

VIAVI Insights Use Cases and Reports: Unlocking Data, Enabling Outcomes

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1. VIAVI Insights

VIAVI Insights is a lightweight analytics and API platform that turns raw network data into actionable intelligence. It enables operators to quickly access ready-made use cases—such as location retrieval, device performance, roaming analysis, and large-scale event monitoring—without heavy infrastructure or complex integration. By combining RAN, Core, and other data into intuitive dashboards and reports, VIAVI Insights helps service providers improve customer experience, reduce churn, and unlock new revenue opportunities with speed and efficiency.

With the proven credibility of the VIAVI NITRO® platform and global deployments, we stand apart through a lightweight API gateway that ensures quick deployment. Backed by our commitment to continuous updates and the delivery of new use cases, we provide lasting value and innovation for our customers.

2. Package Overview: Existing NITRO Customers

(Use Case Package for Customers with NITRO Installed base)

NITRO Insights supports a spectrum of use cases across a variety of user groups including operations, engineering, marketing, fraud management, and data management teams:

Revenue Monetization and New Services: turn network data into new revenue streams

- Location Retrieval: Enable location-based services and compliance monetization.
- Location Verification: Fraud prevention, secure transactions, digital identity services.
- Geofencing Subscriptions: Enterprise/advertising offers, targeted marketing, security services.
- Population Density Data: Sell VIAVI Insights to governments, enterprises, and advertisers.
- Region Device Count: Real-time device statistics for monetization with enterprises.
- Device Data Volume: Targeted plans, upsell opportunities, new usage-based offers.
- Device Visit Location: Retail analytics, Mobility insights, tourism data services.

Customer Protection and Trust: enhance security, compliance, and premium customer care:

- SIM Swap Detection: Stop account takeover and fraud.
- Device Identifier (IMEI/IMSI correlation): Prevent fraud, secure devices.
- Device Reachability Status: Smarter routing, fraud checks, service assurance.
- Device Roaming Status: Increase roaming transparency and monetization.
- VIP Analysis: Proactively protects high-value subscribers, prevent churn.
- VIP and High-Value Segment 5G Assurance: Guarantee premium 5G QoE for top-tier customers.

Network Optimization and Operations Efficiency: improve quality of service, reduce OpEx, and accelerate troubleshooting:

- Drive Test Replacement: Eliminate costly field tests.
- Timing Advance: Improve accuracy, reduce call drops.
- Crossed Feeder Detection: Identify misconfigurations and prevent degraded service.
- Device Performance: Separate device issues from network issues, reduce support tickets.
- Device Quality Indicator: Map QoE to optimize device partnerships and network planning.
- Device and UE Capability Analysis: Ensure devices get the best possible experience.

5G Assurance and Advanced Mobility: ensure seamless 5G NSA/SA adoption and performance

- EN-DC (LTE + NR Dual Connectivity): Optimize NSA deployments for smooth handovers.
- EN-DC Optimization (E-UTRA + NR): Improve 5G NSA handover stability and throughput.
- NSA Inter-RAT Mobility Troubleshooting: Optimize LTE, NR mobility.
- 5G NSA Coverage Gap and Anchor Cell Analysis: Identify coverage gaps and anchor issues.

Event Experience Assurance: assure service quality during high-demand situations

- Large Event Monitoring (RAN + Core): Assure quality at concerts, sporting events, emergencies.
- Special Event Monitoring (RAN only): Proactively detect congestion and ensure smooth service.

3. Individual Use Case Breakdowns

Drive Test Replacement

“Coverage Insights without costly fieldwork.”

Problem: Traditional drive tests are expensive, time-consuming, and provide only a snapshot of network conditions. Operators struggle to scale them across wide geographies.

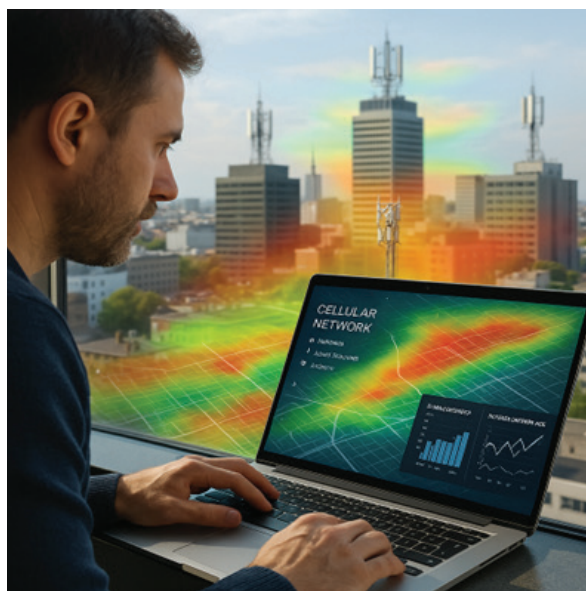
Solution: VIAVI Insights leverages existing subscriber data via APIs to replicate and even exceed drive test VIAVI Insights – continuously, across the whole network.

Value Proposition: With VIAVI Insights, service providers can continuously measure real-world coverage and performance using subscriber data already in the network – eliminating the high cost and narrow snapshots of traditional drive tests. Unlike other solutions, Insights delivers network-wide visibility instantly, without deploying probes or additional field teams.

Expected Benefits

- **Significant OpEx Savings:** Eliminate recurring costs of field teams, vehicles, fuel, and specialized test equipment tied to traditional drive tests.
- **Always-On Coverage Intelligence:** Gain a continuous, real-world view of network performance directly from subscribers, instead of relying on occasional test snapshots.
- **Rapid Problem Resolution:** Detect and localize coverage gaps, weak signal zones, and dropped call clusters, accelerating troubleshooting and network optimization.
- **Scalable Across the Entire Footprint:** Extend visibility to every market – urban, suburban, and rural – without the logistical limitations of physical testing.
- **Actionable, Data-Driven Insights:** Equip engineering and operations teams with reliable KPIs that directly inform investment decisions, network planning, and performance improvement initiatives.
- **Improved Customer Experience:** Reduce churn by proactively addressing coverage issues before they impact subscribers, ensuring higher satisfaction and loyalty.

Impact Statement: This use- case transforms network testing from a costly, periodic exercise into a continuous, automated capability. This provides service providers with a decisive advantage in efficiency, agility, and customer experience.



This image shows a telecom engineer analyzing live cellular network coverage with heatmaps and performance dashboards, replacing traditional field-based testing. It illustrates how **Drive Test Replacement** delivers continuous, real-world coverage insights directly from subscriber data – without the cost and limitations of manual drive test.

Image generated by AI

3. Individual Use Case Breakdowns continued

Timing Advance

"Pinpoint accuracy for coverage and handovers."

Problem: Inaccurate timing advance values cause call drops, poor handovers, and inefficient troubleshooting.

Solution: VIAVI Insights correlates TA data across RAN and device sessions to refine location accuracy and handover planning.

Value Proposition: VIAVI Insights turns raw timing advance measurements into actionable coverage intelligence, pinpointing overshooting cells and coverage holes. Unlike tools that require heavy integration or manual correlation, Insights provide automated, subscriber-level visibility directly from existing feeds, reducing OpEx and accelerating optimization.

Expected Benefits

- **Accurate Coverage Insights:** Leverage timing advance measurements to detect overshooting cells, coverage holes, and imbalanced handovers that drive poor user experience.
- **Improved Network Optimization:** Provide engineering teams with actionable data to fine-tune antenna tilts, power levels, and neighbor relations.
- **Cost Savings:** Reduce the need for costly and repetitive drive tests by using subscriber-based timing advance data for continuous optimization.
- **Capacity Management:** Identify areas where overshooting cells are pulling traffic inefficiently, improving load balancing across the network.
- **Customer Experience Gains:** Minimize dropped calls, failed handovers, and degraded throughput caused by poor radio coverage alignment.
- **Operational Efficiency:** Automate detection of anomalies and eliminate reliance on manual troubleshooting alone.

Impact Statement: Timing advance analysis transforms raw radio measurements into actionable coverage intelligence — enabling service providers to optimize networks continuously, cut costs, and deliver a more consistent subscriber experience.



The visualization highlights areas where subscribers are too far from the serving site or where cells are overshooting into neighboring regions.

On the laptop screen, analytics dashboards display KPIs such as **handover failures, distance distributions, and coverage anomalies**, illustrating how Timing Advance analysis helps optimize antenna tilt, power settings, and neighbor relations.

Image generated by AI

3. Individual Use Case Breakdowns continued

Location Retrieval

“Find any device, anytime – securely.”

Problem: Operators lack fast, standardized APIs to retrieve device location for compliance, emergency, and commercial use cases.

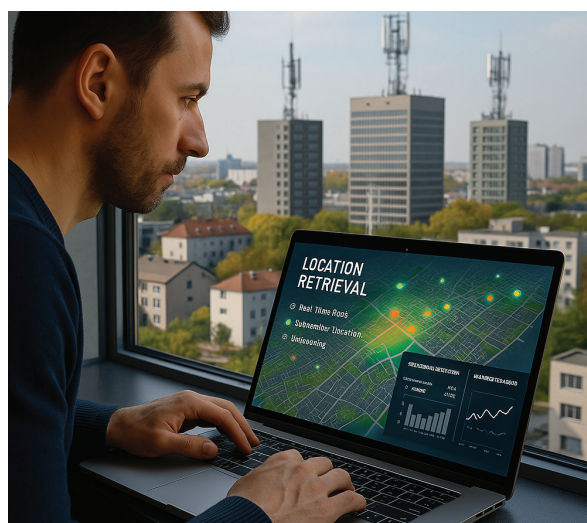
Solution: CAMARA-compliant APIs from VIAVI Insights provide secure, location retrieval.

Value Proposition: VIAVI Insights empowers service providers to retrieve accurate, subscriber locations directly from network data via lightweight APIs – enabling use cases in service assurance, fraud detection, regulatory compliance, and commercial monetization. Unlike competitor solutions that require dedicated probes, complex integrations, or external databases, Insights leverages the data operators already collect in the Core and RAN. This provides a scalable, cost-efficient, and privacy-compliant way to unlock high-value location intelligence while maximizing existing infrastructure investments.

Expected Benefits

- **Accurate Subscriber Intelligence:** Pinpoint subscriber location for service assurance, regulatory compliance, and commercial applications.
- **Operational Efficiency:** Reduce reliance on manual investigations by automating location queries via APIs.
- **Service Quality Assurance:** Improve troubleshooting by correlating network issues with subscriber locations.
- **Revenue Enablement:** Enable new offerings such as location-based promotions, fraud detection, and emergency services.
- **Seamless Integration:** Works with existing network and IT systems via lightweight APIs, minimizing deployment effort.

Impact Statement: Location retrieval turns passive network data into an actionable, monetizable asset – driving both operational efficiency and new revenue streams.



A telecom engineer sits in front of a laptop displaying a **digital city map** overlaid with colored **dots or markers** representing subscriber locations. Several cell **towers** are visible on rooftops, with beams extending toward connected devices. The laptop screen shows a **dashboard with KPIs and a map view**, highlighting how subscriber location can be retrieved instantly. The city backdrop emphasizes real-world scale, while the heatmap-style overlay conveys accuracy and continuous tracking.

Image generated by AI

3. Individual Use Case Breakdowns continued

Location Verification

“Verify location, prevent fraud.”

Problem: Digital transactions and regulatory checks require proof of device location, but operators struggle with accuracy and speed.

Solution: VIAVI Insights APIs verify device location against claimed or required locations.

Value Proposition: VIAVI Insights enables service providers to validate a subscriber’s claimed location against actual network-based location data — strengthening fraud prevention, digital identity, and regulatory compliance. Unlike competing solutions that rely on device GPS or third-party data sources, Insights uses trusted Core and RAN data feeds already within the operator’s control. This ensures accuracy, privacy, and scalability while creating a new, monetizable trust service for partners in banking, fintech, and e-commerce.

Expected Benefits

- **Fraud Reduction:** Prevent SIM-box fraud, account takeovers, and identity spoofing by validating that a subscriber’s location matches expected patterns.
- **Enhanced Security:** Strengthen digital identity frameworks for financial services.
- **Customer Trust:** Provide reliable, transparent verification that builds confidence with subscribers and partners.
- **Cross-Industry Value:** Enable partnerships with banks, and e-commerce players for secure transaction validation.

Impact Statement: Location verification extends the service provider role from network provider to trusted digital identity enabler — unlocking value far beyond connectivity.



A map with a subscriber marker highlighted, showing a **“verified” check mark** or **“mismatch” alert** where the claimed vs. actual location differs.

Image generated by AI

3. Individual Use Case Breakdowns continued

Crossed Feeder Detection

“Fix misconfigurations before they impact users.”

Problem: Crossed feeders cause degraded QoS, yet they are often hard to detect without manual checks.

Solution: VIAVI Insights correlates RAN and performance data to quickly flag crossed feeders.

Value Proposition: VIAVI Insights uniquely automates the detection of crossed feeder faults by leveraging subscriber event data — a problem that typically requires costly field checks and long MTTR. Competing solutions often rely only on PM counters, which mask the issue; Insights pinpoints and localizes the fault, protecting KPIs and customer experience with minimal effort.

Expected Benefits:

- **Early Fault Detection:** Identify and localize crossed feeder issues quickly, preventing weeks or months of unnoticed service degradation.
- **Reduced Customer Impact:** Avoid poor coverage, dropped calls, and degraded throughput caused by physical layer misconfigurations.
- **Operational Efficiency:** Eliminate the need for extensive manual checks or costly field troubleshooting by using subscriber data and analytics.
- **Cost Savings:** Reduce truck rolls and repeat site visits by pinpointing issues remotely and accurately.
- **Faster Resolution:** Shorten mean-time-to-repair (MTTR) by providing engineering teams with precise, data-driven fault localization.
- **Quality Assurance:** Maintain consistent network performance and protect KPIs that directly impact churn and regulatory compliance.

Impact Statement: Crossed Feeder Detection turns a traditionally hidden, costly-to-diagnose problem into an automated, data-driven insight — safeguarding service quality while reducing operational costs.

3. Individual Use Case Breakdowns continued

Device Performance

"Know if it's the network or the handset."

Problem: Operators can't easily separate device-driven issues from network issues, leading to wasted support effort.

Solution: VIAVI Insights correlates device-level metrics with network KPIs to identify root causes.

Value Proposition: With VIAVI Insights, service providers can benchmark device models and vendors directly against network KPIs, identifying underperforming devices before customers complain. Unlike generic reporting tools, Insights combines device-level analytics with geolocation and core data, helping providers optimize investments, negotiate with vendors, and reduce churn.

Expected Benefits:

- **Granular Performance Insights:** Monitor KPIs such as throughput, latency, dropped calls, and failures by device type and model.
- **Vendor Comparison:** Benchmark different device manufacturers and models to identify underperforming equipment.
- **Proactive Troubleshooting:** Detect systemic issues tied to specific device types before they escalate into widespread customer complaints.
- **Optimized Network Planning:** Align network tuning and investment decisions with the actual devices used by subscribers.
- **Customer Support Efficiency:** Provide care teams with device-specific insights to resolve issues faster and reduce repeat calls.
- **Churn Reduction:** Improve user experience by addressing performance problems that are device-driven, a leading cause of dissatisfaction and switch-outs.

Impact Statement: Device performance analytics shifts the focus from generic network KPIs to subscriber-centric insights — helping service providers deliver better experiences, optimize vendor relationships, and protect customer loyalty.

3. Individual Use Case Breakdowns continued

EN-DC (LTE + NR Dual Connectivity)

“Seamless LTE + 5G NSA handovers.”

Problem: 5G NSA deployments suffer from dual connectivity instability, impacting user experience.

Solution: VIAVI Insights monitors EN-DC handovers and identifies problem anchors.

Value Proposition: VIAVI Insights provides unmatched visibility into LTE–NR dual connectivity, detecting setup failures, weak NR additions, and throughput imbalances. Unlike solutions that only provide high-level statistics, Insights correlates RAN and Core perspectives, giving CSPs precise root cause analysis to accelerate 5G adoption and ROI.

Expected Benefits:

- **Optimized User Experience:** Ensure smooth handovers and simultaneous LTE + NR connectivity, maximizing throughput and reliability for subscribers.
- **Accelerated 5G Adoption:** Identify and address gaps in EN-DC performance that can slow customer migration to 5G services.
- **Efficient Resource Utilization:** Monitor how devices utilize LTE anchor cells and NR secondary cells, ensuring balanced spectrum usage and avoiding bottlenecks.
- **Reduced Service Degradation:** Detect failures in dual connectivity setup that lead to dropped sessions or reduced data speeds.
- **Actionable Engineering Insights:** Provide network teams with KPIs on EN-DC success rates, handover performance, and coverage overlaps for optimization.
- **Future-Proof Operations:** Build confidence in 5G rollout strategies by ensuring interoperability with the existing LTE layer.

Impact Statement: EN-DC analytics empowers service providers to deliver on the 5G promise — ensuring dual connectivity works seamlessly, accelerating adoption, and strengthening customer experience across next-generation networks.

3. Individual Use Case Breakdowns continued

Large Event Monitoring (RAN + Core)

“Assure QoS when the world is watching.”

Problem: Large events overload both RAN and Core, risking congestion and poor service.

Solution: VIAVI Insights integrates RAN + Core KPIs to proactively detect and resolve issues.

Value Proposition: VIAVI Insights enables CSPs to assure subscriber experience during high-profile events by unifying RAN and Core data into a single monitoring framework. Competing solutions often focus on one domain at a time; Insights delivers true end-to-end visibility, ensuring flawless performance for VIPs, media, and massive crowds where brand reputation is on the line.

Expected Benefits:

- **Holistic Visibility:** Combine RAN and Core data to monitor end-to-end subscriber experience during high-traffic events.
- **Real-Time Detection:** Identify congestion, signaling storms, or dropped sessions as traffic surges.
- **VIP and Media Assurance:** Guarantee connectivity for high-profile attendees, sponsors, and media outlets, protecting brand reputation.
- **Proactive Resource Management:** Enable rapid optimization of cell resources, handovers, and core capacity to maintain service quality.
- **Operational Efficiency:** Equip NOC and field teams with actionable dashboards and alerts tailored for large-scale event conditions.
- **Customer Experience Differentiator:** Provide attendees with reliable, high-quality service, turning major events into showcases of network excellence.
- **Revenue Protection:** Ensure service availability for roaming customers and monetized data services during peak demand.

Impact Statement: Large Event Monitoring unifies RAN and Core visibility to transform massive network stress tests into opportunities for service providers to shine — safeguarding customer experience, brand value, and revenue during their most high-profile moments.

3. Individual Use Case Breakdowns continued

VIP Analysis

"Protect your most valuable customers."

Problem: High-value subscribers are most sensitive to poor service yet often impacted unknowingly.

Solution: VIAVI Insights tracks VIP experience and flags anomalies in real time.

Value Proposition: VIAVI Insights can monitor network performance for high-value subscribers, ensure issues are detected and resolved before they impact VIPs. Unlike generic analytics tools, Insights correlates subscriber-level KPIs across RAN and Core, giving operators the ability to proactively protect their most profitable customers.

Expected Benefits:

- Proactive Care for High-Value Customers: Identify and monitor VIPs and enterprise accounts to ensure premium service quality.
- Churn Prevention: Detect degradations affecting top-tier customers before they trigger dissatisfaction or lost revenue.
- Revenue Protection: Safeguard the experience of high-ARPU customers whose lifetime value far outweighs average subscribers.
- Event Readiness: Guarantee service quality for media, political leaders, or corporate VIPs during special events.
- Data-Driven SLAs: Provide hard metrics to support differentiated treatment and premium service tiers.

Impact Statement: VIP analysis ensures service providers protect their most valuable customers, transforming network insights into a competitive differentiator for loyalty and revenue retention.

3. Individual Use Case Breakdowns continued

Special Event Monitoring (RAN)

“Stay ahead of RAN congestion.”

Problem: Sudden traffic surges at events overwhelm RAN resources.

Solution: VIAVI Insights monitors cell-level traffic and performance to flag congestion early.

Value Proposition: VIAVI Insights delivers visibility into RAN performance during large-scale events, ensuring operators can maintain service quality under sudden traffic surges. Unlike siloed monitoring tools, Insights unifies coverage, capacity, and user-experience KPIs in a single event-focused view.

Expected Benefits:

- **Real-Time Awareness:** Gain immediate visibility into surges in traffic, congestion, and performance issues during concerts, sporting events, and festivals.
- **Service Assurance at Scale:** Maintain quality of experience for tens of thousands of attendees in concentrated geographies.
- **VIP and Media Protection:** Ensure flawless connectivity for sponsors, media outlets, and high-profile attendees.
- **Operational Readiness:** Empower NOCs and field teams with actionable alerts to react before customer impact spreads.
- **Brand Differentiation:** Position as a reliable provider during high-visibility moments where service quality is under the spotlight.

Impact Statement: Special event monitoring elevates network operations from reactive troubleshooting to proactive assurance — protecting brand reputation when it matters most.

3. Individual Use Case Breakdowns continued

Device Visit Location

“Map subscriber movement patterns to unlock network and business value.”

Problem: Operators lack clear insights into subscriber mobility patterns across regions.

Solution: VIAVI Insights correlates session data to identify device visit locations.

Value Proposition: VIAVI Insights tracks device visit patterns to highlight mobility behaviors, hotspots, and cross-border activity. Unlike external data providers, Insights leverages service provider-owned subscriber data, ensuring accuracy, compliance, and monetization opportunities.

Expected Benefits

- **Behavioral Insights:** Identify frequently visited locations by device/subscriber to understand mobility patterns across cities, regions, or venues.
- **Network Optimization:** Use visit data to plan capacity upgrades in high-traffic areas and prioritize investment in critical hotspots.
- **Roaming and Travel Intelligence:** Detect cross-border visits or roaming patterns to optimize packages and prevent revenue leakage.
- **Commercial Enablement:** Provide anonymized, aggregated location insights to partners (e.g., retail, transport, tourism) for monetization opportunities.
- **Fraud Detection:** Flag unusual or inconsistent visit patterns (e.g., simultaneous device presence in two regions) to prevent SIM misuse.
- **Regulatory Alignment:** Support lawful intercept or emergency service requests with accurate device visit history.

Impact Statement: Device Visit Location transforms raw mobility data into actionable intelligence – helping service providers optimize their networks, monetize location insights, and enhance security while improving customer experience.

3. Individual Use Case Breakdowns continued

Geofencing Subscriptions

“Turn network borders into business.”

Problem: Enterprises demand geofence-based security and marketing, but operators lack packaged APIs.

Solution: VIAVI Insights APIs offer dynamic geofencing subscriptions for enterprises.

Value Proposition: VIAVI Insights enables service providers to trigger offers and alerts when subscribers enter or leave defined geographic zones. Unlike app-based geofencing, Insights leverages network events directly, ensuring scale, accuracy, and reliability.

Expected Benefits:

- Targeted Marketing and Promotions: Automatically trigger offers (e.g., roaming bundles, event passes, retail discounts) when subscribers enter specific zones.
- Improved Customer Experience: Provide context-aware notifications (e.g., “Welcome abroad” messages, transport updates, or service availability alerts).
- New Revenue Streams: Enable service providers to partner with retailers, venues, or transportation hubs to monetize geofenced insights.
- Network Optimization: Monitor subscriber density within geofenced areas to predict congestion and proactively manage resources.
- Fraud Prevention: Detect suspicious usage when devices appear in restricted or unexpected zones.
- Regulatory and Safety Services: Support public safety use cases such as emergency alerts in disaster zones or lawful intercept requirements.

Impact Statement: Geofencing Subscriptions elevate service providers from connectivity providers to context-aware service enablers — turning location intelligence into revenue, customer loyalty, and operational agility.

3. Individual Use Case Breakdowns continued

Population Density Data (two use cases)

“Turn crowd VIAVI Insights into revenue.”

Problem: Cities, enterprises, and advertisers lack reliable crowd density data.

Solution: VIAVI Insights aggregates anonymized subscriber data to deliver population density VIAVI Insights.

Value Proposition: VIAVI Insights aggregates subscriber mobility data to produce accurate, population density maps. Unlike third-party datasets, Insights delivers CSP-owned intelligence for network planning, public safety, and monetization.

Expected Benefits:

- **Network Planning and Optimization:** Use real-time and historical density data to identify hotspots, guide capacity expansion, and optimize cell deployment.
- **Event Management:** Monitor crowd buildup during concerts, festivals, or emergencies to ensure sufficient coverage and avoid service degradation.
- **Public Safety and Emergency Response:** Provide accurate density maps to support evacuation planning, disaster management, or city-wide safety initiatives.
- **Commercial Monetization:** Offer anonymized, aggregated density data to municipalities, transportation agencies, and retail for urban planning and traffic flow optimization.
- **Roaming and Travel Analysis:** Track population density shifts across borders or transport corridors to refine roaming agreements and targeted packages.
- **Operational Efficiency:** Reduce reliance on costly surveys or third-party data sources by generating insights directly from the live network.

Impact Statement: Population Density Data empowers service providers to move beyond connectivity – transforming raw mobility patterns into intelligence that drives smarter networks, safer cities, and new revenue opportunities

3. Individual Use Case Breakdowns continued

Population Density Data (two use cases) continued

"Know your footprint instantly."

Problem: Operators lack accurate, timely device counts across regions.

Solution: VIAVI Insights APIs deliver device counts by region.

Value Proposition: VIAVI Insights provides precise counts of active devices per region, enabling smarter network planning, roaming management, and commercial insights. Unlike survey-based or sampled data, Insights delivers with subscriber-level accuracy.

Expected Benefits:

- **Accurate Demand Mapping:** Track the number of active devices across regions, cells, or clusters to understand subscriber distribution.
- **Capacity Planning:** Identify under- or over-utilized areas to guide network investment and resource allocation.
- **Roaming Management:** Detect inbound and outbound device counts in border regions to improve roaming strategies and agreements.
- **Commercial Insights:** Provide anonymized regional device counts to enterprises, retailers, or municipalities for market analysis and location planning.
- **Operational Efficiency:** Automate regional usage reporting without relying on manual surveys or third-party data.
- **Customer Experience:** Anticipate congestion in high-density areas and optimize coverage before it impacts subscribers.

Impact Statement: Region Device Count turns raw device connection data into clear regional intelligence — enabling CSPs to optimize networks, refine roaming and commercial strategies, and proactively improve customer experience.

3. Individual Use Case Breakdowns continued

SIM Swap Detection

“Stop fraud before it starts.”

Problem: SIM swaps enable fraud and account takeovers, damaging trust.

Solution: VIAVI Insights detects SIM swaps through subscriber activity correlation.

Value Proposition: VIAVI Insights detects SIM swaps by monitoring IMSI/IMEI changes and mobility anomalies, protecting subscribers from account takeovers and fraud. Unlike bank-only solutions, Insights leverages service provider-owned data at the network level for maximum accuracy.

Expected Benefits:

- **Fraud Prevention:** Detect SIM swap attempts that are commonly used for account takeovers, mobile banking fraud, and identity theft.
- **Customer Protection:** Safeguard subscribers from financial loss and reputational damage by stopping fraudulent activity at the network level.
- **Trust Enabler:** Strengthen service provider partnerships with banks and digital service providers by offering secure SIM swap validation as a service.
- **Revenue Retention:** Protect ARPU by reducing churn linked to fraud-related service dissatisfaction.
- **Operational Efficiency:** Automate detection processes, reducing reliance on reactive customer complaints or manual investigations.

Impact Statement: SIM Swap Detection transforms service providers into trusted digital guardians — enabling fraud prevention that protects subscribers, preserves revenue, and builds long-term customer confidence.

3. Individual Use Case Breakdowns continued

Device Identifier

"Know your devices, secure your network."

Problem: Operators struggle with device misidentification, causing fraud and service issues.

Solution: VIAVI Insights correlates IMEI/IMSI for accurate device identification.

Value Proposition: VIAVI Insights gives service providers a unified view of devices on their network by IMEI/TAC, enabling troubleshooting, vendor benchmarking, and fraud detection. Unlike fragmented OSS reports, Insights correlates device identity with performance KPIs and subscriber experience.

Expected Benefits:

- **Precise Device Recognition:** Identify devices by IMEI/IMEISV, TAC, or other unique identifiers to build a clear inventory of devices on the network.
- **Enhanced Troubleshooting:** Pinpoint issues tied to specific device models or software versions, accelerating root cause analysis.
- **Vendor and Model Benchmarking:** Compare device performance across OEMs and models to inform vendor negotiations and prioritize certifications.
- **Security and Fraud Protection:** Detect device cloning, unauthorized equipment, or anomalous device activity that could threaten network integrity.
- **Customer Care Enablement:** Provide care teams with device-specific insights to resolve customer complaints faster and more accurately.
- **Strategic Planning:** Understand device mix trends to shape network strategy, prioritize feature rollouts, and align with subscriber adoption patterns.

Impact Statement: Device Identifier empowers service providers with a single source of truth for device intelligence – turning fragmented device data into actionable insights for troubleshooting, security, and strategic planning.

3. Individual Use Case Breakdowns continued

Device Roaming Status

“Know when your subscribers are roaming – and act”

Problem: Operators can’t easily assure quality and transparency for roaming subscribers.

Solution: VIAVI Insights tracks device roaming status with APIs.

Value Proposition: VIAVI Insights provides visibility into when subscribers start roaming, enabling service providers to trigger offers, protect revenue, and detect anomalies. Unlike delayed billing reports, Insights offers detection at attach.

Expected Benefits:

- **Roaming Visibility:** Identify when devices transition to roaming, both inbound and outbound, ensuring accurate status tracking.
- **Targeted Offers:** Trigger personalized roaming bundles, promotions, or “welcome” messages at the exact moment subscribers start roaming.
- **Revenue Protection:** Detect unauthorized or unexpected roaming activity to prevent revenue leakage and billing disputes.
- **Improved Customer Experience:** Reduce bill shock and dissatisfaction by providing timely roaming notifications and package recommendations.
- **Operational Insights:** Track roaming traffic patterns to optimize inter-operator agreements and manage wholesale costs.
- **Security and Fraud Prevention:** Flag anomalies, such as simultaneous device presence in multiple countries, mitigate SIM misuse or fraud.

Impact Statement: Device Roaming Status empowers service providers with actionable intelligence – turning roaming from a cost and risk factor into a driver of revenue, customer satisfaction, and trust.

3. Individual Use Case Breakdowns continued

Device Data Volume

"Understand how much data every device consumes — and why it matters."

Problem: Operators need better visibility into subscriber data usage to tailor offers.

Solution: VIAVI Insights aggregates device-level data volume metrics.

Value Proposition: VIAVI Insights measures data usage at the device level, providing insights into subscriber behavior, network load, and monetization opportunities. Unlike aggregate reporting tools, Insights delivers device-specific granularity tied to network KPIs.

Expected Benefits

- **Subscriber Behavior Insights:** Track data consumption by device, plan, or region to understand usage trends and predict demand.
- **Revenue Growth:** Identify heavy users and upsell premium data packages or unlimited plans.
- **Capacity Planning:** Correlate device-level data usage with network load to optimize spectrum and infrastructure investments.
- **Fair Usage Management:** Detect disproportionate consumption that may degrade service for others, enabling policy controls.
- **Customer Experience:** Proactively alert subscribers on nearing thresholds, avoiding bill shock and dissatisfaction.
- **Churn Reduction:** Use data insights to personalize offers and retain high-ARPU customers who expect seamless data access.
- **Partner Monetization:** Provide anonymized, aggregated consumption patterns to content providers, and advertisers.

Impact Statement: Device Data Volume analysis converts raw usage metrics into actionable intelligence — helping service providers balance network efficiency, maximize revenue, and deliver a customer-first data experience.

3. Individual Use Case Breakdowns continued

Device Quality Indicator

“Measure and improve the true quality of experience at the device level.”

Problem: Not all devices perform equally, impacting service perception.

Solution: VIAVI Insights maps device quality indicators to QoE outcomes.

Value Proposition: VIAVI Insights translates device KPIs (latency, throughput, drops) into subscriber-level quality indicators, shifting focus from network averages to actual experience. Unlike siloed counters, Insights offers end-to-end, device-centric visibility.

Expected Benefits:

- End-to-End Experience Visibility: Track quality KPIs (latency, jitter, throughput, dropped calls, video quality, app responsiveness) directly from the device perspective.
- Customer-Centric Assurance: Shift focus from generic network performance to actual subscriber quality of experience (QoE).
- Faster Troubleshooting: Quickly identify if issues stem from the device, the RAN, the Core, or external factors.
- Service Differentiation: Build premium service tiers based on measured device-level QoE, offering high-value customers guaranteed experiences.
- Network Optimization: Use device QoE data to prioritize network investments where they directly improve customer outcomes.
- Churn Prevention: Proactively detect and resolve device-level quality issues before they cause dissatisfaction and subscriber loss.
- Partner Leverage: Provide OEMs and application providers with quality insights to improve devices and services.

Impact Statement: Device Quality Indicator shifts service providers operations from network-focused KPIs to subscriber-centric outcomes — turning device-level quality insights into stronger loyalty, reduced churn, and differentiated services.

3. Individual Use Case Breakdowns continued

EN-DC Optimization (E-UTRA + NR)

“Optimize NSA connectivity for 5G growth.”

Problem: NSA dual connectivity suffers from inefficient handovers and anchor instability.

Solution: VIAVI Insights monitors EN-DC KPIs to optimize anchor selection.

Value Proposition: VIAVI Insights optimizes LTE+NR dual connectivity by identifying failures, weak NR additions, and throughput imbalances. Unlike high-level statistics, Insights correlates RAN and Core data for actionable tuning.

Expected Benefits:

- Enhanced User Experience: Ensure devices achieve optimal throughput by intelligently balancing LTE anchors with NR secondary cells.
- Faster 5G Adoption: Improve reliability of EN-DC sessions so subscribers experience tangible 5G benefits, encouraging service uptake.
- Network Efficiency: Optimize resource allocation across LTE and NR layers, reducing congestion and maximizing spectrum utilization.
- Reduced Service Failures: Detect and resolve EN-DC setup failures, weak NR additions, or handover issues that degrade performance.
- Actionable Engineering Insights: Provide KPIs on EN-DC success rates, failure causes, and throughput distribution across LTE/NR.
- Future-Proof Operations: Build operational readiness for full 5G Standalone by stabilizing NSA deployments today.
- Cost Savings: Reduce churn and support calls tied to poor 5G experience, lowering OpEx while increasing ARPU.

Impact Statement: EN-DC Optimization empowers service providers to deliver a smooth, high-performance 5G experience today – accelerating adoption, protecting investments, and ensuring dual connectivity works seamlessly across LTE and NR.

3. Individual Use Case Breakdowns continued

NSA Inter-RAT Mobility Troubleshooting

“Smooth handovers across LTE + NR.”

Problem: Poor inter-RAT mobility degrades 5G NSA service.

Solution: VIAVI Insights correlates LTE ↔ NR mobility events to identify issues.

Value Proposition: VIAVI Insights enables service providers to monitor and troubleshoot mobility between LTE and 5G NSA, ensuring seamless subscriber experience. Unlike manual testing, Insights automate failure detection and root-cause analysis.

Expected Benefits:

- **Seamless Handover Assurance:** Monitor and troubleshoot mobility between LTE and 5G layers to prevent dropped calls and data session failures.
- **Improved Subscriber Experience:** Deliver consistent quality of service during transitions between RATs, avoiding coverage blind spots.
- **Faster Issue Resolution:** Detect root causes of mobility problems (handover failures, anchor cell misconfigurations, NR additions not working).
- **Network Optimization:** Use mobility KPIs to fine-tune thresholds, neighbor relations, and configuration parameters for smoother transitions.
- **Operational Efficiency:** Reduce time spent on manual troubleshooting by automating detection and analysis of inter-RAT failures.
- **Churn Prevention:** Protect customer satisfaction by ensuring premium service reliability during early phases of 5G adoption.
- **Readiness for 5G SA:** Strengthen interworking performance in NSA today while laying the foundation for seamless Standalone transitions.

Impact Statement: NSA Inter-RAT Mobility Troubleshooting ensures subscribers experience the benefits of 5G without disruption – transforming complex LTE/5G interactions into a smooth, reliable service that builds confidence and loyalty.

3. Individual Use Case Breakdowns continued

Device and UE Capability Analysis

"Match network to device power."

Problem: Operators can't easily track device capabilities vs. network features.

Solution: VIAVI Insights provides API-driven UE capability mapping.

Value Proposition: VIAVI Insights catalogs device and UE capabilities (VoLTE, VoNR, CA, 5G bands) to align network features with subscriber adoption. Unlike generic inventory tools, Insights links capabilities to live network performance.

Expected Benefits:

- **Comprehensive Device Intelligence:** Identify supported capabilities (e.g., carrier aggregation, EN-DC, VoLTE, VoNR, 5G bands) for each device on the network.
- **Optimized Network Utilization:** Ensure advanced network features are fully leveraged by capable devices, maximizing ROI on infrastructure investments.
- **Feature Adoption Tracking:** Measure penetration of new technologies (e.g., NSA/SA 5G, 256QAM, MIMO) across the subscriber base to guide rollout strategies.
- **Vendor Benchmarking:** Compare OEM and chipset support for advanced features, informing certification, procurement, and partnerships.
- **Improved Customer Experience:** Quickly detect when poor performance is due to device limitations versus network issues, reducing misdirected troubleshooting.
- **Targeted Marketing:** Drive upsell campaigns to encourage subscribers with legacy devices to upgrade to newer, feature-rich models.
- **Churn Prevention:** Reduce dissatisfaction by proactively aligning network services with device capabilities.

Impact Statement: Device and UE Capability Analysis empowers service providers to align device adoption with network evolution — turning fragmented capability data into a strategic tool for optimization, monetization, and customer satisfaction.

5G NSA Coverage Gap and Anchor Cell Analysis

“Close the blind spots in 5G NSA.”

Problem: Coverage gaps and poor anchor selection limit 5G uptake.

Solution: VIAVI Insights identifies NSA coverage gaps and anchor cell issues.

Value Proposition: VIAVI Insights detects 5G NSA coverage gaps and anchor cell misconfigurations, ensuring seamless LTE-NR dual connectivity. Unlike static coverage maps, Insights delivers subscriber-based, real-time gap detection.

Expected Benefits:

- End-to-End Visibility: Detect where 5G NR coverage is weak or absent and correlate with LTE anchor cells serving as the primary connection.
- Seamless Subscriber Experience: Ensure consistent throughput and session continuity by improving anchor/secondary cell coordination.
- Rapid Gap Identification: Highlight geographic areas and cell clusters where NR fails to activate or sustain connectivity.
- Optimized Network Performance: Fine-tune anchor cell assignments, neighbor relations, and thresholds to maximize EN-DC success rates.
- Accelerated 5G ROI: Ensure NR resources are effectively used by subscribers, avoiding wasted spectrum and underutilized investments.
- Operational Efficiency: Reduce manual drive testing and troubleshooting by leveraging subscriber-level analytics.
- Churn Prevention: Minimize frustration caused by inconsistent 5G experience, protecting brand reputation and subscriber loyalty.

Impact Statement: 5G NSA Coverage Gap and Anchor Cell Analysis transforms NSA performance from trial-and-error tuning into a data-driven process — ensuring subscribers experience 5G reliably while service providers maximize returns on their network investments.

3. Individual Use Case Breakdowns continued

VIP and High-Value Segment 5G Assurance

"Premium care for premium subscribers."

Problem: VIPs and high-value segments demand flawless 5G but are often exposed to lapses in quality.

Solution: VIAVI Insights continuously monitors VIP 5G sessions and flags anomalies.

Value Proposition: VIAVI Insights proactively assures 5G service quality for VIPs and enterprise accounts, safeguarding premium experiences. Unlike generic monitoring, Insights tracks VIP KPIs individually, protecting ARPU and reducing churn.

Expected Benefits:

- Proactive VIP Monitoring: Continuously track network quality for high-value and enterprise subscribers to detect issues before they escalate.
- Premium Experience Guarantee: Assure low latency, high throughput, and reliable 5G connectivity for subscribers who generate the highest ARPU.
- Event Readiness: Safeguard VIP and enterprise services during large events, ensuring flawless performance for sponsors, media, and business-critical users.
- Churn Prevention: Protect top-tier customers by resolving issues quickly, reducing the risk of losing high-value revenue sources.
- Service Differentiation: Enable premium service tiers backed by measurable KPIs and SLAs, reinforcing competitive positioning.
- Data-Driven Customer Care: Provide support teams with subscriber-specific insights to deliver fast, personalized service to VIPs.
- Revenue Protection: Safeguard high-ARPU and enterprise accounts that represent disproportionate value to the business.

Impact Statement: VIP and High-Value Segment 5G Assurance ensures service providers deliver on the 5G promise where it matters most — protecting key revenue sources, strengthening loyalty, and turning network performance into a competitive advantage.

4. Package Overview: Non-NITRO Customers

VIAVI Insights is a lightweight API service that works with the data you already have. You don't need NITRO to start. By connecting to existing feeds, Insights unlocks out-of-the-box use cases like Drive Test Replacement, Roaming Assurance, and SIM Swap Detection — delivering measurable savings and new revenue opportunities in weeks, not months. Later, if you choose to deploy NITRO, Insights scales seamlessly, protecting your investment.

Even without NITRO deployed, VIAVI Professional Services can ingest raw trace data and generate actionable reports across seven domains: Service Quality, Mobility, Coverage, Roaming, VIP Assurance, Troubleshooting, and Market Analytics. With API access, these datasets can also be integrated into Insights for automation and continuous delivery.

VIAVI Insights Without NITRO

1. Flexibility and Independence

- Insights does not require NITRO — it can ingest data feeds directly from your existing OSS/BSS, network elements, or probes.
- Insights is an API gateway service that consumes data from any API data source.
- Insights is modular — service providers don't need to rip-and-replace; they can add value on top of their current ecosystem.

2. Fast Track to Value

- Instead of deploying a large platform, Insights provides immediate, use-case-driven value with minimal integration.
- Speed and OpEx savings: It's lighter than a full platform deployment, and customers see results in weeks, not months.
- Example: Drive Test Replacement can be shown with just call trace + geolocation feeds.

3. Use Case Proofs, Not Architecture

- Business outcomes use cases such as: Drive Test Replacement, Roaming Assurance, SIM Swap Detection, Location Verification.
- Minimal inputs required for these use case:
 - Drive Test Replacement: Needs subscriber traces + geolocation data (already in the network).
 - SIM Swap Detection: Needs IMSI/IMEI mapping + signaling logs.
 - Location Verification: Works with network attach events + subscriber data.
- Service providers already have the raw data; Insights just makes it consumable.

5. Reports VIAVI Professional Services Can Deliver (Without NITRO)

Service Quality and Performance Reports

Focus: End-user experience, QoS, call quality, throughput, and data KPIs.

- Call Table Data KPIs (GSM, LTE)
- Data KPIs (LTE, NR-SA, UMTS)
- CQI Statistics, Percentiles, Distribution
- RF KPIs and RF Histograms
- Modulation Usage (DL/UL)
- SINR (UL, PUCCH, PUSCH, per Cell)
- QoS Flow KPIs (by 5QI, Release Reasons)
- Performance KPIs by Device, Cell, Subscriber

Mobility and Handover Reports

Focus: Handover success/failure, mobility stability across technologies.

- Mobility (LTE)
- Drop Locations (all techs)
- Block Locations
- Handover Performance (LTE, NR-NSA, NR-SA)
- Reestablishment Performance
- Inter-frequency Handover Locations (IFHO, X2, S1, Xn, NG)
- CS Fallback Locations
- EN-DC Release Reasons by LTE/NR Cell
- Roamer Failures by Cell

5. Reports VIAVI Professional Services Can Deliver (Without NITRO) continued

Coverage and Capacity Planning Reports

Focus: Network footprint, utilization, neighbor relationships, and high-performing cells.

- Unique Device/Subscriber Counts (by Cell, Region, TAC)
- Best Cell / Best Server by MOU
- Cell Footprint, Best Cell Footprint
- CA Component Carrier Utilization (per Device, per Cell)
- CA Mode Distribution, PCell-SCell Utilization
- Neighbor and PCI Relationships, PCI Conflicts, Suggestions
- Timing Advance / Timing Advance by Cell
- Measurements by Cell

Roaming and Revenue Optimization Reports

Focus: Roamer experience, roaming behavior, failures, and summaries.

- Roamer Summary (GSM, LTE, UMTS)
- Roamer and Home Network Summary (LTE)
- Roamer Failures by Cell
- Roamer KPIs (usage, failures, optimization)

VIP and Customer Segment Reports

Focus: High-value customers, VIPs, and segment-level service assurance.

- VIP Summary (GSM)
- VIP Analysis / VIP KPIs (LTE, 5G NSA/SA)
- High-value subscriber experience by device/segment

5. Reports VIAVI Professional Services Can Deliver (Without NITRO) continued

Troubleshooting and Root Cause Analysis Reports

Focus: Failure reasons, infrastructure checks, and deep-dive analytics.

- Failure Reasons (GSM, LTE, UMTS)
- Failure Reasons by Cell/RNC
- SIM Swap / Device Identifier (via APIs)
- Crossed Feeder Checks
- Scrambling Code Conflicts (UMTS)
- Pilot Pollution (UMTS)
- NR SCG Failure Reasons (NR-NSA, by Cell)

Adoption and Market Analytics Reports

Focus: Device adoption, subscriber activity, and capacity insights.

- Device Comparison
- Device KPIs, Device Performance (by TAC, by Device)
- Unique Device Counts
- Subscriber Activity Counts
- Region Device Count
- Device Data Volume



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