

by Alan Gottlieb

**Inmarsat, traditionally the dominant player in shipboard communications, is rapidly losing ground to VSAT alternatives as the demand for fixed-price broadband goes to sea. The rapidly evolving desire for high transmission rates at 512 Kbps and above in the large merchant shipping fleets, along with requirements for gigabytes of data transmission per/month, means Inmarsat's data hungry, high-end users will move to take advantage of soon to be complete Global Ku-band coverage.**

Traditionally, 80 percent of most company's revenues come from 20 percent of their customers. If that rule holds true for Inmarsat, then 20 percent of **Inmarsat's** customers — and 80 percent of its revenue — could move to Ku-band. Just at **Motorola's Iridium** service was rendered largely obsolete by global GSM coverage, Inmarsat's i4 satellites now face a similar fate.

C-band has been largely confined to oil industry and cruise ship markets. This is due to the size and cost of a 2.4-meter antenna. However, recent changes in Ku coverage, along with innovative technology advances in IP switching and automatic antenna re-pointing technology, combine to offer mainstream shipping markets

the advantage of a smaller, and much less expensive, 1-meter VSAT antenna along with fixed-price broadband. The availability of Ku over major ocean shipping routes, and the technologies to exploit it, are recent developments that extend the availability of unlimited voice and data access right into the heart of Inmarsat's richest market, a development largely unforeseen by architects of the i4 network.



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When **FleetBroadband** was conceived, Ku coverage was largely confined to the continents. Only C-band and global beams and Inmarsat were available over deep ocean routes. With the launch of the now abandoned Boeing Connexion service, Ku availability over Pacific and Atlantic Ocean became a reality. Since then, major VSAT operators have been quick to recognize maritime VSAT market potential. They have added, or are adding, additional Ku coverage to complete a worldwide network of overlapping Ku Beam footprints.



Telstar-11n

In December of this year, Telesat's new **Telstar-11n** satellite will extend Ku coverage across Europe as well as U.S. routes to South America. Eutelsat has just announced planned coverage of the Southern Indian Ocean. These satellites will complete a network of nearly 20 satellite beams that will make it possible to circumnavigate the globe under Ku coverage. Despite this coverage, however, Ku service providers cannot assure coverage of all locations — Ku does, of course, suffer from susceptibility to interruption due to rain fade. To overcome these obstacles, a clever Ku/L-band and hybrid system is rapidly being deployed. It is this system that represents the greatest threat to Inmarsat.

## The Ku/L Band Hybrid

The Hybrid involves the deployment of Ku service and the use of **Inmarsat-i4** or **Iridium OpenPort** as a backup system. Integrating the two services is facilitated through an IP switching device manufactured by several firms. Perhaps the best known and frequently deployed is the **Commbbox**, manufactured by **Virtek** in Norway. Designed specifically for maritime use, the Commbbox essentially offers **least-cost routing (LCR)** intelligence. When Ku is available, all transmissions

are routed over the Ku. In addition, the Commbbox can store large file transmissions, which are not urgent, until Ku is available. Hence, the L-band system is relegated to limited use as a backup system only. With Ku coverage increasing, it is easy to see that backup L-band will be required less and less, further reducing revenues to the L-band providers. Of course, the final question is how will ships' crews re-point the Ku antenna as the ship traverses from one Ku beam to another?

The final component of the hybrid is the automatic beam re-pointing technology recently developed by **iDirect** and **Vipersat**, a division of **Comtech EF Data**. Activated through a software upgrade at the hub and the placement of a special server aboard the vessel, Seatel antennas can now be automatically re-pointed without crew intervention. A ship can circumnavigate the globe seamlessly passing from one Ku coverage area to the next.

Of course, the implications to the L-band providers are obvious. As the demand for transmission of large amounts of data increases and higher speeds are in demand, pricing by data volume becomes uneconomical and the Hybrid system becomes the only logical choice. Yet, the question remains, what will drive the demand for high volume, fixed-cost transmission?

## What's Driving Broadband Adoption at Sea?

In a recently completed study of the maritime communications markets, **Gottlieb International Group** surveyed containership, tanker, and bulk shippers in Greece and Germany. Essentially, we found that most operators were "throttling" their use of pay-by-the-byte Inmarsat services to around \$1,000 per/month per/ship due to the high variable cost of usage. However, there was a strong desire to add numerous high data volume applications that, if implemented, would cause the cost of Inmarsat services to soar to an impractical, and unaffordable, level.

While many ship owners were containing the usage to less than 100 Megs per/month, the applications they really wanted to perform would have caused usage to soar to gigabytes per/month. Ship owners are now realizing that the cost of installation of a Hybrid system is justified by the vast array of efficiency enhancing

shipboard applications and benefits to crew. With fixed-price broadband, they could:

- *Centralize routine ship management on shore, thereby reducing personnel required at sea*
- *Implement fuel optimization programs automatically downloading wind and current data*
- *Perform remote PC Management including downloading patches and software updates to entire fleets simultaneously, thereby reducing the need to send IT personnel to the ships to effect software upgrades and diagnose and correct PC related problems*
- *Transmit data from ships' board sensors that report engine performance and fuel consumption*
- *Receive pages from technical manuals to facilitate repair of shipboard systems or hardware at sea*
- *Transmit data on cargo and crew to customers and immigration prior to docking, thereby saving time in port*
- *Video Conference*
- *Provide Telemedicine services*
- *Have low cost VoIP telephony capability at a huge discount compared to Inmarsat phone rates*
- *Provide cellular services at sea*
- *Track cargo*
- *Allow the crew to surf the Internet on unlimited basis — a practice that is now cost prohibitive*
- *Stream late news and entertainment*

### **The Speed of Change – Tough Choices for Inmarsat**

With so many advantages, the trend toward **Ku-at-Sea** is already underway. The only restraining factor at this point is the sudden and precipitous fall of shipping rates in the global recession with the resultant restraints to capital outlays. The fact that hardware and installation costs of a system are in the \$60,000 range, and that many customers have dozens of ships that must be equipped, has slowed the transition to the Hybrid Ku/L Band alternative.

However, as the recession passes — and they always do — the unstoppable trend toward achieving enhanced efficiency aboard ship through the adoption of high-speed fixed broadband will continue, forcing Inmarsat to make some tough choices.

Burdened by the obligation to recoup the high capital and ongoing operating costs of the i4 system, and threatened by a myriad of tough new VSAT competitors, Inmarsat will be forced to defend its turf. As L-band technology does not allow for unlimited, fixed price access at reasonable cost, we see Inmarsat's adoption of its own Fleet Broadband/VSAT offering as a necessary strategy to meet the rapidly evolving demands of its core market.

As most strategists will agree, adoption of new, and more cost efficient, technologies is an essential element of business survival.

#### *About the author*



*Mr. Gottlieb is CEO of Gottlieb International Group. His firm, Gottlieb International Group Inc., specializes in market research, business development, and sales of satellite and wireless communication technologies to Oil and Gas, Maritime, International Construction and Mining markets. His career encompasses an unusual diversity of background in many segments of the wireless industry including VSAT, Cellular, and Mobile Commerce. He has served as Vice President of Sales for Audiovox Communications; Director of Sales for Southeast Asia for COMSAT and Aether Systems; and Corporate Market Research Manager for a Division of Baker International (now Baker-Hughes). Mr. Gottlieb has been responsible for initiating and managing successful market entries into Southeast Asia and the South Pacific Markets, and assisting satellite related companies with diversification into new market niches and geographies.*

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