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Hollywood’s ‘Antifragile’
Supply Chain Opportunity

By Devendra Mishra, Chief Strategist, MESA, Executive Director, HITS

The 2007 book “The Black Swan” by Nassim Nicholas Taleb tackled the impact of large-scale unpredictable and irregular events on human society, and how identifying collective vulnerabilities — and approaching uncertainty with positivity — can see us come out of a “black swan” event intact.

The COVID-19 pandemic is easily the most grave “black swan” event experienced in more than a century, and M&E is feeling the impact along with most every industry. The near full stop of production of films and TV shows, and the shutdown of theaters, ed TVs and smartphones all called for a re-wiring of the supply chain for consumption of content, anywhere, anytime. As a result, the M&E industry is less vulnerable to physical realities. While the consumption of toilet paper skyrocketed early on in the pandemic, that was nothing compared to the unprecedented demand for entertainment, thanks to stay-at-home orders.

The direct-to-consumer (D2C) avalanche that gained steam in 2019 minimized content owners’ traditional dependence on intermediaries like retailers and theater chains to deliver content to consumers. Nobody could have predicted how crucial that D2C shift, marked by the building of resilient and robust digital platforms by content owners, would prove just a year later.

Paradigm shifts
Crises often usher in paradigm shifts, and COVID-19 has been no exception. Think of the battle long fought by theater operators to prevent new releases from being streamed to homes (at a premium price) day-and-date with their theatrical debut. That debate may be settled for good, even when theaters open back up. The floodgates opened when studios moved to make all their new releases quickly available in the home, and consumers may have a difficult time expecting less than that going forward.

Behind the Hollywood scenes, the government edicts of social distancing and sheltering at home have forced another major shift in how we work. Our industry was better prepared for this immediate transition than many, thanks to global IT and Silicon Valley tech companies that had already laid the groundwork for telecommuting. There are many companies that haven’t missed a beat now that physical interaction with customers is difficult. Professionals are now Zooming to communicate with their teams around the world, and indications, at least early on, show neither productivity nor employee satisfaction overly impacted. Will it make sense for us to go back to our daily commutes and cubicles when this is over?

As in the past, technology is coming to the rescue of filmmakers and TV producers, by reinvigorating the supply chain with digital technologies, the cloud, artificial intelligence, machine learning and blockchain. While streaming, video conferencing and remote collaboration tools are providing for communication needs, Hollywood’s established digital supply chain — linking script development with pre-production, production and post, marketing, distribution and personalization — has made this transition easier than it would have been not long ago.

Continued on Page 136

Devendra Mishra has been the president and COO of companies including LIVE Entertainment, VCL-Carolco, Lieberman Enterprises, Technicolor Worldwide Media and Distribution, and Strawberries Records and Tapes. As a former adjunct professor of Decision Sciences at Pepperdine University, he is recognized as an eminent thinker and practitioner of supply chain management in entertainment and life sciences. devendra@MESAlliance.org
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We’re All in This Together

By Guy Finley, President, Media & Entertainment Services Alliance (MESA)

ow, more than ever, the voice of Owen Wilson often resonates in my ears: “Wow!” It’s incessant and unrelenting, definitely juvenile, but also kind of comforting and soothing. It’s a simple word that really means everything, like f@k... but always with a smile behind it, because it’s in his voice and mainly his drawl of a delivery... “Wooooow!”

Everyone is seeing their work/life balance being completely obliterated by our “new normal” (ugh). Have you said or heard “Just get it done” recently? Or “Everything’s on the table so figure it out?” Or maybe, “All bets are off?” Perhaps it’s the non-stop online meetings? It’s become hard to press pause on our work lives, when there’s no familiar 9-to-5, and the office is on the dining room table.

There is a positive aspect to this remote, work-from-home situation as we get a glimpse, without being too intrusive, into everyone’s personal space and life beyond “the office.” I usually see people at one of our events, or a gala, looking their best and ready to network. Just a few short months ago we would never have considered (and even my own office is contemplating) a future where we aren’t gathered in the same room, building, set or lot each weekday while we do our jobs. Or a short-term cessation of gathering with our colleagues, friends and partners, at conferences and events around the world. We’ve experienced SEISMIC changes that definitely pierce the sacred veil of the work/life balance! “Wooooow!” See, it’s comforting, isn’t it?

But this is “it.” This is our time. This is our moment. This is where our communities truly shine.

This is when the ongoing investments we’ve made in our relationships, in ourselves, and in our industry over the past decade, are meant to pay off. As the world suffers, languishes and sorts through the complex details of “recovery” (one that we have not seen in the modern age), it is the media and entertainment industry that will continue to fuel hope, to fuel dreams, and to fuel our local, national and global economy. We are entrusted by BILLIONS to be a shining light and we founded our MESA communities by innovating and transforming (much like software development) while building the engine within the machine that powers that light.

I’m writing this having just produced our first “virtual” summit for our Content Delivery & Security Association (CDSA) community. The software recommended a 90-day adoption path. We did it in three weeks. It wasn’t just a webinar, but a beginning of the transformation of our events into our new normal. The security community came together and 200-plus people spent more than three hours online watching, chatting, learning, connecting. My goal was to mirror our physical experience (honored over 10 years of community input and support) in the way we gather and how we connect at an event. It had to “FEEL” like MESA, but through this flat, now-overused, medium. It worked, but it was a beginning. An evolution that will mirror the macrocosm of live events and the new experiences we will be forced to create to keep our people (and our cultures) connected during the pandemic.

What might have been

The 2020 NAB Show was going to be huge for MESA. We were set to unveil a new look for our brand; a new vision for our products; a transparent process workflow where users controlled their frictionless data journey across these products; and a new path for our community to collaborate on a global scale at an unprecedented level. Wow!

It was the beginning of a three- to five-year roadmap of efficiency and scale within our industry with so many strands on a loom, that the breadth, depth and the ambition of collaboration was almost incomprehensible.

The transformation relied on the last decade of solid data and improvement of the technology backbone of Hollywood, which has evolved at a steady pace, relying on the same science-based principals that allowed this pragmatic approach to building (now very similar to software building) through to the next generation of format or experience. It was pretty much a “sure thing” in my mind, like Moore’s Law or Occam’s Razor.
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MESA Member Global E-Calendar: mesalliance.org/global-e-calendar/

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The Media & Entertainment Services Alliance (MESA) was founded in 2008 to advance efficiencies in the creation, production and distribution of media & entertainment content. On behalf of its membership, MESA produces quarterly events, daily email newsletters and this journal publication. Its industry initiatives include technology communities in data, information technology and security. MESA is the management company responsible for the community efforts of MESA Europe, Hollywood IT Society (HITS), Smart Content Council and Women in Technology-Hollywood (WITI) as well as the business operations of the Content Delivery & Security Association (CDSA), the Entertainment ID Registry (EIDR) and the WITI Foundation.

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The Formula for Smart Content: Make the Future Now

By Mary Yurkovic, Director, Smart Content Council, MESA

Making content smart requires technology, processes, data and, of course, people. What’s equally important — and the driving force to making content smarter — is innovative leadership.

Organizations are constantly evolving and the future of “work” revolves around smarts, especially data smarts. Every organization relies heavily upon data, and smart data creates smart content.

So how do you navigate the “now” of your organization and the massive amounts of data it produces? How do you produce smart content within a rapidly changing world?

Ruminating about the notion of operational excellence, leadership and future forecasting in relation to the world of rapid change we are living in, I’ve noticed how little progress has been made in the field of strategic forecasting for innovation in content companies. In the coming years, businesses and their leaders will rise or fall based on their ability to pivot on a dime, anticipate and creatively respond to rapid change.

But how exactly does one anticipate and creatively respond to change in an era when so much seems unpredictable? Predicting the future will always remain problematic, even with the availability of predictive algorithms spanning areas such as M&E, data, technology, finance and global supply chains. Guidelines in this realm are overdue for improvement.

Too many organizations wait far too long to make originitive changes. They wait for yearly budgets. They wait for some fancy technology to solve all their troubles. They wait for seasoned staff members to retire so that they can swivel around change management issues. Meanwhile, everything deteriorates … especially the smart content. And you don’t have to let your content suffer. The formula for keeping content smart is rather simple: Get started now, on any changes you see that need to be made.

Innovative leadership is the art of doing things you’re not sure about, making the best decision possible based on available knowledge, awareness and data. Generating a spark for making things better. Leadership is often conflated with management, yet they require completely different expenditures of time and energy.

Innovative leadership is voluntary, being willing to take risks, with the goal of making your product (content) better. And so much of what informs that is data: An organization needs smart tools, technology and people to surround that data, and organization-wide access to that data and insights must be provided to facilitate decision making. With intelligent data available to your “human supply chain,” more-informed perspectives result in groundbreaking insights on most any given business challenge … including creating smart content. Freeing your data to your people results in business-wide opportunities.

Overly cautious leadership and bland data results in plain content solutions. There’s a dire need across Hollywood players to reinvent their processes to change that, and make content smarter.

The opportunity is huge, and the tools already exist to make your content smarter than it is today. Be innovative, and make your future now.
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Right at the start of the U.S. COVID-19 outbreak, Tom Hanks, one of the finest actors of all time, contracted the novel coronavirus. I, like many of you, love Tom’s work and will bet that his news had an impact on you. Something like, “Wow. This is real! The coronavirus just infected Mr. Rogers! Run Forrest, RUN!!!”

While I physically felt that news, that moment also took me back to another time. It was a crisis moment a little over five years ago. For those of you who know me well, you know that moment was November 24, 2014, when I became a “first responder” to the cyberattack against Sony Pictures.

While many may think of the cyberattack purely in terms of a technological breach of the systems at Sony Pictures, that was only a part of the story. I’ll always remember the more meaningful impact it had on the people inside and outside of the studio. The attack cracked the feeling of safety for many in the industry as a whole, along with our families, and our colleagues. The attack generated significant uncertainty across the entertainment landscape: Will the rest of my life be impacted by the data stolen about me? Are my finances safe?

We were digitally quarantined. Almost every tool we used to get work done was unavailable. How were we to work? Where do we start? Concern. Doubt. Uncertainty. For the employees, the attack initiated an instantaneous upheaval of our lives.

Upheaval. Sound familiar?
So, here we are. Upheaval. There is no other word we can really use to describe the present. Almost everyone is impacted, other than a few Northern Rockies survivalists. Little League, canceled. Dance classes, March Madness, Lady Gaga concert, all canceled. Olympics, postponed. Spring break trip? Nope. Gyms, movie theaters, churches, all closed. Schools and childcare facilities closed, and guess who’s now the teacher? Working from home is the new normal for most everyone … some of us now have around-the-clock company at our desks. Others are in complete isolation. We can’t meet at our favorite restaurant because it’s closed and heaven forbid … at this time of all times … the BAR IS CLOSED!


Someone didn’t just move our cheese, all of our cheese moved. And our comfortable just became very uncomfortable. Where did our normal go?

New connections
Maybe it’s time to ask what Forrest Gump asked: “What’s normal anyways?”

Adjustment. Transition. New norm No. 1.

We are ALL in transition to our first “new norm,” where we will get used to navigating our lives fairly efficiently without our conveniences. And there will be another “new norm” to follow. However, while this new norm has been based on our reaction, our next new norm will be our response.

Things will never be the same again … because we are all about to make so much of our future even better.

Upheaval. It can be painful and unwanted. While none of us wants or wishes for the suffering, there are also gifts to be found in our collective societal upheaval. We are forced to raise our heads and see each other. My hardships, your hardships, are shared. My small win, your small win. My kids in the Zoom, your kids in the Zoom. Our lives.

We begin to notice more of what is going on around us and how it connects. Connecting us. And that our seeing and understanding leads to kindness, courage and action. Helping. Worldwide empathy rises.

We are beginning to see each other now, more than ever. Connected.

Upheaval has happened to generations

“All of us, at some time or other, need help. Whether we’re giving or receiving help, each one of us has something valuable to bring to this world. That’s one of the things that connects us as neighbors — in our own way, each one of us is a giver and a receiver.”

— Mr. Rogers

Eric Iverson is a global senior technology and business leader with more than 20 years’ experience in the M&E space, including more than 17 years working with Sony Pictures Entertainment, culminating in the role of SVP and divisional CIO for Sony Pictures Television, and more than three years as CIO and CTO of Creative Artists Agency (CAA). He is founder of Iverson Consulting, offering advisory services around strategy, innovation, digital transformation and data in the M&E space. eric@iverson.io
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What once was a rarity is now a necessity. What content owners previously frowned upon is now the only way to keep business running. In short order, work-from-home has become M&E’s day-to-day, remote reality. Learning as it goes, the industry is working through unforeseen challenges ... and discovering unexpected benefits.
Abstract: Facing today’s COVID-19 storm means marching through it, not running away from it. It means embracing the changes that have come with our new normal.

By Timothy Sheehy

live on the Great Plains. Home to horizons that go on forever, and blue skies that go even farther. Vast areas of land and air that impress you with your ultimate smallness. Home to blizzards that will literally rip the breath from your lungs.

Blizzards. Alien, dystopian worlds that blur the boundaries between the real and imagined, that make fools of the senses that usually allow you to distinguish between the solid and ethereal. Creatures large and small fear the blizzard. They run from it. Cower. Shelter. Pray.

Not the buffalo.

The buffalo turn, and face into the wind. And then run into it. Seemingly against all natural instinct. It’s almost as if they were daring the blizzard to best them. Taking on the absolute worst that Mother Nature can throw at them and then daring her to do more.

So how to make sense of something like this? The buffalo, by running into the storm, will also be the first ones out of it. If they ran from the storm, the blizzard would catch up with them. Being able to see the end of the storm increases their odds of survival.

If anything is flying along in the wind and heading toward them, they
Much as the birth of the internet led to profound adjustments — not just in the way we work and communicate, but in the way we actually think about working and communicating — the impact of COVID-19 will be the same. It will require new mindsets as the world gets accustomed to new ways of thinking about how we interact, transact business, travel, socialize and make things happen.

have a chance to avoid it, which they wouldn’t have if they didn’t see it coming.

Contrast that with cows. How many times have you seen the images and read the stories of cattle caught in blizzards and not surviving? They run from the wind, maximizing their exposure and reducing their chances of making it through alive.

It’s an apt metaphor for what we’re facing today. A global blizzard of unprecedented proportions. The winds are screaming. The noise is terrifying. And yet those who march forward will be the first to see the sun break through.

It’s important to remember that this too shall pass. This pandemic will come to an end. A global blizzard of unprecedented proportions. The winds are screaming. The noise is terrifying. And yet those who march forward will be the first to see the sun break through.

It’s important to remember that this too shall pass. This pandemic will come to an end. A global blizzard of unprecedented proportions. The winds are screaming. The noise is terrifying. And yet those who march forward will be the first to see the sun break through.

Business as usual is already unusual
This isn’t to say things will be the same. Business as usual won’t be usual. It will be unusual. The new normal won’t feel normal. The months and years to come will be full of unforeseen and uncomfortable adjustments. Some changes will be welcome, while some will be wrenching. But there will be change ... plenty of it. And it won’t stop.

Much as the birth of the internet led to profound adjustments — not just in the way we work and communicate, but in the way we actually think about working and communicating — the impact of COVID-19 will be the same. It will require new mindsets as the world gets accustomed to new ways of thinking about how we interact, transact business, travel, socialize and make things happen.

We have already started that process. We were forced to. In the space of a couple of weeks, the whole planet was forced to make lightning-fast adjustments. If we didn’t do something very different and do it quickly, we stood a better-than-even chance of not getting out alive. That got our attention.

Maslow’s hierarchy of needs has “physiological” as its base for a reason: survival comes first. If we’re not physiologically viable nothing else matters. Above all, we need to survive. When faced with an existential crisis, the human reaction is always going to ensure survival. And humanity has kicked it into gear.

The global system we took for granted got slammed to the mat by a body blow. We retooled everything. We figured it out. Fast.

And somehow, in a matter of days, the wheels of commerce started to turn again in many industries. Knowledge workers, those who deal with information instead of things, figured out how to connect and collaborate with colleagues and clients. Students and teachers got up and running again with video conferencing. Clients and companies made non-physical meetings take place. Deals got done. Presentations were made.

Adaptability on display
The singular quality that makes us the dominant species on Earth is adaptation. We’ve never been the strongest, the fastest, the highest fliers, the best swimmers or the best climbers. Our ability to adapt — and the flexibility and creativity that surrounds adaptability — enables us to rapidly adjust to even catastrophic conditions. That quality has been on global display now for months, and will be the hallmark of our recovery in the months and years to come.

What has been and will continue to be remarkable about this particular chapter in human history, is how widely COVID-19 has been shared. Other recent catastrophes — with perhaps the exception of global climate change — have been more isolated and regional in nature. Wars, famine, floods, fires, earthquakes, revolutions, eruptions, all have affected some part of the

Timothy Sheehy’s background includes years in TV production, on-air anchoring and reporting in network news and multiple entrepreneurial and corporate ventures at the intersection of technology and entertainment.
timothy.sheehy@live.com @CivilityUSA101
population, but not all of the population. This is different.

COVID-19 has been called an “equal opportunity virus” for good reason. Everyone from Tom Hanks and Prince Charles to day laborers and the homeless have tested positive. Everyone, everywhere has had to respond.

For those of us in media and entertainment, it’s presented both great challenge and great opportunity. Streamers, gaming companies, VOD distributors and their brethren have all benefited enormously from the stay-at-home mandate as consumers have turned to entertainment that doesn’t require crowds and contact.

But the story has been very different for other segments of the industry. Productions worldwide have been shut down. Parks and resorts have closed. Cruise ships are docked. Sports teams have suspended or canceled seasons. Cinemas are closed. Broadway is dark. Concerts and artist tours have been canceled. Awards shows are on hold. The list goes on.

The pandemic has inspired millions to put away petty squabbles and prejudices and look for ways to help friends and strangers alike.

What’s next?
There will be adjustments required that we see coming. And many that we won’t. Some will be welcome. Others will be difficult to get accustomed to.

A contraction of the office real estate market is almost inevitable. It’s hard to imagine companies that have now learned to function effectively without people driving into the office are going to go back to people sitting in expensive commercial real estate.

By the same token, millions of people who got behind the wheel or slogged back and forth to work on trains, buses and subways every day are likely to find relief from the endless commutes that robbed them of so many hours of their lives.

Of course, people will still go into offices when it makes sense. In-person meetings will still take place. But it’s certain that before they do, the question will be asked: “Are we sure we can’t handle this with a video conference?”

Every industry will learn to adjust in its own way. And the words of a 96-year-old grandmother I recently heard should give us all hope: “I’ve been through the Great Depression, World War II, the Korean War, the ‘60s, the oil crisis, financial crashes, 9/11. And we always survived,” she said. “In fact, we more than survived.”

She’s right.
She is the buffalo.
Protecting the Vision of Storytellers

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Abstract: In the blink of an eye, M&E companies, like many organizations worldwide, are facing very urgent challenges of secure connectivity and enabling working remotely. Increased requirements loom for huge bandwidth, enormous compute power and extreme fidelity, all while maintaining maximum creativity. Content creators are in need of tools to maintain production progress and collaboration among team members and suppliers on multiple platforms with ease and confidence.

By Jeff Caldwell, Digital GM, M&E, and Dean Fernandes, VP Offer Management, Workplace, Mobility, DXC Technology

Businesses around the world are getting a crash course in distributed workforce management during the COVID-19 pandemic. While the trends toward remote work and cloud computing were already growing, this crisis has created a new urgency for companies to ensure they have the tools and processes to enable productivity and collaboration across platforms and locations.

For the M&E industry, requirements for high bandwidth, enormous compute power, extreme fidelity and team creativity add to the usual challenges of remote work. At the same time, the continuity of our M&E channels is more important than ever as they play a vital role in keeping people entertained, connected and informed.

The industry’s unique computing needs
As in other industries, entertainment companies have been extending production toolsets to remote sites through the cloud to maximize global collaboration, increase talent access and reduce the need for capital expenditures for on-premises technical
When you’re built for change, you thrive in it

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But unlike typical office environments, where remote collaboration might require no more than sharing documents or attending online meetings, studio work requires powerful workstations, complex file systems, dynamic workflows and a high degree of in-person collaboration. Production tasks are highly interactive, whether they involve editing, adding special effects or making sure a shot looks right and everything is in sync. Historically, this has required studios to maintain artists, resources and computing power on campus.

**Factors for success**

To address the growing need for global collaboration as well as recent work-at-home requirements, DXC Technology is helping entertainment companies transform their processes and technologies to effortlessly connect artists to the data and resources they need regardless of their location. For example, we’ve helped a major animation studio with connectivity techniques and capabilities to bridge production resources on- and off-premises, extend key toolsets to remote sites and help the workforce via distributed workflows.

In our work with entertainment companies, we’ve identified several key components for enabling remote work in the industry, including hardware, effective workflow toolsets and high-performance, secure communications.

On the hardware side, creative employees typically have huge workstations that most people wouldn’t have at home. Studio employees are now using their home machines and peripherals to remotely access these high-end workstations. Remote access introduces a certain amount of lag or loss of fidelity for color matching, pixel matching and audio synchronization, but production workers are largely able to get their jobs done, and only a few people must return to the campus for work.

To address some of these issues with performance and fidelity, and give the artist a better deskside experience, DXC is

The media industry has long looked to create a “content creation on demand” culture, based on leveraging global talent. Until recently, this had been a gradual transition, driven primarily by the industry’s need to better access talent, meet the growing need for content, hit deadlines and manage costs.

However, COVID-19 has driven many professionals — and the overwhelming majority of content creation experts — to work from home. That, in turn, has dramatically increased the media industry’s urgency for moving to a content creation on-demand model. It’s become the rule, not the exception. Instead of making this transition over the next several years, the COVID-19 challenge means media companies will need to accomplish this in a much shorter time frame.

COVID-19 has pushed two critical market forces in opposite directions: While the ongoing situation has pushed technology capabilities forward to help people work remotely, it’s also put the brakes on demand and associated revenue. In-field movie and production crews were put on hiatus, and scripted/unscripted TV and movie production along with post-production activities are frozen, significantly slowing down the content creation pipeline.

In this new world, the new norm must become: content creation, management and distribution on a global scale, with talent, workflow and teaming supported by access, applications, compute, storage and security.

**Movies and music show the way**

The movie and music businesses have paved the way forward. Animators, musicians and music producers don’t have to live in Los Angeles or New York

Continued on Page 134

Jeff Caldwell is focused on helping organizations achieve five key digital business goals: enterprise efficiency, advanced industry analytics, customer and social engagement, business acceleration and digital industry innovation. jcaldwell25@dxc.com @DXCTechnology

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Continued on Page 134
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Abstract: A distributed economy is on the horizon. Cloud technology, virtualized servers, software-centric tools, and superfast broadband are enabling this shift, while the global pandemic of COVID-19 has forced companies to quickly respond and adopt new tools and mindsets. Sohonet explores the future of a distributed content-production workforce, and the hurdles that still need to be jumped.

We’re all using remote technologies to remain connected during this unprecedented time. While this shift has intensified in recent weeks, it is not a new phenomenon within M&E, and we can assume that when the world returns to relative normality, the requirement for teams to work “together apart” will remain fundamental.

In fact, we believe that the forced experiment that the whole creative sector is taking part in will lead to a revelation about how remote distributed workflows are perceived with long-lasting impact on business culture and economics.

When social distancing measures were mandated, our advice to customers and industry colleagues was simple: focus on connectivity (cloud or remote workflows), security, controlling the creative workstation, and sharing your work with your colleagues or customers.

These basic steps haven’t changed, except that it’s clear to us that in the scramble to get up and running many decisions taken in the first instance are likely to now impact the overall effectiveness of your workflow.

Security imperative
Chief among these is security. Prior to current events, it would have taken an act of Congress to get approval to bring your pre-release content home. Unless you had the clout of someone
like Michael Bay, you would never have asked to bring the actual content (the workstation itself, the hard drives) to your house.

While there’s definitely a cohort of creatives working purely through cloud resources, we think the majority of productions are seeking continuity from freelancers and staff who took workstations home. While no one is consciously putting their customer’s IP at risk, the number one mistake we are seeing people make, regardless of craft, is inadvertently connecting their workstation directly to the internet.

It’s a lot to take in when you feel like you are finally getting comfortable with your (temporary) “new normal,” but ensuring an “air gap” between your workstation and the internet may be the most important thing you do to protect work and to ensure that when we all return to business as usual, the option to work remotely becomes an ordinary and easy-to-deploy choice.

**Sharing with confidence**

The next issue is sharing. When thinking through this problem, you need to think about the video problem (frame rate, color fidelity) and the people problem (how many remote viewers, is the sharing synchronous in real-time or can everyone comment on their own timeline asynchronously). You also need to think about how to share the deliverable.

Synchronizing your tools works in the office and is easy when you have tons of bandwidth for send and receive, but most home solutions are going to have an asymmetrical speed where the upload is significantly smaller than the download speed. In this scenario, sending the deliverable is a better approach than synchronizing everything, supplemented perhaps with a sync at the end of the workday, which can work through the night if needed.

A remote collaboration tool like ClearView Flex can be used to invite colleagues to a secure live stream. You can do a live edit session or review and approval in real-time with over the shoulder instruction like “back up two frames,” “cut this,” “tweak that,” as near as you would in a suite.

**Obstacles**

Color grading is a different story. It’s not unusual for colorists to take home their project on Baselight or Resolve, but the catch now is that “critical review” quality output is not yet possible from any cloud tools (though many industry players are working hard to solve this).

Restrictive home bandwidth will make SDR color grade reviews tricky, let alone HDR passes. It is not possible to finalize work in a projection theater or on professional-grade reference monitors. Your studio can’t send someone to calibrate your home monitor and we can’t send you complicated pieces of kit and expect you to install it on your own. Any solution in this unique situation has to be really simple, supported by phone, so we can get people working as best as possible, as quickly as possible.

**Going forward**

Society will overcome the current situation and gradually return to work. This will likely be in a phased pattern, dependent on many issues, but key creative talent such as colorists are likely to be prioritized by film and TV productions desperate to finalize shows.

There will be positive consequences resulting from production lockdown. Chief among these will be an enlightened attitude in Hollywood and beyond to the practicality and benefits of a distributed content-production workforce.

There will be positive consequences resulting from production lockdown. Chief among these will be an enlightened attitude in Hollywood and beyond to the practicality and benefits of a distributed content-production workforce. Production in any industry will be impacted to such a degree it is worth delineating this as “before COVID” and “after COVID.”

The economics of the whole industry will be hard hit, so studios will be looking for even more cost-efficient means of production going forward. When approximately 30 percent of a film’s budget is associated with travel, then remote working will now be central to the producer’s equation. In a time when the industry globally is increasingly conscious of its carbon footprint, and with individuals naturally wary of taking any kind of flight in the immediate aftermath, we again see remote work as core to production.

Where before-COVID remote collaboration was seen as a necessity for an overbooked director or the prerogative of a key creative to have review and approval dialed into their location, after-COVID will see it become the norm for any member of production — from director and VFX supervisor to editor — to do more of their work together from where they live, reducing costs and improving speed and agility.

We’ve done the hard yards. Everyone is innovating and solving the problems now. Nothing will be this hard again. We will move from before-COVID — in which 10 percent of the industry had tried remote

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@ChuckParkerTech
Abstract: With the current COVID-19 crisis, technology leaders are experiencing challenges at an incredibly large scale and at an unprecedented speed, from workforce impact, to supply chain disruption, to increased customer demand, to shifting financial goals. Here are some ideas on how to keep up.

The entertainment industry is no stranger to disruption, and change is a constant part of the landscape. In the past few years, fueled by technology, growth in content creation and consumption has skyrocketed by double digits around the world. This has created new sources of revenue and platforms for the M&E industry to capture and capitalize on. To keep up with the demand and global regulations, as well as prevent new security threats, IT teams have had to rethink internal workflow and processes and leaned on cloud technology to support these new mediums.

In a world of uncertainty and constant change, mandatory remote work is the current norm. Organizations that want to ramp up their success are now forced to develop new cloud-collaboration strategies to get the most out of their work-from-anywhere teams. Technology leaders and their business counterparts have to embrace the philosophy of work from anywhere, particularly when it comes to rethinking the core concepts of infrastructure, workplace productivity, and business processes.
Here to help are steps to ramp up remote work in the cloud and thrive in this environment:

1. **Confirm core infrastructure and system capacity**
   When you enable remote work for your internal and external teams, you need to consider a number of factors, including infrastructure stress, system and bandwidth capacity, software licensing, physical capacity for VPN and network capacity. Organizations that expect to initiate broad work-from-anywhere policies should focus on the following areas:

   **Bandwidth to support remote work**
   At the core of remote work is the ability for employees on private networks to connect to applications and content via VPN. This requires network throughput capacity, VPN hardware and enough user licenses to scale seamlessly. Plus, you’ll want to make sure that you have enough VPN appliances spread out geographically to handle 100 percent of your workforce working remotely. These appliances should also be located in areas where you have a larger number of workers to minimize latency to resources they may be connecting to.

   **Ensure you have a readily available identity and access management (IAM) capability**
   Being able to authenticate users and assign them appropriate privileges and access to (and within) applications is a critical precursor to securely enabling remote work. Companies should consider an access management platform to keep critical resources secure.

   **Exercise business continuity plans**
   Planning is essential for managing any crisis. Build a preventive framework to reduce and mitigate the likelihood of business disruption and identify potential risks associated with an adverse event like COVID-19. This reduces the impact to operations, sustains shareholder value, and ensures continued service for your customers. Built correctly, a business continuity plan should be business-as-usual from an infrastructure and services standpoint. You should also confirm that third-party service providers, vendors and partners that are business critical also have a business continuity plan in place, including the ability to rapidly implement secure remote work practices.

   **2. Implement the most immediate cloud workplace tools you need**
   Whether it’s the way your organization works every day, or in response to an immediate business continuity risk, you have to deliver a virtual workplace that enables people to be productive on any device, from anywhere, securely. For organizations that haven’t fully established their remote work capabilities, technology leaders need to identify core business use cases so they can implement short-term, interim solutions to satisfy the immediate need.

   **Determine main software tools**
   Video conferencing, messaging, collaboration and document sharing are just a few examples of technologies that enable remote work and are the backbone of the communications fabric you’ll need. These systems should power efficient and easy collaboration so that they work across teams, geographies and technology platforms. Here are the top categories of best-of-breed solutions to consider.

   - **Team messaging tools:** To keep everyone in the loop, facilitate interactive discussions and increase team responsiveness.
   - **Video conferencing tools:** People who are accustomed to working in the office may feel disengaged from the resources, information or relationships they need to do their jobs well. Enable everyone to effectively conduct one-on-one meetings, team meetings and phone calls.

   - **Content collaboration platforms:** Make it easy to store, access, edit and share critical files with anyone, from teammates to vendors to partners. And with security and compliance built in, you know your data is safe and secure, while teams stay productive and healthy.

   - **Project management tools:** Working remotely will put a strain on your project collaboration, so tools will keep teams on the same page and keep work moving smoothly.

   - **Phones:** Cloud VoIP PBXs allow your people to decouple themselves from a traditional hard desk phone and instead work with a software dialer and headset from their laptops. Be sure to loop in your network team to ensure that best practices around QoS are configured.

   - **Deliver workplace technology securely**
   A key aspect of delivering a modern, cloud-based workspace is keeping remote work both secure and compliant. Just because you’re responding to a crisis doesn’t mean security threats or compliance risks are any less pernicious and pervasive.

   - **Manage user devices:** As your people are working from home, make sure they’re working on devices that have the appropriate levels of security. Endpoint management tools will allow you to securely manage re-
Whether it's the way your organization works every day, or in response to an immediate business continuity risk, you have to deliver a virtual workplace that enables people to be productive on any device, from anywhere, securely. For organizations that haven't fully established their remote work capabilities, technology leaders need to identify core business use cases so they can implement short-term, interim solutions to satisfy the immediate need.

Remote devices. Also, consider restricting people from downloading sensitive content or data on personal devices. And ensure your content management and sharing systems offer the necessary level of security controls in these environments, especially since the usage volume of these services will significantly increase in a work-from-anywhere scenario.

- Prevent data leakage: Enabling a remote workforce while preventing sensitive information from being leaked should go hand in hand. Advanced threat detection and monitoring technologies will enable internal and external collaboration and educate employees on internal security policies, all while preventing data leakage.

- Monitor user activity and security events: Gaining visibility into the risks and threats to your distributed workforce is a new challenge, and you'll need to implement cloud-based SIEM tools to address these needs.

- Meet compliance and data privacy requirements: Early on, consider the compliance and privacy implications of remote, distributed work.

3. Put the right business processes in place

As events like COVID-19 occur, businesses will ask more people to work from home. While you can speed up some things, speeding up the work-from-anywhere culture can be difficult. Some of your people just aren’t used to open, social, and collaborative types of working.

Plus, the cultural aspects of how a company works may not match a work-from-anywhere situation. Below, we've outlined some steps that technology leaders can take to make sure people have the systems they need to stay productive, and to help ease the transition:

Create a distributed work culture

The best remote work cultures don’t just digitally replicate traditional business processes and work styles, they fundamentally leverage new work styles to execute and build a sense of community in the process. Here are a few tips and tricks to power a remote work organization that’s collaborative and fast-moving:

- Agile work: Remote work is often smoothest with agile teams that come together in virtual workspaces. Consider doing daily virtual "stand-ups" over video where you can share project plans, goals, and other critical content within Box shared spaces to coordinate work.

- Virtual all-hands: Large-scale virtual internal events and webinars are often the easiest ways to communicate on a large scale to employees and partners. You can also easily add audience and group participation with capabilities like polls, real-time content editing, and curation for agenda setting.

- Home office hours: Consider having open video call times between managers and team members to pop in and ask questions of managers or other teammates.

- Over-communicate: This is the most important thing you can do when working remotely. People have a natural tendency to forget to communicate — especially the small things — if they don’t see your face every day. Don’t be afraid to connect with coworkers just to see how they’re doing.

Define policies around remote work

While remote work policies will vary from company to company, a general remote policy should at least outline the following:

- Availability: Does the team need to be online during specific business hours or will they be able to set their own schedules?

- Tools: What tools are available for your organization to use for messaging, conferencing, and collaboration?

- Productivity: How will your organization track progress and measure results?

It's impressive how quickly the old 9-to-5 grind and daily trips to the office have been replaced by flexible, work-from-anywhere schedules and teams that span traditional workplace boundaries. And the technology is now in place to securely support a much more distributed and virtual workforce for many companies and industries, including M&E.

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Abstract: The transition to remote work was sudden and painful for many, but companies that have been moving in this direction have not only weathered the storm better than most, they have provided hopeful signs that there are long-term benefits on the other side.

By Ian Main, Technical Marketing Principal, Teradici

Companies around the world have been transitioning to remote work, and what was originally thought to be a measure required for a few weeks has quickly settled into a new normal for the foreseeable future. The question of what normal looks like on the other side of it all is still open, but the age of mass telework has been accelerated and we may never go back to the full-time traditional office setting we once accepted as “how work was done.”

Many M&E companies have been shifting to remote computing gradually for the last few years, driven by a combination of factors that include the cost of real estate in urban centers, the need to diversify their talent pools, and the desire to take advantage of tax incentives in different jurisdictions. They’ve seen a number of benefits on the operational and financial front, not the least of which has been the agility to quickly shift their artists to home offices in the face of an unprecedented global disruption to business as usual.

Crafty Apes, a Teradici customer for several years, recently shifted its artists to working from home by expanding its deployment of PCoIP technology, which it had already used to support artists in branch offices and other remote locations from centralized data centers.

“We had to go from an office full of people to everyone working from home, and we had to do it very quickly,” said Tim LeDoux, founder and VFX supervisor for Crafty Apes. “Our artists are all now working from home, editing shots, doing their jobs, and all with a high degree of security, since we’re just streaming the data and not sending any files home.”

Others have found themselves in urgent transition, augmenting existing deployments with add-on infrastructure such as VPNs, and perhaps adjusting their expectations around usability or security protocols to make it work in the short term. But now that the

It is possible to maintain productivity, security and cost control
The Content Delivery & Security Association (CDSA) is a worldwide forum for the innovative and responsible delivery and storage of entertainment, software, and information content. We provide an established and well-respected suite of best practices, committees, working groups, events and media to service the M&E Industry.

For membership contact: Guy Finley President, CDSA Email: gfinley@CDSAonline.org Tel: +1 (917) 513-5963
To make remote work viable for the duration, artists need uncompromised access to graphics systems and full availability of tools such as Wacom devices. When user experience associated with these important resources is compromised, the risk to organizations is magnified.

initial adjustment period has passed, there may be a need to revisit the practicalities, such as cost-effectiveness or performance to ensure long-term feasibility.

**Maintaining productivity remotely**

To make remote work viable for the duration, artists need uncompromised access to graphics systems and full availability of tools such as Wacom devices. When user experience associated with these important resources is compromised, the risk to organizations is magnified, especially at a time when schedules and production budgets may already be strained.

Similarly, artists and other employees operating Linux applications within a predominantly Windows-based organization (or vice versa), could find themselves losing access to critical applications if they’re shifted to a different operating system. However, many options exist that enable organizations to access both Linux and Windows applications, some even under a unified connection management scheme for operational efficiency.

Most M&E artists (and their IT teams) are all too familiar with tradeoffs between graphics quality, performance, and bandwidth. Some of the recent PCoIP Ultra enhancements Teradici introduced in 2019 go a long way to helping out — task workers can benefit from lossless text reproduction under default settings, while bandwidth-hungry video editors can be configured for NVENC encoding using chroma-subsampling, which can reduce network bandwidth by 75 percent or more.

**Maintaining security priorities**

As is the case with all crises, it seems, opportunists have resurfaced to exploit vulnerabilities in security practices. Opportunistic phishing scams are on the rise and IT departments should pay continued attention to cybersecurity alerts, especially those related to VPN deployments. This is no time to let down your guard.

But much like the tradeoffs between performance and bandwidth mentioned previously, tradeoffs exist between security and usability. Most employees will lose patience with clumsy implementations that slow them down and they will be tempted to look for shortcuts. And short-term workarounds increase risk with each day they remain in place.

There are solutions that minimize these tradeoffs. M&E studios using Teradici Cloud Access Software to connect artists to GPU-enabled virtual machines, for example, can maintain security compliance using our Cloud Access Connectors, which are supported by multifactor authentication and enable encrypted remote computing sessions into the secured data center without need for a VPN.

VFX studios and other enterprises using standalone deskside computers with integrated graphics or NVIDIA GeForce graphics in conjunction with PCoIP Remote Workstation Cards now have immediate options too — including deployment of either Cloud Access Software as mentioned or Remote Workstation Cards over VPN networks. These are important alternatives to removing workstations and computers from the four walls of corporate security. Corporate assets remain under strict control, while avoiding potentially severe productivity loss associated with dysfunctional workstations decoupled from storage networks.

Ultimately, the ability to maintain the data in a central data center or cloud and send only encrypted pixels to an endpoint device provides a high level of control and security in situations where employees are distributed remotely and working outside secured company facilities.

**Maintaining cost control**

When faced with a crisis, there is a tendency to put solutions in place quickly and worry about cost later — after all, missed production delivery targets can come at a very high cost. However, there are ways to manage costs too.

For example, using public clouds rather than investing in physical infrastructure can offer several advantages — they avert equipment delivery risks, are generally faster to set up, offer better uptime (particularly if you have no one in the office to maintain servers), and can be offered from multiple sites for better scalability and performance. They also allow for resource sharing, including shared GPU resources in some cases.

**Ian Main** is a technical marketing principal at Teradici, with a focus on the M&E industry. With more than a decade of experience at the company, he is closely involved in performance benchmarking, architectural aspects of PCoIP design and customer requirements analysis. imain@teradici.com @Teradici
with options to pay for only what you use. A subscription solution that includes software clients (with brokering and provisioning bundled in) can cost up to three times less than a private data center.

For Tangent Animation, based in Toronto and Winnipeg, that ability to provision GPU resources as needed was a key benefit of using cloud-based virtual workstations. “With Teradici Cloud Access Software and AWS we pay for just the GPU power we need,” explained Ken Zorniak, Tangent Animation’s president and CEO. “An artist can log into a Blender instance powered by multiple NVIDIA T4 GPUs running the Quadro Virtual Workstation for crowd work and later log into an instance with a single GPU for simpler animation. Managing our IT costs this way leaves more budget for artists and technical staff, leading to a better product.”

In some cases, cloud-based virtual workstations can introduce productivity advantages and cost savings that would not be possible with a more centralized studio-based workplace. Afrokaans, a Teradici customer, filmed Survivor South Africa: Island of Secrets on location in Samoa and uploaded footage to the cloud each day, enabling editors based in South Africa to get to work on the production immediately, using Cloud Access Software to access virtual workstations from their homes. The process saved the company from having to rent post-production space and relocate staff for the six months of production.

Building resilience
At time of writing, we still don’t have a clear view of the timeline for the current crisis. But one thing is certain: Even without a crisis, the ability to transition quickly between office-based and remote work creates a more resilient organization in the long run. It enables companies to be more flexible in their overhead costs and hiring strategies, and it can provide significant competitive advantages.

Teradici and its partners can help create and deliver solutions to transition your employees to work from home or address changes to requirements as you expand the number of employees working from home, and we can help you improve your business continuity and disaster recovery plans for virtualized and remote workforces.
The rise in OTT platforms has shown us that consumer demand for instantaneous content is greater than ever. For consumers, on-demand viewing is no longer a luxury, but an expectation, no matter our location, the time of day or the device we have in our pocket. Through cloud technology, the ability to meet these demands is now a reality.

With social distancing and self-isolation measures in place as a result of COVID-19, it is anticipated demand for OTT content will continue to grow. Alongside this demand for content, a shift of large sections of the workforce to transition to work-from-home environments will require additional acceleration in the move from on-prem production to cloud-based production tools, aided by organizations such as Seagate Powered by Tape Ark.

This article discusses some practical steps M&E companies can take to prepare for this migration to cloud-based production and distribution and how other industries have transformed the way they work in the cloud.

**A tale of two business models**

Whether you’re a content producer or distributor, forecasting your data storage requirements for the next five years can feel...
like gazing into a crystal ball. Due to the shortening and quickening pace of technological advancement cycles, data storage and management is capital-intensive and challenging. Hardware investment decisions today are at risk of being obsolete tomorrow.

As the industry embraces new technologies, formats and advancing capabilities, predicting data storage volumes is becoming increasingly difficult as tape libraries fill and the tape shelves begin to pile up. The resulting predicament many organizations find themselves in is far from ideal, with the only practical means of accessing this content being the manual loading of tapes into the tape library, in turn metaphorically ejecting the possibility of agile workflows and negatively impacting remote team environments.

There is an alternative approach however, with a cloud storage model that offers a scalable approach to efficiently managing and accessing your data when, where and how you need it with the added bonus of a flexible cost base. There are no hardware refreshes, no overcrowded tape libraries and no remote access issues. You simply pay for what you use. Data stored in the cloud becomes instantly available and responsive to your business needs. Even further, with a range of access controls and new security processes, you can arguably apply a higher degree of data security than an on-premise setup.

The cost of cloud storage has been steadily reducing over time, with Amazon Web Services (AWS) alone delivering over 70 price decreases over the last decade. This trend likely will continue into the future as data volumes increase. This cost decrease has been a key driver for adoption in the M&E industry. After making the move, many of the other benefits became more apparent. Starting the cloud journey

For many, the first step to improving data accessibility and security while opening up future potential revenue streams, is to migrate your content from tape bound media to the cloud. Tape Ark has created a dedicated technology stack that helps M&E companies take the pain and time out of tape-to-cloud migrations. Without using any customer hardware, Seagate Powered by Tape Ark coordinates safe and secure receipt of all tapes beforehand, applying its parallel processing solution to restore content and metadata before migrating it to the preferred cloud platform. Not only will this act as an additional archive of content, it is positioned at the ready for immediate use in the cloud-based production system.

Enhancing capabilities

Once content is in the cloud, the opportunities for enhancing capabilities through value-adding applications increase significantly. Data accessibility and discoverability are amplified when machine learning can automatically identify and tag celebrities, logos, brands, offensive material and emotions; capture sentiment; and ensure on-screen text becomes a searchable feature. This helps production teams locate the right scene fast and could rapidly increase the volume of licensable content. Additionally, these tools are also widely cloud agnostic and work on a consumption model.

Agile workflows

Along with the shift to cloud storage many production and distribution workflows have followed suit and now offer completely cloud-based environments. This has considerably reduced the dependence on physical infrastructure and provides a seamless experience for teams working across time zones or remote locations. It is ideal for maintaining a business-as-usual approach that has never been more imperative than during our current uncertain time. No more calling an East Coast office to load a tape or worrying about limited computing power to run a large transcoding project.

Responsiveness

A cloud approach drives agility and enhanced capability to respond to consumer expectations, market opportunities and changing environments. The COVID-19 pandemic has taught us many things, none more apparent than highlighting our operational vulnerabilities and the importance of having our content in the cloud.

One only needs to look at the sports broadcasting industry, which was in the process of finalizing its live spring schedules amidst the early signs of COVID-19. Within weeks, live sporting events across the world were canceled, leaving broadcasters with empty content slots. No matter how prepared many may have thought they were, an inevitable content scramble commenced, with critical questions being raised and answers suddenly required to avoid losing audiences, advertisers and commercial partners. “What content do we have?” broadcasters asked. “Is it in the right format? How quickly can we access it?”

In a cloud-enabled environment, these questions can easily be answered. Content is instantly accessible 24/7 in desired formats, so rerunning previous seasons is a responsive and seamless exercise. Furthermore, running seasons that match audience expectations is no longer a technical challenge. Creating new content with highlight packages is straightforward as AI and ML tools can identify and tag content, making it easy to accurately identify players. Image discoverability is enhanced through contextual searches: “Player X, looking happy, saying ‘touchdown with Player Y.’” All this work is undertaken remotely, business operations continue, and the impact of a global pandemic is limited.

Kyle Evans

Kyle Evans built his expertise in data management and data distribution through a career in satellite imagery where similar challenges of data preservation, content access, distribution, metadata capture and data integrity are faced. At Tape Ark, he is responsible for global enterprise and partner engagement for mass tape migration projects. kyle.evans@tapeark.com @TapeArk
Remote Collaboration and Workflows in the Time of COVID-19

By Rick Phelps, COO, OWNZONES

The cloud can enable remote collaboration and facilitate the completion of masters and distribution to platforms globally

Abstract: Unprecedented demand for remote collaboration requires ‘geo-distributed workflow’ solutions for post-production that enable content to be made and delivered directly to consumers. M&E tech companies were focused on remote collaboration long before the pandemic, and the resulting advantages of a cloud-based platform approach have never been more clear.

These are difficult times for the M&E industry. While on one hand the ongoing COVID-19 crisis is leading to record consumption patterns and viewing figures, on the other generating fresh content to satisfy demand is proving increasingly challenging.

Production first slowed — and then halted — at content production centers around the world, and one of the most urgent tasks facing the industry has become completing the work that has already been shot. The problem is that increasingly stringent restrictions on movement make finishing programs in traditional brick-and-mortar facilities nearly impossible.

Yet, in response to the obstacles facing content production and distribution, studios and post houses are experiencing an innovation boom in the technology they use to keep the supply chain moving. Extraordinary times call for extraordinary measures, and we’re now seeing a huge wave of interest in remote collaborative working as a response to the need for social distancing and working from home. What is probably surprising to many people in the industry is the maturity of the systems already in place to make it happen.

If the novel coronavirus outbreak had happened even a couple of years ago the industry would have been far less prepared. However, recent times have seen the rapid establishment of cloud-based workflows for a number
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If the novel coronavirus outbreak had happened even a couple of years ago the industry would have been far less prepared. However, recent times have seen the rapid establishment of cloud-based workflows for a number of economic reasons.

Of economic reasons. These workflows can help preserve business continuity in situations like the one we’re facing today.

While the movement to the cloud is likely not going to enable the industry to kick-start filming at any time soon, for productions already in progress, the cloud can enable remote collaboration along the chain, and facilitate the completion of masters and distribution to platforms around the world. The migration from hero suites to browser-based compliance editing, localization and QC solutions on commoditized workstations, for instance, means that a tentpole production can be worked on in almost any home with space for a desk, a computer, and an internet connection.

What’s more, users can get the full processing power of a data center from a browser in their living room. At OWNZONES, for instance, we can now scale up to 1,000 nodes in the cloud with 7,000 processors. To achieve that level of processing power from home with an on-prem infrastructure, a user would need to have half their house full of data racks.

A platform-based approach to post-production
Another advantage of the evolutionary move toward remote working has been the development of a more platform-centric approach to post-production tasks. Within facilities over the years, specializations have evolved: Conform is looked after by person A, using software B on workstation C; loudness is taken care of on workstation X, using software Y by employee Z. This is not a workflow that maps easily onto remote methods of working.

What the platform model brings you is a “one logo” approach and an end to such silos; you leverage one vendor platform and everything else is available to you from within that application as an integration. The upshot is that everything involved with the post-production process can be done from a single program, potentially even from a single machine and by a single user if they are a post-production Jedi. But the beauty of the cloud is that it makes it easy for these tasks to be shared amongst a distributed network of users who specialize in different parts of the production process.

There’s further innovation that can be applied here too, with more in the pipeline as the wider industry turns its attention to enabling remote workflows at scale in all manner of fields. At OWNZONES, we have resilient technology in our media player that lets users preview large files remotely. Rather than taking in a video file and generating a proxy, our player shows you a real-time representation of that content. It’s built on scalable technology that is exceedingly responsive and allows collaborative workers to upload a multi-terabyte file into their cloud bucket, see what they just uploaded, scrub forward and backwards with a sub-one-second response time to see a real-time preview, and make any necessary changes. Our real-time cloud-based preview player affords users the same high-quality experience via a browser window at home that they would traditionally get from their facility’s on-prem system.

The future of cloud is all-encompassing
Using technology such as this to enable remote workflows, producing professional content and great stories to entertain people throughout the duration of the coronavirus crisis is entirely possible, whatever the distance that separates people. But this is not only a way to cope with obstacles presented by the crisis today; the future of content production will consist of content, applications and workflows that reside in the cloud and streamline the entire content supply chain. Especially when it comes to high resolution content like 4K HDR, moving content between on-prem and the cloud takes a lot of time and resources. The future of content production is one that starts and ends in the cloud, abstracting the entire process from physical location so that workflow collaboration can happen from anywhere in the world on the exact same files, both shortening timelines and simplifying asset management.

Cutting-edge technology companies were focused on remote collaboration before the novel coronavirus outbreak. Over the years, the cloud had been gaining in popularity among companies looking at achieving greater flexibility, efficiency and scalability. Add in the business advantages of OpEx over CapEx pricing models, shorter time-to-market and more, and it was an implementation that made sense then.

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The Future of Quality Control is in the Cloud

Benefits include seamless support for content owners

By Scott Ralston, Head of Product, GrayMeta

Abstract: QC/QA applications today need to be made simpler for content owners, and the answer to reducing time and costs associated with QC/QA processes can be found in the cloud.
With greater adoption of cloud services and storage, the need to move QC and compliance workloads to the cloud has become increasingly more prevalent.

Cloud technologies are increasingly being used by studios, broadcasters and content owners throughout the lifecycle of content, from production to archive.

Industry insiders are envisioning a world where all assets will be created, stored and ultimately delivered in the cloud, providing the efficiency that is needed in production workflows to enable greater creative freedom, while supporting an unprecedented volume of content.

The industry is responding to this vision by developing technologies that provide content owners the facility to keep their assets in the cloud right to the point of delivery.

Pain points

At GrayMeta, we are continuously monitoring market trends and listening to our customers who have raised the following points with regards to that final stage of content delivery: QC and QA.

- They need to be able to move master file workloads to the cloud, such as the QC of Interoperable Master Format (IMF) files in Amazon Simple Storage (s3);

- They want to save money by decreasing egress costs associated with the movement of master files to the cloud, and then having to transfer assets back to local workstations for tasks such as visual QC;

- They need the ability to browse, preview and playback master files by directly connecting to those assets in cloud storage locations;

- They want the ability to play back and QC single files from the cloud to multiple locations in a synchronized manner, enabling seamless collaboration among users;

- They want to reduce or eliminate the need for transcodes and intermediate applications that are required today to review and QC assets locally.

Cost-effective, data-driven solutions — using machine learning and artificial intelligence that decrease operational expenses — ensure content integrity and unleash the monetary value of content.

With greater adoption of cloud services and storage, the need to move QC and compliance workloads to the cloud has become increasingly more prevalent. However, the inordinate amount of time and tremendous costs incurred by having to transcode or transfer extremely large files from a storage provider to a localized workstation to simply view, or in a full-featured sense, conduct quality control and quality assurance tasks, is a major obstacle for many users in the marketplace.

Browser-based and cloud-based solutions can provide QC and QA teams in studios, broadcast networks and media services providers the ability to securely preview, playback and QC master file formats, without the need for a transcode or generation of a proxy file. GrayMeta’s Iris Cloud offering also supports simultaneous frame accurate playback for concurrent users providing efficient collaboration workflows. The product has been developed to work on private data centers for production content and public clouds such as Amazon Web Services, Google Cloud and Microsoft Azure.

Cloud solutions

Iris Cloud is built to run natively in the cloud, making it accessible virtually anywhere in the world. The benefits of Iris Cloud include:

- Seamless support for content owners transitioning to cloud-based workflows for master file formats such as IMF;

- An ability to browse, preview and playback master files directly from cloud storage environments;

- Minimization of egress costs associated with the transfer of master files from the cloud to local, on-premise workstations;

- Collaborative functions that enable multiple users across disparate locations to review a single file;

- Providing remote QC, particularly for contingency plans and disaster recovery scenarios when workforces may be forced to self-isolate or are unable to centralize in a common facility.

Scott Ralston has more than two decades’ experience in the M&E sector, addressing industry challenges in the media supply chain and overseeing the introduction of new products and services designed to contain costs, drive efficiencies and unveil new revenue opportunities for content owners. He is responsible for the overall product portfolio at GrayMeta including product strategy, management and marketing; scott.ralston@graymeta.com @GRAYMETA
A New Normal in Post-Production

What Iyuno Media Group has learned thus far from COVID-19

Abstract: Like most organizations with global operations and production facilities, Iyuno has had to adapt methods of production to combat the challenges being posed by the pandemic, in order to continue to deliver for clients.

By Chris Carey, CRO, Managing Director of the Americas, Iyuno Media Group

The COVID-19 crisis has caused our industry to make dramatic strategic changes in order to continue our work. In some ways it has forced us to rely solely on strategies and tactics that were at one time more an exception than the norm. Now, tools that allow for production to be done at home, including online collaboration and asset management programs, have become critical to delivering a quality product on time.

In the first few months of this unprecedented environment, Iyuno has identified key learnings and has already begun implementing solutions that are helping us deliver projects fast, with as little interruption as possible.

Use of cloud-based platforms

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More than just a centralized platform to handle project and resource management across an organization, the implementation of cloud-based platforms has quickly become the connective tissue to keep projects up and running.

ment across an organization, the implementation of cloud-based platforms has quickly become the connective tissue to keep all of our projects up and running. Just prior to the outbreak of COVID-19, our organization completed a large-scale merger, which nearly doubled Iyuno’s global footprint.

One of our most important tasks internally has been implementing our own proprietary project and resource management tool. Its primary purpose was to unite the company’s operations, helping manage nearly 10,000 global vendors and deliver more than 50,000 hours of content every month, across facilities located in 30 countries around the world. Whether or not we knew it then, this implementation has become critical in helping us in this time of unprecedented business challenges. Using this cloud-based platform, our teams have now shifted to nonessential staff working remotely at home while still having full, centralized and secure visibility across all of our projects from order to fulfillment.

Transparency in communications
Communication with clients and partners is always important, but during a crisis it matters more than ever to be in constant contact, as situations are changing by the minute around the world. More than ever clients want to track the status of their projects, often in real-time. We’ve built a platform to provide visibility for all projects across all of Iyuno’s global locations with real-time tracking. This was originally utilized as a tool to not only provide great customer service, but also reduce the amount of time spent on updates so we could focus more on completing the project. But during this challenging time, it has proven to be a game-changer in putting our customer’s minds at ease, by being able to see the current status of the project at any time.

We have also adopted proactive updates on our team’s approach and the status of our facilities as the crisis continues to unfold. Changes in our workflow are also being communicated with all of our partners.

True collaboration
Collaboration across offices is always an important strategy to help speed the delivery of a client project. Now more than ever, we are making our project teams global, utilizing a “follow the sun” approach to projects and shifting resources around the world at any given time based on the collective availability of our team’s capacity. Now when local governments mandate a stay-at-home order, we are able to transfer essential studio work to be completed in a location that is completely operational with team members who are fully aware of the project.

Advanced resource planning
By utilizing advanced planning, assets and staff are available around the world to ensure projects are delivered on time. Working with our client’s planning teams well in advance, and in anticipation of a worst-case scenario, we have been able to set staging and allocate our available worldwide capacity, including during and after the pandemic, to ensure maximum output of deliveries.

Innovation by necessity
Often with a challenging situation, the best innovations are brought to the forefront quicker. We are rising to these challenges and finding solutions. The most recent example is the exploration of home recordings to minimize the impact to dubbing projects. When the voice work for our dubbing projects needed to be completed outside of the studio, our team quickly converged to begin testing a new proprietary home recording application. We are building it to be simple to install, set up and use which allows voice talent and directors the opportunity to focus on their craft and not the technology.

As with the rest of our industry, we hope this crisis passes as quickly as possible. But with some ingenuity and the utilization of best practices, we hope to continue delivering a quality work product for our customers with as little disruption as possible. We also know that this global pandemic will permanently change the way remote work will be done.

We will continue to find a way to get that work done in a virtual environment, looking for the best technology available and creating solutions, where a current one does not exist.

Chris Carey oversees global revenue for Iyuno Media Group and leads the company’s facility in Burbank, Calif. Prior to Iyuno Media Group and BTI Studios merging in September 2019, Carey was CRO of BTI Studios. chris.carey@iyunomg.com @iyunomedia
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www.graymeta.com
Abstract: The rapid maturation of over-the-top (OTT) streaming platforms has allowed the underlying technology to begin to supplant physical DVDs as the preferred distribution medium for awards-season screeners. But the use of OTT for 'For Your Consideration' (FYC) sites presents a new set of challenges and opportunities to face. Here’s how Deluxe helps navigate the shift.

By Kristie Fung, VP Product Management, OTT, Deluxe

As with the movies and shows they honor, every awards season comes with its own dramatic narrative: whether it be the sudden rise of a plucky underdog, the shocking snub of a fan favorite or the moment of validation for an industry stalwart that had come oh-so-close in the past.

This year, a small narrative twist played out before award voters even turned on their TVs. Increasingly, instead of reaching for a physical disc, voters are logging into a website or loading a specialized app to access their screeners. In an era when many TV remotes come with a dedicated Netflix button, this shift was likely inevitable. But to borrow an axiom from the creative process in our industry, just having the idea isn’t enough — you need to be able to execute.
OTT sites can deliver experiences that more seamlessly and intimately connect voters with the content up for consideration. FYC sites and apps can allow content consumption optimized for voters’ preferred devices, from phones with limited bandwidth, to home theater setups with the latest audio and visual standard support.

The impact of migration to OTT
Transitioning to OTT screener distribution is best thought of as an investment by studios and content creators. Internal marketing teams will need to climb the learning curve as they master a new distribution method and its possibilities. Think of the long road from simple cardboard DVD sleeves with bare bones menus, to brushed metal jewel cases and menu experiences rivaling retail collector’s edition discs, for OTT’s predecessor.

In return for that investment, OTT sites can deliver experiences that more seamlessly and intimately connect voters with the content up for consideration. FYC sites and apps can allow content consumption optimized for voters’ preferred devices, from phones with limited bandwidth, to home theater setups with the latest audio and visual standard support. Beyond the core content, links to supplemental material and engaging interactive experiences can be built-in (subject to guild/awards body standards on presentation). And behind the scenes, the underlying technology platform can enable modern digital rights management and analytics.

The Deluxe approach
This awards season, several studios undertook this journey, with the ultimate goal of bolstering the competitiveness of their nominees by engaging more deeply with voters. Deluxe aided in these company’s efforts, providing technology to support and create customized FYC streaming experiences. With the assistance of Deluxe, these implementations were able to be rapidly designed, tested, and released on tight timelines to integrate with broader marketing campaigns.

To support both international voters and awards bodies, studios and content creators must be able to ensure that their content can be viewed globally. Deluxe’s technology and team help creators localize, reformat and geo-filter content to make it accessible in 100-plus countries.

In addition to optimizing geographical content consumption, Deluxe also enables viewing across a wide-ranging ecosystem of devices. Content is scaled and enhanced for various screen and bandwidth scenarios to ensure that both viewer convenience and the integrity of the original artistic vision are honored. Finally, a full-featured back-end support platform allows for Deluxe to provide security administration, operational analytics and anonymized marketing analytics, all in real-time.

The learning process
While studios and direct-to-consumer streaming platforms are adept at using OTT technology for consumer distribution, implementing the technology for an FYC site requires a subtly different toolset. While operational teams at distributors have had time to learn how to work with the software development process, it might be unfamiliar territory for the marketing professionals who run awards season campaigns. The back-and-forth with developers requires a methodical, disciplined approach to ensure that sites are built quickly and efficiently. On the other hand, the flexibility of agile software development opens up possibilities for improvisation and adaptation that long lead time DVDs never allowed.

Studio teams also have plenty of questions about the mechanics of addressing familiar problems in the new OTT. And what studios and content creators may not realize is that the launch of an FYC site is just the beginning of the process. It requires continued management and the addition of content, utilizing viewing metrics to create a virtuous feedback loop wherein the studio awards team is able to adjust both online and real-world marketing plans to emphasize scenes, talent or entire shows that resonate most deeply with voters.

FYC campaigns, today and beyond
While the next awards season may seem far away, the disruptive potential of OTT FYC distribution means the industry must begin planning sooner than ever to stay competitive. A few studios already have a leg up with the 2020 season’s experience under their belt. Their competitors face both the daunting challenge of catching up, and the exciting opportunity to leapfrog the status quo with ever-evolving technology.

Kristie Fung leads the development of the Deluxe One OTT streaming platform. To this role, she brings extensive experience from previous positions with Sony DADC New Media Solutions, United Technologies Corp. and The Boeing Co. Her focus is the development of world-class, consumer-focused media delivery solutions that enable content owners and distributors to effectively reach an increasingly fragmented audience. By leveraging Deluxe’s existing content processing and B2B delivery competencies, her team is able to offer a feature-rich, off-the-shelf solution to entertainment companies. kristie.fung@bydeluxe.com @deluxe1915
Avoiding Localization Pitfalls

New legislation and unions seek to strengthen the rights of dubbing performers

By Adebunmi Nsofor, Global Business, Legal Affairs Manager, SDI Media

Abstract: Content that was once limited to a specific country is now quickly being made available around the world, leading to a dramatic increase in demand for localization, or dubbing, services. But what do content owners looking to increase the exposure of their material need to know to avoid any legal issues?

“The world is getting smaller by the day.”

That’s not true, of course, but it certainly seems that way, thanks to the way that the internet, digital advancements and globalization are bringing everyone together.

Content that was once limited to a specific country is now quickly being made available not just in neighboring countries but around the world. This development has led to a dramatic increase in demand for localization — including the dubbing and subtitling of content into a new language — in order to make it available to a larger audience.

But what do content owners looking to spread their material need to know to avoid any legal issues relating to rights? And what about performers who are now seeing their work exposed to a much larger audience than in the past? Are they eligible for more compensation?
In addition to offering **new life to older content**, increased localization has also led to **new content** being made available in a **variety of languages instantaneously**. Industry insiders have reported a **significant surge** in content that is being introduced in at least **10 different languages at once**.

**Consumption grows in native languages**

As a result of digitization, particularly the proliferation of OTT platforms, content owners are recognizing new profit opportunities. For example, older content is now being taken out of the archives and introduced to new countries with the help of localization.

In addition to offering new life to older content, increased localization has also led to new content being made available in a variety of languages instantaneously. Industry insiders have reported a significant surge in content that is being introduced in at least 10 different languages at once.

So how is all of this growth and new opportunity affecting dubbing rights? To understand that, we must first look at how dubbing rights have been handled in the past.

**Understand past legal rights**

Unlike broadcasting, which has always had clear licensing and distribution guidelines, the localization sector has traditionally been more lax with localization rights.

Traditionally, the verbiage “all rights minus theatrical” has been widely used in the localization industry. In the past, this verbiage has, at times, been assumed to include all ancillary usage of localized content in toys, games, soundtracks and more.

This verbiage worked for decades because performers in the dubbing sector did not fully understand the value associated with this ancillary usage, nor the wide scope of rights this granted content owners.

That is changing now. Over the past decade, there has been an increase in performer awareness about these rights. Dubbing sector unions have pushed for more equitable compensation for performers whose content is delivered to OTT platforms, which has led to the EU Directive on Copyright in the Digital Single Market (Directive 2019/790).

What does this new directive mean for content owners and studios? It means that during fee negotiations with performers, when a performer transfers their exclusive rights, they are entitled to “receive appropriate and proportionate remuneration.” It remains to be seen how member states will implement this text into local law.

While the implementation of the principle of “appropriate and proportionate” has been left to the discretion of member states, part of the directive outlines that member states may utilize the systems already in place for implementation, such as through existing or newly introduced mechanisms, which could include collective bargaining and the introduction of statutory remuneration rights, provided that such mechanisms are in conformity with applicable EU law.

Guidance on what will be deemed appropriate and proportionate under the EU Directive 2019 states that the following should be taken into consideration:

- The actual and potential economic value of the licensed or transferred rights;
- The contribution of the performer to the overall work, market practices or actual exploitation of the work;
- Lump-sum payment can be made (and this last statement could make future royalties for localized content a norm globally: recently in the U.S., the SAG-AFTRA and Directors Guild of America both signed agreements with OTT platforms in order to collect royalties/residuals on behalf of their members).

The second global agreement is the Beijing Treaty on the Protection of Audiovisual Performances, ratified on Jan. 28, 2020, which sets the global IP standard for audio-visual performances at an international level.

One of the aims of the Beijing Treaty relevant to the localization sector is that it seeks to strengthen the rights of performers in the audio-visual industry by providing stronger moral rights, the right to be recognized for their contribution, and expanding the economic rights for the use of their performances.

It is hoped that the Beijing Treaty will encourage increased investment in local productions, through effective and
well-enforced copyright and related rights legislation and, in turn, increase the need for quality localization, which will support the global distribution of local productions and cultures.

As an added benefit, experts believe the new legislation — both the EU directive and the Beijing Treaty — should help ensure secure, more effective distribution of content over the internet via OTT platforms, reduce the value gap between performers and content owners, and bring laws up to date with the digital market by creating new licensing opportunities and residuals and royalty payments to performers.

The role of dubbing unions
In territories with active unions, those unions have been largely responsible for ensuring that laws and regulations are being upheld.

One way they are doing this is by implementing collective agreements that outline the rates paid to performers, the rights cleared and durations. As an example, in France and French-Belgium, performers are paid an uplift for each mode of exploitation, ancillary usage required, and the duration is typically for 10 or 30 years, as set out in the standard union contract.

These collective agreements outline the rates to be paid to performers and the exploitation rights to be assigned comparative to the fee paid.

Basically, these agreements and forms are in alignment with the “appropriate and proportionate” principle from the EU Directive.

The view is that in the coming months as the EU Copyright Directive 2019 and Beijing Treaty texts are enacted into law:

- **The unions will garner more strength** (this is already happening in Greece, Slovenia, and Turkey, where there are currently ongoing union negotiations);
- **OTT rights clearance will be subject to an uplift and a limit to how long content owners can exploit these rights;**
- **Assignment of rights forms will need to be revised.**

Change has come fast to the localization market, and laws are being drafted to address those changes in markets around the world.

At SDI Media, we are busy bringing awareness to these changes and exploring how they will impact the way rights are assigned and acquired from performers moving forward.

It is our aim to initiate a dialog about this topic in the localization industry in the hopes that appropriate contract forms can be put into place, enabling content owners to freely utilize content that has been localized for use in markets around the world.
NO MORE TINY PAPER CHECKS

PAPERLESS RESIDUALS AND PARTICIPATIONS ARE NOW A REALITY

LOS ANGELES  NASHVILLE  NEW YORK
exactuals.com
Abstract: The M&E industry thrives on a ‘high-touch’ working style. People are used to face-to-face interactions for internal collaboration and creative production. But over the past couple of months, the world has changed. Physical meetings and in-person collaboration have nearly ceased. To stay productive, teams across industries are relying on modern workplace technology platforms. M&E companies are already at the forefront of providing amazing, creative and interactive experiences for customers. Now their employees can experience their own share of amazing collaboration experiences, no matter where in the world they are.

Humans are social creatures. We rely on body language, facial expressions and vocalizations to interpret the meaning and sentiments of our conversations. For those in the M&E industry, face-to-face interactions and meetings can help you to be productive and efficient when creating content that impacts your audiences.

But now that we are required to be physically distant, how can creators and those who support them in the M&E industry stay productive?

By Ruven Gotz, Director, Workplace Experience Solutions, Avanade
Introducing the Industry’s First Cloud-Based QC Solution

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It comes down to two things: technology and intent. Let’s talk about intent first. It’s harder to collaborate successfully when not face-to-face, so it’s important to be aware of this and think carefully about mitigating the difficulties. We need to pay closer attention to what people are saying; to pause when speaking to allow others to be heard, especially when small delays in computer-based conference calling make it hard to find space to interrupt. And we should consider using emojis liberally when texting so that tone or intent is clear. Sometimes our text-based communications tools prevent the nuances of expression from coming through.

We must also be cognizant that what happens naturally in-person must be done with intent when working remotely. By realizing this, we can put a bit more energy into making sure we are understood and that we understand our colleagues.

Now, how do we best use technology?
First, I’d like to tell you about our experience using technology to collaborate. I work at a company with almost 38,000 employees spread across the globe, so we often rely on virtual meetings to communicate. We’ve been Microsoft Teams users since its launch exactly three years ago. So, when the current crisis hit, we were ready. But even with our extensive experience with remote working, our organization still had to make some adjustments. We now have zero opportunity to meet face-to-face with clients and each other.

We’ve made it work by embracing video and trusting the rock-solid Teams infrastructure. And we’ve felt completely confident in the security and safety of our and our clients’ data.

As you get started, here are some tips and guidelines:

Use video (and high-quality audio)
While many of us feel uncomfortable seeing ourselves on video, we must work to overcome this discomfort. Having your face on screen shows that you are paying attention, gives your colleagues insight into your emotional state and provides necessary cues about how to steer the conversation. Coupled with video is the need for reasonably high-quality sound. Buy a good headset with a noise-canceling microphone so that vocal nuances can be heard and understood.

Also, make sure you are well-lit so that your face can be seen clearly. Don’t sit with your back to a window, as this will cast a shadow on your face and greatly reduce the value of being on-camera. Reduce distractions like a rotating ceiling fan or other extraneous movement that can interfere with the flow of conversation.

Use visual tools to enhance your message
When someone can’t see your body language, it can be easy to miss the intent of complex ideas. Use whiteboarding tools to sketch concepts or use images and pointers to highlight specifics. Share your desktop and take notes that everyone can see so corrections can be made in real time.

Take security and privacy seriously
The tools and platforms you use should be secure to protect the privacy of your texts, voice and video. Be sure to configure those tools properly with security options enabled so that anonymous attendees can’t crash your calls and post unwanted content to your meetings. Help protect the dignity of your colleagues by muting them if they don’t realize their microphones are live when they are eating their lunch. And be ready to eject a person from the meeting if they don’t realize they’re on-camera when doing something that they’d prefer was not broadcast.

Making a big switch in how we work and how we work together is tough. Old habits die hard. We all must be more relaxed and give each other a bit more leeway in the face of inevitable interruptions and technical glitches.

This great forced experiment will have long-lasting implications on how and where we work, even after the current situation stabilizes and social distancing is eased. Tools, like Microsoft Teams, give us the ability to see and hear each other with surprising fidelity and to work together collaboratively. Those of us who can embrace the new will have more options. We will be the flexible employees and colleagues who can get the job done — from anywhere.
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www.rendertoken.com
The cloud is everywhere and nowhere. It’s certainly intangible: very few people know exactly what goes on inside this nebulous artifact.

For end users of streamed video, as long as what’s on the screen is what they asked for, the job is done. That’s exactly how it should be: a technology that would have seemed impossible a few years ago, delivering a multiple choice of entertainment viewing to living rooms almost anywhere, mostly instantaneously, for a small monthly payment. When you compare it with the previous method, which was to send a DVD in the mail, it can seem almost as far-fetched as a matter replicator on Star Trek making Captain Picard a cup of hot Earl Grey tea.

The cloud is now delivering immediacy and facilitating scale with attractive economics for the OTT market. Where it differs from the Star Trek fantasy is that the cloud exists, and is starting to deliver the sort of performance that is needed for cloud-based production.

Real performance, extreme flexibility

One of the most enticing aspects of the cloud is that it allows developers to behave with extreme flexibility. If you need more workstation capacity, just request it. More storage? No problem. Even in cloud systems, there’s real hardware, somewhere. Users never see or feel the “real” hardware, except when they get “real” performance from...
the cloud. And please make no mistake: real “hardware” performance is available from the cloud.

Every time there’s a change in a technology paradigm, it takes a while for those familiar with the previous era to get on board. That’s completely understandable, and it’s part of the nature of paradigm change: one minute everything seems “normal” and the next, seemingly weird, impossible stuff is happening, and doing it convincingly. It’s bewildering but exciting.

As we experience the first few months of a radically shifting world in 2020, now more than ever a pivot to cloud production and spinning up a virtual environment make sense to optimize performance, economics, scale and more importantly, ensure business continuity.

That feeling that it shouldn’t quite be possible is justified. Often the first tentative steps inside a new paradigm really are difficult — exactly like a child learning to walk.

**Great things happen**

But it’s when you embrace those difficulties and focus development on them that great things start to happen. Before long, you see really useful, dependable and ultimately transformative performance emerging. (Transformative because you can do things that weren’t even slightly possible before — like working anywhere in the world).

That’s the stage we’re at with EditShare’s Flow and EFS solutions: a media asset management (MAM) system that exists both in the cloud and running on real metal servers on the ground, and a media-optimized file system that turns almost any storage into a high-performance, media optimized storage resource that can be on the ground or in the cloud.

EditShare now has all the components for a high speed, reliable cloud-based production system. In the next section, we’re going to look at how we built this, and how it works.

**Made for media**

In any production workflow, it’s essential to have a media asset management system (MAM) that orchestrates the movement of media within a facility. We are now able to extend this managerial oversight to the entire globe.

The next stage is to move the familiar high-powered media workstations into the cloud. These are actual, physical machines that happen to sit on the Amazon Web Services side of the fence. The advantage is that when you pay for the use of one, it doesn’t matter which one, because of virtualization.

It’s important to add that while these are “generic” but powerful workstations, they’re not specialized for collaborative media workflows. But that’s exactly what EditShare’s media optimized file system, EFS does. EFS works the same way in the cloud as it does back on Earth: it creates optimized media spaces that are managed and allocated in exactly the same way as on-premise storage.

This advanced cloud-based workflow already exists and is in the hands of commercial customers. It offers huge advantages, especially where there’s a need to spin-up (and down) a full-scale production facility at short notice.

Let’s take a closer look at how this works.

One way to picture this is to understand that Flow (the high-level media management system) and EFS (the low-level storage file system) work in the same way whether they’re on-premise with local hardware, or in the cloud, albeit with new software techniques to make everything modular, scalable, ultra-flexible and cloud-native.

With EditShare’s already proven key technologies in the cloud, distance melts away and so do the costs of setting up a facility with almost no notice (as do the costs of spinning down a facility when a project is finished).

Of course EditShare’s cloud technologies include security, openness, flexibility and modularity. Openness is a sine qua non.

Stephen Tallamy is an innovative software professional with significant experience utilizing cloud technologies to develop enterprise and consumer applications for telecoms and TV industries. He is an experienced principal architect building large-scale TV platforms using cloud-native technologies in hybrid on-prem/cloud environments. A keen inventor, Tallamy holds three patents in the areas of metadata management, intelligent video content generation and video access control. stephen.tallamy@editshare.com,

@EditShare

Continued on Page 136
Why Going Direct-to-Consumer Doesn’t Have to Be Hard

Huge interest in the D2C market is balanced by uncertainty as rights holders consider technical challenges

One of the most potentially far-reaching trends we’ve seen over the past couple of years in the industry is a huge upsurge in interest amongst rights holders for going direct-to-consumer (D2C). It’s not just the global M&E giants like Disney or NBCUniversal, to name two very current examples keen to launch their own services, but a wide range of rights holders, from sports to brands, and even to the sort of individual entertainment properties that would traditionally be selling their IP at conferences such as MIPCOM.

The move to D2C is not an either/or proposition. The traditional model is to create IP, establish a brand and do distribution deals with broadcasters and platforms, dividing the world up into territories and selling those rights on a case-by-case basis. D2C does not replace that, rather it augments it and gives companies access to additional revenue streams.

These can be in the form of subscriptions, advertising revenue, or more ephemeral but still vital KPIs such as brand exposure.

By Steve Russell, Head of Media Management, OTT Portfolio, Red Bee Media

Abstract: Content owners are exploring how to reach viewers, monetize content and harvest data through direct-to-consumer initiatives. But how do you overcome technical challenges and create user experiences matching high audience expectations? It doesn’t have to be difficult, but it takes the right approach and the right partner.
D2C now allows rights holders to connect with their consumer base in ways we have not seen before. The sort of pop-up channels and shows we might see as a result of this is genuinely exciting, especially for fans of certain consumer brands, and sports and entertainment franchises.

But possibly the one facet of going D2C currently gaining the most interest is access to data.

**Advantage? Data.**
The main advantage of D2C is exactly what it says in its name; it enables rights holders to build a direct relationship with their consumers and thereby connect with people who are already passionate about what they do. As well as the potential for monetizing content, this means that the rights holder gains access to valuable first-party data regarding exactly what its audience wants to see from its offering. This can feed back into the D2C proposition itself or inform other parts of the business under the aegis of the product philosophy of “learn and adapt.”

When using other routes to market this data is inaccessible and sits with the distribution platform. Material distributed via YouTube, for instance, might give the rights holders access to headline figures such as the number and duration of views, but not the truly granular and segmented data of audience composition and consumption patterns that a correctly set-up direct service can produce.

So why isn’t everyone doing it? In talking to our customers about D2C solutions there is a definite perception that setting up your own video service is technically challenging and resource intensive. This is exacerbated by the fact that such services don’t exist in a vacuum and need to reflect the rise in consumer expectations that the best pay TV and SVOD services offer. That means features such as content discovery and personalized recommendations need to be implemented, as well as seamless cross-platform performance, and rock-solid, low-latency signals with a minimum of video buffering. Rightly or wrongly, D2C services are compared by consumers to everything else that is being piped into their homes, and increasingly footloose audiences are quick to depart a service that doesn’t measure up.

The solution to this quandary is, of course, to outsource the effort and not reinvent the wheel. At Red Bee, for instance, we have specialized in making sure that video looks good and meets consumer expectations for many years. And the transition from linear broadcast to the current multiplicity of delivery platforms has only served to hone those skills.

What’s more, the advent of cloud-based services has revolutionized the speed and agility with which a D2C service can be spun up. By using a mixture of cloud-based and hosted equipment (on our premises and in our playout centers, not the client’s) we can establish a Netflix-like service within minutes, with all the advanced functionality in terms of platforms, viewer recommendations, user interfaces, and more that current audiences have come to expect. That includes industry-facing requirements such as the trusted security, dynamic scaling and rapid time-to-value that clients rightly insist on.

In fact, we’d go beyond that and say that it makes launching D2C services genuinely creative. Rights holders are free to experiment and find out what works; adapting and evolving their propositions as they go along with a range of pop-up services fueled with feedback from real-time dashboards. And the agility this gives them makes it an ideal fit for covering live events on short notice. Pop-up live events can be streamed globally within seconds, reaching audiences around the world and swiftly bringing in the sort of viewer numbers that live specializes in. Our work on the recent Rugby World Cup in 2019, for example, reached more than 12.8 million viewers for ITV alone.

D2C now allows rights holders to connect with their consumer base in ways we have not seen before. The sort of pop-up channels and shows we might see as a result of this are genuinely exciting, especially for fans of certain consumer brands, and sports and entertainment franchises. It still requires content (though with licensing deals in place even that can be taken care of), but it is an exercise that can certainly no longer be thought of as hard.

Steve Russell is responsible for the OTT and media management portfolios at Red Bee Media and has been building and contributing to innovative products and services within the media industry for the last 15 years. He noted a long time ago that “software is eating the world” and is a passionate participant in the ongoing transformation of preparation, processing and consumption of sports and entertainment content. steve.russell@ericsson.com @RedBeeMedia
Abstract: Winning in the direct-to-consumer (D2C) economy will require smart and nimble solutions to keep up with consumer demand. But is the trending, quick-fix, siloed approach to software a safe long-term strategy? Or will the ultimate victors implement enterprise software that can weather the complexity and volume inherent to the new business model?

We’re living in a time where a single Spotify download means breaking down a penny into hundredths of a cent, just to pay all the parties involved that are owed royalties. It’s a mark in time when rights owners are expecting that those in charge of fully monetizing their content will do so quickly, to keep up with consumer demand.

Technology has made it possible to distribute content faster, to a broader audience, and in myriad forms. That has only multiplied the complexities of managing the supply chain, as well as payment and reporting requirements on the back end. Spreadsheets and legacy systems tied together by email chains and off-line conversations simply can’t support the sheer volume of transactions passing through the enterprise. Only those who can ensure data integrity will be the clear winners in the D2C economy.

Rights and royalties management is a tangled decision tree of formats, blackout dates, multiple languages, geographies, subtitled or dubbed versions, music, streaming vs. downloads, promotional
The new and growing laundry list of factors involved in exploiting content and then getting paid accurately can be daunting. And yet, tracking all of this data on a series of siloed solutions and spreadsheets — with a total lack of standardization — remains a bad industry trend that, unless resolved, will eventually hamper the curators of even the best libraries of content.

People are always astounded to learn that something as simple as a title-naming convention is not adopted industrywide. Once you realize that simple fact, you can begin to imagine how easily data can go awry.

We understand how rights and royalties gone rogue can hurt the industry. Miscalculations can put key players out of business. At the very least, inaccuracies can create distrust and enmity between parties, resulting in permanent breaks in their business relationships.

The consumer, at the heart of the D2C economy, has a hunger for content. They have literally thousands of choices, and that’s how they like it. But this extreme demand requires constant attention. Therefore, access to creators and content variety to secure enough content deals is more mission critical than ever in the entertainment industry’s history.

The benefits of a single solution
Approaching rights and royalties management with siloed solutions is not the answer. So what promise does an integrated enterprise solution hold? A great deal. For example, rights holders with integrated enterprise solutions can realize many advantages, which include:

- The ability to accurately manage the high-data volumes encountered by the industry’s move to streaming;
- Full visibility into real-time avails across the enterprise — with a single system of truth;
- The ability to analyze business performance in real time, for accurate forecasting, planning and agile decision making.

Picking winners and losers
Notably, the most groundbreaking aspect of an enterprise solution is its ability to leverage the data that can unleash artificial intelligence and predictive modeling to identify the content that is most likely to be profitable. This is where the entertainment industry needs to catch up with its high-tech production side.

While billions of dollars are spent each year to produce and distribute content that is compelling and profitable — the infrastructure that supports the core of the entertainment enterprise is compromised by using siloed systems that don’t talk to one another. The winners in the race for eyeballs will ultimately be those who replace siloed solutions and spreadsheets with a single system that can drive strategic decisions and trusted results.
Get the Most Out of Your Color Grading Session, While Preserving Artistic Vision

Streamlined color grading workflow captures the quality and detail in HDR for an SDR deliverable

Abstract: The Dolby Vision content creation tools and workflow give filmmakers an efficient way to create both high-dynamic range (HDR) and legacy standard dynamic range (SDR) color grades and ensure that the look created in the color suite stays true when experienced by consumers. Our latest tools were the result of feedback from creatives worldwide based on the previous generation of the Dolby Vision workflow.

By Thomas Graham, Head of Dolby Vision Content Enablement, and Graef Allen, Manager, Technical Operations, Dolby Laboratories

Ray Dolby founded Dolby Laboratories in 1965. Since the earliest days of the company, Dolby’s mission has been to harness science and engineering to improve media fidelity, enabling consumers to experience audiovisual content the way its creators intended. Ray Dolby’s first invention was the Dolby Noise Reduction System, which reduced distracting noise present in early audio tape recordings.

Today, Dolby is known for more than just sound. We helped pioneer high-dynamic range (HDR) imaging as it exists for consumers today. Dolby invented a method of representing HDR video using the perceptual quantizer (PQ) transfer function, standardized as SMPTE ST. 2084, which underlies the open HDR10 standard as well as our proprietary Dolby Vision format.

HDR video for consumers is typically color graded and finished on high-end video mastering displays costing tens of thousands of dollars. Consumer
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The goal is always to preserve the creative intent of the filmmakers all the way to the consumer. What a consumer sees at home should closely match the look the colorist created and approved on the mastering display during the color grading process.

HDR TVs, tablets and smartphones have come a long way over the last few years, but they still don’t have the capabilities of professional reference displays when it comes to how bright and colorful they are. Nor should they — how many consumers would want to shell out $30,000 for their living room TV? For this reason, consumer devices must accommodate bright and vibrant HDR content by translating the incoming video signal into a smaller container at playback using a process called display mapping (DM). The luminance and color decisions the colorist made on the original mastering display are “mapped” into the smaller dynamic range and color gamut capabilities of the consumer device. The goal is always to preserve the creative intent of the filmmakers all the way to the consumer. What a consumer sees at home should closely match the look the colorist created and approved on the mastering display during the color grading process.

Working for consumers
Consumer Dolby Vision video combines HDR images with metadata that changes from shot to shot. The dynamic metadata in a Dolby Vision video stream guides dynamic display mapping in a consumer device to optimize the amount of image detail preserved in each scene. Some scenes will be very bright, some will be very dark and others will fall somewhere in between. A generic display mapping transform in a TV that works well for very bright images is unlikely to be as successful when handling dark images. Using a static approach in which every scene in a movie or TV episode is mapped the same way would inevitably cause some of the original image detail to be lost.

Dolby Vision dynamic metadata is generated in the color grading system, adjusted by the colorist and ultimately transmitted to a TV or other playback device in an encoded video stream. The metadata describes the original mastering display used by the colorist, luminance information calculated for each individual shot, and can incorporate dynamic trims chosen by a colorist to ensure the most accurate mapping from mastering display to playback device. The inputs to that display mapping process are the HDR video signal, the Dolby Vision metadata and information about the playback device’s own display characteristics. Dolby Vision display mapping yields excellent image fidelity whether a display is capable of 300 nits of peak luminance or over one thousand nits.

When Dolby developed the post-production content creation tools for our Dolby Vision consumer format, we weren’t just enabling the creation of compelling HDR images that maintain their integrity across a broad range of display types. We were also determined to develop an efficient workflow that would allow multiple “grades” to be derived from a single master. The Dolby Vision metadata isn’t solely used by display mapping: it can also enable a post-production process called content mapping (CM), which generates new video files that have the Dolby Vision mapping process baked in. Content mapping takes in the original HDR video and Dolby Vision metadata and outputs a new deliverable that is optimized for a specified luminance target, even down to 100 nits for SDR.

We believe this streamlined color grading workflow best captures the quality and detail in the HDR grade down into the lesser capable SDR deliverable. It also is extremely efficient in terms of time required in the grading suite. On a typical one-hour show, the Dolby Vision SDR trims can be accomplished in as little as an afternoon as opposed to another full round of regrading an SDR version. Netflix and other studios have adopted this as the primary workflow to deliver Dolby Vision, HDR10 and SDR versions of their original shows.

Feedback from content creators
When asked for his take on the Dolby Vision workflow, Dean Devlin of Electric Entertainment in Los Angeles told Dolby that “as spectacular as HDR is, we’ve basically ignored it because it was cost prohib-

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**Thomas Graham** is head of Dolby Vision content enablement and a 29-year veteran of the post-production technology industry, working for Digidesign, Avid and Dolby, along with a variety of consulting and freelance work. He was one of the first to use Pro Tools to record and edit the orchestra on Hollywood scoring stages on more than 40 feature films. tom.graham@dolby.com @Dolby

**Graef Allen** is manager of technical operations for Dolby Laboratories, and has worked for Dolby for the last 16 years. She started her Dolby career as a 35mm film projectionist and now manages a technical operations department that handles consumer Dolby Vision color grading, mastering, and encoding. graef.allen@dolby.com @Dolby
itive for us to color time it as well as doing a second version in SDR. With the Dolby Vision tools and workflow, however, we find that we can spend our energy and money on creating the best version possible, and only have to do the process once.”

We have also considered feedback from content creators around the world as our product and engineering teams have refined Dolby Vision over time. We launched a more flexible CM/DM algorithm, v4.0, at IBC 2018. For v4.0 of the Dolby Vision content creation tools, we heard that it was important to introduce more flexibility to the trim controls, which are the means by which the colorist exerts creative influence on what is otherwise an algorithmic mapping process. In many cases, filmmakers and colorists want the look of their derived SDR grade to adhere very closely to the original HDR grade. Other times, they may actually prefer a slightly different look in the SDR version. The original Dolby Vision color grading tools had 6 trim controls to adjust the mapped output at each defined luminance target. CM v4.0 has 9 primary and 12 secondary trim controls, including 6-vector hue adjustments to more precisely map hues, which can be especially important when shifting from P3 or Rec. 2020 to the more limited Rec. 709 color gamut.

We're encouraged by the feedback we've received from the post-production community so far. Keith Shaw is a colorist at Keep Me Posted in Burbank, Calif. Shaw has been the final colorist on Showtime’s *Ray Donovan* for multiple seasons. He graded a demo clip from *Ray Donovan* in Dolby Vision, although the show itself was graded in SDR only. About CM v4.0, Shaw says, “The improved and additional SDR trim tools available in 4.0 gave me the ability to produce an SDR image that more accurately represented the original HDR version. During the process I noticed that in certain scenes where I had struggled to maintain highlight detail during my original SDR color session, the Dolby Vision SDR version now yielded a more detailed image on the top end, and I even decided to insert those scenes into my original SDR deliverable for Showtime.”

Like most MESA members, we have multiple constituencies to please, from the post-production vendors who rely on our technology to do their jobs to the clients and consumers who enjoy the fruits of that effort. That has always been at the heart of Dolby’s mission, and continues to be true with Dolby Vision. ■
Abstract: In global enterprises, products and services have multiple representations, aka “twins.” Products and services can get out of sync, causing problems in production and distribution. The notion of “digital twins” has emerged in the manufacturing sector. This article explores how extending manufacturing’s digital twin concept can deliver benefits to M&E.

Before anyone could prove it by experiment, the great Albert Einstein postulated that if one of a pair of twins travels at near the speed of light then returns, he or she will have aged less than the twin that stayed behind. This came to be known as the “Twin Paradox.” Basically, the twins’ lives diverged because the environment surrounding one twin became out of sync with the other. Specifically, time slowed among the things, people, processes and relationships that existed among one twin “relative” to the other, causing one’s environment to wander from its counterpart. While there are heartwarming stories of separated twins meeting up later in life only to find they’ve maintained uncanny similarities, the effects of dislocation are inescapable.

The notion of a “digital twin” has already emerged in the manufacturing sector. One of its goals is to facilitate the monitoring, reporting and integrating of information pertaining to products and services in order to keep their respective environments in sync. Another goal is to maintain constant “situational awareness” about the environment, in order to act in an agile fashion. It accomplishes this by collecting data, through ubiquitous embedded sensors (IoT devices). The net results are to mitigate cost overruns, reduce risk and capture additional revenue. Applying the digital twin concept to media and entertainment might seem like a stretch. Today’s M&E enterprises are already mostly digitized, so where does...
Descriptive metadata is a conceptual replica of what producers believe audiences will experience when viewing their content – just like a human twin is a somewhat physical replica of a sibling – and the CAD/CAM/CAE model is a digital replica of a physical part or assembly.

IOT play a role? While the industries differ in many ways, this article will explore how extending manufacturing’s digital twin concept can deliver benefits to M&E.

Digital twins in M&E
We’re not at the point where CGI can create a digital representation of “insert your favorite actor here,” and have it act indecipherably from its real counterpart. However, the bits and bytes representing Grand Moff Tarkin, the deceased Peter Cushing’s character in Rogue One: A Star Wars Story, for example, makes us consider the possibility of that time arriving not too far in the future.

Assuming all intellectual property rights have been negotiated, and the CGI character gets a properly outfitted, on-location Winnebago, it may become routine for movie scenes to be reasonably prototyped and tested before audiences and critics, many times at significantly less cost, before real actors are called on set.

What about digital twins in distribution? Now, nearly every organization in every industry represents some aspect of its product or service in digital form and has some automated process for distributing it. From sales literature, to support tickets, to product downloads (software, books, music, entertainment, reports, etc.) the entire process can be tracked at multiple points for accuracy and efficiency, and analyzed for opportunity.

The same can be said for packaging, invoicing and payment of licensable material. Content licensing in M&E follows a complex chain of events, beginning with terms of sale, captured in legal contracts, proceeding through “release packages” consisting of various titles and their entitlements, and culminating in complex revenue recognition through invoicing and payment processing. Digitizing as much of this distribution lifecycle as possible brings benefits already enumerated.

There’s yet another player in the world of digital twins in M&E, one which arguably has the largest impact on this dynamic industry. That player is descriptive metadata.

What is descriptive metadata?
Descriptive metadata captures the non-technical, non-administrative aspects of content. It’s primarily concerned with the relationship with the audience, i.e. what they see, hear, feel (emotionally), surmise, anticipate and put another way, what they experience. Descriptive metadata consists of information including, but not limited to characters, actors, genre, location, gender, setting, tone, theme and plot.

While in the past, most of this metadata was, and still is, captured by humans placing metadata tags on each time-coded scene, machine learning (ML) in the form of automated image and audio processing is taking on some of the workload. Image processing has advanced to the point of recognizing not just a face, but a specific face. Audio processing, along with motion detectors and camera-outfitted athletes, can realistically replace an announcer at sporting events.

The time coding aspect is important because it not only greatly aids in finding any given frame of content, but it enables interesting, time relative queries to be fulfilled. Here’s an example query: Find all the scenes across our catalog, in action movies, where a male hero says “I love you,” then kisses the heroine within five seconds after saying it.

A query like this could be further restricted with location (in the jungle, in Europe, in NYC), time period (roaring twenties, WWII, 60s), or even additional time criteria such as, “the heroine slaps the hero within 5 seconds after being kissed.”

In certain streaming video modes, how about analyzing the effects of inserting different types of pop-up ads, or recommendations, shortly after a specified sequence of events? The query scenarios, and their associated benefits grow, once a platform is created that can readily leverage this type of information.

Descriptive metadata and digital twins
Descriptive metadata is a conceptual replica of what producers believe audiences will experience when viewing their content – just like a human twin is a somewhat physical replica of a sibling, and the CAD/CAM/CAE model is a digital replica of a

Michael Malgeri is a principal technologist with MarkLogic. He helps organizations reduce costs, automate processes, find new opportunities and create applications that bring high value to businesses and their customers. Malgeri focuses on the M&E industry, where content providers, distributors and related companies are seeking to leverage the power of data in order to capture new opportunities driven by expanding global information consumption. michael.malgeri@marklogic.com @mmalgeri
Because descriptive metadata is granular, information that is semantically relatable across dimensions of time, location, characters, actors and various emotions and story components, it enables content providers to be successful at “know your product (KYP)” initiatives. It meshes nicely with “know your customer (KYC)” and “direct to consumer (D2C)” initiatives. In the spirit of Einstein, one could express this as a “direct to consumer equation”: D2C = KYP + KYC.

That’s an equation with more symbolism than real quantitative use, however, it does convey a path toward business value.

**Delivering business value**

Information that fully describes a content provider’s title help deliver value as follows:

- Reduce cost by not having to rely on select individuals (experts) to locate content
- Increase revenue by searching entire studio catalog to suggest related contact to licensees
- Increase revenue by finding content quickly for reuse on new projects
- Increase revenue by pursuing opportunities not previously possible
- Increase revenue by addressing speculative use cases and experiment
- Increase revenue by rapidly finding memorable moments for prospective licensees
- Reduce the risk and associated costs of non-compliance in IP rights and regulations.

These are real benefits extracted when an enterprise knows its product. The M&E industry can knock the ball out of the park by knowing its consumer. Knowing your customer (KYC) comes from a variety of sources; some typical ones are as follows:

- Demographic information stored in profiles from company websites
- Financial information from sales campaigns
- Interest information from marketing campaigns
- Sentiment information from surveys and social media
- Engagement activity from streaming media applications

The more enterprises can combine and leverage KYP and KYC data in meaningful analytics, the better it can market directly to consumers with targeted products and services for greater consumer engagement and loyalty.

Finally, everything we’ve discussed can be enhanced through a multi-model, semantically enabled data hub service (DHS), which avoids the twin paradox and increases the chances for creating a digital twin blockbuster.

**Data hub service for a digital twin win**

As can be seen in the figure here, compared to other anything as a service (XaaS) offerings, a DHS goes beyond database as a service (DBaaS) to deliver the following out-of-the-box features:

- Pay as you go model
- Auto scalability, both up and down
- High availability
- Backup
- Configurable security that integrates with enterprise wide systems
- Smart, agile data mastering
- Data harmonization (integration) to an entity model
- Multi-model database (document and semantic graph)
- Geospatial indexing and search
- BiTemporal search
- Data provenance and data lineage
- Time based descriptive metadata modeling
- Semantically enriched Integrated search
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Abstract: With consumers today deciding what to watch based on a widening range of considerations, TV providers are adopting new approaches to presenting the right programming at the right time. Here we highlight innovative content personalization initiatives designed to maximize engagement and the key role metadata plays in those user experiences.

As the world shelters at home to stall the spread of COVID-19, families, co-habitants and individuals alike are discovering newfound time to occupy. An uptick in TV consumption has resulted as viewers broadly seek new TV shows and movies to stay entertained.

Even before the novel coronavirus pandemic broke out, average time spent by U.S. adults watching video on live and time-shifted TV, TV-connected devices, computers, smartphones and tablets amounted to a whopping 5 hours, 43 minutes per day according to the April 2020 Nielsen Total Audience Report covering Q4 2019. This was up a full 21 minutes over numbers in the February release of the report, speaking clearly to the value consumers place on watching video content, even outside of a major disruptive event keeping them at home.

In the face of COVID-19 driven lockdowns, a popular meme is making the rounds on social media. It facetiously states, “I finished Netflix today.” This captures viewers’ voracious appetites for content and the drive — sometimes bordering on obsessive — to consume the smorgasbord with deliberation. Just what does this full feast of content look like today? According to Gracenote data, there were approximately 646,000 unique program titles available across linear and streaming TV services in 2019. This represents a 10 percent increase over the previous year.

Incumbent streaming services and new entrants to the marketplace with major backing have been driving demand for compelling TV series and movies to populate their catalogs, leading to these ballooning numbers. Amid the streaming wars, video providers are

Beyond Genre: Exploring Content Discovery’s New Frontier

Core character traits can fuel content discovery

By Trent Wheeler, SVP, Product, Video, Gracenote
Editorially curated metadata describing TV shows and movies from various angles such as mood, theme, scenario and setting enables providers to understand foundational aspects of content that may resonate with individual viewers — and draw them to those offerings.

leveraging new original programming in addition to popular licensed content to the maximum degree in order to attract new subscribers and retain existing ones.

More programs, narrow appeal

Content itself is evolving as well. A limited number of mass appeal TV shows and movies created to entertain large swaths of viewers by way of appointment consumption has given way to a much broader range of program offerings targeted to increasingly narrow audience tastes. One consequence is that much programming produced today transcends basic genre categories such as crime drama or romantic comedy or reality TV.

To provide more compelling viewing and encourage binge consumption, creators are developing content that pushes traditional boundaries and challenges increasingly sophisticated audiences by blending genres more freely. Think thriller films with a heavy dose of comedic elements like *Parasite* or television content built around complicated storylines and nuanced characters such as *The Expanse* or *Mr. Robot*. These are the types of content that viewers are watching and talking about with others today.

In this golden age of content, it’s safe to say that there is something available to suit every imaginable viewer taste and mood. But for providers, connecting the right viewer to the perfect piece of programming at the right moment is becoming increasingly difficult. An abundance of choice based on the sheer volume of what’s available leads to a paradox: too much choice can cause consumer indecision and even disengagement.

According to the Q1 2019 Nielsen Total Audience Report, the average time adults spent browsing available content when they didn’t know exactly what they wanted to watch was 7.4 minutes. If viewers didn’t find something worthwhile quickly, 21 percent tended to abandon the viewing session and engage in another activity.

With this in mind, forward-thinking video providers are strategizing on how to deliver outstanding user experience to complement the high quality of their content offerings. Improved discovery and recommendation algorithms, as well as advanced voice search and navigation capabilities, are key priorities.

Appeal beyond genre

A new way of categorizing content going beyond using genre to cluster generally similar program offerings involves illuminating specific elements of that content. Editorially curated metadata describing TV shows and movies from various angles such as mood, theme, scenario and setting enables providers to understand foundational aspects of content that may resonate with individual viewers — and draw them to those offerings.

Smart taxonomy and editorially structured keyword sets describe content in granular terms, allowing for intuitive correlations between programs and movies with similar attributes going well beyond genre. Using this approach, a viewer interested in the theme of rivalries could be presented with *Ford v Ferrari* alongside *Crazy Rich Asians*, two very different types of content but both sharing the primary thematic element of conflict between people.

New visibility into the attributes of the characters whose performances inform the themes and drive the moods of TV shows and movies gives providers yet another opportunity to connect viewers to content they will enjoy. Metadata descriptions of core character traits such as being a big dreamer or highly charismatic, and motivations like learning from failure or thriving under pressure, can push content discovery and recommendations to the next level.

Finally, graphical images that represent different aspects of a single piece of content give that TV show or movie the best opportunity to strike a chord with consumers. For example, the New York setting of *Brooklyn Nine-Nine* may be the aspect that attracts the interest of one viewer while for another, Andy Samberg in the starring role is the main draw. The ability to present different images in a UI based on known viewer affinities provides video services new opportunities to maximize visual merchandising around content and improve view-through.

In summary, consumers clearly allocate time in their days for video entertainment. What’s not clear, despite what the popular meme says is, whether they have the inclination to eat their ways through entire content catalogs.

By offering improved search, discovery and recommendation features powered by advanced metadata, connected IDs and rich imagery, providers can help viewers get right to the main course of the meal — the TV shows and movies that best fit their tastes, preferences and moods. And by doing so, ensure they feel completely satiated by the experience.

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**Trent Wheeler** leads teams that turn the company’s industry-leading entertainment metadata and connected IDs into cutting-edge content search, discovery and navigation solutions. In 2017, he oversaw the successful launch of Gracenote Global Video Data, which empowers streaming services, MVPDs and CE device makers to deliver breakthrough cross-media experiences bridging video, sports and music and offer advanced features such as voice search and personalized recommendations. trent.wheeler@nielsen.com @GracenoteTweets
Customer Churn: A New Challenge For M&E Companies

Abstract: Customer data is a powerful tool for more than content personalization. Media companies can put customer data to work in new ways, like predicting churn and taking proactive steps to retain customers.

It’s a scenario guaranteed to send a chill through even the most-seasoned media executive: A young viewer subscribes to one streaming service for its original movies and another for its TV shows. In her personalized feed, the TV service recommends the film *A Simple Favor*. She watches the movie, and loves it.

A home-run for the TV streaming service, right? After all, it’s a textbook example of the bull’s-eye engagement that delights customers, expands brand relationships and creates loyal viewers.

Or it should be. After watching the movie, the subscriber canceled her account.

Customer churn is one of the harshest realities of the streaming wars. In a binge-and-bolt environment, even spot-on recommendations can fail to persuade fickle subscribers to stick around.

Continued communication with former subscribers is possible and necessary

By Badhrinath Krishnamoorthy, Market Head, AI, Analytics, for Communications, Media, Technology, Education, Publishing, Marketing, Cognizant
Look for these movies from Warner Bros. Home Entertainment in Dolby Vision™ and Dolby Atmos™, now available on 4K Ultra HD.

See. Hear. Spectacular.
Amid streaming’s ‘cancel culture,’ retaining subscribers for direct-to-consumer media isn’t one-and-done. Instead, it has evolved into a fluid, ongoing process where customers regularly come and go, and data is the connective tissue.

For M&E companies, retaining viewers represents new and uncertain territory. As content producers, their job has been to acquire and create shows, movies and events that attract audiences.

As D2C providers, they need to keep audiences coming back.

Managing churn is a new core competency for M&E companies, and smarter use of customer data is the not-so-secret weapon for reducing it. Customer data forms the foundation for strategies that create sticky D2C experiences. Equally important, and often far less obvious: Data makes possible the continuum of communication and experience that needs to happen even with consumers who stop subscribing.

**They will cancel**

We know they will. There’s no question that D2C is a powerful business model that’s here to stay. Thirty-five percent of U.S. consumers subscribe to more than one over-the-top (OTT) service. Yet OTT churn rates are nine times higher than for cable and broadcast TV platforms, according to Parks Associates. And in a streaming market flooded with introductory offers, brand loyalty is nil.

Amid streaming’s “cancel culture,” retaining subscribers for D2C media isn’t one-and-done. Instead, it has evolved into a fluid, ongoing process where customers regularly come and go, and data is the connective tissue.

**A steep learning curve**

Here’s how smarter use of customer data can help D2C providers find their footing when it comes to retaining viewers.

1. **Consider subscribers to be lifetime customers, even when they cancel.**

The importance of this can’t be overstated for D2C services. At first glance, it seems counterintuitive to pour resources into customers who have left. Yet, winning back canceled subscribers is a defining capability in D2C’s churn-heavy marketplace.

Digital platforms make continued communication with former subscribers possible. (When was the last time a retailer stopped sending you emails just because you abandoned a shopping cart?) AI and nonstop analytics provide the means to perpetually learn about subscribers and ex-subscribers alike. Collecting data from social media sources and third-party data providers can fill in details on their preferences and provide insight into how you can re-engage and woo them back.

**Advice:** Once a customer, always a customer. In D2C persistence pays off. When a premium cable channel sought to boost viewership for the heavily promoted final season of its marquee series, its marketing outreach included persuading former subscribers to renew. While the pool of data on existing subscribers was deep and dependable, we identified access to secondary data such as social feeds as critical for winning back those who had left. The result of the campaign was an uptick in paid subscribers from 1.93 million to 4.86 million by the second week of the season.

2. **View customer data from multiple channels.**

YouTube provides an instructive example of a business model that grounds its retention strategy in customer data. True, as a unit of Google, YouTube is natively (and enviably) data rich. But the key is how the video-sharing platform company uses data to create personalized experiences that keep viewers coming back. YouTube knows its customers’ viewing patterns, and it also continuously accumulates and evaluates advertising data. In addition, through its Google parentage, YouTube accesses search data to infer more insights regarding content — a step streaming service providers can similarly take but often have not.

A bright spot on the data horizon is that media companies are making strides in aggregating data from multiple paths. They’re more efficiently gathering and sharing information from mobile, web and other subscriber channels. They’ve gotten better at collecting information from third-party demographic data providers such as Acxiom and Wunderman.

**Advice:** There’s no such thing as too much data. Gathering input on customers’ behaviors and searches outside of the streaming platform provides crucial insight into the factors that influence the behaviors of subscribers and ex-subscribers. The upshot? You need to know your customers as individuals, and that takes data. Lots of it.

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3. Create a data strategy that focuses on customers. This guidance sounds deceptively simple. In most D2C initiatives, however, a single business unit typically becomes the primary data owner for the venture. While a logical first step, it becomes yet another barrier to the strategic, cross-organizational view of data that’s needed to reduce churn. Further complicating matters is that chief data officers’ viewpoints are typically influenced by where they sit in the company’s org chart: Those close to IT often view data through a technological and regulatory lens, while those within finance tend to adopt a compliance-centric approach.

Advice: Reducing churn starts with making customer-facing data a priority. Customer data’s rightful place within any overarching data strategy is at the top. Making it a priority produces results. As a TV network conglomerate revved up for a planned D2C initiative, it doubled down on efforts to reinvigorate the customer database for its category-leading sports group. Third-party enhancements from social media and demographic data providers enabled targeted messaging that worked: Auto-renew turn-offs dropped from 10 percent to just 5 percent.

4. Look to retail as a cautionary tale – and role model. Retailers stumbled in the early days of e-commerce with stovepipe functions and disparate processes and technology. Customers fumed. Today industry leaders have found their footing with a unified approach to customer data. They’ve adopted a single view of products, no longer maintaining separate master item lists for e-commerce and in-store stock. Online and in-store data is integrated so store associates can view customers’ online activity. They’ve also evolved into skilled communicators, persistently engaging shoppers with personalized offers and loyalty programs that knit multiple channels into a cohesive brand experience. To retailers, abandoned shopping carts are a starting point, not an ending.

Advice: Consistency wins every time. D2C initiatives are most successful when they operate as a single, cohesive organization. Think Netflix. Create standards that ensure consistency across all channels. It can be as simple as ensuring show titles and descriptions are standardized across channels. ■

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Former CIO of Sony Pictures Television and CIO and CTO at Creative Artists Agency, Eric Iveron, shares how data powers a complex supply chain that shapes the movie trailers you watch and the release date of the next blockbuster.

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Content May Be King, But Is Content Enough?

By Richard Whittington, SVP M&E, SAP

Abstract: The expression ‘Content is king’ has long powered Hollywood. As business models shift from a B2B to a direct-to-consumer (D2C) model, powered by streaming services, we believe that in an experience economy the winners will be determined as much by the experience they provide as the content.

The maxim that “content is king” has long been an unquestioned principle in the media industry, but perhaps it’s time to reconsider this.

Research has shown that improving customer experience yields impressive returns. For example, Apple stores with roving sales assistants, frictionless commerce at checkout and the “genius bar” have transformed how we buy phones, computers and tablets. This customer/product/brand experience allowed Apple to price its products at a premium and deliver exceptional stock returns. Apple opened its first 25 stores in 2001. A $100 investment in Apple’s stock at the beginning of 2002 would have grown to more than 130 times the original investment by mid-October 2019. A significant part of that growth can be attributed to the customer experience.

So, what does this mean for the media industry? Our point of view is that we are at the “minimum viable product stage” — as we say in the technology world — of direct-to-consumer (D2C) in media. Yes, content is a large part of the initial success and will continue to play a substantial role BUT the ability to match that content to the...
right consumer at the right moment will become the "Apple Store/Amazon" of media. Amazon and Apple are noteworthy because their ventures into content were part of larger strategies. Amazon leverages its content as a way to add value to its Prime subscriptions, while Apple uses content to sell devices, as well as to build an adjacent revenue stream with its subscription services.

Of course, incumbent media companies are not standing still. Disney is enjoying early success with the domestic launch of its D2C service, Disney+. Next up are services such as Warner Media’s HBO Max, and NBCU’s Peacock, as well as the yet-to-be-named offering from ViacomCBS.

As the landscape grows more competitive, we are faced with some critical questions:

- What will be the consumer’s threshold in terms of the number of monthly subscriptions?
- Will a couple of popular shows be enough to keep the subscription viable in the consumer’s eyes?
- Will subscribers hop into a service for a particular offering and then hop out once done?

The short answer to all of these questions is that we don’t know. (On the question of how many services consumers will subscribe to, however, estimates vary from one to four — inclusive of music services — per household depending on income level.)

What we do know is that in industries like retail, the product (in our case the content) is one part, but the customer experience is often more significant. For example, in media this can range from better seating and in-seat food in the theatrical experience to virtual concierge recommendation engines powered by artificial intelligence (AI) or machine learning (ML) in streaming.

Many media companies are familiar with the concept of an enterprise system to bring operational data together. But how many could say the same for bringing customer and customer experience data together in the same way?

Early streaming companies like Netflix led the way in consumer data exploration and exploitation but we believe there is so much more potential here in the battle for subscribers and subscriber revenue.

So let’s go on a journey ...

It’s been a long work week and Bob has just arrived home. He asks his partner what they should have for dinner, then he places an order via his app. While waiting for dinner to arrive, he turns on his “TV” and asks his voice-controlled assistant to find something to watch that night. In the old world this may have been a simple list of recommendations, but in the customer experience version of media, it might go more like this:

**BOB:** Find me a movie.

**CHATBOT:** What kind of week have you had?

**BOB:** It’s been a tough work week and I would like something relaxing please.

**CHATBOT:** Are you interested in what your friends have watched in the last month with a “thumbs-up” score of 80% or higher?

**BOB:** Sure. But no romcoms tonight.

The chatbot looks at Bob’s social graph and finds content that matches Bob’s mood and that his top friends on his social media hangouts are watching and presents Bob with a short list of five titles to watch. Bob and his partner agree on a movie and settle in to enjoy their dinner while watching. However, the first choice isn’t tightly aligned with their mood, so Bob stops it.

**CHATBOT:** Is there a problem with the content selection?

**BOB:** No. That is just a bit too slow for me tonight.

**CHATBOT:** Would you like to watch it at a later date?
Based on the answer, the program adds the movie to the watch list or deletes it. Bob and his partner select the second offering and at the end of the film the chatbot pops up and asks two simple questions: “Would you recommend it to a friend?” (the Net Promoter Score) and “Which friends would you like to recommend it to?” Bob’s responses are then stored by the ML part of the platform to help improve the “hit rate” on recommendations, and to target Bob’s friends to either add it to their watchlist or send them a social media message with an offer of a free trial to watch the content. The chatbot asks a closing question:

**CHATBOT:** May I help you with anything else?

**BOB:** Actually, there was a scene in the film where the lead actor was wearing a cool bomber jacket. Where can I buy one like it?

The AI part of the platform identifies the jacket in question, and either on the main screen or a companion app, offers Bob several options to purchase it at various vendors. The transaction is executed, and the film distributor gets a portion of the proceeds. Call this product placement/integration on steroids.

**Sounds too futuristic?**

Let’s break it down. First, we must know Bob and have Bob opt in, which more than 150 of SAP’s media customers do today thanks to SAP Enterprise Consent and Preference Management. We also need a strong recommendation engine, which Netflix and many of SAP’s customers employ. Customer experience is driven by companies like Qualtrics, feeding X (experience) data into O (operational) data to marry insight into action.

Next, SAP C/4HANA is powering the next generation of music artist-driven commerce to sell to the consumer and settle with revenue share partners. All of this customer experience is orchestrated with conversational AI.

Last, underpinning the end-to-end experience requires a financial platform smart enough to manage the revenue, rights and royalties, and operational analysis to power that customer experience.

Let’s look at a D2C brand in retail that has embraced this notion of customer experience, driven by an exceptional product experience built with innovative feedback from its users. Under Armour is a household name. Its customer experience is tightly connected to its product. Product testing therefore is a significant area of focus, much like audience screening and feedback in media. The outcomes that Under Armour has been able to achieve based on an integrated view of the experience are impressive.

In the media industry, these early stages of becoming a D2C business are about balancing consumer experience with great content (product) experience, to delight audiences. For those early adopters it brings in big returns in revenue, profit and shareholder growth.

Just imagine what an incredible opportunity exists for the winner in customer experience AND content.

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Maximize Subscriber Retention By Delivering an Exceptional Viewer Experience

Top reasons consumers cancel streaming services include content fatigue, insufficient value

Abstract: In the increasingly fragmented subscription video-on-demand (SVOD) market, subscriber churn is a growing problem. As acquiring new subscribers is both difficult and costly, streaming services must proactively work to reduce churn. This requires companies to have a complete understanding of each subscriber’s preferences so they can deliver outstanding personalized experiences across the entire subscriber life cycle.

By Alp Pekkocak, Global Head, Media Strategy, Solutions, Salesforce

The market for subscription video-on-demand (SVOD) is evolving at breakneck speed. Major players such as Netflix and Hulu are spending heavily on original content as they look to secure a larger share of the market, and other services are now offering live sports. Newcomers like HBO Max, Disney+, Quibi and Apple TV+ are joining the fray. Subscribing to multiple services to meet the needs of different household members has become the norm.

As the market becomes more fragmented, consumer expectations are also changing. Customers increasingly expect personalized customer experiences on and off the viewing platform. At the same time, SVOD services don’t typically require a long-term commitment, leaving consumers free to jump from one provider to another if the content or service doesn’t meet their expectations.

As a result, cancelations — or subscriber churn — are causing major headaches for SVOD providers. In many instances, this problem is compounded by “seasonal churn” — where a consumer signs up to a service to watch a new television series or live sporting event, such as the FIFA World Cup, only to cancel their subscription when they finish watching it. In the era of binge-watching,
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Streaming companies must use technologies such as artificial intelligence and machine learning to predict when subscribers are at risk of churn, and initiate and inform retention journeys. This is only possible if companies have a 360-degree view of subscribers.

This could be as little as a few weeks.

In a highly competitive market, acquiring new subscribers isn’t a simple task. It takes considerable effort and a generous marketing budget. According to Ampere Analysis, Netflix spent $100 per net new U.S. subscriber in 2018. However, this figure is likely to be even higher for newer players that don’t have the same level of consumer recognition. This means it is critical that streaming companies have a proactive churn-prevention strategy and the right technology stack to retain the subscribers they do have.

Seasonal churn aside, these are the top three reasons why people cancel their subscriptions:

- **Content fatigue.** Subscribers will switch providers if they feel a service doesn’t have enough new or entertaining content.
- **Poor subscriber experience.** This includes everything from the ease of onboarding to the quality of the viewing experience and content recommendations to the variety of subscriber care and service channels available.
- **Insufficient value for money.** The consumer perceives the service is too expensive for the available content, or they are paying for too many services.

**Phases of the subscriber journey**

Reducing subscriber churn isn’t easy. It requires streaming services to have a comprehensive understanding of each subscriber’s preferences in order to deliver outstanding personalized experiences across the entire subscriber life cycle. This is only possible if a company has a complete view of the subscriber that can be analyzed to derive actionable insights—a "subscriber 360" view.

Streaming services can achieve sustainable growth by concentrating on the following four pillars of the subscriber life cycle.

1. **Attract**
   The goal during this phase is to identify, target and reach consumers who may be interested in signing up for a new streaming service.

   Once a company’s marketing team has identified its target audience, it can implement an omni-channel marketing outreach program to drive demand and sign up prospects. This will typically include offering a free trial or one-time discount to lower the barriers for customers to test the service.

2. **Acquire**
   The aim of the trial period is to convince a prospect to become a subscriber. To do this, SVOD services should provide a streamlined onboarding experience that maximizes customer engagement and content consumption.

   This typically involves sending personalized recommendations, information about new or popular programs, and reminders that the free subscription period is about to end. The subscriber experience during this period must be exceptional to ensure a prospect doesn’t cancel during the trial.

3. **Service**
   Once a trial subscriber becomes a paying subscriber, he or she needs to feel they are getting value for the money spent. One way companies can do this is by providing personalized recommendations based on viewing patterns, both inside the viewing platform and out, via email and push notifications. Ideally, this will encourage subscribers to increase their consumption, as we know that personalized recommendations increase consumption and reduce the risk of churn.

   Streaming services must also offer seamless, omni-channel care in case a subscriber needs support. It is essential that customers can instantly access the information they need (particularly if the problem relates to the viewing experience or a billing issue, as these are often time-sensitive) via their preferred service channels; these include chat, phone, email, bots, knowledge articles and community forums. This omni-channel subscriber care approach also allows companies to more easily scale their services to look after millions of customers.

4. **Retention and Loyalty**
   The final pillar in the subscriber life cycle is retention and loyalty. This involves making sure subscribers are happy and getting maximum value out of their subscriptions.

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and is where the subscriber 360 concept really comes into its own. It is this full view of the subscriber — including content consumption, viewing habits, demographics and technographics, viewing experience, and billing and service history — that enables companies to provide the meaningful personalized service that drives customer loyalty.

When a subscriber has been with a service for a long time, opportunities may exist to try to upsell an add-on service or the next tier of service. This can help companies to achieve sustainable growth that isn’t solely reliant on continually acquiring new customers.

**Integrated technology key to success**

To be successful, streaming services must have the right technology stack in place. This means being completely integrated, with all systems seamlessly working together. While it is possible to assemble multiple point solutions to manage each pillar of the subscriber lifecycle, working with a company like Salesforce that can provide a fully integrated platform capable of sensing information critical to the subscriber journey and acting on it to nurture subscribers at every step is ideal.

It gives SVOD providers the ability to oversee all aspects of a subscriber’s journey with the company, including how different aspects interact, and respond accordingly. For example, a new customer is likely to be on an onboarding journey managed by the marketing system. However, the customer may also be having significant problems streaming content, requiring them to access subscriber care. As a result of these issues, the customer’s initial enthusiasm for the service has waned, putting them at higher risk of churn. The system recognizes that there has been a high level of service activity, coupled with a dramatic drop in consumption, and flags with marketing that the customer needs to be put on a retention journey. This level of insight and automation is only possible with a fully integrated system that can intelligently identify problems and respond to them.

Ultimately, streaming companies must use technologies such as artificial intelligence and machine learning to predict when subscribers are at risk of churn, and initiate and inform retention journeys. Again, this is only possible if companies have a 360-degree view of subscribers so they can tap into it to anticipate their needs and exceed expectations. Only by continuously monitoring and analyzing subscribers’ data for these insights can they hope to reduce subscriber churn and grow their share of an ultra-competitive market.
Abstract: There’s a growing demand among consumers for short-form content, and it’s a trend traditional content owners need to keep a close eye on.

According to a recent PricewaterhouseCoopers’ M&E outlook, the U.S. entertainment marketplace is expected to reach more than $825 billion. The report includes revenues from a wide range of sources, including global content creators (Disney, Warner Bros., Starz, CBS, AMC), multichannel video programming distributors (Comcast, AT&T, Verizon), digital stores (Apple iTunes, Amazon Prime, Google Play) and streaming platforms (Netflix, Amazon Prime, YouTube). In total, these segments represent approximately one-third of global revenue in this category. This also considers increasing adoption of various access options, like advertising supported video on demand (AVOD), direct-to-consumer (D2C) subscription channels and subscription video on demand (SVOD). Given the paradigm shift away from traditional programming forms and access methods, it’s hard not to wonder if there is such a thing as “nontraditional” anymore.

Industry growth is particularly relevant to the rapid evolution of short-form programming. Traditionally relegated to the chaotic “user-generated content” category, this format now spans highly scripted, carefully produced shows from the likes of Quibi, Netflix and YouTube.

Short-form content also includes promotions, stunts, material repurposed from longer-form linear broadcasts and a variety of other subjects. Like the variation found in the content itself, programming lengths vary widely, but most industry participants see higher production quality content at eight minutes to 15 minutes. That can be higher or lower, however, depending on platform, show type or distribution bias (i.e., daily entertainment news, a reality-show primed for any platform, or a premium weekly scripted show with named talent and viewing experiences tailored to smartphones).
Traditionally relegated to the chaotic ‘user-generated content’ category, short-form content now spans highly scripted, carefully produced shows from the likes of Quibi, Netflix and YouTube.

As short-form content propels on to the main stage of consumption, Spherex has been tracking trends and insights along its trajectory. Through an innovative partnership with a major network, Spherex tracked premium daily and weekend shows to understand the distribution of short-form content freely available on the network’s website, as well as via YouTube, in comparison to the shows’ linear broadcast segment. In this case, short-form is defined as two minutes to six minutes in length and derived from the network’s long-form formats, typically 45 minutes to 60 minutes per episode. These shorts represented a category mix of popular news content and late night interview format shows.

Over a period of one month, Spherex Monitoring found 30 percent to 70 percent of the broadcast content was also freely available in short-form-version, either via owned-and-operated properties or via the network’s managed YouTube channel. The high availability of short segments signals that short-form content is an integral component of promotional and distribution strategies. The plan appears to be “we’ll air programming over linear broadcast; and then in a controlled way, release segments across our online presence.” Spherex’s analysis revealed both anticipated and surprising findings.

Programming teams normally expect 25 percent to 30 percent of content runtime to potentially reappear in corresponding short-form versions. The fact that as much as 70 percent of runtime overlap occurred between specific shows and their segment-based online programming provides evidence that a staggering amount of viewing is now being presented off-network. If such an elevated amount of content is being made regularly available online, there is little incentive for audiences to consume shows via traditional network channels.

**The dominance of YouTube**

Additionally, on any given day, the distribution footprint of snackable “giveaway” programming on YouTube channels as compared to owned-and-operated properties is highly unpredictable. More than half of the time, there is at least a 30 percent variation in total content runtime between these two channels, and a quarter of the time, the difference was more than double. On average, slightly more than eight clips are presented per show on any given day. The YouTube channel often had a wider selection of content; sometimes presenting double the number of short-form clips.

Financial considerations also arise when significantly more viewing than planned or expected is occurring via third-party channels as compared to direct online properties. In this situation, external entities are disproportionately benefiting from advertising revenue and not sharing detailed viewing habits. Content owners are also incurring ongoing administration overhead for their personnel to edit/post/maintain high volumes of short-form clips. Additionally, YouTube continues to attract large numbers of highly engaged fans who will sometimes upload an entire long-form show before short-form clips are even made available for distribution. Such actions clearly must be subject to take-down notices, but are these notices being issued and being acted upon in a timely manner? Clearly a better solution would be for more expedient posting of officially released clips.

Spherex’s study highlights how the growing reliance on short-form content places pressure on content owners. For example, how aligned are internal stakeholders on the promotions and distribution strategies being employed? Are these strategies being comprehensively monitored to ensure compliance across high profile shows and networks? Are underlying return-on-investment models for promotional content being negatively affected by lack of cross-channel performance data? What are the systemic operational issues that need to be addressed?

These are just a few of the many ongoing questions related to the need for monitoring short-form content by the M&E industry as this exciting form continues to gain popularity.

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Abstract: Artificial intelligence (AI) and machine learning (ML) processing in the cloud today offers impressive accuracy, scalability and trainability across a variety of applications useful to production houses and content creators. To benefit fully from these services, however, users must be able to integrate AI- and ML-driven microservices into the on-premises workflows that already support day-to-day operations.

New OTT platforms are entering the streaming marketplace at a dizzying speed, vying to address consumers’ continually increasing demand for internet-delivered media. The global movie and TV production communities have taken note and are scrambling to supply content, both new and repurposed.

As these content owners rush to prepare programs and movies for streaming platforms, they must address the unique content submission requirements for each platform. These requirements go well beyond encoding profiles to include various types of metadata and how they are handled.

As a critical subset of this metadata, closed captions are subject to specific rules dictated both by the streaming platform and by its target audiences and geographic regions. Accurate captioning adds value to content and increases its utility for hearing impaired audiences, as well as a broader group of viewers who rely on the service to make content more accessible. Content providers thus face increasing demand for captioning across a much larger volume of media, as well as the challenge of addressing many different specifications for caption style, format and language.

Demand is increasing for captioning across a much larger volume of media, with many different specifications for caption style, format and language.

By Russell Wise, SVP, Digital Nirvana
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By integrating, automating and orchestrating closed-captioning as part of the overall broadcast workflow, it is possible to take advantage of flexible, intelligent cloud-based STT engines while working within an intuitive user interface that streamlines delivery of compliant, conforming high-quality captions.

While cloud-based speech-to-text (STT) services for closed-caption generation and subtitling are a viable option, managing these processes in-house can be time-consuming. By integrating, automating and orchestrating closed-captioning as part of the overall broadcast workflow, it is possible to take advantage of flexible, intelligent cloud-based STT engines while working within an intuitive user interface that streamlines delivery of compliant, conforming high-quality captions. This model allows for efficiency in creating closed captions, verifying that they conform with style guide from streaming media platforms, and creating translations following the same guidelines. It not only allows content providers to meet accelerated delivery timelines, but also affords closed-captioning houses the functionality they need to offer rapid turnaround times to their clients.

Logical workflow

For either type of user, the workflow is straightforward. Media files tagged for captioning first are transferred via API or portal from a MAM, PAM or storage system (cloud or local) into a captioning watch folder. These files are automatically transcoded into the proxy format used by the host cloud platform and STT processing engine. Because STT processing and other capabilities can be accessed as microservices in the cloud, uploaded proxies of media files can easily be run through a translation engine as well to generate transcripts in one or more additional languages.

Following processing in the cloud, both a transcript and time code data are delivered back to the on-premise system, where they are available via the internal MAM and through the captioning system UI. Today’s highly trained STT engines provide exceptionally accurate transcripts, and custom dictionaries and program-specific information (names, slang, jargon, etc.) can be used to yield even better results.

Converted into captions, the text is shown alongside time-synched video in the review interface, where the operator can quickly go from marker to marker, or line by line, to correct or enhance the copy with visual cues and tags. Automated error detection aids in quick identification and resolution of any errors. During this process, the operator also can review any additional metadata — existing or added following cloud-based processing — associated with the content. This capability offers content providers with an easy way to incorporate content classification into the captioning workflow if they wish and to add further value for downstream processes.

Following review and correction, presets for each target streaming platform are applied to ensure that the new captions conform with the appropriate captioning styles, which cover number of characters, number of lines, caption placement and other elements. Encoding profiles are likewise applied to generate outputs in the formats required for distribution.

By automating critical steps throughout the captioning workflow and by leveraging AI and machine learning in the cloud, this approach empowers content providers to prepare media for streaming platforms quickly and with confidence. Eliminating the need for human intervention wherever possible and supporting fast decision-making when the human touch is needed, this model allows a single operator to review, enhance, and approve captions with unprecedented speed.

Orchestration of the whole process allows the content provider to centralize management of the end-to-end workflow by assigning jobs and roles, overseeing caption edits, generating reports, and monitoring the status of each captioning project.

The rise of streaming media has brought new relevance and value to the media archives maintained by broadcasters, movie studios and other content producers/owners. Consumers are demonstrating a desire for content on new platforms, and the key to success lies in being able to address this demand — and the technical requirements of compliant content delivery — as quickly and cost-effectively as possible. Offering essential flexibility and efficiency, highly automated captioning workflows driven by cloud-based microservices are a uniquely compelling solution for today’s content providers.

**Russell Wise** brings more than 25 years of industry experience to his role, where he focuses on building sales of the company’s compliance-logging, intelligent closed-caption generation and metadata enhancement solutions portfolio. russellwise@digital-nirvana.com @Digital_Nirvana
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Abstract: In an industry that runs on storytelling, the best talent managers are those who can craft compelling stories to find the right opportunities for their clients. Today, those stories are increasingly informed by immense amounts of data: hundreds of datasets, millions of records and billions of data points (think Tweets) from sources inside and outside the business. By using machines (specifically, machine learning) to serve up analytics-ready data from disparate data, creative talent management firms can create very human stories with mutually successful outcomes for clients and media companies.

There's an old saying in business: Your biggest assets (people) leave in the elevator every night. That's doubly true in the creative talent management business, where your products (actors, directors, writers, sports stars and musicians) leave, albeit via Tesla, Uber, Toyota Prius or a Trek Domane SL 7 bike.

Talent is defined by a rich and disparate set of data, both structured and unstructured (such as audience data derived from social media streams). Data consists of everything from every job the client has ever had, to how viewers across the globe are “consuming” them, to industry knowledge about future projects.

It’s no longer just a small analytics group that needs access to this data. It’s now also the talent manager who must mine these data resources, bridging the gaps and making the connections that comprise each story.

The plot thickens: Dirty, duplicate data
Traditionally, a lot of that data has resided in the heads, smartphones and spreadsheets of individual talent managers and their teams, who collect, connect and use it to discover and get the best roles for everyone involved. Today, as in every other industry, data — and the speed and predictability with which talent managers can act on it — is a competitive advantage.

One agency’s script called for a durable data factory designed to centralize data assets and speed analysis

By Matt Holzapfel, Solutions Lead, Tamr
But the traditional process no longer works. In a world increasingly dominated by data-driven digital media superpowers like Netflix and Amazon, talent management must follow suit. Technologies like the cloud, data warehouses and lakes, and easy-to-use business analytics are becoming table stakes. The catch is that it all hinges on analytics-ready data for talent managers to use.

But it’s elusive. Problems include dirty and duplicate data, which obfuscates a clear, current picture of a talent or a brand. “Data drift” happens when critical changes and updates on the front lines never make it back to the source. Data experts and IT people spend an inordinate amount of time “unpacking” clusters of disparate data sources that have drifted or become dirty or duplicated. Given the increasing amount and diversity of data, it’s usually impossible to ever catch up when using manual or marginally automated data-engineering methods.

Meanwhile, starved of clean, accurate data, those stories in the heads of talent managers go into perpetual rewrites — or on hiatus.

**Applying machine learning**

A leading creative agency representing talent, brands and enterprises found a better way: Use machine learning (ML) to do the heavy “data-lift,” then turn over the results to their own internal data experts to make it perfect.

The agency’s script called for a built-to-last data factory designed to virtually centralize the agency’s data assets and speed up analytic velocity. The first project: “people mastering.” Apply ML to existing data to create a novel 360-degree-view of talent that would equip talent managers with data-backed insights to make decisions. The agency built data pipelines from sources to a factory warehouse, with Power BI analytics dashboards for talent managers on the other end. A single, unified view (master entity) defined each kind of person (whether actor or director, musician or tour, team or athlete), capturing and presenting data from multiple sources such that media, entertainment and sports companies could maximize revenue in a variety of ways. This mastering process would later be applied to media titles and other business entities.

The goal was to make time-to-insights as fluid as possible. The missing link: ensuring that master entities were always current and up to date, even though the underlying data was ever-changing. With previous methods of entity-mastering maxed out, the agency invested in novel, human-guided machine learning technology. Once trained, machine learning models of the entities were able to handle up to 90 percent of updates solo, efficiently involving people familiar with the data to resolve the remainder.

**A (close-to) Hollywood ending**

This approach has dramatically improved the fidelity of the data, even as it grows in volume and variety. Freed from much of the burden of data updating, data experts can now focus on creating more and better analytics and improved dashboards for talent managers. Managers can get fast, trustworthy answers to questions such as “Where has my musician not played in the last six months?” and, more importantly, “Where should they play on their next tour?”

With the new system, managers are better equipped with data-backed insights to make decisions. Their value — to the clients they represent and the media enterprises they serve — has increased. Both sides now have the unbiased data they need to make a fair negotiation. The best talent managers instinctively do this. With clean, analytics-ready data on tap, the agency can now scale that behavior out and up.

Finding new clients is easier, with the ability to get insights like “the fan base for actor A is similar to the fan base for actor B.” The agency has in fact built an auto-recommender for such questions, suggesting next-best action.

As needs change in response to media clients’ demands, it’s easier for data experts to create new analytics. For example: to respond to a studio directive about diversity in films, the agency could get fast answers to questions like “For a given film genre, how does cast diversity influence the type of audience we can attract?”

Further, the agency can ensure lasting success by being able to easily onboard new data sources for each entity as they become available, with the machine doing most of the updating work.

With the help of a machine, the human superpowers of a creative-management business are put to best use.

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Unleashing the Power of Smart Content

New AI-enabled solutions hyper-index content to extract intelligent, structured metadata

By Ryan Steelberg, President, Veritone

Abstract: How do M&E companies meet ever-changing, ever-fragmented consumer demands? The answer is smart content — or, more specifically, highly accurate, hyper-indexed structured data, which results in highly intelligent content. With smart content, M&E companies have the power to make better decisions, improve viewership, increase revenue and improve workflows.

For today’s M&E companies, staying profitable is complicated by two intertwined phenomena: exploding consumer demand for personalized, relevant content and an ever-fragmented media environment. Consumers not only want greater volumes and greater varieties of content, but they want to consume it when they want, and on the platform and device of their choice. The M&E industry — driven by profit and a virtually unlimited world of new revenue possibilities — continues to dream up new ways to package and deliver content. The resulting fragmentation of the media landscape (we call it the YouTube effect) means that content can be personalized down to the level of individual consumer’s tastes.

Through AI, analytics and attribution solutions, neither linear nor digital broadcasters have to wait overnight for ratings to come out; it’s now possible to know, in near real time, who is watching a clip and on what device or browser. That’s both good news and bad news for M&E companies: it means they can offer advertisers an unprecedented ability to tailor messages to highly targeted groups of consumers and their programs can be much more strategic through superior metadata and content intelligence. Preparing those targeted content assets, however, is straining production and distribution resources like never before.

In order to find and monetize a particular asset and use it for a specific task or project, users need to be able to search by details such as date produced, persons/companies featured, topics, location description, keywords, etc. The catch is capturing this level of detail from unstructured video, text and audio content. Until now, it’s been a laborious process requiring someone in the operation to sit and view hours and hours of programming and manually tag content with descriptive metadata.
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Hyper-indexing to extract metadata

The good news for M&E companies is the emergence of new AI-enabled solutions that hyper-index content to extract intelligent, structured metadata. These progressive applications use advanced, AI-driven cognitive processing techniques such as facial and object recognition and detection, speaker separation, content classification, OCR, transcription, translation and more.

Near real-time metadata generation replaces those manual, labor-intensive and time-consuming tagging processes, freeing people from the tedious task of listening to entire programs and allowing them to focus on more strategic, revenue generating initiatives.

Instantly, the intrinsic value and usability of content takes a leap since every asset is enriched with detailed metadata. Unstructured assets are transformed into smart content, making them imminently easier and more cost-effective to access, leverage, verify and monetize.

Consider the case of a large broadcasting network that has been working with Veritone for several years. This network has successfully ingested all of its primary linear content, across three TV channels and numerous other audio-based networks (including radio and podcasts), into Veritone’s aiWARE solution, where it has been hyper-indexed according to criteria such as faces, logos and other cognitive classes. The result is a highly accurate and well-organized metadata index that the network applies in a multitude of use cases: optimizing program scheduling, optimizing ad revenue and optimizing analytics to drive decision-making on future investments in content.

History repeats itself

To understand the promise of smart content for the vast universe of unstructured media assets that lurk in virtually every M&E company, it’s useful to look at a historic parallel: the growth of the internet. In the early 1990s, when the internet was in its infancy, just about anyone could (and did) put up a website — and there was a complete lack of metadata or any real unifying structure for content. HTML emerged to provide a common data layer; in other words, the structured metadata, image source tags and other elements content owners and advertisers needed to realize the internet’s true revenue potential for targeting content.

While as of yet, there is no comparable unifying standard or common data layer for unstructured media content, AI tools for hyper-indexing content with highly descriptive metadata are laying the groundwork. Just as HTML 3.2 has enabled the highly targeted advertising that drives today’s vast internet marketplace, tools for smart content are getting M&E companies in on the ground floor of a universe of revenue opportunities through highly targeted advertising and extremely relevant content.

Economies of scale

The M&E industry still has a long way to go before fully realizing the dream of hyper-indexed smart content. Legacy media companies, in particular, have their work cut out for them — not only are many just beginning the migration to next-generation, enterprise software systems, but they’re sitting on a vast archive of content that’s still held in old-school formats like tape and film, with only a small fraction of assets digitized and ready to be indexed. But even legacy companies are waking up to the possibilities of smart content, and most have a long-term strategy for content digitization and indexing.

Looking ahead, we see an era in which the cost of hyper-indexing long-form, unstructured audio, text and video content will continue to fall as algorithms and processing are optimized. This will come as M&E companies realize the power of rich metadata for optimizing everything from targeted advertising to program scheduling and even search engine optimization for broadcasters and managing, sharing and monetizing for content owners. Ultimately, it’s all about the viewers: to meet consumer demand, media companies really have no choice but to get smarter about how they prepare media and content assets. Hyper-indexed smart content is and will continue to be the answer.

Ryan Steelberg co-founded Veritone, a leading provider of artificial intelligence (AI) technologies and solutions for M&E, legal and compliance, and government markets. Steelberg helps the most innovative companies in the world gain efficiencies and grow their business every day with never-before-seen insights and actionable intelligence from Veritone’s proprietary artificial intelligence platform. @veritoneinc
These are challenging times. Streaming should be easy.

Testronic Film & Television expertise sits behind the launch of OTT platforms across the globe. Our specialized teams not only test your content that streams on platforms, but also tests your code, user interface, and user experience to ensure you deliver an exceptional quality of experience to consumers, and continue to win them over time and time again – whether they are watching on their mobile phone or the TV in their living room. Contact us to learn more about how to reduce potential risk and ensure your content gets delivered flawlessly.

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Abstract: Every organization now knows that a rights management system — along with people, process and technology changes — is necessary to prepare for the future of content distribution and exploitation. What’s not always clear is how to implement such an impactful change in your organization and the key components that must be completed to enable scalability and future growth.

The reality is rights management system (RMS) implementations are difficult. No matter how much you know about system implementations, enabling rights management has unique challenges. We have seen our clients encounter common hurdles within system selection, system implementation and change management. In our experience, we have found that organizations that get ahead of the obstacles tend to have more successful implementations and transitions.

System selection
The first decision in an RMS implementation is selecting a solution. The market has evolved to the point where offering several viable software options and custom development is no longer a requirement. There are a few software-as-a-service (SaaS) solutions that have emerged in the M&E rights management space. All are configurable, and offer intuitive user interfaces. Most come fully integrated with an external licensee portal, though we’ve found that these portals can be limited, and require further development by software vendors to enable an efficient, au-
tomated and integrated workflow.

The number of rights management solutions is not the only reason that selecting a system can be difficult. Gathering requirements for a new system, especially at the same time you are trying to streamline your processes, can be a daunting task with many moving parts. In our experience, a three-step methodology works well.

First, understand your current state processes. Next, know the goals for your future state processes. And finally, take the important components of current state practices and map them to your future state goals to help prioritize key requirements and features that a new system must have.

**Understand the current state**

“If you don’t know where you’ve come from, you don’t know where you’re going.”

— Maya Angelou

Many companies skip this step, considering it a waste of time and money. However, we have consistently found that organizations that map their current processes, fully understand their current systems and most importantly, their current pain points, have more successful implementations and avoid repeating errors of the past. The more judgement-free genuine curiosity that goes into the current state analysis, the more the project will benefit from all that analysis has to offer. We’ve found that the following has helped in performing a fruitful current-state analysis:

- **Get the key people involved and in the same room.** While the ultimate goal is to implement an RMS, it’s not just about the rights team. It’s also about legal, business affairs, sales, programming, finance and operations. We recommend workshops over interviews, with representatives from each impacted business unit to reveal details that surface when teams get exposure into others’ worlds.

- **Understand your current process owners.** Who owns processes? What are their inputs and outputs? Implementing an RMS alone, without considering how information flows in and out of it, will mean that you’re not using it to its full potential. While an RMS can streamline workflows for the resources using it, a lot of its utility will come from the processes that run tangentially to it. Schedule management, product deliverable management, digital asset management, and more all have steps that could be streamlined from a tight rights management solution integration.

- **Understand the data and technical landscape.** In order to take your RMS to its full potential, a thorough understanding of the current system landscape is needed. Where data is housed, which system is the system of record, and how it’s transferred to other systems (automatically, manually, or somewhere in between) is crucial to the implementation of the RMS. Involve system owners and technical stakeholders early to help define what that current state is so that the organization can more seamlessly move to the new future state.

Understanding your current state also has a side benefit: it starts the process of change management on the right footing.

**Design future-state goals**

Once the current state is understood and the pain points are documented, the future state goals will start to become clear. In our experience, it is more than making rights information accessible across the organization; it is a fundamental shift in how technology can enable your business.

- **Start with the industry standard.** There are established standards related to rights management processes. It is helpful to have someone in the room who has an understanding of how the best companies in the world are handling rights related processes. This can be an internal resource recently joining from a leading IP owner or a third party to facilitate the discussion. Either way, you need someone in the room who can say, “I have seen it done like this …”

- **Reach across siloed processes and teams.** An RMS not only provides a single source of truth for rights, but affords visibility to everyone within the workflow. If sales can run avails reporting and accurately perform conflict checking, operations should not need to rerun these checks for each contract. Across the contract lifecycle, teams
Make it a **future-state goal** to harmonize **multiple existing rights definitions** so that your organization can **speak the same language across the enterprise.**

will have to communicate often to avoid inefficient handoffs and duplication of work.

**Develop a data governance framework starting with your product tree and rights string.** Master data management, including clearly defined terms, is critical to the success of a rights implementation. The ability to conflict check and clear rights is directly impacted by the completeness and consistency of your product tree and rights string.

**Establish consistent contractual rights definitions across lines of business.** Does your rights team define something as OTT, but your sales team groups it with SVOD? Or, do your international offices use a completely different set of definitions to capture their product types? Make it a future state goal to harmonize multiple existing definitions into one that will allow your organization to speak the same language across the enterprise.

**Map practices to state goals**

Once the current and future state processes are understood and designed respectively, and the pain points understood, the system requirements and features truly reveal themselves. The business, technology, and implementation teams are now armed with the necessary information to search for the best system of choice.

Each type of system you implement in an enterprise comes with its distinct obstacles. We’ve seen that RMS implementations often encounter data conversion timeline issues. Everyone knows that data conversion is always the long pole in any implementation. In rights management systems, where data may be coming from evolved, home-grown legacy systems, the data sets you need may not be structured or captured consistently. For example, licensed or royalty terms could be currently stored in a text field or across multiple fields. You’ll have to develop a plan to transform this into a structured data set for your new system. If not addressed early on, data conversion can often become a bottleneck, resulting in delayed implementations.

**Change management**

Last but certainly not least is the hurdle of actually implementing the change. When you’re faced with impacting people, process and technology all at the same time, you have to begin with fixing the underlying issues, rather than just covering them up with a fancy, new system.

**Engage all stakeholders early on.**

Current state workshops are a good place to start. When you are genuinely interested in the work people do today, it’s a non-threatening way to engage all stakeholders and get everyone to agree early on about their pain points in the current process, and naturally encourage them into welcoming change.

**Identify champions.** Champions are stakeholders who see the future state clearly and can lead everyone else into the future by explaining and re-explaining how the impact of the project will benefit not only the company but each department. They believe in the change; they see it in their mind and they will bring all others along.

**Build ownership in the right people.**

You’ve identified your champions. Now empower them to take ownership. Begin building those relationships and understanding what’s important to them. They want to know what’s in it for them, and your job is to make that really clear.

**Set expectations.** Be realistic about the time and effort you will need from your stakeholders, as well as the overall project timeline. Will it be five hours per week, twice a month? Or is it two to three hours per week, for the next four months? Once you have an idea of what that number looks like, share that with them and make sure it is something they fully understand and can commit to.

**Create an environment of honest and direct feedback.** Feedback drives the direction of the entire implementation from gathering pain points to designing future state processes and system testing. Establishing a culture of honest and direct feedback helps ensure that all stakeholders are heard from the beginning, and in turn, invested in the outcome of the project. Do this by consistently exhibiting this yourself.

**Encourage active sponsorship.** Implementations with visibly active sponsorship from leadership is the single most important predictor of project success. We can’t stress enough how important it is to build that active sponsor. When leadership is bought in, positive, and actively motivating their teams, it builds momentum and provides consistent direction.

To summarize, by taking into consideration those areas demanding more focus, implementing your rights management solution can be made easier. Solution selection, system implementation and change management each have unique challenges and, with the ideas presented above, you can be sure your implementation will be done right.
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Securing and Supporting Your Remote Workforce During the COVID-19 Pandemic

By Michael Wylie, Director, Cybersecurity Services, Richey May Technology Solutions

Abstract: COVID-19 has caused businesses worldwide to activate business continuity plans (BCP) overnight, and work-from-home arrangements have become a critical necessity for most businesses, something that’s been viewed with skepticism for years. Company leaders are having to make tough calls quickly and may not have the time to research their decisions like they once did. Now that the rush to get employees working from home is over, it’s time to pause and take stock of your cybersecurity situation and your IT team's capacity.

For years many industries, including M&E, have been skeptical of remote workflows, with typical concerns covering lack of productivity and security controls over content. There are also practical concerns, like the speed of home internet connections and hardware accessibility. Because working from home has been viewed as a “nice to have,” or an incentive for certain employees, many organizations haven’t developed the policies, resources or training to enable their people to work off-site securely and efficiently. COVID-19 has quickly changed that mindset, and the need for an off-site working game plan.

In these unprecedented times, experts across the technology landscape need to lead the way with the resources at hand to successfully and rapidly transition teams into a new way of doing business. Here we offer a step-by-step strategic guide to securing a newly remote workforce, where air-gapped networks and face-to-face interaction are no longer viable in the creative community.
As employees get adjusted to working from home, reinforce cybersecurity best practices with security awareness training that covers social engineering, strong passwords, and safe handling of content.

**Define and update policies**
Clearly written and easily understood policies and procedures will act as a foundation and help govern employees while they are off-site. Organizational policies and procedures can help reduce the temptation to micromanage employees, as expectations are already written down and communicated. At a minimum, have comprehensive policies and procedures that address:

- Acceptable use
- Asset and content classification
- Business continuity
- Disaster recovery
- Confidentiality
- Incident response
- Mobile device management
- Passwords
- Disciplinary actions/sanctions
- Internal anonymous reporting for piracy/mishandling of content

Don’t assume your policies and procedures are known and understood by your employees. It’s unlikely your employees regularly access their onboarding materials. Develop a central location that’s easy to access and remind employees of key points frequently. Use examples to add clarification and encourage users to ask questions about policies and procedures they don’t understand.

**Decentralized endpoint security**
With a remote workforce, traditional perimeter security controls such as firewalls and network intrusion prevention systems (NIPS) no longer have the same level of effectiveness as they did with traditional on-premise workflows. Each device taken home by your workforce becomes an island with a perimeter that needs defending. With a remote workforce, the impact and time to quarantine incidents, such as ransomware, drastically increases. If you have not already considered endpoint detection and response (EDR) or managed endpoint detection and response (MDR), now is a good time to evaluate your options.

**Physical security**
Many organizations are allowing employees to take equipment home, which means computers are no longer protected by the office’s physical security controls (e.g. alarm system, CCTV and door locks).

Now is the time to identify what data is being stored on endpoints and take appropriate action to protect company and content owner data. For some businesses, this may mean enforcing full disk encryption on all devices, while others may opt for a virtual desktop (VDI) deployment to keep data in a central location like Amazon Web Services or Microsoft Azure.

While working from home, it can be tempting for family and guests to use work computers left around the house. Remind employees that work systems are for their use only and ensure physical devices have strong password requirements. This may extend to mobile devices, which some employees may not realize, so ensure your communications clearly identify which items employees are responsible for.

**Cybersecurity awareness**
There can be a lot of distractions when working from home, especially with schools, day care centers and after-school programs suspended. A brief distraction, multitasking, or even just feeling rushed may result in momentary oversight in cybersecurity best practices. As employees get adjusted to working from home, reinforce cybersecurity best practices with security awareness training that covers social engineering, strong passwords, and safe handling of content.

Again, communication is key here. Ensure employees know who to contact if they receive suspicious communications and make sure they feel welcomed to do so. If employees feel like they are bothering your IT team or can’t get a fast response, they may open attachments that contain malware or follow instructions from an impersonator. In a time when predators may take advantage of anxious, confused or distracted employees, erring on the side of more communication may save you from a costly breach.

**Digital communication**
What used to be an editing bay away can now feel like a hundred miles, while everyone works from home. Leaders need to implement catalyst technology that allows collaboration and breaks down the communication barriers while teams collaborate from different physical locations. Failure to provide a means to complete business objectives will result in employees solving problems themselves with potentially insecure/uncrypted channels of communications, such as SMS or third-party chat sites. The last thing you need during an already stressful time is for non-public information or content owner data to be leaked.

Managers, coworkers and HR departments all need to be easily accessible during these rapidly changing times. Tools like Zoom, Slack and Microsoft Teams can allow your team to securely message, screen share, voice

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*Continued on Page 119*

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**Michael Wylie** is responsible for delivering information assurance by means of vulnerability assessments, risk management, project management, secure network design and training. He has developed and taught numerous courses for the Department of Defense, Moorpark College, California State Universities, and clients around the world. Michael is a qualified TPN assessor and has an industry focus on the media and entertainment industry. michael@richeymay.com @TheMikeWylie
Preparation and Learning From TPN Security Assessments … and COVID-19

By Chris Johnson, CEO, President, and Mathew Gilliat-Smith, EVP, Convergent Risks

Abstract: The M&E sector is united in improving digital security. There’s a common pattern in the types of remediation needed and, in a rapidly changing environment, collaborating on intelligence is beneficial. Twenty percent of vendors already process content in the cloud but many are still trying to navigate security complexities. Here we explore the common themes, complexities in remediation and other info-sec topics related to corporate as well as content.

The M&E supply chain has never been more united in improving digital security. At the time of writing this article more than 500 vendors have, or are going through, the Trusted Partner Network (TPN) security assessment process, with hundreds more in the pipeline.

As a provider of TPN security assessments, the benefits are clear for us to see. Most facilities have some elements of Motion Picture Association (MPA) best practices that can be improved upon, and some have critical issues that fall below best practice which need to be immediately remediated. Importantly, no matter how minor or major the issue, security is improving across the board.

Convergent has been observing vendor-agnostic data since TPN launched, identifying trending types of remediation by geographic location. This rich data source allows us to report and respond to actionable intelligence targeting areas for future development. Collaborating on intelligence in a rapidly changing landscape can be extremely beneficial when raising awareness of the vulnerabilities to content as it moves through the creative and consumer process.

Common areas requiring remediation include: data IO, digital asset track-
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Prior to COVID-19, only 20 percent of new content reportedly was being processed in the cloud. This figure will increase during the first half of 2020, and by the end of 2020 will have become established as a business-as-usual activity.

An unprecedented event
One remediation item that has never been more relevant is business continuity planning (BCP). COVID-19 is proving a surreal situation and this current scenario feels more like we are living through a film script or industry experiment — only it is real, immediately impactful and extremely damaging.

Assessment and remediation, which earlier may have seemed a laborious task, are now seen by many as a very worthwhile effort when responding to COVID-19. An unprecedented event such as this will always make any response more difficult. In this case, the scale of transition to remote working and accelerated migration to application and cloud-based workflows has tested companies of all sizes. For many, this will be the first time BCP policy has been looked at since it was written. For others, such plans may not even exist. For those with a documented and tested BCP, remote working will have been a more swift and smoother transition.

With a large proportion of productions currently halted and limited new content to work with, areas such as localization and visual effects have been impacted especially hard. Add to this the significant risk of poorly managed configuration changes, increases in phishing attacks and malware, and the threat of unknown vulnerabilities sitting latent within our networks, and workflows will significantly increase the likelihood of future breaches.

To give some perspective, most of us have adopted and are rapidly adapting to new workflows that are likely to remain. Less travel means better corporate and social responsibility with less pollution and efficient cost-effective conversations via video call.

Move to the cloud quickly, securely
Prior to COVID-19, only 20 percent of new content reportedly was being processed in the cloud. This figure will increase during the first half of 2020, and by the end of 2020 will have become established as a business as usual activity.

Concerns over security in the cloud are changing in favor of achieving speed and efficiency. The cloud can be secured, but how you configure and monitor user interaction on a continual basis is critical. With so many moving parts involving third-party applications, navigating security is very challenging. While there is plenty of general guidance available, it is not always relevant or specific to media workflows.

Convergent’s approach to protecting content is to make security available to the broadest possible audience, consistently and globally. Cloud and application security will be no different. We aim to be a leading advocate on the subject, providing assurance to content owners through industry-led best practice. While we await industry-led implementation, we will offer reviews based on the available standards and our industry knowledge, using a process of discovery, mapping and configuration testing.

Our three-step strategy includes scoping the relevant cloud architecture and applications to gain an in-depth understanding of the workflow, where content resides and likely areas of vulnerability. The next stage is mapping to best practices, highlighting areas for remediation. The third stage is conducting configuration reviews and penetration testing areas of concern and prior remediation. Significant investment has been made in training our media experienced workforce and integrating into our team cloud security architect professionals with in-depth knowledge of each of the cloud providers.

Chris Johnson has been an M&E content security specialist since 2001, with a diverse range of experience and operational knowledge covering the music, gaming, studio and TV broadcast industries, including the production, post and digital distribution supply chains. chris@convergentrisks.com @ConvergentCEO

Mathew Gilliat-Smith has more than 25 years’ experience in media, entertainment and information security, co-founding three new technology start-ups, and previously holding senior management positions in publicly listed media businesses. His passion revolves around new technology solutions, risk assessment and content security solutions for protecting against cyber-crime and piracy in TV, film and broadcast. mathew.gilliat-smith@convergentrisks.com @mathewgs
Everyone expects a high level of quality in their user experience.

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Abstract: Are your information security practices reasonable? Shortcomings may result in content leaks or poor Trusted Partner Network (TPN) assessment results, and now may also increase the risk of financial losses due to the California Consumer Privacy Act (CCPA). We describe cybersecurity nonprofit SecureTheVillage’s Minimum Reasonable Information Security Practices and how it provides a foundation for efforts to reduce business information risk.

As a consequence of the 2018 California Consumer Privacy Act (CCPA), chief information security officers in and out of the entertainment industry are being called upon to assure their management and boards that their organization’s information security practices are “reasonable,” i.e., that security procedures and practices are reasonable to protect the information being secured.

The concept of “reasonableness” goes to the heart of the Trusted Partner Network (TPN) program as well. A vendor having a TPN assessment should reassure a studio that security procedures and practices are reasonable to protect the content being secured.

But just what are “reasonable information security procedures and practices?” What is reasonable for a major studio whose server contains the full 137 minutes of its highly-anticipated franchise release is different from what is reasonable for a small VFX house whose servers contain three minutes of a low-budget indie movie. It’s clear that there’s no one-size-fits-all.

Recognizing that reasonableness can vary for different organizations and looking at the reasonableness question through the lens of the CCPA, cybersecurity nonprofit SecureTheVillage asks: Are there a minimum set of information security practices that a company must implement and maintain for it to claim that it has reasonable information security procedures and practices?

We believe the security practices summarized here are a minimum set of information security practices that a company must implement and maintain for it to claim that it has reasonable information security procedures and practices.
security practices that a company (subject to CCPA) must implement and maintain for it to claim that it has reasonable information security procedures and practices.

The security practices described here are designed to be a floor: If you are not doing these things, then you are unlikely to have reasonable information security procedures and practices, regardless of your size or the type of content or data you are attempting to secure.

Most definitively, SecureTheVillage is not claiming that a company that implements these minimum practices has reasonable information security practices. We’re simply saying that a company’s failure to implement these practices is highly likely to be prima facie evidence that the company’s information security procedures and practices are not reasonable.

Objectives of SecureTheVillage
SecureTheVillage brings together the information security community as a force multiplier to help it better understand and manage the cybercrime and privacy challenge. We organize the community in order to mobilize what we call Cyber Guardians. These are people and organizations with the knowledge, skills and commitment needed to meet the ongoing challenges of cybercrime, cyber privacy and information security.

Recognizing that it takes a village to secure us all, SecureTheVillage leadership council members are aligned professionals with a commitment to assist in improving security capabilities, a desire to grow and expand the cybersecurity community, a passion for giving back, and a make-it-happen, results-driven attitude. We intend to scale and cascade the village concept throughout California and beyond.

SecureTheVillage developed its Minimum Reasonable Information Security Practices for the community in order to significantly improve the information security capability of everyone involved, to encourage all of our organizations to meet — at the very least — minimum reasonable practices.

Our primary motivation has been to provide meaningful operational guidance to those organizations needing to meet a standard of reasonableness. More generally, we see Minimum Reasonable Information Security Practices serving as:

- A straw man in community dialog over what might constitute reasonable information security practices and what might not.
- A baseline for companies to use in designing their own information security procedures and practices.
- A guide for attorneys to use in advising their clients on managing the legal risks of CCPA, other laws and regulations, and contractual agreements (like the payment card industry).
- A guide for insurance providers needing to assess the information security reasonableness of policy holders.
- A guide for financial institutions in evaluating their exposure to an information security incident of a customer.

Pointing the way
SecureTheVillage relies extensively on several frameworks and standards as pointing the way toward what might constitute reasonable information security procedures and practices:

- The National Institute of Standards and Technology (NIST) cybersecurity framework is a logical contender for what constitutes reasonable information security, one that provides a top-down perspective of information security management based on five core functions: identify, protect, detect, respond and recover.
- The Center for Internet Security’s (CIS) Critical Security Controls (CIS-20), another logical contender for what constitutes reasonable information security. George Usi co-chairs the California IPv6 Task Force, a nonprofit IPv6 scientific advocacy group, and is a board member of SecureTheVillage.
- The Center for Internet Security’s (CIS) Critical Security Controls (CIS-20), another logical contender for what constitutes reasonable information security. Ilanna Bavli co-chairs the California IPv6 Task Force, a nonprofit IPv6 scientific advocacy group, and is a board member of SecureTheVillage.

Stan Stahl, co-founder of information security management company Citadel Information Group, co-founded SecureTheVillage as a nonprofit community-based response to the cybercrime and privacy crisis.

John Coleman provides audit and consulting services to financial institutions in the western U.S. He has 30-plus years’ experience in various roles including CIO, CISO, IT director, and audit manager for Los Angeles-area companies.

Ilanna Bavli represents entertainment content providers and vendors on content security, investigations, data privacy, vendor agreements, and production/development work. She serves on the board of SecureTheVillage.
The concept of ‘reasonableness’ goes to the heart of the Trusted Partner Network (TPN) program. A vendor having a TPN assessment should reassert a studio that security procedures and practices are reasonable to protect the content being secured.

Kamala Harris wrote: “The 20 controls in the Center for Internet Security’s Critical Security Controls define a minimum level of information security that all organizations that collect or maintain personal information should meet. The failure to implement all the controls that apply to an organization’s environment constitutes a lack of reasonable security.”

Like the CIS-20, the New York State Department of Financial Services’ Cybersecurity Requirements for Financial Services Companies covers operational requirements that provides reasonable information security procedures and practices.

Companies certified compliant with the International Standards Organization (ISO) family of standards likely meet the threshold of reasonable information security procedures and practices.

Key elements for reasonable security
The following summarizes nine key elements constituting Minimum Reasonable Information Security Practices, as we see it:

■ Information security management: The organization manages its information security by means of a formal documented Information Security Management program. The information security manager is an executive or reports to an executive. The program is designed to protect the confidentiality, integrity and availability of information in accordance with commercially reasonable information security management standards appropriate for a company with its security-risk profile and the security-risk profiles of others whose information it manages.

■ Information security subject matter expertise: The organization utilizes appropriate information security subject matter expertise, with either a Certified Information Systems Security Professional (CISSP) on staff, or is utilizing one through an ongoing consulting relationship.

■ Security management of sensitive and private information: The organization formally identifies, documents and controls access to sensitive and private information — including content — in accordance with laws, regulations, contractual obligations, and in accordance with its own fiduciary responsibilities.

■ SecureTheHuman: The organization has an active awareness training and education program to turn personnel into Cyber Guardians.

■ Security management of the IT interface: All access to the organization’s network is protected in accordance with documented procedures, based upon the CIS-20. This includes user identification and authentication, account creation and removal, email, access to cloud servers, etc.

■ Security management of the IT infrastructure: The organization formally manages the security of its IT infrastructure in accordance with documented standards based upon the CIS-20. This includes security architecture, vulnerability and patch management, endpoint and network security, documentation, logging and review, encryption, etc.

■ Third-party security assurance: The organization follows a formal documented process to manage the risk associated with sharing information — including content — with third parties. This includes following documented standards based upon the CIS-20 to ensure the security of third parties having access to information or information systems, including vendors, distribution and promotional partners, solution providers, cloud service providers, backup/recovery systems, etc.

■ Information resilience: The organization develops, maintains, and tests incident response plans and business continuity plans. This includes training staff to meet their incident response or business continuity responsibilities and maintaining relationships with law enforcement and other professionals likely to be crucial should an incident or disaster occur.

■ Information security governance: The organization meets at least quarterly with executive management to review the organization’s information security profile.

Future plans
SecureTheVillage’s Minimum Reasonable Information Security Practices is a work-in-progress, and our approach considers a community-wide effort to get our collective arms around reasonable information security practices.

Being “reasonable” with our industry’s security procedures and practices begins with looking at the standards already out there, and anticipating what’s going to be needed in the future.
MediaBridge is a leading boutique investment bank with deep M&A and Corporate Finance expertise with an exclusive focus on the digital media technology sector. Our veteran team has many decades of experience covering M&A, and strategic and operational consulting. We welcome an introductory complimentary conversation to help business owners consider and better understand their strategic options.
Microsoft Teams adoption recently hit a new high with 44 million daily active users, spiking a whopping 37 percent in just one week due to the surge of employees working from home. Now more than ever, Microsoft Teams is facilitating group communication and productivity as employees across the globe transition to work from home in the face of a global crisis.

However, even in the best of times Teams can present governance and security challenges for organizations — especially for those who are fast-tracking deployment to support remote work. When Teams is not managed properly it can lead to issues that damage the business value it delivers and leaves the company exposed to risk from data oversharing and misuse.

If this sounds too familiar or you’re worried about rushing to adopt Teams to support a remote workforce, relax. We have you covered. It is possible to reap the vast benefits of Teams collaboration — even in a hurry — without the governance and security headaches. We’ve recapped five tips from our recent webinar on how you can provision Teams with governance and information security built-in to improve adoption and ensure secure collaboration.

Abstract: As hackers grow increasingly bold — and successful — in their attacks, three recent trends dominate the M&E industry’s cybersecurity landscape. First, content protection has emerged as a top issue with new security threats and increasing complexity in the production process. Second, new cloud tools increase productivity but can complicate security. Third, general cyber hygiene is playing a larger role as malware and ransomware attacks make the news.
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It’s important to understand why governance and security are so important when it comes to Microsoft Teams. Collaboration tools like Teams have made it easy for sensitive information to be accidently overshared or fall into malicious hands.

**Governance and data security importance**

Before we share our tips, it’s important to understand why governance and security are so important when it comes to Microsoft Teams. Collaboration tools like Teams have made it easy for sensitive information to be accidently overshared or fall into malicious hands for a few reasons:

1. **The way we work has changed - quickly**
   
   Previous stats show that employees are more mobile than ever — from coffee shops to airports and hotels to homes, where 70 percent of the workforce works remotely one day a week. While no data exists on how many are working from home in light of the coronavirus pandemic, the 37 percent one-week gain in Teams users, as well as a sharp increase in Slack adoption, is a good indicator that more and more enterprise employees are now working from home.

2. **How we access and share data has changed**

   Add to that the fact that we now work across functions, multiple devices, collaboration platforms and business boundaries with diverse teams made up of employees, contractors and suppliers. Information no longer resides within the virtual castle walls.

3. **Unstructured data is vulnerable**

   Unstructured data — i.e. email messages, word processing documents, spreadsheets, videos, photos, audio files, presentations, webpages and other kinds of business documents — are no longer centrally located. Instead, multiple on-premises and Cloud channels are used to share this information, including email servers, file shares, SharePoint, Office 365, OneDrive, Microsoft Teams and Yammer chats, and BOTs. This makes it harder than ever to protect sensitive information like trade secrets, acquisition plans, financial data, supplier and customer information, and more from being shared too broadly, with the wrong person or team — inside or outside your company.

4. **Traditional defenses and protection do not work**

   Perimeter defenses, legacy DLP and complicated permissions do not stop access and sharing of data by trusted insiders. They are primarily designed to keep insiders out, not protect data from misuse, theft or accidental sharing by your internal users that are meant to have access to it. As with anything, you need to use the right tool for the job — and these just don’t cut it.

**But I trust my users**

We’ve all been focused on protecting our systems from hackers and bad actors on the outside for so long that it’s sometimes hard to understand why tools like Teams make turning the focus inward equally important. Here are some sobering facts from a recent Nucleus Cyber and Cybersecurity Insiders survey on the current state of insider threats:

- 39 percent identified cloud storage and file sharing apps as the most vulnerable to insider attacks
- 85 percent of organizations find it moderately difficult to very difficult to determine the actual damage of an insider attack

While many think insider threats are limited to malicious employees looking to steal from (or sabotage) the company, the simple truth is negligent employees or contractors can unintentionally pose an equally high risk of security breaches and data leaks by accident.

With that in mind, here are our tips for the five things you can do to roll out or retrofit Teams with governance and information security to fuel adoption and ensure secure collaboration.

1. **FAMILIAR – Help your users**

   First, to set up Teams for success and ensure a smooth roll out, use provisioning or templates that are provided out of the box. Remember that with Teams, business owners, not just IT, can create new teams/channels. Template use ensures that teams are created with the proper governance and sharing rules in place, regardless of who’s spinning up a Team. When it comes to the

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**David Salter** supports organizations in creating an agile, digital workplace by leveraging Microsoft 365, and all it has to offer. david.salter@livetiles.nyc @davidsalter365
users, familiarity with Office products is great for getting started, but users still need guidance, tips and tricks, and other training over time to get the hang of it. Look to enlist existing early adopters for peer support efforts so that together your users can fuel adoption.

2. FAST – Speedy but setup for success
As companies look to quickly roll out teams, remember two impart points for success. First, make sure you start with security and compliance from day one. To help with this, create Teams based on fixed templates that have classification and metadata on Teams. Second, the side effect of anyone being able to create a Team is sprawl — including duplicate Teams and abandoned Teams. To avoid this, you should look to use automation for approvals, expiration reviews and orphan cleanup for expired Teams, to keep your implementation tidy.

3. INTEGRATED – Expand beyond files and chat
Teams is great for file sharing and messaging, but it can support so much more. You can add options for employee onboarding, learning management and HR/payroll directly into your Teams, for example. The best part is that you can keep users focused on their work, not the tech, by leveraging the Teams App catalog for system integrations, across major enterprise software apps.

4. CONTROLLED – IT must have visibility
Metrics are the key to a successful implementation. Having Teams data and analytics dashboards for IT and users is important to check on the health of your Teams. Auditing and reporting on adoption, growth in Teams numbers and content is important for maintenance, measuring engagement and making improvements. Be sure to create lifecycle guidance for users and automate notifications and lifecycle tasks as much as possible.

5. SECURE – You cannot sacrifice security and compliance
We’ll say it again: the biggest threat to your information security and compliance program is accidental or negligent sharing of files and chat. It could be as innocent as sharing the wrong file in the wrong Team, and suddenly your merger plans are not so secret anymore. If you’re in a regulated industry like financial services or healthcare, you need to ensure any required ethical walls and information barriers are in place to protect financial and patient information — and keep you out of trouble with the regulators. And in any industry, external sharing is almost always a necessity so make sure you have controls in place to limit what third parties can do with data they have access to.
Where Do Production Security and Production Efficiency Meet?

Companies that successfully balance these needs often have a plan that works across teams.

By Jon Finegold, Chief Marketing Officer, Signiant

Abstract: A central tension in M&E organizations — when creating, collaborating on, and distributing content — is the battle between security and efficiency. While creative teams want free reign to work quickly, IT and operations must focus on strong security practices in today’s environment. This article shares tales from the trenches along with tips on how to achieve efficiency without compromising security.

Production security is not a new topic in the M&E industry, but it is certainly top of mind across the industry. File-based workflows, cloud services and a fully connected world have combined to open new ways of working ... and new risks. So, how do companies remain efficient while maintaining strong security practices?

Content creators are under tremendous pressure to deliver more content to more places on tight deadlines, leading to a “whatever it takes” mentality. This can cause strain between different groups within an organization.

“[Awareness has] definitely improved in the last few years. In a period running from 2016 to 2019 it was important for the industry to keep saying, ‘Security’s an issue, we must take it seriously.’ And it feels like we’ve now passed through that,” said Mark Harrison, Digital Production Partnership (DPP) managing director. “But in the production domain, it’s a much more complicated picture.”

Harrison said that sometimes security necessities clash with production realities. “Creative people are much more aware of the risks and the range of risks. But while awareness has improved, there’s still remarkably little trust in IT-led solutions,” Harrison elaborates. That’s not to say IT isn’t doing its part. “Security teams, particularly in large organizations, have come to understand their obli-
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gation is to understand how their creative counterparts are working, what it is they are trying to achieve,” he argues.

The DPP and other organizations have collaborated to create best practices and certifications to guide production specialists and media technology organizations toward strong security practices, but each company must agree on a plan that works for its business and balances the needs of all constituents.

Planning, risk and education
Across the industry’s best practices advice is a common theme — make a plan. Establishing a plan requires consideration across the organization, and must begin with departments and teams asking questions about risk and delegation, and keeping each team on the same page.

Risk is often a good place to start: “What is the data I don’t want accessed by someone else, how likely is it to be accessed, what is the impact of losing it?” The value of content is likely different for different organizations, so a major studio may have more security around access than the local advertising agency. However, both may suffer embarrassment and loss of customer confidence if their production chain is breached.

Production security may not have been on upper management’s mind 10 years ago, but after several high-profile attacks such as those on Sony, HBO and KQED, the need for planning, resources and support are now seen as vital for a successful security plan and implementation at any size of company. Many companies are looking to the cloud to help, but that is a whole new world for some.

Harrison agrees that cloud security apprehension conflicts with cloud adoption. “In a survey we did in 2018, we found that fewer than a third of the 57 production companies we interviewed trusted the cloud,” he said.

“Having said that, we’re also seeing the very opposite. There are a number of companies who are working with the most premium content that actually see cloud-based and virtualized production as the only way to ensure that their content is safe. So, you’ve got this amazing polarization of attitudes.”

Companies that appear to have the best success with the balance of efficiency and security agree on a plan that works across teams. That includes documenting processes and agreeing on a set of tools that offer the right flexibility and efficiency but also offer enterprise-grade security. Signiant has a unique lens on this as our SaaS platform now connects more than 25,000 businesses across all parts of the global media supply chain. Signiant is a trusted broker of content both within and between companies, and in many cases it’s the only tool allowed to move high value-digital assets. Since products like Media Shuttle are user-friendly, production teams aren’t looking for ways around it. They embrace it so that IT and security teams have comfort that all content exchange is done through secure tools that provide visibility into any activity.

Mutually-assured success
However well-intended, when it comes to the balance between security and efficiency, for the majority of M&E businesses it is difficult to avoid compromise in weighing the

Continued On Page 119

Jon Finegold has 20-plus years of experience in launching and growing software companies. He was a pioneer in SaaS, helping launch OpenAir in 1999, one of the first B2B SaaS offerings, which was acquired by NetSuite in 2008 (and later Oracle) and remains a leader in its category today. jfinegold@signiant.com @JonFinegold
There are more than 275,000 creative people and 560 companies in our coalition, but we're still missing something. You.

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Physically Distancing Your Data

Abstract: The only absolutely fool-proof way to protect data from hackers and ransomware vulnerabilities is the same as what protects humans from viruses: physical barriers. Storing assets offline protects companies from ransomware attack and unauthorized access.

When pandemics strike and people are physically isolated, data must still be monitored and protected even if physical workplaces are closed down. Storing files in the cloud can make it easier to monitor and work with the files remotely, but this type of online storage also makes data more vulnerable to cyberattacks. The data security risk is compounded by companies requiring staff to work from home (WFH), often on the staff person’s personal computer, without proper security controls.

In this environment, data preservation and asset security could become weakened. The novel coronavirus pandemic has pushed to the fore how workflows can be adjusted to be performed remotely as much as possible, but there is a correlated risk to data security.

There is a need for:

- Secure, remote access to data from home environments
- Automated digital asset management
- Offline storage as baseline protection against cyberattacks such as ransomware

Other articles in this special issue will likely discuss cybersecurity and work-from-home environments in more detail. This article focuses on secure storage and automated asset management.

By Linda Tadic, CEO, Digital Bedrock

Automated digital asset management can help preserve content without risking the health of staff
The coronavirus pandemic has pushed to the fore how workflows can be adjusted to be performed remotely as much as possible, but there is a correlated risk to data security.

Automated asset management
When health emergencies such as COVID-19 strike, automated asset management should be implemented where possible to limit staff interactions with the network, whether the interactions are performed remotely (which can endanger the assets) or on-site (endangering the staff person’s health).

Many organizations already have remotely accessible digital asset management systems (DAMs) secured behind firewalls and accessed through VPNs with multi-factor authentication. This scenario implies that the assets are likely stored on spinning disk, whether in the cloud or on-premise. Any data stored on spinning disk connected to the internet is at some level of risk. Even connecting to the DAMs through a VPN can be compromised if the employee’s home network already has malware lurking in it. The malware could travel through the VPN connection to the terminus.

DAMs should be customized, or alternatively, tools should be written to automate functions, including basic functions such as ingest, metadata extraction, hierarchical storage management and fixity checks. Where staff need to enter metadata in a system, the system should be cordoned off from the actual assets, so that the assets themselves cannot be touched.

Digital Bedrock is a digital preservation service provider. We preserve and protect our clients’ digital content as a kind of data insurance policy. Our system and workflow are an example of pairing complex automated processes with physical barriers to accessing data. Automated digital preservation actions have already been built into our software, so clients’ data is preserved with minimal human interaction. This is good digital preservation practice; humans are more likely to introduce data errors than machines.

Secure storage
As part of our workflow, metadata is extracted from ingested files and becomes indexed and searchable. Clients can search this metadata in their own portal without touching the actual assets. While metadata is searchable online, files are stored offline in secure, locked, and geographically separated locations so clients’ files cannot be touched. However, files can be delivered for preservation to us electronically through a file accelerator, or through a direct connection to the client’s cloud storage provider. This enables clients to send us data electronically without the need to go to their company’s workspace. Since our digital preservation processing is automated, we can manage and preserve our clients’ digital content securely without risking our staff’s health as well.

Data management automation combined with physical barriers to data access is a secure methodology to protect both digital content and staff during this pandemic — and beyond, as it is also a model for future workflows.

Linda Tadic is a thought leader in media and digital preservation and metadata. She has over 30 years’ experience in leading preservation, metadata and digital production operations at studios, archives and cultural heritage organizations. Tadic is also an adjunct professor in UCLA’s Information Studies department, teaching a course in digital asset management.

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Richey May Continued from Page 101

call or video call anyone within the organization with a few clicks.

With an increase in email use and decrease in visibility into employees’ usage, tools like Managed Methods, Cloud Access Security Brokers (CASB) and Proofpoint, a Secure Email Gateway (SEG), provide stronger shadow IT, data leakage and control over email use.

In these uncertain times with changes happening so rapidly, it’s easy to feel like there are multiple competing priorities. Company leaders are having to make tough decisions quickly and may not have the time they once did to research their decisions. It’s important that we stay connected throughout the industry and share our knowledge of best practices and daily developments. Many breaches are preventable and there are many tools at our disposal to help protect you. Now that the rush to get employees working from home is over, it’s time to pause and take stock of your cybersecurity situation and your IT team’s capacity.

Signiant Continued from Page 116

risks of their decisions. While the priorities of various team members or departments may differ, everyone ultimately wants the same thing: successful workflows, an efficient team and a thriving enterprise.

This applies to every department of an organization, and it doesn’t just mean turning everyone loose to do their own thing. Flexibility of vision and priorities is an evolving element, and balance is needed between this flexibility and the previously discussed firmness. Content production and security need to be designed to adapt to and support one another. Every member of a team has responsibilities to fulfill requirements, both to collaborators and to clients. In order to achieve the best and most secure results, compromise is inevitable.

So, is there really even a “battle” between security and efficiency? It can feel that way but with the right plan and tools, it doesn’t have to be.
Abstract: The outbreak of the novel coronavirus COVID-19 presents complicated challenges to small-to-medium-sized companies whose primary business is traditionally conducted on-site. Moving forward requires balancing comprehensive preparation and strict responsibility to one’s workforce, while maintaining an attitude of flexibility and perseverance in the face of the enormous stress and logistical difficulties presented by this worldwide pandemic.

The beginnings of the COVID-19 pandemic signaled changes both monumental and fast. Whereas at the start of 2020 one would not have hesitated to shake hands with a colleague (or even a stranger) at a conference, bumping fists became an acceptable alternative, followed immediately by touching elbows, tapping the sides of shoes, or, ultimately, a friendly wave or bow with no contact whatsoever.

In short order, all in-person industry gatherings converted to online affairs or were canceled outright. These shifts in attitude and behavior were a clear signal to any business with an on-site workforce that big changes were forthcoming.

Preparation
The first consideration of any business is the health and well-being of its workforce and customers. A looming pandemic forces companies to

Looking at how the current situation has altered public media and entertainment consumption can lead to new opportunities

By Ramón Bretón, CTO, 3rd i Digital
It Takes a Village to Secure the Village.™

Managing our security and privacy is a community-wide effort.

Collaboration and education are key.

From the Boardroom to the Family ... Everyone’s a CyberGuardian.

Join Our Village!!!

Media & Entertainment Product / Service Companies
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- Stay In-the-Know with FREE Cybersecurity News of the Week with Weekend Vulnerability and Patch Report
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TPN Qualified Assessors & Other CyberProfessionals
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SecureTheVillage Resources
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  - CyberGuardian: A SecureTheVillage™ Guide for Residents
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evaluate their level of readiness and pushes them to make immediate additional preparations. Sanitation supplies need to be made available, even if their procurement comes at inflated costs. Communicating current recommended safety precautions to be taken both while at the office and away is equally important.

From an operational standpoint, it is critical to evaluate roles to determine how staff can work remotely and what logistical steps are necessary to enable this shift to work from home (WFH). When dealing with remote access, it is crucial to balance the shift to a WFH workforce while maintaining the company’s security posture. Security firms working specifically in the M&E industry play a key role in assisting with enabling WFH while maintaining Trusted Partner Network (TPN) guidelines.

**Responsibility**

It is neither quaint nor romantic to think of the workforce of an enterprise as a family. This is especially true in the case of small-to-medium-sized companies. Although ultimately individuals are responsible for their own actions, owners and management have a duty that goes beyond legal obligations to provide an environment that encourages the physical and emotional well-being of their staff and customers. In addition to pragmatic concerns of sanitation and hygiene, those in supervisory roles often find themselves in the position of impromptu caretakers, with open-door policies to address concerns or provide general emotional support when needed.

Responsibility here has another implication: to fulfill the promise of uninterrupted service to one’s clients while protecting their content and intellectual property in a manner that also safeguards the health of the company’s staff. Once new policies regarding WFH workflows are established, it is vital to communicate these proactive changes to clients and partners impacted by these adjustments.

**Perseverance**

The goal of any enterprise is to be successful. Fiscal performance is only one way to measure success, but it is of course important. The notion of responsibility comes into play again here, but in a different way. With the uncertainty that comes along with a worldwide crisis forcing people into self-isolation, small-to-medium-sized companies must strive to survive, not only in their own self-interest, but as reassurance to their staff and partners that they will come out on the other side whole.

One way to make more money is to spend less money, and certainly efficiency needs to be optimized while balancing the financial needs of those who depend on the company for income — there is a place for ethics here. However, another way to make more money is to make more money.

Evaluating the talent of one’s staff while also looking at how the current situation has altered public media and entertainment consumption can lead to new opportunities in areas where a company’s strengths overlap with new consumer behavior. When developing new service offerings, cloud-based and otherwise remote workflows are given top priority in order to support WFH.

One of the advantages small-to-medium-sized companies possess over their larger counterparts is their ability to be nimble. Instead of being weighed down by the bureaucratic quagmire plaguing large enterprises, smaller companies can make creative decisions and implement new policies quickly. This is an opportune time to encourage blue-sky projects and out-of-the-box thinking and develop any plans that are promising. A reshaping of company operations forced by the unusual safer-at-home conditions may end up being a silver lining in an otherwise unfortunate situation.

**Commitment**

During a crisis it is key to adopt an attitude of commitment — to the health and safety of the corporate family, to continuing to provide the same level of service to one’s clients and partners, and to the survival of the enterprise by adapting in ways dictated by current conditions. The gift of time is perspective. When looking back at the COVID-19 pandemic in the first part of 2020 and evaluating corporate response and performance to the unforeseen challenges presented by the unprecedented nature of the worldwide quarantine, it is just as important to identify areas of improvement as it is to celebrate areas of success. Surviving economically while placing the highest value on the well-being of one’s staff and customers is a success by any measure.

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Ramón Bretón, prior to his 18 years at 3rd i, spent 10 years in the music business as an audio mastering engineer, giving him over 25 years of experience contributing to quality entertainment for consumers.

*ramon@3rdiqc.com*
One Industry, One Audit.

The Trusted Partner Network (TPN) is a new, global, industry-wide content protection initiative that helps prevent leaks, breaches, and hacks of movies and television shows prior to their intended release.

Visit TTPN.org to Learn More

The Trusted Partner Network is a joint venture between the Motion Picture Association of America (MPAA) and the Content Delivery & Security Association (CDSA), the leaders in third-party entertainment industry assessments.
Remote vs. Rosé: Pandemics and Our Future

COVID-19 and the future of film and TV sales

By Rob Delf, CEO, Rightsline

Abstract: Due to the rise of streaming services, the linear sales market that’s been the bread and butter for library sales will likely be pushed hard to keep up. A 24/7 sales cycle that is powered through web-based rights management applications and provides visibility into deep, complex libraries is needed now more than ever.

With the ongoing COVID-19 pandemic, travel and congregations of people have been shut down and remote communication tools are on a tear. Will content distribution events become less important, and is this global health crisis the thing that breaks the already fragile back of the big film and television markets?

As a native cloud software company, the pandemic’s impact on Rightsline has been somewhat muted from an economic perspective, in that while we expect new project starts to slow, most of our staff and the majority of our customer base have been working remotely with our platform since inception.

Perhaps the biggest repercussion is on the staff from a personal level. Anyone who says that it’s business as usual is wrong, as my usual now includes eight straight hours of Zoom meetings wearing a dress shirt and pajama pants with a roaming 5-year old. That’s decidedly unusual. Now is the time to focus on the health of our people and the well-being of our culture, as that will undoubtedly transfer to economic success on the other side.

If there is a silver lining to this calamity, it’s the recognition of this moral imperative and the time to focus upon our people and our company, and not doing so would be to base action on fear rather than on future.
Resiliency and ability
Our biggest takeaway from this is the recognition of resiliency. Resiliency from our customers and prospects, and the fortitude of our own resources. For our staff, who I’ve had the privilege to work with throughout our rise, the level of adaptability to customer support and delivery has been inspiring to watch. We work day in and day out on configuration, code, project management, support and operations, and this change has been met with the same can-do attitude that we’ve embraced from the day we fired up our Amazon Web Services account. For some of us, it’s also been an amazing opportunity to limit business travel and has given us a bump in old fashioned productivity. It turns out you can get a ton accomplished in a day without commuting or overseas flights.

From our customers (both old and new), there has been consistent feedback about how crucial it is to have access to complete rights information from wherever they may be, and to continue content acquisition and sales activities without interruption. While we’ve previously completed several global implementations where the majority of hours have been remote, we’re now kicking off new ones with project plans that respect the totality of distancing, and are a testament to the aforementioned resilience and subsequent adaptation. We will find a way!

Long-term impacts … and ideas
So what, if any, will be the long-term impact of the current crisis? For us, it’s proven our ability to execute at an incredibly high level on a remote basis. We’ve had some experience to draw upon, but nothing as complete as the isolation that will continue — at a minimum — during the early summer. Going forward, leveraging this understanding will allow us to more appropriately weigh the relative importance of in-person meetings versus increased productivity, using data gathered during this time to support those decisions. Additionally, it pushes the idea of the four-day work week up higher on the “let’s experiment with” list, as it becomes clear that the elimination of the normal commute in, office set up, catch-up with coworkers and commute out can more than make up for eight hours over four days. As long as the casualty isn’t our culture, this can and should be something to consider.

So what about the industry that we serve? We’re in the business of supporting deal-makers in the content lifecycle, and as such attend to and listen to their needs. Attendance has been dropping at the content markets, mostly driven by the bigger players building infrastructure and content pipes directly to consumers, but also driven by the collapse in traditional windows; who’s to say that TVOD isn’t the best first exploitation medium; and what is the definition of a TV window these days anyway?

Perhaps COVID-19 and social distancing will disrupt the handshake deal, not only because we’re explicitly prohibited from actually shaking hands in the near term, but because of the recognition of efficiencies gained through more precise information transfer during the sales cycle. The proposition of online rights exchanges and sales tools have been extensively vetted and have yet to make any traction over the past two decades, mostly due to the nuances and complexities of deal terms, as well as the trust in the partnership between creators and distributors.

Challenges ahead
Failed attempts to automate deal flow over the past decade are a testament to the fact that relationships will always reign supreme. Isn’t it feasible that both new content and library sales will be done over remote connections rather than over chilled rosé on the Croisette? It seems apparent that those connections can continue their evolution to support a 24/7 sales cycle that is powered through web-based rights management platforms that provide visibility into deep, complex libraries, and the relationships between parties can be handled in the most appropriate way whether that’s Zoom, phone calls or really awesome events around the world. The key here is that they’re not co-exclusive and will never be.

Tools like Rightsline can provide a virtual information network of content positions, and remote working tools like Zoom can at the same time allow for one-on-one connections and relationship nurturing. Whatever the duration of the current crisis, our collective remote working abilities have just taken one giant step forward.

If we use all the right tools at our disposal, and don’t forget about the culture and people that make it all matter, we’ll emerge a stronger business and industry overall.

Rob Delf leads Rightsline, a software-as-a-service (SaaS) platform for deal and rights management in the film and TV industry, based in Los Angeles. rdelf@rightsline.com @rightsline
Work-From-Home Best Practices

Tips on staying productive (and sane) in your new work environment

By Wendy Osuna, Senior Product Manager, Film, TV, Exactuals

Abstract: As Exactuals employees, we were in the unique situation of having had already conquered the best practices for working from home, pre COVID-19. Now, we face additional obstacles and distractions due to government-imposed restrictions and, for some, our family members being home with us. This is how Exactuals has managed.

A few months into the COVID-19 pandemic, many organizations around the world have found themselves functioning in a way they probably thought impossible, and that’s with their staff working from home. As Exactuals colleagues, we have been fortunate to be employed by a company that has been working remotely for almost a decade. Prior to the government-imposed quarantine, we were in the unique situation of having already conquered the best practices for working remotely. Now, we face additional obstacles and distractions due to our family members being home with us, without having the option to sneak away to our local cafe.
It is imperative that you **schedule time for yourself throughout the day. Block your calendar and set a reminder to take a lunch.** Force yourself to **walk away from your screen,** especially when you start to **lose focus,** or begin to **feel a bit irritable or anxious.** Great things to do while working from home and taking a break? Literally **anything.**

I’ve reached out to my coworkers across the nation to gather their thoughts and habits on how they continue to stay focused during these times. At Exactuals, we’ve always found working remote, or from home, to be a privilege, and so we have treated it as such throughout the years. Now that the nation has mandated a quarantine, we find ourselves to be extremely grateful that our team has continued to function, business as usual, without a hitch. So, we hope to share our steps and best practices to help you stay focused during these times when distractions are exceedingly present.

**Get up and get ready**
Everyone in the household should get up, tuck in their shirt and get ready to work. We have found that remote school isn’t great in pajamas, and neither is work. You may be surprised at how much more energy you have, just by slipping out of your slippers and into some shoes with soles.

**Set the mood**
Find your dedicated workspace. Many of us who have been doing this for a while have an actual office in our homes where we can shut the door and sit at a proper desk with a monitor and an ergonomic chair and keyboard. This is definitely ideal; however, for those of you who aren’t quite there yet, you must find your space. Make sure you have proper lighting and stay off of your couch and especially your bed.

**Structure your day**
Aside from all the meetings invites that are likely flooding your calendar, block time to actually get work done. Start with a “to do” list and group similar tasks together and prioritize them. It’s key to schedule the most important tasks during your time of minimal distractions. Some of us find this golden hour to be first thing in the morning, before our major distractions get out of bed.

**Take your breaks**
It is imperative that you schedule time for yourself throughout the day. Block your calendar and set a reminder to take a lunch. Force yourself to walk away from your screen, especially when you start to lose focus, or begin to feel a bit irritable or anxious. Great things to do while working from home and taking a break? Literally anything. You can stretch, play fetch or walk your dogs, exercise, meditate, play an instrument, read a book or take a nap. Your home is your oyster.

For those of you with families and little “interns” running around all day, we have gathered a few bonus tips to help them help you. Setting boundaries is important. One of my colleagues had his kids create a sign with a string that can hang on the outside of his office door. The sign has two sides: one side says “stop” and the other says “go”. If he is in an important meeting, he puts the stop side out. Since his kids were involved in making the sign, they are a bit more invested in paying attention to it. Some of my colleagues alternate using an office, or alternate locking doors, so that the kids can only distract one of them at a time. For most, avoiding the distractions altogether is preferred. Many with kids in school have expressed that they plan out their entire day, the night before. Structuring their time allows you to structure yours. And some have realized that sneaking away to take calls from the walk-in closet is also a preferred option.

Most importantly, when working from home, due to a pandemic or because you’ve been fortunate enough to land a job whose culture is to work remotely, it’s important to set a stopping time. One of the issues that I have struggled most with over the years is not knowing when to turn the lights off. Eight hours can quickly turn into 12 or 16, especially when submerged in a large project.

One of the things that Exactuals has tried to engrain in all its employees is that family is always first. Live in the moment and be present with your families each and every day.

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*Wendy Osuna has more than eight years of residuals knowledge in software development, with experience at City National Bank, Entertainment Partners and CBS Studios. wendy.osuna@exactuals.com @Exactuals*
Abstract: Like everyone else in the entertainment industry, we have found ourselves in a new age of innovation and urgency to solve for our greatest challenges. We’re hyper-aware of the role we play in the larger scope of that responsibility — to our immediate community, as well as those we serve at home, watching the shows we help bring to life. And as many of us in M&E know, if we go dark, many go dark. Despite the ambiguities our industry is currently facing, we find ourselves uniquely suited to continue business as usual. How?

Carving out the safest paths forward to bring productions back to life consumes our days and keeps us up at night.

While DigitalFilm Tree (DFT) is a varied provider to both the entertainment and technology industries, our soul is in television and independent features. We’ve spent countless hours brainstorming with studios and storytellers to discern all technological possibilities that can be leveraged in an effort to get productions up and running again. Whether it’s from home or standing six feet apart, we’ve never been better equipped or poised to solve these challenges together.

While some shows have begun discussing protective shields or literal bubbles for their boom operators and gaffers, others are discussing robotic cameras and separate rooms for directors to live-pipe feedback. Australian soap opera Neighbours leads the charge by beginning production with clear guidelines relating to everything from makeup application to distancing (including no physical contact between the actors, which should prove interesting for a daytime drama).

We will learn, responsibly, from one another. We will make educated decisions that allow more creatives to perform their work online and create greater efficiencies. These efficiencies will allow us to get back to work, and free up production dollars to be spent in crafting that content. Actors, directors, cinematographers and their unions have a large stake in the discussions around safety and the future of how they perform their jobs. The decisions we make today will impact us long after the virus is solved for.

By Nancy Jundi, COO, DigitalFilm Tree
Accountable
Collaborative
Flexible
Portable

www.streamd.io
A post-pandemic outlook
The innovations and new ways of thinking created in the M&E industry during the pandemic won’t go away when the virus does. New revenue streams and greater means to connect with an audience will remain tantamount to the work itself. How we account for how our industry and our audiences will consume media post COVID-19 is as meaningful to our current thought process as it is to who we will be as consumers going forward.

Much like the evolutions we experienced after the 2008 writers’ strike and 2011 tsunami, necessity will always be the mother of innovation — the influx and embrace of reality shows has not gone away, nor have we gone back to tape-based workflows. Much the same, it’s difficult to imagine a future in which we return to grueling commutes, crowded meetings or an overflow of people on a set who could all be more efficient functioning in the cloud.

With billions of dollars allocated to new content prior to COVID-19, we have an increasingly accelerated demand to both fill airtime and engage the viewer. Cinecode — the pre-visualization and virtual production leg of DFT — is working with TV shows to improve blocking to incorporate distancing measures, implementing lidar scans of locations to reduce site visits and pre-blocking scenes in a virtual environment, where their specific cameras can test the shots virtually in advance of shooting. They’re also providing concert vendors with 2D and 3D content, allowing fans to experience a “live” show, as well as photo real environments to retailers who can no longer hold photo shoots for their product marketing.

GeoPost — our cloud-operating, remote services and solutions arm — is in the homes of creatives who are sourcing more material from their shows to offer supplementary content and planning for more intentional shoots going forward. DFT is producing content for brands that need help furthering their narrative during a time of relevancy challenges while their storefronts are shuttered.

Past preparation eases the burden
At DFT we’re always pivoting and have largely already solved for remote work that was both collaborative and secure years ago. GeoPost allowed for the seamless transition of both our own teams, and vendor partners, as well as our traditional facility clients, from offices to individual homes overnight. Without loss to timelines or risk to their health or our clients’ media, we also deployed remote systems and routers to those teams still working to deliver shows, allowing them to approve final color, conform, VFX and titles without compromising picture quality, impacting workflows or impeding air dates.

With a robust, cloud-based network infrastructure that’s as secure as it is convenient, we were able to manage the immediate influx of media pulls from the cloud without down time or an uptick in egress fees. We were able to offer our friends — other vendors — a layer of security on top of their own solutions, thanks to our advanced routers and managed firewalls as architected by our CISO. Our immediate goal was to keep people working, with their health and media protected, wherever they may be. Again, if we go dark, many go dark, and with so many shows having halted, the question is now, what’s next?

The tools in use
Under one roof or many roofs, shows now have a bevy of options when accessing the tools that can keep them moving forward with post-production, as well as production, while maintaining social distancing measures.

■ Cinecode helps us stay laser-focused on serving the needs of television shows to prototype their stories from pre-development to physical productions. Cinecode leverages game engine technology to quickly and affordably iterate and prototype stories in the virtual environment, making physical production planning and efficiency exponentially better than current methods. Our team can recreate scenes in 2D or 3D for virtual environments and animations based on a script and actual location(s) of filming — saving repeat site visits for location scouting, while including more stakeholders earlier in the process.

■ GeoDailies offers seamless integration for productions near and far and is supported by DFT’s interdisciplinary, hands on team of post, IP and networking wizards. Services include camera raw storage with media asset management and transport, international production servicing and enterprise supply chain management.

Nancy Jundi is a leader at DigitalFilm Tree, a post-production and software development company for media and entertainment, as well as a staff writer for ACE’s CinemaEditor Magazine, SXSW speaker and guest lecturer at universities. nancy@digitalfilmtree.com @DigitalFilmTree
GeoEdit serves offline Avid editors, as well as Resolve online editors, allowing them to work seamlessly and securely from home, offering remote camera raw conform and titling resources, as well as live, low latency, remote dual desktop (KVM) support, with a live-feed, high-fidelity, remote ‘client’ monitor for critical viewing and approvals.

GeoVFX, similar to the editorial workflow, the GeoPost platform for VFX teams leverages DFT’s hardware and software to support artists using tools like After Effects and NUKE. Offering an integrated solution with low latency, remote dual desktop (KVM) support includes peripherals like Wacom tablets, and a live-feed, high-fidelity remote ‘client’ monitor for critical VFX tasks like spotting, shot iteration, and final review.

GeoColor resources support Resolve users requiring full color managed monitors with a Resolve virtual data base for a truly camera raw workflow — allowing for live, remote color grading sessions. Similar to other GeoPost offerings, this is an end-to-end secure and integrated solution allowing producers to sign off on final air masters from home, with the same confidence as they would have at a facility.

DFT Media Security recognizes that the home is not the most secure place to work, and now is not the time to settle for poor network and security practices. While some shows have gone on hiatus, others have moved their teams into individual homes, relying on physical drives to be shuttled between creatives, using slow home internet connections that were full of potential security blind spots.

DFT has intentionally focused our efforts on solving for critical pain points around security and efficiency for our shows. To this end, we pivoted our resources to double down on our internal network and security capabilities for staff, clients and vendors alike, anywhere in the world.

**Re-architecting what can be**

We have a chance to lead like never before — this is not an opportunity we’re likely to see again in our lifetimes. It’s a near total and meaningful re-architecture of what has been and what can be, for creatives, technologists, and consumers alike. Unlike the migration from film to digital or pen to keyboard, we’re being asked to protect one another as much as we’re protecting the future of media.

Collaboration over competition and integration over isolated innovation will power us forward. We’re excited to be together again in person, but equally excited for how we emerge and who we’ll be on the other side of this.
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Finley Continued from Page 8
and I (drinking the delicious MESA Kool-Aid we’ve been brewing) was making investments in people, process and technology.

Then “it” happened
It coincided with an iconic and ominous date in human history: The Ides of March. And what followed for the next 30 days was truly transformational. Truly inspirational. The communities that MESA has fostered, watered and grown started to step up their games. Vendors and content owners started working together in ways that seemed improbable, even impossible, just a few weeks before. Employees at companies adjusted immediately to the new workflows, and within a couple weeks, it was working. The engine was running again at a fairly efficient rate.

We were early on the security side. I remember where I was when it started to become “real.” Plans for our International Content Protection Summit at Mobile World Congress in Barcelona were being finalized and we convened the CDSA Executive Committee to discuss our position on the emerging health threat. Our discussion and deliberation ultimately didn’t matter as the organizers canceled the event that day. That’s when I turned to the data and started formulating a business continuity plan for each of MESA communities.

As a small business, I was facing the exact challenges each of our member companies faced, but at my own scale. I thought of our nine full-time employees here in Boise. The 10 subcontractors around the country, who are an essential part of Team MESA, and provide the critical infrastructure to keep our community machine going and growing. I extended that challenge out to the small group of companies who have provided services for our events ... and suffered the harsh realization that we wouldn’t be working together for an extended period.

Now, unprecedented accomplishment
At the end of the second month of self-isolation, the “new normal” is settling in with an uncomfortable regularity. The work/life balance is still out-of-whack, but the coping mechanisms and connectivity help. What we’ve accomplished in the last few months is unprecedented. As an industry, as a country, as humanity, we are now faced with a ubiquitous challenge that reaches through every facet of our modern culture and world. Yes, it’s complicated. Very complicated. However, this isn’t the first global catastrophe, nor will it be the last, and complexity, passion and survival have ALWAYS inspired the greatest of ideas across the spectrum of technology.

From the first moving images, to the advent of sound and color, to home entertainment through to the streaming revolution, we’ve invested trillions as an industry toward bringing artistic vision to life, for the consumer to enjoy our art or product, regardless of the socio-economic situation of any particular individual. It is our ongoing challenge to take this product to the world efficiently, effectively, and our communities drive the global entertainment supply chain. And I feel fortunate and positive that the hard work we endure during the next few years will only make our community stronger, our workflows more integrated, our industry healthier and our people more connected. Wooooow!

That’s community. That’s MESA. MESA is you, me, us. Together is where we’ll find our hope.
helping companies adopt and integrate industry-leading protocols and products that provide high-performance remote access for power users with graphics-intensive applications. Companies need tools that can not only support multiplatform, hybrid environments, but also enhance performance and provide robust security for the data being transferred. The aim is to give users fast response times and high image quality for editing and other tasks.

We’re doing analysis and integration of these products and working with the vendors to enhance them for studios’ specific needs, for example, supporting specialized peripherals like hardware tablets that let users draw, move artifacts and change colors at the pixel level.

Another key issue is workflow. Content must go through a series of steps before it is ready for production, and each workflow has unique demands that need to be tuned with these remote hosting agents to optimize effectiveness. We’ve developed models for doing that and templates to use as a starting point. For example, we’ve worked with multiple studios on developing digital content pipelines — sets of digital animation tools and infrastructure that support artists’ workflows end-to-end. Companies that have been implementing these solutions have a leg up on the competition in their ability to adapt to crises like the one we’re currently experiencing.

**Future evolution**

The entertainment and technology industries are both evolving rapidly, so new solutions will continue to emerge that enhance remote teams’ effectiveness and accelerate collaboration. Companies will increase their use of analytics, process management and cloud-native technologies to increase availability of digital resources and maximize artists’ time. We can expect to see more rapid development of technologies and work models as the current situation leads companies to innovate in their use of distributed workforces.

**Content Technology Tomorrow Continued from page 22**

anymore. And if a studio can access talent using people from Europe, South America or Asia, all the better. As technology extends our work environments, companies will be in a much stronger position to hire the best people for the job, wherever they may live. The digital world has not only affected the video and theatrical sector, but also the music business. Studio musicians around Los Angeles or New York made a good living just a few short years ago, but now much of that work has been outsourced. Today, many musicians work from home and use file-sharing programs to drop the samples producers need to complete a music track or video clip. Whether just around the corner from Capitol Records in Los Angeles, or 7,500 miles away in the Middle East, studio techs can receive and process files in the same amount of time.

From a technology point of view, some important advancements have emerged that will help drive and accelerate the transition to a work-from-home culture. For starters, we have seen the maturity of virtualization and network technology and the continued movement of software to an integrated ecosystem of tools and capabilities.

The cloud has also played a big role. People in the movie and music industries used to work with as many as a dozen software programs that were individually purchased or custom built and loaded onto their workstation. No longer. More and more, these apps are integrated into a joint workflow with a dashboard and with proper access and security. Instead of having to buy new servers to launch a project, Amazon Web Services, Microsoft Azure, Google Cloud, BeBop Technology and other key industry providers make it possible to access compute and storage, ramping up or scaling down as needed.

The major cloud providers are making major impacts in the media content industry. As we speak, they are funding proof-of-concept initiatives, working with content industry think tanks and competing for this future growth industry. In addition, the use of software containers and the integration of smaller point solutions are being consolidated into a consortium of services that will be selected and deployed on demand.

Although we all are in this uncharted COVID-19 version of a new reality, we can draw upon history to know that society will survive and even find ways to thrive in the face of unknown challenges. The resiliency of the people behind the M&E industries, will inspire new creative experiences for the stay-at-home generation, helping us get through this moment.

Once on the other side, we will come out of it with a brighter, faster and more exciting future, thanks to the agile vision of a remote global talent workforce enabled by advancing technology. In the end, the rollout of a decade-long content technology roadmap has officially been condensed into a matter of months.

Can you see the future? It’s closer than ever. —Jeff Caldwell
The first five are table stakes in this XaaS category. The remaining features, however, when delivered at scale with the others, can bring a digital twin to blockbuster status.

As the number and type of data sources grow within and outside an organization, the need to match and merge semantically identical entities becomes more important and complex. Smart, agile data mastering bypasses traditional enterprise MDM initiatives that are time and resource intensive and often fail. It provides tools for mastering as needed, with greater speed and less risk.

Data harmonization (integration) to an entity model is a precursor to mastering, as different data sources more often than not represent semantically identical information as different data models. Data types and structures need to be denormalized into a business entity, such as a title, which can then be semantically related to other entities in the pursuit of 360 views.

In the case of time-based, descriptive metadata, dimensions such as character, plot, theme and tone, to name just a few, need to be matched with a content’s time slices and semantically related to other dimensions. This requires separate data models.

Finally, a data hub with a feature that is becoming increasingly important in creating and leveraging all kinds of data, including descriptive metadata, is ML. In M&E, a data hub service with machine learning that can train and run models, and run externally developed models, will provide an essential added service for many use cases. Recommendation engines, customer segmentation and target marketing are just three ML use cases that implement the direct-to-consumer equation by analyzing data about products (KYP) and matching it to what it knows about consumers (KYC).

**Conclusion**

The success of digital twins in manufacturing suggests that similar ideas can be leveraged in other industries, such as M&E. In all the ways we’ve described, descriptive metadata, along with a data hub service (DHS), such as what MarkLogic provides, can help M&E enterprises avoid the twin paradox and create digital twin blockbusters, which can be leveraged for success. Albert Einstein would be proud.

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**MarkLogic Continued from Page 68**

"They’re the best firm we’ve ever worked with."

- Becky Jones, Chief Marketing & People Officer, Viamedia

"The team at Bob Gold & Associates has helped focus and brighten the spotlight shining on Fathom Events."

- Ray Nutt, Chief Executive Officer, Fathom Events

"They act as an extension of our marketing department and are genuine partners."

- Dan Hurwitz, Chief Revenue Officer, Penthera

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**JUMPS**
Mishra Continued from Page 6

Supply chain of tomorrow
History has taught us it’s in the DNA of America to emerge from a crisis better than before, and this pandemic will prove no different. Hollywood is built in many ways to survive this. I see an “antifragile supply chain of Hollywood” emerging. Taleb identified “antifragile” as a category of things that not only gain from chaos, but can use it to survive and flourish.

“Just as human bones get stronger when subjected to stress and tension, and rumors or riots intensify when someone tries to repress them, many things in life benefit from stress, disorder, uncertainty,” Taleb said. “Antifragility is beyond resilience or robustness. While the resilient resists shocks and stays the same, the anti-fragile gets better.”

There’s opportunity here for Hollywood as a whole to find improvement on the other side of the chaos. ■

Iverson Continued from Page 12

before us. More than 80 years ago, World War II created one of the greatest upheavals of the modern world. Remember what we called the generation that persevered through that upheaval? The Greatest Generation.

It was a generation of perseverance, personal responsibility, humility and honor. Through their hardship came great prosperity for those that followed. It was also a generation with the courage (and crazy enough) to land a man on the moon.

Now, it’s our turn to respond to our upheaval. What will our story be?

Iverson’s multi-part “Our Finest Hour” series can be read in full at MESAlliance.org. ■

Sohonet Continued from Page 25

working — to one where 85 percent did so overnight.

And guess what? It’s proven, battle-hardened in trial and error. Going back to a normal remote work environment with access to high bandwidth, professional-grade tools and visiting tech support will seem like a breeze.

Virtual remote work is no longer a “love to try it someday” scenario. It’s real, it’s being tested all day, every day, and we have real-world experience with it now. Not just creatives, but executives too. Working remotely is no longer an academic discussion. Now, it is simply the way work gets done. ■

EditShare Continued from Page 57

non for EditShare. It is built into the fabric of the software. Open workflows can be and are as secure and flexible — if not more so — than proprietary ones. Openness means that users can utilize “best of breed” products and services from other providers and integrate them as if they were native to the system.

EditShare rigorously enforces the rule that every software module (or “microservice”) does one thing and one thing only. Each microservice has a published interface (an API) so that other software can connect with it and exchange data. This modular approach even allows EditShare users to select which AI service to use.

This leads to a highly controlled environment and yet one with unparalleled flexibility.

Ever-closer integration
EditShare’s Flow media management solution allows for precise management of media clips across geographical distances as well as tracking versions and formats (codexes, resolutions and aspect ratios, HDR vs. SDR, etc.), while allowing free and safe collaboration between creative professionals. Flow is compatible with the editors’ favorite packages and integrates closely with them. Flow in itself has a powerful component (Flow Story) for remote trimming and assembly. It also has close integration with industry standard non-linear editing systems (NLEs). With a strong proxy-based workflow, Flow is able to span continents and provide an essential, assured basis for remote, collaborative working.

But what about when it’s necessary to work remotely but with the original material in the cloud? This, too, is now possible, with EditShare EFS, a fully virtualized facility with actual workstations in the cloud.

With EditShare and AWS, it’s now possible to spin up an actual post-production facility in the cloud, with real workstations and real storage, all benefitting from the powerful oversight of Flow, and from the media optimizations facilitated by AWS. Remote screen-sharing software with extremely low latency ensures an incredible user experience.

In fact, Amazon Prime Video was one of EditShare’s first customers for a virtual facility. The Prime Video team wanted to make the production budget go further by eliminating the cost and inconvenience of having to relocate their post-production personnel across the world to suit the production schedule.

Spin up a facility
For the film industry, it is now possible to “spin up” a post-production facility — complete with media-optimized storage, powerful workstation and EditShare’s Flow — within minutes, and to “spin it down” equally quickly.

It’s a new perspective for film and media companies. There’s no longer any need to buy the physical equipment. Instead, you pay for only the time you want to use it.

With all the disruption caused by COVID-19, working in the cloud has become the new normal. The pandemic has pressed the “reset” button for the whole world: society, the economy and every speciality within those domains.

Filmmaking will never be the same again. But with such advanced technology, the industry will have moved forward. It can be confident that ways of working that were only theoretical or experimental months ago are ready for the mainstream. Full-capability cloud-based production is one of them.

Perhaps the best way to be ready for the future is to be already in it. ■
If we can **predict the travelability of a piece of content**, our ability to **maximize the investment** — whether by a platform or a studio — becomes limitless.

As our communities adjust to this new life of isolation and social distancing, people are staying inside, hunkering down and turning to television. But today’s situation is beyond what we’ve come to think about as binge watching. It’s not a voluntary change. It’s an extended period of engaging with content as people lean in to entertainment while waiting out the crisis. And the already hot competition among streaming services is sure to heat up, benefiting consumers and platforms alike.

With that in mind, TV Time, a Whip Media Company, conducted a U.S.-based study from the period of March 13-15, 2020, with the goal of assessing how consumers were feeling as this volatile period of self-isolation got underway. Leveraging TV Time’s global community of more than 13 million connected users of its TV tracking platform, the study examined not just what consumers are watching, but why they’re watching.

With the entertainment industry spending on content at an unprecedented pace, it’s critical that streaming services understand their consumers and offer the content choices that are right for their platform.

### How much we watch

Our survey revealed that, among those planning to isolate or considering isolation (91 percent), the vast majority (84 percent) are intending to increase their TV consumption during this period. At a minimum, consumers plan to keep their current level of viewership, with no respondents saying they will decrease their TV consumption.

### What we watch

With consumption on the rise and production slowing due to the current situation, it becomes critical to understand what types of content people are turning to as networks and platforms leverage their libraries and make on-the-fly programming decisions. When people were asked what genre of shows they were planning to watch during this period, the most popular choices were dramas (78 percent) and comedies (76 percent), followed by sci-fi/fantasy at 67 percent. It appears that viewers are looking for some combination of lighter entertainment and escapism from today’s ominous headlines. A notable group of viewers (25 percent) also said they are interested in Reality TV viewing.

### Why we watch

To tap into the mood or emotional sentiment among viewers, the survey asked what was motivating their viewing choices. A full 86 percent of respondents said they wanted to watch shows already on their “watch list,” suggesting that this period of viewership could be used to watch shows that people have been meaning to get around to. Other popular motivations were to give them an escape from reality (73 percent) and to make them laugh (72 percent), with about half of respondents indicating they want content to comfort them (53 percent).

Streaming services are poised to be among the biggest beneficiaries to capture consumers’ viewership and engagement. Consumers have an ever-expanding choice as we’ve seen with the launch of several new services, including Disney+, Apple TV+, Quibi, Peacock and soon HBO Max. With so much demand, we know the cost of content is rising at an unprecedented pace. A recent analysis conducted by Variety Intelligence Platform revealed that U.S. media and entertainment companies spent over $120 billion on original content, including movies and TV shows, in 2019. And that doesn’t include the cost of licensing content libraries, which is just as important, if not more so, given the value of long-standing re-watchable libraries.

Measurement becomes even more critical in this context. And what’s key is measuring the right things. There has been much attention paid to the new platforms themselves, but much less on the dynamics of how content is valued, bought and sold. While under the current circumstances we are understandably focused on the immediacy of today, it is also important that we take a long-term view. We need to make smart, data-driven decisions about the lifetime value of content investment and leverage the information we have to predict the success of future investments. This means capturing and assessing both sales data and consumer data across the content consumption lifecycle: from intent and discovery through viewership, engagement and loyalty.

Ultimately, the goal for streaming service providers is to determine what their customers want to watch and why, and which content is best suited for their platform. Decisions about acquisition and distribution require an understanding of “content travelability” — how well content will move from one geography to another, from one platform to another, or from broader audience appeal to niche consumption. All the while measuring engagement and sales every step of the way. If we can predict the travelability of a piece of content, our ability to maximize the investment — whether by a platform or studio — becomes limitless.

Consumer sentiment will no doubt evolve but the large-scale shift in home viewing brought about by COVID-19 will likely linger and has the potential to change the face of the industry. Whether a buyer or seller of content, we have to adapt to a new generation of viewers who are in control of their choices and move toward a consumer-centric strategy to capitalize on the opportunities ahead.
Watch This

Connecting with Consumers with the Right Content During Massive Social Shifts

Many consumers are currently looking for their own version of comfort content

Abstract: The pandemic is fueling streaming viewing and driving dramatic shifts in consumer behavior and content release strategies and windows. Given the highly accelerated impact from COVID-19, we have a unique opportunity to measure changes in viewing behavior and sentiment, and the associated implications on programming choices, theatrical attendance, release windows and streaming services.

By Alex von Krogh, VP Data Sales, Whip Media Group

In this COVID-19 era, TV viewership is up dramatically, driven by so many factors that are likely to have long-lasting implications on viewing behavior and the industry at large. Remote working is everywhere, and stay-in-place orders are fluctuating state to state. A record number of Americans have filed for unemployment. Events have been canceled. Educational institutions have moved to distance learning.

In this environment, traditional windows and content distribution strategies are being impacted. Disney+ released Frozen II earlier than planned. National movie chains such as Regal and AMC have shut down, further impacting a theatrical business that was already under pressure. Studios are making their movies available on-demand on the same date as their global theatrical releases. It’s too early to tell for sure, but all of this could potentially signal the beginning of a large-scale shift in home viewing.

Continued on Page 137

Alex von Krogh is a media industry consumer insights expert who has helped shape data innovation strategies for some of the world’s largest entertainment organizations. He previously spent a decade at Nielsen, most recently serving as director of business development for the Non-Traditional Group in Nielsen’s Watch organization. avonkrogh@whipmedia.com @WhipMediaGroup
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