

Mission Critical Collaboration In the Public Sector

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Abstract:

Since 9/11, many federal agencies, including those in the Intelligence Community, the Department of Defense (DOD), the Department of Homeland Security (DHS), and the Department of Justice (DOJ) have been charged with improving inter- and intra-departmental communication. While information sharing has improved, disasters such as Hurricane Katrina illustrate opportunities for additional improvements. This was evident in the days following the storm, as state, local and federal agencies struggled to bring order to chaos. Poor communication was one of the reasons key officials lacked sufficient awareness of the entire situation, including not knowing where evacuees had been sent for “safety” or even which hospitals had electricity.

Although the technology to address these communications challenges currently exists in new web-based collaboration systems, relatively few government agencies are aware of its full potential.

For many public agencies charged with the responsibility for homeland security, as well as private industry in fields such as financial services and healthcare, which must maintain critical infrastructures, success depends on effective collaboration.

As one of the leading providers of collaboration solutions to federal agencies for nearly a decade, CollabraSpace has developed and continues to enhance off-the-shelf, customizable, real-time, web-based collaboration solutions that ensure organizations are meeting their mission-critical communication needs.



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Defining the “mission critical” market

The mission critical market for collaboration is comprised of organizations whose success depends on collaboration; i.e., any organization that must share and assess large amounts of data under time-sensitive conditions, often among dispersed workforces, and both internally and with external constituents. These organizations, both public and private, also have a need to access experts who can evaluate the data. Finally, in some cases, their work requires situational awareness for command and control. Such awareness may be satisfied with real-time data feeds, mapping tools, radar, etc.

Any federal agency that plays a vital role in the defense of the United States, is involved in operations throughout the world, or is responsible for natural disaster response inside the U.S., naturally falls into the mission critical category. Processing massive volumes of information and disseminating relevant information to the appropriate individuals for intelligence purposes, or in the aftermath of a natural disaster such as a hurricane or earthquake, is a colossal task – and failing to do so expeditiously can have truly catastrophic implications.

Organizations in the mission critical category for collaboration typically require one or more of the following:

- Access to subject matter experts
- Dissemination of information to broad audiences
- Access to parties that have valuable information
- Instant access to multiple data streams to support complex decision-making
- Interoperability over disjointed networks
- Reliable communications infrastructure to support continuity of operations
- Language translation

Collaboration supporting critical missions

While certain collaboration tools, such as email, instant messaging, web sites, etc., are currently in wide use among both federal agencies and in the private sector, the full potential of collaboration as a whole has not been fully tapped. An article published in Business Week, November 28, 2005, by Michelle Conlin, titled, E-Mail is so Five Minutes Ago, concludes that “the beyond e-mail workplace will become a key competitive advantage in the global race for innovation.”¹ Some analysts have even called collaboration the most underutilized, yet most promising tool currently on the market.

Messaging alone does not constitute “collaboration,” or tap its full potential. The same can be said for the use of white boards, text chat, and multiple other collaboration tools. While they can improve workflow and communication, none of these, individually, has the power to affect enterprise-wide change. As a small but growing number of federal and private organizations have learned, collaboration is much more than a synthesized set of tools.

Today’s Internet-based collaboration systems are ushering in secure, reliable platforms that seamlessly integrate with existing systems and software, ridding organizations of multiple stovepipe communication systems. By embedding collaboration applications throughout their daily operations, organizations break down the barriers that prevent effective and efficient communication from occurring.

Challenges facing “mission critical” organizations

A recent survey of federal, state and city government officials examined their perceptions of the effectiveness of the current information sharing process within and among their organizations. The findings were dismal. Results indicated that at no level of government was the information sharing process perceived as effective, and this sentiment was even stronger among federal agencies.²

Underscoring how imperative effective collaboration systems are within this space, the same GAO study found that “information on threats, methods, and techniques of terrorists is not routinely shared; and the information that is shared is not perceived as timely, accurate, or relevant... Federal respondents cited the inability of state and city officials to secure and protect classified information, the lack of federal security clearances, and a lack of integrated databases as restricting their ability to share information.”³

The Office of Homeland Security in particular has identified six “mission areas” of protection.⁴ They include:

- Intelligence and warning
- Border and transportation security
- Domestic counter terrorism
- Protecting critical infrastructure
- Defending against catastrophic threats
- Emergency preparedness and response

All involve the daily collection of reams of data -- by agents scattered far and wide. Yet the information is only valuable if the most relevant data can be found quickly, shared with the appropriate parties, and turned into a plan of action. A collaboration solution such as CollabraSuite can quickly address these challenges.

With the number of sophisticated information gathering tools increasing, collaboration provides a centralized means to maintain situational awareness and turn information into actionable intelligence. It also addresses the challenges inherent in managing knowledge and information within organizations with complicated security clearance hierarchies.

In a report on the IT challenges facing DHS strategists, Dan Alexander, of the Department of the Navy, asserts that Information Technology will be the enabling factor in creating a “high fidelity, effective, operational infrastructure” within the DHS, and that this will be critical to the overall success of the global war on terrorism.⁵

How CollabraSpace is addressing the mission critical market

CollabraSpace’s web-based collaboration solutions are not stovepipe applications, but enterprise services that allow for the creation of context-driven work environments that are seamlessly integrated with the legacy systems already used by an organization, including desktop applications such as Microsoft Office. Scalable and highly secure, the solutions are administered through a client portal or an application server, and become a natural extension of an organization’s environment, providing an operational context for collaboration.

For complex organizations with dispersed workforces, this means being able to collect and analyze information from previously disparate systems; locating and working effectively with colleagues or even outside experts in multiple locations and quite simply, better access to information in a broad array of formats.

Because its solutions are web-based and built using the J2EE platform and an open API, CollabraSpace offer users great flexibility. The open API allows developers to extend the application – enabling customization for specific customer needs and support for an organization’s specific business processes.

At the core of all CollabraSpace solutions is its flagship product, CollabraSuite, which enables the creation of a virtual, visual office, accessible via personal computers as well as various other web-enabled handheld devices. Here, an unlimited number of “rooms” can be created for specific projects, investigations, or situations. Whether moving around from room to room in the collaborative environment, chatting, drawing on a whiteboard, or accessing documents, every event that a user performs is logged in a database for later retrieval by appropriate personnel. Participation in any of the rooms and role-based access to information within the room can be restricted with prescribed permission levels.

While CollabraSuite on its own meets the collaboration needs of many organizations, the very specific demands of clients in the mission critical category led to the development of two additional CollabraSpace solutions: CAPDE, which stands for Collaborative Analysis, Production and Dissemination Environment, is designed to help organize, manage and analyze vast amounts of information; and CDSE, which stands for Collaborative Decision Support Environment, was designed to facilitate and improve the decision-making process.

At the core of both CAPDE and CDSE is the CollabraSpace flagship product CollabraSuite, which includes:

- Document storage and retrieval
- Text chat
- Audio/video capabilities
- Presence awareness
- Navigation
- Paging
- Online user display
- White boarding
- Lightweight html style note editor
- Open API
- Remote Campus Access



CAPDE

CAPDE enables intelligence producers, in both strategic and tactical situations, to focus all enterprise assets on production and dissemination of accurate, timely, comprehensive intelligence. It does this by incorporating numerous analysis components, including geospatial analysis, information visualization, automated translation and event messaging. The information visualization component provides 2D and 3D visualization of resources and assets based on other data streams fed into the collaboration portal.

Key to first responders, CAPDE also includes a voice enablement function that provides dissemination of information by converting text messages to “voice” and “voice” to text. This means that messages sent by first responders via hand-held devices such as walkie-talkies can be translated to text and recorded via the collaboration portal.

CDSE

CDSE provides for the automation and integration of real-time event-based situational awareness as well as indicator/warning and crisis prevention/management. Unique to CDSE is its ability to integrate its collaborative components with collection/monitoring capabilities. This leads to more timely and informed decisions and dramatically improves Total Time to Productivity (TTP), while reducing Total Cost of Ownership (TCO) of information systems.

CDSE's collaborative components include: situational awareness, which supports real-time data feeds, event management information visualization -- including mapping tools and radar; structured data management and a sophisticated search function; crisis prevention, which is supported by workflow and information templates for pre-defined report formats and information dissemination through voice enablement, alerts distributed via the portal, and a publish\subscribe engine; indication and warning, carried out by threshold-based alerts; and crisis management, which uses project management modules to task, define resource allocation, create milestones, etc. These assist in crisis management, and include threshold-based alerts triggered by real-time data feeds.



Intelligence community scenario

To offer an illustration of how collaboration in general, and CollabraSpace's CAPDE solution in particular aids intelligence analysts, the following scenario provides a detailed account of how experts across various intelligence agencies can seamlessly communicate if they have the appropriate tools and environment in which to work.

The scenario centers on the thwarting of a terrorist threat and begins when one agent, scanning through numerous pieces of collected intelligence, believes he may have uncovered a threat against a U.S. port.

- The agent's knowledge, limited to the data he has uncovered, knows that he must convey his findings - quickly -- to other experts both within and outside his own agency in order to confirm the validity of his information.
- In his search for further details, the analyst creates an Al Qaeda event collaboration room on the homeland security portal. He posts the room location, with a short overview of what he knows and what he needs to know, on several message boards across several agencies and the law enforcement community. He also sends personal invitations to specific analysts and experts he found on the portal's "expert finder." The expert finder is actually integrated into the portal and pulls information from personnel and operational databases from numerous intelligence, defense and law enforcement agencies and commands.
- Within two hours, the analyst provides accounts in his event collaboration room to 10 analysts and experts across three communities - four who reply positively to his personal invitation and six analysts/experts who see his posting on the message boards. Among the new team members are an FBI Counter-Terrorist Analyst and a Coast Guard Port Protection Intelligence Officer.
- The analyst sends a page to all the room members, sets up a collaborative session, and asks that everyone place all potentially relevant information in the event collaboration room filing cabinet. Since two of the team members work with information in Arabic, he sets up the automated translation capability so that language is not a barrier to the collaboration. This capability also allows non-Arabic speakers to query Arabic files and receive results of those queries in English.
- The analyst kicks off the collaborative session by presenting all the accumulated information that points to an AL QAEDA terrorist event against the U.S. and to his belief that there will be a shipment before the event. The presentation is delivered in PowerPoint and each group member is able to view it at his or her respective workstations. The analyst leads the presentation via a video conferencing session that the group members access through the collaboration room.



- Following the presentation, a geospatial intelligence analyst posts his latest map of all AL QAEDA cells around the world on the event collaboration room whiteboard. The information indicates a cell in Egypt has a close relationship with another AL QAEDA cell in the New Orleans area.
- At this point, the FBI analyst posts a message to the chat room saying that she has information that the New Orleans AL QAEDA cell has recently been in contact with its sister cell in Alexandria, Egypt. The analyst suspects that this New Orleans cell was very interested in ship traffic at the Port of New Orleans.
- The analyst, using an information graphics application, searches for all information available in the Port of Alexandria area. The information he gathers shows that four ships will be traveling from Alexandria to New Orleans over the next week. The team members follow up with their own research -- one member of the group finding, and immediately posting -- a key piece of evidence on one of the vessels, which is found to be linked to AL QAEDA.
- At this point, the team decides to go back and check all their data stores for information to support the possibility of the ship carrying a delivery from the Egyptian AL QAEDA cell to the AL QAEDA cell in New Orleans via the Port of New Orleans.
- Thirty minutes later, the team reconvenes. At this point, the number of participants in the room has increased to 30. The team constructs a profile of all known capabilities and activities of the cells in Alexandria and New Orleans.
- Additional research by one of the room participants reveals that the New Orleans cell has recently threatened disruption of an upcoming meeting between United States and Iraqi officials at a hotel in New Orleans. Another specialist introduces a document on the Los Angeles AL QAEDA. The report describes how such meetings are a major target for terrorist attacks and details the kinds of strategies and weapons typically used for such disruptions.
- The team agrees that it is reasonable to assume that a nuclear dirty bomb or bio-weapon, intended for use at an upcoming Iraqi-U.S. governmental meeting, could be on the Egyptian ship bound for New Orleans. The team decides to alert the Port of New Orleans.
- Inspection of the vessel reveals a high level of radiation onboard, indicating a possible nuclear or biological dirty bomb.
- The team learns that the Port Authority has quarantined the vessel and sent an alert to the local DHS and FBI offices. The analyst who created the "event collaboration room" decides to transform it into the "prevention collaboration room."



- Together, the team writes and distributes a report detailing solid proof of an AL QAEDA cell in Alexandria, Egypt shipping a nuclear or biological weapon to its sister cell in New Orleans via a freighter. Once the report is issued, several new organizations join the prevention collaboration room and the activity evolves from constructing and proving an analytical scenario to preventing a terrorist attack. The National Counter Terrorism Center's (NCTC) Production Board prepares a summary report for review by the Director of National Intelligence (DNI), Homeland Security Council (HSC), National Security Council (NSC), and the President of the United States.



Conclusion

Organizations for which collaboration is mission critical now have more tools at their disposal than ever before. Although the adoption of individual collaborations tools is on the rise, there is still limited understanding of the full potential of a totally integrated collaboration platform and this keeps many organizations from functioning at their optimum level.

As more and more organizations incorporate increasingly sophisticated collaboration into their daily operations, the result ultimately will be a far more creative, effective workforce.



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Endnotes

1 BusinessWeek Online, "E-Mail is so Five Minutes Ago" 28 Nov. 2005,
http://www.businessweek.com/magazine/content/05_48/b3961120.htm

2 Government Accounting Office Report-03-760, *Homeland Security: Efforts to Improve Information Sharing Needs to be Strengthened*, August 27, 2003, U.S. Government,
<http://www.gao.gov/htext/d03760.html>

3 *Homeland Security: Efforts to Improve...*

4 Department of Homeland Security, *National Strategy for Homeland Security*, July 2002, U.S. Government

5 Dan Alexander, "Information Technology Challenges Facing the Strategic Leaders of Homeland Security in the 21st Century" May 2004, U.S. Army War College



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