

# VoIP doesn't have to be a bandwidth hog



A new generation of High Throughput Satellites, supporting much higher bandwidth present new opportunities to maritime, energy and offshore users used to the reliable if unspectacular performance of L-band. HTS services, designed for mobility customers and theoretically offering connectivity at speeds close to land-based broadband, could finally usher in the connected ship; fully wired for data gathering, energy efficiency and crew welfare and enjoying always-on communication with the shore.

The constraints of satellite delivery mean that applications such as video-conferencing and VoIP must still be fine-tuned for use at sea, writes **Martin Killian\***

Even before the first HTS satellites are in service, the changes are already apparent. Just like their shore-based counterparts, officers and crews are being promised ever-increasing bandwidth and apparently unlimited data plans. A recent mar-

itime industry communications conference heard an airtime distribution partner describe a crew email and internet service which had to be controlled not for amount of web pages downloaded but by time, in order that crew got their mandated hours of rest.

So the stage seems set for if not a revolution then at least continued evolution. A step change from sub-broadband communications speed to consistently available 512Kb-1Mb services and above promises to open the door to a range of applications, moving the crew from



phones and email to always-on internet; replacing scarce ship-board data with structured information drawn from real-time monitoring and optimisation systems too. There are regulatory drivers; tracking, monitoring and electronic chart updates and many potential value-adds; remote management and IT support, scheduling, weather services, VoIP and videoconferencing.

But with this evolution comes a short term risk; that airtime vendors and service providers are raising expectations beyond what can be delivered onboard ship in a cost-effective and practical manner.

### Reasonable request

The torrent of data that we experience ashore, to a growing variety of devices, has also forced the pace of application adoption onboard ship, principally because seafarers, not unreasonably, would like to do the things

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afloat that they do ashore. These include enjoying not just unfettered access to the internet but using applications for chat, voice and video calls.

As a result, this area of data traffic is booming, even as voice calling continues to decline. But the reality is that outside VSAT installations, it will be a long time before the vast majority of ships get to experience anything like HTS throughput. Many may never do so. This may be good news for legacy L-band providers but for shipowners and their crews, there will be a long tail of demand not just for L-band but for applications which are specifically tailored for use over maritime satellite connections.

Demand for VoIP and video chat onboard ship is growing strongly. Ship visits by Globecom Maritime staff often

start with the crew asking if they will be getting video chat or instant messaging 'this time'. On one occasion, an engineer dispatched to work on the communications system was button-holed at the top of the gangway and the scuttlebutt made its way around the ship so fast that the rest of the crew had asked him the same question by the time he left.

But even though demand is increasing, no-one should imagine that well-known applications such as Skype are designed for, or suited to, use onboard ship. Because they usually are free to download, the perception in the user's mind is that they are somehow free to use too.

In fact, the opposite is true. Using current voice and video chat programmes onboard ship over a data circuit will chew through bandwidth faster than you can reload a scratch card. In doing so it distorts airtime traffic figures, bolstering the impression that demand for crew data usage is virtually unquenchable.

### Unintended consequences

The law of unintended consequences has contrived to create a situation where on a ship with more restricted bandwidth availability, the majority of traffic will be business communications. Install a VSAT or a larger Inmarsat access plan and the business portion diminishes as the crew make more and more use of the internet, chat and the like. But they will end up with much higher bills if they are paying for the access themselves.

So what's the way forward? It would be easy here to say that the maritime industry is old fashioned and a lagging adopter of new technologies and leave it at that. But the fact is that mariners and managers alike want to be able to use these technologies.

Videoconferencing in particular has been touted for a decade or more as the solution for fixing technical problems without the need to dispatch an engineer to attend the ship. As a driver of

crew welfare, the value of VoIP and video can hardly be denied.

It is Globecomm Maritime's contention that shipping will to some extent continue to be subject to severe limits on bandwidth compared to shoreside users. Therefore, to deliver anything like a shoreside experience, ships will need to work smarter with their bandwidth, using optimised hardware and software products that keep bills at reasonable levels while giving access to the services that users need.

In anticipating that the trend towards crew usage of voice and video over IP channels will likely continue, Globecomm has been examining how to make these services deliverable in a context that works for both shipowner and seafarer.

Two new Globecomm Maritime products, Access Chat and Access Chat Plus, have been specifically designed to address this requirement, offering a high quality VoIP and video chat experience which is specifically designed for shipboard use. Access Chat provides instant messaging and VoIP calling/conferencing while Access Chat Plus provides the same with the addition of video calling/conferencing.

### Lightweight solutions

AccessChat and Access Chat Plus are very 'light' products both in terms of set up and data usage. Both applications are no more than 1Mb in size and can be installed easily and quickly on any Windows or Android device (an Apple operating system version is due in Q2 2013) or a USB stick, enabling them to be used across multiple devices.

Both can be installed without the need for proprietary ship-management software, making them convenient for crew. Access Chat and Chat Plus are not free and each user will require a licence key to use it.

But the key difference is in their bandwidth optimisation. There are a number of means of calculating data usage over VoIP, but for the most common application, all the results average

around 1.38Mb per minute for voice, 7.5Mb per minute for a video call and 30Mb a minute for video conferencing for three people. To find out how much maritime users might be paying – and how much they could be saving – we ran some comparisons.

In our tests, a two-person, voice-only, three minute conversation over a typical VoIP application used 4.14MB of data. Over Access Chat, just 575Kb was used. A six-minute video and voice chat between two people over Access Chat Plus generated data traffic of just 2.9Mb. Over standard VoIP, the same call would use 8.2Mb.

Finally, a 30-minute video chat session between four people, three of them using video, one using voice only, would run to about 900Mb using commercially available video conferencing products. Access Chat reduced the data load to 11.7Mb.

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Bandwidth usage over Access Chat is configurable per user or customer and can be adjusted on the fly by the user. It will also work effectively on narrow bandwidth. VoIP calls can be made over data pipes as low as 8kbps and video calls with throughput rates as low as 40kbps. Typically, a user will get the same quality as a typical land-based call but will use 10% of the bandwidth.

Access Chat and Access Chat Plus are available in a range of pricing options for corporate and crew use, with customised pricing available when the service is bundled with Globecommm Maritime airtime service contracts.

### Reality check

We have been hearing for at least a decade about the revolution in

maritime communications. And it could be that for some users the HTS era will deliver them a much better internet experience at sea.

But that revolution is not going to reach everyone. Many shipowners and managers will continue to keep bandwidth tied down and seek out highly specialised and optimised products to meet the demands of a new generation of crew.

We can be certain that the demand for better communications for bridge and crew will remain and grow. Now a solution that fits the need is available, affordable and practical, shipowners need not deny their crew access, but instead put the right tools in their hands. 

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