



## ❖ **CONTENT DELIVERY NETWORK (CDN):**

- CDN can stand for content delivery network or content distribution network.
- A content delivery network (CDN) is a network of interconnected servers that speeds up webpage loading for data-heavy applications.
- When a user visits a website, data from that website's server has to travel across the internet to reach the user's computer. If the user is located far from that server, it will take a long time to load a large file, such as a video or website image. Instead, the website content is stored on CDN servers geographically closer to the users and reaches their computers much faster.
- It can deliver two types of content: static content and dynamic content.

### **STATIC CONTENT:**

- Static content is website data that does not change from user to user. Website header images, logos, and font styles remain the same across all users, and the business does not change them frequently. Static data does not need to be modified, processed, or generated and is ideal for storage on a CDN.

### **DYNAMIC CONTENT:**

- Dynamic content such as social media news feeds, weather reports, login status, and chat messages vary among website users. This data changes based on the user's location, login time, or user preferences, and the website must generate the data for every user and every user interaction.

## ➤ **BENEFITS OF CDNS:**

### **REDUCE PAGE LOAD TIME:**

- Website traffic can decrease if your page load times are too slow. A CDN can reduce bounce rates and increase the time users spend on your site.

### **REDUCE BANDWIDTH COSTS:**

- Bandwidth costs are a significant expense because every incoming website request consumes network bandwidth. Through caching and other optimizations, CDNs can reduce the amount of data an origin server must provide, reducing the costs of hosting for website owners.

### INCREASE CONTENT AVAILABILITY:

- Too many visitors at one time or network hardware failures can cause a website to crash. CDN services can handle more web traffic and reduce the load on web servers. Also, if one or more CDN servers go offline, other operational servers can replace them to ensure uninterrupted service.

### IMPROVE WEBSITE SECURITY:

- Distributed denial-of-service (DDoS) attacks attempt to take down applications by sending large amounts of fake traffic to the website. CDNs can handle such traffic spikes by distributing the load between several intermediary servers, reducing the impact on the origin server.

### ❖ AMAZON CLOUDFRONT:

- It is a global **Content Delivery Network (CDN)** service that securely delivers content to your viewers with **low latency** and **high transfer speeds**.
- It speeds up distribution of your **Static & Dynamic** web content, .html, .css, and image files, to your users.
- CloudFront delivers your content through a worldwide network of data centers called **Edge Locations**.
- CloudFront delivers content by leveraging the AWS global network that connects AWS edge locations to AWS Regions.

### EDGE LOCATION:

- Edge Location is an AWS Data center which does not contain AWS services. Instead, it is used to deliver content to parts of the world.
- When a user requests content that you're serving with CloudFront, the user is routed to the edge location.
  - If the content is already in edge location with the lowest latency, CloudFront delivers it immediately.
  - If the content is not in that edge location, CloudFront retrieves it from an origin that you've defined.

- **You can use Amazon CloudFront to do these tasks:**
- Deliver data through 450+ globally dispersed points of presence (POPs) with automated network mapping and intelligent routing.
- Improve security with traffic encryption and access controls, and use AWS Shield Standard to defend against distributed denial-of-service (DDoS) attacks at no additional charge.
- Customize the code you run at the AWS network edge using serverless compute features to balance cost, performance, and security.
- Scale automatically to deliver software, game patches, and IoT updates with high transfer rates.

### ➤ **BENEFITS OF CLOUDFRONT:**

#### **REDUCE LATENCY:**

- Reduce latency by delivering data through 600+ globally dispersed Points of Presence (PoPs) with automated network mapping and intelligent routing.

#### **IMPROVE SECURITY:**

- Improve security with traffic encryption, access controls, VPC origins, and use AWS Shield Standard to defend against DDoS attacks at no additional charge.

#### **CUT COSTS:**

- Cut costs with consolidated requests, customizable pricing options, and zero fees for data transfer out from AWS origins.

#### **CUSTOMIZE THE CODE:**

- Customize the code you run at the AWS content delivery network (CDN) edge using serverless compute features to balance cost, performance, and security.