OcNOS Cell Site Router (CSR)

May 2023

TOTAL NETWORK DISAGGREGATION

Take control of your network with Total Network Disaggregation from IP Infusion. Complex networks simplified with open standards.

## OcNOS Cell Site Router (CSR) Overview

The Service Provider mobile and wireline network of the future will not just need to provide exponentially higher bandwidth at lower operating costs but will also have to be capable of enabling new applications such as pervasive mobile broadband, IoT/sensor networks, autonomous vehicles and smart consumer wireless devices. Mobile network operators are actively seeking cost-effective Cell Site Gateway Solutions to accommodate the mass rollout of 4G/5G services to meet mobile traffic demands. Disaggregated Open Network Solutions benefit operators as they build out 4G/5G infrastructure by reducing costs, expanding the vendor ecosystem and leveraging automation so they are more agile in introducing new services.

The evolution to next-generation 5G networks introduces architectural changes in the radio access network (RAN) and mobile core that will have significant implications for how operators design and provision transport capacity and services. The mobile transport network will need to meet the higher capacity and lower latency demands of 5G. In addition, it will need to flexibly adapt to diverse traffic flows to support a growing variety of use cases, from augmented reality to factory automation. A key concept that will enable next generation transport networks is disaggregation, whereby networking software is separated from the switching or routing hardware and partitioned into functional components that can be more efficiently operated. Programmability, automation, and agility with better control of their networks are immediate benefits of disaggregation for operators, besides potential cost savings as well.

OcNOS CSR

Disaggregated Cell Site Gateways transform 5G networks by expanding mobile bandwidth capacity without losing compatibility with legacy networks. Such solutions allow for seamless migration while controlling costs. IP Infusion's OcNOS CSR is a complete carrier class, Cell Site Router (CSR) solution, aligning with the Telecom Infra Project's (TIP) Disaggregated Cell Site Gateway technical specification. The technical specification provides detailed requirements for CSR devices that operators can deploy in current and future generations of wireless transport networks.

The TIP DCSG specification falls under the TIP Open Optical & Packet Transport project.
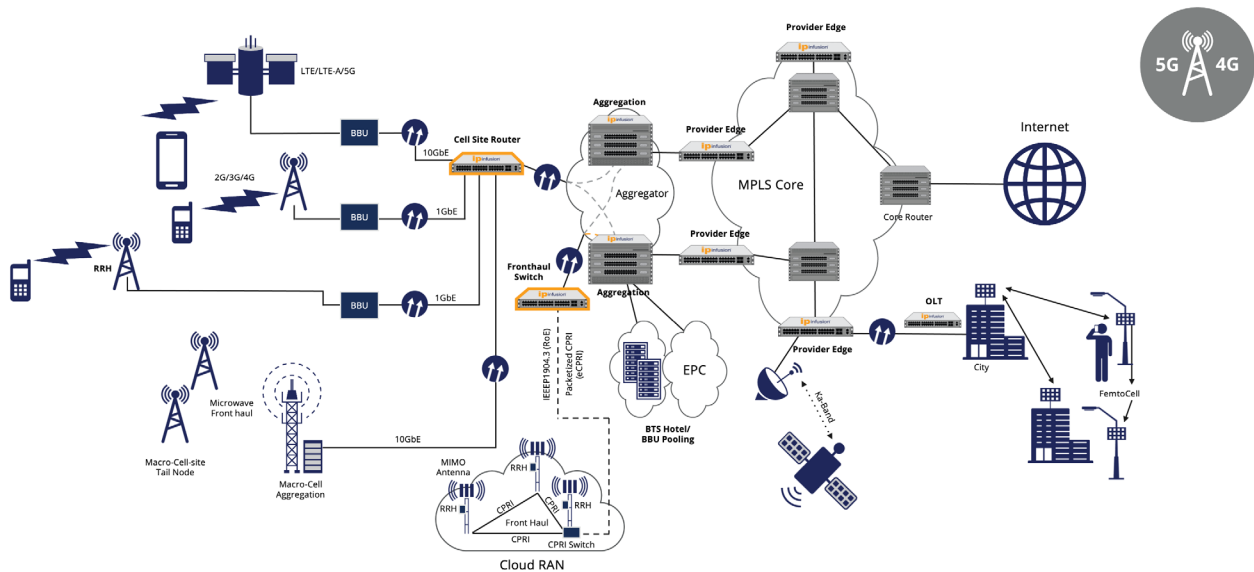
The OcNOS CSR product is a smart converged integrated access platform which enables Service Providers to deliver next-level business and entertainment experiences.

KEY COMPONENTS:

Multi-vendor CSR hardware platform
Open Compute Project (OCP) and TIP DCSG Compliant ODM smart integrated access platforms supporting up to 360 Gbps capacity.

OcNOS as a full-featured network OS for open networking
Its features include advanced capabilities, such as extensive switching and routing protocol support, MPLS (Multiprotocol Label Switching) support, and SDN (software defined networking) integration capabilities. OcNOS features hybrid, centralized or distributed network support; scalable, modular high-performance network; and a robust data plane built on merchant silicon.

IP Infusion Advanced Network Services
Includes comprehensive network design, monitoring and technical support services.

ipinfusion™

Key CSR ODM Hardware Highlights

- Extremely compact, low-power design
- Flexible form factors for both indoor and outdoor deployments
- Highly integrated design: 1-100G interfaces, rich set of QoS capabilities, flexible management options, and integrated timing in a single box
- Versatile licensing scheme to enable a range of commercial objectives
- 1 RU small form factor ODM hardware with depth <300mm
- Front-to-back as well as side-to-side airflow
- Low power consumption, minimum <100W, typical <200W, maximum 250W
- Low latency forwarding
- Precise frequency and phase/time synchronization using the latest industry standards
- NETCONF/OpenConfig standards based management interface

OcNOS Software

OcNOS (Open Compute Network Operating System) is an industry-leading Network Operating System providing the most complete carrier-grade disaggregated solution for service providers.

OcNOS-based solutions have been widely deployed in access, aggregation, transport and data center use cases for simplified operations and automation. It provides extensive programmability for end-to-end network management and orchestration. OcNOS features a single software image that runs across the entire portfolio of Open Compute platforms from leading vendors. This guarantees consistent operations, workflow automation and high availability, while significantly reducing operational expenses.

OcNOS provides industry standard CLIs, supports standard MIBs as well as the latest network management tools. Its integrated centralized management and provisioning layer allows for transaction-based configuration and device feature modelling. OcNOS is a modular, multi-tasking network operating system, with tight integration capabilities on commodity hardware. This design allows for scaled and performance critical deployments.

OcNOS benefits include:

- Fully validated and hardened carrier-grade solutions
- Breaks vendor lock-in
- Scalable software for Terabit switching bandwidth
- Lower TCO: Up to 65-75% savings against Traditional Tier-1 vendors
- A broad ecosystem of technology and integration partners

OcNOS key highlights include:

- Packaged solutions for faster deployment and shorter time-to-revenue
- Advance data models for network automation, orchestration, and control
- Standard Cisco-like CLI
- Flexible deployment: OcNOS Service Provider Solutions addressing different use cases across the Service Provider network
- World-class 24/7/365 support

Cell Site Router

The OcNOS network operating system-based solution supports cost optimized white-box cell site gateway devices based on and fully compliant with Telecom Infra Project's (TIP) DCSG specifications, including support for segment routing, Multiprotocol Label Switching (MPLS), and timing. This DCSG solution provides cell site backhaul networking for carriers with existing 4G LTE and future 5G mobile infrastructure. The OcNOS cell site router solution is available on a wide variety of DCSG platforms supporting varied switching capacities.

 TIP Validated Solution (Gold) is awarded to solutions that got validated in an end-to-end environment, within a TIP Community Lab or approved third-party lab, upon meeting the minimum pass/fail criteria defined by the relevant TIP project group. Telecom Infra Project (TIP) recognized its OcNOS®-based Disaggregated Cell Site Gateway (DCSG) solution with the TIP Validated Solution Gold Badge.

OcNOS Cell Site Router Hardware Platforms

The following hardware platforms are supported.

CELL SITE ROUTER		
32 Gbps (Qumran-UX)	**64 Gbps (Qumran-UX)**	**120 Gbps (Qumran-UX)**
UfiSpace S9502-12SM	Edgecore AS5915-18X	UfiSpace S9501-28SMT
UfiSpace S9502-16SMT	UfiSpace S9501-18SMT	**360 Gbps (Qumran-2U)**
		UfiSpace S9510-30XC
300 Gbps (Qumran-AX)		**800 Gbps (Qumran-MX)**
Edgecore AS7315-27X	UfiSpace S9500-22XST	Edgecore AS5916-54XKS
Edgecore AS7315-30X	UfiSpace S9500-30XS	**800 Gbps (Qumran-2A)**
Edgecore AS7316-26XB		UfiSpace S9510-28DC

Relevant Links

DATASHEET	FEATURE MATRIX	HARDWARE COMPATIBILITY LIST	OCNOS-CSR CONFIGURATION GUIDE

Contact us today to learn more about the OcNOS Cell Site Router product.

Phone: +1-877-699-3267 | Email: sales@ipinfusion.com

ipinfusion™