DATA SHEET

360° Assurance for 5G Slicing Solution

Monetize your 5G network by delivering SLA-backed services at scale

Through the **360° Assurance for 5G Slicing Solution**, Infovista Ativa™ enables communication service providers (CSPs) to overcome the barriers to delivering 5G service level agreement (SLA) guarantees. This provides full visibility and control of network slice resource performance across domains and the customer experience of users or IoT devices served by network slices, enabling service delivery based on business intent.

The solution is pre-configured, automated, cross-domain and end-to-end. It enables the rapid monetization of investments while optimizing OPEX spending, from a single pane of glass. The solution provides correlated, real-time visibility of 5G slice SLAs across all domains and layers, enabling the acceleration and initiative-taking isolation of customer-impacting issues across radio and core domains; with a workflow engine supporting automated root-cause identification and resolution.
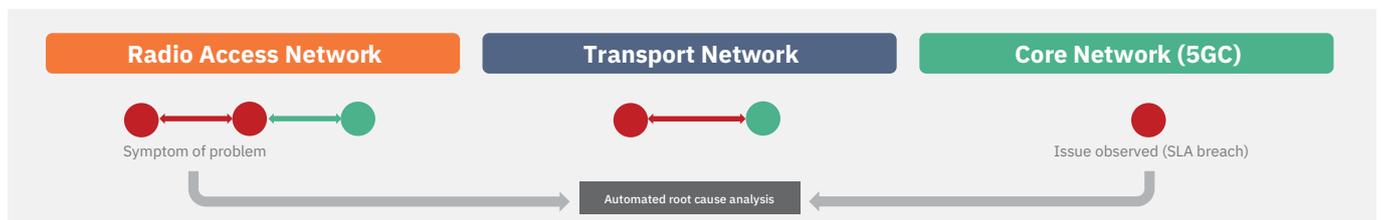
Based on the Infovista Ativa suite of applications for Automated Assurance and Operations, the solution enables the visualization of slice related KPIs across multiple domains, from radio to core and transport. This supports SLA management through rapid drill-down from the customer experience, down to the underlying root-cause, in whichever domain that may be. It provides highly granular analysis, down to the distributed RAN elements (RU, CU, DU), front-, mid-, and back-haul network elements and core networks, to identify failure causes. Customer impact analysis is enabled by the correlation between failures, impacted slices, and impacted customers from the same interface.

Benefits					
	Deliver superior SLA guarantees	Reduce OPEX through workflow automation	Monetize new services with faster TTM	Accelerate 5G ROI with network automation	Provide insights through self-service portals

Key Features

- **Correlation from user experience and SLAs to network infrastructure** for automated cross-domain root-cause analysis (RCA)

- **Automated troubleshooting** with a flexible, pre-configured NOC/SOC workflow automation tool

- **Automated impact analysis** for network performance degradations, identifying the impacted devices, subscribers, and network slices

- **Support for slice lifecycle manager interoperability** for rapid activation of monitoring and troubleshooting for newly created, modified or deleted network slices

- **Native to 5G standalone (5G SA) with full SBA monitoring** through Infovista's leading cloud-native 5G SA SBA monitoring capability, the solution provides complete visibility and insight into the 5G service-based architecture (SBA)

- **Future-proof with support for predictive AI/ML modeling, closed-loop automation, AIOps**. The solution is powered by the cloud-native Ativa suite of applications, which includes powerful AI/ML based automation, AIOps for alarm management, zero-touch configuration for network configuration and open APIs for orchestrator interoperability

- **Multi-tenancy** with support for GDPR conformance through data and application segregation

By providing insights into slice resource performance and usage, the solution enables rapid recognition of alarm patterns. The example below starts with a latency breach observed in the core domain and correlates with drill down capabilities, to a bandwidth problem between RU and DU in the RAN domain, which has been caused by the midhaul transport link between those elements:

Radio Access Network	Transport Network	Core Network (5GC)

Symptom of problem

Issue observed (SLA breach)

Automated root cause analysis

The solution package provides network view KPIs for proactive service assurance, and rich 5G network and service performance analysis fully interconnected with troubleshooting tools for RCA.

Users

- CTO and NOC/SOC
- CMO and enterprise lines of business
- Network engineering

Benefits

- Reduce time to activate assurance for new network slices
- Reduce MTTx for cross-domain troubleshooting
- Improve SLA conformance with fewer SLA breaches
- Reduce incremental OPEX for manual operations
- Accelerate scaling out of network slice-based services
- Rapidly adapt and respond to market and technology developments

Key features

- Multi-domain SLA monitoring, across core, transport and radio networks
- Workflow automation for cross-domain troubleshooting
- Per-slice and per customer impact analysis for network resource performance issues
- Intuitive, flexible user interface and reporting engine

360° Assurance for 5G Slicing Solution

Business challenges addressed by the solution package

Network slicing at scale requires CSPs to gain granular visibility and control of their networks to a much greater extent than in the case of scenarios absent of network slicing. The Ativa 360° Assurance for 5G Slicing solution addresses the capability gaps that block the initiation of 5G slicing-enabled, monetizable SLA-backed service delivery at scale:

Complex calculation and monitoring of cross-domain SLAs	Enterprise SLAs can translate to multi-domain performance requirements, with criteria such as end-to-end latency involving network elements across radio, transport, and core domains. Current domain-specific monitoring tools require complex data integration to provide the traceability to correlate problems between these domains. Adapting to changes in services is slow and expensive, reducing time-to-market (TTM) and increasing OPEX.
Slow, manually intensive detection of RCA and resolution	Current domain-specific monitoring tools need extensive manual troubleshooting across multiple systems. New SLAs for IoT type applications require highly reliable connectivity and rapid reaction time to issues. This will bring challenges in fulfilling SLAs at scale, therefore an automation approach to RCA and healing is mandatory.
Lack of readiness to support SLA guarantees	Traditional troubleshooting tools are designed for static, simple network topologies, in which the root-cause of an issue can be isolated with lack of extensive investigation. Today, the fluidity of programmable network topologies and interdependencies across infrastructure, network functions and services has rendered these unfit for purpose. This is particularly true when faced with stringent SLA criteria that places direct monetary value on the CSPs' ability to isolate and resolve problems.
Manually intensive, increasingly complex operations	Existing network and service operations limitations often involve manual analysis for prioritization of issues based on impact on customers and the associated SLAs. This increases manual effort to the assignment of priority for problems, therefore prolonging the time taken to resolve them, leading to the risk of SLA breaches.
High infrastructure resource workload	Network slice management requires a holistic view of network services and the supporting network capacity, across multiple concurrent services. It also requires clarity on what extra capacity exists to create more slices, as well as the SLAs that can be supported. Visualizing this at scale is increasingly resource-intensive, significantly impacting the infrastructure workload needed for assurance systems.

The 360° Assurance for 5G Slicing Solution addresses these problems with an end-to-end, cross-domain view of 5G slices and SLA performance, with correlation and automated workflows for rapid problem identification, RCA and resolution.

Key features of the solution package

The solution package includes pre-configured dashboards, KPIs and analytics / troubleshooting capabilities specific to 5G mobile networks, including:

Dashboards and reports

5G slice worst performer view showing the lowest performing live network slices according to their SLA KPI, to inform the SOC user of network slice challenges and enable rapid action

Per-slice usage summary views showing the traffic and usage characteristics for a given network slice, such as:

- Lowest 'N' applications by proportion of traffic used in the slice

- Lowest 'N' devices and device types by proportion of total number of devices connected to the slice

- Lowest 'N' 5QI values by proportion of sessions using the slice

- PDU sessions volume for the slice, during a given time period or at peak hours

- Unique user equipment (UE) connections for the slice during a given time period

- IoT specific information with drill-down options for troubleshooting
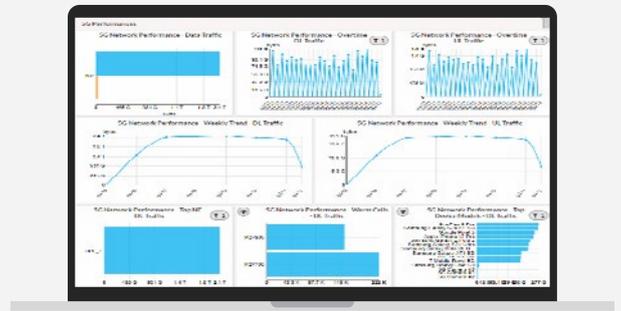
Cross-domain reports for troubleshooting per slice or per group of slices showing single-pane-of-glass views of combinations of slice-specific KPIs that span across multiple domains, such as the core, radio access and transport, over a given time period.

Analytics, troubleshooting and automation

Multi-domain cross-launching and alarming supports the generation and management of automated alarms from one domain to the other, which includes 'cross-launching' (triggering the analysis of alarms generated from one domain to another), from within the same user interface.

Automated cross-domain troubleshooting workflows supports the automation of troubleshooting investigation for root cause analysis, for instance by checking for patterns in one domain indicative of a particular root-cause in another domain, for an SLA breach. This is supported by a cross-product workflow automation engine that is intuitive and configurable.
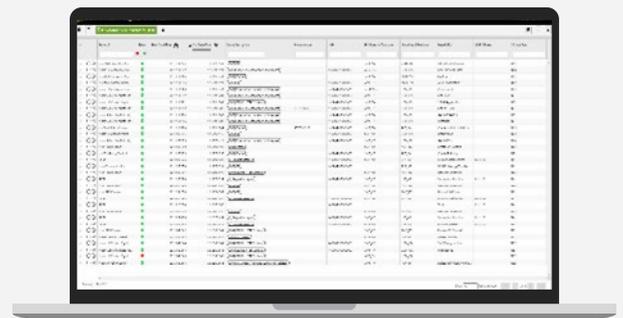

Advanced end-to-end troubleshooting for mobile subscriber or IoT devices with trace generation for protocols, messages, events and ladder diagrams for RAN and Core; combines with geospatial analytics based on application services, for fast issue identification and rapid troubleshooting.

KPIs and interfaces

5G slicing end-to-end SLAs, use a combination of KPIs that describe the performance of the network and quality of experience, including:

- **Per-slice throughput KPIs:** The download throughput of traffic assigned to a given slice

- **Per-slice latency / delay KPIs:** The average packet delay from the core network (the UPF PSA) to the user equipment

- **Dedicated KPIs/KQIs** for industrial IoT devices and their network behavior

- **Dedicated KPIs/KQIs** for subscriber user devices
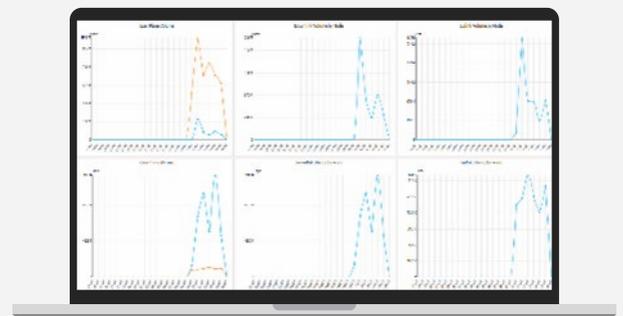
About Infovista

Infovista is the global leader in network lifecycle automation (NLA) for the next-gen networks era. With its unique NLA approach, Infovista allows communications service providers (CSPs) and enterprises to improve their network performance and customer experience, optimize their productivity, and reduce their costs, while maximizing return on their investments. Spanning the entire network lifecycle, Infovista's products and solutions leverage an open, integrated, cloud-native portfolio that automates tasks, flows, analytics, and decisions to the greatest extent possible. More than 1,500 customers, including 400 mobile network operators, around the world rely on Infovista to plan, design, deploy, test, operate, support, optimize, evolve, report on and monetize their networks.