

CapRock Maritime VSAT Presentation



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VSAT Presentation at Digital Ship Singapore Sept 07

❑ VSAT Experiences

- ❑ VSAT Definition
- ❑ The Scandinavian Experience
- ❑ How to Justify Moving into a VSAT Platform



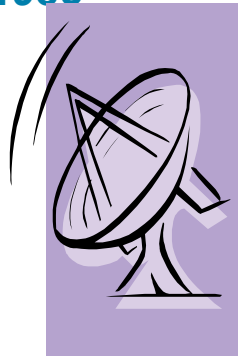
❑ CapRock in Commercial Shipping

- ❑ SeaAccess Services
- ❑ Customer Cases



VSAT technology

- Technology used for two ways satellite communications for internet, data and telephony typically used in rural areas and harsh environments
- Accesses stationary satellites in geosynchronous orbit positioned at the height of 36.000 km ideal for the usage of satellite communications
- Uses satellite broadcasting technology with higher powered components and antennas manufactured with higher precision
- First VSAT using C band (3-7 GHz frequency) available from 1980 and first VSAT using Ku band (10-18 GHz frequency) available from 1985
- Stabilized remote antennas of 1.0m for Ku band and 2.4m C band used for data rates ranging from narrowband up to 4 Mbit/s
- The innovative feature of VSAT has evolved into modern data & telecom technology securing competitive end user requirements
- Normally VSAT solutions in the maritime market are delivered as turn solutions including satellite space segment, equipment and related services.



key

The VSAT Market In Scandinavia – a look back

- In 2000 about 500-600 vessels was equipped with VSAT systems for data & telephony communications
- Very much focused around Energy (the Oil & Offshore market) and Passenger (the Cruise & Ferry market)
- In Scandinavia in this period due to requirements for high utilization of IT, several other market segments started showing interest. Typically within the offshore services; Supply, survey, shuttle etc.
- As an example, already in 2002-2003 most shuttle tankers in the North Sea was equipped with VSAT
- To meet requirements from the new segments some innovation in the VSAT services was developed (bandwidth, shared and flexible networks, operational efficiency and also the pricing element)
- VSAT volume expanded and about 800-9000 vessels was equipped with systems
- Due to increased communication requirements and also with impact from new VSAT entrants in the market, the commercial shipping market segment seriously started move into VSAT in 2004-2005
- The general growth in Commercial Shipping business had impact on decisions for moving to VSAT. Issues with getting crew onboard also strongly contributed. The next level of innovation was introduced into the market providing extended network flexibility with Idirect type technology.
- In 2007 it's estimated that > 3000 vessels are using VSAT for data & telephony communications

The VSAT Market In Scandinavia – a look forward

Energy & Passenger Market Segments

- Semisubs/Drilling
- Jackup
- FPSO
- Pipelaying/Diving
- Seismic
- Cruise/Ferry

Service & Supply Market Segment

- Platform Supply & Services
- Anchor Handling (Tug)
- Special Vessels

The Commercial Shipping Market Segment

- Bulk & Tankers
- Cargo & Containers
- Special vessels
- Passenger (yachts)
- Seafood

Characteristics from the broadband perspective:

- Mature market
- High service level
- Mission critical
- System integration
- Less price sensitive
- Strongly evolving to broadband
- Less mission critical
- Crew welfare importancy
- Price sensitive
- Opening market
- Adoptive, ready for piloting etc.
- Not mission critical – will be
- Crew welfare importancy
- External requirements
- Very price sensitive

What are the real market drivers for VSAT ?

Economical element

- Predictability with fixed communications costs
- Eliminate or reduce existing alternative products & costs
- Competitive (land based) telephony tariffs



What are the real market drivers for VSAT ?

Systems & Applications element

- Online at sea with “always on” functionality
- Ship management support
- Technical support at sea
- External communications



What are the real market drivers for VSAT ?

Crew welfare & retention element

- Difficulty to get crew (and the right crew)
- Access to email, internet and TV
- Competitive and unified telephony tariffs everywhere



CapRock is a global provider of Turnkey VSAT solutions

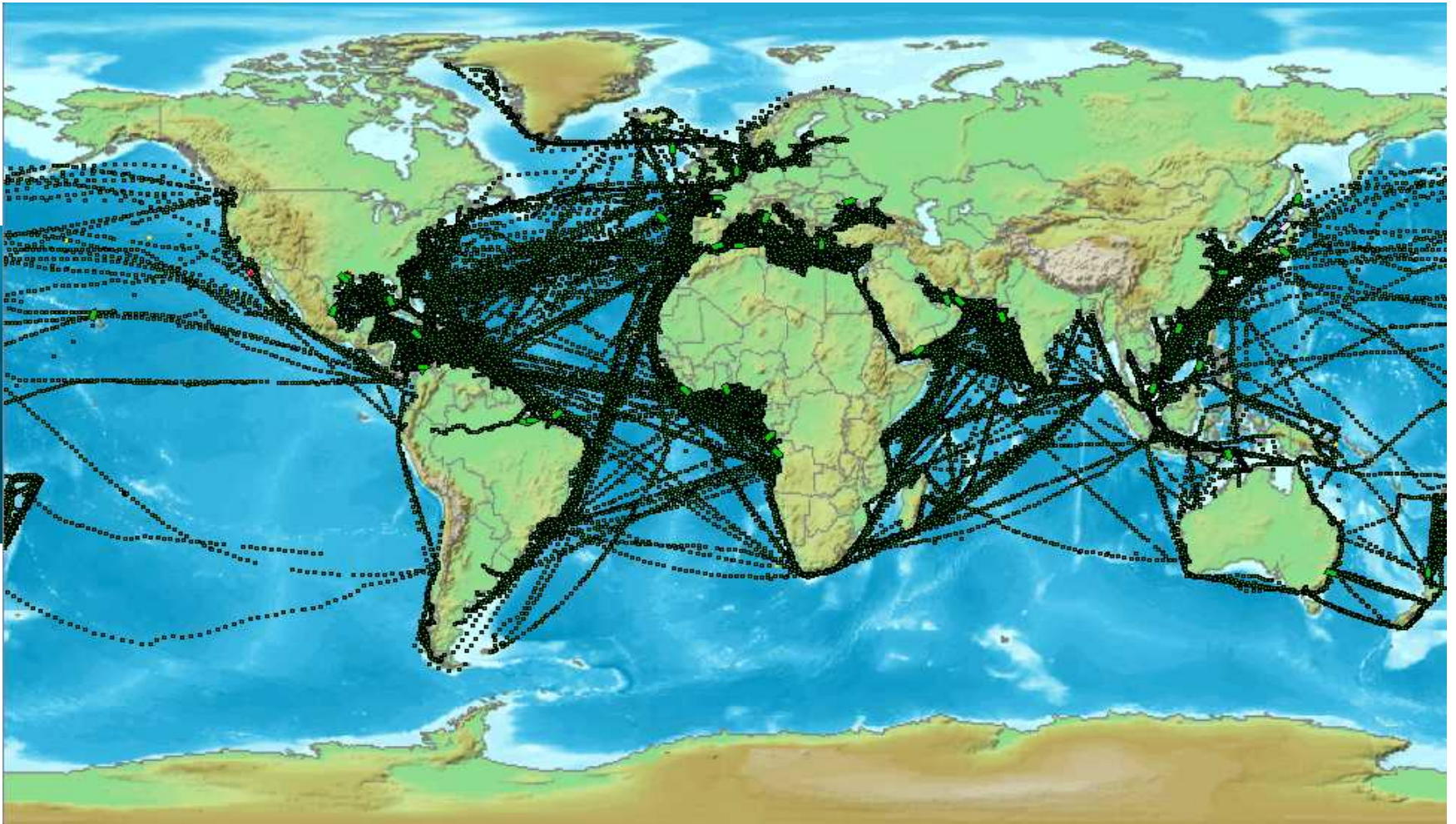
- **Company established in 1981**
- **Staff: ~500 Worldwide**
- **Global Operations & Facilities**
 - Four international teleports
 - Two 24 x 7 network operations centers
 - Nine regional service centers
- **Customers & Coverage**
 - Services available globally
 - Maritime and land mobile customers
 - Energy, Maritime and Governmental focus



CapRock Global HQ – Houston, Texas

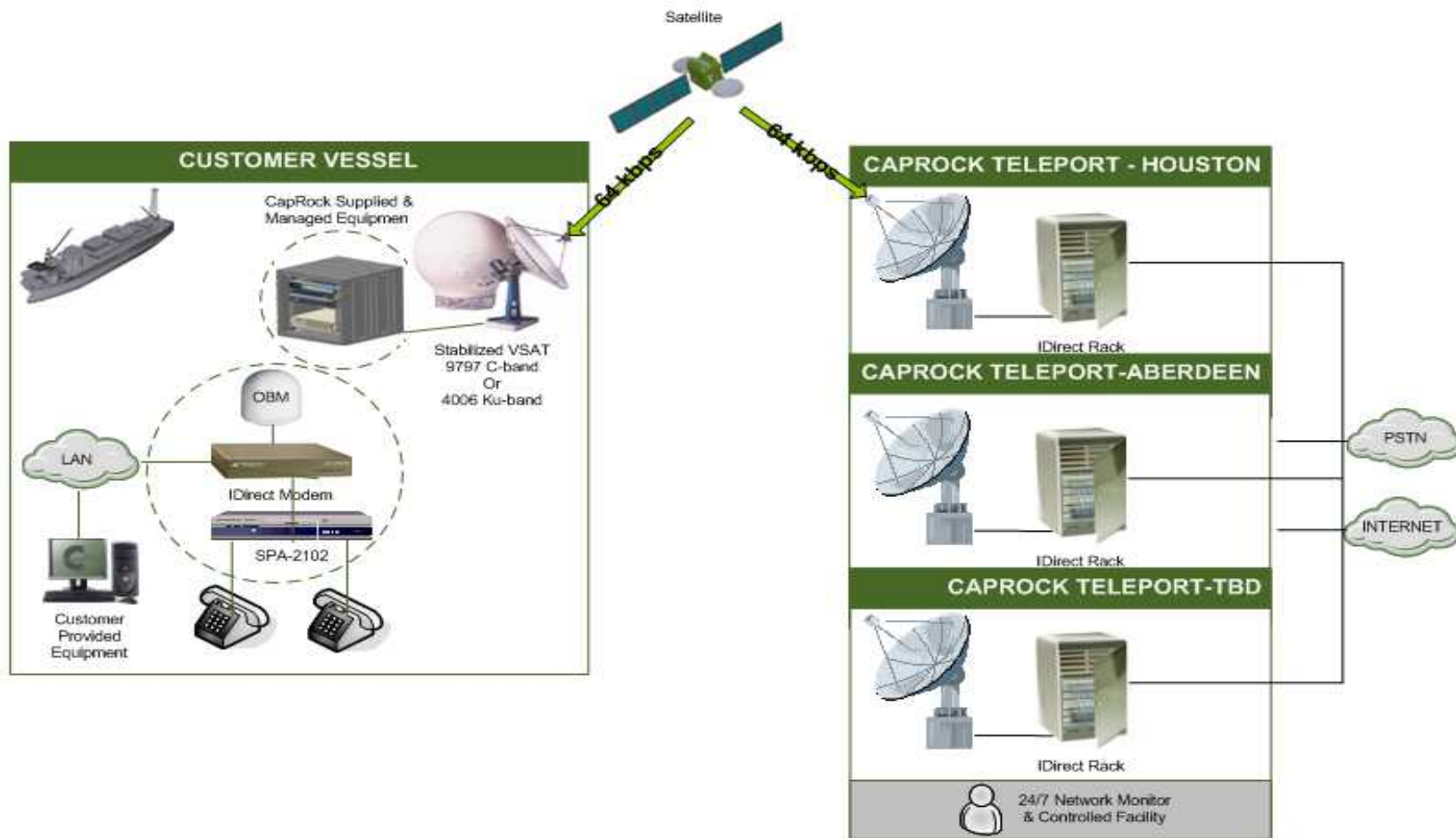
CapRock Infrastructure Provides Services Worldwide





Typical commercial shipping routes

SeaAccess Product System Diagram



The Main Differentiator in VSAT



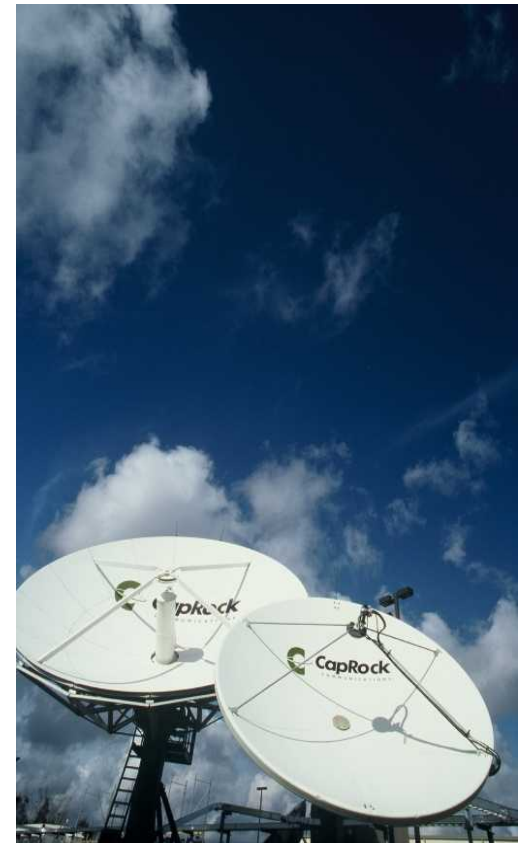
Service, service and service
is the main differentiator.....

Solidity and well proven
capabilities don't hurt either....



SeaAccess Services Differentiators

- CapRock Solely a VSAT Company
- In The (VSAT) Business For 26 Years
- Global Coverage Through Self-Owned and Operated Infrastructure
- Present at 13 Global Locations With More Than 100 Technical Engineers
- Technical Expertise Company Focusing On Engineering & Customization
- ISO 9001 Certified



Press Release

Höegh Fleet Services Chooses CapRock for Always-On VSAT Connectivity

LNG Carriers to be Outfitted with SeaAccess Communications™

OSLO, NORWAY & HOUSTON, TEXAS — May 22, 2007 — CapRock, a leading provider of satellite services to remote and harsh locations, has been selected by Höegh Fleet Services (HFS) to deploy its broadband maritime service, SeaAccess Communications™, onboard five LNG carriers owned by Höegh LNG and operated by HFS. SeaAccess offers HFS always-on connectivity that enables more efficient corporate networking and crew morale solutions over the previously utilized pay-per-minute solutions.



Press Release

Seatrans is Next Shipping Company to Choose CapRock's New Commercial Maritime Service

SeaAccess Communications™ to improve operations of global fleet

OSLO, NORWAY & HOUSTON, TEXAS – June 12, 2007 – For Seatrans AS, a fully integrated shipping company, adopting innovative services and solutions to better operate its fleet of global vessels has been key to the company's success. To dramatically improve its ship-to-shore and shore-to-ship communications, Seatrans has chosen CapRock's broadband maritime service, SeaAccess Communications™.



Press Release



Green Reefers

Green Reefers Awards CapRock Multi-Year Contract *Fleet of 25 vessels to be equipped with SeaAccess Communications™*

Oslo, Norway & Houston, Texas – Sept 5th , 2007 –

CapRock continues to penetrate the commercial maritime market with its new broadband VSAT service, SeaAccess Communications, adding Green Reefers to the list of recent maritime contracts won. The long-term agreement offers Green Reefers, a logistics service provider for chilled and frozen products, always-on 'business-class' broadband, providing increased vessel operational efficiency and enhanced crew morale services.



Press Release

NorSkán Offshore Awards Long-Term Contract to CapRock's South American Operation in Brazil

Leading offshore supply vessel company signs up for broadband VSAT

HOUSTON – May 30, 2007 - As competition continues to escalate within the offshore energy industry, major players often differentiate themselves by offering improved and innovative services to customers. For Brazil-based NorSkán Offshore, a leading offshore supply vessel company, delivering exceptional quality and responsiveness to its customers is its top priority. To further build upon its commitment and to improve the overall performance and efficiency of its fleet, NorSkán recently entered into a multi-year agreement with CapRock Communications of Brazil to receive reliable, turnkey satellite communications services.



New Fleets Moving To SeaAccess VSAT

