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**Ways We Are Transforming
Media & Entertainment**

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Big Data, Analytics and Digital Marketing: Enablers of Transformation!

Devendra Mishra, Chief Strategist, MESA, and Adjunct Professor,
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As we examine the marketplace, technologies have put the consumer front and center like never before.

The entertainment industry remains a critical contributor to the global economy as Hollywood represents an indigenous product of the U.S. and is a disproportionate driver of traffic on the World Wide Web highway. While the film and TV network businesses continue to thrive, it is the DVD business which has been adversely impacted by the disruptive technologies of digital and Internet. More precisely, the revenue of the home entertainment divisions of the Hollywood studios for the physical DVD has been declining precipitously while competitors for a consumer's wallet and time are emerging and growing with the advent of the digital content delivery on the ubiquitous internet. The decline of DVD is irreversible and any attempt to restore the lost revenue will require a draconian change in the business model.

As we examine the marketplace, technologies have put the consumer front and center like never before. The business model of Hollywood's DVD has been built on business-to-business (B2B) relationships where brick and mortar retailers have been

the primary customers. In recent years, e-retailers and web-driven direct marketers have produced a tectonic shift in the industry with digital distribution of content. This successful B2C business model of Amazon and Netflix has siphoned off the revenue of the studios from traditional retailers who have conveniently allowed other products to fill the shrinking shelf space for DVD. The advantages of the digital supply chain, where consumer demands are satisfied virtually instantaneously with zero inventory carrying costs, has called for a reinvention of the 20-year old DVD.

Maybe the music industry has given us a preview of the evolution of DVD. In the 1990s, the music industry discontinued the single, leaving consumers with no means to purchase individual songs when an album was not a compelling purchase. Music labels had abandoned their marketing weapon by killing the single. The market was initially filled by illegal peer-to-peer file sharing technologies, and then by online retailers such as the iTunes music store and Amazon. Low end disruption with digital technology and Internet led to the emergence of new distribution companies at the virtual demise of the music labels. Apple's iTunes with its iPod created an irresistible, intuitive user experience. So how does home entertainment create a new market for growth?

A Transforming Industry

Transformation of the DVD industry requires that we recognize the consumer to be at the epicenter of the entertainment universe, demanding an extraordinary, personalized user experience. Obviously, several attempts have been made in the form of Blu-ray Disc, BD-Live and UltraViolet, which honestly have impacted consumers very superficially so far. I believe there is a lesson to be learned from the inference of *Moneyball* about the collected wisdom of baseball insiders. Rigor-

ous statistical analysis had demonstrated that on-base percentage and slugging percentage are better indicators of offensive success, and the A's became convinced that these qualities were cheaper to obtain on the open market than more historically valued qualities such as speed and contact. The studios shifting from B2B to B2C may be the game changer.

The other inference is that intimate understanding of the consumer holds the secret for the necessary transformation of the entertainment industry by creating a new business model where user experience is enriched and long term customer engagement is fostered. Traditionally, marketing has been consumer driven. It has been creative, opportunistic and campaign driven but establishing business processes that are analytics driven has not been its forte. The Internet, smartphones, tablets, web-enabled TVs and game consoles have transformed the marketplace from being traditionally driven by content creators to consumers.

The digital marketplace has created the need for game changing roles of the Chief Information Officer, Chief Technology Officer and Chief Marketing Officer who have the access to the consumer like never before.

Studios face the unique opportunity to bring together organizationally the CMOs, CIOs and CTOs to better understand consumers and to influence their behavior, introduce new products, optimize advertising investments, better manage their brands and reinvent their business. May disruptive innovation be successful! ■

Editorial Director of the M&E Journal and Chief Strategist for MESA, Mishra is recognized as an eminent thinker and practitioner of supply chain management. Now an adjunct Professor of Decision Sciences at Pepperdine University, he has previously served as President/COO of such companies as LIVE Entertainment, VCL-Carolco, Lieberman Entertainment, and Technicolor Worldwide Media.



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PHYSIGITAL

The Next Big Thing

*Home Entertainment Must Embrace the 2nd Screen
as the Next Big Format.*

By Guy Finley, Executive Director, MESA

The home entertainment's latest, greatest format is actually no format after all. Sure consumers will increasingly gravitate to digital movies, downloaded to every form of connected device. But while those downloads, at least for the time being, are a more convenient way of obtaining entertainment, they are of diminished quality and lacking in bonus features that have characterized the evolution of home entertainment formats since the dawn of videotape.

Video rental stores were not a new format. Redbox was not a new format. They were new forms of distribution. As is digital.

If the history of home entertainment over the past 30-odd years proved anything – it is this: Consumers rent for convenience. They buy enhanced products.

So what's going to build those extra profits into digital movies for the years ahead? What's going to provide the studio home entertainment divisions their USP to convince customers that they should build collections and buy a movie that they probably already watched in a linear fashion in the theatre, airplane, hotel room or on pay-for-view?

Welcome to the next big home entertainment format – it's called the 2nd Screen. 2nd Screen as a concept has existed in various forms for many years but only with the introduction of the iPad has it exploded with possibility for all parties within the ecosystem. What the tablet delivered to consumers was a screen large enough to host a companion experience or additional content that enriched not only the content on the 1st screen but was easily digested by the consumer without having to squint and fumble with a small smartphone screen or picture-in-picture. Of course the 2nd Screen experience is not exclusive to home entertainment – it is making its first and most prominent moves in advertising supported broadcast television – but for those of us whose careers are dependent upon convincing consumers to buy and re-buy movies that they have already watched or already own,



it offers amazing possibilities.

If we approach 2nd Screen as a new format, we can then draw on our home entertainment experience to transform the idea of content and an engaged consumer into an entirely different business model that adds exclusive

features to plain-vanilla digital movies, bringing the promise of connected content (.ie., BD-Live) to reality.

The 2nd Screen is also a major boon for our retail partners who can leverage this new form of consumer engagement to sell related goods and to build an ongoing, online relationship with movie-buying customers. If consumers are spending more time with our content then we can also leverage that time just like we do now through broadcast, into an experience that can be monetized via e-commerce or advertising.

So let's look at 2nd Screen as analogous to DVD. Before DVD, home videos rarely had extra footage of the production simply because it wasn't shot in the first place. Our industry recognized the potential of bonus content as a value-add to the new "disc" consumer and budgeted for camera crews to tag along and create bonus footage. We budgeted a couple days shoot to gather cast and director for some musings and general commentary while the film rolled. We hired creative teams to innovate user-friendly graphics and menus.

DVD engaged the consumer who was a rabid fan and wanted more than just the movie. They wanted to devour as much of the content as they could and this was more than a novelty — it was essential to their overall disc experience. 2nd Screen, as a consumer engagement tool, takes this analogy to the age of the digital movie. 2nd Screen allows consumers to go far beyond footage and provides value-add experiences, and even has the ability to sow seeds to future content in real-time. Add to these basic bonus features the ability to pro-

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M&E JOURNAL

Media & Entertainment
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The Media & Entertainment Services Alliance was founded in 2008 to create efficiencies in the creation, production and distribution of physical and digital media & entertainment. Representing over 80 member companies worldwide, the organization produces events, newsletters, research, as well as this journal publication. Its industry initiatives include workgroups in digital and physical supply chain, 2nd screen, IT, content protection and anti-piracy. MESA is the management company responsible for the efforts of the Content Delivery & Security Association, the Hollywood IT Society and the 2nd Screen Society.

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From Silicon Valley to Hollywood, Mobile Revolutionizes the Way We Work

Addressing the demands of mobile technology. By Robin Daniels, Head of Enterprise Product Marketing, Box

Abstract: Although Silicon Valley and Hollywood are close geographically and are both working toward bringing transformative experiences (content and apps) to market, they are vastly different digitally and philosophically. Hollywood's success relies far more on the connections between individuals than market and technology strategies, rendering decision making complex – and the Valley's direct-to-consumer, “execute without asking for permission” model doesn't quite match with Hollywood's “collaborate with everyone” mentality. However, one technology that has taken hold and shaken up both Silicon Valley and Hollywood is the use of mobile devices in business.



Half of all devices sold this year will be non-Windows based. Apple alone has sold more than 172 million iPhones and iPads in the last year and its iPhone business alone generated more revenue than all of Microsoft. More computing power and connectivity is in more hands, and in more ways, than ever before.

Sure, workers everywhere have been using smartphones to be more productive for years, but advances in mobile devices paired with cloud applications have simply changed what's possible. Not only can workers use their mobile devices to share instantly in their personal lives, business systems are evolving just as rapidly to make the impossible possible. From a creative executive accessing crucial production documents from an iPad to give real-time feedback, to a marketing team tracking campaign results while on the road – we are all working with new mobile and cloud technologies to stay

competitive and to easily create, access and share content from anywhere across multiple devices.

Technology Demands

The technology in our personal lives is certainly influencing and changing expectations in our professional lives. It isn't necessarily the convergence of the tools we use in these two worlds, but rather the consistency of ideals.

Employees are demanding the ability to choose the devices they use for work and are becoming less productive if all of their data is sequestered on different devices or locked

down to specific systems. Along with mobile devices, consumers are also bringing different expectations for technology to work with them. The reason mobile devices like smartphones and tablets, or social media like Facebook and Twitter, are so popular is that they are radically simple and intuitive.

While incredibly empowering for end users, this fragmentation of platforms in the workplace means that any organization that is embracing mobility also has to embrace device diversity. And IT departments not only need to support all these new devices – they

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Robin is head of enterprise product marketing at Box. He is a prominent advocate and expert on Enterprise Cloud Computing and how it is transforming enterprises and the software industry. Having worked in the tech industry for over 15 years for leading companies such as Salesforce, Veritas and Vignette, Robin has extensive knowledge in the areas of cloud computing, enterprise software, collaboration technologies, and marketing innovation.

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Better Than Bonus Material

What Second Screen could do for title sell-through.

By Chuck Parker, Chairman, 2nd Screen Society



Abstract: When DVDs first arrived on the scene back in the late '90s, the majority of consumers thought they were a significant leap ahead of VHS tapes because of their size, ability to quickly access anywhere on the disc, better picture quality, etc. But as the industry realized the opportunity to create a sell-through model (vs. the rental model with VHS), they started trying to figure out what it would take to get consumers to collect or gift DVDs (the biggest reason for purchases).

And bonus material was born.

I am sure all of you have seen this at a cursory level, but the behind-the-scenes effort of creating a “behind the scenes” is actually a serious undertaking. In DVD’s hey day when the average U.S. consumer was buying 14 DVD titles a year (vs. today’s 7), actors and directors grumbled about contracts requiring them to film interviews, do audio commentaries, and edit appropriate bloopers or deleted scenes for the DVD bonus material. Marketers at the studios were convinced that consumers would pay a higher price point for the “collector’s edition” of certain collectible franchises either for themselves or as gifts (especially at Christmas) and they had the uplift and mar-

gins to prove it.

And then DVD sales began to decline. At this point, bonus material was either used as a sales promotion feature (removed from discs destined for rentals stores like Blockbuster or Netflix) or the cost of creating the material was seriously questioned and removed (for those uncollectible, less gift-able titles).

And now here we are again, only with 2nd Screen. There are studios experimenting with creating incredibly engaging apps for key franchises to promote the sale of the Blu-ray or DVD. Disney was the first to really push into this with their re-released *Bambi* title a little less than a year ago, with an incredible user experience that was only activated via BD-Live in the sell thru versions.

Since that title, various studios have been experimenting with 2nd screen applications as companions to the movie with games (Sony and *The Smurfs*) and commerce (Fox and *Sons of Anarchy Season 3*). Then Marvel (owned by Disney) arrived on the scene with the first 2nd Screen application designed to promote the Blu-ray sale before it is released. *The Avengers* Blu-ray lets you download the app now, where you can see some of the character files (*Captain America*, *Black Widow*) and play one game, but over time, as you keep coming back (each week presumably), more content is unlocked for you to review. They are hoping to build up audience anticipation, and similar to *Bambi*, then only make certain features available when a purchased Blu-ray unlocks something in the app via BD-Live.

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Chuck is an innovative industry leader who pursues his passion in the digital video space, focused on second screens. Most recently, Chuck was the Chief Commercial Officer at Technicolor, where he previously held multiple senior roles including head of their international DVD division, CIO, and President of their digital division where he delivered the foundation products for what is now M-Go.

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The Transformative Effect of User Research On the Consumer Experience

Using research findings to structure end products for consumers. By Seth Hallen, CEO, Testronic Labs, with Editorial Contributions by: Graham McAllister, Ph.D., VP of User Research, Testronic Labs



Abstract: Consumers have a virtually unlimited number of ways to interact with technology, as apps continue to explode into the market and various iterations of devices, innumerable websites, and multiple versions of software proliferate. The way consumers are accessing and interacting with their home video content is changing, and it will continue to evolve rapidly through the next several years. It is clear that developers, especially UI developers, need to better understand exactly what creates a good consumer experience.

In the home entertainment industry, never before have we seen such rapid and dramatic changes in the way consumers are accessing and viewing content. Broadcast television was the first effective format available to the masses for watching content in the home. It took almost 40 years for the next significant innovation in content delivery to arrive on the scene, videotape, which allowed a consumer to choose when and where to watch a movie or TV show. More than 20 years later, DVD and then Blu-ray Disc improved the quality of in-home content and DVRs made time-shifting possible. Now, less than 10 years after the introduction of the Blu-ray Disc, we are experiencing a colossal shift toward online digital video consumption.

According to Futuresource Consulting, there were more than 485 billion legitimate (not pirated) online video views in the U.S. last year. That is up from 266 billion in 2009. As impressive as that number is, only 1 percent of those views were purchased. Clearly the public is hungry for online access to content. The chal-

lenge is offering a value proposition the consumer is willing to pay for.

If core consumption has changed so dramatically, it is only logical to ask how behaviors regarding searching, accessing, cataloging and interacting with content will change. There are already various options available, from simple web interfaces to 2nd screen apps to voice-command interfaces. Which of these, if any, are most compelling to the consumer? How can you determine exactly how consumers like to access and interact with their content? How can you best forecast the trends so that developers can create UIs that will truly engage consumers so that they recognize the value in purchasing content they view online and through all their various devices? How can you ensure an experience that home video consumers love so much that it will yield DVD-caliber success?

Creating a world-class experience that consumers love is the goal of many in the digital content space, but it is achieved by remarkably few. Attempting to understand not only what consumers enjoy, but more importantly why they enjoy it, is the key to success, and in recent years a growing field has developed which focuses on this very issue.

User Research is a discipline which combines elements from psychology, design, computer science and many other fields, with the elemental goal of understanding people. The idea being - if we better understand people,

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If we better understand people, then we can better design products and services that they will enjoy using.

then we can better design products and services which they should enjoy using. It sounds so obvious in retrospect, but it is only in recent years that this has become an important and specific developmental focus.

Creating Enjoyable Experiences

In the past, DVDs, software, and Web sites were judged on what features they offered. Early consumer devices and Web sites were often used by technically literate power-users, where ease of use and aesthetics were not the focus. However, the shift in emphasis from features to the user experience has been clear in recent years, with two prominent examples standing out.

In 2001, Apple's iPod was released. It was not the first MP3 player on the market, nor did it offer as many features as its rivals. However it quickly became the best selling MP3 player on the market, a market it still dominates more than 10 years later.

In late 2006, Nintendo released the Wii game console. The new Nintendo console went on to outsell its competitors by approximately 50 percent.

Why did these two products achieve such success against very stiff competition? In both cases, an obvious differentiator was ease of use. They both utilized a simplified interface that made the devices accessible not only to a narrow target market of technophiles and gamers, but also to a broad age and gender range who were not attracted to their competitors' products. But, was that really the deciding factor?

Change in Focus

At an event in 2006, an Apple representative said that the App Store changed where developers should focus their efforts. He noted that before the App Store, developers were probably putting about 90 percent of their effort into technical features and approximately 10 percent on design and user experience (if even that); after the App Store was launched however, users' quality expectations of apps increased very quickly. He advised developers that if they were not putting

more than 50 percent of their efforts into the user experience, then they should not expect their product to do well. The message was becoming clear, it's not about the technology, it's about how people use and experience the technology.

Defining the User Experience

I've used the term 'user experience' throughout this article, but what does it really mean? It is often used as an umbrella term for two main areas; usability and actual user experience. Usability is concerned with the user's ability to complete the task that the product or Web site is designed to do and how many steps it takes to get it done. This is very functional, and it can be quantified in ways such as time taken or clicks required. User experience (or UX) concerns itself with understanding whether or not the user enjoyed doing the task. UX is actually the much more important of the two since usability is essentially a yes/no proposition. Users expect features to work, but the precise details of how they work can turn them into long-term customers. UX is how user loyalty is generated.

Industry Comparisons, Usability and UX

The web and video game industries have understood for a while now that building a Web site or game that technically works is not good enough; the experience must also be smooth, clean and enjoyable. There is a lot of competition vying for a consumer's business, and your product has to be better than the next guy's.

Usability has proven to be extremely important in the development of Web sites. Many usability firms exist, and they evaluate

how users interact with Web sites with the aim of refining the experience. Even seemingly trivial changes can bring massive increases in revenue. One high-profile case is that of the \$300 million button. A large online retailer had a sign-up form which simply asked for a customer's e-mail address and password before entering a Web site. This information was also asked for at checkout, so was not essential at the start. Asking users to sign-up before buying created enough initial resistance that some users went elsewhere. Once the change was made, the number of customers making purchases increased by 45 percent, leading to an extra \$15 million in revenues in the first month and \$300 million extra over the course of the year. The online retailer was not even aware there was an issue. They had simply not put enough effort into understanding their users to realize that a simple tweak to their Web site could offer users a better experience that would dramatically increase profits.

For video games, however, the focus is more on UX. In gaming it is not about how easy it is to complete a task, and in fact, often times the more difficult it is the better. It is all about the enjoyment the player experiences along the journey.

The New World of UX Testing

So why did the iPod and the Wii outsell their competitors? Usability was certainly an important factor, but UX was likely the key.

To understand how someone feels using a product, when they are enjoying it and when they are not, a new crop of high-end services, such as Biometric Testing, are becoming available. Biometric Testing involves the use of psycho-physiological sensors, such as galvanic

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As Chief Executive Officer of Testronic Labs, a global 3rd party Quality Assurance and Testing Services company with worldwide facilities, Hallen oversees global operations and the execution of Testronic Lab's strategy in emerging markets. Prior to joining Testronic, he was VP of North American Operations at Lightworks, and oversaw the business development of Digital Media Services and DVD Authoring for Lightning Media. Hallen currently serves as a board member of the Hollywood Post Alliance (HPA) as well as an Advisory Board Member of Media & Entertainment Services Alliance (MESA).



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The Future of Movie Sell-Through

Evolving formats for new generations.

By Tony Knight, Senior Product Manager, Rovi Corporation

Abstract: To no one's surprise, the trend of trading physical dollars for Internet pennies continues in the digital entertainment industry. Consumers are decreasing spending to own content and increasing their spending on subscription services that give them access to a massive amount of videos, movies and programs. Unfortunately, the revenues from subscription services do not match the revenues once garnered from content sales.

This article will look at the startling impact of how meeting consumer demand to access content on any device not only destroyed the revenue potential for content, but has also changed consumer ownership models.



The other day, I began to realize how much of the physical media that my generation took for granted would be completely absent from the lives of our children. My four-year-old daughter Izzy, who was born the year the iPhone was first introduced, already has far different expectations on how content is created, transmitted and consumed. For her, you never have to put anything in a machine to get something you want to come out on a screen. For decades, the act of taking a picture, listening to music, or watching a film required the movement of something physical into the apparatus of something mechanical. In the space of just a few short years, the relentless march of technology has separated content from the spinning gears they were previously bound to.

What's more, technology has rapidly increased the rate of change in the home entertainment business, and this metric can be measured in months rather than years. Consider how long it took older formats, such as VHS and cassette tapes, to be succeeded by new standards, like DVD and CD. Compare that against the plethora of new content delivery methods available today on such a variety of new devices and you will begin to realize the challenges in store for the home entertainment industry. Six years ago the most common way consumers get access to premium content

was in the form of a DVD. It was a universal standard and consumers gravitated toward it. This greatly simplified the home entertainment business model for content holders and the businesses that supported them. Move ahead a few years, and it's not hard to recognize that consumers have many more home entertainment choices, ranging from subscription VOD, kiosk rentals to a variety of over-the-top delivery channels.

While the physical disc still accounts for the single biggest piece of home entertainment revenue, it is becoming besieged by a number of other options vying for consumers' attention. A few years ago, an entertainment hungry consumer might have purchased a DVD for \$15 to \$20 because it represented the best value for money among a smaller choice of consumption modes. Today, that same buyer has many more choices, including free or low-cost access. This competition for consumer attention has forced those of us who make our living in entertainment technology to rethink consumer value, or risk losing the premiums that were once the mainstay of the physical media home entertainment business. In fact, the future of the home entertainment business may hinge on the very question of whether or not consumers want to 'own' movies anymore.

The commercially successful concept of 'owning' a retail movie has always taken some physical form. VHS tapes had a measure of success in the retail market, but it wasn't until DVDs were introduced that people bought and collected them in droves. Today, DVD and Blu-ray Disc



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The future of the home entertainment business may hinge on the very question of whether or not consumers want to 'own' movies anymore.

still sales constitute the lion's share of home entertainment revenue, but that revenue is declining 5-15 percent worldwide, year over year. Electronic sell-through, the digital equivalent of owning a movie on physical media, has been available for many years, but it has yet to garner anything close to the same level of commercial success as DVDs. The key question for many in our industry is striking: Are consumers willing to pay to own movies, or are they content to rent on occasion?

Several years ago, I spoke at an industry event, and I was asked when electronic sell-through was going to be successful. My answer was short and sweet: When consumers view EST as being as valuable as DVDs. In the intervening years, the mass market has yet to adopt EST, and physical disc sales have continued to decline. Consumer behavior is changing, and not in ways that promote the traditional home entertainment business model. To put it another way, five years ago the home entertainment revenue pie was cut up in ways that benefited certain actors. Today, that pie is in the process of being recut. Those that were used to getting a healthy slice in the past may be alarmed to be getting either a smaller piece, or none at all. Others that didn't have a slice in the past are now sitting at the table. The question of consumer ownership of content is central to how big the pie is, and how it is to be sliced.

Unless the industry acts (and acts decisively), in a few short years, margins in the home entertainment business could reduce sharply as consumers shift from movie ownership to a much less lucrative over-the-top rental business. In fact, I think the entire industry is in need of something akin to the Marshall Plan. To that end, here is my 3-point plan save movie ownership that can be treated as additions to UltraViolet:

1) Clearer Differentiation from the Rental Experience

Today, when you consider buying a movie from an over-the-top service, you are confronted with two buttons: Buy or Rent. Clicking the 'buy' button leaves many customers feeling shortchanged. There are generally no menus, extras, special features or other perks that make them feel like the ownership experience has been conferred on them. Charging four to five

times more for those that bought a movie that has the same user experience as a rental just starts to feel like you are prepaying for your next four rentals. The industry needs to find a way to drive more value into the electronic sell-through format, and this means adding features that customers are used to getting from physical discs today. Remember, most consumers only watch a movie they like one time. They watch movies they love many times, and they want the extras that connect them to the film's backstory.

2) Get Aggressive with Disc-to-Digital

My shelves at home have about 400 movies on them. The key to getting consumers like me to own new movies digitally is to help me move my library toward the new paradigm. How successful do you think Apple would have been with the iPod and iTunes if they hadn't expressly enabled you to bring your existing library of CDs into the same interface as the music you purchased from them electronically? Not very, I think. There is an effort by a certain large retailer to move existing DVD and Blu-ray Discs to UltraViolet (UV). This is a great start, but the initial reviews have been mixed. By my own experience, only two-thirds of the sample I brought in was available for conversion, and none of the extras that were available on those discs are part of my new UltraViolet rights. Would I now spend \$800 or so to move just the movies (without extras) over to a new standard if that new standard makes me feel like I am prepaying for over-the-top rental? Not likely, I'm afraid.

I think disc to digital is a great idea, and some consumers undoubtedly adopt a scheme where they move their libraries over on a per-disc basis for a fee. That said, this approach presents a barrier that I believe will prevent it from becoming mainstream.

Here is a different approach. Charge little or nothing to convert my existing library to UltraViolet once a retailer has confirmed that my library consists of legitimate retail discs, and

marked each out of circulation once the digital right has been conferred. If some of the movies are not available, record my right anyway, and bring it to my locker once it is available. Now I can feel the totality of the UltraViolet experience with content I've spent the past 15 years collecting. It didn't involve a big bet on my part, and if I like it, the chances are very good that I will probably make my next purchases as UltraViolet ones.

3) Go Crazy with Metadata

My shelves at home used to be great for impressing guests and those with lesser collections. That moment has passed. Here is what my shelf can't do well: recommend a good movie for me, or tell me where there are gaps in my collection. My shelf can't sort my movies in ways that help me consume more content. In fact, after Izzy figured out how to reach that shelf, it isn't even particularly well organized. Once you've helped move my entire library over to a digital locker of some kind, don't make it the digital equivalent of my shelf. Use rich metadata and some excellent user interfaces to help me visualize my library in new and interesting ways. How many Stanley Kubrick movies do I own? Am I missing some Fellini movies? If you tell me, I'm probably a willing buyer. The best recommendation engine is one that takes my own library as input. Put my existing movies into a snazzy interface, empower it with some intelligent metadata smarts, and I am much more likely to consume. I promise.

There are a lot of people thinking and working on solutions to promote the continuation of the ownership model in home entertainment. I'm sticking firmly with my beliefs from many years ago. Customers pay for what they value, and digital distribution of content must delight consumers if they are going to own it at the same rate they did with DVD. Izzy is almost five now. Is her first movie related transaction going to be a rental, a buy, or a subscription? Much of that will depend on what the industry does over the next two years. ■



Tony Knight serves as senior product manager at Rovi for the company's content protection solutions. He is an 18-year veteran in the multimedia industry and has worked in diverse roles ranging from software engineer to product manager. Prior to Rovi, Mr. Knight served as senior product manager for Adobe's (formerly Macromedia) Director MX 2004 product.

APPS

Social TV, Second Screen, Social Media, Entertainment

- Smart TV
- Blu-ray
- Set Top Boxes
- Game Consoles
- Mobile/Tablet/Computer
- Web

DIGITAL DISTRIBUTION

- Digital Copy
- Streaming
- UltraViolet
- OTT

3D CONTENT

Video, Subtitles, Graphics:

- Physiological Review
- Technical Review
- Certification

BLU-RAY/DVD

- Verification
- Compatibility
- Functionality
- Audio/Video/Subtitles
- 2D & 3D Certification

CASUAL GAMES

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- Mobile
- Facebook
- Console

VIDEO/AUDIO

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Industry-Wide Solutions as a Service

Putting Silicon Valley resources to work in Hollywood.

By Mike Hurst, CEO and Co-Founder of Exactuals



Abstract: In previous years, large capital expenditures were required from both studios and guilds to improve existing processes. Today, that money can come from investors in enterprise software companies. All development and implementation work can be fully funded by angel investors and venture capitalists, allowing studios and unions to focus their budgets and expertise on strategic initiatives.

Seismic shifts are occurring in entertainment industry IT. Heavy iron and custom built systems are being replaced with SaaS offerings and standards-based technology. Silicon Valley is taking notice, and is betting real money that this underserved market will thrive with the help of cloud-based startups.

Industry leaders must understand when to embrace SaaS offerings, and how to best influence development. This article will cover the question of when the implementation of industry-wide solutions that are venture-funded and delivered as a service makes great business sense.

When Does Adding a Third Party to An Existing Supply Chain Make Sense?

The answer is, rarely. Very rarely.

In order for a third party to add value to an existing process, it must deliver savings and efficiency to all preexisting parties, while creating enough value for itself to scale and thrive

as a business. In short, everyone involved in the transaction needs to win. When a neutral third party can deliver savings to all involved, an industry-wide solution fits the bill.

When is An Industry-Wide Solution Superior to Custom Systems?

When the power of scale can be leveraged to save money across the industry, a shared solution is the right choice. When all parties aim to solve the same problem, and there is no competitive advantage in solving the problem on one's own, an industry-wide solution is the right choice.

In our industry, where studios compete fiercely with one another and collectively negotiate with a set of well-established labor unions, finding common ground can be difficult. Many existing processes and norms have been in place for decades because organizing and advancing as a collective group has proven too difficult.

In such a business environment, leveraging a neutral third party vendor to build one solution that directly addresses each party's unique requirements is the logical path to creating an industry-wide solution. EIDR.org is a perfect example of an industry standard being developed and centralized for the benefit of the entire ecosystem.

When is The Timing Right for Action?

The optimal time for action comes well before a problem becomes unmanageable.

It is news to no one that the rapid growth in new media is leading to inevitable shifts in the way business is done by all participants in the industry. These shifts will be felt across organizations, from evolution in the way content is produced, managed, and sold, to alterations



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in back office processes that have been in place for decades. Businesses do not need to wait for these changes to happen around them; rather, companies can predict the nature and overall impact of these coming changes and take preemptive action.

Who Picks Up the Tab?

In previous years, large capital expenditures were required from both studios and unions to improve existing processes. Today, that money can come from investors in enterprise software companies. All development and implementation work can be fully funded by angel investors and venture capitalists, allowing studios and unions to focus their budgets and bandwidth on strategic initiatives.

Many industry-wide problems have remained unsolved, simply because solving them independently would have been cost-prohibitive for any one studio or union. SaaS companies can remove the development, licensing, and equipment costs that have proven prohibitive to adoption in years past while distributing value equitably across all participants in the ecosystem.

Thanks to the advancement of enterprise software delivery in recent years, multiple parties can share access to common systems in a manner that centralizes costs under the umbrella of a neutral third party software company. The development and initial deployment costs for such technologies come from venture investment.

If We Aren't Paying for It Up Front, How Can We Help?

Just because you haven't spent six or seven figures on software, hardware, and implementation, doesn't mean tomorrow's SaaS solutions do not belong to you. Industry leaders must get involved in the development efforts of industry-wide solutions at the outset.

SaaS companies often form alpha and beta development groups comprised of their future customers and users. Group members contribute a small amount of their time to add a huge amount of value to the platform's development process. When managed properly, the finished product will be every bit as functional and valuable to its users as a custom-built system.

The Example

Three years ago, while at Oracle, my CTO and I came in contact with the residuals

distribution process for the first time. We saw banker's boxes full of tens of thousands of tiny paper checks, many written for less than \$1.00. Our immediate instinct was to automate: Remove paper, offer direct deposit, improve reporting, lower costs, and increase efficiency. While the solution seemed obvious, we knew gaining the support and traction necessary to make the vision a reality would take time.

We revisited the problem in 2011 by forming a focus group at Stanford's Graduate School of Business to research residuals distribution. It quickly became clear to us that the problem was getting worse on a daily basis. The time for action was immediate, before new media had driven the check volume through the roof and the median payment amount was closer to \$0.00.

While the need for innovation was obvious, there was no existing entity in the industry properly positioned and empowered to build the next generation residuals processing solution. Our research suggested that solving the problem quickly and effectively would require the introduction of a neutral third party.

In August of 2011, Exactuals' founding team members left their careers and acquired funding from prominent Silicon Valley investors to launch an entertainment industry-driven SaaS company. We aren't building the next big social network. We aren't spending our budget on iOS app development. There isn't even a photo-sharing function on our roadmap. We are building enterprise software, built to automate a critical industry function that has remained unchanged for decades: residuals payments. Exactuals' investors understand Hollywood's need to solve real business problems with cost-effective software solutions and are stepping in to facilitate progress in the industry.

We're betting that a neutral third party with an eye trained on adding value for studios, unions, and talent can deliver savings and efficiency across the industry. We are building a residuals distribution system capable of transforming data from the industry's preexisting systems (both new and old) into aggregated and automated payments. As an externally-funded software company, we're able to build its plat-

form without any upfront investment from its future customers.

Over the past few months, a strong beta-testing group has been built for this platform. The final product will be a direct function of input from the studios, unions, and talent who will benefit from the service. Already, these small investments of time have paid outsized dividends: our future customers have asked us to develop a range of ancillary services that will be hugely beneficial to the entire industry. These are services that we never would have considered building, were it not for early advisory support.

The results of these development efforts can be big savings for both studios and unions, faster and more accurate payments for talent, and peace of mind for everyone in knowing the industry will be prepared for further new media growth and the granular level of payments it will generate.

In Closing

The industry's increasing acceptance of cloud-based solutions, coupled with the flow of venture capital into enterprise software start-ups, is enabling the resolution of seemingly intractable industry-wide problems such as residuals distribution. Thanks to advances in enterprise software development and delivery, all parties involved – studios, unions, talent, investors, and software companies – can reap rewards by centralizing and conquering age-old problems with effective industry-wide solutions.

The solutions being developed by software companies will be good for the industry, and your participation can ensure they are built to maximize value for your organization. It is crucial that future customers play a role in advising the direction of such platforms. If your organization has the potential to benefit from a service being developed presently, I assure you, there is a seat at the table for you to weigh in and guide the development process from day one. I encourage each of you to take that step today; all it will cost is a little bit of time. ■



Mike Hurst is the CEO and Co-Founder of Exactuals, a software company focused on automating residuals distribution in the entertainment industry. Mike is a software industry veteran who spent many years at Oracle helping traditional software companies launch Software as a Service (SaaS) offerings.

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The Use of Dynamic Analytics in the Entertainment Industry

The three fastest growing opportunities in today's information-driven supply chain.

By Blake White, Geoffrey Hillier, and Pia Ramachandran, PricewaterhouseCoopers

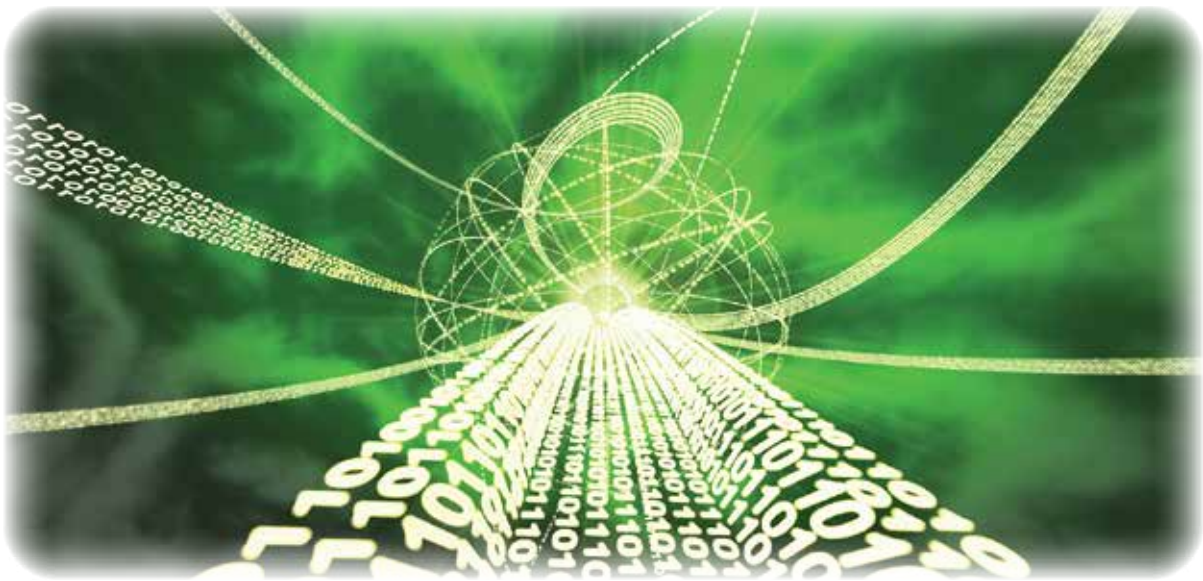


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Abstract: Analytical solutions have become an important component in addressing complex and strategic issues in the Media and Entertainment industry. Companies that have extensively implemented analytics have used it as a differentiator and are outperforming their competitors. This article provides an overview of a range of analytical techniques with a structure to follow for effectively designing an analysis path that fits the business issue. We will illustrate two examples: The first will focus on Feature Film Lifecycle Simulation, where we will illustrate how dynamic analytics can be used to forecast the revenues generated by movies across the full spectrum of release windows. The second example will focus on Television Content Value Simulation and will examine how dynamic modeling can be used to evaluate television programming with a more holistic approach. The article will conclude with recommendations on how to leverage the impact of relationships between key players in the system (i.e. service providers, consumers, advertisers, etc.) and factors that influence these to more effectively forecast viewership, content value, and channel financials.

Figure 1

Leveraging Analytics as a Differentiator

Companies across industries are trying to understand and connect to the consumer at a more personalized level. M&E companies are creating new products and services and adjusting or reconstructing their business model in response to the technical transformation of content delivery platforms and the changing demands of the digital, social consumer. Some are using technology advances to begin to shift their business model from a B2B (business-to-business) focus to a B2C (business-to-consumer) focus. M&E companies are especially concerned with answering this question:

■ How do we offer products and services across the multitude of new distribution channels and consumer engagement opportunities to yield the greatest financial return?

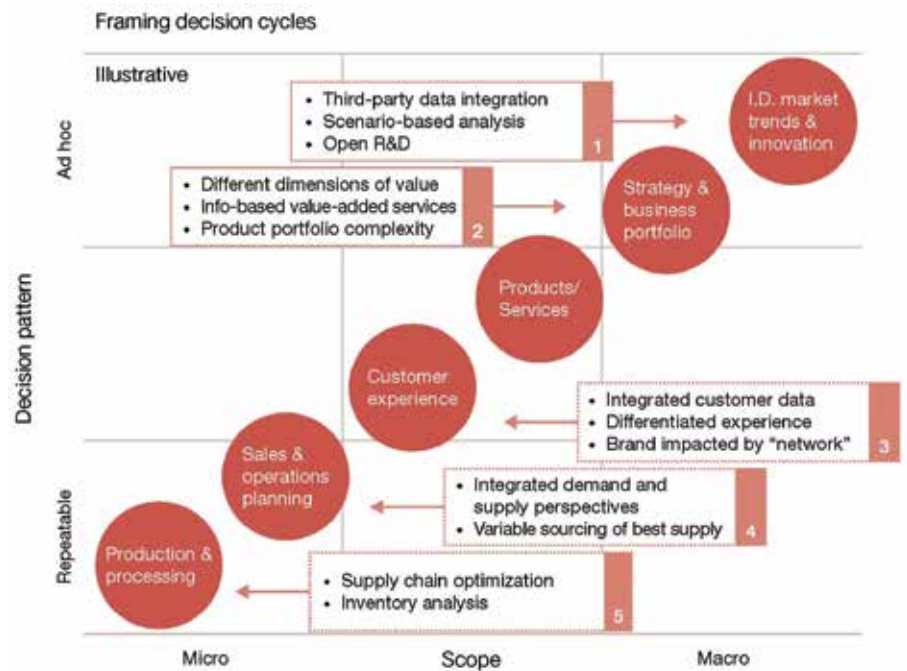
IN OTHER WORDS:

■ How do we optimize revenue return on our content investment and participate in growth areas while preserving traditional revenue streams?

Today, companies are awash in data to aid in discovery. However, data are often inaccessible; lack common definitions, structure and governance; and are often not available to the right people, at the right time and place, in the right way to translate to understanding and timely action. Companies that find a way to overcome these obstacles and harness the power of their information will be more in control of their business and positioned at an advantage. Top performing companies are twice as likely to use analytics to inform strategic and operational decisions, and those that do outperform their competitors by three times¹.

Given the wide range of analytical solutions available, it's extremely important to fully understand the business need when designing the analytical approach. Businesses can call upon techniques such as:

■ Data collection and visualization: Structured and unstructured data (e.g., live call data, online data) are extracted. Analytical techniques are applied to validate the reliability and effectiveness of the data. The data are then presented using visualization tech-



PwC leverages its experience in applying multi-disciplinary thinking and solutions to different types of business problems. Applying the appropriate form of analytics is essential to laying the groundwork for results for the business.

niques, such as graphics, animation and 3-D displays, to make information available in a visual manner for executives to prioritize and focus on the right areas.

■ Segmentation: Techniques (e.g., cluster analysis, principal component analysis) applied to internal and external data to effectively target a group of customers with specific characteristics. Segmentation is often used in conjunction with market research.

■ Market research: Primary market research through designing and analyzing surveys that identify customer attitudes, interests, opinions, and behaviors.

■ Predictive analytics: Statistical and artificial intelligence algorithms (e.g., neural net-

works, regression, decision trees) are used to prescribe and predict actions.

■ Advanced computational methods: Approaches such as optimization, simulation, and profitability modeling. These approaches use techniques such as genetic algorithms, mixed integer programming, and system dynamics to tackle complex, macro, ad hoc or one-time decisions.

PwC leverages our experience in applying multi-disciplinary thinking and solutions to different types of business problems. Applying the appropriate form of analytics is essential to laying the groundwork for results for the business (see Figure 1).

Some of the most challenging questions



Blake White is a Director in PricewaterhouseCoopers' Entertainment, Media & Communications Advisory Practice, where he leads the national Digital Transformation consulting initiative. He is an experienced Hollywood and Silicon Valley executive, who, over a 20-year period, has held leadership positions in media industry technology consulting and systems integration firms, as well as global computer industry leaders and Internet startups.

that M&E companies should consider are ad hoc macro strategic decisions (see box 1 and 2 of Figure 1) that involve designing distribution strategies, creating the right mix in product portfolios, and understanding market trends. These high-level decisions benefit from advanced analytical tools, such as simulation modeling, that capture the complex dynamics at play while allowing for scenario-based analysis. Scenario planning is particularly effective because it provides powerful tools for the user to leverage their experience, test assumptions, and validate conclusions before incurring risk. The two model examples presented in this paper outline how simulation can be used to provide more holistic and comprehensive insight into M&E business issues.

Using Simulation to Make Better Decisions

Simulation is a form of modeling where the underlying dynamics of real life situations are replicated in a simulated environment. Simulation provides insights into systems with non-linear and dynamic trends by simulating the key relationships and attributes of system components over time. Simulation can then be used to run “what-if” scenarios to understand the implications of alternative conditions in the system. Simulation takes advantage of growing computational power, availability of “big data,” and data visualization to model macro/micro economic conditions, consumer behavior, varying product attributes, and other forces that influence the business system. Simulation can help companies move

Figure 1.1



An MIT survey asked 3,000 executives across 30 industries to identify the top three analytic techniques creating value today and predict what top three would provide the most value in 24 months.

away from typical predictive analytics based solely on prior historic data toward forward-looking simulations.

Case studies

Example 1: Feature Film Lifecycle Simulation

OBJECTIVE

The Feature Film Lifecycle simulation model forecasts the revenue movies generate across the full spectrum of release windows, and physical and digital media platforms. The simulation will allow an enterprise to experiment with a variety of release and marketing strategies in a risk-free environment before

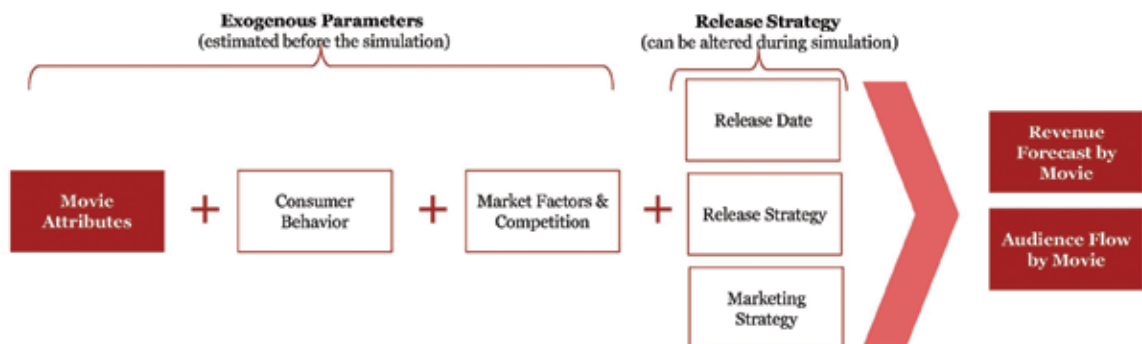
going to market, and then adjust the strategy during execution in response to market feedback. Simulation activities could benefit the business in two ways - help improve overall revenue return and make the marketing spend, which today is often between one-third and one-half of overall budget, more effective and efficient.

MODEL OVERVIEW

Data on movies and their release strategy are fed into a simulation model to forecast the revenue they will generate at the box office.

Figure 2 Model structure

Figure 2





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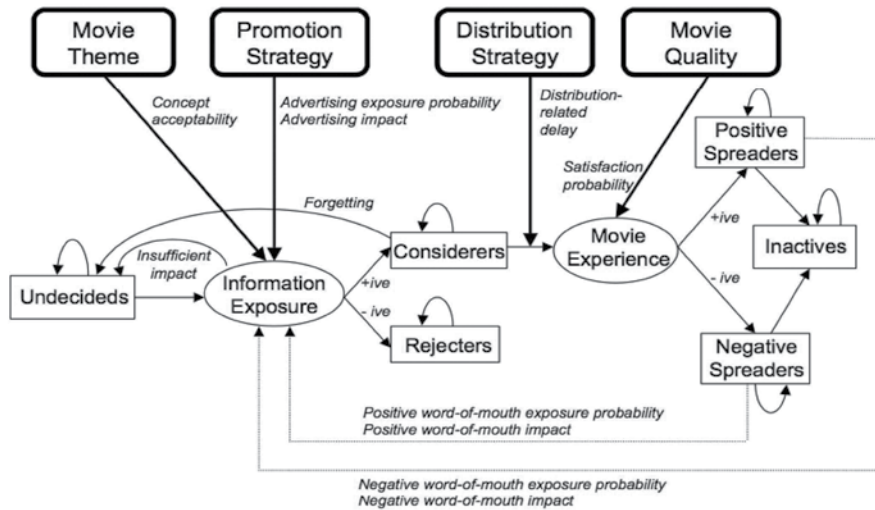


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Consumer Adoption Process Model

Figure 2.1



Key attributes that influence the audience’s propensity to become interested and consume movies were coded into a dynamic simulation model. Consumer behavior was modeled based on two components:

1. **Information exposure:** people become aware of a movie and either “consider” or “reject” viewing it, and
2. **Movie experience:** viewers see the movie and begin to share their positive/negative opinion of the movie with others.

Consumer Adoption Process

Revenue forecasts for new movies are generated as a function of the movie’s key attributes, trends in consumer behavior, current market conditions, and the marketing and release strategies deployed by the distributor. Simulations are run to estimate the impact of movie specific attributes on its potential audience. The factors that can be controlled (release strategy) were separated from factors outside of the studio’s control (exogenous parameters) for scenario planning.

Benefits of Approach

The modeling approach provides a framework for analyzing how films generate revenue throughout their lifespan. By simulating the awareness, consideration and intention to watch a movie over time, the model is able to explore alternative release, distribution and windowing strategies and the associated costs, revenues and risks. The model will estimate the revenues generated by each type of media platform depending on the release and windowing strategy deployed. Because the model calculates revenue as a function of the population’s level of interest and consumption habits,

the tradeoffs of any number of release strategies can be explored to see the influence on (1) the number of interested purchasers, and (2) the price purchasers are willing to pay for each type of media at each moment in time. The model will help executives to both plan the initial release and to monitor and manage the release as information becomes available and new questions can be clearly articulated.

Figure 3: The simulation model captures multiple box-office revenue patterns as a function of the movie’s attributes, release strategy, & other market factors

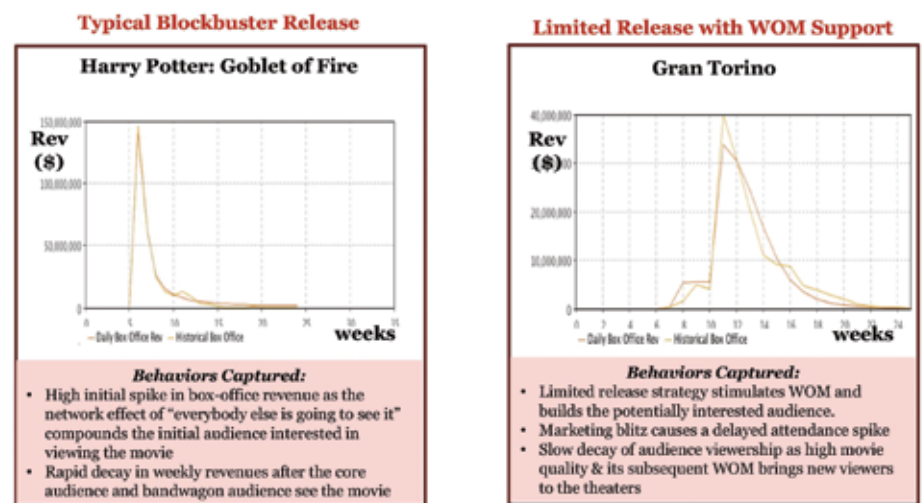
Example 2: Television Content Value Simulation

OBJECTIVE

The purpose of the model is to develop a method for evaluating television programming. Traditional valuation techniques factor in direct revenues and costs of a specific show without considering the impact of other factors at play. Simulation is used to model the relationships between key components in the system (multiple television shows, channels, providers, etc.) to more effectively output total show viewership across all distribution channels, comparative content value at the individual program series level (including brand value), and program level financials (revenue, costs and return on investment from factors such as advertising rates and subscription fees).

Continued on pg 96

Figure 3



The simulation model captures multiple box-office revenue patterns as a function of the movie’s attributes, release strategy, and other market factors.

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Change the Way You Engage: **Using Big Data Analytics to Understand and Reach Consumers**

Addressing the rapid changes in the home entertainment landscape.

By Colleen Quinn, Global Director, Media & Entertainment, Teradata Corporation



Abstract: The pace of change in today's M&E industry is accelerating – with the landscape looking dramatically different than it did a few years ago. New distribution channels are creating an opportunity to take a real-time pulse on how, when and why consumers engage with content.

The technology implications are significant. New digital distribution channels drive immense volumes of complex, dynamic data. New data sources abound: social media, click-stream, player log, location-based and more. Big data – and tools to unlock it – offer content owners and distributors new tools to listen to, analyze and respond to consumers in powerful ways.

It's no secret that the pace of change in today's M&E industry is accelerating – with the landscape looking dramatically different than it did a few years ago. New distribution channels aren't so new, with entrenched leaders in the OTT space, the slow-but-steady launch of UltraViolet, and clear strategies defined for content creators and distributors alike as to how and when they release content across the new distribution eco-system. There's a reason for

Distribution Channels

the shift. Consumer behavior has propelled the change, with 62 percent of TV watchers saying they engage with another screen, such as a laptop, tablet or smartphone while watching TV.

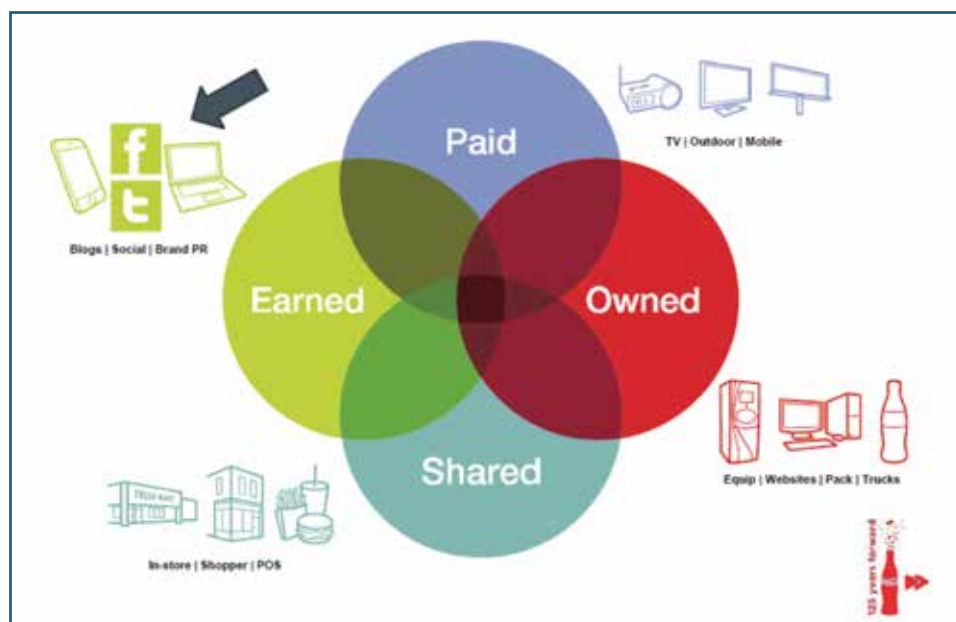
Content creators and distributors, it seems, are finally comfortable with the reality that multiplatform distribution is very much a core part of their “home entertainment” strategy, with digital distribution revenues accounting for a growing minority of post-theatrical revenue. In fact, the DEG reported that, in 2011, digital spending rose 51 percent to \$3.42 billion. But, in the face of what seems like success navigating the sometimes bumpy road of new distribution channels and business models, content creators and distributors are about to confront a new set of opportunities created by this new frontier: the opportunity to develop a significant one-to-one relationship with their content consumers .

The Way We Were

It wasn't all that long ago that studios and other content creators – and to a large extent, traditional content distributors like broadcasters – had massive, rabid audiences of virtually anonymous consumers. For content creators, almost every transaction was handled by a third party: the box office sold tickets, retailers sold DVDs, cable companies managed subscribers. In almost all scenarios – aside from limited fan-based and publisher sites or theme park activity – there were few opportunities to really “know” the consumer.

While the development of massive new content distribution opportunities through digital channels is, on its own, significant – the industry is often quick to overlook what could possibly be an even more significant shift: the opportunity to leverage analytic insights accessible from these distribution channels to create relationships directly with the consumer.

Yes, distribution intermediaries are still very much alive – and in some cases, with new EST and streaming services, there are even more of them. However, there is a big shift in terms of access to the consumer through new channels: services like UltraViolet, joint ventures like Hulu, and successful direct-to-consumer services like Warner Bros., Flixster



– as well as increasingly successful and sophisticated title and fan sites. These platforms enable content creators to create enduring relationships with their fans. It's not only the access and relationship that is significant; it's the ability to leverage those relationships to truly understand how consumers engage with your content across every channel that is game-changing.

Change the Way You Engage: Listen, Analyze, Respond

The model content creators and distributors need to employ is quite simple, but the execution requires analytic capabilities that most don't have in place. There are three primary steps to leveraging the social web and Big Data to understand your audiences.

Let's break down the model:

■ Listen

The first step to understand and engage with your audience through new social and distribution channels, is to listen to what they're trying to tell you. Today's viewer has multiple

channels and opportunities to tell you what they think about your content and brand. They “like” your Facebook pages, Tweet about your titles, or stream and download your trailers. And, they do so voraciously: for the top 10 movie fan pages on Facebook, there are more than 265 million “Likes.”

The ability to listen through these channels – from Facebook, to Twitter, to blogs – requires mining and sentiment analysis tools enabling you to hear the consumer's digital voice heard loud and clear.

But listening alone doesn't get you where you need to go. Next, you need to...

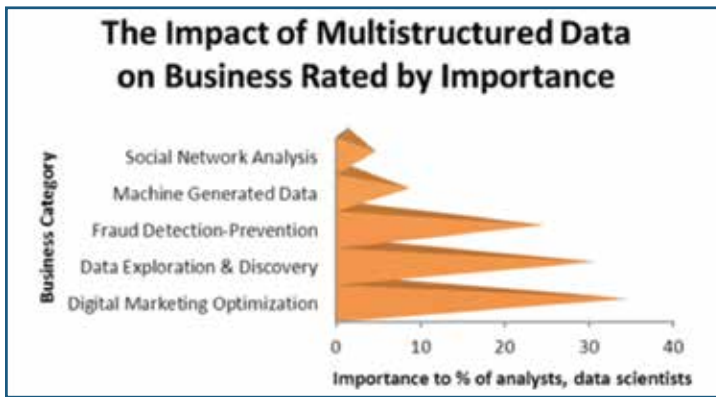
■ Analyze

Have more men or women streamed the trailer? And, who likes the trailer best? Do they hate the new series timeslot, and should you move it? Did audiences in the South – Atlanta, in particular - take a surprise liking to a new release, and should you increase your marketing spend there?

Dumping weblogs into a data warehouse won't provide answers; storing that data and



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There is a lot of hype – both in the Media & Entertainment industry and many others – about Big Data, and what exactly the terminology means.

pointing precise analytical tools at them will. Using robust Big Data analytics tools to unlock the answers hidden in large volumes of seemingly unrelated and unstructured data often reveals key insights about consumers and their preferences. Your ability to segment your audiences becomes richer; your understanding of how your viewers connect to each other in a network and how they influence each other expands. If you've heard a lot about Big Data, but aren't clear about what it means, read on. A clear understanding is imperative in order to execute.

While analyzing unlocks these insights, the final relationship-building step happens when you...

■ **Respond**

You've heard what your consumer has to say – either explicitly or through their online behaviors - and you've made sense of their input. Now, you have the chance to connect. Using your newfound customer understanding to fully leverage social and traditional CRM allows you to take the new insights you have about a real viewer and connect back.

One of the simplest applications is targeted content recommendations, with Netflix being a shining example of how to do this effectively. Netflix says that 75 percent of their 26 million subscribers use the recommendation system to select new DVDs or streaming options. As Netflix increasingly shifts to a predominantly streaming model, demonstrating customer personalization – with increased engagement as a metric of value – is critical to preventing churn.

Similarly, for studios embarking on building robust direct-to-consumer relationships for the first time, the ability to market what your customer likes, directly to that customer

through email or personalized offers or product assortments on the property web site, only increases the customer's affinity for the brand, and the likelihood they'll engage or transact.

Big Data: The New Industry Buzzword

Few organizations question the value of one-to-one marketing. But, when the channels to identify and market to the consumer are digital channels, the technology implications are significant. New digital distribution channels drive immense volumes of complex, dynamic data. New data sources abound: social media, click-stream, player log, location-based and more. Big Data – and tools to unlock it – offer content owners and distributors new tools to listen to, analyze and respond to consumers in powerful ways.

There is a lot of hype – both in the Media & Entertainment industry and many others – about Big Data, and what exactly the terminology means. The term doesn't just refer to large data volumes. Data volume on a massive scale is nothing new to many industries, and analytics providers.

The definition of Big Data is more complex – and yes, size does matter to some extent. Big Data has three primary characteristics:

■ **Large Scale Analytics** – This refers to the need to conduct rapid, scalable and complex analytics against a large data set. This fact alone – that is, the size of the data set – doesn't on its own reveal a big data problem. In fact, Massively Parallel Processing (MPP) SQL databases have delivered large-scale analytics for decades. Among leading data-warehousing providers, like

Teradata, it's not uncommon to have many customers managing more than a petabyte of data.

■ **Emerging New Data Types** - When you think about the implications of Big Data, it's the ability to manage new "multi-structured" data sources and types that become critical. New multi-structured data types have unknown relationships embedded in that data which require processing of data, regardless of its size, to discover insights. Some examples of multi-structured data include web logs, click-stream data, mobile or sensor network data, social networks and text. It's easiest to understand "multi-structured" data in comparison to "structured" data – the kind most of us, and most IT professionals, are accustomed to dealing with. Unlike its multi-structured cousin, structured data can be managed in neat rows and columns, and easily interrogated using common tools, like SQL. Multi-structured data doesn't lend itself to that kind of management, nor analytics approach. Which brings us to the third characteristic of Big Data...

New Types of Analytics – Unlocking value from new data types won't work with the same old tools. The kinds of insights you can unlock from multi-structured data demand new analytics. Following are some of the core analytics which can be most valuable:

■ **Path & Pattern Analysis** – the ability to easily determine patterns in behavior (like, users who like this also like that), or paths through site (ideal for identifying how consumers engage with content on a site, or how they transact).

■ **Social Network Analysis** – knowing and

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Seeking the Truth in Numbers

How greater collaboration delivers meaningful insights in the entertainment industry.

By Tina Gonzales, Account Manager, QlikTech



Abstract: This article will examine the ways that the entertainment industry analyzes its data, and how using a “Business Discovery” platform like QlikView provides real-time analysis, and can help improve business objectives.

It takes more than talent to create a hit in the entertainment industry. By and large, if you’re going to run a profitable entertainment enterprise, you need serious capital investment, a thorough understanding of consumer preferences in both broad and niche markets, and extensive knowledge and experience across numerous industry sectors. This is because the media and entertainment business is not solely about media and entertainment! It spans consumer packaged goods, retail, logistics and, in a sector where thoughts about funding are rarely absent, financial services too. In short, this business is about more than generating brilliant content and finding distribution channels to reach customers and maximize profits. The complexities, already huge, are getting larger. To get it right, at all points of the value chain and in the production and distribution process, you need to know a lot of stuff. Moreover, because the

industry touches so many other sectors, each with their own idiosyncrasies and ways of analyzing issues, it’s necessary to find systems that can interpret information from many sources and turn it into meaningful insights. No single individual, business unit or arguably even corporation can do that alone. Collaboration is the name of the game.

Now “Business Discovery” platforms simplify the complexities and, using sources of information from wherever it exists, are creating a single version of the truth in real-time, graphical forms that are easy to interpret. Data can be drawn from within the organization, such as DWH or Excel, and from external sources too, such as Tweets, blogs and social media posts. Unlike traditional BI, where just a few people are involved in insight creation, Business Discovery enables much broader user-driven collaboration. A Business Discovery platform like QlikView, for example, can be deployed right at the very top of the organization at a strategic level or throughout the entertainment value chain, providing real-time analysis about interactions within the business and with partners, vendors and customers. It can analyse what consumers really think of your shows by analyzing (and not just counting) Facebook postings, blogs and Tweets. In fact, QlikView, one of the world’s leading technologies in the field, interrogates huge volumes of data across a wide spectrum of formats – including unstructured datasets such as text, including social media posts, audio, video, click streams and log files. Accordingly, it provides

COLLABORATION

The future belongs to the organizations that manage those complexities best, spotting trends in the consumer market and using dashboards that provide visibility of the value chain better than the competition.

evidential meaning to information that may previously have been left to gut instinct. It can even answer questions that people hadn't even thought of asking, by examining the supply chain, content management, finance, social media analysis, advertising analytics, and clickstream analysis (see graphic). Along the way, it creates new opportunities for bigger audiences, larger sales and greater profits in areas.

Take, for example, the value chain of a movie from the point where post-production is in the can, preview screenings are complete and the product is about to launch. The marketing campaign has generated such unparalleled levels of excitement that everyone in the line is itching to get their share of revenues, from the movie theaters, purveyors of sell-through and rental DVDs, premium movie channels, streaming and download channels, right through to the networks who accept a first-run movie doesn't have the pulling power it once did but can still find a home for a film. Even the pirates want a slice of the action – creating an information analysis issue all of its own.

For the studio, the operational end needs to be aligned with the marketing strategy, which in turn needs to be aligned with the schedule of all the other properties coming out of that lot this season, while someone keeps an eye on the competitors' schedules too. The data processing that's required not simply to manage this information, but to maximize them for the benefit of all, is huge. Usually, information sources are held on different platforms, using different applications, in different places. Making sense of those disparate data isn't easy.

Former head of Business Intelligence at Technicolor Bill Lay has a view. "Hollywood is an innovative place," he says, "but in many respects that innovation is concentrated around production – great CGI sequences and so on – while the back office is left to get on with it. When media companies have expanded their products and services through acquisition, as they have been at say, Technicolor or the majors, the data that can provide real insight lies in numerous silos,

few of them connected. That makes it hard to adapt to complex, changing value chains. Business discovery shines in its ability to rapidly pull these integrated views together. Agility is key!"

For example, on the day a blockbuster is due to hit the stores on DVD, advance marketing may have generated pre-sales that encourage retailers to increase their orders. Those orders need fulfilling, which may have an impact on manufacturing, which may in turn impact unit price or production capacity for other titles. This is pure one-to-one vendor management that the industry has been handling more or less competently for years. The difference today is the speed at which multiple decisions about a multiplicity of titles are being made – together with the associated risks of something somewhere going wrong along the chain. The future belongs to the organizations that manage those complexities best, spotting trends in the consumer market and using dashboards (see illustration) that provide visibility of the value chain better than the competition.

Truth Behind Knowledge

The information challenge is to bring data together in a single view and in a form that many people can share. Because platforms like QlikView present information in a form that gives visibility to the situation, it can be understood easily too, bringing deep analysis to category management, pricing, marketing and promotions, as well as competitor activity. Network television advertising sales provides one example.

Delving deeper into numbers than media executives have had the processing power to do before, network sales teams can now cut the data to assess time slots, programming, ratings, CPMs, competitor schedules and products or categories previously running in those slots. That information may previously

have resided in separate databases. Now it can be drawn together and manipulated by asking new questions. What would happen if George Clooney starred in a series at 9pm rather than Hugh Laurie? What advertisers could be attracted if a show ran at 8pm rather than 9pm? Would yields be higher or lower if a male-oriented show went out in a particular slot? What other revenue streams, rather than simple spot advertising, can shows generate, and who could be targeted to maximize those revenues? "Glee" is a TV show that sells music, merchandise, a theater tour, and generates significant web traffic and social media and mobile content. Almost every show, to a greater or lesser degree, has the potential to do the same. Those content brands need managing, building and monetizing. But they also need a spectrum of people to collaborate to truly maximize the revenue and audience potential.

Who, for instance, can really get to grips with what is being said about a piece of media property on Facebook, Twitter and across the blogosphere? Social media strategies need to be sophisticated enough to interact meaningfully with the marketing strategy people or sales team so that trends can be acted upon. And those strategies must go beyond a simple assessment of basic numbers – so many 'likes' on Facebook and so many Tweets. What about the informal sites that set up around your content, stars or music, as well as the social platforms you establish formally? When Charlie Sheen is paid to Tweet and has nearly seven million followers, what is he saying and how does it reflect on his employers, past and future? What will that mean for future sales, ratings (and even the fee that he should be offered for his Tweeting talents)? More broadly, if the social media team sees your program trending, how should that be interpreted, who needs to know and what can they do

Continued on pg 96

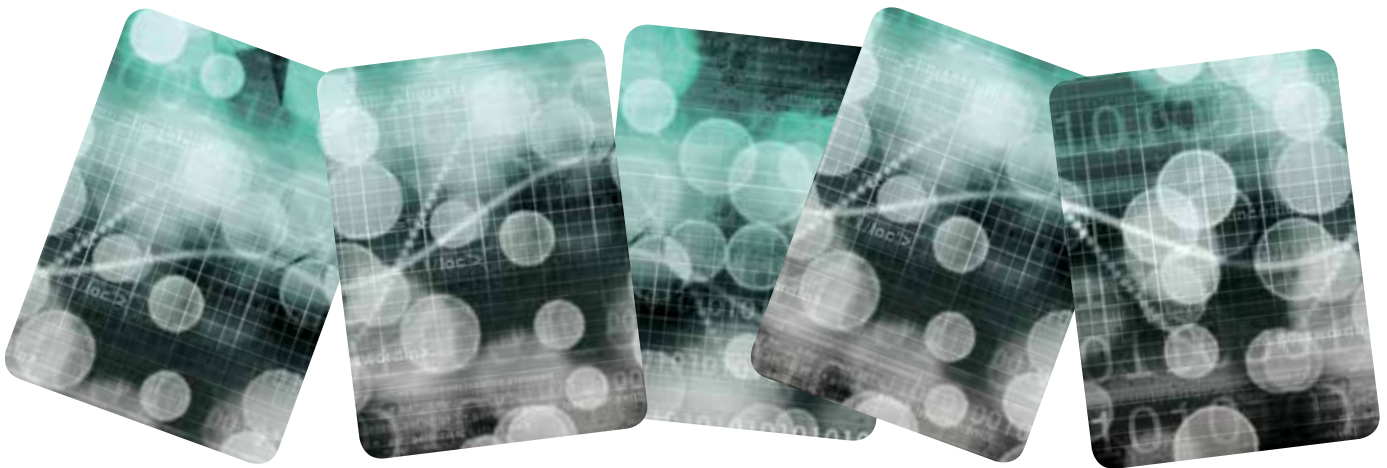


Tina Gonzales is a software professional for QlikTech responsible for cradle-to-grave solution sales in California. QlikTech's solution, QlikView, is the industry's leading Business Discovery platform powered by its patented, in-memory associative technology, which leverages the latest advances in computing power to consolidate large, disparate data sets in memory and present data to users in a fluid interface within seconds.

From Hindsight to Foresight: A Strategic Platform for Customer Analytics

Why you should care about customer analytics.

By Jeff Mischka, Principal, Deloitte Consulting LLP



Abstract: Consumers have shifted their media consumption from the physical to the digital and are altering the dynamics of industry dramatically. For the first time many media companies now have direct-to-consumer distribution channels and unparalleled access to consumer information. The appropriate and effective use of customer analytics will likely play a critical role in bringing together internal structured data (sales, revenue, marketing plans, etc.) with external unstructured data (social buzz/chat and sentiment analysis) and external structured data (critic reviews, news events, etc.) to nurture the consumer relationship and develop the insights to increase profitability.

The rapidly growing consumer demand for digital media is forcing traditional media companies (studios, music, broadcasters and publishers) to transform their business. Managing profitability in today's environment of digital disruption with exploding distribution channels, shifting and shrinking windows and increased competition from new entrants is an increasingly complex challenge. Media companies that embrace disruptive forces and effectively use customer analytics may strengthen consumer relationships and improve profitability.

The current media and entertainment ecosystem finds more companies experimenting with direct-to-consumer channels via digital. TV Everywhere, UltraViolet, over-the-top (OTT), digital publications (e.g., eBooks, digital magazines and newspapers), and brand-specific mobile/tablet applications are only a few examples. Many media companies are now bringing consumers one step closer and enabling access to better information in terms of quantity and quality. With this newfound data, media companies have the ability to track purchases, interactions with promotions and ads, and senti-

ments on products. Media companies can also learn more about consumer preferences through user profiles, movie purchases/show viewing patterns, and social media.

These evolving industry dynamics coupled with current economic realities compel media companies to place an emphasis on customer analytics to take advantage of newly exposed consumer information and leverage it to drive profitability. Customer analytics have the potential to increase customer acquisition and retention and lower expansion barriers, and it can also be a strategic platform that enables a 360-degree view of consumers and a launch pad for identifying new insights and undertaking appropriate actions when needed.

Multiple Sources of Data are Important

Effective customer analytics combines multiple, unique data sets and utilizes analytic techniques to produce both lagging and leading outputs to position teams to visualize their complex business problems in ways that they may not have in the past. Analysis of internal structured data such as sales, revenue, and marketing plans can assist in predicting

Evolving industry dynamics and current economic realities compel media companies to place an emphasis on customer analytics to take advantage of newly exposed consumer information and leverage it to drive profitability.

customer buying habits - who buys/when and how much and then leveraging that data to adjust pricing and execute targeted promotions. Taking it a step further, the ability to visualize internal structured data in combination with external unstructured social media data can bring another layer of enlightenment.

The use of social media is exponentially increasing and many media companies are implementing the ability to mine social media data for a deeper understanding of how consumers interact with products and proactively listening to what consumers want. Aggregating and analyzing social media can also help to identify social influencers, understand sentiments, and tailor/modify content based on consumer demand. Finally, external structured data such as weather, news events and competition information can be added as well to determine their influence on profitability and/or consumer behavior. Data obtained across each of these sources can provide a full picture of consumers and enable better segmentation and business decision making.

How To Launch a Customer Analytics Program

To enable customer analytics capabilities, establishing a clear understanding of expected benefits from customer analytics and determining linkages to existing enterprise strategies, initiatives, and competitive differentiators is critical. Next, understanding both the data you have - and the data you don't have - is required in determining how and where you should begin.

Over the last two decades, many media companies have been investing heavily in Business Intelligence systems to support their processes. This has resulted in a significant increase in the availability of structured data and a shift in focus toward analyzing information to improve performance. However, the evolutions of many media companies over the years has led to a proliferation of systems/channels, incomplete data, and lack of shared enterprise data definitions and processes resulting in sub-optimized efforts, unrealized revenue, and decreased customer experience and challenges in leveraging 'Big Data.' Understanding your data landscape can help prepare you for what's

possible via both the process and technology.

Beginning with a targeted, ad hoc analytic program has the potential to yield greater benefits in terms of speed to insights, learning and value. Over time, many media companies may evolve from traditional Business Intelligence, where the objectives typically have been to gain hindsight and perhaps insight, to a state of advanced analytics that combines disparate sources of data to provide foresight, discovery, and efficient management (e.g., advanced analytics modeling, performance management, data management & mining, predictive modeling). Armed with the new insights, media companies can be better positioned to discover previously hidden up-sell and cross-sell opportunities, flag early signals of customer defection, and obtain better returns from efficient and agile marketing campaigns, thereby improving profitability.

Deploying an Effective Team

Another important aspect to consider in launching enhanced customer analytics capabilities is the people. Our experience has shown leading practices to start a customer analytics effort begins with assembling a team that has strategic, analytical, organizational, and technical knowledge. An effective team:

- Asks targeted/specific questions – Connecting project objectives to business value and informing development of a strategy
- Understands the required components – Experienced with the technology, process, and people implications of developing more broad analytic competencies
- Is capable of building a data resource – Can evaluate existing data assets and make informed decisions about what is usable, what needs to be augmented, and what needs to be acquired
- Has deep skills in business analytics – Pos-

sesses strong skills in statistical and quantitative analysis, explanatory and predictive modeling, and fact-based management to drive integrated decision making

■ Focuses on the customer experience – A track record of working to improve customer touch points from sales, marketing, and customer service to improve the customer experience

Managing Profitability in Today's Media Ecosystem

No longer can media companies lag behind the changing consumer preference and rely on traditional and intuitive driven decision making to manage profitability. Just as social buzz can spread like a wild fire, media companies should practice agility to identify troubles, predict the impact, and take actions readily. To establish that agility, media companies will likely need the ability to understand and interact with their customers on multiple fronts.

A strategic customer analytics platform that brings a holistic view of consumer interaction/data (outputs of previous Business Intelligence investments) and houses recent developments in advanced analytics techniques will likely become an imperative. The ability to establish meaningful correlations across varieties of data sources (i.e., internal/external structured and unstructured data) can result in actionable insights that can help improve marketing efforts, focus sales strategies, and personalize interactions to drive revenue, retention and customer satisfaction. Bringing together an effective team, processes (start small and understand your data), and technologies (existing Business Intelligence plus advanced analytics) can be the formula for establishing an effective customer analytics program. ■



Jeff leads Deloitte Consulting LLP's Media and Entertainment practice in the western region. Over the past decade, he has directed numerous efforts for leading information services, and film and record entertainment companies in New York and Los Angeles. Jeff specializes in leading complex business transformation and systems integration efforts to improve his client's physical and digital business operations and to establish standard practices and process controls.

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Ways We Are Transforming Media & Entertainment

Addressing the changes in physical and digital formats.

It's a new Hollywood - with new market realities, new creative opportunities and exciting new technology workflows. Consumer delivery channels are multiplying while there are more ways than ever to enhance the viewer experience.

What are the strategies behind this new Hollywood workflow and what innovations are changing the way files are moved, consumer interactions are designed, and the ultimate products are monetized and delivered?

Here are eight ideas that are transforming the business as we know it. ►



Abstract: With a dizzying array of devices making their way into the hands of consumers daily, the way in which content is presented and absorbed is rapidly evolving. From physical to digital and TVs to tablets, consumer appetite is pacing technology nicely and vice versa. In addition, content owners and creators also benefit from these technological advancements by having increased flexibility during creation, storage and delivery of their products. Technology is allowing the consumer to experience their favorite content in a way that best fits their lifestyle.

Transforming Entertainment Through Technology

Addressing the changes in physical and digital formats.

By John Crosier, Senior Vice President of Digital Architecture and Delivery, Cinram

applications or a stand-alone experience, we really enjoy the liberation in creating features that aren't limited by a traditional remote control with directional arrows. Content for the traditional 10-foot experience is very different than the two-foot experience on an iPad with a reactive touch screen, microphone, gyro, compass, GPS, web connectivity and a beautiful high-resolution glossy display.

Consumers have already widely adopted this latest generation of tablets for consuming entertainment despite its short two-year existence. The ease and convenience coupled with the interactive experience of a tablet is winning consumers over worldwide. The supply chain supporting this two-foot experience also benefits as the content in this medium has fewer touch points thus resulting in narrowed windows of delivery and closer contact with the consumer. Adding, removing, or changing content from the market once it's released is also much simpler providing a more effective way of keeping the content fresh and consumer engaged.

The publication space is another area where advancements in technology have resulted in new entertainment experiences. Our work includes augmenting literary

Behind the growing abundance of connected devices is a constantly evolving supply chain supporting and defining new areas of growth.

For instance, solutions providers like ourselves have gone from focusing solely on managing physical content to defining ways in which both physical and digital content can coexist within the supply chain process. By identifying advanced delivery solutions, manufacturing, preparation and distribution of physical and digital products can occur simultaneously and efficiently. We are far past the days where only an automated encoding and transcoding system will suffice. Enhancements to what was once considered core technology are now necessary to stay ahead and allow for further automation and streamlining of content delivery and storage. Centralized databases now house all of our content assets and set the foundation for a streamlined workflow across various product and platform environments. From better management of enhanced content to the quick access of product orders, this level of asset man-

agement transcends the needs of both the physical and digital supply chain.

Enhancing Content

As devices get smarter and more feature-rich, so does our expectation of how we consume content. Unique interactivity and enhanced features are becoming commonplace, which in turn is spawning quickly maturing segments of the entertainment supply chain; one such being "applications development." With a strong history of creating enhanced content for movies, the development of rich application experiences is a natural fit for our digital media team at 1K/Cinram Studios.

Whether we're developing companion



John Crosier, a 16-year veteran of supply side home entertainment experience, is expanding the design of Cinram's Digital Media Group - its services, capabilities and delivery solutions. Based on his operational experience at Warner Bros., Studio411, among other posts, and his ambassador role for DEG: The Digital Entertainment Group where he helped develop universal standards and reporting methods, Crosier seizes on market opportunities to incorporate the company's extensive expertise in the media, entertainment and digital fields.



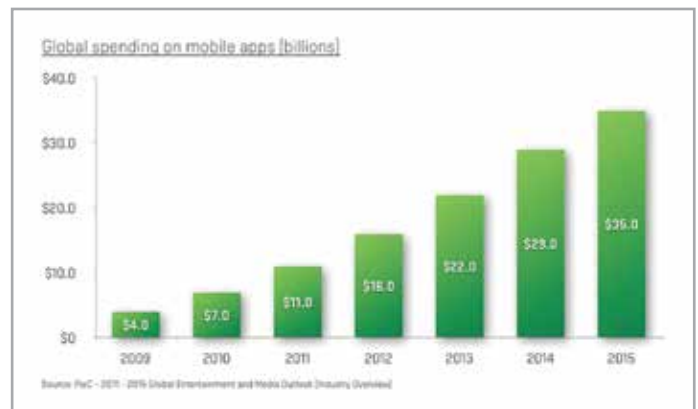
works via apps like Jack Kerouac's classic "On the Road." This version takes an in-depth look at the novel by adding interactive maps that chart his cross country travels, historical documents, audio of Jack Kerouac reading the book, music from his band and video interviews with people close to the author. We also recently launched the MAD Magazine subscription app for the iPad. This new format was a great opportunity to link video from the TV show, never-seen-before footage, and enhanced content to the classic magazine, and present it in a highly interactive digital form. Even the ever popular "fold-in" is represented and with a swipe in from the left and right sides of the screen you experience the popular and iconic "fold-in" feature. Looking at just those two examples demonstrates how new technology has opened up additional distribution channels and how we've been combining publications and entertainment to form new products.

The Co-Existence of Physical and Digital

As we embrace these new technologies and the digital mediums that they present, we remain cognizant that physical product still has a big place in the living room. As content owners continue forging direct relationships with their consumers through digital platforms, we believe physical media will also become a more

exclusive experience. Distributors will have to service consumers on a more individual basis and we feel that Manufacturing-on-Demand (MOD) will become increasingly important to maintaining efficiency in that physical supply chain. In addition, an MOD solution allows content owners to more effectively satisfy the needs of consumers who want both a physical and digital product. A single hosted site will allow for a myriad of sellthrough options from traditional disc delivery to EST and VOD digital delivery and even more advanced subscription and streaming models simply by incorporating the use of digital lockers. These virtual lockers will allow for consumers to not only have access to the physical media but digital forms as well. Content owners can enjoy the ease of providing discs and digital files to consumers, wholesalers, and distributors alike while cutting down on inventory carrying costs, returns, and out-of-stock or overstock situations, while at the same time having a direct relationship with the consumer, which lends itself to a multitude of CRM benefits and options.

eted, and in-app purchases of content and unit downloads are growing steadily. Connected TVs, smartphones, and other means of delivering digital content to consumers are growing just as rapidly. This sudden diversity is driving content owners to innovate new ways of delivering content. The



This chart from PricewaterhouseCoopers shows the growth of worldwide spending on mobile apps.

UltraViolet initiative is a great example of enhancing EST opportunities. Subscription services are also adding increased relevancy to the mix as the "all you can consume model" deployed by Netflix and others continues to force the strong foothold of consumer digital adoption.

While the digital playground continues to drive innovation in our existing entertainment supply chain, it will certainly continue to have obstacles. We will likely live though an era where bandwidth limitations temporarily cripple consumer adoption and hinder creative innovation. This will be short-lived however as technology historically overcomes anything which restricts progression. So whether you are a content owner, retailer, consumer, or anyone involved in the process of creating or delivering content, we need to continue to develop and embrace new technology as it continues to support the growing needs of the media and entertainment consumer. ■

Final Thoughts

As entertainment content continues to become more feature-rich, more digital, more mobile and more individual, new opportunities will continue to arise within our evolving ecosystem. From digital platforms to connected devices, growth is happening at an all-time high. Tablet sales continue to flourish, global app sales have skyrock-



These are screenshots from the MAD Magazine app for the iPad.

Using Automatic Content Recognition to Benefit the Fragmented Media Landscape

Making content compatible for distribution in myriad formats.

By Emmanuel Josserand, Director of Marketing, Civolution

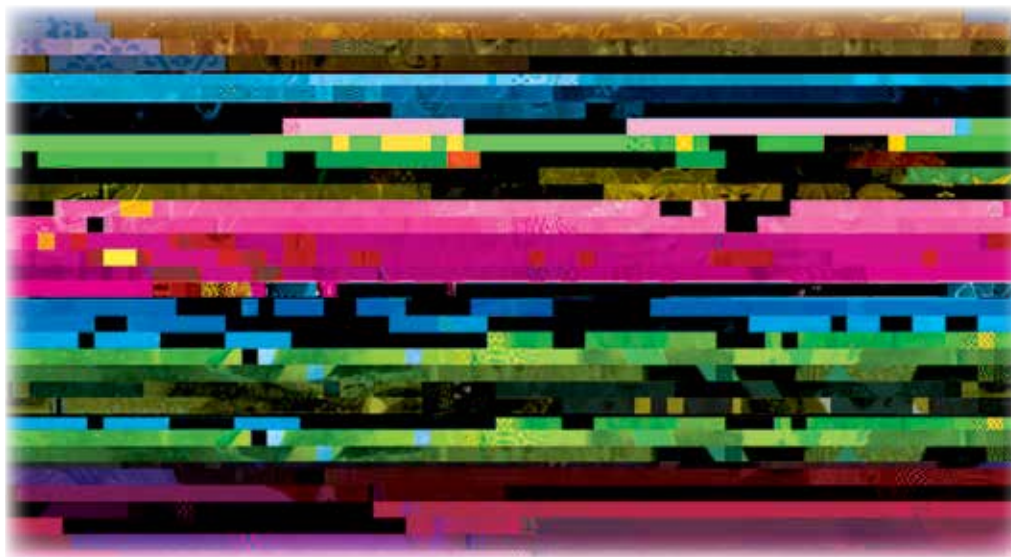


Illustration by Heidi Antman

Abstract: Both content distributors and content consumers are living in a fragmented world. Distributors must make their content compatible for distribution in myriad formats, and consumers have demanded their viewing experience expand to the smartphone and tablet from the single main screen, which is itself becoming much more complex with the propagation of smart TVs.

We are all living in an increasingly fragmented world. And the media world is no different. Consumers are demanding their viewing experience expands to the smartphone and tablet from the primary screen, which is itself becoming much more complex with the propagation of smart TVs. Therefore content distributors need to make their content compatible for distribution in myriad formats. The conundrum, of course, is that the consumer therefore expects more at the same price. The content creators and distributors need to spend more to generate the same price.

Automatic Content Recognition (ACR) helps bridge this disconnection on both ends of the broadcasting experience, offering consumers deeper immersion and interaction with television programming and advertising, while providing rights holders and broadcasters a heightened level of business intelligence through highly granular tracking of how viewers interact with content. ACR, powered by either watermarking or fingerprinting, allows dynamic and seamless inter-linking of devices, viewers, content and applications. So it fuses the

viewing experience across multiple screens for the viewer, while closing the delivery-feedback loop for the content owner and distributor. The whole process becomes more efficient.

In the multi-screen environment, ACR is a tool that gives a smart device - such as a smartphone or tablet - the ability to become "content-aware." This awareness allows the smart device to recognize what is being watched on the primary TV screen without the need for direct input from the user. This automatic recognition can then be employed to trigger content on the 2nd screen device that is complementary to that of the primary screen. Television programs, films, advertisements, and other types of main-screen content can therefore extend to the viewer's 2nd screen, creating an immersive multi-screen viewing experience without the need for the user to manually enter Web site addresses, or search for the relevant information on those sites.

In the single-screen environment, ACR solutions can also be integrated into the chipsets of connected/Smart TVs and smart set-top boxes themselves to enable real-time content identification, and the triggering of events at the device level. As opposed to the multi-screen



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Fig. 1: 2nd screen sync using on audio watermarking



application described above, this single-screen enhancement enables the smart TV or smart set-top box itself to become “content-aware,” and therefore offer a host of value-added features for the consumer directly on the primary screen of the TV itself.

For content owners and distributors, along with the ever-growing number of companies involved in the development, delivery and monetization of content, ACR acts as a multi-faceted toolkit that can add a rich variety of new, commercially vital functions and features to these companies’ core operations. Advertisement triggering to the 2nd screen based on live TV content that is being broadcast is a key example. By automatically notifying application providers in real time of what content is airing on which channel, the service allows for the synchronization of value-added functionality such as content-specific background information, hyperlinks, and synchronized social newsfeeds, all within the developer’s 2nd screen or smart TV applications. The application provider can therefore offer users a more powerful and engaging TV-synchronized experience. In addition, such services enable application providers to work in close partnership with advertising agencies and brands to further monetize their application platforms.

With ACR-powered content-aware devices continually monitoring in real time what is being watched, broadcasters and content owners are able to track highly granular viewing habits, and identify detailed information as to where, when, for how long, and on what device content is being consumed. The implications of these detailed analytics are enormous and can provide a comprehensive range of benefits to both protect and enhance the business models and revenues of content owners and distributors.

While much of this content identification technology has until now been focused on enforcing copyright—or ensuring that a

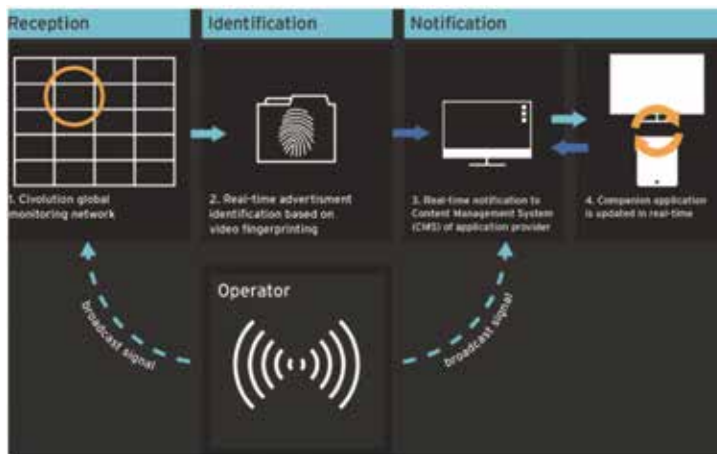


Fig. 2: ACR integrated in Smart TVs

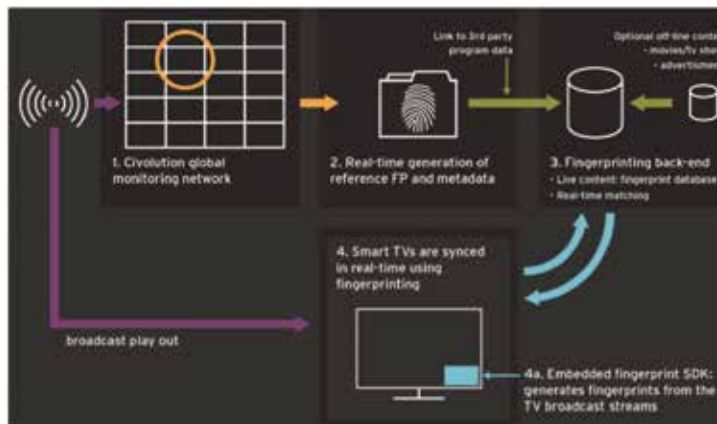


Fig. 3: Content triggering using video fingerprinting from a broadcast monitoring network

video asset appears when and where it is supposed to—in the longer term, ACR provides a vital strategic and tactical tool that addresses the multi-screen environment in which today’s viewers consume content, while offering substantial benefits to everyone in the content value chain. Content-aware devices—be they the primary or secondary screen—with the

ability to subtly and automatically drive viewer interactivity, provide an infinitely flexible springboard from which developers, content providers, brands and broadcasters can construct an eco-system to offer entirely new creative dimensions in which the viewer can be engaged, and the content owner and distributor informed. ■



Emmanuel leads the global marketing and communication activities for Civolution. Prior to Civolution, Emmanuel was part of Teletrax, which in 2008 became the Media Intelligence arm of Civolution. Emmanuel was previously Business Manager at digital imaging software company Arcsoft, where he helped set up the European offices. He has more than fifteen years experience holding various roles in marketing, sales and business development.

Bringing the video store into the home since 1999.

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The Media Warehouse Concept for Electronic Media Content Distribution

Adapting from physical to virtual media in the distribution chain.

By Steven Chester, Vice President, Film, Akamai and
Kurt Michel, Marketing Director, Sola Media Products, Akamai

Abstract: Purchase of consumer media content is rapidly migrating from ownership of physical media (DVD/Blu-ray) to virtual media (files on disk/cloud storage, streaming media). This migration creates the opportunity for new business models that leverage technology innovations for centralized, cloud-based content packaging, storage, and distribution to provide significant benefits to content owners, distributors, retailers, and consumers. These benefits include lower distribution and production costs, simplified content workflows, enhanced security, faster title availability, and richer content management.

The media content distribution chain is in the midst of a strong market shift, from physical media to online media consumption. IHS Screen Digest, a media focused research and consulting company, projects that U.S. online video views and transactions will exceed views and transactions of DVDs and Blu-ray Discs in 2012. 2012 unit growth of US online movie consumption is predicted to increase 143 percent over 2011, to 3.4B units, while sales and rentals of physical media (VHS, DVD, and Blu-ray) will fall over 7 percent, to 2.4B units.¹ This trend will only continue, as Gartner research predicts that there will be more than 1 billion network-connected devices capable of consuming media by 2015.²

The migration from physical to electronic consumer media (eMedia) promises many benefits to the entire distribution chain, from content producer to consumer. Overall costs can be reduced, content can be accelerated to market and consumers can realize the vision of anywhere/anytime viewing. However, there are a number of technical and business challenges to overcome in order to fully realize these benefits. In this article, we introduce the cloud-based “media warehouse” concept, walk through the various challenges that eMedia distribution presents, and show how the media warehouse can be used to address each of them.

The Media Warehouse Concept

The media warehouse is a cloud-based media storage, processing and distribution facility capable of ingesting and securely storing media content, providing viewer authentication and authorization services, and delivering the highest possible viewing experience to authorized

¹ IHS Screen Digest press release, March 22, 2012

www.isuppli.com/media-research/news/pages/us-audiences-to-pay-more-for-online-movies-in-2012-than-for-physical-videos.aspx

² A Quick Look at Cloud Computing in Media, 2012; 12 April 2012, Gartner, Inc.

consumers on any given device and network connection across the globe. It facilitates transactions between consumers, retailers, and content providers, and provides delivery services that efficiently address the challenges and unlock the opportunities of eMedia.

To understand the role of the media warehouse in more detail, let's compare the creation and distribution of disc-based media ("discMedia") and eMedia, identify the new challenges presented by eMedia, explore where eMedia distribution differs and illustrate the role of the media warehouse in addressing these challenges.

The Content Distribution Chain: Comparing discMedia and eMedia

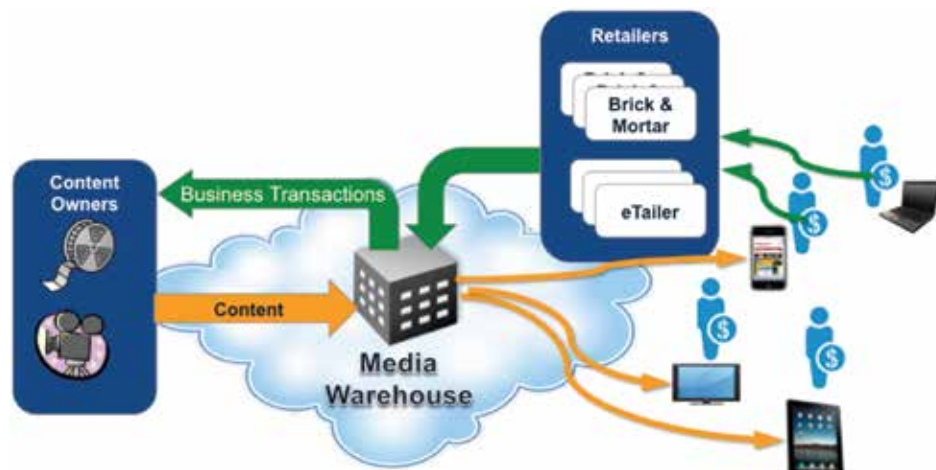
For discMedia, a single source "mezzanine" master, that can exceed 100GB, is provided by the content owner for creation of the disc masters. This mezzanine is sent through an authoring process to generate a small set of variations—DVD and Blu-ray, Widescreen or Standard screen formats, regional variants, 3D, and more. A master disc is then created for each version, which can then be used for inventory creation.

The eMedia content authoring process for online delivery can be far more complex. In addition to the discMedia variants noted above, there are also variations for different end devices and perhaps more significantly, different bit rates. Multiple bit-rate versions are necessary to deliver the best possible quality to the different devices connected to networks with significantly different performance capacities, from wireless 3G to 4G/LTE to fixed line DSL to optical fiber.

Suddenly, where a half-dozen masters were required for discMedia, more than 100 "renditions" of a single title may be required for on-demand delivery. This adds complexity and additional work not only in the authoring process, but also at multiple points in the distribution chain.

Consider also that each retail distribution licensee may have their own online delivery ecosystem, requiring each retailer to obtain the content owner's source mezzanine and perform unique authoring activities. This creates significant additional work for both content owners and retailers, and exposes the mezzanine file to

The Media Warehouse Ecosystem



a broader population, potentially increasing theft risk.

The media warehouse can reduce the number of renditions required in the authoring process. This smaller set of renditions appropriate for online streaming may be created and uploaded to the media warehouse. The media warehouse performs "in-the-cloud" repackaging and transcoding to address specific needs of different devices and networks, which greatly simplifies content management and reduces the overall storage requirements for a given title.

Once the masters have been created and uploaded to the media warehouse, retail licensees can be provided a URL link to the licensed content, keeping the marginal effort and cost of licensing for each new retailer low.

Retail Purchase and Playback Rights

With discMedia, authorization is straightforward; if a consumer has the disc, they can play it. The disc may be shared with others, but that copy may only be viewed on a single player at a time. The physical media may be protected with encryption mechanisms that frustrate duplication efforts, and access to the original high

quality mezzanine is limited to those involved in the original authoring activities.

Unlike discMedia, eMedia viewing rights must be electronically captured at the point of sale. This information can be stored in a "digital locker" such as the DECE's UltraViolet service.

The media warehouse must have the ability to map consumer viewing requests into queries to the associated digital locker service, and can enforce viewing rights that the digital locker specifies for that consumer's content, including number of plays, number of authorized end devices, time periods and other rights combinations determined by the content owners and retailers.

Storage

When discMedia is sold, the responsibility for storage shifts to the consumer and the disc is simply stored on a shelf in the consumer's physical location. When streaming eMedia is purchased, the content storage obligation never shifts to the consumer. When a downloadable eMedia purchase is made, storage responsibility may shift to the consumer, but given the need to play the content anywhere,



Steven Chester is Vice President, Film, for Akamai. He guides Akamai's strategic direction in the distribution of digital media by the film industry. Working closely with the major studios, such as 20th Century Fox, Paramount, Disney and Sony Pictures as well as distribution outlets such as Netflix and Best Buy, Chester guides the development of Akamai solutions that benefit the entire digital distribution workflow from post-production to the consumer experience.

The migration from physical to electronic consumer media (eMedia) promises many benefits to the entire distribution chain, from content producer to consumer.

any time, on multiple device types, consumers continue to expect that the content can be downloaded multiple times over a long time horizon. In both cases, unless explicitly limited, the retailer retains the storage obligation indefinitely.

This storage must be redundant and highly available to support 24/7/365 service, and highly scalable to support the large and ever-growing number of titles offered. In addition, storage must be tightly coupled to the delivery network to minimize distance and delays between content and the viewer in support of a high-quality viewing experience. In addition, the geographic location of storage for a given title may be restricted by the content owner, or may have financial or tax implications.

An effective media warehouse must meet all of these storage needs, while providing the significant benefit of sharing storage costs across the pool of licensed retailers.

The Playback Experience

With discMedia, the playback experience is primarily driven by the quality of the content master and the quality of the consumer's playback and viewing equipment. Assuming that the quality of the master is consistent with retail market expectations, and barring any disc defects, the primary responsibility for the playback experience resides with consumers. The consumer owns the player, and if it provides a low-quality experience or if it breaks, it is generally understood that the player replacement is the consumer's responsibility, and the content provider's brand image will not generally be impacted.

In stark contrast, specifically with streaming eMedia, the playback experience is tightly coupled to the retailer, and a poor viewing experience can adversely affect consumer's perception of the retailer's brand. Consumers may partially attribute a poor experience to older equipment, or to a poor network connection, but they will expect the retailer to have considered that, and provide technical solutions for

these issues. Consumers will expect retailers to provide player software through a web portal or application that is compatible with a broad array of consumer end devices – not only the latest and greatest – and players should be tolerant of minor network disturbances. If improvements are required, consumers expect the retailer to provide them at little to no additional charge.

In order to avoid potential retailer brand impacts, and continue the adoption of eMedia by consumers, the media warehouse must leverage content delivery technologies that provide a high quality viewing experience to the widest possible audience, and address the following variables:

- Multiple viewing platforms: HDTVs, tablets, smartphones, PCs
- Multiple network types
- Broadest possible geographic footprint

Technology Improvements and Future-Proofing

When disc technology shifted from DVD to Blu-ray, industry messaging made it clear to consumers that the higher quality of Blu-ray would require purchasing new hardware and Blu-ray versions of the same titles they owned on DVD. Consumers understood they owned a disc with specific capabilities and limitations. The fact that the discs and players were different provided some tangible, physical evidence that Blu-ray quality required additional purchases.

In an eMedia world, consumers lack this tangible physical barrier to future technology enhancements that yield higher quality experiences. If a higher-quality format, such as Ultra HD, becomes available in the future, consumers expect their owned content library to be upgradeable - if not for free, then for a cost substantially less than the original title purchase price. This expectation is being widely set today. Consider tablet owners migrating to newer versions with higher resolution displays - their applications are being updated at no charge. Vendors who do not take advantage of

newer hardware capabilities are perceived as slow or lacking commitment to quality. Since a significant and growing amount of content is being consumed on tablet devices, the market expectation will be set. If an upgrade option is not offered by the original retailer, their brand could be adversely impacted – especially if a competitor offers the upgrade option.

The media warehouse must allow for easy creation and delivery of new content renditions that leverage these new technologies, effectively future-proofing the consumer's and retailer's investments, and enhancing the retailer's brand image.

Audience Insights

The media warehouse's cloud-based storage and delivery model provides tremendous opportunities for both content owners and retailers to gain insights about audiences. Content owners can use the media warehouse's analytics and statistics gathering capabilities to understand purchase and consumption behavior for any given title, by region, retailer, or through a number of other collected parameters.

Media Warehouse: Relationships are the Key

The media warehouse concept integrates a number of features and capabilities that realize the possible benefits of broad-based eMedia adoption and consumption. Technical challenges, while significant, can be addressed by combining various offerings available today. The more significant challenge lies in building relationships between key, proven technology innovators who can offer media warehouse capabilities, and the broadest possible base of content owners and retailers. By building these relationships around the media warehouse concept, consumers will be provided ever-improving viewing experiences, and both retailers and content providers will benefit from the scale economies that broad media warehouse participation would unlock. ■

A decorative border composed of numerous vertical bars of various colors (including shades of blue, green, yellow, orange, red, and black) arranged in a rectangular frame around the central text.

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The Main Ingredient

What drives the adoption of a technology or an application? By Paulette Pantoja, CEO, BluFocus



Abstract: What drives the adoption of a technology or an application? Is it the breakthrough and innovative advancements that the technical gurus come up with? Or is it the large budgets and the creativity that are put into the marketing and advertising of the product to gain mass awareness? Both of these are key since they bring interest and enthusiasm to a user. But, even though these approaches bring initial interest, without the main ingredient, they will fail to retain consumers. What is that main ingredient? It is a focus on the user experience.

Consumers today are more about convenience than quality. We see this now more than ever before. People are satisfied with MP3 audio, streaming movies, watching shows on smartphones, etc. So, how does this affect the home entertainment products released in the market today? Is focus more on the user experience in terms of simplicity, ease of use and accessibility? Or is it on creating multifaceted applications to push the abilities of technologies and utilize all of their capabilities? And which are we paying more attention to? Unless a consumer fully adopts a technology, it cannot succeed, thus, it is imperative to pay attention

to these questions and why consumers gravitate toward one technology and not the other.

Successful products have shown us one thing, simple is better. As Einstein said, "Make things as simple as possible. But not simpler." The key to making anything widely adopted is that it must be easy to use so that ANYONE can



Paulette E. Pantoja is the founder and CEO of BluFocus Inc., a leader in advanced quality assurance and certification of media content and applications for the home entertainment industry. Upon BluFocus' inception, Paulette set out to ensure that the testing processes and methodologies originally used for Blu-ray would be utilized to assist and benefit other technologies.

do it. The iPod is a perfect example of this. Although it was complex "under the hood," the user only saw a simple user interface that let them access their music while on the go. It revolutionized how the whole world accessed their music collections and was a perfect mixture of key ingredients consisting of innovation, sophistication, technical advancement and most importantly... an unparalleled user experience.

Another example is when Facebook first launched. MySpace at the time was the #1 social networking Web site, but it lacked something that Facebook had, which was a backend with growth potential. Facebook had a platform that would allow developers to create their own applications to run on it, allow companies to tap into users via direct advertising in new innovative fashions, and give users the ability to reach out to others in new creative ways. Facebook's combination of simple-to-use features, which delivered an engaging user experience, and its complex infrastructure with massive growth potential, made it a very successful winner.

Ease of Use

Other than ease of use and simplicity, successful products also did not test the patience of its users. There was a recent study by I1mark that found that out of every 1,000 mobile-phone-toting Americans, 750 use their phones in the bathroom. This shows us that people need constant brain stimulation, are thinking of hundreds of things at a time and probably don't have time to figure out something that is too complicated. We are a society constantly on the go and need things to be quickly accessible. Therefore, we can safely assume that users will not tolerate lags, crashes or products that are hard to navigate or understand. Unlike music, where constant playback on the radio will eventually get anyone to know a song and later hum it, technology can't be forced and taught through repetitive ads. It has to be simple to use and understandable upon first use so that there is interest in using it over and over again. ■



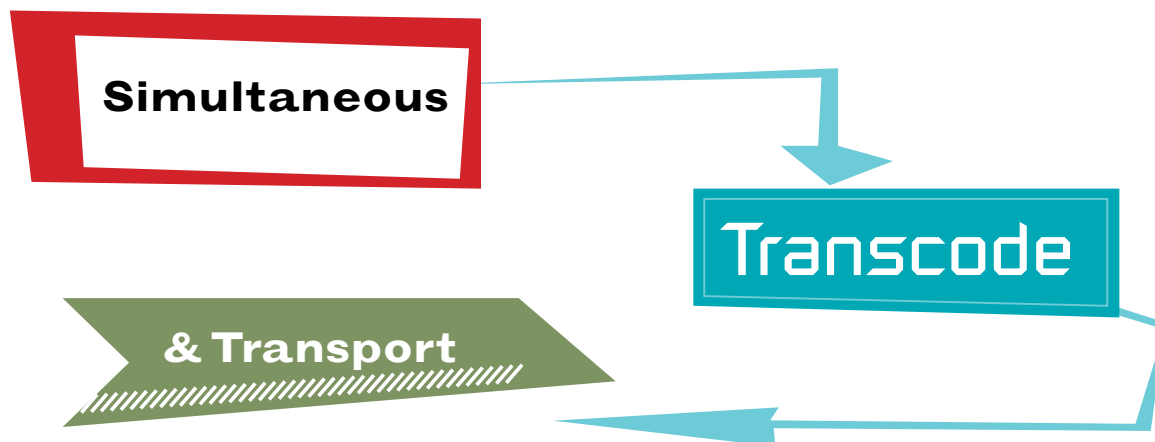
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Change is an integral part of both the technology and M&E industries. Today's enterprises must be ready to respond to new opportunities, new challenges, and new technologies with increasing speed and agility, often with IT resources already stretched beyond capacity. That's where we come in.

Founded in 2000 and headquartered in Los Angeles, Zaszou is a leading IT consultancy that offers the expertise, experience, and proficiency to turn technology challenges into business opportunities — quickly, cost-effectively, and most importantly, successfully. Our team's proven track record extends over twenty-five years in media and entertainment serving businesses from strategy through execution.

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Transforming entertainment workflows.

By Timothy O'Brien, President and CEO, Brevity

Abstract: For years, Media & Entertainment companies have endured work-arounds for workflows in creation, production, and distribution, resulting in additional costs, complexity, and time. A new web enterprise application enables automated workflow, collaboration and highly accelerated transport with simultaneous transcoding.

As the M&E industry expands with more content and channels, the complex problems of TV and film production, management, distribution, and monetization are rapidly becoming more challenging. Brevity, a two-year-old start up based in New York City, has introduced a breakthrough technology that combines workflow management, collaboration and more. Brevity transforms file-based workflows through a Web-based video management system that utilizes automated project-driven workflows, advanced compression algorithms, virtual storage and teraflops of computing power.

Brevity moves securely encrypted files faster than otherwise possible while maintaining high quality resolution and support for leading industry codecs and formats such as Avid DNxHD, EVS, ProRes, XDCAM, and others. Brevity has been tested successfully on uncompressed high bit rate video, 2k and 4k DPX files, as well as compressed HD and SD files. To provide an example of Brevity's file transport speed, we recently tested sending a 500 GB, one-hour 1080p, uncompressed (YUV) file on a 40 Mbps Internet connection in one hour and 51 minutes. On the same 40 Mbps connection sending the same file using WAN optimization, it would take approximately 33 hours.

Content begins with creation, when it's first shot on location or in the studio. Right from the start, we improve the way raw camera files are transported and transcoded from the set to facilities, producers, studios and visual effects houses. We can handle uncompressed or extremely high bit rate source media files, simultaneously transcoding while accelerating transport speeds from one location to another. Brevity can impact the initial stage of production by automatically sending a file to storage, transcoding from a camera format to an editing format, or providing other formats for reviewer approval. Throughout the course of the day, the production team can use Brevity to send the material to its next location, getting it there faster and more cost effectively than current methods of tape, satellite and hard drives.

After creating the content, the video moves into post-production. In this stage, we help the creative team by improving workflow and

collaboration, in terms of mastering elements and moving them to content providers. The amount of time saved with our simultaneous transcode and transport enables the team to have more control over the material and extends time to produce and edit content. Many of the M&E industry workflows can also benefit from improved social web collaboration across multi-company work groups. Brevity's V3 allows for approved users from one or more organizations to access project files virtualized across storage arrays, private clouds, or public clouds. If a file is ingested, there can be a set of rules associated with the video that sends it to users automatically via accelerated transport and simultaneous transcode.

Transporting & Transcoding

Brevity can also handle multi-point distribution, sending files to single or multiple locations without compromising speed or quality, using an optimized pipelined protocol. This Multipoint Transport and Transcode (MTT) capability enables the transport of a video file to multiple locations while transcoding simultaneously "on the wire" to multiple formats and wrappers, including features such as frame rate conversion, pull-downs, and audio channel mapping. This ability to simultaneously transcode and accelerate transport is ideal for

Continued on pg 98



At press time we learned that the author, Timothy O'Brien, had suddenly passed away following a diagnosis of pancreatic cancer. Timothy joined Brevity in May 2011 after decades of experience in start-ups and major companies such as IBM Global Services Media & Entertainment and Yahoo. Timothy was a graduate of Stanford University. He is survived by his wife, Monica Fimpel. "To those associated with Brevity, as well as the many people who personally knew Timothy, his wisdom, generosity, integrity and leadership will be greatly missed," said Brevity Co-Founder Jacob Bronstein.

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We have seen the progression from exhibition, DVD, and broadcast to digital cinema, electronic rental and streaming. This has created a blizzard of formats and platforms for which we now supply our products.

now supply our products, formatted and bundled with all of the right supporting content.

This movement to new business models has created a need to have systems that allow us to move commerce information around as well.

New Systems for a New Day

There are three new systems that are gaining importance in the new business environment.

First there is a lot of information that you need to collect and repurpose when you are selling any kind of entertainment product. Much of this is information that people care about like title, synopsis, cast, director, etc. There are also still pictures, trailers, and even artwork like print, web, and screen ads that can be used by the many platform that sell our products to consumers. We have a lot of tools for this kind of work and Digital Asset Management (DAM) seems to be the best. There are many variations of DAM and many definitions of what you would put in any instance. They do have a really good history of supporting media. SAP has had the good fortune to work with a market leading DAM company for our solution, SAP Digital Asset Management by Open Text.

Secondly, there is a real need to have data that is generally intended to be used with computer systems. These are systems support the necessary functions around media files: library, sales, rights, etc. These systems are important to our regular operations in the new business environment. Take for example the need to manage the files that represent each of our products. Each media sales platform (exhibition, free broadcast, VOD, hospitality, streaming, electronic rental, DVD, Blu-ray Disc, and so on) would have a different version of a product file and would need some kind of identifier. But now add in the number of variations in format of files (e.g. electronic rental variations - Apple iTunes, Amazon Instant Video, Vudu, Hulu, Roku, etc.) and the number of language and regional variations. You can see how just tracking the individual prod-

uct files becomes a challenge by orders of magnitude. These files all need to make it through a rights and royalties, sales, billing, and financial system. This type of product information can be maintained in a master data system. In a SAP environment, our customers have had success with using our SAP Master Data Governance tool (MDG) and modeling the master data in their core ERP system. We were able to create a complete MDM system for a major studio in under 100 lines of code in our system.

Third, productions (movies, TV programs) are typically made by third parties royalties given on the sale of products. This is pretty simple if you just make a DVD and get back a part of the selling price or take a percentage of a ticket price at a theater. Unfortunately media contracts are very complicated and based on tiers of volume and various conditions. Other use cases get more complicated.

For example, when you sell a number of playouts to a broadcaster for a given movie and they give you back a payment based on the advertising revenue or the number of people who watch, there are two rights processes to consider. Rights to use the movie are purchased by a company (a broadcaster or rental company) then a payment is due to the entertainment company. In turn the entertainment company owes a royalty payment back to the third party. This is the classical "Rights In and Rights Out" environment. You take the rights in and owe a royalty payment to the third party company. You sell the rights out to a broadcaster and they owe you a payment for their use. Of course you really need a list of all the products that you own and a list of all the rights you have for sale and those you have sold as well.

In a rights system you need a repository to store the products, terms of a contract that spells out the royalty calculation, the royalty payments themselves and rights. Industry practice is to sell rights for a product in a language, for a period of time and for a geographic region. The rights structure can be very complex. So when you want to sell something you need to know if it is available at that time, place, and in the language you want. That is the information is known as availabilities or just "avails" and is needed to sell rights.

An intellectual property management system is needed for a corporate repository, a rights sales solution, and a royalty payment solution. There is a lot more detail to modern rights and royalties systems but you can see how important they are in Media. SAP has a very effective and successful intellectual property management solution (sold as SAP Sales for Media and SAP Content Acquisition for Media) that our customer have used for their business.

Conclusion

There are many changes that we have met and addressed in the media business as digital technology and new business models have changed the business and distribution landscape. There is no sign that the changes have slowed or as new companies with new business models appear on the market. Have you seen that social media companies are now trying to be media platforms? We will continue to do what we always do, develop and adapt new technology to our needs. There certainly is no business like it. No business I know. ■



Kurt Kyle has more than 20 years of experience in the media and entertainment sector and is responsible for developing solutions and customer relationships specific to media for SAP. He has had the privilege of working closely with leading companies in entertainment, publishing, and advertising. He has worked on customer initiatives in rights and royalties, digital supply chain, educational publishing, electronic sell through, and advertising analytics.



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Streamlining Processes

Server solutions power 3D animation.

By Janet Bartleson, Director, Dell



Abstract: This case study outlines the partnership between Dell and ToonBox Entertainment, a Toronto-based 3D animation studio. Toonbox deployed Dell's PowerEdge C6100 rack-mounted servers to render its stereoscopic animation. This article will detail how the partnership benefitted both companies.

To captivate their audience, mischievous Surly Squirrel and his rat friend Buddy need to be rendered in eye-popping detail. ToonBox Entertainment deploys Dell™ PowerEdge™ servers in its render farm to help deliver world-class 3D animation.

Toronto-based ToonBox Entertainment hit the ground running — the company's first original TV production "Bolts & Blip" is one of the world's first 3D stereoscopic animated television series. But stereoscopic animation places extremely heavy demands on workstations and servers in the render farm. When ToonBox prepared to start stereoscopic animation for its film *The Nut Job*, the company sought new studio space and a hardware vendor to furnish it. "It was critical to select the right vendor up front, because we were looking for a long-term solution," says Ria Westaway,

vice president of production.

"Dell treated us as their first priority. That commitment to our needs helped us make a decision relatively quickly." For rendering, ToonBox selected Dell PowerEdge C6100 rack-mounted servers powered by Intel® Xeon® processor 5600 series. "For every animation we produce, we're rendering twice as many frames as we would in 2D," says computer graphics (CG) supervisor Andrew McPhillips. "Each shot in our rich and highly detailed film is comprised of dozens—sometimes even hundreds—of layers. Feature-length animated films typically have more than 1,000 shots. Because *The Nut Job* is 3D, we are rendering each of those shots twice,



With 20 plus years of experience working in the IT industry, Janet leads a start-up style marketing team in Dell Data Center Solutions (DCS). DCS custom designs hardware, software, services and Modular Data Centers for some of the world's largest cloud computing providers.

once for each eye. In this environment, the Dell PowerEdge C6100 servers have been fantastic. The PowerEdge C6100 makes a great render farm machine because it's fast, highly configurable, and incredibly robust."

Streamlining Management

As the company grows, the hot-plug serviceability of each server node facilitates the rapid expansion of the render farm. "These servers enable us to scale up and down very easily," says Aaron Pearce, systems administrator. "Adding a Dell PowerEdge C6100 server is basically plug-and-play. We receive a server, drop it into our infrastructure, install software, and that's it."

Furthermore, the servers' built-in management controllers help simplify administration. For example, instead of spending 50 hours each week manually installing various operating systems for testing on individual computers, IT staff hooks the open-source tool Extreme Cloud Administration Toolkit (xCAT) into the PowerEdge server's baseboard management controller (BMC) to automatically deploy preconfigured operating systems and software. "It deploys a new operating system across the entire server farm within minutes and takes almost no staff time," says Pearce.

Ten months after deployment, the ToonBox render farm still has 100 percent availability. "Everything in the PowerEdge C6100 servers is redundant," Pearce explains. "If we have a failure, we're just going to remove the failed component, fix it in-house, or call Dell ProSupport for extended support. A motherboard in one of our servers had a small issue reading a piece of memory and

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Apps Transform Secure B2B

Workflows in Media & Entertainment

Changing the landscape of collaboration. By Ann Fellman, Product Manager for Rimage Corporation's Signal Online and Samir Mittal, Technology Officer and SVP of Engineering, Rimage Corporation



Photo: Shutterstock.com

Abstract: Mobile applications (aka apps) are rapidly transforming the collaboration landscape. Fueled primarily by the app ecosystem, social collaboration has enabled employees to extend their networks outside of their organizations, bypass top-down hierarchies, and significantly increase their productivity through cross-functional and cross-domain collaboration.

In context of enterprise workflows, collaboration has generally followed the consumer models, popular examples being Google Docs, Basecamp, Dropbox and others. In these examples, one must be registered with the IT organization for access to “Within the Enterprise” use cases such as document sharing, file synchronization and project blogging. This collaborative landscape has evolved at breakneck speed with rapid innovations in dynamic content

sharing, offline access, file distribution mechanisms and cross-framework integrations. However, much of this enterprise information is confidential and these tools rapidly break down in scenarios spanning the “Extended Enterprise” where the collaboration needs to be extended to suppliers, customers and partners. Examples within the media and entertainment segment cover pre-production, production and post-production workflows and include actor recruitment, dailies, final

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For widespread adoption, a successful app will balance the inherent contradictions of preserving superior user experience while regulating access control and information flow.

cut, promotion and screener distribution. In these use cases, proprietary information must be shared securely with users both inside and, more critically, outside of the enterprise.

In the “Extended Enterprise” environment, most users do not have corporate issued devices due to the BYOD phenomenon; consequently there are no IT controls to enforce a secure sandbox to safeguard assets. Much of the required collaboration in media and entertainment is related to confidential multi-media assets comprising documents, audio, video and images, and the combination thereof. As social networking becomes more pervasive across the “Extended Enterprise,” secure collaboration becomes the next frontier.

Plan for Variety in “Extended Enterprise” Workflows

Secure collaboration across the “Extended Enterprise” is all about successfully navigating and supporting variety. Variety will impact organizations in a number of ways: Variety of devices, variety of participants, variety of content and variety of collaboration frameworks. Variety is a challenge for secure collaboration; let’s take a look the latest trends in a few of the above-mentioned areas.

Today, users are leading with their devices of choice. There is a recognizable shift away from corporate-issued devices. This multi-device world comprises a number of platforms that are considerably different in just about every possible aspect - hardware, user inputs, OS, application stack, and content ecosystems. To overcome platform diversity, secure content viewing with access control is migrating away from being an OS-facilitated feature (such as Microsoft DRM) to an application attribute (such as Adobe Access, signalvp.com,

and others). This new paradigm works on a plurality of platforms ranging from Windows to Android, locks content to the device rather than the user identity, and employs network security architectures for secure content consumption and storage. Successful widespread adoption of this framework is a key enabler for secure collaboration in the “Extended Enterprise.”

Supporting collaborative workflows across the “Extended Enterprise” also means a variety of participants with a range of roles, rights and responsibilities. Participants come and go based on projects, and their roles may even be different for different workflows. Since participants are insiders and outsiders, apps need to be open and flexible enough to support outsiders, yet secure and limited to eliminate unauthorized sharing of confidential information. One way to manage this challenge is to give content owners the ability to explicitly define participants and enable the app to invite them. Invitations should be limited to prevent sharing or being consumed by others. Thereafter, the app uniquely identifies the invited participant’s device, and in doing so, creates a secure, trusted connection to the organization. Once this trusted relationship is established across the “Extended Enterprise,” the last piece of the puzzle is to ensure that the app manages the content securely in all phases of the collaboration chain – at rest, in transit and during viewing.

Content and rich media is at the heart of secure collaborative workflows. We all know that users are highly mobile, and at times sufficient connectivity or bandwidth is unavailable when needed most. Online streaming is not a viable option in these situations. To facili-

tate a superior user experience, apps need to support online streaming for on-demand content, and offline access for persistent content, while enabling content security in either mode. Effective collaboration requires the latest content in the authorized projects to be automatically downloaded to the device for offline viewing, much like RSS feeds. To support the variety of devices and screen sizes, rich content must be tailored to handle the media framework of the device to which it is being delivered – due in part to differing end user quality expectations when viewing the content on a 21” Windows Dekstop as opposed to the 3.5” iPhone 4S. Cloud-based content staging solutions (such as cloud transcoding) are an integral part of the solution chain helping to efficiently manage content and device variety for fluid and productive collaboration.

Depending on your viewpoint - “Secure collaboration across the Extended Enterprise” is possibly a contradiction in terms or a compelling challenge. For widespread adoption, a successful app will balance the inherent contradictions of preserving superior user experience while regulating access control and information flow. New solutions leveraging recent developments in cloud computing, global delivery networks, and mobile applications are very rapidly changing the face of secure collaboration in B2B, B2C, and B2B2C workflows. Eventually, secure collaboration frameworks will enable businesses to embrace variety and move closer to their customers and their partners - share information and ideas in real time, and increase overall mindshare, leveraging the very same trends that have changed our lives as consumers. ■



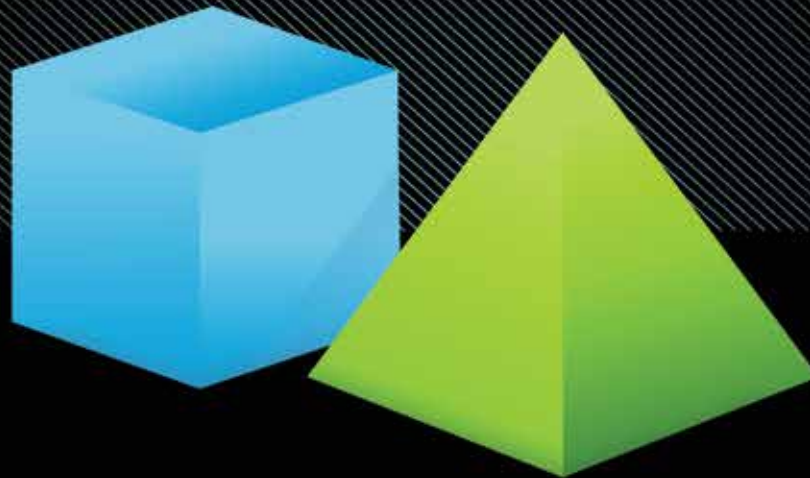
Fellman is the Product Manager for Rimage Corporation’s Signal Online Publishing software, responsible for cradle-to-grave marketing of the product. Signal is a secure SaaS content delivery platform that enables businesses to control and deliver videos, documents, audio files and images in a multi-platform, multi-device world.

Mittal is currently Chief Technology Officer and SVP of Engineering at Rimage Corporation, with a focus on products and technologies related to secure cloud and mobile computing. He leads the Rimage Signal Virtual Publishing initiative, a secure SaaS content delivery platform.



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Breaking Through the Clouds

Understanding cloud computing in the context of the media landscape.

By Tom Moran, Senior Director Media Solutions for Savvis, A CenturyLink Company



Abstract: This article covers the myriad definitions and uses of the term “cloud computing” in an attempt to clarify the term and develop a common understanding of what it means in the context of the media industry technology landscape. It will also address issues such as private vs. public clouds, security, costs and economic models and the evolution and application of new technologies.

Long before the term “cloud computing” had been coined I was working for a company that provided a “shared services” platform for content management and distribution. This platform and others like it were essentially the earliest iterations of “cloud”-based services targeted at Media and Entertainment companies.

Fast forward a decade or so and there has been a massive proliferation of computing platforms and services as well as terminologies to go with them such as Software as a Service (SaaS), Platform as a Service (PaaS) and of course the ever ubiquitous “cloud” computing.

As with any new technology arena, the buzzwords multiply faster than rabbits and as a result we are not always working with the same mental definition of terms that we all use freely in conversation.

So to get started I will attempt to put the proverbial stake in the ground with regard to a basic framework for understanding the area of technology broadly defined as cloud computing:

“Cloud” services in the broadest possible sense are nothing more than something that is a shared (as opposed to dedicated) technology resource such as a CPU, a unit of storage or an application, that is generally “off-premise” or at the very least accessible from multiple locations.

Based on this very broad definition, virtually every resource and application that is not on the physical machine you are using is “in the cloud” so some further refinement is necessary;

First off there is a basic distinction to be made between public and private clouds. Resources that are shared within an organization such as email or accounting systems could be defined as being part of a “private” cloud. Although we

For businesses, an important categorization of cloud services is the definition of exactly what type of resources (storage, computing, applications, etc.) are being provided.

generally think of these internally managed systems as “shared services” rather than as being cloud based, that distinction is really just a semantic one. In contrast to these internal systems are the “public” cloud platforms such as iTunes and Gmail which are available to and shared among any member of the general public who chooses to use them and fit the general definition of what we as consumers think of as a cloud-based service.

For businesses, an important categorization of cloud services is the definition of exactly what type of resources (storage, computing, applications, etc.) are being provided. The real game changer with cloud computing was the shift in the managed IT services and hosting business, pioneered by the likes of Savvis and Amazon, that provided “raw” computing resources such as CPUs and storage in new configurations and business models.

These basic IT managed services, which have generally been targeted specifically at the needs of IT professionals such as software developers, have become what many of us within the IT industry think of as “cloud” computing, while the business and consumer definition of “cloud” generally includes the application layer of “Software as a Service” platforms like Gmail or iCloud into their definition.

Finally, one of the most significant ways that people think of cloud computing has nothing at all to do with technology but rather with the economic model in which the services are sold. For many of us, the “pay as you go” business model that is more akin to renting than owning is one of the key qualities of any cloud-based system.

This part of the definition is significant mainly because the approach of purchasing temporary access to a resource or an asset, as opposed to outright ownership of the asset, is a phenomenon that is ubiquitous across all areas of our lives. Yet, there are many common misconceptions about the economic benefits and tradeoffs associated with the ownership vs. access question. In some circles there seems to be a general assumption that cloud-based infrastructure is inherently less expensive than the alternatives.

In his book “Thinking, Fast and Slow,”

Daniel Hanneman describes in detail how our brains are well suited to making quick decisions based on our associative memory but not so well suited to considering complex questions consisting of multiple variables. This is one of the main reasons that we are often inclined to just accept the common wisdom vs. doing the math. Examples include the general assumption that owning a home is always better than renting, or what the actual costs of owning a vehicle are in leasing vs. buying scenarios. We all know in the back of our minds that “your mileage may vary” but we rarely consider why and what we can do to improve it.

Cloud Challenges

So, when I tell people that cloud is usually the most expensive way to buy computing services they are often puzzled by that statement. So consider for a moment the economics of renting a car: When we are on vacation renting a car is obviously the most cost effective way to have access to a vehicle but in general it would be much more expensive to rent a car than to own one in our home city.

This same analogy can be applied to cloud computing. When it comes to our baseline, everyday need for computing resources and services the traditional approach of buying resources or managed services is generally much more cost effective. However when we are dealing with unusual situations such as a spike in demand then renting resources temporarily to get us through this peak period is more cost effective than buying what will eventually become excess capacity and this is where cloud computing becomes most compelling.

Finally, there are still a number of outstanding questions regarding control, security, flexibility and robustness that must be answered in order to understand whether or not a specific cloud-based service is a good fit

for a particular application. For these reasons and others, most large media enterprises are adopting cloud services slowly and cautiously, rightfully recognizing that the downsides may not be readily apparent. Consumers on the other hand have enthusiastically embraced the cloud since long before it was called that and will likely continue to do so, and to have a very limited understanding of the real economics and larger implications regarding privacy, intellectual property and a number of other areas.

Cloud computing is without a doubt a transformational business and technology model but it is a new one only in name. Media enterprises will surely benefit from consumers’ increasing comfort with the notion of purchasing use of or access to an asset vs. purchasing a physical copy of the asset. However those same consumers will also expect that the ubiquity of their other information, such as their email, calendars and files, which extends across devices, locations and into the mobile universe, will apply to their media “assets” whether they have purchased a physical copy or not.

In essence I think this issue is one of the most important challenges facing the media industry as a whole and more specifically those who are involved in supporting initiatives such as UltraViolet. Unless the “cross-platform” cloud is every bit as user friendly and compelling as the “walled garden” cloud typified by the iTunes ecosystem and other similar approaches, consumers will not be inclined to purchase either access or assets on a large scale. Media companies have many compelling reasons to embrace the cloud for specific applications, however, just like digital downloads it is not likely to replace the legacy models entirely but rather supplement them an increase slowly in popularity over time. ■



Tom Moran joined Savvis Communications Inc. when they acquired the commercial business of Eagan, MN based WAM!NET Inc. in 2003. Having served as Director of the Media and Entertainment division of WAM!NET, Moran was promoted to Senior Director of the Media Services division of Savvis in January 2005. As Senior Director of Media Solutions he is responsible for corporate strategy, solution architecture, business development, sales and market development for the Media Vertical Markets on behalf of Savvis, A CenturyLink Company.

Beyond the Cloud: Accelerated, Secure, and Managed Movement of High-Value Content

Examining file-sharing options via multi-platform delivery.

By Rick Clarkson, Vice President of Product Management, Signiant



Abstract: In this game-changing era of multiplatform content delivery, media and entertainment professionals need convenient ways to exchange digital assets with people inside and outside of their organizations. In this article, we'll describe a new breed of cloud systems that offer all of the ease, convenience and flexibility of the most popular file-sharing services, with the enterprise-level security and administration required to protect and manage high-value digital assets.

In today's digital production environments, media enterprises of all types have one thing in common: the requirement to move large content files rapidly, securely and in a carefully controlled and managed fashion. With the explosive growth in multiplatform content delivery requirements, files have gotten bigger, formats more varied and production cycles shorter than ever before. Often, production professionals take it on themselves to find fast and efficient ways to exchange digital media with remote colleagues and business partners, including post-houses and outsourced vendors. And more often than not, that quest leads them to the ever-growing array of unmanaged, public cloud-based file transfer services.

Without question, public cloud services occupy an important place in the broader realm of digital file movement and are a boon to consumers and small businesses alike – with easy-to-use, reliable and convenient tools for exchanging smaller documents such as Microsoft Word or PowerPoint files. However, these services are not appropriate for media enterprises in a few key areas. First, most cloud services are not optimized for accelerated movement of large media files; in fact, most have gigabyte file size restrictions that rule out many transfers (by the standards of these services, a 2GB file might be considered huge – but of course it's entirely small for a media operation). Also, these cloud services offer little or no capabilities for safeguarding valuable media assets, a serious concern in this age of global piracy and well-documented media security breaches.

In this article, we'll take a closer look at the file movement requirements of today's busiest media enterprises. We will also describe a model cloud system that offers all of the ease, convenience and flexibility of the most popular cloud file-sharing services, with the enterprise-level security and administration required to protect and manage high-value digital assets.

A Tale of Three Stakeholders

To understand the complexities of file movement in a media operation, it's useful to consider the vantage point of three user groups: IT managers, operations managers and end users.



Rick Clarkson's strategic vision and customer focus enables him to bring innovative products to market. As the Vice President of Product Management, Rick is responsible for driving development of Signiant's products in the Media and Entertainment industry.

Security cannot be overemphasized when managing and transferring high-value media assets, and a hybrid solution should be iron-clad.

IT managers, the folks that stay up at night worrying about security breaches and protection of digital assets, would like nothing better than to eliminate the ad hoc use of the unmanaged public cloud services. They are concerned about maintaining control of transfers and having visibility into who sends what, and to whom – information that is not provided by the public services. IT managers want to empower the operations teams with the tools they need, but at the same time, they're not interested in burdening the network with a bandwidth-gobbling new application. And they would rather not saddle their overworked IT teams with yet another system requiring user and group administration at a very micro, individual level; for instance, adding a temporary team member for two weeks for a certain project, removing another team member that has left to go to another job, or adding a new contractor.

Operations managers are also concerned at some level about security, but their main objective is to ensure that a project – such as the delivery of the next five episodes of a popular TV series – is completed on time and on budget. These professionals are responsible for assembling and managing workgroups and making sure all of the players, both employees and contractors, are motivated and have the tools they need to get the job done as quickly and efficiently as possible. Operations managers place a high value on global collaboration and partnerships, which by definition require the seamless exchange of content with outsourced vendors and other external business partners such as post-production companies and distributors.

The third group consists of *end users*, the media professionals on the front lines of content creation, processing, editing and distribution. These users have established relationships with their business partners, and they are happy to access public cloud file transfer services – that is, until the service can't handle the file size or complete the transfer in an acceptable timeframe. Then, users have to fall back on other means such as FTP, which has

its own issues regarding inefficiency, security and general unwieldiness.

Use of the public cloud services tends to be project-based; for instance, a new season of a TV series that has a finite schedule and requires the assembly of a dedicated, collaborative workgroup. Production of promotional videos is one project for which public cloud services are often pressed into use, because promotions often need to be developed and sent to air as quickly as possible. News and sports coverage, by virtue of its often unpredictable nature, is another area that often requires mobile news crews to transfer content as quickly as possible to editors and news bureaus.

Access In the Cloud; Storage In the Network

Out of these requirements has emerged a type of file movement software that combines the best features of two vastly different worlds: the public cloud and private corporate networks. In this hybrid architecture, users access their information through a simple and intuitive user interface delivered from the cloud, with the content itself maintained under the secure control of the internal network. Within media companies of all sizes, content stakeholders are able to enjoy the ease and convenience of the cloud file sharing services without file size limits, and without the security concerns that might arise from storing high-value media assets in the cloud.

A critical aspect of a hybrid solution, like Signiant's Media Shuttle, is file acceleration. Considering that the file size for a single one-hour TV show can reach 40GB, no fast-paced production schedule has room for the hours that might be required to move such a file via FTP – and no public consumer cloud service is up to the task. File acceleration ensures high-speed file transfers that are often 200 times faster than FTP with up to 95 percent network efficiency.

Although there are some instances in which longer-term archiving of content is appropriate for the cloud, a hybrid solution

lets users keep work-in-progress content close at hand. Think of the kitchen drawer that holds tools you use every day, vs. attic storage for items you might only need once a year or less. Also, since public cloud storage does offer some degree of security, it can be useful for archiving previously-aired content (such as video work for past seasons of a TV series), thereby freeing space on the local network for highly classified works in progress – such as the new season that resolve's last year's nail-biting cliffhanger.

Security cannot be overemphasized when managing and transferring high-value media assets, and a hybrid solution should be iron-clad. Consider the risk factor of a public cloud service, which allows anyone to create an account and offers no safeguards to prevent a member from sharing the login info with friends or others; the piracy potential is mind-boggling. With the model hybrid solution, however, all content remains under the secure protection of the internal network. Features such as encrypted browser sessions, file transfers based on 256-bit AES encryption and built-in certificate authority for managing a public key infrastructure all help to ensure that the content ends up where it's supposed to, and stays in the right hands.

Across-the-Board User Satisfaction

It's easy to see how a hybrid file transfer solution that embraces the cloud would be useful for the accelerated movement of media assets such as television series content, theatrical productions or news/sports footage. The best hybrid solutions are architected by vendors who intimately understand the varied requirements and priorities of all media types and productions. Workgroups access the system in much the same manner as the public cloud services, for ad hoc file sharing on a wide range of projects. Distribution of proxies, scripts, schedules and images or routing of media for approvals on ad and marketing campaigns are just a few examples. The system

Continued on pg 100



Unlocking the Potential of Cloud Computing

Bridging on-premise and cloud deployments in support of global, file-based media workflows

By Michelle Munson, Chief Executive Officer, Aspera

Abstract: The full potential of the cloud to transform IT processes for digital media – such as transcoding, archiving and distributing entertainment content – has been limited by the inherent bottleneck in moving the data. Digital media companies can now finally adopt cloud infrastructure such as AWS and Windows Azure with high-speed, scale-out transfer capacity enabling efficient, large-scale workflows for ingest, sharing, collaboration and exchange of their digital content to realize the full benefits of the cloud.

Cloud computing has become a viable, mainstream solution for data processing, storage and distribution. Adoption is accelerating — Amazon Web Services (AWS) has gone from 262 billion objects stored in its S3 cloud storage in 2010, to 905 billion objects at the end of the first quarter of 2012, attracting increased competition from Microsoft Azure and now HP Cloud.

However, digital media companies have been unable to realize the full potential of the cloud, due to the inherent bottlenecks of moving big data in, out and across cloud infrastructures. Aspera pioneered the high-speed enablement of data-intensive workflows throughout the enterprise, and has now brought the same level of innovation to the cloud. Aspera high-speed transport capabilities are now available on-demand, enabling efficient, secure, large-scale workflows in the cloud. By eliminating the traditional tradeoffs of media storage location and access, enterprises can implement the most efficient workflows, regardless of where content is located.

The Cloud Promise

Cloud computing holds a tremendous promise of unlimited, on-demand, elastic, computing and data storage resources, without the large upfront investments required when deploying traditional data centers. From a business perspective, the cloud offers three key advantages:

- Removing computing/storage infrastructure as a limiting factor in meeting unanticipated demand.



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By eliminating the traditional tradeoffs of media storage location and access, enterprises can implement the most efficient workflows, regardless of where content is located.

- Eliminating the need to build IT infrastructures that can handle spikes in activity only to sit idle most of the time.
- Reducing the risk of upfront investment and improving cash flow through pay-as-you-go models, charging only for the resources that are actually used.

The Big-Data Challenge

Cloud adoption by big-data businesses has been limited because of the problem of moving their data into and out of the cloud. Often dealing with data sets measuring in tens of terabytes, they have had to rely on traditional means for moving big data:

- Ship hard disk drives to a cloud provider and hope that they don't get delayed, damaged or lost.
- Attempt to transfer the data via the web using TCP-based transfer methods such as FTP or HTTP.

To become a practical option for big-data management, processing and distribution, cloud services need a high-speed transport mechanism that addresses two main bottlenecks:

- The degradation in WAN transfer speeds that occurs over distance using traditional transfer protocols.
- The "last foot" bottleneck inside the cloud data center caused by the HTTP interfaces to the underlying object-based cloud storage.

Aspera Solution

Built on top of our patented fasp™ transport technology, Aspera's suite of On-Demand Transfer Products solves both technical problems of the WAN and the cloud I/O bottleneck, delivering unrivaled performance for the transfer of large files, or large collections of files, in and out of the cloud.

- Transfers occur at line speed, securely, to

and from any location in the world.

- Files of any size and any format can be transferred at any distance, over any network, under any condition.
- Transfer capacity can easily scale-out and back, on demand.
- Offers full support for all Aspera software and use cases.

Aspera's fasp™ transport protocol eliminates the WAN bottleneck associated with conventional file transfer technologies such as FTP and HTTP. With fasp, transfers of any size into and out of the cloud achieve perfect throughput efficiency, independent of network delays and robust to extreme packet loss.

Users have extraordinary control over individual transfer rates and bandwidth sharing, as well as full visibility into bandwidth utilization. File transfer times can be guaranteed, regardless of the network distance and conditions, including transfers over satellite, wireless, and unreliable long-distance international links. Complete security is built-in, including secure endpoint authentication, on-the-fly data encryption, and integrity verification.

Aspera has developed a high-speed software bridge, which transfers data at line speed, from source directly into cloud object storage such as AWS S3, with no hops or stops in between:

- Enables direct I/O in and out of cloud object storage.
- Ensures intra-cloud I/O keeps up with the fasp™-based transport over the WAN.
- Transparently handles cloud-specific

I/O requirements such as S3 multi-part uploads.

In the case of the Amazon Web Services cloud infrastructure, using parallel HTTP streams between S3 and the Aspera On-Demand server running on Amazon EC2, the intra-cloud data movement no longer constrains the overall transfer rate. The files are written directly to S3, without a stop-off on EC2.

Delivering On The Promise

In addition to providing high-speed transport to, from, and between cloud infrastructures, Aspera On-Demand Transfer Solutions include a comprehensive suite of applications for efficient, large-scale workflows, available as subscription services with usage-based pricing and optional add-ons.

Content Ingest and Sharing for Private, Public and Hybrid Clouds

As businesses adopt the cloud for on-demand storage, they are often faced with the choice of where to place their most important digital content. With Aspera Shares, they have complete flexibility in where the content is placed, whether it is stored in an existing data center, a remote office, or public cloud storage such as Amazon S3. With Aspera Shares, companies can ingest and publish large files and directories in multiple locations, or multiple servers in the same location, within their organization or with external customers



Michelle Munson is co-inventor of Aspera's fasp™ transport technology and is responsible for overseeing the company's direction in collaboration with co-founder Serban Simu. She was a software engineer in research and start-up companies including the IBM Almaden Research Center before founding Aspera in 2004. She has dual B.Sc. degrees in Electrical Engineering and in Physics from Kansas State University and was a Goldwater Scholar for achievement in Science and Mathematics, and later a Fulbright Scholar at Cambridge University where she received a postgraduate diploma in Computer Science.



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Our Services

We offer best-in-class support and consulting services in a variety of specialized areas.

and partners. A single web interface consolidates browsing across all shared content and a powerful and flexible security model provides a single management point combining authorization, user management, and access control.

Person-to-Person Collaboration

With digital supply chains now spanning the globe, digital media companies need a high-speed transfer platform that can deal with the complexity associated with transferring ever-larger file sizes over longer distances between geographically dispersed teams.

The Aspera faspex™ solution provides an intuitive, efficient way for individuals and groups to leverage the cloud for file-based collaboration. Built for enterprise workflows of any scale, it includes comprehensive user and server administration capabilities and provides enterprise-grade security and op-

tional encryption of the file content over the wire and at rest. Users can choose from a variety of user interfaces and applications to send and receive digital deliveries including an easy-to-use web interface, a Microsoft Outlook client using the Aspera add-in, an iPhone or iPad using Aspera faspex mobile for iOS, or Cargo, a simple automatic download desktop widget.

The Aspera faspex Server enables a multitude of business applications such as:

- Distribution of digital assets within and outside the enterprise.
- Digital delivery and collaborative file transfer with external partners.
- Automated distribution of files.
- Collaboration enablement for geographically distributed teams.
- File-based review, approval and quality assurance workflows.
- Secure file contribution for remote users and partner companies.

Scale-Out Process Enablement

The cloud offers unlimited storage and processing capacity, enabling parallelization of previously serial computing tasks.. This is especially useful for scenarios like:

- Single input, multiple outputs process for applications such as video transcoding, where a single large media file is used as an input to generate multiple other files for different formats, resolution, and devices.
- Assembly-line process in applications such as weather modeling or genetic research, where a large number of data files need to be put through identical processing steps.

With high-speed cloud data transfer enablement by Aspera On-Demand and parallel processing offered by the cloud, these processes can be optimized to deliver breakthrough performance improvements over what can be accomplished on premise with traditional serial computing applications. ■



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“Content is King, and Context is its Crown”

–Google Executive Chairman Eric Schmidt, Reuters

Time-based metadata and the emerging video landscape.

By Zane Vella, Founder and Chief Executive Officer, Watchwith



Watchwith “Metabubbler” time-based metadata QA software.
Each rectangle represents specific metadata associated with that frame of the film.

Abstract: Over the last decade a familiar battle cry of the digital media executive was “Anytime,” “Anywhere,” meaning the promise of digital for the consumer was to watch “what you want, when you want it, where you want it.” And as we look around today, much of that future has arrived in the form of HBO Go, Netflix, Xbox and Xfinity – all popular on-demand services now available on tablets, phones, computers, game consoles, Blu-ray Disc players and connected TVs. So, what’s next?

Much of the traditional entertainment distribution business is an analytic and strategic exercise in windowing and differentiation. In short, this means extracting greater return through enforced scarcity or by delivering added value through one or another distribution channels or partners. This article examines how and why time-based metadata is becoming a critical strategic asset for content owners, and how it enables new forms of windowing and differentiation across the digital distribution landscape.

A New Vocabulary

First, some definitions: “time-based metadata,” a.k.a. “related content metadata” is descriptive information related to a particular scene, shot, or moment of a film or TV epi-

sode. Unlike traditional program metadata that defines general information applicable to an entire program, time-based metadata follows the heartbeat of the program content itself and includes a steady time-code or time-reference that refers to a relative time within the media asset. Fundamental examples of time-based metadata include what actors are currently onscreen, what music is playing, what locations are in the scene, and what featured products are on screen at any particular moment.

Within the realm of time-based metadata, there is also an important concept of “event types.” For example, “actor,” “music,” “quiz,” “poll,” “behind the scenes video” and “production still” are all types of events or related content (which can also be thought of as layers) that are associated with particular moments

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METADATA

in a program. Event types can be anything a content owner or producer desires that either adds value to a program or is related to the program.

One of the defining characteristics of time-based metadata is that it is information related to content which is abstracted from any particular visual presentation or consumer experience. This primarily means information in the form of text, images, and links to other Internet-based content or services.²

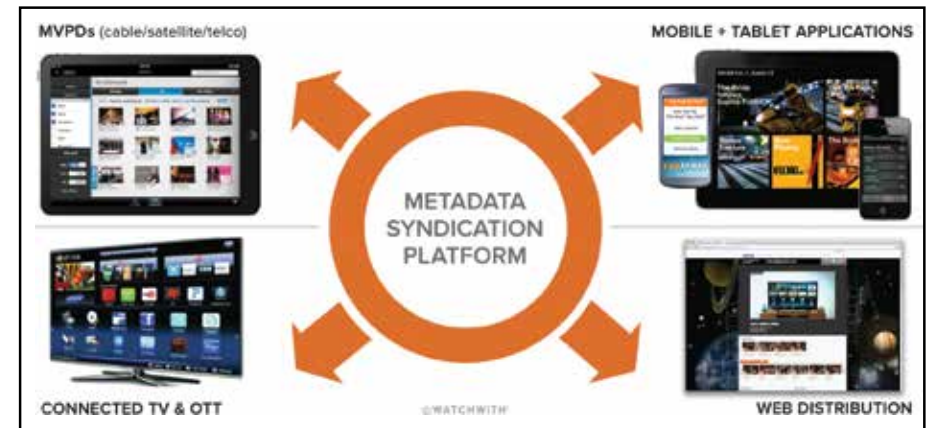
Another key concept is “metadata syndication,” or more simply, fine-grained control of which event types or layers of time-based metadata are made available to certain business partners, based on business rules such as time-window or geographic location. Technically speaking, metadata syndication is implemented via access credentials, (a.k.a. API keys) that are provided to a distribution partner or to each application that consumes time-based metadata made available by a content owner.

Foundational Digital Trends

It is important to identify two broad overarching technical trends which are both transforming our industry and providing the foundation that time-based metadata strategies are built upon; first, the dominance of digital file based workflows, and second, the increased importance of more traditional program-level metadata in digital distribution operations (as opposed to the time-based data).

Until very recently, program assets were delivered to distribution partners via a broad range of technical means. Broadcast and pay TV exploitation relied primarily on satellite uplink, theatrical exploitation relied on physical delivery of 35mm prints, home entertainment (DVD and Blu-ray) exploitation was via tape formats (DLT) to manufacturing facilities, and digital exploitation (iTunes, Xbox, PS3) via file transfer. Within just the last few years, the economics, practicality and operational benefits of digital video workflows have elevated digital file transfer as the primary means of asset delivery across all distribution channels.

Once operating within such a digital file ecosystem, program-level metadata associated with those files becomes critical for inventory management, merchandising, fulfillment,



Metadata syndication means providing different time-coded related content to different distribution partners, across various digital platforms.

pricing, royalty tracking and interoperability across various systems. These requirements have driven a great deal of innovation, and over the past several years, an enormous amount of ingenuity, intelligence, and dedication has gone into solving industry challenges around program-level metadata. While challenges and opportunities for efficiency remain, great progress is being made, particularly by industry organizations such as ISAN³ and EIDR.

Together, these two trends are an important indicator of the direction that the industry overall is heading, and form the basis of some logical conclusions: If digital file delivery persists or increases, content owners will increasingly need to provide their distribution partners with metadata around their assets, and different types of metadata will be required for different means and channels of exploitation. Metadata will increasingly become the means of delivering information to business partners throughout the entertainment production and distribution ecosystem.

Anytime, Anywhere, But Now What?

Thanks in large part to standardization of digital file formats and the hard work of many digital distribution operations teams, most large entertainment companies are now able to reliably deliver their audio and video assets

across a wide range of distribution partners. There is at the same time, however, a definite and glaring absence of any unified or efficient way to enhance the consumer experience around that video or any standardized means to deliver value-added related content.

While the industry has been successful with the first critical step of delivering program content to the consumer, there is a distinct lack of business tools or “levers” for distribution executives to efficiently create consumer demand for their digital assets. Unlike in DVD and Blu-ray, each distribution partner, such as iTunes or Xbox, has their own unique set of requirements for delivering value-added content (if at all) and promotional opportunities also require unique one-off asset production and expense.

This lack of a unified platform for creation and delivery of added-value content may be a significant contributor to decreased consumer interest in sell-through and ownership models.

Turning the Tables for Everyone's Benefit

Digital distribution executives not only lack a unified means of enhancement and promotion for program assets, they also operate in a highly fragmented landscape. Traditional cable, satellite and telco distribution partners have increasingly complex delivery requirements to fulfill their own evolving customer



Zane Vella is the Founder and Chief Executive Officer at Watchwith, a software platform to create and distribute time-based related content around films, TV and commercials. He has 20 years experience at the intersection of TV, Internet, and software product strategy and has led the development of interactive products and platforms for media and entertainment companies including Apple, Disney, NBCU, Netflix, Viacom, and Warner Bros.

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The solution is to turn the tables, and for the content owner to offer each distribution partner a variable package of time-based related content metadata associated with each licensed program.

viewing habits. In addition to these MVPDs, a new wave of mobile and tablet applications, web video distribution, and OTT partners bring additional delivery requirements and new valuable ways to connect with the audience. No matter how well resourced a media or entertainment company might be, it is near impossible to keep up with every new digital distribution opportunity, and equally impossible to differentiate your program content from one distribution outlet to another.

The solution is to turn the tables, and for the content owner to offer each distribution partner a variable package of time-based related content metadata associated with

content owner would provide the consumer with ongoing or evolving enhancements (active layers of engagement) with their favorite films or TV programs.

The Power of Metadata Syndication

This approach is extremely powerful for the content owner because it allows them to function more similarly to how they have traditionally operated. It becomes the content owners' responsibility to create the highest-value master asset possible, but now that asset is a combination of audio, video and time-based metadata. Individual distribution platform idiosyncrasies

ence, as opposed to expecting content owners' limited marketing budgets to stretch across all distribution platforms they currently have to reach. Only the content owner or network programmer has access to first-run television episodes before their first airing, so metadata syndication allows them to make related content such as quizzes, trivia and behind the scenes images available in a way that no distributor would be able.

The Time-Based Metadata Ecosystem

Creation, production and distribution are all part of the time-based metadata ecosystem. From a creation perspective, an enormous amount of valuable time-based related content exists from the earliest stage of pre-production. Similar to popular DVD, Blu-ray and synchronized "Second Screen" experiences⁴, examples of this type of material include early storyboards, location scouting photos, and production design sketches. These are all valuable related content that can be set to time in a film or TV episode, and are good examples of how to extract value from existing production artifacts. Additional examples of existing information that can be quickly set to time are music cue-sheets, branded entertainment product list, and on-set photography.

Applications of time-based metadata also open up new creative opportunities for writers, producers, and multimedia storytellers. Instead of leaving related content creation to marketing and programming teams, writers are increasingly taking responsibility for various types of related content metadata as an integral part of the creative process. For example, Fourth Wall Studios is an LA based entertainment company that is creating new forms of storytelling where, for example, the on-screen characters call the viewers cell phone at designated moments in the story timeline⁵.

Another example of creative time-based metadata creation and production comes from USA Network where Twitter "hashtags,"

Continued on pg 98



Example of a movie and TV companion app powered by time-based metadata.

each licensed program. This related content metadata becomes the key ingredient for each distribution partner to deliver a differentiated, value-added consumer experience to their end-user or consumer.

For example, electronic sell-through partners and ultimately the consumers that purchase movie and TV programs through them, can have access to extensive layers of value-added content, while rental partners and their consumers can be restricted to a more limited subset of metadata, and fewer layers of value-added content, if any.

In practice, this means that the consumer who purchases a film or TV program can enjoy a different, presumably higher value experience, than one who rents that same video asset. By extension, this also means that a subscription model could potentially emerge in which the

and presentation layer requirements become the responsibility of the distribution partner, and the content owner can focus their attention and resources on delivering value to the consumer and marketing those benefits.

This approach also opens the door for content owners to focus on the ongoing interactive social and commerce services that may be connected to any scene or moment of their content, and with the right technology platform at their disposal, enable the content owner to benefit from these additional layers of monetization in cooperation with their downstream distribution partners.

"Turning the tables" though metadata syndication is also powerful because it challenges distributors to innovate and compete with each other to deliver the best consumer experi-

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Asset Identification Through EIDR In a World of Entertainment Everywhere

Exploring the ABCs of EIDR and tracking its progress and growth so far.

By Don Dulchinos, Executive Director,
Entertainment Identifier Registry (EIDR)

Abstract: The Entertainment Identifier Registry provides a top level Universal Media ID for all movie and TV content. EIDR's mission is to drive out inefficiencies in the supply chain, while enabling new business models and workflow processes to support the increasing opportunities in digital distribution of content. This article will explore the value proposition of EIDR's global unique identifier in the entertainment industry supply chain. It will describe how using a standard content identifier streamlines implementation of multi-platform digital delivery, and will illustrate the value of EIDR in case studies for online retail distribution including UltraViolet.

In the new world of entertainment distribution in the digital age, a key landmark was achieved in August of 2010 with the formation of the Entertainment Identifier Registry, or EIDR, by founding members MovieLabs, CableLabs, Comcast and Rovi. EIDR provides a top level Universal Media ID for movies, TV shows and other video content. EIDR's mission is to drive out inefficiencies in the supply chain, while enabling new business models and workflow processes to support the increasing opportunities and complexities in digital distribution of content.

Now in the summer of 2012, the EIDR consortium numbers 34 member companies, with new members being added every month. Equally significant, many of those member companies have embarked on proof-of-concept exercises using the registry, with several members moving directly into integration of EIDR within their standard commercial workflows, processes and distribution systems.



The case studies in this paper will explore the value proposition of EIDR's global unique identifier in the entertainment industry supply chain, including how using a standard content identifier streamlines implementation of multi-platform digital delivery. The paper summarizes use cases already being implemented across a range of distribution channels, and focuses on the value of EIDR in many use cases: online retail distribution, the new UltraViolet electronic sell-through channel, and the cable industry's Video-on-Demand distribution system.

Laying the Groundwork

Since the founding of EIDR, many different implementation exercises have been initiated by all the major studio members and many other supply chain members of the EIDR consortium.

The first activity to follow the birth of EIDR was a registry "seeding" exercise. After the Registry was developed and stood up, but with no records or ID numbers yet assigned, founding member Rovi began a monthly seeding process for new movie/TV records. Rovi used its extensive database of movie and television program records, comprising a large percentage of mainstream content, to create a large number of records in the registry, with EIDR IDs assigned and with enough metadata to uniquely identify those assets (e.g. title, release date, runtime, primary language, director, lead actor, etc.).

METADATA

EIDR's mission is to drive out inefficiencies in the supply chain, while enabling new business models and workflow processes to support the opportunities and complexities in digital distribution of content.

This seeding exercise jump-started the registry and enabled other EIDR members to start many types of implementations. Several proof-of-concepts were completed early on by our studio members, while some are still in progress with the goal of matching internal IDs to EIDR IDs that were created in the system based on Rovi seeding activities. Disney, Warner Bros., NBC Universal, Sony, and Fox have been working in this area. EIDR membership facilitates this process as it entitles the content owner to make use of a "de-duplication" tool in order to help automate this process.

EIDR membership also allows access to a set of Application Programming Interfaces (APIs) through a Software Development Kit (SDK), that provide automated access to the registry via commonly understood Internet protocols. Several members (Disney, Warner Bros., and NBC Universal) have already integrated the API into their standard internal workflow systems while others are actively working and planning their integrations, including Shaw Communications, Sony, Fox, HBO, and Internet Video Archive.

Alternate IDs and Value-Add Metadata

Other content owners and record holders have also jumped into similar matching exercises, including HBO, a premium television content producer, Shaw Cable of Canada, the British University Film & Video Council (EIDR is international in scope) and Baseline Research, a premier provider of film and television information. Baseline's membership in EIDR, together with Rovi and Red Bee Media in the UK, underscores how a universal identifier, targeted and focused as EIDR is, can preserve and indeed extend the business of value-added information and metadata providers.

These value-add business models have driven another current activity, which is the addition of unlimited alternate IDs to existing EIDR records. Disney, Warner Bros., Sony and Baseline are all engaged in adding their internal title IDs to the EIDR registry. EIDR allows the addition of alternate IDs in a defined field such that searches

of the registry can allow users to match multiple IDs and translate among them.

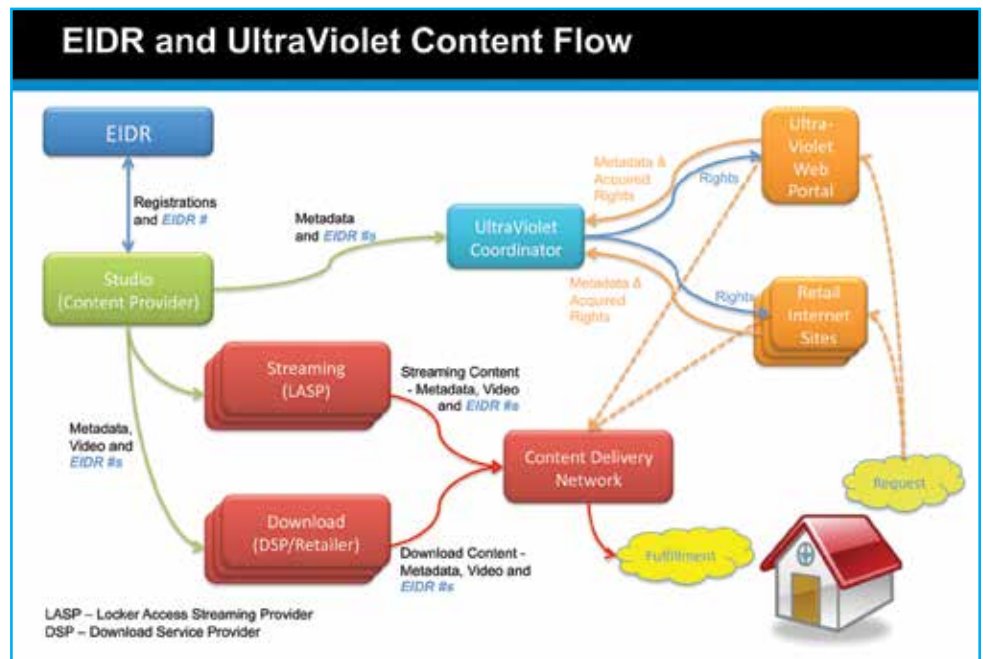
As more members join and an increasing number of records are populated into the EIDR system (almost 250,000 and climbing), together with deeper information such as the alternate IDs, it becomes an increasingly powerful tool that can be integrated into the existing workflows and systems used in entertainment distribution today.

Digital Distribution

The ongoing blending of Hollywood and Silicon Valley has led to new distribution channels on devices that were not initially conceived

of as displays for movies or television episodes. As one example, Microsoft entered the video game market in a big way with the Xbox, and then within a few years redefined what a video game console could be with their Xbox Live entertainment environment. Customers can use Xbox Live to find not only games, but also entertainment content ranging from ESPN3 to Comcast's Xfinity Video-on-Demand library.

This is one of many examples of new outlets and consumer devices through which customers enjoy content. Warner Bros. is engaging with Microsoft and other online distributors to test workflow integration of EIDR for the online retail distribution of entertainment assets.



This chart shows the flow of content between EIDR and UltraViolet.



Don Dulchinos is responsible for growing and extending the use of EIDR as the top level Universal Media ID for all movie and TV content. EIDR is an independent non-profit entity with Founders including Cable Television Laboratories, MovieLabs, Comcast, and Rovi. Dulchinos is on loan to EIDR from CableLabs, where he serves as Senior Vice President, Advertising and Interactive Services.

The ongoing blending of Hollywood and Silicon Valley has led to new distribution channels on devices that were not initially conceived of as displays for movies or television episodes.

Other content owners are similarly exploring how EIDR facilitates the rapidly evolving digital distribution environment.

UltraViolet

UltraViolet is one solution to unlock the huge opportunity of electronic sell-through of movies and other entertainment products. UltraViolet, which shares many common members with EIDR (including EIDR Board members Sony, Warner Bros., and Neustar), provides an ideal opportunity for studios to begin their transition to the EIDR universal identifier.

In what started as a proof of concept, but has quickly moved into a standard workflow/process, several studios including Sony, Warner Bros., NBC Universal, and Fox are creating EIDR IDs for titles and individual edits derived from the titles in order to support UltraViolet digital distribution.

In a typical workflow, the EIDR ID, along with associated metadata, is pushed from a content owner's internal title management system to a Content Distribution Network (CDN) provider. The CDN provider might pair the asset with the EIDR and other metadata, and then push the package into the UltraViolet workflow. The UltraViolet coordinator (EIDR member Neustar) does the set-up for digital rights locker management. The coordinator publishes to retail partner sites, where customers then buy rights to the movie or TV titles. When customers go to a UltraViolet-enabled streaming provider, the EIDR gets matched and the customer enjoys the streamed entertainment.

TV Everywhere and Anytime

Cable service providers Charter, Comcast, Cox and Shaw are all members of EIDR. These companies are very focused on evolving their distribution platforms to embrace multiple consumer devices – tablets, PCs, phones – in a trend known as TV Everywhere. In support of TV Everywhere, cable providers have also been focused on enhancing the value of their current Video-on-Demand (VOD) platform, which contain

thousands of movie and TV episodes, many of which are free along with the customer's subscription to different broadcast and cable networks. The key is to track the VOD assets as they traverse back office, distribution, and consumer/device environments, and EIDR provides a key solution.

One EIDR proof-of-concept now in progress is a test of VOD asset tracking end-to-end. Partners include MSOs, content networks, on-demand delivery partners and usage measurement vendors. In this POC, the studio/programmer registers content with EIDR, and then delivers those assets, metadata and the associated EIDR to an on-demand delivery partner. That delivery partner in turn retrieves EIDR metadata directly from the registry, and provides EIDR IDs in the feeds to the MSO. In this implementation, VOD assets adhere to the CableLabs VOD Asset Distribution Interface (ADI) specification, an industry standard which incorporates use of EIDR.

In the MSO environment, the cable provider brings the EIDR ID into its internal database and correlates asset metadata utilizing EIDR, linear vendor IDs and others. The MSO provides VOD results with EIDR to a usage measurement vendor, which produces VOD usage/purchase reports utilizing EIDR for better reporting and measurement results.

EIDR Momentum Continues to Build

The EIDR as universal identifier was a long awaited concept. It has not taken long for various interested parties to develop numerous use cases for the identifier, setting the stage for efficient, streamlined work flows to support the new world of entertainment everywhere, anytime, on any device. Additional content owners, service providers and media services companies continue to join the EIDR organization every month. Membership information, tools and resources are available at www.cidr.org. ■

Dell/Continued from pg 60

because we have Dell ProSupport on the machine, the motherboard was received and replaced within an hour and a half of failure. That turnaround by Dell ProSupport was absolutely fantastic."

Creating stellar animation ToonBox artists who work mostly with Autodesk SketchBook Pro, Adobe® Photoshop®, or Adobe Premiere® Pro software received Dell Precision™ T3500 workstations. For artists who work primarily in Autodesk Maya, eyeon Fusion, or Pixologic ZBrush, ToonBox provided Dell Precision T5500 workstations. "They are very powerful machines that facilitate the type of work our artists are doing," says Pearce.

Most of the company's back-office functions run in a virtual environment enabled by VMware® virtualization software. More than 30 virtual servers run on two Dell PowerEdge R710 hosts and one PowerEdge R510 host. "Intel Virtualization Technology for DirectedI/O (Intel VT-d) enables the processor to split up resources for different virtual machines managed by the VMware layer," says Pearce. "It works fantastically. Our Dell and Intel hardware is enabling us to make excellent use of the resources we have without flooding our server room with excess equipment, power consumption, and heat."

To see that it selected the right hardware partner, ToonBox looked no further than its high-definition, stereoscopic animations. "In our teaser for *The Nut Job*, the image quality was so high that people couldn't believe we did it in the time frame we did with the resources we had," says McPhillips. "That validates our decisions, because a high image quality is the top of the pyramid. To get to that level, you need great people, great technology, and fantastic hardware. Dell computers give us one level of the pyramid." Furthermore, ToonBox's state-of-the-art equipment has helped the company recruit animators. "When you're on the cutting edge of what can be done in animation, you need a solid backbone," says McPhillips. "Selecting Dell as our hardware partner was one of the best decisions ToonBox has made. It has been a fantastic relationship." ■

E-Invoicing: A Key Initiative for Overcoming a Highly Challenging Market Environment

Optimizing supply chains to address digital technologies.

By Gilles Collet – General Manager, B2Boost



Abstract: The author presents a case for why traditional boxed products will remain an important distribution channel in the video game industry in the mid-term; as a result, executives need to focus their attention on rapidly defining a viable digital business model as well as reducing fixed costs and increasing efficiencies in the boxed products supply chain.

According to market commentators, Global Entertainment and Media spend is expected to rise steadily over the coming years. For example, PwC predict that in 2014 spend will go from US\$1.3 to US\$1.7 trillion, equivalent to a compound annual growth rate of 5.0%.

What this trend does not convey, is the rapid shift away from the physical distribution of products towards digital as consumers adopt emergent new game, movie and music product formats at lightning speed.

Up until now, despite best efforts, the major industry players have managed only to generate an infinitely small amount of their revenues from digital products with the lion part of this new breed of revenues being gained by a large number of smaller, more specialized companies. Thus leaving traditional players scrambling to find their place in this brave new digital world.

Automation of Physical Supply Chain

There is much debate and reflection in the industry around how best to rethink current business models in order to successfully replace declining physical revenues with digital ones. However, until a new model is found, there are quick, cost effective and tangible measures a company can take to uphold revenue levels in the mid-term.

Optimizing ones physical supply chain is one such area. The challenge here is to hone processes whilst minimizing investments made in infrastructure and software in a business area which is vowed to decline. Benefits of automation include the generation of business efficiencies, cost savings as well as the freeing up of time to get products and business models just right.

As part of this process, attention should in priority be given to the invoicing process as it is both a catalyst for optimizing the financial supply chain and the process where the highest cost savings can be achieved.

Importance of e-Invoicing

The automation of the invoicing process, called electronic invoicing (“e-Invoicing”), is the sending, receipt and storage of invoices in electronic format without the use of paper-based invoices as tax originals. Scanning incoming paper invoices, or exchanging electronic invoice messages in parallel to paper-based originals is not e-Invoicing. In addition, in order for invoicing to be truly electronic, the legal specificities of each country in which trading occurs needs to be respected.

For a long time, e-invoicing remained the reserve of only the largest companies, due to prohibitively high barriers to entry. With the appearance of third party service providers able to fully manage e-invoicing (including the legal complexities which naturally comes with such a project) at both an affordable and predictable level of cost, companies in all sectors and of all sizes

Benefits of automation include the generation of business efficiencies, cost savings and the freeing up of time to get products and business models just right.

have started to show an interest in e-invoicing. According to Billentis, in 2012, the volume for e-Invoicing will significantly exceed 15 billion worldwide with annual growth rates of at least 20% being experienced year on year.

There are of course many reasons to start an e-invoicing project but companies often cite improvement of financials as the main justification for moving to electronic invoicing. **BENEFITS INCLUDE:**

■ Reduction of operational costs mainly through the diminishment of the administrative and human capital costs linked to managing the invoicing process. Instead, these resources can be used to accomplish more value added tasks. Billentis have conservatively estimated that by moving to e-invoicing, sellers (invoice issuers) can save \$8 per invoice sent and buyers (invoice recipients) can save \$13 per invoice received. At this level, e-invoicing projects often break even within months, generating significant savings thereafter.

■ Reduction of fixed costs through the outsourcing of the invoice process to a third party e-invoicing service provider. Increasingly this is the option chosen by companies of all sizes whom use outsourced e-invoicing as a method of shifting certain fixed costs towards variable ones. By doing so, companies are left with a solution that is scaled to their needs and for which they pay only for the services that they actually require. For example, at B2Boost, we have over the last decade built an extensive entertainment industry e-commerce community made up of the majority of European entertainment publishers, distributors, retailers and other related trading partners whom outsource the management of their financial supply chain (including e-invoicing process) to us. At B2Boost, we are in the unique position of having built a network of connections

accounting for over 80 percent of this market space. Through this wide reaching network, we are able to connect these companies with their trading partners in order to exchange electronic invoicing messages within record times. In addition, our services can be scaled to meet your exact business needs at any given point of time.

■ Improvement of working capital: There is a growing demand for financially efficient supply chains, with customers and their suppliers under conflicting pressure to improve payment terms, reduce prices and improve cash flow efficiencies. E-Invoicing can go a long way to improve working capital through the improvement of internal corporate processes (e.g. Giving a company a centralized view of their inbound and outbound invoices vs. fragmented and decentralized view) and the acceleration of internal inbound invoice cycles (e.g. Reducing the number of Days Sales Outstanding).

In Conclusion

Entertainment publishers and distributors need to optimise their supply chain and concentrate on the strategically essential in order to successfully transition to digital. E-Invoicing, as the predominant process in the financial supply chain, is the first place companies should focus on when looking to support their company's financial performance. Lack of understanding of e-invoicing, which in the past hindered its uptake, should no longer be a barrier going forward, with several world class e-invoicing players making their appearance on the market. As the leading provider of e-invoicing services to the European entertainment industry, we can help you to connect your supply chain to those of your trading partners within record times and generate substantial savings through e-invoicing from year one. ■



Prior to joining B2Boost in 2007, Gilles was a Senior Manager in the Customer Relationship Management practice at Deloitte Consulting where he spent 9 years managing large implementation projects within the Financial Services Industry. Gilles is currently B2Boost's General Manager.

The Hollywood IT Society (HITS) is a community of IT technologists representing the Studios of the MPAA and supporting information technology, partners, vendors, and services firms.



Mission

- To enable the business transformation of the entertainment industry through information technology by developing, advancing, and disseminating best technology practices, knowledge, and research for the physical and digital media.
- To foster the development of supply chain innovations to enable efficient, customer-centric B2B relationships through supply chain management innovations.
- To encourage and promote collaboration in IT solutions for shared and outsourced services.
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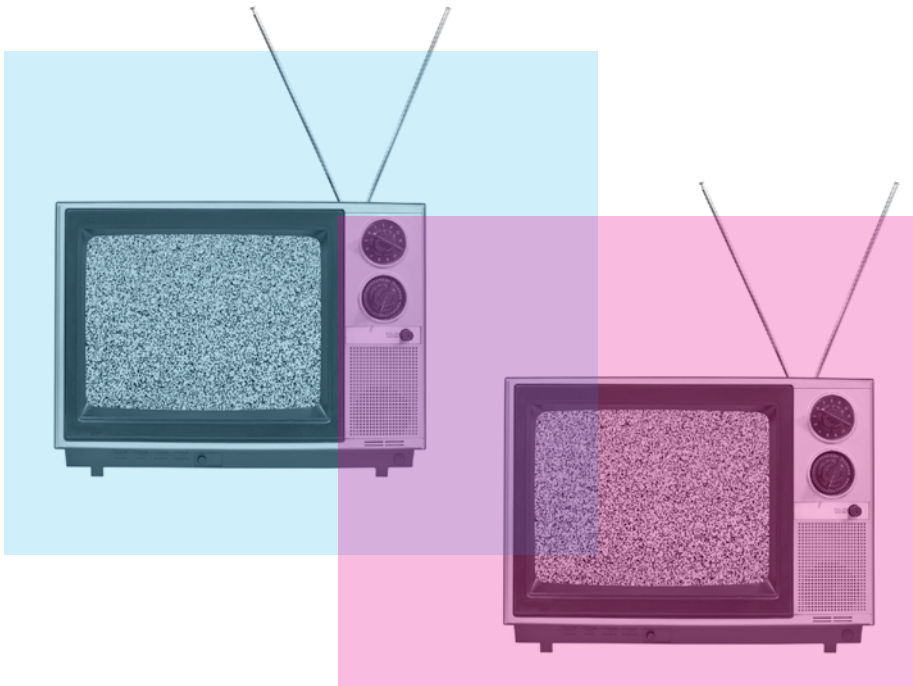
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Examining the Integration of Two Businesses in the TV Industry

Reveiling the content value chain. By Subhankar Bhattacharya, Global Practice Head
Media & Entertainment, HCL Technologies



Abstract: In the television network industry, the linear and nonlinear businesses have evolved independently over several decades. There are many reasons for this separate path of evolution. First and foremost, the non-linear business targeted end-consumer interaction, which was different from the distribution model of the linear business. Coupled with small revenue base and a different advertising model, the non-linear business was not considered mainstream. Over the years more and more brands have established significant thus raising costs of managing the non-linear channels.

Talks about an integrated approach to linear (television/on air) and non-linear (online/broadband) content value chains have been making rounds in the television network industry for several years. At the back-end (supply chain) of the content value chain, progress has been limited to the cost driven initiatives such as a shared digital asset management system or a shared infrastructure platform. However, organizations today have become more ambitious and experimental in the front-end (consumer experience) of content value chain through several new revenue driven initiatives such as TV Everywhere, live broadband

streaming, etc. With digital upfront (New-Front) in full swing and consumer expectation about seamless multi-screen experience on the rise, the process of linear & non-linear integration may get a much needed boost from business/brand owners within the industry. This paper outlines an approach toward linear and non-linear technology platform integration within the context of this evolving environment.

Business Context

Video content is the primary asset of the television network industry. While the total

advertising spend on nonlinear (online) video was only USD 1.42 Bn in 2010, the forecasted cumulative average growth rate (CAGR) for this channel is a whopping 31 percent. During the same period the forecasted growth rates for television advertisement spend is only 3 percent. By 2016, that could take the share of non-linear video advertisement revenue to 13% of the linear (TV) advertising revenue from its current share of 3 percent.

This is more than a meaningful number to sit up and take note of. How well the television networks will be able to capitalize on the non-linear video advertising market compared to new media businesses like Google, Yahoo, Facebook, or Vevo will depend upon the capability of these networks to provide seamless content access across various consuming mediums. As content owners, the television networks will no doubt have their own share of revenue while they leverage the likes of Facebook and Vevo as syndication platforms. But in that case it has to shell out a much larger share of revenue to these platforms. There is an additional risk of non-linear video cannibalizing traditional TV advertising revenue, a hypothesis that could be hard to ignore.

Leveraging Cross-Industry Experiences

We may not be able to find a perfect example of the linear, non-linear integration model from other industries. However, a few business contexts could provide insights on a similar line.

The recently launched UltraViolet project facilitates consumers, who had bought content through physical media to watch the content on any personal device at any time. This is a bold move that challenges the likes of Apple TV, Google TV, and other legal online streaming services as well as content pirates that thrive on consumer dissatisfaction about



accessibility of content on all personal devices. The success of this project stems from collaboration among studios, retail chains, software service providers and the determination of a few who believed in the philosophy of the ubiquitous access to content. The project has given a tremendous boost to the concept of universal content ID and universal content metadata. The industry associations (DECE, DEG, EIDR, HITS) are also playing a key role in shaping this project.

The publishing industry ran separate processes for e-book and physical book production for a long time. As a result cost of e-book production ran high and simultaneous launch of e-book with physical book was difficult. Most leading book publishers however have invested heavily to integrate the two processes. This integration not only has cut down the cost of e-book production by 70-90 percent, the integrated process is also allowing simultaneous launch of print and digital books. The multi-channel integration in the retail industry, which has been on-going for nearly a decade now, is a mature process. Product master data management, customer 360° and multi-channel fulfillment are some of the key initiatives within the retail multi-chain process. The process transformation here tackled many of the complexities the media industry faces today. For example, the retail industry had problems with global identifier but worked hard along with trade associations to adopt EAN, UPC standards. Simultaneously, they addressed every possible use case in multi-channel fulfillment to provide unique customer experiences. In addition, many of the multi-channel integration programs were run from CEO's office thus giving it the necessary support, budget and focus. In the early days of internet it became clear that the future of telecom revenue will be more data driven than voice driven. The ability of the packet switch network to handle data traffic better than the circuit switch network forced many telecom providers to invest billions in changing their network infrastructure. On a similar note, if we are to believe that a seamless consumer experience across devices will define the future of TV, linear & non-linear integration

must be looked at as a multiyear transformation project with board level oversight and capital must be allocated with a view on long term return on investment.

Uniqueness of the Television Network

While learning from other industries is relevant, the television network industry faces many unique and complex challenges in the process of linear, non-linear integration.

Consumer Experience

The consumer experience for content among various platforms continues to be different based on the nature of the device itself. The pattern of consumer content consumption is an evolving area and differs vastly among various demographics as well. While the book publishing and retail industries have similar problems with the consumer experience, it is not as varied or as evolving as video consumption across devices.

Content

While the content for the linear channels is fairly standard, the consumption of content for non-linear channels is undergoing significant changes. A 2011 survey by TV Guide suggests that 15 percent of the population consume more than six hours of online video/week. In 2010, the number of such viewers was just 4 percent. Diving deeper into content consumption by demographic will be significant while attempting a linear and non-linear integration.

Advertising

The linear medium is a mass advertisement medium and has finite advertisement inventory (spots) to deal with. In contrast, the non-linear medium is a targeted advertisement medium and hence could have nearly infinite advertisement inventory (spots). This is a significant technical challenge to overcome for the industry. Since the content consumption pattern by demographic may not match across linear and non-linear channels, an integrated advertising strategy could be extremely hard to deploy.

Rights

A large portion of the industry's intellectual property is third party content with complex contractual clauses. These contracts are far more complex than the publishing industry

Advertisement Spend Forecasts

Years -----> [Numbers in Billion USD]	2010 (Act)	2011	2012	2013	2014	2015	2016	CAGR
US Television advertisement spend forecast	59	60.7	64.8	65.6	67.8	68.9	72	3%
US online advertisement spend forecast	26	32	39.5	46.5	52.8	57.5	62	13%
US non-linear video (online) advertisement spend forecast	1.42	2.02	3.12	4.56	6.39	7.82	9.30	31%
Non-linear (online) video advertisement spend/online total advertisement spend	5.46%	6.30%	7.90%	9.80%	12.10%	13.60%	15%	16%
Non-linear (online) video advertisement spend/Linear (TV) advertisement spend	2%	3%	5%	7%	9%	11%	13%	27%

Source: eMarketer



Subhankar currently leads HCL's effort in developing its practice within studios, television networks, music, advertising and digital publishing space. His areas of expertise include digital strategy, digital and physical supply chain, social analytics, piracy control, rights and royalties, customer relationship management, pricing, revenue management & sales systems.

TVEVOLUTION

intellectual property rights and in some cases more complex than the music industry contracts. Additional complexity is generated through exclusive and restrictive distribution contracts with carriers, syndication partners and international contracts. While television is a geographically contained medium, mixing TV with a global Internet platform may cause significant rights enforcement issues.

Where to Start?

Just like any other solution, linear and non-linear integration must start with clarity of purpose. There could be revenue or cost considerations for this integration and each of these considerations could result in a different path of action.

On the revenue side, a solution for TV Everywhere may require building a consumer authentication and partner entitlement system; whereas an integrated Multi Channel (Broadband & TV) C3 solution might entail re-engineering the entire advertising sales, traffic and program planning system.

On the cost side, the shared digital asset management system could require more focus and effort in terms of migration, whereas a shared search solution might require an integrated master data management solution.

Detailing Out Problem Areas

Once the business case has been established, it is essential to look at the cost and challenges

with respect to execution and implementation. This could typically consist of rationalization of portfolio and enhancing services to execute the business base. There could potentially be numerous technical, process and ownership (organization structure) related problems in execution.

■ Inventory pricing market research for TV and non-linear channels are different and typically use different tools. For example, television ratings forecast is based on historical Nielsen rating, while online is not

■ The sales systems for TV and non-linear channels are different. Although the processes are fairly similar, an integrated strategy can't be created.

■ Inventory management systems for non-

Services constitute a large part of the reference architecture.. Traditionally, content ingestion and transformation services are robust in linear business, whereas search and distribution platforms are more evolved in a non-linear model. While shared infrastructure services among linear and non-linear systems are very common, shared services are yet to be explored in the areas of quality control and analytics. This is because quality control in linear workflow is typically far more stringent and if the same process is applied in non-linear, the cost of production might go up significantly. In the area of analytics, linear and non-linear processes deal with different sets of source data. In the absence of universal content ID and universal metadata standards, the process of shared services continues to be a challenge in the analytics space.

End User	Consumer	Advertiser	Broadcast Partner	Syndication Partner	Internal
Channel	Broadcast	Own Website	Syndication Platforms	Connected TV	
Viewing Device	TV	Laptop/Desktop	Tablet	Phone	
Enabling Device	DVR	Gaming Device	Smart TV platforms		

Content In most networks linear function owns the master content. Typically advertisement and other promotional content follow the business which runs it. Potentially there could be a single process owner for all forms of content.

Content Management Service	Acquire	Ingest	Meta-tag	Repurpose	Store	Search
	Preview	Package	Distribute	Commerce		
Quality Control	Content QC	Metadata QC				
Automation	BPM	BAM	CEP	Dashboard		
Analytics	Consumer	Content/Rating	Brands	Marketing	Financial	Technical
Infrastructure	Server	Database	Security	Piracy	Technical Operation	DR

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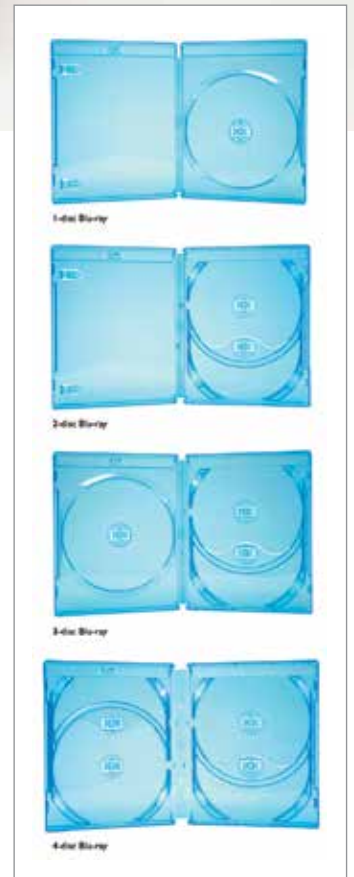
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Portfolio Analysis Once the reference architecture is agreed upon by all the stakeholders, and the responsibilities of managing components of this architecture are defined, the next necessary step would be to carry out a portfolio analysis. This could follow a maturity model analysis of the system both from a functional as well as architecture stand point. A subsequent analysis of the systems in context of the original business case must then be carried out to establish the best re-engineering strategy.

Content Type	Video	Audio	Image	Text		
Content Category	Master Content	Child Content	Third party Content	Ad Content	Promo Content	DR Content

Data is one of the most significant parts of architecture. Data not only drives control but also product strategy where there could be conflicts in ownership. In order to achieve a successful linear and non-linear integration, acquisition and distribution rights must be centralized as a single shared service. Other data sets could have a federated model in which they are incrementally enriched.

Content Master Data	Acquisition Rights	Distribution Rights	Asset Metadata	Product Metadata	Technical Metadata
Other master Data	Consumer	Talent	Partner	Supplier/Vendor	Enterprise

linear and TV mediums are different and not in sync. Thus the sales system for these cannot work in unison.

■ The program lineup for TV is not in sync with content distribution for non-linear, thereby impacting the multi-screen strategy. The deal/contract management process for TV and non-linear are different and hence cannot be managed from a centralized process center.

■ The in-house traffic management process may not exist for non-linear channels; hence integration with TV/broadcast traffic management system may be difficult.

■ The invoicing and reconciliation processes with the agency follow a different set of people and processes.

Networks having legacy systems, particularly for linear content would have multiple services bundled in a monolithic architecture. It would make more sense to create reference architecture and map systems and processes against it before attempting any portfolio optimization.

Creating a Future-Ready Reference Architecture

For the purpose of this article, reference architecture is created with four key components—experience, service, content and data. The main objective of defining this reference architecture

would be to clearly identify the process owners and systems that embody components of this architecture.

Experience

This layer of the architecture deals with the experience of all parties involved across the linear and non-linear value chain. This could include partners, customers, end users and employees. Typically the non-linear business would have a highly evolved end-consumer experience technology platform, whereas linear business would have invested in a more evolved internal consumers or partner experience platform.

Conclusion

Advertising Age published a very interesting report in May 2012 which showed YouTube video viewing dropped by 28 percent since December 2011 (based on Comscore data). Does this mean TV networks should rejoice? Not really. The same report indicates that the average length of video viewing on YouTube has grown by 33 percent to four minutes in the last year. Actually, YouTube by design is going for quality over quantity as longer views dramatically increase advertising opportunities. This could be viewed as good news for the networks as

Portfolio Analysis

		Architectural Fitment		
		High	Medium	Low
Functional Maturity	High	Best of breed?	Review?	Re-engineer?
	Medium	Best of - breed/ Review?	Reengineer?	Re-Engineer/ Discard?
	Low	Review?	Re-engineer/ Discard?	Discard

Portfolio Analysis for Linear, Non-Linear Integration

well; since every channel does capitalize YouTube as a syndication platform. However as a result of this strategy, a significant part of revenue will move to YouTube even though the content is owned by the network. If television networks want to get a large chunk of the forecasted \$9.3 billion potential online video advertising revenue for 2016, and gain more control over content, they have to bring television and online together for the consumer. ■



Our Mission

To advance the creation, production and adoption of content, applications, devices and distribution systems within the 2nd Screen Engagement Ecosystem

2nd Screen Advisory Board



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BIGDATA / *continued from pg 34*

visually understanding who is connect to whom, and their respective degrees of influence in that community or eco-system

■ **Time-Series Analysis** – understanding how events occur and relate to each other over time, and what key influencing events or activities were in that sequence.

Act Three and Credits

The amazing thing about Big Data is that the vast majority of growth and complexity can be attributed to growth in data coming from digital channels – that is, the web, mobile web and apps. In fact, digital data is growing at 62 percent annually, while, structured data – the typical rows and columns most IT folks are accustomed to – is growing much more slowly at 22 percent per year.

This shouldn't be surprising to any content owner or distributor working across myriad platforms, developing mobile apps, and investing significant time and capital into new direct-to-consumer services where you own the distribution value-chain. The main question is, what are you going to do about it? Without the right analytics and tools in place, content owners and creators risk missing the opportunity to hear, understand and act on the digital voice of their audience. And, frankly, few voices could be more valuable.

Any of us who've been around this industry are familiar with fads that come-and-go. Take the laser disc, or the HD DVD.... perhaps one day, the DVD altogether. Big Data analytics aren't a fad. Really, being able to hear rather than guess what is important to your viewers allows you to create relevant experiences for them across every part of the content value-chain, from what titles you produce, to the storyline of those titles, to what timeslots they might perform best in, and which audiences they most resonate with. There's no question these are early days – but, online music was in its early days once too, and music labels caught-on only after that train had left the station.

Now is the time to change the way you engage, and define the right approach, process, tools and technologies to make Big Data Analytics a core part of your multi-screen strategy. ■

There are studios experimenting with creating incredibly engaging apps for key franchises to promote the sale of the Blu-ray or DVD.

2NDSCREEN / *continued from pg 12*

So where is all of this headed? In previous blogs, we've discussed the financial reasons for studios to promote digital rental over physical rental (they get a much bigger split) and physical sell-thru over digital rental (similar split, larger overall pie). Their next big trick is to figure out how to promote digital sell-thru (not because the splits are better than physical, but because physical is in decline with viewing shifting to Netflix-like services where their margin share is abysmal). The is why there is such a big push on Ultra-Violet (allows consumers to convert physical libraries to digital libraries, and allows them to truly collect digital libraries across devices.) So be on the look out for the studios working with iTunes, Vudu, Amazon and others to create a digital method of encouraging you to buy the movie title vs. renting the title via transaction or subscription services (they

need a method similar to BD-Live that only enables key features in the 2nd screen app when you are watching a purchased movie vs a rented or streamed version)--I would expect UltraViolet to pick this up in their next feature set release.

What that mean for the consumer? Similar to the review I did on the Top 100 titles and their availability on various digital services, expect your content creators to continue to push you back towards a purchasing model (aiming to increase the sell thru from 7 to 10 over the next 3 years).

In the meantime, if you like the *Avengers*, go check out the app. While it doesn't have much in the way of Simple (control of the 1st screen), Seamless (sourcing of content), or Discovery—it has plenty of Stimulating content and Social implementations. And, as my son would say, "It's pretty cool!" ■

How does the home entertainment industry create the next iPod or Wii?

RESEARCH / *continued from pg 16*

skin response (GSR), heart rate, and skin temperature, to 'read' the player experience on a second-by-second basis. It is also possible to track eye movements to see where the user is focusing at any given moment. Such approaches to understanding the user experience complement traditional testing and development methods and offer unique insights into what users are really experiencing, rather than what they tell you they are experiencing.

Conclusion

How does the home entertainment industry create the next iPod or Wii? With online digital stores becoming the norm for searching, accessing, and interacting with content, both usability and UX will have key roles to play. Emerging

products seeking to establish a foothold in a market with free access points and significant, established competition must be better, smoother and more enjoyable to use. The facts prove that even when there is content available for free, a cost-based product can rise above as long as it offers a superior experience. By employing Usability and UX testing to understand what users want, experiences that consumers will love can be designed around those expectations, allowing developers to build loyal and long-term relationships. At Testronic Labs, we believe that investing effort in understanding users in this way will bring benefits to all and will help to ensure the healthy proliferation of emerging home entertainment platforms and products well into the future. ■

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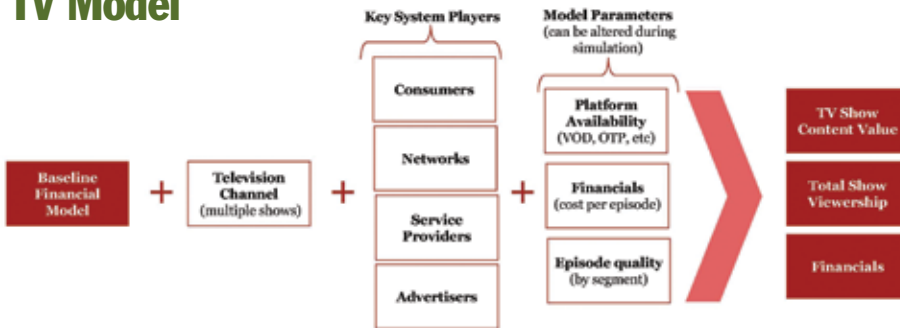
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2013 Event Calendar

	Supply Chain	Information Technology	Content Security	Second Screen
January	Burbank Think Tank @CES Las Vegas, 1/9/13			2nd Screen Summit @CES Las Vegas, 1/7/13
February		HITS Breakfast (with Variety) Los Angeles, Date TBD		2nd Screen Summit & Awards Los Angeles, 2/20/13
March	Digital Supply Chain Summit Los Angeles, Date TBD		Content Security Reception Los Angeles, Date TBD	
April		HITS Summit (with Variety) Los Angeles, 4/23/13		2nd Screen Summit @NAB Las Vegas, 4/6/13
May	UltraViolet Academy (with DEG) Los Angeles, 5/16/13			
June			Content Security Reception New York City, Date TBD	2nd Screen Summit @CE Week (with Broadcasting & Cable) New York City, Date TBD
July	MESA Executive Retreat Boise, Date TBD			
August				
September	UltraViolet Academy (with DEG) London, 9/10/13	Digital Marketing & Analytics (with Variety) Summit Los Angeles, 9/25/13		2nd Screen Summit @IBC (with Variety) Amsterdam, 9/13/13
October				2nd Screen Summit @Advertising Week NYC, Date TBD
November		HITS Breakfast with Variety Los Angeles, Date TBD		
December	Forecast Hollywood 2014 (with Variety) Los Angeles 12/2/13		Content Protection Summit (with Variety) Los Angeles 12/5/13	

For more information contact: Guy Finley, Executive Director, [917] 513-5963 Guy@MESAlliance.org www.MESAlliance.org

TV Model



A model was built to simulate the behavior of key system components to compute the content value and profitability of a show.

MODEL OVERVIEW

A model was built to simulate the behavior of key system components to compute the content value and profitability of a show.

The model includes a baseline financial model to capture the direct revenues and costs using historical data for the past 10 years. The model simulates one channel with multiple shows. Each show simulated has scheduled air times on its channel and can also be viewed on multiple platforms (VOD, OTT, etc). The actions and interactions of key system players such as the consumers, networks, service providers and advertisers are simulated over time. Each player has unique attributes and memory that contribute to the decisions that they make. The model parameters can be altered during the simulation to model the impact of the change in behavior of the key system players on the financial model, TV show content value, and total viewership of a show.

Benefits of Approach

The modeling approach provides a framework for understanding how consumers select shows and share their opinions with the market. By simulating the many micro decisions made at the individual level, the model will generate the macro-level patterns seen in the historical data. Once the model is developed and calibrated to historical data, it can be used to calculate the contribution each show makes to the channel's bottom line, guide strategies to increase the revenue generated by the channel's current set of

shows, test different distribution strategies across the show's lifecycle, and forecast the value new shows would contribute to the channel and/or enterprise.

Through simulation, the model is able to address the following issues:

1. The model estimates the total value created by existing programmes by analyzing each show's impact on the channel's brand equity and viewership. The ability of each show to attract and retain an audience is measured, and used as a basis for calculating its contribution to the streams of revenue generated by each programme on the channel. The model also simulates lead in effects to show the impact of a hit show on surrounding programmes.
2. The model tests policies to improve the value generated by current shows in the context of the entire ecosystem of the enterprise. One of the core advantages of the modeling approach is its ability to trace the impact of a policy change across all platforms, including the impact of new distribution platforms or mechanisms.
3. The model forecasts the potential value new programs could contribute to the enterprise by estimating their appeal to the (1) audience watching the previous show, (2) the population of potential viewers who are just tuning in, and (3) loyal viewers with existing expectations on the type of shows they can expect. In this manner, the contribution each programme makes to the brand equity and total viewership can be calculated. ■

Knowledge alone is no longer power. The truth behind that knowledge is.

REALTIME / *continued from pg 37*

about it? Will it equate to higher ratings for next week's show? Does it provide a new idea for a storyline? Business discovery dashboards can help with those questions –and they don't need salespeople to come back to base to do the number crunching. Questions can be posed on mobile phones or tablets, while the salesperson sits with the media buyer and things of innovative new ways of getting their commercial in front of audiences.

One leading US TV network evaluates social media comments and trends using QlikView Source, which gives meaning to this kind of unstructured data. Among other things, it assesses historical advertiser behavior in the light of upcoming TV programming, and examines how integrated campaigns can maximize the audience for commercial messages as well as the revenue for the broadcaster. If one can show how an advertiser that buys spots in a show like "American Idol" can increase their impacts by running an interactive ad that uses a cellphone to identify music while linking to a Web site for further information and gleaning valuable consumer data, it's worth knowing about. Campaigns like this demand creative thinking. But they also rely on meaningful data that an advertiser can trust. Joe Dino says: The network believes that it's at the early stages of truly understanding consumer behaviour in this way: it's a new form of metrics; a discipline that is still evolving.

Knowledge alone is no longer power. The truth behind that knowledge is. And the truth is within the data – from an inexhaustible number of sources. When gut-level creative decisions, often the heart of the entertainment business, are made with the reassurance of brilliant, real-time meaningful insight such as that provided by Business Discovery solutions like QlikView, the corporation can discover true power. ■



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w w w . r i g h t s t r a d e . c o m

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Instantly upload title metadata and Avails to
Rightstrade through FilmTrack

Secure hosting, transcoding, and delivery of metadata and
digital assets through the
Rightscloud network of leading servicing partners.



FILE-BASED WORKFLOWS /

continued from pg 54

broadcasters sending to affiliate stations that have different requirements for formats, frame rates and standards. This is also ideal for automating production workflows such as when camera files are sent for archiving, high bit rate ready-for-edit files are sent to a post house, or as digital dailies are sent to a producer's desktop or mobile device.

Following post-production, Brevity can facilitate and improve file based distribution in a variety of ways since much content today is still put on hard drives and physically delivered. For instance, it can be used on commercial Internet more cost effectively and at similar speeds to satellite and fiber for certain types of distribution requirements. Brevity is currently being considered for TV distribution opportunities and longer-term, as a way for digital cinema to securely move away from hard drive delivery.

VOD often involves distribution of large libraries of material, which must be transcoded into hundreds of different formats for each destination. For example, to distribute 400 films to 10 locations that each require a different format, current technologies create multiple versions using a transcoding farm that then requires 4,000 transmissions to deliver. With Brevity, transcoding and transport occur simultaneously; so 400 files are sent and delivered in the required formats to all 10 destinations at once. Brevity can transform this multi-screen distribution requirement, opening up additional doors of opportunity for the entertainment industry.

Brevity enables leading M&E companies to move beyond decades of inefficient workarounds to embrace a more streamlined and cost efficient way of handling file-based workflows.

Since the Brevity solution improves video transport and transcode both internally and with collaboration partners, there is tremendous potential for viral growth and acceptance by large global media customers. After a successful NAB launch in April, Brevity is now working with leading networks, studios, content providers, sports teams, and production houses to redefine key media production and distribution workflows in the U.S. and around the world. ■

“Turning the tables” though metadata syndication is powerful because it challenges distributors to innovate and compete to deliver the best consumer experience.

METADATA / *continued from pg 80*

originally intended to drive social media activity during first-run viewing, are being stored as persistent time-based metadata with particular episodes and scenes, so that they can be leveraged by applications and users in later syndication and VOD.

Time-based metadata also has important implications for ecommerce and enable new transactional revenue opportunities for both content owners and distribution partners. In 2012, eBay introduced Watch With eBay, a stand-alone iPad application that surfaces current auctions and “Buy it Now” items that are related to a particular program. eBay has also demonstrated a version of the application that uses time-based metadata to surface items that are related to a particular scene, and expects.

Time-based Metadata, Windowing & Personalization

One of the greatest opportunities for content owners and distributors alike is to leverage time-based metadata to proactively drive consumer activity in new viewing windows, and with new viewing patterns. Through metadata syndication, the same digital file can offer the consumer a new experience with each view, and that experience can be influenced by whether it is being experienced in parallel with the first-run viewing, within the Nielsen C3 window⁵, or in a VOD session.

Technically speaking, windowing relative to time-based metadata means that based upon the specific time-window at which a viewer engages with a piece of content, a corresponding package of related content layers can be made available. These time-windows can be relative to first-run or premiere of the content, or personalized to a specific viewer and corresponding with successive views.

Time-based Metadata and the Future of TV

Over two decades of video product development, time-based metadata has emerged as one of the most important components of a successful digital video distribution strategy. This descriptive information about what is happen-

ing at any moment is critical to differentiation in a multiscreen world, and will play an increasingly important role in differentiation across distribution partners. As smartphones, tablets, and smart TVs proliferate, there will be increased demand for rich and valuable time-based metadata delivered as part of the master asset. Increasingly, time-based metadata will unlock the context of film and television, and will power the new user experiences and new revenue streams that are only possible on emerging two-way digital platforms.

Just one decade in to the twenty-first century, we are starting to see indicators of a vibrant metadata ecosystem growing within the folds of the traditional film and TV production and distribution industries. Writers and producers will increasingly create time-based metadata as an inherent part of their creative storytelling process, and production companies will increasingly package, license, and sell that critical enabling meta-layer to their programmer and distributor customers. Programmers and distributors will in turn increasingly deliver a time-based metadata layer to their cable, satellite, telco, web, mobile and OTT licensees, so that those consumer facing services can unlock the context of every moment of film and TV for their audiences. ■

2 Time-based metadata is typically provided as a JSON or XML formatted message so that a product developer or programmer can choose from available time-based information and use it as they see fit in a consumer experience.

3 ISAN is the International Standard Audiovisual Number a voluntary numbering system and metadata schema enabling the unique and persistent identification of any audiovisual works and versions thereof including films, shorts, documentaries, television programs, sports events, advertising etc. <http://www.isan.org>. EIDR is a universal unique identifier for movie and television assets. <http://eidr.org/>

4 Walt Disney Studios Distribution has been a leading innovator of synchronized consumer experience on a tablet associated with a film. More info available at <http://disney-secondscreen.go.com/> 5 Founded in 2007, the Culver City-based company develops new properties delivered via Internet browsers, smartphones, game consoles, TV's, movie screens and in the physical world. <http://fourthwallstudios.com>

5 Nielsen C3 is a metric launched in 2007 which refers to the ratings for average commercial minutes in live programming plus three days of digital video recorder playback.

Mobile devices are becoming a catalyst for completely new enterprise applications, and vice versa.

MOBILEMATTERS / *cont. from pg 10*

also need to ensure that the content and tools employees need to get work done are both accessible and secure.

This new paradigm poses a major challenge for today's businesses: how can IT let new technology run rampant through an organization, technology that is fundamentally improving business outcomes, while still maintaining some semblance of a coherent IT strategy?

Enter The Enterprise Cloud

Everyone wins when workers have the mobile devices and software they want to use, rather than what they have to use, and IT departments have the oversight and visibility they require – and this can be achieved with a next generation enterprise cloud solution.

New generation of cloud-based business solutions are beginning to make this duality possible. Intuitive services like Uvic, Signiant and Box give employees at media and entertainment companies the flexibility and mobility they require, while also providing enterprise-grade security and visibility for IT professionals.

For new devices to be fully corporate-ready they need elements like security, device tracking and management, and powerful cross company collaboration - areas that can help continually and sustainably innovate. The cloud rewrites the rules here, enabling new handsets and tablets to connect to the "grid"

like any other computer and become a tool that enables employees to work together securely across multiple platforms and from any location - finally making the mobile workplace a reality.

And with the truly mobile workforce, completely new computing cases are emerging. As a large number Hollywood studios and labels are now moving their information and collaboration to the cloud, our customers share stories of sales teams showcasing their latest project - from the scripts to the trailers, while on-site with just their iPad in hand, a marketing team delivering and tracking exclusive content straight from their mobile devices, and a creative executive creating a centralized library in the cloud on an iPad for all media assets related to a movie launch. Mobile devices are becoming a catalyst for completely new enterprise applications, and vice versa. The marriage of the two is so uniquely powerful that businesses will experience a wave of productivity transformation over the next few years.

Mobile + Cloud Revolutionizes the Way We Work, Together

With mobile and cloud technologies, employees now have the ability to store information once, and then easily extend it across all the applications, devices and people they are working with. People don't work in a siloed

world anymore. It's about using solutions that work together, and powerful platforms that connect and become enhanced through integration: cloud-delivered applications like Salesforce to run your sales organization will connect to your business information on Box or HR information in Workday and Netsuite will plug into your social software from Jive or Yammer. The mixing and matching of services that's common in our personal lives is now extending to the workplace, and in turn driving vastly more open solutions that are changing the business landscape and how we interact with each other.

Mobile and cloud adoption in business has led to dramatic changes in productivity, speed of execution, and overall sentiment towards technology. People are able to work much more quickly, access more information than ever before, and make decisions in real-time that are backed by data - all leading to a more open, connected and collaborative work environment. With the right solutions, both the end user and IT professionals are happy – employees are using products they love and IT is finally able to get ahead of the game instead of having to fight fires, solve problems, and answer to unhappy users. We've seen more progress made in moving towards a more collaborative and mobile IT strategy in the last year than in the previous ten years, and this revolution will continue to gain momentum - and attention. ■

PHYSIGITAL / *cont. from pg 8*

vide a social experience, unlimited data and online content, plus full interactivity – and all for an extra price – and you're beginning to see the myriad ways that home entertainment can enrich the repurposing of theatrical and television fare for electronic sell-through.

But, let's not get ahead of ourselves. Just like we did with DVD, content holders will have to budget for the bonus content well ahead of its release. And just like the technical revolution of DVD, we will have to utilize the technology behind the Internet (interconnectivity, social media, big data, etc.) and serve this up to the consumer in a simple, easy-to-use interface that is consistent across ALL

We should be looking at 2nd Screen as something fundamentally linked to the history of home entertainment – our industry's next big format.

applications and ALL studios so the consumer has a gratifying user experience regardless of the device, SKU or application.

Yes, digital is the big new wave in home entertainment. But only when it's coupled with the emerging 2nd screen ecosystem/experience can our industry truly reinvent the way our content is being consumed and build an

entirely new, profitable sell-through business model.

Rather than view this as something disruptive, or worse, something exclusively of value to our broadcast partners, we should be looking at 2nd Screen as something fundamentally linked to the history of home entertainment – our industry's next big format. ■

If there's one truism in the media and entertainment industry, it's that files will continue to get bigger and delivery schedules shorter.

FILE TRANSFER / *continued from pg 69*

is invaluable for file movement related to any type of creative media collaboration, such as editing or localization of content for distribution to foreign markets.

Such a solution has instant appeal for IT managers, who now have a way to empower their users while at the same time cutting down (or eliminating) the use of unsecured public cloud services. With the actual content stored locally, security concerns are eased. Tracking and reporting tools offer a centralized view of the system's usage and user activity including numbers of users, status of currently running transfers, file size metrics, bandwidth usage and storage capacity. And, by delegating the lion's share of user administration to project and operations managers, IT managers are freed to perform other tasks.

For operations managers, a hybrid file transfer solution offers an excellent platform with which to create a collaborative, motivating environment for workgroups and project team members. With easy customization tools, project managers can add logos and graphics to create a branded portal with its own URL

(or multiple portals in different languages, for collaboration on short- or long-term projects). Since managers can handle their own day-to-day administration of the portal, including managing authorized users and administrators, they are more in control and less reliant on IT for assistance.

With the hybrid file transfer model, end users are presented with a very simple interface that closely resembles those of the public cloud systems – but with complete sanction from corporate and IT management. Even better, they have the ability to share files freely and rapidly with colleagues, partners, and vendors, with no restrictions on file size.

Powerfully Simple File Movement

If there's one truism in the media and entertainment industry, it's that files will continue to get bigger and delivery schedules shorter. Consumers' appetites for the latest and greatest high-definition and 3D programming will continue to grow, and one consequence is the sheer size of the files that now need to traverse the network – with "super HD" formats such

as 1080p 50/60 and even 3D gobbling up huge amounts of bandwidth. Media organizations are pressured like never before to get content to market as quickly as possible and distribute the latest versions to multiple territories within a select and finite period. It's a process that's highly dependent on global collaboration and partnerships that enable the seamless and secure exchange of content between content owners and post production companies, distributors and other business partners.

A hybrid system for accelerated and secure file transfer that provides an easy-to-use user interface in the cloud, but keeps the actual content within the secure confines of the corporate network, addresses the key file movement challenges facing IT, media operations staff, and end users. IT is freed from day-to-day system management, operations managers have complete control, and end users are empowered with the same type of access and file movement tools they expect from public cloud services – but without file size limitations. With such "powerfully simple" capabilities, such a system is specifically tailored to the demanding requirements of today's media enterprises. ■

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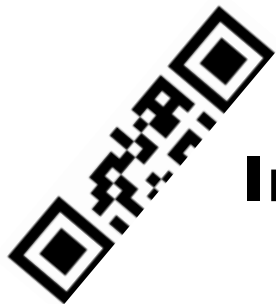


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Interactive Packaging

UPCs, QRs and More.

By David Padula, Owner,
p design lab



Abstract: This article addresses the changing forms of Interactive Packaging and new developments that the home entertainment industry can use in their products.

Interactive Packaging is a term that has been around for a while and taken on many forms over the years.

Companies and brands will apply that label to everything from an RFID tagged package to a textured or embossed SBS box that draws the consumer in with a “special interactive” feeling or sensation when they pick the box up off the shelf.

However, there are now technologies like ScanLife using QR (quick response) codes, Augmented Reality and others that finally give the brand and consumer the chance to be really interactive through packaging. This interactivity can happen in store with smartphones or at home with smart appliances and computers.

With a simple scan of the UPC, QR code or even a logo, consumers can now get immediate additional content on the product they are holding. Content can range from coupons to promotions or unique experiences, and it can be tailored directly to their individual needs and concerns - all while the consumer holds the product and packaging in their hands. It's even possible to push content like food allergy awareness, a product's supply chain/environmental impact footprint or even just product reviews from like-minded consumers. The interactive content options and opportunities for brands to interact with their customers are endless.

When it comes to QR codes, there is also real data available to prove its interactive

power. Marketing and communications agency MGH conducted a study showing that 49 percent of U.S. consumers who saw QR codes on products or even in advertisements have scanned them. In Q1 of 2012, ScanLife processed QR code traffic from more than five million unique users, a near 200 percent increase from a year ago, and a million more than Q4 2011. Total scans with ScanLife continued to climb as well with 13 million scans processed in Q1, a 157 percent increase from a year ago.

QR Codes

With the film *I Am Number Four*, Walt Disney Pictures wanted to provide content to promote the feature release and needed an exclusive way of delivering this content that would get passed virally online. Codes were placed on one-sheets to give the audience exclusive video that could not be found in other locations. Users simply scanned the code to unlock this content and they could then pass it around to friends. Tens of thousands scanned over a three-month period.

The movie, *Surrogates*, by Touchstone Pic-

tures, gave readers an easy way to win tickets to the premier by scanning a code in the magazine ad. Just scan the code, enter your email and name on the mobile site and you're entered.

The real time analytics that can also be delivered with these types of campaigns allows brand owners to see who, what, when and where the codes are being scanned. With that type of previously unknown real time campaign data, the brands can actually tweak aspects of the campaigns as they go, ensuring as much marketing impact as possible.

With most of the interactive options placed on the packaging, it provides a direct channel to the consumer. That being said, because the interactive packaging options are relatively new, adding instructions on how to actually use them is usually necessary. Figuring out how and where to place those instructions can provide some design challenges. With the limited shelf footprints given for product at retail,



Surrogates box art with QR code.

graphic coverage area is already at a premium.

However, as a packaging designer or supplier, there is a great opportunity available for us to help our customers create a unique interactive packaging experience with each project. What happens to branding and controlling the brands message from that point on is new uncharted territory. ■



David Padula is the owner of p design lab, a manufacturing rep and promotional product agency that along with their strategic partners, can offer printing services, custom made premium items, retail POS displays, assembly, fulfillment and environmentally friendly solutions. David can be reached at David@pdesignlab.com & pdesignlab.com.

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IMPACTZONE / *continued from pg 106*

With a desire to diversify our products and services, we turned our attention to the cable industry. The OpenCable platform has similar DNA to Blu-ray. Tru2way™ sounded very promising. Who wouldn't want smart and interactive set-top boxes? We submitted an entry to the cable industry's innovation showcase to feel the pulse of that industry. Our acceptance to the showcase spurred us to create similar solutions for the OpenCable platform. However, it did not take us long to recognize that this fledgling technology had some major roadblocks. Shelving our product line for this platform, we called for an internal "phase change," a term we have to come to use quite often at Jargon.

Monitoring Mobile Platforms

At this time, BD-Live™ was gaining traction, we ramped up our services and updated our Blu-ray product line to meet the demands of the industry. It turned out to be profitable for us but not in the ways we had envisioned. After a year of building servlets, game lobbies, communication components and bootloaders, it was time for another phase change.

On the mobile side, the App Store launch had been a grand success. The iPhone developer program (now known as iOS developer

program) was embraced by the software community. We joined the bandwagon putting ourselves and the staff through rigorous Objective-C training. Our roots were in C, C++, and Java so returning to this flavor of C was like coming home. Like fashion, technology is cyclical often making us developers dizzy. But as many of my engineer friends would attest to, this dizziness elevates our brain to a heightened state of consciousness. It is in this higher state we developers produce our best quality of work. So we always tell our clients to go ahead and give us a spin!

While we've been spinning, we've been dabbling in HTML5 and Windows 8. After a weekend hiatus with HTML5, our typically stoic Chief Platform Architect stormed in and proclaimed that he has fallen in love. The object of his affection was the <canvas> tag! Right then, we knew this technology would be a <mark> winner </mark>. HTML5 is not slated to become a standard until 2014 but we are continuing our courtship. Meanwhile, the fact that Microsoft is putting its might behind its next generation operating system has not escaped our attention. Come October, we are all set to go metro!

Throughout all this, we remained bullish on Android. Our passion for that platform

stems from its architecture being so open, that we could easily envision it to be powering anything from the next generation vacuum cleaner to the unmanned drones for the military. Three years ago, we downloaded Android SDK to participate in Google's developer's contest. We planned to submit a product that would help developers create interactive applications across devices. It would automatically discover devices and enable them to talk to each other. Our prototype was a multiplayer game that ran on Android, iOS and Blu-ray. We completed the prototype, but found ourselves too busy in our startup to polish the product for the sake of a contest.

Fast forward to today's era of smartphones and tablets. Second screen applications are trending. Jargon called another "all-hands-on-deck" phase change. But this phase change took us back in time to 2009. That product we never submitted to that Google contest is now called JargonTalk and has been used in several high-profile second screen applications, with many more to come.

The Impact Zone sure is a challenging place to be. High adrenaline and cortisol rule here. Once in a while, when a technology you've shelved years ago comes of age, there's a surge of serotonin. And it's well worth it. ■



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A 42-year old non-profit association, CDSA is the advocate for the secure delivery and storage of entertainment, software, and information content. Its Content Protection Standard and Copyright & Licensing Verification Standard are respected by leading content holders and their service provider partners worldwide.

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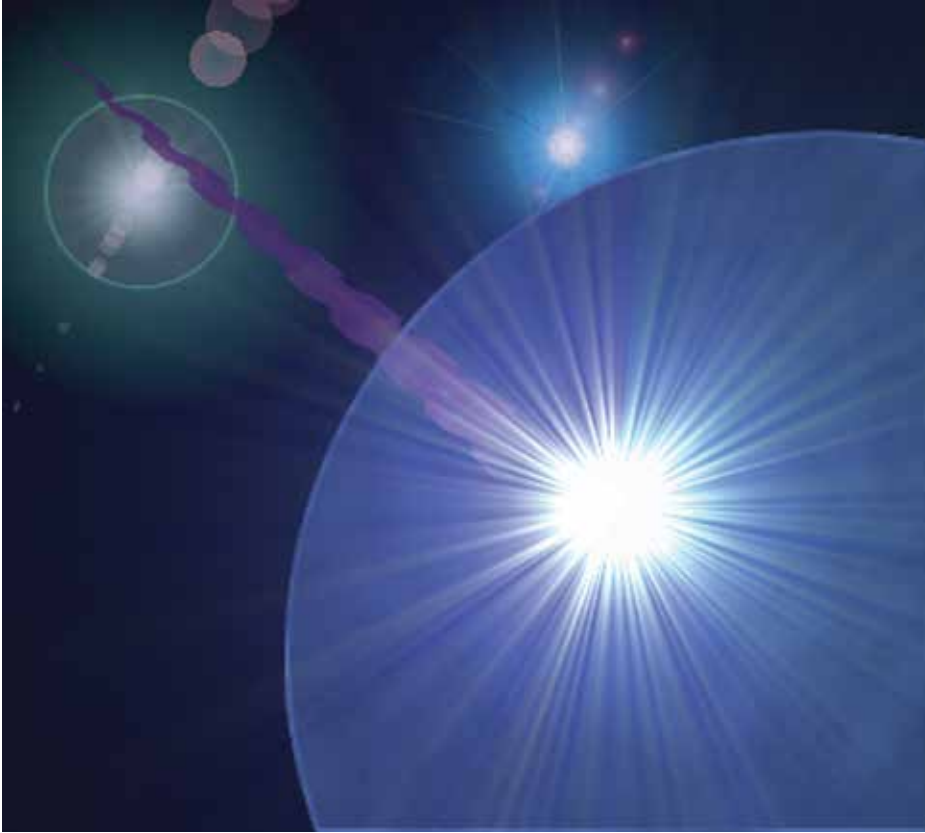


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Notes from The Impact Zone

Adapting to changes in new technology.

By Bhanu Srikanth, CEO & Co-Founder, Jargon Technologies



Abstract: Technology has a habit of eroding established business models and disrupting conventional practices. It has been over three years since we pursued our goal of enabling the creation of innovative interactive media applications. In this short span, we have had to constantly re-strategize, unlearn, learn, relearn, create new processes, and develop new products and services in anticipation of a change in the media production landscape because of a new technology or a standard.

It was toward the end of year 2008. The world economy had taken a sharp dive, triggering worldwide recession. The global financial crisis was deemed to be the worst since the Great Depression of the 1930s. American financial institutions were falling apart, GDP was on the decline and unemployment was rising. It was in this atmosphere of acute pessimism, three of us were pondering over the name of our technology startup. Going against the advice from friends, advisors and our own common sense to put the venture on the backburner, we were meeting to debate over the name and

not over the existence of our company. Being hardcore engineers, none of us are used to listening to the voice of common sense. We saw optimism in Apple's launching of the App Store, Google's announcement of their Android developer challenge and in swimmer Michael Phelps sweeping away gold medals at the Beijing Olympics. Americans are winners, we said to ourselves, regardless of recession. It was the Year of the Rat, we argued, how can qualities such as hard work and diligence go unrewarded?

Our goal was to set up a software technology house in the industry known for creative and marketing talent - a small slice of Silicon Valley in Hollywood. Our competence and expertise in Blu-ray Disc provided us with a launching pad even while we delved into iOS, downloaded the Android SDK to take up Google's challenge, and researched cable and Smart TV technologies. We were prepared to be nimble as we expected new technology and its execution (or lack of) by the leading companies would effect a change in our strategy or direction. We soon realized nimble was not good enough. We needed to learn to live in the Impact Zone.

The Days of Blu-ray

Blu-ray Disc had won the format war and companies were looking to streamline BD production. We focused our first line of products on Blu-ray™, creating a robust foundation and a suite of tools. Although several companies were pushing BD-Java™ automation tools as the solution, we knew given the scope of the Blu-ray spec and the creative freedom this industry yearns for, BD-J automation tools would not be successful. We were vindicated by the success of our more adaptable, extensible libraries.

Continued on pg 104



As CEO of Jargon, Bhanu is responsible for overall corporate and technology strategies, account management and business development. Through three years of growing a satisfied client base, Bhanu has had the privilege of working with motion picture studios, creative agencies, and authoring partners. She is also the Chief Culture Officer, ensuring that all talent hired supports Jargon's vigorous coding standards and robust delivery methodologies.

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