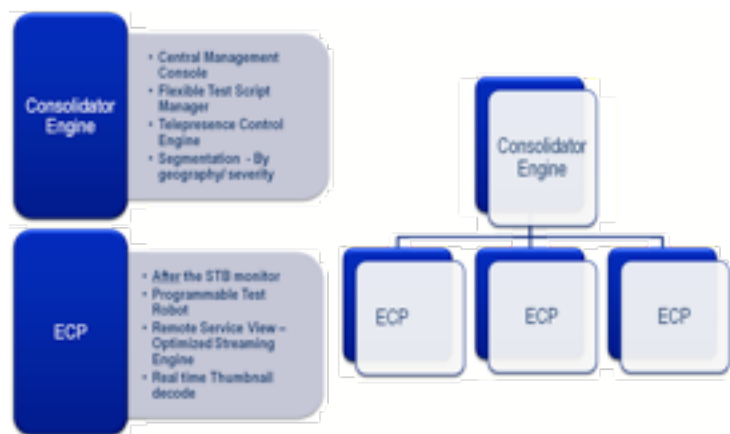


The Electronic Couch Potato™ and Consolidator Engine™ solution is a “true” service assurance tool enabling operators to monitor and measure Quality of Experience from end-users’ perspective. Monitoring key television parameters after the STB makes the deployment of the ECP independent of any encryption systems and proprietary protocols employed in service operations. This is key to making the ECP a ubiquitously deployable solution and useful in all forms of television delivery networks – Cable, IPTV and Satellite transmissions.

ECP AND CONSOLIDATOR ENGINE

The ECP™ is a “programmable test robot” which drives an STB using a built-in IR controller and analyzes the decoded signal from a consumer grade STB to fully and truly evaluate the analog audio and video output. With a flexible user-programming environment using the TCL language, common in automated test environments, the ECP™ is a flexible and future-proof platform for verifying the decoded analog audio and video output from the STB. The ability to program each ECP™ to run a different test script provides the operator with the flexibility to utilize each ECP™ for a well-defined, customized and repeatable operation within the network on a 24/7 basis.

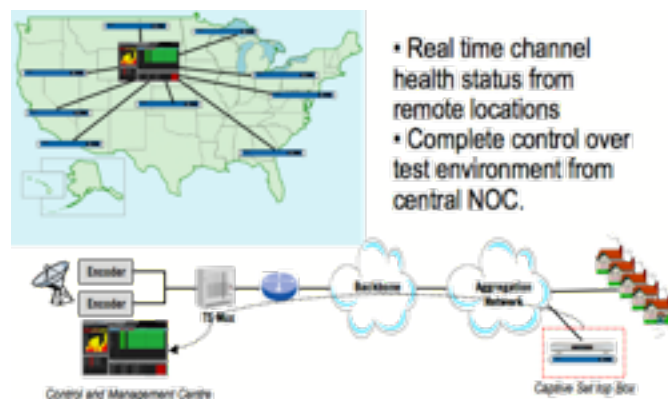
Each ECP™ reports measurements to a central engine - the Consolidator Engine™. Multiple service quality parameters relating to decoded audio and video are intuitively presented on the central management console.



OPERATIONAL MONITORING

Extensive experience in television delivery management and monitoring suggest that most disruptions in program delivery resulted from human error at some point along the transmission chain; somewhere between the content provider and the viewer.

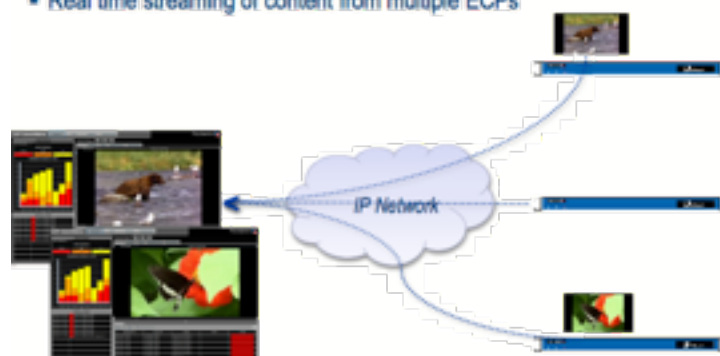
Within this context, our experience with many television operators indicates that human error and program availability and correctness are the dominant factors affecting viewer satisfaction. Aside from human errors, television quality in IPTV networks is most affected at each end of the network – specifically, at the point of acquisition in the headend and within the edge/access network.



The ECP™ provides the operator with a tool to truly evaluate program availability, correctness and Quality of Service from any location in the network on a 24/7 basis, and most importantly on signals ready to be consumed by a subscriber. The ECPs™ can be deployed across the complete geography of network deployments. It reports key telemetry parameters to the Consolidator Engine at a central location. Each ECP™ can be configured to monitor a different set of services with different tests performed at locations within the network using the highly flexible test scripts that the ECPs™ can be programmed to execute.

Telepresence is a key feature of the solution that provides true visibility of service health to the operator. The ECP™ captures and transmits live thumbnails to the central Consolidation Engine. These thumbnails are viewable in a mosaic format to the operator. Additionally, a single service can be streamed from the remote location to any central location within the network.

- Thumbnails of all scanned channels
- Real time streaming of content from multiple ECPs

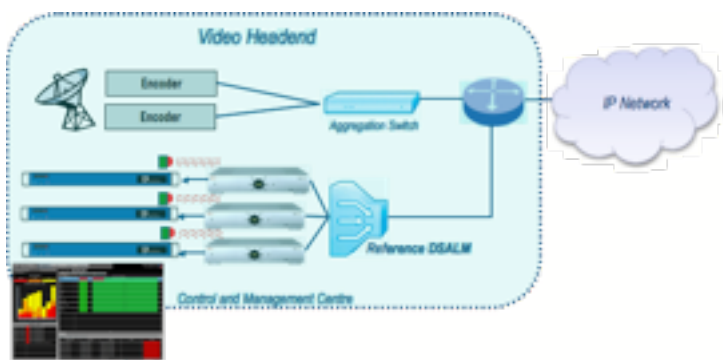


The operation monitoring deployment reduces OPEX by providing operators enough remote site information for “Smart” truck rolls.

SERVICE VALIDATION AT REFERENCE DSLAM/ EDGEQAM/CMTS

Using a reference DSLAM in IPTV or EdgeQAM/CMTS in Cable networks is a common practice to design and optimize service lineups. The teams responsible for headend operations use the reference DSLAM within the headend to verify the services leaving the headend are in correct shape and have the desired characteristics. This is key to the operations of the company.

The ECPs deployed within the headend with a reference DSLAM enables the team to verify the correctness of the television services – lineup, availability and performance and can qualify if the problems being experienced by subscribers are network introduced.



Validates “End to End” delivery from headend perspective - The Network is a cable now!

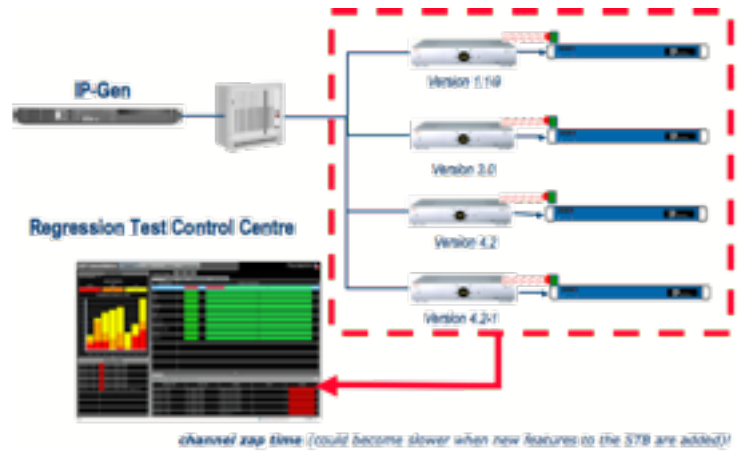
A dedicated STB and ECP™ can be configured to monitor a single service on a full-time basis and detect anomalies in service provisioning from a headend perspective. All channels in the service operations can be continuously monitored using a dedicated STB and ECP™ configuration. In this scenario, the ECP™ can stay tuned to a single channel and performs tests on a continuous basis on that channel.

The complete network is reduced to a single cable connecting to the reference DSLAM, an easy means to identify if the network is faulty or the problem originates right from the headend.

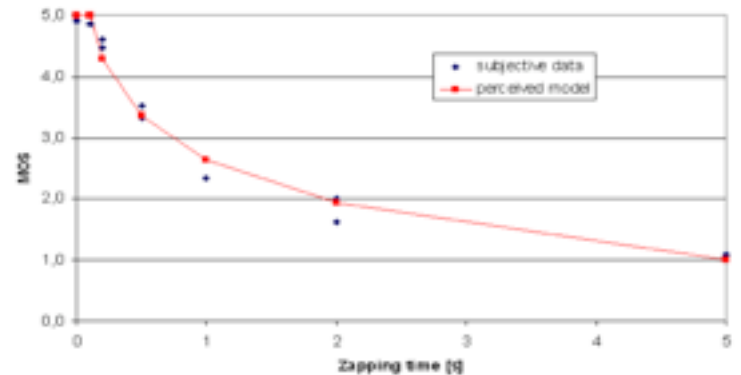
STB REGRESSION TESTING AND PERFORMANCE BENCHMARKING

The Regression test application of the ECP™ for STB performance is critical to STB manufacturers, middleware vendors and also operations and labs of services providers to benchmark the performance of STB software releases/comparison among different STB types before introduction into service operations.

Middleware vendors and STB manufacturers release new versions of the software and perform benchmark tests to detect the impact of the new release on the performance of the STB. The ECP™ can be deployed to perform automated benchmarking of STB software and middleware version performance to detect if any service level degradation is noticed.



A major concern in most IPTV deployments is the channel change time, referred mostly as Zap time. It is considered to be one of the most important contributing factors to customer Quality of Experience. A recent research done for Project MUSE describes how the Zap time increase has an exponentially detrimental effect on the customer QoE.



Kamal Ahmed, FHG assigned project MUSE www.fhg.com

Zap time is a function of STB and Network processing delays. As new functions are added to the STB, it can have an adverse effect on the STB processing capabilities for channel Zap. Channel Zap measurement is the time interval between the actual IR channel change command to the time the video is actually played out by the STB. The ECP™ can detect effectively any delay caused by the STB in lab simulated network conditions.

The ECP™ can also used by service operator labs to qualify the STB model that is introduced to operations. Multiple STB types can be compared for performance under lab conditions and benchmarked for performance.

KEY CUSTOMERS

Pixelmetrix enjoys an equal distribution of customers among the world's geographic regions. We have product deployed on all seven continents, including Antarctica.

Key clients of Pixelmetrix include:

- Telus Communications Inc
- Reliance Communications
- Deutsche Telecom AG
- Turner Entertainment (CNN, TCM, et al)
- NTT
- Telstra, and more

ABOUT PIXELMETRIX

Pixelmetrix Corporation is the global expert in Preventive Monitoring for digital, cable and IPTV networks. The company provides equipment and network intelligence systems to television broadcasters for the management and monitoring of quality of service and quality of experience. Headquartered in Singapore, Pixelmetrix has offices in the United States and Europe.

Pixelmetrix has been conferred the Frost & Sullivan Industrial Technologies Award 2009, C+T Technology Development Award 2009, Engineering & Technology Emmy® Award 2007, Broadcast Engineering publication Pick Hit Award 2005 and 2008, TV Technology publication STAR Awards (Superior Technology Award Recipient) 2000, 2004 and 2007, BIRTV Product of the Year Award 2006, Cable-Satellite/Mediacast Product of the Year Awards 2003 and 2004, as well as the Peter Wayne Award 2000, for Best Design and Innovation.

For More Information

To learn more about the DVStation, request a demo, or learn how Pixelmetrix might help you optimize video network integrity, contact us today!

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