

SOLUTION BRIEF

Customer-Centric, In-Depth Mobile Network Troubleshooting

Better customer experience where and when it matters most



Mobile Network Challenges

As wireless technology evolves to 4G, LTE and beyond, and mobile penetration around the world continues to creep higher, most mobile operators have shifted their focus from customer acquisition to customer retention. Mobile operators are no longer working to “grow the pie,” rather, they are trying to gain a bigger “slice” of the existing one. With that shift, mobile operators are increasingly realizing the importance of continuously managing both their legacy and next-generation network systems in order to ensure a high quality of experience (QoE) for subscribers amid future capacity demands.

Meeting the challenge for RF engineers

Since 70 percent of subscriber issues occur within the Radio Access Network (RAN) domain, maintaining and troubleshooting issues in the network can be difficult and costly for mobile operators.

Together, increased network complexity and exponential growth in data traffic over the past decade has made it more time-consuming and costly for RF engineers to troubleshoot RAN quality of service (QoS) issues. Traditional methods, like drive testing, are inefficient and give an inaccurate view of the quality experienced by the users, since most of them are indoors.

Slow response to quality issues can have an even higher cost – loss of customers. The faster you can identify and resolve service quality issues, the less likely you are to lose customers.

Ideally, mobile operators would be able to identify and resolve quality issues before their customers even noticed them and complained.

This is where the challenge lies for RF engineers – in today’s increasingly complex network environment, engineers need to focus on numerous amounts of data in their network troubleshooting process. Without the latest relevant data, engineers will not have all the information they need to make informed decisions when it comes to solving network quality issues. While current advanced mobile networks contain relevant information useful to RF engineers as they solve network issues, the complexity and sheer volume of this data usually stops RF engineers from sifting through and utilizing it. This is why RF engineers turn back to traditional methods of network troubleshooting.

POWERFUL DATA SOURCE

Traffic measurement recordings or call traces are available in most major vendors’ OSS systems, where each vendor would have its own proprietary standard of collecting information.

This powerful data source includes detailed event and measurement data corresponding with a significant portion of real users’ live traffic.

Call traces give the mobile operators utilizing these vendors’ recording capabilities a relatively cost-effective way to troubleshoot issues in the networks, straight from the office, without sending out drive test teams or utilizing more expensive solutions. This powerful data source is relevant for numerous network troubleshooting and optimization tasks, from solving specific cell issues and area-wide optimization, to the monitoring of premium customers.

Through network call traces, mobile operators can use real, live, geo-located subscriber data records to make network troubleshooting a more efficient and effective process. RF engineers can see subscribers’ network activities and all of the associated signaling that occurred over a period of time, and then use that intelligence to determine which subscribers are being affected the most by recurring network issues and address those network problems first.

A POWERFUL TOOL

Infovista’s Xeus solution will give RF engineers a completely new dimension, in terms of network troubleshooting analysis and process, by bridging the gap between network parameter data, traditional drive test data and extensive call trace data.

The core strength of Xeus is its ability to intelligently post-process and analyze multiple network and subscriber intelligence data, such as call-traces, network configuration, statistics and drive test data – all in a flexible, desktop-based solution.

More importantly, the ability to utilize call trace data enables mobile operators to quickly and simply harness the value that inherently exists in the network, converting millions of call records into the insight required for RF engineers to understand true customer experience and quickly resolve quality issues where and when it matters most.

PROACTIVE TROUBLESHOOTING

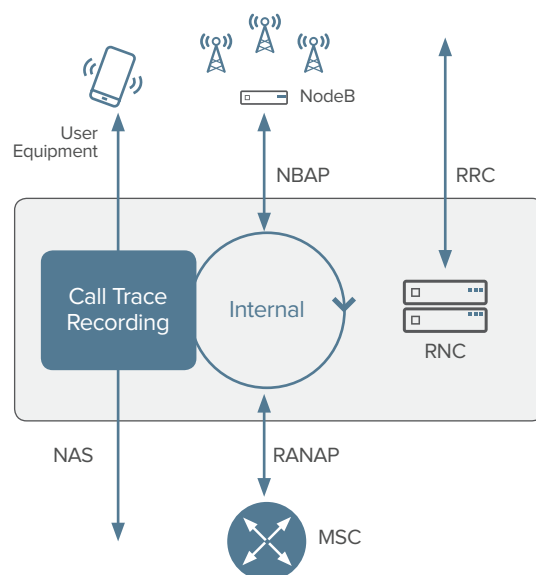
While 100 percent customer satisfaction is unrealistic in today’s complex network setup, it is essential for mobile operators to continuously ensure optimal QoS for their subscribers, starting with the most valuable ones. For many, customer service assurance is usually a reactive process, where troubleshooting of network issues only starts after a customer makes an official complaint, which means that a large time is taken to react to an issue that might not be solved.

To reduce churn, mobile operators need to take subscriber insight data and use it to identify subscribers, especially high-value users, who are facing network quality issues, and then quickly troubleshoot and fix these issues before the impact becomes unbearable to these users.

Xeus makes it easy to identify VIP subscribers, analyze their individual experiences and quickly determine those who are most impacted by network performance issues. It ensures that the troubleshooting effort maximizes customer retention and mobile operators’ ROI and revenues.

This insight enables mobile operators to stay ahead of the competitive curve by being more proactive when it comes to troubleshooting issues, and making the right decisions ahead of time.

Figure 1. Call trace measurement captures detailed information from a large volume of network traffic.



POWER TO SEE WHAT YOU NEED

The first part of troubleshooting any issue is to identify the location of the issue faced by the subscriber. While it is important to spot problem areas and trends across the network, being able to see where specific subscribers are facing issues is valuable in order to make accurate and quick decisions, especially when it comes to high-value subscribers. One of the many powerful features in Xeus is the GeoAnalysis function – its advanced geolocation capability utilizes real subscriber measurements captured in call traces. This powerful visualization feature generates various plotting scenarios based on the estimated geographical location of events. With an advanced, built-in algorithm, RF engineers can see subscribers’ network activities over a period of time, along with all of the associated signaling that occurred, and then use that intelligence to determine which subscribers are being affected the most by recurring network issues. Mobile operators can then address those network problems first, reducing the reliance on drive test.



Figure 2. Easy identification of individual subscribers’ issues.

To quickly identify and solve an issue, RF engineers require a lot of information in a timely manner before they can make a critical decision that might impact a specific subscriber or a group of subscribers. Combining the rich data from call traces and other network related data in Xeus, RF engineers are able to correlate real user experience with various network scenarios, enabling efficient troubleshooting process through a multi-dimensional view of complex network problems.

SUMMARY

With mobile operators constrained primarily to ongoing network improvement activities, they require a holistic approach to troubleshooting network problems so that they can pre-emptively handle issues impacting subscribers, and at the same time prioritize those who are most important.



Figure 3. Geo-localize all of a specific subscribers’ activities and QoE.

Infovista’s Xeus was designed to intelligently post-process and analyze data from multiple networks, including major vendor call trace data, network configuration data and drive tests. As a day-to-day troubleshooting software, Xeus provides RF engineers with state-of-the-art, built-in algorithms and workflow to enable them to improve their network troubleshooting response time, including the following benefits:

1. Proactively identify VIP customers for whom QoS is at risk
2. Accelerate root cause analysis and troubleshoot RF performance problems down to the individual user or cell level
3. Analyze customer-impacting problems to find and fix recurring issues quickly

About Infovista

Infovista, the leader in modern network performance, provides complete visibility and unprecedented control to deliver brilliant experiences and maximum value with your network and applications. At the core of our approach are data and analytics, to give you real-time insights and make critical business decisions. Infovista offers a comprehensive line of solutions from radio network to enterprise to device throughout the lifecycle of your network. No other provider has this completeness of vision. Network operators worldwide depend on Infovista to deliver on the potential of their networks and applications to exceed user expectations every day. Know your network with Infovista.