

ENSCO has new generation rig communications

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COMMUNICATIONS BETWEEN offshore drilling rigs and shore is never straightforward. Drilling rigs constantly move from location to location in remote areas where there is little or no established means of communications. Different oil companies and service companies come onboard for shorter-term or longer-term projects.

When an oil company leases a rig, there is often a period of communications downtime during the installation, configuration and testing phases. Additionally, the voice quality and data speed delivered by older satellite communications solutions are significantly lower quality than what would be considered acceptable onshore.



RigNet provides VoIP communications over satellite grabbed by antennas such as this one on an ENSCO International rig.

Everyone on board the rig from crew and service companies to the oil companies need to communicate via telephone, fax, e-mail and in some cases video conferencing.

In addition, demand is increasing for modern monitoring and process control technology that requires reliable high bandwidth data communications to shore to provide up-to-the minute information on drilling operations.

Today, there are no standardized communications solutions for offshore drilling rigs. In many cases, rudimentary solutions based on old technology are engineered and deployed over and over as rigs change assignments.

This practice does not deliver in a cost-effective manner the advanced communications capabilities required by companies accustomed to modern land-based communications.

OPPORTUNITY FOR IMPROVEMENTS

As one of the leading offshore drilling contractors with a fleet of 51 offshore drilling rigs and 28 offshore support vessels, ENSCO has since 1995 invested over \$700 million in upgrading the capability and extending the service life of its premium jackup fleet.

The company places emphasis on employing the latest, proven technologies on their rigs and boats, which has helped them achieve one of the most efficient cost structures in the industry. As a result, ENSCO's operating margins have been among the highest of drilling companies.

ENSCO International identified the need for improved rig communications for all parties onboard. As a result, ENSCO recently rolled out the RigNet communications solution on its Gulf of Mexico jackup fleet after successfully using RigNet on its Asia-Pacific jackup fleet since early 2001.

"Telecommunications on a mobile offshore structure presents some difficult challenges," said Tom Chapman, ENSCO International's Director of IT.

"Limited real estate, short well durations and changes in infrastructure drive up costs for our customers.

"We intend to provide the infrastructure and leverage long-term commitments to ultimately reduce well costs for our customers and for ourselves."

NEW COMMUNICATION CAPABILITIES

On ENSCO rigs where the new system is installed, personnel have access to high-quality telephone, broadband Internet, e-mail, and secure access to their corporate network when they arrive.

"Our objective was to improve communications for all parties onboard," Chapman said, "ranging from the oil company man to service companies and our own personnel.

"As the new capabilities are fully utilized, our offshore rigs will become more like field offices, completely and securely integrated into the corporate telephone and computer networks of all parties onboard."

COMMUNICATION CAPABILITIES

Several new capabilities are now available to personnel on ENSCO rigs:

Wireless networking. Authorized personnel can access the network in most locations on the rig without pulling cable. This is convenient for temporary personnel who can now bring their laptop from the office and with a wireless networking card be connected to their corporate network and the Internet in a matter of minutes. Similarly, service companies can connect their equipment and containers instantly without the inconvenience of pulling cable to their location, connecting, configuring, and testing hardware and software.

Video conferencing. A shore-based specialist can utilize video conferencing to interface effectively with personnel and systems on the rig. Important projects can be monitored remotely by management at the office.

Secure access to corporate network. Personnel onboard can connect to their corporate networks and access network resources such as knowledge management systems, company e-mail and centrally stored documents.

Since security is a key concern to all companies, RigNet promotes the use of industry-standard Virtual Private Networking (VPN) technology to encrypt data communications between the person on the rig and the corporate network.

"From a technological and economical perspective, the new solution is superior to traditional frame relay technology," Chapman said.

Telephone traffic from the rig is converted to packets of data and transferred across the same satellite link as data by using "Voice over IP" technology, allowing maximum utilization of expensive bandwidth. This stream of data is then distributed to their destinations at RigNet's onshore datacenter.

IMPROVED BUSINESS PROCESSES

Advances in shore-based communication, such as the introduction of mobile telephones, e-mail and high-speed Internet access have fundamentally changed how people work. The introduction of new and improved communications capabilities on offshore drilling rigs has similar potential for changing business processes.

For example, mobilization and de-mobilization of communications systems are now largely eliminated. In the past, communications were often set up from scratch for each project. This practice was expensive, involving high mobilization and demobilization costs, and time without communications during the installation phase.

The new communications system is permanently installed on the rig. Each time a new oil company and service companies come onboard, the communications are up and running from day one. This results in significant savings in terms of communications downtime as well as travel and equipment costs.

Onshore monitoring and control of drilling processes can be improved with more reliable and higher speed links between rigs and control centers. Instead of sending shore-based personnel to the rig to monitor projects, the projects can be monitored from their office computers, either through real-time data transfer or video conferencing. This results in significant cost savings by reducing the need to send personnel offshore.

Operational decisions can be made earlier and better through improved utilization of drilling information management systems. Many oil companies use such systems today, but the transfer of information to and from the rig often repre-

sents a bottleneck and source of uncertainty.

Fueled by more reliable data communications, the information management systems can now be better utilized by engineers and managers in their daily decision-making, resulting ultimately in reduced well construction costs and more effective operations.

Rig personnel, especially those in the Asia-Pacific region, appreciate the ability to maintain better contact with their families through e-mail and low-cost telephone. This has a positive impact on morale and willingness to take on long-term international assignments.

DIRECT BENEFITS

With the communications infrastructure permanently installed on the rig, ENSCO is less dependent on satellite communications providers. In the past, the satellite provider controlled the entire communications infrastructure, from the telephones, data ports and satellite antennas on the rigs via the earth station to the rig owner's network. ENSCO was unable to change satellite providers as market conditions changed without a major disruption to their communication services and high transition costs.

The RigNet components stay permanently in place while the satellite provider merely provides the transport of data between the rig and shore. ENSCO has the flexibility to change satellite providers should market conditions change or technology improve.

This scenario can be compared to changing long-distance and Internet providers quickly without having to change the telephone system and computer network at the same time. ENSCO now has more leverage in negotiations with satellite providers and can quickly adapt to changes in the market.

Under the new model, ENSCO resells communications services to the oil companies that lease its rigs. The oil company pays an all inclusive fixed, daily rate for the core service package in addition to the daily rate for the rig itself. The oil company is free to use any provider.

"We can now offer our customers a high-quality communications service for a competitive daily rate. This visible cost allows the oil company to bill their joint

interest partners for their share of the communications costs associated with leasing one of our rigs," said David Crowley, ENSCO's Director of Business Development

Another feature that contributes to more streamlined operations are permanent direct inward dial (DID) telephone numbers to various locations on the rig and voice mail. There is no longer a need for a dispatcher to answer incoming calls and then transfer internally.

Should the rig go offline, the voice mail system will take a message, and deliver it when communications are re-established. Telephone numbers are permanently assigned to the rig, even if it moves internationally, eliminating the need to update directories and distribute new phone numbers.

"We believe this enhanced system will enable us to better meet the communication needs of our customers and other service providers on our rigs," said C. **Christopher Gaut**, ENSCO International Senior Vice President. ■