

# ARRIS CVEx™

## Converged Video Exchange

### Introduction

The growing penetration of HDTV sets along with increased competition between Cable, Telco, and Satellite providers have resulted in an increased demand for more HD content and new service offerings.

In addition, the introduction of “out-of-the-box” IP enabled TVs and a broad array of unmanaged consumer electronics devices in the home such as Blu Ray players, game consoles and mobile devices, have spurred the consumption of video over IP or Over-The-Top. IP video introduces both an opportunity and a threat. As MSOs look to devise their IPTV migration strategy, they’re faced with business model challenges, technical challenges, as well as existing CAPEX investments that need to be protected.

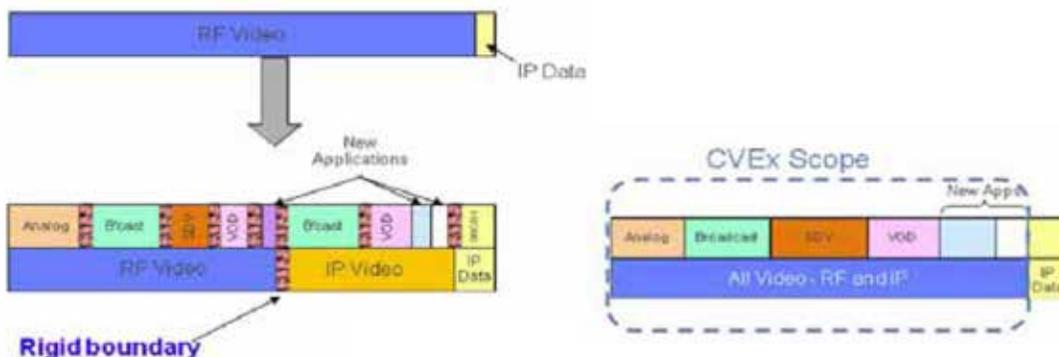
Finally, as TV viewership migrates from traditional broadcast services of popular channels to more niche content, non-linear VOD or time-shift TV, and from RF TV to IPTV, there is a need for the network edge resources and spectrum allocation to follow the dynamically changing viewership pattern. The result is a constant reallocation of spectrum between analog, digital broadcast, SDV, VOD and IP edge devices.

MSOs may choose to extend their CMTS-based infrastructure to support IPTV. But as video viewership shifts to IP, MSOs will find themselves allocating a significantly higher number of QAM carriers to CMTS, increasing their CMTS infrastructure by a factor of 10! At that level, the CMTS infrastructure becomes a great cost liability on video services. In addition, as viewership migrates from traditional MPEG-2 transport to IP, MSOs will have to replace video edge QAM ports with CMTS ports, rewire service groups and constantly fine tune their network to adjust to the changing viewership behavior. Any service or application that applies to both traditional and IP devices needs to be implemented and integrated with both MPEG-2 transport (RF) and CMTS policy servers (IP), hence making the introduction of new applications even more troublesome.

### Intelligent Software Video Control Plane

An alternative approach is to consolidate both RF & IP video services over a converged control plane and use a single pool of network resources for delivering video whether over RF or IP. The video service along with its associated Quality of Service, processing, ad insertion etc. is handled in the same manner whether destined to an IP or traditional video device. This converged video delivery approach brings increased efficiency of spectrum, leverages existing infrastructure, and provides a seamless migration path from RF to IP since both applications and edge resources do not need to change as viewership migrates from RF to IP. ARRIS Converged Video Exchange (CVEx™) is an intelligent software control plane that addresses the need for video convergence by providing a unified control plane that cuts across multiple applications as well as RF & IP spectrum and provides a single context for the delivery of all video services.

### The Converged IP Network



## Rapid Service Introduction and Monetization

CVEx logically sits in the heart of the video network and controls the creation and delivery of all video sessions and services. CVEx may provide resources to internal (embedded) or external session managers. All video service requests come into CVEx either directly or indirectly, making CVEx the intelligent control center for video service fulfillment.

CVEx allocates the necessary network resources – QAM carriers, encryption resources, personalized splicing resources, etc. and communicates with the edge resources for the creation of the video session. CVEx also provides a unified interface to an advanced advertising system using an SCTE 130 interface allowing a consolidated advertising back-office and campaigns.

## Smooth Migration to IPTV

CVEx treats all narrowcast QAM resources as a single pool of edge resources and applies them to both RF & IP video sessions based on the edge device capabilities and the requests of the session manager. As viewership within a service group migrates from RF to IP there is no need to replace, rewire or reconfigure devices. CVEx will automatically create sessions with the appropriate attributes on the edge devices, and share the sessions on edge devices and QAMs based on each edge device capabilities.

## ARRIS's Control Plane Expertise

As the market leader in Switched Digital Video (SDV), ARRIS technology is focused on reliable, scalable and immediate response-time systems that enable MSOs to introduce SDV into their linear lineup in a seamless manner, completely transparently to their subscribers. ARRIS solutions currently execute billions of real-time transactions per year across millions of households passed. The same technology is being used in CVEx for the scalable and reliable delivery of additional video services.

CVEx also draws on ARRIS SDV resource management algorithms to optimize the allocation of sessions to QAM carriers and applies sophisticated mechanisms for sharing between different applications, supporting a mix of SD & HD services as well as RF & IP.

## Robust Policies and Business Rules

As MSOs introduce new services, offer more content and look for non-subscription based revenue sources through advanced advertising, there is constant competition between session managers over edge resources. CVEx enables MSOs to optimize their resource allocation by applying policies to session creation, and allowing operators to configure and update business rules that correspond to application resource requirements and revenue creation.

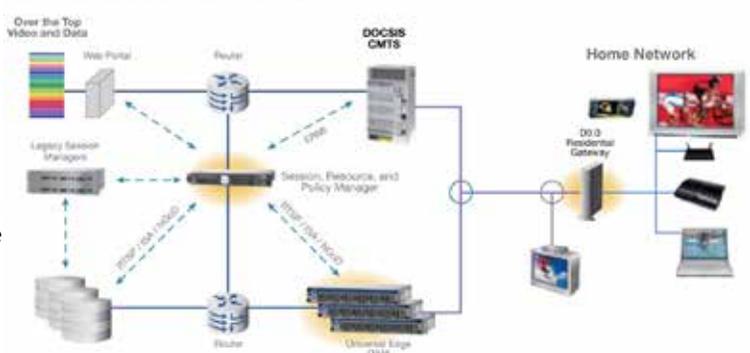
## Insight into Viewership Across Applications and Devices

An important part of new service introduction is the ability to quickly measure success and business impact. As more services are introduced and different video consumption devices are used, it becomes more challenging to get a comprehensive view on viewership and how it breaks down. CVEx provides the ability to aggregate viewership information, and complementing it with analysis and reporting capabilities.

## Standards-based Approach

CVEx supports the existing ISA SSP-SIS, and NGOD S6 protocols to external session managers, and the ISA RPC or NGOD R6 & D6 or CableLabs® protocols to an edge device. It further supports standard protocols to STBs and other video consumption devices based on the required application. The usage of SCTE 130 Ad Manager (ADM) to Ad Decision Service (ADS) interface allows for integration with a variety of next generation advertising components and for consolidated campaigns to be applied to different video services.

Resource Allocation on a Common Control Plane



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