

Parallel Wireless Open RAN Helps Optus Bring Coverage to Remote Australia

Case Study



Introduction

The challenge of investing in new telecommunications infrastructure in rural Australia is caused by low population density that means a poor new investment RoI for operators. Any technology to be deployed for rural coverage needs to be affordable, simple to deploy/easy to maintain, and be scalable and standards-based. Greater openness enabled with Parallel Wireless Open RAN helps service providers to “open up” their RAN infrastructure, disaggregate hardware from software for much lower cost and easier and faster deployments even in low-density areas.

The Challenge

Optus, Australia’s second largest mobile operator, is committed to bringing mobile connectivity to its customers in remote and underserved regions. In conjunction with the Australian government’s Mobile Black Spot program, Optus has invested in a significant infrastructure project designed to extend its mobile network to regions without any mobile coverage in South Australia and elsewhere across the country. Back in August 2016, Optus announced that they were extending mobile coverage across 12 Northern Territory remote, but popular for visitors regions in Australia, using innovative Open RAN technology. They use satellite to deliver mobile services in areas that are out of reach of expensive to deploy traditional cell towers.

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

Parallel Wireless’ innovative virtualized multi-technology Open RAN solution disaggregates hardware and software to make deployments easy and affordable to install, maintain and upgrade to any future technology with:

- Parallel Wireless CWS Open RAN base stations that are built using low-cost GPP-based components, and are easy to

install, which helps drive down CAPEX. Hands-free maintenance is enabled by self-optimization and self-healing capabilities of Parallel Wireless Open RAN controller, thus reducing OPEX. With CWS’s ability to utilize any IP source available and extend range with satellite backhaul, Optus was less dependent on site placement in and near other terrestrial transport. Being able to deploy 3G/ 4G over satellite and provide voice/data service was critical to Optus to ensure quality customer experience for settlers and tourists.

- World’s First Open RAN Controller that virtualizes ALL G RAN and core functions (i.e. vRNC for 3G, small cell and core gateways for 4G) to lower the cost of RAN deployments through simplification and automation. It also provides seamless mobility and low latency for the best subscriber experience for Optus customers on 3G today for voice and data, and on 4G and 5G in the future. The software-based controller enables an Open RAN architecture by using standard-based and open interfaces between network components and, as a result, simplifies and automates network management and integration of new RAN products into the core of the network with real-time SON.

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Benefits to Optus

In addition to bringing mobile and broadband services to Optus subscribers in outback communities for the first time, this mobile connectivity also enables tourists and stranded motorists to make emergency calls from any mobile phone. “This Open RAN solution enables us to provide mobile connectivity to unserved and under-served areas,” said Paul Sheridan, Vice President, Optus Satellite. “It is an innovative and cost-effective solution to address our requirements for delivering a high-quality user experience, under challenging environmental conditions in regional Australia.” In addition, Optus benefited from:

- **Fast/Easy Deployment:** automatic configuration is pushed from the Open RAN Controller to the CWSs. Initial PCI and RACH configuration parameters are calculated in real-time based on automatic PCI calculations. Also, initial Neighbor List table for intra or inter frequency and IRAT neighbors are calculated for each cell. Transmit power optimization is performed for new cells. Each cell's hardware/software inventory is automatically managed which helps the operators easily maintain inventory lists and plan for future upgrades. The solution is easy and fast to install without the need for skilled network contractors to install. Satellite backhaul delivers terrestrial-quality speeds at a comparable cost but is deployed at a fraction of the time it takes to deploy terrestrial solutions.
- **Enabling locally placed sites:** the low-cost, low-footprint, low-power, multi-technology coverage allows deployments on locally placed masts, on business & private buildings. This approach reduces environmental impact, & additionally provides the opportunity to work with the local community to support site builds, reducing property acquisition/lease costs. One of the sites deployed in the small outback town of William Creek is on the



roof of a local pilot Trevor Wright's hangar, a small satellite dish with a 1-meter antenna — like those used to access pay TV (image on the right).

- **Being able to deliver end user services:** for the first time, the town's residents and tourists passing through can use their mobile phones via the Optus 3G network. It is part of the Federal Government's Mobile Black Spot Program, an initiative to help deliver crucial telecommunications infrastructure to regional and remote areas across the country for connectivity, so people living in rural communities can enjoy uninterrupted videos, submit homework, and area visitors or highway drivers can stay connected while visiting — things that many of us with reliable Internet take for granted. Before the new service was switched on, those passing through could not call 000 or 112 in an emergency.
- **Future-Proof:** this rural coverage solution is future-proofed as CWS can be software upgradeable to any future 3GPP releases, including 5G hence extending the initial deployment even further for better RoI.

Summary

By disaggregating the hardware from the software in a 2G, 3G, 4G or 5G RAN deployment, Parallel Wireless approach has opened up the possibilities of the network. Operators on six continents have realized the transformative cost-saving benefits that Parallel Wireless virtualized Open RAN can deliver to their networks and their bottom line. By significantly reducing the cost to deliver coverage with Parallel Wireless Open RAN, Optus now views rural connectivity as an opportunity to expand their services.



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