PERSONALIZING THE CONSUMER EXPERIENCE

INTERACTIVE AND PERSONALIZED FEATURES

MARK CORL, TRIVENI DIGITAL
GREG JARVIS, FINCONS
SO VANG, NAB
PETE VAN PEENAN, PEARL TV
PRODUCTION BROADCAST APPS

WHAT’S POSSIBLE!
Produced by SMPTE and SBE with support from the NAB and ATSC

and the support of our host, WETA Television
Event Recording courtesy of the following sponsors:

telestream  Panasonic
With the support and generosity of the following sponsors:
THANK YOU TO THE SMPTE DC, SBE AND NAB TEAM MEMBERS WHO PRODUCED THIS EVENT

Fred Willard  Univision
Rick Singer  Singer Media Engineering
Skip Pizzi  NAB
Tom Hackett  Diversified Systems
Melissa Davis  Evertz
Louise Shidler  Chesapeake Systems

Maciej Ochman  CPB
James Snyder  US Library of Congress
Nephi Griffith  BMG
Greg Smalfelt  Ch 16 Fairfax
Alex Snell  BCI Digital
Peter Wharton  Happy Robotz

WITHOUT THEIR VOLUNTEER EFFORTS THIS SUMMIT WOULD NOT BE POSSIBLE
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<thead>
<tr>
<th>Morning Program</th>
<th>Afternoon Program</th>
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<tbody>
<tr>
<td><strong>8:00 AM - 9:00 AM</strong></td>
<td><strong>01:25 PM - 01:45 PM</strong></td>
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<tr>
<td>Registration and continental breakfast</td>
<td>Protecting the NextGen TV Consumer</td>
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<tr>
<td><strong>8:55 AM - 9:00 AM</strong></td>
<td><strong>01:45 PM - 02:15 PM</strong></td>
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<tr>
<td>Welcome from SMPTE, SBE and AES</td>
<td>Monetizing the NextGen TV Consumer</td>
</tr>
<tr>
<td>Kishore Persaud, SBE Baltimore</td>
<td>Addressable Advertising and Analytics</td>
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<tr>
<td>Fred Willard, SBE Washington</td>
<td>Rick Ducey &amp; Mark Fratik, BIA</td>
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<tr>
<td><strong>9:00 AM - 9:05 AM</strong></td>
<td><strong>02:20 PM - 03:20 PM</strong></td>
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<tr>
<td>Peter Wharton, SMPTE Membership VP</td>
<td>Personalizing the Consumer Experience</td>
</tr>
<tr>
<td>Chris Lane, Chief Engineer, WETA</td>
<td>Interactive and Personalized Features</td>
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<tr>
<td><strong>9:05 AM - 9:35 AM</strong></td>
<td><strong>03:25 PM - 03:40 PM</strong></td>
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<tr>
<td>Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors</td>
<td>Afternoon Break</td>
</tr>
<tr>
<td>Madeleine Noland, President, ATSC</td>
<td><strong>03:40 PM - 04:10 PM</strong></td>
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<tr>
<td><strong>9:35 AM - 10:00 AM</strong></td>
<td>Mobile &amp; Automotive Applications and FeMBMS (5G Broadcast)</td>
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<tr>
<td>Creating New Opportunities with NextGen TV</td>
<td>Thomas Janner, Product Management &amp; R&amp;D Director, Rhode &amp; Schwarz</td>
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<tr>
<td>Joonyoung Park, VP and Fellow, DigiCAP</td>
<td><strong>04:10 PM - 04:35 PM</strong></td>
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<tr>
<td><strong>10:00 AM - 10:35 AM</strong></td>
<td>The ATSC 3.0 Roadmap</td>
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<tr>
<td>Improved Television Reception for Consumers</td>
<td>Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors</td>
</tr>
<tr>
<td>Implementing NextGen TV Distribution Systems</td>
<td>Madeleine Noland, President, ATSC</td>
</tr>
<tr>
<td>John Lynch, ERI</td>
<td><strong>04:35 PM - 5:00 PM</strong></td>
</tr>
<tr>
<td>Jeff Andrew, Osborn Engineering</td>
<td>The Consumer Technology Roadmap</td>
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<tr>
<td><strong>10:35 AM - 11:15 AM</strong></td>
<td><strong>05:00 PM - 6:00 PM</strong></td>
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<tr>
<td>Benefits of a Converged Broadcast and IP Platform</td>
<td>Station Group and Industry Deployment Plans</td>
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<tr>
<td>Content Reception Enhancements</td>
<td>Advanced Capability Implementation Strategies</td>
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<tr>
<td>Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors</td>
<td>Skip Pizzi, VP Technology Education &amp; Outreach, NAB (Moderator)</td>
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<tr>
<td>Richard Lhermitte, VP Solutions and Market Dev, ENENSYS TeamCast</td>
<td>Michael Bouchard, VP Technology Strategy, ONE Media / Sinclair</td>
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<tr>
<td><strong>11:15 AM - 11:30 AM</strong></td>
<td>Stacey Decker, CTO, Public Media Group</td>
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<tr>
<td>Morning Break</td>
<td>Sasha Javid, COO, The Spectrum Co</td>
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<tr>
<td><strong>11:30 AM - 11:50 AM</strong></td>
<td><strong>5:00 PM - 6:00 PM</strong></td>
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<td>Consumer Applications for Combined 5G &amp; NextGen TV Networks</td>
<td>Station Group and Industry Deployment Plans</td>
</tr>
<tr>
<td>Josh Arensberg, M&amp;E Business Development, Verizon Media</td>
<td>Advanced Capability Implementation Strategies</td>
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<td><strong>11:50 AM - 12:15 PM</strong></td>
<td><strong>6:00 PM - 8:00 PM</strong></td>
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<td>Case Study: Hybrid Services at &quot;Chicago 3.0&quot;</td>
<td>Cocktail Reception Busboys and Poets</td>
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<tr>
<td>Jean Macher, Harmonic</td>
<td>4251 S. Campbell Ave., Shirlington</td>
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<tr>
<td><strong>12:15 PM - 01:20 PM</strong></td>
<td>4:00 PM - 6:00 PM</td>
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<tr>
<td>Buffet Lunch</td>
<td>Madeleine Noland, President, ATSC</td>
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<tr>
<td><strong>01:25 PM - 01:45 PM</strong></td>
<td>Lynn Claudy, SVP Technology, NAB and Chairman, ATSC Board of Directors</td>
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<td><strong>5:00 PM - 6:00 PM</strong></td>
<td><strong>6:00 PM - 8:00 PM</strong></td>
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<td><strong>6:00 PM - 8:00 PM</strong></td>
<td><strong>7:00 PM - 9:00 PM</strong></td>
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THE FINCONS GROUP
MEDIA PLATFORM SYSTEMS INTEGRATOR

• We design, build and manage Media Platforms & Apps – Hybrid TV, OTT...
• In production using HbbTV, translated to US market 2018 w/ATSC 3.0
• Active member of ATSC
• 37 yr old, 1500+ employees
ATSC 3.0 APP DEVELOPMENT EVOLUTION
PROOF OF CONCEPT DEVELOPMENT IN 2018 TO FULLY FUNCTIONAL APPS IN 2019
SIMPLY PUT, IT’S A BROWSER...
INTRODUCTION TO BROADCASTER APPS

- Smart TV’s have a browser that allows for HTML5 code overlaid on the video
- A new page, or “App”, is loaded with each new channel
- The data comes from both the broadcast feed and a broadband connection
HYBRID TV – NOW...
CORE FUNCTIONALITY IN-MARKET NOW, AND FORESEEN ATSC 3.0 LAUNCH

MONETIZATION

Display Advertising

Video Advertising

USER ENGAGEMENT

Program Navigation

Video on Demand
HYBRID TV – ... NEXT
ADVANCED TECHNOLOGY LIKE AI/ML: ENABLING A NEW INTERACTIVITY SERVICES

Contextual Ads
Augmented Overlay
Smart Watching
Contests and Betting
eCommerce
Smart Watching
All Apps and media platforms built with ATSC 3.0 standard

1. Fundamental navigation and basic Addressable Advertising
2. Advanced Personalization Use Case using AI
3. Event’s - build up prior to event and then during event
4. Contests (and potentially betting)
NEXTGEN TV APPS by Fincons

Platform and App development using ATSC 3.0

Greg Jarvis, EVP & GM
Fincons.US, Inc.
greg.jarvis@finconsgroup.com
A LITTLE MORE DETAIL

The technical landscape

**BROADCAST**

- Frame level sync of Real-time data (e.g. Scores, Polls)
- Dynamic metadata to enrich programs (e.g. Notifications)

**INBOUND:**
- Broadcasted stream
- ATSC App injection
- Metadata provisioning
- PUSH VOD Catalog

**OUTBOUND**
- User data
- Analytics/Profiles
- Viewer Interaction

**BROADBAND**

**INBOUND:**
- Wide set of metadata
- PUSH/PULL VOD Catalog
- ADV integration

**OUTBOUND**
- Frame level sync of Real-time data (e.g. Scores, Polls)
- Dynamic metadata to enrich programs (e.g. Notifications)
- Extended provisioning of data, Linear streams and VOD content
- 2-way communications
- Ability to provide a rich User Experience

**HTML5 Application**

**Overlaid browser**

**Stream**
IN PRODUCTION HBBTV: LOVES TV – SPAIN
LESSONS LEARNED AND CHALLENGES AHEAD

Challenges:
- Reach
- Awareness
- User experience
- Interoperability
- Business
- Evolution

User experience
- The easier the better:
  1/4 of videos played are start over
- Start time is important, end time even more
- Content is the king, all of it.

Interoperability:
- IoT LAB
- >80 SmartTVs
- Versions management: Apps & devices
- Compromise needed: reach vs evolution

Business
- Digital Ads
- Content/Time triggered Ads
- Disclaimers

Evolution:
- New ways for content discovery
- New ways to access the service
- New ways to get more engagement
IN PRODUCTION HBBTV: LOVES TV – SPAIN
LESSONS LEARNED AND CHALLENGES AHEAD

User Experience

5 Mln TV sets
430K Users Mo

Easier the better,
¼ of videos are start over

Compromise needed:
reach vs evolution

Content/Time Triggered Ads

Evolution: New ways to get more engagement
IN PRODUCTION HBBTV: MEDIASET – ITALY
LESSONS LEARNED AND CHALLENGES AHEAD

NEW INTERACTIVE ADVERTISING MODELS
- Interactive & Addressable TV Advertising (Bundled)
- Display and Video Advertising (Bundled)
- Dynamic AD Replacement (Premium)

USER ENGAGEMENT: “OBSESSIVE” TRIALS
- EPG, VOD, Catchup
- Restart and Real-Time Highlights
- Virtual Channels, Multi-camera
- Voting and Participation
IN PRODUCTION HBBTV: MEDIASET – ITALY
LESSONS LEARNED AND CHALLENGES AHEAD

NEW INTERACTIVE ADVERTISING MODELS

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TECHNOLOGY: HIGH LEVEL VIEW

View of the components needed for a rich broadband offering
New needs not fully covered by software management tools on the market

- Interactive TV apps introduce a constantly changing TV environment:
  - Direct editorial control of the app UI/UX without the need of software development
  - Maintain application quality
- Multiple content and app platforms need to be managed (local, national, OTT, etc):
  - Flexible models
  - Use automation to simplify Tech complexity
FINCONS SMART DIGITAL PLATFORM (SDP)

Highlights of Production Tools suite

Smart Digital Platform

Video & Metadata

Ingestion & Management

App Production & Publishing

Data Analytics Service

Targeting & Personalization

Broadcaster App SDP/Custom

App Framework

OEM ATSC 3.0 Embedded Core Software

TV Receiver
MANAGING "ON PREMISE" AND CLOUD MEDIA SERVICES THROUGH WORKFLOW MANAGEMENT TO OPTIMIZE EXISTING INFRASTRUCTURE AND OFFLOAD TO CLOUD SERVICES WHEN REQUIRED, REDUCING OPERATIONAL COSTS
APP DESIGNER & WORKFLOW ORCHESTRATOR
Back office tools used by Production Team

APP NAV CONFIGURATION

FEATURE MANAGEMENT

DISPLAY ADVERTISING

WORKFLOW ORCHESTRATION

MONITORING
PRODUCTION TEAM

Example of tasks & team size in Production today for HbbTV

Digital Team of 4 (P/T):
1. Editorial
2. Production
3. Ad Sales
4. Ad Production

* Mediaset 2019
FROM THE SMPTE WASHINGTON DC SECTION

THANK YOU