

Maritime VSAT Solution Sheet

Broadband at Sea: The New Imperative for Success

Across the maritime industry, the trend is growing toward IP-based applications. Whether it's more reliable ship-to-shore connectivity using VoIP, VPN or video, to smoother vessel operation via real-time condition monitoring, or improved crew welfare by providing Internet access and email, the benefits are substantial.

But for years, maritime networks have been restricted by narrowband, pay-per-use services forcing expensive trade offs and less than adequate connectivity.

The industry first experienced high-speed VSAT services that were built using SCPC technology which provided dedicated connectivity to each ship. But since SCPC connections were not tailored to the dynamic needs onboard the ship, they were often over-dimensioned, leading to a very expensive proposition for service providers and vessel owners alike. Shipping companies with small to medium-sized fleets were never able to afford dedicated connectivity and were forced to rely on costly pay-per-minute or pay-per-megabyte services as their only option.

Shared, Affordable VSAT Services to the Rescue

Fortunately, as technology has advanced, service providers now have a better choice for delivering high-speed VSAT services. Networks built using Time Division Multiple Access (TDMA) allow for the intelligent sharing of bandwidth to provide a more reliable, efficient and cost-effective option.

Furthermore, the falling prices and reduced sizes of stabilized VSAT antennas are expanding the market opportunity and propelling the uptake of TDMA systems throughout the maritime industry.

According to the Comsys Maritime VSAT Report the number of vessels enabled with VSAT technology will increase by more than 400 percent through 2012 and as the market leader in maritime TDMA networks iDirect is helping spur this growth.

On-board, high-speed applications:

IP-enabled Bridge

- ◆ Real-time business applications
- ◆ Common LAN infrastructure
- ◆ Corporate voice and videoconferencing
- ◆ Electronic Navigation/ECDIS

Vessel Operation

- ◆ Condition monitoring
- ◆ IT remote diagnostics
- ◆ Vessel/Engine telemetry
- ◆ Logistics and cargo data exchange

Crew Communications

- ◆ Cellular service and VoIP
- ◆ Email, web browsing
- ◆ Streaming video



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Flexible Bandwidth Allocation and Service Reliability

iDirect's unique IP-based approach to shared bandwidth, called deterministic TDMA, significantly reduces satellite bandwidth by dynamically allocating bandwidth to multiple vessels based on a bandwidth pool.

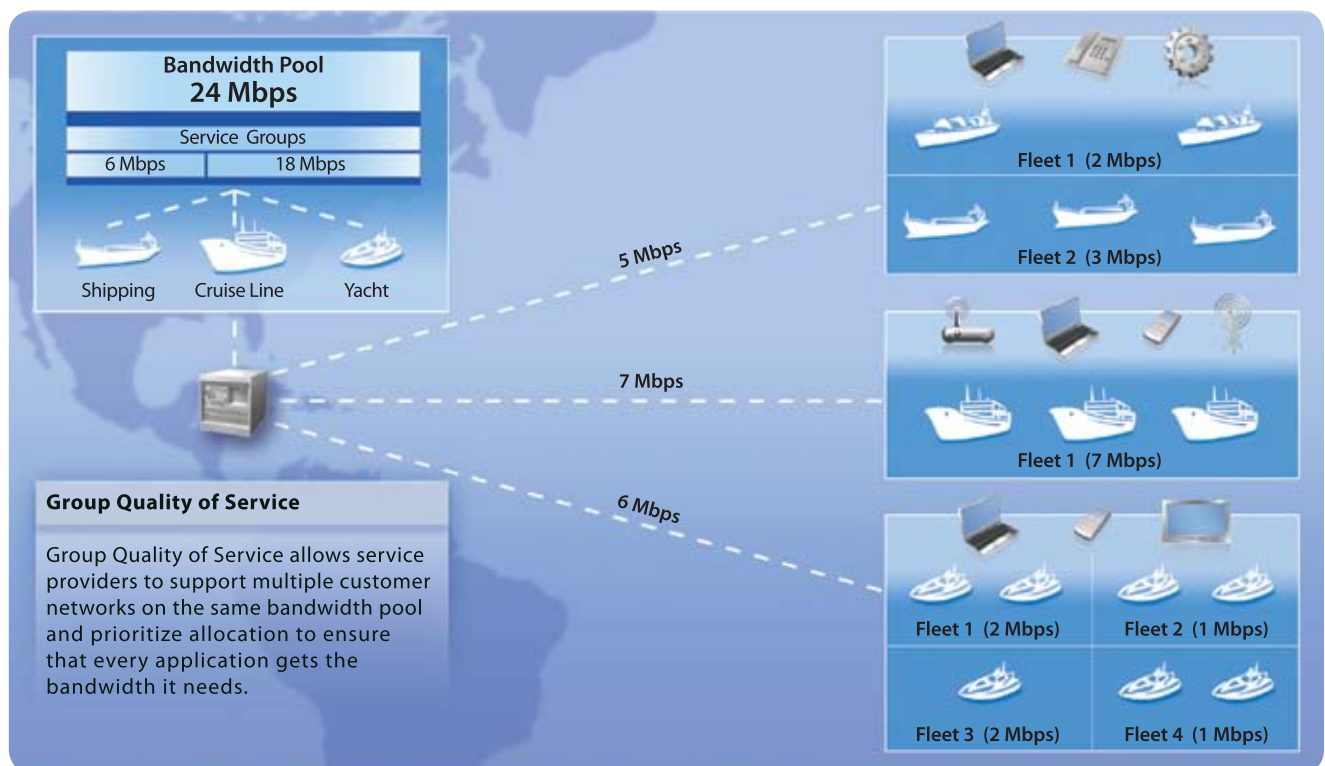
When coupled with iDirect's award-winning Group Quality of Service (GQoS) feature, service providers can segment bandwidth across multiple ships — even across fleets — and prioritize allocation according to each ship's dynamic requirements, all while protecting minimum CIR and QoS settings for high-priority traffic. This enables service providers to develop flexible service packages with accurate Service Level Agreements more cost effectively, without compromising guaranteed quality and reliability.

Scalable Network Expansion

iDirect's universal hub technology enables service providers to meet any global or regional need in the most efficient way. The modular design of the hub enables a service provider to cost effectively launch a network with a few line cards and limited bandwidth, and then scale effectively by adding new line cards as demand grows. Service providers can expand their network across regions on up to five satellites in Ku- or C-Band from a single hub.

For large scale networks, service providers can take advantage of even more efficient bandwidth technologies such as iDirect's DVB-S2 with Adaptive Coding and Modulation.

For service providers looking to launch a maritime service with minimal upfront investment in infrastructure, iDirect's popular Virtual Network Operator (VNO) model offers a more scalable approach: service providers can lease hub space from existing hub operators without compromising full control over their own network.



Easy Network Management

With iDirect's iVantage Network Management System (NMS) service providers can easily monitor, configure and control their entire satellite network.

A key component of iVantage is the Global NMS enabling service providers to manage and monitor each ship's remote from a single system as it passes through separate networks around the world. Global NMS enables every remote to have multiple instances in the different hubs while being uniquely identified by a fixed global IP address when travelling around the globe.

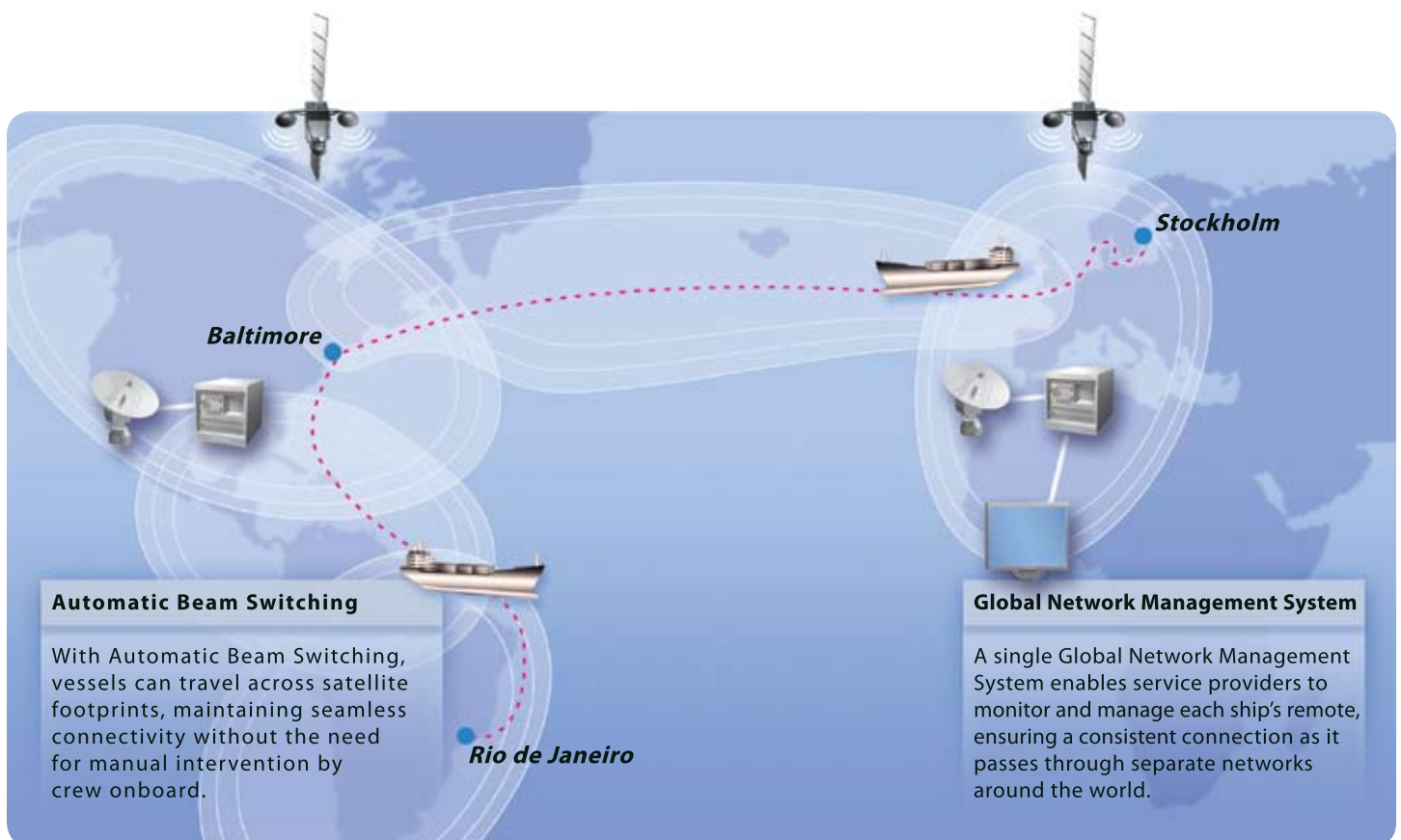
Another feature of iVantage is Geographic Mapping which provides real-time information on the status and location of each ship.

All of these features greatly facilitate the network management of global fleets and help ensure a consistent end-user experience.

Seamless Global Coverage

iDirect's Automatic Beam Switching (ABS) entirely eliminates the need for an onboard technician to manually handle the connectivity transition from one satellite beam to the next.

Through exact GPS positioning and constant data point comparison with the hub, the iDirect router determines the best satellite coverage at any time. When it is determined that a vessel is reaching the beam edge, the router initiates an automatic re-pointing of the antenna and transfer of the connectivity to the new beam, enabling the continuous delivery of communication services.



Supporting a Wide Range of Stabilized Antenna Models

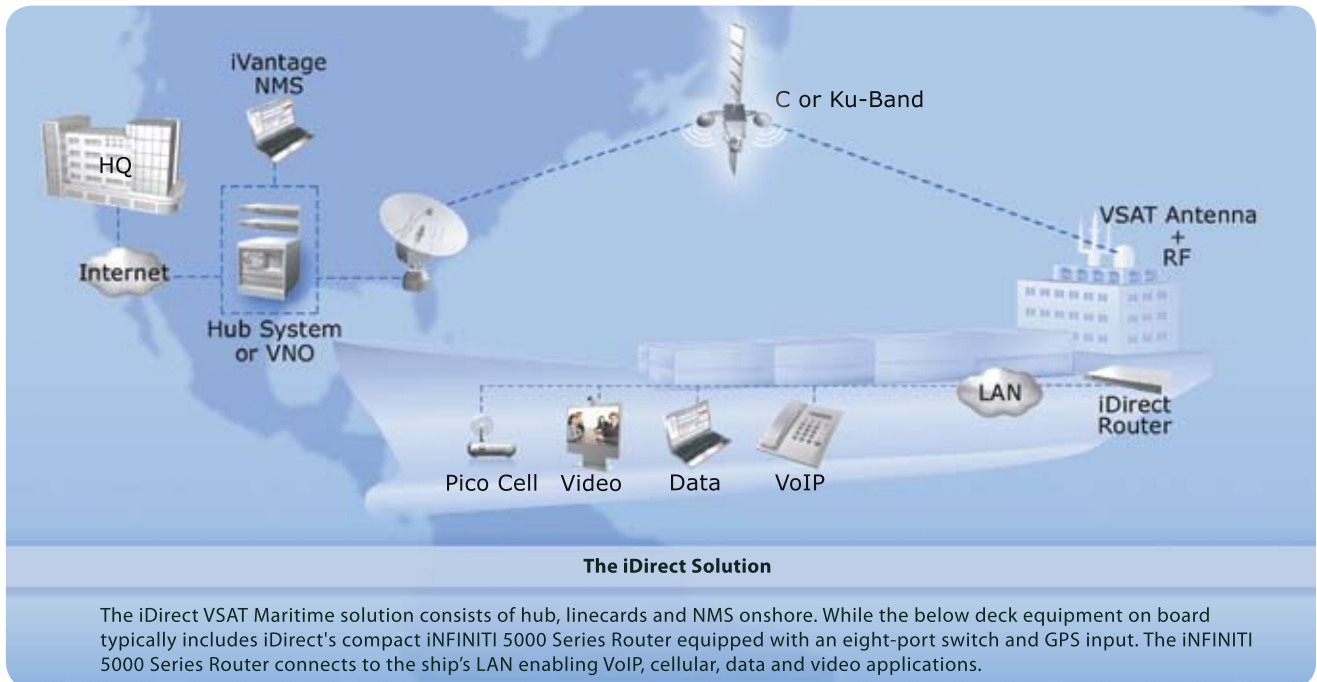
When designing a maritime network, service providers have a broad choice of stabilized antenna systems, ranging from sub one meter Ku-Band antennas for small vessels to 2.4m C-band antennas for the world's largest cargo ships. Although smaller antenna systems are more prone to cause adjacent satellite interference, iDirect's efficient spread spectrum helps overcome this issue, enabling reliable connectivity on ultra-small antennas onboard yachts.

iDirect's platform is antenna agnostic supporting all major stabilized antenna manufacturers. Whether through iDirect's continuous testing of new models or the implementation of OpenAMIP, an open-source standard designed to work seamlessly with the system's antenna control unit, service providers are always able to choose the models that best suit their customer's requirements.

A Sea of New Opportunities

The maritime market is growing rapidly. Vessel operators across all segments need always-on, high-speed connectivity to help them retain skilled maritime talent; increase the interaction between operations at sea and management on-shore; and realize cost savings that come with tighter operations and faster information exchange.

For service providers, these emerging requirements are creating demand for VSAT services and generating new business in an expanding market. With the iDirect intelligent platform and maritime feature set they can offer cost-effective, scalable solutions and always-on connectivity creating a sea of new opportunities.



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