

Secure Collaboration in Low Bandwidth Settings

Modern organizations are both widely distributed and highly interdependent. Often decision-makers are geographically distant from those providing the information upon which their decisions are made. These decisions are also often mission-critical and confidential. The confluence of these factors necessitates a means of secure, real-time interaction. Low bandwidth situations—common in military, public safety, and homeland security settings—are areas where collaboration tools can add significant value, both in terms of return-on-investment and, more importantly, in lives saved.



ICF Consulting recently developed a prototype system for the U.S. Navy Sea Systems Command's (NAVSEA's) Distance Support Portal demonstrating the use of a SharePoint Portal Server (SPS), a Content Management Server (CMS), and a Commerce Server (CS) to deliver highly tailored content to shipboard sailors in a low bandwidth environment.

The Distance Support Portal provides engineering and other support to shipboard sailors to minimize the amount of routine ship-to-shore communications, and free critical satellite bandwidth for mission critical issues.

Secure Collaboration Tools

Collaborative tools should use a full range of communications technologies and include a wide variety of communication modes to enable the most appropriate system for any given situation and to provide redundancy.

Collaboration tools include the following:

- Background information sharing—Web pages, client-server databases, published reports, threaded discussions, and document management
- Planning information—short-term and long-range plans, resource management and scheduling tools, and logistical information
- Real-time and near-real-time information sharing—e-mail, secure instant messaging, voice communications, and video conferencing

There are numerous tools on the market that ICF Consulting has used to develop collaborative computing environments. Our implementations focus on rapid setup and execution and, consequently, center on product suites by Microsoft and IBM/Lotus.

The NAVSEA prototype is predicated on maintaining local copies of the system on each ship and shore-based installation. The content consistency of the various copies of the system is maintained using periodic database replication that merges all of the changes without the need to copy redundant information. A high level of content personalization is achieved through the personalization features inherent to CMS and CS. Document management and search functions are handled using the document management, workflow, and search features of SPS.

ICF Consulting has led the Web development team for Collaboration at Sea (CaS), a full-featured intranet for the U.S. Navy's Atlantic Fleet, which also operates within a low-bandwidth environment. The system is used for reporting battle group activities across the fleet and for providing a secure method for direct communication, particularly during crisis situations.

The system allows for shipboard and shore-side content management using a custom-built, IBM/Lotus-based content management system. Secure, real-time collabora-

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tion is achieved using the Lotus Sametime product. These functions occur over highly secure, satellite-based networks using IBM/Lotus Domino technology.

Secure collaboration in low bandwidth settings relies heavily on the use of database replication to minimize the flow of redundant bytes of information. The U.S. Navy recognizes the value of this approach and has worked with ICF Consulting to integrate it into CaS, their primary tool for coordinating the activities of the various battle groups

within the Atlantic Fleet. Based on the experience of the Atlantic Fleet, other groups within the U.S. Navy (most notably NAVSEA) have recognized the value of the approach. Regardless of the particular tools used, or even the particular low-bandwidth setting to which the tools are applied, the lessons learned as part of these projects can provide valuable insight for any secure, low-bandwidth collaborative solution. 