Mobile Broadband All-in-One Solution **for Maritime Sector**

TNF

The use of (mobile) data becomes more and more one of the essentials in everybody's life throughout the globe.
For both work and pleasure we want and need to be online and have access to our own virtual environment whether it's social or professional.

The following items are developing rapidly for any sector.

1. The need for Internet access itself.
2. The expectation to have it anytime, anywhere, since we are always on.
3. The growth of bandwidth required for the use of (new) services like audio and video streaming.
4. The Internet of Things with topics as connected cities, connected cars, connected transport and connected maritime.

Regarding the Internet of things, Gartner Inc. forecasts that 8.4 billion connected things will be in use worldwide in 2017, up 31 percent from 2016, and will reach 20.4 billion by 2021.
Total spending on endpoints and services will reach almost $2 trillion in 2017. Regionally, Greater China, North America and Western Europe are driving the use of connected things and the three regions together will represent 67 percent of the overall Internet of things (IoT) installed base in 2017.

Source: Gartner, Inc. (NYSE: IT)

If we take a closer look at the forecast and expectations of Mobile data traffic Globally there will be a gigantic growth in the upcoming years.

Global mobile data traffic will increase sevenfold between 2016 and 2021.
Mobile data traffic will grow at a annual growth rate of 47 percent from 2016 to 2021, reaching 49.0 exabytes per month by 2021.

By 2021 there will be 1.5 mobile devices per person.
There will be 11.6 billion mobile-connected devices by 2021, including M2M modules — exceeding the world's projected population at that time (7.8 billion).

Mobile network connection speeds will increase threefold by 2021.
The average mobile network connection speed (6.8 Mbps in 2016) will reach 20.4 megabits per second (Mbps) by 2021.

By 2021, nearly three-quarters of all devices connected to the mobile network will be "smart" devices.
Globally, 74.7 percent of mobile devices will be smart devices by 2021, up from 36.7 percent in 2016. The vast majority of mobile data traffic (98 percent) will originate from these smart devices by 2021, up from 89 percent in 2016.

More than three-fourths of the world's mobile data traffic will be video by 2021.
Mobile video will increase 9-fold between 2016 and 2021, accounting for 78 percent of total mobile data traffic by the end of the forecast period.

By 2016, 63 percent of all traffic from mobile-connected devices (almost 84 exabytes) will be offloaded to the fixed network by means of Wi-Fi devices and femtocells each month.
Of all IP traffic (fixed and mobile) in 2021, 50% will be Wi-Fi, 30% will be wired, and 20% will be mobile.

Mobile broadband All-in-One solution for Maritime Sector

Facts

- More than 90% of passengers will have at least one smartphone, many will also have a tablet or laptop.
- It is almost an expectation that Wifi is available and often included with in price. It is vital that connectivity is fast enough to cope with demand.
- Despite this many companies allow their passengers to use the same amount and speed of data that a family house used 15 years ago, this means that internet is too slow for even basic functions.
- At deep sea Satellite remains the only option but within 30 Km of land a new lower cost and significantly faster option is now available.

Solution

- **We have created an unbeatable solution for shipping companies all over the world.** Most of the shipping companies around the globe make use of satellite equipment for communication needs required by personnel and/or passengers. Satellite equipment is very expensive, very specialized and large sized. Therefor only applicable to certain types of applications. Overall the Satellite communications market is a costly way of maintaining contact or send information. Mobile Broadband introduced new opportunities to organizations to upgrade their connectivity to truly 4G and 3G, low cost and small sized.
- **That is where we saw the opportunity to create a full package as a solution to deliver mobile broadband instead of -or next to- satellite communications.** That full package started with building the perfect Mobile Router to provide mobile broadband on ships. To deliver a wide reach, and therefore great quality an amplifier became a necessary part of the solution. This combined with our Global SIM Card completed the full package.

Mobile Router

- **Routers are standard network components to interconnect networks with each other.** Cell based networks have a small physical size which is dependent on the location and the average amount of connected users. So to say in cities the cell sizes are much smaller than in the rural areas. Maximum the cell sizes are about 8 km in diameter. This means that the distance between a celltower and the edge of the cell is about 4 km. Rivers and Canals are very seldom of this width so there is a serious tendency for the inland shipping market to move away from costly satellite equipment and subscriptions towards the adaption of mobile broadband. But there has always been another issue that does not contribute to a quick adoption of Mobile Broadband. Because traditionally Mobile communication networks have been set up starting from supporting highways, waterways have been ignored from the start. So when rivers and canals flow through the remote countrysides mobile network coverage is on average very poor.

Antenna Amplifier

- **For this reason an antenna amplifier was designed for our Mobile Routers.** A lot of attention was put into the design specifications of this truly unique amplifier. In mobile environments this amplifier has proven itself to be a real addition in functionality. Over water surfaces (lakes and seaside) the amplifier is extending the reach of the cell tower by a factor 4-5. In other words: the antenna amplifier makes a professional Mobile Broadband router combination work like a fixed line Internet Router. There is actually no limit to the applications.

4G SIM solution

- Ships along coasts and inside rivers tend to cross borders and telecommunications is strongly tied to local regulations. **With our SIM there are no surprises in large volumes or extra costs.** Our 4G SIM can roam locally over several local operator networks. This introduces a redundancy in the total solution which makes the router 'jump' each time to an applicable operator and achieve an ever higher connectivity rate. Our SIM supplies all networks in all countries. The Router, the Amplifier and the roaming SIM make together a really unbeatable solution for any truly mobile object. Over water or on landsides.

- **Our approach is different and very pro-active.** Together with our nautical customers (rivercruises, seacruises, cargoships, containerships) we are busy building a strong community which enables us to -always be a step ahead- as we will continue developing based on demands we get from our customers. We have a very strong believe that mobile broadband is the way forward. Together with the router and amplifier we deliver the full package for communication.

Benefits

- Huge improvement in WIFI Speed especially related to Satellite
- No limitation on usage, video streaming etc possible.
- Fixed cost per GB in more then 100 countries worldwide.
- High performance availability due to the multiple networks facilitated per country.
- Bonding between satellite and mobile broadband for both better quality as low cost when required.
- Ticketing system and hotspot functionality available for passengers and employees.
- Intelligent state of the art equipment including Black and White listing for avoiding bill shocks.
- Multiple sims in one device to support each other.
- New revenue stream possibilities for your organization.