

Parallel Wireless Network Sharing (MOCN) Helps New Operator Mayutel to Build 3G/4G Open RAN Network in 3 Months



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 the Latam population still lacks access to mobile broadband. Bringing wireline Internet to those hard to reach areas is cost-prohibitive for most service providers. Network sharing enabled by Parallel Wireless software when one operators RANs can share another operator's core in the data center enables an affordable business model for new operators by downsizing the cost structure and is open by design to sustainably evolve and adapt the network to user demand and bring coverage fast and cost-effectively.

The Challenge

Operational complexity and cost structure of rural deployments have prevented many new or existing MNOs from attacking the problem more aggressively in the past due to the cost structure of building the RAN network in the field, but also core infrastructure in the data center.

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

The idea of Multiple Operator Core Networks, or MOCN, is a very simple one. Share the RAN, isolate the cores. This is a fundamentally required concept as we move to 5G, where RAN and Core "slicing" routes traffic to the proper network elements to improve on latency and perceived speeds of the networks and enable effective and fair spectrum sharing with differentiated end-user experience with these solution components from Parallel Wireless:

- Converged Wireless System (CWS) - a multi-technology carrier-grade Open RAN base station that connects to any transport. Multi-technology CWS enables Mayutel 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.

- Parallel Wireless Open RAN controller to enable the Maytel Open RAN network to share Telefonica's core: In traditional Neutral host solutions, there is a single Ethernet cable to pass 3G and 4G Traffic with no differentiation or visibility into the type of traffic and this doesn't guarantee QoS. To separate 3G/4G traffic and enable MOCN, a traditional approach will require to have multiple routers. Parallel Wireless unified Open RAN controller eliminates the need for multiple routers and will be able to differentiate the 3G or 4G type of traffic and end-user types and enable the best end-user experience for each type of traffic. MOCN functionality allowed Mayutel to provide access to a single radio access network by Telefonica with each network sharing the core infrastructure. For example, authentication was performed via inter-core network communication for a user who is on a roaming core network. These cores coordinate with each other regarding interference, backhaul, traffic prioritization, individual user authentication, and other parameters through the Parallel Wireless Open RAN controller allowing Mayutel base station hardware to connect to Telefonica's core network. Subscriber information for one or more particular users, including authentication information, was cached, in some embodiments, at the subscriber's current core network or at an intermediary node.



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Benefits to Mayutel

A new operator, Mayutel, benefited from:

- Network sharing enabled by Parallel Wireless software: Mayutel network deployment is part of an initiative between Telefonica and Facebook to find architecture and a business model for providing Internet services in areas where this service is not available because no operator has deployed infrastructure yet due to cost and complexity to deploy. This initiative enabled an open business model, where Telefonica partner with a local MNO (Mayutel) that focuses on rural coverage to enable lean cost structure that fits the business case of targeting the long tail of the unconnected and operational simplicity. In this deployment, the operator who provided the RAN infrastructure is Mayu Telecomunicaciones (Mayutel). They provided the transport and access network for launching mobile service from Telefonica using its bands and core network.
- Fast deployment: In less than two months Mayutel was able to finish the integration with the 3G and 4G core network from Telefonica. In parallel, Mayutel continued field deployments by deploying a wireless link with 5 hops using an unlicensed 5.8GHz band for connecting multiple locations (Nueva Requena, Tiruntan, Roabaya and Contamana to Pucallpa, a city where Telefónica has a PoP of its fiber optic national network). Mayutel



was able to deploy a complete 3G and 4G access and transport network, including the integration with Telefonica's core network, the infrastructure (towers, power for on-grid and off-grid) and wireless link deployment in 3 months, what was a record in Peru.

- Flexibility to deploy multiple topologies and technologies across their RAN deployments: As one approach doesn't fit all, Parallel Wireless flexible Open RAN allowed to deploy multiple topologies from 2 LTE Sectors with 40W in Band 28 in some locations, one sector 3G/UMTS Omni in 5W on Band 5, powered by solar panels in others, and 3-sector 3G/4G sites in remaining sites.

Summary

Parallel Wireless' unique low cost, low foot-print, and virtualized multi-technology Open RAN solution with network sharing (MOCN) helped to enable new business model in Peru 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. 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 Peru's population. As a result, the costs associated with building mobile networks were reduced and coverage was brought to the most remote areas. In the future, this network will be extended to provide Private LTE and IoT services to mining and public safety networks.



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