A WHITE PAPER

Federal Continuity of Operations

Part 7 of 10: Emergency Communications Planning

Topic Summary:

- Proposed Emergency Communications lifecycle and guidance from federal policies
- Management structures to support Emergency Communications
- Facilities support for mass notifications and mobile options
- Stakeholder support, especially employees and their families
- Summary and Recommendations for next steps

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1.0 Introduction

Within the federal government and Department of Defense (DOD), sound and effective emergency communications capabilities receive top priority for guiding an organization's response to a crisis. This paper, the seventh in a series of ten analyzing Continuity of Operations (COOP) and using a small Army Program as a use case, examines the role of emergency communications in responding to and minimizing the impact of a declared emergency situation.

This paper uses guidance from the commercial, federal, and DOD spaces to propose a common emergency communications lifecycle consisting of management structures, facilities support, mobility support, and stakeholder involvement; all undergirded by formal policies and procedures, and furthermore enabled via training and exercise. Specific recommendations adapted to the Army Program use case, in conjunction with a summarization of the paper's findings, provide a practical implementation basis for the COOP practitioner to use throughout the public, and the Business Continuity Management (BCM) practitioner to use throughout the private, sectors.

2.0 The Emergency Communications Cycle

The Federal Emergency Management Agency (FEMA) defines Emergency Communications as "the functions that a facility might need to perform in an emergency and the communications systems needed to support them" (FEMA-141, p 31). These functions include communications between Emergency Responders; Responders and the Incident Commander (IC); the IC and the Emergency Operations Center (EOC); the IC and employees; the EOC and external responders; and, the EOC and external stakeholders. This paper provides a simple framework to express these relationships and how an organization can support them:

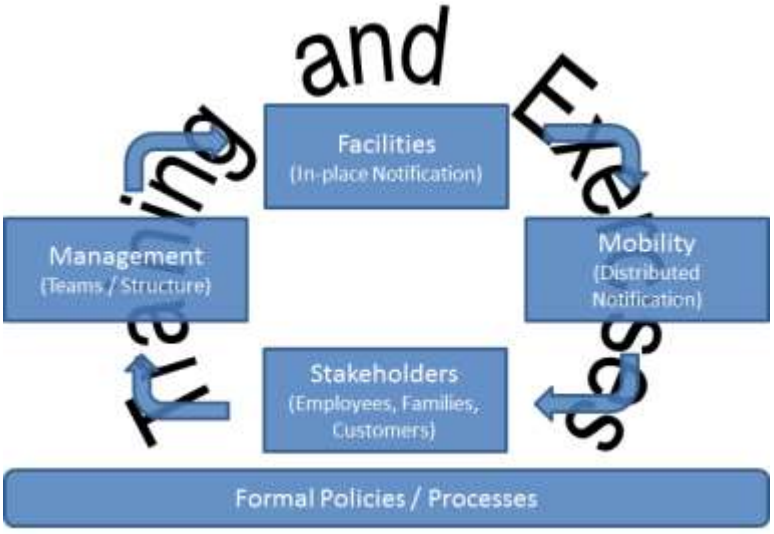

Figure 1: Proposed Emergency Communications Lifecycle[1]

[1] Drawing by the author.

The remainder of this section addresses how Emergency Communications is supported by formal guidance in the form of policies and procedures backed by management structures and support. Facilities and mobility support ensure mass communication capabilities to affected stakeholders, with the whole being connected by a regularly scheduled tests and exercises.

2.1 Guidance (Policies and Processes)

The Business Continuity Institute (BCI), in its Good Practice Guidelines for 2008, uses guidance from British Standard (BS) 25999-1:2006 for ensuring that organizations include Emergency Services and a "Local Authority Emergency Planning Officer" when creating a BCM Response in order to create emergency management procedures (GPG08-5, p 10). The International Consortium for Organizational Resilience (ICOR) further identifies the need for a policy-based Crisis Management Team (CMT) to run an organization during an emergency event (ICOR-7, p 24). Within the federal government and DOD, BCM is addressed by a COOP Program to ensure Continuity of Government (COG) and the continued success of National Essential Functions (NEFs).

This section identifies the high-level guidance available to the COOP practitioner regarding Emergency Communications in the federal sector with special relevance to an Army Program use case.

- *The National Emergency Communications Plan.* The Department of Homeland Security (DHS), as the executive arm of the President's COOP policy, created this plan to integrate the emergency response capabilities of most federal agencies (to include DOD), the 56 states and U.S. territories, and the 75 largest urban centers through the realization of seven key objectives. These objectives include:
    - Objective 1: Formal Governance Structures and Clear Leadership Roles. *Policies and teams to be clearly defined.*
    - Objective 2: Coordinated Federal Activities. *Emergency response to be an integrated capability rather than an ad hoc function.*
    - Objective 3: Common Planning and Operational Protocols. *Standards and common techniques to be applied to the emergency response function.*
    - Objective 4: Standards and Emerging Communication Technologies. *Communications to follow common protocols and to leverage new capabilities from private industry.*
    - Objective 5: Emergency Responder Skills and Capabilities. *Responders to be trained and demonstrably competent in their areas.*
    - Objective 6: System Life-Cycle Planning. *Emergency response to be an integral part of the organization's management planning.*
    - Objective 7: Disaster Communications Capabilities. *Emergency communications to be resilient and highly available in all scenarios.*
- *FEMA 141 ("Emergency Management Guide for Business and Industry").* This older (1993) guide contains the guidance for how an Emergency Management plan should be implemented by a business. With some minor updates (for example, to include social networking), this guide still provides sound advice: Create an Emergency Management Group (EMG), an Incident Command System (ICS), an Emergency Operations Center (EOC), and *include family members in the emergency notification process*.

- *DOD Unified Facilities Criteria (UFC) 4-021-01 ("Design and O&M: Mass Notification Systems").* Emergency communications must include mass notification of employees within a facility. Especially relevant to the Army Program use case, individual buildings must have an effective system to warn employees of when and how to respond to particular emergencies. Hazard (natural) emergencies such as floods and fire may require evacuation, while other threats (manmade) such as terrorist attacks might require clear notification to shelter-in-place (SIP).
- *Military Auxiliary Radio System (MARS)*. The Army, in conjunction with DOD, supports the MARS mission which "consists of licensed amateur radio operators who are interested in military communications on a local, national, and international basis as an adjunct to normal communications" in support of DOD Instruction 4650.02 ("Military Auxiliary Radio System (MARS)"). Of particular interest to the Army Program use case is the document "Introduction to the Army's MARS 101," which notes that "emergency response regained its primary role after the years devoted mostly to handling MARSgrams and phone patches for America's servicemen abroad" (DA-MARS, p 2).

The organization must use these policy documents and guidance to construct a formal Emergency Communications Plan aligned with enterprise objectives and compliant with overarching guidance.

2.2 Management Structures

Both DHS and FEMA stress the importance of management structures within the Emergency Communications. DHS specifically calls for "effective governance groups and designated emergency communications leadership roles" (DHS-NECP, p 18); this corresponds closely with FEMA's EMG and the IC. FEMA provides an example structure as shown below:

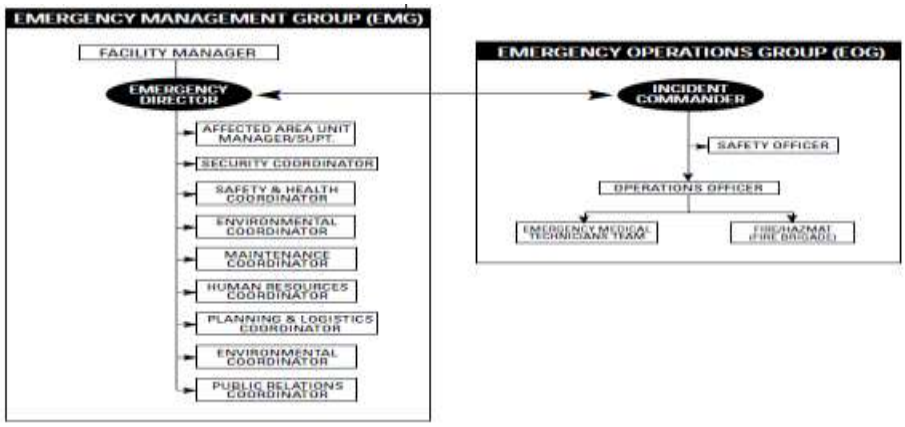

Figure 2: Emergency Management Structures per FEMA 141[2]

Furthermore, Emergency Communications management requires full integration into the existing planning effort. From a COOP Program perspective, the practitioner must ensure that COOP Steering Committees include representatives from the Emergency Communications groups so that changes to a COOP Plan do not negatively impact the organization's ability to notify all stakeholders during a crisis scenario.

Most importantly, the COOP practitioner must ensure that senior management (or, in the case of the Army

[2] Source: FEMA-141, p 28.

Program use case, the Commanding Officer) is fully supportive of the Emergency Communications planning efforts. Without dedicated high-level support, these programs will not be capable of surviving and evolving with the business.

2.3 Facilities and Mobility Support

DOD UFC 4-021-01 and FEMA 141 both emphasize the importance of emergency notification from a facility-based and a mobility-based view. The DOD document in particular describes the requirements of facility-based Mass Notification Systems (MNS) to provide:

> *…real-time information and instructions to people in a building, area, site, or DOD installation using intelligible voice communications along with visible signals, text, and graphics, and possibly including tactile or other communication methods. MNS are intended to protect life by indicating the existence of an emergency situation and instructing people of the necessary and appropriate response and action.*[3]

Numerous vendors provide systems to support UFC 4-021-01 requirements, and the National Systems Contractors Association (NSCA) even provides an entire Web site devoted to this field at http://www.nsca.org/mnec/default.html. These systems can be employed by federal agencies as well as the Army Program use case to satisfy DHS and DOD mass notification requirements.

FEMA 141 highlights mid-1990s technology for mass communications to a "mobile" audience (including the use of hand signals), but this paper extends the examples to include modern capabilities.

- *Social Networking (Facebook, Twitter).* The Army Program can and should create a Facebook presence and a Twitter presence. All employees should be encouraged to "friend" the Facebook presence or "follow" the Twitter presence, and these media can be used as an effective method to share information on emerging incidents and emergency notifications. While this kind of resource (social networking) cannot be relied upon as an authoritative distribution point, it can prove to be a useful adjunct to message delivery.
- *Corporate Web Site.* The Army Program can use the Army Knowledge Online (AKO) site at https://www.us.army.mil/ to create its own "page" to provide emergency information. Staff must be aware of this Web site via education, and procedures must be in place to keep it updated in synchronization with social networking updates.
- *Telephone / Email.* The Army Program must gather contact information for each employee so that call trees can be constructed and instructions can be sent. Where an employee's phone supports Short Message Service (SMS) "texting," this can be used in conjunction with the corporate Web site and social networking to send automated mass notifications. Each employee should have, at a minimum, a primary and secondary email address to allow this medium to be used in the same manner.
- *Two-way Radio / Government-Specific.* Of specific interest to the Army Program use case, the Army's MARS program employs amateur and professional two-way radio to allow emergency notifications to be made. Additionally, the Federal Communications Commission (FCC) provides a government-wide

[3] DOD-UFC-4, p 14.

program called Government Emergency Telecommunications Service (GETS) that can be used in conjunction with DHS' own Wireless Priority Service (WPS) to provide "critical national security and emergency preparedness functions, including those areas related to safety, maintenance of law and order, and public health, you need WPS. By using your GETS card number, your call receives a calling queue priority over regular calls, thereby greatly increasing the probability (90%) that your wireline call will get through the network, even with congestion."[4]

2.4 Stakeholder Integration

Emergency Communications requires recipients; for the organization, these recipients are the stakeholders involved in the business functions and affected by a specific emergency. Viewed from this angle, organizational stakeholders include not just employees, suppliers, customers, and regulatory agencies but also the wider public and employees' families. In order for an employee to react effectively during an emergency situation, that employee must be sure that his or her family is safe and secure. Furthermore, the employee must be able to communicate with family members for the entire duration of the emergency.

The DOD's UFC 4-021-01 addresses stakeholder communication primarily in terms of a facility- or site-wide MNS. Even where such facilities are not covered by specific MNS regulatory requirements (such as single-family and duplex military family housing), UFC 4-021-01 recommends the use of a wide-area MNS such as a telephone alerting system (p 68). This can easily be extended to the use of additional mobility-oriented approaches such as text messaging and social networking sites as described above.

FEMA 141 provides more explicit guidance for including family members in the overall Emergency Management process (not just the Emergency Communications phase). Specifically, employee emergency preparedness training must include scenario use cases to reinforce the following (p 25):

- Individual roles and responsibilities
- Information about threats, hazards and protective actions
- Notification, warning and communications procedures
- Means for locating family members in an emergency
- Emergency response procedures
- Evacuation, shelter and accountability procedures
- Location and use of common emergency equipment
- Emergency shutdown procedures

FEMA 141 goes further with the issue of family communications during an emergency, and provides these specific suggestions, all of which require a training component to reinforce (p 32):

- Consider how they would communicate with their families in case they are separated from one another or injured in an emergency.

[4] FCC, "Government Emergency Telecommunications Service (GETS)," *FCC Web site*. http://transition.fcc.gov/pshs/emergency/gets.html (accessed: July 4, 2011).

- Arrange for an out-of-town contact for all family members to call in an emergency.
- Designate a place to meet family members in case they cannot get home in an emergency.

DHS' NECP addresses notification requirements for federal government stakeholders such as regulatory agencies or the general public; the Army Program use case must, in general, follow the precepts of the Army Regulation (AR) 500-3 ("U.S. Army Continuity of Operations Program Policy and Planning") and ensure that the specified COOP point-of-contact (normally, the group manning the EOC) performs "[m]onitoring and reporting on the situation" (AR-500-3, p 19) to meet regulatory requirements.

Finally, federal/DOD agencies, private businesses, and individual citizens can all benefit from the federal government's preparedness site *ready.gov* (http://www.ready.gov/), which provides a series of user-friendly and approachable emergency preparedness and communications techniques and tools.

2.5 Training and Exercise

Training and exercise programs are integral to a successful Emergency Communications program. Specific to the Army Program use case, AR 500-3 requires "annual testing, training and/or exercising of COOP capabilities" to include "operation of communications devices and computers required during emergency operations" (p 14). FEMA 141 goes further and specifies four specific training activities that include exercising the Emergency Communications capabilities:[5]

- *Orientation and Education Sessions.* Regularly-scheduled discussion sessions to provide information, answer questions and identify needs and concerns. This should be run by the Steering Committee as part of the larger BCM / COOP implementation program.
- *Tabletop Exercise.* Members of the Steering Committee or the Emergency Management Group meet in a conference room setting to discuss their responsibilities and how they would react to emergency scenarios. This is a cost-effective and efficient way to identify areas of overlap and confusion before conducting more demanding training activities.
- *Walk-through Drill.* Team Leaders from the Crisis Management Team or the Emergency Management Group, with their allocated response teams; actually perform their emergency response functions. This activity generally involves more people and is more thorough than a tabletop exercise.
- *Functional Drills.* These drills test specific functions such as medical response, emergency notifications, warning and communications procedures and equipment, though not necessarily at the same time. Personnel are asked to evaluate the systems and identify problem areas. As a qualitative analysis tool, functional drills provide detailed capability controls that help to improve the Emergency Communication response.
- *Evacuation Drill.* Personnel walk the evacuation route to a designated area where procedures for accounting for all personnel are tested. Participants are asked to make notes as they go along of what might become a hazard during an emergency, e.g., stairways cluttered with debris, smoke in the hallways. Plans are modified accordingly. The classic example would be the school fire drill that every child in the country must perform; this brings up the important point that evacuation drills are subject

[5] Adapted from FEMA-141, p 24.

to improvement. Although these drills can be disruptive to the organization, they must be performed regularly in order for the organization to receive the best benefit from them.

- *Full-scale Exercise.* A true-to-life emergency situation is simulated as closely as possible. This exercise involves company emergency response personnel, employees, and management and community response organizations. For the Army Program use case, such an exercise might include a simulated failure of computer infrastructure by the simple expedient of unplugging a key router to determine how personnel react. Within the context of Disaster Recovery, these exercises are also known as "full interruption tests."

In order for these training and exercise functions to be successful, senior management must authorize ongoing funding for them. The COOP practitioner therefore needs to include these cost estimates in the overall COOP Plan.

3.0 Concluding Remarks

3.1 Summary

This paper has provided a practical analysis of emergency communications as part of a larger COOP Program implementation plan. Emergency communications help to ensure that the organization can react appropriately to a crisis situation and that wise decisions can then be made about how best to reduce the impact and to restore normal operations as quickly as possible.

The paper proposes that Emergency Communications can be expressed as a closed-loop system that allows continuous improvement via response to enterprise-level policies and procedures and measurement of training and exercise programs. The organization can create specific management structures such as Emergency Director and Incident Commander prior to an emergency in order to provide the direction and framework for effective decision-making during an emergency. Communications must be capable of leveraging the latest technology innovations; for example, Facebook and Twitter provide new means for stakeholders to be kept informed during an emergency situation. However, for these communication channels to work, they must be focused on the organizational stakeholders (employees, customers, regulatory agencies, and so on). Finally a regularly-scheduled and funded training / exercise program ensures that the Emergency Communications plans stay relevant and useful.

3.2 Recommendations

This paper has applied a tailored emergency communications planning strategy to its Army Program use case and has provided a number of recommendations as shown in the table below:

Table 1: Recommendations

Recommendation	Rationale
Align to relevant policy.	This paper identified five possible federal and DOD policy drivers; these policy drivers provide the roadmap for what individual agencies must accomplish. Moreover, they almost always lead to specific implementation plans such as FEMA 141 that provide guidance on individual plan elements.
Create a separate	The EMG provides the centralized command structure to enable multiple EOGs to

Recommendation	Rationale
Emergency Management Group (EMG), with a subordinate Emergency Operations Group (EOG).	be dispatched and integrated within the context of a specific emergency. Within the Army Program use case, the EMG corresponds to the Program Management Office (PMO) while the EOG corresponds to the Operations group. Defining the reporting structure proactively helps to prevent confusion during an emergency.
Acquire Senior Management support for the Emergency Communications effort.	Not just the Emergency Communications effort, but the entire BCM / COOP implementation requires substantial management commitment. In the Army Program use case, this translates to annual budget requests made by the Commanding Officer to the chain of command (ultimately, to Congress for approval). The Emergency Communications plan must be clearly identified as to its intended goals and purpose; primarily, this must be the protection of human life as specified in FEMA 141.
Implement a Mass Notification System (MNS).	Each facility must have an MNS that provides full emergency capabilities (annunciator, fire alarm, ability to send notification to affected stakeholders, ability to integrate with emergency responders). This paper provides the NSCA Web site http://www.nsca.org/mnec/default.html where DOD-approved systems can be researched.
Integrate social networking into Emergency Communications.	This paper advocates the organization to create Facebook and Twitter presences to augment existing means of emergency communication. For the Army Program use case, AKO can be used as a highly-available and easily-accessible Internet location where emergency information can be published.
Identify Stakeholders and integrate family members into any Emergency Communications plan.	During an emergency, stakeholders include more than just employees, customers, suppliers, and regulatory agencies. Visitors, family members, and even the general public must be kept informed of various types of emergencies as required by statute. This paper advocates the extensive recommendations made by FEMA 141 to ensure that family member communications are included in any plan.
Regularly training and exercise to ensure continuous improvements.	Army, DOD, and federal policy to the highest levels all require COOP plans to be tested ("exercised") at least annually. This exercise naturally consists of training elements, and FEMA 141 provides a number of practical and cost-effective options such as tabletop, functional, evacuation (such as classic fire drills), and even full-interruption tests. From a training view, the federal government provides *ready.gov* at http://www.ready.gov/ where additional information targeted to individuals and businesses can be readily located.

3.3 Next Steps

The next paper in this COOP Program implementation series focuses on ensuring that the underlying infrastructure can support the COOP effort through an integrated Information and Communication Technology (ICT) Continuity Management Plan.

Appendix A: Acronyms and Abbreviations

AKO	Army Knowledge Online
AR	U.S. Army Regulation
BCI	Business Continuity Institute
BCM	Business Continuity Management
BS	British Standard
CMT	Crisis Management Team
COOP	Continuity of Operations
DA	Department of the Army
DOD	Department of Defense
EMG	Emergency Management Group
EOC	Emergency Operations Center
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
GETS	Government Emergency Telecommunications Service
GPG	Good Practice Guidelines
IC	Incident Commander
ICOR	The International Consortium for Organizational Resilience
ICS	Incident Command System
IT	Information Technology
MNS	Mass Notification System
NSCA	National Systems Contractors Association
O&M	Operations and Maintenance
SMS	Short Message Service
SIP	Shelter-in-Place
U.S.	United States
UFC	Unified Facilities Criteria
WPS	Wireless Priority Service

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Andrew Bruce is a Cloud Architect for D&SCI in the Army Programs group out of Aberdeen Proving Ground, MD. D&SCI provides professional services to the Federal Government and the Department of Defense, specializing in customizing and developing architecture and governance models that enable tight integration to the Army's datacenter consolidation and cloud virtualization enterprise portfolio initiatives. Mr. Bruce's job responsibilities include: working directly with customers and partners for new business development, supporting proposal efforts, overseeing Army customers' network infrastructure, working with project managers to ensure project completion, managing software development efforts throughout the entire system life-cycle, and leading new technology research and proofs-of-concept. After a career spanning three decades in shrink-wrap, commercial, and corporate software development, Mr. Bruce is focusing on Information Assurance to achieve his goal of building and managing large data centers providing cloud computing utility services for commercial and Government customers. Mr. Bruce holds the CISSP, PMP, and FITSP-D certifications as well as a Master's Degree in Information Assurance from Norwich University.

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