# Parallel Wireless Real-Time OpenRAN Controller Data Sheet

## RT OpenRAN Controller

**Multi-Technology (2G, 3G, 4G, 5G) multi-vendor Network Platform**

### Key Features

- All-G 3GPP Compliant Software Platform
- All-G RAN automated configuration and orchestration
- vRAN and SON
- Deployed as VNF on COTS server

### Key Benefits

- Makes multi-vendor multi-technology RAN self-configuring, self-optimizing, and self-healing
- Overall network signaling reduction
- Lower overall TCO

## Overview

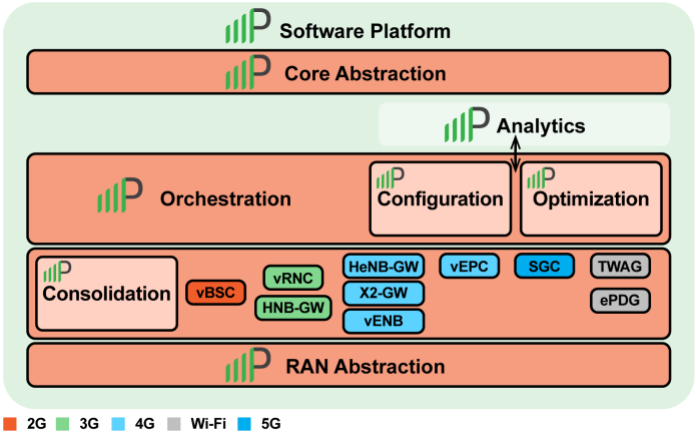
At the 2018 TIP summit, Vodafone and Telefonica expressed the importance of disaggregating hardware and software to make networks open, easy and cost effective to deploy and maintain. Both operators also highlighted the necessity of software-based network solutions being able to support ALL Gs (2G/3G/4G/5G). Parallel Wireless has all the 'Gs' covered' in our unified software platform, giving operators the ability to deploy and maintain any and all generations of mobile networks in a unified, simplified, and cost-effective way. Parallel Wireless virtualizes, automates and optimizes ALL G cellular networks, delivering quality end user experiences for all use cases: low density/high density, IBS or public safety LTE. Our solution provides agility across COTS-based physical/virtual telco networks by unifying ALL Gs, integrating abstraction, and real time orchestration with network automation enabled by the Parallel Wireless software platform to empower global SPs to be profitable despite margin pressure.

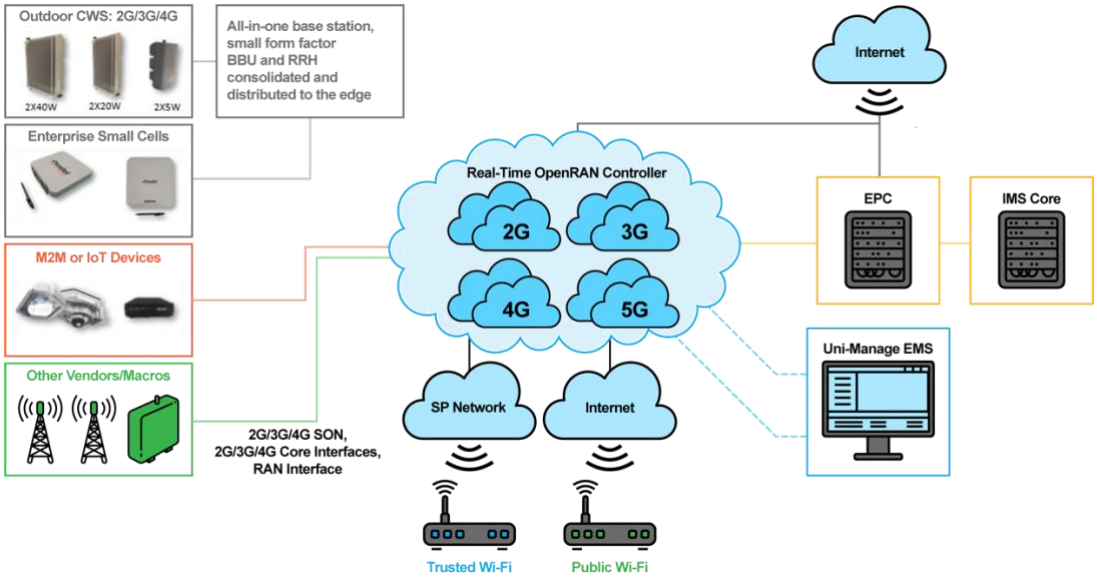
PW's Real Time OpenRAN Controller virtualizes the RAN interfaces to manage the LTE and UMTS cells in real-time via multi-technology SON while abstracting RAN changes from the core network and the core network itself from the RAN. It virtualizes thousands of base stations to look like a few virtualized "boomer cells" to the core with Super Cell/Virtual Node functionality. Furthermore, the Controller virtualizes the radio network resources such as Wi-Fi APs, 4G eNodeBs and 3G NodeBs and makes them self-configurable, self-optimizing, and self-healing which helps with the initial installation and on-going maintenance.

RT OpenRAN Controller also supports X2 gateway functionality for interference mitigation (ICIC and extendable to eICIC in the future) and inter-RAN mobility; real-time SON for 2G, 3G, 4G, 5G, and Wi-Fi access and backhaul, small cell gateway – HeNBGW and HNB GW/virtual RNC, Security Gateway, MOCN, Analytics, IoT/M2M gateway functionality, ePDG and TWAG. It also functions as Untrusted & Trusted Wi-Fi gateway as well as facilitates seamless handover between LTE and Wi-Fi. Moreover, these functions interwork with one another, instead of operating in individual silos, to deliver agility and flexibility across the network.

At the heart of Parallel Wireless software-based solution is the RT OpenRAN Controller, situated between Radio Access Network (RAN) and Core Network. At the same time, it allows making RAN self-configuring, self-optimizing, and self-healing through its Self-Organizing Network (SON). The Parallel Wireless solution utilizes standard backhaul and provides more robustness by its split functionality. PW solution simplifies overall network deployment and operations by:

- Abstract different RAN types towards core networks
- Reduce signaling and complexity by abstracting different RANs
- Optimize all RAN functionalities vertically and horizontally (across different technologies)
- Complete network component virtualization across all different network technologies
- Abstraction of RAN and core networks
- Modular approach makes it possible to add new features and capabilities as needed






## Real Time OpenRAN Controller specifications - at a Glance

| Requirement | Support |
|---|---|
| **Dimensions, power, operating and compliance** | • An Intel x86-based COTS server hardware, compliant with minimum Parallel Wireless defined CPU, Memory, Storage and Networking requirements |
| **Security** | • IPsec tunnel termination point<br>• IKEv2 (RFC 4306) support<br>• Self-Signed Certificate Authentication<br>• Standard X.509 certificates support<br>• Authentication MD5 and SHA1 for IKEV2 and IPsec<br>• Encryption DES, 3DES, AES128-CBC, AES256-CBC for IKEv2 and IPsec<br>• Access Control Lists (ACL) support |
| **Virtualized Network Functions (VNFs)** | • Super Cell / Virtual-NB / Virtual eNB<br>• 2G/3G/4G/5G/Wi-Fi/Real-time network SON<br>• X2 / S1 Gateway<br>• Small Cell Gateway / HeNBGW / HNB Gateway / Virtual RNC<br>• 3GPP Wi-Fi Gateway: TWAG / SaMOG, ePDG<br>• Built in Security Gateway for IPsec termination<br>• MOCN Enabler (3GPP 23.861) / MORAN Active RAN sharing |
| **Interoperability** | • Multi-vendor EPC and RAN with normalized MME, SGW, X2, and SON<br>• Multi-Vendor MSC (via IuCS) and SGSN (via IuPS)<br>• MOCN for any radio node-AP |
| **System Capacity/ Throughput** | • 20 to 200 Gbps with IPsec (configuration dependent)<br>• Up to 500k radios / smallcells (Combination of outdoor, indoor, in-vehicle cells) |
| **Product Reliability: Resilience and High Availability** | • Designed for 99.999% availability<br>• Local and Geographic Redundancy<br>• SW fault containment.<br>• S1-Flex and Iu-Flex for network resilience and load balancing |

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|---|---|
| **Standards** | • 3GPP Rel 12+ compliant (software upgradeable to future releases) |
| **Interfaces** | • Compliant with 3GPP standards for:<br>  • S1-C / N2<br>  • S1-U / N3<br>  • X2 / Xn<br>  • S2b<br>  • S2a<br>  • Iuh<br>  • IuPS<br>  • IuCS<br>  • A<br>  • Gb |
| **Network Management** | • Full-featured operations, administration, maintenance, and provisioning (OAM&P) management functionality<br>• CLI, SNMP, SFTP, SSH, SNMP and NETCONF management interfaces, available EMS |

*For more information on Parallel Wireless family of products, please e-mail orders@parallelwireless.com.*