

NITRO CORE

Subscriber Experience Assurance



SOLVING INDUSTRY CHALLENGES

Subscriber experience is one of the main components with which service providers compete within their markets. Understanding the intricacies of subscriber experience is key for mobile operators as competitive pressures are continually rising, not only from incumbent providers, but also with new providers entering the market as the way we access services evolves over time. Subscribers' seemingly never-ending desire is for new and better services from the operator's networks – that work continually and flawlessly.

As a result, creating best-in-class subscriber experience is becoming even more increasingly important as an operational priority for service providers. Seeking to understand superior subscriber experience requires a combination of improved customer service, operations, and engineering efficiency in how problems are solved when subscribers contact them the first time.

SUBSCRIBER EXPERIENCE ASSURANCE

Subscriber Experience Assurance, a rapid application development workflow delivered as a part of the VIAVI NITRO CORE portfolio, addresses these industry challenges by providing per-subscriber advanced insights leading to proactive and flexible customer experience management at a fraction of the cost of full blown CEM solutions in the market today.

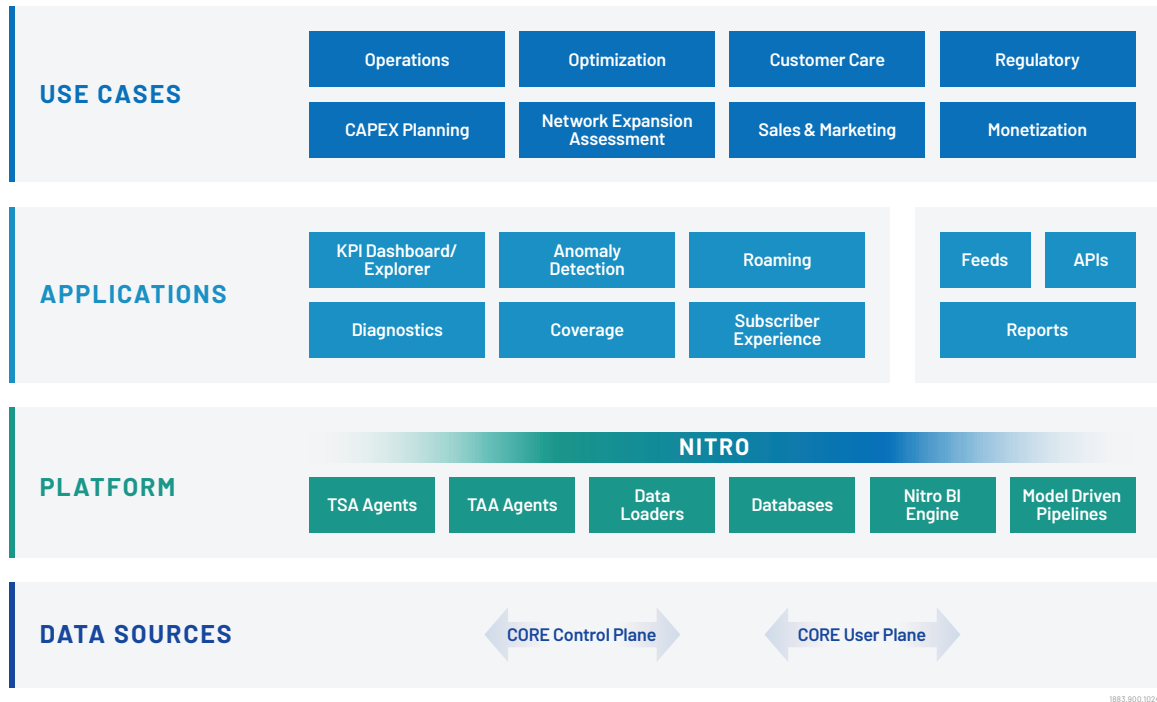


Benefits

- Deliver on the promise of superior customer experiences to gain competitive differentiation, retain existing business, and win new customers
- Quickly analyze voice quality, quality of data services, and performance of SMS, enabling faster root-cause identification
- Streamline workflow between Customer Care and next levels of support to reduce OpEx
- Save CapEx with a streamlined CEM solution for Customer Care without the heavy investment profile of full-scale CEM systems

Features

- Simple, intuitive workflow requiring little or no training to use
- Provides a comprehensive overview of quality of experience on a per-subscriber basis
- Support for 5G (data only), 4G, 3G and 2G technologies for voice, SMS, and data
- Comparative view of selected IMSI vs. other subscribers using same services in the same area
- View map of subscriber's cell locations and conditions (while maintaining privacy compliance)
- Enables Customer Care to gather valuable contextual information for next level of support troubleshooting
- Contextual workflow drill downs to root cause in just a few clicks – minimizes "No Fault Found" customer case-closures
- Advanced details and subscriber diagnostical session trace drill down pages provides expert users with necessary details for advanced root cause analysis



NITRO CORE Portfolio

When it comes to troubleshooting, Customer Care triage doesn't always capture the technical network details needed by the deeper layers of support. Instead, they typically document only what the customer has expressed about the problem. However, by the time these necessary network details reach the technical teams at the next levels of support, the subscriber issue often requires a complete operational troubleshooting step. Unfortunately, this can prolong the resolution process for the subscriber.

Imagine this scenario: too much time has passed since the initial Customer Care contact, and the issue has escalated to the next level of support. However, during their thorough investigation, the technical team may find no fault. As a result, the ticket gets closed with a frustrating "No Fault Found" outcome, potentially leaving the customer dissatisfied.

NITRO CORE Subscriber Experience Assurance provides holistic real-time views through a subscriber-centric dashboard. It empowers Customer Care to drill down and gather the necessary data for the next level of support, all without requiring an extensive technical background. Here's how it works:

- 1. Subscriber-Centric Workflow:** The workflow focuses on individual subscribers, pinpointing specific locations where poor data, voice, or SMS scores are observed. These scores are derived from underlying Key Performance Indicators (KPIs), with configurable weightings and color level thresholds. This approach makes issues easily identifiable.
- 2. Correlated Network Data:** NITRO Mobile captures and correlates network data based on the subscriber's International Mobile Subscriber Identity (IMSI) or Mobile Station International Subscriber Directory Number (MSISDN). This data provides insights into the subscriber's experience.
- 3. Technology-Specific Analysis:** The solution allows users to analyze scores by technology (2G, 3G, 4G, 5G). Whether it's data volume, maximum throughput, call quality, or SMS counts, users can quickly identify issues with just a few clicks.

By leveraging NITRO CORE Subscriber Experience Assurance, Customer Care can potentially resolve issues directly without escalating them to the next level of support. It's a win-win: faster problem resolution for subscribers and improved customer satisfaction.

Summary Indicators

Technology: 2G/3G/4G/5G

Activity: % of user plane data by volume (per technology)

Quality: UP QoE score (per technology)

Outer Ring Status:

- Grey - subscriber inactive
- Green - no network issues detected
- Red - network issue detected

Status Icons:



Subscriber inactive



No issues found



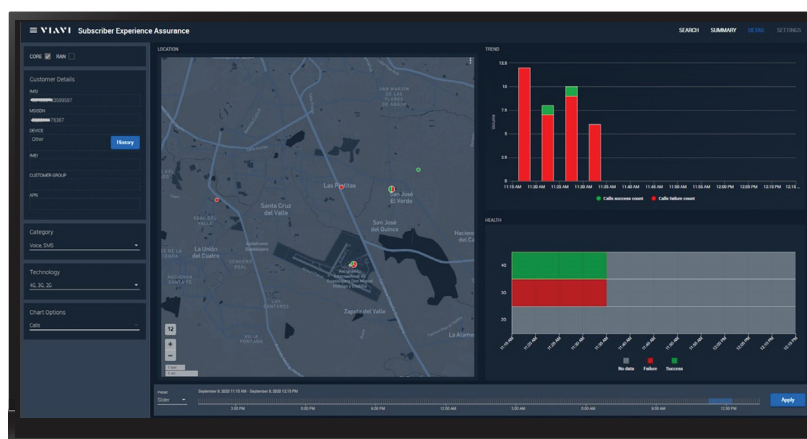
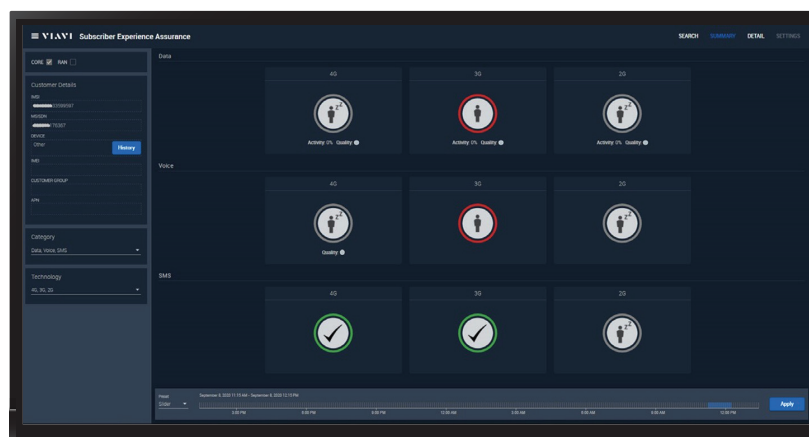
Network failure impacting single subscriber



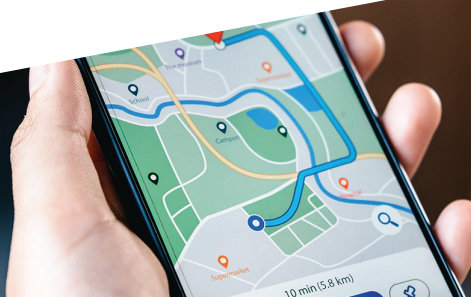
Network failure impacting some additional subscribers



Network failure impacting many additional subscribers



Sample Subscriber Experience Assurance Workflow



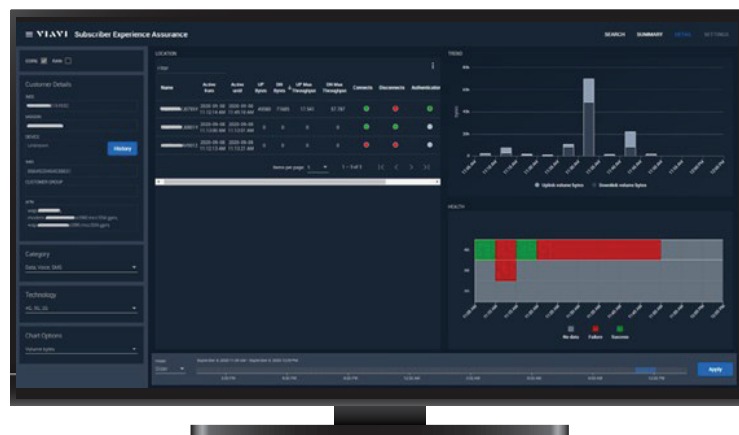
USE CASES

Customer Care and Network Operations

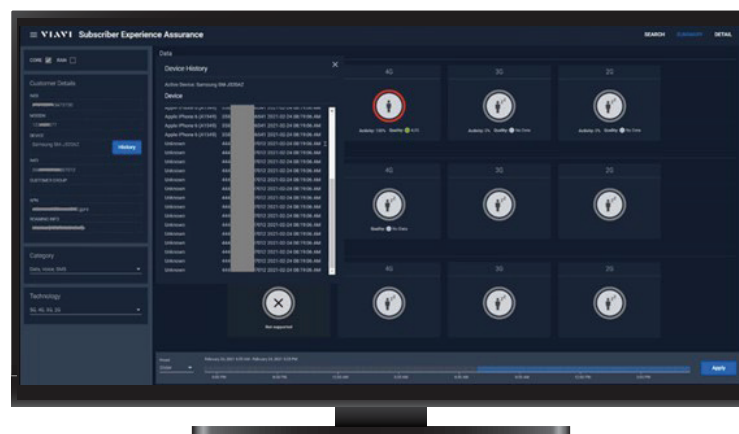
These teams gather subscriber issue information and troubleshooting end to end network problems. They are required to work dynamically combining direct device interaction, data interpretation from various systems, and tools, while coordinating with internal and external teams.

NITRO CORE Subscriber Experience Assurance offers a straightforward interface displaying per-subscriber Voice, SMS, and Data performance. It also provides roaming status, device history, and cell location history with active-from and active-until timestamps. Additionally, it shows signaling and service performance, along with insights into how many other subscribers are affected by similar issues.

For Customer Care, this level of detail helps narrow down the area of focus and facilitates real-time collaboration with the next level of support. Operational teams benefit from quick root cause identification by leveraging subscriber cell location and device history. They can even drill down to a subscriber's diagnostic session trace and packet decode if necessary. All of this translates to **faster issue resolution, reduced operational costs, and lower overhead** compared to a full Customer Experience Management (CEM) system.



Data Performance Table with Cell Location History

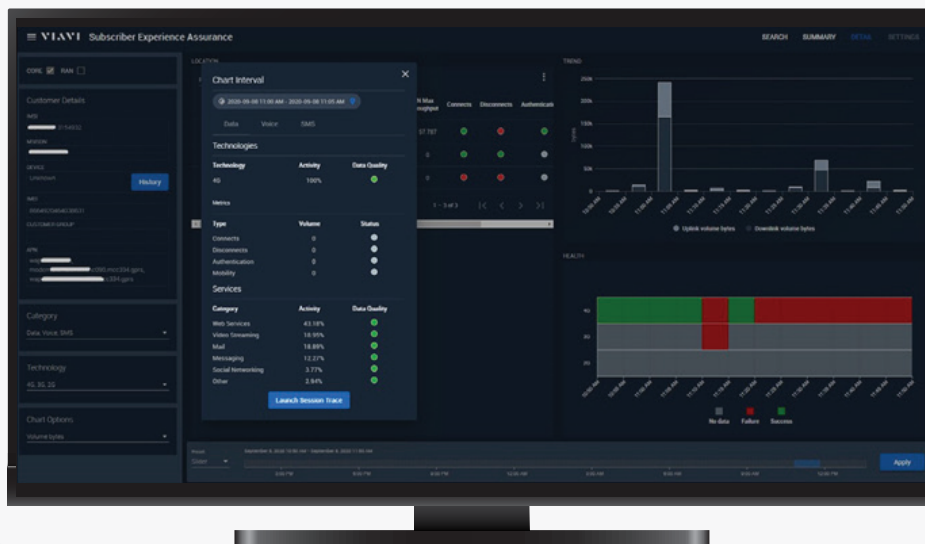


Data Performance Table with Full Device History

Managing Subscriber Experience in Multi Technology Networks

Service providers now operate in an environment where 2G, 3G, 4G, and 5G networks coexist. However, this multi-technology landscape often leads to higher operational expenses (OpEx) and more support headaches.

Subscribers rightfully expect the network to function flawlessly, regardless of the technology in use, spectrum re-farming status, or the type of service they rely on. **Subscriber Experience Assurance** provides performance insights into individual subscriber services across all technologies, enabling deep troubleshooting. Moreover, it offers views into other subscribers' experiences related to the same issue—whether isolated to one subscriber, a few, or many.



Data Service Detail and Diagnostical Session Trace Launch

Rolling Out New Video, Voice, SMS, and Data Services

As industry dynamics evolve, service providers face the challenge of maintaining competitiveness while ensuring long-term customer loyalty. Customers now demand reliable and consistent performance from cellular networks. Failing to meet these expectations can lead to increased customer churn and harm the operator’s brand reputation.

When rolling out new video, voice (VoLTE), SMS, or data services, subscribers evaluate networks based on their device interactions. The perceived quality of these services significantly impacts their overall experience. To address this, **Subscriber Experience Assurance** empowers test teams. They can review a dashboard of test mobiles, assess new services’ performance, and troubleshoot issues proactively prior to a full market launch.



Dashboard Snapshot of Data Service Performance Metrics and Quality

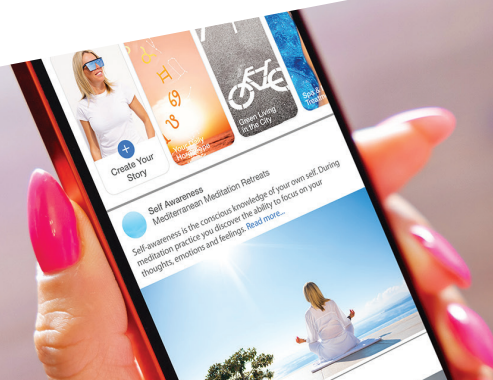
Real-Time Insights

Operators compete on various fronts, including quality of service, service depth, network coverage, and device selection—all contributing to the overall subscriber experience. Not all subscriber issues are identical, and not all subscribers report problems. Service providers recognize that every interaction with their network services—whether making a call, texting, browsing the internet, or streaming content via an OTT video application—affects future interactions with their wireless brand. In the fiercely competitive wireless market, operators constantly seek proactive solutions to prevent and resolve subscriber issues, regardless of direct contact from subscribers.

Subscriber Experience Assurance equips operators to tackle these challenges in real-time by offering:

- **Technology Support:** Coverage for 2G, 3G, 4G, or 5G (data-only) networks, spanning Voice, SMS, and Data services.
- **Comparative Analysis:** Measuring individual subscribers against others in specific cell locations to identify unique or widespread issues.
- **Cell Location Insights:** Leveraging cell location history to pinpoint problem areas.
- **Quality Validation:** Verifying service quality and type.
- **Device Visibility:** Viewing device history and patterns.
- **OTT Improvements:** Identifying new traffic trends and optimizing OTT services.

Subscriber Experience Assurance empowers operators to enhance subscriber satisfaction and stay ahead in the dynamic wireless landscape.



Collaboration Across Departments

Service providers' customer support centers handle millions of interactions with subscribers annually. Each touchpoint with a subscriber presents an opportunity to build the brand. Today's Customer Care representatives rely on various sources of information—billing data, network performance tools, CRM systems—to understand subscriber behavior at a granular service level and troubleshoot issues. These insights often need to be shared across different departments, including marketing and network engineering.

Subscriber Experience Assurance streamlines collaboration. Here's how:

1. **Individual Subscriber Insights:** Operators can capture performance intelligence from the network at the individual subscriber level. Customer Support Representatives can map the sites the subscriber has connected to and track their movement from cell to cell. This information helps troubleshoot performance issues within specific timeframes and compare performance against other users.
2. **Personalization and Proactivity:** As new technologies like 5G emerge, Subscriber Experience Assurance identifies customer patterns. It enables personalized subscriber experiences. Moreover, improved efficiency in customer service, operations, and engineering allows proactive issue detection and timely maintenance alerts—preventing widespread subscriber issues.

In summary, Subscriber Experience Assurance transforms data into actionable insights, benefiting both subscribers and service providers



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