

Vsat systems

20 - 21 March 2007

For

Digital Ship Scandinavia - Oslo



BOURBON



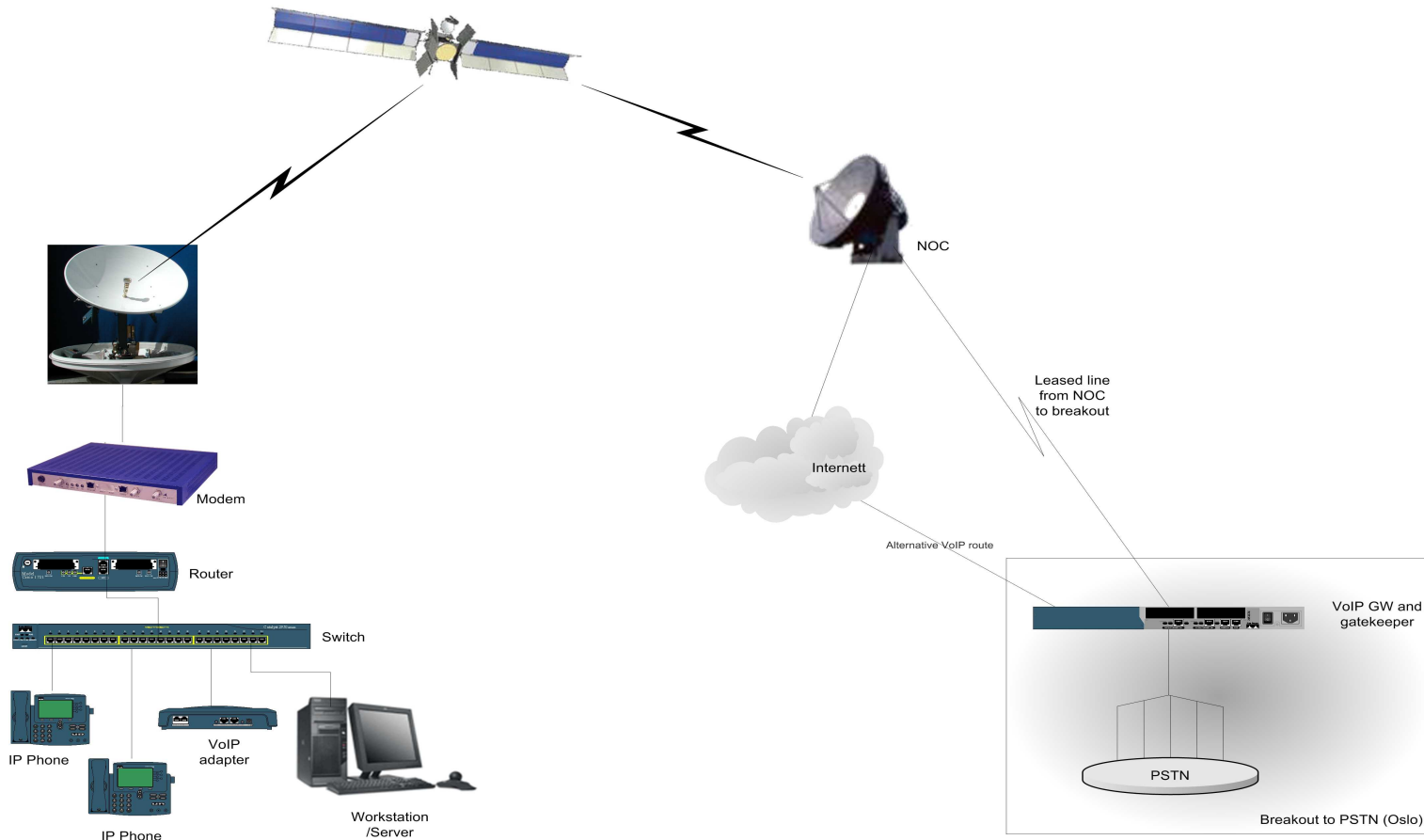
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Building together a sea of trust

What does VSat stand for

and some glossary

- **Very Small Aperture Terminal**, refers to a small earth station with small antennas.
- **Online at sea.**
- **SCPC Single channel per carrier.**
- **VOIP with IDIRECT modem.**
- **BIR – Burst Internet Rate – share of satellite segment between several vessels.**
- **CIR – Committed Internet Rate – segment committed to one vessel.**

Vsat, typical setup:



VSat systems – Ku band

- ❑ **Ku band (12-14 GHz) is a more concentrated satellite spot primary around populated areas and with a strong carrier. Because of the strong signal it is only necessary with 1.0m - 1.2 m antennas. A good solution if the ship is operating in one area but vulnerable against rain showers.**

Ku – band, typical antenna setup:

1 m random:

Sea Tel WaveCall 4003

Ku-band VSAT TX/RX Antenna

When the going gets rough, Sea Tel keeps going!



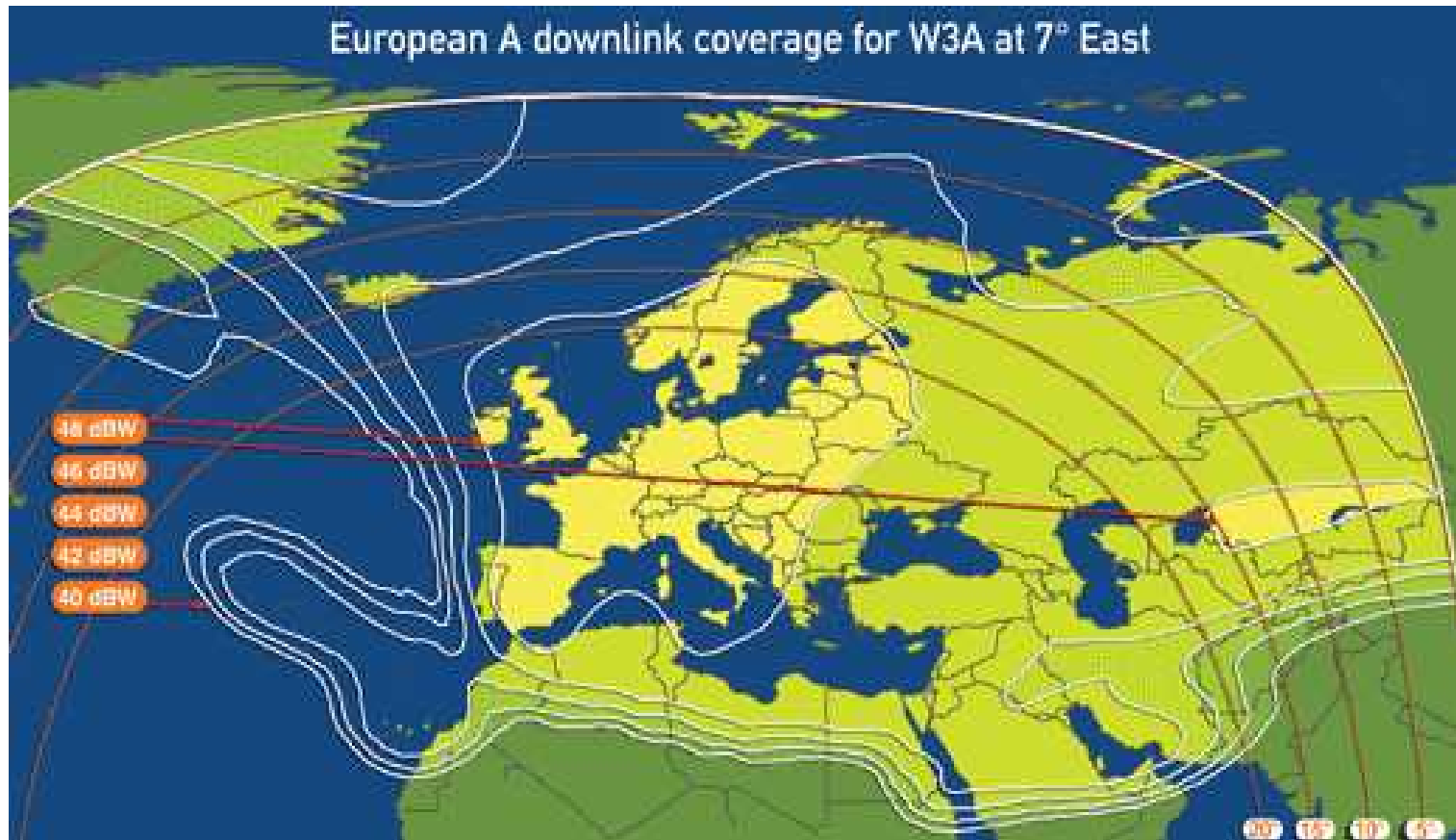
1,2m dish, 2 m random:

Sea Tel Model 4996T

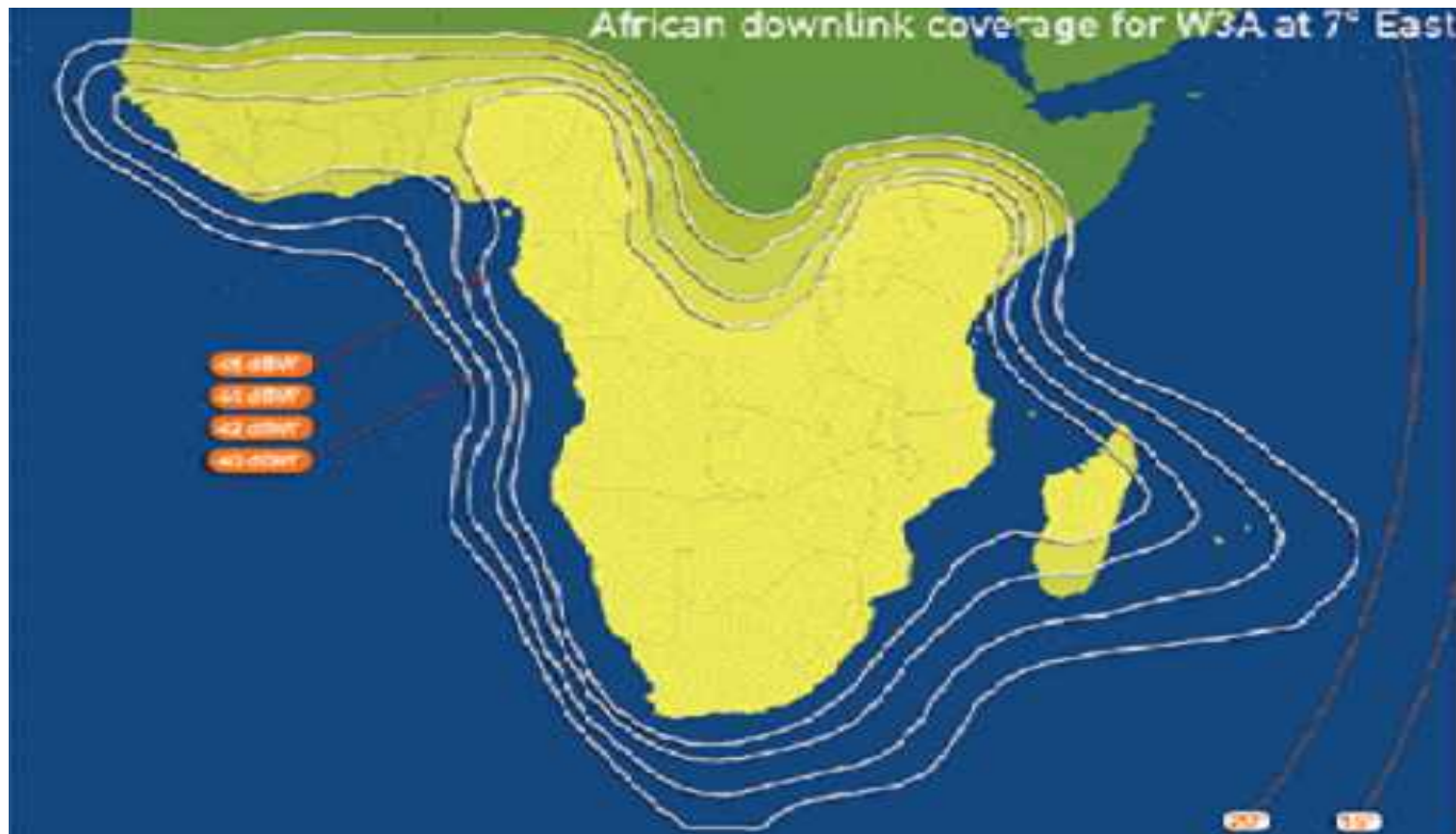
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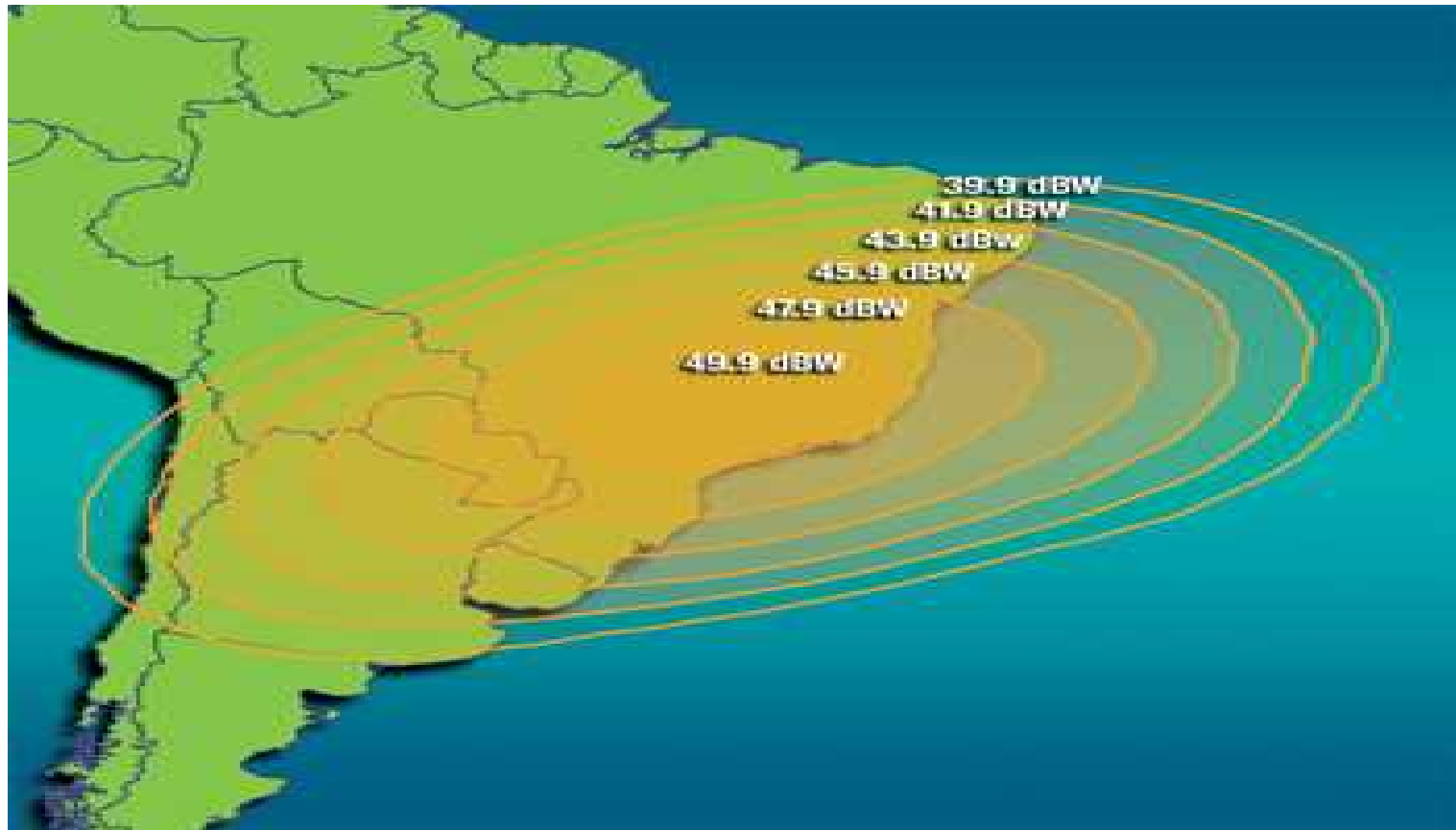
Ku – band, typical coverage area - Europe:



Ku – band, typical coverage area - Africa:



Ku – band, typical coverage area – Brazil:



- ❑ **C-band (3 – 6 GHz) covers bigger areas and therefore the carrier isn't that strong and concentrated, we need bigger antennas: 2,4m. Good solution in areas without Ku covering and if the ship moves from one area to another.**

Typical antenna setup:
2,4 m dish with 4m random

Sea Tel Model 9797

When the going gets rough, Sea Tel keeps going!



C – band, typical coverage area – Europe / Africa:



C – band, typical coverage area – North / South America:



Why do we need VSat?

- Support ship management system with control of documentation for operation and safety management system.
- Shipmed links.
- Remote technical support in foreign waters.
- Reduce communication costs. (BON, Bourbon Jade).
- Equivalent communication costs for crew sailing in foreign waters.
- Support pre arrival checklists for entering ports, become more and more common to report to authorities through internet.
- Tool for the ships management to have control with the ships Class status e.g. through DnV exchange.
- Tool for the company management to offer IT support by e.g. remote desktop.
- Chart corrections through mail and internet.

What do we have to think about?

What system to select, key issues her:

- Quotation from supplier, price, bandwidth etc. compared to present communication costs.
- Size of vessel – size of antenna.
- Operation area – Ku / C band.
- Type of operation e.g. MPSV, PSV, AHTS, Tankers etc. – segment size, voice channels.

Infrastructure onboard the vessel:

- Where to put the equipment.
- How to distribute the phone lines and LAN network, PABX?.
- How to protect your LAN network against virus and external treats?
- How to handle billing of external calls, crew phones, call cards etc.

BON Vsat process

- ❑ **BON started this process in the beginning of 2005.**
- ❑ **Looked through communication cost out through 2004 to see if this investment could be justified.**
- ❑ **Launched our first installation a C-band system on one of our MPSV in West Africa region. This was a success and we turned high communication cost to actually go break even or sometimes make money.**
- ❑ **Then we launched a series of Ku – band system on our other ships in West Africa and Europe, we choose Ku - band systems because the antenna size was more suitable than the big C band antennas and of course the price of the satellite segment.**
- ❑ **Have now one C – Band and thirteen Ku – band installations.**

- **C – Band installation has worked perfect since installation.**
- **Ku – Band (ldirect/Voip) not satisfactory in the first six months, problems with priority of voice. This have now improved.**
- **The calls and e-mail use have escalated enormous and we see that we need to priotities systems to registrate the use.**
- **Have experienced more IT troubles onboard, have seen need of content filtering through firewall.**
- **Happy crew.**
- **Over all good experience. But I see know it would have been beneficiary to have been able to discuss these issues through a forum like this event.**

AHTS- Bourbon Orca



PSV- Bourbon Mistral



The end

Thank you for your time
Regards
Jon Helge Ulstein