# streaming cloud ✓

The cloud streaming solution allows clients to stream their videos without owning a streaming media server. A cloud streaming solution helps clients leverage any type of streaming format and improve end user experience while reducing their time and effort to market. cloud streaming server also connected to content delivery network (CDN) servers for fast content delivery access the globe and encoding or transcoding servers for on demand media transcoding. Amazon cloud front and Amazon Elastic Transcoder are some popular services used along with a streaming service. cloud front is for content delivery with high transfer speeds, whereas Transcoder is for media transcoding. cloud streaming is designed for customers with following requirement.

a) Video streaming - Ability to stream media file.

b) On deman scalability; streaming capacity accessible whenever needed.

c) Enhance streaming performance; High and Continuous streaming over the Internet;

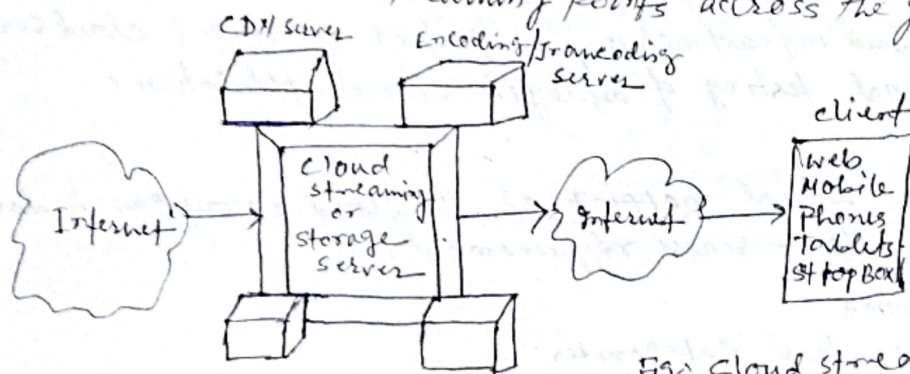d) Global reach; streaming points accross the globe.
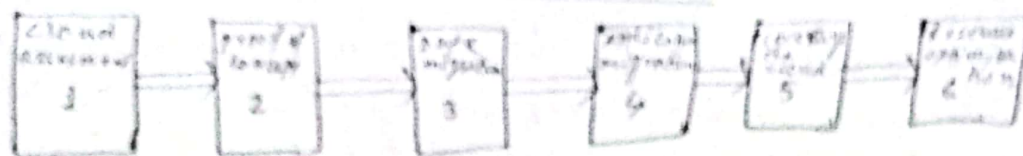


Fig: cloud streaming

## Working of cloud streaming

1. It works on an on-demand basis according to the reverse proxy technology.

2. Users do not need to deploy all multimedia files on a streaming server because of this reverse proxy technology. It work on an on-demand streaming so you just need to host multimedia files on the HTTP web server.

3. Because streaming servers are connected through a CDN network whenever end users request for streaming content, they are immediately redirected to the nearest edge streaming servers. If edge server does not have the content at that time, it immediately initiates an HTTP byte request for retrieving the content from the HTTP web server or cloud storage repository.

## Key Features of cloud streaming

1. Reliable, scalable and high performance streaming.
2. Support for all types of players.
3. Streaming is possible using native platforms.
4. No additional or costly hardware or software setup are required to enable streaming media
5. Continuous integration with cloud storage for storing multimedia files to ensure 24x7x365 availability.
6. Live streaming facility for live events using any types of streaming format.
7. Secure streaming and access policies to content, geographic or IP address location.
8. Maintenance of log delivery or FTP of streaming log files.

Best practices for Data & service migration

| cloud assessment 1 | proof of concept 2 | Data migration 3 | application migration 4 | Leverage the cloud 5 | Resource optimization 6 |

## 1. Cloud assessment

In this phase, an enterprise gathers the business requirement to move to the cloud by monitoring the cloud adoption trend in the market. The first steps is to analyze whether the business really needs cloud adoption. Cloud assessment includes finding out the type of cloud deployment model suitable to the enterprise's business demand and type of cloud service models requirement.

## 2. Proof of Concepts

Once an enterprise identifies the right cloud provider and service it's time to validate the business case on actual cloud environment. The functionality can be tested with a small size cloud instance and a small database. It's mandatory to test the capacity of the cloud service provider and the performance of the migrated application. some test required while building a proof of concept.
- Testing of cloud infrastructure — Testing of offered cloud services
- Non-functional testing of deployed cloud application.

## 3. Data Migration

In this phase, the actual mapping of the cloud resources is done on the basis of the business requirement.

## 4. Application migration

It divided into two categories:

a) Forklift migration strategy:- If an enterprise wished to move its application in one shot rather than in parts, then the forklift strategy is used. This required very minimal code changes and is preferred for traditional applications since is stateless and tightly coupled application.

b) Hybrid migration strategy:- Using this strategy application can be moved in parts. This is mostly suitable for large infrastructure system.

## 5. Leverage the cloud

Once an enterprise has successfully migrated to the cloud, run the required tests and is assured that everything is working as expected. After that analyze how leverage benefits the cloud computing, like load balancing, auto scaling, content caching, elasticity and automation.

## 6. Resource optimization

It is a continuous process. It should always strive to lower its costs and increase system performance, whenever possible. To do this, various cost and capacity - assessment tools are available.

# CLOUD MIDDLEWARE

```
                                    ┌──────┐
                                    │DATABASE│
                                    └──────┘
                                         ┌──────────┐
                                         │  SERVER  │
                                         └──────────┘
  ┌────────┐      ┌──────────┐
  │        │      │ MIDDLE-  │      ┌──────┐
  │ CLIENT │      │  WARE    │      │DATABASE│
  │        │      │COMPONENT │      └──────┘
  └────────┘      └──────────┘      ┌──────────┐
                                    │  SERVER  │
                                    └──────────┘
```
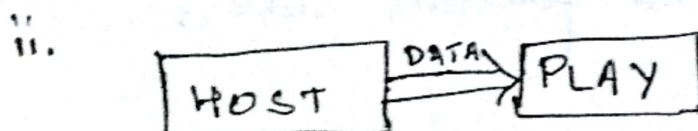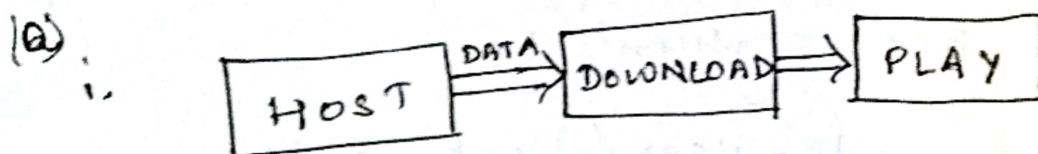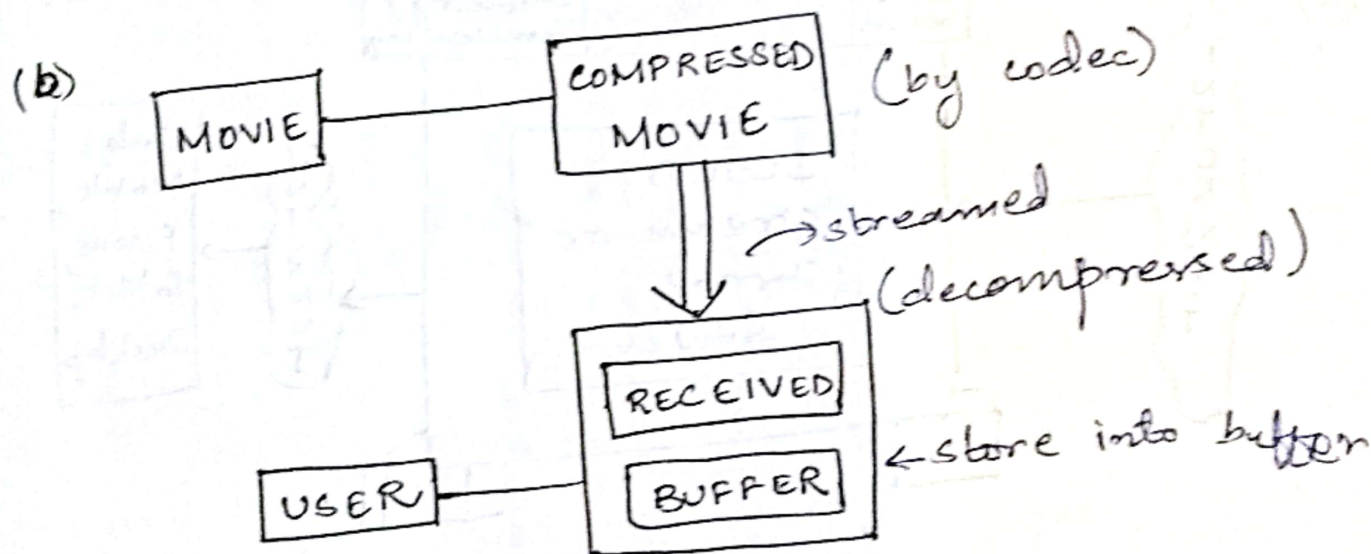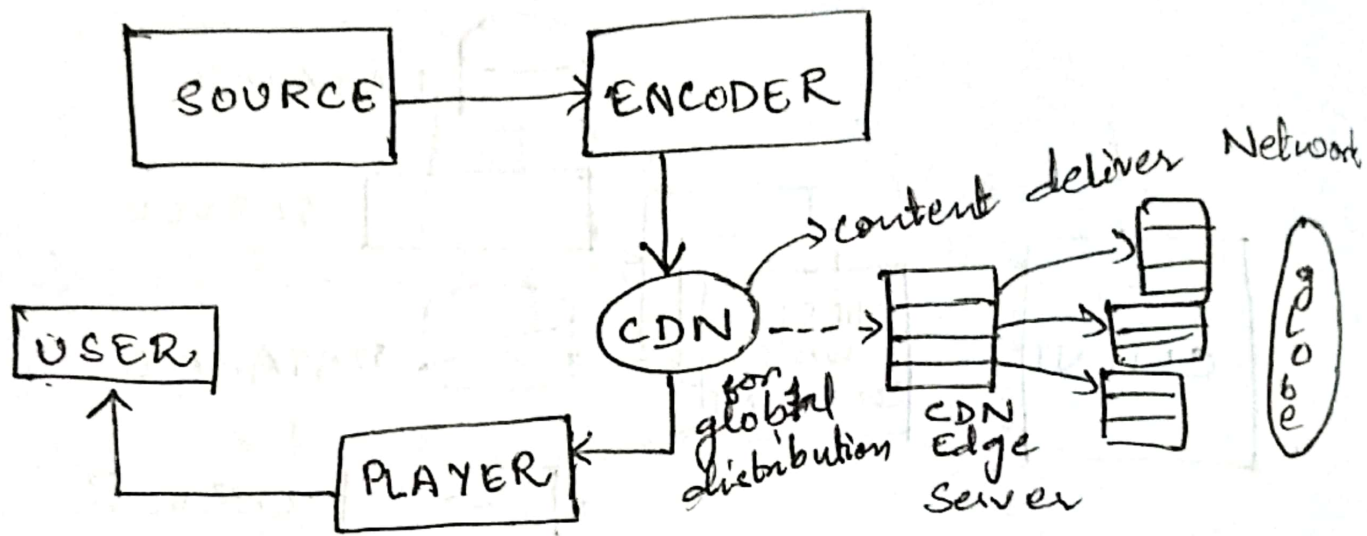
## CLOUD STREAMING

(b)

```
┌────────┐        ┌────────────┐  (by codec)
│ MOVIE  │────────│ COMPRESSED │
└────────┘        │   MOVIE    │
                  └────────────┘
                        │      →streamed
                        │      (decompressed)
                        ▼
                  ┌────────────────┐
                  │ ┌────────────┐ │
                  │ │ RECEIVED   │ │
                  │ └────────────┘ │
  ┌────────┐      │ ┌────────────┐ │ ←store into buffer
  │ USER   │──────│ │  BUFFER    │ │
  └────────┘      │ └────────────┘ │
                  └────────────────┘
```

(a)

i.
```
┌────────┐  DATA  ┌──────────┐      ┌────────┐
│  HOST  │───────→│ DOWNLOAD │─────→│  PLAY  │
└────────┘        └──────────┘      └────────┘
```

ii.
```
┌────────┐  DATA  ┌────────┐
│  HOST  │───────→│  PLAY  │
└────────┘        └────────┘
```

(c)



SOURCE → ENCODER → CDN → content delivery Network

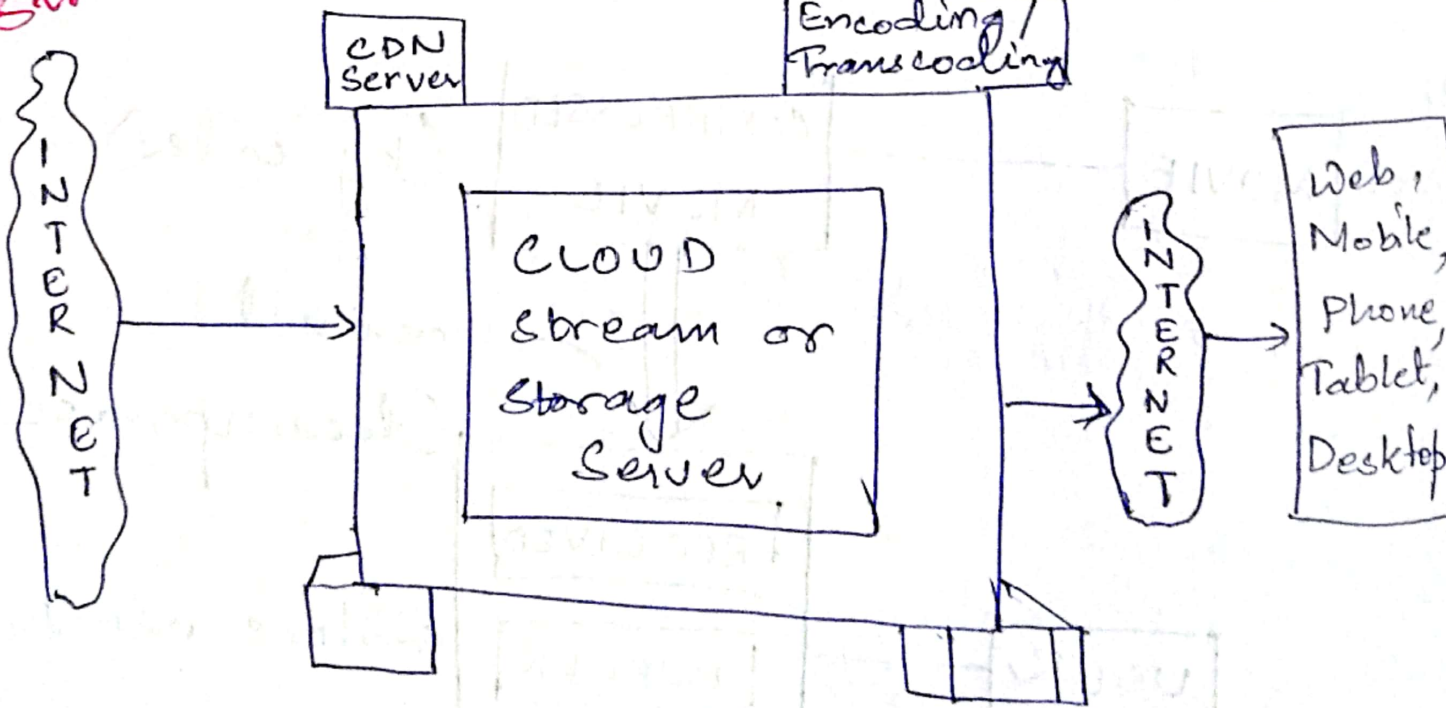CDN --- → CDN Edge Server → globe

for global distribution

CDN → PLAYER → USER

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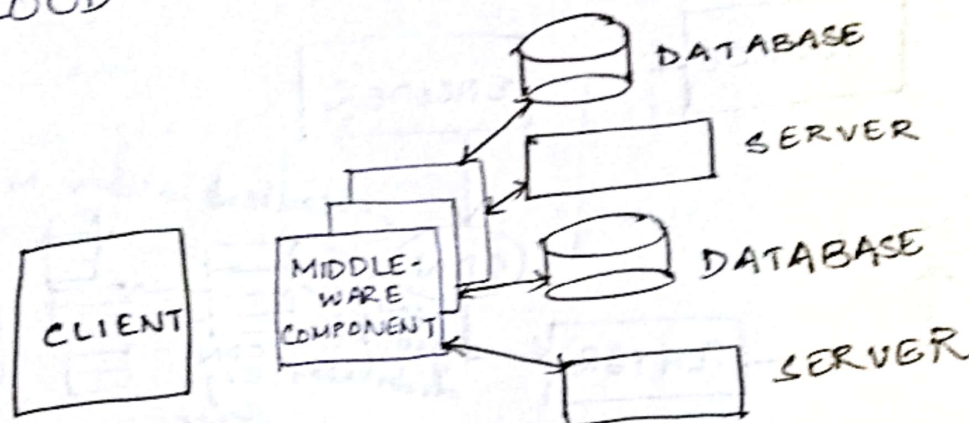
Cloud Stream

not for streaming

[to access global data]

[Encode & Transcode ⇒ compression & vice versa]

Encoding/Transcoding

(d)

CDN Server

INTERNET → CLOUD stream or Storage Server → INTERNET → Web, Mobile, Phone, Tablet, Desktop

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Cloud Middleware :