

2G Solution Overview

World's First Cloud-native 2G Solution: Easy and Cost-Effective to Deploy and Maintain, Software Upgradeable to 3G/4G/5G



The Challenge

2G networks are still very prominent across developing and emerging markets as end users in those areas hold on to their devices. This requires mobile operators to provide 2G services for more than 1 billion people worldwide even by end of 2020. Most of these deployments and services will be in low ARPU areas with limited connectivity and power infrastructure. This calls for a new approach to design and deploy 2G networks to meet challenging business models and lower OPEX.

Overview

Parallel Wireless' 2G solution is the world's first cloud-native, software-based unified 2G/3G/4G/5G architecture that allows operators to expand their current 2G networks or to easily modernize their existing 2G networks cost-effectively. It enables them to move to 3G/4G/5G with a simple software upgrade. It delivers the lowest TCO by making 2G networks self-configuring and self-optimizing. It consists of a complete, carrier-grade base station subsystem including the Parallel Wireless multi-technology OpenRAN hardware to provide any G radio access and connect to any available transport and virtual BSC (vBSC). Working together with our OpenRAN software suite – a combined 2G/3G/4G/5G Wi-Fi software platform to configure and optimize the radio access network and provide security functionalities without any human intervention while delivering end user QoS for voice and data, local breakout (to improve satellite bandwidth requirement) and seamless mobility between any G technologies.

The Solution

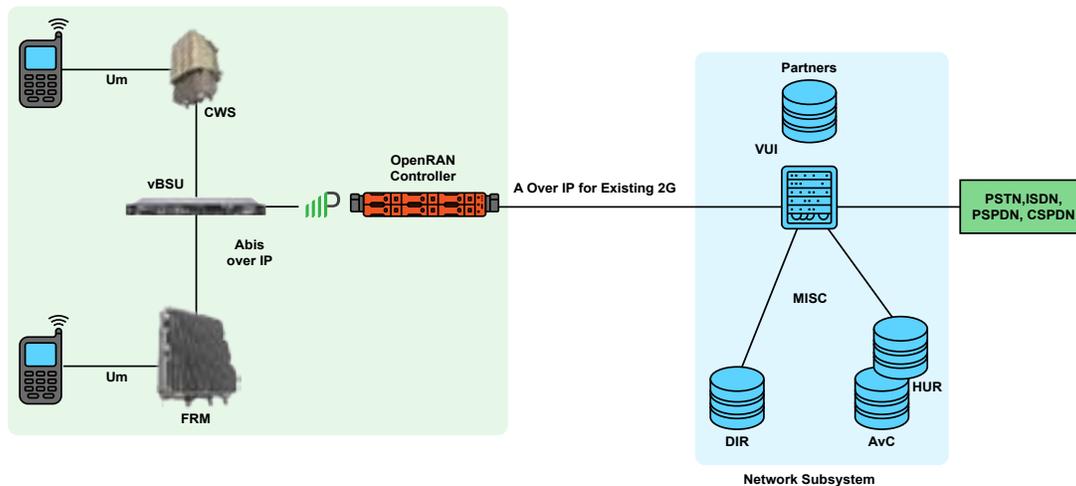
With advances in virtualization (NFV and SDN) the legacy 2G architecture can be simplified by eliminating legacy interfaces, being made compatible with 2G and 4G, and allowing for a software upgrade to any G without any additional hardware. This software-enabled distributed architecture solves performance and scale with cost-effective commodity hardware, vs. excessive engineering of monolithic architecture.

The Parallel Wireless 2G solution is the most advanced, simplified, cost-effective 2G solution on the market with no forklift upgrade to 3G/4G/5G.

Parallel Wireless's 2G/GSM solution consists of a complete Base Station Subsystem (OpenRAN base stations and OpenRAN Controller) which includes vBSC and SON functionalities on our HNG software (see figure). Standard A interface from HNG toward MSC and Gb interface toward SGSN support an easy integration with existing 2G core networks for 2G expansion or modernization scenarios.

The Parallel Wireless OpenRAN hardware is a cost-effective and compact BTS and is software upgradable to 3G NodeBs or 4G eNodeBs (and 5G NRs in the future). It can utilize any COTS vBBU, and any type of preferred external antenna via a 4.3-10 low PIM connector. The low power consumption and small form factor of Parallel Wireless CWSs make them great candidates for a remote site deployment with solar power infrastructure. The Parallel Wireless solution can utilize any type of backhaul, even less than perfect backhauls like satellite link, without impacting the user experience.

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Benefits to Mobile Operators

- Cloud native and software-based 2G solution to:
 - Simplify network operations of 2G expansion and provide a cost-effective path for operators' network upgrade to 3G or 4G/5G in the future without any additional hardware
 - Allow modernization of existing 2G networks
- Full SON capabilities through the automation software module; real-time optimization and self-healing, and turning RAN sites off at non-peak hours for power saving – all done through HNG resulting in maintenance and optimization cost reduction
- Lowest TCO
 - Lowest Site CAPEX
 - Needs fewer solar panels or batteries, so overall site cost is reduced
 - Can be installed on poles or existing and exposed structures due to lighter wind load
 - Flexible backhaul (whatever is available today or might become available tomorrow)
 - COTS vBBU with shared capacity for throughput and capacity
 - Reduced OPEX
 - Software-defined RAN hardware that is easily upgradable to any future G on the same original investment
 - Easy and cost-effective installation and maintenance through self-configuration and full automation via software
 - Lowest power consumption for single or multi-mode operation
 - Enables tower consolidation to save on OPEX
- Addresses low ARPU and extends 2G investment
 - When the end users are ready to upgrade to 3G or 4G, the 2G investment can be extended to provide those services
- Variety of deployment scenarios for greenfield 2G or expanding existing 2G footprint at much lower cost (urban, rural, suburban, mobile black spots, etc.)

Summary

Parallel Wireless's unique cloud-native multi-technology solution helps to deliver coverage by making deployments easy and affordable to install, maintain and to upgrade to any G without any additional hardware. Parallel Wireless's 2G solution is a low-cost, low-footprint, low-power multi-technology coverage solution that allows operators to extend their initial 2G investment when they are ready to upgrade to 3G, 4G, or 5G.

