Yachting Matters

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VSAT

THE IMPORTANCE OF YOUR SERVICE PROVIDER

A VSAT is a device that provides the equivalent of a land based ADSL broadband data connection to a vessel at sea or even to land based remote locations, such as deserts, jungles or safari lodges. A VSAT on a yacht consists of a large dome housing a gyro stabilised satellite dish and some equipment below decks that controls it and to make the connection with the satellite.

The VSAT data line can be used for many applications on the yacht, just as an ADSL line is used in the office or at home. Also, as with an ADSL line the VSAT monthly running cost is usually a fixed figure for unlimited data use.

Like all communication devices, from your mobile phone to an Inmarsat Fleet terminal, a VSAT system requires not only physical equipment but also an airtime service.

With VSAT, there are only two well known equipment manufacturers - Sea Tel and Orbit. Sea Tel have a virtual monopoly in the KU band yacht market with their current 4006 model, and have a large worldwide service organisation to support the product. The Orbit AL 7103 is a good product and has been installed on a few yachts, but the worldwide support infrastructure is not extensive.

When it comes to airtime service providers however, there is an army of companies out there willing to serve you. Bear in mind that it is the VSAT service which will make or break your system, and there is a lot of small print and technology to understand before you reach the right decision when it comes to selecting your service provider.

Some time ago, my company E3 Systems installed the first KU band VSAT on a yacht using the wrong service provider, and since then have installed and serviced over 80 VSAT's using almost every service provider available. We are thus in a unique position to be able to advise you on what you should look for.

A VSAT service includes many components, each of which is individually important, and taken together can make the difference between an average service, and a stunning one.

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These are the components you should take into consideration:-

- The contention ratio – are you sharing the service with other yachts?
- Maximum Information Rate (MIR) and burstability
- Guaranteed bandwidth to guarantee quality for particular services such as voice
- Satellite coverage areas – where will you be cruising?
- The experience your service provider has with VSAT
- Remote monitoring and 24/7 support of your system worldwide
- The reliability of the service – redundancy and downtime experience
- Fixed or flexible contracts and service
- Quality and serviceability of below decks equipment
- Cost of the service – compare like with like and what does it include?

You will initially need to make a decision as to what service you need. This is the size of the data pipe and is measured as a data speed up and down to the satellite. The typical offer is a 128k/512k service. This is for a 128k uplink and a 512k downlink. But is it? Usually it isn't. Nine times out of ten what is says on the box is not what's in the box. So let's start with the service speed.

Contention Ratio

To determine the actual service speed you need to ask what the "contention ratio" is and you will typically be told 10:1. This means that 10 other yachts will share your 128k/512k service. Thus, if all are using the service simultaneously you will only experience 1/10th of those figures, ie 12.8k/51.2k. Contention ratios can be as high as 50:1 and we have seen "non-specific shared service" as a description for one service.

A service that costs $1,500 per month for 10:1 (12.8k/51.2k) is clearly inferior to a service that costs $3,000 per month for 2:1 (64k/256k). The $3,000 service is only twice the price but it is 5 times better!

For the price and for proper broadband you need a better contention ratio than 10:1 on a 128k/512k service. Why invest in the equipment to access a broadband service when you are not subscribing to a broadband service?

The 10:1 service provider will be able to offer you a reduced contention ratio but they will charge considerably more. You should look for a service that has a much lower contention ratio for around about the same price. They are available.

Thus remember "a low contention ratio is good".

Maximum Information Rate (MIR) and Burstability
The MIR is what most service providers quote as the maximum speed you could experience if no one else is using the data connection in a contended system. In the case above, the MIR is 128k/512k and the guaranteed speed or Committed Information Rate (CIR) is 12.8k/51.2k. With a dedicated service or with a 1:1 contention ratio the MIR & CIR will be the same at 128k/512k. Some service providers provide Burstability for a period of time each day. You need to look for this, as it means that you will get double the contracted speed for a few hours each day.

Guaranteed Bandwidth
Certain applications do not like sharing the bandwidth they need with other applications. For instance, if you are using Voice over IP, the voice channel will need a fixed minimum bandwidth for the speech to be nice and clear. If another application borrows bandwidth from the voice channel the quality of the voice will deteriorate into a gargle! Look for a service provider that will make the bandwidth required for applications such as voice or GSM dedicated. Be aware that applications like Skype are Voice over IP applications, but they are not the service provider's voice services, as they just use the raw data channel and eat up bandwidth. Some service providers ban bandwidth hungry applications.

Satellite Coverage
Look at the coverage maps to make sure the service will provide coverage in your required cruising areas. You may have to move to another service provider if you decide to venture off the beaten path. Look to a service provider who can provide the coverage, and more if needed.

Experienced service providers
VSAT is a relatively new technology and there are a large number of new entrants into the market. Look for a service provider with a pedigree, with their own networks, with their own Network Operations Centre (NOC), with redundant systems, with 24/7 support and monitoring and specifically with years of VSAT experience. To get a good idea of the reliability of the service ask for average uptime figures. Ask whether they are confident enough to provide downtime credits. Also look at their client base and what their VSAT service is being used for. For example, a cruise ship is dependant on the VSAT to run their major profit centres such as casinos, Internet cafes and credit card machines. Thus a cruise ship VSAT service provider will be well experienced.

Beware of some service providers who are also selling satellite bandwidth to use up spare satellite capacity.

Also, investigate the provider's support infrastructure. If they are currently providing an excellent service, check to see how they would cope if their user base doubled or trebled. Would the

personal service they have been providing today be the same tomorrow?

Fixed or Flexible Contract and Service
In most cases, a service provider with a flexible contract is of preference. A flexible contract means that you can pay for 9 months then cut the service for 3 months over the winter or refit period. A fixed contract means you have to pay every month.

There are also minimum contract periods. 24 months is good. 12 months is rare and you will pay a premium for that but conversely you are likely to receive a discount for 36 months.

Do not sign up for a 24 month or 36 month contract if you have not received recommendations or taken references. Ask for references to call and, when you do this, ask for a Voice over IP telephone number and call on this line to test the voice quality. Once you have signed the contract and the service is not up to expectations the service provider may be able to apply penalties.

Recently we came across a client who thought he had made a very astute purchasing decision by buying the antenna at $10,000 less than others had quoted and the service at a lower figure per month. It turned out the service was contended at 10:1 and was appallingly slow, but on closer inspection of the contract this was stated in the small print, so he couldn't cite "non performance". To cap it all, in order to get out of the contract the supplier wanted an additional extra payment for the antenna as they had subsidised it.

Make sure you read the small print to find out what these penalties are.

A flexible service is different to a flexible contract and you should look for this. A flexible service is one where you can increase the size of the data pipe for a period of time when the whole family or charter guests are on board and reduce it back to the contracted service afterwards.

Specification and serviceability of below decks equipment
The VSAT airtime service comes with a certain amount of equipment, that is in addition to the antenna and antenna control equipment. The service provider usually sells you this equipment. However, other service providers include this below decks equipment in the monthly price of the service. This is preferable to buying the equipment, as it effectively provides a lifetime warranty and an ongoing service plan for this equipment.

Some service providers supply a low quality modem and others will provide a top quality modem and also include test and support equipment such as a spectrum analyser and a laptop plus a UPS. The latter would be the preferred solution.

Cost of service and ownership

Thus, as you will now appreciate, comparing service providers by price is not the only answer. You need to study the form carefully, or take advice from those with experience of all the services available. When comparing service speed, define a comparable unit and check the price of that, then look at the flexibility and the experience and, above all, ask for references.

For further information or advice, please visit our stand at the Monaco Show or go to our websites www.e3s.com and www.e3connect.tv

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