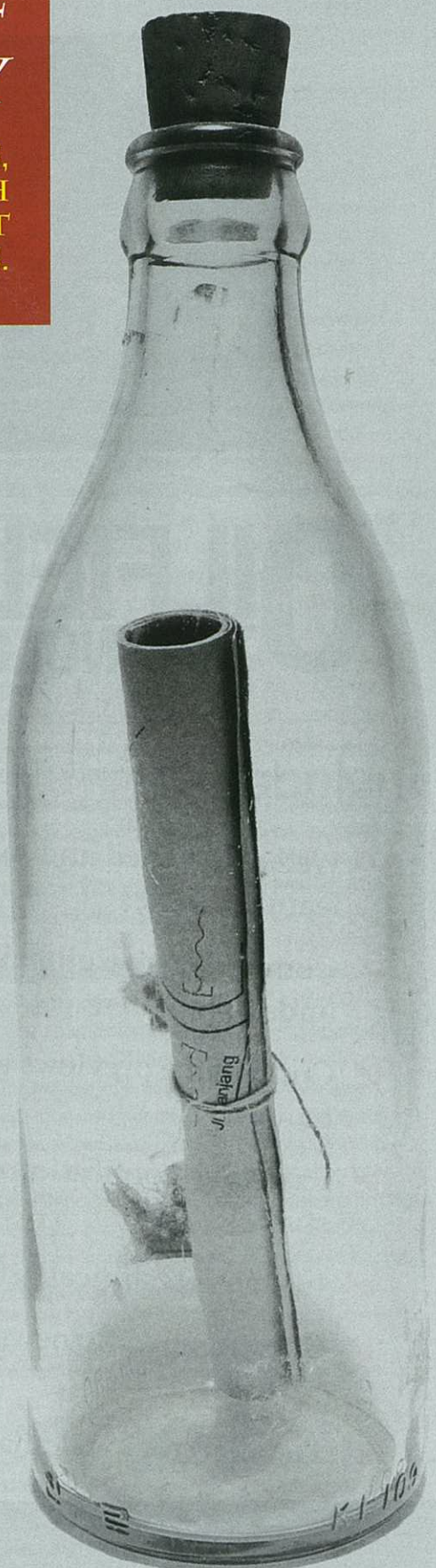
GETTING CREATIVE WITH CONNECTIVITY

KEITH JOHNSON, CAPROCK COMMUNICATIONS, USA, HIGHLIGHTS A RANGE OF WAYS IN WHICH OIL AND GAS COMPANIES CAN GET THE MOST OUT OF THEIR SATELLITE COMMUNICATIONS.



As companies look to utilise the features of their satellite communications platform, they will find that advances in applications provide a variety of new benefits. Today, end users are not just relying on very small aperture terminal (VSAT) technology for traditional voice, data and internet capabilities, but also for services that were once reserved for the corporate office onshore. New remote management, monitoring, networking and video capabilities enable satellite communications to become far more than just a telecommunications platform. They now have a far wider impact on the entire corporation including human resources, engineering, operations and IT.

VSAT technology has been helping upstream oil and gas crews effectively communicate with management at corporate locations for decades. The satellite technology enables real time broadband communications at drilling and production sites even in

very remote and difficult to reach areas. Since VSAT's inception into the oil and gas market, many applications and services have been developed to help energy companies get the most out of their VSAT solutions. The latest applications are seamlessly integrated into the VSAT network and provide users with a variety of services that can easily be turned off and on based on real time requirements. They help companies save on steep travel expenses and increase operational efficiency. No matter where oil platforms, FPSOs, drilling rigs and other global assets may be located, the latest applications make drilling operations in remote areas seem closer than ever.

Video supports safety programmes

While using satellite communications for video conferencing with experts onshore is pretty common, many companies have found new ways to use these tools to maximise their return on investment.

Not only are most offshore technicians and engineers working in the planet's harshest environments, but they work with some of the most dangerous equipment. The oil and gas industry is one of the most highly regulated industries in the world when it comes to safety, which makes it the number one concern for management and remote personnel onboard offshore assets. While safety officers organise exercises and ensure everything is up to code, it can be difficult to effectively disperse information quickly. With a reliable VSAT service, officers can leverage video conferencing to quickly provide updated safety information and even demonstrate new safety skills. Corporate instructors onshore demonstrate self rescue training or firefighting techniques that might not be effectively communicated through documentation. Crew members also have the ability to interact with the instructors and ask questions throughout the training.

With safety being a top priority, it is not unusual for vessels and rigs to experience long periods without a reported injury. If the need should arise for medical assistance, however, companies use video conferencing tools to quickly diagnose sick and injured personnel. With telemedicine services, crews rely on highly trained medical staff onshore for assistance beyond first aid. Medical staff are able to assess and diagnose patients in real time, reaching a more accurate diagnosis and making a confident decision on whether the sick or injured can remain onsite. In the most extreme cases, it might even save a crew member's life.

Remote video streaming increases visibility

Companies with always-on satellite connectivity are also taking advantage of video streaming services that are often taken for granted onshore. Streaming video delivers real time video from structures, vessels and remote facilities to workstations anywhere in the world. This connectivity becomes especially useful for assets in high security regions.

Hostile territories and pirated waters make both manned and unmanned assets vulnerable to security breaches and attacks. The VSAT network interfaces with existing analog video distribution systems and enables management at the headquarters or other corporate offices to gain real time vision as to what is happening at specific locations. Companies are also leveraging video streaming to inspect supply and equipment depots and secure entrances and exits. Multiple users at different locations are able to log into a secure web portal and see first hand what is occurring. Whether it is a manned or unmanned asset, increased visibility brings peace of mind to those back onshore.

Remote video streaming can also be scaled to different bandwidth speeds to adapt to the specific requirements of different jobs. Users can leverage less bandwidth, for example 128 Kbps, for standard video surveillance while speeds such as 256 - 512 Kbps provide the necessary video quality for subsea assessment.

Not only is remote video streaming used above the surface, but the same capabilities are also being applied to subsea operations. Subsea video cameras help many divers complete the visual link between a corporation's uncertainty and base of knowledge. They paint a clearer picture of what is happening below the surface. During a critical moment, if engineers on the surface or at corporate are able to see the underwater obstruction, it makes all the difference.

In one instance, a platform experiencing an underwater pipeline leak 20 m below the surface sent a team of divers to investigate the problem. When asked to describe what was happening underwater, dive team members provided several different accounts. One diver described it as 'a small hole with tiny bubbles exiting', while another provided a different assessment, leaving those on the surface with mixed messages about what was happening below. The divers' accounts made it difficult for experts at headquarters to determine a solution for the issue. Streaming video helped shed light on the situation. Handheld cameras or ones attached to divers' helmets stream real time video to the surface and other parts of the world, enabling stakeholders to diagnose the problem quickly and come to a resolution.

For maintenance and repair problems that are too deep or difficult for dive crews to reach, remotely operated vehicles (ROVs) with mounted cameras also use video streaming to provide underwater footage to the surface. Trained pilot technicians at the surface control the movements and actions of the robot submarines, while a tether from the ROV delivers data and video to the surface. Video streaming is becoming a key component to real time collaboration in offshore environments.

VSAT technology enables tracking of assets

Companies with offshore assets equipped with satellite communications can seamlessly integrate tracking applications into their operations. The applications are used to monitor the location and movement of energy and maritime vessels regardless of where they are located. Often the applications are map based and accessible via any desktop, allowing multiple users to log on simultaneously to check on the location of a vessel or a complete fleet. Many of today's applications can also track historical paths and progress in a matter of seconds.

End users are finding innovative means to leverage tracking services. Operators of construction and repair vessels can access the latitude and longitude of their boats to determine which one is closest to a production platform that needs immediate assistance. The result is more efficient resource allocation.

As hurricane season draws near, many companies are preparing their operations for potential bad weather occurrences in the Gulf of Mexico, Atlantic Ocean and other torrential hotspots around the world. Tracking applications help ensure managers back onshore have a clear picture of where their

vessels have been and where they are heading. This enables vessels to be dispersed to safe harbours if the need arises.

Offsite IT lends a hand

Video communications also come in handy when technical problems arise. With a limited number of experts at most sites, oil and gas companies can be spread pretty thin when equipment malfunctions occur on vessels and rigs. In an age of a greying workforce, doing more with fewer personnel is critical. Video conferencing and data transmission help alleviate many of these concerns. Onsite crews stream video of equipment malfunctions so corporate engineers both see and hear the problems at headquarters. From the corporate office, IT managers quickly discuss the equipment failures with technicians in the North Sea, for example, and in the same hour diagnose problems with onboard computer hardware off the coast of Brazil, giving IT the flexibility to be all over the world at once.

Infotainment solutions lend to new possibilities

Crew morale solutions for remote personnel have been a staple in the industry. Calling cards with economical rate plans, internet access and email services are fundamental in giving crews a link back home to family and friends. Additionally, live television to offshore sites has been a benefit some rig owners have offered crews. Today, recently introduced crew infotainment services are providing a host of new welfare services such as video on demand, TV programmes, games and music selections. The services are integrated into a consolidated media console and, through a graphical interface, crews use remote controls to select content. While these features are helping to boost crew welfare, they reach beyond just morale boosting services.

The infotainment solutions offer a new channel to provide remote personnel with critical information. Corporate training, such as videos and classes, can be viewed on the televisions minimising site to shore training costs. Managers can even control access to the entertainment features based on whether personnel have viewed and completed the required training. Operations managers can also integrate ROV feeds into the solution, enabling technicians to view the data in real time. Content opportunities are nearly limitless.

End users that depend on VSAT communications to keep them connected continue to find new ways to take advantage of their service in remote locations. As has been discussed in this article, many applications and services utilised onshore help oil and gas companies, along with the assets they control, to achieve business success wherever they might be positioned around the globe. These companies get creative and search for unique ways to utilise VSAT technology. OT