Harris CapRock White Paper

Harris CapRock One

Energy

by Transcendent Global Networks

Harris CapRock One

Energy

Introduction

A telecommunication network is the central nervous system of a corporation, transporting voice, video, and data from one location to another; the larger the corporation, the more complex the network. Many energy companies have become global concerns with diversified operations that include a mix of upstream, midstream, and downstream operations, as well as chemical, trucking, maritime, and retail business units. With operations that might be on land, sea, and air, energy companies require complex telecommunication solutions.

To effectively run an energy company on a global scale, a high level of interconnectivity with every office is required, no matter how remote; but to perform effectively, telecommunication services must be tailored to meet specific needs.

Depending on the scope of work, there may be three or four potential technological solutions; some require long-term contracts while others are available on a month-to-month basis. Some choices are billed on a flat rate usage basis while others are billing on incremental usage.

Rarely is there a one-size-fits-all solution in the technology world and so it is with telecommunications. Telecommunication engineers must frequently seek out alternatives, adding complexity to technology and business considerations. The regional availability, or lack thereof, of specific telecommunication services exacerbates the challenge of building a global telecommunication network.

The appropriateness of a service for the appointed task is another important design decision. For instance, low latency transport options provide a better user experience for those using teleconferencing. Voice applications work best on transport mediums that offer low latency and the guaranteed delivery of packets. Crew morale options are best suited for low cost transport options.

Employees and contractors on rigs and vessels must have access to the same tools as their counterparts on land. The ability to send large data files, transmitting high definition video, and workforce collaboration via videoconference on an ad hoc basis requires a bandwidth-on-demand solution that is available, flexible and affordable.

No matter the satellite, frequency, or geographic region, network availability and reliability are paramount. Safety regulations require the suspension of drilling activities if an offshore rig's communication link is down. Business rules within ERP systems can mandate the suspension of activities if connectivity with the remote office is lost. Downtime is simply not an option in the Energy Industry.

Life would be simpler if decisions on telecommunication services could be made purely on technological criteria, but network engineers must factor in business criteria as well. Pricing plans are complex. Different languages and currencies add additional detail. Managing all of the available telecommunication technologies, carriers, licensing requirements, auditing, and costs on a global basis is a sizable endeavor.

Future Proof Architecture

To meet the needs of global energy companies, Harris CapRock is pleased to introduce Harris CapRock One, an intelligent service delivery architecture that insures the delivery of reliable, consistent services, anytime, everywhere.

Harris CapRock One's architecture supports all transport mediums, including satellite, wireless, and terrestrial. Each of these transport mediums offer unique advantages, allowing Harris CapRock to provide the optimum solution based on customer need.

In addition to a wide range of transport technologies, Harris CapRock One incorporates a high level of network intelligence and geographic awareness. Remote locations can monitor for and automatically adopt the best-fit transmission medium based on speed, latency, location and cost.

Harris CapRock has evolved from a satellite service provider to a managed service provider. Regardless of technology or transport medium, Harris CapRock provides you a single point of contact for service delivery.

Global Satellite Connectivity

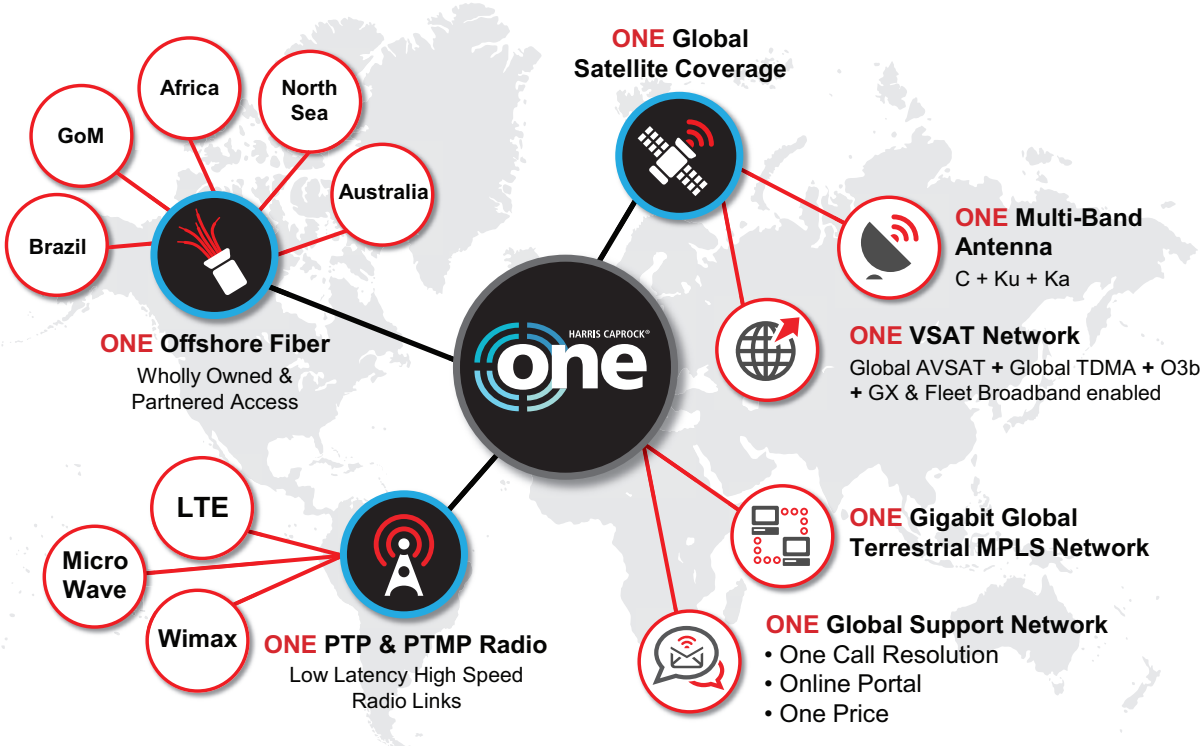
Delivering high quality satellite services is our heritage but Harris CapRock One should not be compared with a traditional satellite service as it includes unique service elements, including: embedded network intelligence, multi-band stabilized antenna, high throughput satellites, location sensing and mapping, as well as automatic beam and band switching.

An important service element in the Harris CapRock One architecture is its proprietary multi-band stabilized antenna. Utilizing an advanced carbon fiber reflector, the antenna can support the following bands:

- C-band Linear and Circular
- Ku-band Linear
- HTS Ku-band
- Geosynchronous Ka-band
- Medium Earth Orbit (MEO) Ka-Band

HTS satellites are designed to deliver significantly larger amounts of bandwidth at lower prices than geosynchronous satellites. As rigs and vessels continue to increase in complexity and automation, the demand for bandwidth continues to grow. With the advent of HTS satellites, discussions of 100+ MBPS satellite solutions to offshore locations are now within reason. Landmasses, shipping lanes, and oil producing basins are blanketed with coverage, providing truly ubiquitous coverage and geographic freedom of choice.

The Harris CapRock One stabilized antenna is remotely configurable, without the need for a technician to visit the rig or vessel, thereby saving both labor and transportation costs. In addition, the single antenna dramatically reduces the amount of deck space needed and eliminates costly and disruptive tear-outs and reinstallations.



True multi-band operation allows the Harris CapRock One antenna to transmit and receive multiple bands. For instance, if you were transmitting on C-Band and you needed to add a Ku-Band circuit for greater throughput, this could be done.

Geographical awareness, combined with a high degree of network intelligence distributed throughout the Harris CapRock global network, including the remote antenna system, allows the network to make performance optimization decisions based on location and application. As a rig transitions from one basin to another, the antenna seamlessly transitions to another satellite. This may involve a different frequency, satellite modem, and teleport. All of this is done without human intervention. Harris CapRock One's embedded network intelligence also allows performance-based decisions to be made, routing traffic from specific applications over the transport medium best suited for the task.

Universal Connectivity and Medium Roaming

A comprehensive list of telecommunication services and technologies make up another important service element of Harris CapRock One. While some might see these services as competitive to satellite technology, they are complementary, each providing unique benefits.

Telecommunication services included in the Harris CapRock One architecture include: offshore fiber optic cable, point-to-point and point-to-multipoint radio, WiMax, terrestrial MPLS, and private and carrier-based LTE. These services can now be deployed and managed by Harris CapRock on a stand-alone basis.

Hybrid networks that leverage multiple transport technologies are now possible. Long-range, point-to-point radio and fiber tiebacks could be deployed off drilling vessels. Mid- and long-range LTE and fiber extensions can be made to satellite networks. LTE-based "radio cells" could be built on drilling rigs to support incoming support and supply vessels. Merging these two transport mediums allows Harris CapRock to provide "no touch roaming" services across an entire fleet. The automatic transition from satellite to in-port wireless is another example of leveraging different transport mediums.

Harris CapRock One's service delivery architecture includes Universal Connectivity Medium Roaming, a powerful feature that allows application, dynamic, and active selection between satellite and all other link mediums for latency, performance, link speed, and availability criteria.

Sum of the Parts

Harris CapRock One was designed to support energy companies that require global telecommunication solutions that are scalable, reliable, flexible, and easy to administer.

Inclusive of every commercial satellite frequency, terrestrial, and wireless service, Harris CapRock One provides 99.999% network availability, no matter the transport medium.

Harris CapRock One includes comprehensive geographical and mapping capabilities that support the optimization of the transport path. Quality is assured despite obstructions, range, weather, or other variables, such as congestion on public networks.

Harris CapRock One's advanced, multi-band satellite antenna can eliminate the need to install multiple antennas and their protective radomes. This saves valuable deck space, reduces labor and transportation costs, and eliminates costly and disruptive tear-outs and re-installation of single-purpose antennas. The multi-band antenna also allows for the integration of services from High Throughput Satellites, such as the O3b constellation, allowing the delivery of high bandwidth, low latency satellite solutions.

Automatic beam switching and medium switching minimize the need for human intervention, also reducing both labor and transportation costs. IP Routing and load balancing further enhance network performance.

The Harris CapRock One service delivery architecture includes a configurable rules engine allowing decisions to be made on different criteria, such as application priority. Non-vital applications, such as crew morale, can be routed via the least costly transport medium. Mission critical applications can be given priority and transported over a different transport medium. Video conferencing and voice applications can be routed over the transport medium with the lowest latency, thereby insuring the best possible user experience.

The Harris CapRock One service footprint is global, providing connectivity in every oil producing basin and country. Telecommunication licensing and equipment homologation are managed on an ongoing basis to insure compliance and issue-free operations.

The importance of network availability to a global energy company can't be overstated. Economic, operational, and safety-related reasons mandate telecommunication solutions that perform at the highest level. Availability and reliability are so critical; some global energy companies maintain a completely separate backup network that can be used in the event there are major problems with the primary network. Harris CapRock One eliminates the need for these redundant offshore networks since it has the ability to connect to various transport mediums, thus accommodating true business continuity.

Multinational energy companies must comply with a myriad of accounting rules. Publicly traded companies in the United States must comply to audit their IT infrastructure as mandated by Sarbanes-Oxley Rules, an involved and costly endeavor. Harris CapRock One not only increases customer's cost control, it dramatically simplifies accounting and auditing requirements.

Harris CapRock One was designed to make the complex easy, including commercial terms and pricing. No longer must energy companies understand and maintain complicated pricing matrices containing hundreds of variables. Harris CapRock One makes complicated business models a thing of the past by offering a single, easy to understand price for telecommunication needs.

Conclusion

Harris CapRock One is the industry's most intelligent communications service which monitors for and adopts the best available satellite, wireless or terrestrial network. It possesses embedded network intelligence, allowing advanced routing decisions to be made based on geographic location, application and cost. Its' future-proof architecture and industry-leading network availability is redefining 'always-on' for the energy industry.

Our proposition is straightforward: One service provider. One contract. One price. The complex just became simple.