Parallel Wireless OpenRAN

Delivering Savings Through Hardware and Software Disaggregation, ALL G Support, and Interoperability

The Challenge

The high operational cost of legacy 2G and 3G deployments has become very capital intensive for low ARPU markets. Newer technologies are being deployed that create operational complexity and result in the high cost of managing multiple Gs.

Overview

The telecom industry is capital-intensive, so every dollar and cent spent on new infrastructure needs to be accounted for. The biggest expense for mobile operators has always been the RAN, accounting for around 60% of CAPEX and 65% of OPEX. Older technologies are becoming more expensive to maintain.

The Open Compute model of the data center has the potential to help operators move away from proprietary hardware to a virtualized network architecture. Some of TIP's (Telecom Infrastructure Project initiatives by Facebook) highest-profile activities are aimed specifically at the RAN, where the proprietary nature of several interfaces has stopped operators from using more than one vendor. The greater openness that is enabled with Parallel Wireless Open RAN helps service providers to "virtualize" their RAN infrastructure. In a virtual RAN, an operator runs baseband processing functions as software programs on commodity servers, rather than dedicated equipment. This allows them to aggregate hardware for greater efficiency and cost savings.

The Solution: Parallel Wireless 2G/4G/4G/5G Open RAN

The software-based approach for older Gs is unheard of. By virtue of the original design, it's impossible to reconfigure legacy 2G and 3G networks to support newer communications standards such as 4G and, eventually, 5G. Parallel Wireless technology is designed for open interoperability through the GPP-based baseband processing platform, radio hardware, software and simplified business model to support ALL current, present, and future Gs for a better service to the end users.

By disaggregating hardware and software, the Parallel Wireless software platform helps MNOs to expand and modernize their legacy networks to support subscribers on all G technologies enabled by these solution components:

- **OpenRAN hardware** - software-defined GPP-based "white box" base station that allows MNOs to replace legacy 2G systems with fully virtualized 2G technology. 2G and 4G can run simultaneously on the same site to provide superior data and voice services to the end users. Multi-technology CWS nodes are easy to deploy and maintain and enable a clear technology evolution path from 2G to 3G/4G/5G.
- **OpenRAN Controller** - is a software suite that combines ALL G RAN and core functions (i.e. vBSC for 2G, vRNC for 3G, small cell and core gateways for 4G) to lower the cost of RAN through simplification and automation of ALL G networks. The OpenRAN software suite enables a unified architecture through abstraction of traditional RAN and core network functions on a COTS server. The software enables an Open RAN architecture by using standards-based and open interfaces between network components, simplifying network management through automation as well as integration of new RAN products into the core of the network. It also provides seamless mobility and low latency for the best subscriber experience for the customers today on 2G, 3G and 4G and on 5G in the future.

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Benefits to MNOs

The world's first virtualized unified 2G/3G/4G/5G Open RAN helps global MNOs to simplify deployments resulting in much lower CAPEX and OPEX through:

- Installation simplification, flexibility, and sustainability
- Open interoperability on the GPP-based baseband processing platform, radio hardware, and software
- Simplified business model for a comparable service to the end users as was provided through traditional systems (Figure to the right from TIP conference)

The resulting cost benefits of opening up the RAN are impressive. It is an alternative to the current vendor pricing model as it reduces dedicated hardware cost. Open source designs for the radio software minimize costs still further.

However, the technical benefits are also sizeable. Radio network processing is intensive, real time, and complex. It has relied on the optimized software and hardware capabilities – working in tandem – of specialist vendors. But to save the cost and to reduce operational complexity, the RAN needs to be standarized, open, and interoperable.

Summary

Traditional 2G voice-only and broadband 3G and 4G networks require high-cost and often bulky equipment to deploy and operate. These types of equipment need large spaces to store, have a short life cycle and consume energy. Besides, hardware-based networks are difficult to upgrade. By shifting networks to virtual Open RAN architectures like Parallel Wireless technology, telecom operators can overcome all these problems, modernize their networks and deliver coverage to every single subscriber at much lower cost. The connectivity leads to a more socially inclusive and economically more vibrant and dynamic society.

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