

PROJECT USA 2007

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Communications & Innovations

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Andy Gifford	Telemar Yachting
Steve Scrapper	Maritime Telecommunications Network

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We now have three sorts of innovation sessions, three individual people are coming in for 15 minutes on communications & innovation systems. Andrew Levy, Andy Gifford and Steve Scrapper please can you take yourselves to the podium.

We're going to kick straight off with Andy Gifford. Andy is now general manager of Telemar Yachting, an Italian business that bought into the Larry Smith Electronics European operation when that all changed their corporate situation.

Andy Gifford Telemar Yachting

Good morning. It's nice to see a good crowd of people here. We've had the power, now we have the reason why we need the power.

Communication. Since the time of Adam and Eve communication has been an important, and often misconstrued, part of our lives. Something as simple as don't eat that apple received a Madison Avenue twist and became wow, that apple looks really great. And we all know the consequences of this story. Leaping forward in time, we have British Forces in their trenches during World War 1, sending a message back to HQ, it started out as *send reinforcements, we're going to advance*. By the time the message got to HQ it was *send three and fourpence, we're going to a dance*. The consequences here are just as obvious. One episode shows that communication can be loud and clear but people will do what they want to do anyway. The second could be the garble of communication in today's high speed life rendering the message incomprehensible. So what communication tool would lead an experienced mariner to be so excited as to make the following comments: "The system on board Lady Lauren has proved to be a great success with the owners being able to work on board as if they were at the office. This advantage has trickled down to the management of Lady Lauren with the ability to always be connected to the outside world. It makes day to day operation management much smoother with regard to being able to communicate immediately. It has also put us at an advantage in the charter market being able to offer this service. We of course charge for the service but the guests feel they're getting a worthwhile product for their money. From a safety point of view, I get instant weather, and routing information which makes for a safer run yacht. We use the system connection continually and I cannot think of a day when it was not utilised by either the engineer looking for spare parts or me doing passage planning with the availability to access Google at any time you wish". That was sent to me by Captain Chris Callaghan from sailing yacht Lady Lauren. So let us take a brief look at the modern day communication systems that are available for every yacht today and one that is just around the corner. For this we will use a much overused form of communication known more commonly as death by powerpoint. However as the following is on your delegates' CD I will breeze through

quickly and thus trust your deaths will be relatively painless. The first slide here is a good one to start off from the West Coast because this is the owner of a West Coast vessel; this is his sailing yacht Maltese Falcon, this is a vessel we did last year, or we finished last year, obviously as you know it takes a few years to put these together. It shows a good example of a typical modern day mast where you can see two Fleet 77s on the top, a satellite TV system on the port and on the starboard side we have a VSAT system for communications. So just a typical example of where we're at today. Just a quick update on what's available on the market today. There's the usual, equipment manufacturers, providers, all the services that are coming to you each day. Here's Inmarsat. Inmarsat has been accused of being behind the 8 ball on VSAT and broadband in general and I think everyone would agree with that. Their new products are coming out, we're all familiar with them, most of us have been around—either the grey hair or the no hair bunch—have been around from the Satcom days of where do I put this huge dome on an 80foot yacht, now the yachts are 80metres and we have smaller domes. So that's kind of how it goes in this business. But we see the generation from Satcom A to Satcom B which then became Fleet and the latest Fleet products that are out now are called BGan, and we would call them Fleet Broadband. And they're going to be available, I'll show you some more detail on these here in a few minutes. Here we see, if you look at the two items on the far right, the newcomers to the market would be the Fleet Broadband 500 and the Fleet Broadband 250. The first two points to note about these from a builder's standpoint or from a project manager's standpoint is the size and the weight of the actual antennas themselves. These have come down to a much smaller size, more along the lines of what we know as Fleet 55, no more Satcom A sized domes for this type of performance. The second thing is the speed of course has improved to something that it's hard to say broadband, but from a marine standpoint the speed has improved to something that's a little bit better than what it's been in the past. So this is available here. As usual with Inmarsat, the one big advantage it has always had over VSAT is a fact that it's a truly global product. The broadband system, the new BGan system, will be available as of November. There is a slight hitch in the programme though, they've got 2 of the satellites launched and the third one is sitting in the garage waiting to go up. The last satellite that was launched off the platform which is a ship based down by the Equator, it actually blew up on takeoff and so it damaged the ship. So Inmarsat is having a tough time finding someone to launch the third satellite which will give them true global coverage. At the moment Atlantic Ocean is covered, and the Indian Ocean. Pacific is the one that hasn't been launched at this time. So they're covering with just 2 satellites at this time. There is as yet no date for that launch to take place. VSAT services? My colleague on the end, Steve, will be talking about that a little later. I think most of us are familiar, it's probably until the new broadband came along, it's the latest and greatest entrant into the market and as you heard from Chris on Lady Lauren, and I'll give you a talk from someone else in a minute, it's definitely a product that's really taken the marine market by storm. A little bit of the coverage of VSAT to compare to Inmarsat is that basically the coverage is central Europe and the Americas; the rest of the world coverage is coming slowly but surely. And here's a quick comparison between the two. You can read it up on the screen for yourselves; the big point is that VSAT has the capability to do very high data rates. Inmarsat is always going to have limited capability but Inmarsat will be global, VSAT is always going to be regional. So just to finish up, here's a quote from Chris Gartner who was on the first vessel, Maltese Falcon. "To whom it may concern. Having broadband on board Maltese Falcon has changed my way of running a boat. It makes everything as convenient as it could be in the office. We have become so spoiled by our VSAT that when it's blocked or we are not in the footprint, we find ourselves relying on the very slow and very expensive Fleet 77s and we feel like we've been thrown back in time. If a yacht does not have broadband on board I'm sure that they will soon do, as the convenience is something one cannot

live without, whether it's on a 20metre or 150metre motor yacht. Make sure it's in your spec or that you have one retrofitted on your yacht a.s.a.p. Captain Chris Gartner, Captain, Maltese Falcon." Thank you.

Martin

Andy, thank you very much. Andrew?

Andrew Levy Great Circle Systems Inc

Good morning everyone. My name is Andy Levy and I'm the CEO and chief technical officer of Great Circle Systems. And I think our presentation fits in very nicely actually with what Steve and Andy are talking about today. Which is managing your onboard communications. Real briefly, this is what Great Circle Systems does. In a nutshell we specialise in everything IT for yachts. And if you have any questions about any of these things I'll be glad to talk to you about it afterwards and also my colleague Steve Carlec is here as well. By the way Steve did most of the photos in this presentation so I just want to give him credit for that.

OK. So why would we be interested in managing onboard communications. I kind of date myself with this picture here, a show of hands who in the audience has no idea who this person is? Alright well, this is Ernestine, the telephone operator, you can talk to someone who has watched a lot of television back in the 60s and 70s and they can tell you more. At any rate we'll have 6 scenarios that might be compelling reasons why you'd want to have some sort of system on board to help manage VSAT and Inmarsat and in fact a variety of other communications that you'll find on a typical yacht. One is that we want to be able to switch smoothly between all the available systems. VSAT has become quite prevalent and that might actually be running very consistently but it's not always available so what happens if VSAT is down for some reason or not available in the region you're in? And the only person who knows how to switch isn't on board the boat today. How do you manage that? Some of the systems can be very expensive to operate. True story—I got a phone call from a captain who had heard about us and said we put this beautiful new Fleet 77 on our boat and I thought I was operating in the MPDS mode, which means you only pay for the amount of data which is transmitted, and it can be on full time. Turns out he was operating in the ISDN mode which you pay for at about \$7 a minute. And this system was running 24hrs a day for the first month of operation. The first month's bill was \$120,000. We use our systems to download our email, and as most of you know, a lot of email can be SPAM these days. Maybe 50% of the mail you get is SPAM. How do you prevent wasting band width by virtue of downloading all this unwanted email. As Andy alluded to, a lot of owners will want to work on their boats and expect to be able to do so just like they are in their office and so we want to be sure that we can provide this VPN access, Virtual Private Network access, not only over the VSAT system but in fact any of the available communications on board, that might be a WiFi connection in a marina, it might be a GSM connection. Or any of the other available internet connections. More and more these days you'll have a charter guest on board and they are going to expect that they can use the computers on board, or in fact their own notebook computers, just like they would in a hotel. How can you keep that charter guest happy. You might envision a scenario where an owner wants to participate in an internet video conference and for some reason the video signal is just very poor quality. Or it turns out that a crew member is downloading the entire Beatles catalogue to his iPod at the same time and that's the cause of the problem. So here's a list of the different internet connections that you would find on a typical motor yacht these days. I won't go into any of the details, if anyone has questions about these things, of course Andy already addressed the new things coming out

from Inmarsat, and Steve will be talking about VSAT, those two in fact alone are not even sufficient. Most yachts will have several other types of internet connectivity available on board and we want to be able to manage utilising all these different connections. Given the 6 scenarios and many other possibilities for using internet on board, what are a typical owner and crew's needs. Well, we want it to be available as much as possible. That's one. We would like to manage the costs. But it's not just cost, it's really getting the best balance of bandwidth performance and cost. We want to be able to control access to the internet, in other words on a user by user basis and on a computer by computer basis on board, who has access to which connection. We want to prevent unwanted dialling of very expensive type connections like Fleet 77 can be, also even a landline, depending on which marina you're in, can be quite expensive to operate. GSM, depending on whether you're roaming or not, can be quite expensive. So we want to be able to control that. We want to be sure we have reliable email access on board. We want to be sure we can access corporate VPNs and other resources off the boat. We want to have protection against viruses, intrusion, from the outside—SPAM, basically what we call firewall capability. And it would be nice to be able to actually track the usage of this valuable resource, and in fact even bill for it and actually generate revenue from this, rather than it just costing money for the owner. And then a very important feature of having full time internet access is that it can provide remote support to the vessel for the IT systems and in fact many other systems on board, audio visuals, monitoring systems, all could benefit from remote support. OK. So what are some systems that would be available to provide management of the internet onboard? These are 3 different systems that I'm aware of. One is the Network Access Server 3000, which has been developed by Great Circle Systems, and then two other products, Service Selector from Live Wire and the Seawave Integrator. These are the respective websites, you can visit these to get more details of these systems if you're interested. This is a graphic I borrowed from the Live Wire website, and I think it does a good job in a simple fashion giving you a picture of how these systems work. They all essentially work as devices that sit between the onboard network and the communication devices. Depiction of the connections between the device and the internet connections are rather simplified but you get the basic concept. It's a controller or a traffic cop, managing all the incoming and outgoing internet access. And then here is a picture that I borrowed from the Seawave website, and it gives you an idea of the physical connections to the device. You can see there the LAN side, which would be the devices on the ship's network, and the WAN side is the various internet connections. OK. And then here is a picture of our system, the NAS3000. Our system differentiates substantially from Live Wire's and Seawave's in that we don't rely on any proprietary piece of hardware. Our software can run on essentially any high performance server. We typically will provide the server for purposes of efficiency but under the right conditions our software can actually be installed on any high performance system. So the NAS3000 is largely software based which gives us the ability to develop a very rich user interface, basically limited to the creativity and the skill of our programmers. So I'm going to run you through just some of the screens on the software interface and it'll give you some idea of the capabilities of the systems. The first is that this system operates on the server all the time; users of the system would log in and features of the system that they're allowed to use will be based on their log-in credentials. Then they can actually select which connection they want to manage. Whether it's VSAT, Fleet77 or a dial up connection over a landline. This screen is an example of actually a landline connection and a connection can actually be activated but not connected and if an authorised user attempts connection it will automatically dial, if it's a dial up type connection. So as an example, an owner who is on board might be given full access to any available connection but crew would only be able to use the inexpensive or broadband type connections. Another advantage of a software based solution such as this is that we

actually maintain a data base of all of the AT&T global dial up numbers world wide, as an example. And all of the GSM APM profiles worldwide, so no matter where you are in the world a crew member can very easily select where they are and hit a button and make a connection without having to spend time configuring the system. This is an example of how access is managed. The system will allow you to assign access based on a user basis and you can see that the columns on the right are all the various connections on board the boat, and for each user you can specify which of those connections they have access to. This user list is pulled right off what's called the active directory of the system, so it's integrated with the operating system of the server. And then here's an example of providing access for specific computers on board and again, this is integrated with the server, it interrogates in fact the entire network and gets a list of the computer systems that are on the network and again on a connection by connection basis you can specify which computer is allowed to access. The software actually has a user management capability, so that creating of users on the network, mailboxes on the network, are all managed through this interface so that a relatively unskilled crew member can do most of the basic network administrative functions through the NAS3000 software interface. The NAS3000 is actually a full feature email server as well, actually runs the Microsoft Exchange mail server, and makes it very easy to monitor emails that are coming in and out of the system, to ask for emails to be downloaded on demand if you'd like, or the mail can down on a scheduled basis. So it's conducive to living on a boat that may or may not have a full time internet connection, depending on where they're travelling and so forth. And then the last feature I wanted to show you was the reporting capability of the system. You can generate reports of internet use, for any time period, you can select which computers or users are to be included in the report, so as an example you may only want to report on the usage of chartered guests and exclude crew. And then those reports can be printed, or exported to excel spreadsheets and in that way can be used for billing purposes or for other management purposes. OK. So to summarise, what are the benefits of having a system on board to allow management of the internet connection. One is that it allows you to regulate the usage so that you can control the costs and maybe even more importantly optimise the access for owners and crew. So if bandwidth is limited, you can exclude non essential usage, and reserve that usage for the owner, as an example. It can generate some revenue by charter usage, reports and billing, we can eliminate waste and unwanted costs, we can be sure that we have access to the corporate VPNs. For the crew, it greatly simplifies how we switch between various connections. It's very simple, just by pointing and clicking in our software interface. The NAS3000 has an extensive database of connection profiles so it's very easy as the vessel moves around the globe to use the resources that are available in that area. The software makes it easy to manager users and mailboxes on the network. It makes it easy to manage the download and monitoring of the email. We have this firewall capability which is essential in today's internet environment. It gives access to a lot of trouble shooting utilities as well, so that again, a non skilled crew member could work with a technician and trouble shoot any problems that might be on the system. And then again, it allows the vessel to take better advantage of their remote support administration capabilities that are out there through the internet connection on board the vessel. And in that regard I did want to point out that Great Circle Systems have developed a remote support capability where we can provide assistance to anyone with an internet connection. It doesn't matter where they are in the world, it doesn't matter in fact even if they have firewalls that we need to get through. If they request support from us we can provide that kind of support, and if you ever find yourself in that situation, it could even be in a hotel room, you can actually go to our website and request remote support. And I wanted to make an offer actually to other vendors that would like to be able to provide that type of support to their customers, we can

actually give that type of capability to you as well and if you're interested we can talk about that later on. Thank you very much.

Martin

Thank you very much Andrew. Steve?

Steve Scrapper Maritime Telecommunications Network

Good morning. My name is Steve Scrapper and I'm vice president of product development for MTN. I too have a quote, Andy you started with one, which was really eloquent. But I was driving home a couple of weeks ago and we had just commissioned a yacht called the Solimar. And my cellphone rings, I answer it and hear this Australian accent, he says, *this is frigging brilliant*. And it took me a little while to figure out who it was and it was Captain Max, calling from the Solimar. So not quite as eloquent as yours, but I think it gets the point across of what we do. The owner's experience is so important. It was interesting yesterday listening to Tom, Hugh and Matthew, the yacht owners, talking about what they think of their yachts. It's their dream, it's their passion, their joy, their enjoyment. Then I also heard a lot of discussion, especially from Matthew about his frustrations with contractors and vendors which most of us are. And it's a point that we really need to take care of and pay attention to because it really is the owner's experience, they're spending millions of dollars to purchase these vessels and to operate them on an annual basis. What's the difference in the experience? MTN has been around for about 16 years, we started in the cruise industry, we provide the VSAT satellite communications for about 80% of the North American cruise market, which is about 135 cruise ships, Carnival, Royal Caribbean, Princess, all the major ones. About three years ago when I joined the company part of my task—superyachts started to come into focus for us, Sea Tel came out with a 1 metre 40.03, and to develop a product, my goal as the VP of product development was to be able to provide for the superyachts exactly the same service that the cruise ships have using the VSATS communications. And what's different about our experience and what we really focus on is a personal focus, coordination, flexibility and innovation. Our personal focus begins with everybody in our company. Right from the sales people to our project engineering, project management, installation commissioning and our operations. And we treat our yachts just like we treat our cruise ships. They get the same attention and the same commitment. This vessel here is the Sirona III, which is owned by the chairman of Carnival Cruise Line. He has several yachts, this is one of them—he has the Mylin IV, and when he was looking for a VSAT solution he went to his project managers and said I want the same thing my cruise ships have. So that's what they got. The same thing the cruise ships had but with the 1 metre Sea Tel antenna. What was interesting about this yacht is they were in Fort Lauderdale getting ready to go to Europe, they were going to leave on July 7th, we got the order on July 1st, of course 4th July is falling in there; and they said well if you can't do it now then we'll have to wait 6 months. We got it done over 4th July week and told them if they could do the cabling we could do the installation. So Micky Arison was able to sail away and the captain was happy. Part of the coordination of what we do is we bring in every system into our facility in Miramar, Florida, where we do the assembly, the integration and the testing of each and every system that we sell. We bring in the antenna, we put it all together, we put it up on a satellite, we build out the below deck equipment and then we test it, repack it and send it so that we know that every piece of equipment that arrives at the dock, because usually when it gets to the dock, you have a day or two before the installation it can be lifted up—we even send the crane straps to be able to lift it up and put it onto the vessel. Our network operations centre.

It's so important to be able to service these yachts on a 24 hr basis and just like with our cruise ships, and our military vessels, and oil and gas, is that we have a network operation centre that is 24hrs a day, 7 days a week, even during hurricanes they get boarded up inside there. We bring in beds and bread and everything else and that's where they stay. They monitor all the vessels so that all the ships listed there, they're all in green when they're up and operating. If a yacht loses its connection for longer than 15 minutes it turns red; we've had a few experiences where our people monitor—we always have a backup phone call, it's usually an Inmarsat number or something similar and our technicians will call after about 30mins and sometimes waking up the captain at 4 in the morning because he's asleep over there in the Mediterranean. We have an escalation process; if we can't fix it over the phone, we monitor it from shoreside, it gets escalated to senior technicians and then we have data and network engineers on call and they can work on the problems. Coordination space planning in our coverage—this is our coverage match for our C Band system that the cruise ships have and some of the superyachts, I think we have 2 yachts now that have C Band global coverage but we are expanding our footprint, where it says future for the North Atlantic and North Pacific here, then in 2007 the North Atlantic, we've already acquired the space but we haven't turned it on yet. And Africa and South America are well covered now. Our people spend a lot of time managing the bandwidths, as the owners, as you'll see in some of their examples in my other slides, the more they get used to using the system the more they want. The more bandwidth, the more capabilities. We've also built in some flexibility into our superyacht product that allows us, because we control the space of the bandwidth, so that when an owner is due to arrive, if they call us 48 hours in advance we can up the bandwidth for the time that the owner is on. Minimum of one month at a time. And then when the owner departs it goes back down to the base bandwidth rates. We also allow for a layup period of maximum of three months out of every twelve where the rate goes down to a stand by fee of about \$400 per month. Now these are some real life experiences. This is the Passion, the captain came into our office and they wanted VPN access, they looked at how much bandwidth do they really need. So we brought them in, and these graphs are available to our clients via the internet so they can go on and monitor how much bandwidth they're using, but this owner uses it for portfolio tracking and he has specific websites where he needs to go to monitor his stock portfolio on minute by minute basis so you can see on the graph below—the blue line on the top is what's coming down onto the vessel from the satellite, and they average when he's on line, 128 kbs and that's what he needs. So this is CIR which is committed information rate. That's what we deal with. We feel that it's important, and the yacht owners that are our clients feel that it's important that they don't share their bandwidth. There are some competitors and other satellite providers that do contingent ratios of 8 to 1 or 15 to 1, but ours are 1 to 1. So you get what you pay for and these owners really use it to operate, like you were saying Andy, to have their office on board so they can spend more time on board. This is the Lady Dahlia and her owner wanted 100% connectivity. We didn't care what the reason was. So on this shot we installed dual antennas with an auto hot switch so they have a primary when that one gets blocked for some reason, it's an auto hot switch so within 30secs it'll come over and the other antenna will take all the traffic. But this was not even enough. They needed a shore based service so that when the antenna is on there and they're on line, they're talking to a shore based server which is actually into the internet, because when the switch happens to the second antenna there's a 30sec delay, connectivity drops off, but when it comes back up it's connected back to that server. And they didn't lose anything. This is the Continental Drifter III and this has a very famous owner; Jimmy Buffett has been into our office, he's an incredible person, I tried to call him Mr Buffett but he wouldn't have it. He is a very interesting fellow; of course he wants his total VPNs, conference calling—but he was not able to pay for

his television. He wanted to order pay per view movie and he could order it, but not pay for it. So our engineers worked with a way to enable the pay per view or dish or direct TV over the VSAT systems. He also has cellphone service that we provided. We have a joint venture with AT&T wireless. It's on cruise ships, we're modifying it for superyachts and also with our parent company which is SeaMobile, they also have a superyacht cellphone service. Jimmy also does a lot of concerts down in the Islands, and he will take the video tape and the audio and edit it while he's on board the vessel and then uplink it over the satellite to his Marguerite ville cafes and bars and things like that. This could be interesting for your fleet managers out there—the people that manage programmes, but all our vessels come with Fleet Tracker, and you can see on the right, all those blue dots, those represent a vessel in our fleet for MTNs fleet. As a fleet manager you would have access to see where your boats are at any particular time and the one on the left that you can zoom in on a vessel and find out where they've been for the last 7 days, their current heading, their speed, the latitude and some other information. So what's different about MTN and what we try to do? We give them a personal focus, we listen to what they say, we've had 4 or 5 captains come in to our offices and we invite everybody here to come in and take the tour and see what we're doing. We're committed to them just like we are to our cruise ship customers. Coordination. We need to be easy to deal with and there's no excuse for not being able to do something. Flexibility. We try to build it in and innovation—we're constantly innovating and adding new products. So this means the owners are now enjoying their yachts. They're conducting business from their vessels, they're discovering new ways to use their VSATS services and they're renewing agreements with us. What's interesting, and we've had this happen three or four times, where the captains and the owners, they're actively promoting MTNs services to their friends and colleagues; so we get orders from the Captain Max, he was a referral from Captain Carl. So it works great for us. So they're pushing us for more innovations and new services. And it's a privilege working in the superyacht industry, interesting people, and we enjoy it tremendously. Thank you very much.

Martin

OK. Thank you Steve. You've heard what we have to offer, let's discuss what the problems are in the day to day marketplace. Any questions from the floor?

Gene Sweeney Marshall Islands Yacht Registry

I'd like to follow up on one of Steve's last comments, on the ship tracker, ability of the systems on board and if I'm correct, sometime in early 2008 under SOLAS and ISPS there's a requirement for all the larger yachts to have an LRIT system, a long range international tracking system, which I assume is similar, if not identical, to the ship tracker system that Steve mentioned. My question is how secure is that information? I know a lot of the yacht owners do not appreciate the fact that come sometime in 2008 when you're steaming around, the information as to where they are or where they've been or where they're going is out in the satellite world. Again, my question is, how secure are the transmissions?

Steve

That is an interesting point and we do have yacht owners currently that do not want the ship tracker feature. We of course turned it off. We do work for the national security agencies and department of defence and our signals are over a private network; they come back encrypted, it's not on the public internet so it's secure. We're working on more security for and we understand that in 2008 it's going to be

required and that's one of the products and services that we're going to be enhancing and offering to all of our clients. I don't know if that answered the question totally?

Graeme Lord International Yacht Collection

Steve, this question is for you. On the contention ratio, I didn't really grasp the graph you had up there. Is there now a way in which the yacht can manage the availability and confirm that it has the bandwidth that it's contracted to get, and it's guaranteed that bandwidth all the time?

Steve

That's a good question. With the MTM system there's a certain site you can go to—there's plenty of sites where you can do speed tests—and we have, specially with newly commissioned yachts, where they're buying a base package of 64K by 64k with burst ability, 128 by 512 down. That means if there's bandwidth available on the total network you can burst up to 512. So you buy the base package and that's what we promise—64k handles 4 voice lines, and that's how we pick that number, to make a voice call it uses 12 by 14 kbts, so you can have 4 voice lines active at the same time. They can do these speed tests, and we see them doing them for the first week or two and always they're able to get their 64k, with their CIR, now the maximum information rate they'll burst up to it, they see they'll get to it, or are almost there but after a couple of weeks then they don't even do it anymore. But you can certainly look at it and test it as much as you want and for as long as you want. And if you feel that you're not getting the bandwidth you call our network operations centre and they'll work with you to see if there's something else, if there's a virus in your system, which hopefully if you have Andy's system on board you won't have any. But yes, absolutely.

Martin

Any more hands out there? Eric?

Eric Goldring Goldring & Goldring

I heard you say that you can basically see what's going on on the yacht. My question is, how much of that data do you actually have access to? As opposed to confidential communications and emails and things like that?

Steve

Well, we just pass through it. We have no access to any of your voice calls, your internet or anything like that.

Eric

I just noticed that you said you can see when they're testing their system.

Steve

We see the bandwidth.

Eric

Right. You see the bandwidth, but none of the data is going through your servers other than that.

Martin

What about you Andrew? Do you have access? Can you make any stock calls?

Andrew

I think it's a matter of taking advantage, and implementing the security features that are available so if it's poorly implemented or if there's a need for security on board but the security is poorly implemented, in fact if you provide remote access capability, which is different from what Steve is talking about, which is just monitoring bandwidth, then everything potentially could be available for access and even when you are sending information over the internet for instance when you're downloading your emails, if you are not connecting to your email server through something called SSL which ensures security and encryption of the data as it's being downloaded, potentially someone could intercept the data that is coming into your network and put all the bits together and maybe read the information. It's not easy to do, and someone would have to work quite hard to do it, but in fact if you're not connecting to your email through secure SSL encryption or in fact any website through SSL encryption potentially information could be extracted from the stream of data that's coming or going to the vessel.

Eric

I was more concerned not about that, which is pretty much everyday knowledge, it was whether, utilising any of your services you have access to, or it gets filtered through any servers that you have, so it's sitting somewhere where maybe you don't it to be sitting.

Andrew

We don't house any of the vessels' data on our systems so there would be no issues there. In terms of the data that's on the vessel itself, it's a matter of what the vessel's requirements are and again how we implement security. So we can certainly set it up so that even as an administrator of the vessel we have access to the sort of lower level system functions that we need but we don't have access to sensitive data.

Martin

Thank you. Any more questions out there?

I have one general one for myself. Andy, really for you. What is the biggest limitation today in this market. Is it lack of people who know what they're doing? From a communications or internet point of view.

Andy

We were having this conversation at breakfast with some of the guys from Sharp Design, myself, and a couple of others. And I think Tom Lewis put it pretty well yesterday. I actually wrote it down somewhere. But I think he basically said at the end of the day it's the people. You can put a lot of money into your systems, like you were talking about your billing system and something like that; you can pour a ton of money into it, you can hire the best IT professionals, you can have the best data rate

available but at the end of the day how well have you trained your people who work for you to use that system. Do they actually understand what's needed and what works? And I feel that is the biggest problem we all have. It came up yesterday right across the board with the owners' panel. That they were all unhappy, about subcontractors, captains, or whatever. It comes down to the people. I mean I definitely disagreed with the comment that the builders should pay for training crew, so I asked the question this morning to one of the chaps and said well who trains the crew? What kind of system is there? I'm from a Navy background with 10 years in the Navy, within the first 6 weeks you knew exactly what you did, who you saluted, what you were doing, what your limitations were. And we had all the same issues as yachts, we all lived in cramped conditions, some ships travelled a lot, some stayed coastal. We all worked 24 hours a day if needed. It was the same thing. But the difference was there was a proper training programme there. I think us as vendors and builders, and whatever we are in this room, we need to take responsibility for our own companies and make sure that our own companies are trained properly, in that the lowest man on the totem pole knows exactly what it is he has to do and what his responsibilities are. And he has the tools given to him by his management team to be able to succeed.

Martin

Thank you. Andrew, any comment?

Andrew

Actually I would like to follow up on that. I think one of the advantages of having a management system on board is, it gives the crew tools that they need to give structure, and it also gives continuity, because crew are going to change over, but if there are well defined systems, that are well documented, it provides continuity and again through the ability to get remote support, typically the vendors, to the boat, are much more stable than the crew themselves. The vendors are in it year after year after year. So as an example we have vessels that we've been providing remote support to for 5-7 years and we have been through four to seven crew changeovers during that period of time. But we've been able to be the constant that provides stability for the vessel.

Martin

Yes, thank you. Steve.

Steve Carlec Great Circle Systems

I have a question for Steve Scrapper. What's the capacity for yachts using VSAT as the bandwidth, as more yachts get satellite systems installed. Is there a breaking point or do you just put up more satellites, how are you going to deal with that?

Steve

Well we don't put up more satellites. That's up to Boeing and some of those companies. But it's interesting over the last few years. With the way technology is changing, we are purchasing more bandwidth and acquiring more bandwidth on transponders and looking to buy 4 transponders worth of bandwidth. But technology—we work to an iDirect platform a couple of years ago, it was a \$3million investment for us but that allowed us to get the same amount of throughput without having to buy more bandwidth. There's some new technology coming out now that

will enable us to push through on the internet probably four times as much information, using the same amount of bandwidth. So it's a two prong approach; investing in the infrastructure and obviously technology, software, that's coming out, and also acquiring more bandwidth so that we can add on more yachts without affecting anyone else's services, and with our committed information rates, you buy it you have it, it's yours, no-one else can touch that, so we're trying to stay ahead of the curve. This has so far been the year of the VSAT as one of our customers said, it's just an exploding market. We're probably doing about 8-10 new installations per month now, with VSAT service, so we're very aware of the bandwidth. I think every new vessel, if there's 400 being built now, there's 300 that are over 120feet I think they're probably all coming with a VSAT system. And we are planning to take care of all of that.

Martin

So with that statistic, is there a capacity level?

Steve

No, actually we're planning not only for the superyacht but also for the commercial market and the oil and gas, the whole thing. So compared with the commercial market, with its 24,000 vessels, the superyacht with its 2-3000, I guess maybe, I think we're not going to have an issue with it. We expect to be growing and probably within 5 years to have 500 to 1,000 Ku-band systems out there and that's our plan and what we're shooting for.

Martin

And would you know how many yachts today have VSAT? Any of the panel?

Steve

Well I know that we are approaching 50 yachts, Telinor has I would guess say 50-100 and there's Stratos and a few others. So probably not more than a couple of hundred.

Martin

OK, so it's maybe 10% ?

Eric

As far as actual utility of each individual yacht, I tend to like the BGan system personally, and I don't know if—I don't know so I'm asking—if there's a sale of more bandwidth for a yacht than a yacht really needs. And if the BGan system, which is incredibly simple, and works, and you go transatlantic with it, and it functions, and it's something the size of a laptop, providing your wireless network as well, if that's something for \$3,000 that might actually suit what the superyacht business is as opposed to the far more expensive VSAT system.

Andy

It's a really difficult one. There isn't—I think you really should have both systems on board. There should be BGan on board, because that's

Martin

Do you sell them?

Andy

Martin!! Now you know why us Scotsmen don't get on with Englishmen. But we won't go there today. Yet.

I think there's room for both services in the market place, and I think Steve mentioned there where he talked about the ability to ramp up the bandwidth when the owner's coming on board etc; the BGan system is direct off the Inmarsat satellites; the one thing that worries me is, I guess coming from the Navy background, is that you should have good solid reliable communications. VSAT is good solid reliable communications when you're in the footprint. So my question is, what happens when you go out of that footprint. What goes on there. So I definitely feel there's the need for both and I don't think customers should be led by the nose to think a VSAT is the answer to all the things that could happen on superyachts communications needs. One thing that you mentioned, excess bandwidth, but one thing to remember is that the crew are on board all the time. We're working on a project at Fincantieri right now that'll have 55 crew members on board. So I think we really need VSAT on there to be able to operate and manage the ship. And the BGan system is more or less the backup, the solid, reliable, whatever. On the smaller yachts one of the things we're seeing, and I mean 50-60 metres, which is a bizarre statement to make, the VSAT system is a crew retention product as well, and that shouldn't be overlooked. We've all talked about during this conference the problems with having good crew, with having enough crew, you want to be able to keep your good crew, it's great if the crew can use Skype etc and call home, and be in touch, they all want that. And when the owner's on board they're all working very hard anyway so they're not disappearing off downloading huge things or watching CNN or whatever. So I think there's actually room for both systems on board. And then as you said, each yacht is absolutely individual. Then it's up to the owner to decide what he wants to do, what he wants to use, what access he wants to give the crew.

Steve

My experience is that the demand for bandwidth is ever growing, again it's a case by case basis. But very typically an owner is going to want to get as much bandwidth as he can possibly get. And once he gets a little bit more, he finds new uses for it and wants more and more. So there'll always be those vessels that are going to want to get the maximum bandwidth. And at this point that's definitely a VSAT system. And it really has revolutionised, in fact, the operation of internet communications on board a boat. I actually came not from the boating industry, and I was working in the internet industry for many years before I came here and I was just shocked at SatV, HSD highspeed data running at 64K and what it cost, compared to what people are used to out in the real world. So owners have huge amounts of technology at their disposal when they're home and at their business, and their expectations are that they're going to have the same thing on their vessel. And that means maximum bandwidth capability.

Martin

Thank you. There's a question at the back?

Mike Hein MCA Marine

I'm the captain on a boat called Mea Culpa. I can tell you a real world experience. We have a Fleet 77 on the boat, and we operated for two years across the entire Pacific and last November we installed a VSAT system ourselves, we had the help of the shipyard to put the dome on, but we put the other cabling in, and it pretty much changed how we operate the boat. Andy just took a lot of the words right out of my mouth with what he said. It's a system that's on the boat that provides for crew retention. It allows you to use the internet, where you were never able to use the internet before with the Fleet 77 system. Not to say that we couldn't we just didn't, because it was cost prohibitive. And I can say that we've changed satellites, we are using the iDirect modem, and we've changed satellites from AMC6 on the Pacific coast of North America to the NSS 7 going south, but right now the vessel is in Mexico and we have no service. And no-one says they can provide it. I don't know about MTN but we're in Baja California and we lost service coming north before Acapulco and we can't get service till Encinata so they say and for sure San Diego. For me I think that's an operational thing. Now that we have learned that the internet is capable, it's a big problem from a safety standpoint. We're not able now to get downloads of our weather, we can get it on the Fleet 77, like we used to, but it's just not the same tool that it used to be. I don't what it takes, from a satellite perspective but it sure seems to me that Mexico and the West Coast is a logical case to have this service with the incredible number of ships that are passing by that part of the world on a daily basis. And there's plenty of yachts, we're talking about growing the market on the West Coast, there's plenty of yachts passing by that same part of the world, and nobody has the service. I mean we're not the only small boat. We're a 40metre boat with 6 crew. But a bigger boat is going to have the exact same problems. So from a real world experience, what these guys are saying is, is right on.

Steve

Mike, that is great to hear you say that and of course that's what I believe too. But if you would like to contact me later we do have a service on the West Coast of Mexico.

Andy

Just one comment on that. There's one thing that going to drive the market. I don't know who said there's 24,000 merchant ships out there but that is what is going to drive the next level of the market. The first level of the market was obviously the mass footprint. The Mediterranean, the US, the Americas etc. The next level of development comes from our parent company, Telemar, who just signed a contract with a shipping company up north for 20 ships where they put 20 VSATs on their systems so they would have broadband on there as well as their Fleet systems. And that's where the development is going to come. There's more and more merchant marine vessels want to use this. There's going to be more and more demand for satellite coverage, and that means more satellite coverage, cheaper prices, it all becomes more viable. And the yachts will actually benefit from that. It's coming.

Martin

Any more questions out there?

Darryl Matfin High Seas Technology

This is really more of a plug for MTN more than anything else. I've had the benefit of working with Steve—more of a plug, more of a benefit—for a couple of years and if

you guys are in Florida and you get the opportunity to see his facility it's definitely an impressive sight, the network operation centre. I actually believe that they do hole up there in hurricanes to monitor their traffic so again, just another plug for MTN.

Andy

How many lunches is that, Steve?

Martin

Alright. One final question for you Andrew. You mentioned something about \$120,000 in the first month was a wasted phone bill. How often does that happen? And how does it happen?

Andrew

I think we've all heard the stories. How often it happens I don't know. Under our watch? It doesn't happen. So I can't tell you how often. But it's a risk—how does it happen? Inmarsat has several different types of services that you can get through the Fleet systems, they're a higher speed service which runs at 64k, to compare that to the maximum available on VSAT, for example, which is 1,024k, so you can see the difference, and they charge for it by the minute. And it's typically \$6-\$8 a minute, depending on the contract you have. So obviously those dollars add up very quickly. And if a crew doesn't understand the operation of the system, or the system isn't configured properly and it's going out automatically all the time and there are no safeguards to prevent it, then those bills can rack up to that level very quickly.

Martin

But can't you build in a sort of limit to the system that says right, when you get up to \$10,000 you stop the system ?

Andrew

Actually, not, that I'm aware of. And also my experience with Inmarsat is that they are very unforgiving. A crew will say well it was our first month of operation, we just didn't really understand what we were doing. Can you do something for us. In fact in this example, again, they weren't a customer of ours, but he actually lives near me and he gave me a call, it was \$120,000. he said what can I do? I said well you could sue the company that put it in and probably put them out of business if you want to, but he was a nice guy, he didn't want to do that so what he got was a 10% discount from Inmarsat.

Martin

That's a plug for Inmarsat!

Andy

It actually comes down to the quality of people, again. The people that do the installation obviously didn't train the crew properly into which icon to click on for which service. And explain the pricing to them.

Martin

But who's responsible for that training?

Andy

The installer of the system.

Martin

John you come in first, then Eric can do the last question.

[From the floor]

Briefly, one of the things that we deal with, not so much in facilities, but in management of facilities, is a seamless relationship between the vessel and it's needs, someone calls in, says I'm expecting an air freight package, or a Fedex, or a DHL package with some very important electronic components, to come in, they want to make sure that the facility operator or manager is aware of that and can provide pickup through a agent or through their own people, what sort of activities do all of you gentlemen provide in ensuring that a replacement component needing to get to some place at the end of the world gets there and is linked through all the appropriate people there, and that includes courier service, ships agents, etc. Just a general comment please.

Steve

Well we ship parts and have technicians that travel the world for our cruise ship business and also for our superyacht business, and our logistics department works closely with the vessel if there's a part that needs to be shipped, an electronics part, we work through it so it comes through Customs, it's either with the vessel or with the ship management company. We have a fully stocked warehouse, \$2million worth of parts in Miramar, Florida. And we can ship it out the next day, and as far as tracking, it's with the ship, the internet, waybills, the normal tracking service. I don't know if that's quite answering your question, but we do it every day, constantly, it comes down to people that know what they're doing. And our people have been there for 5-10 years, doing this business.

Andy

Yes, there are world wide agents in every port that are available to service the vessel, and handle goods. The biggest thing for us is that parts that have come in from another country, so obviously there is Customs, etc. Those are the big hang-ups. Just to make sure the stuff actually gets to the vessel on time without them having to pay some ridiculous fee or else they know beforehand that there will be some ridiculous fee and then they can make the choice as to whether they want the part or not.

Steve

My only comment would be that having these communications of themselves is not going to ensure anything like that. It gives you the ability to take advantage of standardised tools that are out there, just as if you were a landbased office, you can utilise these software tools, or the capabilities of your providers, that you might not be able to take advantage of if you didn't have a full time internet connection.

Eric

I was just going to say, on the BGan system, not that I'm pushing one versus the other, you can segregate bandwidths so that you can have the crew using one type, you can have the owner having streaming video for Jimmy Buffet or whatever, separately within the same unit, and you can also put limits. You can either prepay, or you can put limits on your accounts so that you don't wind up with the \$120,000 bonus. And I understand on a yacht of 55 you need more bandwidth because you've got so many people. But when you have a simple system like the BGan system, it works when you have crew of 10 or 15 or 20. I guess my question is technically do you need that additional bandwidth that VSAT gives you?

Andy

You don't need it because we've survived without it for years. But the issue is coming down, you have it, it's there, and this is where our business is so different from the merchant marine. In the merchant marine it's there to make money, and there is a policy and they're all doing the same thing and they all follow the same idea. The 20 ships I mentioned before will all do the same thing. If you have 20 yachts under management they all have 20 different programmes, 20 different captains, 20 different ideas. Some of them are great, some of them are not so great. It's individual.

Eric

I guess what I'm saying is you know that there's going to be a couple of crew members who are going to be on Skype driving the rest of the crew crazy. You know there's going to be email. Knowing those parameters, it's not always more is better, because more is more expense and when you're trying to manage something you have to say well we don't need the boat. I mean we know that. But we're trying to make a sort of community here work. Is VSAT overkill for that sort of use? Will BGan cover the need, considering what the anticipated uses are?

Martin

They daren't answer it. Because at the end of the day, it's a fashion item as well, in some cases. There's a trend factor to it as well. Isn't that so?

Andy

No. You can definitely do with BGan. And I think where BGan's biggest push into the market is going to be, is in the 50-120foot range. Because really there it's a little bit difficult to get a 40.06 on a boat. It's a 48" ray dome to stick on a yacht and at 80feet it's a little bit tough. Whereas when you can use something that's 25centimetres or a 35centimetre dish going on there, it's definitely going to revolutionise the smaller end of the market to be able to have streaming data, to be able to have good reliable emails, all the things that the Fleet products were supposed to have and kind of fell short of. And this is going to take it to the next level. It's definitely going to be there for BGan. But once again, I think you should have both. If you've got the size vessel to do it, you should have both.

Martin

Gentlemen, thank you very much indeed. We'll have a short break until midday and back for the US Customs and Border Protection on safety and security. Thank you very much.