# Discover Video Transcoder

MPEG-2 is the historical standard for digital video distribution and there are thousands of live MPEG-2 video streams in use today. These range from commercial television broadcasts to private enterprise video distribution systems in corporate, educational and government networks.

At the same time, there are also thousands of Windows Media streams in use. Thanks to a complete ecosystem, high quality encoding format, and low cost, Windows Media is deployed in television broadcasting (e.g. AT&T U-verse), in corporate, education, and government networks, not to mention its ubiquitous presence on the web.

Many users wish to move to H.264, the newer high quality video compression and streaming standard. For MPEG-2 users, H.264 is considered as a bandwidth savings technology because you can send the same quality video using roughly half the bandwidth required for MPEG-2, and it scales from web streaming to full HD. Windows Media users often wish to provide interoperability with the popular Adobe Flash format for streaming without the wholesale replacement of existing technology or infrastructure. Live transcoding is the solution.

*The Discover Video Transcoder converts live MPEG-2 and Windows Media streams to H.264 and Flash streams.*

## Transcoding

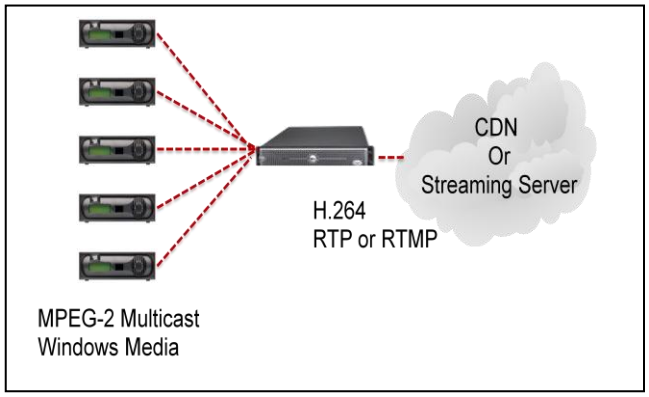
Transcoding is conversion from one format to another. Transcoding is often thought of as a file operation: open file A and save it as file B. But live transcoding is a different, and much more complex proposition. Live transcoding is the reception of a live audio/video stream in one format and the conversion to another format that is streamed in real time.

## Discover Video Transcoder

The Discover Video Transcoder is a server that can receive multiple MPEG-2 Transport Streams via IP multicast, or multiple Windows Media unicast or multicast streams and transcode them in real time to H.264 video with AAC audio (a.k.a. MPEG-4 Part 10 and AVC). The Transcoder delivers the H.264 in either standard H.264 RTP format, or in the popular RTMP/Flash format.

RTP

If using RTP, the Transcoder automatically creates a sdp file in the server's web directory, allowing the transcoded video to be viewed using popular players such as QuickTime. The output may be unicast or multicast. For example, the Transcoder may receive a live MPEG-2 or WM stream and you may instantly view it on an unlimited number of players using multicast. For unicast, a distribution server (e.g. Darwin, Wowza) can receive the unicast stream from the Transcoder and deliver it to viewers locally or via the web.




Flash

The Transcoder supports direct RTMP streaming to a compatible streaming server such as Adobe FMS, Wowza, or a Content Distribution Network. For example, the Transcoder can receive a live MPEG-2 or WM stream and deliver it to viewers on the web via Flash player.

Snapshots

While the Transcoder is converting your live video to H.264, it can also create JPEG snapshot images of your video. These images are hosted on the Transcoder's web server. Snapshots have many uses. For example, your web site can show live image previews of "what's on now", and when you click on the image, you view live video via Flash player. Snapshots also allow you to deliver "live" images to low bandwidth uses such as cell phones, and allow you to monitor multiple streams without having to view them.

Capacity

Depending on the model, each Transcoder supports up to 30 simultaneous transcodes, providing a very cost effective solution for live streaming media delivery. Actual simultaneous capacity depends on many factors including resolutions, frame rates, snapshots, etc.

Settings & Integration

The Transcoder is easily configurable on a per-stream basis. The Transcoder supports settings such as stream type, rate, resolution, frame rate, audio rate, and snapshot settings.

Each Transcoder stream is configured by a simple XML file. This allows very

easy integration with 3rd party or custom control systems, and the Transcoder comes with a simple web interface that allows you to modify the settings remotely.

Of course, the Transcoder provides status of each stream and generates an optional log file of its operation.

Applications

Transcoding live MPEG-2 and WM to H.264 has many applications. Here are a few highlights.

- Security & Monitoring -- There are thousands of VBrick and other MPEG-2 encoders deployed that provide high quality monitoring of highway traffic, scientific investigations, and similar monitoring applications. The Transcoder allows these high bandwidth (e.g. 5 Mbps) streams to be delivered to remote locations using as little as 40 Kbps per stream. Importantly, the Transcoder can be configured to change the rates and resolutions as the situation warrants. You can easily switch from low rate/low-resolution monitoring to higher rate / high quality streaming as desired. This allows remote monitoring operators to rapidly focus on important events as needed.

- Television / Cable -- An existing MPEG-2 over IP infrastructure can be used to deliver consumer simulcasts via the Transcoder. A cable operator need only install one Transcoder and instantly have live television channels available for viewing on the web, or privately for confidence monitoring. Remote, unstaffed cable "head ends" benefit from inexpensive confidence monitoring where the true audio and video of any channel can be viewed remotely for troubleshooting and quality assurance purposes.

- Enterprise -- Educational institutions, corporations, and thousands of others that use VBrick or other MPEG-2 and Windows Media encoders can now distribute their live video in bandwidth-saving, high quality H.264 format without needing a forklift upgrade of their encoding technology. Using the Transcoder, an organization can continue to stream

*A Transcoder allows you to convert live Windows Media to live Flash, providing dual format streaming with only one encoder.*

their video locally, but can now deliver it to branch offices and other remote locations without needing additional encoders or a parallel video distribution system.

- Dual Format Web Streaming -- for many web streaming projects there is a desire or need to use Windows Media to take advantage of Silverlight technology, yet other customers desire or demand Flash player. Using the Transcoder, you can now source all your live streaming using Windows Media technology (Discover Video DVME, Windows Media Encoder, Microsoft Expression Encoder, VBrick appliances, etc.) and deliver the live video to both Silverlight and Flash players.

- Hosting -- The Transcoder may be hosted on the public Internet and delivered as a service. Simply set a Windows Media input stream and a RTMP/Flash output stream. Your input stream may come directly from an encoder or from a CDN, and your output stream may be sent to a Flash CDN.

Save Money

The Transcoder can be the perfect alternative to upgrading existing MPEG-2 or WM encoders to H.264.

New H.264 encoder hardware can cost many thousands of dollars, while the Transcoder can cost less than $1,000 per stream. Using existing MPEG-2 and WM encoders, the Transcoder can deliver many video streams in H.264 format at any desired bit rate and quality level.

For example, five new H.264 encoders might cost $25,000. Using the Transcoder, you can use existing MPEG-2 or WM encoders and have five H.264 streams for less than $5,000, saving $20,000.

Summary

The Discover Video Transcoder has many uses for the delivery of live streaming video, ranging from security and monitoring to dual-format streaming. It is a very cost-effective solution, especially when existing encoding technology is in place, and can make web streaming a reality where it might not otherwise be sensible.