



Challenges of Managing Complex, Converging Technologies

Competitive pressures have increased the focus on customer experience and service assurance. But to meet service level agreements, old and new network and IT technologies must operate as a cohesive entity and with optimal and continuous performance. Taking an integrated view is challenging because services cross multiple, multi-tenant domains that are continuously evolving and are being monitored by a multitude of different, specialized tools.

To meet customer and business expectations, a unified, top-down, real-time view of performance across domains is essential. That integrated view must enable performance issues to be isolated and resolved and provide proactive notification **before** the customer's service is impacted. Solutions must also meet "big data" demands and operate at scale and within budget, while being easy to use.

The AssureNow Performance Monitoring Advantage

The Monolith AssureNow™ solution takes a unified approach to IT infrastructure, business service, and customer experience management. Discovery, fault, performance, topology, and service management are integrated onto a single scalable software platform that provides operations and business teams with significant performance, scalability, and cost advantages over legacy and silo tools.

AssureNow Performance Monitoring provides end-to-end visibility in real time; proactive alerting so that problems can be resolved before they become outages; rapid troubleshooting to reduce mean-time-to-repair; and centralized data to enable effective capacity management. It provides comprehensive data collection, monitoring, reporting, and analysis that correlates Key Performance Indicators (KPIs) to service-oriented Key Quality Indicators (KQIs). Performance Monitoring replaces the need to manually analyze and correlate data from diverse tools to achieve service management. Costs are reduced since no hardware appliances or probes are required.

AssureNow Performance Monitoring Overview

AssureNow Performance Monitoring provides a service-quality-managed architecture with proactive monitoring of KPIs to identify potential incidents before they occur and to ensure promised service levels. Its comprehensive approach goes beyond single metrics and instead groups KPIs into more relevant KQIs that reflect the end-to-end network or service. Performance Management captures the logical relationships between device KPIs, thresholds the resulting metrics, and then alerts based on the KQIs. Taking a unified, systematic approach to KPIs and aggregating data into KQIs enables a streamlined process that delivers effective, actionable metrics to manage Service Level Agreement commitments.

AssureNow Performance Monitoring is a unified Manager of Managers with a centralized, flexible, and highly scalable system for polling, collecting, and storing metrics. The solution allows operations and IT managers to trend, graph, establish and monitor thresholds, and report on critical availability and performance data in an easily available, highly professional manner.

The solution is rules-based, so there is flexibility to calculate any kind of KPI, thus giving a high level of control. Performance Monitoring simplifies the configuration task through its comprehensive out-of-the-box auto-discovery and auto-configuration capabilities. The device discovery engine automatically finds devices and then utilizes this information to automatically deploy polling templates and set predefined threshold policies.

AssureNow Performance Monitoring collects a continuous set of metrics from network elements, servers, and applications as well as from element management systems using a variety of protocols and domain-specific applications to collect real-time or historical data. The result is a service quality management architecture that is streamlined, effective, and can adapt and evolve with the needs of the business.

Real-time Visibility

AssureNow Performance Monitoring provides complete end-to-end views of network availability, performance, and utilization in real-time, all displayed in a single-pane-of-glass. Performance can be monitored at a multi-tenant level down to the interface level. By grouping KPIs into higher-level KQIs and by processing and correlating metrics, the number of data points is reduced dramatically and attention can be focused on service level agreements and customer experience.

Performance Monitoring provides comprehensive data collection, monitoring, reporting, and analysis. Metrics can be monitored from any technology, system, or device type. Pollers collect data directly from devices using ICMP, SNMP, Transactional, JMX, SOAP, etc. Collectors gather data directly from element management systems or other tools. Connectors and agents are also used, as well as out-of-the-box integrations with other systems.

AssureNow Performance Monitoring Benefits

- Provides real-time, service-oriented, end-to-end views
- Improves operational efficiency to avoid downtime
- Delivers consistent application performance
- Rapidly resolves performance problems
- Lowers cost of ownership
- Handles heavy event streams with ease
- Supports any metric type, format, and feed
- Provides capacity management to avoid overspend

Big Data Storage and Processing

Millions of active KPIs or metrics are gathered every second. Managing this large volume of data and separating the important information from the noise is essential. The AssureNow platform's sophisticated and automated analysis, correlation, and consolidation techniques quickly turn complex analyses into simple graphs and reports.

The end-to-end nature of AssureNow Performance Monitoring enables correlation of large volumes of cross-domain KPIs into fewer KQIs that can be used to take automated action and reduce manual effort. Analyzing high-level KQIs encourages business-oriented results and keeps managers from getting lost in "big data" noise.

Performance Monitoring is a highly scalable solution that deals with large quantities of monitored data and metrics with ease. Raw data are polled at intervals that can range from 30 minutes down to 1 second and then consolidated weekly, monthly, and yearly.

Proactive Alerting

To know about problems before they become outages, out-of-the-box automated alerting engines proactively detect issues by analyzing millions of active and historical KPI and KQI metrics per second.

Simple static threshold alerts notify operations (or third-party systems) when a threshold has been violated. This is the most common type of incident detection and is generally used to monitor for outages or utilization issues.

The trending and linear regression threshold engine predicts failures or detects capacity problems by determining whether a value is increasing or decreasing over time compared to a closest-fit line.

Missing data thresholds detect data integrity issues, such as devices that are not sending data. Lack of that data may lead to inaccurate conclusions.

The abnormal threshold engine uses heuristics to analyze trends, such as latency shifts, so that imminent failures can be identified before service is impacted. A Holt-Winters double exponential smoothing algorithm determines seasonal confidence bands and sends an alert when a metric is outside of this band a set number of times in a given period.

Rapid Troubleshooting

Troubleshooting and mean-time-to-repair can be reduced substantially by using powerful heuristics that analyze and convert the large quantity of collected historical monitoring data into insightful information – all without hardware probes. It is easy to research problems to see if they have happened before, whether there are associated trouble tickets, and to consult the Knowledgebase. Holistic reports show every choke point of a network, system, or application and enable views by device, service, or custom dashboards.

Effective Capacity Management

Since historical end-to-end monitoring data is in a single database, effective capacity management becomes possible and can be automated using the trend alerting engine. Stakeholders or customers can be notified proactively if more resources such as bandwidth or disk space are required.

Dynamic Reporting

AssureNow Performance Monitoring dashboards and reports simplify analysis and provide quick health snapshots. A user-friendly web-based interface makes it easy to design, build, schedule, and automatically email reports. Ad hoc reporting functionality compares multiple metrics on the same graph. This is useful when comparing similar metrics on different devices, such as comparing CPU utilization on multiple servers or bandwidth on multiple WAN links.

About Monolith Software

Monolith AssureNow is a next generation, unified service assurance solution that unifies fault, performance, topology, and service level management in a single scalable software platform. Built from the ground up on a single codebase, the fully integrated and multi-tenant AssureNow solution uses an open and holistic approach for data collection, enrichment, and visualization and reporting. Leading telecommunications, managed service providers, and enterprises around the world use Monolith to unify and simplify their infrastructure management, consolidate disparate and legacy tools to significantly reduce operations costs and assure delivery of new services and enhance customer experience.

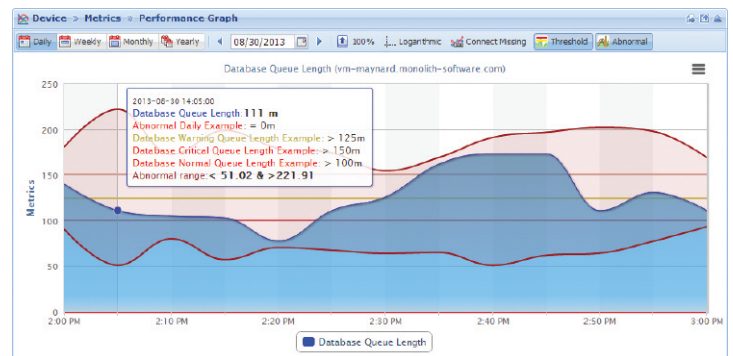


Figure 1: Dynamic Threshold-Based Alerting