



Creanord PULSure™

On the Pulse of Networks

# Groundbreaking new feature - Available Bandwidth Measurement

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Turning data into  
outperforming networks

 **CREANORD**

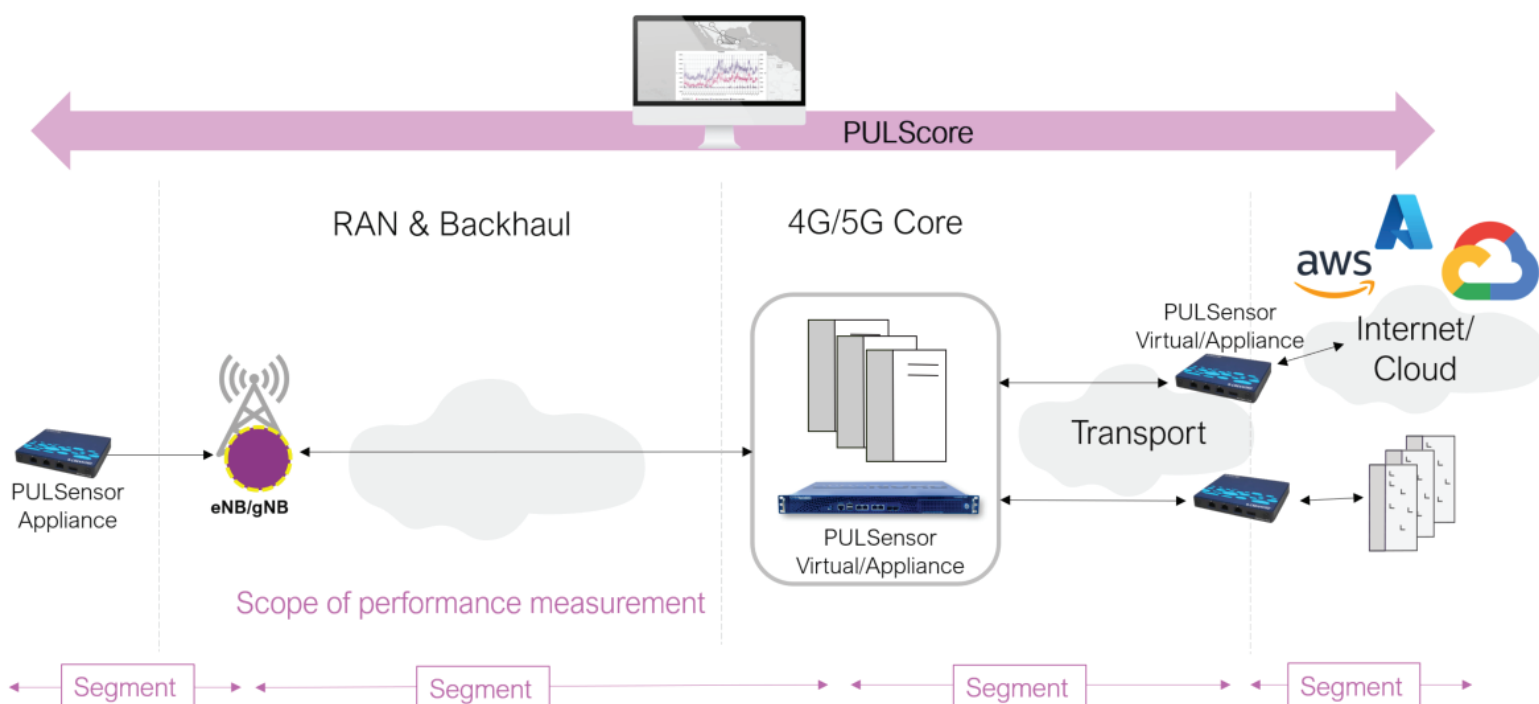
# Service Assurance for Critical Communication Networks

The Creanord PULSure solution enables critical communication network operators to ensure 24/7 five-nines availability of their network combined with full visibility into network performance and advanced reporting and troubleshooting capabilities to correct any issues within seconds rather than minutes. The solution includes advanced artificial intelligence (AI) and machine learning (ML) capabilities to proactively identify issues before they affect end-user services and rich SLA reporting features to verify, among others, leased line connections and shared multi-operator radio access network (MORAN) and multi-operator core network (MOCN) infrastructures.

## Successful Journey to 4G/5G-based Mission-Critical Mobile Broadband

Critical communication networks are transforming to future-proof and reliable broadband networks based on 4G and 5G technologies to support new use cases and applications such as multimedia communication, drone-based surveillance, eHealth with remote doctors and critical IoT.

When migrating to commercial 4G/5G technology, operators need to ensure the new networks and applications meet the same availability targets as the existing TETRA networks. Creanord PULSure segments the network performance view and allows the operator to monitor performance targets and identify issues within each of the segments. The advanced reporting and AI/ML-powered analytics tools help locating the root-cause and fix the issue instantaneously. For shared RAN networks the advanced SLA reporting capabilities help to verify that the shared RAN network meets the promised performance targets.



# Powerful Performance Measurements Across the Service Lifecycle

## 4. Verify the performance of your network against performance targets

- Verify service performance against defined quality targets
- SLA reporting on daily/weekly and monthly basis to continuously review network performance and fix potential issues
- Regular SLA reports to build confidence that the shared network is delivering as promised

## 1. Validate performance for new services

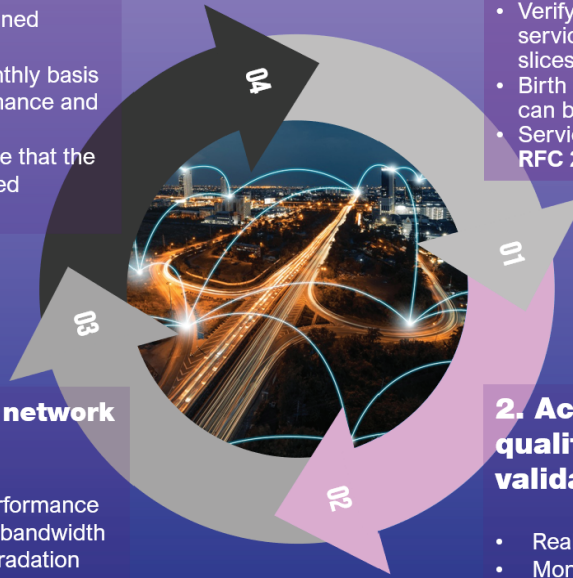
- Verify correctly configured QoS levels for each service class including 5QI attributes for network slices
- Birth Certificate – baseline performance report that can be used to prove network performance
- Service Activation Testing : Y.1564, RFC 2544, iPerf3

## 3. Proactively engineer your network to meet future demands

- Proactively optimize your network performance with threshold/baseline and available bandwidth monitoring to avoid performance degradation surprises
- Trendlining to predict bottlenecks and issues before they occur

## 2. Accurately monitor service quality levels, continuously validate QoS and QoE 24/7

- Real-time view of network performance
- Monitor all service classes simultaneously
- Rapid troubleshooting and root-cause analysis in case of issues
- Accurate data to trigger automated, closed-loop network operations



Creanord PULSure offers a complete toolset of performance tests including service activation testing, active monitoring, advanced analytics and AI/ML-based tools as well as SLA reporting to cover every aspect of the service lifecycle.

The service activation tests (SAT) based on Y.1564, RFC 2544 or iPerf3 provide confidence that a service has been turned up according to the SLA. These tests are beneficial, for instance, to verify the network can deliver as required before going live with new base stations within a shared RAN.

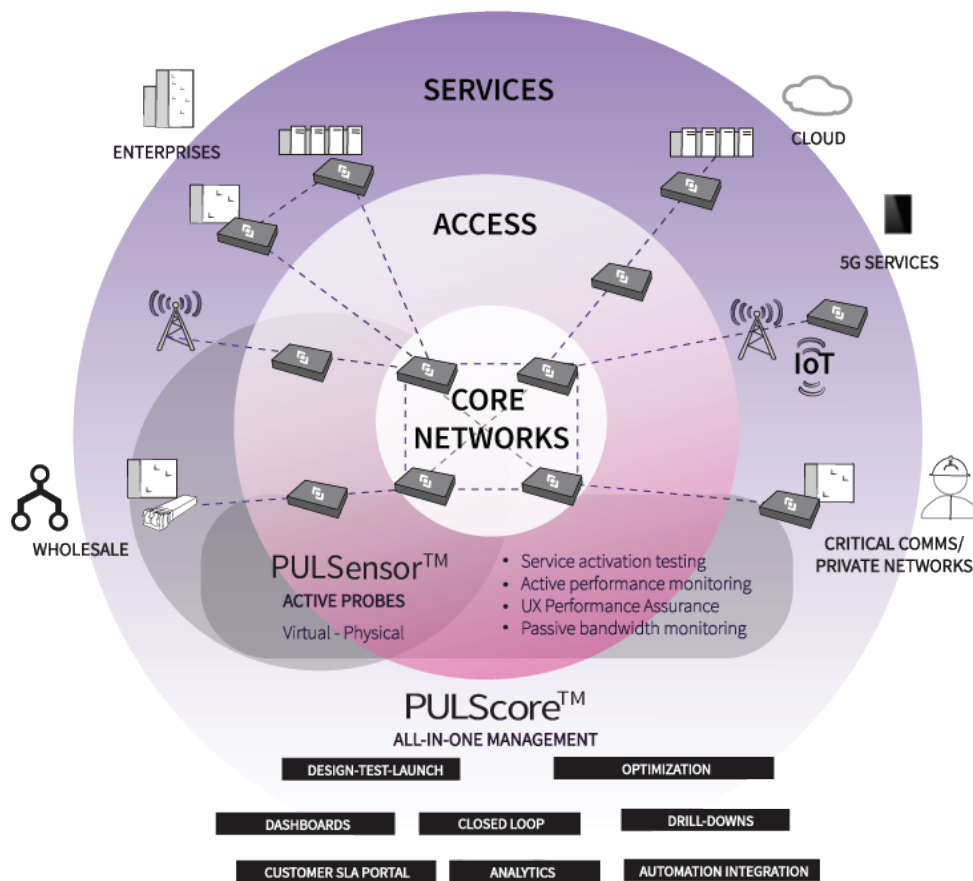
TWAMP is the preferred option for active and continuous performance monitoring and Creanord PULSensor probes have demonstrated interoperability with all major manufacturers' devices. One centrally located PULSensor probe can monitor up to several thousands of base stations or routers within a shared RAN or transport network and for all service classes. Also UDP Echo and ICMP Ping can be used as an alternative. Furthermore, infrastructure (DNS/DHCP/TCP Connect and Web App tests towards the Internet and the cloud provide you a full view of the user experience.

Baseline thresholds, trendlining and other machine learning-based tools can be used to proactively engineer the network and identify bottlenecks before they occur. Combined with the ground-breaking available bandwidth measurement you stay on top of the pulse of your network.

Finally, the advanced SLA reporting tools ensure your network and the networks you share with others stay within the defined performance targets and provides you the confidence that the network can deliver.



# Service Assurance for Critical Communication Networks



Service Activation Testing

Performance Monitoring

Bandwidth and application monitoring

Advanced SLA reporting

REST/Kafka Integration to OSS

Analytics with AI/ML Capabilities

Measurement accuracy down to microsecond level

Physical and virtual appliances

Scalable from small to large networks

Fast and easy to deploy

Interoperable with network elements from all major vendors

## About Creanord

Creanord designs and delivers network performance quality solutions that build confidence and readiness for communications service providers to create and sell services with service level agreements (SLAs) and quality guarantees.

Creanord PULSure™ is a design framework used for network performance and experience-tracking to customer-specific needs at a fraction of the cost, time and effort of conventional systems. The PULSure solution enables you to set, offer and track network experience-based SLAs and key performance indicators (KPIs) with superior accuracy, giving you insights about the metrics such as speed, latency, jitter, packet loss and service availability that go far beyond those reported by conventional systems. With the PULSure the service provider gains and preserves end-to-end situational awareness, performance visibility and control needed to automate, continuously optimize network performance and prevent negative impacts, to meet the most demanding service needs.

Already since 2000 Creanord has served customers globally, staying on the pulse of the most demanding networks and connectivity applications.

Visit [www.creanord.com](http://www.creanord.com) or contact [sales@creanord.com](mailto:sales@creanord.com) to learn more