system is typically much higher than that of an external service, especially for smaller colleges.[2]

As of June 2007 relatively few small colleges had implemented either in-house or external provider-based electronic mass notification systems, though many were investigating options. Since the annual cost of a hosted solution is typically in the $4,000 to $12,000 range for small colleges, the cost-benefit ratio of deploying an emergency mass notification service is quite compelling.

Before implementing an emergency notification strategy, a college must make several policy decisions, for example:

- Will personal contact information be required or will it be solicited on a voluntary basis?
- How will the contact information be used? Exclusively for emergencies? For important but not necessarily urgent messages? For general communications?
- Who will administer the contact information to ensure that privacy is protected?

[2] A sample list of emergency notification system and service providers is appended.

Using a mass notification system for routine communication may address a variety of needs and may make the investment in the system more justifiable. On the other hand, if such messages are common, critical messaging may be less visible, hence less effective. Some schools offer students the option of signing up for different levels of messaging: e.g., *routine, urgent, emergency only* and flag the contact data accordingly.

The decision of whether to collect personal contact information on a required or a voluntary basis is a complex one and has as much to do with the culture of the institution as it does with the goals of the notification strategy. Some students will resist a requirement to provide personal contact (i.e., cell phone) information and may surrender it only if they believe it will be used exclusively for emergency communications.

Communications with the World

During and immediately following an emergency situation, communications with people outside the college need to be addressed. If web server access is available, web page announcements are extremely effective. If access is interrupted — due to power outage, network failure, or other problems — the ability to fall back to a remote web site is vital. One strategy is to contract with an ISP to establish an alternate institutional web presence in the event of an emergency. Another strategy is to enter into a reciprocal relationship with another college to provide emergency web services for one another. For example, schools like Bowdoin and Loyola Marymount host course management systems, email, domain name service, and a variety of web services for one another. Even a minimal web presence — a home page with status reports, emergency phone contacts, and other emergency information — can be extremely valuable. Fewer than 10% of small colleges have established emergency remote sites of any sort, though many are beginning to explore this need.

The Need for Comprehensive Strategies

While the probability of using an emergency communication strategy may be relatively low, the need to have one in place is increasingly high. Parents need to know that in the event of a crisis the college is adequately prepared to communicate vital information to students as quickly as possible. As mentioned earlier, however, mass notification is only one component of an emergency communication strategy. In order to be effective, such a strategy must encompass all key aspects of communication and must be flexible enough to accommodate a variety of complicating factors. To ensure effectiveness, the strategy must be as simple as possible, well documented, periodically reviewed, and practiced on a regular basis.

Emergency Mass Notification Providers

There are dozens of companies that sell emergency mass notification systems and/or provide hosted notification services. The following table provides a small sample of these companies.[3]

2SMS	Mobile Sphere
Amcom-e.Notify	Mutare Software
CommuniTech Services	NEC Unified Solutions
Connect-Ed	Rave Wireless
Dialogic Communications	Roam Secure
e2Campus	SDC Solutions
Jyngle	Universal Alert

Request for Proposals

A "streamlined" RFP for mass notification systems/services is available from the Reed College IT organization. Other small colleges that are in the process of acquiring — or have already acquired — mass emergency notification systems/services and may be able to provide RFPs or other information include: Bucknell, Colgate, Connecticut, Dickinson, Franklin & Marshall, Hamilton, Harvey Mudd, Middlebury, Mills, Wheaton (Ma), Wesleyan, and Williams.

[3] My thanks to Chuck Ruch, Associate Provost and CIO at Bradley University, for providing this list.