**Google Cloud CDN**

**Cloud CDN overview**

Cloud CDN (Content Delivery Network) uses Google's global edge network to serve content closer to users, which accelerates your websites and applications.

Cloud CDN works with the global external HTTP(S) load balancer or the global external HTTP(S) load balancer (classic) to deliver content to your users. The external HTTP(S) load balancer provides the frontend IP addresses and ports that receive requests and the backends that respond to the requests.

Cloud CDN content can be sourced from various types of backends:

* Instance groups
* Zonal network endpoint groups (NEGs)
* Server less NEGs: One or more App Engine, Cloud Run, or Cloud Functions services
* Internet NEGs for external backends
* Buckets in Cloud Storage
* In Cloud CDN, these backends are also called origin servers. The following figure illustrates how responses from origin servers running on VM instances flow through an HTTP(S) load balancer before being delivered by Cloud CDN.

**Example of a CDN**

CDNs are in use by content and application owners, such as e-commerce sites, media properties, and cloud computing organizations; to improve user experiences, cut abandonment rates, boost ad impressions, raise conversion rates, and reinforce customer loyalty. Using a content delivery network can also help to improve online security; for example, by absorbing and mitigating a distributed denial-of-service (DDoS) assault.

**CDNs for Network Service Providers**

* Cloud computing environments save data on internet servers rather than on your computer’s hard disc. For end-users, this may be a handy and dependable method for web-based email, file storage, file sharing, and data backup. It is also how consumers gain easy access to web programs such as social networking networks. Additionally, Cloud environments consist of hundreds of points of presence (PoPs); with servers clustered in regional locations.
* For businesses, the cloud provides lower upfront costs and the ability to scale application infrastructure as needed; expand into new geographies without investing in costly new infrastructure; and leverage related cloud services to build the most cutting-edge digital experiences or enterprise applications.
* While the cloud has numerous advantages, enterprises frequently incur unanticipated expenses when developing or transferring applications to the cloud. In addition, the dynamic nature of cloud migration initiatives might make it challenging to maintain digital experience performance and availability.

**CDN Functionalities**

A content delivery network (CDN) is a network of servers that distributes material from an “origin” server throughout the world by storing content near to where each end-user is accessing the internet via a web-enabled device. The requested material is first saved on the origin server, then duplicated and stored elsewhere as needed. Additionally, Latency decreases by caching material physically near to where the user is and lowering the distance it needs to travel.

By dispersing the load geographically over numerous servers, this approach reduces stress on the origin servers. Content delivery networks are “the edge” too. Furthermore, at the network’s perimeter, the physical and digital worlds collide and interact at the edge. With hundreds of PoPs spread around the world and unrivalled capacity and scalability, CDNs bring end-users closer.

This means that no matter where you are on the globe, whether you are using your mobile phone; tablet, computer, or other internet-enabled devices, the material you want to view will load faster. Because of a content delivery network, you may be viewing a film on your sofa at home; or checking in for a trip on another continent and have the same seamless digital experience.

**BENEFITS**

* **Global distribution with Anycast IP**

With edge caches peered with nearly every major end-user ISP globally. With Anycast architecture, your site gets a single global IP address, providing consistent performance worldwide with easy management.

* **Supports hybrid and multicloud architecture**

Cloud CDN enables customers to deliver content hosted on-premises or in another cloud over Google’s high-performance distributed edge caching infrastructure.

* **Optimized for last mile performance**

Cloud CDN supports modern protocols originally developed at Google, like HTTP/2 and QUIC, to improve site performance for mobile users and/or users in emerging markets.

**Key features**

* **Origin and backend support**

Pull content from any HTTP-capable origin, including Compute Engine, Cloud Storage and Google Kubernetes Engine backends and origins outside of Google Cloud, such as storage buckets in other clouds.

* **Caching**

Configure caching behavior by origin that allows you to have fine-grained control over cache keys, TTLs, and other caching features based on the content type being served.

* **Route matching and origin selection**

Cloud CDN uses Cloud Load Balancing to provide comprehensive routing and configuration capabilities at each edge location.

* **Modern protocols**

Protocols such as TLS version 1.3, QUIC, Global Anycast directly benefit the user experience by delivering render-blocking web content more quickly and reducing playback start time and rebuffering when serving video.

* **Logging and metrics**

Understand how traffic is being served by Cloud CDN with Cloud Logging and Cloud Monitoring.

* **Security**

Applications can use request protocols such as Managed SSL (TLS) certifications, customizable SSL policies, and Audit logging.

* **Content authentication**

Signed requests let you serve responses from Google Cloud's globally distributed caches, even when you need requests to be authorized.

**Pricing**

* When Cloud CDN serves your content, you’re charged for bandwidth and HTTP/HTTPS requests. On cache hits, you pay for cache egress bandwidth. On cache misses, you additionally pay for cache fill bandwidth.
* If you plan to serve a large volume of content from Cloud CDN (> 500 TB per month), you can contact us to discuss volume-based discounts.