

High-Throughput Satellites to cut maritime data costs

The upcoming launch of a number of new high-throughput VSAT satellites in both the Ku- and Ka-bands by various operators will significantly increase the capacity available, and should help to drive down data costs, writes Terry Neumann, IDirect

As communications requirements have evolved over the last decade, demand for satellite services in the commercial maritime sector has grown significantly.

To meet this demand, and deliver reliable broadband connectivity for everything from crew welfare to improving operational productivity, ship operators have increasingly turned to VSAT solutions.

Now, with a host of new high-throughput satellites on the horizon, VSAT is becoming an even more essential component of maritime communications networks, making satellite connectivity more affordable, powerful, and dynamic than ever before.

When it comes to high-throughput satellites, the keyword is capacity.

For as long as satellite technology has existed, one of the main barriers to adopting satellite has been its cost. With limited satellite capacity, bandwidth has traditionally been a somewhat scarce commodity, forcing satellite operators to charge higher prices.

With the launch of high-throughput satellites, however, new Ka-band and Ku-band capacity is coming, which means satellite operators will have more flexibility in how they price bandwidth.

This change will have significant implications for the economics of the satellite industry. Luckily, in the case of maritime end users, all of them will be good and here's why.

Because bandwidth will become more abundant, capacity will become less expensive for satellite operators. As such, operators have the option of selling capacity to a greater number of users for a lower cost. However, that is only half of the equation.

As their name suggests, high-throughput satellites will deliver higher throughput rates for end users. This is essential as maritime customers seek to implement higher bandwidth applications, such as enterprise resource planning, remote IT solutions, video conferencing, and more.

Given that high-throughput satellites are poised to offer more capacity, and thus higher throughput, this presents a few interesting options for satellite operators.

They can either provide users with better throughput at the same price that they are currently paying, or they can provide users with bandwidth at the same throughput level, but for a significantly lower cost per MB.

However a satellite operator chooses to price its services, maritime end users end up winning. They either increase the strength of their existing investment in

VSAT or they expand VSAT to more of their fleet at a lower cost.

When you factor in the lower capital expenditures associated with high-throughput satellites, the picture becomes even prettier for maritime users.

High-throughput satellite terminals will be smaller in size, easier to install and quicker to deploy onboard a vessel. As such, the overall CapEx required will be less than traditional VSAT services have required in the past.

ments than traditional satellites. Traditional satellites use large regional beams that cover an entire footprint with fixed capacity.

Any service provider can own a hub and teleport and offer services to customers as long as they're in the satellite footprint.

By contrast, high-throughput satellites employ multiple spot beams to increase capacity through a process called frequency reuse. These spot beams will bring

provider to lease hub space and establish their own HTS service with full control of the network and service being offered to their customer.

3. Traditional VSAT Operator: This model is what has been available for many years and is common in Ku- and C-band services. A service provider can put up their own hub infrastructure or co-locate a hub in the satellite operator's teleport and purchase bandwidth from the satellite operator to manage and control as they desire.

If some of this seems familiar, it should. While high-throughput satellites change the value chain for satellite operators and service providers, not much is different for a maritime customer who is getting service from a provider.

Here again, a maritime customer sees the ultimate benefit of high-throughput satellites through increased capacity, lower cost hardware and less expensive service options.

They will still be working with the major providers of satellite communication services that they work with today, these operators will just have more options in terms of where they get their bandwidth and what types of services they offer to their customers.

Several leading satellite operators have already announced high-throughput satellite networks.

In 2013, Inmarsat plans to launch Global Xpress, its global Ka-band broadband network. Meanwhile, Intelsat plans to offer the EpicNG platform, which combines C-, Ku- and Ka-band capacity for a global network.

There are also many opportunities for regional high-throughput satellite coverage from operators like Telenor, Avanti and O3b that will open up interesting service options for specific segments.

With these and other high-throughput offerings, operators are giving service providers an easy opportunity to deliver their own high-throughput services.

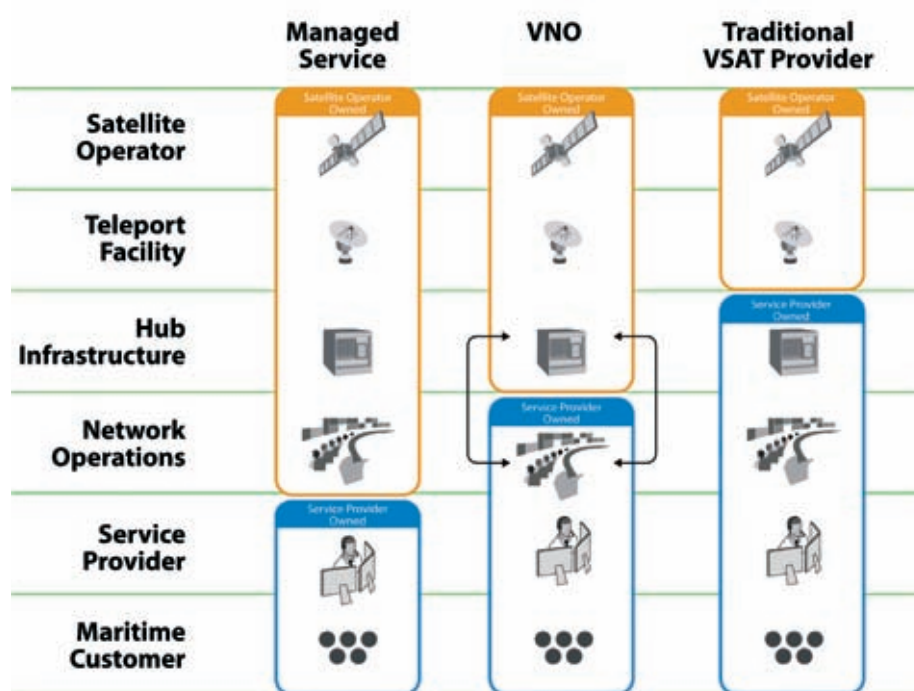
With more capacity available to serve the market, maritime customers will have more options for choosing a VSAT-based broadband solution that meets their needs. And with more availability options, maritime companies can expect to see lower prices, more value-added features, and other benefits.

Making the switch

Given that there will be more choice for end users, what are some of the things that maritime customers should do to plan for this important change in the industry?

This is by no means an exhaustive list, but here are some of the preliminary steps

High-Throughput Satellite Business Models



Service on high-throughput satellites could be offered via a number of different business models

Maritime customers will also see more integrated terminals where the antenna manufacturers have built all the infrastructure and functionality into a more contained unit.

This means current VSAT users can upgrade their existing networks to accommodate high-throughput satellites quickly and efficiently. It also means that ships not using VSAT can deploy the technology for the first time at a lower cost, opening up a greater segment of the maritime market that includes small to mid-sized shipping companies, fishing vessels, yachts, and other specialised vessels.

High-throughput value chain

In addition to impacting the cost of satellite capacity, high-throughput satellites will also have a strong impact on the way that satellite is delivered to end users.

By their nature, high-throughput satellites are fundamentally different in terms of design and ground segment require-

ments than traditional satellites. Traditional satellites use large regional beams that cover an entire footprint with fixed capacity.

Due to the number of beams being used, a service provider would not have a hub or earth station within a single beam.

For a satellite service provider this means there will be a number of options for how they can get and offer service to the maritime market. Here are just a couple of examples of how the services might work.

- 1. Managed Service:** A satellite operator may decide to offer a managed service. In this model the satellite operator would control the satellite, teleport, hub infrastructure and all network operations and the service provider would manage the service provisioning and relationship with the end customer.
- 2. Virtual Network Operator:** In this model a satellite operator will own the satellite, teleport and control the hub infrastructure, but will allow a service

that maritime customers should take to prepare for high-throughput satellites.

1. Discuss high-throughput satellites with your current service provider –

If a maritime company currently uses VSAT technology, they should look at when their contract expires and begin planning for their next contract now. Many providers will be able to offer a range of VSAT services and high-throughput satellites may just fit into part of a broader connectivity solution. Maritime customers should ask their service provider partner about their plans for high-throughput satellites and what their strategy is for adding this technology to their portfolio. Ask about pricing, new features, and what

it would take to upgrade.

2. Research the technology – Learn more about what constitutes a high-throughput satellite network to see whether you're currently equipped for high-throughput satellite capacity. Again, you will want to talk with your satellite service provider to learn more about what it might take to capitalise on the expanded capacity.

3. **Understand your application requirements –** Maritime companies may have a long wish list when it comes to communications. Make sure that there is an understanding throughout your organisations about the increased capabilities that satellite can now offer. Find out the application requirements

from the different parts of your organisation including HR, Operations, Procurement and IT. They may want high-speed internet access, streaming video, efficient ship-to-shore communications, business collaboration tools, and more. High-throughput satellites promise to make many of these applications a reality.

As you discuss high-throughput satellites with your service provider, explain what applications you want and see whether they can provide them. Ultimately, high-throughput satellites will expand the adoption of maritime broadband connectivity for the betterment of the entire industry.

They will offer a more cost efficient way to deliver high-quality communications, global coverage, and seamless mobility, giving maritime companies the flexibility to choose the services they need to expand and improve their business and the lives of the crew onboard.

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About the author
Terry Neumann is director of corporate marketing at iDirect. iDirect provides a VSAT platform used by maritime satellite service providers to deliver solutions to the maritime market.

Vizada extends VSAT service

www.vizada.com

Vizada has announced that it is to extend the coverage area of its Pharostar Ku-band VSAT service, and is introducing a range of new packages to appeal to a wider section of the market.

Pharostar's coverage area is planned to be extended twice this year, to offer services for vessels operating in the South Atlantic and Indian oceans. The service can be combined with a mobile satellite service (MSS) back-up for full global coverage.

The new range of service plans will be based on 'data allowances', differing from a more common 'throughput-based' VSAT offering. Packages will start

from 5GB for an airtime cost of \$1,000, with top-up options available.

New 60cm and 80cm Ku-band antennas have been also been added to the portfolio, to supplement the existing 1m version. Data rates of up to 1.5Mbps will be offered.

"These additions are the latest components in our strategy to offer the largest choice to the maritime community and to develop the most comprehensive maritime broadband solutions portfolio in the market," said Ghani Behloul, Vizada chief marketing officer.

"They will allow us to welcome more vessels onto our network and contribute to improve the service for the existing ones."

IsatData Pro integrated into Fuel Monitoring system

www.skywave.com
www.kemilink.com

Kemilinks International has become the first company to deploy the Inmarsat IsatData Pro system from SkyWave Mobile Communications, integrating the service with its Fuel Monitoring System.

Kemilinks' Fuel Monitoring System is built to interface with any flow meter model and other sensors such as engine control panel, anemometer and GPS, to capture data regarding engine RPM, engine load, propeller pitch, propeller load and rudder angle.

Data can be sent back to shore over the IsatData Pro satellite system, allowing graphical trending

reports to be analysed at the vessel's corporate headquarters, to determine the best ways to maximise efficiency.

IsatData Pro can deliver up to 10,000 bytes of information to the device and up to 6,400 bytes from the device.

"The efficiency this design offers to onshore management is unrivalled and it comes at a very cost effective price," said S. H. Tay, director of marketing and projects for Kemilinks International.

"Benefits include always knowing the location and operational performance of the vessel and having the capability to immediately make effective directives to correct operational inefficiencies."

4G networks for US Navy

www.batswireless.com
www.cambiumnetworks.com

Cambium Networks and Broadband Antenna Tracking Systems (BATS Wireless) are to provide a wireless point-to-point (PTP) radio and antenna tracking solution which will be incorporated as part of a 4G mobile communications networking project for the US Navy.

The project, being led by Oceus Networks and using its Xiphos family of mobile 4G LTE network systems, will see the system to provide onboard and ship-to-ship broadband data and communications piloted by the Navy as the first US Department of Defense operational deployment of Fourth Generation Long-Term Evolution (4G LTE).

The Cambium and BATS Wireless systems will provide a ruggedised, self-optimising wireless network for ship-to-shore, inter-ship or intra-ship broadband applications.

The systems also allow for a number of mobility scenarios, including fixed (tower to tower, building to building), fixed to mobile (ship to shore, air to ground), and fully mobile deployments (ship to ship, air to mobile command).

"By incorporating BATS antenna tracking capabilities and Cambium's strong and reliable PTP system into our Xiphos-based solution, we're able to offer defense customers a broadband solution that will allow ships to communicate with each other even in the harshest ocean conditions," said Cal Shintani, chief growth officer, Oceus Networks.

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