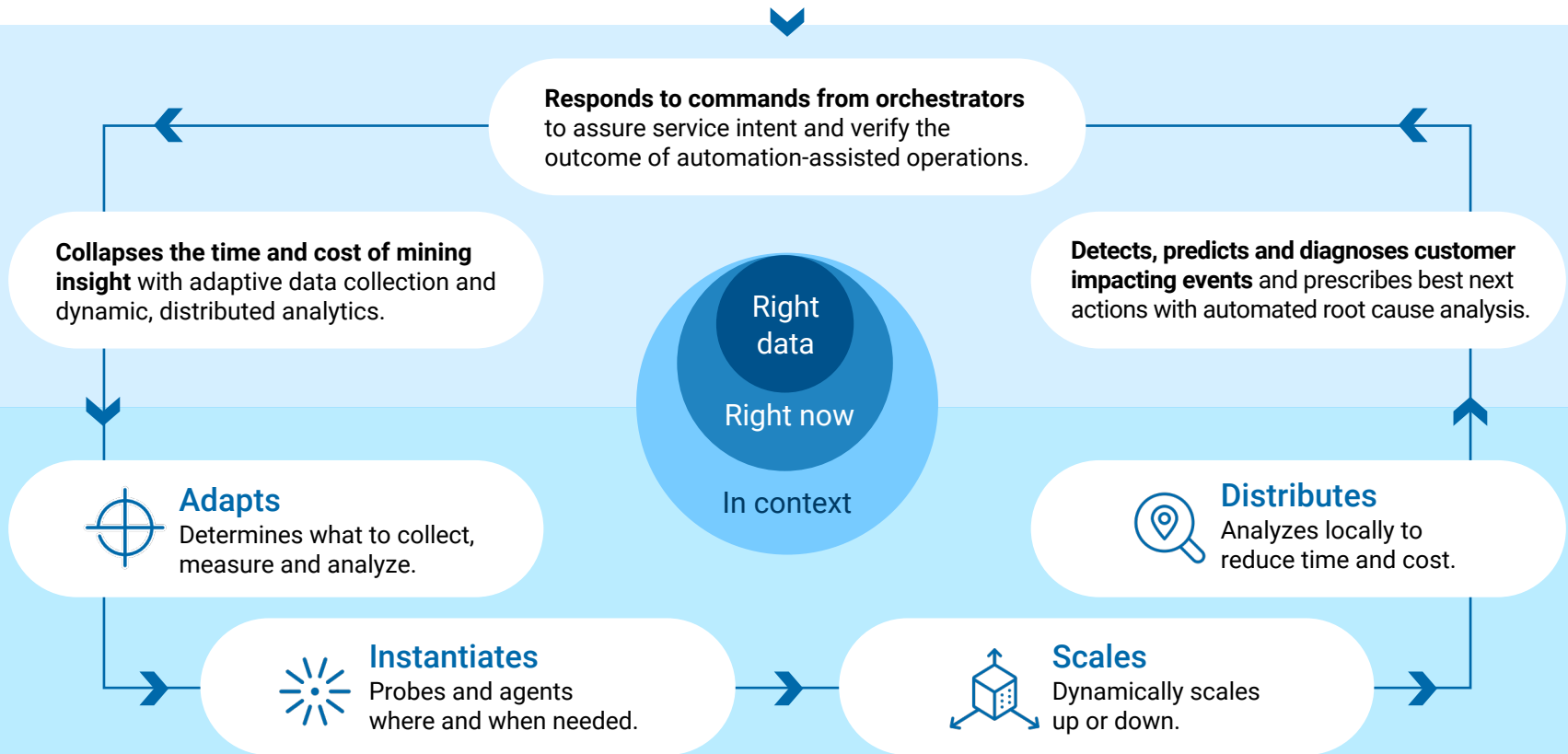# Nova adaptive service assurance

Right data, right time, in context

Adaptive service assurance

EXFO's Nova adaptive service assurance platform uses AI-driven automation and analytics to shatter big-data overhead and **reveal the small data that matters in the moment** to enable real-time operations and network automation.

Responds to commands from orchestrators to assure service intent and verify the outcome of automation-assisted operations.

Collapses the time and cost of mining insight with adaptive data collection and dynamic, distributed analytics.

Detects, predicts and diagnoses customer impacting events and prescribes best next actions with automated root cause analysis.

Right data

Right now

In context

Adapts
Determines what to collect, measure and analyze.

Distributes
Analyzes locally to reduce time and cost.

Instantiates
Probes and agents where and when needed.

Scales
Dynamically scales up or down.

Extracts context, insight and value from existing systems by openly ingesting data from service assurance, B/OSS, network functions and more.

Service assurance needs to adapt
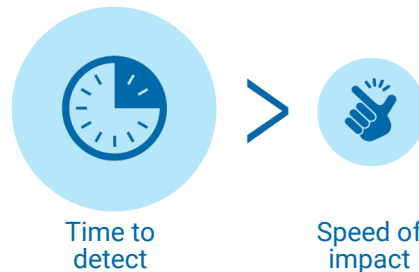
Existing tools struggle to keep up in a world of:

Operational complexity

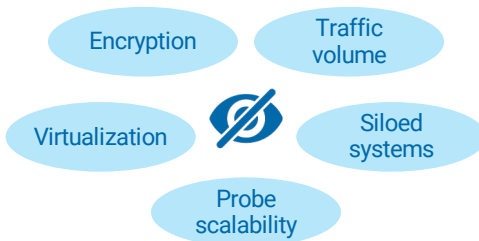Meeting customer expectations is getting harder. Compounding factors:

CNF VNF MEC 5G SA

5G SLAs IoT / mMTC URLLC

Orchestration Traffic growth
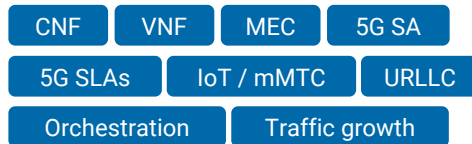
Silent suffering

Degradations define customer experience much more than outages. 90% go unnoticed[2].

Time to detect > Speed of impact

Diminishing visibility

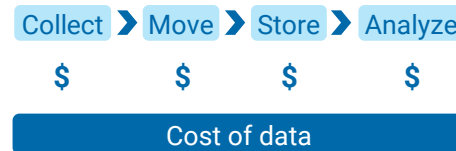Encryption Traffic volume

Virtualization Siloed systems

Probe scalability

80% of traffic will be invisible to traditional service assurance systems by 2024[1].

Big data bills

Collecting and analyzing everything is expensive and slow.

Collect > Move > Store > Analyze

$ $ $ $

Cost of data

Some cloud bills for service assurance cost more than the solutions themselves.

5G raises the bar

125 Gbit/s[3] per 5G probe

100's of probes required to monitor Tier-1 networks

36,000,000 gigabits to analyze per hour

Orchestration, automation, CEX and 5G need precise, split-second insight, in context.

Old ways don't work

Assurance is now a network function

It needs to be scalable, resilient and integrated like the ones it monitors.

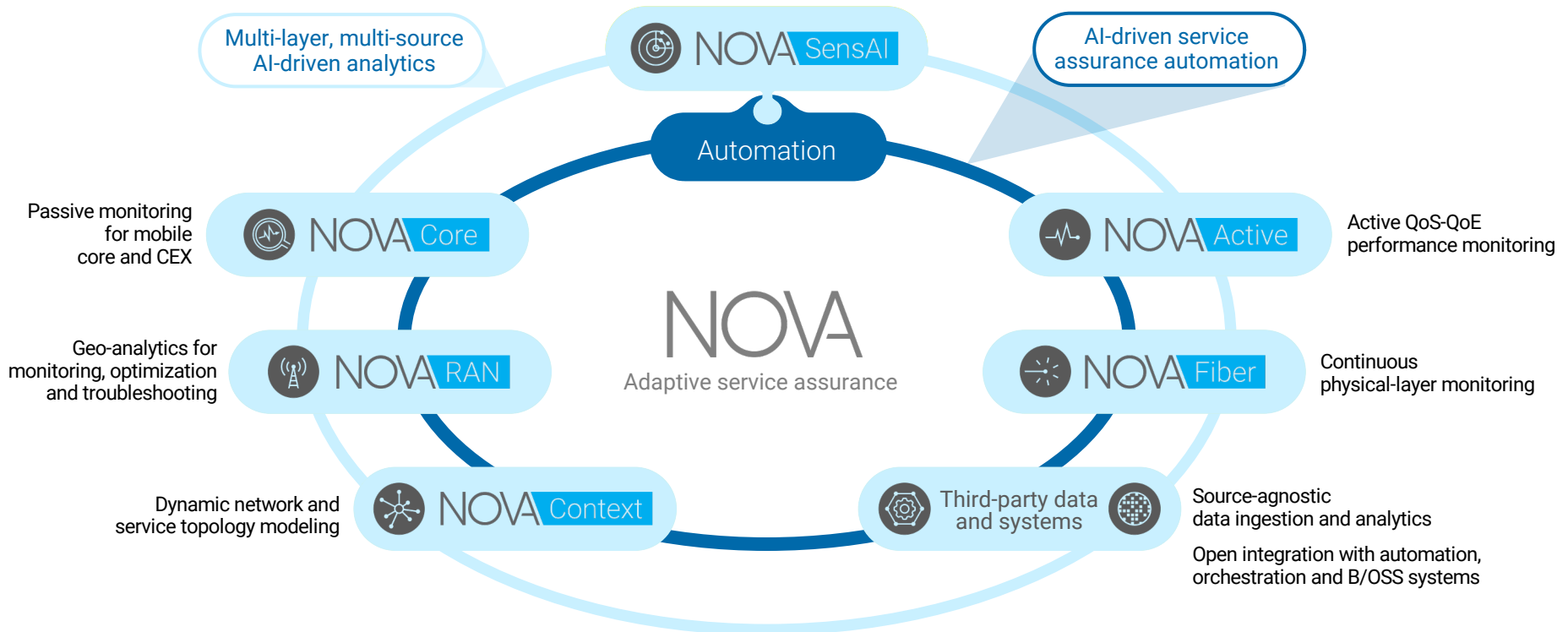Orchestrate Assure

A new approach is needed to close the loop

NOVA adaptive service assurance platform

Nova adaptive service assurance uniquely delivers contextual insights that relate service quality and customer experience to infrastructure performance across all layers and domains—fiber, core, cloud, RAN and transport networks.
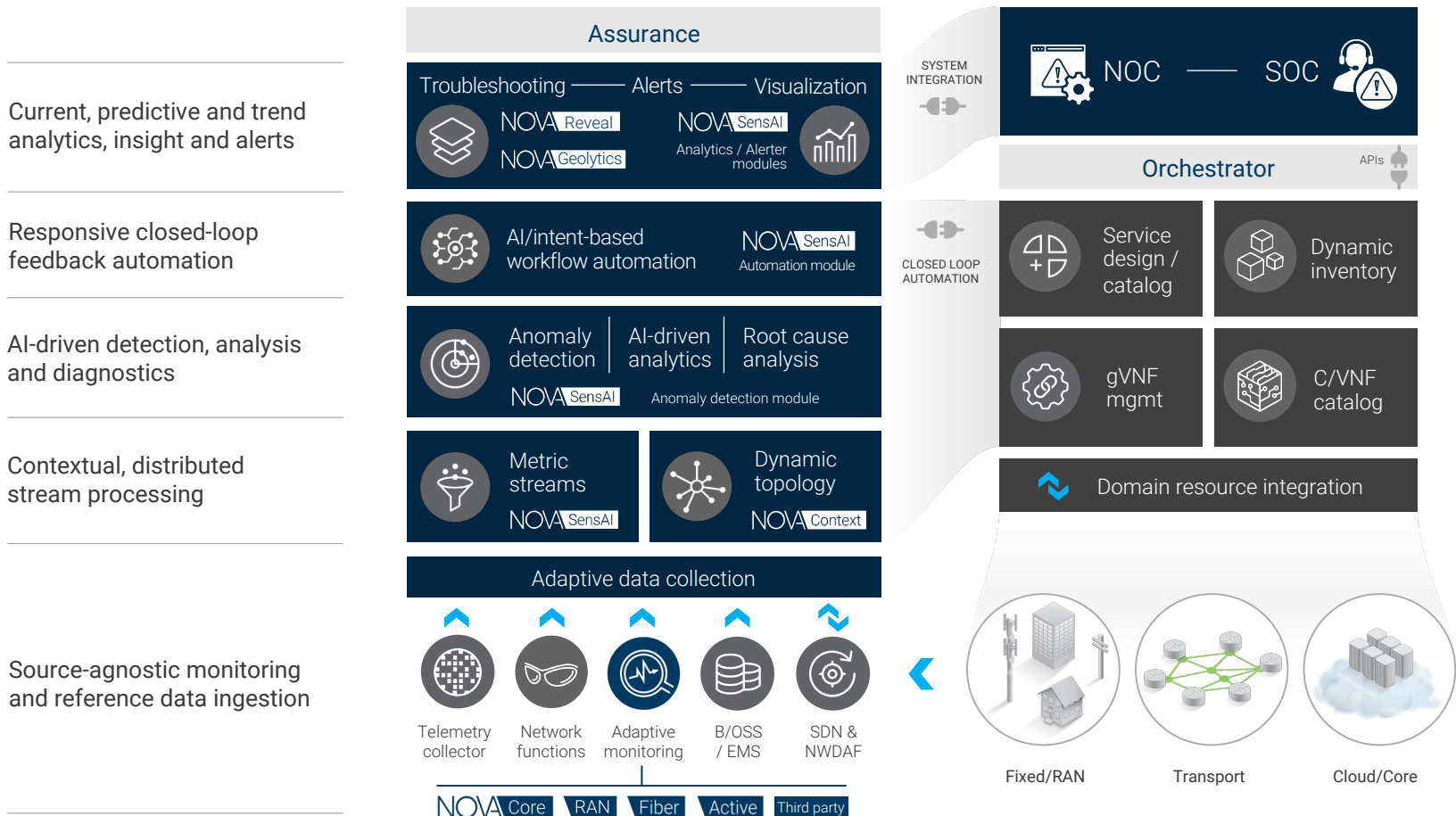
Nova SensAI's modular analytics and automation platform integrates feeds from one or more monitoring domains. Nova platform components and third-party systems integrate to assure multi-vendor networks, services, applications and infrastructure.

Platform components

Multi-layer, multi-source AI-driven analytics

NOVA SensAI

AI-driven service assurance automation

Automation

Passive monitoring for mobile core and CEX — NOVA Core

Active QoS-QoE performance monitoring — NOVA Active

Geo-analytics for monitoring, optimization and troubleshooting — NOVA RAN

Continuous physical-layer monitoring — NOVA Fiber

NOVA
Adaptive service assurance

Dynamic network and service topology modeling — NOVA Context

Third-party data and systems — Source-agnostic data ingestion and analytics

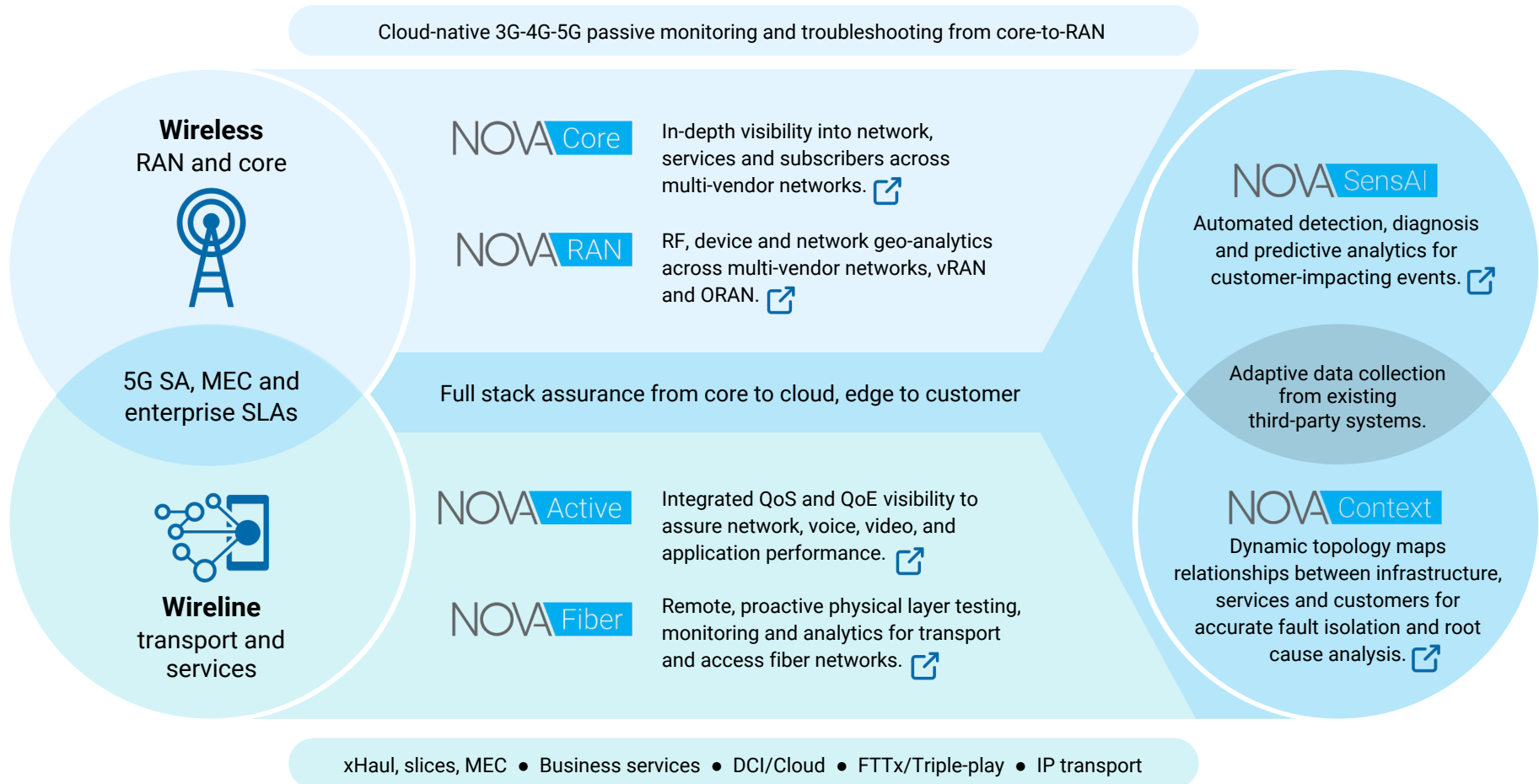Open integration with automation, orchestration and B/OSS systems

NOVA adaptive service assurance
for orchestrated, automated networks

Cloud-native networks require close collaboration between man and machine. Because every automation journey is unique, the Nova platform is modular. Add components selectively to build an open, multi-vendor orchestrated network, incrementally.

Current, predictive and trend analytics, insight and alerts

Responsive closed-loop feedback automation

AI-driven detection, analysis and diagnostics

Contextual, distributed stream processing

Source-agnostic monitoring and reference data ingestion

Assurance

Troubleshooting ——— **Alerts** ——— **Visualization**
NOVA Reveal
NOVA Geolytics
NOVA SensAI
Analytics / Alerter modules

AI/intent-based workflow automation
NOVA SensAI
Automation module

Anomaly detection | AI-driven analytics | Root cause analysis
NOVA SensAI — Anomaly detection module

Metric streams
NOVA SensAI

Dynamic topology
NOVA Context

Adaptive data collection

Telemetry collector | Network functions | Adaptive monitoring | B/OSS / EMS | SDN & NWDAF

NOVA Core | RAN | Fiber | Active | Third party

SYSTEM INTEGRATION

CLOSED LOOP AUTOMATION

NOC ——— SOC

Orchestrator
APIs

Service design / catalog | Dynamic inventory

gVNF mgmt | C/VNF catalog

Domain resource integration

Fixed/RAN | Transport | Cloud/Core

NOVA adaptive service assurance

Platform coverage

Cloud-native 3G-4G-5G passive monitoring and troubleshooting from core-to-RAN

Wireless
RAN and core

NOVA Core
In-depth visibility into network, services and subscribers across multi-vendor networks. ↗

NOVA RAN
RF, device and network geo-analytics across multi-vendor networks, vRAN and ORAN. ↗

NOVA SensAI
Automated detection, diagnosis and predictive analytics for customer-impacting events. ↗

5G SA, MEC and enterprise SLAs

Full stack assurance from core to cloud, edge to customer

Adaptive data collection from existing third-party systems.

NOVA Active
Integrated QoS and QoE visibility to assure network, voice, video, and application performance. ↗

NOVA Fiber
Remote, proactive physical layer testing, monitoring and analytics for transport and access fiber networks. ↗

NOVA Context
Dynamic topology maps relationships between infrastructure, services and customers for accurate fault isolation and root cause analysis. ↗

Wireline
transport and services

xHaul, slices, MEC ● Business services ● DCI/Cloud ● FTTx/Triple-play ● IP transport

NOVA adaptive service assurance

Solution coverage

Service providers use the Nova platform to overcome operational challenges, advance automated cloud-native networks, accelerate new revenue and deliver a differentiated customer experience.
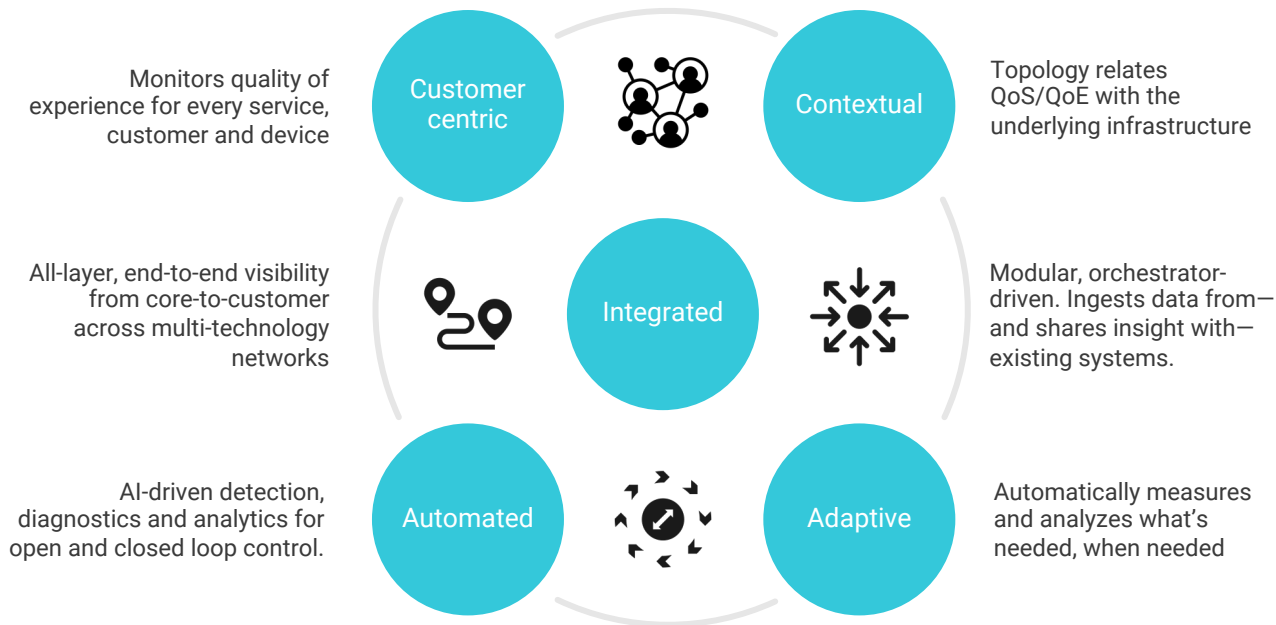
Modular solution components integrate with existing systems to provide real-time, prescriptive insight that breaks down silos to get things done—simply and efficiently.

NOVA platform	Solutions and components*	SensAI	Core	RAN	Active	Fiber	Context
Network performance	Assure and optimize networks to enhance customer experience with an integrated view of network and service performance.	●			●	●	●
Service quality	Ensure every user and device gets the experience they need with an integrated view of application, network and infrastructure performance.	●	●	●	●		●
5G and mobile	Accelerate the deployment of 5G. Monitor and optimize 3G/4G/5G networks and services from core to RAN to customer.	●	●	●			
Automated assurance	Adaptive, automated insight for orchestrated networks with fast AI-driven problem detection and diagnostics for closed-loop control.	●	●	●	●	●	●
Fiber monitoring	Deploy, optimize, maintain fiber networks for 5G, enterprise and residential services with continuous physical layer monitoring and analytics.	●				●	
OTT QoE	Deliver exceptional quality of experience to differentiate and drive loyalty with network-aware OTT video and application monitoring.	●	●		●		

The Nova platform also assures the adoption of MEC, slices, private networks, and O-RAN.

NOVA adaptive service assurance

Unique viewpoint

Customer centric
Monitors quality of experience for every service, customer and device

Contextual
Topology relates QoS/QoE with the underlying infrastructure

Integrated
All-layer, end-to-end visibility from core-to-customer across multi-technology networks

Modular, orchestrator-driven. Ingests data from—and shares insight with—existing systems.

Automated
AI-driven detection, diagnostics and analytics for open and closed loop control.

Adaptive
Automatically measures and analyzes what's needed, when needed

Benefits

Detects, predicts and diagnoses customer impacting events

Extracts new value from existing systems

Simplifies operations and problem resolution

Unlocks network automation at scale

Accelerates market adoption and new revenue

260
Service assurance platforms deployed globally

5,000
Pro-services projects completed over 10 years

1st in growth
Fastest growing service assurance vendor in 2020[1]

Proven expertise

Glossary

AI	artificial intelligence		NFV	network function virtualization
AMPU	average margin per user		NFVI	network function virtualization infrastructure
API	application programming interface		NPS	net promoter score
CNF	containerized network function		OTT	over the top
CSP	communications service providers		PNF	physical network function
eMBB	enhanced mobile broadband communications		QoE	quality of experience
IoT	Internet of Things		QoS	quality of service
LLC	low latency communications		SLA	service level agreement
LTE	long term evolution (4G)		SP	service provider
M2M	machine to machine		UR	ultra reliable
MEC	mobile edge compute		VNF	virtualized network function
ML	machine learning		VoIP	Voice over IP
mMTC	massive machine type communications		VoLTE	Voice or LTE

EXFO corporate headquarters

400 Godin Avenue, Quebec City (Quebec) G1M 2K2 CANADA
T +1 418 683-0211

Toll-free (USA and Canada)
1 800 663-3936

info@EXFO.com
EXFO.com

EXFO