



Embedded Monitoring

The Embedded Monitoring Solution is the final link in monitoring service quality in the whole DTV delivery chain. Real-time monitoring of quality of experience, quality of service, service usage and system parameters on each and every set-top box brings a new level of insight to quality-aware operators. This unique insight adds value to the whole organization, from the NOC and network technicians to customer support, service development and management.

The Agama Embedded Monitoring Solution collects information from software probes on each set-top box and presents it centrally in the Enterprise Server or Enterprise Server EX.

With real-time and historical views of the quality of experience and quality of service for individual set-top boxes or groups of set-top boxes, operators can quickly identify and troubleshoot last-mile problems and separate problems affecting specific users from regional or system-wide problems.

The STB client software is designed for low resource consumption, low bandwidth usage and ease of integration. It is pre-integrated on STBs from several leading manufacturers with new ones being added all the time. The solution is highly scalable and is currently used in commercial deployments with up to hundreds of thousands of set-top boxes each.



Key features

- End-user QoS, QoE, channel usage and state information
- STB system parameters such as CPU usage and temperature
- Flexible grouping to show aggregated information
- Configurable top-level dashboard and geographical views
- Drill-down to graphs and logs for individual probes
- Correlation with Agama Analyzers
- Topological location of probes using Logical Path Identifiers
- Quickly identify viewers with the worst QoE
- Alarm generation based on embedded monitoring

Available add-ons

- Support for monitoring on DVB-T/C/S hybrid set-top boxes
- Video on Demand quality and usage monitoring
- Support for monitoring on third-party Customer Premise Equipment probes
- Aggregation Server failover redundancy for the central solution





Key applications

- **True end-to-end monitoring**

Include all end-users and gain an unprecedented understanding of each end-user's quality of experience with alarms, overviews and details correlated with upstream Agama Analyzers

- **Proactive customer care**

Minimize escalations, truck rolls and churn by being able to separate unique problems from general problems and actively identify and contact customers with the worst QoE

- **Advanced remote troubleshooting**

Inspect detailed logs and correlate a specific viewer's reported end-point quality with the status for the viewed channel in upstream Analyzers

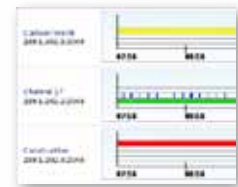
- **Evaluation of channel offerings**

Analyze viewing patterns over time to identify target audiences, understand how they use the service, and optimize channel packages to suit actual demands

Unique Quality of Experience classification

The Embedded Monitoring Solution's in-STB software probes continuously monitor and send report on QoS parameters to the central solution for aggregation, correlation and presentation. The QoS data is also refined into four color-coded QoE levels, used consistently throughout the solution.

The classification used consistently, so that QoE can be compared and correlated for all embedded probes and Analyzers. This helps operators instantly assess how severe and widespread problems are and take the right actions in the right order.

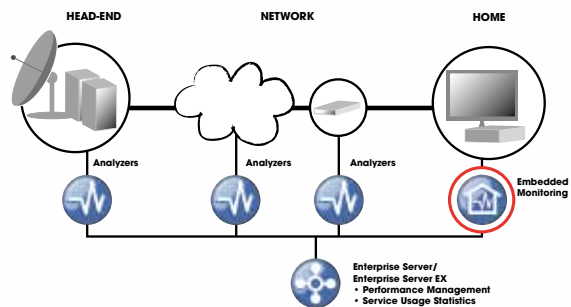


Part of a complete product range for true end-to-end monitoring

The Agama DTV Monitoring Solution is a complete solution for automated, 24/7 real-time monitoring of Live TV and VoD service quality. It features components for head-end, network, portable and in-STB monitoring.

With non-technical high-level views, low-level details, integration possibilities and advanced reporting, it supports every part of the quality-aware operator's organization in striving for excellence. Having all the critical information all the time from every relevant service layer at every strategic monitoring point allows operators to pinpoint problems in real-time.

Reducing time-to-fix, avoiding needless truck rolls and increasing customer satisfaction, Agama's



Combining the use of the Agama Embedded Monitoring Solution with Agama Analyzers throughout the delivery chain in the Enterprise Server or Enterprise Server EX enables true end-to-end real-time monitoring with alarms functionality, central correlation, root-cause analysis and reporting for SLA follow-ups and trend tracking.

A complete end-to-end DTV monitoring solution from Agama includes the following components:

- Enterprise Server or Enterprise Server EX for central management, system-wide quality overviews, alarms, and reporting
- Analyzer H-E for advanced monitoring in the head-end
- Analyzer NET, Analyzer eQAM or Analyzer FLEX for monitoring at strategic locations in the core and distribution networks
- Embedded Monitoring Solution for monitoring of end-point quality and usage in each and every set-top box with optional Video on Demand quality and usage monitoring
- Verifier Advanced for Video on Demand asset verification

