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CASE STUDY - Geo-Replicator - United States Navy

Distance Support, Sailor to Engineer program

United States Navy

Country: USA.

Profile: The world's largest naval force. Founded in 1775 and operating around the world.

Key Drivers: Improving on-board engineer access to the Navy's "Distance Support" SharePoint portal while at sea.

Connecting Sailors to expert technicians on shore

The United States Navy performs the bulk of its vessel maintenance at its naval bases. Between those scheduled overhauls, however, there remains periodic maintenance that must be performed at sea to keep the ships and equipment ready for deployment.

The Navy trains its on-board technicians to handle most of these maintenance scenarios. However there are inevitably some tasks that are beyond what the onboard technicians can handle. They would typically complete these more complex tasks with the advice of a land based expert. In some cases, where problems require it, an expert will be flown to the ship to complete repairs.

These maintenance issues, and the delays they cause, are a significant burden on Navy resources. Ferrying experts to ships is expensive and the downtime is detrimental to fleet operations.

Improving on-board access to maintenance information

To enhance the ability of its on-board technicians, the Navy has created the “Distance Support” web portal, to give personnel on ships instant access to full and up-to-date maintenance documentation.

Through the Naval Surface Warfare Center’s “Sailor to Engineer” initiative, this portal also gives Sailors instant access to engineering and logistics experts at the NSWC in Port Hueneme.

The “Sailor to Engineer” page of the portal enables sailors to get expert answers to questions regarding the maintenance of weapons, hull, mechanical, and electrical systems. The Sailor to Engineer page puts fleet technicians in contact with knowledgeable experts at any time, anywhere.

The effectiveness of the portal was, however, limited by bandwidth availability over the Navy’s satellite network. With enormous fleet demand for bandwidth, it was impossible to update the portal effectively over the network. Therefore updates to maintenance documentation had to be sent out to the ships on CDs and then manually uploaded into the portal. This process was cumbersome and unreliable.

Infonic’s Geo-Replicator technology provides the bandwidth optimization that makes the updating of the Distance Support portal possible across the entire fleet via satellite.

Geo-Replicator enables the Navy to run an up-to-date portal on all of its ships and substantially reduces demand on the Navy’s satellite network, as well as reducing the cost of transporting experts to ships.

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Infonic's technology delivers efficient replication of content both ways between ship and shore

Choosing Geo-Replicator

The Navy's Sailors depend on their equipment being in perfect working order when they are at sea. But some failures and problems are inevitable. Having the ability to contact an expert immediately when the need arises, allows the fleet to remedy problems rapidly and keep their operations running smoothly.

Only Infonic Geo-Replicator offered the efficient server to server replication that the Navy required to provide a LAN speed portal experience to its on-ship users. Infonic's unique software allows the Navy to efficiently provide data to its users, wherever they are in the world. Infonic's technology delivers efficient replication of content both ways between ship and shore by dramatically reducing the size of the data being sent.

Benefits of Geo-Replicator

- Faster Access to SharePoint in very remote areas of the world
- Access to more up-to-date portal content at sea
- Dramatic reduction in the cost of data transmission
- Improved at-sea access to maintenance manuals and documentation
- Improved collaboration between on-ship technicians and land based experts
- Satellite bandwidth is left available for other Naval purposes.

The Infonic Geo-Replicator Solution

Infonic Geo-Replicator employs unique Epsilon differencing technology to achieve the Navy's objective of providing up to date portal information on-board each of its vessels.
Epsilon is a patented differencing software that enables the central portal server to keep an accurate record of the content on every other portal server in the network. Epsilon then uses this knowledge to extract the differences, at the byte level, from any new documentation created within the portal, and then only sends those differences to the other servers in the network. This enables the entire portal deployment up to date with very limited demands on network bandwidth.

With Epsilon, no information, or byte pattern, is ever sent from one server to another server twice. This enables dramatic reduction (around 90%) in the volume of data that needs to be sent across the network to keep all portal servers up to date. It also enables more regular updating, so instead of the maintenance manuals, in the Navy's Distance Support portal, being updated every few months, they are now updated every few hours.

Infonic Inc
11951 Freedom Drive
Suite 1130
Reston, VA 20190
t +1 (703) 659-1900

Infonic Document Management LLC
#3445 Executive Center Drive
Suite 105
Austin, TX 78731
t +1 (512) 345-4600