

Digital Energy

Delivering Communications in Extreme Environments

Presented by Bill Green



Hermes is a Global company focussing solely on Oil & Gas

Offices In	Providing Service in		Enabled in		
Algeria	Afghanistan	Mexico	Armenia	Tajikistan	Tanzania
Azerbaijan	Angola	Nigeria	Bangladesh	Kyrgyzstan	Thailand
Iraq	Australia	Norway	Bahrain	Liberia	Trinidad
Kazakhstan	Cameroon	Oman	Brazil	Madagascar	Tunisia
Libya	Canada	Qatar	Brunei	Suriname	Uganda
Malaysia	Chad	Romania	China	Mongolia	Uzbekistan
Russia	Egypt	Sakhalin Islands	Chile	Morocco	Vietnam
Turkmenistan	Equatorial Guinea	Saudi	Colombia	Mozambique	Yemen
UAE	Ethiopia	Singapore	Congo-B	Myanmar	Zambia
UK	Gabon	Mauritania	Cote d'Ivoire	Namibia	Zimbabwe
USA	Germany	Kenya	Cuba	Oman	Iran
Kurdistan	India	Kurdistan	DRC	Pakistan	Sierra Leone
Namibia	Indonesia		Djibouti	Peru	Indonesia
Kenya	Iraq		Ecuador	PNG	
Angola			Gambia	Republic of Ireland	
			Ghana	Senegal	
			Gabon	Seychelles	
			Greenland	South Africa	
			Israel	Sri Lanka	
			Jordan	Somaliland	
			Kuwait	Spain	

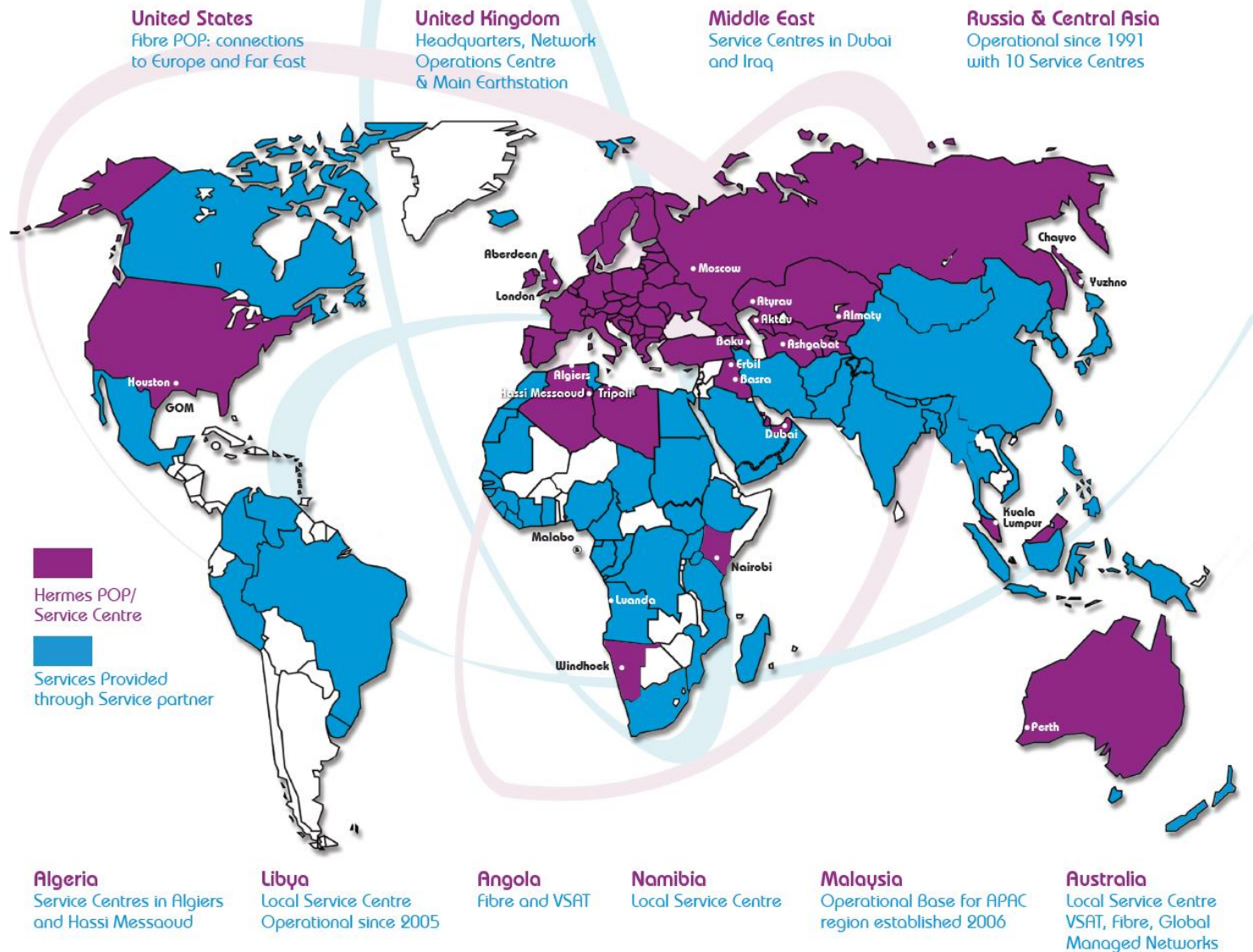


with experience
across Drilling, EPC
and Operators, both
onshore and offshore



HERMESdatacomms

Global Communications for the Oil & Gas Industry



Hermes is technology agnostic, providing services to meet the Customer's requirements



Onshore



Offshore



Land Mobile



Hostile Environments



Hermes Datacomms listed in Tech Track 100

Rank: 71

Hermes Datacomms is thrilled to announce that it has been listed in The Sunday Times Tech Track 100 as one of the fastest-growing technology companies.

Fast Track researches and publishes seven annual league tables with The Sunday Times, ranking Britain's top private companies by growth or size.

"The 11th annual Tech Track 100 league table ranks Britain's fastest-growing private technology, telecoms and digital media companies by their average sales growth over their latest three years."

Hermes Datacomms is ranked at number 71 on the list, with 45.26% growth. "The company's use of "meshing" technology, where multiple sites can share the same satellite frequency, has helped **sales to grow 45% a year**".

Why do we need to understand the users?



Who are the Users?

- Office Based
 - Roaming
 - Remote
-
- But a growing number of younger users who are tech savvy

What do they want?



Maslow's Hierarchy of Needs



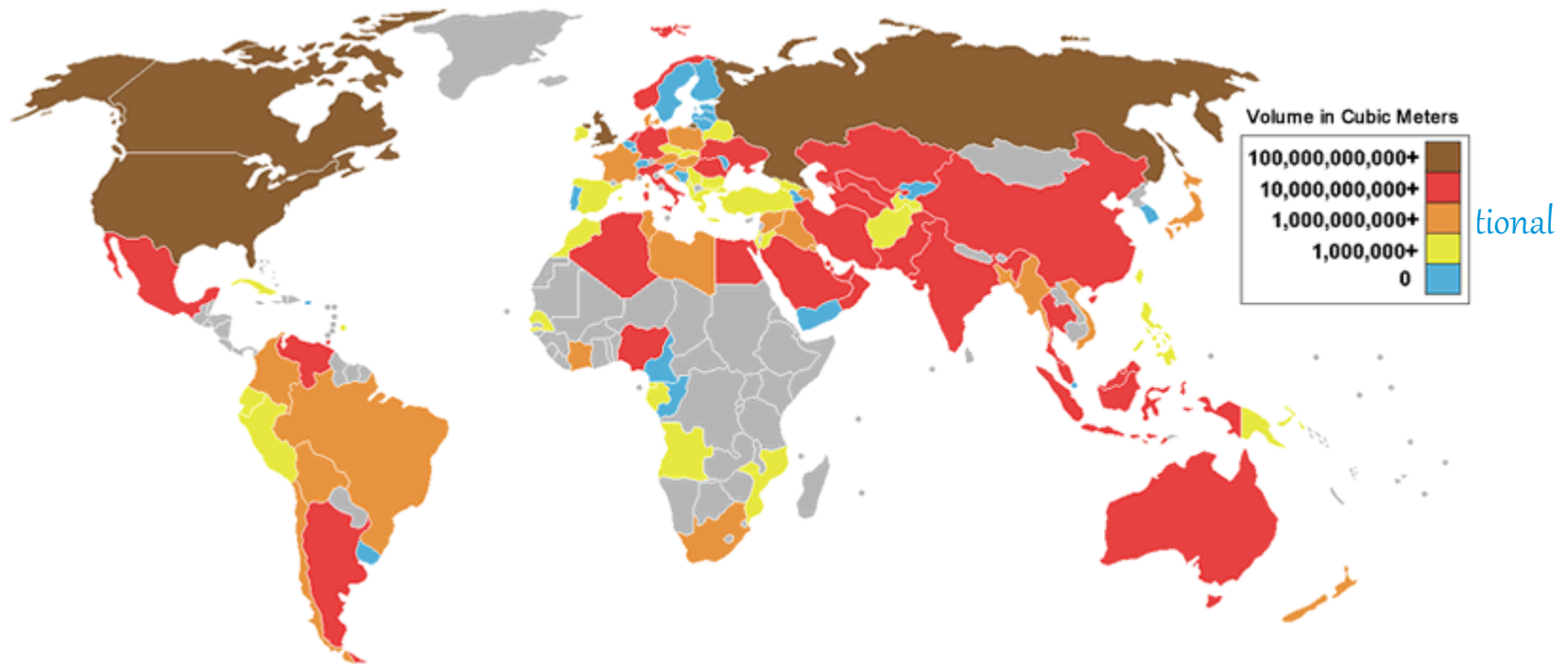
Maslow's Hierarchy of Needs - 2014

What do they want?

- Houston office style access in the PNG
- Welfare and Corporate Data together
- No usage restrictions – bandwidth

Our Marketplace

Oil & Gas companies operate outside of business as usual locations in challenging environments



Challenges in Oil & Gas

Locations for exploration are often confidential

The CIO is the last to know drilling needs to start yesterday

Locations to drill are in challenging areas logistically, regulatory and geographically

*The communications budget is a small percentage of the drilling operations budget
but underpins production*

Communications support critical mud logging and reservoir data as well as internet, email etc

Loss of communications can impact operations up to \$2M per day

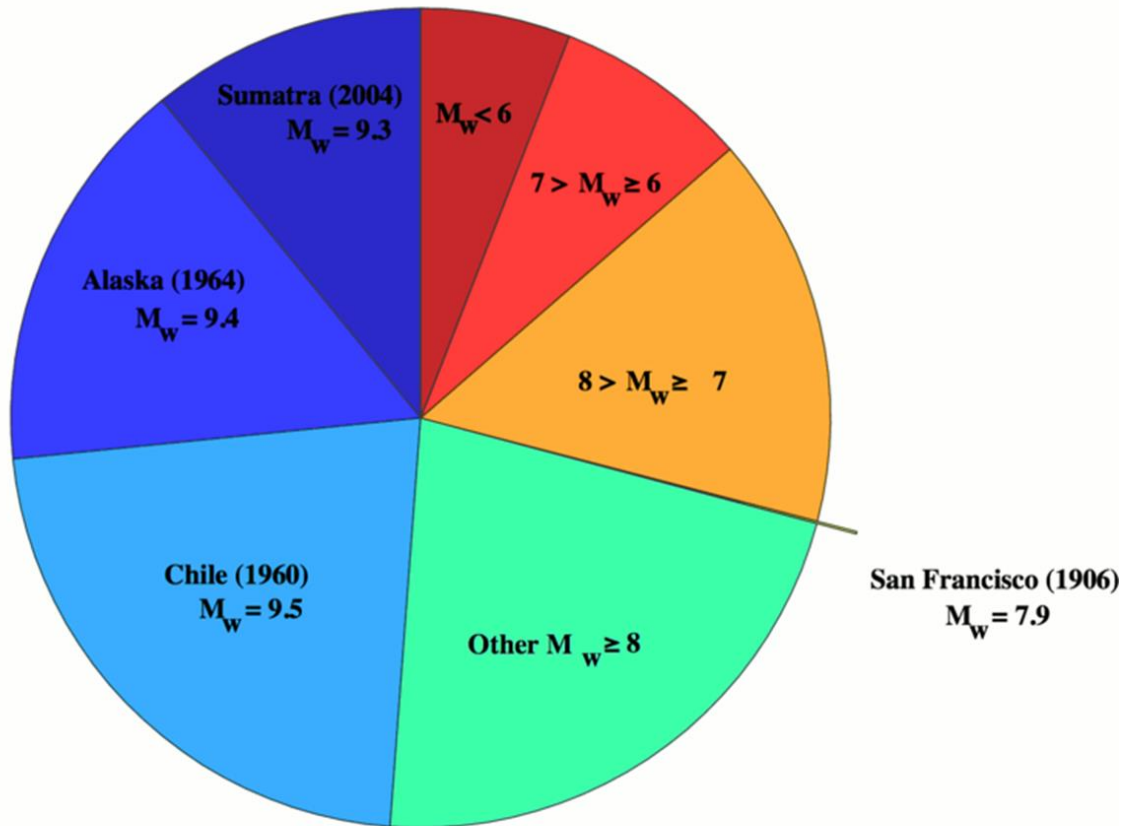
Health & Safety high priority

A familiar analogy?

A tsunami (plural: tsunamis or tsunامي; from Japanese: 津波, lit. "harbor wave"; English pronunciation: /su:'nɑ:mi/ soo-NAH-mee or /tsu:'nɑ:mi/ tsoo-NAH-mee) is a series of water waves caused by the displacement of a large volume of a body of water, typically an ocean or a large lake. Earthquakes, volcanic eruptions and other underwater explosions (including detonations of underwater nuclear devices), landslides, glacier calvings, meteorite impacts and other disturbances above or below water all have the potential to generate a tsunami.

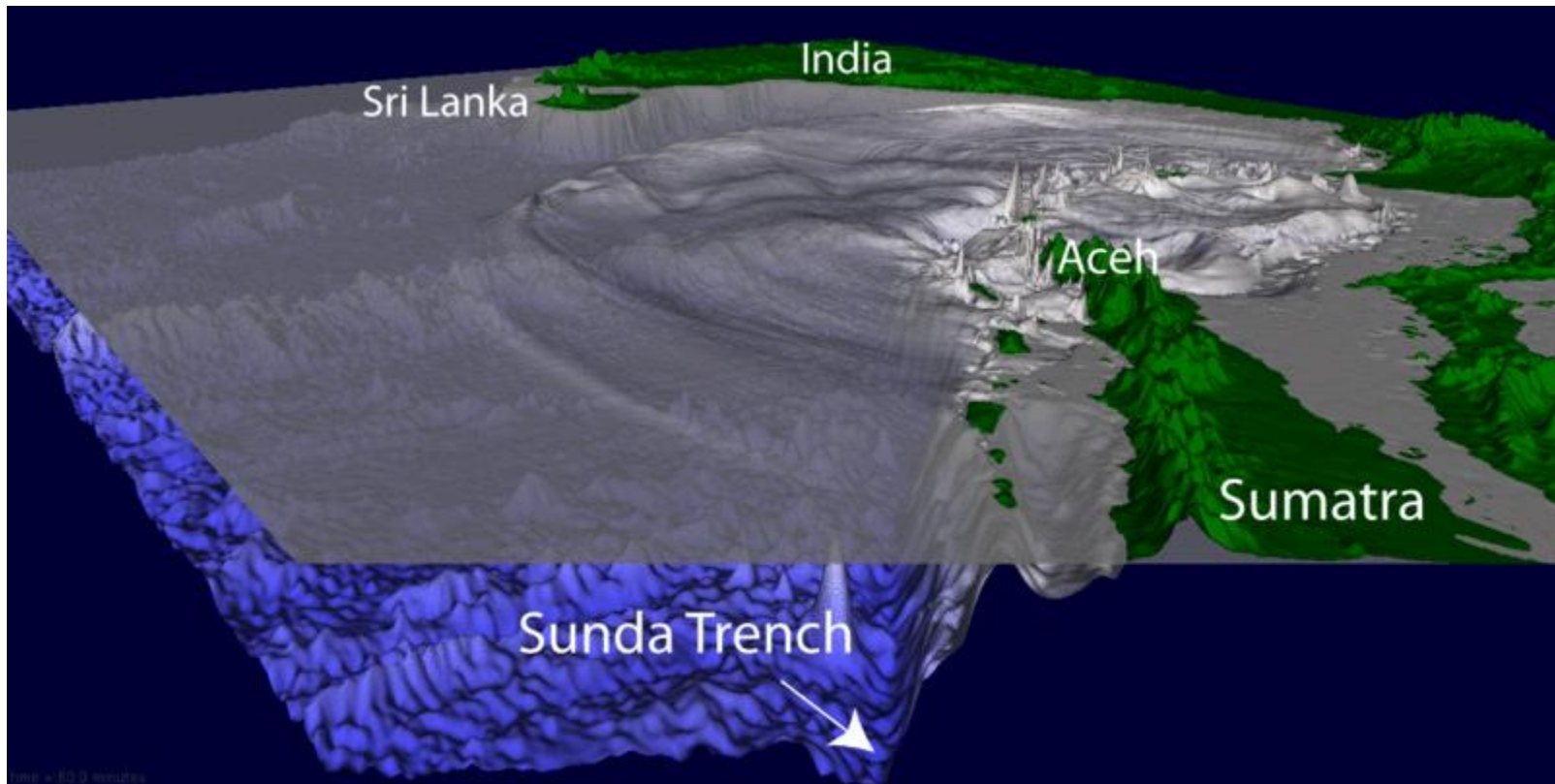
The 2004 Tsunami

Global Seismic Moment Release January 1906 - December 2005



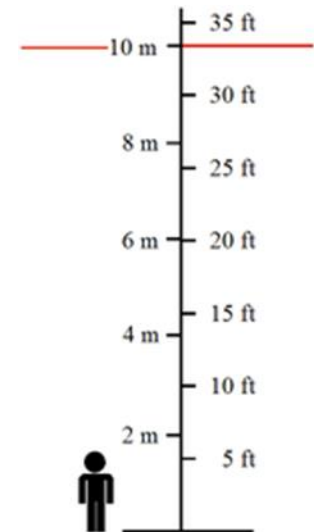
Total Moment: 1.0×10^{24} Newton-meters



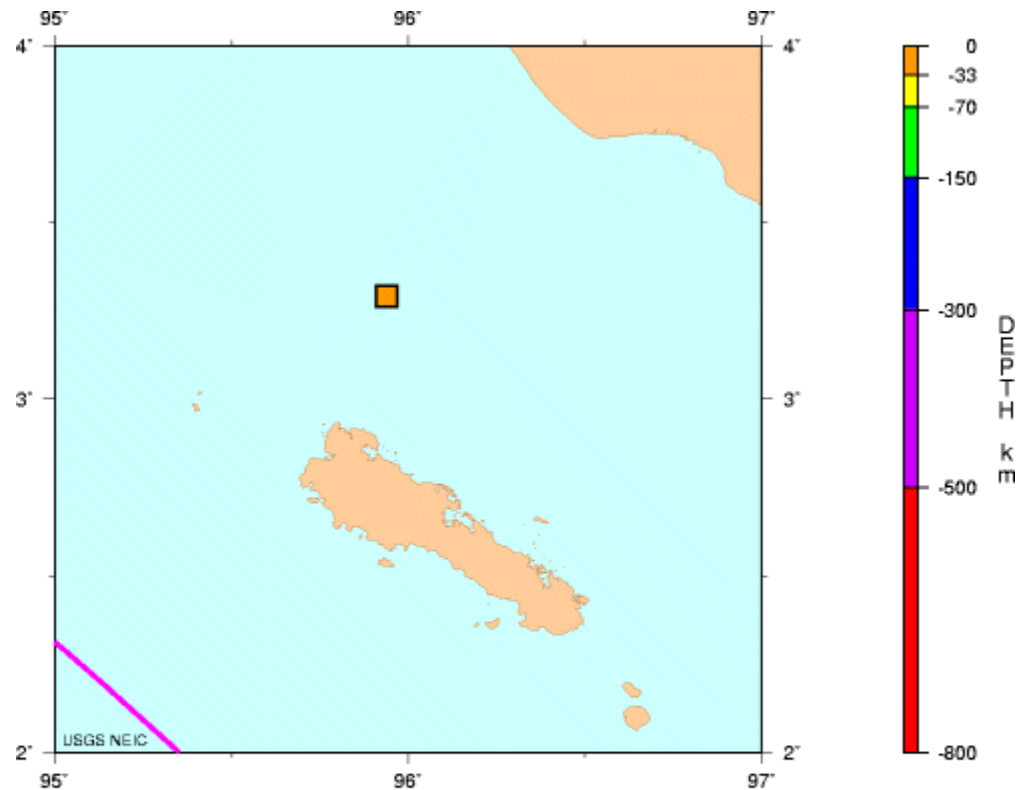




Waves reached 10 metres in height



Epicentre North of Simeulue Island



OFF THE WEST COAST OF NORTHERN SUMATRA

2004 12 26 00:58:53 UTC 3.29N 95.94E Depth: 30 km, Magnitude: 9.0

Earthquake Location

Major Tectonic Boundaries: Subduction Zones -purple, Ridges -red and Transform Faults -green

USGS National Earthquake Information Center

The Build Up to the Operation

- The Tsunami impacted people like no other natural disaster
- Aid in the form of money and assistance offered from all corners
- Decisions needed to be made
- Personal decision made to leave family and lead operation



The Build Up to the Operation

Team Selection.....a special breed of person

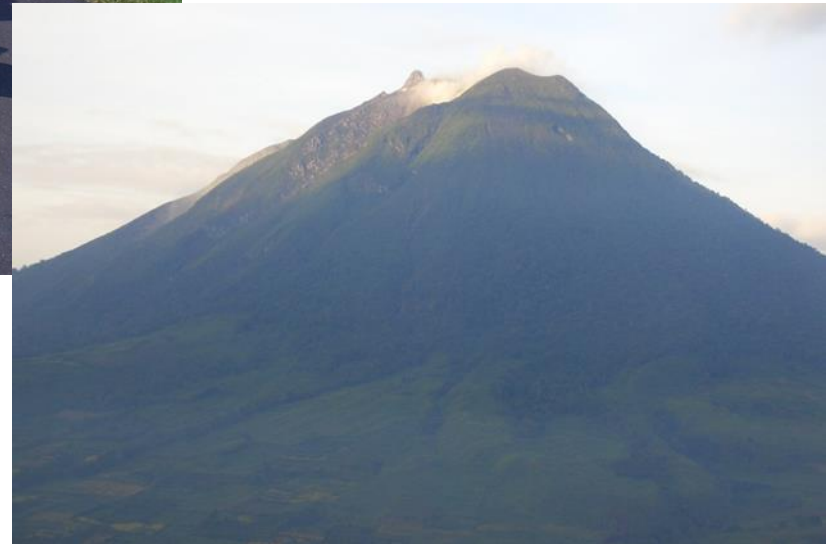




What we faced



Moral Dilemma.....



Command Decision?



Full extent realised



Challenges to overcome

- Climate
- Terrain



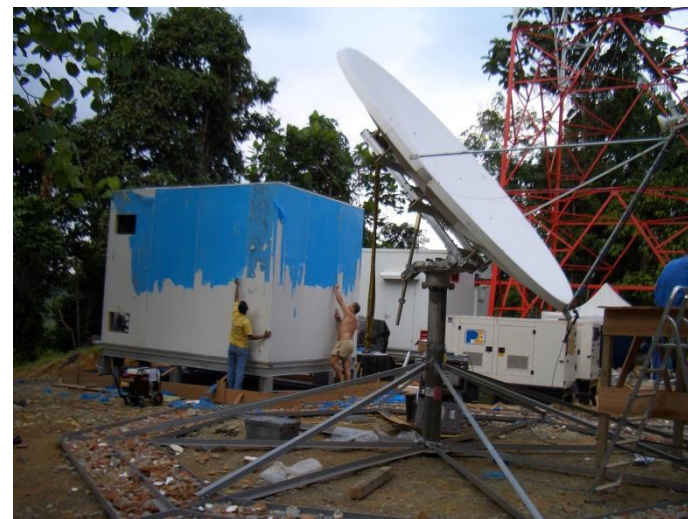
Challenges - Logistics



Humanitarian Considerations



Technology Considerations



The result

Communications restored for 90,000 people on Simeulue Island and more in Lamno, Banda Aceh



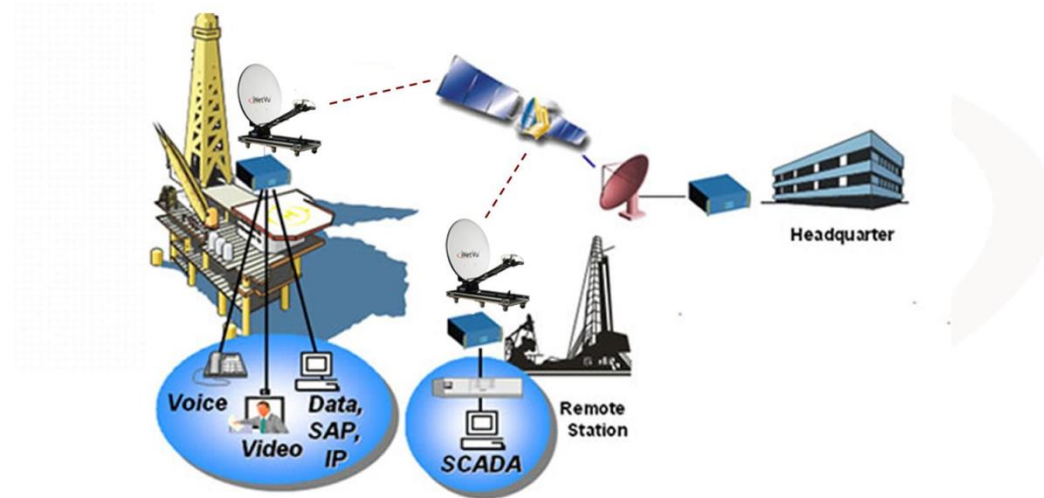
Aftermath

- Another earthquake hit 6 weeks later, not as well publicised but devastating nevertheless
- Capital of Simelue Island destroyed
- Communications remained and able to get message out
- Aid deployed via Shelterbox - £240K raised in 10 days
- Robust Communications were paramount in enabling this aid to be provided
- Systems are now in place to provide a modular response each time a disaster requires a response



Comparisons in Oil & Gas

- Green or Brown field sites
- No infrastructure available
- Time constraints – always the last to know
- Immediate requirements expected to support city office standard working
- Not all experience on the ground, requirement to work remotely with colleagues back at the ranch
- Lots of solutions are available but need a coherent management to tick boxes of commercial and technical benefits together



What does Oil & Gas Communications Need?

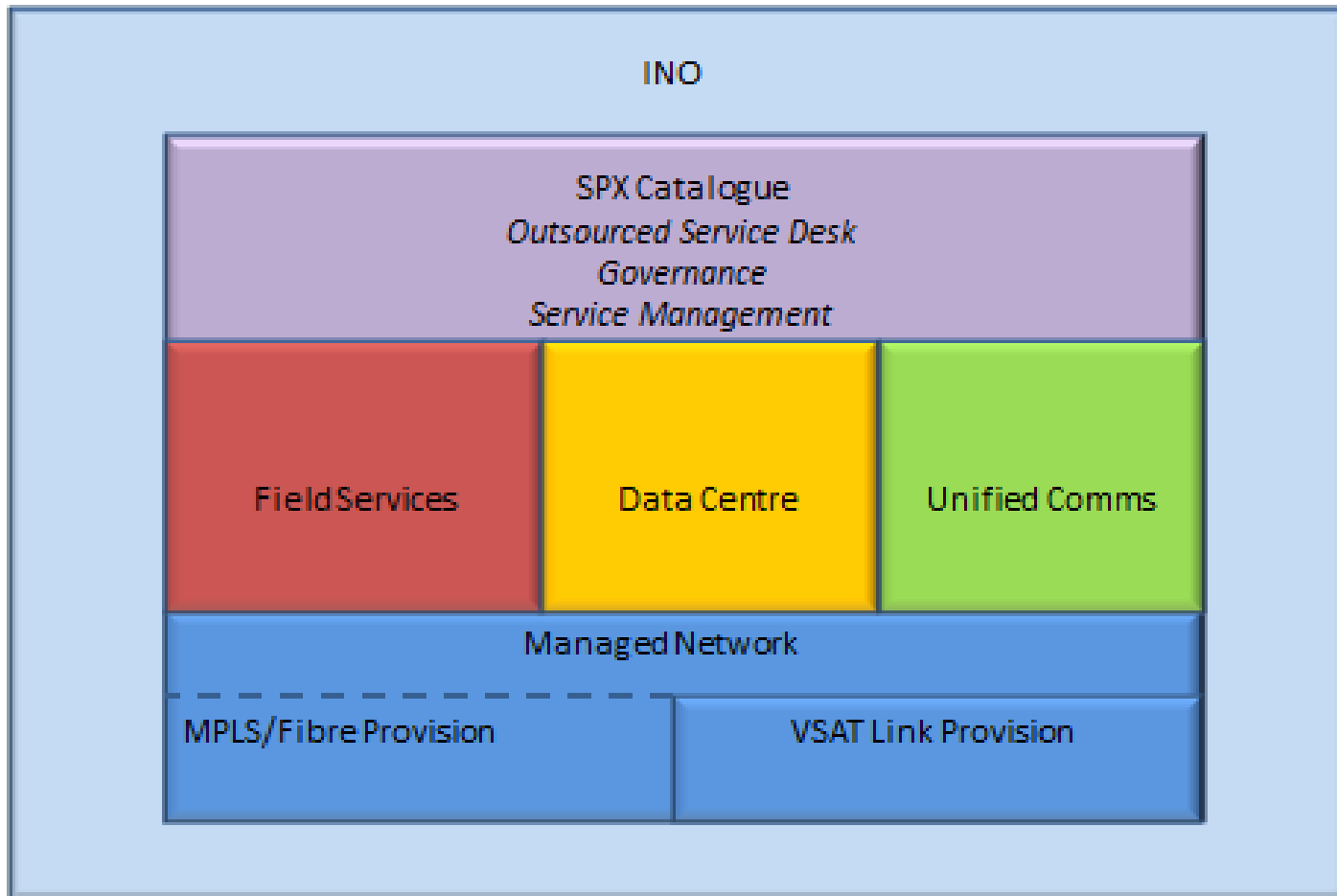
- Quick Deployment
- High Data, Low Bandwidth
- Mobility and Churn of Well Deployment
- Continuity and Assurance

“The Digital Oilfield is not an option”



We Need a New Approach

Hermes WAN Partnership Programme



Conclusions

- Delivering Oil & Gas field communications needs an attitude akin to a disaster recovery operation.....every time a well is drilled
- A proactive approach to consistent communications can provide cost and management benefits
- Solutions are available but need to be managed as an end to end service to be effective commercially as well as technically to allow a robust deployment every time; a piecemeal approach means a firefight each time



Thank you



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Requirements of high data over small bandwidth

Scalable & Flexible

- Delivers across multiple formats, platforms & devices
- Globally accessible
- Enables dynamic responses to market changes

Fast

- Accelerates movement of digital assets
- Optimises network infrastructure
- Provides automation of processes

Reliable

- Transports digital assets securely
- Ensures content compatibility
- Technical, regulatory and cultural conformity

Control

- Provides inventory and asset management
- Centralises management
- Allows prioritisation, manipulation & tracking

Case Study - Moving Geophysical data over small pipes

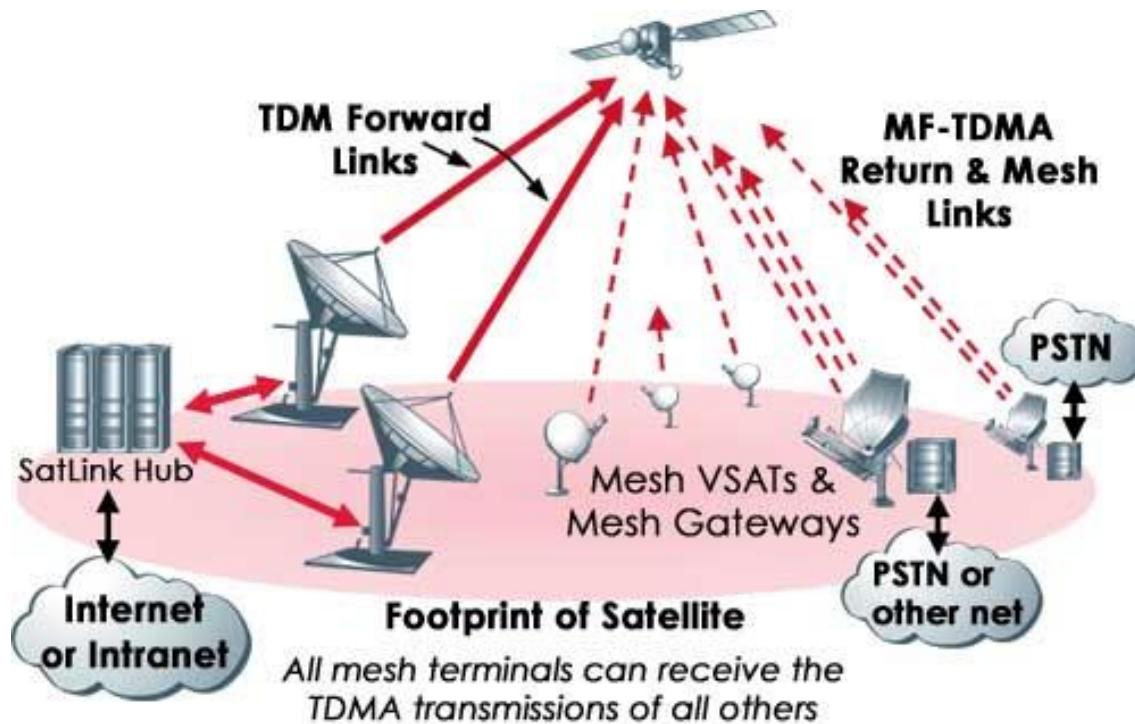
- Mobile communications
- Small bandwidth
- In contention with back office and welfare solutions



Planning & Project Management



Technology is often the simple part....



Security



Logistics



Health & Safety



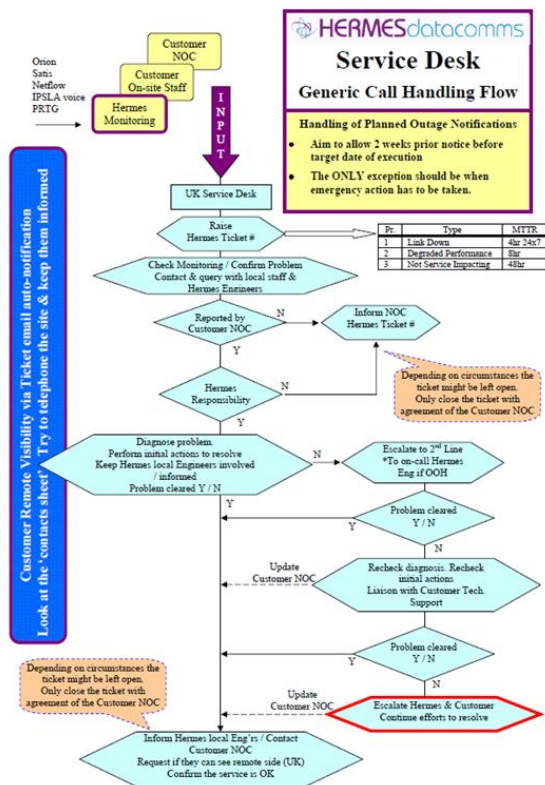
Health & Safety



Trading & Operating Licenses



Monitoring, Support & SLA's



Key success elements....

Planning

Focused service delivery team

Local knowledge & staff

Trading permissions in place

Local storage of mission critical equipment

Operating license agreed

Help Desk support

Flexible approach

“Can do” attitude

Optimising Mobility

Driving Forces:

- 'Churn' of well moves
 - New enabling technologies require more data support
 - Connectivity to remote sites to allow subject matter experts to be virtually connected to in-field operations
 - Reduction of down time costs and associated with rig moves
 - Real time information
 - Faster and more accurate analysis leading to quicker decision making
 - Extend central processing power to remote fields
 - Mobile office environment
-
- How do we do this without the expense of a Comms Engineer each time?

Case Study – Baker Hughes – Libyan Desert

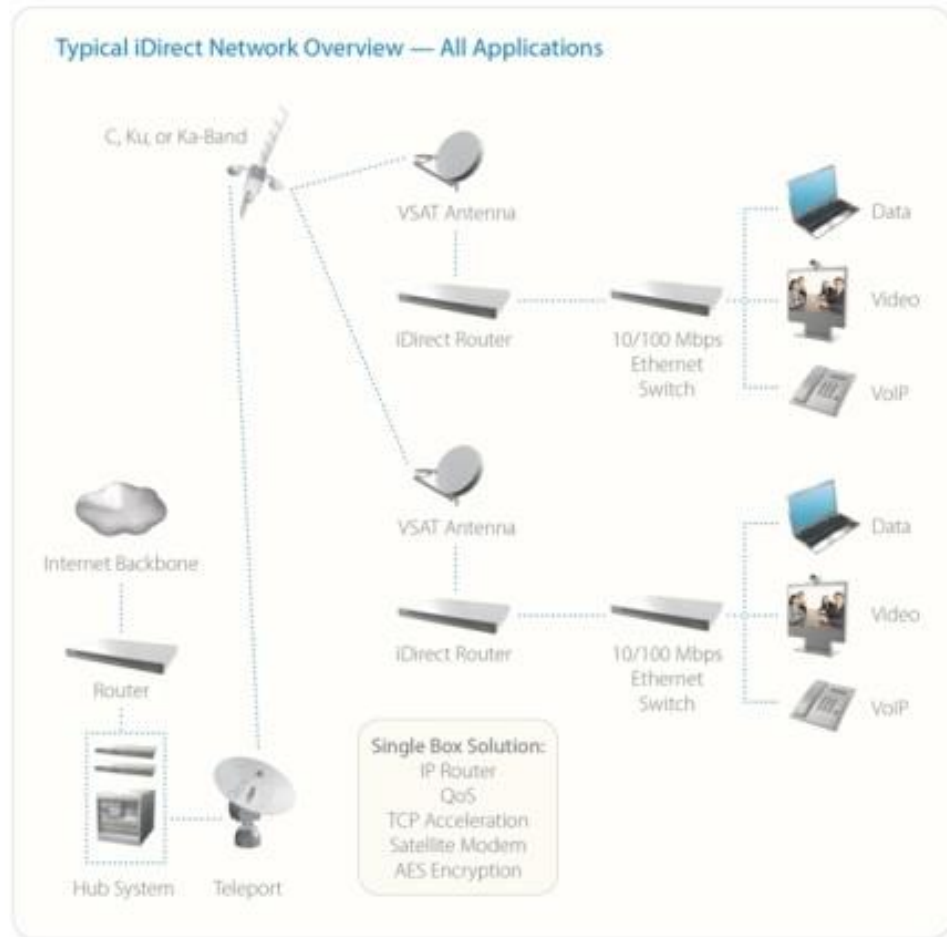


Shared VSAT solution to support mobile seismic and drilling operations

Same key success elements applied across all projects



6 mobile systems sharing
a 256K/256K TDMA



Autodeployable Solution in Libyan Desert



Altegrosky, Siberia

- TaymirGeofyzika
- Taymir Penininsula
- Extreme Wind Conditions
- Impossible to operate a manual VSAT in such conditions
- System stowed when not in use

