NETSCOUT®

THE GEOANALYTICS ADVANTAGE

Building a RAN Strategy for a Competitive Market

GEOANALYTICS BENEFITS

Analyze and Troubleshoot RAN Performance

Quickly evaluate the worst performing regions in the RAN, identify underlying root causes such as poor coverage, RF interference, and network congestion.

- Shorten troubleshooting time
- Reduce OPEX due to fewer drive tests
- Minimize customer churn due to enhanced network quality and customer satisfaction

Evaluate and Compare Mobile Device Rf Performance

Determine how each device model is performing, how they are impacting network performance, and how they are impacting customer experience.

- Improve mobile device vendor SLA management
- Shorten troubleshooting time
- Minimize customer churn due to enhanced device performance management
- Accelerate feature deployment time for verification and launch

Visualize and Assess the Live Radio Network

Evaluate RAN performance and quickly identify issues impacting customer experience.

- Proactively monitor the impact of network changes in real time
- Minimize customer churn due to improved network performance
- Reduce OPEX due to fewer drive tests
- Accelerate "site on air" time

Geoanalytics and Evolution of RAN Solutions

Mobile network operators make use of a number of technology tools that support network planning, optimization and operation processes to meet business objectives on an ongoing basis. If their needs and solutions are properly aligned, it can result in an approach that helps provide a better customer experience while delivering a variety of services in a hugely competitive environment.

Advanced technological solutions combine the best feature sets into a single suite or platform to extend functionality beyond current limitations. Traditional OSS counter-based systems can only provide a network element-centric view of performance from a capture and post analysis approach.

This is an inefficient and incomplete methodology as engineers must review data generated from drive tests, handset agents and OSS counters each in a silo and with historical data only.

The example below offers a unique view with two reports for the same geographical area. The chart on the left presents data generated by a geoanalytics software platform while the chart on the right is limited to drive test data.
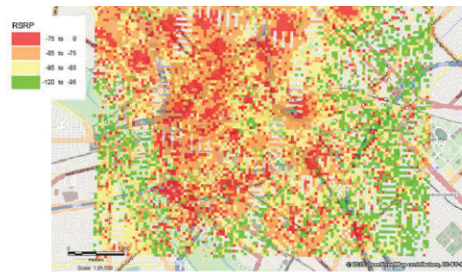
Geoanalytics Software Approach

- Complete network view from everywhere subscribers go including indoors.
- Every customer connection becomes a data point.
- Collected sample set represents an extensive customer network experience with 24x7 collection and more robust device representation.
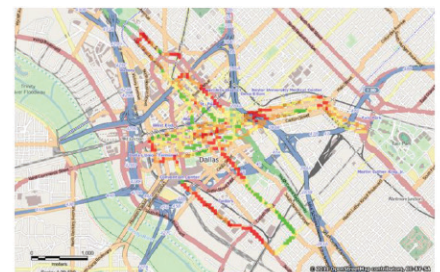
Drive Test Data Approach

- Snapshot of network from main roads only.
- Data collected only from locations cars/vans can drive.
- Collected sample set is a minimal representation of customer network experience based on a reduced time window.
- Incomplete representation of reality based on a limited subset of fielded device models.

Modern offerings outperform legacy solutions to more efficiently address real-world challenges. Per this type of comparative example, it's apparent the data generated by a best-in-class geoanalytics platform can provide more complete and timely insights than traditional drive test collection methods and include:

- QoS statistics similar to the performance counters from OSS.
- Drive test-like visualization to enable quick analysis, troubleshooting and decisionmaking in the optimization space while minimizing costly drive testing.
- Device and subscriber analytics enriched with location information.
- True subscriber experience network coverage and quality map.

GEOANALYTICS BENEFITS CONTINUED

Visualize and Plan the Radio Network

Observe and analyze radio network coverage and capacity response to identify where coverage is strong and where it is weak. More effectively plan network enhancements to maximize the return on their capital investments.

- Shorten troubleshooting time
- Minimize customer churn due to improved network performance
- Reduce CAPEX spend on RAN network site location

Address RAN Issues, Improve Customer Care

Address and respond to customer complaints while improving the performance of the network by drilling into the air interface signaling message history of every call in the network.

- Reduce troubleshooting time
- Reduce customer churn due to improved network performance

Over the years, legacy drive testing practices have become increasingly costly and inefficient when compared to newer technology solutions

The Value of Geoanalytics for RAN Service Assurance

While providing statistics about network elements, a geoanalytics platform can correlate device and subscriber data with their position in the mobile network. This allows for quick differentiation of issues into the dominant categories of network element, handsets, subscriber profile and location.

Operators that have already deployed and are using geoanalytics platforms report a tremendous reduction in operating expenditures and, more importantly, improvements in their customer satisfaction ratings.

The chart below illustrates the potential time savings offered in comparison to higher problem-resolution rates.
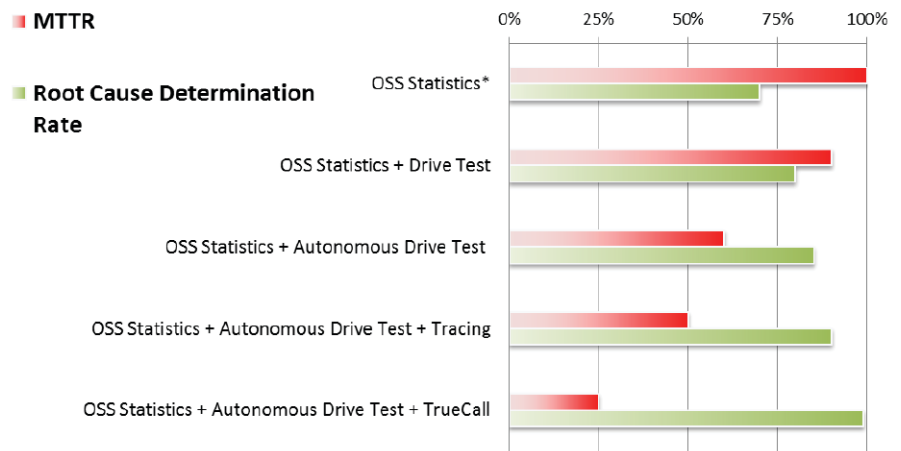
Time required to solve a single customer reported problem*

*Represents mean values across multiple projects

Real-time 24x7x365

An integral part of using data to improve the network is the timeliness of the data arrival and processing. The 24x7x365 visibility and update delivery of network performance data is a vital aspect. Platforms traditionally used by operators can store data for months or for busy hours only, allowing comparison of quality and usage KPIs over time (e.g. during the season changes) or before/after a network expansion or other change that impacts the network.

It is no longer adequate for mobile network operators to take only an historical approach to network monitoring and optimization. Operators that have a unique real-time perspective of the wireless network and customer experience can quickly pinpoint trouble spots and identify solutions to address network performance and subscriber experience issues as they happen and not hours or even days later. Operators with the ability to monitor network performance in real time can support decisions in engineering, operations, sales and marketing, regulatory compliance and reporting, as well as customer care.

In the dynamic and fast changing networks of today, the traditional approach is history.

Use Case	Common Practice	Geolocation Benefits
Corporate Customer SLA Monitoring Monitor the perceived quality and coverage of corporate customer	Monitoring SLAs for corporate subscribers can be approached with CEM solutions but usually suffers from huge gaps between true and shown experiences.	Radio Access is a black hole in existing CEM systems, so true SLA monitoring cannot be achieved. A geolocation platform can close this gap leading to a much more realistic view on corporate subscriber performance.
Customer Care Collect information about radio condition when a complaint is received	For some devices, care agents can trigger a trace or log, then mobile phone submits automatically. Traces do not run continuously, so sometimes impossible to reproduce problem until trace is on.	Implement critical information from the radio interfaces that are required for quick, educated decision making on the care agent level. Platform doesn't require triggers because information is collected proactively 24/7.
Drive Test Augmentation Drive Tests are conducted regularly to validate planning, verify QoE and benchmark tests	Drive test logs are imported by the planning tool and validated against planned results. QoE issues are reported for early warning purposes.	Platform transforms all subscribers into virtual drive testers. All network user events can be visualized on a map at high accuracy.
Small Cell Planning Data usage in the network	Based on approximate traffic forecast for regular build outs. But also marketing and sales of the network operator help to determine the right locations for small cell locations	Geolocate all calls and outline locations with high traffic/low traffic. Provide insights into current and past traffic consumption per location for cost reductions and improved selection of site locations.
Subscriber and Device Analytics CDRs and Billing logs	Network traces from various interfaces	KPIs available per handset/ subscriber/network element/location. Also shows best/worst/most used elements/devices/locations for multiple subscribers (e.g. corporate customers). An additional benefit results from the capability to see where VIPs are using the network services.
VoLTE New technologies, such as VoLTE or RCS, require a deep dive when problems first reported	With new technologies, a high level of uncertainty often leads to a 360° alarm when a problem is reported or a counter looks strange. This could end with various teams simultaneously and inefficiently chasing the root cause.	VoLTE planning, deployment and maintenance is well addressed within many platforms—active and ongoing collaboration with leading VoLTE operators and device analytics capabilities ensure a continued, real-time service performance advantage.
White Space Detection Identify locations with no coverage	When a certain amount of complaints are received by operator care department, a drive tester will verify on location. Further steps conducted by planning or optimization departments.	Platform geolocates and pinpoints all calls. The reverse measurement (no calls in a certain area) outlines locations without coverage.

Geolocation Use Cases

Drive testing is not the only legacy technology that can be replaced by and supplemented with a geolocation platform.

The chart featured on this page includes a number of other common use cases.

While 70% of subscriber issues occur in the RAN, 40% of those issues remain unresolved with current carrier tools.

VoLTE Life Cycle Support

VoLTE spans multiple network technologies and domains, presenting challenges for mobile operators, which include costly network infrastructure investments to meet subscriber quality and reliability expectations, seamless interoperability across all platforms and vendors, QoS and policy management, e911 and roaming support, and handset availability.

With the growing number of VoLTE service launches globally, an increasing number of operators are realizing how they can benefit from complete radio access-to-core view of the network. This integrated, end-to-end approach pinpoints VoLTE service quality impacts and helps proactively manage issues before they become widespread problems.

- In pre-launch scenarios, operators report experiencing a 40 percent time-to-market improvement with real-time data updates used for service optimization.
- In support of ongoing service, operators report a 30 percent improvement in troubleshooting time-to-resolution.

VoLTE SRVCC handovers are a common area of concern for operators, and a geoanalytics platform can enable improvements with reports on real-time RAN conditions, mobility, call control and resource allocation. Analytics tools then allow operators to more quickly resolve complex handover challenges without jeopardizing the customer experience.

Planning for the Future

Real-time network data with drill-down to the subscriber level can support the roll-out and life cycle of new technology services, such as VoLTE. Dynamic, real-time, end-to-end, multi-vendor, multi-RAT, subscriber-level intelligence effectively addresses critical operator challenges, and enables mobile operators to:

- Meet subscriber expectations for seamless services at low cost
- Mitigate increased operational cost, complexity and challenges of LTE networks
- Assure VoLTE launches over an all-IP connection, including the RAN

When utilizing an optimization and performance-management platform, mobile operators can launch services faster, achieve higher quality and significantly reduce costs. In turn, this creates a continuous process for ongoing operational efficiency, end-to-end analysis and debugging support. Essential tools can manage devices, new vendor features, coverage parity and more, reporting results that cannot be achieved with drive testing at a fraction of the cost.

New service launches yield a myriad of challenges. When operators are able to correlate subscriber-level data with real-time RAN conditions, they can analyze mobility, call control and resource allocation in order to ensure a high quality and consistent experience.

Conclusion

One of the key benefits of the geoanalytics platforms is they enable the operators to view the network performance as it is experienced by their subscribers. This enables the operators to become quickly aware of and to address the issues that most impact the subscriber experience.

There are many common use cases where benefits of geolocation tools would rapidly and readily become apparent to mobile network operator users. Pre and post VoLTE launch is an important and timely example as more networks are launching globally and poor service can have a dramatic negative impact on the subscriber experience which would quickly trickle down to the bottom line.

It's vital for operators to plan ahead and not manage network issues reactively. Real-time network data with drill-down to the subscriber level can support the roll-out and life cycle of new technology services and maintain the quality of the network on an ongoing basis.

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