Video Assurance Best Practices
For Minerva Platform Operators

"Cincinnati Bell is supporting over 100,000 subscribers on its Minerva TV platform and is bringing more content on more screens for an on-demand world. We compete on value, and our customers are price sensitive, so we have implemented the Mariner xVu™ solution to build operational efficiency and service visibility for our Network Operations and Care teams. It complements our Minerva investment and we completed our project on time and on budget."

- ***Cory Beimesche, VP, Consumer Solution Design & Management at Cincinnati Bell***

Introduction

Minerva is helping its customers to compete by offering engaging entertainment experiences to their subscribers, on any device, across any network, at any time. For the operations team and the customer care organization, this means supporting new cloud and network systems, different content streams and an evolving in-home TV and consumer device world. This paper identifies key challenges and best practices to manage your business, without having to start from scratch a build new OSS systems.

Most operators are embracing the move to IP and cloud technologies, with more devices and entertainment viewing models, for economics and alignment with end consumer demands. We see this as positive, although one of the biggest challenges is that when issues arise, like a movie buffering or a sporting event experiencing quality issues due to packet loss, it can be easy to see cascading alarms but hard to pinpoint the root cause of the degradations. Management would want Operations teams to focus on issues that impact the most subscribers; but this requires visibility and the ability to time-align, track the end-point Quality of Experience (QoE) and discriminate between network, content and home issues. We believe that you need both the instrumentation to spot the root cause of degradations before they become outages, as well as the ability to prioritize work based on national customer impact.

Content origination, delivery platforms and networks are complex to deploy and manage, as multiple physical and virtualized interrelated components are dynamically layered. Customer premise installations now combine wired and wireless in-home networking, as well as managed and unmanaged consumer devices, like iOS and Android tablets and smart phones. Customer Care needs to be able to react to situations with visibility into issues and cut down on truck rolls, when it makes sense.

Do you have visibility today into your customer experiences and the true entertainment Quality of Service and the regional or national trend lines?

As you launch new services, are you better equipped to forecast customer satisfaction, reputation and churn rates and resource allocation for your OSS teams?

Service Providers' Best Practices

With over ten years of experience in providing OPEX reducing solutions, Mariner has contributed to the implementation of a set best practices enabling service providers to address those challenges.

Gain Visibility into the Home

Poor visibility of the status of service delivery at the consumer device level results in a poor ability to respond effectively when a consumer is experiencing problems. This leads to higher operational costs including longer than average call duration and unnecessary, repeat field technician visits to customer premises. Sadly, this OPEX increase does not address customer dissatisfaction which inevitably leads to loss of engagement and churn.

Gaining access to QoE-related data from consumer devices in the home is therefore the first – and key – best practice to investigate and effectively address customer dissatisfaction. This consumer QoE data, when correctly processed, allows customer-facing teams to (re-)gain customers' trust by being able to correctly describe the issue and take appropriate corrective actions with accurate actionable insight in hand. No longer do you need to rely on customers' partial, incomplete or sometimes misleading description of the issue anymore.

Proactive Operations

Waiting for customers to call to begin troubleshooting is a reactive approach which, additionally, does not reduce OPEX effectively. As an example, video-affecting issues characterized by a lack of network alarms (silent failures or degradations) or network alarm cascades (making isolation of the underlying cause more difficult) lead to delays in corrective action being taken, even in cases where many consumers are affected.

To address these issues of localization, visibility and timely response head-on, a consumer end-point monitoring and analytics engine is required to focus on assuring and optimizing the subscriber's experience across multiple video and Internet services. It has to face the challenge of ingesting multiple dispersed QoE data sources in real-time and converts service assurance 'Big Data' into 'Smart Data', driving operational savings and customer satisfaction through insightful correlation, triangulation, inference and automation across networks, content and the home.

Operations teams can then troubleshoot those degradations proactively, reducing Mean-Time-To-Repair (MTTR) and service down-time. This best practice leads to fewer help desk calls as well as

reduced customer churn, especially as new generation consumers tend to not even call/complain before churning.

Workflow Automation

Once proactive southbound consumer end-point QoE monitoring is in place, it is crucial to integrate it northbound with appropriate service provider's workflows in order to automatically provide the relevant actionable insight swiftly to the various business user groups (Service Management, Network Operations, Customer Support teams, Field Technicians and Self-Care portals).

Customer satisfaction is only partially addressed by a detailed 'after the event' view of the issues being experienced in the home, as identifying and dealing with problems in real-time is key. However, even a real-time view can be sub-optimal if visualization is non-intuitive or requires specialist technical skills at every turn. A combination of rapid feedback from the monitoring system, and presentation in a form which enables timely action to be taken by non-specialist staff, is critical for operational efficiency in terms of customer satisfaction and reducing costs. Successful service providers implement smart automation processes that quickly assess and build a simple, clear picture of what's happening in the network and the home.

Performance Trend Analysis

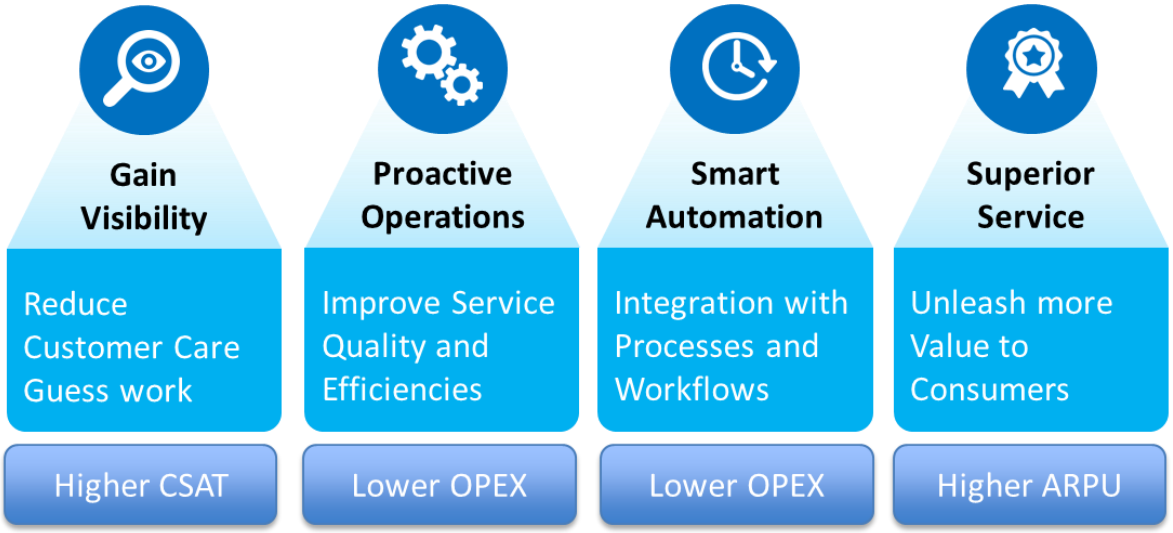
Tracking customer activity at the viewing level offers service management team's valuable performance metrics in order to manage quality and analyze service usage. Objective and detailed customer QoE data establishes baseline metrics for effective service planning and change management: knowing what to expect when executing those plans. Smarter data means better management directions, helping managers avoid unnecessary and misdirected work. Service managers can also benchmark continuous improvements, spotting service quality trends and take management action to correct. Finally, in-depth consumer QoE analytics enable customer-facing teams to detect and proactively contact customers at risk of churning – especially new customers within the first thirty days of a new installation.

Superior Service

Ultimately, the best practices described above enable service providers to offer superior service which in turn empowers customer care and field personnel to unleash more value to consumers by generating upselling opportunities including higher tier packages and installation upgrades, leading to higher ARPU.

Net Promoter Score Strategy

Net Promoter Score is directly impacted by customer promoter and detractor behaviors. It is therefore important to incorporate reliable and insightful consumer QoE high level metrics into the set of Key Performance Indicators (KPIs) measuring the service provider's success of its integrated entertainment and Internet services management with economies of scale.



Service Assurance Best Practices

Implementation Considerations

Leveraging our monitoring experience of over 30 million consumer devices worldwide across a wide range of ecosystems, Mariner has collaborated with Minerva for many years, empowering Minerva customers with OPEX-impacting solutions and assisting them in implementing effective consumer end-point monitoring and associated best practices.

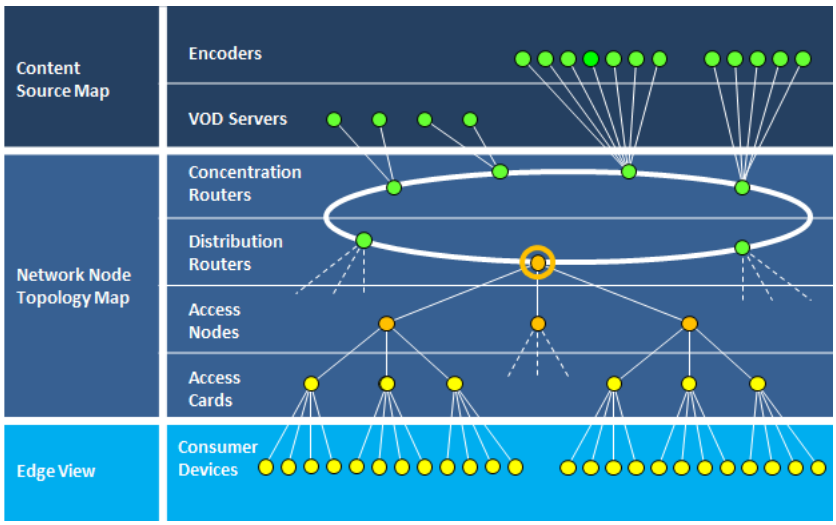
"Minerva Networks has worked closely with the Mariner xVu team for several years, helping our mutual customers solve critical business challenges. The Mariner xVu solution is integrated with Minerva's QOE module, as part of our ecosystem to deliver flexible solutions to the market."

- Eric Freund, Vice President, Product Marketing - Minerva Networks

Over a dozen Minerva customers have licensed the Mariner xVu solution to support their Network Operations and Customer Care teams to more efficiently manage service delivery and their consumer experiences if the contact customer care, typically as part of a program to deliver more predictability and OPEX efficiency as they manage an on-demand experiences.

The Mariner xVu solution includes real-time ingestion of Minerva QoE consumer end-point monitoring video data for both multicast and ABR based video services. It also includes regular consumer information ingestion from Minerva Back-Office, keeping Mariner xVu and Minerva databases synchronized.

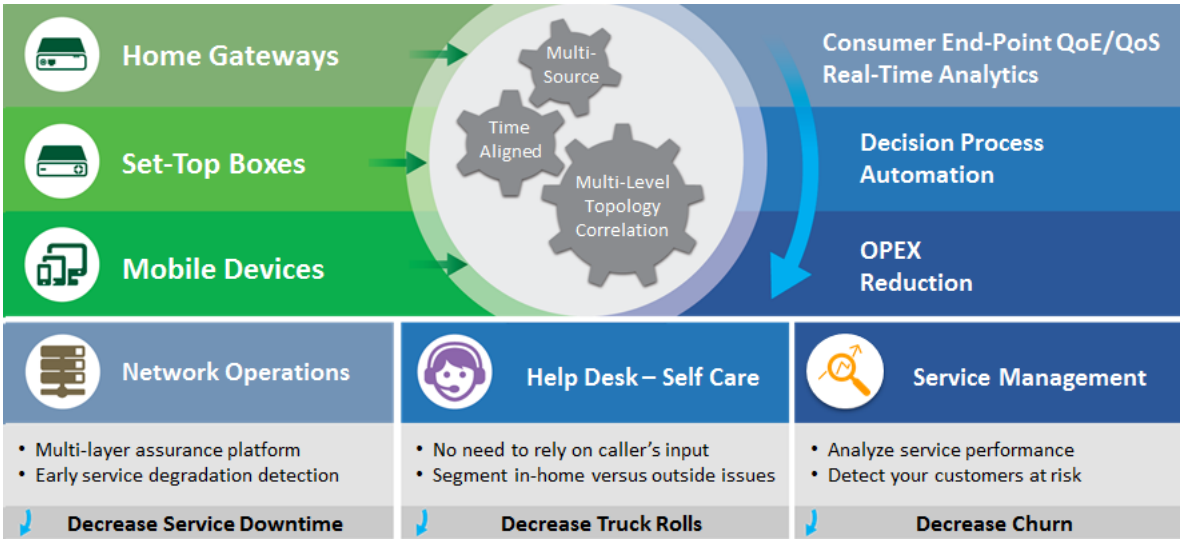
Mariner xVu layers time-aligned real-time triangulation, using its patented correlation engine, on top of Minerva QoE consumer device data, in order to pinpoint sources and network degradations early and effectively, as well as in-home specific issues.



Automated Correlation - Service Degradation Example

Under the banner of modular southbound connector technologies, Mariner has developed interfaces to many pre-existing instrumented sources. When architecting client integration, Mariner seeks the data harvesting solution that is least intrusive to a service provider's client environment. In this case, this means using instrumentation available from Minerva-based consumer devices. Additional consumer end-point sources can include home gateways where broadband performance data may be available through the service provider's provisioning systems (ACS for instance).

Lastly, northbound integration requires precise engineering including careful design and selection of expert signatures (smart data) generated from these consumer QoE data lakes. These expert signatures are then selectively made available to targeted business user group applications through web services APIs. Mariner xVu also offers a set of web-based, user-friendly dashboards designed with the specific needs of the various business users in mind, being Advanced Customer Technical Support, Network Operations or Service Management teams.



Multi-Service Video Assurance Automation

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