



# The Geek Shall Inherit the Earth

## 2017 EXECUTIVE PREDICTIONS

**P**redicting what's to come is a tough one, isn't it? Some people would say, "More of the same, Joel," and what they mean by that is the same thing that happens every year in our industry—muddling toward standards, watching vendors come and go (and seeing some lucky ones get acquired), and of course marveling at the genius of losing money with entertainment content (I'm looking at you, OTT). But I can't think of a more exciting industry to be in. It's amazing

to see such a small group of very smart, very passionate people affect how so many people worldwide consume content, and the changes happen so incredibly fast. It's a push industry, and it's led by the technical—the super geeks, if you will. When I saw a contentious standing-room-only panel discussion about MPEG-DASH at Streaming Media West in November, it reminded me who's really running the industry. So, yeah, more of the same, but I can't wait for it.

While 2017 may not look that different for the online video industry from this bird's-eye point of view, we can learn a lot about the future by looking at the past. The top-read articles on StreamingMedia.com in 2016 were actually articles from previous years:

1. "H.265: Here's the Good News, the Bad News, and What to Expect"—from 2015, 56,307 page views in 2016 alone
2. "10 Best Practices for Live Streaming Production"—from 2014, 42,005 page views in 2016
3. "What Is HLS (HTTP Live Streaming)?"—an oldie but a goodie from 2011, 37,797 page views in 2016

As for articles published in 2016, these took the top spots:

1. "Netflix Finds x265 20% More Efficient than VP9"
2. "Comcast Hit With FCC Complaint Over Net Neutrality Violations"
3. "A Progress Report: The Alliance for Open Media and the AV1 Codec"

These are the most-read blog posts by Dan Rayburn, our resident analyst:

1. "The Adoption of 4K Streaming Will Be Stalled by Bandwidth, Not Hardware & Devices"
2. "How Transit Works, What It Costs & Why It's So Important"
3. "Latest List of Vendors in the Content Delivery Ecosystem"

Notice anything here? I really hope you do—with all the talk about fake news since the election, these are real, useful, technical discussions that play a serious role in how the job actually gets done. My prediction is that when you need to see the rubber meet the road, you'll continue to use us. We'll stick with what we know, and we have no plans to pretend to also be specialists in other

areas like drones or what to watch on Netflix to try to get a quick traffic boost just to sell more ads.

Over the past 5 years, I've seen our site traffic increase by over 330%, and we're serving up around 330,000 pages of content every month—all about the ecosystem of streaming. We don't publish click-bait, and we haven't changed our marketing or social strategy for advertising inventory gains.

So why the boost in traffic? There are more technical video jobs being filled out there than ever before, and that's not going to slow down anytime soon. More companies in corporate America are building out their own studios than ever before. Enterprise video has always been a Streaming Media staple—it's totally measurable; it's not an eyeball game. What about education? Are you kidding me? Going beyond instantly learning which way to wrap the plumber's tape when playing homeowner handyman, we are going to see a boom in accessibility of content for students of all levels, as the classroom continues to "flip."

We'll see more SVOD and some decent live OTT with record-breaking numbers—well, of course. But don't get too excited just yet. That's always been the problem with the frontier. It takes a lot of hard work to make things actually happen. There are patent issues, royalties, and a whole slew of arguments on the way to consensus. I, for one, am glad to see that competition is still driving the innovation that leads to change. The best news is that we can all come together at a Streaming Media conference and figure all this out, one algorithm, one pixel, and one patent at a time. *Mi casa es su casa*—please be a part of this community and be sure to send us your requests, feedback, critiques, and wish lists. Let's make this another great year ... together. I expect to see you at Streaming Media East in May. If you are reading this, you better be there, now shouldn't you? Let's get 2017 done.



**Joel Unickow**

Publisher, Streaming Media

**2017** will be the year of network crushing video bandwidth growth. H.264 has peaked, and it's time for HEVC to power consumer expectations for better quality. The uncertainty of HEVC licensing set the industry back in 2016. But with more than 40 million TV's in the US capable of decoding 4K HEVC content, and tens of millions of mobile devices



containing HEVC decoders, 2017 will be the year distributors deploy services using HEVC. The move to HEVC will have a positive effect of increasing network capacity 1.3x while enabling higher resolution and better image quality using HDR.

The opportunity for multi-service operators and companies launching virtual TV services is to leapfrog their competitors on the vectors of quality and user experience. With major media brands launching OTT TV services, to compete in the market requires more than content. You must deliver the highest quality video with an equally great streaming experience.

The question then is how these new video encoding and optimization solutions will be delivered? There is a move away from hardware to software, from dedicated products

to componentized, using best of breed codec SDKs, muxing, packaging, and DRM solutions.

This trend is enabling faster adoption of technologies and applications, a key to maintaining a lead position in the market. Based on the work Beamr is doing with service providers, platforms, and video distributors, this is a universal trend that we are seeing.

If you have dismissed SDK's, it may be time to revisit that decision. With virtual and cloud-based architectures it is becoming easier to create a custom video workflow for any application. Beamr has been at the head of this trend with our H.264 and HEVC codec SDKs that are in use by the largest and most demanding brands, streaming companies, and vendors in the industry.

## Sharon Carmel

CEO | BEAMR

Intense IP video technology competition leads to lower prices, with a great choice in all systems categories, hardware as well as software, and overall price/performance continues to develop very favorably.

2017 will be the year of Ubiquitous Streaming, as streaming solutions become even more pervasive. Small companies and non-profits can now stream video with affordable equipment that would have been



priced beyond their reach a few years ago.

Most interestingly, this inflection point in technology allows entrepreneurial people with limited means to create and launch "niche" OTT services while competing with much larger and established television enterprises for subscribers.

This inflection point is also a good time for larger operators to upgrade their systems.

New and re-vamped products now deliver many more streams at a lower cost. For example, two years ago, our Brutus™ III systems transcoded up to 40 SD streams. Now they transcode up to 80, and the Brutus™ VI systems transcode up to 200 SD streams. DVEO's scalable solutions range from a single channel 5.5 inch wide encoder to a telco oriented system

that transcodes 200 SD streams or 50 1080p streams.

With the increasing popularity of watching video on mobile devices, operators can reach more users with cost-efficient packaging equipment. DVEO's Gearbox™, Brutus™, and MultiStreamer™ transcoders and encoders natively serve 50 HLS users. DVEO's ATLAS Packaging Server family includes a system that supports up to 42,000 RTMP, DASH, and/or HLS users at 1 mbps.

H.265/HEVC is gathering steam and offers cost savings. It doubles the data compression ratio at the same level of video quality, or offers substantially improved video quality at the same bit rate. H.265 is available as an option on DVEO streaming products. Or, DVEO customers can upgrade to include H.265 capabilities at a later date.

## Laszlo Zoltan

VICE PRESIDENT | DVEO

**T**oday, increased competition from newer players in areas like OTT and VOD is forcing traditional broadcast companies to re-think strategies and adjust to modern viewing habits. For years, digital media companies came to consumers via technology first and content second. This model struggled to provide broadcast-quality content to a growing, built-in audience of younger, digital natives. That is no longer the case—Netflix and Amazon are great examples of companies spearheading the trend



of producing broadcast-quality programming on digital platforms. Broadcast and cable providers now realize the need to offer traditional content digitally, but bringing content from the broadcast format to digital is an enormous and expensive undertaking.

Most executives in any industry would choose to devote more resources to core business functions that lead directly to monetization. Unfortunately, there are a lot of moving parts in running a successful company, many of which often go beyond areas of expertise, which then dig into employee time, resources and profits. Content must be available all the time, from anywhere, on any screen. Remaining competitive in this industry requires keeping up with content distribution methods and platforms that are increasingly complex and varied.

Forward-thinking media companies that recognize this shift have benefitted immensely from outsourcing difficult and constantly evolving technical operations to shared services partners like Encompass. It's not the delivery that makes you special, it's your content. Invest in YOUR differentiators. As a leading managed service provider in the industry, let Encompass handle the behind the scenes stuff like delivering media anywhere with broadcast-level quality. Focus instead on making killer, high-quality content that keeps you competitive and in demand while Encompass navigates you through an increasingly challenging environment. Ask what you can do now to ensure you can afford the next blockbuster when it comes. For more information, visit [www.encompass.tv](http://www.encompass.tv).

## Chris Walters

CEO | ENCOMPASS DIGITAL MEDIA

**W**ith 2017 upon us, I'm foreseeing the year of 4K live production and the year where live streaming is done by everyone, from everywhere.

### 1: 4K live production

In 2016 we saw YouTube and other CDNs begin to ingest live 4K content; a deluge of OTT services offering 4K transmission; and the introduction of two new 4K video gaming platforms. These drove consumer demand for 4K TVs and for higher bandwidth to view this data-rich content.



Now 4K-capable, the masses are equipped to consume 4K live streamed events. Event centers will set themselves apart by offering dedicated bandwidth for 4K live streaming. And new products will enable everyone from conference organizers to vloggers and video gamers to live stream 4K video.

### 2: Live video, everywhere by everyone

New live streaming services like Facebook Live and YouTube Live have whet consumers' appetite for live video creation and consumption. In 2017 we'll see new products that up this game and let everyone create broadcast-quality live videos, effortlessly.

For professional and corporate live streaming,

new tools and products will simplify the live production process. Advanced live editing and automated clip selection will reduce the size of team needed to produce an event, while products that leverage the cloud will introduce simplified, inexpensive post-event editing, clip extraction and social media integration.

### Epiphan Video is ready for 2017 with great new products:

- Pearl-2 for 4K video live switching, recording and streaming
- AV.io 4K for 4K video capture
- Webcaster X1 product line lets everyone do high quality live streaming to social media
- and... stay tuned for another product announcement at ISE 2017!

## Mike Sandler

CEO | EPIPHAN VIDEO

**G**iven my inability to predict the lottery numbers, it is always good to get some help from somebody who can predict the future.

Unfortunately, after the little dispute with Venezuelan customs over some white powder that I am sure was Talcum Powder, I am unable



to call upon Hugo the Amazonian witch doctor who helped out so well last year.

Given this, there was no alternative but to ask the i2i techies for their predictions for 2017. Anyone who works with technicians knows that this is not so easy – try herding 35 cats into one room and getting them to speak English. However after a cold shower and lots of Zen focusing I realised that the magic solution was ‘fear’ so I locked them in a room and produced a telephone warning them that anyone who didn’t come up with a good idea would have to speak to a real client on the phone. To follow are their top thoughts:

- Much greater use of 7 x second ‘sight bites’ (for You Tube adverts etc.).
- Much greater video take up by corporates such as the hotel chains and service companies, etc.
- Someone cracking streaming VR
- Use of live streaming as a requirement by insurance companies
- The slow demise of Satellite TV (as Broadband TV takes over)
- The re-emergence of Scheduled TV, this time in the online environment
- Lots more tech companies to be purchased by the media giants (who are desperate to get a handle on the future)

## Philip Radley-Smith

MANAGING DIRECTOR | I2I MEDIA

**I** need low latency for live video - but the Flash player is gone - how can I solve this?

Live Video is getting interactive, which requires bidirectional communication with low latency. Live streamed auctions or bets, or video chat, depend and require latency below 1 or 2 seconds for an approved buyer experience. How can we guarantee low latency playback?

With the RTMP protocol used in Flash-based web players, latencies around two seconds were possible. Flash is dying, and only HLS and DASH are remaining as HTTP based

protocols. They cannot deliver the same performance for live streams. Latencies of H.264 GOP is usually of two seconds or more, overall resulting in 10-30 seconds or more due to additional segmentation. Additionally, latency will increase for network dropouts and instabilities. Interactive applications can not work under these conditions. Thus, a more “intelligent” delivery format is required to keep the latency low independent from constraints like GOP lengths. RTMP is still a valid and suitable technology for low-latency high quality live video transmission. WebRTC as a realtime communication technology promoted by Google is valid for live communication and also broadcast, but CDN and vendor support (like Apple) is missing.

To respond to our customers’ need for low

latency use-cases, we invented the plugin-free nanoStream H5Live technology. This is a client-server delivery and playback solution based on HTML5 technologies, allowing it to achieve low latency browser-based playout on all web browsers, without any installation necessary. The streaming protocol is similar to HLS and DASH, but with a modified workflow to enable true low latency live streaming applications for the web. Our end-to-end streaming solution adapts to different streaming environments.

nanocosmos has been providing customized video solutions since 1998. Our nanoStream products enable live encoding, streaming and playback, cross-platform on any device. We deliver end-to-end live streaming solutions for your brand - from the camera to the viewer.



## Oliver Lietz

CEO | NANOCOSMOS INFORMATION TECHNOLOGIES

The business of enterprise video continues to evolve. For more than a decade we've predicted the importance of video in certain industries, beginning with higher education. Now we're seeing video fast becoming an invaluable asset in industries such as healthcare. With ever-changing procedures, devices,



technology, and regulations that affect healthcare, it is critical that its workers keep up with new products and research on a timely basis. For many organizations, video is the answer.

Hospital and healthcare staff training programs have become increasingly important in today's complex healthcare environment.

Video allows hospitals to easily and cost-effectively keep their staff up to date on the latest advancements so they can provide the best standards of patient care. The most innovative organizations will remove content-creation barriers and foster unique online environments to create and share original training and content,

bringing larger audiences to complex procedures and new medical discoveries.

We identified and perfected key capabilities that we know are required for widespread adoption of user-generated content creation. Through that process, we eliminated much of the complexity that has kept online video from scaling effectively at an enterprise level.

In the next year we will see deeper management and security, while at the same time more flexibility in creation, workflow and consumption of this content. We will help transform the vast libraries of video into interactive, indexed rich video through automated metadata creation and advanced search capabilities, and positively impact the individuals who are learning from it.

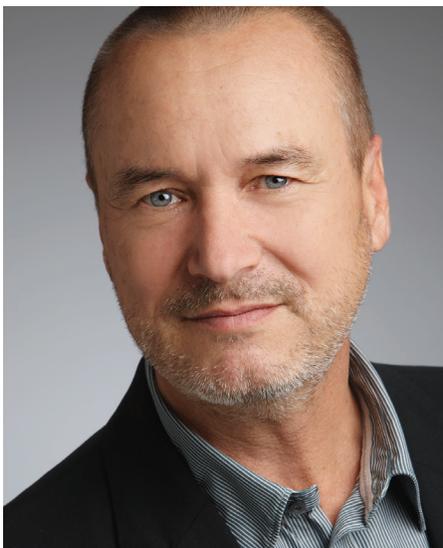
## Gary R. Weis

CEO & CTO | SONIC FOUNDRY

Teracue is a pioneer in high-quality live streaming.

Back in the dark ages at the turn of the century, when thumbnail-sized videos were standard, we introduced our first SD MPEG-2 IP streaming encoder.

2017 will be the year of Live Streaming, with Facebook taking



much of the credit for popularizing live streaming on social media. This means that enterprises delivering online video must implement professional live streaming to multiple platforms.

When considering 4K and HDR, innovation is no longer being driven by broadcasters, but is coming from the internet itself. At the moment, 4K content is typically available as VoD. Live streaming will be next.

OTT is now superseding IPTV; closed networks are no longer a requirement for high-quality television.

Teracue is introducing new 4K encoders and decoders for contribution and OTT. High efficiency error correction comes as

standard, and in combination with MC-ROUTE, the customer can simply build his own worldwide contribution network in the cloud.

Low latency has been very important for Teracue since the first encoder generation and is also a feature in our new 4K encoders.

Transcoding in the cloud generates additional unwanted latency. Our encoders support multiscreen encoding and multi-protocol streaming including HLS push, making live cloud transcoding obsolete.

We at Teracue are excited to see the transition to live 4K and with more than 15 years of innovation, we provide all the must-have products for encoding, decoding, streaming, recording, multi-channel display, management and control.

## Karl-Heinz Wenisch

CTO | TERACUE

**A**t a time when VR and 360 dominate the “what’s hot” predictions, talk about advertising as a key trend in 2017 may seem a little passé. That would however be missing a major paradigm shift in our industry. Dynamic Ad Insertion (DAI) has emerged as an increasingly important revenue stream for Content Providers world over. Despite this the current client-based approach to ad insert is often haphazard and lacks the



personalisation synonymous with other areas of the industry (VR as a prime example). Fundamentally it also limits the monetisation possibilities.

Server Side Ad Insertion (SSAI) where ad cues get ingested and stitched together with the content, represents an opportunity to avoid ad blockers and as a result personalise the advertising experience. This makes advertising more relevant to viewers, while increasing the overall value of the impression. Combining with a granular analytical capability creates the “perfect storm” for online video advertising.

THEOplayer provides a broadcast-grade solution to Telecom

Operators, Broadcasters and Content Producers to deliver a world-class viewer experience in HTML5 for server side dynamic ad insertion (DAI-for-HTML5). This will not only improve the short term revenue prospects but also result in a much more intimate relationship with end customers (leading to more accurate promotion and service positioning). Through our partnership with companies such as Yospace for Server Side Ad Insertion technology; and Nielsen (ID3), Conviva and Nice People At Work (NPAW) for granular analytics, we are able to offer a complete solution which is set to fundamentally change the industry dynamics. The next 12 months promise to be extremely exciting so we look forward to riding the wave.

## Steven Tielemans

CEO | THEOPLAYER

**T**here have been a number of exciting advancements in the streaming industry over the past year, but the most impactful developments for 2017, in my opinion, are the following:

- Subscription monetization of online video platforms has firmly cemented itself as viable, thanks to consumer familiarization with the model and the ability of content providers to provide multi-screen services that provide both the content and the convenience that consumers demand.



- Ad-insertion is less costly – thanks to technology that allows for compatibility across all platforms without individual player-specific development – and more lucrative because of advancements that allow for interactive and dynamic ads that target users based on viewing behaviors.
- The creation of professional linear channels is now easier than ever, making it possible for just about anyone to create and distribute broadcast-quality programming to global audiences.

Thanks to the reduced costs of distribution and growing viability of monetization models for streaming media, content providers of all types and sizes are now able to tap an enormous and growing market. At Tulix, our goal has always been to make streaming accessible to

everyone, both content providers and consumers. We started by building a best-in-class CDN, designed from the ground up for live streaming, and have expanded to create a 360-degree solution for streamed content monetization across all devices.

Over recent years, we worked with customers to perfect a model of subscription monetization. Now, we are working on an online brokerage ecosystem for generating ad-revenue that promises to be both a stand-alone and complementary means of monetizing content. We think effective monetization of content is a cornerstone to the success of our customers, which is why we are excited about our advances in this regard, as well as the many other technological developments that we have in store for 2017.

## George Bokuchava

CEO | TULIX SYSTEMS

**W**ith so many people watching different types of video on mobile devices, there's a simultaneous demand for lower cost production and more content. When there were fewer choices of what to watch and viewers were limited, broadcasters could command high advertising rates and had greater control over

content and distribution. But with people streaming individualized programming on their own device, that model has changed drastically. We've already seen an uptick in live reality, event and niche sports programming.

As we move into the new year, not only will we continue to watch the rise of video content being

distributed on CDNs and social media platforms like Facebook Live, but we'll also continue to pay attention to streaming in non-traditional areas like security, emergency services,

law enforcement, government and corporations. With the technology available now, the potential for content creation is truly only limited by your imagination. Anyone can create content and deliver from a phone, but to do it professionally, you need to look at solutions and equipment that allow you to do full traditional video production from a remote device.

2017 is going to be the year of experimentation for live video on social platforms. Facebook Live came out swinging at the back half of 2016 and now several other platforms are catching up. 2017 is going to be the year of evolution and exploring these new forms of creation and distribution.



## Paul Shen

CEO | TVU NETWORKS

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## Since 1998, streaming companies have relied on us.

### Streaming. We share your passion.

The right company makes all the difference. The people at Streaming Media are *in* the industry and *from* the industry; always have been, since 1998. No other group of professionals has the depth of connections, knowledge, and experience for you to work with—no one.

### Expert Programs, Expert Staff

We love streaming as much as you do; we speak your language. We also understand the pressures to be successful in the industry. We know what you are up against and what it takes to make a company successful in this space. We aren't here to sell you ads; we're here to grow your business.

### Expert Audience

No one has worked harder to build the best, expert-level audience across so many industries. We've never taken shortcuts through our editorial process to sell advertising. When you market with Streaming Media, you are marketing to the best, most responsive audience on the planet. Doesn't your business deserve that kind of attention? We think so.

### Plug in today.

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