



TechCon Agenda as of 2/5/18

Agenda Draft Notes:

- Below are the proposals that have been accepted; some will be combined into broader sessions.
- Final speakers, descriptions, schedule, and session combinations are still to come.
- Sessions sorted by: track (or audience), then first topic area.
- Sessions may apply to audiences across multiple tracks - we encourage you to read through all the sessions to see which ones apply to your role.
- Table of Contents is clickable.
- At the end of this document is a list of proposals sorted in order of topic areas chosen by submitters. This may help you find sessions on particular areas across all tracks.

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Track/Audience: Broadcast

Track: Broadcast

Rethinking Content Creation and Monetization in a Connected Age

Topic areas: Analytics, Media Management, New Business Models, Strategy

With the growing variety of distribution outlets and formats against a backdrop of a connected ecosystem, enabling multiplatform production and monetization using the latest creation, analytics, and search technologies is an imperative. In this session, we will explore the latest thinking on “rethinking” the processes and approaches for multiplatform content creation in a connected age with a group of the industry thought leaders.

Presenting: Janet Gardner, Perspective TV

Eric Wolf, PBS



Track: Broadcast

40 Years of Public Television Innovation

Topic areas: ATSC 3.0, Audio, Closed Captioning, HDR & UHD

Just over 50 Years ago, President Johnson signed the Public Broadcasting Act. This led to the establishment of the Corporation of Public Broadcasting and shortly afterward the Public Broadcasting Service. CPB helped local member stations creating programming and helped PBS and the member stations provide the technical infrastructure to distribute programming. This year marks the 40th Anniversary of the PBS Technology Conference. It is fitting therefore to review the PBS and member stations technical contributions to television broadcasting. The presentation will take an amusing step back to examine the technology in 1978 to where we are now in 2018.

Presenting: Terry Harvey, NY Joint Master Control

Track: Broadcast

ATSC 3.0 Ready - Designing Antennas for Higher OFDM PAPR

Topic areas: ATSC 3.0, Products & Technology, Trends & Future Tech

The new ATSC 3.0 broadcast standard will provide new transmission capabilities. The OFDM based modulation will present higher peak to average power ratios than are currently observed in the 8-VSB standard we know today. This paper discusses how the higher PAPR's impose new limitations in RF transmission system specifications. The new RF systems, transmission lines and antennas being installed in the current re-pack process need to be designed to safely withstand these peaks. Due to voltage additions, the design criteria becomes more complex when more than one station is combined into one transmission system and statistical probability of occurrence must be taken into account. This paper will also examine the dependence of breakdown field on pulse length as well as the guidelines on how single pulse breakdown statistics should be applied. Finally, practical solutions to increase the voltage handling capability of RF carrying structures will be examined.

Presenting: John Schadler, Dielectric

Track: Broadcast

Digital IP-Centric Microwave STL/TSL Considerations for ATSC 3.0 Transmission Workflows

Topic areas: ATSC 3.0, Interconnection, Products & Technology, Trends & Future Tech

More than 140 PBS television stations across the country will be impacted by the FCC's Television Station UHF Repack channel move. The entire process is mandated to conclude by the beginning of July 2020. Many commercial off-air television stations that are also affected are optimistic that the introduction of ATSC 3.0 during this time period will have significant upside viewership benefits and offset potential disruptions caused by the Repack. Digital microwave studio-to-transmitter links (STL) will need to be sufficiently robust for stations to maintain legacy ATSC 1.0 signal transmissions in addition to supporting the higher data-rates that an IP-centric ATSC 3.0 system requires. These throughputs are in the tens to hundreds of Megabit range. This paper explores the options PBS stations have to establish bi-directional IP-centric microwave STL/TSLs required for the increased functionality ATSC 3.0 provides while maintaining legacy ATSC 1.0 transport stream infrastructures. Primary topics include: ACM (adaptive code modulation), ATPC (automatic transmitter power control), 1+1 Ethernet transport stream



protection switching and XPIC (cross polarization interference cancellation), a spectrally efficient technique that doubles the data-rate capacity by simultaneously transmitting on both horizontal and vertical polarizations using the same frequency.

Presenting: John Payne IV, IMT

Track: Broadcast

Doctor Love Strange or How I Learned to Stop Worrying and Build an ATSC 3.0 Infrastructure for My Public TV Station

Topic areas: ATSC 3.0

The Next Gen ATSC 3.0 standard opens the door to improving the television viewing experience by providing higher audio and video quality, more accessibility, personalization and interactivity, and it adds value to broadcasting's service platform by enabling new distribution paths and business models.

To effectively deploy the next generation television platform, a reference architecture is important for station planning and design. Various services need to be configured and tested to meet the diverse business needs of public television. Equipment is emerging that can fulfill the specific needs of public television but careful attention must be given to use cases, requirements and design of the infrastructure to allow the optimal flexibility. This presentation will illustrate an end-to-end architectural design that supports various services such as entertainment, mobile services, accessibility services, advanced emergency alerting, targeted content delivery, children's education, interactivity and business-to-business services such as public safety or education.

Presenting: Chris Homer, Chris Homer LLC

Mark Corl, Triveni Digital

Walid Hamri, ATEME Inc.

Track: Broadcast

Evolving Technology - High Dynamic Range

Topic areas: ATSC 3.0, HDR & UHD, Products & Technology, Trends & Future Tech

HDR will profoundly change television viewing. Although UHD and HDR are usually mentioned together, High Dynamic Range (HDR) is resolution independent. High Definition (HDTV) can also benefit from a dramatic improvement in life-like picture quality with HDR. The average viewing distance prevents most people from seeing the full resolution of UHD/4K.

A properly set up 1080p image with HDR will look better than a UHD image with Standard Dynamic Range (SDR). HD-HDR can be produced and delivered in a compatible Hybrid Log Gamma (HLG) to both legacy SDR and 4K HDR TV sets. In addition to recovering detail from dark shadows or bright areas, HD-HDR offers a more realistic picture.

Most importantly, the trend is to HD-HDR delivery. That's because the HD signal will pass through nearly all the delivery and data rate issues that have slowed the adoption of UHD/4K. The HD-HDR signal is being delivered by satellite and OTT providers today and it will be upconverted at the consumer's UHD TV. Broadcasters will soon be able to deliver full-HD HDR with ATSC 3.0.

Presenting: John Humphrey, Hitachi Kokusai Electric America



Track: Broadcast

Making ATSC 3.0 Work For You

Topic areas: ATSC 3.0, New Business Models, Strategy

There are lots of technical and business model/application versions quickly emerging in the Next Generation TV future. Figuring out which one is the best can be a difficult and challenging undertaking. What are the key issues and considerations for the CTO/Chief Engineer and also for the General Manager and other station leaders?

Presenting: Marc Hand, Public Media Company

Track: Broadcast

Public Safety Datacast paging utilizing NextGEN television broadcast

Topic areas: ATSC 3.0, Disaster Recovery, Infrastructure, Mobile

Red Grasso and Paul Sadowski from the North Carolina Department of Information Technology will share their experiences in the public safety communications arena to talk about the existing, analog paging system used by first responders across much of the United States. They have published a paper which speaks to the inherent delays of this system and how a more modern, digital method, could reduce emergency response times.

The next evolution of digital television can offer more advanced features that can serve both as the general public warning system as well as specific needs for public safety. With high tower, high power transmission systems, Public Television Stations can serve rich public safety related content with more reliability and greater coverage than today's cellular networks. This can include Amber alerts, weather warnings, and even encrypted dispatch information from 911 centers. Digital television could reduce emergency response times, prevent delayed dispatches during high call volumes, include data files for responders, and provide a much larger coverage range of several counties or even statewide.

Fred Engel and Adam Woodlief from UNC-TV will talk about efforts underway with Red and his team to develop a proof of concept and real world testing over ATSC 1.0 and, with other broadcast partners, via ATSC 3.0. They will discuss how this initiative unfolded and how testing has progressed.

Presenting: Fred Engel, UNC-TV

Red Grasso, North Carolina Department of Information Technology

Paul Allan Sadowski, State of North Carolina, Broadcast Infrastructure (retired)

Adam Woodlief, UNC-TV

Track: Broadcast

The Future is Closer than You Think: New Businesses Made Possible by ATSC 3.0

Topic areas: ATSC 3.0, New Business Models, Trends & Future Tech

The standards development for ATSC 3.0 is now complete, and it's time to take a look at how all of the technological wizardry of the committees can be put to practical use. How does one actually use a



bootstrap? How does a physical layer pipe help me do mobile? And can I really send different content to individual consumer households? We will look at several different applications, including targeted content and enhanced emergency alerting, and show how these new business opportunities are made possible by the technology built into the newest ATSC 3.0 standards.

While the above is the actual abstract for my own presentation, and it could be done as a full 50 minute session with lots of Q&A, I would like to propose it instead be done as part a full panel session that lays out the current road map for moving from ATSC 1.0 to ATSC 3.0. It could start with a look at channel sharing during the spectrum repack, which is likely the last hurrah for ATSC 1.0. Then morph to a quick review of the standards for ATSC 3.0, setting the stage for the above abstract that takes those technologies and translates them into applications. It can end with a look at the lighthouse concept for actually making the transition to 3.0 possible to enable the new applications.

Presenting: Lisa Hobbs, Ericsson

Et. al., TBD

Track: Broadcast

MXF with AAC for next-generation interconnect

Topic areas: Audio, Media Management, Trends & Future Tech

MPEG Advanced Audio Compression (AAC) has been selected by PBS for their next generation file distribution to member stations, because of its fidelity, its embedded metadata for audio channel mapping and the substantial reduction in file size it provides, with attendant cost savings to users. PBS has worked assiduously with the PBS members stations' TOS group, with SMPTE, and with the North American Broadcasters Association (NABA) and the Digital Production Partnership (DPP), to prepare and validate the AS-11 X9 profile of the MXF file format. The mapping of AAC into MXF was recently standardized by SMPTE as ST 381-4; AS-11 X9 has been adopted and published by NABA and DPP. This presentation will explain the details of AS-11 X9 including the use of AAC and H.264, and will demonstrate the benefits of the embedded metadata, showing how it can be used to automate audio routing to the channel configurations needed by individual playout servers. The demonstration will use actual PBS program material, that PBS has supplied to industry groups and to vendors to encourage widespread adoption. Oliver Morgan (Metaglobe Corp) will give the presentation. Oliver has been deeply involved in MXF since its inception and has been central to the AS-11 X9 specification project.

Presenting: Oliver Morgan, Metaglobe

Track: Broadcast

Accessibility Made Accessible: Broadcast to Digital Captioning Workflows

Topic areas: Closed Captioning

Web streaming is radically changing the way online distributors are thinking about captioning. As the FCC passes stricter guidelines for web captioned content, viewers—many without hearing impairment—have also begun to change their online behaviors. Now, nearly 80% of Facebook users keep their devices on silent when consuming video. WGBH has had years of practice at perfecting captioning workflows for broadcast television, and now those lessons are being extended to digital content creation. FRONTLINE's Brenna Verre and Miles Alvord show how the broadcast workflow can be adapted to digital videos—both



at the highest level and on the cheap—and why the unique qualities of broadcast journalism have helped the team learn how to respond quickly and adapt to new changes in accessibility technology.

KEY POINTS DISCUSSED:

- What are the benefits to captioning your content?
- How can you adapt captioning for the web?
- What are the tools and options at all price points and for all team sizes?
- How can you stay ahead of the ball when it comes to changes in FCC regulations?
- How does archival help us make changes on the fly?
- What organization systems are most conducive to working as a small team?

Presenting: Brenna Verre, WGBH - FRONTLINE

Track: Broadcast

Impact of Speech to Text on Closed Captioning workflows

Topic areas: Closed Captioning, Cloud, Regulatory, Trends & Future Tech

This paper examines the many pitfalls, pros, and cons of using Speech-to-text for creating closed captioning for TV and Internet programming. We will look closely at the accuracy of the results of popular speech engines and what is needed to edit and troubleshoot these results prior to broadcast delivery. We will take a deep dive look at live and offline captioning workflows to see where Speech-to-Text can help the most.

Presenting: Giovanni Galvez, Telestream

Track: Broadcast

Archiving Austin City Limits

Topic areas: Cloud, Media Management, Products & Technology

Austin City Limits, a KLRU-TV production, is the longest running music television show in the world. First airing in 1976 and now in its 43rd season, this vast audiovisual collection includes thousands of hours of historically significant and profoundly valued material. The material, aging and at-risk, was in need of preservation on par in quality with the outstanding level of detail and technical expertise used to produce the show.

The ACL Archive project is being tackled in three distinct phases; video, stand-alone audio, and photos & ephemera. This presentation will focus on Phase 1 of the project, which includes the digitization of 4,100 analog videotape assets as well as handling of born digital materials. We'll touch on workflow, specification, vendor and software tool selection, building a QC system, content management and storage, development of a custom DAM, development of metadata guidelines, and customization of an open source data repository.

We'll pull back the curtain on our processes, obstacles & solutions, tools, methodology, and resources we used to complete this phase of the project, including our highest friction points, good decisions and bad, and what we'd do differently.

Presenting: Amanda Moore, KLRU-TV Austin PBS



Track: Broadcast

Craft Edit for Content on the Cloud

Topic areas: Cloud, Infrastructure, Media Management, New Business Models

This proposal provides an innovative solution to enable Craft Editing for content residing on cloud storage like Amazon S3 or Glacier. It outlines solutions for Craft Editing of mixed content, wherein certain elements are available on cloud storage, and others on local storage. Traditionally, editors create stories using content that's accessible via local storage. Given that high resolution content is increasingly hosted in Amazon S3/Azure Blob, editors now need the ability to edit off such cloud-hosted content. In edit environments that are dynamic (like news), stories are made using a mix of content either available locally or hosted on cloud. Specialized tools are needed to upload local content and then render out sequences using public cloud infrastructure. This envisioned solution integrates Premiere Pro with Cloud-based MAM, and makes this content accessible within the NLE. Since Premiere Pro doesn't work with streaming proxies, the solution seamlessly downloads proxies of remote high-res to local machines. Thus, editors can build stories using proxy and local high-res content. A simple publish would then upload all local content and render out the story using public cloud infrastructure. In summary, this solution simplifies the process of creating edits using a combination of remote and local footage. It optimizes content transfers and provides swift delivery of stories to target audiences.

Presenting: Ramki Sankaranarayanan, Prime Focus Technologies

Track: Broadcast

Understanding the Transition from Appliances to Virtualized Infrastructure

Topic areas: Cloud, Infrastructure, Trends & Future Tech

Software in production and broadcast environments is largely deployed using an appliance-based architecture. Software-based appliances solve many problems for developers, broadcast engineers, and maintenance staff. However, appliances are rigid and often underutilized, qualities that are incompatible with the rapid evolution of our industry. Those same problems have been addressed by the enterprise IT industry by using virtualization-based software stacks, achieving great gains in deployment and operational efficiency. The transition to service-oriented broadcast infrastructure has already begun.

The early days of this migration have utilized approaches that emulate the traditional nature of current-generation technology, such as the simple unmanaged virtualization of appliances and the packetization of baseband video. While these emulations are valuable first steps, progress will march on towards "pure" abstraction. The ongoing standardization of essence-based production video-over-IP standards provide tremendous opportunity for production systems to capitalize on the flexibility and cost-efficiency of commercial off-the-shelf data center technology. For that vision to be realized, rigid appliances must be abstracted into the application layer of the computing stack, just as digital video has been abstracted into the application layer of the networking stack. This paper provides a survey of service abstraction technology including hardware virtualization, containerization, and both private and public cloud. Specifically, virtualization management approaches are examined including discrete hypervisors, managed compute systems, and private cloud technology.



Next, practical considerations are discussed such as performance, redundancy, and resiliency offered by traditional architectures and how these qualities compare to that of the virtualization-based systems that will inevitably replace them. Finally, and perhaps most importantly, the human aspect is considered. The way in which an organization's staff will design, document, deploy, and troubleshoot tomorrow's systems will be radically changed, and challenge principals that have been followed by broadcasters for decades. The design, engineering, and maintenance teams in most large broadcasting organizations are typically structured around self-contained islands exchanging video. A vertical stack with common shared resources is a fundamental requirement for efficient virtualized infrastructure and will redefine the collaboration of broadcast engineering teams. This paper is intended to act as a tutorial on the broad topic of infrastructure virtualization and leave attendees with the following takeaways:

- A reflection on the implicit characteristics of software-based appliances that must be addressed in a virtualization transition
- An understanding of the differences between unmanaged virtualization, managed compute, and private cloud approaches
- Practical, technical considerations for the first steps of infrastructure virtualization

Presenting: Max Denton, Telestream

Track: Broadcast

ETAC Roundtables Session

Topic areas: Committees

Full description to come.

Presenting: ETAC Members

Track: Broadcast

VR. AR. 360. for the PBS masses?

Topic areas: Content & Programming, Products & Technology, Strategy, Trends & Future Tech

The rise of immersive experiences and increasing accessibility of tools to create 360 video, virtual reality and augmented or mixed reality offers public media stations an entirely new medium to explore. Not just a new channel...a whole new medium. It's chance that doesn't even come around once a career, and now that opportunity is ours. But with such an opportunity comes threat. Can public media benefit during the new gold rush?

From the perspectives of a public media company and an independent producer exploring Immersive Experiences on a budget, this session will look at why now is the right time to begin building your station's skillsets across the Mixed Reality spectrum: in 360 video, virtual reality (VR) and augmented reality (AR). What might the applications be? What's required from a technical standpoint? How expensive is it? And what's the benefit for PBS stations - can this technology serve our business as well as our mission?

Bringing the perspective of the independent producer, Brad Lichtenstein is a Milwaukee based producer/director; his award winning documentaries have aired nationally and also on PBS. At the



September 2016 I.D.A. "Getting Real" documentary conference in Los Angeles, Lichtenstein led two sold-out sessions on practical use of VR in filmmaking. Brad's film that showcases the possibilities of VR in public media is "Across The Line". (More at <http://371productions.com/work/across-the-line/>).

On the station side, Chad Davis will talk about the experiments netNebraska has conducted this past year in 360 and how they are growing their skills to create more immersive media (360, VR and AR) in the coming years. NET's portfolio of 360 work can be viewed on the 360 Playlist of the YouTube Channel.

Presenting: Bohdan Zachary, Milwaukee PBS

Chad Davis, Assistant General Manager - Digital, netNebraska

Brad Lichtenstein, President, 371 Productions

Track: Broadcast

Broadcast Infrastructure Cybersecurity

Topic areas: Cybersecurity, Infrastructure, Interconnection

The broadcast engineer is faced with challenges every day. Network security in the broadcast technical plant is one of the latest challenges faced by the broadcast engineer. Securing the network is the first step in mitigating security breaches and in implementing a secure broadcast IP environment. Network security has become an important responsibility of the broadcast engineer as more of the broadcast technical plant migrates to or has migrated to an IP based network infrastructure. This presentation will provide identification of the attributes that defines a secure network, outline a structured approach to best practice security enabling with practical implementation steps in a broadcast environment. The presentation will conclude with network security verification through penetration testing to insure security provisions believed to be in place are in fact correctly implemented. A focus upon the use of public domain tools with practical use case examples will be incorporated blended with the essential theory of network security.

As the broadcast plant looks more like a data center, it is essential for the broadcast engineer to understand network security, have adequate tools, and have the knowledge to effectively implement a secure network environment within his or her broadcast facility.

Presenting: Wayne Pecena, Texas A&M University-KAMU

Track: Broadcast

PBS TV Translator Relocation and Grant Program: Strategies for Success

Topic areas: Education, Other, Strategy

As a result of the Federal Communications Commission's (FCC) Incentive Auction and subsequent spectrum repacking, TV Translator and Low Power Television are being displaced from channels 38-51. Translator stations may also be displaced by full power and Class A television stations moving to new channels within the new TV Broadcasting Core Spectrum Channels 2-36. To preserve access to public television, T-Mobile entered into an agreement with PBS to provide funding to enable public television translators to move to new displacement channels, regardless of the reason for displacement.

TOPICS OF DISCUSSION:

- How the PBS TV Translator Relocation Grant Program is structured.



- Eligibility Requirements Application Process
- Project Narrative Engineering and Design Consultants Equipment Resources II. What costs are covered under the grant and how the payment process works. III. Resources available to stations during the repacking process. a. Project Management IV. Equipment and Procurement V. Obstacles in the repacking process and how to overcome them. VI. Sharing successful strategies and tips on how on navigating the repacking process with challenging time constraints.

PANEL OVERVIEW: T-Mobile, PBS and the panel of industry experts would like the opportunity to speak on the strategies and successes that can lead to a safe, timely, efficient and cost-effective channel relocation

Presenting: Mark Bishop, T-Mobile

Et. al., TBD

Track: Broadcast

Building a UHD Production Workflow, Studio, Post and Beyond

Topic areas: HDR & UHD

KLCS is currently building a UHD Studio and Post Production Environment. We have found that the design of this environment including, equipment, workflow, and file types are a challenge that requires careful consideration in every choice. From field cameras, to post production, to studio environment every decision has consequences that must be allowed for. There are multiple competing standards for virtually every piece of equipment you need and getting them to talk to each other requires research and expense. Issues that can be easily solved in HD present a special challenge in UHD. Alan Popkin, KLCS' Director of Engineering, will take the audience through the critical issues to be considered, how KLCS is solving them, the costs involved and the inter operability problems you need to solve for a successful implementation.

Presenting: Alan Popkin, KLCS

Track: Broadcast

Compromising UHD HDR Content ... Upsetting the Viewer Experience

Topic areas: HDR & UHD

A discussion abstract by SAM's Danny Peters. As an industry we are well on the way to delivering 4K HDR images to our home and movie going audiences. Research shows that consumers respond more to contrast or High Dynamic Range than increased pixel count - Resolution. Modern digital production technology has the ability to capture and view more colors on display devices and have new color standards for Wide Color Gamut in SMPTE Rec 2020 and ACES from the Academy of Motion picture Arts and Sciences. The commercial driver to this exciting way to view content is predicated on consumers buying new HDR 4K TV's. Depending on whose research you believe 16% of US households already own 4K UHD TV, so exactly what are they watching?

The UHD HDR experience changes not only from the capture and production method, but also on the content type and most importantly the viewing environment. Modern camera sensors can capture images resolutions of 4K and beyond at 16bit RGB, with 15 stops of dynamic range. (Sony F55, Arrive Alexa, Red Weapon, Panavision DXL). Post Production Pipelines for these images are managed at 16bit half float or 32bit full float processing. This method is used because it gives more accuracy to color fidelity and tone



ranges, as opposed to using just integer-based math. However, the data size here is significant: 1 hour of material at UHD 23.98 with a Sony 16 bit RGB is about 4.4TB, at Full 4K it over 6.6TB per recorded hour.

The cost of storage is still a major consideration for most providers. So for some content like serial scripted shows, compromises to limit source material storage size may be employed; for example limiting to 10 RGB bit working or changing from RAW to ProRes. For Live Television productions, we employ either Quad-link HD-SDI or upgrade to a new 12Gig infrastructure for UHD HDR workflows. From the camera through to the router and switcher we are passing our UHD content with an HDR curves like HLG or Slog3 for most of the processing within these devices we revert back to integer based mathematics as used with HD 10bit images. However, for the viewer at home the type of UHD HDR images they are viewing on the Live Production is potentially different from the drama they watched on the same TV set. The Drama may have been streamed via an OTT provider like Amazon, Netflix, Hulu or Apple. The HDR deliverable of the drama may be Dolby Vision, Hybrid Log Gamma, HDR 10 or SLog 3. The Live Sports production may be from a Satellite or Cable provider.

Then let's consider existing HD content libraries, and upgrading SDR content to HDR. The technology for trans-converts between HDR EOTF exists through the production, post production and delivery chains to the devices in the viewers' home. We have also incorporated the ability to 'uprez' HD SDR content 1920 x 1080i Rec 709. 2.2 Gamma at 100 Nits to UHD 3840 x 2160 Dolby Vision, HLG, HDR 10, Slog3 up to 2000 Nits. In other words we are allowing the HDR Standard to 'Fake it'. So the viewer experience of UHD HDR can also be compromised as this mixture of content is seen. The viewers' ability to truly experience and emotionally engage in UHD HDR content is further compromised by their choice of HDR TV Screen and the lighting conditions in the room where the screen is placed. The assumption here is that we are incorporating Wide Color Gamut, HDR and 4K technologies into the Flat Screen TV's available to the consumer.

However, there is a variety of choice in the types of color fidelity and HDR contrast ratio, that consumer may not be fully conversant with during their buying choice: OLED Organic Light Emitting Diodes - screens that create their own light at each pixel. LCD Liquid Crystal Display - adjustable backlighting, WCG by Phosphor-Enhanced LEDs "Quantum Dot Technology Quantum dots are semi-conductor nanocrystals that also absorb light of higher energy and re-emit light at a longer wavelength, or down-convert it. The best materials on the market do so very efficiently, with a quantum efficiency of nearly 100". - Source Insight Media There are so many emerging technologies and competing concepts for the delivery of UHD HDR to the viewer, that the practical execution of '4K' may be compromised. For the home market is the incremental increase in perceived picture quality going to stimulate consumers to buy more TV's and pay more for UHD HDR Content? Or will this be just a disappointing as the failure of digital 3D stereoscopic trend a few years ago. Furthermore is it likely that the emergence of UHD HDR may easier find a home in AR and VR presentations rather than linear storytelling? Let's discuss.

Presenting: Danny Peters, SAM

Track: Broadcast

All the Moving Parts: A Live Look inside ST 2110 & AMWA NMOS

Topic areas: Infrastructure, Products & Technology, Trends & Future Tech

There has been a lot of talk about the all-IP workflow, but what do all the moving parts really look like? This presentation will include a brief description and live analysis of the key elements of the live IP



workflow, including Wireshark dissection of SMPTE ST 2110 flows, and detailed AMWA NMOS API calls. Attendees should come away with a better holistic understanding of how all of these elements fit together, and will also be armed with some IP workflow troubleshooting techniques.
Presenting: Thomas Edwards, FOX Networks Engineering & Operations

Track: Broadcast

Report on IP Video deployment - An assessment of the merits and technical challenges learned from real world deployments of uncompressed IP media solutions into multiple functional workflows

Topic areas: Infrastructure, Products & Technology, Trends & Future Tech

Throughout 2017 we have seen multiple facilities, ranging greatly in functionality and scale, adopt commercial off the shelf (COTS) based IP infrastructure to meet their current and future needs. This rapid adoption of technology has had more than a few success stories, along with lessons learned on how to deploy these emerging technologies. Some deployments have gone technically smooth and the challenges ended up being workflow related, other deployments ended up being technically arduous while the supported workflows were successfully implemented. This presentation is set to address what market trends have coalesced to enable the large-scale deployment of this technology, what markets have adopted IP successfully into their workflow and what lessons have been learned throughout.

With emerging technologies, there are the few early adopters willing to accept the risk along with the cost of implementing these technologies. Early adopters usually have a business case that justifies the risk and expense, but these are the small percentage of real-world users requiring this type of functionality. In 2016, the main deployments of IP technology in uncompressed workflows have been the pinnacle of that customer base. The initial IP workflows incorporated proprietary technologies, including non-standardized media transport layers, vendor specific physical routing technologies and media flows orchestrated through a closed ecosystem. This technology was able to provide the functionality to meet customer requirements, but the broader industry was very hesitant to move forward with any proprietary technologies. Industry groups began to form and one in particular, AIMS, developed a path to open standards that included multiple vendors designing systems using COTS-based solutions. With the adoption of SMPTE 2022-6, and the proposed SMPTE 2110 standards, a cohesive path is now available for customers to deploy IP-based solutions to meet their workflow requirements. Once multivendor solutions were brought to market, an economy of scale that was once unavailable quickly drove down the initial capital barrier of entry to IP infrastructures, allowing for a significantly broader customer adoption.

As the cost of deployment of IP infrastructures came down, workflows that could justify the cost of deployment were quickly adopted across multiple broadcast verticals. The initial deployments of IP were focused on the massive scale broadcast networks and production truck markets. With a lower cost and shorter ROI time, medium- to large-scale OB trucks quickly started adopting IP workflows in 2016. The first all IP and all 4K UHD OB truck was built and deployed in 2016. Several articles and a case study have since been written about this deployment, and can be used as a learning tool as to what went right in that build, and what could have been improved upon with that build. With the knowledge gained from the first deployment, the production company built two additional facilities with similar workflows and equipment. The case study, in particular, tracks the engineering and operations work required to finish the three all-IP 4K UHD facilities, including the delta in effort and functional issues that had to be overcome between all three rollouts. In another implementation, this time for a large network production facility, the largest uncompressed COTS-based IP deployment to date is showcased. This project has pushed the envelope on



what can currently be deployed by a COTS infrastructure, and what challenges have arisen as this system has been scaled up to meet the customer's functionality requirements.

If your facility is considering an IP infrastructure to replace an aging baseband topology, you will want to join this interactive presentation to study and understand what has been learned through the early adoptions. The benefits, approach and pitfalls to avoid for a successful deployment will be discussed.

Presenting: Robert Erickson, Grass Valley, a Belden brand

Track: Broadcast

siX 101 Placeholder Session for engineering & traffic

Topic areas: Infrastructure, Interconnection, Products & Technology, Traffic

details to come

Presenting: Meg Keller, PBS

Track: Broadcast

sIX 102 Session Placeholder - engineering and traffic

Topic areas: Infrastructure, Interconnection, Products & Technology, Traffic

details to come.

Presenting: Meg Keller, PBS

Track: Broadcast

ST 2110 and PTP- Implementation and Testing Methodology

Topic areas: Infrastructure

This paper will be a tutorial on the what you need to know to understand the challenges we face in the process of making the transition to IP based transport for video, audio and data.

This move toward infrastructure efficiency has brought new technical challenges requiring broadcast engineers to gain an understanding of the technology and the new techniques needed to monitor these signals.

The development of SMPTE ST 2110 is a suite of standards that provide encapsulation of uncompressed video within IP packets and for live IP production carrying separate streams of video, audio and data packets. This new standard also allows for SMPTE ST 2022-6 that provides encapsulation of uncompressed SDI as well as ST 2059 for system timing.

This paper we will take a look at the basic structure of the packets for ST 2022 and ST 2110 and how variable delay across the network introduces jitter at the receiver and how measurements can be made on the stream. Latency in the network can produce out of order packets or corruption of the data causing packets to be dropped. Therefore it is important to monitor the stream to ensure an error free network to ensure transmission of the High Bit Rate Media and how these errors affect the actual video and audio signal. For redundancy in the media network SMPTE ST 2022-7 can be used to provide a Path One and a Path Two stream that the downstream device can determine which path is the most appropriate to use.



Measurement of the integrity of both paths is important and we will look at ways of monitoring the signal paths.

Presenting: Karl Kuhn, Tektronix

Track: Broadcast

The Transition to All IP: Where we are and where we are going

Topic areas: *Infrastructure*

This session will begin with a presentation of the state of the broadcasting industry's transition to "All IP", including migration to IT infrastructures and the virtualization of media processing and delivery. Then a panel of experts will give a practical discussion of where the industry is going and when, including the possibility of a hybrid environment as the path to All IP.

Presenting: Matthew Goldman, Ericsson

Et. al., TBD

Track: Broadcast

SMPTe 2110-10/20/30 with John Mailhot

Topic areas: *Other, Trends & Future Tech*

Full description to come.

Presenting: Renard Jenkins, PBS

John Mailhot, Imagine Communications

Track: Broadcast

HTML graphics for live television production

Topic areas: *Products & Technology*

Since the early days of broadcast, graphics has been created and played out using proprietary, often expensive, hardware and software. This means that setting up a new facility or moving equipment between locations is both a time consuming and costly process.

With the introduction of web technology, where graphics can be created and displayed in a web browser, these costs can be cut drastically.

During the coverage of the national elections in Norway in the fall of 2017, national public broadcaster NRK initiated a pilot project where all television graphics were created using HTML and converted to a video signal using an open source HTML player. Control of the graphics was done using a web browser. During the election night all 12 regional branches of NRK used this technology to present the election results to their audience.

The great success of the pilot project has made NRK consider introducing HTML graphics into other television productions, with the intent to replace one or more of the proprietary graphics systems at NRK.

We believe that the HTML project created at NRK is something that any commercial or public



broadcaster can develop themselves with a minimum of cost and labour. The project was built from scratch in 4 months, using two web developers and one graphic designer. The only hardware cost was for the computers running the HTML player as well as a video card for displaying the graphics as an HD-SDI video signal. Using common web technology also means that adding new features and design elements and deploying them throughout the organization is both fast and easy to accomplish.

Presenting: Stein-Roger Kringen, Norwegian Broadcasting Company

Christian Sletten Eide, Norwegian Broadcasting Company

Track: Broadcast

Saving Lives and Protecting Communities: The Future is NOW at Houston Public Media

Topic areas: Products & Technology, Public Safety, Trends & Future Tech

Public Safety Partner

Houston Public Media has been a leader among all broadcasters, public and commercial, in building bridges with public safety partners to protect and serve the citizens of their community. The University of Houston's Office of Emergency Management is located in Houston Public Media's building with 24-hour monitoring capability. KUHF is the LP1 station for the region, notifying other radio outlets regarding severe weather and other emergency alerts. Houston Public Media was nationally recognized for its public safety efforts and partnerships at the Public Media Summit with the 2017 Pillar of Public Service Award. The award celebrates our commitment to enhancing emergency communications for first responders.

Hurricane Harvey

The Houston Police Department and Houston Fire Department used Houston Public Media's datacasting technology in direct response to the unprecedented Hurricane Harvey storm flooding. Police and Fire teams were able to stream live video of flood conditions and monitor real-time impact broadcast directly to vehicles. This included vantage points streamed directly to HPM units from fixed cameras around the city, helicopter footage over the flood waters, and live feed from an HFD drone flying over a refinery fire. Fire crews were able to determine in real time where the safest, most effective point of attack for the fire was. Mobile phone feeds were also incorporated into the Emergency Operations Center where OEM planners, FEMA operators and city leaders could monitor. This technology, made available through public media, allowed primary responders to communicate with each other, assess ground conditions and make informed response decisions. Public media's datacasting technology enables secured communications to travel through public television's airwaves to targeted public safety recipients. Even if the power grid goes down, datacasting delivers.

Datacasting Overview

KUHT has dedicated a portion of their over-the-air broadcast signal to provide datacasting technology services to public safety efforts. Datacasting is a technology that allows broadcast television to act as a highway for encrypted targetable computer data to law enforcement.

Today, public safety relies on commercial cellular carriers to enhance their LMR voice networks and deliver video, files and other data. In the future, FirstNet will improve public safety data delivery, but will still be subject to the congestion issues experienced today when too many users require access to the



same content. KUHT's datacasting work provides a unique private multicast pathway today, and will enhance FirstNet's capabilities in the future. Datacasting is being used in several capacities in Houston. This report highlights a few of the higher profile events where it has proven to be a valuable tool for law enforcement.

The Department of Homeland Security (DHS) Science and Technology Directorate conducted an exercise to evaluate how datacasting over public television might enhance public safety information sharing. Participants included Houston Police Department (HPD), Houston Fire Department (HFD), Harris County Sherriff's Office, University of Houston, Texas Medical Center and NRG Stadium, the site of this year's Super Bowl. A report written by the Johns Hopkins University Applied Physics Laboratory for details on this event is available.

During this exercise multiple agencies, some for the first time, were able to share live video, files and alerts. The scenario was following a person of interest as he walked and traveled around Houston. Cameras followed him as he moved between jurisdictions and even onto private property like the Texas Medical Center and NRG stadium. Security at each location was notified and able to see what was happening in real-time.

GOP Presidential National Debate held at the University of Houston

KUHT played an important role in the national GOP Presidential debate held on the University of Houston campus. HPD wanted access to University cameras while campus security wanted to monitor traffic and see HPD helicopter video. Since IT security on both sides limited direct access to their respective networks, datacasting was used to share video between organizations. Security was maintained and each side was able to transmit their content to the other, retaining full control of their respective content and without directly connecting their networks. Datacasting solved the problem of ad-hoc information sharing without investing in temporary infrastructure or giving up control.

Final Four

The Final Four basketball tournament was held in Houston in April 2016 and provided another high-profile large crowd event at NRG Stadium. Datacasting was used again to share video and other data, both within and among multiple agencies. HFD used the datacasting phone app to push live video from locations that do not have permanent cameras back to the emergency operations center where it was shared. While the phone app does require LTE cellular coverage to work, the heavy lifting of distributing that video out to multiple recipients is handled by the broadcast signal. This event demonstrated how datacasting can integrate with other networks to enhance capabilities and offload bandwidth hogging content, getting everyone what they need while not congesting existing networks.

Historical Flooding

Prior to Hurricane Harvey, shortly after the Final Four tournament, Houston experienced devastating flooding in April 2016. An HPD helicopter was used by HFD to survey the damage and look for people in need of assistance. As the helicopter did not have a camera, HFD's Assistant Fire Chief used the datacasting phone app to push live video from the air to the datacasting dashboard. It was then delivered to the Mayor's Office and other locations that would not have otherwise had access to that important live



video feed.

Fire Accreditation

HFD is certified annually and the accreditation team is eager to see the geography that HFD operates in. In the past, HFD accomplished this through driving around town, a process that takes several days. A helicopter tour was suggested but the full team would not fit in one aircraft. After the successful use of datacasting during the flooding event, HFD repeated the use of the phone app with datacasting to show the accreditation team various parts of the city. This saved considerable time and money compared to the alternatives. The team saw what they needed to see and HFD was accredited.

Chevron Houston Marathon

The Houston Marathon provided another large crowd event in downtown Houston near Discovery Green where commercial cellular was congested. Datacasting was used again to deliver content over the top of those networks, freeing up cellular spectrum for other uses. The new FirstNet band 14 spectrum was also used extensively during the marathon, both to share content between band 14 users and to ingest content into the datacasting system for re-broadcast. Datacasting enhanced band 14 enabling more information to be shared with more users.

Super Bowl LI

As a special national security event, the Super Bowl requires the latest technology. The KUHT datacasting system was enhanced and expanded to bring in content from additional police operations centers and more vehicles were installed with datacasting receivers. Datacasting was used continuously during the event and for several days leading up to it.

Conclusion

Today, KUHT is providing spectrum to public safety personnel on a routine basis, including providing support to 50 City of Houston vehicles. KUHT remains committed to providing resources to public safety personnel and stakeholders to better educate and inform the citizens of Greater Houston.

Presenting: Joshua Adams, Houston Public Media

Lisa Shumate, Houston Public Media

Track: Broadcast

Build, Buy or Service Agreements? - Navigating, Understanding, Evaluating and Selecting the Right Technology Options for Your Broadcast and Production Operations

Topic areas: Traffic, Trends & Future Tech, Analytics, ATSC 3.0

As stations evaluate options for upgrading, replacing and re-thinking their infrastructure supporting broadcast, production, and digital operations they are faced with options ranging from simple replacement to implementation of advanced service-based approaches. This talk will present a structured approach for evaluation, analysis and selection of appropriate, risk-managed, and forward-looking solutions. Specific examples, analyses, and comparisons will be discussed for archive, asset management, master control, production, and disaster recovery. Solutions will cover the range of legacy replacement to full cloud-based service offerings. Attendees will leave with an understanding of available options and how to evaluate them for their unique situations.



Presenting: John McCoskey, Eagle Hill Consulting
Ron Clifton, Tata Communications

Track: Broadcast

Machine learning techniques applied to evaluating picture quality

Topic areas: Trends & Future Tech

This paper is a tutorial on how to apply Machine Learning to evaluate picture quality measurement and scoring. Traditionally this has been done using full reference techniques that involve comparing test images with reference images. The challenge with this method is that the original or reference image may not be available at all times, if at all. To address the quality scoring challenge, machine-learning techniques are applied to evaluate picture quality and identify distortions based on a large training set of subjectively graded images. The score-based approach means QC staff no longer needs to devote resources to monitoring picture. All video impairments have a unique mathematical signature or fingerprint that can be used to do continuous scoring. This paper will discuss how to apply machine learning to file based QC and OTT delivery of content.

Presenting: Karl Kuhn, Tektronix

Track/Audience: Digital

Track: Digital

Digital Transformation Through Data

Topic areas: Analytics, Engagement & Marketing, Strategy

In this session, we plan to bring in an outside expert speaker to talk about the transformation of organizations through data. This thought-leader session will anchor a multi-session data track.

Presenting: Amy Sample, PBS Digital & Marketing
Et. al., TBD

Track: Digital

Reimagining Fundraising on Digital Platforms

Topic areas: Analytics, Engagement & Marketing, Fundraising, Infrastructure

In this session, attendees can expect to gain insight into what and why PBS's Digital fundraising product team has been building. As well attendees will receive demos of current offerings, while also getting a sneak peak of what we are planning to build next. The concepts presented will be underscored by several pilot stations who helped PBS kick the tires of these solutions.

Presenting: Jen Hinders, PBS Digital



Track: Digital

PBS Digital Team - National Producer Meet-up

Topic areas: Analytics, Content & Programming, Engagement & Marketing, Media Management

Get your questions ready and join us for an informal session where national producers can meet one-one-one with digital teams including: Digital Sponsorship, Analytics, Social, Products, Content and more!

Presenting: Tara Vaezi, PBS

Eric Freeland, PBS Digital

Track: Digital

The PBS KIDS 24/7 Service - On-Air, Online, and in Local Markets: One Year Later

Topic areas: Analytics, Content & Programming, Engagement & Marketing, Mobile

Insights and analysis for the inaugural year of the PBS KIDS 24/7 service on linear television and across digital platforms, alongside use cases at the station level. How has the service performed overall? How has it changed audience interaction with PBS KIDS content? How has it impacted local markets? Station representatives will also share ideas on potential ways to better leveraging the service to affect audiences, underwriting and sponsorship.

Presenting: Joseph Miscavige, PBS

Track: Digital

Though we may be little, we are FIERCE! Rapid Bento 3.0 building and deployment methods for small PBS stations.

Topic areas: Analytics, Products & Technology, Station Tools, Strategy

The release of the Bento 3.0 framework from PBS Digital has given smaller PBS stations a unique opportunity to create and deploy gorgeous, professional looking web spaces faster than ever before. Gone are the days of needing a full-time in-house web developer. Now every staff member and trusted volunteer can be a content curator and maker! Come learn how KMOS-TV, a station that has just 13-full time employees rapidly developed its Bento 3.0 site in just 5 days using two staff members and became the Bento 3.0 launch station. No, seriously, we did it in just 5 days! Session attendees will come away with an overall idea of Sprint theory, and begin to strategize how they can take the ideas behind small, concise teams and rapid deployment to their home stations so that they can transition and launch on the Bento 3.0 platform.

Presenting: Ray Walters, University of Central Missouri - KMOS-TV

Track: Digital

360 Video: No, This is Not 3D TV

Topic areas: Content & Programming, Professional Development, Trends & Future Tech

The ability to create immersive experiences is finally within reach of public media producers. Exciting! It's



been generations since we've had an entirely new medium to explore, shape and perfect. But for all that fun, it's also pretty damn daunting, because it took most of us years to master the mediums in which we now create. In this medium, no shot is framed, and every shot is ultimately a special effects shot. This session is designed to demystify 360 video so you can focus on the fun part.

We'll walk through the technical: what producers should consider when selecting cameras, selecting microphones, building your 360 editing machine and recommended post-production software. We'll also focus on crafting the experience: shooting techniques, use of ambisonic audio, editing techniques for different distribution channels and post-production tricks to help take your audience into your story (including how you can use 360 video in a flat video production). And finally we'll focus on the editorial that embodies your experience: what stories work best as immersive experiences, when can 360 be standalone and when can 360 be supplement non-immersive media.

Presenting: Chad Davis, netNebraska

Track: Digital

A Lot With A Little

Topic areas: Content & Programming, Engagement & Marketing, Strategy

A little time. A little money. And a little staff. Large station or small, university licensee or national series, all of us must grapple with the question: How do we do the most with limited resources? In this interactive conversation, digital leads from Nashville Public Television, WPSU Penn State, and WGBH's American Experience share how they do a lot with a little. Learn how one series created highly engaging video with staff time, public domain images, and pre-existing transcripts or interviews.

Hear how a station in a small market collaborated with a national series to amplify the reach of a local web series. And discover how a major market station created nostalgic social videos while digitizing 1-inch tape through their ongoing archive project. We will also encourage attendees to bring examples of their own work where they got a lot of mileage out of few resources. The presentation will include an interactive group activity where we demonstrate how simple objects (like a slinky) can inspire creativity in the digital space. Attendees will walk away with concrete strategies and examples that they can take back and implement immediately.

Key Takeaways:

- How to create content for little or no money.
- How to re-purpose content that might be languishing in your archive.
- How to leverage the talent in your building.
- How to create relationships that multiply your content and amplify your reach.
- How to rethink and simplify your social content--video isn't the only game in town.
- How to create efficient production workflows.

Presenting: Lauren Prestileo, American Experience/WGBH
Cheraine Stanford, WPSU
Linda Wei, Nashville Public Television



Track: Digital

How does it all come together? Using Media Manager, Curate, and Station Manager to maximize your content's reach.

Topic areas: Content & Programming, Engagement & Marketing, Media Management, Products & Technology

In this workshop we will walk you through the steps to get a piece of content on multiple platforms and in front of as many eyes as possible. Come ready with a video to upload, because you will be working today! We will also weave in stories and anecdotes from stations that have taken these steps successfully.

Presenting: Jose Fernandez, PBS; Tara Vaezi, PBS; Leif Brostrom, PBS

Track: Digital

PBS Digital Studios: Platform Optimization for Developing Audiences

Topic areas: Content & Programming, Engagement & Marketing, Station Tools, Strategy

PBS Digital Studios would like to do a mixed presentation/discussion session to discuss audience development strategies for digital first properties on various platforms. This will be a mix of our own case studies, learnt best practices, and resources gathered from production companies, YouTube creative strategists, etc. We will also utilize resources gathered from the PBSDS Workshops held at the various stations during the spring. In addition, we'd like to bring along a producer, and/or industry professional from YouTube or Facebook depending on availability. We will discuss:-Identifying the right platform based on the editorial quality of your content-Community building and audience engagement strategies on various platforms (YouTube, Facebook, OTT (and a couple others...))-Publishing strategy: Title-ing, thumbnail selection, language, tagging, watermarks, etc

Presenting: Daniel Levy, PBS Digital Studios

Track: Digital

Podcast Tips and Best Practices

Topic areas: Content & Programming, Products & Technology, Trends & Future Tech

Many national PBS programs - including Masterpiece, Frontline, American Masters, NATURE (and more!) - are using podcasts to offer unique content for their audiences. In this session, we will hear from some of these national productions on how they are engaging their audiences with their podcast content. We will also discuss best practices for managing a podcast, with tips ranging from how to write an engaging podcast description to what artwork for the thumbnail works best.

Presenting: Tara Vaezi, PBS, et al. TBD



Track: Digital

Station Opportunities: The Great American Read

Topic areas: Content & Programming, Engagement & Marketing, Station Tools

Coming this Fall, The Great American Read is a pop-out program for PBS. Hear from the digital, marketing, station relations, and publicity team to learn how stations can leverage their members and audiences to get ready.

Presenting: Tara Vaezi, PBS; Eric Freeland, PBS Digital; et al. TBD

Track: Digital

The Vietnam War - Lessons Learned

Topic areas: Content & Programming, Products & Technology, Strategy, Trends & Future Tech

The Vietnam War was a defining moment for PBS and member stations. On a local and national level, The Vietnam War was a multi-platform event, unlike any in PBS' history. Join this session for an inside look at the top lessons learned. Hear from the different team members that will touch on different areas ranging from station relations to social to streaming and much more!

Presenting: Eric Freeland, PBS Digital, et al. TBD

Track: Digital

Data Visualization Tools And How To Use Them

Topic areas: Education, Mobile, Trends & Future Tech

A look at online, open-source data visualization tools and how to use them, from a none-coder, intermediate and advance coding perspective. We will go over basics, such as what visualization can be use for what kind of data and how to use multiple visualizations in conjunction with each other. I hope to be able to demonstrate and walk the group through how to create maps and charts using some basic free online tools, such as Mapbox and Infogram. If the group is comprised of more advanced users, we can look at Leaflet and Highcharts.

Presenting: Joseph Liu, KCTS 9

Track: Digital

Challenge Accepted! We'll solve your thorny digital problems

Topic areas: Engagement & Marketing, Other, Station Tools, Strategy

The DMAC includes some of the top digital minds of the PBS system, with deep experience, creative thinking, and diverse approaches to solving problems.

The idea of this session is to (1) propose topic areas that pose challenges for stations within the system (either before TechCon via survey or real time at the event using a platform like slido), (2) have the audience or potential audience vote on the 3 most important/valuable problems that they need help with, and (3) have a selection (or perhaps the entirety of) the DMAC present to *lead* an interactive brainstorm to solve the problems and share potential solutions.

Depending on the topics, the problems could be handled by a large, facilitated discussion or the audience



could be divided into 3 groups with each brainstorming a solution then returning to present solutions for discussion purposes. For example, audience members could use post its to propose solutions or identify partners for creating solutions.

The session might end with more than one solution to a problem - the goal being not necessarily to *solve* the problems but rather to show people how leaders in the system approach solving thorny problems - what values, assumptions, tools, and collaboration help resolve issues. The session would also serve to reinforce the point that DMAC is a resource for other stations.

Presenting: Ami Kim, WCVE/Community Idea Stations

Track: Digital

Social-Optimized Video

Topic areas: Engagement & Marketing

What makes a video "optimized" for social media? How can you adapt broadcast content for a social media audience? This session will break down the key components of video content for social, and will also deconstruct videos from other brands who are creating engaging social content.

Presenting: Ashley Carufel, PBS; Lori Dicker, PBS; et. al TBD

Track: Digital

STEAL THIS IDEA CONCURRENT SESSION

Topic areas: Engagement & Marketing, New Business Models, Station Tools, Strategy

STEAL THIS IDEA-TECHCON will bring together some of America's best storytellers - our PBS stations - for a rapid-fire, idea-sharing session that energizes attendees with real-world examples from station colleagues. Attendees at this session will hear a series of case studies about innovative and engaging strategies that build audiences, raise money, and deliver on the PBS mission. For the past 8+ years, this concurrent session has highlighted real-world stories of success and lessons learned from station colleagues across a wide gamut of content marketing, social media, event, digital, fundraising, and community engagement topics.

"Steal This Idea" sessions feature presentations that each last 5-7 minutes. Topics featured at last year's session at TechCon included "Social Media Lunchups", "Creating Audience Personas in Facebook", "THIRTEEN Passport Digital Campaigns", "Images of the Past Website" along with several other diverse presentations. Attendees leave the session with a list of new, proven ideas they can apply locally to their station and community, as well as new contacts to build their professional network. With numerous speakers and short presentations, the session moves quickly and keeps attendees' interest. Each presentation will be rehearsed and timed and only the most compelling and "portable" case studies will be featured. Presenters are expected to have a mix of video and visuals for their presentations and the floor is open to conversation with attendees near the end of the session. Contact information for follow up with all of the presenters is provided to attendees.



Presenting: Sloan Carroll, PBS

Track: Digital

The Playbook: Digital Culture Acceleration at Your Station

Topic areas: Engagement & Marketing, New Business Models, Professional Development, Station Tools

The Digital Culture Accelerator program is designed to foster culture change and infuse a digital mindset across stations focusing on the general manager and leadership team. The session will introduce the pilot project, share insights and lessons learned, and present the digital playbook stations are using to improve their organizational culture.

Presenting: Marc Pultuskier, CPB

Kevin Martin, Ideastream - WVIZ Cleveland Ohio

Chuck Holmes, WBHM

Brian Sickora, UNC-TV

Track: Digital

Vietnam In a Word | Activating Local Audiences with User Generated Content

Topic areas: Engagement & Marketing, Station Tools, Strategy

How do you transform excitement around a national program into local station engagement? That is a question many stations work to answer, particularly when it comes to a huge national initiative like THE VIETNAM WAR. How does a local station balance promoting a broadcast while creating authentic engagement opportunities for their community, especially when the topic is difficult?

WMHT, and many other stations, attempted to answer this last question through our engagement grant from WETA. We launched Vietnam In A Word late spring, 2017. The idea was simple: invite everyone from the community to share their Vietnam War era experience using a single word as the entry point. The collection of words created a tapestry of our stories, showcasing their diversity and demonstrating our commonalities.

WMHT worked closely with community partners to spread the word about screenings and opportunities to contribute to the Vietnam in a Word project. Both the national call-for-stories hashtag as well as a local hashtag were used to both share and cultivate words and stories. Stories and words were shared by over 80 people (so far) in written, audio, and video formats. WMHT used the Bento Marquee template to build an immersive, interactive experience allowing individuals in the community to reflect on the experiences of others, find stories that are thematically connected, or explore viewpoints that they may not have considered.

This session will discuss community engagement, using PBS's Bento, and leveraging a national campaign on a local level.

Presenting: Mary Gribulis, WMHT Public Media

Track: Digital

Writing for Social Media

Topic areas: Engagement & Marketing, Mobile, Strategy, Traffic



What makes an effective story headline on social media? How long -- or short -- should your Facebook captions be? How colloquial should you get, as the "voice" of a station? And do puns really work on social media? Hear what's working right now across several platforms for KQED's social media team and in the wider social media space.

Presenting: Carly Severn, KQED

Track: Digital

Capturing the Passport Opportunity

Topic areas: Fundraising

KLRU, WETA and WNET will each share their own Passport story and how Passport has become a very important part of their future from new donor acquisition and revenue to forwarding their mission. They will share statistics about the impact of Passport on their donor files and retention of Passport-acquired donors. Each station will then discuss their vision, structure and approach to capturing the Passport opportunity. The stations will provide specific case studies and examples ranging from effective omni-channel Passport campaigns to specific tactics for an individual channel. The stations will also cover key metrics stations should measure in evaluating their Passport progress and success.

Presenting: Jeff Regen, WETA

Track: Digital

Digital Infrastructure and Strategic Collaboration

Topic areas: Infrastructure, New Business Models, Products & Technology, Station Tools

Stations and national organizations are making significant strategic investments to improve public media's digital capacity, i.e., the system's infrastructure, tools, and products to serve its audience and mission. Together with CPB, NPR and PBS, a group of stations is leading an effort to create a federated digital infrastructure, starting with a system-wide ID management service. These strategic investments are crucial for public media to build a foundational digital capacity to super-serve its audience, compete with other digital media offerings, and realize new revenue opportunities. The session will give an overview of the project, how far the initiative has come, and how stations can get involved.

Presenting: Marc Pultuskier, CPB

Tim Olson, KQED

Scott Nourse, PBS Digital

Robert Kempf, WGBH

Track: Digital

Media Manager API: The Things It Can Do

Topic areas: Media Management, Products & Technology, Station Tools, Trends & Future Tech

The Media Manager API is a powerful tool that gives stations and producers the ability to incorporate a wealth of video into their websites and applications. Whether its embedding an occasional clip into a blog post, fleshing out and automating the video section of your site, making bulk edits to your asset libraries, or integrating the API into your ingest workflows, the Media Manager API can help. This session will showcase some of the ways stations and producers are currently using the Media Manager API, and



discuss thoughts and plans for the future.

Presenting: Jess Snyder, WETA

William Tam, WNET/Thirteen

Augustus Mayo, Twin Cities Public Television

Track: Digital

Choose Your Own Adventure! A Digital Innovation Odyssey

Topic areas: Professional Development, Trends & Future Tech

Come to this session with your smartphone charged because you will be using it! This is not your mom's conference panel. FRONTLINE is going to take you on a digital platform odyssey and YOU get to be the captain.

The culture inside FRONTLINE is all about embracing change, innovation and disruption. As a result, we've been telling stories in all sorts of new ways - from viral Facebook videos, to YouTube docs and explainers, to virtual reality experiences, podcasts, and Instagram stories. We love the creative energy we get from bringing our distinct brand of journalism to new platforms and technologies. But perhaps you don't know where to start or simply don't feel informed enough to make these leaps? That's ok, we can do it together!

In this session, we won't simply talk about content and platforms - we will make stuff - on the fly, in the room, based on what's most interesting and exciting to YOU. Obsessed with vertical video? (us too!) Let's make some Insta-stories! Love the idea of 360? We'll show you how to do it. You'll learn by doing. And most importantly, you'll return to your station with real world learnings about the digital landscape that you can put to use immediately.

Presenting: Pam Johnston, FRONTLINE

Track: Digital

Now What? A Crash Course in Leadership

Topic areas: Professional Development, Station Tools, Strategy

In this year's YoPro session, hear from emerging system leaders on the good, the bad, and maybe even the ugly of station leadership roles. Each of our panelists will focus on a challenge they've faced, they'll uncover lessons learned, and plenty of advice and knowledge will be shared! This session is curated and presented by PBS' YoPro initiative – but age is just a number. Public media peers of all ages are invited to join us and participate in what's sure to be an active and lively Q&A with presenters at the end.

Presenting: Amy Lust, PBS

Track: Digital

Building a Digital Network



Topic areas: Strategy

In this educational session, attendees will learn how to break down silos and create a diverse team of station members who will become their digital allies. This would be half presentation, half workshop. Attendees will walk out of the session with a starting point/game plan for where they would like to see their station go digitally. The main topics covered will be:

1- Creating a Digital Strategic Team

2- Successful brainstorm strategies

3- Creation of a Digital Strategic Plan/Mapping Plan using a Digital Measurement Model

4- Formation of an Executive Team Recommendation Guide

5- Hands-on: Write Your Station Headline (One Year from Now) We believe the digital market is highly competitive and we must be strategic in how we create and distribute our content digitally. It's important to map out your stations plans so they can be successfully measured.

Presenting: Tabitha Safdi, South Carolina ETV

Track: Digital

How to Create a Digital Publishing Product and Strategy at Your Station

Topic areas: Strategy

At Twin Cities PBS, we have multiple digital products including Next Avenue and Rewire, both of which have grown significantly since their launches within the past five years. Over the course of this time, we have gained a lot of practical knowledge and are eager to share with others on how your station can create your own digital publishing product and steps you can take to grow and engage your online audience. Small station? No problem. We have solutions and ideas for stations of all sizes that will help you both create and grow your digital product. Session Objectives: Understand why it is so important to define your audience and their needs and how you can effectively do this. Learn how to create and curate engaging content and build your content library. Learn tactics and strategies to increase the online engagement of your existing digital publishing product. Understand the roles of a digital publishing unit and the skills necessary for success. How to measure performance and make informed data-driven decisions.

Presenting: Jill Arrigoni, Twin Cities Public Television

Track: Digital

Rapid Solution Lab: Addressing Future Challenges in Family Media

Topic areas: Strategy, Trends & Future Tech, Content & Programming, Education

As part of the Digital Innovations Grant awarded to PBS KIDS by the Corporation for Public Broadcasting, the PBS Children's Media & Education Digital Products team will conduct a TechCon session discussing the known and unearthing unknown future challenges stations face in the family media space. This session will come on the heels of a 36-hour idea challenge where local stations collaborate alongside PBS KIDS and Parents Digital coming together to identify, synthesize and develop solutions to these challenges. PBS will select the highest value strategies to implement in PBS CM&E products as part of



the Digital Innovation Grant.
Presenting: Jon Burns, PBS KIDS

Track/Audience: IT

Track: IT

Future-proofing Public Media: The AAPB National Digital Stewardship Residency

Topic areas: Audio, Education, Infrastructure, Media Management

Can you quickly access digital video programs that your station aired in 2009? Who manages your station's archive? The fact of the matter is that digital video content must be actively managed over time in order for it to last long-term. Due to institutional priorities, many master-level digital public broadcasting productions, once broadcast or distributed, are placed on a hard drive, in "the cloud," or on robotic tape system and forgotten.

Preservation workflows and policies, metadata management, fixity, file obsolescence monitoring, migration of storage.... These are all concepts and skills that public broadcasting stations should be familiar with in order to successfully manage their digital content into the future. The American Archive of Public Broadcasting National Digital Stewardship Residency sought to develop and enhance such competencies at six public broadcasting stations, placing early-career digital archivists at Louisiana Public Broadcasting, Howard University Television, CUNY-TV, KBOO-FM, Minnesota Public Radio, and Wisconsin Public Television.

This session will feature presentations from station hosts, former residents, and program administrators who will report on their digital preservation projects, improvements to workflows and digital preservation policies, and long-term plans for station archive management. Attendees will get a chance to meet professional archivists and discuss best practices for digital file management and preservation.

Presenting: Rebecca Fraimow, WGBH

Leslie Bourgeois, Louisiana Public Broadcasting

Catriona Schlosser, CUNY-TV

Selena Chau, Los Angeles Philharmonic

Lorena Ramirez-Lopez DC Public Library Memory Lab Network

Track: IT

Factors to consider for Cloud Computing

Topic areas: Cloud, Infrastructure

One of the most common questions that Media executives are battling with is "to cloud or not." Cloud computing presents opportunities as well as challenges. This session presents all factors that need to be considered for a successful cloud computing implementation. This includes architecting cloud-based solutions, security in the cloud, performance and capacity planning.

Presenting: Raja Srinivasan, Telestream Inc.



Track: IT

How (and Why) We Built a Hybrid Cloud Active Archive

Topic areas: Cloud, Disaster Recovery, Infrastructure, Media Management

Archives are a challenge. To produce Antique Roadshow, Nova and Frontline, Nova and other shows, our team relies on petabytes of archives across multiple production units. We needed more media access, faster, in more formats, and at higher resolutions. Our existing solution - including tape - could not keep up. Join this talk and learn from our experience building a faster, more scalable archive - without tape. Using hybrid cloud technology, templated processes, and vendor-neutral technologies, we delivered big gains: media access in seconds vs hours, automated disaster recovery vs manual processes, and significant cost and time savings. We will present a blueprint for you to follow now. And show how we standardized workflows to deliver faster SLAs at less cost. Best of all, our vendor-neutral solution ensures that media can always be searched and retrieved, without reliance on any specific products. Stop being held hostage by vendor-specific solutions. Join this talk and see the possibilities for a faster, more scalable archive -- at less cost than tape.

Presenting: Shane Miner, WGBH - Technology Group

Ryan Groth, WGBH - Technology Group

Track: IT

Onsite or In The Cloud? When is the right time?

Topic areas: Cloud, Disaster Recovery, Infrastructure, Media Management

Marcus will present a vendor agnostic process for how to build a foolproof storage infrastructure & know when it is time to move to the cloud based on specific factors. Key takeaways & Relevance to Public Media - This will help stations understand how to mitigate risk & control cost based on a proven methodology.

Presenting: Marcus Hill, Litewire

Track: IT

Information Security Basics Policies - 101

Topic areas: Cybersecurity

The presentation would review some of the current breaches that have occurred and the reasons they worked. For example in the Equifax breach poor execution of the patching policy left the mail system vulnerable to the exploit. I would like to present on the value of developing and executing standard IT policies and how adhering to sound basic policies can provide an inexpensive layer of protection.

Presenting: Mark Roy, PBS

Track: IT

Ransomware: We Weren't Prepared. (Are You?)

Topic areas: Cybersecurity, Disaster Recovery, Infrastructure, Products & Technology



On June 15th, 2017 KQED was crippled by a massive ransomware attack that flashed through the corporate network, encrypting the bulk of the Windows servers and workstations. It turns out the infection—a variant of the Samas ransomware—actually happened weeks earlier, and the malicious code sat dormant "sniffing" the network for usernames and passwords. Once it obtained domain administrator credentials (the highest level of account type in Microsoft's Active Directory) it was able to swiftly propagate and take control of and encrypt any domain joined servers and workstations.

Our traditional signature-based antivirus (McAfee) was no match for this type of virus. We didn't have the time or software to discover the original delivery vector of the infection (the way it got into our network—email, web, USB drive, etc.) since we had to re-image computers immediately to get people working ASAP. Gone are the conveniences of Bring Your Own Device (BYOD), Single Sign On (SSO), unapproved software, and local admin privileges for users. Newly in place are more logical (VLAN) and physical network segments, network Access Control Lists (ACLs), additional separate Active Directory domains for certain environments (Dalet), and next generation antivirus that looks at process behaviors as well as signatures.

I'm the IT Director at KQED, and months after the attack, I and my small team are still in the process of rebuilding and redesigning our IT and network infrastructures to survive in the modern cyber villain landscape. One of the many cautionary tales here for public media (or any non-profit) is that of disproportionate IT support staff to overall staff headcount. When the attack happened, I had only one network engineer, one radio engineer, and two systems (servers) engineers to handle the recovery of the network and all our systems, and two Helpdesk techs to support 500+ end-users (I had long decried this unsustainable risky staffing ratio to KQED management.) We had some additional vendor support (Dalet), but the bulk of the recovery and redesign work has been done by only seven people (including myself). Throughout all of this, KQED radio and TV broadcasts were never off the air. • KQED IT landscape and staffing pre June 15th • The infection, what it was, what it did and how it did it ❖ Second quarter (What We Did): • What we did to contain it • Emergency response and how we communicated to staff • How we redesigned the future while we recovered the past • Sequence of systems we recovered and why ❖ Third quarter (Who We Are): • New email and antivirus threat protection solutions • Network ACLs, logical and physical segmentation • Linux solutions • End-user restrictions • Macs (Apple) are not immune • Additional staff and lessons learned ❖ Fourth quarter (Q&A)

Presenting: John Reilly, KQED

Track: IT

Smart Security: IT, media and physical security for any size organization

Topic areas: Cybersecurity, Disaster Recovery, Infrastructure, Media Management

Hacking, Malware, Leaks, Ransomware: Today's media professionals have to be more aware of security than ever before. The introduction of IT networking into broadcast and production infrastructure has created greater interconnectivity than ever before, but that connectivity introduces risk into our media environment. No one is immune, from production teams to facilities, stations and enterprises.

Join us to discuss how organizations big and small can be smarter about securing their productions and assets.

- How do you assess your risk?



- How do we secure our content and media?
- Should you isolate your edit workstations?
- What IT processes and strategies do we need to consider?
- What do we need to think about our physical security too?

Presenting: Megan McGough Christian, WGBH - FRONTLINE
 Shane Miner, WGBH - Technology Group
 Chris Fournelle, The Outpost at WGBH

Track: IT

IT Roundtable

Topic areas: Education, Infrastructure, Other, Strategy

Full description to come.

Presenting: Josh Winterrowd, MontanaPBS

Track/Audience: Station Management & Professional Development

Track: Station Management

Technology Infrastructure: A Way Forward

Topic areas: ATSC 3.0, Education, Infrastructure, Products & Technology

The public media system faces challenges arising from changes in the media landscape, station equipment reaching end of life, loss of PTFP funding, and consequences of the spectrum auction and repack. Last year, CPB and our consultants from Eagle Hill shared the initial findings from our comprehensive survey on public media technology. This year we're going to discuss cost-saving approaches and opportunities for knowledge building, and helping stations create case statements for funding.

In this presentation, Ted will be joined by one or more members of the Advisory Panel groups, who contributed to the outcomes of this project.

Presenting: Ted Krichels, Corporation for Public Broadcasting

Track: Station Management

Washington Regulatory and Legislative Update

Topic areas: ATSC 3.0, Regulatory, Strategy

Provide update on FCC and legislative initiatives for station management. Topics to be covered will include TV repack and reimbursement, FCC media modernization initiatives, FCC ATSC 3.0 rulemaking, translator displacement issues, new ownership reporting rules, renewal of DirecTV carriage agreement, federal funding status, as well as any other matters then at issue.



Presenting: Todd Gray, Gray Miller Persh LLP
Patrick Butler, President and Chief Executive Officer, APTS

Track: Station Management

Turn Ideas Into Action: A Design Thinking Workshop

Topic areas: *Content & Programming, Engagement & Marketing, Fundraising, New Business Models*

Learn the tools and habits used by the KQED Lab to drive innovation inside KQED in this hands-on, (hopefully) two session workshop. You'll discover step-by-step how to apply a design thinking approach and mindset to the challenges public media faces - and how you can bring others along on this journey.

Presenting: Colleen Wilson, KQED

Track: Station Management

When Meta met Data

Topic areas: *Content & Programming, Interconnection, Media Management, Station Tools*

The emergence of digital has transformed every aspect of every industry. Most notably, everything we touch today turns to data - metadata. From production to post-production to distribution and consumption, the volume and velocity of metadata increases. An "Enterprise Metadata Application Profile" (MAP) is the answer for Public Media that needs a common vocabulary and interoperability across "silos" of data. Learn about Public Media's metadata strategy and how it improves findability of our content among the system and in OTT and cable guides.

Presenting: Rachelle Byars-Sargent, PBS

Track: Station Management

Leveraging CPB's Public Media System Technology Assessment for the Benefit of Stations

Topic areas: *Education, Fundraising, Infrastructure, New Business Models*

To better understand public television and radio stations' technology challenges and needs today and in the future, the Corporation for Public Broadcasting (CPB) commissioned an unprecedented and comprehensive System Technology Assessment.

The Assessment sought to:

- understand the production and broadcast technology equipment state and plans for the system's next 2-5 years
- prioritize equipment replacement and related financial needs
- identify resource gaps that could impede sustainability of the evolving public media system
- and offer innovative solutions for bridging, grouping, and comparing gaps among diverse station cohorts.

The backbone of the Assessment was a massive equipment survey that catalogued stations' broadcast and production technology holdings, their replacement plans and timelines, and associated financial needs. Additional questions gathered data on general managers' positions on key technology trends, and



their top-down assessment of station finances and constraints. A multipronged effort of coordinated communications from CPB, Eagle Hill Consulting, and affinity organizations produced an unprecedented response rate of 73% for radio and 92% for television, cataloging more than 60,000 pieces of equipment throughout the system. This level of participation yielded a strong measure of credibility to the Assessment results, and provides a solid basis from which to draw analyses and plan solutions that can be used to move the public media system towards a sustainable future.

Results and recommendations based on the assessment data have led to a focus on three important solution areas for the System:

- Shared purchasing agreements
- Targeted case statements
- and Knowledge-building.

This presentation will provide a detailed update on the solutions identified and implemented for each area, including a discussion of how stations can use these solutions for their own operations and management.

Presenting: John McCoskey, Eagle Hill Consulting
Ted Krichels, CPB

Track: Station Management

Why Can't We Just Use iPhones? + Production Roundtable

Topic areas: Infrastructure, Products & Technology, Strategy

We've all been asked - or have asked - some version of this question. It's a simple question, but to answer it properly requires a holistic analysis of technologies, resources, workflows, and budgets. In this session, we'll discuss the logic behind "cheaping out" - when to do it, when not to do it, and how to decide which is which.

Presenting: Chris Ostertag, KLRU-TV Austin PBS

Track: Station Management

Women Who Speak Geek

Topic areas: Media Management, Professional Development, Strategy, Trends & Future Tech

The Public Media Women in Leadership group will lead a discussion with three women in tech who represent different roles and experiences working in tech in public media. The session will be facilitated by PMWL founder Deanna Mackey. The session will serve a few purposes.

First, to help diversify the speakers and topics at TechCon by addressing the experiences of a community underrepresented at the conference and sharing both what they know and what their experience coming up has been like.

Second, to share the opportunities for women in tech in our industry and get to know more about the different types of jobs these women have attained.

Third, to talk about what they have learned along the way, how to be successful in a traditionally male



vertical, what they bring to the table as women that has helped their careers and/or their stations/org and what suggestions they have for younger women coming up in the industry. Additionally, we will show examples of the panelists' work to provide a visual of the different types of tech jobs available to women in our industry.

Presenting: Deanna Mackey, PTMMG

Rhonda Holt, VP Software Development & Ops, PBS

Debra Solt, Director, Workforce Training & Economic Development, Vegas PBS

Cheraine Stanford, Director, Content Strategy, WPSU

Track: Station Management

Innovating People: A Formal Approach to Change Management for Media Organization Technology Initiatives

Topic areas: New Business Models, Professional Development, Station Tools, Strategy

Public media organizations continue to experience unprecedented and disruptive technological change. While such change presents tremendous opportunities for new services, efficiency, and agility, it also has significant and varied impacts to an organization's business and mission performance. Those that treat people and organizational issues as secondary concerns—or overlook them altogether—do so at their own peril.

A better approach is to use formal change management, which prepares stakeholders for the change while minimizing negative impacts to the business. Emphasizing the “people side” of change, change management targets leadership and stakeholders at every level of an organization. When done well, change management engages people in the process and empowers them to work collectively toward a common objective. This presentation will show managers and technologists how to apply structured change management processes and tools to most effectively manage the impact and achieve the full potential of technology-driven organizational change.

Presenting: John McCoskey, Eagle Hill Consulting

Track: Station Management

Managing Tech Teams: Creating NextGen Broadcast Teams

Topic areas: New Business Models, Professional Development, Strategy

In light of the current and ongoing changes in the broadcast industry generally and the public media specifically, having redefined methods in leading and managing technical teams is a must. In many cases engineering teams, IT teams, and digital teams, find themselves separated. This separation can cause a setback in new technical projects that might affect the strategic plan of the organization. Although restructuring an engineering/technology department might sound to be an easy task to accomplish, yet is not. The key for success is in transforming the separated teams into cross functional and agile team with one aligned vision. At ideastream we had the opportunity to revamp our entire technical structure to provide the needed tools for the new media demands in preparation for “NextGen TV”. The process required a major change not only in the technology but also in the methods and workflows. are on a path to accomplish that success by completing the following steps:



- Creating SCRUM teams for new projects
- Blending IT and Engineering
- Redefining "Broadcast Operations"
- Recruiting "NextGen" middle management
- Replacing the hierarchy by a matrix

The biggest responsibility lies on the department head to navigate and coach the teams during these changes, since change for the sake of change is not the goal. Similar to any change the change navigator has to complete several tasks which among them are:

- Explore and highlight the strengths of each team member
- Find the champions of change
- Redefine roles and build trust especially among a multigenerational workforce
- Show the importance of communication and open channels between teams; particularly between IT and Engineering
- Redesign the Engineering or Technology department to satisfy the organization's current and future business needs
- Plan and assess the risks while the new teams form, storm, and norm

Workflow changes became more organic and efficient to satisfy the rapidly growing tech needs of the organization. By planning and implementing each step of this change, we managed to transform our IT teams, development teams, broadcast teams, TV engineering teams, and radio teams into one solid and efficient Technology unit. These changes have positively affected the execution of our current large-scaled projects.

Presenting: Shadi Sabra, Ideastream - WVIZ Cleveland Ohio

Track: Station Management

Change is Mandatory... Stress is Optional

Topic areas: Professional Development, Strategy

Broadcast industry is in the mist of revolutionary change. Digital, IP, OTT, skinny bundles, are forcing us to adapt quicker than ever. In this presentation, will discuss ideas for minimizing the stress of change and maximizing the chance for success. - work with the organizational culture, not against it- provide for basic needs/security first- grass routes better than brute force- provide

Presenting: David French, PBS

Track: Station Management

Diversity is not just for microphones

Topic areas: Professional Development, Station Tools, Trends & Future Tech

As we transform our organizations into multidisciplinary media companies, it is more important than ever to expand the types of voices within our walls. It can be challenging filling positions in technical organizations with a diverse staff. In many communities under-represented groups don't make up a significant portion of the applicant pool. Add to that concerns about how one deciphers resumes and



what interview questions are fair and legal.

Join Renard Jenkins and Tim Mangini in a panel discussion on strategies for deepening your candidate resources and increasing the diversity of your technical team. We hope you will plan on adding your voice to the conversation.

Presenting: Tim Mangini, WGBH Production Group

Track/Audience: Traffic

Track: Traffic

Traffic Workflow I-Interstitials: Ingest through Log Placement

Topic areas: Committees, Media Management, Station Tools, Strategy

Stations will share their best practices on placing spots into logs and discussing interstitial ingest and metadata workflow. Local vs. national spots, manual placement vs./flights/spot rotation. How new technology like the Source has changed these workflows.

Presenting: Wendy Ross, PBS

Track: Traffic

Traffic Workflow II: Last-Minute Log Changes and How to Survive Pledge

Topic areas: Cloud, Content & Programming, Media Management, Products & Technology

Stations explain how to make pledge easier for your Traffic and Operations departments. There will also be discussions surrounding the myriad processes of generating/completing/triple-checking logs and how to handle changes for an already exported broadcast log.

Presenting: Wendy Ross, Traffic Advisory Committee

Track: Traffic

Professional Development- Raising Your Visibility and Working Well with Others

Topic areas: Committees, Education, Professional Development, Strategy

Traffic is a multi-disciplinary area that touches many departments and corporate areas; it may report to Programming, or Operations and Technology. You are likely to have to work with those departments, as well as production, marketing, sales, IT, all in the space of a day or perhaps even in the space of an hour. Traffic plays a vital role in the on-air look and air-critical functions of your station, and is usually under multiple deadlines ruled by the calendar and the clock, yet sometimes you may feel invisible unless something goes wrong. That's why it's important for you to be able to handle different personalities and also be able to work across departments and break down silos. Along with the ability to communicate and motivate, you need and deserve respect from your colleagues and managers. It's important that you know the value of your position to your station and the value of your profession in the larger station community and be able to demonstrate it in concrete terms. Traffic can be the unsung superhero at a station. So if you are getting a last minute change or live event to air, and making it look like you didn't break a sweat, there's a space where the modesty of "It's all in day's work", should end and "Bravo", should begin. Recognition of these factors by peers and management will allow you greater input and



control to get needed efficiencies.

How to Raise the Visibility of your Position

If you describe your job by saying I'm just a Traffic Person, just a Programming or Operation's Associate, just a... fill in the blank; this is the session for you. We will explore methods to boost your recognition at work, among your peers, higher-ups and your company as a whole. Of course it starts with you feeling good about what you do. If you respect and appreciate the value of your position and your profession, others will follow suit. We'll give concrete examples such speaking up in meetings, strengthening your relationship with your boss, volunteering for high visibility projects and making people aware of your successes. If you google Broadcast Traffic Coordinator, at the bottom of the article it gives you a list of similar jobs, you would not be surprised to learn the list includes; Stage Manager and Unit Production Manager, but one that might surprise you and should not, is Aerialist. Definition - "performing astonishing feats high in the air."

Working well with others (while playing in Traffic)

In this portion we will give advice on how to recognize and work well with different personality types, for example, the micro-manager or the gossip, be they someone you manage, someone that manages you, or other colleagues across departments. Of course, as in any kind of change, you must first manage yourself and avoid taking things personally. You must also know what is important to motivate them towards your mutual goals. Sometimes it can go even further and silos must be broken down in the face of the massive technological drivers that promote change and churn in our industry. You, as someone with a finger in all these disciplines can play a key role in this effort. These ideas were generated from TAC meetings with special input from Kristen Hurley, Kristen Doogan, and Suzanne Kembel.

Presenting: Wendy Ross, Traffic Advisory Committee

Track: Traffic

TAC opening session

Topic areas: Committees, Professional Development, Traffic

This will be the TAC open with committee info and intros, conference highlights, and first timer info.

Presenting: Nick Agresti, PBS

Track: Traffic

Break Structure Priority Workflow

Topic areas: Content & Programming, Station Tools, Strategy, Traffic

Walk through setting up a break structure priority workflow step-by-step. Set guidelines and establish break format priorities with the Department Leads at your station for how you want your station breaks to look. Categorize the interstitial inventory and streamline where and how the spots are placed into the breaks when the logs are generated. Using the traffic database to schedule the spots allows more time to curate station break content so it is in line with the program affinities and station goals/priorities.

Presenting: Nicole Quirk, KOCE / PBS SoCal



Track: Traffic

Redefining myPBS

Topic areas: Content & Programming, Products & Technology, Station Tools, Traffic

At last year's Town Hall you asked, "when can we get myPBS redesigned?" The PBS VP of IT spoke about how the site has too many flavors and is more in need of redefinition. Join the team one year later as we share how we're scaling back from a jack-of-all-and-master-of-none approach. We'll outline our plan to shift the site from being feature-rich to a few features that make the site distinct and carry the most value. There's still work to be done and this session will detail where we are and where we're going, along with a healthy dose of tips and tricks using real-world examples.

Presenting: Kristin Haley, PBS

Track: Traffic

TAC Open Mic!

Topic areas: Content & Programming, Interconnection, Other, Station Tools

This session is designed to provide attendees a forum to ask any traffic, scheduling and programming questions. There will be general topics available, but the discussion is expected to be driven directly by the attendees.

Presenting: Nick Agresti, PBS

Track: Traffic

TAC Closing Session

Topic areas: Products & Technology, Professional Development, Station Tools, Strategy

We'll discuss highlights of the conference, your best takeaways, burning questions, and what topics you like to see next year and perhaps give you some time back to answer survey questions in the Conference App.

Presenting: Wendy Ross, Traffic Advisory Committee

Track: Traffic

Another Day in the Life

Topic areas: Professional Development, Traffic

Last year we did a session titled "Traffic - A Day in the Life" so this year I would like to build on that with "Another Day in the Life." Last year's presentation centered around a high-level look at who we are in Traffic and what various things we do. The core of this year's presentation would center around, and expand upon, one slide that was used in last year's presentation. It was basically a minute-by-minute, task-by-task breakdown of one of my work days. Traffic personnel from different stations keep track of a couple days and create a similar time/task log. We would present our days at the session and compare the similarities and differences of all these people that we call Traffic.

Short 2-3 minute video tours of each presenting station's office would (or could) be included. These videos would focus on the areas and resources that the Traffic departments specifically deal with, such as Master Control, Tape Library/Data Storage Room, personal desk space, etc. This has potential to turn



into a longer session or multiple sessions depending on the number of interested participants I get from different stations.

Presenting: Steve Johnson, BYU Broadcasting

Track: Traffic

ProTrack Boot Camp

Topic areas: Traffic

The Traffic Advisory Committee has enlisted Myers again this year to host an interactive ProTrack session for all PBS Member Station attendees. The Myers team will discuss new and existing workflows to help you make the most out of your ProTrack investment. The intent of this session is to cover a broad range subjects, focusing in on best practices, ensuring that all attendees walk away with new ProTrack knowledge.

Presenting: Nancy Carter, Myers

Track: Traffic

With New Trends, Comes New Workflows

Topic areas: Traffic, Trends & Future Tech

Let's talk about the future and how we are getting there! Join Myers as they discuss what they are doing as a company to ensure ProTrack is keeping pace with the rapidly evolving media landscape. This session will cover ProTrack's technology, product roadmap, new/existing partnerships, services and capabilities.

Presenting: Nancy Carter, Myers

Sessions by Topic

Note: sessions may have been submitted with multiple topic areas. Please use Search to find the full descriptions and speakers based on this list.

Analytics

- Build, Buy or Service Agreements? - Navigating, Understanding, Evaluating and Selecting the Right Technology Options for Your Broadcast and Production Operations
- Digital Transformation Through Data
- Facebook LIVE, YouTube, Periscope, and Twitch: Lessons from Social Live Streaming
- Reimagining Fundraising on Digital Platforms
- Rethinking Content Creation and Monetization in a Connected Age
- Speaking in Tongues: Do the Core Metrics Say the Same Thing?
- Speed Dating with the PBS Digital Team - National Producer Meet-up
- The Digital Product Manager's Toolbox: Making Data-Driven Decisions
- The Dream Metric: Which Platforms Build Reach and Which Platforms Build Frequency
- The PBS KIDS 24/7 Service - On-Air, Online, and in Local Markets: One Year Later



- Though we may be little, we are FIERCE! Rapid Bento 3.0 building and deployment methods for small PBS stations.

ATSC 3.0

- 40 Years of Public Television Innovation
- ATSC 3.0 and my Audience, Do They Want It?
- ATSC 3.0 Ready – Designing Antennas for Higher OFDM PAPR
- Digital IP-Centric Microwave STL/TSL Considerations for ATSC 3.0 Transmission Workflows
- Doctor Love Strange or How I Learned to Stop Worrying and Build an ATSC 3.0 Infrastructure for My Public TV Station
- Evolving Technology - High Dynamic Range
- Key Considerations for the ATSC 3.0 Transition
- Making ATSC 3.0 Work For You
- Public Safety Datacast paging utilizing NextGEN television broadcast
- Technology Infrastructure: A Way Forward
- The Future is Closer than You Think: New Businesses Made Possible by ATSC 3.0
- Washington Regulatory and Legislative Update

Audio

- 40 Years of Public Television Innovation
- Future-proofing Public Media: The AAPB National Digital Stewardship Residency
- MXF with AAC for next-generation interconnect

Closed Captioning

- 40 Years of Public Television Innovation
- Accessibility Made Accessible: Broadcast to Digital Captioning Workflows
- Facebook LIVE, YouTube, Periscope, and Twitch: Lessons from Social Live Streaming
- Impact of Speech to Text on Closed Captioning workflows

Cloud

- Archiving Austin City Limits
- Craft Edit for Content on the Cloud
- Factors to consider for Cloud Computing
- How (and Why) We Built a Hybrid Cloud Active Archive
- Impact of Speech to Text on Closed Captioning workflows
- Onsite or In The Cloud? When is the right time?
- Traffic Workflow II: Last-Minute Log Changes and How to Survive Pledge
- Understanding the Transition from Appliances to Virtualized Infrastructure

Committees

- Professional Development- Raising Your Visibility and Working Well with Others
- TAC opening session
- Traffic Workflow I-Interstitials: Ingest through Log Placement

Content & Programming

- 360 Video: No, This is Not 3D TV
- A Lot With A Little
- Break Structure Priority Workflow
- Digital Content Case Study: MASTERPIECE and American Masters
- Facebook LIVE, YouTube, Periscope, and Twitch: Lessons from Social Live Streaming



- How does it all come together? Using Media Manager, Curate, and Station Manager to maximize your content's reach.
- How to Create a Successful Podcast Series
- Maximizing Your Reach and Impact with Social Video
- PBS Digital Studios: Platform Optimization for Developing Audiences
- Podcast Tips and Best Practices
- Rapid Solution Lab: Addressing Future Challenges in Family Media
- Redefining myPBS
- Speed Dating with the PBS Digital Team - National Producer Meet-up
- Station Opportunities: The Great American Read
- The PBS KIDS 24/7 Service - On-Air, Online, and in Local Markets: One Year Later
- The Vietnam War - Lessons Learned
- Traffic Workflow II: Last-Minute Log Changes and How to Survive Pledge
- Turn Ideas Into Action: A Design Thinking Workshop
- VR. AR. 360. for the PBS masses?
- When Meta met Data

Cybersecurity

- Broadcast Infrastructure Cybersecurity
- Information Security Basics Policies - 101
- Ransomware: We Weren't Prepared. (Are You?)
- Smart Security: IT, media and physical security for any size organization

Disaster Recovery

- How (and Why) We Built a Hybrid Cloud Active Archive
- Onsite or In The Cloud? When is the right time?
- Public Safety Datacast paging utilizing NextGEN television broadcast
- Ransomware: We Weren't Prepared. (Are You?)
- Smart Security: IT, media and physical security for any size organization

Education

- Data visualization tools and how to use them.
- Future-proofing Public Media: The AAPB National Digital Stewardship Residency
- IT Round Table
- Leveraging CPB's Public Media System Technology Assessment for the Benefit of Stations
- PBS TV Translator Relocation and Grant Program: Strategies for Success
- Professional Development- Raising Your Visibility and Working Well with Others
- Technology Infrastructure: A Way Forward

Engagement & Marketing

- A Lot With A Little
- Challenge Accepted! We'll solve your thorny digital problems
- Curate's Updated and Better Than Ever: A Workshop
- Digital Transformation Through Data
- Digital Video, VR and Podcasts – Oh My! How emerging storytelling forms can help you strengthen your brand while building your audience & influence
- How does it all come together? Using Media Manager, Curate, and Station Manager to maximize your content's reach.
- Maximizing Your Reach and Impact with Social Video
- PBS Digital Studios: Platform Optimization for Developing Audiences



- Reimagining Fundraising on Digital Platforms
- Social-Optimized Video
- Speed Dating with the PBS Digital Team - National Producer Meet-up
- Station Opportunities: The Great American Read
- STEAL THIS IDEA CONCURRENT SESSION
- The PBS KIDS 24/7 Service - On-Air, Online, and in Local Markets: One Year Later
- The Playbook: Digital Culture Acceleration at Your Station
- Turn Ideas Into Action: A Design Thinking Workshop
- Vietnam In a Word | Activating Local Audiences with User Generated Content
- Writing for Social Media

Fundraising

- Capturing the Passport Opportunity
- Leveraging CPB's Public Media System Technology Assessment for the Benefit of Stations
- Reimagining Fundraising on Digital Platforms
- State of the System: PTV Fundraising - Trends, Sustainers, and Passport
- Turn Ideas Into Action: A Design Thinking Workshop

HDR & UHD

- Building a UHD Production Workflow, Studio, Post and Beyond
- Compromising UHD HDR Content ... Upsetting the Viewer Experience
- Evolving Technology - High Dynamic Range
- HDR High Dynamic Range- Implementation Challenges and Testing Methodology

Infrastructure

- All the Moving Parts: A Live Look inside ST 2110 & AMWA NMOS
- Broadcast Infrastructure Cybersecurity
- Craft Edit for Content on the Cloud
- Designing and troubleshooting a robust SMPTE ST 2059/PTP network
- Digital Infrastructure and Strategic Collaboration
- Do I need to spend a half a million dollars on SAN Storage?
- Employing IP to distribute content to your audience ... OR ...how to ensure the majority of your audience gets the best quality signal possible.
- Factors to consider for Cloud Computing
- Future-proofing Public Media: The AAPB National Digital Stewardship Residency
- How (and Why) We Built a Hybrid Cloud Active Archive
- Is a SMPTE ST 2110 Certification Program required by the broadcast industry?
- Is SMPTE ST 2110 the New Standards Superpower?
- IT Round Table
- Leveraging CPB's Public Media System Technology Assessment for the Benefit of Stations
- Maintaining Audio/Video and Audio/Audio Alignment in the IP World
- Onsite or In The Cloud? When is the right time?
- Public Safety Datacast paging utilizing NextGEN television broadcast
- Ransomware: We Weren't Prepared. (Are You?)
- Report on IP Video deployment - An assessment of the merits and technical challenges learned from real world deployments of uncompressed IP media solutions into multiple functional workflows
- siX 101 Placeholder Session for engineering & traffic
- siX 102 Session Placeholder - engineering and traffic
- Smart Security: IT, media and physical security for any size organization
- ST 2110 and PTP- Implementation and Testing Methodology



- Technology Infrastructure: A Way Forward
- The challenges of designing a SMPTE ST 2110 Network with ST 2022-7 and ST 2059/PTP
- The Transition to All IP: Where we are and where we are going
- Understanding the Transition from Appliances to Virtualized Infrastructure
- Why Can't We Just Use iPhones?

Interconnection

- Broadcast Infrastructure Cybersecurity
- Digital IP-Centric Microwave STL/TSL Considerations for ATSC 3.0 Transmission Workflows
- siX 101 Placeholder Session for engineering & traffic
- siX 102 Session Placeholder - engineering and traffic
- When Meta met Data

Media Management

- Archiving Austin City Limits
- Craft Edit for Content on the Cloud
- How does it all come together? Using Media Manager, Curate, and Station Manager to maximize your content's reach.
- Media Manager API: The Things It Can Do
- Media Manager Workshop
- MXF with AAC for next-generation interconnect
- Rethinking Content Creation and Monetization in a Connected Age
- Traffic Workflow II: Last-Minute Log Changes and How to Survive Pledge
- Traffic Workflow I-Interstitials: Ingest through Log Placement
- When Meta met Data
- Women Who Speak Geek

Mobile

- Data visualization tools and how to use them.
- How to Create a Successful Podcast Series
- Writing for Social Media

New Business Models

- Digital Infrastructure and Strategic Collaboration
- Innovating People: A Formal Approach to Change Management for Media Organization Technology Initiatives
- Making ATSC 3.0 Work For You
- Rethinking Content Creation and Monetization in a Connected Age
- STEAL THIS IDEA CONCURRENT SESSION
- The Future is Closer than You Think: New Businesses Made Possible by ATSC 3.0
- The Playbook: Digital Culture Acceleration at Your Station

Other

- Alternative to WordPress (working title)
- Challenge Accepted! We'll solve your thorny digital problems
- IT Round Table
- PBS TV Translator Relocation and Grant Program: Strategies for Success
- SMPTE 2110-10/20/30 with John Mailhot
- Starting Strong
- User-Centered Design



Products & Technology

- All the Moving Parts: A Live Look inside ST 2110 & AMWA NMOS
- Archiving Austin City Limits
- ATSC 3.0 Ready – Designing Antennas for Higher OFDM PAPR
- Digital Infrastructure and Strategic Collaboration
- Digital IP-Centric Microwave STL/TSL Considerations for ATSC 3.0 Transmission Workflows
- Engineering, IT, and Virtualization, Oh My!
- Evolving Technology - High Dynamic Range
- How to Create a Successful Podcast Series
- HTML graphics for live television production
- Media Manager API: The Things It Can Do
- Media Manager Workshop
- Podcast Tips and Best Practices
- Quick & Dirty Web Accessibility Testing
- Redefining myPBS
- Report on IP Video deployment - An assessment of the merits and technical challenges learned from real world deployments of uncompressed IP media solutions into multiple functional workflows
- Saving Lives and Protecting Communities: The Future is NOW at Houston Public Media
- siX 101 Placeholder Session for engineering & traffic
- siX 102 Session Placeholder - engineering and traffic
- TAC Closing Session
- The Vietnam War - Lessons Learned
- Though we may be little, we are FIERCE! Rapid Bento 3.0 building and deployment methods for small PBS stations.
- VR. AR. 360. for the PBS masses?
- Why Can't We Just Use iPhones?

Professional Development

- 360 Video: No, This is Not 3D TV
- Another Day in the Life
- Change is Mandatory... Stress is Optional
- Choose Your Own Adventure! A Digital Innovation Odyssey
- From Awkward to Awesome: Surviving & Thriving at Networking Events
- Innovating People: A Formal Approach to Change Management for Media Organization Technology Initiatives
- Listen Up! How to Be an Ally to Women in the Workplace (WT)
- Now What? A Crash Course in Leadership
- Professional Development- Raising Your Visibility and Working Well with Others
- TAC Closing Session
- TAC opening session
- The Playbook: Digital Culture Acceleration at Your Station
- Why good projects fail anyway
- Women in Technology - A Discussion with Women in Tech
- Women Who Speak Geek

Public Safety

- Saving Lives and Protecting Communities: The Future is NOW at Houston Public Media

Regulatory



- Impact of Speech to Text on Closed Captioning workflows
- Washington Regulatory and Legislative Update

Station Tools

- Break Structure Priority Workflow
- Challenge Accepted! We'll solve your thorny digital problems
- Curate's Updated and Better Than Ever: A Workshop
- Innovating People: A Formal Approach to Change Management for Media Organization Technology Initiatives
- Maximizing Your Reach and Impact with Social Video
- Media Manager API: The Things It Can Do
- Now What? A Crash Course in Leadership
- PBS Digital Studios: Platform Optimization for Developing Audiences
- Redefining myPBS
- Station Opportunities: The Great American Read
- STEAL THIS IDEA CONCURRENT SESSION
- TAC Closing Session
- Though we may be little, we are FIERCE! Rapid Bento 3.0 building and deployment methods for small PBS stations.
- Traffic Workflow I-Interstitials: Ingest through Log Placement
- Vietnam In a Word | Activating Local Audiences with User Generated Content

Strategy

- A Lot With A Little
- Break Structure Priority Workflow
- Building a Digital Network
- Change is Mandatory... Stress is Optional
- Curate's Updated and Better Than Ever: A Workshop
- Digital Transformation Through Data
- Facebook Crossposting
- Great British Baking Show: Case Study
- How to Create a Digital Publishing Product and Strategy at Your Station
- Making ATSC 3.0 Work For You
- Managing Digital Interns: 10 Ways to Transform Your Intern From A Time Suck to A Time Saver
- Now What? A Crash Course in Leadership
- PBS TV Translator Relocation and Grant Program: Strategies for Success
- Rapid Solution Lab: Addressing Future Challenges in Family Media
- The Vietnam War - Lessons Learned
- The Vietnam War: Social Media Case Study
- Vietnam In a Word | Activating Local Audiences with User Generated Content
- VR. AR. 360. for the PBS masses?
- Washington Regulatory and Legislative Update
- Why Can't We Just Use iPhones?
- Women Who Speak Geek
- Writing for Social Media

Traffic

- Another Day in the Life
- Build, Buy or Service Agreements? - Navigating, Understanding, Evaluating and Selecting the Right Technology Options for Your Broadcast and Production Operations



- ProTrack Boot Camp
- TAC opening session
- With New Trends, Comes New Workflows

Trends & Future Tech

- 360 Video: No, This is Not 3D TV
- All the Moving Parts: A Live Look inside ST 2110 & AMWA NMOS
- ATSC 3.0 Ready – Designing Antennas for Higher OFDM PAPR
- Build, Buy or Service Agreements? - Navigating, Understanding, Evaluating and Selecting the Right Technology Options for Your Broadcast and Production Operations
- Choose Your Own Adventure! A Digital Innovation Odyssey
- Data visualization tools and how to use them.
- How to do a Successful 3-Way Channel Share
- Know Your Users: User Testing On A Budget
- Machine learning techniques applied to evaluating picture quality
- MXF with AAC for next-generation interconnect
- Podcast Tips and Best Practices
- Rapid Solution Lab: Addressing Future Challenges in Family Media
- Report on IP Video deployment - An assessment of the merits and technical challenges learned from real world deployments of uncompressed IP media solutions into multiple functional workflows
- Saving Lives and Protecting Communities: The Future is NOW at Houston Public Media
- SMPTE 2110-10/20/30 with John Mailhot
- The Future is Closer than You Think: New Businesses Made Possible by ATSC 3.0
- Transformers – How the IP compressed world will meet the IP uncompressed world
- Understanding the Transition from Appliances to Virtualized Infrastructure
- With New Trends, Comes New Workflows

