

First U.S. Navy Installation of DMS Afloat

By SPAWAR PMW 162-2, Tactical Organizational Messaging for Program Executive Office C4I and Space

In a huge step toward implementing a common messaging solution for warfighters afloat and ashore, the Naval Modular Automated Communication Systems (NAVMACS II)/Single Messaging Solution (SMS) Phase II was installed on the USS Belleau Wood (LHA-3) and underwent initial fleet evaluation during October 2003 sea trials. Installation of this tactical command and control system also marks a big step toward realizing the Chief of Naval Operations FORCENet vision of full interoperability between the Navy and Marine Corps — and the rest of the Department of Defense (DoD).

At the same time, it brings Navy one step closer to the DoD vision of a Global Information Grid that links the Navy to U.S. government agencies such as the Department of Homeland Security, the Defense Logistics Agency, the National Imaging and Mapping Agency and the National Security Agency.

SMS II, also called “DMS Afloat,” brings with it the first implementation of the Defense Message System (DMS) in an afloat tactical environment. DMS provides the battle planners on a Combined Joint Task Force (CJTF) staff with a flexible, COTS-based, network-centric, application layer system that bridges communication networks and also provides interoperability with other U.S. and allied forces. Trials with this state-of-the-art advance in communication on an operational Navy ship will provide essential metrics toward increasing communication performance for end-to-end, secure and interoperable organizational messaging.

Capable of delivering data messages with the future enhancements of voice and video attachments, DMS Afloat provides better-protected, faster communications at a measured lower Internet Protocol (IP) overhead than comparable SMTP e-mail. It also provides the capability to interlink existing legacy systems and future DMS architectures. The goal of DMS Afloat is to provide a single point of receipt and transmission for all organizational message traffic. Existing communications architecture reflects legacy, serial protocol tactical communication message processing system technologies (hardware and software) that are, in some cases, over 30 years old. These legacy systems are candidates for planned phase-out, upgrade or replacement using an evolutionary acquisition process as we gradually migrate towards DMS.

“The USS Belleau Wood has a distinguished history of service to the nation and now has the distinction of being the inaugural DMS Afloat ship. I applaud the Navy’s success in this initial shipboard implementation, which expands the messaging envelop to the Navy tactical environment. DMS is now the



Above: IT2(SW) Dawn L. Lee, USN and IT3 Daniel W. Schneider, USN, operating the NAVMACS II/SMS Phase II system onboard the USS Belleau Wood (LHA-3) in October 2003.

system of record for official Department of Defense message communications. This event signifies the Navy’s commitment to transforming their C2 messaging capability throughout the fleet,” said Mr. Verlin Hardin, Defense Information Systems Agency, Defense Message System Program Manager, Washington, D.C.

“DMS Afloat delivers on the fleet requirement for a common, robust, high assurance, organizational messaging solution that supports Navy warfighters and embarked forces from all Services. It is an enabler that allows the Navy to plug into DoD’s emerging Global Information Grid while providing a state-of-the-art, IP-based organizational messaging capability to the fleet,” said Captain Bill Bry, USN, PEO (C4I-Space) PMW 166, Organizational Messaging Program Manager, San Diego, Calif.

As a military communications processor, SMS provides message services to afloat tactical warfighters along with command, control and communication functionalities. It provides a universal messaging process, open-architecture environment and state-of-the-art technology that reduces operator training, technical support, maintenance and overall life cycle system costs.

SMS provides capabilities via high-speed global messaging utilizing IP networks to connect the afloat tactical user with ship-to-shore and inter/intra (ship-to-ship) battle group operational messaging. SMS also supports the existing legacy circuits that are being phased out as all military message traffic transitions to the single transport layer known as the Defense Information System Network (DISN). During this transition period, SMS Phases I and II will connect the various types of organizational message traffic via legacy channels and emerging IP messaging technologies, while migrating to DMS.

The SMS program was structured as an evolutionary acquisition process with phased development that has a scalable system design. As such, the main configuration differences between SMS and the different variants are in the number of extra workstations provided and other specific DMS architecture

components. SMS brings to Navy's afloat tactical environment a high-level, high assurance messaging capability while adapting to Joint and Allied/Coalition Interoperability requirements. The system features for the NAVMACS versions up through SMS Phase II are summarized as follows:

- ◆ NAVMACS (V) is UYK 20, 1970s based H/W and S/W with little memory and little capability. NAVMACS II, the replacement for NAVMACS (V), uses Commercial-Off-the-Shelf (COTS) hardware with Government-off-the-Shelf (GOTS) software that adapts functionality into the Graphical User Interface (GUI) environment.

- ◆ NAVMACS II/SMS Phase I, replacement for NAVMACS (V) and DMS ready, has six variants scalable for all platforms, an upgraded legacy functionality in a Pentium-based system and includes system rack upgrades to allow for DMS insertion. This system's scalable hardware allows for DMS hardware and software upgrades and functionality in the coming years.

- ◆ NAVMACS II/SMS Phase II (DMS) provides DMS to Navy and Coast Guard afloat units and has multiple variants (CJTF, Shooter, Non-Shooter and non-deployer). This configuration brings DMS components into the SMS Phase I infrastructure with no modifications to the system electrical interconnections or footprint.

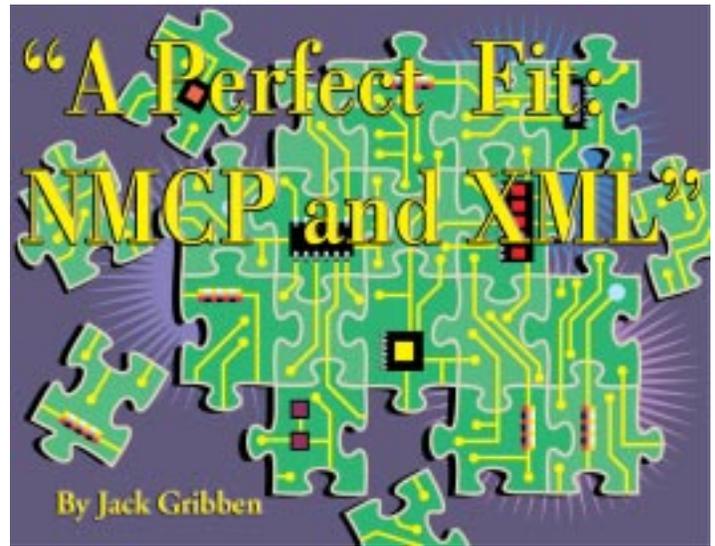
SMS hosts various software applications, such as Microsoft Outlook and Exchange, the Information Screening and Delivery Subsystem (ISDS) used in submarine configurations, TURBOPREP and the Defense Message Dissemination System (DMDS), to ensure maximum space utilization and Pentium processing capability.

NAVMACS II/SMS Phase II will provide a means for transitioning legacy communication systems into more capable, speedier, better integrated and fully joint interoperable capabilities to U.S. Navy ships and their embarked warfighting components.

Additionally, SMS provides a variety of messaging services, security, interoperability, directory services and message access controls, all in an automated, user-friendly package requiring minimal watchstander involvement. It is capable of processing between 8,000 to 15,000 messages a day with an average message size of 4,000 characters (4 kilobytes) and can store messages more than 60 days.

SMS Phase II systems are currently scheduled for delivery to USS Tarawa (LHA-1) and USS Harry S. Truman (CVN-75) with follow-on installations planned for USS Enterprise (CVN-65), USS Nimitz (CVN-68), USS Abraham Lincoln (CVN-72), USS Teddy Roosevelt (CVN-71), USS Blue Ridge (LCC-19) and USS Carl Vinson (CVN-70) in FY04.

NAVMACS II/SMS Phase II represents a unique approach to modernizing the Navy's communications infrastructure. And it will provide a means for transitioning legacy communication systems into more capable, speedier, better integrated and fully joint interoperable capabilities to U.S. Navy ships and their embarked warfighting components. □



When Acting Secretary of the Navy, Hansford T. Johnson, issued the policy guidance memorandum for establishing the Navy Marine Corps Portal (NMCP) last February, he further aligned the Department of the Navy (DON) with the growing number of organizations that, since the mid 1990s, have been building enterprise portals to improve access to cumulative organizational knowledge.

Although the types of enterprise portal-building organizations vary — government versus corporate, military versus civilian agency — the obstacles they face are remarkably similar. Non-integrated legacy systems, existing subordinate portals and countless, different data formats are common challenges.

A high degree of consensus has emerged, however, about a solution to many of these problems. Extensible Markup Language (XML) has largely become the “tool-of-choice” for those who are working to piece together the technical architecture behind these portals and is simultaneously helping to usher in a new wave of knowledge-centric organizations.

But understanding how XML can potentially support NMCP technical needs requires a look at recent history to clarify not only the DON's rationale for establishing this enterprise portal, but its vision for the system's ability to integrate information that its Sailor, Marine and civilian employee users will rely on to carry out mission-related and personal tasks.

Outlining the NMCP Vision

In his February 28, 2003 memorandum, Acting Secretary Johnson wrote, “In order to realize the benefits of our significant information technology (IT) infrastructure investment, a framework for organizing, managing and accessing Department information must be established.” That IT infrastructure investment is comprised of several programs, including the Navy Marine Corps Intranet (NMCI), Task Force Web and Information Technology for the 21st Century (IT-21). Together, they provide a foundation for increased knowledge sharing and seamless access to information across the DON. At the same time, they also present the DON an opportunity to build a framework in the form of NMCP, a single integrated enterprise portal structure for use throughout the Department.

The DON's vision for NMCP is multi-faceted. Most significantly,