

# Deliver Video from the AWS Cloud to any screen anywhere

Leveraging ISV AWS Marketplace Solutions

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## Introduction

Whether media is at the core of your business, or being used as a marketing tactic to increase customer engagement, demand for high-quality media is growing fast. According to Gartner, mobile video is by far the biggest driver of mobile data. Cisco also estimated that by 2019, online video will be responsible for four-fifths of global internet traffic. Connecting customers to meaningful, relevant content is one of the most effective ways for an organization to promote their brand, but supporting these initiatives with on-premises infrastructures is no small undertaking. AWS Marketplace makes it simple and cost-effective to deploy and scale media solutions from popular software vendors on Amazon Web Services (AWS).

Several factors make implementing an infrastructure capable of getting users the content they demand more time-consuming and complex than ever. For one, customer bases are increasingly global, meaning that organizations must be able to reliably deliver content with low-latency across the entire world. Broadening customer bases also means that the number of users that are requesting a certain piece of content can increase or decrease dramatically in very little time, making scalability and agility essential characteristics of these infrastructures. In addition, customers expect content be delivered in (or as close as possible to) real-time, making speed to market critical. They also expect this content to be accessible from all of their devices. While these trends present a tremendous opportunity to deepen relationships with and engagement of customers, they also mean that organizations who continue to use on-premises infrastructures will need to spend more time and money focusing on how their content is distributed, rather than the quality of the content itself.

AWS provides high-performance cloud infrastructure that allows you to deliver all of your content to customers and employees across the globe, without the heavy lifting of purchasing, deploying, and managing hardware. Some of the largest producers and distributors of content in the world leverage AWS to reach their audiences, including Netflix, Comcast, Major League Baseball, and Time, Inc. By storing, archiving, computing, transcoding, distributing and analyzing video, audio and digital media content with AWS, these organizations can focus on curating the best content possible for their customers, instead of complex IT infrastructures. To augment AWS' infrastructure and cloud services offerings, sellers in AWS Marketplace offer a variety of software solutions with pay-as-you-go pricing that can help you meet the unique requirements of your organization's content delivery strategies. In this document, we will look at some of the reasons that customers leverage AWS for their digital media workloads, and some of the most common software solutions for file transfer, transcoding/ content management, and streaming/distribution that can be deployed from AWS Marketplace.

<sup>1</sup>Gartner: What's Driving Mobile Data Growth? <http://www.gartner.com/newsroom/id/2977917>

<sup>2</sup>Cisco: Visual Networking Index, 2015-2020

## File Transfer

One of the primary reasons that public cloud computing has been so transformative is that it eliminates the long lead times associated with hardware procurement and deployment, enabling organizations to provision the IT resources needed to scale their infrastructures up and down much more quickly and with lower risk. This makes a variety of business models feasible that would not have been just a few decades ago. Netflix, for example, consumes almost 40% of internet bandwidth in the US at peak (evening) hours, but has much less demand in the early hours of the morning . By running on AWS, they can scale up to support virtually any level of demand for their content at peak, then scale down in the middle of the night and early morning to save money. However, an organization's ability to take advantage of the agility that a public cloud like AWS enables is entirely dependent on their ability to move data into and out of the cloud quickly, securely, and reliably.

As many organizations look to move their media to AWS, they find that poor FTP performance acts as a bottleneck to their entire operation. If there is a significant discrepancy between the velocity at which data is moved into AWS and velocity at which it can be processed once it gets there, that organization is not fully harnessing the power of AWS. They have essentially traded one problem—long lead times for hardware acquisition—with another: long lead times for data transfer into and out of the cloud. Another common challenge is retaining data security and compliance with regulatory requirements on data that is in transit between on-premises data centers and AWS. By leveraging third-party file transfer software from software vendors in AWS Marketplace, organizations can move their data into AWS quickly, reliably, and securely, enabling them to fully realize the benefits of AWS for content distribution.

Aspera creates next-generation transport technologies and solutions that move big data and digital content at maximum speed, regardless of file size, transfer distance and network conditions. Built on the patented FASP® transport technology, Aspera's transfer platform and software solutions enable customers to move large files and data sets globally to, from and between cloud and on-premises infrastructure up to hundreds of times faster than FTP and other TCP-based transfer products. In addition to our software products, Aspera provides a SDK platform and engineering services to implement our products and transfer technology and welcomes opportunities to build strategic alliances or partnerships with companies large and small. Aspera can be deployed in AWS via the Marketplace as a VM-based offering or as a SaaS offering.

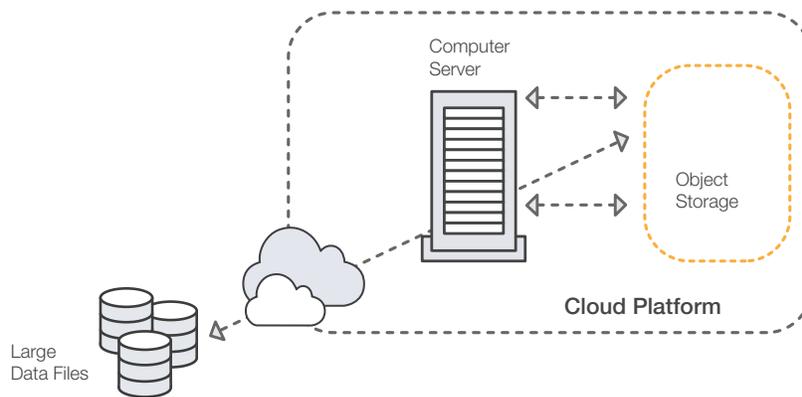


Figure 1: Aspera Direct to Cloud transport

<sup>3</sup>Netflix: Netflix at AWS re:Invent 2015 <http://techblog.netflix.com/2015/10/netflix-at-aws-reinvent-2015.html>

Like Faspex, Signiant Flight was very popular in the media space long before most enterprises were deploying applications in the cloud. It is also UDP-based, and is capable of improving transmission speeds by up to 200x when compared to standard internet transmission. It uses Signiant's unique WAN acceleration technologies, which maximize throughput and minimize network latency between on-premises storage and AWS. Once it is moved to AWS, Signiant Flight writes the data into Amazon S3 or Amazon Glacier via a parallel multipart process over a low-latency local connection to maximize cost-efficiency. One of the primary differentiators of Signiant Flight is Signiant's inclusion of hot folder functionality. Hot folders act as a staging queue for applications to process data, allowing you to dramatically simplify your media workflows. Once you register Signiant with a hot folder, it will run and process the data you place into that hot folder without you having to manually boot the application.

Once content has been moved from its original source to AWS, it needs to be organized in a logical fashion, transcoded into the proper formats, and prepared for distribution to users. Let's take a look at some of the reasons that customers choose to set up their content management system (CMS) and prepare their media for distribution using AWS, and some of the most commonly-adopted solutions available on AWS Marketplace.

## Processing and Content Management

It has become increasingly commonplace for organizations to extend their on-premises digital asset management (DAM), media asset management (MAM), and transcoding solutions from on-premises to the cloud, or to deploy these systems entirely in the cloud. There are a variety of reasons for this transformation—many of them are based on a desire to derive the cloud benefits that most of us are very familiar with by now: cost-effectiveness, instant access to global infrastructure, etc. However, the organizations in the media space have some unique challenges that make AWS an especially attractive environment for content management systems. For one, the volume, variety, and velocity of media workloads continues to increase as video cameras become more ubiquitous and more events are captured on video. Second, content producers are expected to support more formats across more devices than ever before. Many sellers from AWS Marketplace offer media-platform-as-a-service offerings that make it easy to build DAM and MAM solutions on AWS, so you can focus on creating great content for your users without investing in expensive infrastructure.

Many content owners already use Telestream Vantage for populating and distributing from their DAM systems. Telestream Vantage Cloud offers all of all of the functionality to those who want to use AWS for their content production and management needs using an AWS pay-as-you-go AMI from AWS Marketplace. If you're not familiar with Vantage, it is a powerful, scalable, software-enabled media processing platform that manages all media services from the camera to the point of distribution. Vantage allows you to create custom encoding profiles, then use them across your on-premises environment and the cloud. If you've traditionally used Vantage on-premises and are at capacity, deploying Vantage Cloud from AWS Marketplace allows you to increase capacity without having to provision and manage additional hardware. Vantage Cloud is available in three license options and price points.

<sup>3</sup>Netflix: Netflix at AWS re:Invent 2015 <http://techblog.netflix.com/2015/10/netflix-at-aws-reinvent-2015.html>

Over the Top (OTT) is for mp4 and adaptive bit rate content delivery. Multiformat is a general purpose solution including all Telestream Vantage transcoders for broadcast, cable, IPTV, OTT distribution. The International option adds the Tachyon media processing engine and Screen subtitling.

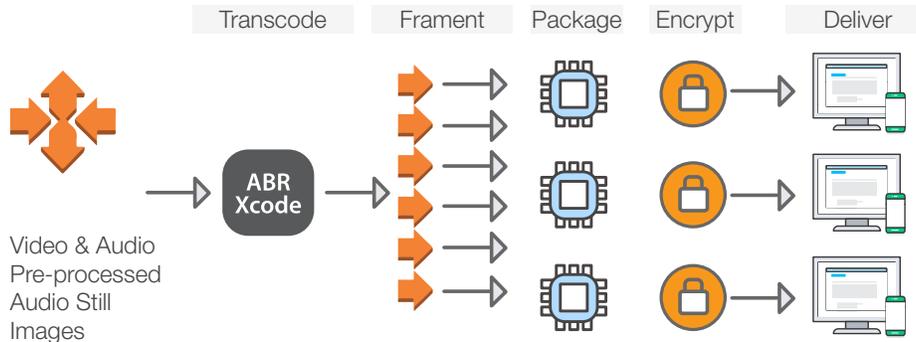


Figure 2: Telestream Vantage Cloud media processing platform

Vidispine Content Management is also very popular among AWS customers. It's an API-based offering that allows you to discover, manage, and transcode media files on S3, EBS, CIFS, FTP, SFTP, HTTP, and HTTPS. With Vidispine you can manage metadata down to frame level, and transcode any video or audio format. Vidispine can be integrated with most storage, common file transfer and WAN acceleration technologies, including popular solutions like Aspera, Signiant, FileCatalyst, Quantum, SpectraLogic, and more. To help you keep track of activity in your environment, it also includes state of the art monitoring capabilities with StatsD, perfect for use with Datadog, Librato, NewRelic, and other application management and monitoring software.

For organizations who need a DAM solution that lends itself well to cross-team collaboration, Sony Ci is designed to support professional media formats, heavy files, multi-camera shoots and productions, Ci enables creative professionals of all levels to simplify cross-team collaboration, regardless of geographic location. It includes functionality for uploading, annotating, reviewing, approving, sharing, and archiving video, audio, and image files, all from an easy to use web app.

Additional sellers are available on the AWS Marketplace media page.

A large percentage of customers who host and manage their media on AWS also use it to stream that content to their viewers across the globe. Now, we will look at why customers are using AWS to deliver videos globally, and some solutions available from AWS Marketplace that can help.

## Streaming and Distribution

If you want to operate on a global scale, you must be able to reliably stream and distribute content to anywhere on the planet—and be able to scale up the backend systems supporting this distribution when demand for content increases unexpectedly. This makes AWS a helpful solution, as it enables you to achieve global reach and massive scalability with relatively minimal manual labor or upfront investment.

Most AWS customers choose their streaming and distribution software based on their organization's workflows—more specifically, their digital rights management (DRM) schemes and primary programming language. Because a certain degree of custom development is required in many cases, picking a solution that is compatible with your programming language of choice can make it much easier and quicker for you to deploy.

Adobe Media Server is a C++-based media streaming software that offers dynamic HTTP Packaging, protected HTTP streaming, and DRM support for a wide variety of device types, enabling you to deliver your video assets to the broadest customer base possible. With Adobe Media Server, you can stream files directly from your S3 buckets, and a read-through local disk cache is configured automatically to improve performance. To increase the capacity and fault tolerance of your interactive media experiences, new server chaining technology lets operators distribute peer introductions across multiple Amazon EC2 Instances, which is perfect for multicast streaming, game development or messaging applications. You can also use Adobe Media Server in conjunction with Amazon CloudFront for live video streaming.

Wowza Media Systems enables organizations to harness the power of streaming by reducing the complexities of video and audio delivery to any device. Fortune 100 companies, small to mid-sized businesses, leading Content Delivery Networks (CDNs), educational institutions, and government entities in more than 150 countries depend on leading-edge Wowza software to build, deploy, and manage streaming solutions for the delivery of high-quality and engaging live and on-demand experiences. The award-winning Wowza Streaming Engine™, formerly Wowza Media Server®, is robust, customizable, and scalable server software with powerful APIs that integrate with other systems or third-party solutions to best meet organizations' evolving streaming needs.

Evostream Media Server (EMS) is very popular among customers who distribute a high volume of over-the-top (OTT) content. The EMS can be thought about like a routing or streaming device—it can change a video's format between camera, cloud, and end device with low-latency. It includes a full transcoder, as well as support for DASH, HLS and HTML5 video delivery, enabling seamless adaptive bitrate broadcasting. Evostream Media Server is designed to be compatible with broader systems like YouTube Live, Akamai, Twitch and more to facilitate broader distribution through CDNs. You can also add any type of metadata (location coordinates, heart rate data, etc.), and Evostream Media Server will deliver it in real time interleaved with the video stream, with no custom workflows required. And because it is designed for extremely high-density streams, you can distribute more video streams from each Amazon EC2 Instance for more cost-effective operations.

## Conclusion

AWS's global infrastructure footprint, pay-as-you go pricing model, and extensive set of tools and services make it an ideal platform for media workloads. Using AWS Marketplace, it's easy to find, purchase, and deploy software designed to complement AWS' elastic infrastructure and tooling to transfer, manage and deliver high-quality video content from the cloud at global scale.

View Media Solutions in AWS Marketplace at <https://aws.amazon.com/mp/media/>

Learn more about Digital Media Workloads on AWS at <https://aws.amazon.com/digital-media/>