Playout in the Cloud
How broadcasters and media organizations are leveraging cloud playout to protect, enhance, and extend their valued brands

Abstract
The Playout function has long been the focal point for broadcasters and other media companies across the globe, integrating critical content and monetization aspects of the business such as ad sales, traffic and scheduling, playlists, stored files, and automation. However beneficial this decades-old function has been, it is now restricting the flexibility of media companies to adapt to evolving business demands, particularly with the rapid onslaught of competitive video consumption alternatives now widely available via the Internet and Over-the-Top providers. “Playout in the Cloud” presents an entirely new range of opportunities for media companies to evolve their operations, transform and transport content free of geographic or other historical channel boundaries, extend and expand their brands, and profoundly improve and enhance the nature of their relationships with other content providers and distributors, affiliates, and video consumers.

White Paper Summary
• Traditional broadcasters are losing brand awareness and mind share given the many alternatives that consumers have today for all kinds of video
• Barriers to entry have been lowered across all aspects of the business, including content creation, management, playout, and distribution, allowing new entrants that threaten today’s established business models
• The concept of “what is a channel” has broadened greatly in the last few years, and viewers are starting to see little differentiation between traditional channels and the many Internet sources of content and channels
• As the historically large audiences for highly-produced content become more fragmented, broadcasters must expand and extend their brands increasingly into market niches in order to stay relevant
• A well-proven way to extend brands and video content is to increase the quantity of channels, whether over traditional or OTT means, exposing a media company’s content and footprint in many more places
• The cost for expanding and creating new channels has historically been high, so a new model is needed to enable greater flexibility and experimentation
• In order to extend their brands and content geographically, media companies also need to move beyond the traditional playout that has been geographically tied to brick-and-mortar facilities
• Today’s complex web of interconnected parties in the broadcast chain, with limited visibility and control between the parties, provides substantial room for improvement
• Playout in the Cloud uses the latest technological breakthroughs to resolve these challenges, enabling the extension of brands and content much more dynamically, with greater control, lower costs, and increased flexibility
Growing Challenges to Established Media Companies

There was a day, not long ago, when consumers of video content used an analog channel changer to manually “click” through a handful of channels. Video consumers easily recognized the television stations and their channels, broadcasters, and the brands – whether they were single channel numbers (like “Channel 5”), RF-centric call letters, or similar identifiers. Viewers had a strong sense of loyalty to these channels and particular loyalty to the well-known, national network brands and the content that they provided.

The infrastructure to support these businesses was large and expenditure-intensive – including buildings, networks, equipment, studios, talent, technicians, and management. It was also typically regional or local and needed to be repeated multiple times in a single town, often in conjunction with over-the-air transmitters. Business models to support the underlying costs typically relied upon advertisers or public and governmental funding.

Aside from the handful of channels in a town or city, there were few competitive alternatives, which gave broadcasters, their local stations, and their brands virtually unchallenged accessibility to viewers and advertisers. They played out their national or local content in the local geography, viewers dutifully watched, advertisers financially supported, and the relationships in the broadcast chain between content producers, broadcasters, network providers, advertisers, and viewers were quite in balance. That was the day.

But those days are past, and a new day is here. With the dizzying pace of an ever-expanding Internet and the myriad channels that are created there daily, the historical infrastructure, control, processes, and business models of the media industry no longer appear to be adequate to protect their content and brands.

*Until now, anyway.*

There is a new, positive, disruptive force called “Playout in the Cloud” that has the ability to restore and greatly enhance the relationships between content producers, broadcasters, network providers, advertisers, and viewers. Much of this potential has to do with the evolving definition of “what is a channel” and the ability to easily and fluidly create new channels for increasingly niche audiences – just like the Internet does.

It’s All About the Brand

In this new, complex and dynamic environment, one of the most strategic challenges for all companies involved in the traditional broadcast chain is how to overcome the dilution of their brands.

We are in an era when anyone with “a camera and an idea” can become a YouTube sensation – drawing viewers’ attention away from linear TV. Indeed, the original barriers to entry to the world of content creation were very high for a long period of time, but now they are all but nonexistent. These lowered barriers to entry are evidenced by and coincide with the large variability in content quality, of which YouTube, a youngster in the history of broadcast and media, is a fitting example. To show the power of YouTube and acceptability of its highly variable content quality, a recent study of 2000 U.S. adult consumers by Adroit Digital showed that “68% of all viewers surveyed are consuming video content from YouTube; 51% are consuming video content from live television broadcasts, and, almost equal to TV, 49% are consuming video content from Netflix.”

Historically, many television shows were “highly produced.” They required extensive time to plan, find talent, script, produce, direct, edit, refine, sell and market to advertisers, schedule air time, and distribute. However, today’s content quality among all Internet and traditional channels varies considerably, as corners are being cut across all parts of what is now a vastly broadened business in an effort to keep costs in parity with financial constraints. How does a traditional content creator or broadcaster with well-established brands compete with “a camera and an idea” or the many variations on a theme in this vastly differentiated world of content?

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1 “Online Video: Look Who’s Watching Now”, Adroit Digital research study, May 2014

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In fact, most “new channels,” or new sources of video content, come with no broadcast TV station number, no call letters, no well-known brands, and little of the traditional broadcast infrastructure or associated cost. For example, Disney announced in March 2014 the purchase of Maker Studios, which went from a startup of a single Internet channel in 2009 to a network of 55,000 Internet channels sourced from 50,000 content creators, generating over 6.5 billion views per month with 450 million subscribers.2

Beyond the obvious ease-of-entry for content creators via the likes of YouTube and Maker Studios, distribution is also now far easier than it ever was previously – and is often as simple as uploading a file to the Internet. The traditional marketing of video content can also be accelerated by multiple new methods such as a tweet or Facebook post. Granted, it is not that easy for most content and new channel creators to achieve any level of success, and there are many failures relative to the successes. This is simply what happens in an industry where barriers to entry have been lowered so drastically: when you have many tens of thousands of entrants, it increases the odds of many low cost, fast-to-market competitors rising to the top.

In contrast to the Internet-based model of low OpEx, low CapEx, viral marketing, and almost free distribution model, nearly all traditional media companies maintain considerable plant infrastructure and incur the burden of costs that come with brick-and-mortar facilities, rendering them at an apparent economic disadvantage. In other words, this new anywhere/anytime age of rapid-creation content may be good news for cover bands and fans of cat videos, but it presents a whole new challenge for established media companies.

Traditional media companies continue to have one positive factor working in their favor – when you turn the TV on, it typically defaults to a classic linear TV channel. In other words, when turning on most of today’s TVs, they will take you to the last linear channel that was accessed before the TV was turned off. However, this artifact of legacy television will be fading away as cable set-top boxes, Internet devices, and TVs themselves are becoming adaptable to the habits of viewers. Many of tomorrow’s TVs and control devices will take you right to your favorite channels of content – whether those are linear or Internet-based.

For traditional broadcasters, the massive influx of new content and channels is more than an annoyance – it can pose a mission-critical, existential threat. Limitless, easily produced content can erode great brands that have taken decades and long term, substantial investment to build and maintain. No longer can media companies rely on the established methods of linking a logo and station number to their content as the primary means of supporting, extending, and monetizing their brand. Recent research from Devoncroft supports these observations, showing that “brand availability” and “new revenue” are the two top reasons why media companies are extending brands and content into the new, multiplatform world.3

For example, a few TV manufacturers just announced HDTVs powered by Roku’s OS that not only access Roku’s 1500+ channels, but also have remotes with Netflix, Amazon, Rdio, and Vudu buttons. With video content consumption shifting away from traditional TVs, maintaining brand presence and linking brands to content seems like an ever-challenging task.
Playout: the Essential Media Activity

Playout is the operational heart of any broadcast or media distribution business, and playout systems are used to manage the workflow to deliver channels and associated content to viewers via traditional broadcast TV, the Internet, and mobile devices. Playout-related activities include integrated automation and digital asset management, master control activities, video servers and content storage as well as editing, branding, and graphics.

How to Maintain Brand Presence

How do established brands of all parties involved in the broadcast chain respond to these new threats? Should they accept a future of disintermediation, diluted brand value, and gradual decline as the viewing public drifts to the endless variety of content alternatives?

The answer is obviously an emphatic “No!” There is a logical pathway forward for media companies who want to compete and succeed in the “limitless channel” marketplace of today.

Imagine Communications envisions an agile, technology-enabled response that allows broadcasters to embrace the exploding new world of content and limitless channel options. To position themselves to survive and succeed in tomorrow’s marketplace, traditional media companies must:

- **Dramatically increase the number of channels they offer**: they must turn channels up and down as needed, and focus increasingly on social, geographic, and demographic viewer niches free of existing geographic limitations
- **Link brands to wide varieties of content and quality**: in response to the Internet model, brands must be expanded and extended into multiple new brands that are targeted to particular audiences, with the degree and cost of production appropriate to the audience
- **Extend their brands into TV Everywhere and OTT / online channels**: they must look beyond traditional linear TV boundaries of the “living room TV” and adapt their content appropriately to TV Everywhere and Over-the-Top content
- **Evolve to narrowcasting and eventually unicasting**: the one-to-many methods of over-the-air and subscription (satellite, cable, IPTV) broadcasting are moving aside to narrowcasting and unicasting Internet models, including video-on-demand and other methods of refined content distribution
- **Leverage addressable advertising**: as narrowcasting and unicasting evolves, advertising must follow along by becoming more meaningful to the viewer; the effect of this is two-fold – the value of advertising airtime increases because it is more viewer-relevant, and the viewer is more inclined to maintain loyalty to the channel and its related brands
- **Reduce infrastructure costs**: strongly challenged by the lower cost newcomers who have a far lower barrier to entry all along the broadcast chain, media companies must consolidate and coalesce, as well as reduce the number of locations where physical infrastructure is required
- **Improve visibility into the use of content**: today’s spider web complex of content distribution, sharing, and rights management is inefficient for a variety of reasons; by creating greater visibility into the preparation, use and playout of content, the entire ecosystem will become much more efficient

These functions may vary considerably based on the geography and country. In some countries, the creation, management, playout, and distribution of video content involve a variety of different public or private entities. Indeed, the playout function is centralized in some countries, thereby bypassing the need for localized playout operations or content creation and management. The playout function is an increasingly automated activity in virtually all modern broadcast operations – leveraging scalable, software-based solutions to control switching between spot sources and on-air programming, commercials, and digital graphics.

Modern playout systems can link directly to other critical broadcast business functions, and this integrated approach allows media companies to more efficiently manage related workflows. At the front end of the broadcast chain are the enterprise management parts of the business that are enabled by media software including advertising sales, traffic and billing; rights management; program scheduling; billing; and analytics.

Many of these classic media functions are discrete parts of an overall broadcast business that are not closely linked to each other – at times, these are even different companies involved in a successive chain of broadcast operations. An editing team provides the editing function, and uses its own disparate systems to do so. Similarly, program managers run the automation and playout operations, using their own systems – and the same use of discrete systems holds true for many of today’s broadcast functions. The inherent inefficiencies in this siloed method of managing workflow operations is not sustainable in today’s rapidly evolving world of rapid, Internet channel creation. Integrated, cloud-based playout is a natural end game to resolve these inefficiencies, but before examining the promise of cloud-based playout, it may help to explore the limitations of current-generation playout models.
Challenges with Today’s Generation of Playout Systems

Visibility. A broadcaster’s world is now far more complex than ever before. Content comes from many locations and across many different modalities. For example, a national broadcaster may have dozens to hundreds of national and international feeds over fiber or satellite, as well as many more content feeds that originate from local affiliates or similar sources. Although the programming is regularly scheduled and therefore preplanned, much of the content is not controlled directly by the broadcaster and can often be quite variable in many respects.

When content is attached to program schedules and playlists, it may be distributed to many different locations. Some of those locations are managed closely, such as stations that are owned and operated by the broadcaster, while other stations or locations are not quite as closely managed and can even be different legal, corporate, or governmental entities.

Media companies may have little insight into the activities of these entities. A single piece of content may traverse many different playout systems across many different companies, locations, and geographies, as well as across both linear and nonlinear Internet distribution means. This challenge to playout visibility goes both ways for all parties involved in the broadcast workflow – from the content creators (when not the broadcasters themselves), to the broadcasters, to their affiliates or similar entities, to the networks and distributors.

Airtime and Ad Optimization. Due to the sheer logistics involved in transporting and playing out so many forms of content between so many sources, all parties involved in the broadcast chain are challenged to make the best use of their airtime. The highly variable nature of content delivery, scheduling, and content availability leave media companies struggling to optimize their advertising placements and yield. As a result, the monetization of the broadcast business suffers since advertising inventories are not optimized. This sub-optimization of advertising reduces potential revenues and impacts media companies’ ability to price effectively based on market demand.

Infrastructure Challenges. As indicated previously, satellite transport is often the preferred means to carry video content from location to location. Since satellite links are both expensive and in relatively short supply, any content that originated in a baseband, uncompressed form will undergo some level of compression before being transported. This same content will generally undergo multiple compression and decompression stages before it is finally transited to the end user. Every successive compression step impacts the quality of the signal and therefore degrades the “viewability” and acceptability of the content, creating compression artifacts, loss of clarity, delays and signal quality degradation – while driving up processing requirements and operational costs.

One of the biggest infrastructure problems is redundancy of equipment across the broadcast chain. Playout-related equipment may be purchased and maintained at all sites, creating widespread duplication across local, national, and international operations. Coupled with this, equipment and standards may not always be compatible, causing broadcasters to experience costly airtime and playout disruptions. The infrastructure-intensive nature of today’s playout systems can cause new channel launches to be very expensive and resource intensive. In this new age of thousands of channels that are readily available with the click of a mouse, media companies need to become super-enabled by operating in an environment that encourages the trial-and-error experimentation of new channel launches to extend and expand their brands.

Solution: Playout in the Cloud

Cloud Playout and Baseband-to-IP Migration

Playout in the Cloud is inherently IP-based, and presumes that content is transited and/or managed via IP. Much of today’s signaling, however, is comprised of baseband/SDI and variants like ASI. Inside the broadcast plant, baseband can consume an entire coaxial cable to carry a single signal or video stream, and that same signal must be transited to many locations within a broadcast operation.

This decades-old method of transporting video content over coaxial cabling appears antiquated within the context of current day IT technologies of 10, 40, and 100 gigabit Ethernet switching. Indeed, in most broadcast plants, the logistical, capacity, and distance limitations of traditional baseband infrastructure now present very real challenges – particularly where broadcasters are considering augmenting or replacing existing facilities.

Not surprisingly, many broadcast engineering teams are determining how they will migrate toward a future all-IP intra-plant environment. This transition is occurring over time, and as this transition occurs in the next few years, media companies will require “on-ramps” and “off-ramps” between legacy transport and the emerging IP infrastructure, as well as the ability to manage the infrastructure without disruptive changes to the workflow.

Managing in both legacy and IP realms is done through workflow orchestration, where operators are provided a management system that can transparently manage video content and routing between legacy signal routing and IP. Workflow orchestration is necessary for the proper transiting of content in a Playout in the Cloud environment.
Media companies face growing pressure to economically launch new channels while protecting and extending their long-established brands, and the new generation of automated, cloud-based playout will play a critical role in meeting these strategic objectives.

Forward-looking media companies are now in the process of implementing a new generation of cloud-based playout capabilities. “Playout in the Cloud” gives media companies the agility that they need to compete in a changing marketplace. In a nutshell, cloud playout allows media companies to ingest, transform, and transport content free of geographic boundaries, extend and expand their brands, and to forge productive new relationships between content providers, broadcasters, affiliates, and downstream partners like networks, distributors, and affiliates in real-time without needing to contend with the spider web of point to point activities that require manual intervention or costly transport pathways.

Benefits of Cloud-based Playout

An IP-centric, cloud-based playout model provides substantial benefits to broadcasters and all media companies participating in the broadcast chain.

**Playout Visibility.** Cloud playout provides detailed, real-time insight into all content-related activities throughout the broadcast chain, including playlists, advertising capacity, and actual playout as rendered to viewers. By having all content available in the cloud, and with controlled and secure access to the cloud content, all parties along the broadcast chain have greatly improved visibility to the business. As a result, stakeholders up and down the value chain can better communicate and collaborate, enabling more productive business arrangements, improved optimization of airtime and advertising, and enhanced monetization opportunities.

**Optimizing Performance.** By replacing traditional star- or hub-based content distribution that occurs along the broadcast chain, cloud playout enables instantaneous, facilitated sharing of content and its information (metadata) among business units, throughout the world, and across partner value chains. In cloud playout, much of the content transits through and is stored in the cloud, making it readily accessible to parties with authorized access. This helps to eliminate the many steps between parties in a normal workflow environment, and may serve to improve content quality by reducing transcoding steps. It also facilitates the distribution of content to new, expanded markets and geographic locations.

**Maximizing Content Assets.** Cloud-based storage and playout also supports more reliable content management, simplifying sharing and rights management. This allows media companies to leverage and share their vast libraries, which improves the ability to provide content to niche markets and monetize content which otherwise would have limited remaining value. This is an advantageous capability for any content owner or distributor.

**Reducing Redundancies.** By creating a contiguous, centralized infrastructure, media companies can eliminate hardware redundancies that occur all along the broadcast chain. When content is stored in the cloud, it can more readily be accessed by downstream partners like networks, distributors, and affiliates in real-time – without needing to contend with the spider web of point to point activities that require manual intervention or costly transport pathways.

**Channel Creation Advantages.** Playout in the Cloud provides media companies with very real business, market, and competitive benefits. The innate flexibility of a cloud-based architecture allows the creation of channels on an anywhere, anytime basis, with considerably lower barriers to entry versus traditional means of turning up a new channel. Channels and content are no longer tied to localized, brick-and-mortar infrastructure, as content can be transited, edited, branded, and played out with the speed and flexibility of Internet technology. In fact, Playout in the Cloud places traditional media companies in a superior position relative to their Internet-based competitors, since Internet and OTT options are also still available to traditional media companies, and are very likely enhanced by their cloud playout capabilities.

**Cost and Monetization Advantages.** Cloud-based playout can also measurably reduce both capital investment requirements and ongoing operational costs. Because media companies have much greater visibility into where, when, and by whom their content is used, they can plan more appealing productions, negotiate more favorable deals, and improve yields from available airtime. Perhaps most importantly, the automated cloud-based approach gives broadcasters powerful tools to defend and enhance their brands in a challenging media environment.
Imagine Communications: A Playout in the Cloud Solution

Playout in the Cloud is now real and available.

In August 2014, Imagine Communications introduced VersioCloud™, the industry’s first IP-enabled, integrated cloud playout platform. This pioneering solution allows media companies to create and manage video operations and channel playout from the cloud, enabling them to accelerate new channel launches and extend their brands and content with more freedom, visibility, and control than ever before.

The disruptive new technology of VersioCloud provides the ultimate competitive advantage for all parties in the broadcast workflow because it simplifies the creation and management of channels, advancing the monetization, extension, and expansion of brands and content into new demographic or geographic markets. With VersioCloud, all of the traditional integrated channel playout functions are now cloud-enabled, including branding, editing, graphics, automation, and server capabilities. Also available as part of the cloud playout solution are Imagine Communications’ Magellan™ SDN Orchestrator software control system and Selenio™ processing and compression solutions, enabling the transparent management of hybrid SDI, ASI, and IP content including a seamless on-ramp/off-ramp between IP and legacy baseband transport that accommodates media companies’ eventual transition to all-IP networks.

Playout in the Cloud, enabled by VersioCloud, redefines the technology required to originate, store, deliver and monetize video content. The combination of cloud-based playout combined with hybridized legacy and IP transport enhances all parts of the broadcast business. Benefits include improved visibility to optimize advertising playout, efficient methods of disaster recovery, fast channel creation to accommodate seasonal or one-time events, the expansion of brands and content into new markets and new geographies, and a pay-as-you-go Platform as a Service (PaaS) model to greatly lower the cost and time barrier to traditional methods of establishing a channel. In addition, by integrating VersioCloud with Imagine Communications’ Zenium™ workflow manager, media companies can easily design Playout in the Cloud workflows to suit their particular needs.

Imagine Communications’ Versio platform has become an established leader in software-centric integrated channel playout, and VersioCloud is the collective future of broadcasting, unshackling media companies from the bonds of hardware-centric networks. It rests on a software- and IP-based framework designed to fundamentally improve how media companies manage workflows and monetize content and other assets. This framework leverages media and playout software modules in a standards-based environment, using cloud and virtualized capabilities to manage activities across formats, delivery platforms, and locations.

Conclusion

Broadcasters and all media companies in the traditional broadcast chain spent generations building powerful and profitable brands. In today’s world of proliferating Internet channels and virtually unlimited content, these brands are under siege.

Protecting and enhancing hard-won brands – and the status, market position, and profits those brands still represent – must be the first priority for established media companies. To meet that challenge in an exploding multi-channel world, however, the broadcast industry must fully embrace the power and flexibility available only from IP-based technologies like Playout in the Cloud.
Addendum – Today’s World of Many Channels

In contrast to the relatively few traditional television channels a few decades ago, viewers across the globe today have convenient and affordable access to tens of thousands and maybe even millions of what are effectively “channels” of content — a recent phenomenon in broadcast history.

In some countries, cable networks first brought dozens and then a few hundred channel and content options to viewers through set-top boxes. In the last few decades, satellite distributors brought these same channels and related content very quickly to an extended global audience of viewers. IPTV networks added again to this expansion, and content quickly expanded to fill the void. However, the channel count and therefore content was always constrained by fixed or wireless bandwidth, which could only actively provide a somewhat limited choice of channels.

The playout of these channels was repeated everywhere, globally, over and over again, by virtually every content producer, broadcaster, or network provider/distributor. Quality content was difficult and expensive to create. Transporting, transforming, manipulating, and distributing this content was also difficult and expensive. In effect, the barriers to entry into “the business of broadcasting and media” were very high, limiting the number of players.

It may have taken a few years after the introduction of the Internet – but since that time, the game has changed forever. There are some easy examples to point to that helped change the game, like YouTube and Netflix. Originally, Netflix allowed consumers to substitute linear TV with a disk and a DVD player. Then the disk-based system gave way to Roku boxes, Smart TVs, and on-demand streaming via direct connections to the Internet. This model expanded the playground for a vast new universe of content and channel creators, device manufacturers, networks and distributors, aggregators, advertisers, and viewers. Other Internet-based TV applications, devices like AppleTV and Chromecast, and services such as Amazon Prime, YouTube and others now offer relevant and interesting content, which is often commercial-free or “commercial-light.”

As digital video production costs have declined, more content is now being produced than any single viewer could watch in many lifetimes. And across the Internet, there are literally many thousands of channels within channels within channels, easily accessible from any smart device. For example in many markets, a channel like “TED Talks” can be accessed through Roku, Netflix, or Internet-connected Smart TV.

Many of these channels offer subsets and categorizations of content – which are arguably channels. Amazon Prime delivers HBO content that can “channel” you to many additional subcategories of content, and these will channel you to even deeper content. These are but a few of the obvious ones – and there are many, many more along a long continuum of new video creativity.

Beyond these immediate and obvious substitutes for what is commonly known as “linear TV,” the competition for viewers – and viewers’ eyeballs, time and attention, thoughts, and money – goes beyond video to many other screen-centric applications – from texting and mobile phone conversations to social networks and gaming. In contrast to even a decade ago, all of these screen-based alternatives now compete for viewers’ attention, and nearly all of them use some degree of monetization via subscription or advertising models.

For media companies entrenched in their current ways of life, the rapid demographic shifts show a quite dynamic and even alarming marketplace that is a direct result of these many alternatives for attention, with millennials in particular watching far less traditional linear television than preceding generations.
Fueling the Mobile Revolution

In the period of a decade and a half, mobile devices have grown from less than a billion to more than 7 billion. Improved screens and device capabilities, steady growth in mobile and fixed/WiFi broadband availability and affordability, and expanding sources and alternatives for content have combined into an explosive mixture that has fueled the global consumption of video content across a wide variety of screen types, as indicated by the growth of IP video as a percent of all Internet traffic.

With near ubiquitous Internet accessibility across the globe, video consumers have almost limitless choices across a very wide range of content. The key question that established brands, broadcasters, network providers, stations, affiliates, and all involved in the video consumption chain must ask is, "How can I stay relevant?"

Source: Cisco Visual Networking Index, 2014

Source: Adobe Digital Index, 2014