

# PULScore™ - your data's pulse at *A Glance*

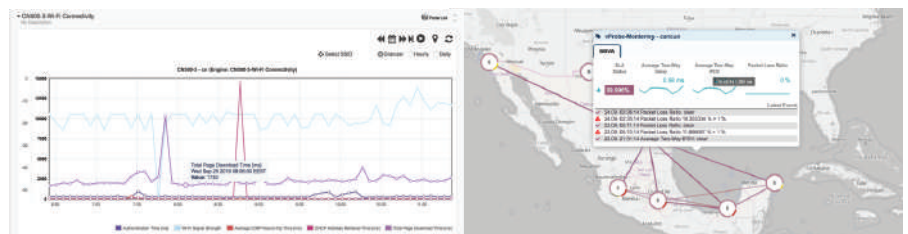
Solution Brief

## Key Benefits

- Real-time interactive performance & monthly service level reporting
- ▽ Proactive alerting with worst circuits, drilldown and contextual graphing
- Multi-vendor performance data collection from a broad range of network elements
- Highly scalable performance probing together with PULSensor 3000
- ▽ Customer portal for provider-branded SLA and performance reporting

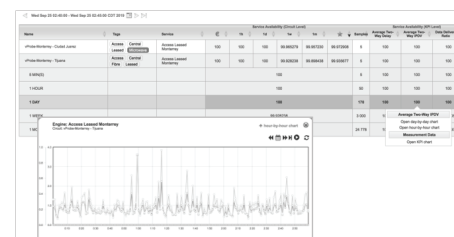
## Get an Edge with Powerful Network and Service Reporting

The network is your most important asset, but staying on top of performance can become quite a headache. As customers become more aware and demanding, they also become less forgiving. Service performance becomes vital in order to win and keep customers. PULScore enables unparalleled visibility to the service sold and provides the most scalable performance orchestration solution for almost any installed equipment. solution for almost any installed equipment.

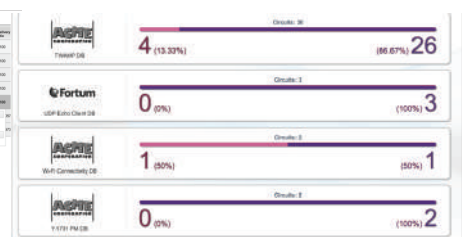


Datacenter/Virtualized Mobile Core

Map View



Monthly Report



Real-Time Reporting

Figure 1 Various dashboards and reports to support your decision-making

## Exploit Your Performance Data for Differentiation and Customer Loyalty

PULScore lets you get in control of network quality with Performance Assurance and True SLA . Service visibility helps reduce operational expenditures with proactive monitoring that is exceptionally fast to set up. Monitor sizeable networks, with the very powerful PULSensor 3000 Appliance. PULSensor SFP makes it easy to equip any endpoint with accurate measurements if not built in.

Stylish service reporting through a portal enable extending your portfolio and increasing the value of services. A more reliable and comprehensive set of services helps you win bids with performance and SLA compliance reporting for high-value demanding customers. PULScore helps you reduce churn and keep costs in check.

## Use Cases

### Mobile Backhaul Assurance

Assure performance with centralized PULSensor 3000 Appliance based TWAMP measurements against Base Stations for fast setup. Support for up to 10000 targets per Probe ensures sufficient scalability. With fewer probes CAPEX is lower and faster and more effective troubleshooting means OPEX is kept in check.

### Wholesale Backhaul SLA

PULScore provides a performance portal and SLA compliance reporting to help win new business and provide superior visibility. Layer 2 Y.1731 measurement data collection up to the demarcation point, with broad Multi-Vendor support. Alternatively TWAMP measurements towards base stations provide a highly cost efficient option.

### Business & Cloud Access

PULScore makes the service more tangible as customers can actually see what they are getting. This gives the service provider opportunity for differentiation and a more attractive and sticky service. Data is collected from elements of a Multi-Vendor network with a Y.1731 mesh using e.g. NETCONF or SNMP.

*When Network Quality Matters*

**Is it possible to achieve complete network visibility for complex, ever-changing multi-vendor networks?**

**And without extensive hardware deployments with associated operational expenditures?**

# Trim Your Profit-Making Engine with PULScore

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## Full Network Visibility

A unified network view empowers you to manage, control and evolve your network in an optimized and effective way. Assure quality, optimize investments, improve communication and reduce silos. Clear, consistent and service-focused analytics and reporting enable an aligned understanding of network performance.

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## Power Without Compromise

The unforeseen scalability of PULSensor 3000 makes it simpler and faster than ever to set up L2/L3 monitoring to thousands of sites. Hardware timestamping accuracy on microsecond level built in. This lays the foundation for full network visibility at the lowest possible operational cost.

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## Easy, High-Precision OAM

PULSensor SFP 200 complements PULSensor 3000 by making it possible to upgrade any equipment with monitoring and troubleshooting capabilities simply by replacing a conventional SFP module with the PULSensor SFP. This adds support for TWAMP and Y.1564 SAT loopbacks. Timestamping accuracy on microsecond level is built in. This lays the foundation for full network visibility at the lowest possible operational cost.

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## Share Service Data

The Portal lets you considerably improve quality awareness, reduce churn and improve user satisfaction by sharing a clear and up-to-date understanding of service performance. Account teams or marketing can benefit from reporting per customer or region. Customers love to see the performance of their service in real time.

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## SLA Management & Reporting

PULScore is the most complete SLA management solution. Define new services, automate measurements and analytics and provide stylish reporting. EchoVault provides service birth certificates, real-time per-customer status, monthly SLA compliance reporting and protected circuit reporting.

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## Assurance for SDN & NFV

Creanord provides Service Assurance with the power and flexibility required in ever-changing, virtualized networks. EchoVault helps you get ready for software-driven networks and virtualization by providing flexibility, accuracy and speed. The solution is ready to integrate using NETCONF, RESTful interfaces and work with distributed VNFs.

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# About PULScore

## **PULScore properties**

Carrier-Grade Scalable Network Performance Monitoring and SLA Management System

Interactive Customer Portal for Performance & SLA reporting

Real-time and monthly service level target reporting

Birth Certificates and Provider Branded SAT reporting

Event management with proactive SLT warning

Performance Dashboards, Drilldowns, Modular Add-Ons

Performance Orchestration, Map visualization

## **Technologies and Interfaces**

L2 & L3 network monitoring and SLA Management System

Y.1731, TWAMP, UPD Echo, ICMP collection and monitoring with built-in advanced analytics

Y.1564 SAT testing

Northbound RESTful interface, CSV, MTOSI

Equipment EMS PM data collection with XML/CSV

Southbound NETCONF, SNMP

Future proof with built-in capabilities for SDN and NFV



# CREANORD

on the pulse of networks

Why Us?

Specialized in network connectivity performance and SLA management - Creanord helps service providers and alike operate their network with complete visibility and uses the service quality as a competitive asset. With Creanord solution you can discover the pulse of your networks and build the confidence to sell, deliver and use the services to your customers.

At Creanord we believe in the Five V's, which sets us apart



## Volume

Scales to hundreds of thousands of measured connections  
Kafka API for big data  
Great economical fit to growing performance monitoring needs



## Variety

Compatible today with 3G, 4G and 5G application requirements  
Broad range of physical and virtual measurement probes  
Diverse data categorization options including arbitrary metadata



## Velocity

Rapid deployment with point-and-click provisioning  
Real-time measurement data for SDN/NFV automated operations  
Automated SLA reporting with built-in approval process



## Veracity

Microsecond accuracy in measurements  
Granular reporting through down to millisecond sampling rate  
Versatile testing options at L2, L3 and L4-L7



## Value

Measurement and analytics as a package  
Cost predictability with no hidden costs  
Reliable data from top down enabling proactive and efficient operations

Stellar product technology and customer first-thinking combined with flexible operations makes Creanord your business partner of choice.