

The BroadcastEngineering

DigitalReferenceGuide

A supplement to *Broadcast Engineering* magazine - DECEMBER 2011



The **#1**
technology
resource
for products
and solutions



C10HD

Big console power in a compact, simple and affordable package.



- Integrated 'Production Assistants' like Dialogue Automix and 5.1 Upmix
- Renowned SSL reliability and support
- Premium audio quality, ready for 5.1 production
- Simple to install with flexible I/O options
- Easy to operate for users of all skills levels

Take the video tour at:

www.solidstatellogic.com/C10

Get in touch

East Coast -

Steve Zaretsky | T: 1 (212) 315-1111 ext. 15 | stevez@solidstatellogic.com

West Coast -

George Horton | T: 1 (213) 249-9229 ext. 15 | georgeh@solidstatellogic.com



Broadcast Audio. This is SSL.

Solid State Logic
SOUND | | VISION

Fall in love with us.



Find yourself in love with the new SDT ARK-6 Series.

Since the beginning we have been motivated to be a step ahead of the technology and solutions in our field. This is why we have been heavily investing in Research & Development with energy and enthusiasm. Today we are proud to present the new SDT ARK-6 Series: intelligent and versatile, with DVB-T2, ISDB-T and ATSC/MH native technology, compact with TS-MPEG or T2-MI input over ASI or IP, both Linear and Non-linear adaptive pre-correction, 50V transistor technology, either air or liquid cooling options. Ranging from 2.5W RMS to 18kW RMS, the new SDT ARK-6 Series is a perfect solution to today's needs, as well as an extraordinary asset for tomorrows. The SDT ARK-6 Series, it is impossible not to love.



SCREEN SERVICE AMERICA LLC
6095 Nw 167TH Street, Suite D-10 - Miami, FL 33015
T +1 (305) 826-2212 - F +1 (305) 826-2290
Usa Toll Free 1-888-522-0012
www.screenservice.net • info@screenservice.net

RRD USA Inc
350 5th avenue, suite 3600,
New York, NY, 10118, USA
P +1-212-695-8378
www.screenservice.net • info@rrdus.com

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THE #1 TECHNOLOGY RESOURCE FOR PRODUCTS AND SOLUTIONS

The *Broadcast Engineering* Digital Reference Guide gathers all the information you need to locate products and vendors for your next project into one printed source.

You can identify vendors by product category or alphabetically. In addition, all of this information is available electronically on the *Broadcast Engineering* website. You can electronically search for vendors by name or product category in seconds. Go to www.broadcastengineering.com, and give it a try.

This year's entries are ...

The *Broadcast Engineering* Excellence Awards have become the hit of the industry as stations, networks, vendors and systems integrators all vie for top honors. This year's contest includes some of the most sophisticated and high-tech facilities ever built. Each facility is competing for your vote.

After reading the entries, go to the *Broadcast Engineering* website, and click on the Excellence Awards button. You will be taken to the voting page. Select one entry from each category as your favorite.

Complete your voting by Feb. 1, 2012.

The winning facilities will be announced in *Broadcast Engineering's* March pre-NAB issue. They also will be honored at the 2012 NAB convention.

Brad Dick

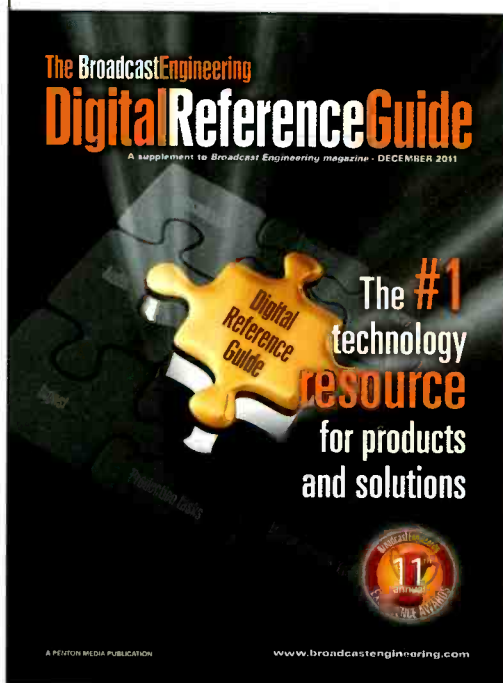
Brad Dick
Editorial Director

Readers select the winners



You choose the winners of the *Broadcast Engineering* Excellence Awards.

See page 33 for this year's entries, and look for the March pre-NAB issue to find out who the winners are!



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Convert with AJA.

Mini-Converter and Rackmount products that make professional workflows work.

FS2. One box that does it all.

FS2 Dual-channel Universal Video/Audio Frame Synchronizer and Format Converter

NEW

With support of all broadcast video formats, FS2 makes matching up disparate video and audio systems simple. Featuring a flexible, "anything-in, anything-out" architecture, the dual-channel FS2 can be used as two separate Frame Synchronizers/Format Converters, or the two channels can be combined in many powerful ways - for example 3D video or sidebar keying where both the video and background graphics can be upconverted and combined.

FS2 features comprehensive analog and digital I/O, with full input and output mapping allowing any I/O port to be assigned to either processing channel.

FS2 can also be expanded with Dolby E Encoder, Decoder and Fiber I/O options.



- Two independent channels with full I/O mapping
- Dual Up/Down/Cross converters supporting 3G/HD/SD
- General purpose video frame synchronization
- Analog-to-Digital and Digital-to-Analog audio/video conversion
- Mux or Demux two separate HD signals from one 3G SDI signal
- Convert 3G/HD/SD video over fiber to/from SDI (BNC)
- Use the built-in video processing amplifiers to adjust and/or color correct

FiDO. Compact Fiber. SDI/Optical Fiber Converters

NEW

With a compact design ideal for racks, trucks and crowded facilities, FiDO allows the transport of SDI, HD-SDI, and 3G SDI over distances up to 10km using standard single-mode Fiber optic cable with your choice of LC, ST, or SC connectors. With 9 models to choose from, FiDO offers unmatched flexibility and cost efficiency.



Hi5-Fiber. Fiber HD/SD-SDI to HDMI. HDMI Video and Audio Converter

NEW

Designed for driving HDMI monitors from a single cable connection, Hi5-Fiber converts HD/SD-SDI audio and video over single-mode 1310 nm Fiber optic cable (ST-style Fiber connector) to HDMI. Two channel RCA audio outputs for separate audio monitoring are also available.



Find out about our latest Convert products at www.aja.com



Image Courtesy of NBA D-League Optional TriCaster 850 CS Hardware Control Surface



Learn more about TriCaster at:
www.newtek.com

TAKE CONTROL



NewTek TriCaster™ 850 EXTREME is like having an HD live truck that fits in your rack or on your desk. In live production, there's no time to second guess. We get it, that's why we build TriCaster.

- Affordable 24-channel, native HD system (up to 1080p) that broadcasts, streams, projects and records
- Record up to eight channels of video, simultaneously, with NewTek IsoCorder™ technology
- Go wireless with Apple® AirPlay® to deliver video and audio from iPad®, iPod®, or iPhone®
- Eight external sources with the ability to mix and match formats
- Eight virtual/mix channels for layered switcher effects
- 18 HD, live virtual sets provide a network-style setting in a small space

Add the TriCaster 850 CS hardware control surface and have illuminated buttons, a premium T-bar and three-axis joystick mapped directly to the TriCaster 850 EXTREME workspace. Now, you can make split-second decisions with your eyes on the show and your hands at the controls.

It's time. Take control.

 **NewTek**
TriCaster™
850 EXTREME™

PRODUCT DIRECTORY

AUDIO ACCESSORIES

Acoustic materials

Acoustical Solutions, Inc
804-346-5350

Acoustics First Corp
804-342-2900; 888-765-2900

Auralex Acoustics Inc
317-842-2600; 800-959-3343

Russ Berger Design Group
972-661-5222

Audio accessories

Bittree
818-500-8142; 800-500-8142

Full Compass Systems Ltd
608-831-7330; 800-356-5844

K-Tek
760-727-0593

Audio codecs

Dolby Laboratories Inc
415-645-5000; 800-33D-OLBY

Evertz
905-335-3700; 877-995-3700

Minnetonka Audio Software Inc
952-449-6481

Audio meters

Linear Acoustic
717-735-3611

RTW
+49 221 70 913 0

Television Systems Ltd (TSL)
+44 1628 676200

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

Audio monitor amplifiers

Link Electronics Inc
573-334-4433

Mackie
425-487-4333; 800-258-6883

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556



Wohler Technologies Inc
510-870-0810

Audio patch panels

ADC
952-938-8080; 800-366-3889

Bittree
818-500-8142; 800-500-8142

Gepco Intl Inc
847-795-9555; 800-966-0069

Switchcraft Inc
773-792-2700

Acoustics First[®]
Materials to Control Sound
and Eliminate Noise[™]

Absorbers, Diffusers, Barriers and Vibration Control Materials

Toll Free **1-888-765-2900**

Web: <http://www.acousticsfirst.com>

The advertisement for Acoustics First features a yellow header with a red arrow pointing right. Below the header is a photograph of a recording studio with various acoustic treatments on the walls and ceiling. To the right of the photo are images of different acoustic materials, including a yellow foam absorber, a blue diffuser, and a black barrier. The text 'Absorbers, Diffusers, Barriers and Vibration Control Materials' is written in white on a dark blue background. At the bottom, the toll-free number '1-888-765-2900' is displayed in white on a black background, and the website 'http://www.acousticsfirst.com' is shown in white on a yellow background.



Avid



Make the Most of Your Media

Your media is your lifeblood. From it flows the two most essential elements of your business: creativity and profit.

Whether you manage a multinational broadcast facility, run a local news station, or serve as creative director of a busy post production house, you can rely on Avid to provide the most advanced, collaborative workgroup capabilities in the media industry today, including:

- Agile media management
- Affordable shared storage
- High impact, low cost news
- Integrated sports marketing

Find out more. Visit www.avid.com/makethemost

PRODUCT DIRECTORY

Headphones

Audio-Technica US Inc
330-686-2600

Clear-Com, an HME Company
510-337-6600; 800-462-4357

Riedel Communications Inc
818-241-4696

Sennheiser Electronic
860-434-9190; 877-736-6434

Speakers

Avid
978-640-6789; 800-949-2843

Mackie
425-487-4333; 800-258-6883

Yanchar Design & Consulting
Group
949-770-6601

Surround Sound accessories

Dolby Laboratories Inc
415-645-5000; 800-33D-OLBY

Enco Systems
248-827-4440; 800-362-6797

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

Wohler Technologies Inc
510-870-0810

AUDIO MIXERS

Portable mixers

Aviom Inc
610-738-9005

Azden Corporation
516-328-7500; 800-247-4501

Calrec Audio Ltd
+44 1422 842159

Mackie
425-487-4333; 800-258-6883

Sennheiser Electronic
860-434-9190; 877-736-6434

Sound Devices LLC
608-524-0625

Studio mixers

Avid
978-640-6789; 800-949-2843

Bexel
818-565-4322

Calrec Audio Ltd
+44 1422 842159

Lawo North America
416-292-0078; 888-810-4468

Mackie
425-487-4333; 800-258-6883

Salzbrenner Stageteq Mediagroup
Inc USA
888-782-4391

Solid State Logic
+44 1865 842300

Solid State Logic
212-315-1111



*Solid State Logic C100 and C10
Digital Broadcast Consoles*

With hundreds of consoles installed worldwide SSL delivers benchmark quality, intuitive operation and complete peace of mind. The C100 and C10 combine SSL's versatile I/O range, MORSE Routing and Resource Sharing, fully mirrored redundancy and unique Broadcast Production Assistants to deliver networked console solutions that can handle even the most demanding productions. www.solidstatellogic.com/broadcastsound

Studer USA Harman Pro North
America
818-920-3212

Wheatstone Corp
252-638-7000

AUDIO PROCESSING

Audio compressor/ expanders

Evertz
905-335-3700; 877-995-3700

Solid State Logic
212-315-1111

Audio effects systems

Wheatstone Corp
252-638-7000

AUDIO RECORDING

Audio playback devices

Enco Systems
248-827-4440; 800-362-6797

Audio recorders/players (ATR, MD, etc.)

Mackie
425-487-4333; 800-258-6883

Sennheiser Electronic
860-434-9190; 877-736-6434

Solid State Logic
212-315-1111

Sound Devices LLC
608-524-0625

AUDIO ROUTING

Audio A/D-D/A converters

Aviom Inc
610-738-9005

Blackmagicdesign

Blackmagic Design
408-954-0500

Census Digital Inc
416-850-0071

Cobalt Digital Inc
217-344-1243; 800-669-1691

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Link Electronics Inc
573-334-4433

Neveon
805-247-8560

Prism Media Products Inc
973-983-9577

Solid State Logic
212-315-1111

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

Audio compression

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Harris Broadcast Communications
800-231-9673

Solid State Logic
212-315-1111

Audio DAs

Cobalt Digital Inc
217-344-1243; 800-669-1691

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Link Electronics Inc
573-334-4433

Nevion
805-247-8560

Solid State Logic
212-315-1111

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

Audio routers

Cobalt Digital Inc
217-344-1243; 800-669-1691

Delec
+49 6351 1317 0

Evertz
905-335-3700; 877-995-3700

Harris Broadcast Communications
800-231-9673

Lawo North America
416-292-0078; 888-810-4468

Nevion
805-247-8560

Riedel Communications Inc
818-241-4696

Salzbrenner Stageteq Mediagroup
Inc USA
888-782-4391

Solid State Logic
212-315-1111

Studer USA Harman Pro North
America
818-920-3212

Wheatstone Corp
252-638-7000

Sample rate converters

Evertz
905-335-3700; 877-995-3700

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

AUTOMATION SYSTEMS

Asset management systems

Alteran Technologies
818-998-0100

Aveco s.r.o.
+420 235 366 707

Avid
978-640-6789; 800-949-2843

Cinegy
323-417-0880

Crispin Corp
919-845-7744

Dalet Digital Media Systems
212-269-6700

Digital Broadcast
352-377-8344

Evertz
905-335-3700; 877-995-3700

Florical Systems Inc
352-372-8326

Front Porch Digital
303-440-7930; 866-200-7222

GlobeCast
212-373-5140; 877-GLOBECAST

Harris Broadcast Communications
800-231-9673

Minnetonka Audio Software Inc
952-449-6481

Myers Information Systems
413-585-9820

Netia
33 4 67 59 0807

MediorNet Compact

50G Real-Time Media Network



- Synchronized 50G real-time network for 3G/HD/SD-SD video, audio, data & intercom at the price of multiplexing point-to-point fiber products
- Flexible signal routing incl. point-to-multipoint
- Integrated Frame Store Synchronizer, Embedder/De-Embedder, Test Pattern Generator, On-Screen Display & Timecode Insertion at every port
- Fully compatible with Artist, RockNet and modular MediorNet systems

PRODUCT DIRECTORY

NVerzion
801-293-8420

Pilat Media
+44 (0) 20 8782 0700

RadiantGrid Technologies
877-828-0094

S4M - Solutions for Media GmbH
+49 221 28555 0

SGT
+33 1 64 73 74 74

Signiant
781-221-4000

Software Generation Ltd (SGL)
615-324-6075

Solid State Logic
+44 1865 842300

Solid State Logic (SSL)
323-549-9090

VCI Solutions
413-272-7200

Video Technics Inc
404-327-8300

ViewCast
972-488-7200; 800-540-4119

Vizrt
+46 8 522 277 07

Vizrt
212-560-0708

VSN Video Stream Networks
+34 937349970

Xytech Systems Corp
818-303-7800

Zeus Broadcast
407-352-6501

Master control switchers

Avid
978-640-6789; 800-949-2843

Blackmagicdesign

Blackmagic Design
408-954-0500

Evertz
905-335-3700; 877-995-3700

Harris Broadcast Communications
800-231-9673

Lawo North America
416-292-0078; 888-810-4468

Pixel Power Inc
818-276-4515

Utah Scientific
800-453-8782

PSIP and DTV encoders

Evertz
905-335-3700; 877-995-3700

Microwave & RF Resources
509-585-9377

Motorola Satellite & Broadcast
Network Systems
858-404-2933

Triveni Digital
609-716-3500

TV business automation (traffic systems)

Harris Broadcast Communications
800-231-9673

Myers Information Systems
413-585-9820

VCI Solutions
413-272-7200

VSN Video Stream Networks
+34 937349970

WideOrbit
828-252-8891



WideOrbit delivers the most innovative solutions for managing broadcast and cable operations across sales, traffic, automation and billing. Our scalable, enterprise-wide solutions enable companies to manage multiple stations, channels and networks, as well as multiple mediums-including TV, Radio, Cable Networks, Cable Operators, Mobile Video and Digital Out of Home Networks - from a single system.

TV facility automation

Aveco s.r.o.
+420 235 366 707

Avid
978-640-6789; 800-949-2843

Crispin Corp
919-845-7744

Digital Broadcast
352-377-8344

Evertz
905-335-3700; 877-995-3700

Floral Systems Inc
352-372-8326

Front Porch Digital
303-440-7930; 866-200-7222

Harris Broadcast Communications
800-231-9673

Hi Tech Systems
+44 1256 780880

Leightronix
517-694-8000; 800-243-5589

Miranda Technologies Inc
514-333-1772

NVerzion
801-293-8420

Pebble Beach Systems
44-1932-333-790

ScheduALL
954-334-5406; 800-334-5083

Screen Subtitling Systems
+44 1473 831 700

SGT
+33 1 64 73 74 74

Snell Ltd
+44 (0) 118 986 6123

Telestream
530-470-1300

VCI Solutions
413-272-7200

Vector 3
+34 934 151 285

Video Design Software
631-249-4399

ViewCast
972-488-7200; 800-540-4119

WideOrbit
828-252-8891

Zeus Broadcast
407-352-6501

TV news automation systems

Autocue / QTV
212-929-7755

Aveco s.r.o.
+420 235 366 707

Avid
978-640-6789; 800-949-2843

BitCentral Inc
949-253-9000; 800-214-2828

Cinegy
323-417-0880

Comprompter News and Automation
608-785-7766

Crispin Corp
919-845-7744

Dalet Digital Media Systems
212-269-6700

Digital Broadcast
352-377-8344

Evertz
905-335-3700; 877-995-3700

Front Porch Digital
303-440-7930; 866-200-7222

Hi Tech Systems
+44 1256 780880

NVerzion
801-293-8420

Quantel
203-972-3199

Ross Video Ltd
613-652-4886

ScheduALL
954-334-5406; 800-334-5083

SGT
+33 1 64 73 74 74

Solid State Logic
+44 1865 842300

VSN Video Stream Networks
+34 937349970

CABLE TV EQUIPMENT

Broadcast cable equipment

Artel Video Systems
978-263-5775

ATCi
480-844-8501

Cisco Systems

ContentWise
+39 02 4951 7001

EMCEE
480-315-9283

Leightronix
517-694-8000; 800-243-5589

Motorola Satellite & Broadcast Network Systems
858-404-2933

Nickless Schirmer & Co Inc
859-727-6640; 800-543-1584

Optical Cable Corporation (OCC)
540-265-0690; 800-622-7711

Precor
818-842-4632

Quintech Electronics
724-349-1412; 800-839-3658

Teamcast
+33 2 23 252680

Telestream
530-470-1300

CATV system components

Artel Video Systems
978-263-5775

ATCi
480-844-8501

Motorola Satellite & Broadcast Network Systems
858-404-2933

CAMERA ROBOTICS

Camera remote controls

Shotoku Broadcast Systems
310-782-8491; 866-SHOTOKU

Telemetrics
201-848-9818

Robotic camera controls

Hitachi Kokusai Electric America Ltd
516-921-7200

Shotoku Broadcast Systems
310-782-8491; 866-SHOTOKU

Telemetrics
201-848-9818

Virtual sets

Shotoku Broadcast Systems
310-782-8491; 866-SHOTOKU

Vizrt
212-560-0708

CAMERA SUPPORT

Camera support products (tripods)

Miller Camera Support
973-857-8300

OConnor
818-847-8666

Sachtler
845-268-0100

Shotoku Broadcast Systems
310-782-8491; 866-SHOTOKU

Vinten
845-268-0100

Vinten Radamec
845-268-0100

Pan/tilt heads

Fujinon Inc
972-385-8902

Hitachi Kokusai Electric America Ltd
516-921-7200

Miller Camera Support
973-857-8300

OConnor
818-847-8666

Sachtler
845-268-0100

Shotoku Broadcast Systems
310-782-8491; 866-SHOTOKU

Telemetrics
201-848-9818

PRODUCT DIRECTORY

Vinten
845-268-0100

Vinten Radamec
845-268-0100

CAMERAS

Camcorders

JVC Professional Products
Company
800-582-5825

Sony Electronics
201-930-1000; 800-686-SONY

WTI (Wireless Technology, Inc)
805-339-9696

Camera accessories

Angenieux
973-812-3858

Band Pro Film & Digital, Inc
818-841-9655; 866-226-3776

Brick House Video
44 1962 777733

Fujinon Inc
972-385-8902

Hitachi Kokusai Electric America
Ltd
516-921-7200

IDX System Technology Inc
310-328-2850

K-Tek
760-727-0593

Litepanels Inc
818-752-7009

Miller Camera Support
973-857-8300

OConnor
818-847-8666

Petrol Bags
845-268-0100

Sachtler
845-268-0100

Schneider Optics
818-766-3715

Sony Electronics
201-930-1000; 800-686-SONY

Vinten
845-268-0100

Vinten Radamec
845-268-0100

WTI (Wireless Technology, Inc)
805-339-9696

Cameras

Band Pro Film & Digital, Inc
818-841-9655; 866-226-3776

Canon USA Inc, Broadcast and
Communications Division
800-321-4388

Grass Valley
800-547-8949

Hitachi Kokusai Electric America
Ltd
516-921-7200

Iconix Video Inc
805-690-3650; 800-783-1080

Ikegami Electronics
201-368-9171; 800-368-9171

I-MOVIX
+32497529601

JVC Professional Products
Company
800-582-5825

WTI (Wireless Technology, Inc)
805-339-9696

CGS

Character generators

Avid
978-640-6789; 800-949-2843

Chyron
631-845-2102

Evertz
905-335-3700; 877-995-3700

Harris Broadcast Communications
800-231-9673

Pixel Power Inc
818-276-4515

Screen Subtitling Systems
+44 1473 831 700

Softel
+44 1189 842151

Vector 3
+34 934 151 285

Vizrt
212-560-0708

Teleprompters and prompting software

Autocue / QTV
212-929-7755

Autoscript
203-926-2400

Comprompter News and
Automation
608-785-7766

COMPUTERS

Computer accessories

P.I. Engineering
517-655-5523; 800-628-3185

Computer networking products

ATTO Technology
716-691-1999

Bright Technologies Inc
775-823-9002; 877-399-9002

Ciprico
763-551-4000; 800-727-4669

Cisco Systems

IPV
+44 1223 477 000

Computer systems

ScheduALL
954-334-5406; 800-334-5083

Data multiplexers

Bright Technologies Inc
775-823-9002; 877-399-9002

Evertz
905-335-3700; 877-995-3700

Data storage systems

ATTO Technology
716-691-1999

Avid
978-640-6789; 800-949-2843

Bright Technologies Inc
775-823-9002; 877-399-9002

Cache-A Corporation
866-931-5560

Ciprico
763-551-4000; 800-727-4669

Evertz
905-335-3700; 877-995-3700

SAN Solutions
775-745-8734; 866-661-7144

Sonnet Technologies
949-587-3532

Data transmission systems

ATTO Technology
716-691-1999

Avid
978-640-6789; 800-949-2843

Evertz
905-335-3700; 877-995-3700

HTN Communications LLC
212-239-3717

Media Links Inc
860-206-9163

Video cards

Blackmagicdesign 

Blackmagic Design
408-954-0500

Matrox Video Products Group
514-822-6364; 800-361-4903

ViewCast
972-488-7200; 800-540-4119

DEALERS, DISTRIBUTORS, INTEGRATORS

Dealers, Distributors

Burst
303-649-9600; 888-472-2820

CEI Communications Engineering
Inc
703-550-5800

Clear-Com, an HME Company
510-337-6600; 800-462-4357

Nickless Schirmer & Co Inc
859-727-6640; 800-543-1584

Preco
818-842-4632

Roscor Corp
847-299-8080

Yanchar Design & Consulting
Group
949-770-6601

Systems integrators

Alteran Technologies
818-998-0100

ATCi
480-844-8501

Bexel
818-565-4322

Broadcast Integration Services
(BIS)
201-777-3986

Burst
303-649-9600; 888-472-2820

CEI Communications Engineering
Inc
703-550-5800

e-mediavision.com
+44 208 755 2014

Iconix Video Inc
805-690-3650; 800-783-1080

Larcan USA
303-665-8000

Lawson & Associates Architects
301-654-1600

Roscor Corp
847-299-8080

Salzbrenner Stageteq Mediagroup
Inc USA
888-782-4391

Sony Electronics
201-930-1000; 800-686-SONY

Television Systems Ltd (TSL)
+44 1628 676200

TV Magic
858-650-3155

WireCAD
661-253-4370; 866-273-5298

Yanchar Design & Consulting
Group
949-770-6601

DAWs

Avid
978-640-6789; 800-949-2843

Enco Systems
248-827-4440; 800-362-6797

Mackie
425-487-4333; 800-258-6883

Minnetonka Audio Software Inc
952-449-6481

Prism Media Products Inc
973-983-9577

Sennheiser Electronic
860-434-9190; 877-736-6434

Solid State Logic
212-315-1111

Sony Creative Software Inc
608-203-2324

Duplication

Sony Electronics
201-930-1000; 800-686-SONY

GRAPHICS

Animation/Graphics software

Apple
408-996-1010

Artbeats
541-863-4429; 800-444-9392

Avid
978-640-6789; 800-949-2843

Chyron
631-845-2102

Vector 3
+34 934 151 285

Video Design Software
631-249-4399

Vizrt
212-560-0708

Animation/Graphics systems

AccuWeather Inc
814-235-8650

PRODUCT DIRECTORY

Avid

978-640-6789; 800-949-2843

Chyron

631-845-2102

e-mediavision.com

+44 208 755 2014

Eyeheight Ltd

+44 0 208 255 2015

Harris Broadcast Communications

800-231-9673

Pixel Power Inc

818-276-4515

Video Design Software

631-249-4399

LENSES

Lens converter/accessories

Angenieux

973-812-3858

Schneider Optics

818-766-3715

SoliDDD Corp.

702-629-2965

Thales Angenieux

973-812-3858

Lens systems

Angenieux

973-812-3858

Band Pro Film & Digital, Inc

818-841-9655; 866-226-3776

Canon USA Inc, Broadcast and

Communications Division

800-321-4388

Fujinon Inc

972-385-8902

Schneider Optics

818-766-3715

Thales Angenieux

973-812-3858

LIGHTING

Lighting

Frezzolini Electronics Inc / Frezzi

Energy Systems

973-427-1160; 800-345-1030

K5600 Inc

818-762-5756; 800-662-5756

Kino Flo

818-767-6528

Litepanels Inc

818-752-7009

Videssence

626-579-0943

MICROPHONES

Microphone accessories

Revolabs Inc

978-610-4040

Sennheiser Electronic

860-434-9190; 877-736-6434

Microphones

Audio-Technica US Inc

330-686-2600

Avid

978-640-6789; 800-949-2843

Azden Corporation

516-328-7500; 800-247-4501

Full Compass Systems Ltd

608-831-7330; 800-356-5844

Marshall Electronics

310-333-0606; 800-800-6608

Sennheiser Electronic

860-434-9190; 877-736-6434

Telex Communications

952-884-4051; 800-392-3497

Wohler Technologies Inc

510-870-0810

Wireless microphones

Audio-Technica US Inc

330-686-2600

Azden Corporation

516-328-7500; 800-247-4501

Revolabs Inc

978-610-4040

Sennheiser Electronic

860-434-9190; 877-736-6434

Telex Communications

952-884-4051; 800-392-3497

MICROWAVE & FIBER

Audio codecs (telco)

Evertz

905-335-3700; 877-995-3700

Riedel Communications Inc

818-241-4696

ENG microwave links

Broadcast Microwave Services

858-391-3050; 800-669-9667

ELBER SRL

039-0185-351333

Evertz

905-335-3700; 877-995-3700

Nucomm

908-852-3700; 800-968-2666

RF Central

908-852-3700; 800-968-2666

Screen Service

+39 030 57831; 888-522-0012

Vislink News and Entertainment

+44 1494 774400

Vislink News & Entertainment

(MRC)

978-671-5700; 800-490-5200

Fiber optic transmitter/ receiver systems

Advanced Fiber Products

847-768-9001

Artel Video Systems

978-263-5775

Bexel

818-565-4322

Census Digital Inc

416-850-0071

Communications Specialties Inc
631-273-0404



Fiberlink® Matrix is a fully configurable and SMPTE compliant 32x32 optical router. The inputs and outputs can be ordered in quantities of one and the input and output quantities don't have to match, allowing you to build a Matrix that is ideal for your specific application and budget!



Fiberlink 3353 Bidirectional 3G/HG/SD-SDI Series

Fiberlink 3352 transmits bidirectional 3G/HD/SD-SDI per SMPTE 424M-2006, 292-2006 and 259M-2006, or DVB-ASI, with or without embedded audio and data, over one fiber. The two channels of 3G/HD/SD-SDI are independent; transmit different SDI formats in each direction.

Evertz
905-335-3700; 877-995-3700

Extron Electronics
714-491-1500; 800-633-9876

Harris Broadcast Communications
800-231-9673

HTN Communications LLC
212-239-3717

Media Links Inc
860-206-9163

Nevion
805-247-8560

Nucomm
908-852-3700; 800-968-2666

Radiall USA Inc
480-682-9400

RF Central
908-852-3700; 800-968-2666

Riedel Communications Inc
818-241-4696

The Switch
310-339-4017

Thinklogical
203-647-8700; 800-291-3211

STL/TSL links

ELBER SRL
039-0185-351333

Evertz
905-335-3700; 877-995-3700

Microwave & RF Resources
509-585-9377

Screen Service America
305-826-2212

TZ Sawyer Technical Consultants
202-459-4709

Vislink News and Entertainment
+44 1494 774400

Vislink News & Entertainment (MRC)
978-671-5700; 800-490-5200

Telco interface equipment

Evertz
905-335-3700; 877-995-3700

HTN Communications LLC
212-239-3717

Nevion
805-247-8560

Telephone hybrids

Riedel Communications Inc
818-241-4696

MULTIMEDIA/INTERNET

Interactive systems

IPV
+44 1223 477 000

Softel
+44 1189 842151

ViewCast
972-488-7200; 800-540-4119

Vizrt
212-560-0708

Internet production systems

Avid
978-640-6789; 800-949-2843

Telestream
530-470-1300

Vizrt
+46 8 522 277 07

Vizrt
212-560-0708

Media streaming equipment/services

AccuWeather Inc
814-235-8650

Broadcast International
801-562-2252; 800-722-0400

codecSys
a Broadcast International Solution

Broadcast International

7050 Union Park Center #600?
Salt Lake City, UT 84047
Toll Free: (800) 722-0400?
Phone: (801) 562-2252
Web: www.BRIN.com

CodecSys™ is a leading-edge encoding and transcoding system for live and file based video. It's next-generation multi-codec process delivers higher quality video at lower bandwidth rates. It has the advantage of being software based making it more flexible and scalable which lowers it's cost-of-ownership over traditional hardware based encoding options.

EVS Broadcast Equipment
+32 4 361 7000

Front Porch Digital
303-440-7930; 866-200-7222

PRODUCT DIRECTORY

HaiVision Network Video
877-224-5445

Matrox Video Products Group
514-822-6364; 800-361-4903

Telestream
530-470-1300

ViewCast
972-488-7200; 800-540-4119



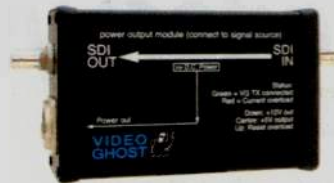
Wowza Media Systems
408-361-8086; 888-778-7997

POWER PRODUCTS

Batteries

Anton/Bauer Inc
203-929-1100

BHV Broadcast
+44 1962 777733



Developed as a low-cost, reliable alternative to batteries, Video Ghost brings d.c. power over digital coaxial links to the broadcast industry! The winner of the prestigious Mario Award at NAB 2011 provides 12V d.c. at 40W over 100 metres or more for cameras and accessories using the existing video cable.

*In US: Tecads 1-949-903-1835
In Europe: BHV Broadcast +44 (0) 1962 777733*

Frezzolini Electronics Inc / Frezzi
Energy Systems
973-427-1160; 800-345-1030

IDX System Technology Inc
310-328-2850

North Star Technical Services, Inc.
954-921-5868; 800-842-1671

Video Technical Services Inc
717-215-4863; 800-539-4592

Battery analyzers

Frezzolini Electronics Inc / Frezzi
Energy Systems
973-427-1160; 800-345-1030

Battery chargers

Anton/Bauer Inc
203-929-1100

Frezzolini Electronics Inc / Frezzi
Energy Systems
973-427-1160; 800-345-1030

IDX System Technology Inc
310-328-2850

Video Technical Services Inc
717-215-4863; 800-539-4592

Power (AC) products

Frezzolini Electronics Inc / Frezzi
Energy Systems
973-427-1160; 800-345-1030

Middle Atlantic Products
973-839-1011; 800-266-7225

Staco Energy Products Company
937-253-1191; 866-261-1191

Versatile Power
408-341-4603

Power supplies

Frezzolini Electronics Inc / Frezzi
Energy Systems
973-427-1160; 800-345-1030

Staco Energy Products Company
937-253-1191; 866-261-1191

Versatile Power
408-341-4603

UPS systems

Hewlett Packard - Rack & Power
Infrastructure Group
832-390-3098; 888-747-7225

North Star Technical Services, Inc.
954-921-5868; 800-842-1671

Staco Energy Products Company
937-253-1191; 866-261-1191

PRODUCTION SWITCHERS

Compositing systems

Blackmagicdesign

Blackmagic Design
408-954-0500

DVEs

Blackmagicdesign

Blackmagic Design
408-954-0500

Keyers

Blackmagicdesign

Blackmagic Design
408-954-0500

Cobalt Digital Inc
217-344-1243; 800-669-1691

Crystal Vision Ltd
44 1223 497049

Evertz
905-335-3700; 877-995-3700

Production switchers

Analog Way
212-269-1902

BHV Broadcast
+44 1962 777733

Blackmagicdesign

Blackmagic Design
408-954-0500

Brick House Video
44 1962 777733

Broadcast Pix
978-600-1100

FOR-A Corporation of America
201-944-1120

Grass Valley
800-547-8949

Ikegami Electronics
201-368-9171; 800-368-9171

Ross Video Ltd
613-652-4886

Snell Ltd
+44 (0) 118 986 6123

Sony Electronics
201-930-1000; 800-686-SONY

RECORDING MEDIA

Recordable media (tape and disc)

Evertz
905-335-3700; 877-995-3700

Sennheiser Electronic
860-434-9190; 877-736-6434

Sony Electronics
201-930-1000; 800-686-SONY

RF COMPONENTS

Dummy loads



Bird Technologies Group/TX RX
Systems
440-248-1200; 866-695-4569

RF combiners

EMCEE
480-315-9283

Evertz
905-335-3700; 877-995-3700

Jampro Antennas Inc
916-383-1177



COMMUNICATION TECHNOLOGY
SPX Communication Technology
207-655-8100; 800-341-9678

RF transmitting tubes

ELBER SRL
039-0185-351333

Tower accessories/lighting

Device Technologies Inc
508-229-2000

Hilights Inc
352-564-8830; 877-445-4487

Nash Electronics
352-564-8183; 866-251-6274

Radian - A division of Prestige
Telecom
905-339-4059

Sabre Towers & Poles
512-667-4034; 800-369-6690

Tower management services

Hilights Inc
352-564-8830; 877-445-4487

Nash Electronics
352-564-8183; 866-251-6274

TZ Sawyer Technical Consultants
202-459-4709

Towers

ERI - Electronics Research Inc
812-925-6000; 877-ERI-LINE

Hilights Inc
352-564-8830; 877-445-4487

Jampro Antennas Inc
916-383-1177

Nash Electronics
352-564-8183; 866-251-6274

Radian - A division of Prestige
Telecom
905-339-4059

Sabre Towers & Poles
512-667-4034; 800-369-6690

Transmission line/ accessories

ERI - Electronics Research Inc
812-925-6000; 877-ERI-LINE

Jampro Antennas Inc
916-383-1177

Radiall USA Inc
480-682-9400

Radian - A division of Prestige
Telecom
905-339-4059

Sabre Towers & Poles
512-667-4034; 800-369-6690



COMMUNICATION TECHNOLOGY
SPX Communication Technology
207-655-8100; 800-341-9678

SATELLITE EQUIPMENT

Satellite receivers and antennas

2wcom GmbH
49 461 662 830-0

ATCi
480-844-8501

DVEO division of Computer
Modules, Inc
858-613-1818

Intelsat
212-839-1800

Newtec
32 (0)3 780 65 00

Nickless Schirmer & Co Inc
859-727-6640; 800-543-1584

Vislink News and Entertainment
+44 1494 774400

Vislink News & Entertainment
(MRC)
978-671-5700; 800-490-5200

Satellite uplinks

ATCi
480-844-8501

GlobeCast
212-373-5140; 877-GLOBECAST

Intelsat
212-839-1800

Media Broadcast
+49 761 590 14234

PRODUCT DIRECTORY

Newtec

32 (0)3 780 65 00

Riedel Communications Inc
818-241-4696

Vislink News and Entertainment
+44 1494 774400

Vislink News & Entertainment
(MRC)
978-671-5700; 800-490-5200

STUDIO ACCESSORIES

Cable management systems

Device Technologies Inc
508-229-2000

Fischer Connectors
678-393-5400; 800-551-0121

Gepeco Intl Inc
847-795-9555; 800-966-0069

Middle Atlantic Products
973-839-1011; 800-266-7225

Optima EPS
770-496-4000

Engineering software

Amberfin
866-939-3167

Evertz
905-335-3700; 877-995-3700

WireCAD
661-253-4370; 866-273-5298

Zeus Broadcast
407-352-6501

Master clock systems

ESE
310-322-2136

Evertz
905-335-3700; 877-995-3700

Outdoor display equipment

BUF Technology
858-451-1350

Racks/furniture

Forecast Consoles Inc
631-253-9000; 800-735-2070



Forecast Consoles - For over three decades: A leading designer and manufacturer of Technical Furniture & Innovative Console Systems.

Our passion is to create world-class, elegant working-environments for Broadcast, Post Production & Corporate A/V facilities.

We design ergonomic furniture to enhance and optimize end-user comfort, workflow, and productivity.

Middle Atlantic Products
973-839-1011; 800-266-7225

North Star Technical Services, Inc.
954-921-5868; 800-842-1671

Optima EPS
770-496-4000



Optima's new cabinet enclosure is ideal for broadcast and data center applications. It features extrusion-based modular design, advanced cable management, and a convex-shaped perforated door for additional cabling space and airflow. Optima's modular design approach makes customization faster, easier, and more cost-effective. Contact Optima today for details.

TBC Consoles
631-293-4068; 1-888-CONSOLE



IntelliTrac® Console System

TBC's definitive technical furniture system sets new standards for modularity, ergonomics and high end aesthetics. Front and rear device tracks allow unlimited lateral positioning of monitors, speakers, phones and task lighting. Rack bay turrets may be easily upgraded or relocated allowing quick, user friendly modifications.

Studio accessories

Auralex Acoustics Inc
317-842-2600; 800-959-3343

D and S Corley Limited dba DSC Laboratories
905-673-3211; 866-DSCLABS

Forecast Consoles Inc
631-253-9000; 800-735-2070

P.I. Engineering
517-655-5523; 800-628-3185

RTW
+49 221 70 913 0

Television Systems Ltd (TSL)
+44 1628 676200

Tools

Gepeco Intl Inc
847-795-9555; 800-966-0069

Transport cases

Optima EPS
770-496-4000

Weather/data systems

AccuWeather Inc
814-235-8650

Baron Services
256-881-8811

Vizrt
212-560-0708

PRODUCT DIRECTORY

TBCS & FRAME SYNC

Aspect ratio converters

Blackmagicdesign

Blackmagic Design
408-954-0500

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Nevion
805-247-8560

Riedel Communications Inc
818-241-4696

Telestream
530-470-1300

TV One
859-282-7303; 800-721-4044

Composite/component encoder/decoders

Blackmagicdesign

Blackmagic Design
408-954-0500

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Nevion
805-247-8560

RadiantGrid Technologies
877-828-0094

Ross Video Ltd
613-652-4886

TV One
859-282-7303; 800-721-4044

Delay products

Crystal Vision Ltd
44 1223 497049

Doremi Labs
818-562-1101

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Nevion
805-247-8560

Riedel Communications Inc
818-241-4696

Frame synchronizers

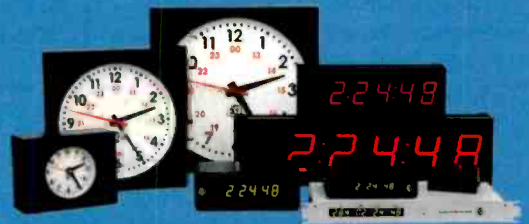
Axon Digital Design BV
31 161850450; 866-757-9890

Cobalt Digital Inc
217-344-1243; 800-669-1691

Ensemble Designs
530-478-1830

Perfect

Timing



Don't take a chance with your timing needs. Trust the name broadcasters have counted on for precision master clocks and timing-related products for nearly 40 years—ESE. Our products accurately synchronize broadcast operations using a choice of GPS, WWV, Modem, Crystal or line frequency for affordable, reliable, perfect time.

Visit www.ese-web.com to witness world-class timing systems that are designed for easy installation, set-up and operation.

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El Segundo, CA 90245
Tel: (310) 322-2136

www.ese-web.com



PRODUCT DIRECTORY

Evertz

905-335-3700; 877-995-3700

FOR-A Corporation of America

201-944-1120

Harris Broadcast Communications
800-231-9673

LYNX Technik Inc
661-251-8600

Nevion
805-247-8560

Riedel Communications Inc
818-241-4696

Teranex Systems Inc
407-858-6000; 877-283-7263

HDTV up/downconverters

AJA Video Systems

530-274-2048



AJA's new FS2 offers two independent streams of 3G/HD/SD 10-bit Broadcast quality video and two independent groups of 16 channel AES audio. Each FS2 video channel supports virtually any input or output: analog component or composite, 3G/ Dual Stream 3G/HD/SD-SDI, Dual-Link, HDMI I/O and even Fiber. You can use the FS2 as two separate Frame Synchronizers/Format Converters, or combine the channels in a variety of powerful ways. Each channel possesses its own keyer and video proc amp/color corrector. It can up- or down-convert between SD and HD, and cross-convert between HD formats—including 3G 1080p50/60 formats. Additionally, the FS2 has full input and output signal routing, allowing any I/O port to be assigned to either processing channel.

Amberfin
866-939-3167

Atlona Technologies
408-962-0515

Axon Digital Design BV
31 161850450; 866-757-9890

BHV Broadcast
+44 1962 777733

Blackmagicdesign



Blackmagic Design
408-954-0500

Brick House Video
44 1962 777733

Cobalt Digital Inc
217-344-1243; 800-669-1691

Communications Specialties Inc
631-273-0404

Crystal Vision Ltd
44 1223 497049

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Harris Broadcast Communications
800-231-9673

Nevion
805-247-8560

Riedel Communications Inc
818-241-4696

Ross Video Ltd
613-652-4886

Telestream
530-470-1300

TV One
859-282-7303; 800-721-4044

Scan converters

Analog Way
212-269-1902

Communications Specialties Inc
631-273-0404



The Scan Do® HD Scan Converter converts Digital DVI and Analog RGB, at resolutions up to 1920 x 1080, to 3G/HD/SD-SDI output, providing broadcast-quality video images. It supports all SMPTE 3G-SDI output resolutions up to 1080p, HD-SDI output resolutions up to 1080i and SD-SDI resolutions.

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Matrox Video Products Group
514-822-6364; 800-361-4903

TV One
859-282-7303; 800-721-4044

Standards converters

Axon Digital Design BV
31 161850450; 866-757-9890

BHV Broadcast
+44 1962 777733

Blackmagicdesign



Blackmagic Design
408-954-0500

Brick House Video
44 1962 777733

Evertz
905-335-3700; 877-995-3700

FOR-A Corporation of America
201-944-1120

Nevion
805-247-8560

Telestream
530-470-1300

PRODUCT DIRECTORY

Teranex Systems Inc
407-858-6000; 877-283-7263

TV One
859-282-7303; 800-721-4044

Time base correctors

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

TV One
859-282-7303; 800-721-4044

Video A-D/D-A converters

Blackmagicdesign

Blackmagic Design
408-954-0500

Cobalt Digital Inc
217-344-1243; 800-669-1691

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

LYNX Technik Inc
661-251-8600

Nevion
805-247-8560

Ross Video Ltd
613-652-4886

TV One
859-282-7303; 800-721-4044

TEST & MEASUREMENT EQUIPMENT

Audio test and measurement equipment

2wcom GmbH
49 461 662 830-0

ATCi
480-844-8501

DK-Technologies America
+45 44 85 02 55

Dolby Laboratories Inc
415-645-5000; 800-33D-OLBY

Eyeheight Ltd
+44 0 208 255 2015

Prism Media Products Inc
973-983-9577

RTW
+49 221 70 913 0

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

Whirlwind
585-663-8820; 800-733-9473



Wohler Technologies Inc
510-870-0810

Re-defining Media Archive Workflows

LTO-5 Video Archiving Recorder: LTR-100HS/120HS



LTR-120HS **NEW**
AVC-Intra / DVCPRO Model

LTR-100HS
MPEG-2 Model



The LTR-100HS/120HS uses the latest generation of Linear Tape Open (LTO) drive technology, bringing you a managed media migration path and open file system for a simplified long-term video archive system. With its massive 1.5TB capacity (50 hours @ 50Mbps) the LTR-100HS/120HS can be used for production libraries, broadcast archives or program distribution and exchange.

www.for-a.com

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- USA Western (CA) Tel: +1 714-894-3311
- USA Eastern & Midwest (NJ) Tel: +1 201-944-1120
- USA Southern (FL) Tel: +1 305-931-1700
- Latin America & Caribbean (FL) Tel: +1 305-931-1700
- Canada (Toronto) Tel: +1 416-977-0343

Continuous Innovation

PRODUCT DIRECTORY

Compression/MPEG test equipment

DVEO division of Computer Modules, Inc
858-613-1818

Ensemble Designs
530-478-1830

Nevion
805-247-8560

Sencore Inc
605-978-4600

TANDBERG Television, Part of the Ericsson Group
678-812-6209

Tektronix Inc
503-627-7111; 800-833-9200

Triveni Digital
609-716-3500

RF test equipment

Agilent Technologies
800-829-4444

Belar Electronics Laboratory Inc
610-687-5550



Bird Technologies Group/TX RX Systems
440-248-1200; 866-695-4569

Narda Safety Test Solutions
631-231-1700

Teamcast
+33 2 23 252680

Versatile Power
408-341-4603

Spectrum analyzers

Agilent Technologies
800-829-4444

Bird Technologies Group/TX RX Systems
440-248-1200; 866-695-4569

Narda Safety Test Solutions
631-231-1700

Sync/test generators

Blackmagicdesign

Blackmagic Design
408-954-0500

Cobalt Digital Inc
217-344-1243; 800-669-1691

DK-Technologies America
+45 44 85 02 55

Doremi Labs
818-562-1101

Ensemble Designs
530-478-1830

Leader Instruments
714-527-9300; 800-645-5104

Tektronix Inc
503-627-7111; 800-833-9200

Test equipment-general

Agilent Technologies
800-829-4444

Blackmagicdesign

Blackmagic Design
408-954-0500

Bridge Technologies Co AS
47 22 38 51 00

D and S Corley Limited dba DSC Laboratories
905-673-3211; 866-DSCLABS

DVEO division of Computer Modules, Inc
858-613-1818

Harris Broadcast Communications
800-231-9673

Leader Instruments
714-527-9300; 800-645-5104

Narda Safety Test Solutions
631-231-1700

Rohde & Schwarz
410-910-7800; 888-TES-TRSA

Volicon
781-221-7400

TV aural modulation monitors

Belar Electronics Laboratory Inc
610-687-5550

TV RF monitoring equipment

2wcom GmbH
49 461 662 830-0

Avateq Corp
416-342-0761; 866-881-9388

Belar Electronics Laboratory Inc
610-687-5550



Bird Technologies Group/TX RX Systems
440-248-1200; 866-695-4569

Bridge Technologies Co AS
47 22 38 51 00

Sencore Inc
605-978-4600

Video analyzers

Ensemble Designs
530-478-1830

Harris Broadcast Communications
800-231-9673

Telestream
530-470-1300

Triveni Digital
609-716-3500

Video Clarity
408-379-1381; 866-748-8072

Video monitors

Blackmagicdesign

Blackmagic Design
408-954-0500

Nevion
805-247-8560

Plura Broadcast
602-944-1044

Video Clarity
408-379-1381; 866-748-8072

Waveform monitors/ vectorscopes

Blackmagicdesign

Blackmagic Design
408-954-0500

DK-Technologies America
+45 44 85 02 55

Harris Broadcast Communications
800-231-9673

Leader Instruments
714-527-9300; 800-645-5104

Tektronix Inc
503-627-7111; 800-833-9200

TV TRANSMITTERS, TRANSLATORS, EXCITERS & ANTENNAS

Frequency conversion equipment

EMCEE
480-315-9283

Evertz
905-335-3700; 877-995-3700

Quintech Electronics
724-349-1412; 800-839-3658

MMDS products

Axcera
724-873-8100; 800-215-2614

EMCEE
480-315-9283

Evertz
905-335-3700; 877-995-3700

Remote control systems (transmitter)

Avateq Corp
416-342-0761; 866-881-9388

Evertz
905-335-3700; 877-995-3700

TV exciters

Axcera
724-873-8100; 800-215-2614

Harris Broadcast Communications
800-231-9673

Linear Industries Inc
410-750-2165; 877-428-5793

Rohde & Schwarz
410-910-7800; 888-TES-TRSA

Screen Service
+39 030 57831; 888-522-0012

Thomson Broadcast
413-998-1100; 800-288-8364

TV transmitters

Avateq Corp
416-342-0761; 866-881-9388

Axcera
724-873-8100; 800-215-2614

EMCEE
480-315-9283

Harris Broadcast Communications
800-231-9673

Larcana USA
303-665-8000

Lawson & Associates Architects
301-654-1600

Linear Industries Inc
410-750-2165; 877-428-5793

Media Broadcast
+49 761 590 14234

Microwave & RF Resources
509-585-9377

Rohde & Schwarz
410-910-7800; 888-TES-TRSA

Screen Service
+39 030 57831; 888-522-0012



SDT ARK-6 SERIES

*The Multiple Configuration Flexible
Hardware Platform*

*The SDT ARK-6 is a Universal Driver
with Multiple Front-End Boards.*

*Available configurations: Satellite
Receiver w DEC with/without CAM,
Regenerative Transmitter, Analog A/V
Input, Transmitter only.*

*All, always and easily upgradable to
new features.*

*All configurations, all modulations
available: DVB-T/T2, ATSC, ISDB-T,
PAL, NTSC*

Screen Service America
305-826-2212

Teamcast
+33 2 23 252680

Thomson Broadcast
413-998-1100; 800-288-8364

TV transmitting antennas

ERI - Electronics Research Inc
812-925-6000; 877-ERI-LINE

Jampro Antennas Inc
916-383-1177

Linear Industries Inc
410-750-2165; 877-428-5793

SPX

COMMUNICATION TECHNOLOGY
SPX Communication Technology
207-655-8100; 800-341-9678

Thomson Broadcast
413-998-1100; 800-288-8364

TZ Sawyer Technical Consultants
202-459-4709

PRODUCT DIRECTORY

VEHICLES

ENG trucks

BUF Technology
858-451-1350

Iconix Video Inc
805-690-3650; 800-783-1080

TVU Networks
650-969-6732

Satellite flyaway systems

TVU Networks
650-969-6732

Vislink News and Entertainment
+44 1494 774400

Satellite uplink trucks

Media Broadcast
+49 761 590 14234

TVU Networks
650-969-6732

VIDEO ACCESSORIES

GPS equipment

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Time code equipment

Autoscript
203-926-2400

Cobalt Digital Inc
217-344-1243; 800-669-1691

ESE
310-322-2136

Evertz
905-335-3700; 877-995-3700

Horita Co
949-489-0240

Screen Subtitling Systems
+44 1473 831 700

Video accessories

Atlona Technologies
408-962-0515

Bittree
818-500-8142; 800-500-8142

Broadcast Microwave Services
858-391-3050; 800-669-9667

D and S Corley Limited dba DSC
Laboratories
905-673-3211; 866-DSCLABS

Evertz
905-335-3700; 877-995-3700

Sonnet Technologies
949-587-3532

Video captioning equipment

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Horita Co
949-489-0240

Screen Subtitling Systems
+44 1473 831 700

Softel
+44 1189 842151



Wohler Technologies Inc
510-870-0810

Video patch panels

Advanced Fiber Products
847-768-9001

Bittree
818-500-8142; 800-500-8142

Switchcraft Inc
773-792-2700

VIDEO COMPRESSION EQUIPMENT

Compression encoder/ decoders

Blackmagicdesign

Blackmagic Design
408-954-0500

Broadcast International
801-562-2252; 800-722-0400

codecSys
a Broadcast International Solution

Broadcast International
7050 Union Park Center #600?
Salt Lake City, UT 84047
Toll Free: (800) 722-0400?
Phone: (801) 562-2252
Web: www.BRIN.com

CodecSys™ is a leading-edge encoding and transcoding system for live and file based video. It's next-generation multi-codec process delivers higher quality video at lower bandwidth rates. It has the advantage of being software based making it more flexible and scalable which lowers its cost-of-ownership over traditional hardware based encoding options.

Cinegy
323-417-0880

Cobalt Digital Inc
217-344-1243; 800-669-1691

Doremi Labs
818-562-1101

DVEO
Broadcast Division

DVEO division of Computer
Modules, Inc
858-613-1818

Evertz
905-335-3700; 877-995-3700

HaiVision Network Video
877-224-5445

Harris Broadcast Communications
800-231-9673

Hitachi Kokusai Electric America
Ltd
516-921-7200

IPV
+44 1223 477 000

Matrox Video Products Group
514-822-6364; 800-361-4903

Motorola Satellite & Broadcast
Network Systems
858-404-2933

Nevion
805-247-8560

Screen Service America
305-826-2212

Sencore Inc
605-978-4600

SENSIO Technologies Inc
514-846-2022

Streambox Inc
206-956-0544

TANDBERG Television, Part of the
Ericsson Group
678-812-6209

Telestream
530-470-1300

Thomson Video Networks
+33 2 99 27 3030

VidOvation
949-777-5435; 855-VIDOVA-
TION

ViewCast
972-488-7200; 800-540-4119

Vislink News and Entertainment
+44 1494 774400

Compression pre-processors

Evertz
905-335-3700; 877-995-3700

Telestream
530-470-1300

Statistical multiplexers

Evertz
905-335-3700; 877-995-3700

TANDBERG Television, Part of the
Ericsson Group
678-812-6209

Thomson Video Networks
+33 2 99 27 3030

Video compression systems

Alteran Technologies
818-998-0100

Amberfin
866-939-3167

Broadcast International
801-562-2252; 800-722-0400

codecSys
a Broadcast International Solution

Broadcast International
7050 Union Park Center #600?
Salt Lake City, UT 84047
Toll Free: (800) 722-0400?
Phone: (801) 562-2252
Web: www.BRIN.com

CodecSys™ is a leading-edge encoding and transcoding system for live and file based video. It's next-generation multi-codec process delivers higher quality video at lower bandwidth rates. It has the advantage of being software based making it more flexible and scalable which lowers it's cost-of-ownership over traditional hardware based encoding options.

Broadcast Microwave Services
858-391-3050; 800-669-9667

DVEO division of Computer
Modules, Inc
858-613-1818

Evertz
905-335-3700; 877-995-3700

HaiVision Network Video
877-224-5445

Motorola Satellite & Broadcast
Network Systems
858-404-2933

SENSIO Technologies Inc
514-846-2022

Sisvel Technology
+39 011 9904770

Telestream
530-470-1300

Thomson Video Networks
+33 2 99 27 3030

Video noise reduction systems

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

SENSIO Technologies Inc
514-846-2022

Telestream
530-470-1300

VIDEO EDITING SYSTEMS

Desktop video

AJA Video Systems
530-274-2048

Apple
408-996-1010

Avid
978-640-6789; 800-949-2843

Blackmagicdesign

Blackmagic Design
408-954-0500

Dalet Digital Media Systems
212-269-6700

IPV
+44 1223 477 000

Telestream
530-470-1300

Editing systems and components

Artbeats
541-863-4429; 800-444-9392

Avid
978-640-6789; 800-949-2843

Blackmagicdesign

Blackmagic Design
408-954-0500

PRODUCT DIRECTORY

Eyeheight Ltd
+44 0 208 255 2015

Full Compass Systems Ltd
608-831-7330; 800-356-5844

Matrox Video Products Group
514-822-6364; 800-361-4903

Motorola Satellite & Broadcast
Network Systems
858-404-2933

P.I. Engineering
517-655-5523; 800-628-3185

Sonnet Technologies
949-587-3532

Nonlinear editors

Apple
408-996-1010

Artbeats
541-863-4429; 800-444-9392

Avid
978-640-6789; 800-949-2843

BitCentral Inc
949-253-9000; 800-214-2828

Blackmagicdesign

Blackmagic Design
408-954-0500

EVS Broadcast Equipment
+32 4 361 7000

Grass Valley
800-547-8949

Quantel
203-972-3199

VIDEO MONITORS

Line doublers/quadruplers

Communications Specialties Inc
631-273-0404

Multi-image displays

APANTAC
503-968-3000

Avitech International Corporation
425-885-3863

Barco Visual Solutions LLC
770-218-3200

Blackmagicdesign

Blackmagic Design
408-954-0500

Christie Digital Systems Inc
714-236-8610; 800-407-7727

Cobalt Digital Inc
217-344-1243; 800-669-1691

Evertz
905-335-3700; 877-995-3700

Harris Broadcast Communications
800-231-9673

Image Video

Miranda Technologies Inc
514-333-1772

Preco
818-842-4632

TV Logic USA
818-567-4900

TV One
859-282-7303; 800-721-4044

Plasma/LCD Displays

Blackmagicdesign

Blackmagic Design
408-954-0500

Genum
905-632-2996

Hitachi Kokusai Electric America
Ltd
516-921-7200

Plura Broadcast
602-944-1044

SoliDDD Corp.
702-629-2965

TV Logic USA
818-567-4900

TV One
859-282-7303; 800-721-4044

Projectors

Barco Visual Solutions LLC
770-218-3200

Christie Digital Systems Inc
714-236-8610; 800-407-7727

Genum
905-632-2996

Video monitors

Autoscript
203-926-2400

Blackmagicdesign

Blackmagic Design
408-954-0500

e-mediavision.com
+44 208 755 2014

Ikegami Electronics
201-368-9171; 800-368-9171

Image Video
416-750-8872

JVC Professional Products
Company
800-582-5825

Marshall Electronics
310-333-0606; 800-800-6608

Plura Broadcast
602-944-1044

TV Logic USA
818-567-4900

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

The logo for Wohler Technologies Inc, featuring a stylized blue 'W' followed by the word 'Wohler' in a bold, black, sans-serif font.

Wohler Technologies Inc
510-870-0810

Video presentation equipment

Avitech International Corporation
425-885-3863

Christie Digital Systems Inc
714-236-8610; 800-407-7727

Evertz
905-335-3700; 877-995-3700

PRODUCT DIRECTORY

Extron Electronics
714-491-1500; 800-633-9876

TV One
859-282-7303; 800-721-4044

Video walls

APANTAC
503-968-3000

Avitech International Corporation
425-885-3863

Barco Visual Solutions LLC
770-218-3200

Blackmagicdesign

Blackmagic Design
408-954-0500

Evertz
905-335-3700; 877-995-3700

Image Video
416-750-8872

TV One
859-282-7303; 800-721-4044

VIDEO ROUTING AND DISTRIBUTION

Control signal routers/patch panels

ADC
952-938-8080; 800-366-3889

Blackmagicdesign

Blackmagic Design
408-954-0500

Evertz
905-335-3700; 877-995-3700

Nevion
805-247-8560

Utah Scientific
800-453-8782

Video DAs

Advanced Fiber Products
847-768-9001

Atlona Technologies
408-962-0515

Blackmagicdesign

Blackmagic Design
408-954-0500

Census Digital Inc
416-850-0071

Cobalt Digital Inc
217-344-1243; 800-669-1691

Ensemble Designs
530-478-1830

ESE
310-322-2136

Evertz
905-335-3700; 877-995-3700

Gefen
818-772-9100; 800-545-6900

Horita Co
949-489-0240

Matrox Video Products Group
514-822-6364; 800-361-4903

Nevion
805-247-8560

Ross Video Ltd
613-652-4886

TV One
859-282-7303; 800-721-4044

Ward-Beck Systems Ltd
416-335-5999; 800-771-2556

Video processing amplifiers

Analog Way
212-269-1902

Blackmagicdesign

Blackmagic Design
408-954-0500

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Nevion
805-247-8560

TV One
859-282-7303; 800-721-4044

Video routing switchers

Atlona Technologies
408-962-0515

Blackmagicdesign

Blackmagic Design
408-954-0500

Cisco Systems
44(0)208824 1000

Communications Specialties Inc
631-273-0404

Ensemble Designs
530-478-1830

Evertz
905-335-3700; 877-995-3700

Extron Electronics
714-491-1500; 800-633-9876

Gefen
818-772-9100; 800-545-6900

Gennum
905-632-2996

Harris Broadcast Communications
800-231-9673

Intelsat
212-839-1800

Miranda Technologies Inc
514-333-1772

Multidyne Video & Fiber Optic
Systems
516-671-7278; 877-MULTIDYNE

Nevion
805-247-8560

PESA
256-726-9200

Quintech Electronics
724-349-1412; 800-839-3658

Riedel Communications Inc
818-241-4696

Snell Ltd
+44 (0) 118 986 6123

Thinklogical
203-647-8700; 800-291-3211

PRODUCT DIRECTORY

TV One
859-282-7303; 800-721-4044

Utah Scientific
800-453-8782

VidOvation
949-777-5435; 855-VIDOVA-TION

VIDEO STORAGE

Archive/DVD Storage

Avid
978-640-6789; 800-949-2843

BitCentral Inc
949-253-9000; 800-214-2828

Cache-A Corporation
866-931-5560

Crispin Corp
919-845-7744

Digital Broadcast
352-377-8344

Evertz
905-335-3700; 877-995-3700

Front Porch Digital
303-440-7930; 866-200-7222

Harmonic Inc
408-542-2500; 800-788-1330

SAN Solutions
775-745-8734; 866-661-7144

Sennheiser Electronic
860-434-9190; 877-736-6434

XenData
925-465-4300

Commercial insertion equipment/software

Crispin Corp
919-845-7744

Digital Broadcast
352-377-8344

Evertz
905-335-3700; 877-995-3700

Floral Systems Inc
352-372-8326

Motorola Satellite & Broadcast Network Systems
858-404-2933

On-air presentation systems

Crispin Corp
919-845-7744

Evertz
905-335-3700; 877-995-3700

Pebble Beach Systems
44-1932-333-790

Still/clip stores

Ciprico
763-551-4000; 800-727-4669

Evertz
905-335-3700; 877-995-3700

Video Technics Inc
404-327-8300

Vizrt
+46 8 522 277 07

Vizrt
212-560-0708

Tape library systems

Cache-A Corporation
866-931-5560

XenData
925-465-4300

VDRs (video disk recorders)

Blackmagicdesign

Blackmagic Design
408-954-0500

Digital Video Competence GmbH
+49 8152 3961400

Doremi Labs
818-562-1101

Harmonic Inc
408-542-2500; 800-788-1330

Video servers

Autocue / QTV
212-929-7755

Digital Broadcast
352-377-8344

Digital Video Competence GmbH
+49 8152 3961400

Doremi Labs
818-562-1101

Evertz
905-335-3700; 877-995-3700



Evertz Media Server (EMS) is the most scalable, flexible, and reliable media server system on the market.

- *Scalability: Using Evertz SuperNASTM, the EMS system can scale up to a thousand ingest & payout clients.*
- *Flexibility: Open architecture of the EMS system eliminates the need for proprietary interfaces.*
- *Reliability: Guarantees bandwidth, throughput and uptime from ingest to storage to payout; providing more bandwidth than any other supplier.*

EVS Broadcast Equipment
+32 4 361 7000

Harmonic Inc
408-542-2500; 800-788-1330

Harris Broadcast Communications
800-231-9673

Hi Tech Systems
+44 1256 780880

LEIGHTRONIX

Leightronix
517-694-8000; 800-243-5589



The ULTIMATE VIDEO SERVER has arrived, giving video professionals the perfect tool to bridge the gap between automated broadcast television and streaming video-on-demand. The UltraNEXUS provides the high-quality digital video playback and recording features needed for broadcast television operations along with digital video recording optimized for producing Internet-ready programming.

Quantel
203-972-3199

SAN Solutions
775-745-8734; 866-661-7144

Video Clarity
408-379-1381; 866-748-8072

Video Technics Inc
404-327-8300

VTRs (video tape recorders)

BUF Technology
858-451-1350

VidOvation
949-777-5435; 855-VIDOVA-
TION

WIRE, CABLE & CONNECTORS

Audio cable

ADC
952-938-8080; 800-366-3889

Belden
765-983-5200; 800-235-3361

Clark Wire & Cable
847-949-9944; 800-222-5348

Gepeco Intl Inc
847-795-9555; 800-966-0069

Marshall Electronics
310-333-0606; 800-800-6608

Whirlwind
585-663-8820; 800-733-9473

Audio connectors

ADC
952-938-8080; 800-366-3889

Fischer Connectors
678-393-5400; 800-551-0121

Gepeco Intl Inc
847-795-9555; 800-966-0069

Switchcraft Inc
773-792-2700

Whirlwind
585-663-8820; 800-733-9473

Fiber optic cabling

ADC
952-938-8080; 800-366-3889

Belden
765-983-5200; 800-235-3361

Canare Corp of America
818-365-2446

Clark Wire & Cable
847-949-9944; 800-222-5348

Device Technologies Inc
508-229-2000

Gefen
818-772-9100; 800-545-6900

Gepeco Intl Inc
847-795-9555; 800-966-0069

Multidyne Video & Fiber Optic
Systems
516-671-7278; 877-MULTIDYNE

Optical Cable Corporation (OCC)
540-265-0690; 800-622-7711

Telecast Fiber Systems
508-754-4858

Modular frame systems

Cobalt Digital Inc
217-344-1243; 800-669-1691

Video cable

ADC
952-938-8080; 800-366-3889

Belden
765-983-5200; 800-235-3361

Canare Corp of America
818-365-2446

Clark Wire & Cable
847-949-9944; 800-222-5348

Gepeco Intl Inc
847-795-9555; 800-966-0069

Video connectors

ADC
952-938-8080; 800-366-3889

Canare Corp of America
818-365-2446

Fischer Connectors
678-393-5400; 800-551-0121

Gepeco Intl Inc
847-795-9555; 800-966-0069

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Brad Dick
 Brad Dick, Editorial Director

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Brookings Institution Studio

Excellence Award category

New studio or RF technology — station

Submitted by

Lawson & Associates, Architects



Design team

Brookings: Ed Berkey, asst. dir. of AV-studio svc.

Lawson & Associates, Architects: Bruce Lawson, principal.; James Ahn, design architect

DesignTech, MEP Engineers: Matt Bowers, principal

Henning Associates, Acoustical Engineers: Gerald Henning, principal

DSI: Mike Burke, broadcast design eng.; Shawn Sammi, proj. mgr.

JGB Engineering: John Bull, principal

Technology at work

Apple: Final Cut Pro NLE

AMX: Control panels, PLV camera controllers

Cobalt Digital: Distribution amps, up/downconverters

Clear-Com: Encore intercom stations, Announcer consoles

Evertz: Fiber-optics transmission, MVP processor

Hitachi: DK-H100 HD box camera

PESA: Cheetah HD/SD-SDI video router, Dcelot NTSC video router, DSR audio router

Ross Video: CrossOver switcher, SoftMetal DDR

Sony: EVI-HD1 camera, monitors

Telemetrics: Pan-tilt heads

Telestream: Vantage transcoding and workflow automation

Wheatstone: Evolution mixers

The Brookings Institution opened a broadcast television/radio studio in September 2001 to provide live and taped interviews by its scholars giving analysis of breaking news to news outlets worldwide. The original analog-based facility continued to show its value in 2009 when more than 1000 interviews were conducted that year. But the equipment and systems installed in 2001 were past their useful service lives, and the television industry had transitioned to digital.

So Brookings, working with JGB Engineering, developed a plan to upgrade the studio to an HD file-based facility. Lawson & Associates, Architects designed the new facility, which would expand by adding a dedicated radio studio, a second control room, an edit suite and new equipment core. Diversified Systems was chosen to integrate the project, which was completed in March 2011.

The new Brookings studio needed to handle audio from multiple formats and delivery methods. PESA provided a unified solution by combining HD-SDI and NTSC video routers with a DSR audio router. The PESA DSR audio router provides seamless routing of audio between embedded, discrete, analog and AES sources, and provides internal embedding and de-embedding functions. The Wheatstone WheatNet-IP blades for microphone, analog and AES I/O also added flexibility to the system. These systems eliminated the need for dozens of outboard cards and frames, saving space and power, as well as reducing cooling needs.

Another key design requirement was the ability for each control room to have complete control of either studio or the cameras in the press briefing rooms at the press of a button. An AMX control system provided this function with touch panels and PLV camera controllers in each control room. The AMX system recalls custom-built presets of the Evertz MVP, PESA routers, Ross Video CrossOver switcher and Wheatstone Evolution mixers. The AMX also enables operators to customize the views, routes and mixer channels of each system via touch panels in the control rooms, equipment core or web access. The AMX PLV controllers operate two Hitachi DK-H32 cameras in the television studio, a Sony EVI-HD1 PTZ camera in the radio studio and seven Hitachi HV-D5 cameras in the press briefing rooms, depending on the preset selected.

Brookings' editors were already familiar with a file-based workflow, having used JVC FireStore and SD card cameras. Now Brookings wanted to ingest video and audio from the new facility and press briefing rooms. File ingest and transcoding functions are handled by workflows built in Vantage, from Telestream. Vantage shares gigabit access to a media SAN with the three Apple Final Cut Pro edit systems. Original and edited media files are dropped into watch folders on shared drives to copy original media files into archives, place copies into edit folders, transcodes files, and deliver files to both internal and external clients. The workflows relieve edit systems of transcoding processing, provide continuity in media file management and automate the delivery of media files to end users. ■



CBN

Excellence Award category

New studio or RF technology — station

Submitted by

Calrec Audio

Fifty years ago, the Christian Broadcasting Network (CBN) became the nation's first Christian television station. Today it is one of the largest television ministries in the world, with programming in 200 countries. Its flagship domestic show, "The 700 Club," has approximately 1 million daily viewers.

CBN embarked on an upgrade of its Virginia studios with several criteria in mind for its audio infrastructure. CBN wanted to replace its existing audio equipment with consoles that would yield exceptional sound quality and make the transition to 5.1 easily. The infrastructure had to be reliable and flexible enough to handle a variety of shows, from talking heads to large music productions — including live air mix and multitrack — on the same console. For larger shows, the equipment needed multi-operator functions and/or split-desk configurations so that multiple operators could use the same equipment. Ease of use and prompt, accessible manufacturer support were critical.

The goal of the upgrade was to enable mirrored control rooms to share resources fully, making it easier to move productions between rooms or access each other's I/O for cross-studio productions.

Complicating the situation was the fact that CBN continued to produce daily shows during the upgrade. The equipment had to be installed on a weekend so that CBN could broadcast its weekday programs without disruption. That meant removing the old system after the last production on Friday, and starting production with the new system on Monday morning — leaving just two days to install the new equipment and get it working perfectly.

Calrec consoles were at the heart of CBN's audio infrastructure upgrade. CBN installed two 48-fader Calrec Artemis Beam mixing consoles to cover all three of its studios. The consoles are linked via the Calrec Hydra2 audio routing system, giving CBN the ability to share any resource across its network. I/O that is attached to either system is available to either system, and the plug-and-play nature of the I/O makes it easy to add I/O boxes as needed when doing remote broadcasts. Also, the masters, groups, auxiliary and multitracks are always available even if the operator chooses not to use them. This means that bringing an extra group online is straightforward and can be done instantly without reconfiguring any other part of the system.

The console's expanded master output section, 12 A/B layers of faders and split-send functionality on track sends were significant benefits. During a recent larger production, which employed three 48-channel splits for production sound, the on-air mixer brought each split into the consoles on a separate layer. At the same time, the mixer brought playbacks and other "air-only" audio sources into the production server. All I/O was converted to Hydra2 at the splitter, keeping noise on the audio copper to a minimum.

This ability to share resources saves CBN money because it eliminates the need to rent extra consoles or I/O in the future to make a large show fit within the console. Also, the console's ease of use means CBN can ramp up for shows much faster, and it takes much less time to configure the console for a given show. ■

Design team (audio)

Christian Broadcasting Network

(CBN): Jce Venable, proj. mgr.; Kent Denton, dir. of eng.; Phil Peters, dir. of audio services; Mike Price, sr. eng.

Technology at work (audio)

Bricasti: M7 reverb with remote
Calrec Audio: 48-fader Artemis Beam multilayer surface with seven Hydra2 I/O boxes
Cedar Audio: DNS-1000 processor
Dolby: LM100 loudness meter, DP570 multichannel audio tool
Eventide: H-3000B effects processor
Izotope: ANR-B processor
JBL: LSF4328 surround monitoring loudspeakers
Lexicon: PCM91 digital reverb
RTS: ADAM Matrix intercoms
Sennheiser: EM 3732 dual-receiver 8-channel wireless microphone system with SKM 5200 handhelds and SK 3063 body packs, 8-channel 300 IEM G3 system
SoundField: UPM-1 upmixer
Wohler: A-2 station monitoring



Cox Media Group Ohio

Excellence Award category

New studio or RF technology — station

Submitted by

Comprehensive Technical Group



Design team

Comprehensive Technical Group:

Jim Wile, pres.; Steve McCormick, VP; John Bluhm, VP; Josh Shibler, proj. mgr.; Ry Alford, sr. account mgr.; James Beattie, head of computer svc.; Doug Wake, sr. design eng.; Les Lassiter, eng.

Cox Media Group Ohio: Dave Thomas, sr. dir. facilities and eng.; Chuck Eastman, chief eng.; Steve Hardy, asst. chief eng.; Ron Taylor, IT eng.

Bloomfield and Associates (Philadelphia): Architects

Technology at work

Avid: Editing

Avocent: KVM

Evertz: Terminal equipment

Grass Valley: MCR and production switching, cameras

Harris: Automation

RTS: Intercom



Cox Media Group Ohio (Cox) has been at the industry forefront throughout its 112-year history. Cox is committed to integration of its TV, radio and newspaper operations, simultaneously maximizing efficiency and expanding reach. It followed naturally for Cox to partner with another industry leader, Comprehensive Technical Group (CTG) in 2009. Cox backed up its commitment to innovation with a \$13 million investment in a newly configured studio, centered on its flagship television station WHIO-TV, simultaneous to a \$30 million renovation of its Cox Ohio Media Center. Not only does Cox support traditional entities with efficiencies of scale and combined resources, but also the facility is hardwired to support emerging media outlets. The forward-thinking that allows content to migrate effortlessly between TV, digital media, print and radio has made Cox Interactive a major player in digital media.

CTG faced one central challenge within its project scope of provisioning, engineering, integrating and relocating broadcast facilities for WHIO-TV: how to keep the current facility on-air while repurposing and reusing about 30 percent of the existing gear into the new system, all with no interruption of signal. CTG identified this key efficiency (which allowed greater flexibility in other budget areas) and pulled it off through careful planning and close client communication via video-conferencing.

The project scope included master control, production control, satellite distribution, technical core, editing, IT infrastructure, graphics, weather graphic systems and studio. Key product lines included Grass Valley for master and production control, Harris for automation, Evertz for terminal gear and Avid for editing. Project manager Josh Shibler described one key advantage for the project: adequate and appropriate space. “The previous facility had been built piecemeal over 60 years,” he said. “Here we had custom space, and a clear sense from the beginning of what went where.”

The state-of-the-art planning extended to every detail, culminating in a 10in thick sod roof that was not only green, but soundproof enough to mitigate the helicopter flyovers from a local hospital.

Senior account executive Ry Alford described another significant project challenge: an unalterable deadline. “We knew from the day we signed on in January that on Dec. 11, within a span of a few hours, we would be making this shift,” he said. “We nailed this deadline with early project planning, meeting mutually agreed milestones and maintaining good client communications.”

All of this unfolded within a complex master project also comprising build out/installation of sets, a newspaper newsroom and relocation of multiple radio stations.

CTG staff was on-site from June through Dec. 2010, and when the switchover was completed on time and flawlessly, they were proud of playing a major role in a facility that answers real needs — not just for the staff it houses, but also for the viewers who now get more and better information about their world. ■



PBS39 WLVT

Excellence Award category

New studio or RF technology — station

Submitted by

The Systems Group

When civic leaders from Bethlehem, PA, decided to redevelop the old Bethlehem Steel mill into a new community center (complete with art galleries, a multiplex movie theater, outdoor stages, retail outlets and restaurants), it provided the town with a sorely needed reclamation project to boost the local economy. The new “Steel Stacks” arts and cultural campus also provided a new home for WLVT, the local PBS affiliate (channel 39), which would bring it closer to the local community and increase ratings for its local HD newscasts.

The project was critical to WLVT’s future, as it had been renting space across town at Lehigh University and wanted to expand and update its production infrastructure. Station management called in veteran system integrators The Systems Group (TSG) from Hoboken, NJ, to help it migrate from mostly tape-based SD operations to an IT-centric HD production and distribution environment.

A new two-story 29,000sq-ft building was constructed from the ground up, giving the station a chance to start from scratch and implement an end-to-end, file-based workflow (using XDCAM HD as the house format). Once construction began in June 2010, it took 15 months to acquire, implement and test the new equipment and systems. (A grand opening celebration was held in September 2011.) The architectural firm of URS provided the station with an open and airy space, featuring lots of glass windows and open internal sightlines that facilitate easy collaboration among the production staff.

Working with the WLVT engineering team, TSG designed and implemented two HD-SDI production studios (“A” and “B”), a master control room, one production control room, an audio control room, six edit rooms (including three with Apple’s Final Cut Pro and three featuring Avid Media Composers), a central equipment room and a technical expansion area (where an insert studio with a green-screen set and other equipment will be installed at a later date). All are fully networked together to ensure easy access to every signal in the building from any desktop.

The new master control suite overlooks the street level of the new complex, where there’s a large Panasonic LED display (15.54ft by 9.45ft) outside the building that shows WLVT programming, announces community upcoming events and is a live feed when production is going on in the studios. The building also features extra space, in the form of an Educational & Cultural Center, which is open to outside clients to rent space and produce interviews in the production studio and distribute them via a 4.9m satellite dish on the roof (to transmit and receive programs to and from any satellite). Clients can also finish programs in the FCP and Avid suites.

For the local community, the new building is a welcome addition, and the station’s newscasts ratings are sure to get a bit more competitive. ■



Design team

WLVT: Tim Fallon, project dir.; David Smith, eng.; John Owen, Qcomm
URS: James Brennan, lead designer; Philip Paulin, proj. architect; Bob Schisler, proj. architect; Mike Russell, proj. mgr.; Neal Clements, LEED A.P.

The Systems Group: Scott Griffin, principal and VP eng. & tech.; John Meusel Jr., sr. account exec. & proj. mgr.; Jeff Rivera, sr. sys. eng.; Juergen Kircher, integration supervisor

Technology at work

Andrew/ASC: 4.9m Ku-Band Tx/Rx antenna system

Apple: Final Cut Studio

Avid: Media Composer Nitris DX

Evertz: EQX routers 244 x 244, VIP multiviewer, EMC master control switcher, reference system

Grass Valley: Kayak HD 2.5 M/E production switcher

Harris: NEXIO servers

Marquis: Medway system (edit SAN support and Archiving)

MicroFirst: On-air automation

Panasonic: Outdoor LED screen (15.54ft by 9.45ft)

Raritan: KVM platform

RTS/Telex: CRONUS digital matrix communications system

Sterling Modular: Custom millwork

Wheatstone: D-10-24 audio work surface w/22-slot bridge router

Multimedios

Excellence Award category

New studio technology — network

Submitted by

TV Magic



Design team

TV Magic: Oscar Eguia, design eng.;
Javier Lujan, proj. eng

Technology at work

Aphex: 2020MkIII audio processor

Cobalt Digital: Distribution

Evertz: 5601MSC+2P+GP+T+HDTG
combo master sync

Harris: CMN-91 legalizer

Miranda: NVISION 8280 router

Multimedios Television is one of the largest media corporations in Northeast Mexico, with television, radio and print operations throughout the country. Programming is originated at the network's eight-channel master control facility and headquarters in Monterrey, Mexico.

Multimedios hired TV Magic to upgrade its eight-channel master control to HD. The facility needed the power and capacity for all of its network operations to run out of a single location. TV Magic designed and implemented a forward-looking infrastructure that takes advantage of new technology to allow for future growth without compromising on-air operation of the eight existing master control channels, including three with branding.

The focus of this project was to deliver versatility and functionality, enabling streamlined workflow and interconnecting the studios of six local channels, two channels out of Mexico City and 125 feeds. This was achieved by automating the system with a Miranda panel master control switcher so that one person could control any channel with the push of a single button.

One of the biggest design considerations of the project was to ensure that the existing control room could proceed with normal operations while the HD upgrade was in progress. To facilitate this, TV Magic designed and built the entire master control system in-house and brought Multimedios engineers to its San Diego headquarters for training. This enabled TV Magic to identify any potential issues before the system arrived on-site and allowed Multimedios engineers to become familiar with the new system functionality prior to actual use. Once the system arrived in Monterrey, Mexico, TV Magic installed the system in phases to ensure there was no disruption of on-air time.

TV Magic was able to gain operation efficiencies by designing an elegant technology solution, including: a Miranda router to deliver control redundancy and reduced risk of operator error, Cobalt Digital modular equipment for



its customizable and flexible user interface, and an Evertz sync generator and Aphex audio processing. TV Magic was able to deliver a digital master control facility that greatly streamlines Multimedios' operations and allows for much more effective monitoring of the multiple channel feeds. ■



TV-3

Excellence Award category

New studio technology — network

Submitted by

Ross Video

Battling a tight deadline of under a year from concept to on-air debut, and keeping ABC's "World News," "Nightline" and "America This Morning" shows on the air throughout, ABC News and ABC's Broadcast Operations and Engineering teams performed a complete control room, graphics, and editing playback rebuild and production workflow overhaul by integrating show elements under automation control in HD.

A project of this magnitude could take years, but the mission-critical needs of ABC News accelerated the timeline, and much of the existing architecture and infrastructure was retained to make schedule. Embracing the changes that go with production automation proved to be the most significant challenge. In a major cultural shift for the 24/7 network news operation, TV-3's editorial staff had used Avid iNews as the primary tool across all news programs.

Because so many sources feed the control room, upstream components like graphics, playback and editing needed to be simultaneously rebuilt. The challenge was providing full redundancy for all these components. Ross Video met the design directive and configured a backup switcher for TV-3 to maintain all device control and ensuring continuous signal flow in case of a failure on the primary Vision 4 switcher. OverDrive was to cue and play the "air" and "protect" Omneon channels simultaneously in a single rundown event.

Another layer of complexity was the design of the graphic elements. They needed to transition on and off in sync with video clips. Innovations in OverDrive included MOS control over Chyron clips and the ability to "hide" a channel in OverDrive.

TV-3 now automates "ABC's World News," "Nightline," "America this Morning," "World News Now," and "GMA News" with improved performance and efficiency. The quality, reliability and simplicity of the Ross OverDrive system allowed ABC News to successfully migrate to an automated control room environment in the most expeditious way. Ross OverDrive makes significant use of the Vision switcher's device control capability. Control of the Calrec audio mixer, Vinten Robotics, Omneon and EVS servers, and Chyron HyperX was critical to the integration of show production via OverDrive. TV-3 replaced its existing switcher with a Ross Vision Octane 96-input switcher, with additional DAs added to accommodate the newly added input capacity.

TV-3's audio console was replaced with a Calrec Sigma digital audio console, equipped with 128 AES I/O and 128 analog I/O. In cooperation with ABC, Calrec provided a custom-built interface that allowed the new console to be plug-compatible with the previous console. This approach saved a significant amount of installation time. The Ross OverDrive interface with Calrec is an integral component of the ACR operational workflow.

Using a combination of Evertz and Ross technology, fiber connectivity to ABC's HD routing infrastructure was added as well. Further, the Ross Vision switcher is fully integrated into the Image Video TSI-3000 system, the Miranda K-X processor and the Evertz EQX house routing system. All the source names are controlled by an application developed for ABC by VASGO. ■

Design team

ABC operations team: Renu Thomas, VP news ops.; Brad Wall, exec. dir., news studios ops.; Tamar Gargle, dir., news graphics ops.; Patrick McNeive, dir., news editing ops.; Yoni Mintz, coordinating producer

ABC production team: Jeff Winn, exec. dir., ABC News; David Distinti, dir.

ABC technology team: Todd Donovan, VP, TV network tech. & ops.; Joe Busch, group dir., broadcast support; Marcy Lefkovitz, dir., news tech.; Susan Renner, dir., digital media sys.; Doug Mason, assoc. dir., news tech.; Chun Hu, gen. mgr., broadcast sys. support; Bill Rego, gen. mgr., live production & special events; Adam Cooper, mgr., news tech.

ABC engineering team: Ken Michel, VP, content sys. & eng. svcs.; Robin Thomas, group dir., client relations & sustaining eng.; Chris Bauer, dir., eng. & tech. construction; Ray Fritzky, mgr., broadcast eng.

Technology at work

Calrec: Sigma audio console

Evertz: Router control and modular equipment

Image Video: TSI-3000 system

Miranda: Kaleido-X monitor wall processor

Ross Video: Production switcher, OverDrive automated production control system, modular equipment

WABC Studio 77

Excellence Award category

New studio technology — network

Submitted by

The Systems Group



Design team

WABC: Kurt Hanson, VP eng.; Jim Gorham, VP creative svc. & prod.; David Hewitt, asst. dir. eng. ops.; Stan Briggs, asst. dir. eng. maintenance; Roberto Lanza, asst. dir. eng. IT

TSG: Jared Miller, proj. mgr./sr. eng.; Niels Haenebalcke, proj. eng.; Fritz Laureore, lead technician

Technology at work

ADC: Fiber/data demarcs, video jackfields

Adtec Digital: HDMI2QAM CATV modulators

AJA Video Systems: Mini converters

Audio Accessories: Audio jackfields

Avocent: HMX KVM switching

Bexel: Custom RF distribution network

BSS: Soundweb London audio processing

Cisco: Network switches

Crestron: AV2 control system

Evertz: 7800 modular processing

Fujinon: Lenses

Haivision: CoolSign digital signage software

Ikegami: HDL-45 cameras

NEC: X, P and V-Series LCD monitors

Panasonic: HD outdoor cameras, controller

Sennheiser: Wireless microphones

Telemetrics: Track camera

Vinten Radamec: Camera robotics

Vista: Spyder display processor

WABC recently unveiled its new state-of-the-art flagship studio on the corner of 66th and Columbus streets in the heart of Manhattan. WABC required a highly efficient, remotely controlled studio to support daily news and public affairs programming, as well as any special events that may arise. To accomplish this, Studio 77 is remotely connected to existing control room facilities located at 7 Lincoln Square, making it accessible to all of WABC's productions. WABC engaged The Systems Group of Hoboken, NJ, to develop the conceptual design and launch the new operation under an aggressive project timeline.

To extend the capabilities of Studio 77 to each of three existing production control rooms, a considerable fiber-optic infrastructure was installed for most signal types. Rather than use more traditional transmission hardware for audio, WABC/TSG deployed the BSS Soundweb London platform to handle all audio processing and transmission using a dedicated CobraNet audio network. The ability of the system to be reconfigured from a simple GUI interface has proven to be remarkably useful, allowing operational changes to be made in the virtual realm without requiring any new hardware or rewiring.

To achieve a distinct on-air look, extensive use of LCD monitors was made throughout the set. The main set elements are video walls comprised of 36 LCDs driven by a high-resolution display processor. Forty-five other monitors throughout the rest of the set support on-camera and talent monitoring. To facilitate monitor control, WABC/TSG deployed a custom Crestron-based control system that is accessible locally and from each of the three remote production control rooms. The system allows individual control over each of the monitors, as well as the lighting, shades and exterior audio feeds. The system is further linked to the news automation system, allowing rundown-based recall of many on-air looks. An extensive KVM infrastructure was deployed over WABC's converged 10GigE network, including cloning all weather systems from the existing newsroom to a new weather center built into Studio 77.

The addition of eight new robotic cameras necessitated that the existing control system be replaced in a seamless, overnight cutover. Studio 77 also features an overhead "track cam," delivering compelling shots of the entire studio floor. Three cameras were added outside of the building to provide live video of the neighborhood, including one placed in the park across the street, fed back over an IP microwave link. To optimize the street-side experience for visitors, 14 outside-facing LCDs display a mix of the station's air signal and real-time weather radar. In addition, a full-color, high-resolution video ticker displays up-to-the-minute headlines, weather and programming information. A speaker system built into the ticker's housing allows crowds to hear the production unfolding through the windows.

TSG also worked with WABC engineering and operations personnel to develop a fully integrated, remotely controlled studio. The new studio was built as a flexible platform, allowing the station to produce news and public affairs shows now, and also to be ready for whatever the future may bring. ■



The Gayle King Studio

Excellence Award category

New studio technology — HD

Submitted by

NEP Broadcasting

The Gayle King Studio, located at 401 5th Ave. in the heart of Manhattan, may be one of the smallest in the city, but don't mistake its size as an indication of the amount of punch the production package inside packs.

The Oprah Winfrey Network (OWN) came to NEP in 2010, looking for a convenient location to house the only live show the network intended to include in the lineup for the January 2011 launch, "The Gayle King Show." King was already hosting a live daily two-hour radio show of the same name on Harpo Radio, so this new studio would have to do double-duty, broadcasting both a live radio show and a live TV show. With a tight daily schedule, King required a convenient location, adding another challenge to the mix: The studio needed to be in the heart of Manhattan. At the time, NEP did not have a pre-built, show-ready studio available, so it built one from the ground up to meet the unique needs of this show.

Ray DeMartini, NEP's lead fabrication and installation manager on the project, along with a staff of carpenters and electricians, carved a studio and office facility out of an existing engineering shop space, as well as some offices released by "The People's Court," a long-term client of NEP's located in the studio on the floor above.

As construction began, Frank Lanzer, chief engineer for NEP Studios, met with OWN and began the task of creating a facility that would not only be the home of OWN's only live television broadcast, but also would be the home of King's radio show. While certainly not a unique situation, the fact that Harpo Radio is located in Chicago, 800mi away, created an interesting twist.

During the facilities design process, the production team at OWN believed it would be best to have minimal personnel on the studio floor, making use of robotic cameras. However, once King settled into her new home for a few weeks of radio broadcasting and TV rehearsals, she found that the emptiness of the studio didn't fit the style she wanted for the show. Lanzer and his team quickly did an about-face and re-engineered the solution to include four manned cameras and a Steadicam. Not only were they able to transition Gayle's radio show to the new space seamlessly, NEP had everything in place to launch the television broadcast of her show without a hitch.

They hit air in mid-January, on time and on budget, and have been going almost non-stop since with a flawless technical record for delivery. ■



Design team

NEP Studios: Frank Lanzer, proj. mgr. & chief eng.; Ray DeMartini, fabrication & installation; Gray Winslow, facility mgmt. & on-site eng. in charge; Barry Katz, VP

Technology at work

Abekas: AirCleaner
AJA Video: FS1 frame synchronizer and converter
Chyron: CAMIO server, HyperX³ running Lyric 8.0
Evertz: CDI-9084 HD color correctors, CDI 9321 HD embedders, CDI-9821 downconverters, HD-9010 time code master generator, 7735 CDM SD embedders, VIP-18 HD multiviewers
Grass Valley: Concerto router with dual Jupiter controllers, Kayak switcher
RTS: Cronus matrix intercom system
SnapStream Media: SnapStream Servers with HD output
Tektronix: 422G auto switchover, TG700 master sync generators
Yamaha: M7CL mixer
Sony: HXC-100 cameras with HXCU-100 CCUs, XDCAMs
Tiffen: Zephyr Steadicam



KOMO-TV

Excellence Award category

New studio technology — HD

Submitted by

Wheatstone



Photos courtesy Rob Purdy

Design team

Fisher Communications: Lee Wood, dir. of eng.

KOMO: Brett Jungbluth; John Reynolds

Technology at work

Evertz: EQX router, MVP multiviewer

Sony: MVS-7000X switcher with ELC automation, PVM-OLED monitoring, HDC-P1 cameras with Vinten Fusion controls

Wheatstone: Dimension One audio console, 48 virtual faders

Like many TV stations, KOMO-TV in Seattle had long been broadcasting using a fully HD-capable master control room. Its production facilities, used many times daily for its newscasts, were capable of 16:9 production, but not HD. That needed to change, said KOMO engineer John Reynolds. "In addition to the need for HD capability, much of our key equipment was reaching end-of-life and would soon not be well supported by its manufacturers," he said.

That, combined with significant stability issues with audio and video equipment, necessitated an upgrade. Sony's ELC newsroom automation system was chosen to streamline the news production workflow, and a Sony MVS-7000X production switcher was selected to handle video control. That left one key need unfilled: audio.

The existing audio console had long been considered rather complicated to operate; KOMO needed a stable, operator-friendly alternative. Several consoles were considered, including Wheatstone's D-8 control surface, but in the end the need for more control flexibility and more mix-minuses led to a different direction. The final choice was Wheatstone's Dimension One, the latest network-based TV audio console from that manufacturer. It seemed to offer the best fit in terms of price, flexibility and power.

Design work on the new control room began in April 2011. Construction began shortly thereafter with the assistance of Advanced Broadcast Solutions, an integrator that handled installation, wire management and documentation. Most of the systems required some configuration and setup, but Reynolds got a pleasant surprise with the Dimension One.

"We were able to unpack it, plug it in and turn it on immediately; the console was ready to go before Wheatstone's commissioning engineer even arrived on site," he said. "No other system was that easy to get running."

The control room went live on Oct. 8, 2011, and the simplicity initially experienced remained a running theme with the Dimension One.

"Our operators found it to be extremely simple and straightforward to work with," Reynolds said, "and it's by far the most incredibly stable console we've worked with." The Sony ELC news production automation system's audio facilities are capable of controlling 48 logical faders, and the Dimension One was ordered to provide that exact number, an important consideration.

"The greatest part of the Wheatstone experience was the simplicity," said Brett Jungbluth, systems engineer. "Because there was so much to do in getting this facility ready for air, we had very little time to spend in training with Wheatstone. The other side of the coin is that the simplicity of the console's operation meant that we actually needed less training."

KOMO's new news production control room is now in full-scale operation. While the facility is occasionally used for commercial production, such sessions are difficult to schedule because of the need to produce newscasts throughout the day. The project's ultimate goal — to produce HD newscasts, important in today's competitive television market — seems to have been well satisfied. ■





Austin City Limits

Excellence Award category

New studio technology — non-broadcast

Submitted by

Sony

Design team

Sony Electronics: Prime systems contractor

Beck Associates: Systems integrator

Andersson-Wise: Project architect

Rios Clementi Hale Studios: Venue architect

Technology at work

Avid: Unity, Pro Tools systems

Canon: Lenses

Evertz: Routing, multiviewer

Genelec: Audio monitoring

Harris: Multiformat signal analyzer

Sony: HDC-1400 and HDC-P1 cameras, MVS-8000G production switcher, XDCAM PDW-HD1500 decks, Ziris digital signage system



“It’s a dream come true in so many ways.”

That’s how executive producer Terry Lickona describes the new home of Austin City Limits (ACL), not only the design and construction process, but the final result as well. The ground-up project had an extremely tight time frame — completed in just 60 days. The ACL team also needed to preserve the organization’s rich history of live performances while keeping an eye on the future. ACL, however, was also faced with the reality of being a public television station, which meant limited resources. In other words, the project needed to be done right, with the right partners.

Completed in 2011, the new facility achieved, and exceeded, each of ACL’s goals: a new 2700-seat combination live-music venue and studio soundstage that features a range of HD-production technology from a range of manufacturers. The studio features Sony HDC-1400 and HDCP1 studio cameras, an MVS-8000G production switcher and XDCAM HD decks, which are used for camera ISOs, program mastering and archiving. Two video walls running the Ziris Canvas digital signage system are used to promote upcoming events and other Austin City Limits programming and events.

Sony was the prime contractor for the project, working with Beck Associates on the systems integration for the new studio, which is located adjacent to the new W hotel in Austin, TX. Sony pulled together a complete team to handle design, systems integration and product installation, and worked with ACL every step of the way to make sure its unique requirements were met. For example, the new studio is designed to upgrade easily to 3-D production.

“We wanted a 3-D-ready infrastructure, the ability to easily bring in some rigs and cameras and have everything ready to go,” said Jeff Peterson, ACL producer. “Now, all of our routing and switching is 3-D-capable, plug-and-play.”

ACL also wanted to recreate most of what existed in the old facility in terms of camera angles and set pieces. The previous facility was HD/720p, so a priority for the new build was 1080p throughout, as well as a move from a fully tape-based environment to tapeless operation and the creation of a fiber-optic link to the original studio where the servers are housed. Edit teams ingest into those servers in real time and ACL also backs up on Sony XDCAM 1500 decks, giving it a long-term archive option as well as a reliable backup medium.

The facility itself is a success in every sense, but ACL also credits its work and unique relationship with the Sony Systems Solutions Group as integral to getting everything designed, built and completed.

“We talk about Austin City Limits as an experience, and that’s why it means so much to people when they come to one of our productions,” Lickona said. “We’ve worked very hard to create a one-of-a-kind opportunity, and unless you’ve had the chance to come and see and feel for yourself what it’s like, it’s hard to explain. What you see on television is one thing, but actually being here and seeing it come to life and feeling the magic happening right before your eyes is a totally new experience.” ■

Matthew Knight Arena

Excellence Award category

New studio technology —
non-broadcast

Submitted by

Burst



Design team

Burst: Tom Norman, sr. design eng.; Don Rooney, VP of eng.; Dave Stengel, sr. proj. mgr.; Letha Koepp, proj. adm.; Christian Freeman, lead installer

Anthony James Partners (AJP):

Larry Lucas

Wrightson, Johnson, Haddon

& Williams (WJHW): Todd Semple

JMI Sports: Dave Daterman

Technology at work

AJA: Frame syncs and conversion

Blackmagic: DeckLink Studio 2

Chyron: LEX³ character generator

Clear-Com: 4-channel PL and Tempest wireless intercom

Ensemble: Conversion

Evertz: HD2014 PassPort processors

Fujinon: 50X and 23X lenses

Grass Valley: K2 Dyno replay system

Harris: Videotek sync generator and signal analyzer

Hitachi: Z-HD5000 triax cameras

HP: Edit workstation

JBL: Audio monitors

JVC: Blu-ray recorder

Marshall: Monitoring

Middle Atlantic: Racks

Miranda: Multiviewer

Ross Video: Vision 2 switcher with two control panels, distribution and conversion

Snell: A/V routing

Sony: XDCAM, PMW320K cameras, 47in LCD monitors

TBC Consoles: Technical furniture

Telecast Fiber Systems: Rattler fiber TX/RX

Vinten: Tripods and heads

Wohler: Audio monitoring

Yamaha: Digital mixing console

With a 60,000lb scoreboard that measures three stories tall and 36ft wide, the new 12,364-seat Matthew Knight Arena at the University of Oregon in Eugene, OR, is a show-stopper. Completed in January 2011 at a cost of \$227 million, it is one of the most expensive college arenas constructed to date. It's also in the running for LEED Gold certification.

The Matthew Knight Arena replaced MacArthur Court, affectionately called "the Pit" or "Mac Court" by fans. This University of Oregon legacy was home to the Oregon Ducks for nearly a century. After more than 80 years of use, fans were ready for a modern facility that could deliver a more engaging game-day experience. With multimedia components that allow for live coverage, instant replays, behind-the-scenes action, fans in the stands and promotional messages, the new arena does that and a whole lot more!

The design goal of the arena was to integrate new technology able to capture the action on the court and in the stands — and take the spectator experience to a higher level. Denver-based systems integrator Burst accomplished this with a robust HD system that handles a wide variety of sport and entertainment needs.

The overall project schedule was tight, making logistics and coordination critical. Considerable communication and coordination with other trades was essential to ensure that all contractors were able to complete their work on time. Services weren't always available or reliable. When the electricians needed to kill site power to test various systems, it placed an additional burden on the schedule for completion.

The new arena's video replay system consists of a central equipment room, a main control room and an auxiliary control room. The facility supports five dedicated HD cameras via patching at numerous JBT panels throughout the arena. Based on the camera location, the operator can shoot in a studio or handheld configuration. A camera at center follow position, another at slash and handheld cameras under each basket capture the action on the court. A floating handheld camera gets the fans in the stands and behind the scenes. Connectivity to the truck dock is available for sending and receiving feeds to and from visiting trucks. The system also accommodates live broadcasts, provides replays to the in-house audience and plays promotional messages on the screen. The video production system generates video signals for the large center-hung displays and the in-house MATV system.

Equipment selection for the Matthew Knight Arena was carefully considered to provide the best images at a cost-effective price. Key equipment includes Hitachi and Sony cameras, Fujinon lenses, a Ross Video production switcher, a Grass Valley K2 Dyno slow-mo, a Chyron character generation, a Miranda multiviewer, a Yamaha audio mixer, a Clear-Com intercom and a Snell routing switcher. Terminal equipment is dominantly Ross, with additional conversion gear by AJA, fiber transport by Evertz and sync generation by Harris. ■



Microsoft Production Studios

Excellence Award category

New studio technology — non-broadcast

Submitted by

Diversified Systems

Diversified Systems completed a major upgrade for Microsoft Production Studios (MSPS) in Redmond, WA. The project expands the existing stage, control room and distribution systems to enable 1080p60 HD multiformat production. Much more than a high-end, HD update, the systems are designed around 3Gig progressive video formats, thus completing the migration to a full file-based workflow that offers services not only to Microsoft but to outside clientele as well.

The HD upgrade is part of a multi-phase series of projects. Updates to three stages included Sony HDC1500RLD cameras with Canon lenses and associated video shading areas, which serve as the staging point for configuring new innovations in Microsoft products and technologies ahead of live studio productions. The production control room is outfitted with a Sony MVS8000X switcher, NEC S461 monitors driven by Miranda multiviewers and Sony PVM2541 OLED monitors. Surround and stereo audio mixing employs live mixing consoles and Pro Tools for DAW-editing and sweetening.

The MPAA-certified technical center was updated with Evertz 5601MSC redundant sync generators, EVS XSDPH 3Gig video servers connected to the Data Direct Networks SAN, an Avocent HMX KVM matrix feeding into Ensemble Designs BrightEye Mittos for 1080p screen captures, Miranda NVISION FR8576 router, and Miranda terminal equipment. The MSPS facility also serves as the preparation and compression services arm for Xbox 360 and Xbox LIVE, where motion picture releases and gaming products are compressed for delivery to users in high-resolution, progressive scanning formats with adaptive bit-rate encoding. MSPS houses the technical facilities for not only the post-production and live stage production services, but also serves as the coordination and transmission point for conference special events on and off campus. Additional services are enabled by the new Sony cameras, configured for use throughout the Microsoft campus carried over a fiber enabled network of bi-directional signal transports and control systems.

One of the key updates involved outfitting the entire infrastructure to use high-resolution video and computer systems, provisioned through a centralized video monitoring system comprised of 3G screen capture equipment, enabled for remote access from nearly anywhere in the building. Ensemble Designs' BrightEye Mitto scan converters and Avocent HMX desktop extenders over IP through Cisco network switches permit flexibility and adaptability for the integration of computer-based videographics systems into HD conventional video formats supporting SMPTE 259 (SD), SMPTE 292 (HD) and SMPTE 424/425 (3Gb/s) standards. The facility now links and enables a full file-based workflow over GigE and Fibre Channel to numerous editing suites, the DDN SAN and an LTO-tape based archive.

The design and implementation was completed in nine months while production operations continued. The facility now provides studio, editorial and related production services to clients needing full-service production/post-production, transmission and distribution services. ■

Design team:

Diversified Systems: Mike Meglathery, proj. mgr; Bert Swackhammer, lead project eng.; Bridget Gundy, lead installation supervisor; Brad Fisher, sr. account mgr.

Microsoft: Brian Honey, dir. of prod. studios; Larry Huisinga, chief eng.; Jack Clawson, chief sys. architect; Scott Taylor, sys. eng.; John Ball, sys. eng.; Max Denton, sys. eng.

Technology at work:

Avocent: HMX KVM systems

Canon: XJ23X7BIED/P01-DSS, HJ22ex7.6B IRSE, HJ14ex4.3BIASE lenses

Ensemble Designs: BrightEye Mitto 3G scan converters

Evertz: 5601MSC sync and reference generator system

EVS: XSDPH 3G video servers, IPDirector

Miranda: FR8576 router, Kaleido-X, K-16 and KVM multiviewers

Sony: HDC1500RLD cameras, MVS8000X production switcher, PVM2541 OLED monitors



NHL Network

Excellence Award category

Station automation

Submitted by

Comcast



Design team

Comcast Media Center: Paul Catterson, sr. dir., broadcast eng.; Lisa Gallagher, principal, customer solutions; Jeff Hagny, mgr., proj. ops.; Rich Rivera, mgr., broadcast sys. integration; David Graham, Eric Schultz and Griffin Moore, software developers; Rhett Hodel, mgr., live sports; Jeremy Harrison, mgr., on-air ops.; Jeff Harrison, supervisor, live sports

5280 Broadcast: Tony Rocanova, dir., eng.; Andrew Morris, sr. sys. eng.; Danny Rowland and Jeff Combs, integration specialists

NHL Network: Eric Eisenberg, prog. mgr.; Grant Nodine, VP, tech

Technology at work

Avid: Titan Automation

Chyron: Channel Box, HyperX3

Cisco: Network routers and switches

Evertz: EQX routing, MVP

multi-image display processing,

7800 series modular processing,

Vistalink monitoring and control

Front Porch Digital: DIVArchive

Ideas Unlimited: ContentProbe

NEC: Large-format displays

Omneon: Spectrum servers

Reality Check Systems: Ticker systems

TBC Consoles: IntelliTrac and TracWall

Vizrt: Ticker system

In late 2011, Comcast Media Center (CMC) launched the new NHL Network program origination operation in Comcast's Dry Creek facility in Centennial, CO. The operation provides the latest features and future growth potential the NHL Network channel requires. With the newly inked distribution agreement with NBC Universal, the NHL looked to employ the latest technologies and practices to enhance the on-screen experience and overall quality of its broadcast. It turned to the CMC to provide the scheduled and live-event origination as well as distribution services.

The NHL Network's goals for the new origination operation included enhancements to the NHL Network ticker, in-game production-grade graphics, alternate-market programming, and improved overall signal quality via a new compression platform that maintains native HD programming to the receiving affiliates.

In the facility, two MCRs are located immediately adjacent to each other within a short distance of the CMC central equipment room. One control room is responsible for the National NHL Network broadcast, and the other is tasked with the occasional alternate program distribution for blacked-out markets. The control rooms each include full-featured systems that offer advanced control over dynamic scheduling, as well as on-screen contribution elements.

The addition of an MPLS terrestrial fiber network connects nearly all of the North American hockey arenas to both the NHL studio operations and CMC via terrestrial fiber, yielding significant inbound feed capacity. To meet that capacity, a multichannel direct-to-disk server array provides feed record, as well as basic segmentation and editing capability, often within minutes of air time. The NHL then uses Signiant software to deliver pre-recorded content to the CMC's Media Aggregation Center for transcoding, metadata formatting and distribution to a third-party captioning service prior to the content being stored in the archive.

With the dynamic nature and pace of live sports programming, especially hockey, CMC needed to develop custom software tools to meet certain challenges in the deployment of the NHL Network's operation.

CMC's in-house Software Solutions Group provided automated traffic log conversions, applying a rules-based decision engine that saved the NHL and CMC programming staff many hours of time. They also worked closely with Chyron and Reality Check Systems on logical placeholder-style graphics scenes to ensure on-air elements could be updated dynamically with minimal effort from in-room staff. In addition, they developed a digital air check retrieval system to provide remote access to compliance recordings shortly after air.

To ensure the success of complex live event schedules, CMC uses Avid Titan automation to "link" playlists to control the national and alternate network playlists running into and out of service replacement periods. CMC leverages the MPLS network to acquire content, graphics and ticker data, in addition to sourcing venue feeds, enabling cost-effective delivery of multiple elements over a single platform.



WJLA-DT & NewsChannel 8

Excellence Award category

Station automation

Submitted by

The Systems Group

Most times, when a broadcaster calls in a systems integrator for help, it calls in a local company that is easily accessible and readily available. Yet, earlier this year when Albritton Communications wanted to upgrade its local cable news channel (NewsChannel 8, watched in more than 1.1 million homes), it contracted with The Systems Group (TSG), located in Hoboken, NJ (more than 200mi away.)

Selecting TSG was not a stretch, as the two companies have worked together since 2002, when TSG relocated WJLA and NewsChannel 8 from separate facilities in Washington D.C. and Virginia to a consolidated facility at their current home in Arlington, VA. This HD upgrade project is the third integration to be completed by TSG since the original WJLA installation.

The challenge to this latest project was that it had to be completed quickly (in just three months to meet a contractual agreement with Verizon, a local cable system operator) without adversely affecting on-air operations. Simply put, there could be no down time while TSG performed the triage required directly adjacent to the current operations.

TSG was given four distinct tasks during this project. First was to replace aging monitor walls in five news and operations control rooms with an Evertz MVP multiviewer system and new Samsung LCD panels. Second was to construct a new QAM in-house cable headend of more than 60 channels to replace a decades-old NTSC system. Third and most recognizable to the viewers at home was upgrading all technical infrastructure for NewsChannel 8 to full HD operations, including its master control and production control room. Master control for NewsChannel 8 now includes a Harris IconMaster system, while the production control room features a new Ross Video Vision (3.5M/E) switcher and Hitachi cameras. Harris signal processing equipment provided the “glue” to complete the HD infrastructure. The final (and most daunting) task for TSG was the intricate process of working with station engineering to ensure that all existing production systems continued operating properly as the HD equipment was brought online.

After a few months of frenetic activity, and virtually unbeknownst to the viewing public, the installation project was finished, the equipment tested and the staff trained. The cable channel went HD in November.

Everyone involved is pleased with the fast, reliable, cost-effective and technically sound results. ■

Design team

WJLA/NewsChannel 8: Mark Olingy, dir. eng. and ops.; Thomas Hormuth, Jr., dir. of sys. integration

The Systems Group: James Tome, sr. sys. eng.; Craig Tabler, sr. installation supervisor

Technology at work

Blonder Tongue: AQT and SD10E-QAM transcoders and modulators

Contemporary Research: QMOD-SDI modulators

Evertz: MVP multi-image display platform

Fujinon: ZA series lenses

Harris: IconMaster switcher, Selenio encoding, Videotek TVM/VTM series T&M

Hitachi: Z-HD5000 cameras

Image Video: TSI-3000 tally control

Ross Video: Vision switcher

TBC Consoles: Consoles

Wohler Technologies: AMP2 series audio monitors



WOWT

Excellence Award category

Station automation

Submitted by

Ross Video



Design team

Gray Television: Jim Ocon, VP – technology

WOWT: Mike Fass, media production mgr.; Vic Richards, dir. of promotion and media prod.; Amy Adams, news dir.

Technology at work

Cambotics: Camera control

Facilus: Storage networks

Grass Valley: Media systems

Harris: NEXIO playout systems, ADC automation system, OSi-Traffic broadcast inventory management and accounting system

Ross Video: OverDrive automated production control system, Vision production switcher

Vizrt: Graphics

Sony: Camera acquisition

Yamaha: DM1000 audio console

Gray Television had a vision when upgrading WOWT in Omaha, NE, to full local HD. Its goal was to redesign the TV station in terms of master control, graphics, news acquisition and news playout for a more effective workflow and improved quality. At WOWT, Gray wanted to effectively change the heart and center of what goes on in most television stations with the use of the very latest technology.

One of the main innovations was to redesign a main control room that puts one individual at the helm of WOWT's television broadcasts. Gray has restructured its operations facilities, combining master control and production control into one working environment. Through full automation, it has created a position called a technical media producer, performing the role of the traditional master control and news production team. It is Gray's goal to fully adapt this workflow with all its stations as it completes its local high-definition infrastructure.

In the main control room that Gray now calls the media control center (MCC), space availability and ergonomics were key considerations. In the construction of the desk console, Gray sought help from Ross Video. A console was drafted that consisted of two cockpits — one for the technical media producer (TMP) and one for the news producer. To encourage communication, the two positions are spaced only a few feet apart. On the TMP side, every piece of equipment is within arm's reach, and every screen can be viewed with an eye movement as opposed to a head or body turn. The TMP has access to the Harris ADC automation, Utah Scientific router, Ross OverDrive automated production control system, Ross Vision switcher, Yamaha DM1000 audio console, Cambotics camera control, teleprompter, ENPS and KVM box that has 17 accessible assets.

Another change in Gray's architectural design is based on communications in its newsroom. Gray wanted to make the newsroom "public." By removing cubicles and adding desktop editing, KVM setup and shared workstations, users are able to more effectively edit and perform different functions all at one desktop.

The new workflow benefit for WOWT is the quality of the newscast productions. Having Cambotics robotics has enabled the TMP to program complex production moves. Even in breaking news, the operator can hit one short cut, and the cameras roll, the graphics package comes up, and the mics pop up. All of these production elements happen, allowing the producer to focus clearly on the content and story itself — and not on everything being set up properly.

Gray Television's project allowed WOWT to start from scratch. By re-imagining a control room, and creating a new job title and responsibilities, an opportunity was given for WOWT to rethink a TV control room from "behind the scenes." ■





Comcast XFINITY 3D Network

Excellence Award category

Network automation

Submitted by

Miranda Technologies

The XFINITY 3D Network was launched by Comcast in early 2011, following the success of its 3-D VOD programming. The channel provides an increased volume of 3-D live sports and entertainment events to XFINITY customers in real time, with many of those events also available as re-airings via video on demand. With 3-D broadcast in its infancy and still growing in popularity, the company balanced its investment at this stage of the product life cycle by opting to construct a 3-D master control room, with minimal incremental investment, using the available space and existing infrastructure at the Comcast Media Center (CMC) in Centennial, CO. The new operation needed to deliver fully-featured, highly-scalable technology — using a compact footprint with little-to-no technical management. Furthermore, it needed to run without a full-time operator presence, while still meeting the multi-function and multi-staff requirement during live events. The Miranda iTX automation and playout and Vertigo XGe graphics platforms were central to meeting the XFINITY 3D challenge.

With iTX, XFINITY 3D was launched with minimal capital expenditure and operating costs, using enterprise-level IT servers and highly integrated software applications. The XFINITY 3D control room was designed to broadcast both regularly scheduled 3-D programming and high-profile live sports and entertainment events from all around the world. With the various worldwide broadcast standards and multiple 3-D industry formats, the versatility of the technology and the environment was paramount. With the XFINITY 3D distribution standard being 1080i/60 Side x Side formatting (SbS), any non-conforming 3-D content from movie studios and live venues delivered to the CMC has to be reformatted in short order to ensure a quality user experience. The multi-codec playback capability of iTX and the dynamic user interface provide that level of performance in conjunction with Miranda's 3-D signal processing modules.

The Miranda Vertigo XGe processor and Vertigo suite on-air graphic authoring and publishing products are well-suited for live events, where the master control room has no control over the inbound contribution elements and must respond quickly to the dynamic production. The solution can instantly convert on-air linear content into on-demand assets, complete with rich branding graphics and Nielsen watermarks.

The XFINITY 3D network also takes advantage of certain re-air rights on some of the live 3-D programming by using direct-to-disk and light content editing capabilities within the iTX platform. These systems are also tied into the core CMC infrastructure, so all remote monitoring and management available can be leveraged by CMC engineering when the operation is lightly-staffed. The iTX end-to-end workflow streamlines all the core playout processes.

Miranda's iTX IT-based playout and the Vertigo XGe have made re-airing and VOD an automatic process at Xfinity3D. Now XFINITY 3D can share assets and playlists instantly across linear and nonlinear delivery with minimal operating costs, and very little operator intervention. This approach will also help to speed the growth of the XFINITY 3D brand. ■

Design team

Comcast Media Center: Paul Catterson, sr. dir., broadcast eng.; Jeff Hagny, mgr., project ops.; Rich Rivera, mgr., broadcast sys. integration; Chris Frazier, broadcast sys. integration technician; Jerry Gambill, broadcast sys. integration technician; Ed Grillo, broadcast sys. integration technician; Chad Pickinpaugh, mgr., on-air eng.; Jeremy Harrison, mgr., on-air ops.; Neil Burton, mgr., enhanced media; Kevin Foran, enhanced media traffic specialist; Lisa Gallagher, principal, customer solutions

Miranda: Andy Cooper, sr. solutions architect; Kelly Stricker, solutions architect mgr.; Mark Harahan, dir. of strategic accounts

Technology at work

Dell: Desktops/displays

HP: Servers/NAS

Hyundai: 3-D display technology

Miranda: 3DX-3901 3D formatting engine, iTX IT-based automation & playout, Vertigo XGe graphics engine

TBC Consoles: Consoles

Disney/ABC Television Group

Excellence Award category

Network automation

Submitted by

The Systems Group



Design team

Shlemmer Algaze Associates: Jimmie Dyer, architect

ABC West Coast Broadcast

Operations & Engineering: Tony Cole, VP broadcast ops. & eng. West Coast; Steve Eritano, GM broadcast eng.; David Feldman, mgr. tech. svc.; Jason Yamashita, mgr., broadcast proj. and planning

The Systems Group: Frank Geraty, VP West Coast proj.; David Jennings, design eng.; Michael McConnell, installation supervisor

Technology at work

Avocent: KVM platform

Belden: Cable

Bittree: Jack fields

Cisco: Switches

Electrorack: Enclosures

Evertz: Modular gear

Gepco: Cable

Harris: ADC automation, NEXIO servers and storage

Isilon: Storage

K+H: Speakers

Leader Instruments: Scopes and rasterizers

Miranda: Kaleido multiviewer, MV 5100MC switchers

Panasonic: Monitors

Sharp: LED Displays

TBC Consoles: Consoles

Wohler: Audio monitoring and displays

After witnessing a string of natural disasters on the East Coast (earthquake, hurricane, flooding) and the potential threat of terrorist activity, the ABC Network began to rethink its disaster recovery systems. Having the network feed go down could mean millions of dollars in lost ad revenue.

Currently, the network has been operating two separate satellite feeds: a main feed from the ABC New York Operations Center and a backup feed out of its West Coast Technical Operations Center in Los Angeles. The satellite feed is comprised of three regional programming nets that could be accessed by its affiliated stations in the country's three time zones (Eastern, Mountain and Western). If the main feed is disrupted for any reason, the affiliated stations could look to the backup satellite feed to reclaim the network's programming schedule and stay on the air. The problem was that there was no backup to the origination of that signal for network programming.

About two years ago, the network's West Coast facilities began origination and shadowing of the primetime schedules of the New York network feeds to protect against failure. Early in 2011, it was decided that a 24/7 backup was critical. Systems integrators The Systems Group (TSG), Hoboken, NJ/Los Angeles was called in to build two new control rooms and several other rooms at the ABC Network Technical Center building in Los Angeles that could replicate all content originating in New York, complete with automation playlists and program rundowns.

Now, with the new facility, if something should happen in New York, ABC's West Coast Broadcast Operations & Engineering team can immediately originate the ABC Network's daytime and primetime programming schedule and make a transition to a second signal path, with minimal interruption.

The new facility features two identical 20 x 20 control rooms, an ingest room, a machine room and several ancillary rooms (e.g., announce booth and BS&P facilities) that have been built by a team of TSG engineers inside the ABC Network Technical Center building, located on its Prospect lot. The two multichannel rooms are equally capable of program origination or shadowing of the New York feed for three time zones. The way the new facilities have been architected, one room could handle all three time zones, but for redundancy, two rooms were built — featuring full program (file) ingest and segmenting capability — with full interoperability between them.

Working from a design concept conceived by ABC engineers, TSG had four months to complete the project. The new facilities were finished in October and after testing and training, will officially launch on Dec. 1, 2011. Fortunately, there were no unexpected hurdles that required extensive reworking of the original design. That helped move the project along smoothly. ABC is now doing a 24/7 shadow of its three time zone schedules and is the foundation of ABC's disaster recovery plan when an unforeseen event occurs. The new facilities stand ready to take control of the ABC networks within seconds.

Mother Nature, bring it on. ■



Encompass Digital Media

Excellence Award category

Network automation

Submitted by

Snell

Design team

Encompass: Steve Saville, VP of ops. and eng.; Kurt Liddi, sr. dir. of origination eng. and proj. mgr.; Ken Breitenstein, dir. of automation and broadcast IT; Eric Mercer, dir. of eng.; Heather Bianco, sr. dir. of ops.; Chris Shaw, proj. eng.; Jay LaPrise, sr. dir. ops. and eng. transmission
Snell: Greg Doggett, VP bus. dev. playout solutions; Dan Balcon, proj. mgr.; Geoff Parker, technical app. eng.
Miranda: Cynthia Miles, proj. mgr.

Technology at work

EEG: HD480 closed caption encoder
Harmonic: Rhozet QC and WFS
Miranda: Densité modular products, Kaleido-X and iControl monitoring and alarming systems
Ross Video: NAVeII encoder
Snell: Morpheus automation system, ICE playout and branding system
Tektronix: WVR7020 rasterizer
Volicon: Observer video monitoring and logging system
Wohler: Audio and video monitors

As a leading provider of mission-critical, media solutions for broadcasters, cable networks, corporations and government agencies, Encompass Digital Media credits its success to an innate ability to stay well ahead of the technology curve, and the ability to adapt quickly and effectively when opportunities arise. The latest example is an ambitious new facility build-out for two large content providers at Encompass' Stamford, CT, broadcasting center. One, an existing Encompass client, turned to the company to provide outsourced master control services in addition to uplinking for an SD channel with intentions to migrate to HD in the near future. The other company is a new client that sought to outsource master control services for four HD channels.

Encompass' intention was to design a technology infrastructure that would, first and foremost, seamlessly add the new channels to its existing operation and continue to deliver top-quality results for its clients. Simultaneously, Encompass wanted to establish a new scalable and flexible model for master control and playback services that could serve the company and its clients well into the future. The emphasis was on centralized automation, monitoring and control for maximum operational efficiency using few devices, and fully redundant playback services to ensure complete reliability.

The new build-out is a 100-percent file-based operation that delivers fully-featured branding and DVE. The HD channels include full-time surround audio compressed with AC3 and processed with automatic level control to maintain consistent volume levels (in accordance with the newly enacted CALM loudness regulations).

Snell's Morpheus provides centralized automation that controls the flow of content from the point of ingest to the Encompass archiving system and then to playback. Based on playlists, Morpheus automatically accesses the required content and draws it into the Snell ICE branding and playout systems for scheduled playout. By integrating playback, branding and other functions such as DVEs, crawls and voiceovers into a single unit, ICE is a key component in Encompass' drive towards technology consolidation. Also key to this strategy is the Miranda Densité modular processing systems, which consolidate audio and video processing — including stereo/5.1 upmix, ALC and AC3 compression. Further, Harmonic's Rhozet encoding system enables automatic file QC at the time of ingest. Operational efficiency is maximized by the use of the Miranda Kaleido-X and iControl systems for advanced monitoring and control. Signal monitoring is further enhanced with Miranda's lip-sync and content compare algorithms.

Launched in late October 2011, the new build-out is the epitome of Encompass' business philosophy: to deliver the highest-quality services that enable operational efficiencies through centralized automation and monitoring. ■



iN DEMAND

Excellence Award category

Network automation

Submitted by

Comcast Media Center



Design team

Comcast Media Center: Paul Catterson, sr. dir., broadcast eng.; Lisa Gallagher, principal, customer solutions; Jeff Hagny, mgr., proj. ops.; Rich Rivera, mgr., broadcast sys. integration; David Graham, Eric Schultz and Griffin Moore, software developers; Cindy Celus, mgr., content tech. ops.; Jeremy Harrison, mgr., on-air ops.; Rob Allen, live event operator
5280 Broadcast: Tony Rocanova, dir., eng.; Andrew Morris, sr. sys. eng.; Danny Rowland and Jeff Combs, integration specialists
iN DEMAND: John Schultz, dir., ops.; Dani Johnson, specialist, sports ops.

Technology at work

Avid: Titan automation
Cisco: Network routers and switches
Evertz: EQX routing, MVP multi-image display processing, 7800 series modular processing, Vistalink monitoring and control
Harris: Icon Logo (live sports)
Miranda: Vertigo XGe (live sports mosaics and PPV)
Omneon: Spectrum video file servers
NEC: Large-format displays
TBC Consoles: IntelliTrac and TracWall



In March 2011, Comcast Media Center (CMC) completed construction of a new HD operations center for iN DEMAND at Comcast's Dry Creek facility in Centennial, CO. In this new technical environment, CMC operations staff can manage program origination and satellite distribution of 42 cumulative HD and SD live sports channels and 12 entertainment channels. This programming is commonly known as PPV, NBA League Pass, NHL Center Ice, MLB Extra Innings and MLS Direct Kick. In addition to these services, CMC manages value-add features that include sports mosaics, live sports score presentation and sports replays, all of which are managed within the new multiformat operation.

CMC built the new operations environment to address two primary challenges for iN DEMAND. The first was that a rapid increase in the volume of iN DEMAND's native HD programming had increased the features of its services beyond the practical capacity of the legacy environment. The technology employed in its legacy environment was nearing the end of its useful life and represented a performance risk to the environment. Second, iN DEMAND required certain operational efficiencies and versatility within the new operation to respond more effectively to market opportunities.

CMC provides iN DEMAND the full range of program origination services from two purpose-built control rooms — one for live sports and one for PPV — immediately adjacent to each other and close to the CMC central equipment room (CER). All terminal equipment and core systems are installed in the CER, while control and monitoring systems reside in the operational areas. This approach allows the operational environments to be tethered to the core systems but still have physical and operational versatility. All systems were constructed on modular consoles, mobile monitor walls and stands, committing very little to fixed walls or other permanent structures. The result is a clean, uncluttered operation with few scaling or reconfiguration limits.

Due to the volume and dynamic nature of iN DEMAND's programming, CMC needed to provide a versatile environment yet keep tight control over ongoing operational costs. Hence, CMC implemented a scalable operational staffing approach, establishing a universal command-and-control position with purpose-built operator positions (aka "pods") constructed on the periphery. This approach allows the operation to run with a single operator during scheduled, pre-recorded programming or as many as 12 to 16 operators during live games or events. For high-profile PPV events, CMC constructed three live-event isolation pods to ensure operators could dedicate their attention to the signal quality standards customers have come to expect from iN DEMAND.

Although the Live Sports and Pay-Per-View control rooms handle two distinct lines of iN DEMAND services, a single operator in the PPV room can manage both during less intense schedules such as overnight or sports replays between live programming shifts. To further ensure performance quality, the CMC deployed its award-winning Heads-Up Display technology to this operation and customized it further to suit the PPV display arrangement.



The Switch

Excellence Award category

Network automation

Submitted by

Beers Enterprises

Design team

Beck Associates: Tom Tasker, dir. of sales, Northeast Region; Paul Kast, VP of eng.

Beers Enterprises, DBA The Switch: Scott Beers, pres. and CEO; David Anderson, CTO; Howard Miller, exec. VP, ops.; Marc Pinkerton, PMP, proj. mgr.

AT&T: Rosa Maria Bosa, sales center VP; Sherri Chilakapati, PMP, sr. proj. mgr.; Paul Freeman, data network consultant

Technology at work

AT&T: Carrier

Miranda: iControl, NV9000 router control system, NVISION 8500 hybrid routers

Net Insight: Nimbra solution for long-haul fiber-optic transmission

ScheduALL: ScheduLINK advanced transmission management and optimization software system

Skyline: DataMiner SNMP fault reporting system

Snell: Alchemist Ph.C-HD motion-compensated HD standards converters

In April 2011, The Switch announced an aggressive network expansion plan to scale its current network from six cities to 50 cities. When it first conceived the plan of launching 44 additional cities, aligning the launch plan with the core value of The Switch — delivering quality service — was the priority of the project. After soliciting request for proposals for a network mesh solution from the major fiber transmission carriers in North America, AT&T was selected as an extension of a currently established relationship built upon a multiyear agreement allowing The Switch to offer AT&T HD-SDI circuits.

The next step was to evaluate the providers of long-haul fiber mux/demux equipment. Ultimately, Net Insight's Nimbra solution was selected because of both its reputation and ability to transport any video format — including uncompressed 3G, uncompressed HD-SDI, compressed HD (JPEG2000) and 270Mb/s SDI. Additionally, Miranda Technologies was chosen to supply 3G video routing switchers and a centralized control solution (iControl), providing automated video router switching capability across a network of video routers, each capable of signals up to 3G.

In phase one of the expansion, the new fiber network uses 20 NVISION 8500 Hybrid routers to connect each of the new switching facilities. The system design and integration was performed by Beck Associates.

The next challenge was to incorporate elements that would allow for enhanced network automation. For resource allocation management and scheduling, The Switch contracted with ScheduALL, utilizing its ScheduLINK system. The ScheduAll system, in tandem with Net Insight's Nimbra Vision and Miranda's iControl, allows customers of The Switch the ability to book any media resources needed for transmission configuration, as well as the scheduling and management of both occasional use fiber circuits and bandwidth.

To monitor the network, The Switch uses Skyline DataMiner, an extremely sophisticated SNMP fault reporting system with SLA correction. The system allows The Switch to monitor each of its locations from its newly expanded, state-of-the-art, network operations center in New York City.

To date, 15 cities have recently become operational as of November 2011. The Switch is continuing to roll out the additional 29 locations in three phases, with five additional U.S. locations in 2011, and 24 additional locations in Canada and other top media markets of the U.S. in 2012.

The Switch also has invested in upgrades to its customer controlled user interface, with plans to launch a next-generation Web-enabled customer control system to be deployed on users' touch screens. Currently in the works, the system will offer customers the choice of "Switch Now" or scheduled transmissions via its ScheduLINK system. In New York, The Switch has installed two Alchemist Ph.C-HD motion-compensated high-definition standards converters from Snell, enabling The Switch to provide standards conversion in HD and SD formats as well as up, down and crossconversion. The network expansion will position The Switch as the largest provider of customer controlled video fiber switching and transmission in North America.



Viacom/MTV Networks

Excellence Award category

Network automation

Submitted by

Broadcast Integration Services



Design team

Viacom Media Networks: Mike Bivona, VP content creation and distribution; Mike McMackin, sr. dir., eng. and proj. mgmt.; Heather Miglino, dir., proj. mgmt.; Frank Burgert, design eng./proj. mgr.; Thomas John, installation technician/eng. aide; Joanne Garcia, procurement; Eric Lane, installation technician; Ryan Lobb, design eng./proj. mgr.; Thomas Wahab, design eng./proj. mgr.

Broadcast Integration Services (BIS): Joseph Policastro, principal sr. dir. proj. mgr.; Kevin Henneman, sr. design eng.; Adam Semcken, sr. design eng.; Judi Southard, logistics; Chris Butler, integration supervisor; William Frederick, lead tech.; Javier Casilimas, eng.; Dave Stengel, integration support

Technology at work

ADC: Patching

Audio Accessories: Patching

Bittree: Control patching

DNF Controls: Control interface

Evertz: Processing/terminal EQ systems control, switching, multiviewer and routing

Forecast Consoles

Genelec: Audio monitors

Leader: Digital scopes

Linear Acoustic: Audio processing

Marshall Electronics: Monitoring

Middle Atlantic: Equipment racks

NEC: Monitoring

Omneon: Media servers

Raritan: KVM system

RTS: Intercom

TSL: Audio monitoring

Broadcast Integration Services (BIS) — a Union City, NJ, media technology, engineering, design and systems integration firm — was chosen by Viacom/MTV Networks (MTVN) in mid-2011 to provide design, installation, testing and commissioning services for a new Technical Operations Center (TOC) within their existing Network Operations Center (NOC) facility in Hauppauge, NY. BIS was selected, in part, based on the company's successful HD upgrade of MTV's Times Square Studios despite operational constraints and tight deadlines the previous year.

The TOC project's primary focus was to expand the channel capacity of the existing NOC with up to 64 additional HD/SD-SDI on-air streams. In addition, multiple virtual control room environments were to be added. The overall project encompassed expansion of the existing plant infrastructure, as well as its SDI routing, monitoring, broadcast-related IT control and ancillary subsystems in order to fully support the increased channel count.

The new channels and related subsystems were designed as scalable "building block" platforms to provide a path for future growth and expansion, as well as to facilitate troubleshooting and maintenance. They were also configured to support the future migration of content infrastructure, such as archive, asset management and play-to-air systems. In addition, the TOC environment included a complement of "multipurpose" control rooms to be commissioned in parallel with channel growth. The control rooms also provided a diversified workflow environment with full redundancy and the flexibility to assign, monitor and control multiple channel clusters based on changing operational requirements. ■



Voice of America

Excellence Award category

Network automation

Submitted by

Communications Engineering, Inc.

The Voice of America (VOA) is an international multimedia broadcaster providing service in 44 languages. Serving an estimated weekly global audience of 123 million, VOA provides news, information and cultural programming through the Internet, mobile and social media, radio, and television. Operating from Washington, DC, VOA produces multiple worldwide streams in various languages, providing news to viewers around the world in their native language.

Although VOA program schedules are published well in advance to advise viewers of when their native language program will be broadcast, VOA's largest challenge is managing the unpredictable nature of news content developed each day by its Program Services.

Over the past five years, Communications Engineering, Inc. (CEI) has helped VOA transition from an entirely tape-based production to a highly optimized file-based workflow. Program segment requirements are initiated through VOA Traffic using Myers ProTrack TV. A dublist is passed to DaletPlus, which is used to manage the content production and approval process. The required content lists are sorted by language and assigned for fulfillment to each of the VOA Program Services. DaletPlus creates a placeholder for the anticipated program content, including expected run length and other associated metadata. A corresponding ProTrack Playlist is passed to the air channel's Harris ADC automation system and runs as scheduled. Program segments created by VOA Program Services are produced and delivered to an Omneon MediaGrid for review and approval. Once approved for air, the segment is moved to an Omneon Spectrum server, ready for playout under automation control.

Uniquely, the duration of finished VOA program segments may not match the run length VOA Traffic had anticipated, normally requiring significant action by the master control operator to mitigate. Additionally, because the majority of VOA programming is aired several times each day, this same anomaly would occur at each playout of the finished segment.

Working closely with VOA stakeholders, the CEI project team focused on developing a system that would automate moving approved story content from production to air channel services. Ideally, it would also include an exchange of segment metadata to update repeat segment playout. The significant efforts of all parties involved produced a system that enables DaletPlus to automatically move finished content from VOA's production systems to its air channel servers. A key component of this process is the ability for DaletPlus to automatically update a *running* ADC automation playlist, enabling manual or automatic action to fill the story's run-length shortage. The system also alerts ProTrack of the finished segment's revised metadata for use in subsequent playout across all VOA television program services.

Challenged by a unique operational problem, CEI led an innovative collaboration among VOA staff, Dalet Digital Media Systems, Myers Information Systems, Harris and Omneon to produce a highly efficient solution that automates dynamic content delivery from production to air. ■

Design team

CEI: Vince Forcier, proj. mgr.; Justin King and Abner Mir, co-lead design engs.; Don Brassell and Jay Wood, testing engs.; Rick Redmond, integration mgr.; Robert Brown, integration supervisor

Voice of America: Don Yerger, dir. of tech. support, div. ops.; Jay Sipos, sr. broadcast eng.

Dalet Digital Media Systems: Frédéric Roux, strategic acct. mgr.

Myers Information Systems: Eugene Diana, dir., software. ops.

Harris: Jason Salyards, solutions architect; Brian Redmond, sr. proj. mgr.

Technology at work

Barco: Displays

Chyron: Character generators

Dalet: DaletPlus content management

Evertz: Master reference, MVP multi-image processor

Harris: ADC automation, terminal gear, test and measurement

HP: Servers

IBM: Servers

Miranda: NVISION routers

Myers Information Systems: ProTrack TV traffic software

Omneon: Spectrum server, ProBrowse proxy viewer system, MediaGrid storage

Snell: Standards converters

Tektronix: Test and measurement

Telex: ADAM intercom

Wohler: Audio monitoring

Arqiva DSNG Fleet

Excellence Award category

Newsroom technology

Submitted by

Ericsson



Design team

Arqiva: Mike Pearson, head of operations (OU)

Ericsson, Solution Area TV: Richard Bullock, head of compression solutions (C&D); Fabio Murra and Mark Horton, product managers; Kevin Mockford, engineering lead; Ann Rutherford, team leader

Technology at work

Belden: Onboard cabling

Dolby and Genelec: Audio monitoring system, IFB 5.1

Ericsson: RX1290 multiformat IRDs, Voyager II DSNG platform

HP: 9KHz to 2.9GHz spectrum analyzer

JVC: Multistandard 17in HD-SDI screen

Paradise: Dual-channel satellite modem

Tektronix: WVR7100 HD-SDI waveform rasterizer

Xicom: Amplifiers

In an area of the market as competitive as live sports and newsgathering, there is increased pressure to deliver high-quality video in the most cost-efficient manner available. As industry and consumer demand evolves, Arqiva's DSNG vans need to deliver the pictures wherever and whenever a story breaks, and to cover both regular news as well as HD (and possibly 3-D) sporting events.

To upgrade its fleet of vehicles, Arqiva required equipment that was both versatile in format support and efficient in bandwidth usage. There were several challenges to be considered: The same equipment needed to be used for SD news, full HD coverage or a 3-D sports event. Moreover, it had to support a multitude of possible delivery networks. As there is no way of predicting where the news will break next, in the past fleets have relied on satellite for coverage. However, today's growing ubiquity of fiber availability, and the growing capacity of cellular networks, offer viable alternatives in certain situations.

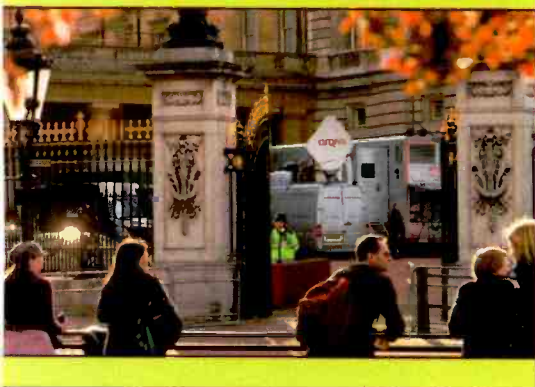
In order to remain leaders in the changing world of live broadcast, Arqiva equipped its entire DSNG fleet with the Ericsson Voyager II DSNG platform, which provided Arqiva the ability to broadcast from any location using the power of a MPEG-4 AVC 4:2:2 encoder with 10-bit precision specifically designed for the high-quality requirements of live-event television.

Flexibility — both in codec and connectivity type — is more essential now than ever before. The upgraded Arqiva DSNG fleet supports multiple encoding algorithms, including MPEG-4 AVC 4:2:0 and potentially MPEG-2 video, in order to provide the highest level of interoperability possible. Recognizing that the proliferation of fiber networks often provides a viable alternative to satellite, the installation has been designed to natively support IP outputs.

The IP support extends beyond the fiber availability to broadband Internet and cellular network links, which may be the only option in certain locations. To ensure that the fleet continues to offer the most valuable benefits in news and sports broadcasting in the future, it is now able to broadcast in 3-D through a mixture of licenses and software upgrades on the hardware available today.

Voyager II represents the new generation of DSNG encoding and modulation platforms. It is modular in function, ready for all modes needed, and interoperability is ensured with the huge installed base of Ericsson professional receivers. The platform marks an advance in the compression industry and offers a transition from 4:2:0 to 4:2:2 encoding. It also represents the latest success in the long-standing relationship between Arqiva and Ericsson. The two companies have been working together closely to ensure that the DSNG fleet engineers are ready to deliver the next-generation of television using this new platform.

The first big test for the newly equipped vans came with the broadcasting of the royal wedding in England — one of the biggest global television events of the year. Arqiva was able to transmit all of the day's events around the world reliably in HD and deliver the television experience that both broadcasters and their consumers demanded. ■





KWCO

Excellence Award category

Newsroom technology

Submitted by

Grass Valley

In August 2010, independent station group Young Broadcasting made the decision to upgrade its news production system to HD. This was an end-to-end HD news production upgrade from the field equipment all the way to the production systems. This included the installation of Grass Valley HD digital news production technology at KWCO, its NBC affiliate in Davenport, IA, to help that station migrate to local HD news operations. It was done with the idea that the shared storage system would improve efficiencies and get more news content to air faster. It appears the station was right.

Now that that system has been on the air for more than a year, station personnel there say it has exceeded their expectations for performance and streamlined the station's news production workflow. The staff now collaborates more effectively, and stories get to air faster than ever — often beating the local competition. In fact, the news experiment has gone so well that the Young Broadcasting station group has now decided to upgrade the news departments of eight of its 10 stations to Grass Valley's networked, file-based, HD news production and distribution system. The newly purchased equipment, which is now being installed, will all be on-air by the end of the year.

At each station, a revamped news department will include 25 seats of Grass Valley EDIUS 6 multiformat editing workstations, two K2 Summit production clients, and Aurora Playout software modules and client computers for automated playout. (They have also added a Grass Valley K2 BasecampExpress System to handle asset management, archive management and proxy generation.) The eight new Young stations standardizing on Grass Valley technology include: WKRN, Nashville, TN; WATE, Knoxville, TN; WRIC, Richmond, VA; WLNS, Lansing, MI; WTEN, Albany, NY; KELO, Sioux Falls, SD; WBAY, Green Bay, WI; and KLFY, Lafayette, LA.

Craig Porter, director of engineering, broadcast systems, said they have had a great experience with Grass Valley technology at KWCO, and the staff has become more productive in preparing its daily newscasts. In addition, by standardizing on a single vendor (Grass Valley), they were able to enjoy significant cost and implementation time savings. And, the new Grass Valley equipment gives them a news production platform that they can grow with into the future.

Grass Valley's EDIUS 6 nonlinear editing software, with its real-time SD and HD editing performance running on standard PC workstations, allows the stations to turn around news stories quickly. The Grass Valley Aurora Playout system offers highly coordinated news playback from the K2 Summit. It automatically creates and adjusts playlists from the Young stations' MOS-compatible newsroom computer system. It also features an intuitive playback user interface and GPI inputs and outputs for remote control of playback.

The stations involved will use the EDIUS NLEs to cut daily news packages while the Aurora Playout software, in tandem with the K2 Summit servers, will enable the stations' staff to automatically schedule their newscast rundowns while still retaining the ability to insert breaking news segments, or go live from the scene, at the last minute. ■

Design team

Young Broadcasting: Craig Porter, dir. of eng., broadcast sys.; Bill Rinker, asst. chief eng., KRON TV

Technology at work

Chyron: HyperX³ graphics systems

Grass Valley: Aurora Playout system, EDIUS multiformat editing, K2 Summit media servers

Panasonic: HD P2 field cameras, robotic camera systems

Ross Video: OverDrive automated production control systems

Yamaha: Digital audio mixing consoles



CNN Washington Bureau

Excellence Award category

Post & network production facilities

Submitted by

Lawson & Associates, Architects



Design team

CNN Washington: Matt Speiser, deputy bureau chief; Jan Hoover, sr. proj. mgr., Turner Properties; Michele Warren, mgr.-interiors, Turner Properties; Tu Vu, VP of broadcast eng. & systems tech.; George Kinney, resource mgr., broadcast eng. & sys. tech.

Lawson & Associates, Architects:

Bruce Lawson, principal

DesignTech, MEP Engineers: Matt

Bowers, principal; Tom Igo, principal

Holbert Apple Associates, Structural

Engineers: Rich Apple, principal

Technology at work

Advanced Fiber Products: Custom A/V fiber-optics HD run gear

Advanced Network Devices: Power over Ethernet clocks

Crestron: Conference room A/V controls

Litepanels: LED lighting

Mode-AL: Monitor mounts

Moveo: Demountable glass partitions

Polycom: Video conference facilities

RTS: RVON key panels

Telemetrics: Robotics flash cameras

Vinten: Robotics flash cameras



The CNN Washington Bureau expanded its operation onto a new floor of its building in April 2010. The D.C. Bureau's 8th floor renovation was a project with an extensive design phase employing out-of-the-box ideas on functionality. Primarily used as an open work area for the bureau's assignment desk, political coverage unit and show staffs, the new 8th floor also includes live stand-up positions, extensive RTS intercom connectivity and four robust video conference room facilities.

A singular achievement of the new floor is the enhanced work environment for the staffs that migrated there. Lawson & Associates, Architects, along with Turner Broadcast's Properties Department and the CNN staff, looked at the work environment with a unique perspective and designed a space that offers a different type of functional work environment while maintaining a distinctive brand throughout. Previously, the shows, coverage beats, assignment desk and executives had been segregated on separate floors. Even "the desk," which had occupied a single space before, was handicapped by poor acoustics and intruding structural columns.

With the opening of the new floor, the most dramatic innovation introduced was that the assignment desk, the beats, the situation room, "John King USA," the political unit and bureau management all share a single common floor. In a significant environmental change, offices were clustered around the building core, giving window views and natural light to the open workspace areas.

In bringing all the groups together, the designers focused on dramatically improving communication, even eye-to-eye contact. At the assignment desk, workstations, custom-made by dTank, are arranged in two large semi-circles with a minimum of obstructions between desks, and attention was paid to improved acoustics. Adjacent to the assignment desk is a robotic camera with low-profile LED lighting that allows for quick live reports with a minimum of interruption to the working desk. The desk is able to communicate with CNN headquarters in Atlanta, as well as studios and control rooms through RTS intercom panels.

On the opposite side of the floor, overlooking the network's political unit, is another stand-up position used for hourly updates on campaign developments. Four conference rooms on the floor are equipped with Polycom conferencing facilities. The largest conference room, which holds more than 100 people, features a Crestron control system feeding five oversized monitors. Moveo glass demountable partitions separate this conference room from the political unit, but are easily removed in order to expand the size of the room when necessary. CNN also installed added infrastructure to accommodate additional cameras on the floor, allowing for the possibility of expanded broadcasting.

Because fewer traditional offices exist on this floor, unique spaces known as privacy pods were devised, giving employees a place to hold private conversations or small meetings. The glassed in, but still private, pods vaguely resemble the shape of a boat, a swirl and a pentagonal funnel, and are emblazoned by bright semi-transparent graphics of CNN and Washington. The 8th floor of the CNN Washington Bureau has flair, form and, most importantly, functionality. ■



Crawford Media Services

Excellence Award category

Post & network production facilities

Submitted by

Harmonic

As a provider of premium post-production services and media migration, archive and management solutions to domestic and international clients, Crawford Media Services must count on the technological means and capacity to perform any media-related project across multiple platforms and with maximum flexibility. Thus, in building its new 80,000sq-ft facility in Atlanta, GA, the company focused on creating a highly efficient collaborative multiplatform editing environment.

To this end, Crawford deployed the Omneon MediaGrid active system from Harmonic with an MXFserver from FilmPartners to support a multicodec workflow in which editors and graphic artists working privately or collaboratively on different platforms can share content within a single storage pool. The Harmonic and FilmPartners systems, integrated with leading edit and post equipment, enable project sharing between edit clients, and support the existing project numbering scheme used by Crawford's order-entry application.

The 72TB MediaGrid system provides a central pool of highly available storage optimized for media. For most projects, content is ingested and encoded to DNxHD (220Mb/s) and then written to the MediaGrid system as DNxHD files, which are registered to an MXFserver project and presented to authorized users through a project-based interface. This model thus allows producers and editors — regardless of their edit platform — to see and work with all content files assigned to each project.

Avid Media Composer, DS and Pro Tools systems, and Apple Final Cut Pro edit systems, connect directly to the MediaGrid, as do Adobe After Effects and Baselight color correction, and users work on content in-place rather than transfer media or make local copies. The Harmonic storage platform provides the bandwidth to support 21 systems at once — most of those using multiple streams of HD content — without dropping frames.

Because Crawford has implemented a massive KVM matrix across its new facility, any computer in any room can access both the edit application and the media needed to work on a project. The MXFserver system provides users with independent virtual views of project-based content, related assets and metadata. If a user starts a project on a Mac with Media Composer and needs to work on it with a PC using Avid DS, he or she can easily launch the application as if it is a new local drive.

Separating production management and metadata communications from the delivery of video content, the MXFserver and MediaGrid systems offer the performance of a direct attached SAN, though running on a more cost-effective Ethernet network.

Relying on this new post-production workflow, Crawford has realized much greater agility, flexibility and efficiency in meeting clients' needs. The company benefits from multiformat, multiplatform shared editing workflows, and its storage and project management platforms provide a scalable foundation for future business expansion through additional content-focused workflows and services.

Design team

Harmonic: Bill van Bloom, sr. dir., Broadcast Solutions; Chris Torkelson, sys. eng. Matthew Rehrer, MediaGrid prod. mgr.

FilmPartners: Pieter Hornix, CTO

Comprehensive Technical Group:

James Beattie, workflow and computer svc. supervisor

Crawford Media Services: Ron Heidt, tech. dir. David Warner, dir. of eng.; Lance Kelson, product dev.

Harmonic: Luis Estrada, solution marketing mgr., post prod.

Technology at work

Adobe: After Effects

Apple: Final Cut Pro edit systems

Avid: Media Composer, DS, Pro Tools

Baselight: Color correction

FilmPartners: MXFserver

Harmonic: Omneon MediaGrid active storage system



WHLV-TV & the HLE

Excellence Award category

Post & network production facilities

Submitted by

TV Magic

Design team

Trinity Broadcasting Network:

Ben Miller, VP eng.; Russ Hall, Eastern regional dir.; Dalin O'Bryan, Eastern regional eng.; Larry Haley, Orlando chief eng.

TV Magic: Stephen D. Rosen, pres. & CEO; Gary Stigall, CTO; Steve Sagady, sr. eng.; Nequin Scott, proj. eng.; Grant Barkdull, proj. mgr.

Technology at work

Avid: Pro Tools digital audio workstation

Evertz: EQX 288 × 288 router

Grass Valley: Kayenne production switcher

Ikegami: HDK-77 HD cameras

Laguna Design: Furniture

Studer: Vista 9 digital audio mixing console



When designing the broadcast and production infrastructure for Trinity Broadcasting Network's WHLV-TV and the Holy Land Experience (HLE) theme park in Orlando, FL, Trinity Broadcasting Network (TBN) hired TV Magic to build a broadcast facility that could act both as a local broadcast affiliate of TBN and as a live high-definition television production center for originating HLE presentations for the rest of the TV network. The design goal of this new facility was to be able to create live or edited network-quality productions using lights and cameras within the attached studio or at multiple locations throughout the adjacent HLE interconnected by a network of fiber-optic cables. A minimal master control system with automation playout assists the attached TV station, WHLV, with its five satellite-fed subchannels.

To keep costs down, TV Magic and TBN chose the Evertz EQX 288 × 288 router frame that can input both fiber from the park and coaxial sources from production control and satellite directly, and contains display processors for multiviewers in production control. Up to eight HD Ikegami cameras perform indoors or out and connect from the park to the production control room from strategically located interconnect panels using buried fiber-optic cables. This was a critical part of design planning since production within HLE literally needed function "behind the scenes."

The WHLV-TV facilities feature an innovative audio production room with a Studer Vista 9 audio mixer that serves as the station's central digital audio router,



controlled by Evertz EQX video router control panels. This modern approach of embedding audio wherever possible and running fiber directly into the router cards greatly reduced the cable count and overall cost of the design. A second operator position in the rear of the room houses an Avid

Pro Tools digital audio workstation for editing and sweetening recorded audio productions. TBN management chose the Grass Valley Kayenne production switcher for its versatility, operator-assist features and the fact that independent technical directors would know their way around a switcher built on a long legacy. The switcher received a rigorous trial of telethon productions in its first week on the job, requiring various feeds both clean and with graphics, as well as complex switching during the five-day telethon. Had the Kayenne not been market-ready at the time of design, a second switcher would have been required. The facilities use custom-built Laguna Designs furniture in the production control rooms and in video control. ■



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