# MEADIA STREAMING WITH IBM

CLOUD VIDEO STREAMING

DEVELOPMENT PART-2

**MEDIA STREAMING**

**What is media streaming in cloud computing**?

* Media Streaming is handling, consuming and saving multimedia content, such as audio, video and picture, using resources and software available in the cloud without manually gaining them. It is a data processing method so that it can be interpreted as a continuous stream.

**streaming media**

**What is streaming media?**

* Streaming media is [video](https://www.techtarget.com/whatis/definition/digital-video) or [audio](https://www.techtarget.com/whatis/definition/audio) content sent in compressed form over the internet and played immediately over a user's device, rather than being saved to the device [hard drive](https://www.techtarget.com/searchstorage/definition/hard-disk-drive) or [solid-state drive](https://www.techtarget.com/searchstorage/definition/SSD-solid-state-drive). During the streaming process, the media file that's played on the user's device is retrieved from a remote location and transmitted continuously over the [internet](https://www.techtarget.com/whatis/definition/Internet) using a wired or [wireless](https://www.techtarget.com/searchmobilecomputing/definition/wireless) connection.

WORKING PLATFORM

* For new streamers, YouTube live stream and Twitch are popular due to their large audience and community. However, Facebook Live and Instagram Live can also be great options for reaching a more personal and engaged audience.



* By definition, streaming platforms are on-demand online entertainment sources for TV shows, movies, and other streaming media. For example, think of services like Hulu, Netflix, Disney+, and Amazon Prime Video.
* How does streaming work? Just like other data that's sent over the Internet, audio and video data is broken down into data packets. Each packet contains a small piece of the file, and an audio or video player in the browser on the client device takes the flow of data packets and interprets them as video or audio

Media Streaming And Video Streaming Coding

from ffmpeg\_streaming import Formats

import sys

def monitor(ffmpeg, duration, time\_, time\_left, process):

"""

Handling proccess.

Examples:

1. Logging or printing ffmpeg command

logging.info(ffmpeg) or print(ffmpeg)

2. Handling Process object

if "something happened":

process.terminate()

3. Email someone to inform about the time of finishing process

if time\_left > 3600 and not already\_send: # if it takes more than one hour and you have not emailed them already

ready\_time = time\_left + time.time()

Email.send(

email='someone@somedomain.com',

subject='Your video will be ready by %s' % datetime.timedelta(seconds=ready\_time),

message='Your video takes more than %s hour(s) ...' % round(time\_left / 3600)

)

already\_send = True

4. Create a socket connection and show a progress bar(or other parameters) to your users

Socket.broadcast(

address=127.0.0.1

port=5050

data={

percentage = per,

time\_left = datetime.timedelta(seconds=int(time\_left))

}

)

:param ffmpeg: ffmpeg command line

:param duration: duration of the video

:param time\_: current time of transcoded video

:param time\_left: seconds left to finish the video process

:param process: subprocess object

:return: None

"""

per = round(time\_ / duration \* 100)

sys.stdout.write(

"\rTranscoding...(%s%%) %s left [%s%s]" %

(per, datetime.timedelta(seconds=int(time\_left)), '#' \* per, '-' \* (100 - per))

)

sys.stdout.flush()

hls = video.hls(Formats.h264())

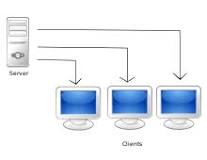
hls.auto\_generate\_representations()

hls.output('/var/media/hls.m3u8', monitor=monitor)

Characteristics of media streaming:

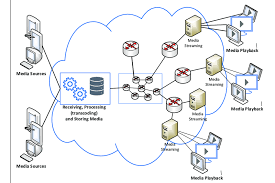
* In digital innovation management theories, five characteristics of digital innovative technologies are mentioned; homogenization and decoupling, modularity, connectivity, digital traces and programmability. Before these characteristics are explained and further elaborated with different examples of data streaming, it is important to understand the difference
* [digitalization](https://en.wikipedia.org/wiki/Digital_transformation) and [digitizing](https://en.wikipedia.org/wiki/Digitizing). The latter describes encoding from analog information to a digital format, such as light that enters the lens of a camera and transforms to a digital format/image (Yoo et al. 2012).[[4]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-4) Where digitalization refers to a more socio-technical process, where digitized techniques are applied to broader social and institutional contexts, meaning the process of converting information into a digital format, readable by some sort of computer.[[5]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-5) Within the context of data streaming this means that media for example, (information) has been digitized since the early 1990s, however the digitalization of ‘information/media’ has started to pick up since the beginning of this century.[[6]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-6)
* Now, firstly homogenization and decoupling. “Because all digital information assumes the same form, it can, at least in principle, be processed by the same technologies. Consequently, digitizing has the potential to remove the tight couplings between information types and their storage, transmission, and processing technologies”.[[7]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-7) Within the context of data streaming, this means in theory that one can stream data now from any digital device. It also reduces the demand and use of music and films on CDs for example. One of the consequences of homogenization & decoupling is the decline of [marginal costs](https://en.wikipedia.org/wiki/Marginal_cost).[[8]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-canvas.vu.nl-8) The marginal cost of data streaming is because it solely uses digital information, which can be transmitted, stored, and computed in fast and low-cost ways.[[8]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-canvas.vu.nl-8) An example of an industry that has low marginal costs due to data streaming is the [music industry](https://en.wikipedia.org/wiki/Music_industry). Producers can now digitize songs and upload them on [Spotify](https://en.wikipedia.org/wiki/Spotify), instead of paying for the creation of the physical Albums and distributing these. Another consequence is convergent user experience, meaning that previously separated experiences are now brought together in one product.[[8]](https://en.wikipedia.org/wiki/Streaming_data#cite_note-canvas.vu.nl-8)

**FUNCTION OF MEDIA STREAMING:**



* Streaming is an alternative to file downloading, a process in which the end-user obtains the entire file for the content before watching or listening to it. Through streaming, an end-user can use their media player to start playing digital video or digital audio content before the entire file has been transmitted.

**ARCHTECTURE OF MEDIA STREAMING:**

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**Benefits of Cloud media Streaming:**

* Ease of Accessibility.
* Less hardware storage.
* Ease of scalability.
* Cost Effective.
* High-level data security.
* Unlimited storage capacity.
* Seamless playback.
* Top CDN Solution.

THANK YOU