

Live video chat onboard ship – a reality check

The promise of ever greater quantities of bandwidth and airtime is re-shaping maritime communications, but the constraints of satellite delivery mean that applications such as video and VoIP must still be optimised for end users, writes Martin Killian, Globecomm Maritime

Maritime communications have come a long way in a short space of time and the near future will see them go further at an even faster pace.

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

scheduling, weather services, VoIP and videoconferencing.

But in step 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.

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 afloat that they do ashore.

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.

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.

Optimising for maritime

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.

But despite the changes taking place, 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.

The applications need to be 'light', both in terms of set up and data usage, be as operating system-neutral as possible and be capable of being held on a USB stick for use across multiple devices.

Crucially for crew access, they must be able to be used without the need for proprietary shipmanagement software.

They may not be free, but they must be

able to demonstrate significant improvements in bandwidth optimisation. Ideally, that usage should be configurable and able to be adjusted on the fly.

They should work not just with broadband and VSAT but also work effectively on narrow bandwidth.

Data usage

There are a number of means of calculating data usage over VoIP, but for the most common landside application the results average around 1.38 MB per minute for voice, 7.5 MB per minute for a video call and 30 MB a minute for video conferencing for three people.

Tests conducted by Globecomm comparing data usage of a typical VoIP/video chat application and a product designed specifically for use over satellite produced some interesting results.

In our tests, a two-person, voice-only, three minute conversation over a typical VoIP application used 4.14 MB of data. Over an optimised programme, just 575 KB was used.

A six-minute video and voice chat between two people over the same optimised application generated data traffic of just 2.9 MB. Over standard VoIP, the same call would use 8.2 MB.

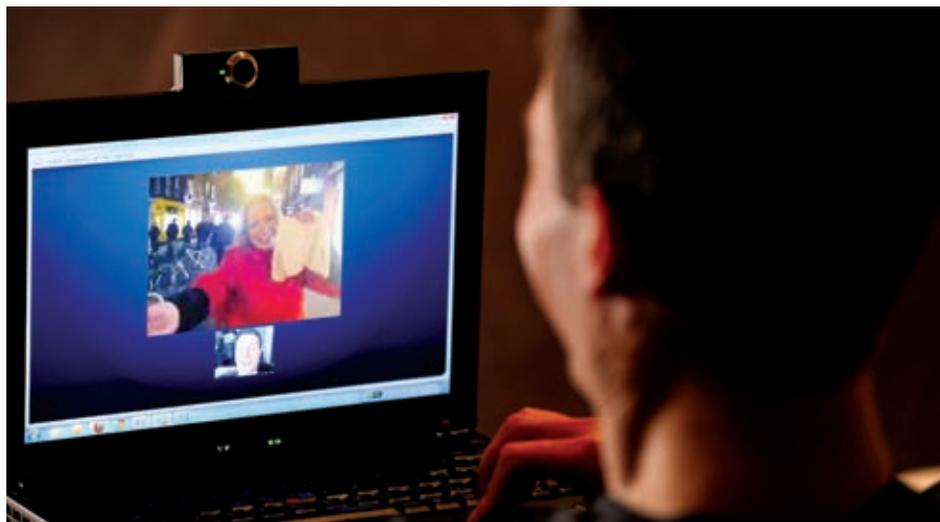
Finally, a 30 minute video chat session between four people, three of them using video, one using voice only, would run to about 900 MB using a commercially available landside video conferencing product. An optimised specialised product reduced the data load to 11.7 MB.

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. Once solutions that fit the need are available, affordable and practical, shipowners and managers need not deny their crew access, but instead put the right tools in their hands.

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Terrestrial video chat applications, like Skype, can average around 7.5 MB per minute for a video call – a bandwidth level unacceptable in the maritime environment

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.

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 maritime industry communications conference heard an airtime distribution partner describe a crew e-mail and internet service which had to be controlled not for web access 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 512 kbps – 1 MB services and above promises to open the door to a range of applications, moving the crew from phones and e-mail to always on internet; replacing scarce shipboard data with structured information drawn from real-time monitoring and optimisation systems too.

There are also regulatory drivers; tracking, monitoring and electronic chart updates and many potential value-adds; remote management and IT support,

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 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 our 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 such applications are designed for, or suited to, use onboard ship. Because they usually are



About the Author

Martin Killian joined the Telaurus subsidiary of Globecomm in 2010 and has been the VSAT product manager of Globecomm Maritime since the brand was launched in 2011. Prior to that he worked at France Telecom Mobile Satellite Communications and subsequently Vizada as an Account Manager and Director of Commercial Sales, Americas. Martin holds a Master of Science in International Business from Florida Atlantic University, as well as a BS in Marketing from FAU.