

Maritime Fleet VSAT



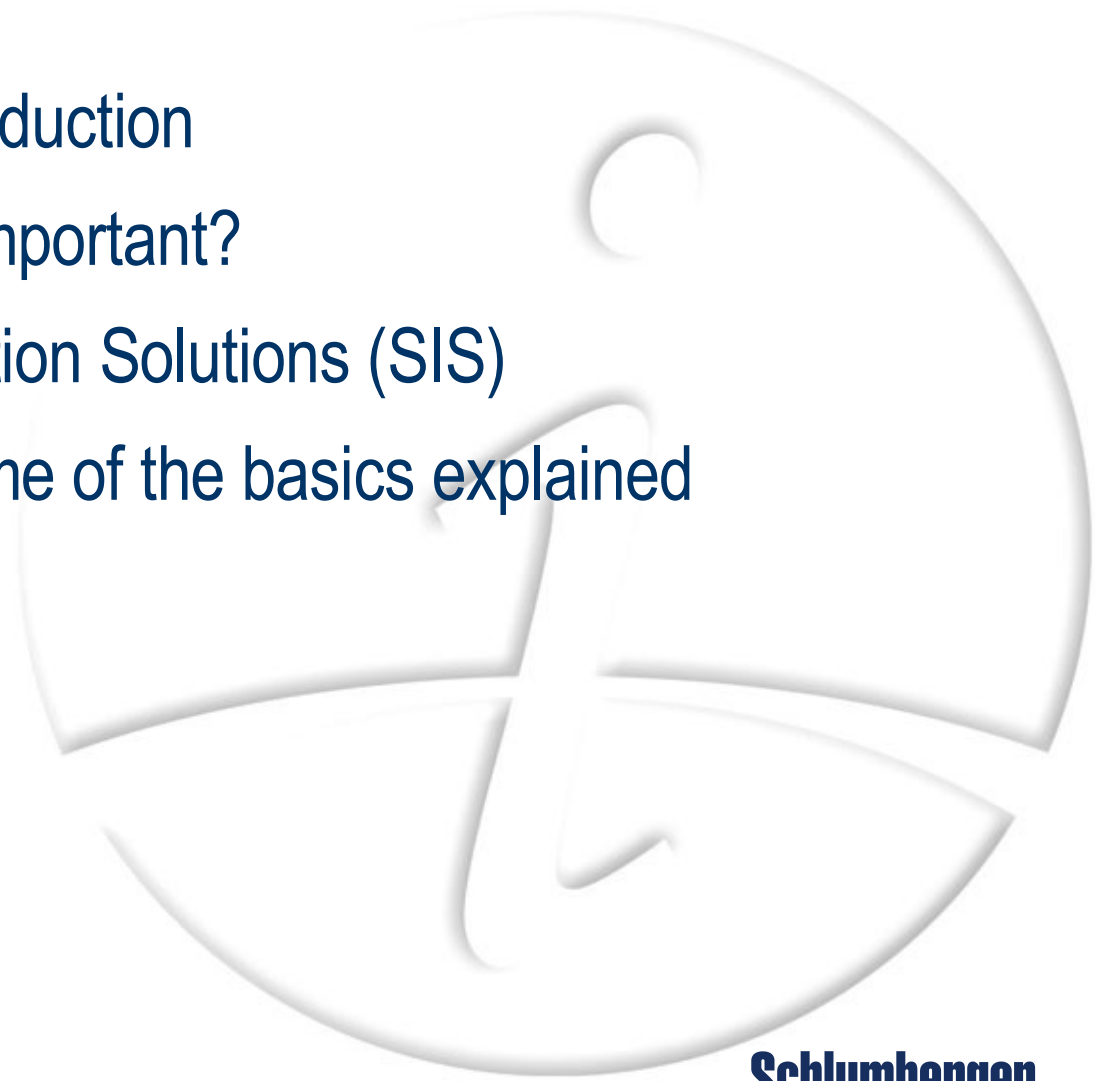
Alistair Grove-White, Manager Strategic Technologies

Schlumberger Information Solutions

October 2006

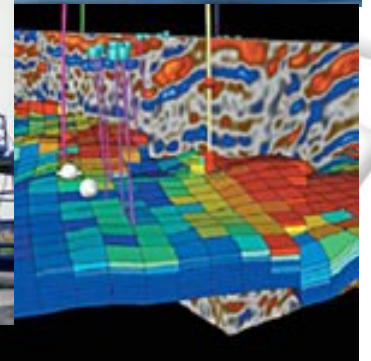
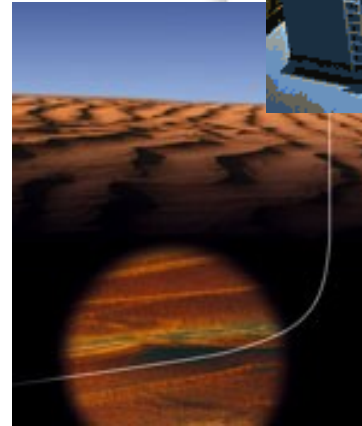
Maritime Fleet VSAT

- Schlumberger, an introduction
- Information, why is it important?
- Schlumberger Information Solutions (SIS)
- VSAT terminology, some of the basics explained
- Marine VSAT Service



Schlumberger?

- Oil & Gas Service company
- Founded in France in 1926
- 64,000+ employees, 140+ nationalities, active in 80+ countries
- Multi-disciplined
 - Seismic exploration
 - Well logging
 - Directional drilling
 - Well testing
 - Reservoir development
 - Oilfield domain software
 - Information infrastructure



Schlumberger Information Solutions

- Connectivity operation HQ in Aberdeen, Scotland, UK
- Satellite service provider and solution integrator to Oil & Gas industry
- 20+ years experience of satellite communications
- Satellite ground stations in:
 - Aberdeen, UK
 - Houston, USA
 - Denver, USA
 - Singapore
 - Stavanger, Norway
 - Macae, Brazil
 - Puerto de la Cruz, Venezuela
 - Perth, Australia(3rd party)
- Support and Sales Offices Worldwide



VSAT Basic Principles & Explanations

- VSAT services use geostationary satellites located approx 22,500 miles over the equator
- 2 frequency bands are commonly used
 - C-Band(4/6 GHz) Global coverage area. Large(~2.4m antenna required). Not greatly affected by normal atmospheric/weather conditions.
 - Ku-Band(11/14 GHz) Regional coverage areas. Small(~1.2m antenna required). Significantly affected by atmospheric/weather conditions(rain)
- Satellite capacity leased from satellite operators, eg Intelsat, Eutelsat, etc.
 - Bandwidth = \$
 - Power = \$
- Satellite beams usually configured into Global, Hemi, Zone or Spot Beams
- Link latency typically 600ms
- Complex antenna stabilisation equipment required to maintain the dish pointing toward the satellite as the ship moves
- Traditional VSAT technologies provided point to point leased bandwidth
- Modern techniques allow sharing of bandwidth similar to DSL home Internet delivery

Complimentary Technologies

- VSAT
 - some port restrictions, physical blockage, local interference, sun-outage
- Inmarsat
 - expensive if information requirement high,
- Cellular
 - limited coverage area, expensive if information requirement high
- WiMAX/WiFi
 - limited coverage area
- Iridium/Thuraya
 - low bandwidth, expensive if information requirement high
- One size does not fit all. Each technology has its value & place

Spacetrack Stabilised VSAT Antennas

- Schlumberger designs, develops and manufactures the Spacetrack range of stabilized VSAT antennas
- First deployed in North Sea in 1990
- Engineered for installation on all types of sea-going vessels
- 400+ deployed terminals worldwide
- Service bases in Aberdeen, Norway, Houston, Singapore, Brazil and Nigeria
- Supported 24x7 by in house Customer Support Centre



Schlumberger

Spacetrack 4000 Stabilized VSAT Antennas

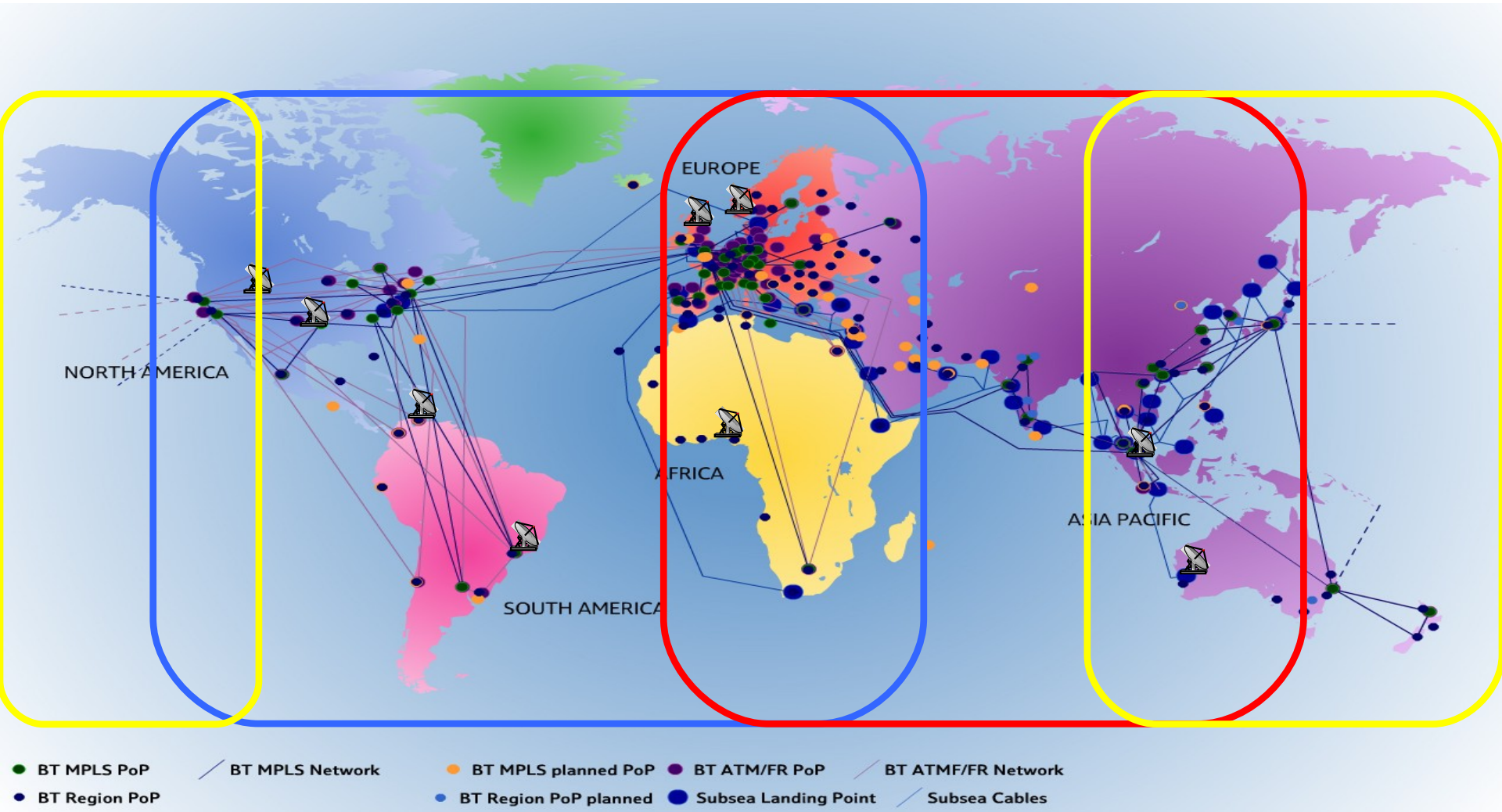


- 2.4m Ku or C-Band
- Linear or circular polarization
- ø3.7m radome
- Global operation



- 1.2m Ku or C-Band
- Linear or circular polarization
- ø1.8m radome
- "Regional" operation

Global VSAT Services



Benefits of “Always On” Communications

- “Real Time Drilling”
- Automatic Production Surveillance
- Plant/Machine/Engine Condition Monitoring
- Fixed, predictable monthly costs
- Access to “office” services, eg. phone, e-mail, Internet, 24/7
- Remote monitoring and management capability for ship, cargo, etc
- Enabler for further managed services, itemised communications billing
- Crew welfare options for phone and Internet
- Enhancement of Safety and Security systems

MyVSAT Customer Portal



MyVSAT Login

Username

Password

Schlumberger MyVSAT Portal - Satmanage - Mozilla Firefox

http://mynetwork.sis.slb.com

Schlumberger

Dashboard Network Correlator Signal Analyzer Reporter Operations NMS Admin Document Portal

Browser Recommendation Sign-out

Database Reports

- Traffic/Latency
- Traffic detail
- Conv detail
- Top N reports
- SQL Query

Network Reports

- Live Traffic
- TR Circuits
- Site Summary

Device

- Sys Up Time
- UPS Reports

Reporter

Service Performance Delay by Region

Region	Tick	Queue	Total Time in Queue	Network	Security	Server
MEA	10	15.27	103.10	15.27		
EUR	9	106.37	63.32	127.10		9.27
LAM	10	102.84	102.88	102.84		
FEA	5	12.23	43.18	35.52		40.11
WFC	0	37.81	32.59	17.91		
NOAM	4	43.62	32.10	43.62		
APR	3	42.62	27.80	16.90		27.63
CSB	2	16.37	8.52	16.37		

Service Performance Indicator

Stacked Ticket Age by Ticket Category vs Region

Days

Network/Telecoms Security Server Operations

MEAs EUR LAM FEA WFC NOAM APR CSB

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Schlumberger

Dashboard Network Correlator Signal Analyzer Reporter Operations NMS Admin Document Portal

Browser Recommendation Sign-out

Admin Reports

- Database Health
- NMS Procedures

Development

- Location Tracking
- Global Map
- Table Types

Configuration

- VPN Status
- Site Information
- Site IP Info
- VSAT Params
- Sys Params

External Systems

- Nexuswatch

Reporter Location Tracking Tool

This tool allows you to track the movement of any remote unit with GPS.

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Date Ticket Created

By Ticket Created - Total Time in Pending - Non-Business Days

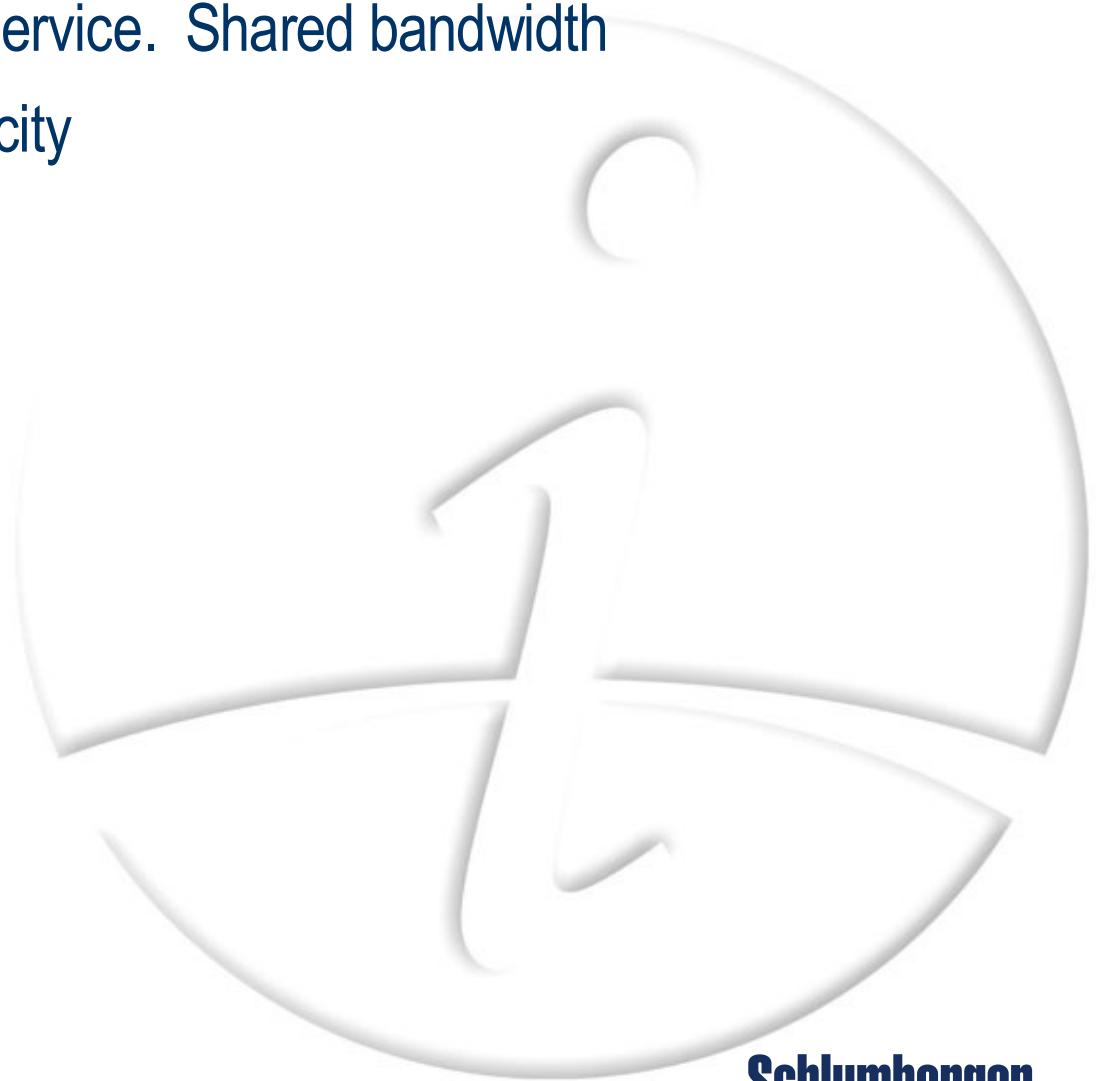
Non-Serviceable Days (including Non-Business Days)



How Much?

- Global 128K/128K VSAT Service. Shared bandwidth
- Hardware & Satellite Capacity
- VoIP
- 24/7 CSC Support

- \$4,400 per month



Thank You.

