Video Assurance and Analytics Best Practices

For Ericsson Mediaroom Platform Operators

Adding New On-Demand and OTT Services

Introduction

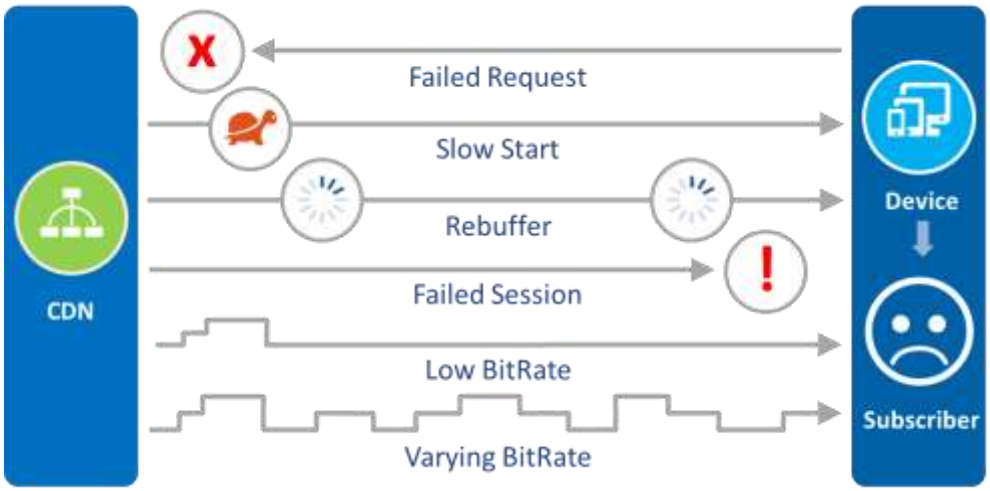
Ericsson Mediaroom is the world's most popular IPTV middleware, and most Mediaroom operators have also deployed OTT/TVE services to remain competitive in an evolving TV market, by providing engaging entertainment experiences to their subscribers on any device, across any network, at any time. Some Mediaroom customers have selected the Ericsson MediaFirst TV platform to provide OTT/TVE services, while many have complemented Mediaroom by developing their own OTT/TVE solutions or opting for 3rd party platforms and client applications.

As operators bring to market new live and on-demand cloud based streaming services, most are leveraging multi-vendor solutions including component technologies from companies including Akamai, ARRIS, Cisco, Ericsson, Nokia and QuickPlay. Software economics and agility are important factors in choosing an appropriate solution.

This paper identifies key challenges and best practices to manage your business, including integrating multi-service OSS solutions for new video entertainment and high-speed Internet offers, which are often bundled.

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. This is positive from a consumer perspective and creates opportunities for service providers, but gives rise to significant challenges when issues arise. When a consumer experiences a movie rebuffering or stalling, or a sporting event suffering from pixelisation or blockiness, the problem may be characterized in a traditional OSS by cascading alarms from many systems, or as a silent failure because the issue is systemic (i.e. involving multiple independent components) or is the result of degradation rather than failure, with no corresponding equipment alarms. In all these cases, it's often difficult, time-consuming and costly to pinpoint root cause.

Executives want their operations teams to focus on issues that impact the most subscribers; but this requires visibility and the ability to time-align issues on a national level, track the end-point Quality of Experience (QoE) and discriminate between network, content and home issues. Leading operators are asking for faster and more accurate separation of in-home versus content versus network issues, to cut down on cross-business finger pointing when it comes to the causes of end-consumer issues. In the case of TVE/OTT, the following are the most prevalent and annoying from a consumer perspective:



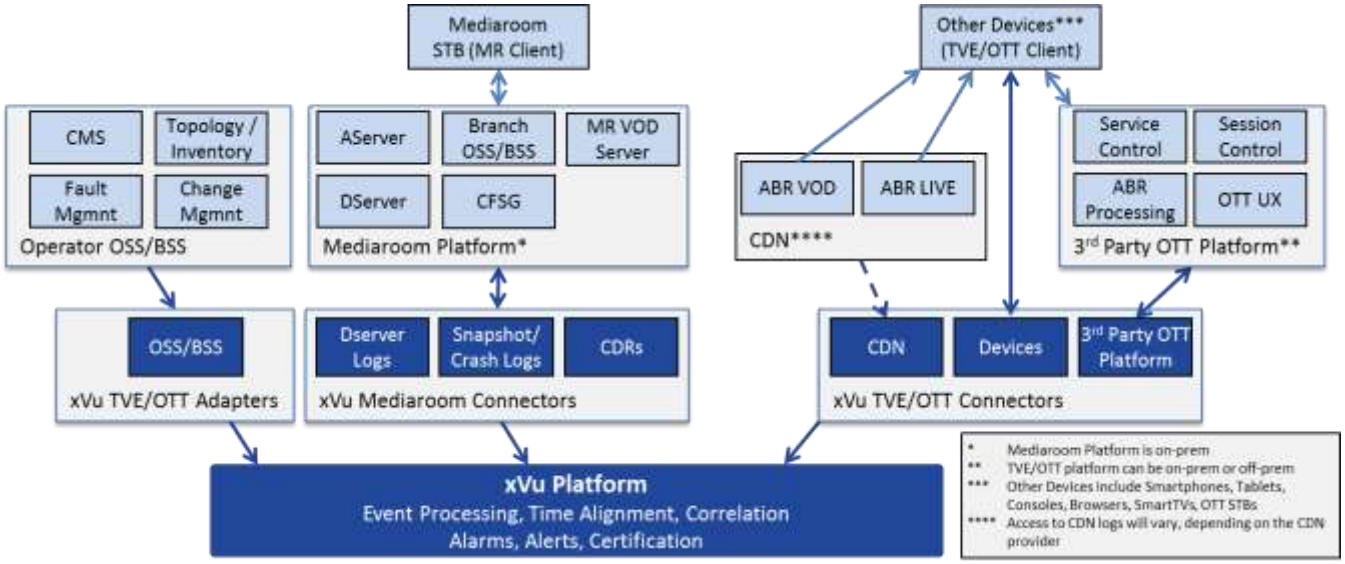
Content origination, content delivery platforms and networks are complex to deploy and manage, as multiple physical and virtualized interrelated components are dynamically layered. Delivery topology and content server awareness are critical to create a clear picture of operational status and frailties. Adding to the complexity, customer premise installations now combine wired and wireless in-home networking, as well as managed and unmanaged consumer devices, like iOS or Android tablets and smart phones. Customer care needs to react faster with tooling which provides whole-home visibility (including multi-vendor in-home infrastructure) and exposes service-affecting issues, cutting down on blind troubleshooting and allowing informed decisions regarding actions such as escalations or truck rolls.

Best Practices

Do you have visibility into your customer end-point experiences and the entertainment Quality of Service at regional and national levels? Can you segment and trend on a geographical, network, content, and in-home basis?

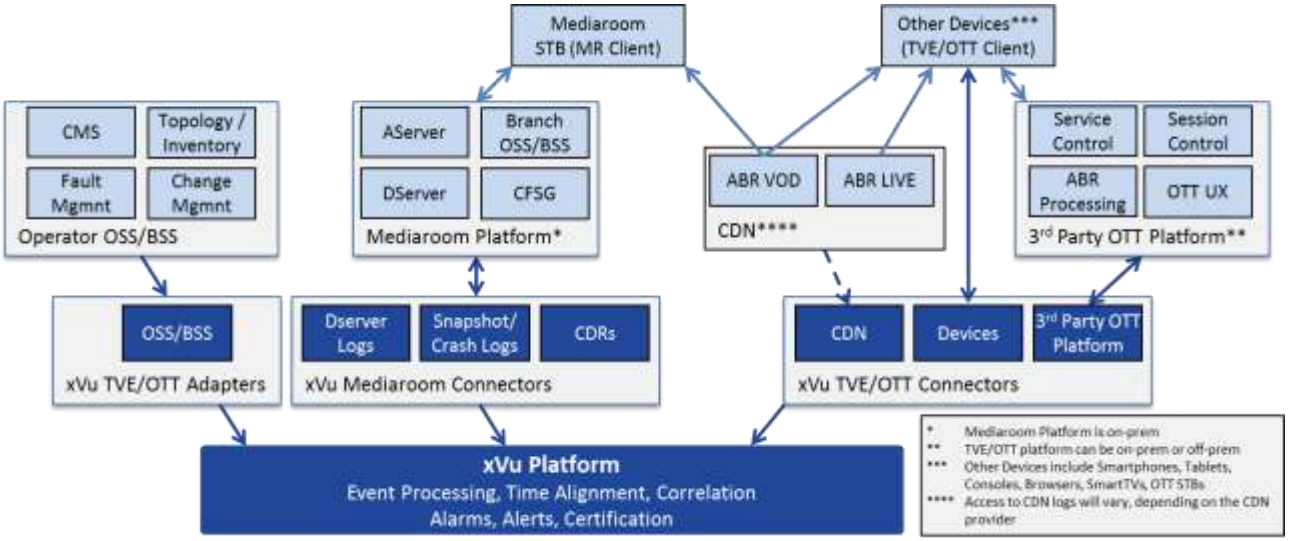
Mariner xVu™ has built over ten years of experience of providing operational tools with two primary objectives: (1) improving customer satisfaction to improve revenue, retention and referral, and (2) reducing OPEX to improve efficiency and increase margins. At the same time, the company has contributed to the development of a set of best practices enabling service providers to address those challenges.

Mediaroom and OTT/TVE Deployed as Separate Ecosystems
and with Mariner xVu Providing a Common Monitoring & Analytics Platform



Central to this enhanced operational view is the ability to ingest data from many sources representing different network architectures & capabilities, service types & technologies, content types & distribution models, in-home ecosystems and device technologies, operating systems and applications. By combining instrumentation from Mediaroom with metrics from other broadband and OTT/TVE services, Mariner xVu allows exploration of issues across multiple correlation dimensions. The resulting analytics capabilities are systemic in nature (the sum being more than the sum of its parts) and highly differentiated. Furthermore, recognizing that complexity is the enemy of swift diagnosis, familiar issues can be characterized and configured into the tools, allowing automatic extraction of the most valuable 'nuggets' of operational insight, so that operational staff can be guided or directed through the most appropriate course of action to ensure the fastest possible resolution.

Mediaroom and OTT/TVE Deployed as a Hybrid Ecosystem
With ABR VOD served to MR STBs from CDN



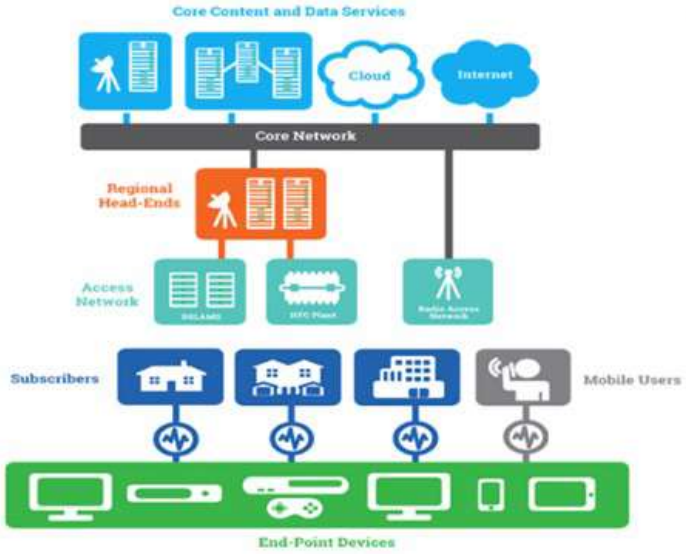
Gain Visibility into the Home

When customers are experiencing video entertainment problems, especially transient issues that come and go, operators require visibility into service delivery at the consumer end-device level to respond effectively. Those without effective instrumentation suffer higher operational costs including longer than average call durations, unnecessary repeat field technician visits and delays in issue resolution. Compounding the problem, failure to deal swiftly and effectively with an issue, and to give confidence that the problem is recognized and being addressed, has a significant negative impact on customer satisfaction and increases preventable churn.

Gaining access to QoE-related data from consumer devices in the home is therefore the first - and key - best practice to maintain customer satisfaction (CSAT) and investigate likely causes of customer dissatisfaction. This consumer QoE data, when correctly processed, allows customer-facing teams to correctly describe the issue and take appropriate corrective actions based on readily available, accurate actionable insight. No longer do you need to rely on customers' partial, incomplete or sometimes misleading description of the issue.

This best practice has become even more urgent with the introduction of wireless STBs, the explosion of other wireless devices, the introduction of new 4K video services, and the growing consumption of on-demand content, all of which the usage of the broadband Internet service and the consumer in-home Wi-Fi network.

Topology Aware and Intelligent Correlation



Mariner xVu collects and time-aligns data across 3 key dimensions:

- End-Point Centric
- Content Centric
- Delivery Centric

This source data resides in:

- Varying levels of aggregation/consolidation
- Varying formats, and
- Varying collection intervals.

Proactive Operations

As operators launch new services, including multi-service bundles, many are ill-equipped to forecast network capacity requirements, customer satisfaction, and resource allocation for their OSS teams.

Waiting for customers to call to begin troubleshooting is a reactive approach which 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, including Mediaroom, TVE/OTT and broadband Wi-Fi related data, and converts service assurance 'Big Data' into 'Smart Data', driving operational savings and CSAT 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. It also helps with reduced customer churn, as millennials tend to complain on social media, rather than make calls to Care.

Workflow Automation

Once proactive southbound consumer end-point QoE monitoring is in place, it is crucial to integrate it northbound with appropriate service provider 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).

CSAT 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 teams 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 installation.

Superior Service

Ultimately, the best practices described above not only enable service providers to make superior quality a cornerstone of their consumer offer, but also a key aspect of their resulting reputation. In addition, they empower customer care and field personnel to unleash more value to consumers and generate upsell opportunities including higher tier packages and installation upgrades, leading to higher ARPU.

Net Promoter Score Strategy

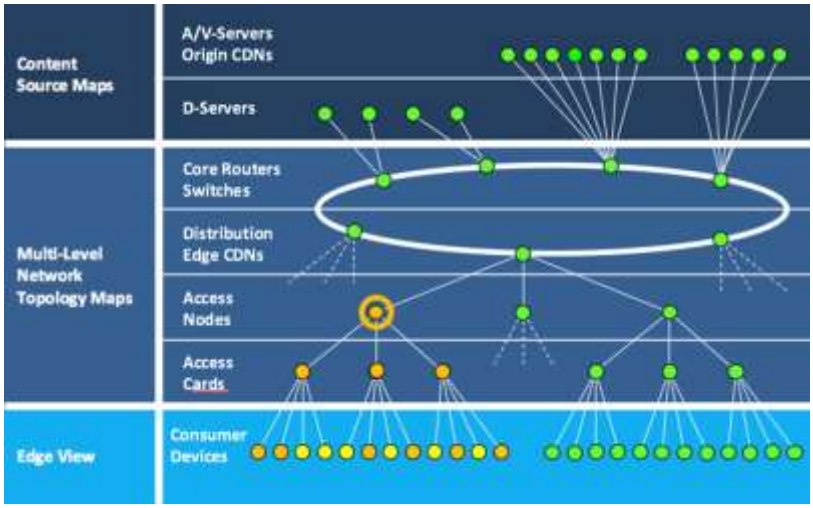
An increasing number of service providers use Net Promoter Score or an equivalent CSAT metric as a key measure of the overall success of their services in what for many is an increasingly congested market. In many cases, these measures are considered important enough to be included as a factor in determining employee financial bonuses. Effective operational tools not only provide objective quality metrics to complement the more subjective feedback obtained from customer promoter and detractor responses, but also 'move the needle' on NPS itself, as better operational insight leads to improved customer satisfaction. It is therefore prudent to use operational tooling to include reliable and insightful consumer QoE high level metrics in the set of Key Performance Indicators (KPIs) measuring the service provider's success.

Service Assurance Best Practices

Implementation Considerations

Leveraging our monitoring experience of over 30 million consumer devices worldwide across a wide range of ecosystems, Mariner xVu has collaborated with Ericsson Mediaroom for many years, empowering Ericsson Mediaroom customers with OPEX and CSAT impacting solutions and sharing best practices. Mariner xVu lowers total cost of ownership with a track record of delivering on-time and on-budget, while addressing scalability challenges and updates for new Mediaroom server and client versions.

Over a dozen Tier 1 Ericsson Mediaroom operators have licensed the Mariner xVu solution to support their teams to more efficiently manage service delivery and their consumer experiences. With over 135 billion monitoring events processed globally in 2015, Mariner xVu represents the vast majority of Mediaroom-based subscribers. Mariner xVu layers time-aligned, real-time and multi-level triangulations, using its patented correlation engine, on top of Ericsson Mediaroom QoE and other third party consumer device data, in order to pinpoint sources and network degradations early and effectively, including in-home specific issues. This unique approach enabled by Software Defined Monitoring (SDM) is very often the only way to find root causes of issues quickly, decreasing service down-time and impacting consumer satisfaction effectively.



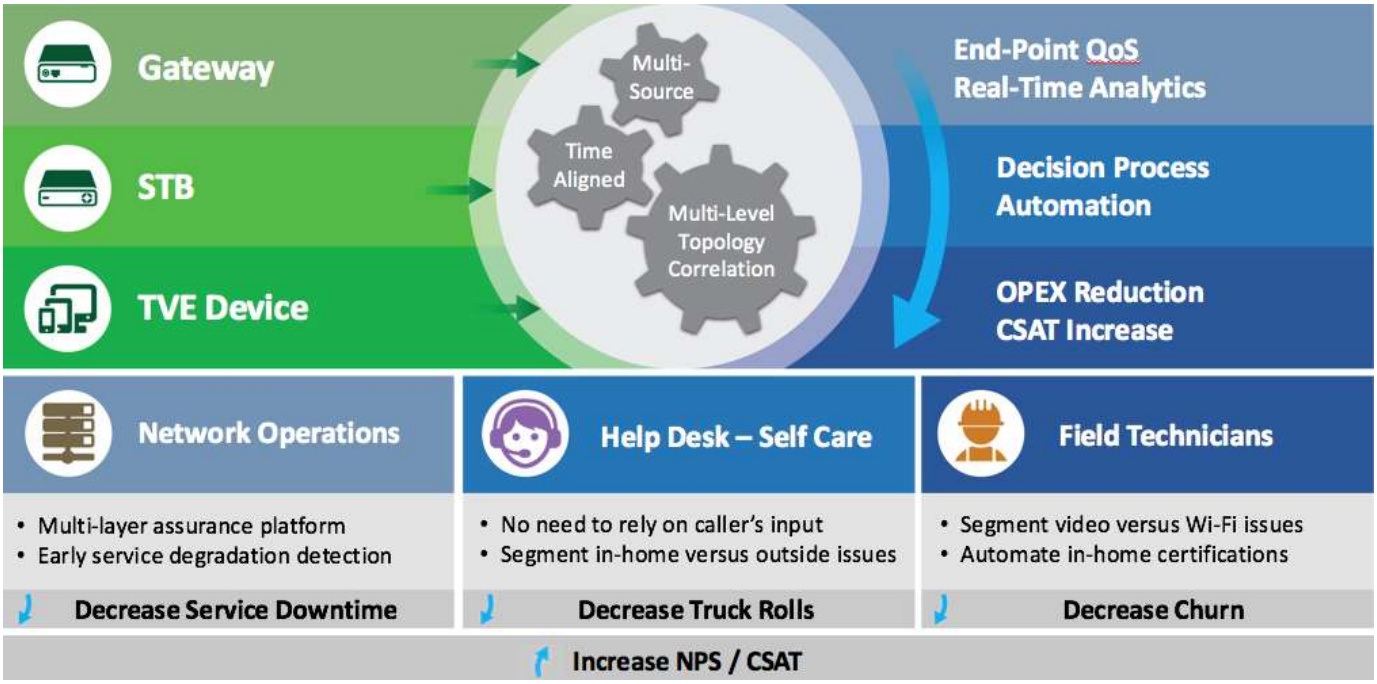
Automated Correlation - Service Degradation Example

Under the banner of modular southbound connector technologies, Mariner xVu has developed interfaces to many pre-existing instrumented sources. When architecting client integration, Mariner xVu seeks the data harvesting solution that is least intrusive to a service provider's client environment for both managed and unmanaged consumer devices. Additional consumer end-point sources can include residential gateways where high-speed Internet performance data may be available through the service provider's provisioning systems.

In order to address the new in-home visibility challenges created by the growing consumption of on-demand content over Wi-Fi, the Mariner xVu solution portfolio includes a comprehensive set of installation certification workflow engines providing unique insight and consistent repeatable tracking of the video and broadband consumer experience in the home. It includes in particular location-based speed-tests creating a holistic view of the Wi-Fi network performance. Here again, multiple southbound sources can be accommodated, including performance statistics from residential gateways and consumer unmanaged devices.

In-Home Wi-Fi Certification

Northbound integrations use carefully selected and targeted KPIs extracted from consumer QoE data lakes. Relevant, focused insight and guidance is provided to specific business user group applications through alerts, alarms and 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, Field Operations, Network Operations or Service Management teams.



Multi-Service Video Assurance Automation

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