

STP Mag for end July 15

“Sure Things” firming up in the world of Data Communications

There have been several developments in the world of data communications in the short time since the last issue of this magazine in April.

For those that didn't see it, I wrote that there used to be only 3 “sure things” in life - Birth, Death and Taxes, but the fourth item which has recently been added to that list is Data Connectivity, i.e. internet access!



Look around the tables in any restaurant this summer, and you are guaranteed to see at least one person checking their smartphone at the table, and several others taking a sneaky peak at their smartphone just under the table!

At the end of July, Facebook announced that there are now 1.49 billion people in the world who access Facebook monthly. That number is equal to half of the estimated 3 billion people who use the internet worldwide.

Needless to say, there is a lot of activity taking place in order to increase the supply of data via land and satellite, and hence fulfil the insatiable demand for fast and reliable data connections.

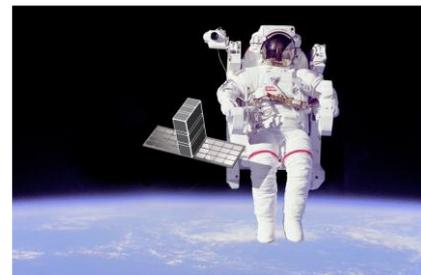
In the last few months there have been some significant activities resulting in some of the more far-fetched, second-generation, space-based ideas developing from sheer fantasy to sure thing.

One-Web and SpaceX are two principal innovators, both of whom are competing to be the first to launch a fleet of Low Earth Orbit (LEO) satellites which will provide the entire world with data at speeds which are currently unheard of, and with latency faster than terrestrial fibre.

One-Web makes important advances.

In June Greg Whyler, CEO of One-Web, made a number of exciting announcements. Firstly, he announced they have raised \$500 million of funding from a group of leading international companies.

Secondly, they have contracted Airbus Group to design and manufacture the first 900 microsattellites. The photo illustrates the size of a microsattellite alongside an astronaut. Compare this to a first generation satellite, which is the size of a large bus.



Finally, they announced the largest ever commercial rocket acquisition of more than 65 rockets to launch the satellites!

This group of international companies is pretty impressive and includes Airbus Group, Bharti Enterprises, Hughes Network Systems (Hughes), a subsidiary of EchoStar Corp., Intelsat, Qualcomm Incorporated, The Coca-Cola Company, the Virgin Group, Totalplay and Grupo Salinas Company, owned by Ricardo B. Salinas.

Greg Whyler now has an extremely talented and experienced Board of Directors. Each of the other founding shareholders, who will also be Board observers, will continue to advise

the company and support the programme directly through provision of technical and manufacturing expertise, launch capabilities, and enabling access to potential customers.

As can be seen in the photo, the OneWeb User Terminals are optionally solar powered with a flat satellite panel. The design embeds 4G LTE, 3G, 2G pico cells and a Wi-Fi access point using One-Web as the back-haul.



The network will also provide unprecedented speeds and low latency access to ships, planes, trains and oil platforms, while providing seamless interoperability with Intelsat's fleet of Ku band satellites.

By the sheer scale of this, the quantity and the pedigree of the new board members and their companies, each of which provide complementary services, this is a very serious project. It will be huge jump in performance and capacity, and is planned to be in operation for 2019.

New Communications Satellite Launches

However, we must bear in mind that these projects don't all go according to plan. Over the last few months, we should have seen the launch of the final Inmarsat I-5 F3 satellite. This launch would have completed the final phase of the Global Xpress project. Unfortunately, there was yet another rocket failure on an earlier launch from the Baikonur Cosmodrome in Kazakhstan, and this has in turn delayed the F3 satellite launch. Full commercial service is now not expected till 2016, but we do expect to beta test on a yacht in a few months using the existing satellites covering from the Indian Ocean and west to the Caribbean.

On the other hand, the Telenor TSB THOR 7 Ka band satellite was successfully launched at the end of April and by the end of June was fully functional at one of the hottest European locations for yachts in the Med and Middle East at 1° degree west. We also plan to beta test this new service shortly.

Coming back down to earth to land based data connectivity, there have also been some very interesting developments in the **GSM, 3G, 3G+ and 4G LTE** technology sector.

EU agrees an end date for GSM roaming

In mid-June the European Union finally reached a deal, after some fraught negotiations, which will see the end of roaming charges.

Under the agreement, roaming charges will cease in the EU as of 15 June 2017. Consumers will pay the same price for calls, texts and mobile data wherever they are in the EU.

However, there will be rules to prevent abuses of the new set-up. For example, you will not be able to buy a SIM card in another EU country where domestic prices are lower, and then use it at home. Or, a user who permanently stays abroad will not be able to use a domestic subscription from his/her home country. According to the EU Commission, these instances are "permanent roaming" and could impact domestic markets negatively.

Hence, the compromise includes a fair-usage safeguard against permanent roaming. Once a limit is reached when a user is abroad, then operators can charge them a small fee. However, this fee will be much lower than current capped roaming charges. The commission has yet to define what the fair use limit is.

Roaming Free SIM cards

We have recently seen a proliferation of companies offering roaming-free services to yachts.

Some of these companies provide a wallet of SIM cards for each country, which are activated as required for a month at a time. This service is similar to having a bundle of “pay as you go” SIMS to hand, where the credit on the SIMs is controlled by the service provider. There is no provision for pro rata charging when moving from one country to another, so you end up paying a full month for each country.



Each SIM has a monthly data maximum so when you read “no monthly data limit” this means you need to replace the SIM when it reaches its limit with another. When moving countries, the SIM also needs to be swapped and the APN needs to be changed.

Another service, targeted at crew on commercial vessels, uses a single SIM and covers 200 countries, with a single APN and no roaming charges for voice, SMS and data. The voice and SMS services are reasonable, but the data is expensive at over €90 per GB.

In order to fulfil our particular clients’ needs, we at e3 have suggested a different approach by providing a single SIM from one service provider which has its own networks in 11 European countries as well as Australia, New Zealand and South Africa. The service costs are the same in every country with a selection of monthly allowances up to and over 100GB per month with automatic rollover on the same SIM. So it just uses 1 SIM, 1 APN and 1 Contract.



Combining 3G and 4G connections into one large connection

As a result of customer demand for bigger bandwidths, we have developed a new system that combines the services from different SIMs and terrestrial broadband connections into one large pipe providing huge bandwidth with a huge monthly allowance.



This is called **e3.Unite**, and in addition it provides a direct connection to the Internet from London via fibre, irrelevant of the origination of the connection, a UK VPN and very strict cyber security. This is an ideal fast and low-cost connection for IPTV streaming.

Is Supply keeping up with Demand?

The speed of activity, innovation and development is fantastic, so I don't think demand will outstrip supply at the moment. However, it won't be long before 4K UHD becomes our standard for video, and then we will definitely need services like One-Web.