

5G RAN Monitoring

With the launch of 5G communication services, operators have set the highest possible quality KPIs as goals. Employing cutting-edge technology to roll out 5G, those operators hope to drive economic growth and build the telco platform to enable the consumer and enterprise markets to deliver groundbreaking new experiences.

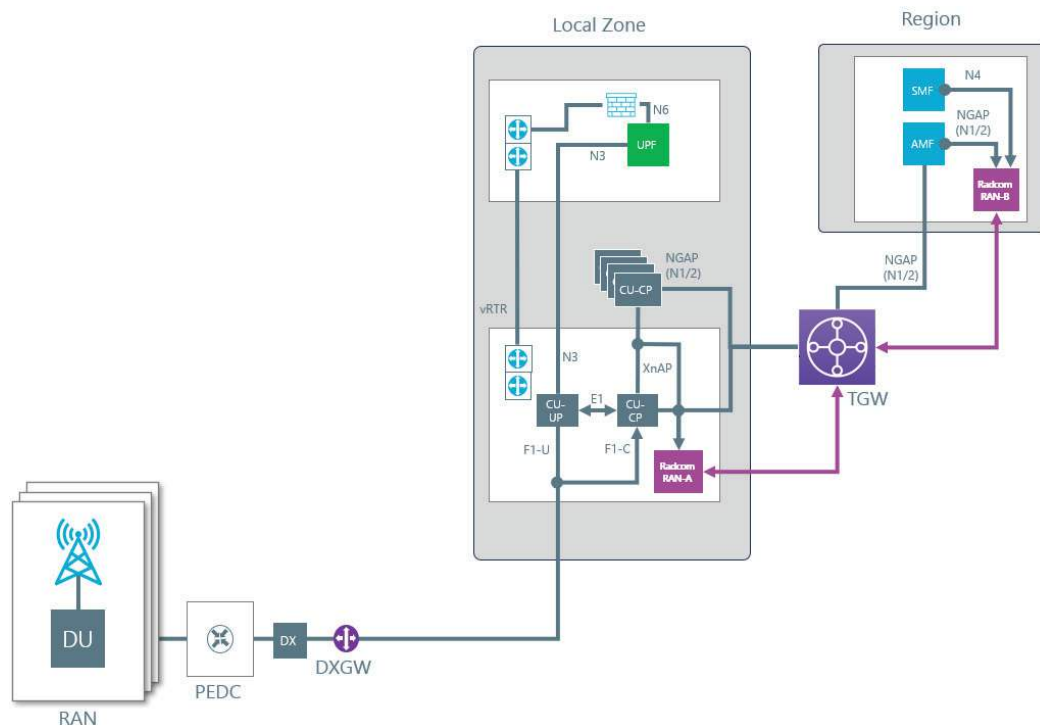
Offering new innovative services on the best possible 5G experience would reinforce brand loyalty for multi-play operators, widen subscriber usage of a broad product portfolio within the subscriber base, and reduce acquisition costs.

To turn the vision into reality and provide high-quality 5G services, operators need superb visibility into their 5G RAN and core networks nationwide amidst a fast and aggressive site rollout plan. RAN monitoring, part of the RADCOM ACE 5G Service Assurance solution, delivers many benefits to realize these business and technical objectives.

RAN monitoring solution

A critical part of the assurance solution is monitoring the User Equipment and cells (RAN or O-RAN interfaces) to maintain high-quality services. RADCOM's RAN probes deployed on the edge significantly reduce the computational load by efficiently calculating KPIs using edge computing capabilities.

The RAN and core data are correlated, providing the operator with end-to-end subscriber sessions critical for understanding the customer experience and performing advanced 5G troubleshooting.



RADCOM RAN probes support multiple vendors and Open RAN

Flexible architecture

The RAN Monitoring solution architecture is multi-layered and includes support for national data centers aggregating the nationwide traffic and regional data centers that acquire and process data from linked edge components. The solution's cloud-native and lean architecture allows deployment on the regional data center environments and the edge nodes and communication between both layers. This flexibility proves extremely useful and adaptable to the needs of the operator RAN teams.

Scale and efficiency

The hybrid mode of RADCOM's RAN probe footprint on the edge and regional environments isn't just compatible with the target RAN architecture. It also provides significant scalability. Processing RAN traffic on the edge allows the continuous and cost-effective rollout of additional probes on newly deployed nodes with marginal, 'grow-as-you-need' expansion on the regional and national footprint.

Cost saving

Intelligent RAN Monitoring on the edge retains subscriber data and only puts minimal data records on the communication links with the regional data centers. RADCOM RAN probes also apply rule-based cyclic data deletion logic to subscriber data retained on the edge, which can be fetched and queried ad-hoc. The impact on data backhauling infrastructure from the edge is significant, and subsequent processing in the regional data centers is also efficient and allows a favorable region-edge node ratio.

Native cloud support

Like the entire RADCOM ACE portfolio, RADCOM's RAN probes are containerized and run in Kubernetes-managed environments to support the customer's cloud environment. Whether Amazon Cloud (AWS), Microsoft Azure, or Google Cloud Platform (GCP), RADCOM RAN probes provide full integration into these cloud environments, run on Kubernetes, and are managed automatically by EKS.

End-to-end service assurance

Selecting RADCOM for 5G Service Assurance provides end-to-end RAN-core assurance. For example, edge records generated by the probes are T-MSI aware and matched/tagged to an IMSI only when they reach the regional cloud. Once these records undergo regional-level processing, core datasets with IMSI identification provide for edge data correlation and establish a full-service assurance paradigm that surfaces quality issues and provides root cause analysis workflows across both core and RAN.

Multi-vendor support

RADCOM's RAN probes support a variety of network vendors and types, including Nokia, Ericsson, Samsung, Mavenir, Altistar, and more. Data collected and analyzed by RADCOM's RAN probes at the edge creates the KPIs in a metadata form sent to the regional cloud RAN probes, where the correlation with the IMSI is performed. This means the data is vendor-agnostic and used as a unified CDR by the regional RAN probes. It also means that more than 90% of the data is kept at the edge, saving network resources while enabling ad-hoc session analysis and packet tracing.

Support for Open RAN

The solution leverages an Open RAN (O-RAN) architecture that disaggregates the monolithic RAN into its core elements and creates open standards for all the interfaces to connect the different elements of the RAN. With RADCOM RAN probes support for O-RAN protocols, operators can roll out 5G based on Open RAN standards while gaining network-wide visibility into its performance to ensure service quality.

Visualizing Radio Link Failures (RLF)

RAN vendors choose to pivot the RLF event into a specific feature that collects all relevant data before and after the event has occurred. The information is combined into one chunk of data that helps engineering teams investigate and resolve potential disconnections. RADCOM RAN monitoring unifies RLF monitoring across all vendor equipment and presents RLF insights to engineers in a manner that lets them apply corrective measures:

- RLF event density plots (geospatial analysis)
- RLF Root Cause Analysis (RCA) insights at the network, cell, cell impact pairs, and geospatial level with recommendations on reducing RLF issues.

End-to-end RAN experience

RADCOM ACE correlates core, MDT, RAN, and crowdsourced datasets. It establishes the root cause of a quality issue (analyzed and seen in the core data) by catching and isolating parallel and probable RAN degradation that is behind the issue.



Summary

A significant amount of service degradation is due to issues in the RAN, which can critically impact the customer experience. RADCOM offers advanced RAN monitoring that enables operators to keep track of their RAN nationwide to improve coverage, optimize network performance, and boost service quality. RADCOM's RAN probes can be deployed on the edge to reduce costs and utilize minimal network resources. At the same time, RAN and core data are correlated, providing end-to-end subscriber sessions that help operators perform advanced 5G troubleshooting to ensure excellent customer experiences.



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RADCOM (Nasdaq: RDCM) delivers real-time network analysis, troubleshooting, and AI-driven insights to ensure a superior customer experience. Utilizing cutting-edge technologies for over 30 years, we are the operators' eyes into their network, supporting them as they transition to new network technologies such as the cloud and 5G. Delivering dynamic service assurance for an accelerated digital transformation.

We offer the most advanced 5G portfolio for large-scale networks, providing operators with an innovative, efficient, and on-demand approach to network monitoring that meets the challenges of assuring the customer experience in the 5G era. Our leading solution, RADCOM ACE, is explicitly designed for telecom operators, delivering Automated, Containerized, and End-to-end network visibility. We enable operators to seamlessly manage and optimize their network operations using our innovative technology.

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