ENGINEERING BEYOND THE SIGNAL
2019-2020 PRODUCT BRIEF

COBALT®

BEYOND THE SIGNAL
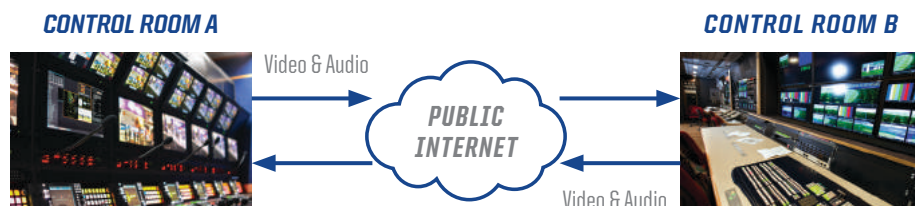
ENGINEERING BEYOND THE SIGNAL STARTS WITH INNOVATION.

Cobalt Digital has proudly provided engineering solutions to meet customers' needs since 1997. By speaking and listening closely to end users, Cobalt has developed equipment offering the answer for specific challenges. Our innovative products feature 24/7 service and support and come with a five-year warranty, vital in today's broadcast industry. Our products are used extensively worldwide in production trucks, and by terrestrial, satellite and cable broadcasters, as well as many government facilities. As we enter our third decade of innovation and service, we reflect on how far the industry has come, and look forward to engineering products for tomorrow's broadcast and beyond.

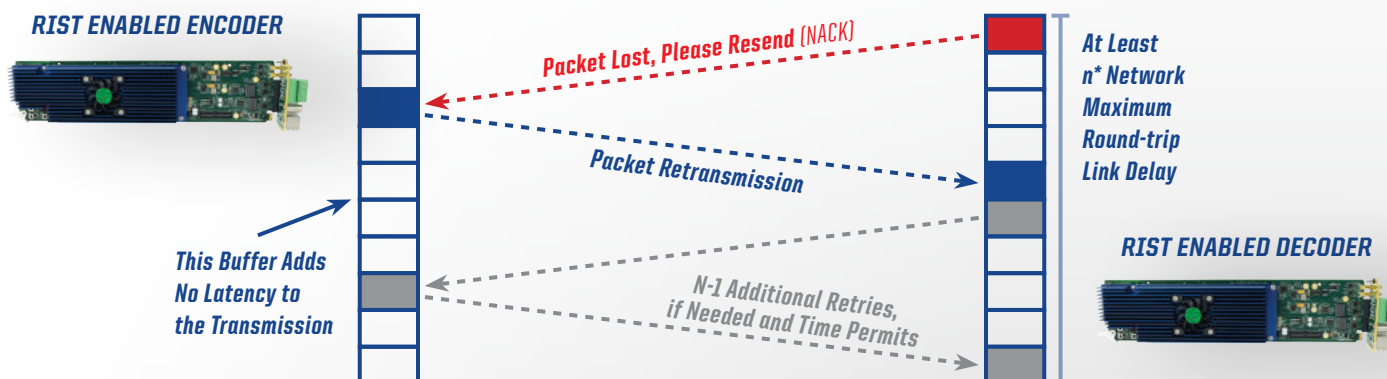COBALT®

RELIABLE INTERNET STREAMING TRANSPORT (RIST)
LOW COST INTERNET CONTRIBUTION

RIST is an Internet transport protocol created by the VSF with input from Cobalt Digital. The multi-vendor support behind RIST makes it an important part of the technology stack for any video workflow. With less required bandwidth than FEC in most cases, RIST uses the Emmy winning ARQ technology that Cobalt Digital has helped pioneer.

THE NATIONAL ACADEMY OF TELEVISION ARTS & SCIENCES

RIST
RELIABLE INTERNET STREAM TRANSPORT

RIST Forum

CONTROL ROOM A

Video & Audio

PUBLIC INTERNET

Video & Audio

CONTROL ROOM B

Use the internet as a low cost contribution network with RELIABLE INTERNET STREAMING TRANSPORT (RIST) – the interoperable, multivendor open protocol developed by the VSF for video transport over unmanaged networks.

HOW IT WORKS

RIST ENABLED ENCODER

Packet Lost, Please Resend (NACK)

Packet Retransmission

This Buffer Adds No Latency to the Transmission

N-1 Additional Retries, if Needed and Time Permits

At Least n* Network Maximum Round-trip Link Delay

RIST ENABLED DECODER

HEVC ENCODING AND DECODING
## 9992 SERIES - FPGA TECH TO MEET YOUR EVOLVING NEEDS

The 9992–Series employ the latest FPGA technology and are software licensable to meet the evolving needs of your facility. The card also has expansion capability for SMPTE 2110, 2022-6/7 and beyond.

Optional ultra-low-latency mode available when paired with the companion 9992-DEC decoder

4K HEVC STREAMING ENCODE
12G-SDI OR QUAD 3G-SDI INPUT UHD STREAMING ENCODE TO IP & DVB-ASI OUT
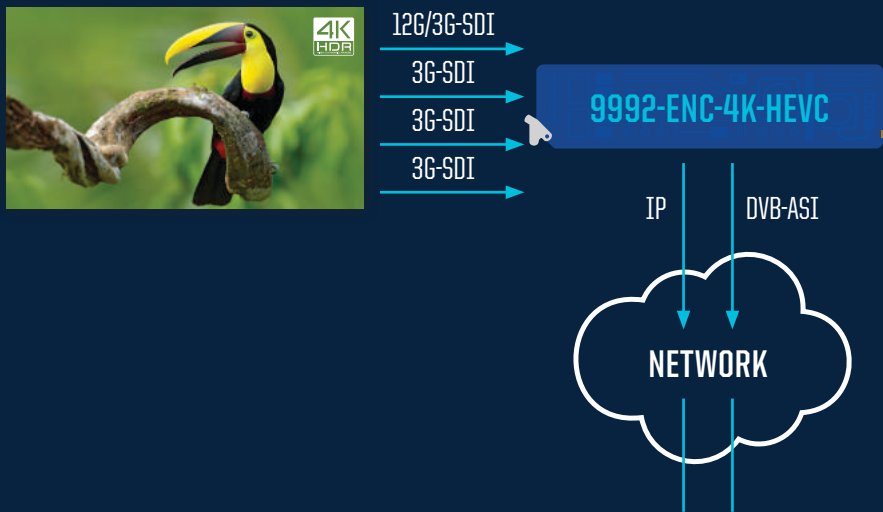
4K HEVC STREAMING DECODE
IP or DVB-ASI input UHD Decode to Quad 3G-SDI or 12G-SDI

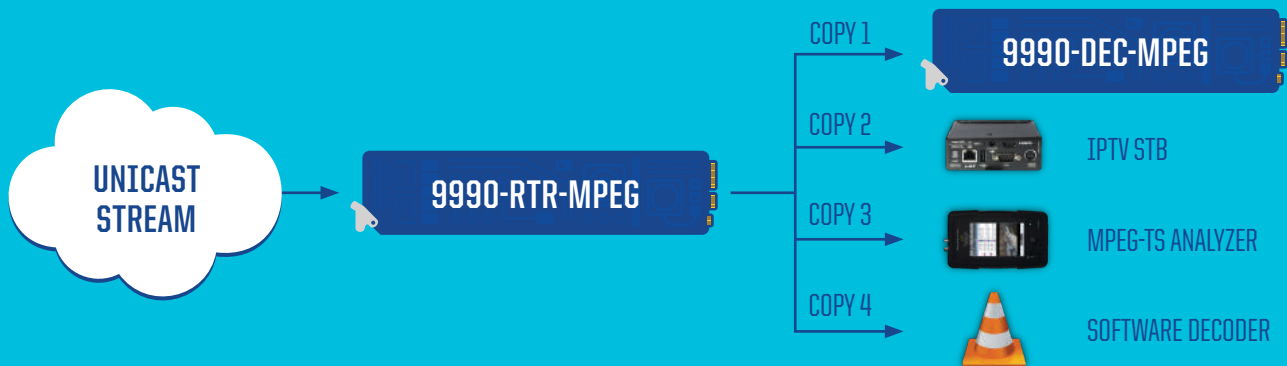|	9992-ENC	9992-ENC+HEVC	9992-ENC-4K-HEVC	9992-DEC	9992-DEC-4K-HEVC
HEVC		●	●	●	●
4K			●		●
Encoder	●	●	●		
Decoder				●	●
Multichannel Ready	Up to 4	Up to 4		Up to 2	
IP Ready (2110 & 2022-6/7)	●	●	●	●	●
Software Defined Compression	●	●	●	●	●

OTT MULTISCREEN DELIVERY
RTMP & HLS STREAMING

With consumer preference changing to consume media across a range of devices, content providers need to ensure the ability to deliver content to those devices. Cobalt Digital encoding products provide the on-site appliance for delivery to any range of Content Distribution Networks.

AVAILABLE FOR
9223
9990-ENC
9992-ENC
9992-ENC-4K-HEVC

USTREAM
an IBM Company

YouTube

WOWZA
media systems

Akamai

Adobe

verizon

UNICAST STREAM CONDITIONER & DISTRIBUTION AMPLIFIER

UNICAST STREAM

9990-RTR-MPEG

COPY 1 → 9990-DEC-MPEG

COPY 2 → IPTV STB

COPY 3 → MPEG-TS ANALYZER

COPY 4 → SOFTWARE DECODER

Streams are De-Jittered & Re-Clocked then Replicated up to Eight Times

MULTIVIEWERS
FULL 4K MULTIVIEWERS WITH 12G-SDI, HDMI 2.0

Cobalt's new line of 4K multiviewers support 3840x2160 inputs and outputs via 12G-SDI & HDMI 2.0 so you can use cost-efficient consumer 4K displays. Also, for 1080p input applications you can drive a 4K quad split without losing a pixel of resolution.
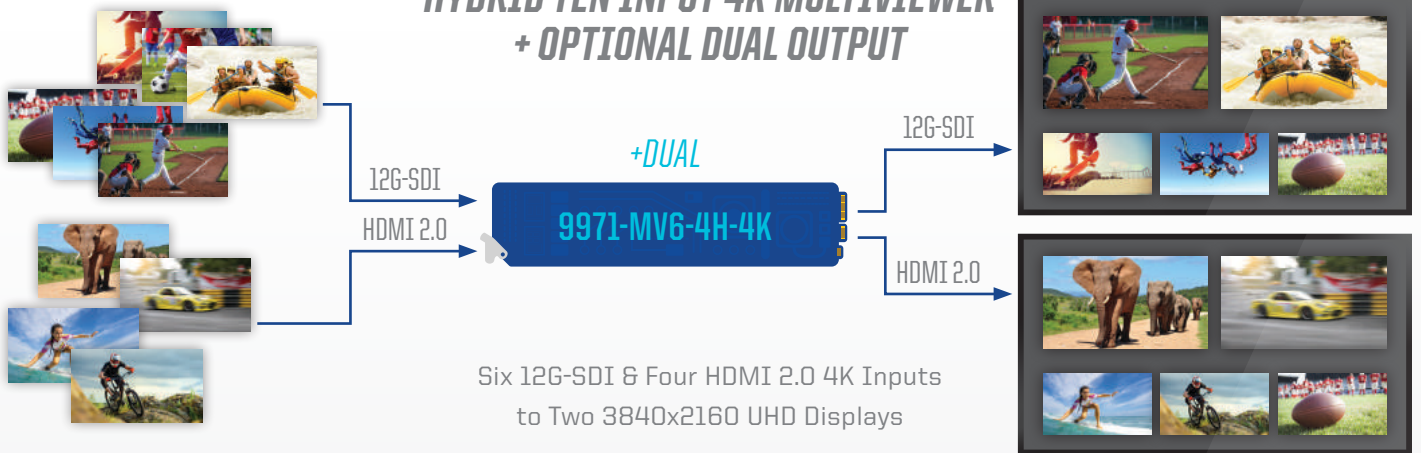
SIX INPUT 4K MULTIVIEWER
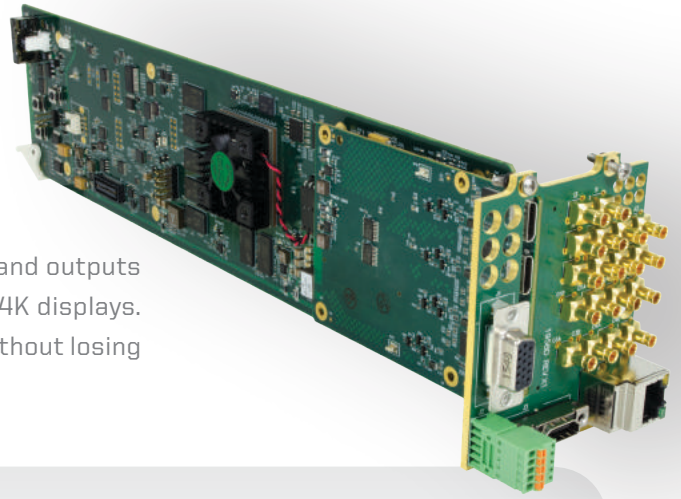
6x 12G-SDI → **9971-MV6-4K** → 12G-SDI / HDMI 2.0

Six 12G-SDI 4K Inputs to a Single 3840x2160 UHD Display via 12G-SDI & HDMI 2.0

HYBRID TEN INPUT 4K MULTIVIEWER + OPTIONAL DUAL OUTPUT

12G-SDI / HDMI 2.0 → *+DUAL* **9971-MV6-4H-4K** → 12G-SDI / HDMI 2.0

Six 12G-SDI & Four HDMI 2.0 4K Inputs to Two 3840x2160 UHD Displays

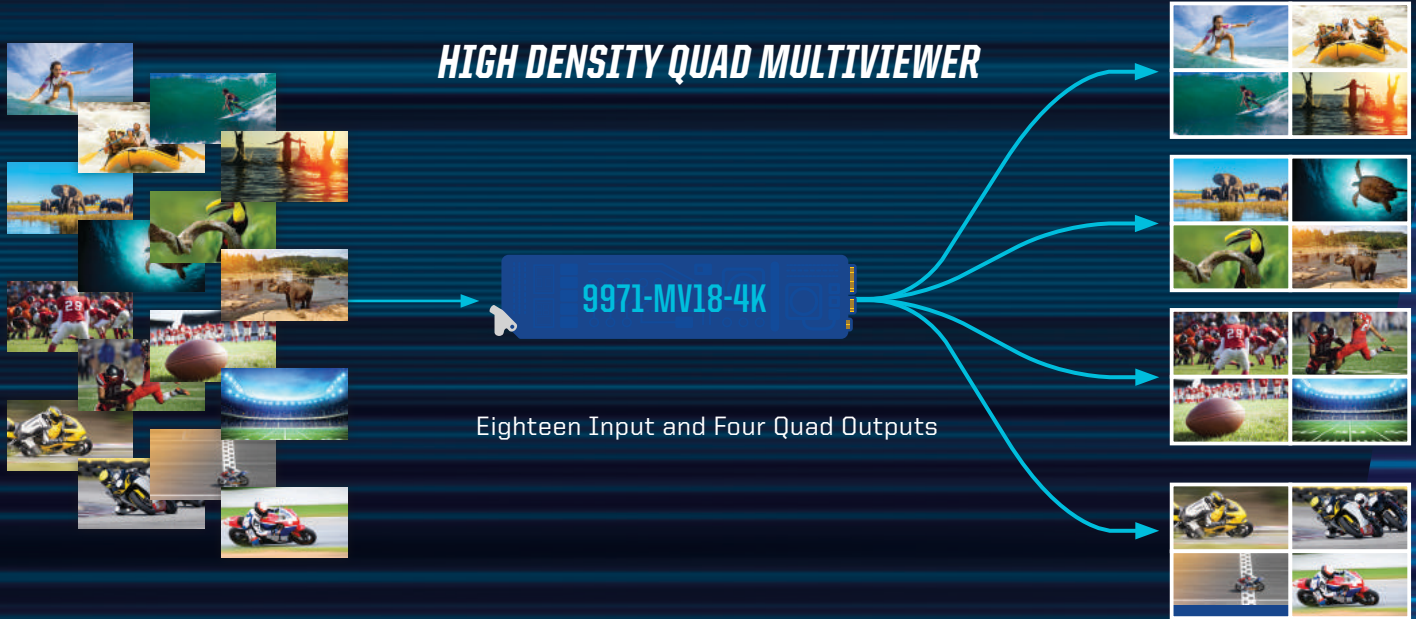|	9970-QS	9970-QS-MC	9971-MV6-4K	9971-MV6-4H-4K	9971-MV18-4K
SDI Inputs	5	5	6	6	18
SDI Outputs	2	2	4	4	4
4K			●	●	●
HDMI 2.0 Inputs				4	
HDMI 2.0 Outputs			●	●	●
DUAL Output Capable			●	●	●
Feed Consumer or Professional Monitors	●	●	●	●	●
External Alarming		●			

MASTER CONTROL MULTIVIEWERS
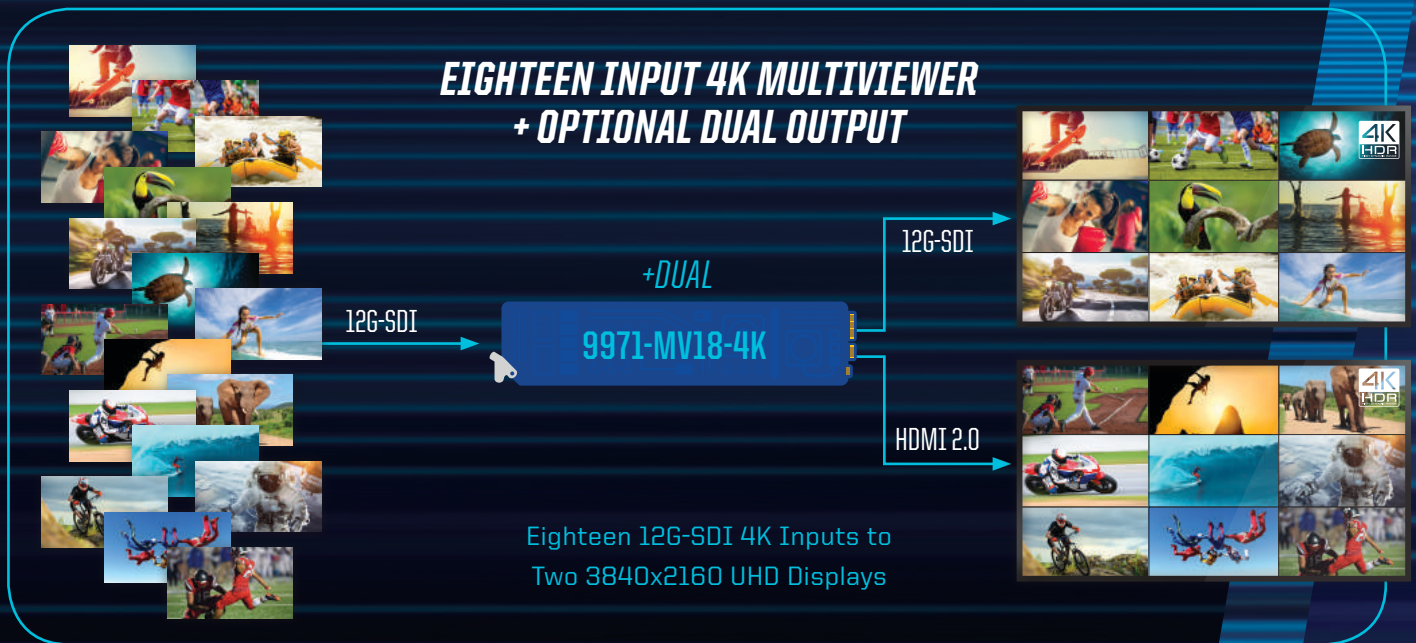## SOLUTIONS FOR PRODUCTION AND MASTER CONTROL

The popular line of 9970-QS 3G-SDI 1080p multiviewers has been enhanced with the 9970-QS-MC Master Control centric version with deeper signal monitoring that can also drive 1080p displays in a 9x16 portrait orientation in addition to 16x9 landscape.

HIGH DENSITY QUAD MULTIVIEWER

9971-MV18-4K

Eighteen Input and Four Quad Outputs

EIGHTEEN INPUT 4K MULTIVIEWER
+ OPTIONAL DUAL OUTPUT

12G-SDI

+DUAL

9971-MV18-4K

12G-SDI

HDMI 2.0

Eighteen 12G-SDI 4K Inputs to
Two 3840x2160 UHD Displays

HDR CONVERSION AND DISTRIBUTION
HLG, S-LOG 3 OR PQ FORMATS

Advanced HDR by
technicolor

Producing HDR broadcasts with a mix of HDR and SDR sources has never been easier than with Cobalt's implementation of Technicolor's Intelligent Tone Mapping (ITM) and SL-HDR technology. With the 9904-UDX-4K processing card SDR can be turned into HDR dynamically without operator intervention. Similarly HDR sources can be fed to SDR trucks or facilities, just if the production was shot in SDR.

For distribution of HDR content, Cobalt leverages Technicolor's SL-HDR encode to create an SDR signal with metadata that can be reconstructed downstream to play the original HDR signal, or SDR depending on the capabilities of the TV or set-top-box. This allows for a single stream of transport to support both HDR and SDR devices.

HDR CAMERA — HDR → **SWITCHER**

SDR CAMERA — SDR → SDR TO HDR **9904-UDX-4K** +HDR-ITM-4K → HDR → **SWITCHER**

SDR ARCHIVE — SDR → SDR TO HDR **9904-UDX-4K** +HDR-ITM-4K → HDR → **SWITCHER**

SWITCHER → HDR → **9992-ENC-4K-HEVC** → IP → **TRANSMITTER** → FIBER

SWITCHER → HDR → HDR TO SDR **9904-UDX-4K** +SL-HDR-4K → SDR → **SDR TRUCK**
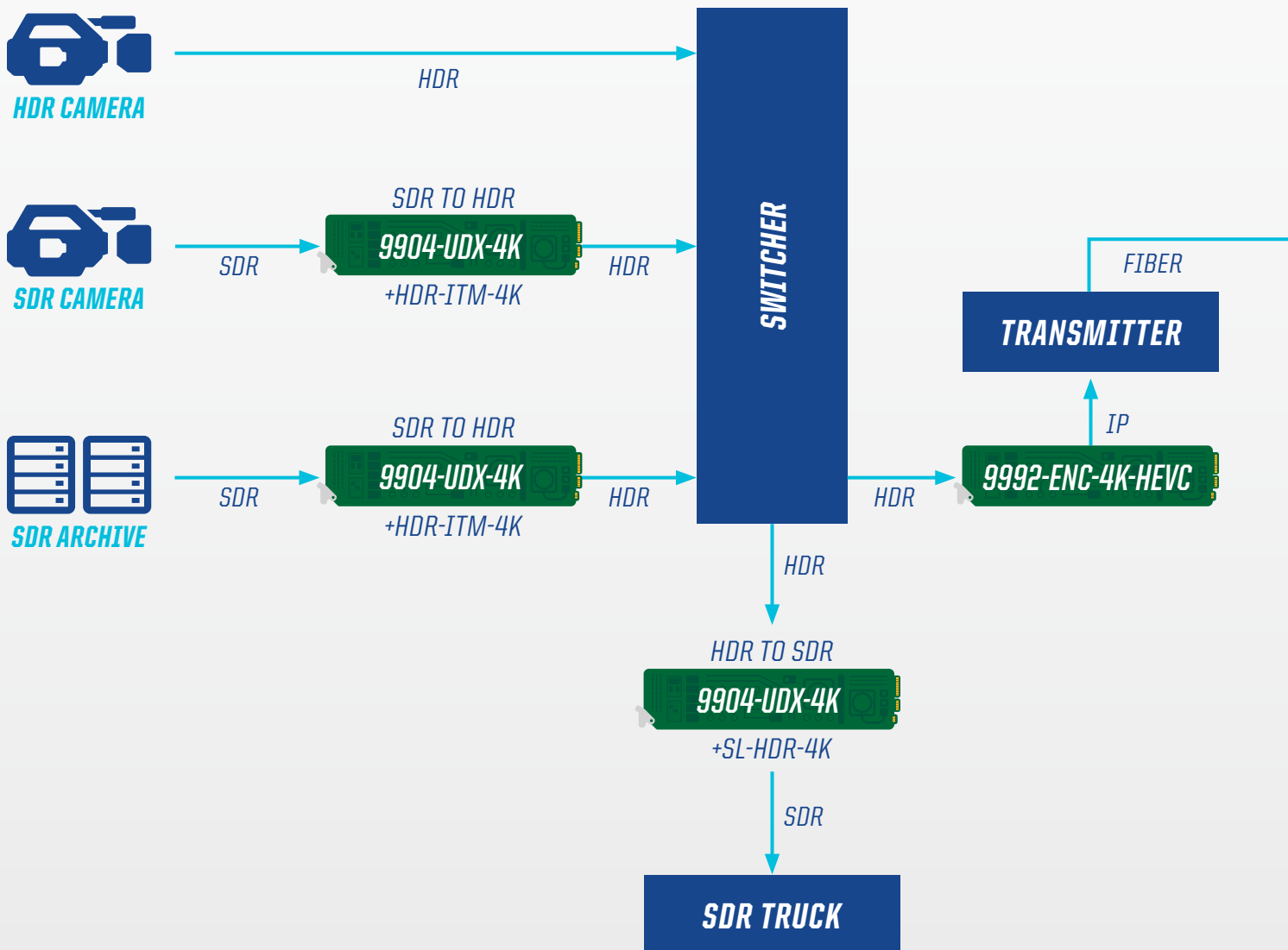
Television can take the SDR signal,
or reconstruct the HDR signal from
the SL-HDR Metadata

ATSC 3.0

ATSC 3.0 ENCODER

IP

SDR | +METADATA

HDR TO SDR

9904-UDX-4K

+SL-HDR-4K ENCODER

STB

Technicolor SL-HDR
Decoder

IP

HDR

RECEIVER

IP

9992-DEC-4K-HEVC

HDR

**MASTER
CONTROL**

HDR

SDR TO HDR

9904-UDX-4K
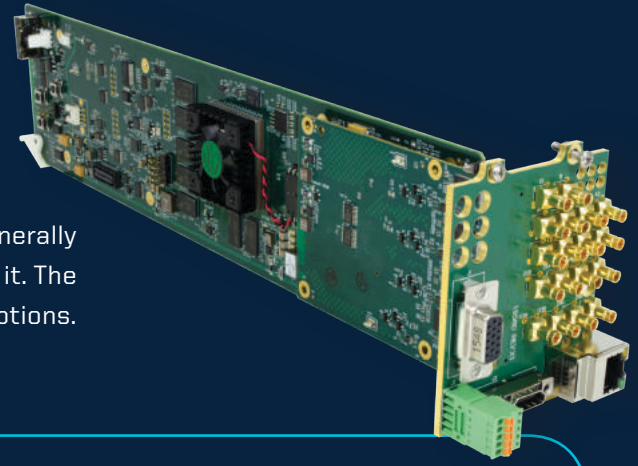
+HDR-ITM-4K

SDR

COMMERCIALS

Television can take the SDR signal,
or reconstruct the HDR signal from
the SL-HDR Metadata

SOFTWARE DEFINED PROCESSING
FOR 2K & 4K

Cobalt products support licensable feature upgrades that are generally field installable meaning you can add functionality when you need it. The 9902-UDX-DSP-CI and 9904-UDX-4K have an extensive library of options.

SMPTE-2110 FRAME SYNC & CONVERSION

720P → ST-2110 10GigE → **9904-UDX-4K-IP** → ST-2110 10GigE → IP NETWORK → 1080p

HD & 4K OPTIONAL REMOTE CONTROL RGB COLOR CORRECTION

12G/3G-SDI, 3G-SDI, 3G-SDI, 3G-SDI → *+COLOR-4K* **9904-UDX-4K+COLOR-4K** → 12G/3G-SDI, 3G-SDI, 3G-SDI, 3G-SDI

1GigE

OGCP-9000/CC Control Panel

	9902-UDX-DSP-CI	9904-UDX-4K	9904-UDX-4K-DSP	9904-UDX-4K-IP
Software Defined Processing	●	●	●	●
4K 3840x2160		●	●	●
HD 1080p/1080i/720p	●	●	●	●
12G I/O		●	●	●
HDMI 2.0 I/O		●	●	●
HDMI 1.4 In or Out	●			
PAL/NTSC Composite Analog	●			
AES I/O	●	●	●	●
Format/Standards Conversion	●	●	●	●
IP Formats (2110 & 2022-6/7)	●			●
Advanced Audio Processing	●		●	

4K DISTRIBUTION OF VIDEO & AUDIO
UP TO 12G-SDI

As demand for 4K continues to rise, distribution of 12G-SDI signals within a rackspace becomes increasingly important. The 9914DA allows for copper runs reaching most equipment within a rack room or truck. Fiber is then used to transport 4K signals great distances for runs between trucks, rooms, or even facilities.

SITE 1

SITE 2

Fiber

x4
12G-SDI
INPUTS

x16
12G-SDI
OUTPUTS

x4
12G-SDI
INPUTS

x16
12G-SDI
OUTPUTS
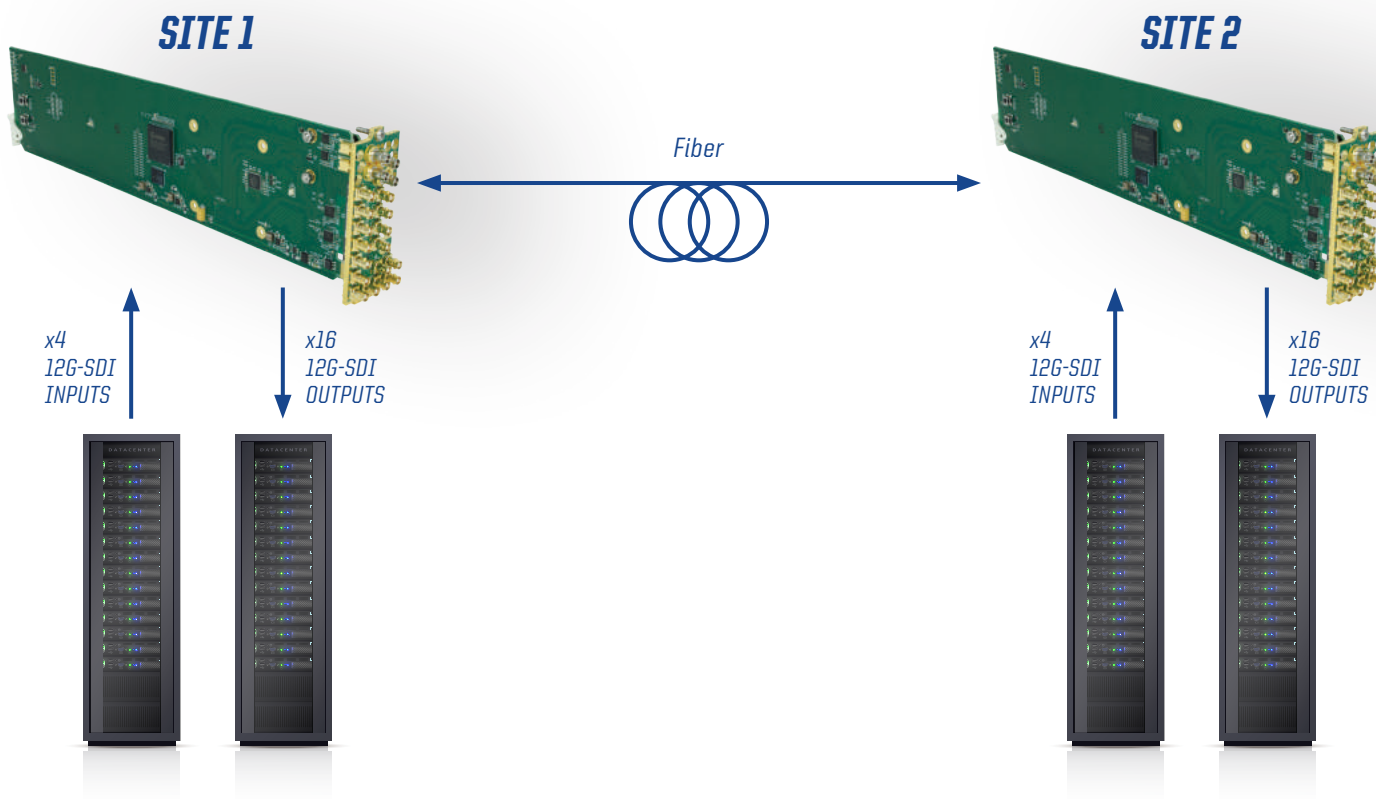
	9914DA-1x16-12G	9914DA-DUAL-1x8-12G	9914DA-QUAD-1x4-12G	9914DA-4x16-XPT-12G
Inputs	1	2	4	4
Outputs	16	16	16	16
Cross-Point Router				●
Fiber Connectivity (-SFP-DA)				●

At Cobalt, we believe that a scalable and flexible approach in providing terminal equipment and systems offers you the best value and choice in meeting your needs without compromising ease of integration, features or cost.

Cobalt Digital Inc. designs and manufactures award-winning IP and 12G/3G/HD/SD conversion, throwdown, and multiviewer technology for the production and broadcast television environment. As a founding member in the openGear® initiative, Cobalt offers a full range of openGear-compliant solutions as well as video and audio processing products for closed caption compliance, production trucks, master control, HD news, signal transport, audio loudness processing, and color correction. Cobalt's Blue Box Group™ line of interface converter throwdown boxes streamlines and simplifies a wide range of IP and 12G/3G/HD/SD conversion and processing tasks. In addition, the company's multi-image display processors enable multiviewer capabilities in the most demanding studio and remote production/broadcasting environments. Cobalt Digital products are distributed through a worldwide network of dealers, system integrators, and other partnerships.

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