

# NETWORK-CENTRIC WARFARE COMES TO THE READY ROOM

By Lt. Reginald Johnson

**D**ecentralized communication is one of the hallmarks of modern U.S. warfighting capability, and the concept of network-centric warfare encompasses this characteristic. The ability to send and receive information, as needed, was used at all levels of operations during Operation Iraqi Freedom. OIF not only used network-centric concepts at the joint forces level, but also in the individual squadron ready rooms in SIPRNET (Secret Internet Protocol Network) form. During OIF, if you didn't have SIPRNET access you were immediately behind the power curve. But while we had SIPRNET access, bandwidth was not used as efficiently as it could have been. As Automatic Data Processing and Quality Assurance Officer for the Carrier Airborne Early Warning Squadron VAW-124, I have some recommendations to make from an E-2C squadron perspective that will improve operational efficiency and conserve bandwidth.

Web access to U.S. Central Air Forces and Prince Sultan Air Base (PSAB) SIPRNET Web pages provided the primary access to Air Tasking Orders (ATO), Airspace Control Orders, Special Instructions (SPINS) and changes. Due to the fluidity of the battlefield lines, and an unprecedented sortie count, OIF operations executed under a constantly evolving ATO, with as many as eight changes in a given day. All of these changes and other mission planning information were disseminated over the SIPRNET.

E-mail access allowed almost real-time information exchange between squadrons and squadron liaison officers at the Coalition Air Operations Center at PSAB. Questions about ATO scheduled events and tasking could be answered almost immediately. E-mail was used for immediate tasking and dissemination of information before the next ATO change was available, and it also provided a direct link between Liaison Naval Officers at PSAB and watchstanders on the carrier. Just as importantly, it allowed squadron personnel to create ongoing lessons learned that included classified information, which couldn't be sent through NIPRNET (Nonclassified Internet Protocol Network) e-mails.

SIPRNET chat gave users real-time information exchange by giving geographically dispersed users an interactive bulletin board to disseminate information. This gave users the ability to create persistent virtual conference rooms allowing instant attention to issues and answers to problems.

## CACHING

While the ability to access information quickly had advantages, SIPRNET use was not as efficient as it could have been. The use of prudent caching (one entity saving documents at a centralized location for access by others) could have saved bandwidth and given users quicker access to needed documents.

During OIF the use of caching was almost nonexistent at the Air

Wing level. This caused numerous downloads of the same information within the Air Wing and at the squadron level. It caused what was already a sluggish network to slow to a crawl. A more efficient method would have been for the Carrier Information Center to download all the items needed from the original source, and make that information available to all users.

While this method of caching works well with Web-based information and downloaded files, e-mail and chat would need to be handled differently. Chat conversations occur in real time so caching in the traditional sense isn't possible. However, chat allows multiple people and organizations to have access to ongoing chat conversations leading to a network "economy of scale." Additionally, chat conversations can be logged to allow others access to the information at a later time.

However, as an alternative to standard caching, an efficient pass down among the people engaged in chat and their organizations would ensure that information obtained in chat sessions would not be lost.

Efficient use of e-mail would have to depend on a similar inter-unit pass down. This would eliminate the numerous mass e-mails that are traditionally sent and would save valuable bandwidth.

## HARDWARE AVAILABILITY

In addition to bandwidth, the main issues affecting access to SIPRNET information were operational security concerns and a shortage of workstations with SIPRNET connectivity. Access to SIPRNET e-mail was restricted during a restrictive e-mail and Internet condition (RIVERCITY) set to restrict NIPRNET access. To avoid this in the future, the ship's ADP Officer could make provisions to continue SIPRNET access if NIPRNET access is secured.

Additionally, due to a hardware incompatibility with portions of the ship's classified local area network, squadrons were limited to one or two SIPRNET workstations. While there was typically only one standard Ethernet classified LAN drop in ready rooms, there were several drops available to provide fiber-optic connections to the SIPRNET. It would have been preferable to have more Ethernet LAN drops available with fiber-optic network cards available for installation in classified workstations. This would have more than doubled the available SIPRNET workstations.

SIPRNET proved to be a valuable communications tool during OIF. E-mail, Web access and chat were indispensable for exchanging critical information. But more efficient use of SIPRNET assets, prudent use of bandwidth and a sufficient number of workstations with classified access will make a smooth transition as your squadron engages in network-centric warfare.

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