

# RAN SOLUTIONS



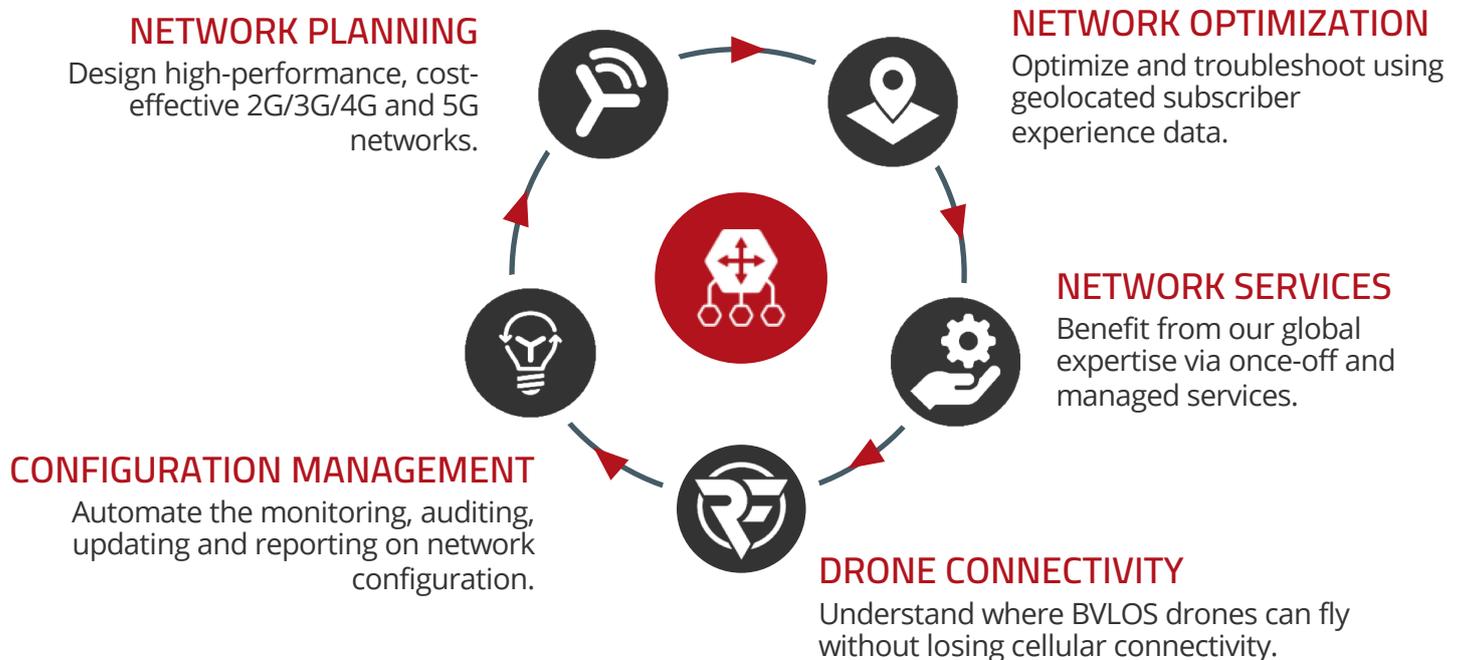
# RAN SOLUTIONS



Planning, configuring, analyzing and optimizing wireless networks and their expansions are complex and resource intensive tasks, especially with the introduction of 5G and new IoT devices and services.

With quality of service being a key differentiator, CSPs are only as good as their network performance. Maintaining network quality while expanding coverage, adding capacity, and introducing new technologies and services is a challenging undertaking.

With intelligent solutions to address each stage of the network lifecycle, we help service providers deliver maximum network performance and ensure efficient CAPEX utilization.



## TEOCO is a network engineering tools market leader

For over 5 years, Analysys Mason has ranked TEOCO as a leading vendor of network engineering software tools.

# 5G

The ASSET Suite is a comprehensive planning portfolio designed to deliver cost-effective high performance networks for 2G/3G/4G and 5G.

The products within the ASSET Suite cover radio, backhaul and capacity planning across a wide range of technologies. Key to the success of the ASSET suite of products is its ability to seamlessly integrate into your wider OSS ecosystem, improving overall planning efficiency and accuracy.



**Understand traffic demand:** by leveraging geolocated subscriber data, PM data and CM network data



**Address all aspects of planning:** macro, small cell, backhaul, multi-height coverage and capacity and automated design optimization



**Deliver 5G:** validate business cases, model scenarios and plan 5G networks



ASSET  
Radio



ASSET  
Backhaul



ASSET  
Design



ASSET  
Web



ASSET  
Update



ASSET  
Geo

# NETWORK OPTIMIZATION



## Advanced network optimization, analytics and troubleshooting via a suite of solutions that leverage network measurements and geolocation algorithms.

Our RAN optimization and analytics products are multi-technology and support all the major network equipment vendors. Our best-in-class geolocation algorithms employ innovative positioning techniques using transportation, topographic and building data map layers. Automation and closed-loop capabilities deliver improved operational efficiencies.



**Mentor** provides geo-based, multi-technology advanced network optimization and troubleshooting.



**CogniSense** delivers actionable data insights into subscriber, device and network performance.



**Forte** delivers automatic GSM frequency planning, neighbor list optimization and load balancing.

### Optimize your multi-technology network



**GEOLOCATED COVERAGE MAPS**  
Understand indoor/outdoor, coverage, throughput, problems in network deployments



**CLASSIFICATION OF TRAFFIC**  
Where is the most important traffic? Where are issues observed?



**VIRTUAL DRIVE TESTS**  
Reduce drive tests costs, measure real-life subscriber experience, 50% OPEX saving



**MAXIMIZE THROUGHPUT**  
Maximize CAPEX effectiveness, analysis and optimization to maximize throughput

## NETWORK SERVICES



### RAN Services delivered as packaged solutions; a powerful combination of tools, methodology and people, leveraging global best practices.

We deliver a competitive advantage to your engineering team by combining our advanced vendor agnostic solution sets for network planning, optimization, configuration and refarming, with our years of expertise and well-defined methodology, all tailored to your timeframes and according to your needs. Our extensive multi-vendor experience allows us to share best practices from market leaders around the globe, and our offshore capabilities help ensure our deliveries are timely and cost-effective.

#### PLANNING AND EVOLUTION

Planning services for all network technologies and layers, including VoLTE, IoT, 5G and network consolidation.

#### OPTIMIZATION AND CAPACITY

Proactive cluster tuning, new feature activation and ROI based capacity expansion planning.

#### AUDIT AND OPERATIONS

Subscriber/network audits and analytics, customer complaint handling and vendor management.

#### SPECTRUM REFARMING

Repurpose existing, often under-utilized spectrum for use by other technology layers.

#### MANAGED SERVICES

Managed Services leveraging TEOCO's software and expertise, typically underpinned by multi-year contracts.



"TEOCO's consultancy services business represents a competitive strength as operators look to contract out many complex aspects of multi-technology network operations and planning." – Analysys Mason

## CONFIGURATION MANAGEMENT

### SmartCM maintains network integrity by automating the monitoring, auditing, updating and reporting on network configuration.

As networks are expanded and optimized and new technologies are added, it is critical to validate that configuration changes made to the Radio Access Network (RAN) are accurate. This helps ensure a healthy network and excellent customer quality of experience are maintained.

- Are you confident your radio network is configured as you intended? Misconfiguration is one of the primary causes of poor network performance, leading to increased churn.
- Are you able to identify network configuration issues that could be causing a loss of revenue? Often these issues are not reflected in performance statistics.
- Are you confident that the network changes suggested by your planning and optimization solutions have been correctly implemented in the network? If not, your investment in these tools is being wasted.

SmartCM allows engineers to monitor and improve network quality by providing visibility to the live network configuration and comparing it against the desired network baseline. This highlights configuration discrepancies – a primary cause of poor network performance.

Additionally, SmartCM ensures network integrity is maintained by continuously auditing and monitoring all network changes made by engineers, tools, and even managed service providers. It is vendor and technology-agnostic, supporting GSM, UMTS, LTE and 5G network infrastructure from all the major network equipment vendors.



#### DELIVER NETWORK QUALITY

A stable RAN results in an improved QoE



#### IMPROVE NETWORK OPERATIONS

Understand the impact of network misconfiguration



#### INCREASE ENGINEERING EFFICIENCY

Identify and prioritize configuration problems



AirborneRF is TEOCO's connectivity data platform for beyond visual line-of-sight (BVLOS) drone operations in cellular networks, providing valuable information about where drones can fly without losing wireless connectivity.



### Flight Planning

AirborneRF takes into account both national airspace control and cellular network coverage to define an air safety compliant, three-dimensional corridor where UAV's can be reliably controlled.



### In-flight Monitoring

Drone flights are monitored by AirborneRF. Measurements of real-world conditions during flight can be used to instantly recalculate routes, if necessary, to ensure safe completion of the flight.



### Physical Network Audits

BVLOS drones are an ideal solution for carriers to perform physical site audits (antenna heights, azimuths etc.) AirborneRF can be used to plan and coordinate the flights required to complete these audits.



### Monetize Business Cases

Demonstrate network capabilities to companies that are considering UAV technology for BVLOS applications, such as first responder reconnaissance, package delivery, infrastructure inspections, and so on.

# ABOUT TEOCO

**TEOCO is a leading provider of analytics, assurance and optimization solutions to over 300 communication service providers (CSPs) worldwide.**

Our solutions enable the digital transformation of CSPs while enhancing their network QoS, improving their customer experience and reducing their operational costs.

Through advanced analytics, TEOCO products provide actionable and measurable insights into network and customer behavior. This includes the optimization, effective monetization, and delivery of new and existing services, such as 5G.

Our commitment to network flexibility and agility makes TEOCO the obvious choice for CSPs looking to maximize the revenue potential of 5G investments and capitalize on new opportunities tied to the emerging Internet of Things (IoT).



**Global  
Footprint**



**Extensive  
Portfolio**



**Proven  
Solutions**



“TEOCO’s market leading position in Engineering Systems reflects the success of its extensive network planning and optimization solution set, built by some very cohesive acquisitions and integrated effectively to form a leading portfolio”

- Analysys Mason