

# TATA COMMUNICATIONS ROAMPULSE

USING INTEGRATED NETWORK INTELLIGENCE TO IMPROVE YOUR  
SUBSCRIBERS ROAMING EXPERIENCE AND STAY ON TOP OF YOUR  
NETWORK OPERATIONS



## AUTOMATED ASSURANCE AND AUGMENTED ANALYTICS

Roampulse helps you manage and assure subscribers and services across your mobile network, with end-to-end visibility of customer experience, helping identify opportunities to reduce cost of operations and improve customer experience.

Mobile network data is captured in real-time, pushed through mediation for conditioning, and served to the Roampulse service assurance and troubleshooting applications. Our probing solutions, (both physical and virtual), derive detailed insights at subscriber, device, service, and network-level, from underlying 2G through to 5G networks.

Combining a comprehensive network view, with dependable workflows, using Roampulse helps you to reduce troubleshooting complexity and costs while building a more business-focused approach to managing your mobile network and subscriber experience.

## STREAMING ANALYTICS

Key to reducing costs, improving mean-time-to-resolution and improving mobile customer experience is the ability to automatically identify subscriber anomalies, link them to a root cause and then close the loop using intelligent automation.

Roampulse is zero-touch and data agnostic. It uses streaming analytics to automate anomaly detection and selects the next best actions in real-time, thus significantly reducing mean-time-to-resolution and cost.

The Roampulse AI algorithms help manage the growing complexity of mobile networks using the same resources and helps detect, prioritise, and close issues automatically.

## VIRTUAL PROBES

With virtualised networks, probing is required on the move. For most MNOs a hybrid physical/virtual network is needed. Some greenfield MNOs may be able to go fully virtual from the start. Huge savings on capex and opex are associated with this generational leap in technology.

To manage and assure virtual networks using Network Function Virtualization (NFV) and Software-Defined Networking (SDN) requires a virtual assurance solution. Roampulse is NFV ready, reliable, field-tested, and scalable. Supporting hybrid networks it works seamlessly alongside your existing probing and troubleshooting infrastructure.

Roampulse helps you to manage this complex hybrid environment with correlated, end-to-end, customer experience and network traffic insights with augmented analytics to close the loop on next-generation networks.

## CUSTOMER ANALYTICS

A positive experience is a key driver of customer loyalty, customer retention and ultimately revenue. This is what the Roampulse multi-dimensional data-driven smart view of your subscribers, network, applications, and devices is designed for. It can cost-effectively handle huge volumes of data, suitable for both large and small MNOs. In-memory analytics ensure speedy responses with predictive analytics supporting trend prediction.

## PERFORMANCE ANALYTICS

Your network management, engineering and planning teams require real-time insights into performance, availability, and services to optimise operational resources and reduce mean-time-to-resolution. Roampulse presents a carrier-grade, scalable, service assurance solution. It provides a consistent, unified view of your network and service performance, with tried-and-trusted workflows based on customer use cases. Use Roampulse to triage and prioritise issues, to reduce troubleshooting time and save on operational costs on physical and virtualised networks.

## AUTOMATED ASSURANCE

Roampulse probing and troubleshooting is massively scalable and cost-effective for legacy and next-generation networks, reducing operational costs and driving efficiencies in network management. It provides end-to-end insight into your mobile subscriber experience and network traffic with KPIs, detailed call-flows troubleshooting, real-time dashboards, big data analytics and reporting. It assures 5G networks, virtualised and cloud-enabled, seamlessly alongside 2G through to 4G networks.

You want to be able to invest in the future of your networks, but you also want to assure the investments you have already made. With Roampulse you always remain smarter than your network.

## ROAMPULSE ARCHITECTURE OVERVIEW

Roampulse employs a Master Claw™ system architecture. This is an open, three-tiered architecture based on distributed intelligence providing a reliable and scalable solution. The three-level architecture encompasses:

**Data Presentation and Reporting:** presenting information using real-time dashboards, with associated analytics, reporting and call tracing.

### Key Features

- Tracing Calls, Sessions, and Transactions
  - By monitoring the network's signalling traffic and correlating signalling procedures in a single flow, the application can trace activities across different networks.
- Browsing Data Records
  - Master Claw™ data records are stored in accessible databases.
- Inspecting
  - Inspecting and tracing the information needed to identify and solve network problems related to message exchanges and protocols.
- Capturing
  - The Raw Capture feature lets users run a capture command on the selected network element.

**Data Processing:** This is a mediation layer. It is designed to tolerate faults configured with high availability clusters, like Hadoop or Vertica with data aggregation, correlation, enrichment, and streaming.

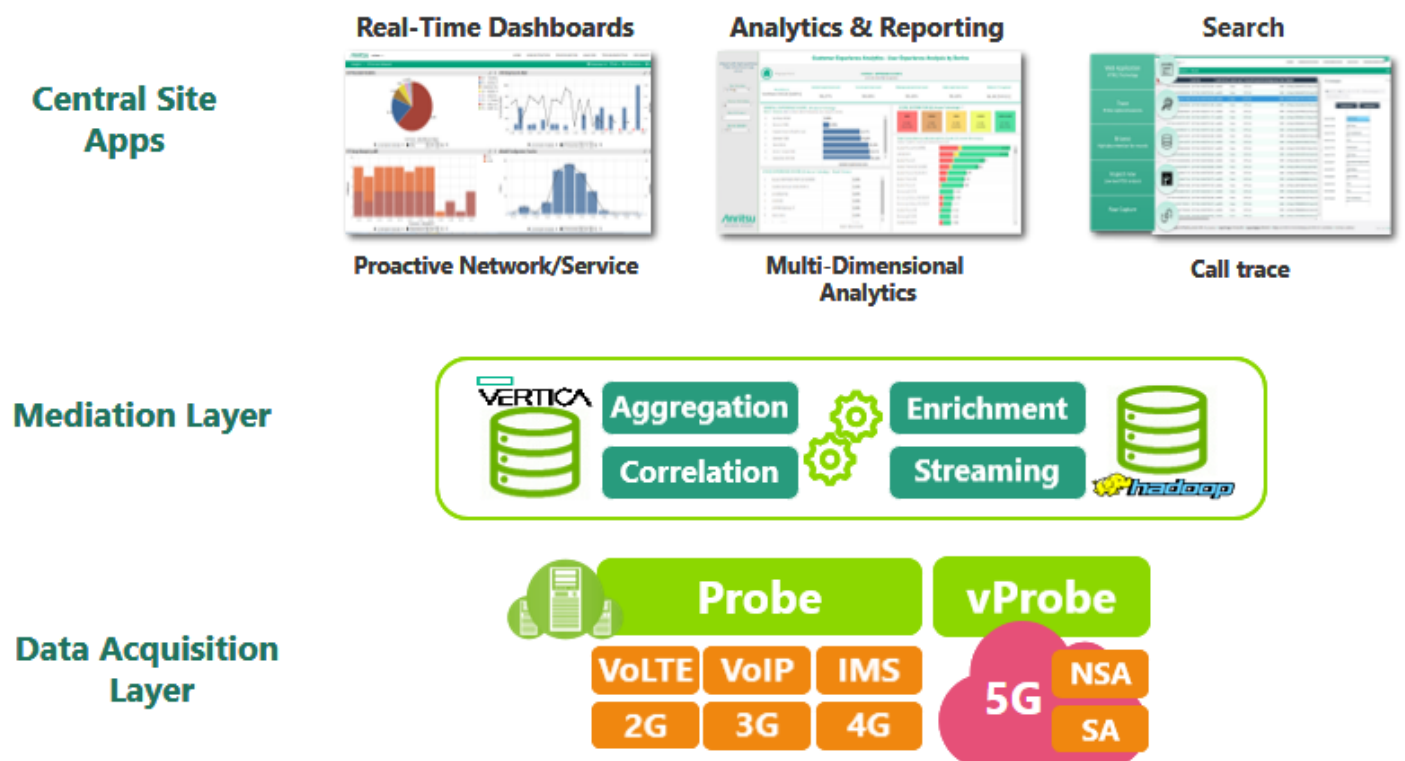
The Data Processing layer contains a set of applications required to collect, correlate, and aggregate the pre-processed raw data captured by the distributed probes. The logical flow requires multiple processing steps.

- Generation of CSDRs at probe level.
- Generation of Dialogues and Trails.
- Data Records generation

**Data Acquisition:** Comprises the various probes supporting 2G, 3G, 4G, 5G.

The non-intrusive probes are based on a unique and highly modular software architecture and depending on the configuration, the probes can be used for monitoring one or multiple types of transaction data:

- Connection and session-related signalling.
- User plane sessions.



*Proposed Protocols : SS7: MAP, Sigtran (SCCP), Diameter, SCCP (SMS), SGi, S8*

### Tata Communications Roampulse 3-Layer Architecture

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## About Tata Communications

Tata Communications is a leading global digital infrastructure provider that powers today's fast growing digital economy.

The company's customers represent 300 of the Fortune 500 whose digital transformation journeys are enabled by its portfolio of integrated, globally managed services that deliver local customer experiences. Through its network, cloud, mobility, Internet of Things (IoT), collaboration and security services, Tata Communications carries around 30% of the world's internet routes and connects businesses to 60% of the world's cloud giants and 4 out of 5 mobile subscribers.

The company's capabilities are underpinned by its global network. It is the world's largest wholly owned subsea fibre backbone and a Tier-1 IP network with connectivity to more than 240 countries and territories.

Tata Communications Limited is listed on the Bombay Stock Exchange and the National Stock Exchange of India and is present in over 200 countries and territories around the world.

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