Using the 2007 Microsoft Office System For Disaster Planning and Response

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people ready

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Microsoft

Introduction

Events in recent years have underscored the need for preparation to protect against loss of life and damage to property in the event of natural disasters and war. From the tsunami in the Indian Ocean to Hurricane Katrina in and around Louisiana, and from the 9/11 attacks in the United States to the train bombings in Madrid, the world constantly needs to be prepared to coordinate responses across jurisdictions, disciplines, and agencies.

The United States Department of Homeland Security formalized the need for coordinated event planning by working with professionals from all facets of emergency response to create the National Incident Management System (NIMS). Although NIMS provides a framework for incident management, it does not prescribe how to plan, train for, or execute emergency responses, or how to handle postincident recovery and reviews.

Fortunately, the technology exists to create NIMS-based solutions that greatly facilitate pre-incident planning, situational awareness, response coordination, postincident recovery, and creation of corrective action plans. The 2007 Microsoft® Office system provides an especially well-integrated foundation for creating disaster-planning and event-management solutions for professionals to use at emergency operations centers and in the field.

This paper examines how emergency response organizations can use Microsoft products and technologies to create a Web-based portal with workspaces to support both online and offline intra-agency and interagency collaboration. By unifying technology, police departments, fire departments, emergency medical response teams, public utilities, and a spectrum of other public and private entities, stakeholders can share information across agency and jurisdictional boundaries. Working together, stakeholders can create emergency operations plans, incident action plans, standard operating procedures, and other resources that become living documents, which organizations can reference and update online or offline.

Ease of use is critical to an incident-management system. When an emergency strikes, there is not time to learn a new user interface. Deploying a solution based on the 2007 Microsoft Office system provides a powerful tool for working together and sharing information that is as easy and natural to use as e-mail.

Technology Needs When Coping with Disaster

Underscoring many recent tragedies has been a lack of shared intelligence and interoperable communications systems. For example:

- Seismologists around the world suspected that the Indian Ocean earthquake, which registered 9.0 on the Richter scale, would create a tsunami, but they did not have contact numbers of emergency response organizations for affected areas.
- The 9/11 Commission determined that if firefighters and police officers had compatible communication systems in place, police helicopters surveying damage could have shared vital intelligence with other response agencies, thus reducing loss of life.

Even when emergency response organizations can predict a disaster, such as with Hurricane Katrina, the lack of situational awareness and an incident-management system that links agencies across jurisdictional lines can lead to chaos. However, this confusion is avoidable, and with proper planning and systems, organizations can help to reduce loss of life and property damage. Technology has an obvious role to play in helping governments on local, regional, tribal, municipal, interstate, national, and even international levels create new tools and platforms for disaster planning and response.

Ease of Use

The market already contains both large and small technological solutions for incident-management systems. However, this broad offering of solutions makes it imperative that agencies develop a clear picture of what a solid incident-management system provides.

Ease of use is an absolute necessity for an efficient incident-management system. When a disaster strikes, people do not have time to learn an unfamiliar user interface, whether in the field or at an emergency operations center (EOC).

Many incident-management systems require special training for professionals to use effectively and have such complicated menu branching that it can overwhelm periodic users. Complexity undermines the effectiveness of an incident-management system. This system's effectiveness is based on the performance and ease with which it can deliver situational awareness and high-value resources, such as emergency operations plans (EOPs), incident action plans (IAPs), standard operating procedures (SOPs) maps, floor plans, and other materials.

These materials need to do more than just exist within a system. They have to be easily accessible regardless of location, network status, or bandwidth constraints and they must be readily usable by police officers; firefighters; other first responders; and additional key resources, including those who manage responses from the EOC.

There is power in simplicity. When individuals become familiar with the tools they use, they are more effective in high-pressure situations. Organizations must integrate an incident-management system into everyday activities so that using technology during an emergency keeps processes moving with minimal interruption.

Interoperability

An incident-management system needs to support planning on an agency basis, interagency basis, and regional basis. Ideally, all organizations would conduct planning on the same technology platform so that agencies and interagencies could generate plans that regional, municipal, and national organizations would use. By integrating regional, municipal, and national plans into disaster-response activities, emergency response would be more effective.

Planning often begins on the local level and so do decisions about technology solutions. As different agencies and local governments begin implementing computer-based disaster planning, a major focus should be interoperability. Three levels of interoperability include:

- **Lack of interoperability**. Agencies within a defined governmental or regional area are implementing planning solutions on a completely independent basis. For example, a city's firefighters might implement their incident-management plans using an operating system or database that is not compatible with systems used by the police or other emergency-response agencies. Deploying incompatible incident-planning solutions makes it difficult to integrate resources for interagency planning and EOC deployment.
- **Operating system interoperability**. All agencies within a defined governmental or regional area are implementing their planning solutions on the same operating system. This is a step in the right direction.
- **Application interoperability**. The gold standard for interagency planning and resource integration is when agencies within a defined governmental or regional area use the same operating system and the same incident-management system application. This enables all stakeholders to log on to a Web-based solution or portal that provides a gateway to a wealth of information and functionality. By using this portal, stakeholders know exactly how their plans integrate with those of other agencies, and they gain a real-time picture of events and response actions.

Powerful Planning Tools and Online Repository

An incident-management system needs to support planning and execution. A well-designed solution should provide easy-to-use, template-based tools that guide users through the planning process and an environment that provides an easy-to-access online repository of resource documents.

Specifically, an effective planning solution includes the following elements.

- **Easy–to-use, powerful tools**. Organizations need tools that help guide development of EOPs, SOPs, and IAPs using standard and customizable templates. The tools should capture online versions of documents to replace information in three-ring binders and filing cabinets. In many cases, physical documents are forgotten, outdated, or difficult to navigate and to use during a disaster.
- **Collaborative workspaces**. Users should be able to collaborate online and offline using a shared workspace that lets multiple people work on a document simultaneously. An important related feature is a repository that enables users to "check out" a document, revise it, and then check it back in for others to review, and, depending on access rights, others can accept or reject the changes. Furthermore, providing a collaborative workspace for dynamic teamwork from any location and regardless of network status—which automatically and bidirectionally synchronizes with the information-sharing capabilities of the portal—is paramount to an effective, end-to-end disaster-planning and response solution.

- **Support for interagency collaboration**. Planning tools are needed to facilitate communication and formalize planning among groups, including law enforcement; firefighters; utility crews; emergency medical units; hospital administrators; city, county, municipal, regional, tribal, and federal emergency-management officials; and other stakeholders. Facilitating collaboration among a broad spectrum of responders means that agency leaders can contribute to planning on their own schedule—after hours from a home computer, for example—rather than, or in addition to, attending numerous and time-consuming planning sessions during the day.
- **Online repository.** An online repository helps EOPs, IAPs, SOPs, and other event-management documents and materials become living documents that organizations can update—with encrypted access—whenever needed. An organization can access the online repository through a portal, which also helps ensure that, in an emergency, anyone with appropriate access can go to the site to see what the organization needs to do. During an emergency, professionals out in the field can update online documents to enhance the value and relevance of information to other users and to commanders at the EOC.
- **Wealth of data.** Beyond storing EOPs, IAPs, SOPs, and other documents of immediate relevance, the portal-based online repository should also hold resources that professionals might need for incident response and recovery. Examples of what can be stored in an online repository include the following:
    - Floor plans, utility-control locations, and heating, ventilating, and air-conditioning plans of the following:
        - Schools
        - Courthouses
        - Government offices
        - Major hotels
        - Convention centers
        - Sporting centers
        - Other public venues, especially those that host large crowds

    - Critical infrastructure documentation
    - Evacuation routes and rally sites
    - Mass casualty-response resources that, beyond the obvious agencies and mutual-aid partners, might include:
        - Catering companies that could supply tents to establish field hospitals
        - Portable-toilet companies to rapidly deploy and service sanitation resources
        - Medical suppliers
        - Bottled-water distributors
        - Food distributors
        - Heavy-equipment contractors
        - Water-truck operators

- Fuel distributors

The list above provides just a hint of the broad amount of information that is available, but not always readily accessible to those who would benefit from it during an emergency.

Support for Web-Based Access Across a Range of Devices

As local, regional, tribal, and municipal governments and agencies consider implementing incident-planning technology, they must choose an environment that supports access with the following important attributes:

- **Web-enabled, with dynamic collaboration capabilities**. A disaster might cause agency networks to fail or destroy office workstations. Regardless of the damage, police officers, firefighters, emergency medical personnel, and other first responders will need access to EOC information. A Web-based solution provides the greatest continuity in the face of disaster. For example, when organizations back up databases in geographically dispersed locations, a city could be under water, yet its disaster plans would still be available by accessing the databases through the Internet. When landlines are down, mobile devices can unite first responders with disaster response applications and EOCs and over the Internet. Using the collaborative workspaces provided by Microsoft® Office Groove® 2007, first responders can bidirectionally synchronize information through a portal.
- **Available for a range of devices**. First responders and other stakeholders in disaster planning and recovery can benefit from the wealth of communication devices available today. Desktop computers, Tablet PCs, smart phones, and cell phones, can provide access to a well-planned disaster-planning solution. But, the solution must be available to a range of devices, either natively by using the same operating system across devices or by supporting encrypted browser-based access. The best solution would combine both elements: using an operating system that supports a range of devices and providing encrypted Web-based access to the disaster-planning application.
- **Enterprise ready**. When businesses choose an operating system and server environment on which to deploy mission-critical applications and databases, they require a solution that has proven enterprise-grade reliability. Organizations should treat disaster planning as mission critical and, therefore, require enterprise-grade stability.

Collaborative Workspaces to Plan and Train Before a Disaster

An incident-management portal with a shared collaborative workspace can help stakeholders on the local, regional, tribal, municipal, and federal levels prepare for a coordinated response to a range of disasters. Benefits from using a portal with collaborative workspaces include the following:

- Enhanced communications among stakeholders representing different organizations.
- Framework for creating, approving, and sharing emergency operations plans (EOPs), incident action plans (IAPs), standard operating procedures (SOPs).
- EOPs, IAPs, and SOPs used for integrated planning.
- Resolution of jurisdictional questions.
- High-value document libraries.
- Geo-coded map overlays.
- Additional forms of communication, especially for mobile team members.
- Training.

Enhanced Communications Among Stakeholders Representing Different Organizations

Providing a portal-based shared workspace, such as Microsoft® Office SharePoint® Server 2007, breaks down traditional information silos and lets stakeholders enhance overall interagency communications. Whether preparing for naturally occurring events, such as earthquakes, hurricanes, or tornadoes, or making plans for the possibility of a terrorist attack or other crisis, effective disaster planning requires communication among many stakeholders.

Traditionally, agencies have too often worked within silos, creating their own plans and sharing minimal information or small details about planning coordination with other organizations. Sometimes a "turf battle" or mistrust among organizations exacerbates this approach.

A portal-based solution facilitates interagency planning. When idea sharing and problem solving takes place in the collaborative workspace, the goodwill fostered through face-to-face meetings is enhanced and extended. The online environment also enables busy police chiefs, fire chiefs, city officials, and other stakeholders to contribute online, as their schedules allow.

Ease of use is an important benefit that comes from using a solution based on Microsoft technology. Anyone who has worked with other Microsoft applications will be able to adapt to the portal-based solution. A portal provides the flexibility to integrate with other planning systems that agencies may already have in place, which helps protect earlier investments.

Framework for Creating, Approving, and Sharing EOPs, IAPs, and SOPs

Organizations can create EOPs, IAPs, or SOPs on a very granular level and coordinate to create an overall disaster strategy across a spectrum of incidents. Traditionally, organizations have created planning documents on paper, filed them away, and largely forgotten them as time passes and the documents become less relevant.

Using Microsoft Office InfoPath® 2007, an information-gathering program, organizations can create dynamic EOPs, IAPs, and SOPs. In addition, with Microsoft Office Groove® 2007 collaborative workspaces, mobile team members can work on the documents from any location, regardless of network status. Using Office Groove 2007, a team member can revise a document and publish it back to the portal, which helps coordinate plans and resources across agencies and jurisdictions. Office InfoPath 2007 also supports the document review and approval process. Once written, reviewed, and approved, documents are stored on a SharePoint site, accessible over the Internet to those with role-based permission.

EOPs, IAPs, and SOPs Used for Integrated Planning

The process of collaboration also helps eliminate barriers that might otherwise exist among agencies and jurisdictions. For example, utility workers from several communities collaborating on EOPs, SOPs, and IAPs forge relationships that generate broader knowledge. This increased awareness can pave the way for a more coordinated response if a disaster strikes.

Searchable planning documents become powerful sources of information. In addition to tactical planning and interagency coordination, the documents can provide contact information across a range of resources. Addressing contingencies in advance increases the value of the documents living on the portal. Using collaborative workspaces, leaders and line workers from all disciplines can propose specific needs for the planning documents. Stakeholders can then work together, pooling their knowledge to create the best content. Because the EOPs, IAPs, and SOPs are stored online, they are living documents that organizations can update and augment as needed.

Resolution of Jurisdictional Questions

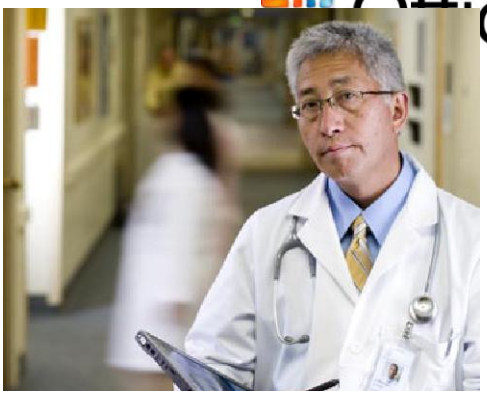
Using an online collaboration environment and a forms-based creation process for documents helps to identify unresolved jurisdictional questions and other command-and-control issues. Although some issues may be resolved during in-person conferences among police chiefs, fire chiefs, and city, county, and municipal officials, an individual can formalize and publish the actual decisions to the disaster-preparation portal and embed them in the planning documents. Proactively addressing such issues in advance serves to strengthen bonds among departments and agencies and provide potentially life-saving guidance for first responders in the field.

High-Value Document Libraries

Although EOPs, IAPs, and SOPs compose the most visible part of a disaster-recovery repository, organizations can use Office SharePoint Server 2007 to store a wealth of documentation that is instantly available to first responders and emergency operations centers (EOCs) personnel in case of an emergency. Personnel can use a Web-based library either to push documents out to groups in the field or to direct those groups to access the documents on their own.

Geo-Coded Map Overlays

Integrating the Microsoft Virtual Earth™ mapping software into the solution enables users to display situational data as a map overlay. For example, this means that at an EOC, officials could see several fires clustered in one area or determine that one pocket of the city is experiencing an inordinate number of emergency medical requests. Similarly, organizations can use map overlays to display the location of police, firefighters, and other first responders. For example, an online repository with map overlays can give an incident commander the ability to download aerial photos of the location of a derailed tanker car that was carrying chlorine. Once the path of the chlorine cloud is determined, officials could compare the photos to a map overlay that shows the location of populated facilities that would be at risk of exposure.



Additional Forms of Communication, Especially for Mobile Team Members

The portal and collaborative workspace-based disaster-planning solution gives EOC staff additional forms of communication. For example, a disaster coordinator could contact all area police chiefs or fire chiefs by sending an e-mail message or instant message to them. Similarly, first responders in the field who are unable to make contact across car radios or by phone may still be able to get Internet access to send and receive messages. Alternatively, using Office Groove 2007, they can work offline and synchronize changes when they are able to reconnect. These forms of communication support information sharing across a broad spectrum of stakeholders.

Training

The shared workspace of the portal supports training exercises that first responders and EOC personnel can react to in training scenarios by accessing essential documents; executing IAPs, EOPs, and SOPs; collaborating in real-time; and testing themselves against the unexpected. Perhaps the most significant training element is that organizations can use the portal and shared workspace as standard planning and reference resources. The more familiar a user is with the system from everyday use, the more natural it will be to use during an actual emergency. Too many disaster-planning applications are so specialized that organizations can only use them in a disaster and so complex that their usefulness is limited, especially during emergencies. In contrast, a portal-based resource and shared workspaces based on the 2007 Microsoft Office system and the Windows® operating system can become everyday tools. The benefits of using the same software and tools are significant when responding to an emergency.

Collaborative Workspaces to Execute and Respond During a Disaster

Once a disaster strikes, the portal and collaborative workspaces can help stakeholders across disciplines and jurisdictions execute plans and respond to events in more coordinated and efficient ways. This will assist in reducing loss of life, better protecting property, and speeding recovery. Benefits from using a preparation and planning portal based on Microsoft® products and technologies include:

- Ease of use.
- Living documents.
- Situational awareness.
- Common operating picture.
- Better information relays to and from the field.
- More efficient resource deployment.
- Alternative communication channels.
- Ability to work offline.
- Access to rich document library.
- Capacity to drill down.
- Enhanced ability to handle unplanned events.

Ease of Use

Regardless of how many features an incident-management system might have, those features are not valuable unless they are easy to use. Some solutions require days of training and can still seem like a maze. Ease of use is critical in enabling first responders and emergency operations center (EOC) leaders to access and execute plans that organizations created before an emergency and to better respond to events as they occur.

Living Documents

Whether responding to a hurricane or a bomb threat, police, fire, and emergency officials can use mobile devices to see the most recent version of the emergency operations plan (EOP), incident action plan (IAP), or standard operating procedure (SOP) that they helped create. With a portal-based solution, a first responder can log on to the disaster-response portal and get up-to-the-second situational information. EOC personnel can instantly update the most appropriate document as they fine-tune resources to respond to events and reports from the field.

In an extreme disaster in which radio contact and telephones are down, first responders and other stakeholders can communicate with the portal using wireless computers, handheld devices, and cell phones. If first responders are unavailable to connect to the Internet, they will have access to the documents that the organization created prior to the emergency and stored locally on computers and other devices. Later, when utility crews restore radio and telephone communications, or as emergency portable wireless networks are deployed, connectivity with the portal will be restored. In addition, when connectivity is reestablished, the synchronization capabilities in Microsoft Office Groove® 2007 automatically update EOCs, IAPs, and other documents.

Situational Awareness

Disaster-response success and failure often rides on how well EOC coordinators can visualize what is happening across the scene to best deploy and protect their resources.

With a disaster-planning portal and collaborative workspaces, everyone at the EOC and those logged on from the field can see new incident reports that others are updating in real time. With a geo-mapping overlay, decision makers can tell, with just a glance at the screen, where hot spots are and how to best respond with available resources.

Information that used to be tabulated by hand—how many hospitalizations, how many arrests, how many fires, or any other key metric—is now instantly available from the screen.

For predictable disasters, such as hurricanes, this solution provides real-time reporting on how organizations are executing IAPs, EOPs, and SOPs in the field. For example, organizations can monitor documents covering hospital evacuations. When an official verifies and clears a hospital, resources can transfer to help at another hospital.

Common Operating Picture

A disaster-planning portal enhances interagency communication, breaking down traditional information silos to provide situational awareness. Whether at the EOC or in the field, every department can see not only what it is experiencing but also what is happening with other departments and agencies. For example, as they plan resource movement and location, police and fire officials can monitor events with their counterparts in transportation and public works to see which roads are open. Emergency medical units and hospital workers can find out where crews are reporting the most devastation and proactively prepare to handle patients. The interdisciplinary view is that a portal helps all stakeholders carry out their plans with full awareness of how their efforts are coordinating with the actions of other departments and agencies.

Better Information Relays to and from the Field

The same portal and collaborative workspace technology that provides situational awareness for the EOC also provides situational awareness for first responders and their commanders in the field. Everyone with a portable computer or other wireless device can gain a global view of what is happening and a real-time report on action plans.

As unplanned events occur, first responders in the field can gain immediate redirection from the EOC through their wireless devices. The real-time updates can also help first responders save others. Real-time updates can notify a working team to help nearby citizens who are reportedly in immediate danger.

In any emergency, prompt and accurate field information provides a greater chance of reducing loss of life and property damage.

More Efficient Resource Deployment

The cross-functional situation awareness and better information relays to and from the field give EOC personnel the information they need to deploy resources more efficiently. The portal provides a complete

view of how resources from all participating departments and agencies are working together. In addition, to maximize benefits and cross-organizational efficiencies, the portal provides the departments and agencies with the ability to fine-tune resource deployments in real time.

Alternative Communication Channels

Wireless connectivity to the disaster-planning portal introduces alternative communication channels that could prove critically important during a disaster. As noted earlier, a first responder without radio or telephone contact could continue to communicate with the EOC and receive and transmit continuous updates by:

- Reading updated IAPs and reports that others posted to the portal.
- Filing new reports to the portal.
- Communicating through e-mail, instant messaging, or Office Groove 2007 workspaces that the portal infrastructure supports.

With its instantly updated postings, the portal also frees regional responders from incompatible radio frequencies that cause communication problems when first responders from other jurisdictions come to help.

Ability to Work Offline

A properly designed portal solution gives first responders and other stakeholders a rich set of information. Updates to IAPs, EOPs, SOPs, and other key resources stored on personal computers, laptops, or handheld devices happen automatically whenever the user can connect to the Internet. As noted earlier, this means that when all communication lines—including cellular or mobile connectivity—are lost, users still have the information they need to take action until utility crews restore connectivity. For example, the data saved on computers could include a list of field-command locations where first responders can meet with others for updated assignments.

Members of an Office Groove 2007 collaborative workspace can easily work offline or collaborate in real-time, if they can get online using a portable hot spot or any other means to access the Internet—even if agency servers are unavailable. Members of an Office Groove 2007 workspace can collaborate to execute their action plans, and users who are in multiple Office Groove 2007 workspaces can relay key information among organizations. For instance, a police captain might be in both an Office Groove 2007 workspace for the EOC and in an Office Groove 2007 workspace for first responders. With the agency servers down, the captain could relay field reports from the Office Groove 2007 workspace for first responders to the Office Groove 2007 workspace for the EOC. Similarly, EOC leaders could be members of an Office Groove 2007 workspace dedicated to corporate leaders and other private-sector resources. Through communication on the Office Groove 2007 workspace, leaders can notify these resources of an area's need for essential goods and services, such as heavy equipment, water trucks, or hospital supplies. Office Groove 2007 workspaces are available to first responders in network-constrained or low-bandwidth environments, and they easily and seamlessly synchronize with the portal.

Access to Rich Document Library

Part of the power of a well-designed disaster-planning portal is in the depth of documents and other resources that personnel can immediately access online. First responders rushing to a school, sporting arena, concert venue, hotel, or other major public venue should be able to immediately access floor plans, photographic guides, and other resources that will help them navigate through a building and its key utilities. With a rich document repository in Microsoft Office SharePoint® Server 2007, organizations can record virtually any existing information on a structure into the portal system for emergency access. Even when personnel have not entered information into the repository in advance, the EOC can obtain the information and publish it to the portal for all personnel to use.

Capacity to Drill Down

As EOC personnel or commanders in the field watch new incident reports appear on the portal, they have role-based access that enables them to drill down into the documents stored on Office SharePoint Server 2007. This means that they have a constantly updated overview, plus the ability to investigate further if a particular situation relates to an event earlier that day or requires scrutiny.

Enhanced Ability to Handle Unplanned Events

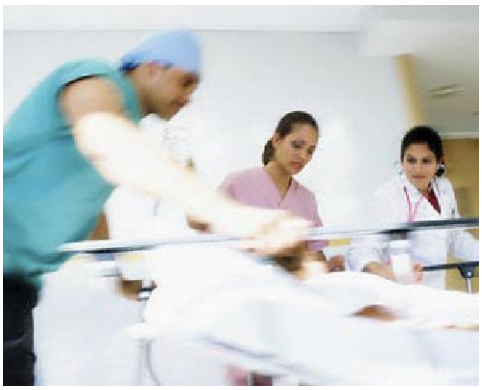
EOC personnel and field teams gain the ability to respond better to unplanned events because they have a more complete view of how to address known events with continuous updates on completed action plan objectives and geo-mapping overlays that instantly identify incident clusters, EOC personnel can more quickly and precisely monitor and react to unplanned events. For example, an officer in the field could report a disabled vehicle blocking a bridge along an evacuation route. EOC could then immediately dispatch a tow truck, road crew, and additional officers to keep traffic moving.

Collaborative Workspaces for After-Action Review

The 9/11 attacks in the United States, the Indian Ocean tsunami, Hurricane Katrina, monsoon flooding, and many other events have shown that another complicated phase begins after the initial disaster has passed. A disaster-planning portal with a collaboration workspace provides the best foundation for coordinating recovery and rebuilding efforts after a calamitous event.

Postdisaster Resource Deployment

A portal and collaborative workspaces help recovery leaders gain the most advantage from whatever resources are available. In addition, they provide a foundation for coordinating the arrival of new resources and help in distributing those resources.



Administrative Tracking

With all incident information captured or synchronized to a single portal, the solution also greatly simplifies administrative tasks, including postemergency incident summaries, overtime tracking, cost recovery, and compensation claims from neighboring jurisdictions and private contractors. The portal provides a complete record of all officers and equipment involved in the event, including requests made to and responses received from the private sector. For example, tracked events would show when an organization drafted a water-transport truck or privately owned bulldozer into duty, when and where the organization used it, and when the organization released it.

Analysis, Reporting, and Corrective Action Plans

Postemergency reporting is greatly simplified—and made more accurate and comprehensive—because the portal records the data. A wealth of information regarding what worked well and what lessons an organization learned comes from reviewing emergency operations plan, incident action plan, or standard operating procedure execution; response to unplanned events, field reports, and other emergency operations center communications; and postemergency reporting.

Summary

Although we strive to make human-made disasters fade away, we will always face natural disasters. The better we can prepare for, react during, and recover after a disaster of any kind, the greater the chance is to reduce loss of life and property damage.

Technology offers powerful tools in the form of a Web-based portal with collaborative workspaces. No other solution offers such a broad and deep range of situational awareness for people in the field and for those guiding efforts from an emergency operations center (EOC).

Products such as Microsoft® Office SharePoint® Server 2007, Microsoft Office InfoPath® 2007, and Microsoft Office Groove® 2007 from the 2007 Microsoft Office release running on the Windows® operating system provide the ideal environment for creating such solutions. Disasters may be inevitable, but fortunately, Microsoft technology can help EOC leaders, field personnel, and other stakeholders better prepare for, deal with, and recover from such emergencies.

Appendix A: Scenario of How a Disaster-Planning Solution Can Be Assembled

To see how well a Microsoft® solution integrates to create a disaster-planning and emergency operations center (EOC) environment, consider this example of Town A, a city that is using a unified approach to disaster preparedness.

Some years earlier, Town A's municipal government, including police officers, firefighters, emergency medical personnel, utility workers, and other key departments, had migrated their operations from an expensive and inflexible mainframe system to the Windows® operating system, Microsoft SQL Server® database software, and the 2007 Microsoft Office system. After reading newspaper accounts of the communication chaos in and around Louisiana during Hurricane Katrina, the mayor of Town A met with the police chief, fire chief, utilities director, IT director, and city officials from other major organizations to assess interagency emergency-planning capabilities.

The mayor asked a simple question: "How can we work together during an emergency?"

A Capabilities Assessment

To respond to the mayor's request, department officials assessed existing capabilities for communicating and collaborating among agencies and resources. The assessment covered event planning and directing a controlled emergency response. Throughout the assessment, the department heads discovered the following problems:

- Most departments had made cursory emergency plans, but during the meeting, no one could describe exactly what the plans addressed. Departments had drafted emergency plans on paper, placed them in three-ring binders, and did not update them.
- Written emergency guides tended to be department specific and lacked interagency cooperation.
- Although the city had addressed the problem of radio-frequency compatibility among first responders, radios used by first responders in other cities were on different frequencies, which made long-distance communication impractical.
- There was not a clear command-and-control system in place, and there was competition among some of the major agencies.
- Other than e-mail, computer-based communication tended to be agency specific and based on a client/server architecture that would be at risk in a disaster. The system also assumed all participants would be able travel to offices where their desktops and Internet access were fully functional.

A Solution That Works

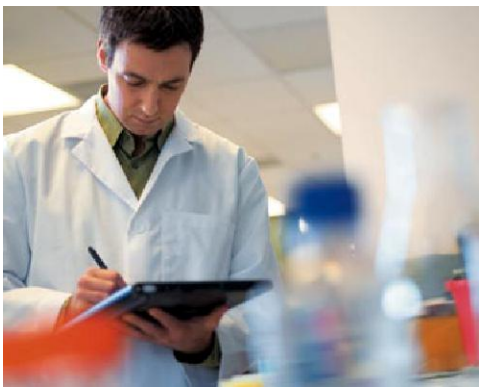
At the end of the meeting, the mayor asked the department heads to work with the IT director and a collaboration system developer to create a better solution for disaster-planning and command-and-control systems. The team decided on the following solution:

- **Operating systems**. The disaster-planning team decided to use the Windows operating system for deploying its solution. The team recognized the need for choosing an operating system that would help ensure interoperability with other city resources and be easy to use.
- **Integrated document repository**. The disaster-planning team realized early in its work that it required an alternative to paper-based documents. The team decided to store all plans, procedures, floor plans, and other resources online so that personnel would have immediate access to the documents and could update the information. After searching for the best document repository, the disaster-planning team chose Microsoft Office SharePoint® Server 2007.
- **Project management and tasking.** During planning sessions, the team saw the need for a workflow solution that would provide a framework that ensured consistency in preparing, reviewing, and approving action plans and other documentation and guides. The group selected Microsoft Office InfoPath® 2007 because of its ease of use, comprehensiveness, and ability to integrate seamlessly with Office SharePoint Server 2007. The group worked with primary stakeholders to design consistent Office InfoPath 2007 forms, ensuring that personnel would address all key elements of an action plan. At the same time, the forms preserved enough flexibility that agencies and stakeholders could create plans based upon each group's unique needs and responsibilities.
- **Situational awareness and intelligence sharing.** Agency heads tasked with EOC responsibilities expressed the need for a solution that would enable stakeholders to share reports from the field and other information in real time. The solution would let all authorized users immediately benefit from—and contribute to—a live stream of updated information. The team chose Microsoft Office Groove® 2007 because it provides rich collaborative workspaces.
- **Web-based access**. From the beginning of the project, the disaster-planning team knew that the resources it created needed to be accessible across the Web because the disruptions of a disaster might restrict access to a traditional client/server workstation. Even if a disaster destroyed the city's main data center, personnel could access all of the disaster plans and resources stored on Office SharePoint Server 2007 from backup servers at another location.
- **Support for multiple devices**. The disaster-planning team wanted to ensure that personnel could establish Web-based connectivity by using a spectrum of devices, including handheld devices; cell phones; and wireless-enabled computers, such as Tablet PCs and laptops. This need helped confirm the team's decision to deploy the solution using Windows operating systems, including Windows Mobile® 5.0 and Windows XP Tablet PC Edition.

The result was an easy-to-use, yet powerful portal solution that provides shared workspaces. The solution fosters collaboration, enhances information sharing, and provides the real-time situational awareness required for an EOC and field teams.

Appendix B: An Abbreviated Product Guide for Creating Incident-Management Systems Using Microsoft Products and Technologies

The 2007 Microsoft® Office system is well suited for disaster-planning and response initiatives because it is familiar, cost effective, easy to use, and flexible.



The same technology that enterprises use to enhance collaboration across multiple devices can provide a unifying portal for first responders and other personnel when disaster strikes. The necessary elements of an effective disaster-planning solution are readily available using Microsoft products and technologies.

Microsoft has created a family of operating systems and management, communication, and productivity applications to meet a variety of emergency needs, including:

- **Windows Vista®.** Windows Vista makes working remotely a truly viable option, whether personnel are working from a squad car, project site, disaster area, crime scene, home, or any other location. Windows Vista helps employees accomplish tasks so that they can focus on what matters most—the organization's mission.
- **Windows Server® 2008.** Windows Server 2008 is provides organizations with the most productive platform for powering applications, networks, and Web services. From the workgroup to the data center, the platform provides exciting, valuable new functionality, and powerful improvements to give police, fire, and other agencies the enterprise-grade reliability and infrastructure required for deploying a solid disaster-planning or emergency operations center (EOC) site.
    - New virtualization tools, Web technologies, and security enhancements help save time, reduce costs, and provide a platform for a dynamic data center. In addition, with powerful new tools and features, such as Internet Information Server 7.0, Server Manager, and Windows PowerShell™, organizations can more effectively control servers and streamline Web, configuration, and management tasks. Advanced security and reliability enhancements, including Network Access Protection, Server Core, and the Read-Only Domain Controller, harden the operating system and protect the server environment to help create a solid foundation on which to build disaster-planning programs.
- **Windows Mobile®**. Windows Mobile provides the foundation for a spectrum of handheld devices. Police officers, firefighters, and other first responders can use a Windows Mobile device to connect to a Web-based EOC site and review action plans.
    - **Microsoft Office Mobile*.** Windows Mobile devices with Microsoft Office Mobile enable field teams to work with applications (such as Microsoft Office Word Mobile, Microsoft Office Excel® Mobile, and Microsoft Office Outlook® Mobile) that are compatible with the 2007 Microsoft Office system.
- **Microsoft SQL Server® 2008**. Microsoft SQL Server 2008 is a comprehensive, integrated, end-to-end relational database solution that provides a safe, reliable, and productive environment for enterprise-grade database-management and database-related applications. SQL Server 2008

includes powerful, yet easy-to-use tools for IT professionals and information workers, reducing the complexity of creating, deploying, managing, and using enterprise data and analytical applications on platforms ranging from mobile devices to enterprise data systems. Through a comprehensive feature set, interoperability with existing systems, and automation of routine tasks, SQL Server 2008 provides a complete data solution for enterprises of all sizes, and provides the ideal data-storage solution for organizations creating emergency-planning and emergency-response solutions. SQL Server 2008 can store terabytes of data on a single instance so that police, fire, and other agencies—including local, regional, tribal, and municipal governments—can store vast amounts of information in the database. Creating a centralized repository ensures that information is readily available in disaster-planning, recovery, and command-and-control scenarios.

- **Microsoft Office SharePoint® Server 2007**. Microsoft Office SharePoint Server 2007 provides organizations with a comprehensive framework to create, maintain, and modify portals—sites that aggregate contextually relevant information, applications, and services. Office SharePoint Server 2007 integrates information from various systems into one solution through single sign-on and enterprise application-integration capabilities. It facilitates end-to-end collaboration through data aggregation, organization, and searching. Office SharePoint Server 2007 also enables users to find relevant information quickly by customizing and personalizing portal content, layout, and audience targeting. Audience targeting aims information and updates at individuals based on their organizational role, team membership, interest, security group, or other membership criteria that can be defined using notifications or Web Parts. A portal provides the ideal delivery platform for disaster-planning and command-and-control solutions because organizations can set it up for encrypted access across the Internet on a variety of devices, including wireless solutions, such as Tablet PCs and smartphones.

- **Microsoft Office InfoPath® 2007**. Microsoft Office InfoPath 2007 is a forms-based solution that helps organizations gather information efficiently and reliably and execute under times of stress. Because Office InfoPath 2007 uses XML and other standards to integrate with an existing infrastructure, personnel can use InfoPath to gather information and use it throughout organizations and across business processes. Using Office InfoPath 2007 electronic forms and Microsoft Office SharePoint Server 2007, staff can create automated workflows to automate and simplify workflows. Office InfoPath 2007 provides organizations with an easy and efficient way to create rich, flexible forms for tasks, such as after-incident review and analysis. In addition, Office InfoPath 2007 provides a user-friendly interface for entering information into applications in the Microsoft Office system. Sample forms in Office InfoPath 2007 provide templates for common usage scenarios, which provide powerful tools for police, fire, and other agencies to create incident action plans (IAPs) and other documents.

  Microsoft Office Groove® 2007. Microsoft Office Groove 2007 enables teams to work together dynamically and effectively inside collaborative workspaces—any place and any time with anyone. Using Office Groove 2007 workspaces saves time, increases productivity, and strengthens the quality of team deliverables. As personnel work, Office Groove 2007 forwards changes to team members automatically and efficiently. Even if Internet connectivity is only temporarily unavailable, first responders and other stakeholders will have access to disaster-planning documents and resources on their computers or other devices. Once connected, Groove 2007 automatically updates documents. Office Groove 2007 also supports user-presence awareness, alerts, and real-time tools so that EOC personnel and field teams can determine who is available and immediately make contact.

- **Office Open XML Formats**. Office Open XML Formats enable better data integration with servers and databases, so that staff can easily monitor the health of systems by using Microsoft Office Word 2007 or Microsoft Office Excel® 2007.
- **Microsoft Office Word 2007.** Microsoft Office Word 2007 enables staff to assemble documents by using building block features that provide predefined content for quick assembly. They can choose to share documents in either Portable Document Format (PDF) or XML Paper Specification (XPS)—without using third-party tools—to include organizations that might be using a different technology platform.
- **Microsoft Office Excel® 2007.** Staff can use, share, secure, and manage Microsoft Office Excel 2007 workbooks as interactive reports over the Web to collaborate with consultants or partners in remote locations while developing IAPs, emergency operations plans, or standard operating procedures monitoring complex business processes, or exchanging information during a planned or unplanned event.
- **Microsoft Office Communicator 2007.** Microsoft Office Communicator 2007 enables staff to reach people in different locations during an emergency when flexibility in communications, such as instant messaging, voice, and video capabilities, and is vital to achieving a coordinated response among distributed parties. Integration with programs in the 2007 Microsoft Office system gives staff many different ways to communicate with each other through ha consistent and simple user experience.
- **Microsoft Office Outlook® 2007.** Microsoft Office Outlook 2007 provides new capabilities that emphasize mobility, access to information, unified messaging, and integration with Microsoft Exchange Server 2007, which provides a powerful collaboration platform. Staff can take advantage of secure collaboration and multiple messaging approaches—including e-mail, instant messaging, and integrated voice and video capabilities—to keep communication and collaboration channels open before, during, and after an emergency. Applications in the 2007 Microsoft Office system, such as Microsoft Office Communications Server and Microsoft Office Communicator 2007, offer new levels of coordinated communications and collaboration through presence awareness, and phone, voice, video, and Web conferencing.

Seamless integration between applications in the 2007 Microsoft Office system and servers, such as Office SharePoint Server 2007, gives information workers a powerful collaboration environment that supports workflow: enabled document reviews, managed-reports distribution, and structured information. These are key aspects in providing a disaster-planning and response solution.

Integration between the 2007 Microsoft Office system and server-based business processes, databases, and line-of-business processes means that every department can create plans that use the same technologies as the rest of the organization. For example, Excel Services in Microsoft SQL Server 2008 Reporting Services or Office InfoPath 2007 forms that use Web services automatically update data that is stored in a line-of-business application that information workers can use in a variety of scenarios. All of these integrated features and functionality support secure corporatewide communications and access to important information before, during, and after a disaster.

The 2007 Microsoft® Office system provides a solution for disaster planning and response because personnel are familiar with the applications, require minimal training, and can facilitate cross-organization communication with first responders and third-party agencies during an emergency. Personnel can focus on the communication and collaboration capabilities that are essential to maintaining processes. As a cost-effective solution, the 2007 Microsoft Office system supports

disaster-planning and response plans and uses the communication and collaboration capabilities that are critical to organizations.