

## **Parallel and Distributed Computing**

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P18-0030

### *Content Delivery Network (CDN) - Cloudflare*

#### **About CDN:**

Content Delivery Network is a network of servers which are distributed across the globe to provide fast content delivery to users. It is widely used because originally web hosting sites are relatively slow, they take up a lot of time to load the javascript or other files, as a result the web pages are loaded late and it decreases the performance of website and effects the viewers.

#### **Working:**

To improve performance, Cloudflare has distributed their servers across the globe in order to make the data nearer to users fetching it. When the user clicks on a website's link, the request is sent to the closest CDN server, if the file is available on that server it responds back with it. In case the requested file is not on the closest server, it looks for it on other CDN servers. In case no server has the requested file CDN server itself acts as request proxy to the origin server and fetches the data, it then saves the data in its cache to serve it again if need be.

#### **Advantages:**

- Cloudflare's CDN loads webpages faster with the help of caches. It maintains caches and stores the webpages visited in the cache so when the user or some other user wishes to see that webpage again it can be fetched from local cache which takes a lot less time as compared to the webpage that is fetched from the origin server.
  - If CDN doesn't maintain caches it would have to fetch webpages from the origin server every single time which effects the bandwidth and increases the financial load on the website holder because website holder pays to the web hosting site according to the bandwidth.
  - CDN has distributed servers in different areas so if the traffic increases from the normal amount then it can handle it easily by distributing the load between its servers. It minimizes risk of huge traffic at origin server. The distribution of servers also reduces delay in loading of webpages.
  - Cloudflare can also provide extra security to the data that is transmitted and avoid DDos attacks as it has network capacity far more than the biggest DDoS attack in the history.
  - CDNs can also deliver 4K or HD quality videos, audio streams, software downloads, data records. Any data that can be digitized can be sent through a CDN server.
  - Cloudflare's takes into consideration the origin web server's cache headers.
  - In Cloudflare, user can customize the cache options according to the need of its website or resource.
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