



Whitepaper

Aspera *fast*™ Technology Now Makes
Cloud Encoding Fast, Secure and Cost-
Effective for VOD and IPTV Providers.



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Introduction

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Cloud encoding solutions have significantly lowered the barrier to entry for organizations that require encoding scalability and flexibility. They enable content owners to encode video or audio files without any major hardware or software investments. They don't require encoding expertise. And they provide parallel processing, which drives efficiencies by encoding dozens, hundreds or even thousands of files simultaneously. Yet, while the economics of cloud encoding are clear, those with large source files have been slow to adopt – and for good reason – though their challenges have been rooted in slow file transfer to the cloud, not in cloud encoding itself.

The upload of large mezzanine files into the cloud for encoding has historically been subject to the performance limitations of transfer applications such as FTP or HTTP. Slow transfer speeds and inherent bottlenecks of TCP, the protocol most commonly used to reliably transfer data over FTP or HTTP into the cloud, meant that these large mezzanine files simply couldn't reach the cloud fast enough to be encoded in a timely manner. Of course, once a file has reached the cloud, a strong case can be made for the speeds at which parallel processing can occur – and ultimately, cloud encoding's ability to process files faster and cheaper than onsite encoding solutions.

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Encoding.com, the world's largest cloud encoding service, leverages the power of parallel processing in its cloud encoding solutions. It ingests source assets (with support for hundreds of video codec and container combinations and all popular source video and audio formats), encodes them in a public or private cloud environment into unlimited user-specified renditions, and delivers the encoded files to various delivery destinations, including other cloud locations, content delivery networks, or syndicated web channels. These capabilities make Encoding.com magnitudes faster than on-premise solutions that rely on serial job processing on a single CPU.

Scenario #1: Encoding.com vs. Localized Video Transcoder

A 1.5GB source video file at 720p 3500k needs to be encoded into five output renditions: MP4 at 1600k, iOS at 720p, FLV at 1200k, WEBM at 2500k and OGV at 800k. It takes 48 minutes to process this job using an open-source video transcoder running on a 64-bit 2X Quad Core Xenon with 24GB of RAM, and this encoding job consumes a lot of system resources during the 48-minute window. It takes only 9 minutes to process this same job through Encoding.com, and during the 9-minute window, the system, its resources and its user are all free to perform other tasks.

The primary benefit of using the localized encoding solution in this example is zero file upload time – no cloud, no upload into the cloud, no time lost due to upload into the cloud. Anyone who uses a cloud-based solution must always factor in the upload time of source assets into the cloud, and because TCP is slow and inefficient, cloud encoding non-adopters are generally those content owners with large mezzanine files to encode.

Certainly, considering the inefficiency of TCP, they're right to question how they can benefit from cloud encoding. If it's 61% faster to encode files in the cloud, but the file upload process takes additional time, how can they achieve any time and cost savings from cloud encoding? The answer to this question lies in the ability to achieve high-speed file upload into the cloud by eliminating reliance on TCP-based transfers altogether.

Get it there *fasp*[™]

*"The *fasp* protocol enables high-performance digital transport of even the largest mezzanine video assets into the cloud for encoding.."*

Encoding.com has specifically addressed customers' slow file transfer issues by integrating file transport software from Aspera into its cloud encoding solutions. At the heart of Aspera's software is its patented *fasp* technology, a breakthrough transfer protocol that achieves data transfer speeds that are hundreds of times faster than TCP – regardless of file size, transfer distance or network conditions. The *fasp* protocol enables high-performance digital transport of even the largest mezzanine video assets into the cloud for encoding. Fast file transfer to the cloud coupled with fast parallel processing in the cloud fuels Encoding.com solutions that provide rapid turnaround of encoded assets, even faster than onsite processing with zero file upload time.

Scenario #2: Encoding.com + *fasp* vs. Localized Video Transcoder

*To continue the scenario above, add 11 minutes of upload time to the processing time of 9 minutes to give us a total of 20 minutes, more than twice as fast than the 48 minutes it takes to process this job on the localized encoding solution. (It would have taken 31 minutes to upload this same file using TCP, but with *fasp*, upload time has been reduced by 65%). Moreover, adding additional bandwidth leads to even faster upload times with no theoretical limit on speed and throughput.*

*"Encoding.com's integration of Aspera's *fasp* technology accelerates file upload into the cloud for existing Encoding.com customers, and it removes the obstacles the non-adopters previously faced with their large file uploads over TCP."*

Encoding.com's integration of Aspera's *fasp* technology accelerates file upload into the cloud for existing Encoding.com customers, and it removes the obstacles the non-adopters previously faced with their large file uploads over TCP. Today, Encoding.com's cloud encoding offerings, with *fasp*, make it possible for all content owners to encode in the cloud – even those with massive mezzanine files and those with hundreds of thousands of files to encode simultaneously.

Another factor to consider is the destination of encoded files. Most content owners send their encoded files to one or more destinations for further action and/or consumer consumption. The endpoint may be a cloud location, content delivery network, syndicated web channel, etc. Even files that are encoded using onsite solutions eventually go somewhere. Oftentimes, these files are transferred to the destination point using an FTP or HTTP application that relies on TCP.

“With Encoding.com and Aspera, the same *fasp* technology used for high-speed file transfer into the Encoding.com cloud can also enable high-speed file transfer to other locations after the encoding process is complete..”

With Encoding.com and Aspera, the same *fasp* technology used for high-speed file transfer into the Encoding.com cloud can also enable high-speed file transfer to other locations after the encoding process is complete. Encoding.com is constantly moving assets for its customers, and it can automate the entire encoding workflow – from ingest to encoding to delivery. The company moves roughly 150,000 assets every day for customers around the world.

Scenario #3: Non-local file delivery

*Once again building on the previous scenario, the five newly encoded output renditions all need to get to the user's CDN. In the localized encoding solution, the user sends the five renditions to their CDN via manual FTP. This takes 14 minutes, and does not include any lapse between encoding completion time and FTP start time. In the Encoding.com solution, the five renditions are automatically transferred to the CDN as soon as the encoding job is done because the user has already established the endpoint for these files. Encoding.com's automatic delivery to the CDN takes 8 minutes. Total processing time for this job – from the 1.5GB source file to the five renditions being available on the CDN – is 62 minutes for the onsite solution and 38 minutes for Encoding.com using *fasp*.*

It is important to note that the scenario described here is easily scalable. Encoding.com and Aspera turn encoding jobs that once took days to process into jobs that now take hours ... turning hours into minutes and minutes into seconds. In this way, they have brought about a shift in the world of cloud encoding, making it an easily justifiable option for all content owners.

Get it there your way

Encoding.com has revolutionized the encoding workflow with the integration of Aspera in three distinct solutions. In the case of each solution, users leverage Aspera's *fasp* technology to upload their files to the Encoding.com cloud, where the files are encoded and then *fasp*-delivered to any location.

Self serve API solution

Content owners who operate an Aspera Enterprise Server™ or Aspera Connect Server™ can utilize the [Encoding.com API](#) to automate the transfer of files from the source location to the Encoding.com processing centers as well as delivery of encoded content to specified rendition destinations. Both the source and destination transfers utilize the *fasp* protocol. This self-service solution is ideal for existing Aspera server operators who have a high volume of video and need a way to automate high-speed transfer and encoding in the cloud. The well-documented and extensible XML API is easy to integrate, and it's a great white-label option for leveraging cloud encoding in user-generated video sites, content management systems and desktop applications.

“Ultra Fast Desktop Uploader offers desktop encoding convenience with cloud encoding power.”

“Encoding.com solutions that leverage Aspera’s *fasp* protocol also leverage Aspera’s built-in *fasp* security model, which consists of session encryption.”

Ultra Fast Desktop Uploader

Encoding.com’s Ultra Fast Desktop Uploader, a desktop client for OSX and PCs, is a direct result of the technology partnership between Encoding.com and Aspera. Built by Encoding.com and powered by Aspera (using Aspera’s SDK), the Ultra Fast Desktop Uploader offers desktop encoding convenience with cloud encoding power. It directs users through a simple interface that features drag-and-drop file operation for transferring up to 10 source files at a time from local drives into the cloud for encoding – and it leverages *fasp* to rapidly get them there. Ultra Fast Desktop Uploader shows real-time upload progress and bitrates, and the Encoding.com web interface enables users to view their uploaded source files and add custom output tasks.

Get it there securely

Encoding.com solutions that leverage Aspera’s *fasp* protocol also leverage Aspera’s built-in *fasp* security model, which consists of session encryption (to establish a secure channel for exchanging a random per-session key for data encryption), secure authentication of the transfer endpoints, on-the-fly data encryption, and integrity verification for each transmitted data block. The *fasp* transfer preserves the native file system access control attributes between any of the supported operating systems. Learn more about the *fasp* security model at www.asperasoft.com.

Get it there now

Encoding.com provides content owners with a unique opportunity to test its cloud encoding services, and the [Ultra Fast Desktop Uploader](#) serves as a great testable interface for both Encoding.com and Aspera’s *fasp* protocol. It’s easy to get started today at www.encoding.com. Sign up for a [free account](#) today.

“Encoding.com’s powerful transcoding and automated workflow capabilities enabled us to dramatically reduce our time-to-market for Amazon Instant distribution by processing our entire catalog within a couple of weeks.”

- David Zebroski, Vice President of Digital Video Operations for Scripps Networks Interactive

World’s Largest Encoding Service

About Encoding.com

Encoding.com, the world’s largest video encoding service and provider of Vid.ly, the groundbreaking universal video URL platform, powers video for thousands of leading brands across Advertising, Media and Entertainment, eLearning, Retail, Telecommunications and Lifestyle.

Encoding.com’s cloud video platform enables organizations to instantly scale support for all popular web and mobile formats and utilize Encoding Intelligence™ to accelerate processing while eliminating expensive video infrastructure investments.

Encoding.com is the only encoding service to offer service level guarantees for performance so that you can focus on what you do best.

streaming media



Streaming Media
2011 Top 100

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COOL VENDOR

Gartner “Cool Vendor 2011.”

Contact us to learn more about how Encoding.com can help your business

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