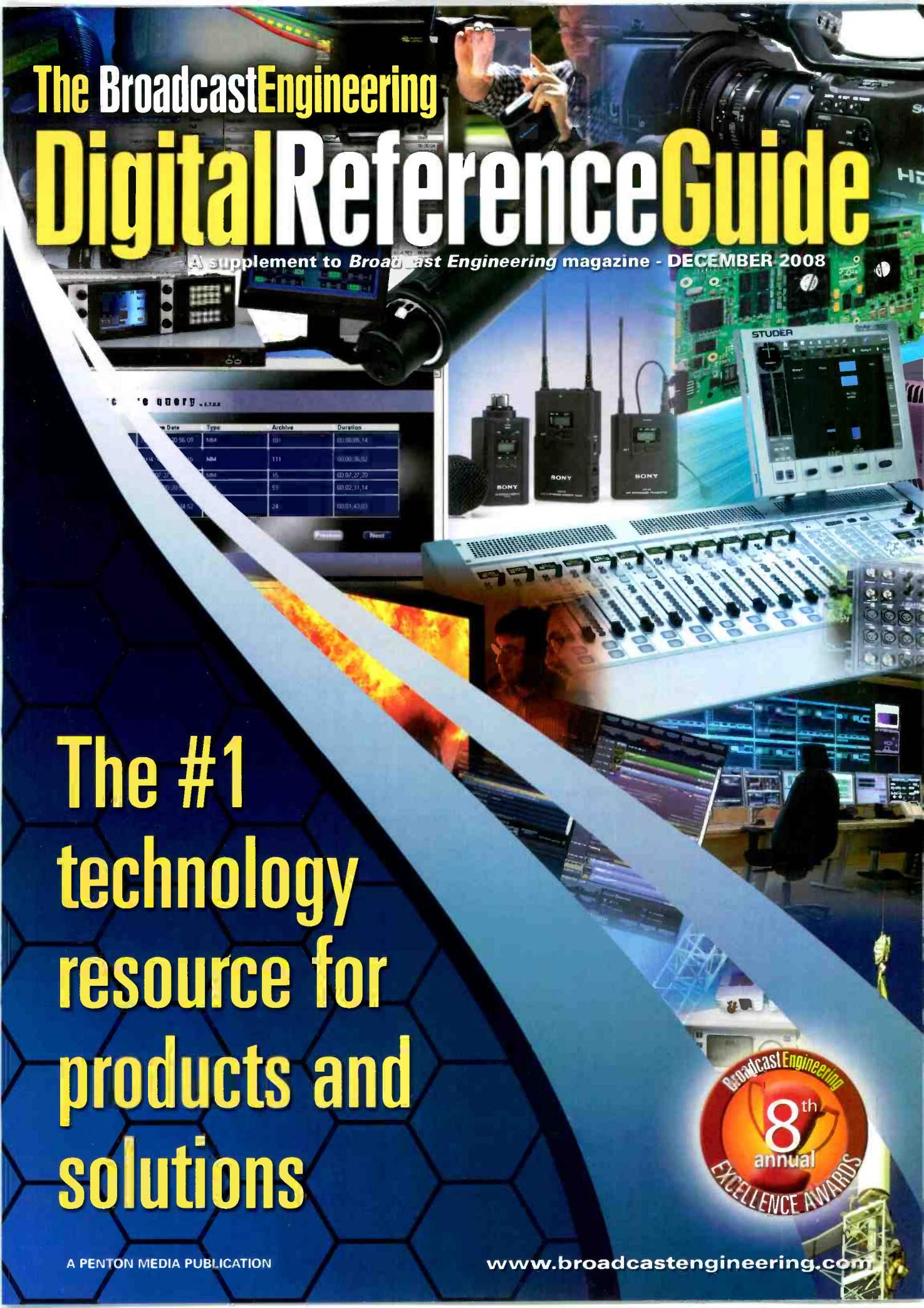
The BroadcastEngineering
DigitalReferenceGuide
A supplement to Broadcast Engineering magazine - DECEMBER 2008
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The #1 technology resource for products and solutions
Broadcast Engineering
8th annual
EXCELLENCE AWARDS
A PENTON MEDIA PUBLICATION
www.broadcastengineering.com

D-12: Compact Enough for OB
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The D-12 Digital Audio Control Surface

- mixing router based topology
- 5.1 surround sound plus 3 stereo masters
- COMPACT – 32 faders – 53" wide / 32" deep / 9" high
- router based source / destination selection
- paging channel strips – 64 channels on 32 faders
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- event storage and recall
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- eight stereo sends
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- Bus-Minus (w/TB & solo) on every input (direct out)
- pan/bal, blend, mode, EQ/dynamics on every input
- delay inputs or outputs (frames or milliseconds)
- fullscale digital peak and VU metering
- two studios, CR and HDPN/Studio 3 monitors
- talkback communication (programmable)
- mix follows talent / logic follows source
- 12 user-programmable switches (comm, salvos, triggers, etc.)
- automatic failsafe DSP card option
- automatic failsafe CPU card option
- redundant power supply option
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- motorized faders
- pageable fader option
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With thousands of digital consoles installed, trust Wheatstone for your next project!

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- USA Southern (FL)
  Tel: +1 352-371-1505
- Latin America & Caribbean (FL)
  Tel: +1 305-931-1700
- Canada (Toronto)
  Tel: +1 416-977-0343
- UK (London)
  Tel: +44 (0)20-8391-7979
- Italy (Milan)
  Tel: +39 02-254-3635/6
- Korea (Seoul)
  Tel: +82 (0)2-2637-0761
- China (Beijing)
  Tel: +86 (0)10-5170-9870

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THE #1 TECHNOLOGY RESOURCE FOR PRODUCTS AND SOLUTIONS

I recently was looking for a piece of technical equipment. I went to my favorite search engine and keyed in the device name. In 0.42 seconds, I was supplied with more than 1 million hits. Oh boy! That wasn't much help. While search engines are good for some things, they are usually terribly inefficient in locating professional devices and services.

Technical and operation managers want results, tailored to their technology and industry. They don't want to search for "camera" and receive 1.74 billion hits, most for $200 point-and-shoot consumer devices. Professionals need a custom search guide tailored to their needs. That's where the *Broadcast Engineering Digital Reference Guide* comes to the rescue. If you need help in finding equipment or vendors, our *Digital Reference Guide* is your best friend. You won't have to wade through 5 million to 10 million hits for companies that have nothing to do with broadcast and production equipment. Instead, you'll find exactly those companies that specialize in providing professional audio and video solutions.

So, whether it's cameras, transmitters, or any other audio or video professional device or service, the answer lies just ahead — custom answers for professionals who can't waste time with generic search engines. And, if you'd prefer to view this information in an interactive Web format, just go to *www.broadcastengineering.com*. Click on the *Broadcast Engineering Digital Reference Guide* logo, and you'll find exactly the same information as in print, without those 10 million useless "hits."

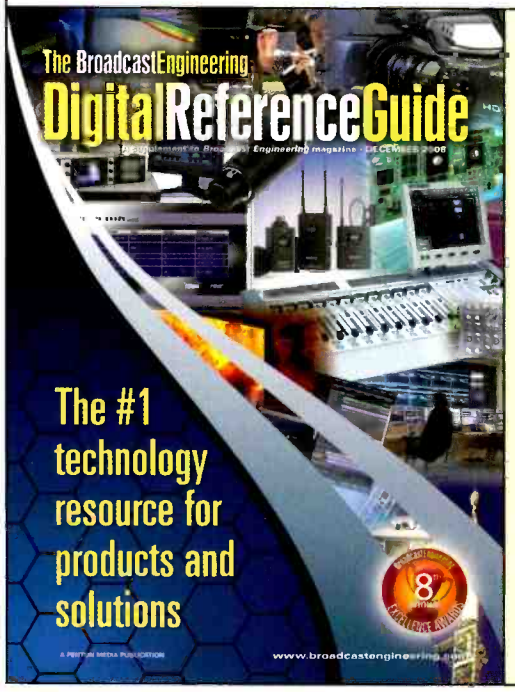
Brad Dick

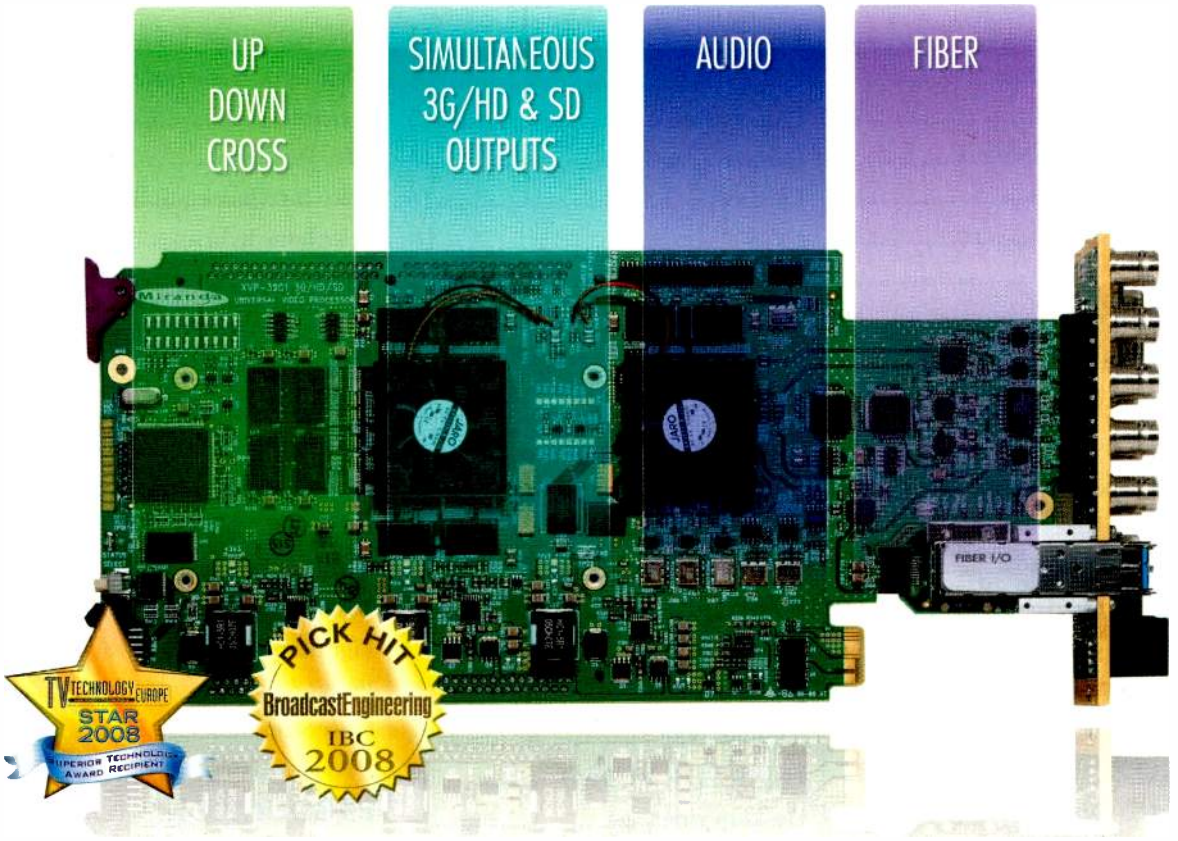
Brad Dick
Editorial Director

READ VOTE WIN

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

See page 45 for this year's entries, and look for the March NAB issue to find out who the winners are!





Rethink what's possible with one card

Now there's no need for multiple cards for video and audio processing. Our new XVP-3901 delivers all the essential functions on a single module. It offers up/down/cross conversion, with simultaneous 3Gbps/HD and SD outputs. There's also integral fiber I/O, full AFD support, and background keying. Multi-channel audio performance is equally impressive, with advanced processing of 16 embedded and 8 discrete (AES) channels. It's time to rethink what's possible.

Miranda

Rethink what's possible

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Because the Lens Creates the Image...

You Can Be Confident When You Invest In Canon HD Lenses.

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The Lens Creates the Image

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Canon

imageANYWARE

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K-Tek
760-727-0593

Petrol
845-268-0100

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Wohler Technology
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Audio meters

Sencore Inc
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Ward-Beck Systems Ltd
800-771-2556

Wohler Technology
888-5-WOHLER

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800-771-2556

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Gepco Intl Inc
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Ward-Beck Systems Ltd
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Broadcast Richardson
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Klotz Digital Audio Systems Inc
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TAI Audio
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Wheatstone Corp
252-638-7000

Zaxcom
973-835-5000

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Behringer USA
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Linear Acoustic
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Rane
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Wheatstone Corp
252-638-7000

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Soundfield USA
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Zaxcom
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52+55+55594096 ext 122

Florical Systems Inc
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Harris Broadcast Communications
800-231-9673

Miranda Technologies Inc
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Netia
+33 (0) 4675 90807

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OmniBus Systems
+44 8705 004 300

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323-549-9090

Video Technics Inc
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Vizrt
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VSN Video Stream Networks
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Xytech Systems Corp
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Zeus Broadcast
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Master control switchers

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800-231-9673

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Utah Scientific
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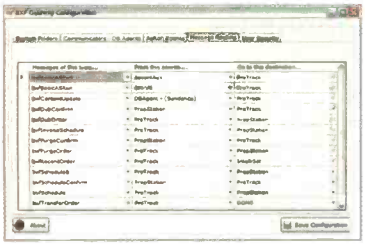

The Sundance Digital BXF Gateway improves business processes and decreases operational costs by eliminating time-consuming master control activities caused by batch list inefficiencies. It provides a secure point of exchange between inside and outside master control network systems via the SMPTE BXF communication protocol - a standardized messaging between diverse business and transmission systems.

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Harris Broadcast Communications
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Vinten
888-2-Vinten

Vinten Radamec
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800-321-4388

Comprompter News and Automation
608-785-7766

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Hitachi Kokusai Electric America
516-921-7200

Iconix Video Inc
800-783-1080

ParkerVision
800-532-8034

Shotoku Broadcast Systems
866-SHOTOKU

Telemetrics
201-848-9818

Vinten Radamec
845-268-0100

Virtual sets

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Vizrt
212-560-0708

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Camera support products (tripods)

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Band Pro Film & Digital Inc
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Bogen Imaging Inc
201-818-9500

Hi-Tech Enterprises Inc
888-324-2509

Listec Video
631-273-3029

OConnor
818-847-8666

Sachtler
845-268-0100

Shotoku Broadcast Systems
866-SHOTOKU

Vinten
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Pan/tilt heads

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Directed Perception
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Fujinon Inc
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Hi-Tech Enterprises Inc
888-324-2509

Iconix Video Inc
800-783-1080

Innovision Optics
310-453-4866

OConnor
818-847-8666

Sachtler
845-268-0100

Shotoku Broadcast Systems
866-SHOTOKU

Telemetrics
201-848-9818

Vinten
888-2-Vinten

Vinten Radamec
845-268-0100

CAMERAS

Camcorders

Burlington A/V Recording Media & Equipment
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Hi-Tech Enterprises Inc
888-324-2509

Sony Electronics
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Thomson
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Camera accessories

Angenieux
973-812-3858

Anton / Bauer Inc
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Autocue Group Ltd
+4420-8665-2992

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Evertz
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972-385-8902

Hi-Tech Enterprises Inc
888-324-2509

Iconix Video Inc
800-783-1080

Innovision Optics
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K-Tek
760-727-0593

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WolfVision Inc
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WTI (Wireless Technology Inc)
866-468-6984

CGS

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Autodesk
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Miranda Technologies Inc
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Orad
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Pixel Power
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+4420-8665-2992

Autoscript Inc
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CPC-Computer Prompting & Captioning
800-977-6678

Hi-Tech Enterprises Inc
888-324-2509

Listec Video
631-273-3029

COMPUTERS

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IPV
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Studio Network Solutions
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Trenton Technology
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Computer systems

ScheduALL
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Trenton Technology
800-875-6031

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Bycast Inc
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EMC

Orad
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Proavio USA
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Sonnet Technologies Inc
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Trenton Technology
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Video cards

Blackmagic Design
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Bluefish444
866-314-7785

Matrox Electronic Systems, Video Products Group
800-361-4903

ViewCast
800-540-4119

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Supplier type

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Hi-Tech Enterprises Inc
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Interlink Equipment Brokering
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Roscor
800-843-3679

DESKTOP VIDEO

Desktop video

AJA Video Systems
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Blackmagic Design
408-954-0500

Bluefish444
866-314-7785

Drastic Technologies
416-255-5636

IPV
+44 1223 477 000

Matrox Electronic Systems, Video Products Group
800-361-4903

Pixelan Software
360-647-0112

Seachange Int'l
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Sonnet Technologies Inc
949-587-3500

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Digital Audio Workstations

Enco Systems
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Prism Media Products Inc
973-983-9577

Proavio USA
562-324-6500

Sony Creative Software Inc
www.sonycreativesoftware.com

WaveFrame
503-419-3911

DUPLICATION

Duplication

Sony Electronics
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Film equipment

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Evertz
905-335-3700

K5600 Inc
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Lightworks UK Ltd
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Baron Services
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Curious Software Inc

Harris Broadcast Communications
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Orad
201-332-3900

Replica Technology
716-337-0621

Vizrt
212-560-0708

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Avid Technology
800-949-2843

Baron Services
256-881-8811

coolux International
818-597-9898

Curious Software Inc

da Vinci Systems
954-688-5600

Evertz
905-335-3700

Harris Broadcast Communications
800-231-9673

MagicBox Inc
541-752-5654

Miranda Technologies Inc
514-333-1772

Orad
201-332-3900

Pixel Power
818-276-4515

Replica Technology
716-337-0621

INTERCOM

Intercom

Bosch Communications Systems
877-863-4169

Clear-Com Communications
510-337-6600

Evertz
905-335-3700

Riedel Communications Inc
818-241-4696

LENSES

Lens converter/ accessories

Angenieux
973-812-3858

Canon USA Inc, Broadcast & Communication
800-321-4388

Carl Zeiss Optics
888-226-3776

Hi-Tech Enterprises Inc
888-324-2509

Schneider Optics
818-766-3715

Lens systems

Angenieux
973-812-3858

Canon USA Inc, Broadcast & Communication
800-321-4388

Carl Zeiss Optics
888-226-3776

Fujinon Inc
972-385-8902

Hi-Tech Enterprises Inc
888-324-2509

Innovision Optics
310-453-4866

Schneider Optics
818-766-3715

LIGHTING

Lighting

Anton / Bauer Inc
800-541-1667

Brightline
724-457-0717

Frezzi Energy Systems, Div of Frezzolini Electronics Inc
800-345-1030

Hi-Tech Enterprises Inc
888-324-2509

K5600 Inc
800-662-5756

Kino Flo
818-767-6528

KW/2 Lighting Products
800-949-7654

Litepanels Inc
818-752-7009

Lowel Light
800-334-3426

Obarrio y CIA
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PAG USA
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Sachtler
845-268-0100

Videssence
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PRODUCT DIRECTORY

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Microphone accessories

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Audio-Technica US Inc
330-686-2600

Broadcast Richardson
800-737-6937

Hi-Tech Enterprises Inc
888-324-2509

K-Tek
760-727-0593

Soundfield USA
702-365-5155

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Audio-Technica US Inc
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Audio Ltd
+44 (0)1494511711

Behringer USA
425-672-0816

Bock Audio Microphones
702-365-5155

Bosch Communications Systems
877-863-4169

Burlington A/V Recording Media & Equipment
800-331-3191

Hi-Tech Enterprises Inc
888-324-2509

Holophone
416-362-7790

Marshall Electronics
800-800-6608

Soundfield USA
702-365-5155

Wireless microphones

Audio-Technica US Inc
330-686-2600

Audio Ltd
+44 (0)1494511711

Azden
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Hi-Tech Enterprises Inc
888-324-2509

TAI Audio
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Zaxcom
973-835-5000

MICROWAVE & FIBER

Audio codecs (telco)

Evertz
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ENG microwave links

Alcatel-Lucent
800-252-2835

Heartland Video Systems
800-332-7088

Microwave and RF Resources
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Nucomm Inc
908-852-3700

RF Central
717-249-4900

Shook Mobile Technology LP
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Fiber optic transmitter/ receiver systems

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Extron Electronics
800-633-9876

Genesis Networks
212-962-1776

Harris Broadcast Communications
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Ipitek
888-447-4835

Knight's Communications
800-880-5061

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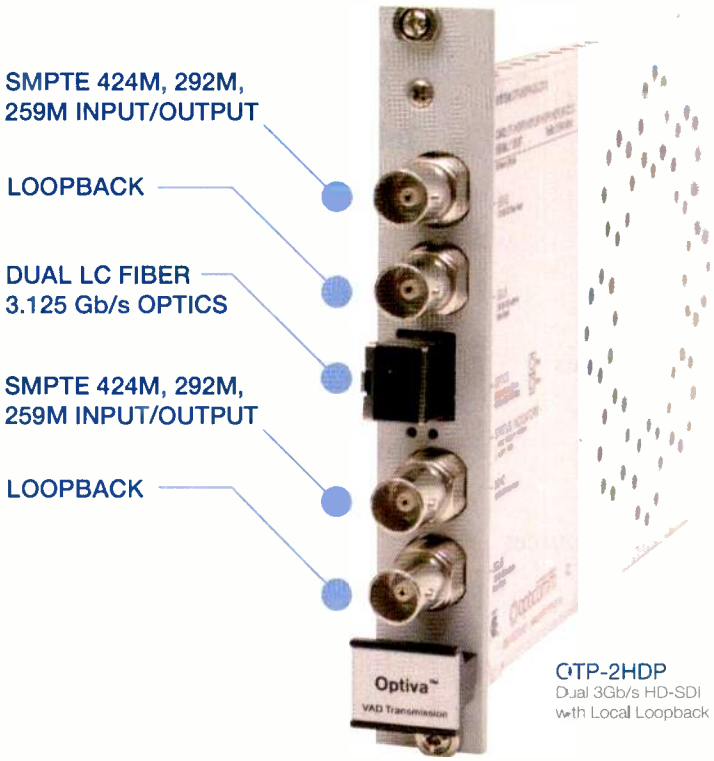

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- Uncompressed SDI & HD-SDI signals
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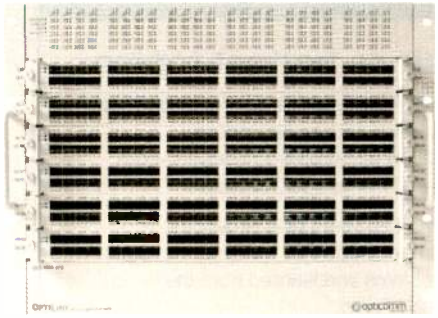

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Switching and multicasting high-definition 1080p signals over optical fiber is quick and simple by routing the OTP-1HDP and OTP-2HDP links through the OptiLinx® switching platform, making this the perfect solution for large screen, high-resolution presentations with each display connected to the OptiLinx® switch using a single optical fiber. Manage and control your connections from your desk with the LinxView® Remote Management Software.

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Nickless Schirmer & Co
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Nucomm Inc
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Otari USA Sales Inc
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Telecast Fiber
508-754-4858

STL/TSL links

Alcatel-Lucent
800-252-2835

Andrew
800-DIA-L4RF

Heartland Video Systems
800-332-7088

Kathrein Scala Div
541-779-6500

Microwave and RF Resources
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MultiDyne
Video & Fiber Optic Systems

Multidyne Video & Fiber Optic Systems
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Screen Service Broadcasting Services
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Telco interface equipment

Alcatel-Lucent
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ViewCast
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Internet production systems

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Vizrt
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Media streaming equipment/services

Digital Rapids
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Harris Broadcast Communications
800-231-9673

Omneon
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ParkerVision
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Seachange Int'l
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The Niagara Pro II is a robust, high-performance streaming appliance that excels in:

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Hi-Tech Enterprises Inc
888-324-2509

North Star Technical Services
800-842-1671

Obarrio y CIA
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PAG USA
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Battery analyzers

Frezzi Energy Systems, Div of Frezzolini Electronics Inc
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Kay Industries
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Middle Atlantic Products
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Superior Electric
800-787-3532

Versatile Power
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Power supplies

Frezzi Energy Systems, Div of Frezzolini Electronics Inc
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Kay Industries
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Versatile Power
408-341-4600

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North Star Technical Services
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Echolab
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Crystal Vision Ltd
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Echolab
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Ikegami Electronics
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Listec Video
631-273-3029

Snell & Wilcox
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Sony Electronics
800-686-SONY

Thomson
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RECORDING MEDIA

Bulk erasers

RTI - Research Technology Int'l
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Recordable media (tape and disc)

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Globalstor Data Corp
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Sony Electronics
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Dummy loads

Acorn RF
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Bird Technologies Group
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SPINNER GmbH
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RF combiners

Acorn RF
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800-DIA-L4RF

Dielectric Communications
800-341-9678

EMCEE
480-315-9283

Evertz
905-335-3700

Jampro Antennas Inc
916-383-1177

Propagation Systems Inc - PSI
814-472-5540

SPINNER GmbH
+49 89 12601-0

RF transmitting tubes

Acrodyne Industries
800-523-2596

Broadcast Richardson
800-737-6937

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XICOM Technology
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Tower accessories/ lighting

Sabre Towers & Poles
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Richland Towers
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SpectraSite Broadcast Group
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Towers

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Sabre Towers & Poles
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SpectraSite Broadcast Group
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Transmission line/ accessories

Acorn RF
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Propagation Systems Inc - PSI
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SPINNER GmbH
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Nickless Schirmer & Co
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Patriot Antenna Systems
800-470-3510

Satellite uplinks

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ATCi offers several unique packages to meet customers' unique needs at a price that can't be beat. ATCi provides this service and has installed numerous uplink systems to various locations worldwide. ATCi can tailor a complete custom engineering package for uplink design, equipment,antenna selection, and troubleshooting. Whether your project is large or small, ATCi can design a solution for you.

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Genesis Networks
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Thales Electron Devices
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XICOM Technology
408-213-3000

STUDIO ACCESSORIES

Cable management systems

ADC
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Dymo
800-426-7827

PRODUCT DIRECTORY

Gepco Intl Inc
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Middle Atlantic Products
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Engineering software

Amberfin
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Zeus Broadcast
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Master clock systems

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Evertz
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Harris Broadcast Communications
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Outdoor display equipment

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Racks/furniture

Acorn RF
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Broadcast Richardson
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Designcraft
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Forecast Consoles Inc
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Middle Atlantic Products
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Storeel
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TBC Consoles
888-CON-SOLE

Winsted
800-447-2257

Studio accessories

Autoscript Inc
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Broadcast Richardson
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DW Electrochemicals Ltd
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Westlake Audio
805-499-3686

Tools

Dymo
800-426-7827

Gepco Intl Inc
800-966-0069

Transport cases

Anton / Bauer Inc
800-541-1667

Porter Case Inc
800-356-8348

Weather/data systems

Baron Services
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Vizrt
212-560-0708

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Systems integrators

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ATCi
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AZCAR
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Beck Associates
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Broadcast Richardson
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Communication Engineering
703-550-5800

Efficient Antenna Systems Inc
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Frezzi Energy Systems, Div of Frezzolini Electronics Inc
800-345-1030

Heartland Video Systems
800-332-7088

Iconix Video Inc
800-783-1080

Larcan USA
303-665-8000

Lawson & Associates Architects
301-654-1600

Media Computing
480-575-7281

RF Central
717-249-4900

Roscor
800-843-3679

Sony Electronics
800-686-SONY

TV Magic
858-650-3155

TBCS & FRAME SYNCS

Aspect ratio converters

Algolith Inc
866-ALGOLITH

Cobalt Digital Inc
217-344-1243

Ensemble Designs
530-478-1830

Evertz
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Harris Broadcast Communications
800-231-9673

TeraNex
407-858-6000

TV One
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Composite/component encoder/decoders

EEG Enterprises
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Evertz
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Delay products

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Evertz
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Harris Broadcast Communications
800-231-9673

Pixel Instruments
408-871-1975

Frame synchronizers

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866-ALGOLITH

Burst Electronics Inc
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Crystal Vision Ltd
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Network Electronics / VPG
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TeraNex
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Blackmagic Design
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Cobalt Digital Inc
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Crystal Vision Ltd
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A single XVP-3901 3Gbps/HD/SD video and audio processor offers up/down/cross conversion, with output of 3G or HD video plus SD. There's also integral fiber connectivity, full AFD support, and background keying. Multi-channel audio performance is equally advanced, with processing of 16 embedded and 8 AES channels.

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TeraNex
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TV One
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Scan converters

Analog Way
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Communications Specialties Inc
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The all-digital Scan Do® HD Scan Converter converts DVI input, at resolutions up to 1920 x 1080, to HD or SD SDI, providing broadcast-quality video images. It supports all SMPTE HD-SDI output resolutions up to 1080i, and SD-SDI resolutions making it the most versatile model in the Scan Do® family.

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TeraNex
407-858-6000

Time base correctors

Ensemble Designs
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Video A-D/D-A converters

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Cobalt Digital Inc
217-344-1243

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Hamlet
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Prism Media Products Inc
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Sencore Inc
800-SENCORE

Tektronix Inc
800-835-9433

Ward-Beck Systems Ltd
800-771-2556

Whirlwind
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Compression/MPEG test equipment

Audemat-Aztec
305-249-3110

Evertz
905-335-3700

Hamlet
949-597-1053

K-Will
818-961-2401

Mixed Signals
310-227-8620

Pixelmetrix NA
866-749-3587

Sencore Inc
800-SENCORE

TANDBERG Television Inc
678-812-6209

Tektronix Inc
800-835-9433

PRODUCT DIRECTORY

RF test equipment

Advanced Test Equipment Rentals
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Audemat-Aztec
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Bird Technologies Group
866-695-4569

Narda Safety Test Solutions
631-231-1700

Sencore Inc
800-SENCORE

Tektronix Inc
800-835-9433

Versatile Power
408-341-4600

Z Technology
866-613-9832

Spectrum analyzers

Advanced Test Equipment Rentals
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Bird Technologies Group
866-695-4569

Narda Safety Test Solutions
631-231-1700

Nickless Schirmer & Co
800-543-1584

Tektronix Inc
800-835-9433

Sync/test generators

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905-335-3700

Hamlet
949-597-1053

Harris Broadcast Communications
800-231-9673

Horita Co
949-489-0240

Tektronix Inc
800-835-9433

Test equipment-general

Berkeley Nucleonics
800-234-7858

DSC Laboratories
905-673-3211

Hamlet
949-597-1053

Harris Broadcast Communications
800-231-9673

Hi-Tech Enterprises Inc
888-324-2509

Mixed Signals
310-227-8620

Pixel Instruments
408-871-1975

Sencore Inc
800-SENCORE

Tektronix Inc
800-835-9433

Z Technology
866-613-9832

TV RF monitoring equipment

Audemat-Aztec
305-249-3110

Sencore Inc
800-SENCORE

Tektronix Inc
800-835-9433

Z Technology
866-613-9832

Video analyzers

Evertz
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Fast Forward Video
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949-597-1053

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800-231-9673

K-Will
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Tektronix Inc
800-835-9433

Triveni Digital
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Video monitors

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Currently used in remote trucks, broadcast, news helicopters and flight packs world-wide, BrightEyes are rugged and reliable.

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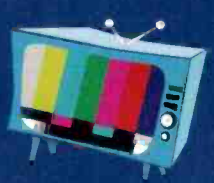
- Create custom test signals
- 5-Year Warranty

ENSEMBLE
DESIGNS



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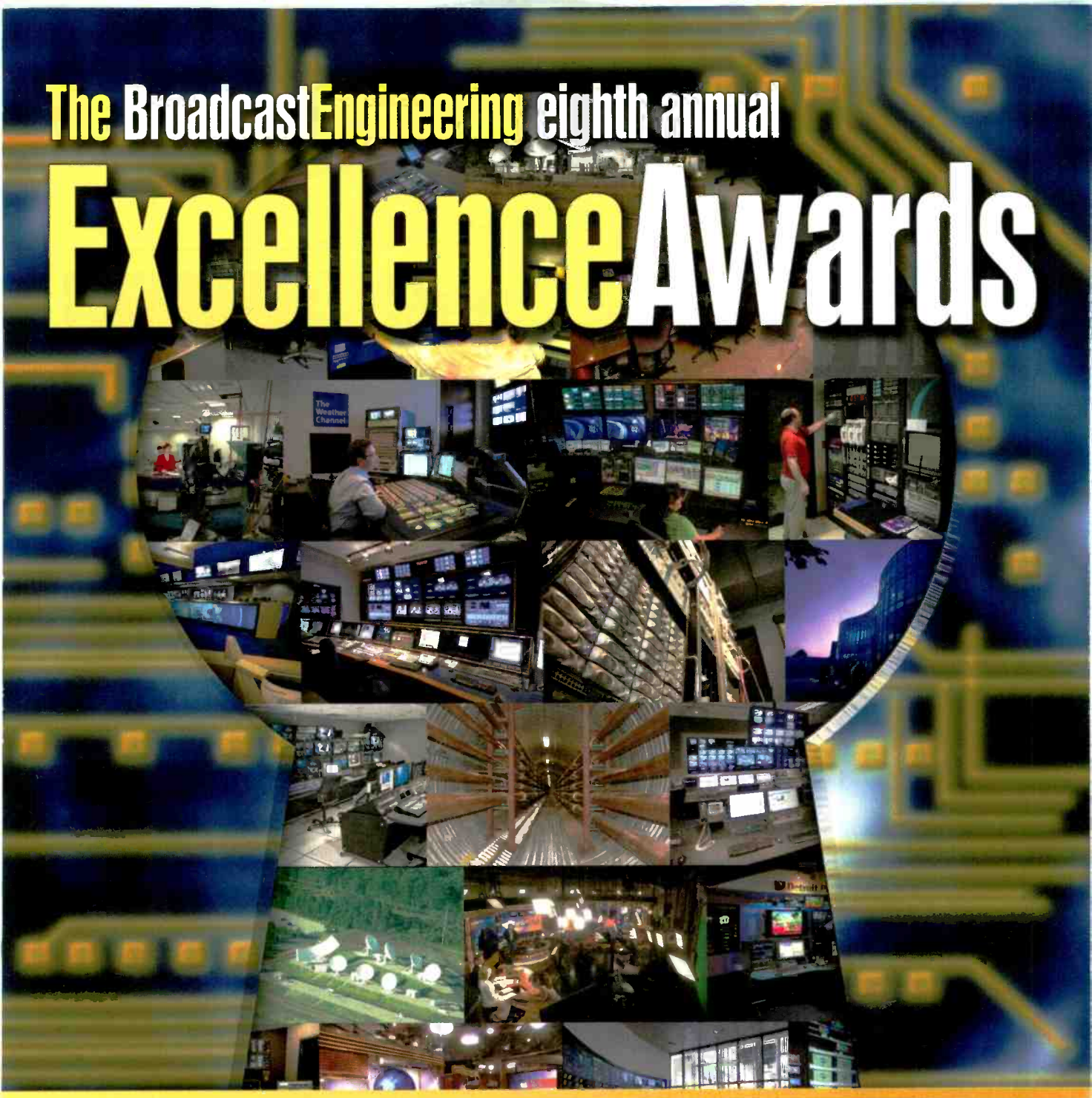

- 45 cutting-edge facilities
- Eight technology categories
- Readers select the winners

Welcome to the eighth annual Excellence Awards! This year's entries are:

Vote now!

It's time to vote on your favorite *Broadcast Engineering* 2008 Excellence Awards entries.

During this year — which included a national election, Summer Olympics and preparation for the digital transition — broadcasters were busy updating their facilities.

With 45 entries from around the world, this year's contest includes some of the most sophisticated and high-tech facilities ever built.

To vote for your favorite installations, visit *www.broadcastengineering.com*. Click on the Excellence Awards button, and select one facility from each of the eight categories.

Votes must be entered by Feb. 1, 2009.

The winning facilities will be announced in the March 2009 issue of *Broadcast Engineering* and will receive their awards at a special ceremony during the 2009 NAB convention.

Brad Dick

Brad Dick
Editorial Director

ESPN's new teleport facility expands the network's distribution

Seven years ago, the initial discussions took place regarding the feasibility of developing a parcel of land near the ESPN campus for the sole purpose of transplanting its antenna resources to one common area. The reasons for this were many, but the main one centered on the security concerns of having antennas placed in parking lots and along the busy thoroughfare that runs adjacent to ESPN. By the end of December 2008, the project will be completed. The last antenna will have been moved, and the trademark pictures of several transmit antennas in front of the original ESPN buildings along Middle Street will have to live on solely in one's memory.

The new teleport facility is situated on 10 acres in Southington, CT; this parcel of land is part of the main campus — the campus straddles both Bristol and Southington. The teleport is comprised of five terraces, each lower than the preceding by 10ft. This allows for a clear line of sight to domestic and international satellites by all 22 antennas on the teleport. Eighteen antennas, ranging from 4.5m to 11m, were relocated to the teleport, and four additional antennas were purchased, three of which are 9m antennas and one 7m Torus antenna. The Torus antenna is mammoth in size, measuring 24.4m in length, 7m in height and has the functionality of 35 7m C/Ku-band antennas with feed assemblies fully populated. ESPN has chosen to position this antenna to give it optimum reception along the domestic arc. With 30 feed assemblies aligned, gone are the days when the network had to reject feed requests because of the lack of antenna resources. The addition of the Torus for domestic reception frees up 10 4.5m agile antennas for international reception, an area of the company that is experiencing rapid growth.

The majority of ESPN networks are distributed by seven C-band transmit antennas powered by state-of-the-art 1kW solid-state power amplifiers. These amplifiers were chosen for their wideband characteristics, built-in redundancy and ease of maintenance. ESPN selected 1:2 phase combined traveling-wave tube amplifiers (TWTs) to power three Ku-band antennas for distribution of its international networks to targeted areas not reached by C-band distribution. Fiber optics are used to transport signals between the teleport and the transmission control room; loose tube conduits and air-blown fiber were chosen for their flexibility in meeting future needs.

The completion of this teleport, and the expansion capabilities it provides, will allow ESPN to expand upon the 53,000 feeds it currently receives each year, thereby enhancing distribution to the 196 countries and territories currently receiving ESPN content. In addition, ESPN is well positioned to support its parent company, Disney, as new initiatives are developed.

Broadcast Engineering 8th annual Excellence Awards

Category

New studio or RF technology — station

Submitted by

ESPN

Design team

ESPN: Roger Roy, sr. dir.; Glenn Scanlon, assoc. dir.; Shannon Schaar, assoc. dir.; Robert Longfield, dir.; John Cistulli, dir.; Richard Masotti, mgr.; Paul Emmendorfer, dir.

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- Opticomm Optiva fiber transport system
- Quintech LS series active L-band splitter
- Specialty Microwave C-band switch/load
- VertexRSI ModuMAX power amp model MPCD-61000/R
- Viasat 8009A C-band antenna
- WB Walton antenna hot air de-icer

Lake Cedar Group Transmission Facility brings full-power DTV to Denver

Category

New studio or RF technology – station

Submitted by

5280 Broadcast

Design team

5280 Broadcast: Tony Roccanova, dir. of eng.; Randy Reed, sr. eng.; Chris Kinsella, Phase 1 proj. mgr.; Jeff Combs, Phase 2 proj. mgr.
KCNC: David Layne, dir. of ops and eng.; Eric Buckland, eng. mgr.; Paul Deeth, transmitter maint. supervisor
KMGH: Rick Craddock, dir. of eng.; Dave Stromberg, asst. chief eng.; Mike Shanahan, broadcast eng.

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The Lake Cedar Group Transmission Facility is a 20,000sq-ft building housing the control and monitoring equipment, STLs and TSLs, central receive equipment, and digital transmitters for a group of Denver TV stations. The plant serves a new 730ft tower shared by four stations. It was designed to consolidate the stations' DTV operations and will allow the dismantling of four towers and three transmitter buildings after the February analog shutoff.

5280 Broadcast assisted with the design, equipment procurement and integration of the baseband video and audio, transport stream, data and control signals within the facility. Although the ultimate goals of the stations were similar, each incorporated a unique system design based on its own needs, budgets and transition timeline.

Each station occupies its own access-controlled rack room for monitoring, control and STL/TSL equipment with transmitters located in an open, central area of the building. The stations also share an equipment room known as "the vault," which houses ENG microwave and two-way radio equipment. The vault is connected to the main building by a 250ft underground tunnel, which also contains the transmission lines. Due to the length of the runs, grounding considerations and the obvious potential for RF interference, connectivity between the main building and the vault was via a single-mode fiber infrastructure running through the tunnel alongside the transmission lines and terminating at patch panels in each control room and the appropriate racks within the vault. One station required fiber runs to its on-site satellite dish farm as well as 500ft run up the hill to its analog transmitter building to accommodate monitoring and integration of its analog operations.

Challenges included the lack of permanent heat and power sources for much of the construction period as well the logistical challenges of working alongside electricians, plumbers and painters. The Harris transmitter crew, Radian tower crew and Thin Air Communications microwave crew were extremely helpful.

The final phase of the project was the fabrication and installation of custom I/O panels on the east and west ends of the building's exterior and the creation of a tie-line network throughout the facility. These panels — which allow for the connection of video, audio, transport streams, Ethernet data and telco lines — terminate into each station's control room at a custom patch bay. They allow for quick connectivity for disaster recovery, portable microwave links or the sharing of news pool feeds or other signals between stations. Due to cost and security considerations, this option was favored by the stations over the installation of a common routing system. The facility was brought online in May 2008. ■

Louisiana Public Television connects to new high-speed IP network

Louisiana Public Broadcasting (LPB), headquartered in Baton Rouge, provides local and national PBS programming for six separate DMAs as well as to partner stations WLAE and WYES in New Orleans. Before 2008, all LPB programming was delivered via satellite; this recent upgrade provides for IP network delivery with a satellite backup.

LPB is a partner with the Louisiana Optical Network Initiative (LONI), a high-speed university-based super computing network. This high-speed network provides LPB with a 10Gb backbone for interconnecting its remote sites. This new MPEG encoding and decoding equipment is the first real-time broadcast use of the network.

The design called for a new ATSC-compatible MPEG encoding system to replace the first-generation encoding system. It needed to provide for IP and satellite delivery as well as mechanisms for remote control, monitoring and emergency failover. LPB selected a redundant Harmonic HD/multi-SD ATSC encoding system consisting of MV-500 HD encoders, Electra SD encoders and ProStream multiplexers. The Harmonic system simultaneously provides IP outputs for the LONI network and ASI outputs for the local cable headends and the TANDBERG DVB-S2 satellite modulators. Because WLAE and WYES also purchased similar Harmonic encoding systems, there is great flexibility for LPB to share equipment as needed and for creating remote statmux pools. The new system also includes redundant Triveni GuideBuilder PSIP generators that interface with the existing ProTrack traffic system.

In fall 2008, LPB (in conjunction with PBS) is moving from AMC-3 to AMC-21. The LPB transmitter sites use TANDBERG IP and satellite receivers, Ensemble Designs ASI failover switches and TANDBERG PSIP rebranding/SMPTE-310 conversion to create an ATSC-ready stream for each DTV transmitter.

To maintain real-time data integrity over LONI and other last-mile networks, all IP equipment provided supports ProMPEG forward error correction.

The duplex nature of the IP network also allows remote monitoring and control of all hardware on the network. A KTech DVM-150E at each transmitter provides a 19.39Mb/s ATSC stream that is converted to IP with a TANDBERG TT6120 transport stream converter and monitored in the Baton Rouge master control facility.

The connection to such a high-speed IP network will create many new opportunities for LPB to serve the people of Louisiana. The MPEG delivery system is just the first step and provides a flexible platform for expansion into local insertion, IPTV, VOD and wherever technology is headed in the future. ■

Broadcast Engineering 8th annual EXCELLENCE AWARDS

Category

New studio or RF technology — station

Submitted by

Heartland Video Systems

Design team

LPB: Randy Ward, dir. of eng.; Phillip Blucas, proj. eng.

HVS: Mike Schmidt, sr. sys. eng.; Bill Tessman VP/GM; Tony DeMarcc and John Pfankuch, presales eng.

Technology at work

- Ensemble Designs 4455 ASI failover switches
- Evertz 7760CCM-HD caption translation
- Harmonic
  - Electra SD encoders
  - MV-500 HD encoders
  - ProStream multiplexers
- KTech DVM-150E MPEG decoders
- Miranda Densité distribution
- TANDBERG
  - SM6620 DVB-S2 satellite modulators
  - TT1260 IP receivers
  - RX1290 satellite receivers
  - TT6120 PSIP rebranding
  - TT6120 TS converter
- Triveni GuideBuilder PSIP generators
- TV Logic LVM-171W LCD monitor
- Wohler ATSC3 audio monitor

WBAL in Baltimore upgrades with a new HD production system

Category

New studio or RF technology — station

Submitted by

Communications Engineering, Inc.

Design team

WBAL: Jeff Halapin, dir. of eng.; Chris Bryant, eng. mgr.; Jim Wylie, maint. supervisor

CEI: Herman Reynolds, proj. mgr.; Felix Pena, dir. of mech. eng.; Justin King, design eng.; James Smith, installation supervisor

Technology at work

- Barco OverView video wall
- Canon HD lenses
- DNF universal switch panels
- Dolby encoders and decoders
- Evertz
  - MVP video controller system
  - Monitoring equipment
  - Routing system
- Genelec speakers and audio monitors
- Harris timing equipment
- Image Video tally system
- Sony
  - HD cameras
  - MVS8000G switcher
  - Video monitors
- Tektronix video monitors
- Vizrt image effects
- Wheatstone D-10 audio mixer
- Wohler audio and video monitors

WBAL, the NBC affiliate in Baltimore, began planning to broadcast in HD in early 2007, and station management knew from the beginning that there would be several challenges associated with the HD upgrade. In December 2007, WBAL brought in Communications Engineering, Inc. (CEI) of Newington, VA, to help overcome these challenges. CEI's primary responsibilities in the upgrade project included designing and constructing a new HD video control room, audio control room, HD news production studio, a core equipment room and a video control area. The project resulted in the complete modernization and expansion of the existing production facilities to allow WBAL to broadcast in HD.

WBAL, which reaches about 1 million households, was able to handle the problem of continuing its news broadcasts during the build-out by temporarily broadcasting from the newsroom. During this time, a new lighting grid and new studio sets were constructed and installed. WBAL also had to locate temporary camera pedestals for its existing cameras so that its permanent robotic pedestals would be available for the new HD cameras.

CEI's project team worked with WBAL to deal with these problems, as well as develop and refine conceptual and detailed designs, specifications and documentation, in order to ensure the proper design of the technical space, including electrical and mechanical systems. The company also handled console and monitor wall design, as well as equipment procurement and integration. It installed and tested the systems, and trained WBAL personnel on systems operation.

WBAL began live HD broadcasts of several daily programs in November 2008 after the project was completed on time and within budget. The new HD production center features a multiformat production switching, video monitoring, audio mixing and distribution systems; HD studio cameras; and a video monitoring and testing station. Key equipment includes Sony HD cameras and Canon HD lenses; a Sony MVS8000G production switcher; a Wheatstone D-10 audio mixer; a Barco OverView video wall; an Evertz routing system, MVP video controller system and monitoring equipment; Harris timing equipment; Vizrt image effects; Dolby encoders and decoders; DNF universal switch panels; an Image Video tally system; Wohler audio and video monitors; and Sony and Tektronix video monitors.

The WBAL staff believes the impact of the new HD production center and studio was immediately apparent to the viewers. WBAL's parent company, Hearst-Argyle, is a pioneer in the transition to digital TV and is firmly committed to the future of HD technology, so this upgrade project was an ideal fit for the company's long-term strategy. ■

WFXT expands its news operation and presence in the Boston market

Success in a competitive market means not standing still. WFXT-TV, the local FOX affiliate for the Boston market, wished to expand its current news operations and to reinforce its presence in the broadcast news market.

WFXT began by purchasing the adjacent property, a former 40,000sq-ft General Motors training facility. This addition resulted in a total of five acres of property. The intent was to join two otherwise separate buildings into one harmonious structure. The result would provide the space for an expanded newsroom, a new technical core, a broadcast studio and offices. Interior on-site parking for ENG vehicles was also required.

A clean vista and park-like setting was achieved through concealing parking and support areas by creating a unique and higher infill element that faces primarily toward Route 128 and Route One. The infill building itself now becomes the primary focus. When illuminated at night, the two-story newsroom shines as a beacon in the dark beyond the highway.

Creating a visible and homogenous design was crucial, as the two existing structures shared a 7ft floor level change. The floor height difference provided the opportunity to create a series of ramps to connect the sequences of spaces throughout the structure. A raised floor was used throughout the infill building and extends into both the existing station and General Motors building, helping to equalize the 7ft difference and provide low voltage distribution throughout the station. The ramps terminate at grade in the GM building into a 6500sq-ft studio on a vibration-isolating floor, including 100ft of column-free studio space.

Utility company electric service is from alternate lines via a loop-feed system to the service transformers. Critical broadcast systems, including the equipment room, master control and production control, are supported by dual-redundant UPS systems with A-B distribution to the rack level. Generator backup is provided so that full station operation can be maintained during a utility power outage. Transfer switches are equipped with a bypass feature to allow maintenance without affecting the load. Costs were minimized by reusing the existing generator and one of the UPS sources.

The mechanical systems for the two existing buildings consisted of a water source heat pump system and packaged rooftop systems, respectively. New high-efficiency modular packaged rooftop systems were designed to serve the new infill building and upgraded technical areas of the facility. All these systems, new and old, were put under the control of a new electronic direct digital control (DDC) system. This new DDC system provided the facility with fully automated centralized control to monitor all critical equipment, optimizing operation of the existing heat pump and packaged rooftop systems. ■

Broadcast Engineering 8th annual Excellence Awards

Category

New studio or RF technology – station

Submitted by

Lawson & Associates, Architects

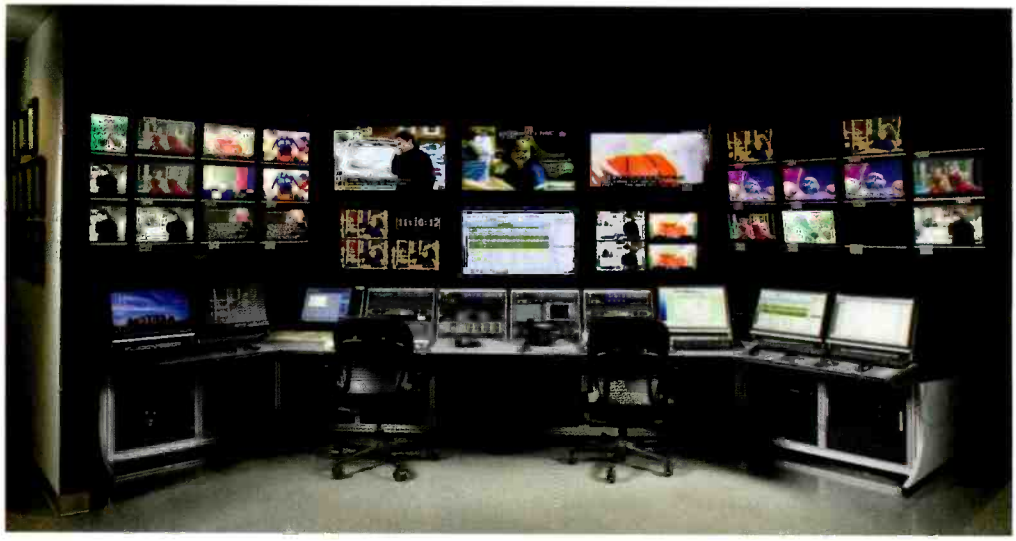
Design team

WFXT: Steve James, VP of eng.
Lawson & Associates, Architects: Bruce Lawson, principal; Joe Quarterman, designer
Beck Associates: Paul Kast, proj. eng.
Eastboard Consoles: Steve Goldberg, designer
Bond Brothers

Technology at work

ACE/Clear Defense
Bullet Film
Armstrong Soundsoak
acoustical wall material
Barbizon lighting grids
Carrier
Building automation
Rooftop AC
Eastboard consoles
GE switch gear
IAC acoustical doors
Kawneer
Storefront doors
Sliding Glass doors
Kinetics vibration isolation floors
Kohler generator
Lutron electric window shades
MGE UPS
Nortec humidification
PQI harmonic mitigating transformers
Siemens fire alarm sys.
Tate access floors

WFYI Public Broadcasting breaks the digital barrier with new 94,000sq-ft facility



Category

New studio or RF technology — station

Submitted by

WFYI Public Broadcasting

Design team

WFYI: Alan Cloe, exec. VP; Steve Jensen, VP eng.; Nate Pass, chief eng., architect, sys. designer; custom monitor wall design by Nate Pass; custom console design by Steve Goldberg

Technology at work

Automation Network
- Ethernet switches

Belkin KVM network

Bittree A/V jackfields

Chyron
- Infiniti CG
- DynaCrawl graphics

Harris
- Flexicoder encoder
- Videotek monitoring

Evertz
- Distribution products
- Master clocks

MRC TwinStream radio

MultiDyne fiber products

Sencore IRDs

Sundance Digital
- Fastbreak NXT
- Intellisat server
- SIDON server

Thomson Grass Valley
- Concerto AES router
- Encore control
- K2 servers
- Maestro MC system
- Trinix router

ViewSonic monitors

Wohler audio monitors

Yamaha surround sound

In 2003, WFYI was in the midst of a facility expansion plan on its current site when a prime piece of real estate became available just two blocks north of the station's existing facility in downtown Indianapolis. After careful evaluation, it became apparent to WFYI that this was an opportunity worth pursuing. The 94,000sq-ft property provided the station with ample space for future growth and allowed it to establish a new digital headquarters that would serve the central Indiana community. The facility would also house all of WFYI's services, which include a state-of-the-art digital TV station (PBS) and digital radio station (NPR), as well as a Learning Services Division, a free statewide reading service for reading-impaired citizens (IRIS) and a full-service audio and video production facility.

Before the remodeling phase began, WFYI secured a team of professionals to integrate all of the station's digital broadcast services. The work was performed entirely in-house by the station's talented engineering staff and a dedicated group of local freelancers.

The first challenge was to address how the move would affect the current RF and microwave paths to and from the transmitter site. WFYI obtained FAA and city approval to construct a 150ft PiRod tower with three 8ft-high performance antennas.

Evertz signal distribution, fiber, bypass protection, LNB power, processing and conversion products provided high-performance and advanced monitoring for all STL, TSL and radio microwave TX/RX equipment.

Master control is driven by two Thomson Grass Valley Maestro multiformat digital control panels with internal branding, DVE, CG, EAS and audio store capabilities. Behind the operations are Grass Valley K2 servers and a Trinix 256 x 256 digital router configured for HD and SD previewing, content archiving, ingesting, playback and distribution.

Digital content is controlled and transferred through several facilities and control networks powered by a Grass Valley Encore engine running a complex array of applications. On-air automation is controlled by a Sundance Digital Fastbreak NXT automation system. The master control room has a streamlined look with 5.1 sound that reflects its high-tech efficiency.

While much of the infrastructure of the new building satisfied WFYI's daily operational needs, it was still necessary for the station to construct a nearly 5000sq-ft addition to house two digital TV studios. The post-production facilities are located adjacent to the studios. Field productions are ingested into a 5TB Avid SAN. The system is supported by Avid Unity File Manager, MediaManager, a port server, Nitris DS, four Adrenaline NLEs, Edius and two Apple Final Cut Pro editors. ■

WLOS-TV's migration to HD required integration of new legacy systems

WLOS-TV 13 is the ABC affiliate serving Asheville, NC, owned by Maryland-based Sinclair Broadcast Group. Sinclair has placed a significant emphasis on HD news production in its top four markets during 2008. WLOS was the last to go live. It was preceded by Sinclair-owned stations in Baltimore; Columbus, OH; and Pensacola, FL.

From the beginning, it became clear that this migration to HD would encompass everything in the studio. The field acquisition and newsroom editing systems, however, were a different story. Existing Avid NewsCutters could not yet be retired, existing microwave links were not HD-capable and field acquisition gear was not yet HD.

Enter the Snell & Wilcox Kahuna. By now, many in the broadcast community have seen the glowing reviews of this product from Mark Nadeau, Sinclair's top news director. The switcher had to be flexible, handle both HD and SD content with ease and offer a full range of features and effects. All major manufacturers were considered, but Snell & Wilcox stood out. The Kahuna became the cornerstone of the multidefinition design.

The production control room was originally laid out in 2000 with a traditional "glass in the racks" monitor wall at the front, two console rows in the center and an audio booth in the rear. All operators were on the same floor level, and sight lines were difficult. The new design featured an 11in indentation in the floor where the new front console could rest, creating the desired improvements in sight lines and curb appeal. Also, because the previous monitor wall had been composed of CRTs mounted in racks, it became necessary to devise a clever mounting rig for the four new 52in displays that would be used for the monitor wall. Using T-slotted aluminum material from 80/20, a mounting system was fabricated to hold the displays, the program audio speakers and all the fiber extension gear. The system was designed to stand off the front wall and hold the displays at the perfect distance and angle from the TD and director.

The producers were also provided with an upgraded home on the second row featuring their own 22in monitor wall display mounted on an articulating arm as well as an audio listen station for any source on the wall. This is particularly useful when communicating with a remote crew just prior to going live.

Panasonic AKHC931 cameras were selected through a shoot-out process; Miranda's Kaleido-X was selected for its image quality and programming ease; Avid Deko and Thunder were chosen for their tight integration with the NCS; Evertz gear was chosen for clock and sync functions; and custom consoles were purchased from Cabinetworks, a long-time supplier to Sinclair.

Broadcast Engineering 8th annual Excellence Awards

Category

New studio or RF technology — station

Submitted by

TI Broadcast Solutions Group

Design team

Sinclair Broadcast Group: Del Parks, VP eng.; Harvey Arnold, dir. eng.; Don Roberts, dir. TV sys.

TI Broadcast Solutions Group: Michael Wright, program mgr.; Phil Popp, sr. eng.; Brian Kincheloe, installation foreman

Technology at work

- Avid
  - Deko CG
  - Thunder clip player
- Autoscript teleprompter and tally light
- Cabinetworks custom consoles
- Miranda Kaleido-X monitor wall processor
- Terminal gear
- Panasonic AKHC931 cameras
- Snell & Wilcox Kahuna production switcher
- Vinten Osprey Elite pedestals with Vector 90 heads

DPTV's new all-digital facility provides solution for efficiency and future growth

Category:

New studio or RF technology — station

Submitted by:

Professional Communications Systems

Design team

DPTV: Helge Blucher, VP eng.
PCS: Larry Stephen, account mgr.; Tim Sloan, VP eng.; Dave Palmeira, design eng.; Troy Pazos, installation mgr.; Marvin Born, proj. mgr.
URS: Don Archiable, dir.
Oliver/Hatcher Construction: Chris Laycock, proj. mgr.

Technology at work

Dolby
DP-564 decoder
DP569 encoder
Evertz
VIP video processor
VIP HD/SD module
Harris
Leitch MTG-3901-SYS-3E NEO MTG
Leitch GPS-3903 GPS
Leitch TSG-3901 test generator
Videotek VTM-4100-PKG
VTM-2400 monitor
IPswitch What'sUpGold SNMP monitoring
Middle Atlantic racks
NVISION FR5128 HD router
Sharp 52in LCD displays
TBC Consoles custom video wall
Wohler audio monitors

WTVS Detroit Public Television's broadcast facilities were constrained in space and its operations limited by the lack of a digital support infrastructure. A larger facility was the most cost-efficient path for HD capability and adequate support facilities.

DPTV acquired a new building and embarked on a multiphase renovation, construction and technology transition plan. A compressed timeline was required, and production and on-air services had to be transferred at minimal cost and completed over a weekend.

Helge Blucher, DPTV VP of engineering, gathered a team of veteran professionals for the interwoven tasks. DPTV had worked with URS and Oliver/Hatcher on the initial Wixom space planning and construction. URS also designed the mechanical, electrical and grounding systems for the new broadcast operations center and master control room. Design plans were completed in late 2007 with a construction completion date set for May 2008 and operational transition by July. The complex project became a case study for success in planning, preparation and collaboration.

DPTV called upon Professional Communications Systems (PCS) for broadcast systems design, equipment procurement and the technical installation. Subsequent budget reductions, however, forced an eleventh-hour switch in plans that created the project's biggest challenge. DPTV staff had to perform the installation, necessitating a shift in tactical planning. It became essential to assemble a team that could provide guidance to DPTV. Contingency planning and frequent communication via almost daily conference calls set a new standard in collaboration.

To meet deadlines and provide DPTV with pre-engineered material, PCS prefabricated all harnesses and cabling in-house and prepared system documentation along with detailed installation guidelines. DPTV installed racks, patch panels, monitoring and inter-rack cabling before the actual physical move of the broadcast equipment.

The transition from old to new went smoothly. The station's channels remained on-air during the switchover using a borrowed server and spare encoder/multiplexer. The upgrade included new MC consoles, monitoring and multi-image processing for fiber transmission. The existing automation system was enhanced, and a new master clock and synchronization system were installed.

Station operations are now more efficient with room for growth. Blucher credits staff dedication, vendor cooperation, communication and planning as key elements to success. The station now broadcasts one HD channel and two SD channels and plans to build three new HD production studios. ■

Four Points Media and Burst build a remotely operated master control for WTVX

At the end of 2007, Burst and WTVX-TV teamed up to design and build a remotely operated and completely unattended master control facility for WTVX and its low-power counterparts. The unusual design called for a master control facility at the WTVX transmitter site in the wetlands near Port St. Lucie, FL, operated from KUTV-TV's master control in Salt Lake City thousands of miles away.

This design was financially and technically advantageous. WTVX could maintain a local presence and programming in West Palm Beach, FL, and KUTV's engineering crew could manage operations from Salt Lake City.

The project called for off-the-shelf computers to control the unattended and remotely-operated master control facility (which is also remotely rebootable). Programming received via satellite at the transmitter site is transmitted live and recorded to the Omneon server to be aired later or file transferred to the sales office for post production.

The systems at the master control site are computer-based, and nearly everything can be seen remotely via IP. Systems that require KVM access are viewable via KVM over IP, and the IP infrastructure enables full control and monitoring, including KVM over IP connectivity.

Using a master control facility at a remote location where operators couldn't see or touch equipment front panels proved challenging, as did implementing a reliable way to move feeds received at the transmitter site to the sales office edit bays in downtown West Palm Beach. Other challenges: determining the hosting strategy for WTVX's low-power stations and identifying the best way to run the master control from a desktop PC located thousands of miles away.

Technologies used can be managed via LAN/WAN. Media arriving via MPLS WAN and Telestream's Pipeline is stored on the Omneon servers, and media arriving via satellite may be file transferred from the Omneon servers or catch servers to the WTVX sales office in West Palm Beach. Most of the WAN file transfers originate at the sales office, also the point of origin for the microwave link. At the sales office, media can be posted in HD or SD formats and file transferred to the Omneon server for playout at times assigned by automation.

All control, monitoring and spot ingest is done via a 6Mb network connection. Cisco routers and switches, MPLS WAN technology, plus HughesNet for backup, permit the deployment of a flexible and robust network environment.

The unique solution that Burst proposed and WTVX implemented proved successful, and the station is enjoying the technical and financial benefits of the innovative design. ■

Broadcast Engineering 8th annual Excellence Awards

Category

New studio or RF technology — station

Submitted by

Burst

Design team

Burst: Tom Norman, sr. eng.; Dave Stengel, proj. mgr.; Letha Koepp, admin. proj. mgr.; Christian Freeman, lead wireman; Danny Rowland, wireman
Four Points Media: Kipp Greene, dir of eng.; Keith Betts, transmissions eng, WTVX; Alan Scott, dir. of IT, KUTV; Scott Nielson, sr. eng., KUTV

Technology at work

Avocent DSR8035 KVM over IP switch
CompuSat satellite control system
Digital Alert Systems DASDEC EAS system
EASI Sat satellite antennas
Ensemble Designs Avenue
Evertz
- 5600MSC
- 5600ACO2
- 9625 series

Liebert MP-SS138 and MP-C5131 power management
Omneon Spectrum
TANDBERG
- TT1290
- nCompass

Telestream
- FlipFactory
- Pipeline encoders

Utah Scientific 400/64 routing switch
MC-400 MC switcher

ABC leverages smart PSIP solution to address evolving demands of HD

Category

New studio technology — network

Submitted by

Triveni Digital

Design team

ABC: Mike Strein, dir., DTV development and media planning; Ken Michel, VP eng. sys.; Steve Machanic, proj. mgr., eng.; Michael Drazin, proj. mgr., technology and strategic planning; Jim Jackson, proj. eng., engineering
Triveni Digital: Mark Corl, VP, eng.; Dr. Richard Chernock, CTO; Srinath V. Ramaswamy, dir., transport information sys.

Technology at work

ABC Network headend:
EEG HD480 data inserter and software clients
Affiliated TV stations:
Triveni Digital GuideBuilder NVR
Optional local GuideBuilder

The ABC Television Network develops, produces and distributes hundreds of hours of programming to more than 200 affiliated stations in the United States. Three years ago, the network began working with its owned stations to find a way to get late-breaking EPG data for HD programming from the network to the stations. At the time, the FCC was planning to mandate that station program guide information be up-to-date, and ABC sought an automated means by which last-minute changes to information could be incorporated into the HD digital television stream.

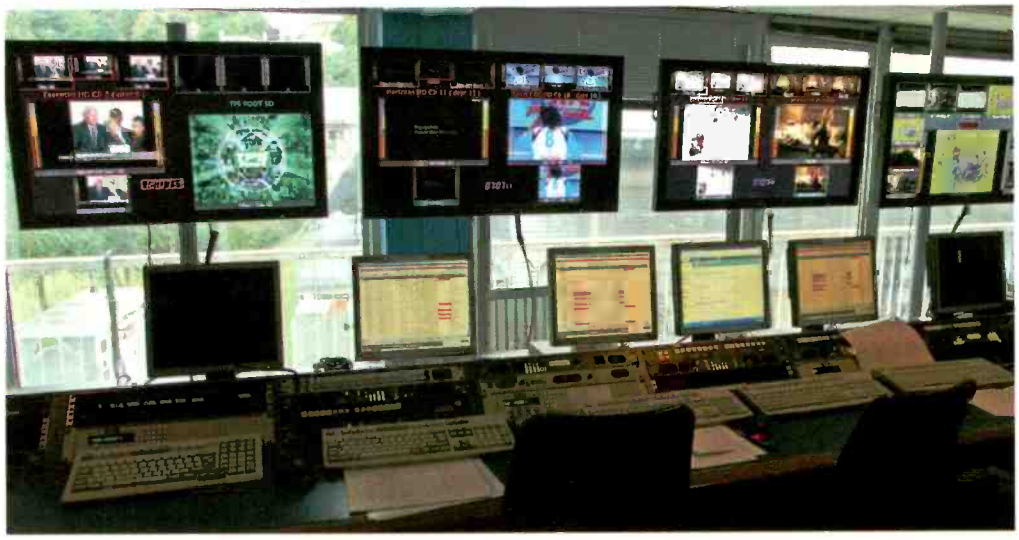
The data that supports the PSIP-based EPG is generated by third-party services and is typically available to ABC affiliate stations two weeks prior to a broadcast. In the network's earlier model, any last-minute changes due to breaking news or a sports event running long would be sent to affiliate stations for manual input into the local PSIP generator. Often, staff members were too involved in making sure programming got to air correctly to take time out to update PSIP information.

In developing an RFP for a new and improved approach to updating PSIP data, ABC specified the existing areas of information that needed to be scraped from network automation, network logs and on-air programs and subsequently packaged for transport to stations in different time zones and geographic locations. After evaluating different options, ABC opted to work with Triveni Digital's GuideBuilder-based network PSIP management system, along with the GuideBuilder Network VANC Receiver (NVR) module, installed at affiliate stations. The NVR connects to a local GuideBuilder PSIP generator to enable local and network PSIP merging.

ABC's HD network sends its affiliate stations not only regular HD video and audio, but also information in the VANC data band, including last-minute updates for closed captioning and other critical overrides provided by a central network administrator. An EEG HD480 inserts this data on the network end, and Triveni Digital's network PSIP management configuration at ABC affiliate stations extracts the information carried in the VANC data band, composes a PMCP schedule file incorporating updated information, and, within seconds, merges it into PSIP data for local broadcasts. Network affiliates employing the new model benefit from immediate and automated scheduling and critical DTV system information updates as they happen.

ABC already has begun to roll out its new PSIP solution at owned stations around the country. Because processing of updated data is managed automatically, in the background, ABC and its affiliated stations working with this solution are free to focus on other parts of the broadcast workflow.

Canal Overseas streamlines SD/HD facility with innovative closed-captioning technology



Canal Overseas, a subsidiary of French broadcast group Canal+, provides 24/7 direct-to-home satellite distribution of programming, a blend of more than 300 premium channels and bouquets of thematic channels and services, to more than 1.7 million homes in Poland, Africa and French overseas territories. The company recently upgraded its facilities to accommodate SD and HD content. In making this shift, it adopted a solution that enabled the design of a cost-effective hybrid storage and playout facility.

Among the most important concerns for Canal Overseas in rebuilding its facility, located outside Paris in St. Cloud, was establishing a streamlined, cost-saving SD/HD workflow for more than a dozen channels while continuing the requirements of markets still demanding delivery of SD teletext subtitles. The resulting storage and playout architecture was designed to store content only in HD, rather than both SD and HD, but play out content in both formats. To address the issue of subtitling, Canal Overseas turned to the HDCC-200A HD/SD-SDI closed-captioning bridge from Wohler Technologies.

The HCCC-200A enables Canal Overseas to embed World System Teletext (WST) data into the HD-SDI signal vertical ancillary data (VANC) during ingest, record subtitled content to the HD broadcast server and then play back programming to the 14 different Canal Overseas channels. The teletext subtitles are encoded within an HD ingest workflow and decoded back to teletext at the time of playout.

The bridge provides encoding and decoding of teletext subtitle data within the HD-SDI video signal. Eleven units are used to embed teletext data in the HD-SDI signal (VANC) during ingest. This allows six programs to be recorded simultaneously from external HD feeds with SD and the VBI-related signal, from external SD feeds upconverted during the ingest process or from HD tape programs with EBU subtitle files. These are stored on an HD broadcast server.

During playout, 16 bridges extract the HD-VANC data and re-encode it as conventional VBI teletext subtitling into a parallel SD-SDI signal downconverted from the HD. The SD-VBI subtitles are then either displayed for local monitoring (preview channels), converted into DVB teletext subtitles on the downconverted SD-transmitted channels, or converted into DVB subtitling on HD-transmitted channels.

The HDCC-200A is based on Europa Australia specifications (OP47/SMPTE RDD08), and this installation is one of the first uses of the CE-compliant card in a teletext subtitle application outside Australia. The Free TV OP47 standard supported by the HDCC-200A is proposed for adoption by SMPTE. Canal Overseas' transition to SD/HD broadcasting has enabled cost-savings and simplified operations while positioning the company to manage multiformat and multichannel broadcasting to a variety of markets.

Broadcast Engineering 8th annual Excellence Awards

Category

New studio technology — network

Submitted by

Wohler Technologies

Design team

Canal Overseas: Gino Ma Paw Youn, tech. broadcast dir.
Whypi: Yves Pinon, consultant
Wohler: Kim Templeman-Holmes, VP sales and marketing; Carl J. Dempsey, pres. and CEO
SysMedia: Andrew Lambourne, CEO

Technology at work

Front Porch Digital DIVArchive
Omneon Spectrum HD media servers
SGT DBOS automation
Sun Microsystems StorageTek library
Wohler Technologies HDCC-200A HD/SD-SDI closed-captioning bridges

AZCAR builds all-new HD network center in Houston for FOX

Category

New studio technology — network

Submitted by

AZCAR

Design team

FOX NE&O LA: Richard Friedel, exec. VP & GM; Jim Hopkins, sr. VP eng.; Hal Reynolds, VP broadcast projects (FOX PM)

FOX Sports Net Houston: Tim Sweeney VP and GM; Don Covington, VP eng.; Philip Reiners, chief eng.

AZCAR: John Jay, proj. mgr.; Michael Walter, lead eng.; Neil Sutton, installation supervisor; Hakim Kharbut, eng.; Mark Johnson, eng.; Guy McCombs, commissioning; Jaime Quintero, installation

Technology at work

Chyron HyperX graphics
Cisco IT switches
Evertz
- 7700 series peripherals
- EQX, Xenon and L-band routers
- MVP and VIP multi-image display processors
- QMC MCR switchers

Harris
- ADC automation
- NetVX video transport
- NEXIO servers

Sony LCD displays

FOX Networks Engineering & Operations (FOX NE&O) selected AZCAR to provide engineering design, installation and project management services for the construction of a new network center for FOX Sports cable networks in Houston, TX. The center serves as a program integration and uplink site for FOX Sports Net's Regional Sports Networks, FOX College Sports Networks, The Big Ten Networks and FOX Sports Middle East Networks. It also serves as a disaster recovery facility for other FOX properties, replacing the Houston Technical Operations Center.

The facility is primarily a program integration facility taking feeds from the regional FSN centers, as well as directly from live sport venues. It comprises 32 HD master control rooms for single-channel production purposes, as well as four eight-stream and one six-stream multicast control room areas. During quiet times, the networks are controlled through these rooms with a single operator minding multiple streams. As a stream gets more active, including live event coordination, the stream is seamlessly reallocated to a single-channel room, where a dedicated operator can devote full attention to the individual stream. At the head of all this activity is a technical operations center, where operators monitor and coordinate the incoming and outgoing signals, and a network monitoring center, where operators monitor and control the remote distribution network. The system includes a large number of uplink and downlink satellite transmission systems, as well as terrestrial fiber and data transmission systems.

The system is centered on three large core routers (Evertz EQX), each framed for 576 x 576. The facility uses Evertz QMC master control switchers driven from 10 Xenon 128 x 128 routers. Evertz modular equipment was used extensively; the facility has 328 7700-series frames, as well as VIP and MVP multiscreen drivers for the monitor walls. The server system uses the Harris NEXIO server. A total of 41 I/O chassis are connected to four 12TB SANs. A nearline storage NAS provides a further 60TB of storage.

The IT network infrastructure was key to the successful operation of this facility; there are more Ethernet ports on more than 108 edge switches connected through enterprise class Cisco core switches than there are HD-SDI ports on the routers.

The project ran for a little more than two years and was finally handed over to FOX in June 2008. As a key component of this project award, AZCAR was asked to help FOX NE&O develop new CAD Drawing Standards intended for use throughout FOX Television Engineering. These new drawing standards and tools enabled the standardization of drawing styles amongst FOX entities.

Global TV upgrades news productions, prepares HD transition with virtual studios

Canada's Global Television Network has a viewership spread across five time zones — with regional broadcast centers in Vancouver, Toronto, Edmonton and Calgary as well as stations in 10 other communities. Global TV recently brought online seven new virtual production studios to pave the way for a cost-effective HDTV transition.

The broadcaster's objective was to reduce costs in markets where news production was disproportionate to the revenues of a region and where overlap in facilities and news coverage was creating inefficiencies. Also, the network sought to improve the look and market position of its smaller stations. Rather than invest in new equipment for each station, Global TV embraced the virtual set concept.

Based on Orad's ProSet virtual studio solution, Global TV implemented virtual studio production facilities at its broadcast centers in Vancouver, Calgary and Edmonton. The fourth and final virtual production facility, located in Toronto, will be completed by spring 2009.

Each regionalized newscast uses local talent, while production of the news show is centralized at the virtual studio. Local news items are transmitted to the centers via FTP prior to each broadcast. At airtime, remote-control cameras transmit the image of the local anchor, sitting in front of a green screen, via fiber. Global TV's smaller stations rely on a two-camera studio setup, while the larger stations use three cameras; all use Telemetrics robotics and a Telemetrics H-Frame rig.

At the production facility, ProSet provides virtual studio backgrounds and produces images appropriate to the program's location and then transmits the broadcast back to viewers in the local market. Global TV uses the Orad HDVG (high-definition video graphics) rendering platform to ensure that its virtual sets run in real time without a hitch. The virtual sets were designed by Full Mental Jacket of Los Angeles using 3D Studio MAX, Adobe After Effects and Adobe Photoshop and then exported as VRML into the ProSet HDVG rendering platform.

Global TV built the foundation for its conversion to HD with a one-time investment in equipment, which can be leveraged across multiple newscasts and time zones. This represents an estimated one-fifth of the capital expenditures that would have been required to upgrade each regional control room.

With the virtual studios, local news directors and producers remain in complete control of their programs but ProSet gives each show a unique look and allows common content to be repurposed across multiple broadcasts and time zones. The best resources of the network can now be brought to bear for any regional news production. ■

Broadcast Engineering 8th annual Excellence Awards

Category

New studio technology — network

Submitted by

Orad Hi-Tec Systems

Design team

Applied Electronics: Paul Stechly, pres.; Donnie Gallant, virtual set specialist; Keith Treble, robotics; Kim Edmonds, install. sys. mgr.; Paresn Premjee, news sys.
Global TV: John O'Connor, VP, tech.; Gerry Belec, proj. leader virtual and graphics creation; Glen Altwasser, proj. leader for install. oversight; Geoff Franklin, video content interchange; Chris Mapes, virtual set tech. advisor
Orad: Andrew Wojdala, VP, R&D; Ofir Benovici, VP, bus. dev.; Arek Slawinski, sr. R&D programmer; Mike Paquin, tech. support eng.

Technology at work

Autocue prompters
Canon lenses
Evertz conversion
Harris routers
Ikegami HL 45A cameras
Miranda downconverters
Orad ProSet virtual studio
Snell & Wilcox Kahuna
Telemetrics robotics and H-Frame rig
Telex IP-based intercom
Thomson Grass Valley servers
Ultimatte chroma keyers

Great American Country builds mixed-use studios with future in mind

Category

New studio technology — network

Submitted by

TI Broadcast Solutions Group

Design team

Scripps Networks: Peter Crowley, sr. VP, property development; Mike Donovan, sr. VP, eng./sat. distribution.; Kevin Kritch, VP prod. ops., GAC; Mike Nichols, broadcast eng., GAC

TI Broadcast Solutions Group: Mat Hathaway, design eng.; Brian Kincheloe, on-site foreman

Technology at work

- Avocent AMX 5010 series KVM switching
- Chyron
  - HyperX2 CG
  - XClyps clip player
- Forecast consoles
- HME PRO850 intercom
- Lectrosonics Venue mic
- Miranda
  - Densité signal processing
  - Kaleido-X multi-image processing
- NVISION NV5128 routers
- SSL C100 audio mixer
- Telex RTS Cronus intercom
- Thomson Grass Valley
  - Kayak SD250
  - LDK 4000 cameras
- Vinten Osprey Elite pedestals with Vector 70 heads
- Wheatstone E6 mixer

When Great American Country, a country music-oriented brand of Scripps Networks, set out to build a studio facility, it was important to maintain a presence on Music Row in Nashville, TN, to have access to new talent. This was a challenge when the network set out to build a studio facility along with post and office space in just 8000sq ft.

GAC chose TI Broadcast Solutions Group to work on technical design and integration of the facility. The goal was to build a large studio dedicated to TV production using traditional broadcast equipment and a second smaller studio for TV and multimedia production dayside as well as host a syndicated radio program after hours.

While the system was designed and is currently run in SD, the group wanted to build a clear path to HD. All infrastructure and installed equipment is capable of HD operation either out of the box or by software upgrade.

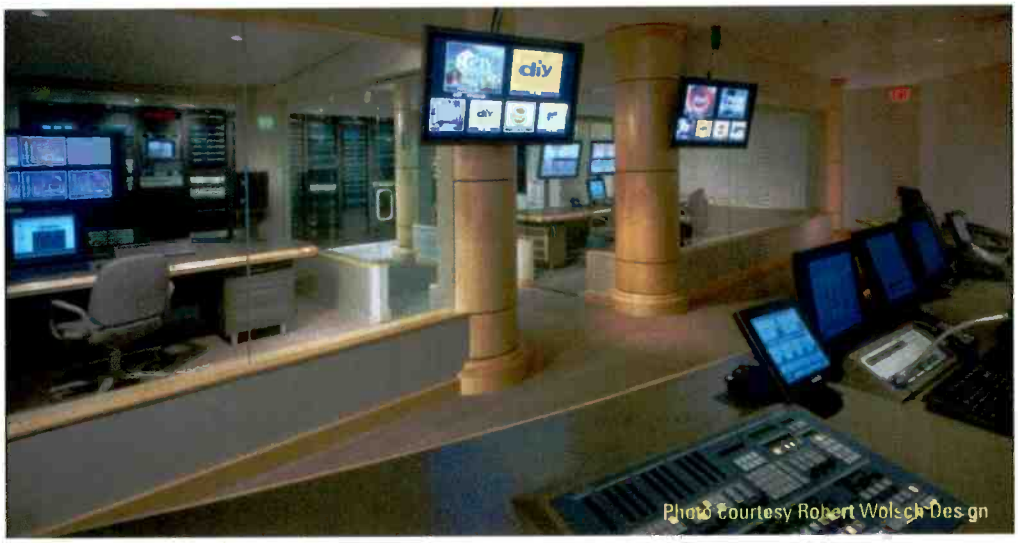
GAC chose Thomson Grass Valley LDK 4000 mk II cameras and a Kayak SD250 switcher for the heart of its Studio A production system. A Chyron HyperX2 is used for CG, while a Chyron XClyps handles on-air clip playout.

Being a music-oriented network, high-quality audio equipment was a necessity. Mixing for Studio A is handled by a Solid State Logic C100. Using an SSL Deltalink MADI I/O, the C100 provides all of the input and output facilities for the ProTools|HD1 multitrack system. An extensive wireless communications system was implemented using Lectrosonics wireless microphones and IFB and HME wireless intercoms. Bexel ASG designed a wireless system that would provide coverage throughout the entire facility.

The facility features a pair of NVISION NV5128 routers. One frame was outfitted for 80 x 80 wideband SDI, while the other frame was outfitted for 80 x 80 AES and 16 x 16 stereo analog audio internally converted. Evertz provides house clock and sync systems along with Miranda Densité signal processing and distribution. A Miranda Kaleido-X offers facilitywide production monitoring, while JVC provides QC monitoring. A Telex RTS digital matrix intercom handles communications.

It proved to be a challenge to provide everything a syndicated radio program needs for operation while also providing what is necessary for TV production in Studio B. The 340sq-ft studio was outfitted with three JVC GY-HD250 cameras using Telecast fiber conversion to transport video, data and power for the Telemetrics robotic systems. Production switching was handled by a Broadcast Pix Slate 1000. Radio operations were provided by a Wheatstone E6 audio mixer and Google automation. StudioHub equipment was integrated into the set furniture.

Scripps Networks assures content delivery quality with ProofPositive



Scripps Networks recently faced a challenge that any major broadcast content provider can relate to. Scripps needed an effective, affordable solution to validate delivery of its content over the "last mile" into viewers' homes without watermarking content.

The broadcaster enlisted the help of XOrbit to develop a live-to-air content delivery confirmation system. In its search for the solution, Scripps identified several key requirements. The system would have to monitor the actual output in viewers' homes, capturing the complete transmission, including all audio and video, of every event on the on-air playlist. The system needed to provide instant e-mail notification to Scripps staff in the event of a preemption or technical glitch, with an A/V clip attached and complete information including the city, the state and the relevant cable or satellite system. Finally, the solution had to function without watermarking the content.

Provided as a subscription service by XOrbit, ProofPositive instantly validates the correct delivery of content from the cable network's operations center directly to viewers and has been deployed in more than 250 viewer locations in Scripps' major cable markets throughout the United States. The system works in conjunction with XOrbit's UltraCast closed-captioning server, which provides playlist information to a ProofPositive device in the Scripps master broadcasting facility. ProofPositive records content over five separate channels as it is transmitted to the cable distribution system. At the same time, a similar device captures the signal as it is received and transmits the analysis back to the XOrbit NOC where it is compared to the master broadcast stream.

The process performs a frame-by-frame analysis based on data received in the viewer's home, using less bandwidth than a dial-up modem, making it easy to install units just about anywhere and extending the reach of the system. Within 30 seconds after a downlinked signal drops below a defined error threshold, ProofPositive generates an e-mail to the Scripps operations staff, including demographic information and a link to the video clip that triggered the alert. The entire verification process is accomplished without any modifications to the video itself.

Audio and video clips are archived by ProofPositive for 60 days, with a full as-run log available for 12 months. Scripps can access the as-run log through a special Web site that shows the playlist by network as well as any errors for each event by location. Likewise, because the audio and video are archived for 60 days, cable MSOs have a foolproof method to confirm that the correct content aired as well.

Broadcast Engineering 8th annual Excellence Awards

Category

New studio technology — network

Submitted by

XOrbit

Design team

Scripps Networks: John Ajamie, sr. VP, broadcast ops. and media logistics; Jerry Nantz, chief eng.; Stephen Stuart, dir., media center and closed captioning; Tim Motley, dir., duplication services
XOrbit: Steven Blumenschein, pres.

Technology at work

XOrbit
ProofPositive
UltraCast closed-captioning server

Globecomm keeps Showtime on the air while creating a new network operations center

Category

New studio technology — network

Submitted by

Globecomm Systems

Design team

Showtime Networks: Timothy Delaney, sr. VP of broadcast ops.; Jim Occhiuto, VP of eng. and tech.; Doug Goerz, dir. of ops.

Globecomm Systems: Keith Hall, gen. mgr. and SVP; Thomas Parish, VP of broadcast tech.; Augusto Villaseñor, principal eng.

Technology at work

- Avid MediaStream ingest/playout servers
- Evertz
  - MVP multi-image video processors
- Harris
  - H-Class automation
  - Invenio DAM
  - VTM4100 on-screen rasterizers
  - X75SD/HD frame synchronizers
- Masstech
  - Archive management system
  - Low-res transcoders
- Miranda
  - ImageStores300 channel branding
  - Intuition and XG graphics
- Panasonic TFT flat-screen displays
- Spectralogic T950 robotic nearline storage

In June 2006, Showtime Networks Inc. (SNI) contracted Globecomm Systems to design, build and integrate a new network operations center to originate and transmit all SNI premium cable channels. This contract was awarded to Globecomm based on technical competence, depth of engineering support, proximity to New York City and competitive bid. The new operations center is located within the Globecomm facility.

Globecomm Systems finalized equipment selection in close coordination with the SNI design team, and ultimately the project was underway. Content acquisition played a significant role in choosing Avid's MediaStream8000 as playout servers to maintain asset compatibility with SNI's existing content library. SNI selected Harris' Invenio digital asset management system for data essence with complete media tracking, indexing and archiving. The ingest subsystem's workstation client handles digitization of content and QC functions prior to storage and archiving.

For physical asset management, SNI chose Masstech's Massstore media asset management system for asset transfer from the multiple SAN domains to Spectralogic's T950 robotic nearline archive library for long-term storage and protection. Harris' H-Class automation takes the overall command and control mechanism from operator standpoint and provides the discrete instructions to all on-air equipment and resources. Miranda ImageStores and IntuitionXG are used for on-air graphic insertions and multilayer channel branding. The master control room is populated by large Panasonic professional 65in TFT flat-screen displays driven by Evertz' MVP processors.

Signifying the order of signal workflow, the central equipment room houses 105 racks of broadcast equipment arranged in hot aisle/cold aisle to allow for maximum cooling. All equipment is clearly identified showing position and channel it supports. The facility was built with expansion in mind, so equipment was strategically located to allow for future growth while maintaining an orderly position. Cable trays and power were sized to accommodate any future load while minimizing disruption to the surroundings. Test and measurement functionality was deployed in every equipment row and supported by Harris' VTM4100 rasterizers.

The most stressful part of any broadcast center deployment is putting it on the air. In just a couple of hours, instead of weeks or months, SNI transitioned 25 SD digital channels, three HD channels and one analog channel to the new broadcast center. That smooth transition was the product of intense planning as well as on-the-spot improvisation. ■

TV Anhanguera upgrades Goiás stations in Brazil to digital infrastructure

TV Anhanguera, one of the largest communications companies in Brazil, recently upgraded its entire station group in the state of Goiás with a digital infrastructure and officially launched its central HD broadcast operation in the city of Goiânia.

TV Anhanguera's station in Goiânia ingests state programming and distributes it to seven other stations across Goiás for rebroadcast. As part of its digital upgrade, TV Anhanguera wanted to implement a system that would enable "remotecast" operation. In remotecasting, while all stations are controlled from a central hub, content is stored in each remote location — with a mirror of the content stored at the central station. If a server in one of the remote locations fails, the network can simply switch to centralcasting operation.

To support this operation, TV Anhanguera implemented a digital intercommunications center linking Goiânia with the other stations (some located more than 300km from the head office) via IP, with SNMP-based centralized monitoring. Because interoperability was a key concern, TV Anhanguera decided to install an end-to-end HD broadcast solution from Harris.

The core of the system is the Harris NEXIO video server, which features SAN redundancy via RAIDsoft technology and built-in FTP server application, enabling multiple transfers of video files among TV Anhanguera's various sites across Goiás. The NEXIO platform's ability to handle both HD and SD formats allowed the broadcaster to achieve a multiformat environment of its own design. And with automatic up/down/crossconversion embedded in the server, TV Anhanguera can achieve much faster record-to-play time.

The system moves media and data between Goiânia and each of the seven remote sites via Harris ADC automation. Using the ADC TCP/IP Air Client application, the main site can control local programming in Goiânia as well as in each of the stations throughout Goiás. The programming department feeds the daily playlist through this same client; after proper translations — performed automatically — all of the playlists are available in all local schedules. The ADC Global Media Transfer software module detects the absence of media required for an on-air device and automatically searches for the missing media using a configured search path.

Making this forward-looking transition to HD and remotecasting enabled TV Anhanguera to immediately increase flexibility in daily operations, programming and disaster recovery, lower operational costs and improve the resilience of the entire networked system, while also positioning the company to quickly leverage any opportunity that might arise in the future.

Category

New studio technology – network

Submitted by

Harris

Design team

TV Anhanguera: Leonel da Luz, dir. of tech.; Manoel Caetano, former proj. mgr.
Harris: Nahuel Villegas, VP, CALA; Felipe Luna, general mgr., Brazil; David Duarte, sales mgr., Brazil; Javier Aguerrevere, service mgr., Latin America; Mick Schuller, proj. mgr./field eng.
LineUp Engenharia Electronica: Nilson Fujisawa, pres. dir.; Reyne Terada, proj. mgr.

Technology at work

- 3Com Ethernet switches
- ADC patch panels
- Clear-Com Eclipse intercom
- Harris
  - 6800+ processing
  - ADC automation
  - Atlas ISDB-Tb TX
  - CCS Navigator control/monitoring
  - CENTRIO multiviewer
  - IconMaster MC
  - NEO XHD-3903 converter
  - NetVX networking
  - NEXIO video servers
  - Platinum routers
  - Panacea routers
  - Videotek T&M
  - Stratex radios
- Kroma Telecom LCD monitors

CBS builds tapeless facility to improve efficiency for "ET" and "The Insider"

Category

New studio technology — HD

Submitted by

Avid

Design team

Teklogic: John Joannou, pres; Esteban Ortega, proj. eng.; Tim Tschopp, design eng.; Martin Grahl, implementation mgr.
ET: Dan Henry, prod. exec.; Mark Abodaber, eng.; Steve Hamre, eng.
CBS: Barry Zegel, VP/GM, TVCity

Technology at work

- Avid
  - AirSpeed server
  - CaptureManager
  - Deko graphics
  - iNEWS Instinct NRCS
  - Interplay Assist
  - Media Composer
  - Nitris DX editor
  - Symphony Nitris DX
  - Thunder graphics
  - Unity ISIS storage
- Avocent KVM switches
- Editware Fastrack editor
- Evertz
  - EQX router/control
  - MVP multiviewers
  - VistaLink control
- Masstech MassStore
- RTS Adam intercom
- Sony
  - HDC-1500HD and XDCAMHD cameras
  - HDW-M2000 and PDW-1500 recorders
  - MVS8000G switcher
- Studer Vista 8 mixer
- Thomson Grass Valley
  - K2 servers

CBS wanted to create a 1080i HD embedded audio, server-based, tapeless facility to improve efficiency of the "ET" and "The Insider" workflow and to train and relocate more than 250 staff members without interrupting programming. The goal was to incorporate technology that could seamlessly interface across multiple platforms to enable production to ingest, edit, transfer and simultaneously produce HD material in real time.

CBS chose Teklogic, a California-based systems integrator, to head up system design and equipment selection. A key choice was the Evertz EQX router and control system, capable of performing A/V breakaways with a MADI interface to the Studer Vista 8 mixer, allowing for channel shuffling via the built-in router embedders and de-embedders. Implementing the new technology required Teklogic to define functionality by day while Evertz developed software overnight and on weekends. This allowed the design of a facility previously not possible. The router also required new interfaces to the Sony MVS8000G switchers and to Avid CaptureManager. VistaLink unifies facilitywide SNMP monitoring and control of modular and MVP gear from a single control point. Now 110 servers are accessible from 16 user locations via an Avocent KVM platform.

A key element of the workflow is the ability to make last-minute updates to the show segments while it is aired. This was made possible by Editware Fastrack and Thomson Grass Valley K2 servers and SAN. Special software features make this the first linear-based tapeless HD live editing workflow. K2 servers receive HD material from Avid Media Composer and Symphony systems using a new server-based digital cut workflow.

The post-production facility houses 26 Media Composer Nitris DX and two Symphony Nitris DX editors, sharing 196TB of Unity ISIS storage. An Avid Interplay system provides a facilitywide workflow to create packages, bumpers and promos. Editing and storage solutions enable editors to ingest and create story packages using 24 AirSpeed servers with CaptureManager to coordinate video feeds.

The new facility needed to be highly collaborative and efficient for journalists and producers to meet critical deadlines. A 125-person news production group uses Avid iNEWS for script writing and show timing. Thirty seats of iNEWS Instinct allow senior producers to write scripts and view proxy video. An additional 100 users can browse and log video using Interplay Assist.

The hidden power that makes this workflow possible is derived from the seamless interoperability between many individual components and across various manufacturer platforms. This facility will raise the bar for future facility designs. ■

"ET" and "The Insider" HD signal transport includes JPEG2000 compression solution

When "Entertainment Tonight," or "ET" for short, and "The Insider" pulled up stakes at Paramount Studios in Hollywood and relocated 10mi down the road to new, custom-built HD facilities at CBS Studio Center in Studio City, CA, they became the first syndicated newsmagazines to be produced in HD.

The build and upgrade resulted in two 12,000sq-ft soundstages; two new HD master control rooms; 28 nonlinear edit bays; nine graphics workstations; three promo creation rooms; two voiceover rooms with voiceover booths; a 1400sq-ft newsroom; and more than 125mi of coax and fiber cable. In addition to the move in California, the shows' engineers had to upgrade to a corresponding new HD-capable bureau in New York.

CBS worked with long-time vendor The Switch to configure a bicoastal signal flow incorporating JPEG2000 HD compression. The fiber solution included a mix of existing components and new features. "ET" and "The Insider" use The Switch's Inter-City On Demand routing service for point-to-point, coast-to-coast switching on demand between New York and Los Angeles via its unique touch-screen control system. The new HD format, however, required unimpeded interoperability between various parts of the transmission path, so The Switch implemented a standards-based compression solution via JPEG2000 encoders and decoders to maximize the quality of HD signals.

The Switch installed Network Electronics/VPG's JPEG2000 VS901-T encoders in its New York network core to convert uncompressed HD signals into JPEG2000 compressed SDTI signals. The New York bureau uses Verizon's HD-SDI local loops to transport uncompressed HD-SDI signals to The NY Switch at 60 Hudson Street, where the JPEG2000 encoders compress HD signals and transport them on The Switch's SDI network to its LA facility. The LA Switch routes them to CBS Studio City by way of local SDI television circuits. The Switch provides JPEG2000 decoders at the studios to hand off visually lossless HD-SDI to "ET" and "The Insider." The entire nationwide transmission is accomplished in seconds with operators using The Switch's touch-screen controller.

The Network/VPG modules proved the most appropriate due to the number of HD formats they could handle, their ability to operate without a separate sync reference, their ability to control network management with a Web browser and the best financial value of all the products evaluated.

Final implementation went well, and the programs launched in HD on schedule. Both shows are now produced in HD, resulting in pristine quality video.

Broadcast Engineering 8th annual Excellence Awards

Category

New studio technology — HD

Submitted by

Network Electronics/VPG

Design team

"ET"/"The Insider": Dan Henry, exec. in charge of prod.; Mark Abodaber, eng.; Steve Hamre, eng.; Scott Phillips, transmission ops.; Tony Lewis, transmission ops.
The Switch: Dave Anderson, CTO; Peter Hartz, VP, sales
Network Electronics/VPG: Richard Haydt, sr. design eng.; Igor Zalar, dir. of software eng.; Chin Koh, member of tech. staff; Zhenya Patapenka, CAD designer

Technology at work

Network Electronics/VPG VS901-TE-27 TI receiver

Chyron, Gannett Broadcasting turn graphics world on its 'AXIS'

Category

New studio technology — HD

Submitted by

Chyron

Design team

Chyron: Todd Martin, VP AXIS ops.
Gannett Broadcasting: David Lougee, pres.; Asa Darrow, G3 proj. mgr., KUSA prod. dir.; Jeff Johnson, VP tech.; Greg Walston, dir. tech.; Robert Lydick, proj. and planning analyst; Rob Mennie, VP sr. news exec.

Technology at work

Chyron AXIS online content creation services

Gannett Broadcasting president David Lougee called Chyron's new AXIS graphics platform a "game changer" as he announced its adoption across 23 Gannett news stations in the summer of 2008.

An online content creation system for broadcasters, AXIS uses existing on-air graphics packages to enable anyone in a newsroom to build broadcast-quality news graphics directly from a desktop without special hardware or software required.

This implementation of the AXIS system has transformed the way Gannett TV stations create, manage, share and broadcast news graphics across their 23 news stations, while freeing graphic artists to focus on more creative aspects of design and branding.

The AXIS server-based model enables virtually anyone in a newsroom to create powerful graphics for everyday use as well as breaking news — on the fly — at a higher quality, faster rate and lower cost than traditional routes. It is superior to traditional graphics content creation workflow models because it removes from the shoulders of highly skilled graphics artists and designers the repetitive aspects of everyday graphics creation, freeing them to concentrate on more creative aspects of design and branding. Gannett uses AXIS for daily breaking news graphics, maps and charts while still relying on its newly formed Gannett Graphics Group (G3) for more complex and customized work. G3 assists local Gannett stations by providing a variety of design options to enhance the real-time data provided by the AXIS creation process. The result is an exponentially increased output — and better graphics — especially for smaller stations and fringe newscasts that now have access to a talent pool beyond their previous budget or personnel.

Because AXIS is Web-based, if there's a late-breaking news item, a high-quality map that is specific to the city, the story and the situation can be created online, at home, on a laptop or straight from a live shoot by anyone.

The use of image databases inside the AXIS system is central to the accelerated time between creating a graphic and bringing it to air. AXIS facilitates the sharing of graphics content over the entire Gannett Group with access to virtually unlimited data sources such as AP GraphicsBank, together with the group's own archives of proprietary images. AXIS was designed with the objective that graphic content should be created intuitively and dynamically but with consistent design and brand quality.

Chyron's AXIS platform facilitates this process in that a graphic need only be created once to be simultaneously publishable to multiple formats, displays and devices, which has obvious return on investment advantages when compared with other traditional methods of graphics content creation.

The Weather Channel takes HD by storm with state-of-the-art facility

In 2008, The Weather Channel completed the migration of its Atlanta broadcast plant to native HD and launched production from a new HD studio — all while maintaining its 24-hour SD broadcast of national, regional and local weather information and programming. The $60 million upgrade included the overhaul of production facilities, including two main production control rooms and one smaller automated control room; the construction of the new studio; and the upgrade of infrastructure, power, and environmental systems supporting HD operations and equipment.

To ensure uninterrupted production, The Weather Channel alternately deployed Snell & Wilcox Kahuna SD/HD multiformat production switchers in its main production control rooms. Equipped with FormatFusion technology, the Kahuna systems enable simultaneous SD and HD operations in the same mainframe and the same control panel. The network thus was able to continue producing a high-quality SD feed while preparing HD-capable control rooms for the HD studio launch. The Kahuna's internal conversion capability allows staff to merge a broad range of SD and HD material provided by external sources, taken from archive or acquired by the network, seamlessly into live broadcasts.

The primary objective across the HD upgrade was to create a highly flexible and dynamic production environment. The state-of-the-art HD studio, a 5000sq-ft LEED-certified facility, reflects this goal, featuring a 360-degree set that can be shot from any angle. A 35ft x 8ft video wall, comprising three Christie 8K rear projection systems linked by a Vista Spyder, displays video and weather graphics from a WSI HD Titan and a Vizrt VizWeather system, as well as monitor fills from a Ross SoftMetal server. An Ultimatte HD chroma keyer feeds a backlit display that rotates to serve as a key-over map in one position and a wall in another. An Avocent KVM system allows anchors to control and modify five 20in on-set screens addressing various weather systems.

The Weather Channel uses Ikegami HDK-75EX cameras with Canon HD lenses in the studio and Panasonic 2000 cameras for live and P2 field record. Switching of video to the set and to the Evertz MVP multiviewer within the control rooms is handled by a Thomson Grass Valley Trinix routing switcher and Encore control. Wheatstone audio consoles support 5.1 channel surround sound audio.

The dynamic file-based workflow and news-style production at The Weather Channel is supported by 11 Final Cut Pro editors on an Apple Xsan HD native editing environment. A separate Xsan volume provides storage and playout for a Building4Media MAM, which interfaces with Avid iNEWS. A new 3Gb backbone supports the entire facility and its unparalleled HD weather coverage. ■

8th annual Excellence Awards

Category

New studio technology – HD

Submitted by

Snell & Wilcox

Design team

Michael Smereski, chief eng.; Ross Kalber, VP of eng. and IT ops.; Mark Lumos, design and integration mgr.; Lance Dickens, dir. of transmission sys.; Clark McInnis, eng. mgr.; Glen Jordan, mgr. of transmission sys.; Brian Shields, CTO

Technology at work

- Apple
  - Final Cut Pro editors
  - X-SAN
- Avid iNEWS
- Avocent KVM system
- Building4Media MAM
- Evertz MVP multiviewer
- Genelec audio monitors
- Ikegami HDK-75EX
- Linear Acoustic audio processors
- Panasonic LCD monitors
- Ross SoftMetal server
- Snell & Wilcox Kahuna
- TBC modular consoles
- TANDBERG HD receivers
- Telemetrics robotics
- Teranex converters
- Thomson Grass Valley
  - Encore control
  - Trinix router
- Ultimatte HD chroma keyer
- Vinton Radamec Fusion robotic pedestals
- Vizrt VizWeather
- WSI HD Titan

TBN makes historic NYC theater home of HD production

Category

New studio technology — HD

Submitted by

TV Magic

Design team

TBN: Chris Elia, station mgr.; Ben Miller, VP eng.; P.J. Crouch Jr., chief of staff

TV Magic: Ted Shikuma, design eng.; Rich Craig proj. eng.; Mary Craig, crew chief; Grant Barkdull, proj. mgr.

Technology at work

360 Systems Instant Replay
APW equipment racks
Bittree A/V patch bays
Clear-Com intercom
Digidesign Pro Tools
Evertz test equipment
Harris Leitch terminal and infrastructure gear
Laguna Design furniture
Marshall video monitoring
Miranda Kaleido-X
Panasonic AJ-HD1700
Pinnacle Deko CG
Pioneer PRV-LX1DW
RTS intercom
Sachtler tripod/pedestal
Sennheiser mic system
Sony MPEG IPX
SSL C100 console
Tektronix test equipment
Telemetrics trolley
Thomson Grass Valley Kalypso switcher Jupiter control TVLogic LCD screen

In 2008, Trinity Broadcasting Network (TBN) opened a new HD-capable TV production and broadcast facility in Manhattan and achieved its goal of broadcasting from the heart of New York City. Located off Broadway in the historic Century Center for the Performing Arts, the state-of-the-art installation provides TBN with a cutting-edge presence in the Big Apple. The Manhattan facility, on the corner of 15th and Park Avenue, replaces the network's SDTV production studio and analog TV station, which supported Channel 54 production for 20 years from its location up the Hudson River. TBN is using the facility to support production of its digital TV channel in New York as well as theatrical and motion picture debuts.

The broadcaster made significant cosmetic enhancements to bring the theater back to its former glory. To address the challenge of integrating advanced HD production capabilities into an 1850s building, TBN contracted systems integrator TV Magic. Together the companies found a way to incorporate modern broadcast systems into the theater — including the 298-seat auditorium and stage, a full audio production facility and a second studio that doubles as a ballroom — while remaining mindful of the building's distinctive architectural and design elements. Because of its strategic location at Union Square, with limited space available for broadcast equipment, the installation also required economical use of work areas.

After six months, TBN and TV Magic completed an eight-camera HD production system built on a fiber-optic network linking studio A/V sources and technical control rooms. The main stage (Studio A) and auditorium are located on the theater's first floor, the second stage (Studio B) and ballroom on the second and all of the production control rooms on the third. The building's lack of elevators presented an additional physical and logistical challenge, because much of the production, control and infrastructure equipment had to be hauled up five flights of stairs.

Within its new HD production workflow, TBN uses a Thomson Grass Valley Kalypso HD video production switcher with a Miranda Kaleido-X multi-image display processor and TVLogic 46in HD LCD video screen. In addition to a Thomson Grass Valley Jupiter control system, Panasonic DVCPRO and Sony VTRs are installed along with a two-channel Pinnacle Systems Deko HD CG and a 360 Systems Instant Replay system.

The network's audio production suite is outfitted with an SSL production audio mixer and Pro Tools. To streamline the network's overall broadcast workflow, TBN's production facilities in Manhattan are networked via VLAN to network headquarters in Costa Mesa, CA.

WETA creates HD production center for PBS' "NewsHour with Jim Lehrer"

WETA is the flagship public broadcaster in the nation's capital and the third-largest producing station in the public television system. It was one of the first stations in the country to broadcast HD in 1999 and four-channel multicast digital broadcast in 2002. In 2007, WETA asked Communications Engineering, Inc. (CEI), of Newington, VA, to design, plan and construct a new HD production center that would serve as the home of PBS's "NewsHour with Jim Lehrer" program.

Having designed and built many of the broadcast facilities at WETA, based in Arlington, VA, including all of the HD and digital facilities implemented over the past 15 years, CEI has in-depth knowledge of the WETA infrastructure and the challenges of upgrading an in-use facility to new technical standards.

CEI began the project in the first quarter of 2007. Careful planning and coordination with WETA allowed CEI to complete this phase of an extensive upgrade for the WETA production center in time for the first scheduled live broadcast on Dec. 17, 2007. "NewsHour," seen five nights a week on more than 315 PBS stations across the country, became the first live, regularly scheduled PBS program to be broadcast in HD.

Challenges for completing the project included the need to build the control rooms in an active production facility. The space, which was acquired from a conference room, edit suite and reception area, was completely gutted in preparation for the project. A separate air-conditioning system had to be installed for the control rooms. For sound considerations, the air-conditioning unit was placed on the roof of the building, and ducts were run through the second floor to the production rooms on the ground floor.

Additional electric service had to be installed to accommodate all the new equipment in the production center. Acoustical panels were installed along the exterior wall, which faces a busy street. In addition, a drain pipe that would have created sound problems was relocated away from the new control rooms.

The state-of-the-art production facility includes many upgrades: a new HD video control room; a new digital audio control room featuring a 5.1 surround sound console; six new HD studio cameras; three upgraded HD edit suites; an expanded online digital media storage system; four HD field camera systems; two HD studio decks; expanded HD routers; a multiple rear projection display wall; and QC/QA workstations.

In addition to the regular evening broadcast, the "NewsHour" and PBS produced about 24 hours of live, HD prime-time coverage of the 2008 Democratic National Convention from Denver and the Republican National Convention from St. Paul, MN. ■

Broadcast Engineering 8th annual Excellence Awards

Category

New studio technology — HD

Submitted by

Communications Engineering, Inc.

Design team

WETA: Chris Lane, VP of eng.; Ed Kennedy, sr. dir. of eng. and tech.
CEI: Tom Hackett, proj. mgr.; Felix Pena, dir. of mech. eng.; Deyan Stoykov, design eng.

Technology at work

- Avid
  - HD edit suites
  - Unity storage system
- Barco
  - LCD panel
  - Display wall
- Dolby encoders and decoders
- Evertz monitoring and processing
- EVS digital recorder
- Fujinon lenses
- Genelec speakers
- Harris
  - Character generator
- Image Video tally
- Miranda display processor
- SSL C100 5.1 console
- Sony
  - HDC1000LW cameras
  - MVS8000A switcher
  - XDCAM HD field camera systems
  - XDCAM HD studio decks
- Tektronix test equipment
- Telex/RTS intercom
- Thomson Grass Valley
  - HD router
- Wohler monitors

WMAQ improves its local news product with a new HD control room

Category

New studio technology — HD

Submitted by

Ross Video

Design team

NBC: Jan Jaros, VP, broadcast ops. and eng.

Technology at work

Calrec audio equipment
EVS
HD XT[2] servers
Miranda Kaleido monitors
Ross Video OverDrive production control system
Sony cameras
Vinten robotics system

In April 2007, WMAQ, the NBC O&O in Chicago, announced plans to broadcast in HD as part of an NBC initiative. The HD launch would require a new control room to be designed that would not only meet and exceed current production capabilities, but also improve production efficiency and enhance the local news product. As part of this initiative, NBC selected a team drawn from its O&O group that would evaluate and present recommendations to the NBC Local Media Division. The Local Media Division consists of 10 NBC and 16 Telemundo stations in top U.S. markets. Each participating NBC facility had input into the control room design for its respective station.

One of the key technologies being evaluated was automated production control (APC). Automating a live news production offers many advantages over a traditional legacy environment. With a smaller crew, each member has more responsibility for accurate entry of production data during show preparation. The net effect is a cleaner, more consistent product with significant efficiency improvements to the workflow.

The team chose Ross Video's OverDrive APC system for its ease of use, flexibility to manage scripted and unscripted productions, and ability to enable additional workflow efficiencies in live and news productions.

Next, physical design of the new control room began. After detailed discussions involving Ross Video and NBC, and the mock-up of several control room designs, the room was built into an area previously used by the graphics department. The result is a functional workspace that takes full advantage of the APC workflow and fulfills the unique requirements of the station. The APC operator, director and producer are all located along one upper console with individual cockpit areas specifically designed for each function, including ease of use for both right- and left-handed operators. To ensure clear communications, all APC staff wear headsets.

The new APC workflow, including management of production devices and newsroom rundowns, requires fewer than half the crew members of a traditional legacy WMAQ news production. During the process in moving to APC, WMAQ staff actively participated in the process. As a result, most of the non-APC staff have been repurposed within the broadcast operations and engineering department. In parallel to the transition to APC, the entire WMAQ plant was converted from a 4:3 to 16:9 infrastructure, including the construction of a new HD news set.

WMAQ has been broadcasting its news in HD since mid-January 2008. The new local news product is superior, with higher efficiency and fewer errors, so much so that even the competition has admitted to taking notice. ■

WPEC-TV produces HD news with Litepanels LED lighting

West Palm Beach CBS affiliate WPEC-TV owned HD cameras, switchers and related video products for some time, using them to produce its news in SD. In preparation for the debut of an HD newscast in February 2008, the station planned to expand its studio so it could hold wider sets to provide cover for the new 16:9 HDTV studio cameras. The studio would house two news sets — one for WPEC itself and one for the West Palm Beach FOX affiliate WFLX-TV. (WPEC produces newscasts for both stations.)

When it came to lighting fixtures for the expanded studio, the station faced several challenges. First, the cost of electricity to light and cool the existing studio, using the tungsten light fixtures it had owned, was going through the roof. It also had a corporate mandate to "go green." But the No. 1 worry was how its news anchors would look under the harsh realities of an HD broadcast picture.

The station engineering staff contacted Litepanels at NAB2007, saw the fixtures firsthand and viewed video of them in use in TV applications, including the White House Briefing Room. Upon return to the studios, executive news director David Christopher was doubtful and wanted to see the fixtures in use on his news talent.

However, when a Litepanels representative visited the station with 1x1 fixtures for a test, Christopher was quickly won over. The installation includes 80 1x1 fixtures, which are controlled via DMX using the Sunlite Easy Stand Alone dimming system in USB mode.

In addition to making the talent look good, the station experienced the energy and cost savings that accrue from using Litepanels. Before removing their existing tungsten light fixtures, director of engineering Paul Russell and his staff measured the total electrical power at 52kW.

Once the Litepanels fixtures were installed, the studio lighting draw became 3kW with the studio fully lit. (The decrease in air-conditioning needs resulted in an additional 50 percent savings in energy costs.) In fact, the electronics in the news sets themselves (background and talent monitors, etc.) draw more current than the entire complement of Litepanels fixtures.

Another factor with LED light fixtures is the expected bulb or, in the case of LEDs, diode life. High-wattage tungsten bulbs are good for about 250 hours; LEDs are expected to be good for at least 50,000 hours. Therefore, if the studio is lit 10 hours a day, the LEDs will last well more than 10 years.

WPEC was so impressed with the results in the studio, the station purchased additional Litepanels fixtures for use in the field and in the station helicopter. ■

Broadcast Engineering 8th annual Excellence Awards

Category

New studio technology — HD

Submitted by

Litepanels

Design team

Litepanels: Ken Fisher; Pat Grosswendt; and Kevin Baxter, partners
Triton Electric
WPEC-TV: David Christopher, exec. news dir.; Craig Davenport, creative services dir.; Keith Benz, dir. eng. until summer '07; Paul Russell, dir. eng. from Jan. '08; Bob Blauvelt, asst. chief eng.; Carl Pugliese, ops. mgr.

Technology at work

Litepanels 1x1 LED lighting fixtures
Sunlite Easy Stand Alone dimming system

New 12Stone Church sanctuary features latest in HD video technology

Category

New studio technology — non-broadcast

Submitted by

Blue Hat Design, part of TI Broadcast Solutions Group

Design team

12Stone Church:
Randy Myers, prog. mgr.; Doug Irvine, tech. dir.; Dave Ronne, pastor of redemptive arts

Blue Hat Design:
Michael Wright, prog. mgr.; Phil Popp, lead eng.; Pat Matthews installation foreman

Technology at work

- Avid
  - Deko CG
  - Thunder clip player
- ESE clocks
- Forecast custom consoles
- Fujinon HD lenses
- Harris Platinum router
- Miranda
  - Kaleido-X monitor wall processor
  - Terminal gear
- Riedel digital intercom
- Telemetrics PTLPS4 robotic heads
  - CP-R-3A three-axis joystick controller
- Thomson Grass Valley
  - LDK 4000 cameras
  - Kayak 2M/E production switcher
- Vinten Pro-Ped pedestal with Vector 90 heads

Located in the northern Atlanta suburbs, 12Stone Church has a passion for dynamic and meaningful worship. The cornerstone of its recent move into new facilities was visual excellence. The new sanctuary, dubbed the "worship experience center," is home to an impressive array of the latest technology in HD video.

From the outset, the church eschewed the traditional in favor of the contemporary. The facility itself is visually striking: perched atop a river bluff and accessed through a long wooden footbridge.

The entire system is 1080i HD. There are no SD or analog video signals in the plant, with the exception of the black and white shading monitors and a DVD player that is directly connected to an upconverter and frame sync for ingest into the HD clip player. Every other device in the plant is connected solely via its HD-SDI port.

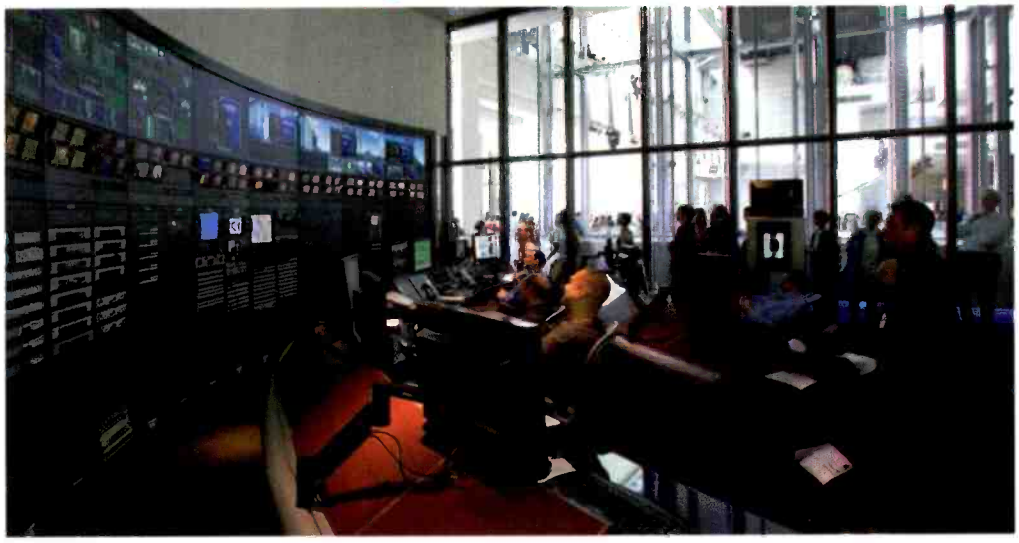
A major design consideration put forth early by 12Stone was the importance of video and audio sync in the worship experience center. For this reason, the HD-SDI signal leaving the CCUs is wired directly to the switcher and directly from the switcher to the router inputs. The five projectors are fed from independent router outputs to the projector's onboard HD-SDI inputs to create a striking "pixel map" that is in perfect time with events on stage. There are no scalers or other artifact- and delay-inducing processors in the signal chain. The room features a 39ft center screen that provides an impressive backdrop for the stage. The screens at stage left and right are 24ft, and the far left and right screens are 16ft.

The room's architecture was challenging on many fronts, including sight lines. The average fan-shaped sanctuary is designed with a 140- to 160-degree projection. 12Stone's worship experience center was designed around a 230-degree shape.

Finally, it was important that the facility be designed in such a way that it was useful to third parties who might wish to telecast from the venue. A full array of service panels, truck boxes, communications interfaces and external connectivity was included in the facility's build-out.

The equipment selected for the project was all of the highest order. Thomson Grass Valley LDK 4000 cameras were selected because of their excellent color reproduction and ease of use, and the Kayak switcher became an obvious choice when compared on a cost basis with other full-scale production switchers. A Miranda Kaleido-X monitor wall processor became the centerpiece of production monitoring throughout the various operating positions; Avid graphics and clip playout rounded out the mix of core production gear. The facility employs a Harris Platinum router, Riedel digital intercom and Miranda terminal gear. Custom consoles were purchased from Forecast.

Newseum: The nation's premier museum dedicated to news and news media past and present



The Newseum is dedicated to news and news media past and present. Originally located in Virginia, the Newseum re-opened April 11, 2008, in a 250,000sq-ft facility across from the National Gallery in Washington, D.C. Besides exhibit galleries, the building incorporates two state-of-the-art HD production studios and control rooms used for broadcasts, including ABC's "This Week with George Stephanopoulos," five edit suites and 70 HD playbacks.

The Newseum team recognized that advances in technology allowed for improved digital workflow to automate ingest, identification, storage, preservation and retrieval of incoming media assets. Because the Newseum used Artesia digital asset management, the design team sought to implement a flexible system to interoperate with Artesia, making all assets available from a single, familiar screen.

To accomplish the purposes of securing and preserving media assets and physical artifacts, the Newseum developed an unusual digital workflow that relies on Artesia media asset management and Front Porch Digital DIVArchive content storage management. Under the direction of Artesia, content is ingested to Thomson Grass Valley K2 servers and then transferred via DIVArchive to Nexsan SATAboy2 nearline storage or to a Sun StorageTek SL500 digital tape library. The metadata associated with the content must identify the clip's significance in light of journalistic history or the First Amendment.

Newseum's new digital workflow affords additional benefits as well. Newseum editors using Avid Adrenaline at remote desktops can use Artesia to review and manipulate proxy copies of clips stored on Newseum servers and then retrieve the essence via DIVArchive with frame accuracy according to timecode. DIVArchive features a partial restore function for retrieval of media with no squandering either of time or bandwidth. The ability to browse proxies enables editors to find assets that might have remained hidden in a videocassette, thus improving the creative quality of Newseum programming.

Newseum's system also enables editors to browse proxy copies of news clips that belong to third parties once they have been recorded into the system. Automated tracking keeps a record of rights information and ownership to facilitate a producer's request for the original material. A further benefit of the digital workflow is that it automatically generates backup copies of Newseum programming. Should there be a problem with a program on exhibit, the backup can be up and running easily and quickly.

Currently, the Newseum retains storage of most of its legacy assets on videotape. In time, these assets will be digitized to secure them and make them more readily available for use. The adaptability of DIVArchive will make this possible even as LTO tape and tape libraries continue to evolve toward denser storage. ■

Broadcast Engineering 8th annual EXCELLENCE AWARDS

Category

New studio technology — non-broadcast

Submitted by

Front Porch Digital

Design team

Newseum: Bud O'Connor, dir./eng.; Mariel Galvan, mgr./business apps. and tech.; Frank Ginsburg, broadcast eng.; Brian Frickert, programmer; Katie Walker, media assets coordinator

Communications Engineering, Inc.

Technology at work

- Artesia digital asset management
- Cisco 3750 series switches
- Front Porch Digital DIVArchive content storage management
- NexSan SATABoy2 nearline storage
- QLogic SANbox 5602 fiber channel switch
- StorageTek SL50E33 tape storage system
- Telestream Flip Factory
- Thomson Grass Valley GXF partial restore K2 HD media server

Carolina Panthers' HD control-room rebuild maximizes communication

Category

New studio technology — non-broadcast

Submitted by

Ross Video

Design team

Carolina Panthers: Kyle Ritchie, dir. of entertainment and PantherVision; Berkley Dickens, eng.
Wrightson, Johnson, Haddon & Williams: Chris Williams, VP
Professional Products: Kevin Filano, sys. design eng.

Technology at work

- Chyron LAX-2
- Dell monitors
- Evertz multi-image viewers
- EVS XT[2] server
- Panasonic VTRs
- Pro-Bel Sirius router
- Riedel Matrix intercom
- Ross Video Vision 3 MD-X production switcher
- Sony
  - Monitors
  - VTRs
- Sound Creations
  - Crossfire 1 and 2 servers
  - Blaze digital sign controller
- TV Logic monitors

The Carolina Panthers' original control room was built along with the new stadium in 1996. The goal was to rebuild the entire control room with new equipment to make it HD-compliant before the fall football season. The recent addition of Mitsubishi video screens added to the need of new production equipment.

The design goal was to remain roughly within the same footprint of space. The control room was completely gutted and pushed out 4ft from its original size, and everything was inventoried. A new climate-controlled engineering room was designed to house equipment in order to maximize the layout.

The biggest challenge was to select the right technology to meet future equipment needs by the new football season. Everything had to be seamless, from audio to video, interfacing the equipment and the construction of the control room. It was a large undertaking both physically and financially, especially making the transition to computer-based technology. A new experience in the design was the increased awareness regarding how to process all signals. Special acoustical considerations included raising the solid floor to install cabling underneath. A simple change that has made a big impact on the Carolina Panthers' live game productions has been the Riedel intercom system. The increased communication has added to an improved overall production environment.

There were many key vendors that played a role in the equipment needs for the rebuild. Ross Video's Vision production switcher is complex yet simplifies productions. Vision is modular, so it's easy to switch things out. The Panthers found that Ross is a people-oriented company that puts a lot of thought into the design of its products, and it has great understanding of the live sports production industry.

The key to improving workflow was increasing the efficiency of the space. The ergonomics alone posed a challenge, as a typical game day requires 16 people to be in the control room. The ability to control everything remotely was important, as all the servers and equipment were moved into their own separate climate-controlled engineering room.

Every detail was taken care of to ensure that the design was customized for all production needs, and to ensure increased communication and flexibility. Creating a separate climate-controlled engineering room has drastically changed and improved workflow. The control room also has better communication with the team's Avid edit suites. The entire rebuild has given the Carolina Panthers the framework to move toward HD sports production. The plan is to produce in HD for the 2009 football season, which will have a significant impact on the entertainment value and overall fan experience.

The United States Holocaust Memorial Museum migrates 5000 analog video tapes

This was a facility set up in a museum for the purpose of migrating 5000 analog video tapes of various types and formats to permanent digital files for archiving and viewing. Its design expedited the migration of the files from years to months.

The workflow was designed to accomplish several key steps. First, a system was established to identify and describe each of the 5000 video tapes so that the digital output could be entered into a user-friendly asset management system. The tapes were cleaned to make sure they could all be played on the VTR machines. They were then inspected to make sure they were free of dirt and other foreign matter and to ensure that 97 percent of the content was viewed. Then, temporary but sturdy racks were built to hold the VTR machines, four SAMMA Solo migration stations, switchers, meters, monitors, speakers and cables. The system networked the SAMMA machines so they could migrate four tapes into multiple formats simultaneously. All the equipment was arranged so the process could be monitored by a project manager from a single station.

Stringent verification procedures were put in place to make sure the automatic equipment produced faithful copies of the original tapes. The verification process allowed for regular quality checks by the operators to assure consistent output. Human judgment was applied to migrations whose video metrics fell outside an approved set of parameters chosen by the client.

The migration had to take place in a limited period of time. Otherwise, 5000 tapes would take more than a year to migrate. Also, the system had to be designed to fit in a small space. There could be only minimal impact on the operation of the tape library, no disruption to the operation of the museum and no inconvenience to patrons. Furthermore, the system had to be portable, easily dismantled and removed from the museum when the project was complete. Finally, the system had to be designed to be operated by locally hired, easily trained labor with no prior expertise in video or migration. The team consisted of a team leader with some IT experience, one tape handler with a literature background and one weekend relief tape handler. From one seat, the team ran four simultaneous channels of digitization, two shifts a day.

Broadcast Engineering 8th annual Excellence Awards

Category

Post & network production facilities

Submitted by

SAMMA Systems

Design team

Steve Davis, proj. mgr.; David Warner, integration design; David Warner, David Wolaver, integration build; David Warner, Steve Davis, installation and commissioning; David Wolaver, David Warner, Scott Saturday, Steve Davis, technical support; Albert Utterback, lead migratory; Marcia Annis, Michael Friedman, migrators; Scott Saturday, Albert Utterback, Steve Davis, proj. removal

Technology at work

Composite video switcher stations
Digital audio converter
Master monitor
PC audio monitor
Prep cart system
Quality control station
SAMMA Solo migration
SDI video/audio switcher
Videotape cleaner
Videotape recorders
Wohler 4-channel meter

DIRECTV's new 120-channel HD facility provides unique IT-based automation and playout

Category
Station automation

Submitted by
OmniBus Systems

Design team
DIRECTV: Hanno Basse, VP of broadcast sys. eng.; Mitch Jacobs, principal eng. for automation and workflow; Mitch Wasden, sr. dir. of broadcast sys. eng.; George Vasquez and Shawn Mottley, support eng., integration; Dien Nguyen, Jason Shimizu and Neal Yamamoto, principal eng., software.
OmniBus Systems: Ian Fletcher, CTO; Tim Mendoza, proj. exec.; Mark Wilson, Eric Hicks, Andy Broadhurst, proj. team

Technology at work
Harmonic Electra 7000 HD encoder
HP
HP ProLiant BL465, BL685, DL145 and DL365 servers
HP BladeSystem c7000 enclosures
Isilon IQ 1920i and 6000i clustered storage
OmniBus iTX automation and playout
Sencore MRD 3187 modular receiver decoder

DIRECTV began construction of its new HD playout area in May 2007 with a tight deadline: nine months from inception to deployment of up to 80 fully redundant new HD channels based on a system architecture that was flexible enough to rapidly accommodate a range of further services when the need arose. The number of channels, the short timescale and the decision to run the operation on IT server hardware made this an innovative and ambitious project.

Based within DIRECTV's existing facility in the Los Angeles Broadcast Center, the equipment for these new HD services needed to fit into a smaller area than is typical with a conventional, multivendor installation. OmniBus iTX was chosen for its versatile features and performance, space efficiency and because, as an integrated system, it can be installed and commissioned in a comparatively short time.

Integration needed with DIRECTV's proprietary business and engineering management systems required custom development from OmniBus. Web services and high-level interfaces were used to develop further solutions for specific requirements such as real-time connectivity for schedule updates, real-time alerts to provide feedback to the engineering monitoring system and interfaces to DIRECTV's conditional-access systems to automate the insertion of access information into playlists.

A major requirement was the flexible handling of Dolby surround sound, a common problem for broadcasters scheduling content with various audio formats. The solution was OmniBus' highly flexible audio engine with native Dolby surround encoding and input/output remapping, which gives staff control over the integration of encoded material into the schedule.

The iTX software runs on HP ProLiant servers with Isilon storage. Using these readily available industry-standard hardware components helped the project stay on time and on budget. The installation of 80 channels was increased to 120 to coincide with the launch of a new satellite and provide capacity for future channels.

iTX provides significant workflow benefits and serves DIRECTV in three key areas: pay-per-view HD channels, including ingest and playout; automated commercial insertion, whereby live signals are passed through iTX and commercials are automatically inserted at specific times using SCTE104 triggers (this is the first use of SCTE104 carried in the VANC and was developed specifically for this system architecture); and playout of highly crafted channels requiring a significant degree of flexibility, such as DIRECTV's flagship 101 channel.

iTX simplifies routine operational tasks such as file ingest, signal routing, playout, channel branding, logo, and commercial insertion and trafficking. In addition, the flexibility of the system allows commercial spots to be sold and included late in the automation schedule. ■

TSL, partners create Asian sports superstar to service multichannel, multilingual market

ESPN STAR Sports (ESS) is a 50-50 joint venture between two cable and satellite broadcasters, Walt Disney (ESPN) and News Corporation Limited (STAR). ESPN STAR Sports reaches more than 310 million viewers in Asia via 17 networks covering 24 countries, each localized to deliver specific premier sports programming to Asian viewers.

ESS' existing tape-based system was becoming increasingly inefficient. Having experienced success with past projects, the broadcaster came to TSL again to design and integrate a next-generation, multichannel, multilanguage live sports broadcast system at its 60,000sq-ft facility in Singapore.

The project's requirements were unlike those of any other broadcaster in the world. Many systems support live sports programming, some specialize in multiple live channels and there are a number of multilingual broadcasters in the world; however, ESS is unique in that it combines them all.

TSL first formed a "super user group" that would be closely involved in the design and testing of the system.

Each stage had clearly defined and measurable outcomes. Stage 1 included system schematics and the specification of an OmniBus content management system.

Stage 2 included prebuild and testing of the majority of the system infrastructure at TSL's UK headquarters. Because some of the subsystems would only be available on-site in Singapore, many were simulated at TSL.

ESS was invited to inspect and test the system in Stage 3 against a set of predefined test scripts — the factory acceptance test (FAT). Upon sign-off, the system was packed and air-freighted to Singapore.

Stage 4 was the installation of the infrastructure in Singapore. This was the first opportunity to connect, configure and test the interfaces to the subsystems that were not present during the FAT. Sign-off of the site acceptance test (SAT) concluded that the system in its "manual" state was then operational.

Stage 5 was the overlaying of workflows such as language track stacking, screening and segment replace. The user group ran through a predefined set of test scripts in the basic workflow acceptance test to prove system functionality once the workflows had been configured.

It was at Stage 6 that more production, news and promotions staff (the "super users") were trained on the system, and they would later train the remaining staff. The project concluded with the final SAT, whereby all functionality including refinements were tested.

Although the project requirements were unique, ESS is now fully using its new system with maximum efficiency, providing a highly successful service.

Category

Station automation

Submitted by

Television Systems Limited (TSL)

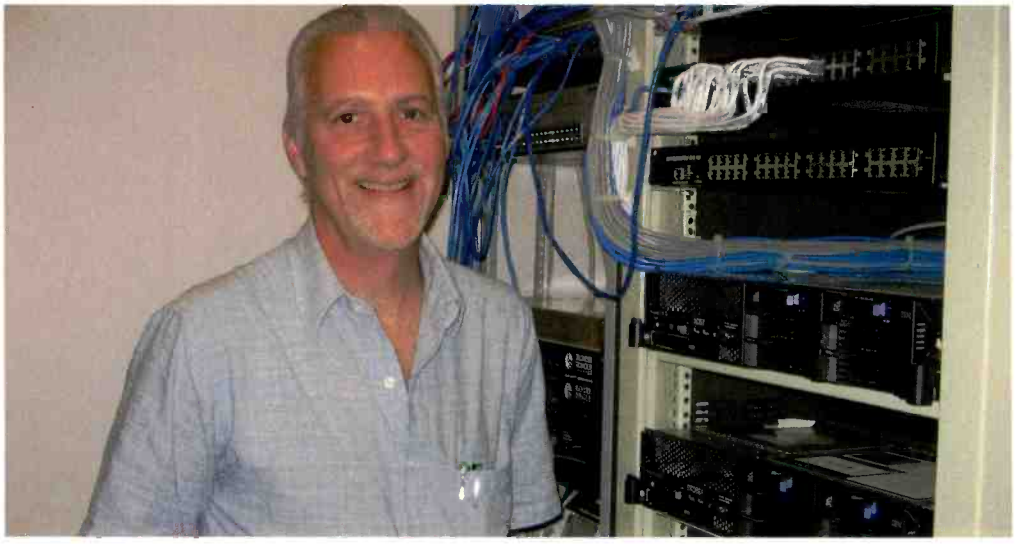
Design team

ESPN STAR Sports: Tom McVeigh, sr. VP ops. and tech.; Andy Rylance, sr. dir. eng.; Sabil Salim, sr. dir. ops.; Chua, Tiong Hou, eng. mgr.; Shankar Arumugam, ingest supervisor; Cheah, We Khim, sr. ed.; Lim, Cheng Ghee, trans. mgr.; Phil Betts, sr. prod.
Omneon: Terry Spittle, proj. sponsor; Loh, Cheng Song, proj. eng.
OmniBus: Will Shanahan, proj. mgr.; Graham Collins, solution desigrer
TSL: David Phillips, CEO, proj. dir.; Matthew Slater, proj. mgr.; Julian Sharp, proj. eng.; Lionel Matthews, solution arcitect

Technology at work

- Apple Mac Pro
- EMC CLARiiON storage
- Front Porch Digital
  - archive
- HP servers
- IPV encoders
- Miranda Kaleido-X
- Omneon
  - MediaGrid storage
  - Spectrum servers
  - ContentBridges
- OmniBus OPUS
  - automation
- StorageTek tape library

Western Reserve Public Media upgrades to autoXe MC from VCI Solutions



Category
Station automation

Submitted by
VCI Solutions

Design team
VCI Solutions: Todd Barkes, proj. mgr.; Jeff Wood, mgr. of training and support; Brett Thibodeaux, automation eng.

Western Reserve Public Media (WNEO/WEAO): William O'Neil, station mgr.; Anthony Dennis, maintenance eng.; Rick Patterson, maintenance eng.

Technology at work
- 3COM baseline switch 2816
- ADC patch panels
- Comtrol Devicemaster RTS SM
- Harris
  - Leitch D/A, A/D
  - NEXIO NX3600
  - HDX servers
- IBM
  - x3650 DTDBS1 server
  - x3650 XDS server
- Lenovo RAM workstations
- Panasonic
  - AJ-D450 DVCPRO
  - AJ-D950 DVCPRO
- Pro-Bel
  - Aurora router
  - TX-320 MC switcher
- Sencore MRD 3187A receivers
- Sony UVW 1800 Betacam SP
- VCI Solutions autoXe MC

Western Reserve Public Media (known as PBS 45 & 49 until Oct. 1, 2008) had a funding opportunity to upgrade its servers and automation system for its eight channels running on three servers. Based in Kent, OH, it was operating two of the three play-to-air servers on a Windows NT platform, which needed to be upgraded to XP.

As a result of the server upgrade and funding, the station decided to upgrade its existing Airo 9 Automation System from Odetics (now VCI Solutions) because its needs had increased from what was specified in its automation system in 2002. It needed an automation system that would control its HD broadcasts.

"We needed to upgrade our servers to Windows XP, which wouldn't accommodate the automation system running on a Windows NT platform," said Rick Patterson, maintenance engineer for Western Reserve Public Media. "In an effort to be forward-thinking, once the servers were upgraded, the automation system was also upgraded."

The engineering team decided to stay with a company it came to rely on and chose the autoXe MC from VCI Solutions. In addition to working with a company it had established a trust with, there were cost-efficiencies in upgrading with VCI Solutions. It found that the autoXe MC offered the ability to manage multiple channels in one screen on a workstation for less cost per channel. The engineering team liked the ease-of-use and how intuitive the system was for an operator, which decreased the learning curve and the number of people needed to continually operate the system manually. This in itself is a huge savings, allowing operators to focus on the various other tasks as hand.

Patterson and his team enjoy the new Schedule Director application, which provides a quick snapshot for all activity in one glance. If there is a problem, it brings it to the operator's attention rather than have the operator go looking for it.

Additionally, operators appreciate that they can close out all workstations. The previous system had a workstation on a server, which prevented them from being able to close all workstations for fear of shutting down the entire system. The autoXe MC runs on its own server. Patterson also relies on a significant feature of the autoXe MC system: He can make global changes from any workstation within the system.

Patterson added about his experience, "I'm traditionally not a fan of being on the bleeding edge of technology, but the experience with this automation upgrade has been terrific. Anyone can call anytime day or night with a question, and the VCI Solutions people are extremely courteous and prompt. They have worked well with our team."

WJCT-TV becomes first in nation to integrate standardized BXF protocol

WJCT, a public broadcasting station in Florida, has a reputation as an industry trendsetter. In 1968, before the minicam, it devised the mini-mote — a compact, two-camera portable unit that permitted live broadcasting from any location. In 2005, the station launched a digital multicasting service, positioning itself ahead of the curve in digital offerings. Today, WJCT-TV operates one HD, five SD and one analog channel.

With a vision toward a streamlined future, the station aimed to improve automation efficiencies and processes in a multiplatform environment. In early 2008, following adoption of the SMPTE-2021 (BXF) communication protocol standard, WJCT volunteered to serve as a beta site for the integration of the nation's first standardized BXF protocol. BXF promised to provide a seamless link between traffic and automation.

WJCT's objectives included reduced overhead, automated processes, improved reliability and efficiencies, and advanced cross promotion of television, radio and other technologies, furthering ease of operations and training. It also offered compatibility with traffic, automation and storage systems. Sundance Digital's BXF Gateway was selected to implement the ground-breaking technology and enhance the station's operations.

Being a BXF beta site brought many technical hurdles, operational challenges and changes in traditional broadcasting roles. A strategic effort was required across departmental barriers to create managerial operational processes. Developing opportunities for underwriting in all content areas was a central issue.

WJCT was already operating with a Sundance Digital Titan automation solution and Myers Information ProTrack system for traffic, so the transition was simple. Following automation and traffic software upgrades and an automation hardware changeover, systems were ready to go. Additional requirements included cross-platform content delivery and the comprehensive file-based infrastructure needed for seamless operation; having skilled IT staff was instrumental.

The BXF Gateway enabled a highly efficient exchange between the station's automation suite and traffic system, allowing WJCT to deliver a pristine image with seamless breaks and transitions. Daily, time-consuming, manual tasks burdened with opportunities for human error have been replaced with single-entry workflow processes that dramatically improve reliability and efficiency, resulting in substantially reduced man hours on QC in master control.

Though BXF is in its infancy, it is growing, and WJCT is continuing to work with its vendors to improve the operational integrity of its system.

Broadcast Engineering 8th annual Excellence Awards

Category

Station automation

Submitted by

Sundance Digital

Design team

WJCT: Bob Culkeen, VP tech. and ops.; Duane Smith, dir. of tech.; Alan Rhodes, sr. broadcast technician; Joe Cabral, technician/network analyst; Roger Brillon, maint. technician
Sundance Digital: Rick Stora, product mgr.; Clark Tisdale, software eng.
Myers Information Systems: Eugene Diana, dir. software ops.

Technology at work

- Aphex 2020 audio processors
- Apple Final Cut Pro
- Harmonic
  - MV 500 encoders
  - MV 100 encoders
  - MN20 multiplexers
  - NMX control
- Harris
  - IconLogo branding
  - Leitch 440 server
- Myers ProTrack traffic
- SeaChange BMLe-24000 server
- Sencore
  - 3187 satellite receivers and 3384e off-air receivers
- Sundance Digital
  - BXF Gateway
  - Titan automation
- Thomson Grass Valley
  - Jupiter control
  - Saturn switchers
  - Venus routers

WKYT-DT wins race to the finish line to broadcast local news in HD

Category
Station automation

Submitted by
Thomson

Design team
WKYT: Chas Callaway, VP of eng.; Jamie Pyles, chief eng.; Chuck Hisle, asst. chief eng.; Tom Bennett, dir. of special projects

Technology at work
- AP ENPS newsroom computer system
- CGS NewsChief graphics automation
- Chyron HyperX graphics systems
- Evertz 700 series signal conversion modules
- Harris automation system
- Sony PDWF330L XDCAM HD camcorders
- Thomson Grass Valley Aurora Edit workstations
- HDC robotic cameras
- Ignite HD integrated production system
- Jupiter router control software
- K2 media servers
- Maestro master control switcher
- Triton routing switcher

Determined to be the first in the Lexington, KY, market to broadcast local news in HD in the spring of 2007, WKYT-DT engineers worked around the clock for several months to install and test a new infrastructure and an automated production system from Thomson. This was no small feat, as the station continued to broadcast the analog schedules of its CBS network affiliation and that of the CW Network (CWKYT).

The engineering team was tasked with moving the station's operations from a part-time HD channel to 24/7 HD broadcasting without disrupting the existing operations. While the station is a 1080i house, signals of both the CBS and CW networks are converted to 720p in order to broadcast them from a shared transmitter.

They've built a completely separate HD facility alongside WKYT's existing analog/digital production facility, without a systems integrator. Production activities were converted first, to get the station's six hours daily of local newscasts (as well as one and a half hours of news for FOX) on the air quickly. Chicago-based Roscor was the major equipment supplier.

To facilitate this, a Thomson Grass Valley Ignite HD integrated production system was installed. Prior to the installation of the Ignite system, the station used three cameras in the studio, with operators and another camera in the newsroom. Now, five Thomson Grass Valley HDC robotic cameras sit on fixed tripods in the studio and one in the newsroom. Master control switching is now performed with a Thomson Grass Valley Maestro master control system. Branding and ticker systems were provided by the CGS NewsChief system. Tying it all together from an operation perspective is a Harris automation system.

Signal routing is handled by a 192 x 192 Thomson Grass Valley Triton HD router, working in tandem with a wide range of conversion gear from Evertz. All of the standard-definition feeds that come in via satellite or microwave are converted to SD digital, if necessary, with embedded audio. Using the Thomson Jupiter control system, these sources are upconverted to HD on demand utilizing path finding. These sources, plus the native 1080i sources, are used live or stored on one of four Thomson Grass Valley K2 media servers. Evertz upconverters insert an AFD to tell the system to automatically insert, downstream of master control, sidebar graphics over the sides of any 4:3 material.

HD images are acquired in the field with Sony XDCAM HD camcorders, and then ingested into a 400-hour Thomson Grass Valley storage area network linking three K2 servers and six Thomson Grass Valley Aurora HD editing workstations for cutting news packages.

In a highly competitive market, this file-based workflow gets news to air faster, while WKYT's investment and hard work has helped keep it a ratings leader.

Rainbow Network Communications launches HD distribution of flagship channels

Rainbow Network Communications made a significant investment in 2007-2008 in the HD upgrade of the master control facilities that originate the air playout of Rainbow's flagship network channels in Bethpage, NY.

Rainbow originates and distributes programming viewed by more than 150 million people on a daily basis. Its current client base includes Rainbow Media's own AMC, the Independent Film Channel (IFC) and WE tv.

The upgrade, which was designed, integrated and installed by Communications Engineering, Inc. (CEI), of Newington, VA, had a twofold purpose. First, the AMC, IFC, and WE tv channels were augmented with HD air channels. Second, all long-form playback for all channels were moved from tape-based to an all server-based system driven from an HD and SD digital archive.

The HD channels were mandated to air all program content in full screen 16:9 with no letterbox or pillared segments. This was a challenge because some interstitial and long format elements were provided in either SD or in non-full screen HD formats. Special upconversion circuits were devised with automation-enabled format selection.

5.1 surround sound, along with a separate audio program and a stereo PCM down-mix channel, were required for all HD channels. Special audio up-mix and down-mix circuits were implemented for situations where SD signals were upconverted for HD playout or where HD signals did not have the proper audio formats.

Downstream processing of the program channel included the insertion of bugs, logos, animated snipes, local commercial avail signals, closed captioning and ratings signals in preparation for air release. All downstream devices were put under automation control for schedule based playout.

The master control rooms accommodate up to six channels of simultaneous playout. Signal confidence monitoring was converted from an all-SD glass monitor wall to a mixed SD and HD array of LCD displays driven by an integrated multiviewer system. Distributed operational workstations allow for individual channel playout control and monitoring. A central master control platform allows for live programming for special events.

The HD and SD ingest, archival and playout systems were previously separate systems architected in parallel. The new channels required that these systems be brought under a unified database and control system to accommodate the use of ingested clips across platforms.

Rainbow began distributing AMC, IFC and WE tv in both SD and HD in July 2008, marking a significant milestone in Rainbow's service offerings. ■

Broadcast Engineering 8th annual Excellence Awards

Category

Network automation

Submitted by

Communications Engineering, Inc.

Design team

Rainbow Network Communications: John Barbieri, sr. VP and GM; Mike Mallozzi, VP eng.; Fabio Toscano, dir. of broadcast eng.

CEI: Jim Conley, sr. VP and CTO; Ken Miller, sr. managing eng.; Don Brassell, sr. managing eng.; Nikhilesh Kumar, design eng.

Technology at work

- Avocent AMX switches
- Dolby encoders/ decoders
- Evertz
  - DAs
  - DTV closed-caption encoders
  - MVP display processor
  - HD/SD audio encoder
  - HD/SDI frame sync
  - Video routers
- Harris audio upmixers
- Miranda Vertigo XG graphic processors
- Pro-Bel audio routers
- Sony monitors
- Tektronix waveform monitors
- Thomson Grass Valley
  - Concerto HD routers
  - Encore controllers
  - K2 media servers
  - Maestro master control system
- Videotek monitors
- Wohler speakers
- Yamaha digital mixing

BSkyB creates a news delivery system for the 21st century

Category

Newsroom technology

Submitted by

BSkyB (Sky News)

Design team

Sky News: Bevan Gibson, head of future tech.; Jackie Faulkner, head of ops.; Andrew Croft, dev. exec., IT; Matt Yelavich, dev. exec., IT

Technology at work

- AJA Video Systems Ha5 Hi5 video/audio converter
- Apple hardware
- Axon Digital glue
- BNCS Colledia
- Cisco firewalls and routers
- Comrex audio over IP system
- Folsom Imaging scan converters
- Harris Platinum router
- Livewire store and forward server
- Panasonic monitoring
- Raritan KVM/IP
- Slingmedia SlingboxPro
- Streambox
  - ACT-L3 encoder
  - ACT-L3 decoder
  - Distribution server
  - IFB server
- TANDBERG Television
  - Contribution
  - MP4 over IP encoder/ decoder
- Telex talkback
- Tektronix WFM 7020
- Thomson Sky+ HD boxes
- TSL audio monitoring

The Sky News NOC is at the very heart of our newsgathering infrastructure. This dynamic hub has been devised and built to ensure we stay ahead of the competition in the fast-paced world of delivery in any format, from any platform. The NOC has transformed how we receive content into the Sky News Centre.

Prior to this, Sky News relied on traditional broadcast technology to deliver content in real-time over satellite and leased facility lines via Sky's MCR. Now using the NOC, a dedicated, standalone facility for Sky News, we can seamlessly contribute the majority of our media, including live video streams and packages from anywhere in the field and from our bureaus around the world via a variety of IP networks.

Like other media organizations, we have become increasingly reliant on content fed via the Internet or through our private data networks. The NOC, coupled with the aforementioned infrastructure, allows us to be live and submit packages in higher quality, more quickly and in a more cost-effective manner than before.

The NOC is uses a variety of IP providers, enabling Sky News to acquire content from multiple sources. Using the latest streaming technology, we have the flexibility to receive material across the whole spectrum, from low bit-rate, lower quality, highly portable kit to full broadcast-quality, full-bandwidth deployments in our major or fixed locations.

Our specialist team of dedicated NOC staff hase hybrid skills, adapted for this emerging technology. It has IT and broadcast experience to respond and adapt quickly to technical change, as well as for fault finding.

Our field crews recently underwent fundamental changes in training and use of equipment, but it's the NOC specialist team that ensures the whole IP based operation runs smoothly. Sky News has designed the NOC to be flexible enough to quickly adapt to the latest advances in technology. The changes in this industry recently mean we must be able to rapidly install any hardware or software that enables us to take advantage instantly of whatever might be just around the corner. This edge allows us to keep doing what we do best.

Use of the NOC within Sky News has allowed us to cover breaking news in a way not possible before, both logistically and financially. The NOC opens up a additional possibilities for instant deployment worldwide. We believe the high availability of reliable Internet connectivity in numerous locations around the world enables our crews to be far more effective than they would have been prior to our investment in the NOC.

Sky News is proud of being first with the news, and it's this center which makes sure we deliver on that message. Within the NOC, we believe we have the best 21st century operations center in the business.

Professional Products completes design-build for the AP move to its new D.C. location

The Associated Press (AP) is one of the world's oldest and largest news organizations, with major offices around the world. In December 2007, AP consolidated its Washington, D.C., offices by moving to a new downtown facility. The relocation allowed AP to bring its multiple departments, including international video, radio, domestic video, online video, multimedia, photography, broadcast graphics and print journalism, together into a single facility. Hundreds of miles of data cable, four miles of electrical cable, three miles of conduit and more than a mile of mechanical piping link the four-floor, 82,000sq-ft facility.

Professional Products of Gaithersburg, MD, and AP engineering handled the systems design and integration for the entire broadcast, IT and telco infrastructure. A technical core and data center was built with 14 rows of Stantron racks and emergency power system support. The work consisted of three TV and four radio studios; a central news desk area with an intercom, router panels, audio/video monitoring at each workstation and about 70 video and radio ENPS MOS-enabled editing stations; and a master control center that supports video ingest and playout operations, satellite positioning and camera control.

Professional Products focused its efforts on the implementation of a facility video server system for all departments to share, edit, view and distribute story information. The AP's MOS enabled solution was interoperable with its ENPS newsroom system and Final Cut Pro editorial. The goal was to ingest a story once and then repurpose it across multiple departments. The server system is based on Gallery's Sienna software products and Apple Xserve, Mac Pro and Xsan platforms.

Master control includes eight operator stations, three of which are designated for video ingest and playout operations. Two operator stations in master control are primarily used for camera control and shading. Three stations are used for audio and video feed monitoring and disaster recovery, which permits taking control if the London control room has a problem. All MCR positions can access the satellite dishes through CompuSat.

Each station receives sources through a Pro-Bel Sirius 256x320 router. Six 46in Sharp LCDs and Evertz VIP-12 channel multi-image processors handle monitoring. Quality control checks for audio and video levels and adjustments are performed with a Harris TVM-850 and Snell & Wilcox RollPod.

The technical core is a 2592sq-ft room that houses the entire broadcast, IT and telco infrastructure. Most of the facility's 140 Stantron racks are housed in this space. Professional Products populated the racks with equipment, preterminated the cables and tested the rack systems at its Maryland warehouse. ■

8th annual Broadcast Engineering Excellence Awards

Category

Newsroom technology

Submitted by

Professional Products

Design team

Professional Products: Rick Winde, exec. mgr., Designed Systems Group; Danny Gurley, proj. supervisor; Bob Myer, sys. design eng.; Chuck Heffner, sr. applications eng.; Alan Spain, applications eng.; Bob Linkous, applications eng.; Maxime Tremblay, applications eng. Associated Press: Lou Pagan, dir. of broadcast sys.

Technology at work

- AP ENPS
- Apple Xserve and MacPro workstations
- Avocent KVM
- Cisco data routers and switchers
- Clear-Com Eclipse digital intercom
- CompuSat satellite dish control
- Evertz VIP-12 processors
- Gallery Sienna
- Harris Videotek TVM-850
- Netia Radio-Assist
- Pro-Bel Sirius router
- Ross Video Synergy switcher
- ScheduALL traffic system
- Snell & Wilcox RollPod RollCall IQ gear
- Vicom Vmirror

CNN's Los Angeles news bureau updates facility in move to HD

Category

Post & network production facilities

Submitted by

Diversified Systems

Design team

CNN: Dave Silver, VP, broadcast eng. support; Dave Dubiel, sr. dir. of eng. and ops, Western region
Beckson Design Associates: Michael Beckson, architect
Diversified Systems: Mike Meglathery, sr. proj. eng.

Technology at work

Apple Final Cut Pro
Avocent KVM platform
Cisco Ethernet switching
Enco audio server
Euphonix MaxAir audio mixer/MADI routing
Evertz
- Up/downconversion
- Fiber optics
- L-band routing
- MVP processors

Harris NEXIO servers
Laguna Design consoles
Sennheiser wireless
Sony
- Cameras
- Production switchers
- XDCAM optical disk

TANDBERG encoding
Tektronix monitoring
Telex/RTS intercom
Thomson Grass Valley
- HD/SD-SDI routing

TV Logic LCD displays
Vinten/Radamec remote pan and tilt
Wohler audio monitoring

The CNN Los Angeles bureau is home to its prime-time "Larry King Live" show. It also produces news and entertainment content for all of the CNN networks. In March 2005, management knew the bureau was in dire need of a major makeover. Space was tight and not ergonomic for bureau personnel, and technical spaces were tucked inside of closets and in hallways. Worse, the facility had critical decade-old broadcast infrastructure components. It was clear that the analog-based facility needed to be upgraded to accommodate CNN's decision to go HD. In November 2006, CNN selected Diversified Systems to design and implement the new facility. The key design goals were to:

- Choose equipment in line with CNN's other facilities, for ease of support and consistency across locations, including "best-in-breed" HD or HD-capable solutions that would accommodate expansion down the road.
- Anticipate a tapeless HD workflow, but integrate legacy workflow and equipment.
- Design a space that can better house staff, technical and production personnel and colocate production spaces in close proximity to an appropriately sized terminal gear room.
- Design a flexible production environment that can fluctuate between two extremes on a daily basis: a prime-time program, with a production staff of a dozen or more, to an overnight operation with one operator.
- Keep the existing facility on-air.

One new floor and a second repurposed floor in the existing building were provided for technical space. The design goals had to be achieved with minimal impact to existing bureau production and without compromising the on-air product. System integration was coordinated with the architect, consulting engineers, general contractor and building trades in phases. Because CNN was in the midst of developing its approaches to its HD network, Diversified's engineering team integrated new components into the design right up to the time of installation. This made it difficult to keep up with changes and design documentation, but it meant that the bureau would be the most up-to-date CNN HD facility.

CNN Los Angeles is a 24/7 business. Relocating a news bureau that transmits/receives upward of 40 feeds simultaneously to a new facility was a Herculean task. The bureau could only be brought offline for 30 hours over a single weekend. During that time, all nonupgradeable/nonreplaceable reception and transmission equipment had to be decommissioned, relocated, recalibrated and configured for continued operation within the new facility. The full staff needed to arrive on Monday morning, already trained and ready to operate within the new facility.

In February 2009, the 16-month collaboration will be successful.

Comcast Media Center opens new content distribution operations center

With demand climbing to more than 17,000 live events per year, Denver-based Comcast Media Center (CMC) moved its occasional satellite operations into a state-of-the-art content distribution operations center (CDOC). The new facility is located within CMC's 315,000sq-ft building in the Denver Tech Center area.

As part of establishing a dedicated content manager center for its occasional satellite transmission requirements, the CMC shifted responsibility for managing more than 445 full-time video transmissions to its Titan facility in nearby Sedalia, CO. Titan and the CMC are interconnected by 15mi primary and redundant fiber transport networks. Titan also supports CDOC's requirements for acquiring occasional video feeds from Asia and Europe.

The facility downlinks and transmits more than 17,000 live sports events and other HDTV and SDTV programs per year. These broadcasts include college games televised on regional sports networks, sports programming that the CMC edits for VOD and online content, out-of-market broadcasts and live HD events that air on TV networks originating from CMC.

Given the amount of sports activity that occurs on weeknights and weekends compared with overnight and weekdays, the new content distribution center was equipped with up-to-date technology and equipment that allows the CMC to expand or contract management requirements based on workflow. CDOC's design also needed to correspond with the production facility's larger move toward a "content from anywhere to anywhere" business model. As a key ingest and distribution component of the facility's "content factory" model, CDOC will keep content at the IP level, which is critical for supporting the explosion of content over the fiber-rich Internet backbone.

With glass walls on two sides, the layout allows operators in the control room to monitor what's happening with the racks of gear as well as the video signals on their multiscreen monitors. In addition, engineers and technicians can easily access the racks and wiring without leaving the workstation area.

The facility has direct connectivity via fiber for acquiring video from major Denver arenas, including Invesco Field at Mile High, the Denver Pepsi Center and the University of Denver's Magness Sports Arena. For longer hauls, it provides connectivity via Vyvx Services, Intelsat, Genesis, Comcast's fiber backbone and The Switch.

Operators managed 1729 events representing 4619 hours of content in the first month of full operation. CDOC will handle about 29 simultaneous live events, during peak periods. That's just over 25 percent of its capability for more than 100 simultaneous feeds, giving it plenty of capability to keep up with the growing demand.

Broadcast Engineering 8th annual Excellence Awards

Category

Post & network production facilities

Submitted by

Comcast Media Center

Design team

Bill Calton, sr. dir., satellite and IT ops.; Mike Harrell, sr. mgr., earth station ops.; Eric Middlemist, mgr., transmission eng.; Heather Norton, asst. mgr., CDOC; Paul Catterson, dir., broadcast eng.

Technology at work

- DekTec DTU-245 MPEG analyzer
- Evertz
  - 7710ARC
  - 7710DCDA-HD
  - XRF6 L-band router
- Harris
  - ENTRIO processor
  - Nucleus control
  - Platinum router
  - X75HD processor
- Motorola DSR-4520X IRD
- Newpoint Compass network management and control system
- Scientific Atlanta 9850 SD IRD
- Sencore Atlas MRD 3187A HD IRD
- TANDBERG
  - 1260 SD IRD
  - 1282 HD IRD
- Tektronix WVR-7120 waveform rasterizer
- Tiernan 4022 SD IRD
- ViaSat 4.5M satellite downlink antennas
- Wohler AMP2-E8 series Dolby E digital audio decoder

Madison Square Garden Media retrofits new HD facilities with SSL C100 HD console

Category

Post & network production facilities

Submitted by

Solid State Logic and Madison Square Garden (MSG)

Design team

MSG Media: Mike Bair, pres.; Lydia Murphy-Stephans, exec. VP, prog. and prod.; Jerry Passaro, sr. VP, network ops. and distribution; Michael Mitchell, chief eng.; Joe Malespina, eng.; Andrea Cummis, eng.

The Manhattan Crewing Company: Ray Bucceri, chief design eng.; Michael Ferentinos, proj. mgr.; Chris Hewson, president/CEO

Technology at work

- Apple
  - Final Cut Studio HD
- Canon HD lenses
- Chyron HyperX graphics
- Harris
  - CENTRIO multiviewer
  - NEXIO servers
  - Platinum HD router
  - Velocity ESX
- Riedel Artist 128 intercom
- SSL C100 HD console
- Sony
  - HDC-1550 cameras
  - HDW-M2000/20 VTRs
  - MVS-8000G switcher
- Vinten Osprey Elite pedestals

Photo courtesy Robert Wright

Madison Square Garden (MSG) Media in New York has long been a pioneer in live HD sports production. To keep its leadership position, MSG is in the middle of a major two-tier rebuilding of its facilities to offer HD video production of all programming with a Solid State Logic (SSL) C100 HD console as the centerpiece.

Its coverage of Knicks basketball games, as well Rangers, Islanders and Devils hockey games, has been delivered live via cable in the 1080i HDTV format for many years. While the events were in HD, in-studio pre- and post-game programs and most of the graphics elements at commercial breaks (as well as the commercials themselves) were upconverted from SD digital.

The media team was tasked with creating state-of-the-art facilities to move into the all-digital HD future, and they delivered. The new facilities produce programming for two of Cablevision's regional 24-hour sports channels: MSG and MSG Plus, with overflow into additional channels MSG2 or MSG Plus 2. The new studios are installed within the existing analog rooms but will enjoy a completely new space when construction is finished.

The new HD facilities include a Sony MVS-8000G HD switcher, a Harris NEXIO server linking multiple Harris Velocity NXes and Apple Final Cut Studio HD craft edit systems working on a shared storage network. The primary audio suite features the new SSL C100 HD digital audio console. The best part is that the facilities are all HD compatible and ready to be moved when construction is completed.

The group is basing its entire multichannel audio production on the C100 HD (C140/32) console and its vast capabilities. The board handles current embedded stereo and 5.1 surround audio signals and can easily be used to mix full surround sound in the future. The console also handles all of the audio production for the two in-house studios, where stereo boom mics and wireless lavelier mics are used. The console's ability to store settings for different shows and configurations has helped the crew save time. This allows a variety of staff and freelance audio operators to sit down and run the board without prior training.

The console is part of an overall strategy for simultaneous, multiroom, networked audio production. Expanding on this, the media team is planning to install SSL Stagebox remote mic preamps throughout the facility once it's renovated. This will allow the C100 to mix audio feeds coming from anywhere a Stagebox is located, enabling the group to provide bands playing a concert in the main hall with a fully mixed DVD and/or CD by the end of the show that night. This is something the company could never do before.

MTV Networks brings Spike, TV Land and Comedy Central together

MTV Networks needed to bring Spike, TV Land and Comedy Central under one roof to allow these workgroups to have greater access to shared storage, transmission, production stages and duplication resources.

MTV selected The Systems Group (TSG) of Hoboken, NJ, as the broadcast systems design and equipment integration specialist for the project. The goal of this project was to design and install a broadcast infrastructure in a new location that would support the migration of existing equipment from current operations and prepare MTVN for HD production and post work, allowing greater flexibility than the existing facilities.

Delegating the two biggest challenges of the project to two independent teams was the key to the success of the project. The first was the migration of the current equipment being used at the three network locations. MTV and part of the TSG team worked closely to identify what equipment could be reused in the new design and what would be discarded. Once the equipment was properly labeled, sorting it to speed the installation on the other side was the next step in limiting the amount of downtime for each network. The window for each migration ranged from less than 10 days to 14 days. TV Land had the least amount of new equipment, but the shortest migration window. The decision to move it last allowed everyone to work out any kinks in the plan.

The rest of the team worked on the new design/build plan. Each of the three network workgroups was served by its own 12-rack local equipment room populated with Pro-Bel SDI video, time code and machine control routing, which served four edit suites and 12 to 30 workstations for graphics and media ingest. Based on the individual needs of the workgroup, up to eight tape machines were centrally located in each equipment room. Formats ranged from HDCAM SR and analog Betacam to VHS and DVD. Editing systems, SANs, network infrastructure and servers filled out the rest of the equipment rooms.

Apart from the three network channels, an additional 42 edit suites and five stages were built out for use by MTV network production and post-production groups. A large equipment room provided the infrastructure for intensive fiber and copper connectivity to each of these rooms. The equipment room also served as a hub point for connecting the intrabuilding workgroups with other MTV facilities in Times Square and Long Island.

Finally, to support the workgroups, a large tape duplication center of 44 machines was built out to handle interformat transfers. Conversion equipment allowed transfers to and from analog and HD formats. DVD and Blu-ray duplication was also possible through a Rimage Producer III.

Broadcast Engineering 8th annual Excellence Awards

Category

Post & network production facilities

Submitted by

The Systems Group

Design team

MTV Networks: Michael Bivona, VP of eng., content creation and distribution tech.; Bill Anchelowitz, production tech., dir. of proj. mgmt.; Sean Hamilton, production tech. proj. mgmt.

The Systems Group: John Meusel, sr. proj. mgr.; Chris Gefken, proj. mgr.; James Tome, sr. sys.eng.; Niels Haenebalcke, proj. eng.; Rachel Pomerantz, proj. eng.; Jose Morales, integration supervisor

Technology at work

Apple
- Final Cut Pro
- Xsan SAN
- Xserve server

Evertz
- 5600MSC and 5600ACO SPGs

Pro-Bel
- Freeway routers
- Sirius routers
- Aurora router control

Sony
- SRW-5500 HDCAM VTR
- DVW-M2000 Digital Betacam VTR
- DSR1800A DVCAM recorder

TBC Consoles SmartTrac

For the 2008 Beijing Olympics, NBC Universal set the bar even higher for delivering content

The 2008 Beijing Olympics broke numerous records. However, not only the athletes should be lauded. NBC Universal (NBCU) set a precedent for successfully delivering content across platforms.

An ambitious infrastructure allowed content to be recorded and ingested in China to a digital media storage array. From there, it instantly became available to the many systems and users requiring media files and finally delivered in the correct formats to various new media outlets. This required the most cutting-edge technology and, more importantly, working exceptionally close with more than 20 vendors to ensure all hardware and applications would perform collectively, with the overriding principle that quality should never be sacrificed.

Omneon MediaDecks ingested feeds at the IBC, while the MediaGrid provided 180TB of storage in China and 120TB of storage in New York. Blue Order Media, along with Cyradis, OPIS and IDS, used the schedules created in ScheduALL to manage the media files, generate statistic metadata and create the EDLs read by MOG Solutions, which auto composited the high-quality essence based on instruction. Stats metadata was merged with the streaming files created by Digital Rapids for unified display on NBCOlympics.com by CMS provider Deltatre.

During the ingest process in China, shot pickers in NY screened, logged and produced the content for digital distribution using low-res proxy files created by the MediaDecks. Conformed SD and HD video, images and EDLs were sent to Avid using Cisco WAAS for more finished edits and/or to the Anystream system for transcoding for new media outlets.

Anystream's Velocity, located at Englewood Cliffs, NJ, auto-ingested production metadata entered by producers at 30 Rock via a customized MS application. Based on the metadata, Velocity instructed Agility to transcode the correct format. After each transcode passed quality assurance, distribution packages, which included thumbnails, various resolutions of Windows Media, MPEG-2 video and XMLs, were auto published by Velocity based on an outlet's requirement to MCDS. MCDS, an in-house application powered by Signiant, sent out packages to the appropriate outlets, such as NBC Direct.

For VOD packages, all 50Hz content was standards-converted through a Snell & Wilcox Mach 1, controlled by Agility and re-encoded as 60Hz with ad-stitching for delivery to the appropriate cable VOD outlets.

In excess of 22,000 video files of Olympics programming were published to more than 13 outlets for Web, VOD, mobile and electronic sell through. Six million mobile subscribers accessed content via cellular phones, and 10 million hours of video was watched across new media platforms, shattering U.S. digital records. Ultimately, these games set a new standard for how digital content is delivered across platforms. ■

Category

Post & network production facilities

Submitted by

NBC Universal

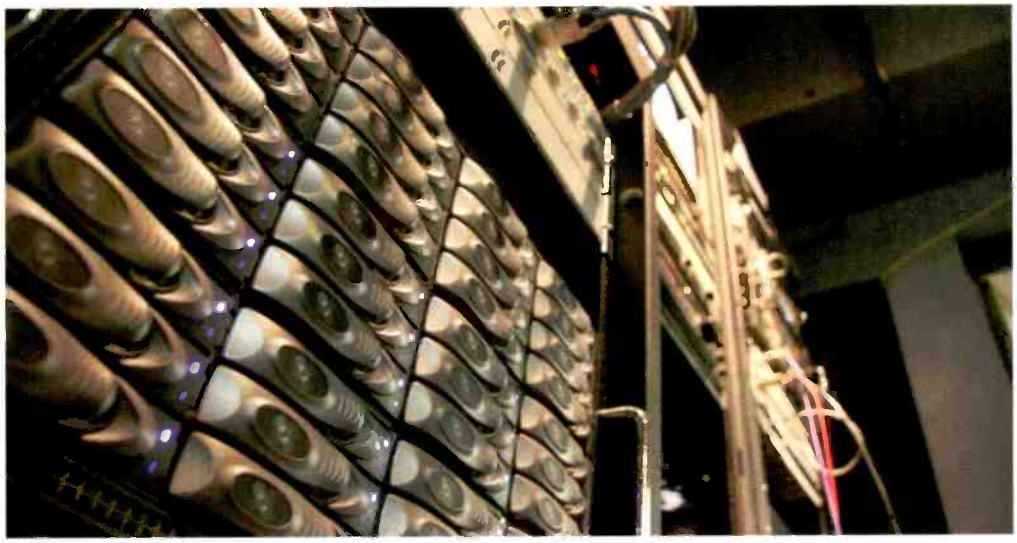
Design team

NBC Olympics: David Mazza, sr. VP, eng.
NBC Universal: Larry Thaler, VP, distribution tech.; Keith Jackson, VP, production tech.
Media Strategy Partners: Peter Humphrey, software architect
HLF Technology Team

Technology at work

- Anystream
  - Agility media
  - Velocity
- Avid
  - Interplay
  - ISIS
  - Media Composer
- Blue Order Solutions
  - Media archive
- Cisco WAAS
- Cyradis Technology VMS
- Deltatre D3CMS
- Digital Rapids DRC
- IDS platform
- Isilon Systems storage
- Limelight Networks
- Microsoft
  - Silverlight
  - Sharepoint
- MOG Solutions Toboggan
- NBCU
  - MCDS
  - MICAH
  - OPIS
- Omneon
  - MediaDeck
  - MediaGrid
  - ProCast CDN
- Snell & Wilcox Mach 1

The NHL's Pittsburgh Penguins make media move with speed



When it comes to stepping up the mobility of media across the production chain, the Pittsburgh Penguins turned to EditShare shared storage solutions. Prior to the installation of the advanced workflow-engineered shared storage solution — an EditShare Storage Series 5RU 18TB system — the Pittsburgh Penguins digitized specific game clips to each workstation using an off-the-shelf drive. The game source material became isolated to either a specific editing workstation equipped with Apple Final Cut Pro or a compositing workstation equipped with Adobe After Effects. Because certain media was not housed in a central location, media had to be constantly redigitized in order to be available in multiple locations. Further, there was a constant battle to balance the media space per editing and compositing workstation, limiting the amount of material to work with for any given highlight or replay project.

To resolve this issue, the Pittsburgh Penguins installed EditShare. The system helps mobilize media and turn around robust packages more quickly for commercials, scoreboard highlights and promotions, as well as the Penguins' Web site. Another catalyst for shared storage was the increasing demand from the NHL for more online content. Not only was the EditShare going to mobilize their media, but also it was going to be used for multiplatform and multichannel distribution.

The system provides high performance and an open environment for creative teams to share media, regardless of application and platform. Users of Apple, Adobe, Assimilate, Autodesk, Avid, Digidesign, Sony, Thomson and more can connect via GigE or 10GigE and freely share media, regardless of size or format. The system also provides project and media sharing for Apple and Avid users with management tools designed for real-time collaboration in post and broadcast workflows.

The Pittsburgh Penguins post team, working on eight Apple Final Cut Pro workstations and two Adobe After Effects workstations, use the EditShare system for simultaneous projects and media sharing while producing highlights and replays of the Pittsburgh Penguins hockey games. They also record shows for the Web and scoreboard pre-game. They are able to pull up logged highlights of various talk shows on the fly using laptops, even as commentators are speaking, and they use the media in real time as b-roll.

Sharing media is job number one for the various end products that the editors need to deliver. Project sharing is also emerging as a way to cut larger-form material and could become more useful as they look toward adding live ingest solutions such as EditShare's new Flow solution for creating an in-game highlights package.

Broadcast Engineering 8th annual Excellence Awards

Category

Post & network production facilities

Submitted by

EditShare

Design team

Texolve: Jeff Barnes, proj. mgr.
Pittsburgh Penguins: Chris DeVivo

Technology at work

Adobe After Effects workstations
Apple Final Cut Studio workstations
DPS Whiplash slow-motion recorder
EditShare Storage Series connecting via GigE
Sony XDCAM HD

PLAZAMEDIA in Germany shifts to entirely tapeless platform with Omneon

Category

Post & network production facilities

Submitted by

Omneon

Design team

PLAZAMEDIA: Chris Wieland, dir. of tech.; Jürgen Buchs, dir. of prog. ops; Andreas Simonis, head of VTR area/QA; Andreas Scheufler, head of broadcast IT
Vision 5 Media: Norbert Funk, owner

Technology at work

- Apple Final Cut Pro editing
- Avid ISIS media network with Interplay
- Blue Order Media Archive
- EVS XT[2] servers
- Omneon
  - MediaGrid active storage
  - ProBrowse media proxy system
  - ProXchange transcoding
  - Spectrum media servers
- Pro-Bel Morpheus automation
- Quantum Scalar i2000 robotic systems with LTO 4 tape library
- SGL
  - Flashnet 4 node system
  - StoreNext file system
- Marquis Medway media transfer and format conversion system

PLAZAMEDIA, a full-service TV provider and Germany's largest sports TV producer, is the first of its kind in Germany to shift to an entirely tapeless and IT-based platform. PLAZAMEDIA transmits 19 simultaneous channels as a 24/7 service and up to 60 transmission channels during live sports production for clients.

PLAZAMEDIA was founded in Munich in 1976 and in 1995 moved to buildings that once housed a brick factory on the outskirts of Munich. In 2006, it began construction of a new, contemporary-style building on the same site to house what it calls its new "eCenter." The goal of the project was to make the operation more streamlined, cost-effective and scalable while improving service for clients.

Clients correctly anticipated the improvements in editorial quality and timeliness — critical to sports programming — that would be realized as a result of an IT-based system. For example, access to digitally archived clips from remote locations now enables sports journalists covering international Formula One racing to produce and air more exciting, compelling and relevant stories. Likewise, producers take advantage of flexible file-based production techniques to broaden their audience by repackaging content for multiple platforms including mobile phones.

Working with systems integrator Netorium and Vision 5 Media, PLAZAMEDIA developed a workflow in which content is ingested to Omneon Spectrum media servers under the direction of Blue Order Media Archive and then sent to a redundant 24TB Omneon MediaGrid storage system for resilient central storage. Omneon ProBrowse, integrated with the MediaGrid, generates browse proxies even as content is still being recorded. The low-res proxies are available quickly via Blue Order management to editors creating programming at workstations, a crucial benefit in the fast-paced sports programming environment.

Directed by Marquis Medway, MXF-wrapped IMX 50 files then make the round-trip from the MediaGrid to Avid editing and back, at which point an Omneon ProXchange system transcodes designated files into MPEG long GOP for playout under Pro-Bel Morpheus automation. The MediaGrid also interfaces with EVS servers used for live sports production and an SGL-managed tape library for deep archive.

The facility is HD ready, and as German broadcasters transition to HD transmission in 2009, so will PLAZAMEDIA. The eCenter platform offers clients a solution for all aspects of file-based production. As Chris Wieland, technology director, put it, "PLAZAMEDIA's location on the site of a massive former brick factory on the outskirts of Munich is a great reminder of the technological and economic progress we have made."

Turner Entertainment Networks solves interoperability problems with AmberFin

Turner Entertainment Networks, a division of Turner Broadcasting System (TBS), began investing in Pinnacle MediaStream servers in 1997. By 2003, Turner established a robust, efficient workflow in which all promotional and commercial content would be ingested by one of six Pinnacle ingest servers then quality controlled and stored in Pinnacle file format on an EMC AVALONidm-based broadcast inventory manager (BIM). Content on the BIM could be called up for insertion into programming played out on Turner's channels by 16 air servers, all Pinnacle units, arranged in pods of two servers (for redundancy) and a Pro-Bel automation system per channel. Content was ingested directly from tapes loaded on a Sony Flexicart playback system. Once content played out, it was cached and sent back to the BIM for storage in Pinnacle file format, a process Turner refers to as "scavenging."

However, when the new owners of Pinnacle, Avid, announced an end to server production in 2008, Turner knew a switch was required because of elements of the Pinnacle file standard being proprietary; it simply couldn't leave its valuable content to become idle and eventually obsolete.

Though converting a Pinnacle video file for use on Omneon systems was relatively straightforward, no transcoding vendor could claim to carry out a flawless conversion of audio and metadata files. Turner also required more, with the desire to create a fast, high-quality rewrap with more attention to detail, without extra time or bandwidth — meaning Turner required files to convert 3X faster than real time.

Turner worked in close partnership with AmberFin, Avid and Omneon to pioneer a solution that involved AmberFin's iCR software and the use of a constrained application specification of the open-source MXF file wrapper — MXF AS02, enabling a flawless conversion of Pinnacle video, audio and metadata into Omneon-compatible files. AmberFin iCR's advanced automation features served as the lynchpin of the entire implementation, allowing Turner to quickly build the transcoding process into an automated workflow, resulting in a server-agnostic file format, which was used indiscriminately with Pinnacle releases. As an added benefit, Turner's Atlanta hub was then able to share content with its other playout centers. By employing the MXF format to wrap the content, Turner was able to quickly and cost-effectively resolve its interoperability issues, enabling broadcast playout to work on several server brands — preventing its more than 200,000 Pinnacle files from becoming obsolete and saving more than 46,000 hours as well as money. ■

Broadcast Engineering 8th annual Excellence Awards

Category

Post & network production facilities

Submitted by

AmberFin

Design team

AmberFin: Bruce Devlin, VP tech.; Steve Higgins, R&D mgr.; Ian Briscoe, sr. software eng.
Omneon: Paul Turner, VP prod. mgmt.; Todd Brunhoff, principal software eng.
Turner Entertainment Networks: Ron Tarasoff, VP, broadcast tech. and eng.; Naveed Aslam, sr. dir.; Jack Gary, sr. dir.; John Bukowski, eng. proj. mgr.; Jason Beard, eng. proj. mgr.; Jason Duncan, BIM sys. admin.; Harry Schaefer, BIM sys. admin.; John Morgan, sr. mgr.

Technology at work

AmberFin iCR 3.5 automation software
Omneon Spectrum v5.1 media server
Pinnacle MediaStream servers

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