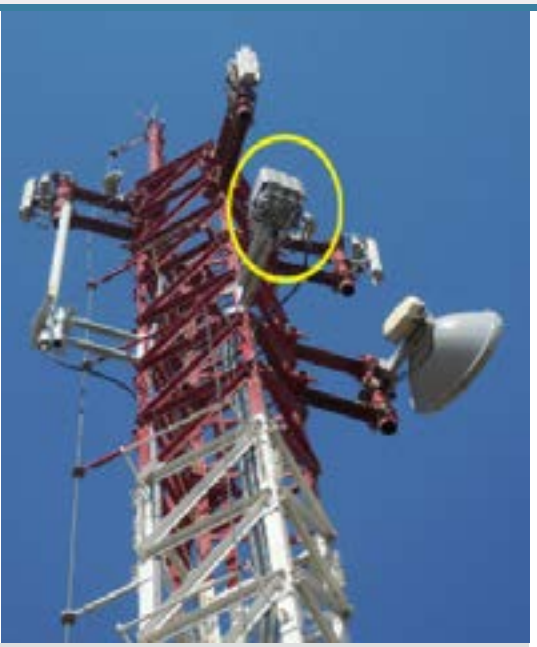
Parallel Wireless Open RAN Helps Telefonica Bring Internet to All (Internet Para Todos) in Peru

Case Study



Introduction

A global survey of MNOs found that 87% believe costs/ complexity of providing backhaul, installation/maintenance, and cost of base stations to be the biggest challenges for rural coverage. 20% of Latam population still lacks access to mobile broadband (between 100-150 million people within Telefonica's footprint). The main challenge is in finding a scalable/ sustainable way of addressing the long tail of unconnected; complex areas with low density (<1.000 inhabitants per site) that result in high cost/inhabitant covered and associated operating cost.

The rural landscape is also very heterogeneous; one solution will not fit all coverage scenarios. A sustainable rural mobile broadband will not be widely available unless network deployments downsize the cost structure and are open by design to sustainably evolve and adapt the network to user demand.

The Challenge

Operational complexity and cost structure of rural deployments have prevented Telefonica from attacking the problem more aggressively in the past. Even network innovation historically has not solved these problems. The focus was put on addressing urban issues to increase capacity or spectrum efficiency for densification.

The Solution: Parallel Wireless 2G/3G/4G/5G Open RAN

With "Internet para todos", Telefónica is expanding connectivity with an ecosystem approach, incorporating a broad range of partners and stakeholders to solve the rural coverage challenge. Recently, the team began deploying Parallel Wireless programmable Open Radio Access Network (RAN) to connect remote communities in Peru with 3G and 4G wireless based on General Purpose Processing Platforms. The deployments in Peru demonstrated the maturity of the technology to provide cost-effective coverage in low-density areas.

Parallel Wireless Open RAN enabling rural connectivity by (i) lowering cost, (ii) simplifying installation, and (iii) increasing flexibility and sustainability through Open RAN hardware/ software and Open RAN controller:

RAN base station that connects to any transport. The high-power output (2x40W) CWS maximizes coverage/ performance. Multi-technology CWS enables SPs to have a clear technology evolution from 2G to 3G/4G/5G without additional hardware installations. Flexible/ software-based nodes create a sustainable business case with more flexibility for overlay & greenfield scenarios.

- Open RAN controller–a 2G/3G/4G/5G/Wi-Fi/security gateway software bundle to unify, simplify, configure, optimize, & automate network & to provide seamless mobility between ALL Gs. The controller enables the simple integration of access nodes with the core using standard-based/open interfaces. This enables a new business model that decouples access infrastructure and service provisioning - where MNOs partner to deploy/operate the network seamlessly/ without disrupting the MNO core.
- This creates an open business model, where MNOs partner w/ local companies that focus on rural networks to enable lean cost structure that fits the business case of targeting the long tail of the unconnected and operational simplicity.

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Benefits to Telefonica Peru

"This successful Peru deployment is proof of our commitment to simplify and reduce the costs of our radio networks using innovative solutions. 'Internet Para Todos' is a project aimed at connecting more than 100 million people in LatAm. An open and programmable RAN is an important part of the solution," stated Telefónica VP Networks Innovation Patrick Lopez.

The locations in Peru benefited from 3G/4G wireless connectivity based on GPP radios. Individual high-power sectors were placed in a cost-effective manner to maximize coverage/performance. More sectors were only added in areas that required capacity. The same Open RAN hardware was used to target different scenarios and is software upgradable to future tech (5G) without requiring site changes. The settlements where technology was implemented used the full SDR capability of the PW's Open RAN to provide data/ voice over both, 3G and 4G to thousands of the end users.

The nodes were deployed to demonstrate that a new business model is possible where a rural mobile infrastructure operator can deploy access network for the MNO with operating independence and without disrupting the MNO existing network through the use of the Open RAN Controller and seamlessly for the end users.

The technology provided cost-effective connectivity in low-density areas, getting a voice growth of 12% per month and Circuit Switch Fall Back (CSFB) success call rate of 99%. 3G/4G traffic benefited from the technology's intelligent packet processing to deliver over 10GB per settlement of daily 3G and 4G data traffic. Each cell availability stood at 99% with Parallel Wireless Open RAN controller delivering a 100% intra frequency mobility success rate that ensured the highest QoS.

This is how Parallel Wireless enables this sustainability:

- By providing ALL G in Open RAN base stations and enabling access flexibility providing voice and data on the same equipment
- By having an overall low-cost solution with the cost structure that can fit low density through deployment flexibility (can deploy 1 sector per site, or tri-sector where needed with the same hardware and all optimizations and handovers done by the controller)
- By enabling the new telco value chain in rural through flexibility in operation – with the controller enabling new business models in the telco value chain – rural network slice can be managed by a third party without affecting any other regional or urban slices

Summary

Parallel Wireless' unique low cost, low foot-print, and virtualized multi-technology Open RAN solution helps to deliver coverage to low-density areas by making deployments easy and affordable to install, maintain and to upgrade to any future technology, including 5G on the same hardware without installing any additional hardware or performing sites visits. Minimizing the CAPEX/OPEX is important in these low-density areas where there is high uncertainty on the return of the MNOs investment. Parallel Wireless technology is designed on open interoperability through the GPP-based baseband processing platform, Open radio hardware, software, and simplified business model to help unleash innovation for a better service to ALL of Telefonica's customers. As a result, the costs associated with building mobile networks were reduced and coverage can be brought to the most remote areas.

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