



1) What is the main purpose of the VODxchange™ system?

A. For Content Providers, VODxchange:

- Enables acquisition and transcoding of multi-format video and file-based content from sources such as live feeds, VTR, DVD and storage subsystems
- Enables high quality SD/HD MPEG-4 AVC encoding in real time
- Enables transcoding of encoded content to multiple file formats for various target devices like VOD servers, Set-Top-Boxes, iPOD and cell phones

For IPTV Operators, VODxchange:

- Accelerates acquisition and preparation of multi-format local content for on-demand services and ad-insertion

2) How is it different from a standard real-time encoder such as the ME2000?

A. A standard real-time encoder such as the ME2000 typically takes in video over SDI/HD-SDI and outputs an MPEG-2 transport stream over IP with the MPEG-4 AVC essence. VODxchange is an all-in-one system for encoding live streams over SDI/HD-SDI like a standard real-time encoder with additional support for ingesting, transcoding, QC and capturing of file based content.

3) Does VODxchange work in real time, near real time or faster than real time?

A. VODxchange encodes digital and analog video content into MPEG-4 AVC at SD and HD resolutions in real time. It also transcodes content to AVC from a wide range of file formats at real-time speeds.

4) Is it compatible with my other Modulus Video products?

A. Yes. VODxchange is built around the ME2000 Series Multi-Format AVC Encoder from Modulus Video and offers all of the associated advanced functionality and interfaces. The compressed AVC streams of VODxchange are also compatible with the Modulus Video MD3187A AVC Decoder.

5) Can I use VODxchange as a real time encoder when I'm not ingesting?

A. Yes. VODxchange can take in SDI/HD-SDI feeds in real time and function as a standalone encoder when it is not being used for file-based content acquisition work.

6) Can VODxchange be controlled from a remote location?

A. Yes, VODxchange has a Windows-based Graphical User Interface that can be easily used from a remote desktop over any network.

7) Can I set up batch file encoding?

A. Yes. VODxchange supports batch mode of file encoding through its Graphical User Interface. You can encode files individually or concatenate multiple files into a single target file through a job list manipulation window.



8) Can you send multiple copies of the same content to multiple receive sites (hub and spoke topology)?

A. Yes. VODxchange can multicast the encoded MPEG-4 AVC content as a MPEG-2 TS stream to multiple receiving sites. The encoded content can be saved as files in various formats that can be FTP'd to multiple receiving sites as well.

9) How would VODxchange help solve my ad insertion needs?

A. VODxchange supports the SCTE104/35 protocol which enables you to set markers in the encoded stream based on external triggers. A 3rd party ad-insertion server can then seamlessly insert ad clips at the marked locations. For file based workflows, VODxchange supports splicing of ad clips natively.

10) What VOD servers does VODxchange work with?

A. We are continually working with VOD vendors such as Microsoft, Kasenna, C-COR and SeaChange as well as set top box vendors such as Motorola, ADB, Sencore, Amino, Wegener and others to ensure interoperability. Please contact us to discuss your specific interoperability needs.

11) How do you control VODxchange?

A. VODxchange can be controlled in three different ways:

- By using a simple point-and-click Graphical User Interface that can be used locally or via remote desktop over a network
- By using HTTP to directly set encoding/decoding parameters
- By using SNMP to monitor and control the system

12) Does VODxchange control other 3rd Party devices say a VTR? If so, what vendors?

A. Yes. VODxchange supports the 9-pin RS-422 protocol to control VTRs and had been tested with SONY SD and HD VTR models. Please contact us to discuss your specific VTR control requirements.

13) Does it do multi-pass encoding for optimum quality and bit rate?

A. VODxchange uses state of the art technology to deliver video at the lowest possible bit rates. This technology includes a powerful look-ahead function for pre-encoding/pre-analysis of the incoming video. This feature does a full encode function to assist the main encoding process. With foresight of the incoming video, the encoder can anticipate and prepare for tough sections, in effect providing multi-pass encoding in real-time. The system also provides real-time encoding statistics and graphical profile of VQ values with identification and playback of “hot spots” for QC workflows. The user can selectively re-encode IDR to IDR sections with alternate input configurations that direct the encoder to achieve optimum quality and bit rate.

14) Can it work in conjunction with an existing Modulus Video encoder?

A. Yes. If you already have an existing Modulus Video SD or HD encoder, you can purchase the corresponding VODxchange SD or HD Server and connect them to create the full VODxchange system.



15) Why do I need a hardware based system? Are there not low cost software only systems that work in real time?

A. Practical systems today aren't able to approach real-time especially for HD formats. Furthermore, they invariably compromise video quality by not supporting some of the more compute intensive operations such as Weighted Prediction, CABAC, number of reference frames, etc. Real-time monitoring of the encode process also allows real-time QC and error detection thereby enabling greater content creation workflow efficiencies.

16) Isn't a real-time based system going to slow me down? My sources are file based and could be transcoded faster than real-time on some systems.

A. Faster than real-time MPEG-4 AVC SD and HD systems are impractical today for real production applications as they usually require a multi-node computing cluster, especially for HD. This brings along with it a rash of issues such as high cost of ownership, large footprint, high power consumption, complex system operation and expensive maintenance. VODxchange is the most affordable, well-proven, reliable and maintainable system in the industry today that provides the best balance between performance and visual quality.

17) What about Line 21 closed caption data? How is this preserved and incorporated into my output streams?

A. Line 21 data is captured and embedded digitally as Supplementary Event Information (SEI) data in the output stream of VODxchange.

18) How do I bring in multi-channel audio to deal with multiple languages and 5.1 surround?

A. The HD-SDI stream can transport up to 8 channels of audio or 4 stereo pairs. Each of these channels can carry a separate language. They can be encoded independently (or simply passed through) and injected into the MPEG-2 stream using different PID values. The PMT defines all of the data associated with each language for the decoder to extract and render.

19) What is the maximum bit rate you can encode to?

A. VODxchange supports MPEG-4 AVC Main Profile Level 4 that specifies a maximum bit rate of 20 Mbps.

20) Can you change the bit rate during the encode process or splice a re-encoded section in seamlessly later?

A. The encoder supports seamless rate change, plus the user can then selectively re-encode IDR to IDR sections to achieve optimum quality and bit rate.

21) Can I also use the RAID subsystem for extended storage of my content?

A. The built-in RAID storage is meant to be a buffer (or cache) to hold file-based content during the transcoding process. A typical workflow consists of copying files onto the system, transcoding to MPEG-4 AVC, capturing the resulting files and then copying them off the system to VOD servers, web servers or a Storage-Area-Network for play out or archival.



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VODxchange™ Frequently Asked Questions

About Modulus Video, Inc.

Since its founding in 2002, Modulus Video has been the only company to focus 100 percent of its efforts on perfecting the use of the MPEG-4 AVC video compression standard. As a result, Modulus Video's powerful MPEG-4 AVC encoders are now a critical component behind today's most compelling IPTV deployments, providing the most efficient use of available bandwidth and delivering outstanding standard definition and high definition television services over new and existing broadband infrastructure. Its products meet the needs of the broadcast, narrowcast and video-on-demand markets. For more information, please visit www.modulusvideo.com.

Modulus Video

285 Stewart Drive
Sunnyvale, CA USA 94085
Tel: 1-408-245-2150
Fax: 1-408-245-2159
info@modulusvideo.com
www.modulusvideo.com

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