

# ***Interoperability Events Updates and NAB IP Showcase***

VSF Meeting  
PBS  
Arlington, VA  
May 15 – 16, 2019

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# JT-NM Tested & NAB IP Showcase Pre-staging Event

- **Location:** Fox NE&O (Disney) Houston, TX
- **Dates:** March 18 to 22, 2018
- **Sponsor:** JT-NM
- **Administered by:** EBU and IRT
- **Purpose:**
  - JT-NM Tested Program
    - Snapshot in time of how vendor equipment conforms to key parts of ST 2110 and ST2059
  - Pre-stage Equipment for NAB IP Showcase
- **Participants:**
  - Attendees – 90 people
  - Participating Companies – 50
    - Adeas/Nextera, AJA, Arista, Artel, BBC, Bridge Technologies, Calrec, Cisco, Cobalt, Dalet, Direct Out, Diversified, EBU, EEG, Embrionix, EVS, Gefei, Grass Valley, Harmonic, IRT, Imagine Communications, Leader Electronics, Macnica ADT, Macnica Technology, Matrox, MediaKind, Meinberg, Mellanox, National TeleConsultants, NEC, NetInsight, Nevion, PacketStorm Communications, Pebble Beach Systems, PESA, PHABRIX, Riedel, Ross Video, Sony, Stage Tec, Studio Technologies, Sumavision Technologies, TAG, Tektronix, Telecom Product Consultant, Telos Alliance, Vizrt, Ward-Beck Systems, Yamaha

# JT-NM Tested Experts Group

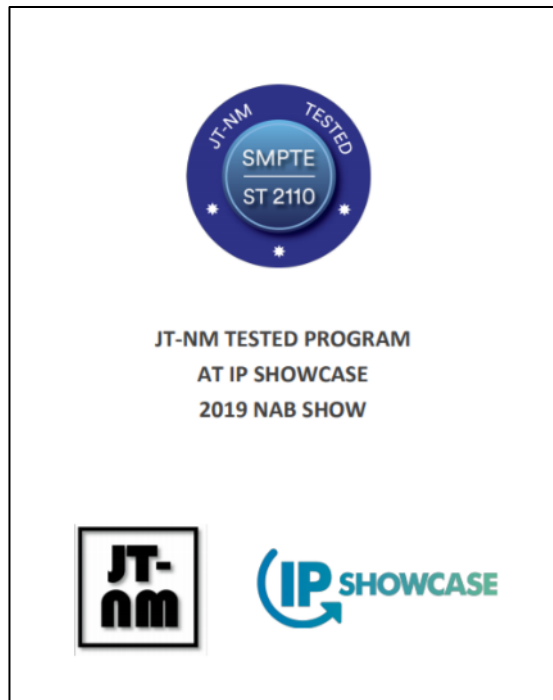


Test Plan was prepared by the JT-NM Tested Experts Group:

- Alun Fryer (Ross Video)
- Andy Rayner (Nevion)
- Bill McLaughlin (EEG)
- Felix Oberhardt (IRT)
- Franz Baumann (IRT)
- Ievgen Kostiukevych (EBU)
- Jack Douglass (PacketStorm Communications)
- Jean Lapierre (Matrox)
- John Mailhot (Imagine Communications)
- Leigh Whitcomb (Imagine Communications)
- Mike Overton (Tektronix)
- Mike Waidson (Tektronix)
- Pedro Ferreira (Bisect)
- Robert Welch (Arista Networks)
- Serge Grondin (Grass Valley)
- Sonja Langhans (IRT)
- Thomas Kernen (Mellanox Technologies)
- Willem Vermost (EBU)

# JT-NM Tested Program

Snapshot in time of how vendor equipment conforms to key parts of ST 2110 and ST2059



JT-NM Tested Program Catalog



Badge for participating vendors equipment

# JT-NM Tested Program Participants

72 products from 35 vendor products tested



# JT-NM Tested Program Contributors



ARISTA



**BRIDGE**



**Tektronix®**

# Tests Performed

## General Tests

Network connectivity, PTP timing, IGMPv3 (join and leave multicasts) and SDP (device's I/O configuration) files

## SMPTE ST 2110-20

Receive and transmit video, including SMPTE ST 2110-21 buffering support and video free of artifacts

## SMPTE ST 2110-30

Receive and transmit audio, including no audible artifact being heard

## SMPTE ST 2110-40

Ancillary data support, including DID/SDID support, caption presence and no stream payload errors

## SMPTE ST 2022-7

Seamless protection switching, including sending audio, video & data, and receiving audio, video & data with 25% errors

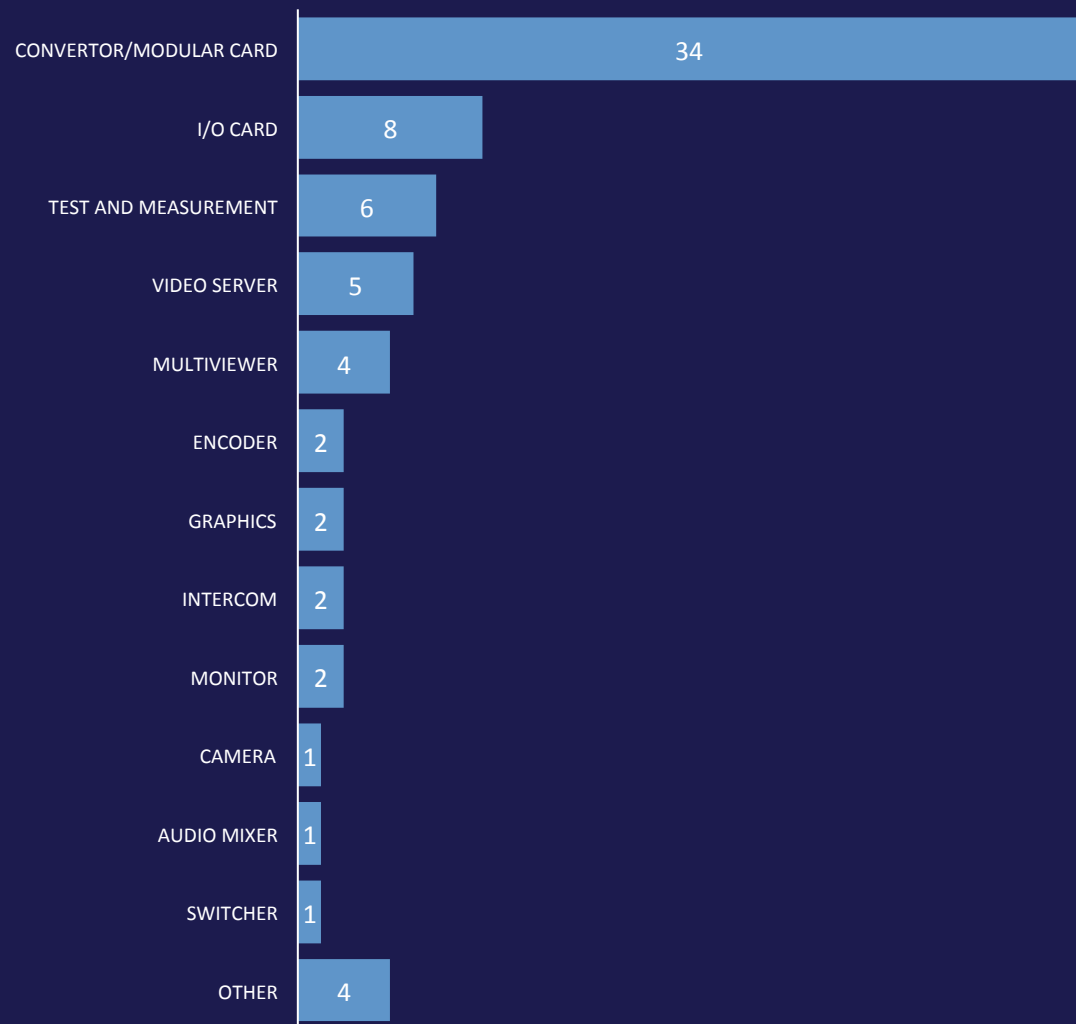
# JT-NM Tested Program Test Plan v.1.3



1. General Network Interface Tests
  - Management Network Interface Test
  - Media Network Interface Test
2. Media Network Related Tests
  - Basic PTP Configuration Test
  - Manual PTP Configurability Test
  - BMCA Master/Slave Test
  - One Step/Two Step Master Lock Test
  - Basic Multicast Configuration Test
  - Extended Multicast Range Configurability
3. ST 2110-10 Tests
  - IGMPv3 Test for a Receiver
  - SDP Verification for a Sender
4. TX – ST 2110-20 Tx Tests
  - Stream Basic Test Tx
  - Stream Visual Validation Tx
  - ST2110-21 Profile Sender Compliance Test Tx
  - RTP-Timestamp-Test
4. RX – ST 2110-20 Rx Tests
  - ST2110-21 Profile Receiver Compliance Test Rx
  - Stream Visual Validation Rx
5. TX – ST 2110-30 Tx Tests
  - Stream - Basic Test
  - Stream - Audible Validation Tx
  - RTP-Timestamp-Test
5. RX – ST 2110-30 Rx Tests
  - Stream – Audible Validation Rx
6. TX – ST 2110-40 Tx Tests
  - Stream -40 Validation Tx
6. RX – ST 2110-40 Rx Tests
  - Stream -40 Validation Rx
7. ST 2022-7 Tests (Hitless)
  - Stream - Basic Test Tx
  - Stream - Basic Test Rx
  - Redundancy Test



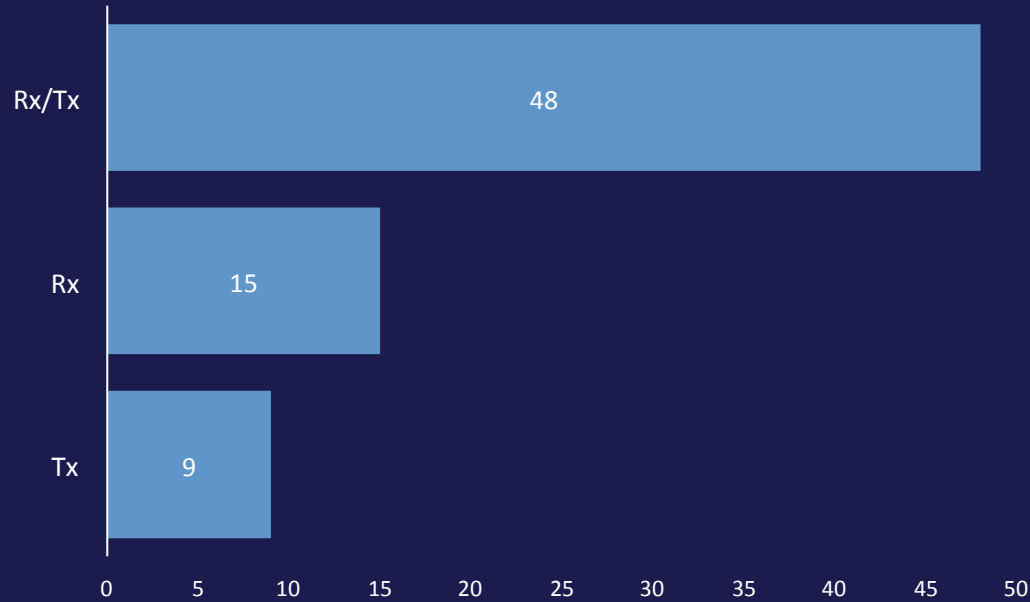
# Product Categories Tested



72 products were tested

Products covering all the key areas important to production and playout workflows

# Receivers & Transmitters

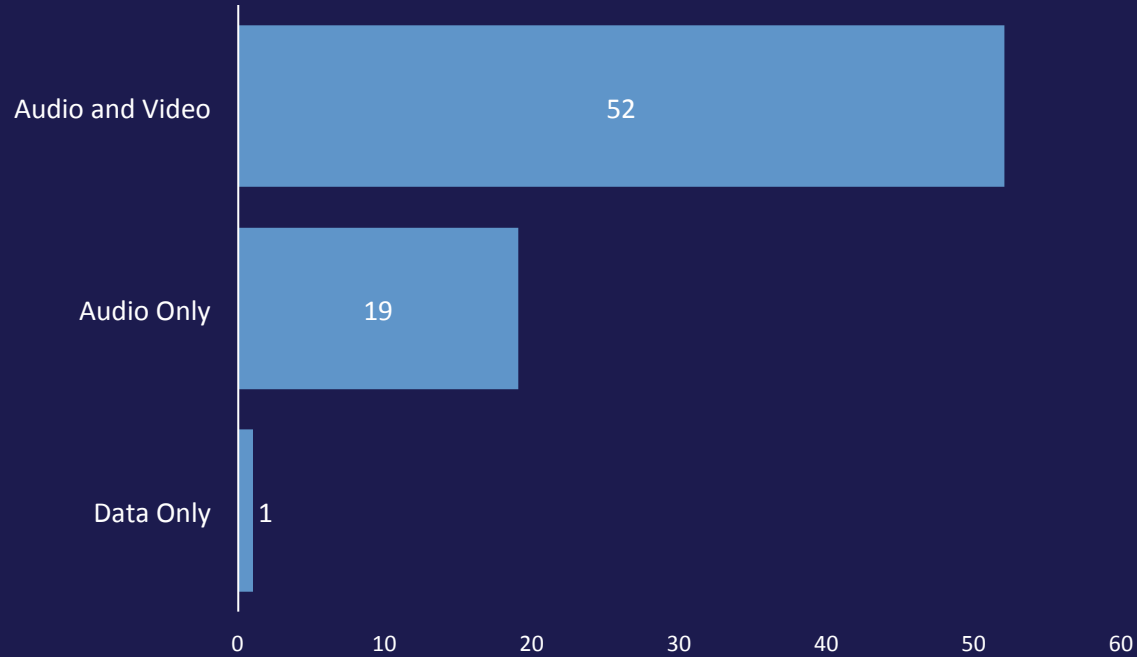


The majority of products could receive and transmit SMPTE ST 2110

Receive only products were made up of convertors, test and measurement, multiviewer and monitoring products

Transmit only products were primarily convertors

# Audio, Video & Data



Most products supported audio, video and ancillary data services

A substantial number of audio only products were tested and were convertors, monitoring, intercoms and mixers

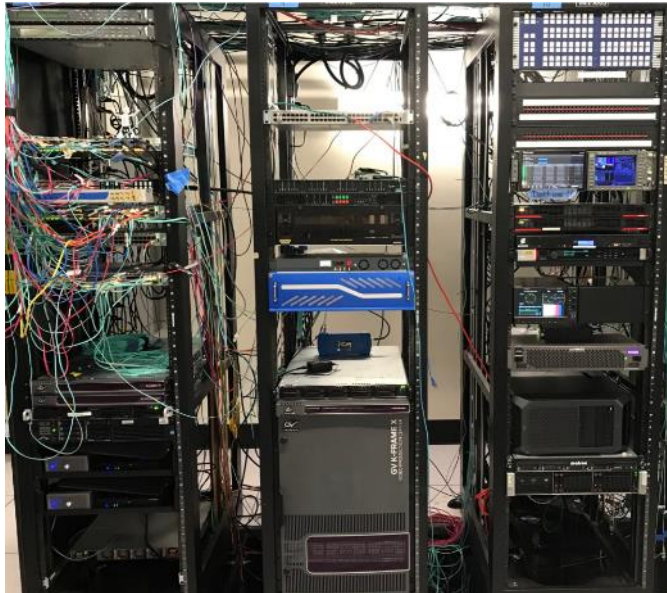
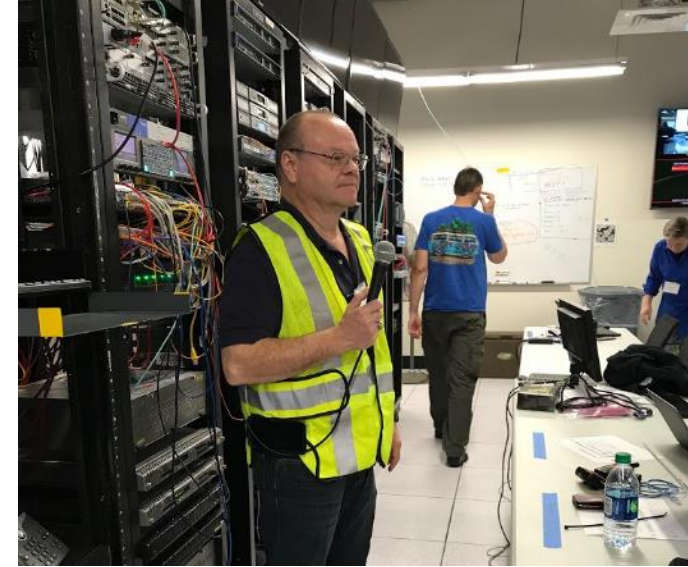
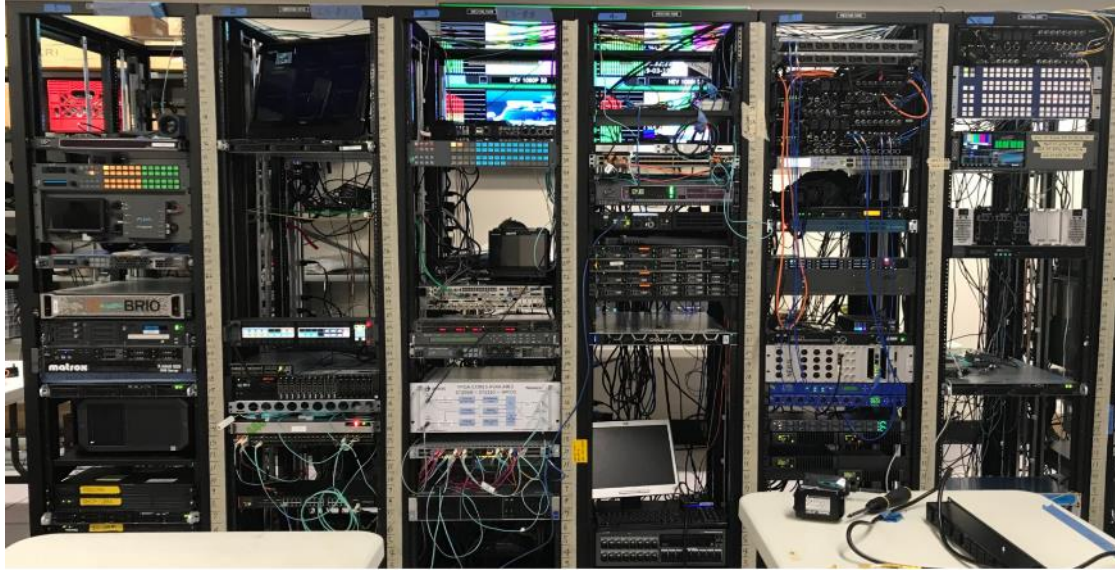
There was one data only product for caption insertion

# JT-NM Tested and NAB Prestaging Event





# JT-NM Tested and NAB Prestaging Event



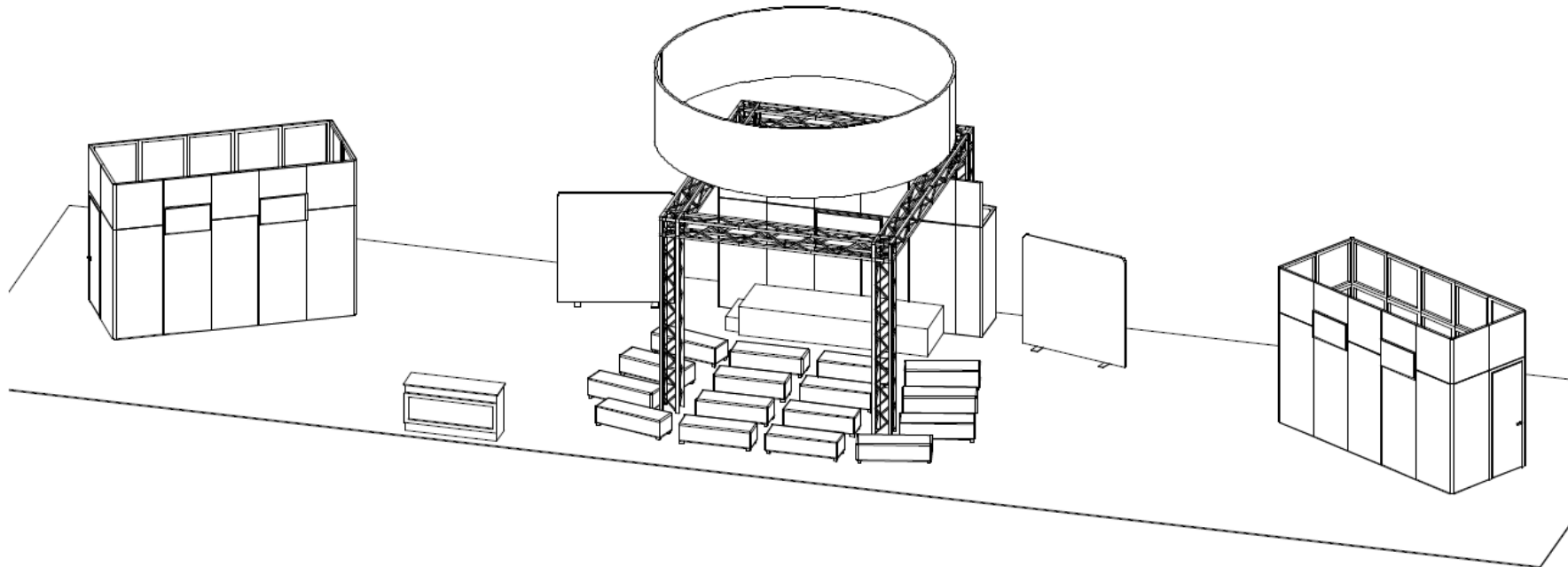
# Future Workshops and Events

- IBC 2019 Pre-stage Event and JT-NM Tested Event (TBD)
  - Dates: Early August (TBD)
  - Location: Germany (TBD)
- IBC 2019 IP Showcase (TBD)
  - Dates: Sept 13 to Sep 17, 2019
  - Location: RAI Amsterdam

# NAB IP Showcase

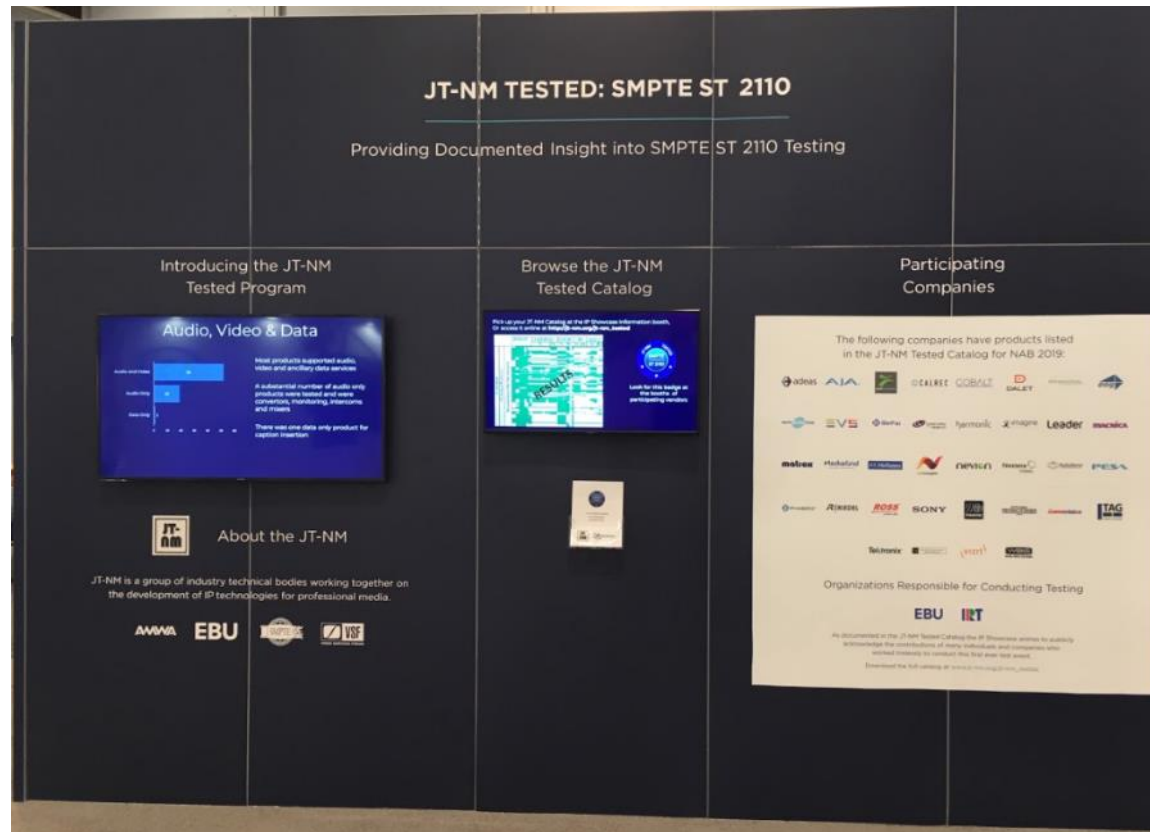


- Five Technology Demonstrations
  - AMWA IS-07 Event/Tally Transport
  - AMWA IS-08 Audio Channel Mapping
  - JT-NM TR-1001-1 Systems Recommendations
  - AMWA BCP-003 Security Practices
  - AMWA BCP-002 Natural Grouping
- Theater





# NAB IP Showcase



## Participating Companies

The following companies have products listed in the JT-NM Tested Catalog for NAB 2019:











## Organizations Responsible for Conducting Testing

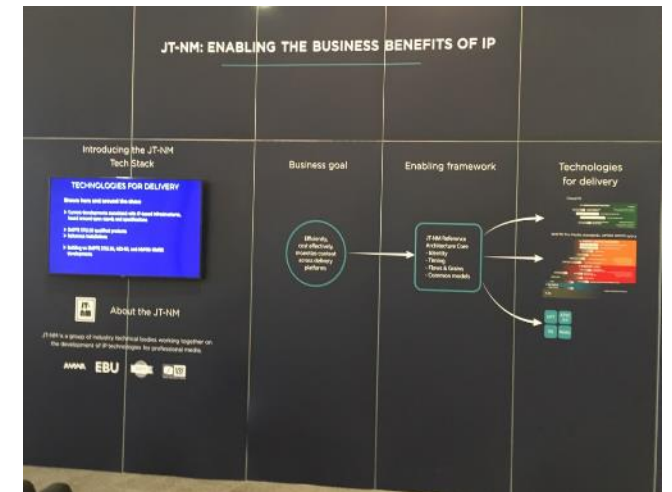
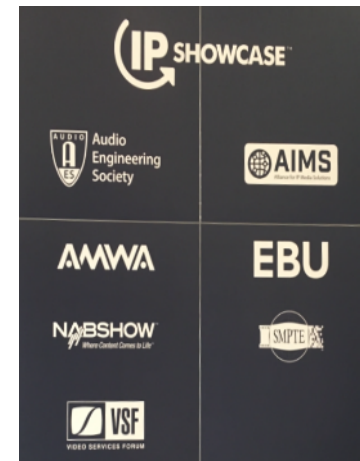


As documented in the JT-NM Tested Catalog the IP Showcase wishes to publicly acknowledge the contributions of many individuals and companies who worked tirelessly to conduct this first ever test event.

Download the full catalog at [www.jt-nm.org/jt-nm\\_tested](http://www.jt-nm.org/jt-nm_tested)



# NAB IP Showcase

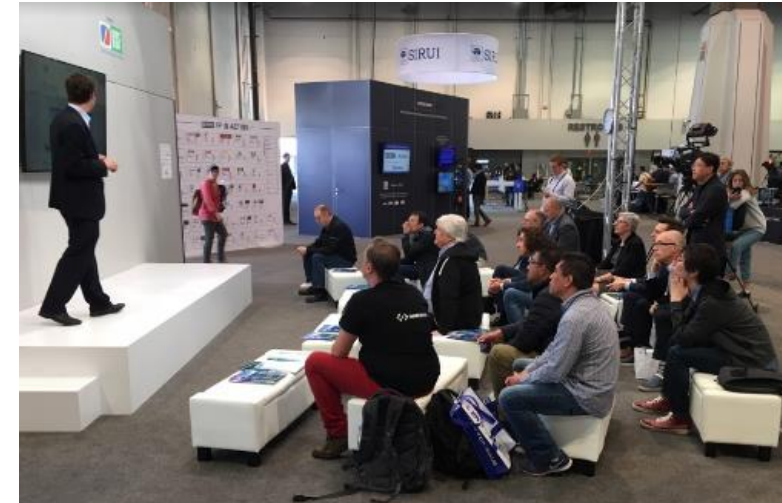


# NAB IP Showcase Theater

- Call for Presentations issued Feb. 6, 2019, open until March 6
  - 63 Presentation proposals submitted
- 45 presentations accepted
  - 2 panel discussions (Matthew Goldman, Tony Orme)
  - 6 case studies
  - 1 basic tutorial (repeated 3 times)
  - 36 half-hour presentations
- Theater hours – 27 hours total
  - Each day - half hour after show open and half hour before show close



# NAB IP Showcase Theater



# Theater Observations

- Call for Papers window was only 1 month
  - This needs to be extended for future shows
- All Case Studies were outside USA
  - Also a majority of presenters from outside USA
- Tutorials were best attended sessions
  - Test + Measurement sessions also did well
- Presentations close to closing time were poorly attended

# Videos and PDFs

- Pre-test in Houston very useful
  - Editing time/cost cut by over 50%
  - All videos completed much more quickly
- Lighting much better than in Amsterdam
- PDFs and Videos are complete
  - VSF Channel on YouTube
  - Links from VSF website
  - Links from AIMS website
- Need to use non-interlaced cameras in future



# Videos and PDFs Now Online



[FIND US NOW AT VSF.TV](#)

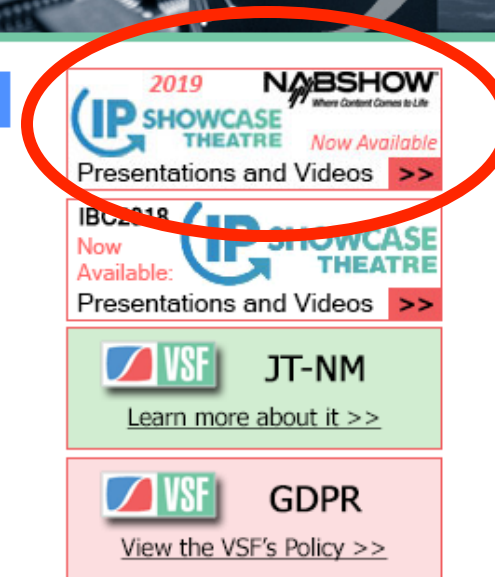
## Enabling Media Networking Solutions

The VSF is an international association comprised of service providers, users and manufacturers dedicated to interoperability, quality metrics and education for media networking technologies. The organization's activities include:

- providing forums to identify issues involving the development, deployment, operation, and security of media networking technologies
- promoting interoperability by contributing towards the development of Standards

## Contacts

If you would like more information on the Video Services Forum or would like to be added to our mailing list, you may [email us](#) or call us at 609-410-6767.



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## Upcoming Events:

**[VSF May Meeting](#)**  
May 15 & 16, 2019  
Arlington, Virginia, USA  
Hosted by PBS

## Past Events Info:



# Full IP Showcase Calendar Online



NAB Show 2019 IP Showcase Theatre

Click on schedule listings below to access presentation PDFs and Videos.



Monday, Apr. 8	Tuesday, Apr. 9	Weds, Apr. 10	Thurs, Apr. 11
	 Implementing AES67 and ST 2110-30 in Your Plant (Wheatstone)	 AMWA BCP-003 - NMOS API Security (BBC R&D)	 The Basics of SMPTE ST 2110 in 60 Minutes (Telecom Product Consulting)
	 <a href="#">AES67 and ST 2110-30 Interoperability in Real Life (DirectOut)</a>	 NMOS API Authorization - How to Lock My Media Streams (Riedel)	
 The Basics of SMPTE ST 2110 in 60 Minutes (Telecom Product Consulting)	 Current Status of ST 2110 over 25 GbE (M3L)	 Scalability and Performance of IS-04 and IS-05 and How TR-1001-1 Helps (Sony Europe)	 Live Closed Captioning and Subtitling in SMPTE 2110-40 (EEG)
	 Utilizing ST 2110 in ProAV Applications (PESA)	 Securing Your Live IP Production Workflows - Freeing Your Creativity (Arista)	 Network Automation Using Python and Google Sheets (EBU)
 A Simple Description of SDP in SMPTE ST 2110 (Embrionix)	 Audio Handling in an IP Studio Environment (Nevion)	 NMOS IS-07 - GPI Replacement and Much, Much More... (Pebble Beach)	 Transporting ST 2110 Over WAN Update (Nevion)



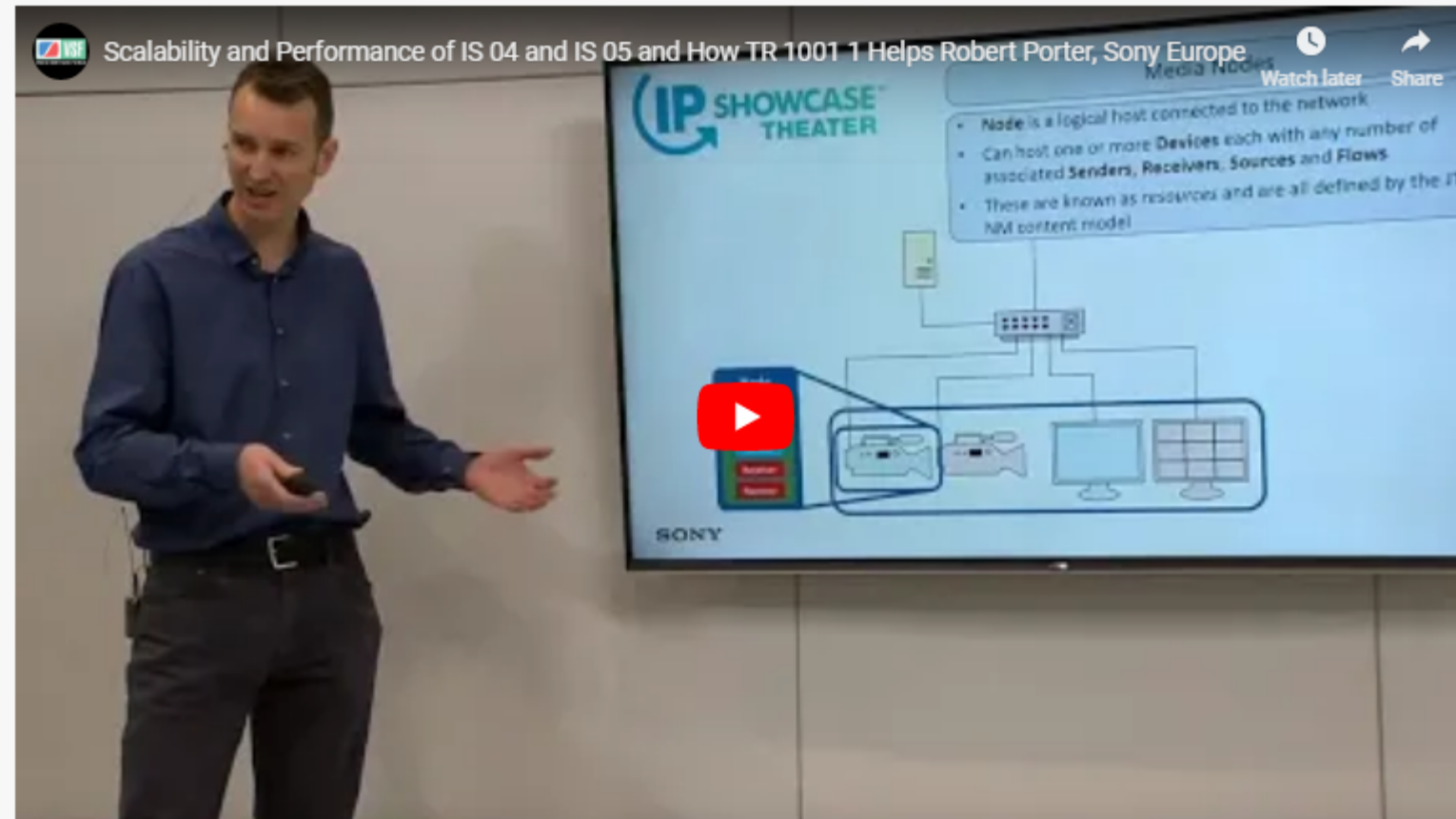
# Scalability and Performance of IS-04 and IS-05 and How TR-1001-1 Helps

CLOSE

Robert Porter and Gareth Sylvester-Bradley, Sony Europe

 [Get PDF from this session](#)

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## Typical Schedule Item



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