GlobalRemote Industrial^{IT} telemetry

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Offshore oil rig personnel rely on support vessels being on time whatever the weather. Heavy seas and gale-force winds, however, aren't the only obstacles that can hold up much-needed supplies. Shutdown of a ship's generators is another. Then, a flashing systems alarm screen can be especially bad news, for instance when late delivery incurs a financial penalty.

If the ship's chief engineer is familiar with the power plant, the day might yet be saved. If he is not, he could still have an option – ABB GlobalRemote. One click on the GlobalRemote console and a shore-based specialist – maybe thousands of miles away – begins to monitor the ship's systems. Thirty minutes later, expert advice appears on the ship's console, enabling the chief engineer to get the generators running again – and the ship back on schedule.
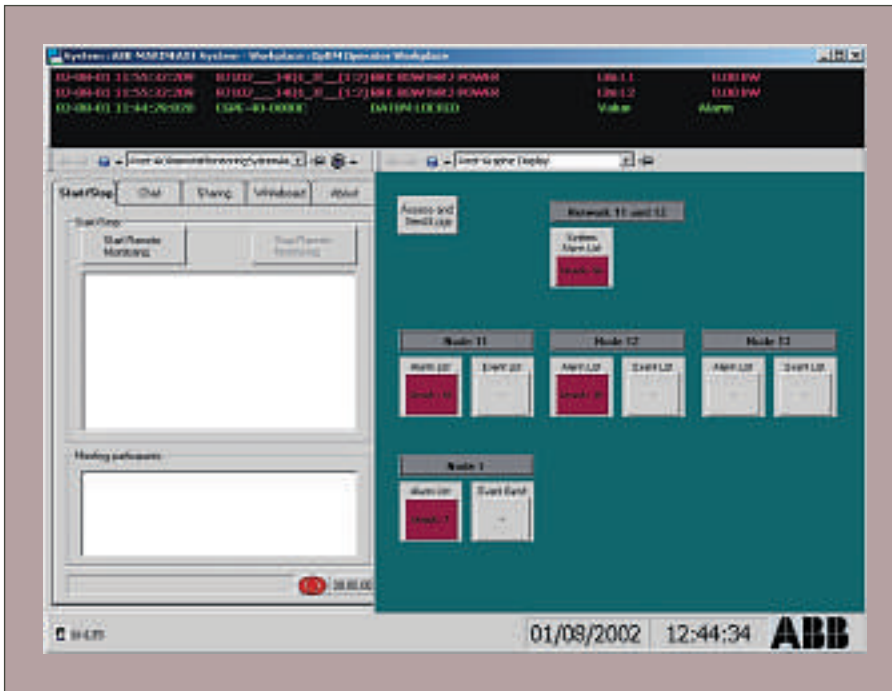
The GlobalRemote technology described in this scenario not only exists, it has also has been successfully demonstrated in field trials on an advanced multipurpose offshore support vessel. GlobalRemote is an Aspect System, meaning it can be re-used with any Process Portal™ system, ABB's state of the art human-system interface for Industrial^{IT} based installations.

To set up a GlobalRemote communications link the user has only to click on the Start Remote Monitoring (SRM) button **1**. Behind the scenes, an encrypted, authenticated channel is opened to ABB via satellite communication and the Internet. (During the field trials, which took place on board the support ship *M/S Normand Flower*, the satellite system used was Inmarsat B HSD.) GlobalRemote works even with very long connection setup times and communication link round-trip delays in excess

1	Remote client screen, similar to that used to monitor systems on board the M/S Normand Flower. As GlobalRemote is based on Process Portal™, the layout can be freely configured.

board personnel can see at all times, on their local screen, what the remote engineer is doing – and learn from it.

A chat window is also provided for clients who want additional information in real time. The field trials on board the *Normand Flower* have shown this to be essential functionality, since the high noise level in the engine room makes conversation practically impossible. Sharing a digital whiteboard is another option. All of this communication capability requires less than 28.8 kbit/s (Global-Remote has even been successfully tested via a standard GSM HSCSD 28.8kBit/s connection). If a real-time video stream and a low-grade, but fully usable audio stream are required while monitoring is taking place, 64 kbit/s will be needed.

If the condition being monitored is complex and analysis takes a long time,

of 1.4 seconds. This capability is especially important in areas with low-grade dial-up connections.

Within seconds, an alarm signal alerts the designated remote monitoring personnel. Although restrictions imposed by the ship classification societies mean that

in the marine business a client's data may only be looked at, other security requirements can generally be met. For example, a remote engineer may be authorized to not only look at a client's automation system but also to change that system's parameters. Another advantage of GlobalRemote is that on-

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2	MailLog. Any combination of logs, alarms and events may be selected and sent by e-mail to recipients of choice.
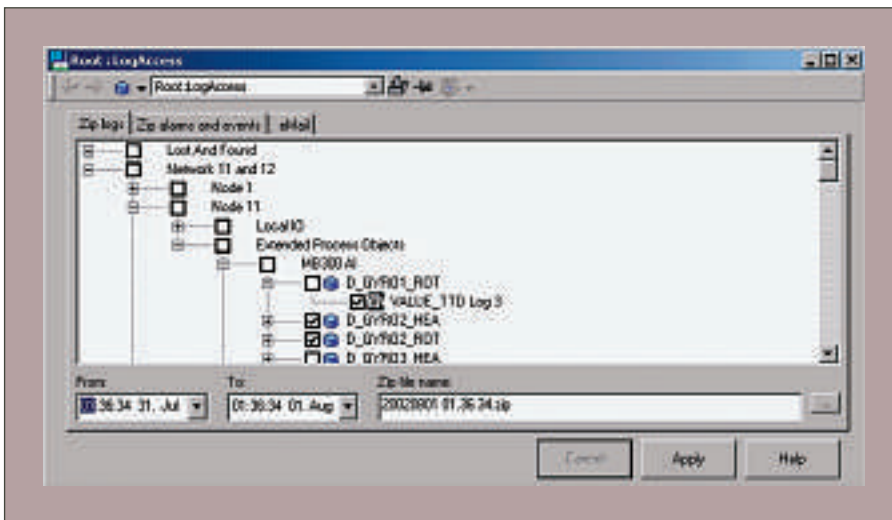
a second Aspect System, called MailLog, is used **2**. This allows an encrypted e-mail message to be sent to one or more selected shore-based engineers with any combination of history logs and/or alarm and event lists. All modern e-mail systems can be used for this. On the *Normand Flower* more than a hundred logs are configured in the GlobalRemote PC, gathering data from a redundant network of four process controllers of two different types. A simplified single-line diagram of this configuration is shown in **3**.

GlobalRemote can just as easily be used in the reverse direction, ie from shore to ship. Shore-based engineers, for example,

3	A remote diagnostics PC with GlobalRemote can log data from any on-board system. Firewalls handled include port level, http(s) proxy and SOCKS 4/5 proxy.
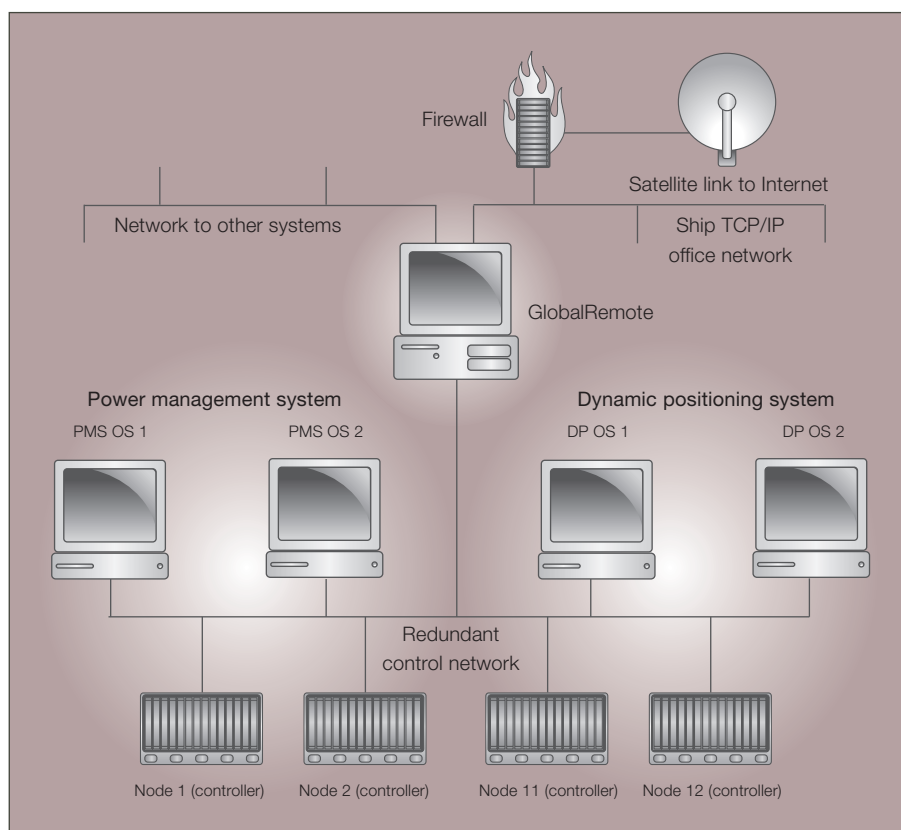
can use it to show the ship's engineer key drawings, or even run a simulation with him in real time.

GlobalRemote – adding value
GlobalRemote offers a whole host of advantages that add value to the marine business. Any time an on-board prob-

lem arises ABB can provide immediate help based on information relayed to shore in real time. Should the problem warrant it, detailed data also can be downloaded for an offline analysis. Depending on the problem, a remote solution might be found in just a few minutes. This would be infinitely faster and

cheaper than dispatching an engineer to a remote location, especially a ship at sea.

And what if spare parts are needed? GlobalRemote lets you immediately identify the right parts as well as the level of skill and know-how needed to install them. And they can be delivered straight to a ship's next port of call, accompanied if necessary by a skilled technician. This can translate into a considerable cost-saving, as there is no need to first visit the ship to determine what's needed. With GlobalRemote, it is less likely that a ship will be laid up while waiting for spare parts. GlobalRemote can be used to send operational data to anyone, anywhere. This makes it especially interesting for the many shipowners that routinely send personnel to their vessels to take the readings they require to show compliance with safety regulations. GlobalRemote makes such work obsolete. By making these values available to Process Portal, the personnel can access them remotely – in real time or via e-mail.

The benefits of GlobalRemote technology obviously extend to business domains beyond the marine sector. For example, it could be installed at remotely located pump stations – especially those serving water supplies, pipelines, etc – in fact, just about every hard-to-access plant. But easily accessed sites, too, can profit from it; ABB has also received queries, for example, from car manufacturers who see GlobalRemote as a replacement for older less-secure solutions.

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