Comtech EF Data

By Richard Swardh, Senior Vice President for MNO

2018 will go down in the history books as the year 3GPP Release 15 was agreed upon — the first 5G standard is now a fact and equipment vendors and Mobile Network Operators (MNO) are scrambling to be first to market. Additionally, many adjacent industries are quick to chime in and want a piece of the action.

Everyone seems to seek an association with 5G, and even technologies that are developed or standardized outside of 3GPP get a 5G label put on it such as **NFV** (***Network Function Virtualization***), **SDN** (***Software Defined Networking***) and **ONAP** (***Open Networking Automation Platform***) to offer a few examples.

To fully understand and leverage 5G, it is important to understand and separate what outside forces are the enablers and the influencers to the standard, from what is included and currently standardized within ***3GPP Release 15*** and subsequent Releases.

Thankfully, the satellite industry is actively participating in many important discussions around the development of future Releases.

It may also be prudent to take a step back from the media frenzy that is already way ahead of the current capabilities of the technology and look at how 5G may influence your business through different lenses. Perhaps one view that takes a two to three year horizon and another that is more futuristic and considers use cases that may happen five to ten years from now.

It is easy to get carried away by all the hype surrounding the new use cases that 5G may enable one day; however, we should not lose sight that things usually take longer than originally planned and sometimes the journey is more important than the end goal.

For those of us who have lived and worked through previous standards being ratified, we may remember what ITU's IMT-Advanced vision for wireless said about LTE back in 2008. For instance, the system should be able to provide 1 Gbps of throughput and there were plenty of exotic use cases being presented as key drivers for LTE and many of them never saw the light of day.

However, if it hadn't been for the introduction of the Apple iPhone combined with the new ecosystem and business models smartphones brought to market by destroying the walled gardens of the MNOs and allowing for applications and ***Over-The-Top*** (**OTT**) services to proliferate and be monetized through App stores, LTE would surely not have been the commercial success it is today.

Innovation coming from adjacent industries is something that, many times, is needed to disrupt status quo and make a new mobile technology a success.

And what about that 1 Gbps throughput? Well, we are 10 years past ITUs original vision for LTE published in 2008 and now there is finally a model of the iPhone supporting 1 Gbps of throughput. Yes, you read that correctly — LTE is fully living up to its name, **Long Term Evolution**. Ten years in and **iPhone XS** (this year's new model) is the first **Category 16 LTE** (3GPP term for 1 Gbps capable user equipment) phone ever in Apple's portfolio.

Sometimes things take time to fully develop and mature and that is fine. This is about the journey as much as anything else, so try to rise above the noise and look for the path that is correct for your business when it comes to 5G.

In mobile backhaul over satellite, the industry saw more growth in throughput than ever before and **Comtech EF Data** managed to accomplish a few world firsts.

For instance, a GEO-based trunking solution for Internet and LTE backhaul surpassing 3 Gbps per link is now in service. That's a number no one would had believed being possible to accomplish over satellite just a few years ago.

Traffic continued to grow around the world as customers demand more 3G and LTE data services. This was particularly evident in Latin America where one MNO is now operating the world's largest combined 2G/3G/LTE network over satellite backhaul supporting many Gbps of traffic over an HTS satellite supporting millions of happy customers and Internet of Things (IoT) devices.

There is also another interesting trend in our industry that is happening around connecting the unconnected. With the reduction in price for satellite transmission, along with less expensive satellite modems, base stations, solar panels and towers, many companies are now successfully embarking on providing connectivity to the most remote and poorest parts of the world

It is quite difficult to deploy a mobile network over satellite and make a decent return on investment when *Average Revenue Per User* (ARPU) are in the low single digits, but we are now witnessing that happening for good commercial reasons.

This is something, as an industry, that we should be proud of accomplishing, as it is truly changing the world for the better. The United Nations published 17 Sustainable Development Goals for social and economic development and basically all of them can be accelerated and improved upon with the help of basic connectivity. **Well done to all satellite companies out there for making this happen**.

Lastly, as we look back over 2018, it was a year where the second wave of non-GEO satellite constellations commenced with innovative new entrants such as **Kepler** joining the longer standing providers in the LEO and MEO market.

Comtech EF Data has active projects for high-speed, real-time and low-latency communications and exciting projects on the horizon. Non-GEO has the potential to change the satellite communications landscape, and Comtech EF Data is proud to be at the forefront of this revolution.

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