

# Electrical power circuit used as communications network

Using a ship's existing electrical network can be an alternative to installing costly broadband cables on board ships, a concept tested by Gentay

**B**ulk carriers were at the forefront of tests on an alternative method of initiating a new cost effective communications network. UK-based Gentay has installed broadband communications on two ships operated by Wallem Ship Management by connecting WiFi terminals and wired access points to the vessels' existing power circuits. This was cheaper and simpler than installing a new cable network around the ships, Gentay claims.

Installing a new network can be costly and time-consuming due to the structural changes needed to accommodate such infrastructure. Vessel may require fresh cable runs going along new ducting or through bulkheads. So any solution that eliminates the need for this additional work can save ship operators money.

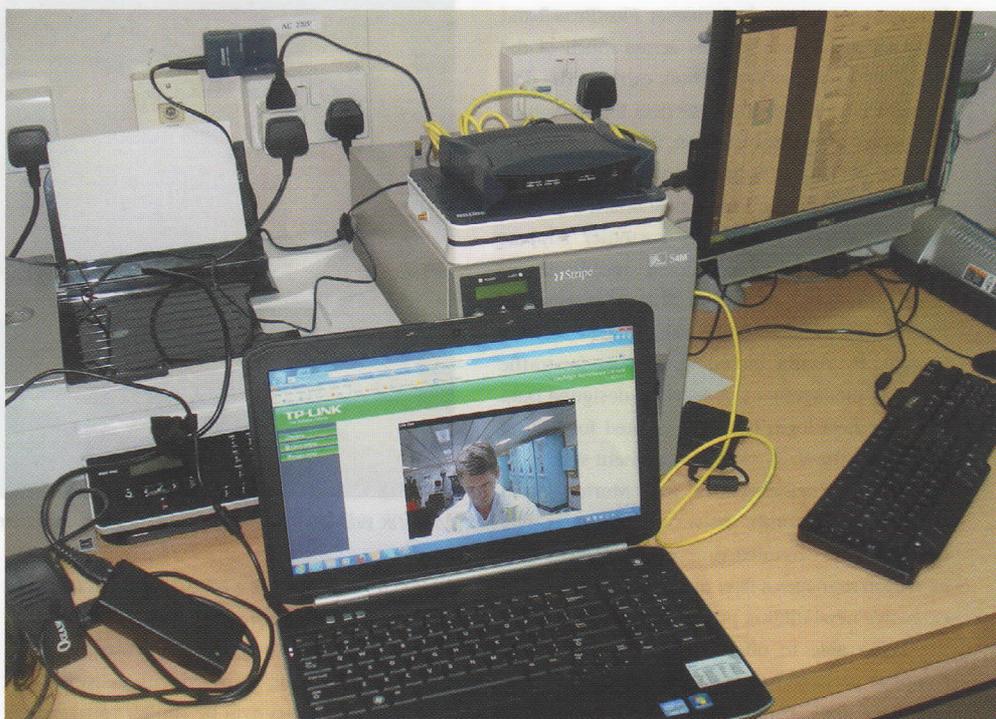
Some shipowners have tried wireless networks and WiFi connections. There have been some successes, notably on cruise ships where passengers increasingly expect wireless broadband. But there are challenges of propagating the wireless signal through steel structures, limiting the adoption of WiFi in other shipping sectors.

Wallem has trialled Gentay's Broadband by Powerline technology on its 22,201 dwt bulk carriers *Aino Dake* and *Seto*. Terminals around the ships are connected to an Internet hub on the bridge through the vessels' existing power cables.

Gentay's Internet protocol over power (IPoP) network solution also uses the ship's existing electrical power cabling for the network, enabling operators to plug devices into the power sockets. There is an IPoP head end unit on the bridge that is connected to the ship's satellite communications equipment and the power grid.

Wired or wireless access points can be installed at various locations around a vessel, where there is an existing connection to the power system, such as junction boxes. IPoP repeater and client nodes and wireless nodes can be deployed with ease, even in the engineroom.

"The bulk carriers sector is a target market for this technology because a lot of carriers have only basic computer networks, or none at all,"



Gentay's IPoP technology can connect equipment to the Internet on bulk carriers

says Gentay director Martin Nygate. "We did trials on Wallem's ships *Aino Dage* and *Seto* and these went very well. We had the networks up and running in half an hour. It is a plug-and-play system so there is no installation required. The system is far cheaper and simpler than stringing network cables through bulkheads.

"The IPoP technology has been used onshore for a number of years. It was developed by the power industry for monitoring power consumption in real-time. We took it from the power industry and adapted it for the maritime sector," he adds.

"We found that we get a higher standard of cable networks on ships. In all of our tests we found the signal throughput and speeds were similar, if not better, than in office blocks. This is because copper cables deteriorate over time. Some office blocks can be 50 years old, but ships are scrapped after around 25 years so they are not so far deteriorated, and the quality of cabling is better on ships."

Because the bulk carriers trials were a success, Gentay has gained contracts to install systems on other ships this year. Mr Nygate says the company has deployed IPoP on the *British Sapphire* liquefied natural gas carrier for BP Shipping. The technology has also been installed on the chemical tanker *Southport*, operated by OSM in Norway and the *Viking Drive* car carrier

in Singapore's MTM Ship Management fleet.

The UK-based company is developing other applications for using the ship's power network including low-cost CCTV IP cameras for onboard security. This application was used on the BP Shipping gas carrier.

"BP wanted to link the citadel safe room on *British Sapphire* to a live CCTV network around the ship to monitor the vessel in case pirates came aboard. The crew could watch from the citadel and come out when the pirates had gone to take back control of the ship," says Mr Nygate.

Gentay is exploring other potential applications for its technology. "We are looking to incorporate access to the network from GSM and SIM cards so crew can use terrestrial GSM services close to shore. They can utilise shore-based networks at lower costs and higher speeds than the ship's satellite connection," Mr Nygate adds.

Other possible applications include video conferencing and voice over IP around a ship. The use of the power network may also facilitate interactive bulkhead and door sensors and the communication of safety information to crew. The network could also be used for relaying machinery monitoring data from enginerooms back to the bridge, from where the data can be sent to shore.

Meanwhile, Australian vessel operator