WHY

RADCOM

INTRODUCTION

RADCOM is the leading expert in cloud-native, automated assurance solutions with AI-driven insights to ensure a superior customer experience. RADCOM's solution supports operators in their transition to virtualization and 5G, delivering dynamic, service assurance and network troubleshooting for real time customer and service insights. RADCOM's solution for 4G and 5G, RADCOM ACE is explicitly designed for telecom operators and delivers Automated, Containerized, and End-to-end network (from the RAN to the core) assurance.

With over 30 years of deep network understanding, RADCOM has extensive experience with leading telecom operators globally. RADCOM offers the most advanced cloud-native assurance solution for large scale networks, providing operators with a smart, efficient and on-demand approach to network monitoring that meets the challenges of assuring the customer experience in the 4G and 5G era.

Full support for standalone (SA) 5G;
- Service-Based Interfaces (SBI) deciphering
- Complex CUPS correlation
- Auto-service discovery

Utilizes AI-driven insights for automated anomaly detection and root cause analysis

Fully containerized solution with a microservices architecture for efficient scaling, high availability and resilience

Cloud-agnostic (public, private and hybrid cloud deployments)

30 years of deep network understanding, through extensive experience with leading telecom operators worldwide

Disruptive, risk-free and predictable commercial model

RADCOM GLOBAL PRESENCE

ABOUT RADCOM

Founded
1991

30 years
of telecom experience

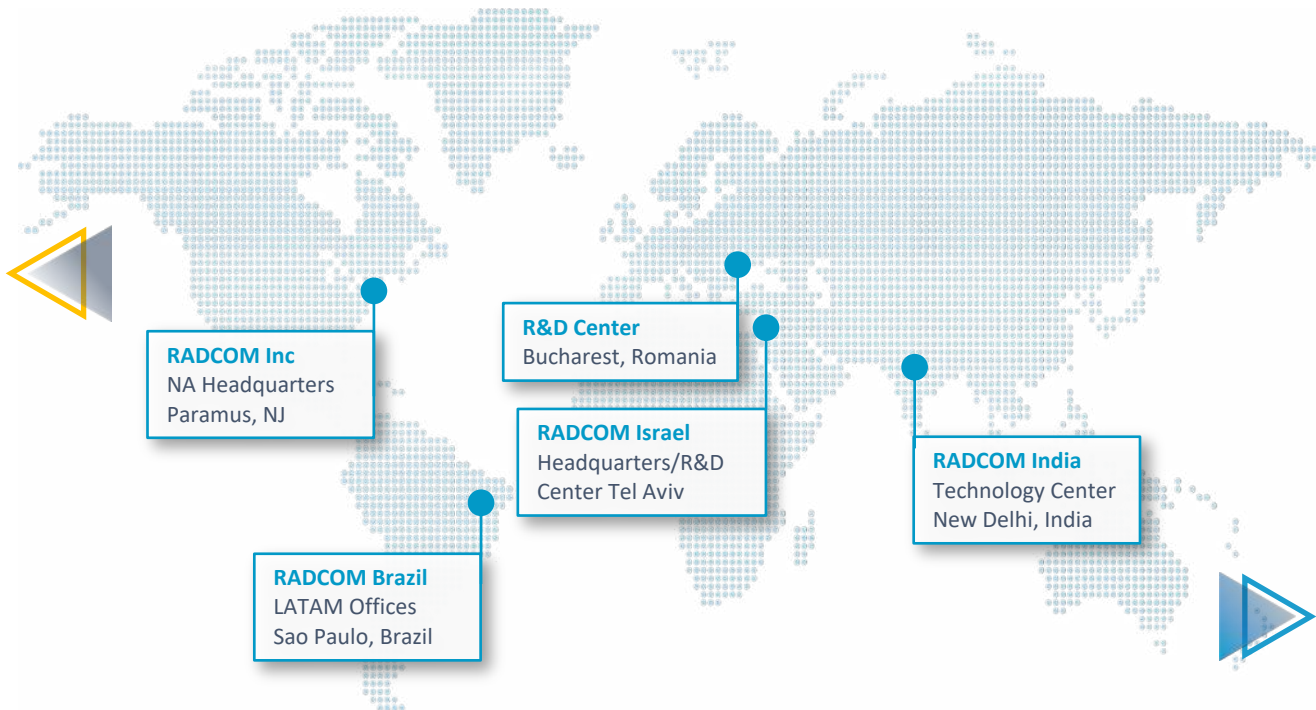**Publicly traded**
on NASDAQ (RDCM) since 1997

RADCOM Inc
NA Headquarters
Paramus, NJ

R&D Center
Bucharest, Romania

RADCOM Israel
Headquarters/R&D
Center Tel Aviv

RADCOM India
Technology Center
New Delhi, India

RADCOM Brazil
LATAM Offices
Sao Paulo, Brazil

CUSTOMER REFERENCES

Rakuten (Japan)	2019, Greenfield Virtual Operator
Scope	Rakuten (Japan), 2019, 10M subs (Mobile)
Scope	4G and 5G Mobile Network

"*Rakuten aims to revolutionize the way a mobile network is operated by focusing on the customer… RADCOM's unique solution enables this on a highly dynamic, fully virtualized network performance and efficiency.*"

Tareq Amin,
Chief Technology Officer, Rakuten Mobile

AT&T	(North America), 2016, 142M subs (Mobile)
Scope	Mobile
Solution	Service Assurance, Network Troubleshooting

"*We selected RADCOM because of its functional strengths, especially in virtualization, scalability, performance and efficiency.*"

Susan A. Johnson
Senior Vice President AT&T Global Supply

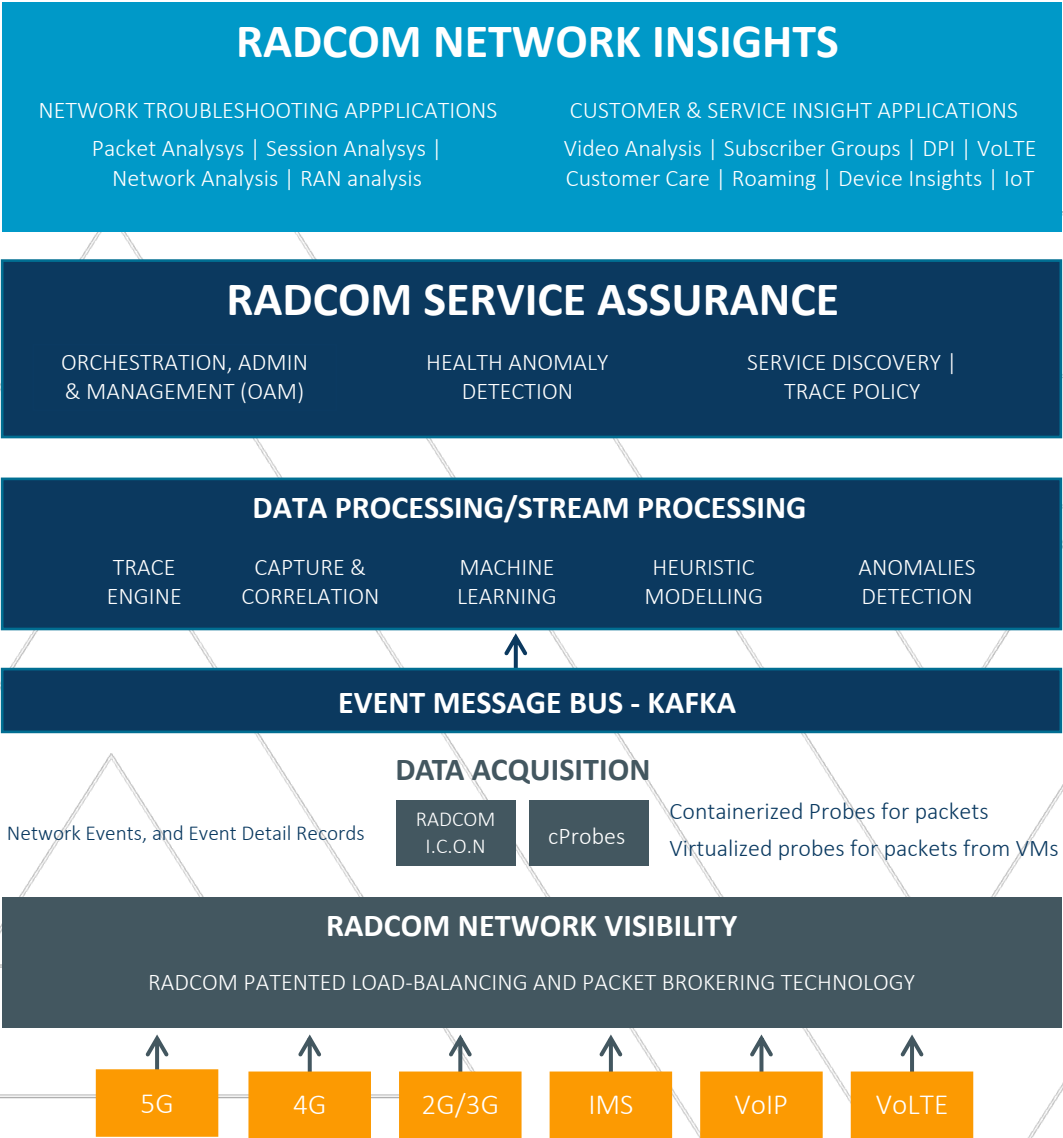|		
VimpelCom	(Russia), 2016, 50M subs (Mobile)
Scope	Mobile (2G – 4G), Fixed
Solution	Service Assurance, Network Analytics and Troubleshooting

"*VimpelCom is focused on delivering top Quality of Experience to its customers in a highly competitive market… RADCOM's solutions will enable us to do this at scale with automation. Implementing RADCOM's solution enables us to increase the end-to-end customer experience we deliver to our Beeline customers and reduce operational costs.*"

Martin Skop,
Chief Technology Officer, VimpelCom (A subsidiary of Veon)

SOLUTION OVERVIEW

RADCOM's solution includes RADCOM ACE (5G Service Assurance and AI-driven Insights) and RADCOM Network Visibility working together to provide an end-to-end view of the network.

RADCOM NETWORK INSIGHTS

NETWORK TROUBLESHOOTING APPPLICATIONS

Packet Analysys | Session Analysys | Network Analysis | RAN analysis

CUSTOMER & SERVICE INSIGHT APPLICATIONS

Video Analysis | Subscriber Groups | DPI | VoLTE
Customer Care | Roaming | Device Insights | IoT

RADCOM SERVICE ASSURANCE

ORCHESTRATION, ADMIN & MANAGEMENT (OAM)

HEALTH ANOMALY DETECTION

SERVICE DISCOVERY | TRACE POLICY

DATA PROCESSING/STREAM PROCESSING

| TRACE ENGINE | CAPTURE & CORRELATION | MACHINE LEARNING | HEURISTIC MODELLING | ANOMALIES DETECTION |

EVENT MESSAGE BUS - KAFKA

DATA ACQUISITION

Network Events, and Event Detail Records

RADCOM I.C.O.N

cProbes

Containerized Probes for packets
Virtualized probes for packets from VMs

RADCOM NETWORK VISIBILITY

RADCOM PATENTED LOAD-BALANCING AND PACKET BROKERING TECHNOLOGY

| 5G | 4G | 2G/3G | IMS | VoIP | VoLTE |

RADCOM Network Insights: Provides a smart end-to-end view of the service quality and customer experience for 5G SA and NSA, enhanced by AI-driven insights.

RADCOM Service Assurance: A fully containerized assurance solution that smartly collects and correlates data via multiple sources (network events, Event Detail Records and network packets) for full visibility into the 5G core.

RADCOM Network Visibility: Provides advanced packet broker capabilities for smart traffic distribution, filtering, and load balancing across multiple clouds and domains.

SOLUTION ARCHITECTURE

RADCOM ACE

RADCOM ACE provides a closed-loop approach to automated assurance for Standalone (SA) 5G by seamlessly integrating with Kubernetes. Being Service-Based Architecture (SBA) ready, the solution supports advanced 5G assurance capabilities such as complex Control and User Plane Separation (CUPS) correlation, new CUPS protocol decoding and the Packet Forwarding Control Protocol. RADCOM ACE uses streaming analytics to deliver automated real-time network intelligence given to the operators' orchestration to detect, analyze, and resolve issues automatically.

RADCOM ACE provides end-to-end network troubleshooting from the KPI level down to the session/packet level, critical when rolling out new network architectures.
Correlating various data sources (network events, event detail records (EDRs), and packets) from the RAN to the core, RADCOM ACE delivers AI-driven insights and automated root cause analysis for 5G. Proactively ensuring the customer experience and service quality with a range of telecom specific AI-driven use cases.

Built with microservices-based components enables the solution to be distributed, cloud-efficient, and dynamic. The solution continuously adapts using a full CICD implementation that is critical as 5G and cloud infrastructures evolve.
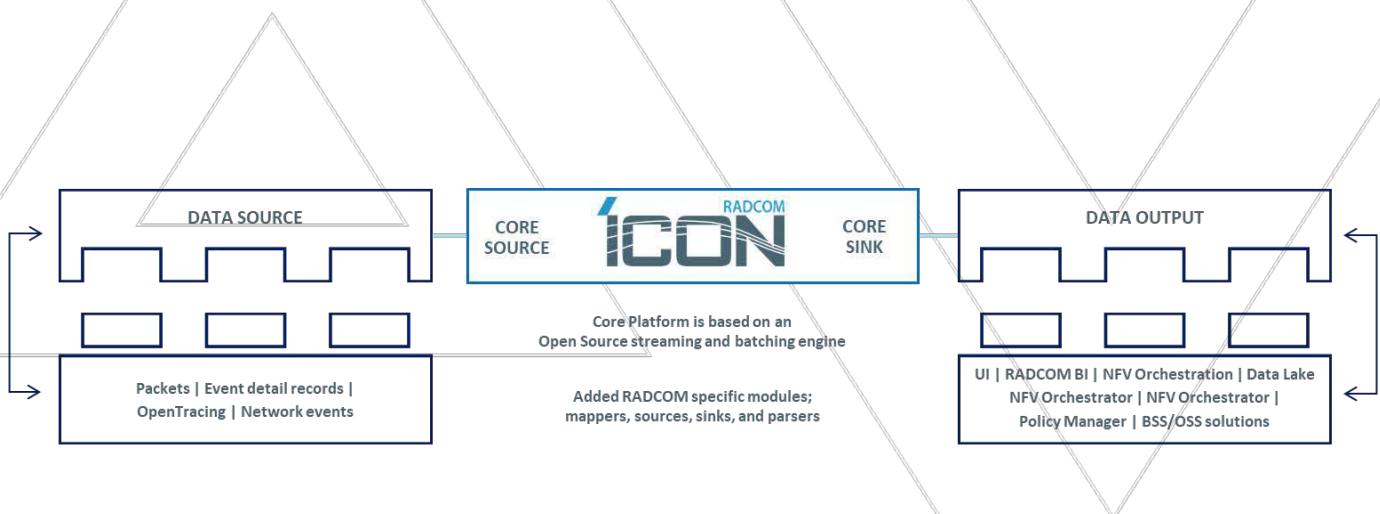
SOLUTION ARCHITECTURE

RADCOM SERVICE ASSURANCE

RADCOM Service Assurance efficiently collects data from multiple sources (network events, event detail records (EDRs) and packets) and smartly correlates them into RADCOM Network Insights, driven by AI.

RADCOM Service Assurance delivers Service-Based Architecture (SBA) readiness for both Service-Based Interfaces (SBI) and non-SBI, supporting complex Control and User Plane Separation (CUPS). This offers the ability to decipher encrypted traffic by collecting and combining multiple data sources and event types and processing the data using AI and machine learning for advanced insights. RADCOM Service Assurance captures packet-based data via Containerized Probes (cProbes) and network events via its patented RADCOM I.C.O.N.

RADCOM I.C.O.N is a smart, stateless, and containerized node. RADCOM I.C.O.N monitors, correlates, processes and analyzes multiple types of network events. RADCOM I.C.O.N combines front-end probe functionality with complex-back end processing into one standalone monitoring cluster delivering full network visibility in 5G from the RAN to the network core. Both RADCOM cProbe and RADCOM I.C.O.N allow for an extremely high throughput that can handle the correlation of an unlimited amount of data, which will be crucial for monitoring in 5G.

DATA SOURCE	CORE SOURCE	**ICON** RADCOM	CORE SINK	DATA OUTPUT

Packets | Event detail records | OpenTracing | Network events

Core Platform is based on an
Open Source streaming and batching engine

Added RADCOM specific modules;
mappers, sources, sinks, and parsers

UI | RADCOM BI | NFV Orchestration | Data Lake
NFV Orchestrator | NFV Orchestrator |
Policy Manager | BSS/OSS solutions

SOLUTION OVERVIEW

RADCOM NETWORK INSIGHTS

As part of RADCOM ACE, RADCOM Network Insights takes the data which has been collected and analyzed by RADCOM Service Assurance and applies cutting edge AI and machine learning techniques to provide automated anomaly detection and root cause analysis to rapidly resolve customer-impacting issues proactively.

RADCOM Network Insights covers a wide range of use cases that provide the operator with an end-to-end understanding of the service quality and customer experience. Also, RADCOM Network Insights offers next-generation tools for network optimization and root- cause analysis, such as call tracing and in-depth packet analysis.

Customer Care

Improve first call resolution and gain clear, concise customer data to handle service calls efficiently

Group Assurance

Proactively analyze and resolve issues for high importance groups before subscribers become aware of service degradations
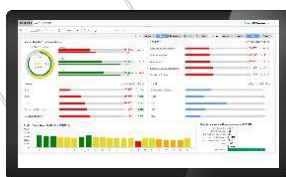
Video Streaming

Understand the customer experience for encrypted video (such as Amazon Prime, Facebook, Netflix, YouTube and others)

VoLTE Assurance

Correlate the end-to-end VoLTE customer experience with network, device, cell and service performance in real-time

Mobility Assurance

Ensure the customer experience for mobility (car and travel) and gain insights for monetization and marketing
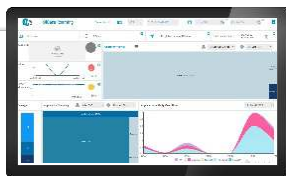
Customer Journey

Gain an end-to-end view of the customer's journey through the RAN to the Core

Tethering

Identify tethered devices connected to fixed or mobile data networks and understand the quality of service

Roaming Assurance

Monitor both inbound and outbound roamers to assure high quality roaming services

SOLUTION ARCHITECTURE

RADCOM NETWORK VISIBILITY

RADCOM Network Visibility can be delivered together with RADCOM ACE or as a standalone solution for an integrated cloud-native solution. With advanced patented packet broker capabilities that ensure intelligent traffic distribution, smart load balancing, and intelligent sampling for full end-to-end visibility across the network. RADCOM Network Visibility can be instantiated in minutes and managed centrally, scaled via integration with NFV MANO and Orchestration, to provide visibility from the edge to the network core.
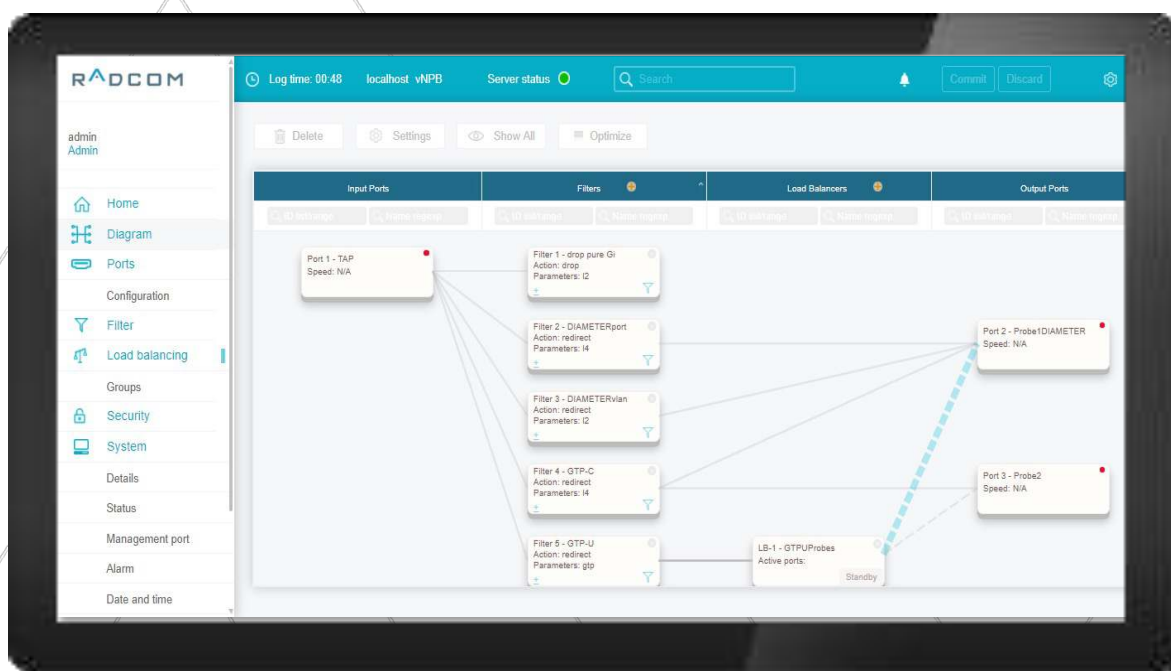
- Management of RADCOM Network Visibility is via a centralized web UI, Command-line Interface (CLI), NETCONF/YANG, SNMP and network access control list (ACL).

- Management at scale enables the operator to configure a filter rule once and apply to 1000s of vNPB instances.

RADCOM NWDAF SOLUTION

The Network Data Analytics Function (NWDAF) is a core component to the 5G core and at its most basic is a centralized function for data collection and analytics, enabling closed-loop functionality. RADCOM ACE provides an enhanced NWDAF solution.

As well as serving as an NWDAF, RADCOM ACE also offers an efficient and cost-effective, containerized service assurance solution. This provides end-to-end network troubleshooting, as well as complete service and customer experience visibility—empowering the operator with an enhanced, more agile NWDAF solution.

WORLDWIDE PROFESSIONAL SERVICES & SUPPORT

RADCOM has a dedicated Professional Services team that uses a native and agile methodology for maximum flexibility. This team brings a vast amount of 5G, NFV and cloud-native deployment experience from operator delivery projects.

RADCOM Professional Services provides a complete lifecycle of services:

Solution Design and Implementation

Detailed design, testing strategy and implementation planning

External Integration

NOC, user management, north and southbound

Integration with Cloud Infrastructure

Including orchestration

Network Monitoring, KPI and Full Scope Validation

Learning service structure, analyzing traces, deploying pre-defined KPIs, defining workflows, customizing KPIs

Customized Development and Solution Implementation

Agile, flexible and on time

Additional Services

Acceptance testing, training, worldwide knowledge sharing, maintenance and support

WHY RADCOM
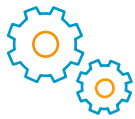
Fully containerized end-to-end solution for 4G and 5G service assurance from the RAN to the core

Assuring both Standalone (SA) and Non-Standalone (NSA) 5G using a microservices, stateless architecture

AI-driven insights for real-time analysis and deciphering of encrypted traffic

Risk-free subscription model with a fixed annual spend for any network capacity growth

Empowers operators with real-time intelligence of network performance to assure customers' experience

Over 30 years of expertise and best practices from top-tier deployments

OPEX and CAPEX savings from day one

Visit our website at:
www.radcom.com