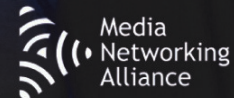




# Live Production with SMPTE ST 2110 & AMWA IS-04





# LIVE PRODUCTION HAS STRINGENT REQUIREMENTS

- Low Latency
- 100's of signals
- Real-time responsiveness
- Separate video & audio manipulation



SMPTE ST 2110 meets these requirements...in IP



# BENEFITS OF IP IN LIVE PRODUCTION

- Scalability
- Redundancy
- Resource Sharing
- Format Flexibility

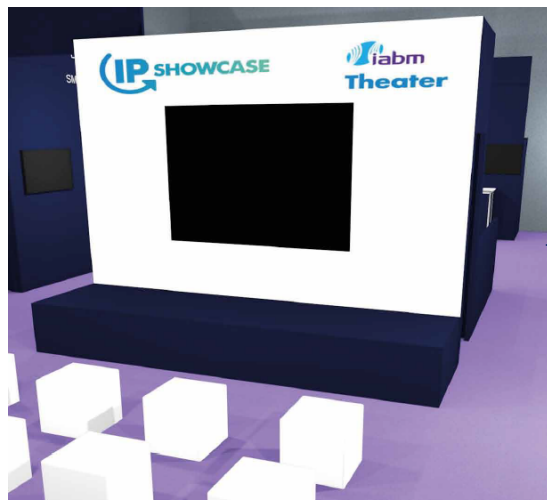


Systems are already on-air today that exceed SDI systems in respect to these benefits

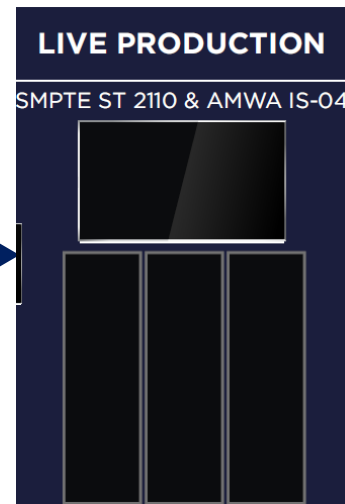


# TODAY'S DEMONSTRATION

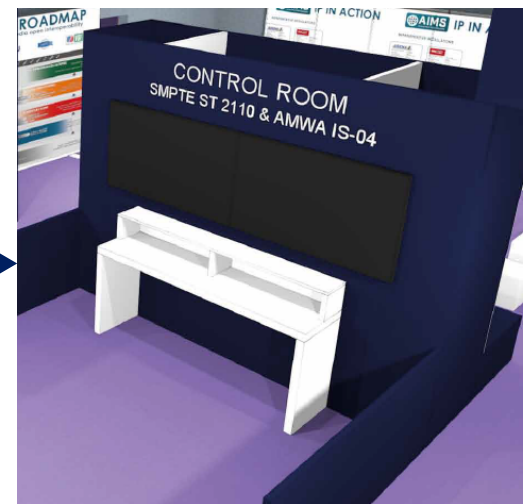
- A fully functional live production system using 100% SMPTE ST 2110 signals as well as AMWA IS-04 Registration and Discovery



Set



Equipment Room



Control Room

**100%  
SMPTE ST 2110**

# TODAY'S DEMONSTRATION

- A fully functional live production system using 100% ST 2110 signals
  - Vision Mixer
  - Audio Console
  - Two Main IP Multiviewer Screens
  - Two Cameras
  - IP Showcase Theater Stage Audio
  - Presentation Screen Video from Stage
  - Character Generator
  - Live Graphics
  - Replay / SloMo
  - Audio Monitoring
  - Waveform / Network Monitoring
  - Intercom (fixed and wireless)
  - Tally Integration

**100%  
SMPTE ST 2110**

...with AMWA IS-04 Registration & Discovery simplifying system integration



# SMPTE ST 2110 BASED PRODUCTION IS HERE

## REPRESENTATIVE INSTALLATIONS\*



### OB X, OB Y, OB Z, OB 12 UHD OB TRUCKS

based in Surrey, UK

#### DESCRIPTION

4 Full IP, UHD OB Trucks  
32 UHD Cameras each  
Used by BT Sport for English Premier League coverage  
Used by SKY Sports for Rugby Union coverage

#### IP TECHNOLOGY

SMPTE ST 2022-6  
SMPTE ST 2110

#### IP BENEFITS

Format Flexibility (UHD/HD)  
Scale

#### ON AIR DATE

September, 2016

## Broadcast Anywhere Timeline<sup>TV</sup>



#### TIMELINE

London, UK

#### DESCRIPTION

Timeline's triple expanding,  
IP 4K HDR outside broadcast truck delivers  
large scale complex OBs simultaneously  
in uncompressed 4K  
UHD HDR and 4K UHD SDR

#### IP TECHNOLOGY

SMPTE ST 2110, ST 2022-6,  
ST 2022-7 and ST 2059

#### IP BENEFITS

Enables large scale complex OB's  
Removes traditional SDI matrix limitations

#### ON AIR DATE

May, 2017

## Linked in



### LINKED IN MULTI-CAMPUS PRODUCTION

San Francisco/Mountain View/  
Dublin/Chicago/New York

#### DESCRIPTION

Multiple production facilities which are interoperable,  
remotely managed and controlled. Control room  
which can produce shows from various venues

#### IP TECHNOLOGY

SMPTE ST 2022-6 (currently)  
SMPTE ST 2110 / AES67 (Q3 2017)  
SMPTE ST 2059 (Q3 2017)

#### IP BENEFITS

Long-term Infrastructure  
Format Flexibility

#### ON AIR DATE

June, 2016 – 2018 (various)



#### THE HUB

Sydney and Melbourne, Australia

#### DESCRIPTION

Two, centralised and resource sharing production  
centres, allowing for remote production from 29  
country wide venues

#### IP TECHNOLOGY

SMPTE ST 2110

#### IP BENEFITS

Resource sharing  
Reduced Travel Budget  
Flexibility  
Anyone Anywhere on the network

#### ON AIR DATE

March, 2018



#### TPC

Zurich, Switzerland

#### DESCRIPTION

Standards-based, uncompressed,  
IP-UHD mobile production truck

#### IP TECHNOLOGY

SMPTE ST 2110

#### IP BENEFITS

Open architecture  
Compact and flexible  
Seamlessly incorporates new  
technologies

#### ON AIR DATE

December, 2017

\*Representative live production systems using SMPTE ST 2110 which are on-air now or plan to be in the next 6 months

