

Philippines Globe: New network configuration, new MBB gains

The Philippines has a population of more than 100 million and a rapidly growing base of mobile broadband (MBB) subscribers. Like everywhere else, MBB subscribers enjoy surfing the web, playing online games, and using social media. The local mobile operator, Globe Telecom, is delivering a better broadband experience by deploying multi-sector networks that greatly increase network capacity.

By Ashish Pilani, Senior Technical Advisor of Wireless Engineering & Implementation, Globe

New MBB services, new subscribers

There are 121.8 million mobile connections (GSMA Intelligence) in the Philippines, with mobile broadband penetration hitting 45 percent and growing at an ultra-fast rate. In 2013, Globe began attracting more subscribers and encouraging them to use data services by providing special promotions for popular social media platforms like Facebook and Uiber. Globe also launched highly attractive packages to gain more subscribers and boost data usage, triggering demand for data services to surge. Data services since then have turned into Globe's main revenue growth driver. According to forecasts, Globe will serve almost 60 million

MBB subscribers by 2020 (GSMA Intelligence), with the number of 3G subscribers increasing by 1.6 times and 4G subscribers by 6.5 times over the 2015 figures.

However, this rapid growth in data services has placed enormous pressure on the operator's wireless network capacity. In Manila, a large number of 3G sites experience a resource utilization rate of over 80 percent during busy hours, which leads to lower than desired user experience. The network was in urgent need of capacity expansion due to the growth of new services and the need to improve user experience.

A quick-win and efficient solution was needed to address this challenge.

The Huawei 6-sector solution increases network capacity by utilizing special antennas to split a 120-degree sector into two 60-degree sectors, thereby doubling the number of cells and air interface resources. This technology has the advantages of higher capacity gains, lower cost, and a shorter deployment cycle compared to other solutions, such as adding new sites.

New network, new competitiveness

Globe and Huawei jointly planned the deployment of the 6-sector solution across the entire network in the Manila area to increase individual site capacity by 70 percent and thus cater for the requirements of rising MBB user numbers and traffic growth.

If 3-sector sites are reconstructed to 6-sector sites in a piecemeal, patch-it-up fashion, only short-term demand can be met and the network will be unable to accommodate growing capacity demands. To improve the value of sites and consider future needs, Huawei and Globe jointly aligned Globe's whole network with future demand in terms of spectrum, infrastructure, and new technology. In this way, Globe could deploy 6-sector as a benchmark for UMTS sites in urban areas, changing its strategy from passive capacity expansion to the whole network deployment of 6-sector. The 6-sector deployment approach lays a solid foundation for future network growth.

Three types of sites were targeted for the 6-sector upgrade: congested sites, high-profile customer service sites, and sites with the potential demand for high capacity. The initial plan was to reconstruct over 80 percent of sites in the Manila area to 6-sector sites, and thus increase network capacity. In sites where 6-sector was already deployed on UMTS 2100 MHz, a large traffic boost was observed: downlink data traffic grew nearly by 50 percent, uplink data traffic by 74.73 percent, and voice traffic by 31.69 percent. In addition, the drive test results showed that user throughput had improved by more than 100 percent, greatly boosting user experience.

A good quality network that provides a better user experience attracts more subscribers. In May 2016, the number of active HSDPA users in Globe's network grew by 68 percent over the same period last year.

Systematic deployment

When it comes to whole-network deployment, there are still many challenges facing the 6-sector solution such as complex deployment, un-targeted delivery progress, and strong interference. The situation was worse in urban areas where radio frequency (RF) issues occurred on targeted sites, affecting capacity gains and network KPIs.

The Huawei 6-sector solution is an end-to-end (E2E) solution that covers the whole delivery procedure, from planning and execution to optimization. In the planning stage, accurate site planning (ASP) meets the requirements of special scenarios to mitigate the potential network impact after deployment. In the execution and optimization stages, site optimization tools such as automatic cell planning (ACP) and SmartRAN accelerate deployment and reduce potential RF issues.

With the help of these tools, over 1,000 6-sector sites have been

successfully launched in the highest-value area (the capital area).

Smooth evolution to LTE multi-sector

As the prices for LTE terminals are decreasing and LTE penetration rises, LTE capacity bottlenecks in some regions will occur in the short term. By splitting sectors and sharing user numbers, deploying 6-sector on LTE networks can also alleviate future pressure on capacity and guarantee user experience. The whole-network deployment of 6-sector in urban areas is a simple capacity expansion solution that provides many years of value.

The whole-network six-sector solution in Manila area has provided Globe with a solid foundation for developing new services and subscribers, monetizing data traffic, and improving user experience. It has addressed network capacity pressures and provided valuable lessons for deploying 6-sector, which will be incorporated into future whole-network 6-sector deployment.

More importantly, the whole-network 6-sector solution in urban areas has set a new network deployment benchmark for the industry to develop 6-sector network topology. 