CONTENT DELIVERY NETWORK

ELIMINATE TECHNICAL JARGON & SELECT THE IDEAL CDN

zeno CLOUD

zeno CLOUD

Content

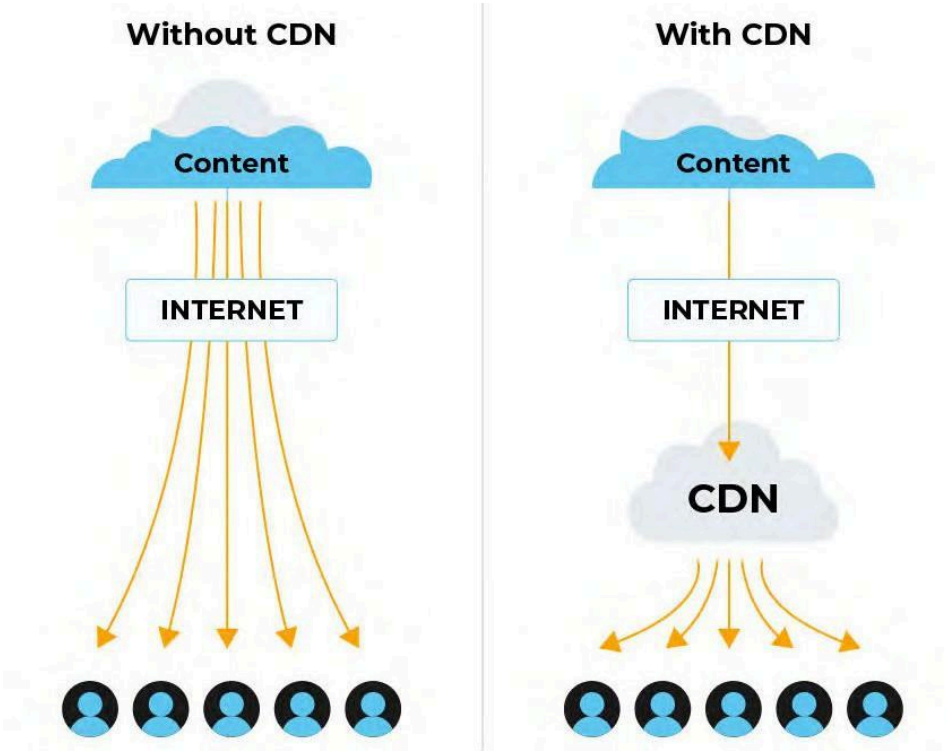
What is a Content Delivery Network?

A CDN or Content Delivery Network is a globally distributed web server and Points of Presence network to accelerate content delivery.

Instead of storing the content in one place (traditional method), that is, the central server, CDN method is far more efficient. A copy of the content is replicated and stored at the multiple edge server of CDN. The browser does not have to fetch the data from the central location but from the server that is geographically closer to the user.

The process stops bottlenecks happening near the central server by providing the data to users from servers near them.

CDN is also known as Distribution Network, which again means distributing the content to the multiple locations and then providing the content to the users.



The importance of the loading speed of the webpage is not unknown. Google ranks fast loading sites, and users like to interact with the fast loading pages.

Loading Speed is directly proportional to User Experience.

When multiple requests are being made to fetch the data from one place, the loading speed gets slow, which negatively affects the User Experience.

To understand it more clearly, you have to understand Network Latency.

What is Network Latency?

Network latency is the time taken by the data to transfer from the source to the destination.

It is measured in milliseconds. Latency depends on the distance. The more the distance between the server and browser, the more will be the latency.

The best way to reduce latency is to decrease the distance between the source and the destination.

This is the primary function of CDNs.

In simpler words, CDN's purpose is to improve user experience by enhancing network routing for the resources.

How CDN functions – explained in two points:

Distribute the critical content to multiple data centers located globally so that the user can access it from the nearest servers

Optimizing the servers for the content so the content can transfer more efficiently

CDNs also save the cost for the content provider by offloading the traffic that is served directly from the site's origin infrastructure. Furthermore, CDN secures the site by being effective against the DDoS attacks.

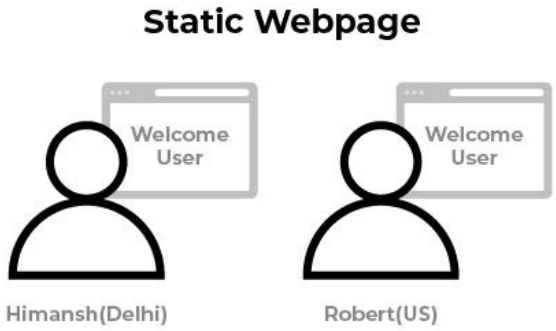
Optimizing the servers for the content so the content can transfer more efficiently

CDNs also save the cost for the content provider by offloading the traffic that is served directly from the site's origin infrastructure. Furthermore, CDN secures the site by being effective against the DDoS attacks.

As said, again and again, the location of the server matters. CDN solves this problem by presenting the content near to the user.

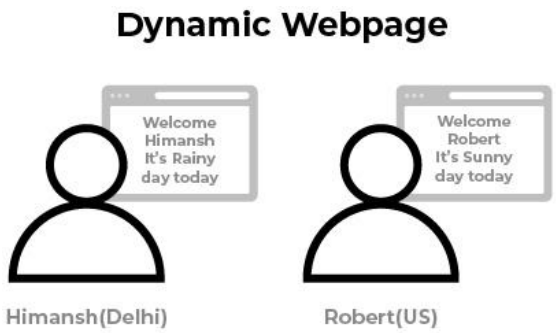
Static vs. Dynamic Content

Static Content does not change regularly. A rough example would be the newspaper. Once published, the content of the newspaper does not modify. It doesn't matter who picks it, or who reads it; the articles, images, and content would be the same for everyone.



Static content remains the same every time it is delivered to users, irrespective of the person loading the web page. HTML files and images are examples.

Dynamic content changes based on factors that are specific to the users, such as time of visit, location, device, webpage. The dynamic page is different, and it does adapt and change as the user continues using it.



Facebook feed, web magazine, and social media are prime examples of dynamic content.

Dynamic webpages are not cached as static HTML files. A server-side script generates the HTML file in response to events, such as user interactions with the webpage. Then the HTML file is sent to the web browser.

As servers generate the dynamic content, it has to be served from origin servers.

It was not possible to cache the dynamic content for a long time. But with the new technologies, the caching of dynamic sites has become possible. The caching has reduced the latency and improved the user experience.

History of Content Delivery Network

Akamai Technologies Inc, based in Cambridge, Massachusetts, built the first Content Delivery Network.

They are one of the most significant leaders in the CDN market. 15-30% of global internet traffic is going through Akamai CDNs. With over 2200Points of Presence in 120 countries, Akamai is a giant CDN provider.

However, it does not happen in a day.

The internet of the 90s was very different at various points. The user bandwidth was low, cost of network bandwidth, video formats, capabilities of browsers, web server architectures, security, — at every aspect, the internet was different at the time the CDNs started.

Although, the industries went online at that time, and the internet grew and evolved from something that was used by geeks to something that is used by the masses. The AOL and email attracted the people, and people started using it, which helped the web browsers to grow, and then the early eCommerce sites were launched.

In a short time, the internet and web do not remain a simple communication tool, but it transformed into a dock on which most aspects of modern society and its industries are sailing.

Content Delivery Network has the same story. They started as a bunch of servers around the world, connected with the internet. They used to cache and serve the content with smart software routing requests to the appropriate server.

The most significant shift came due to the drastic change in the consumption behavior of the users. The consumer expectation from the web has increased so much, and the way users are consuming the internet has made the CDN an essential part of the eCommerce store and media sites.

As the demand for the CDN rises, the CDN starts to upgrade. So came the security services and advanced caching techniques, such as dynamic page rendering. The users began consuming the content via smartphones, and image Content Delivery Network became a thing.

All these innovations and enhancements, the CDN with few servers evolved into a full-fledged service provider that does a lot more than just caching and serving content. CDNs are continuously changing with the user's pattern of consuming.

It will not be wrong to say that CDNs play a significant role in making the internet what it is today. CDN could be considered as one of the best technologies that help the internet to grow.

Since the launch of the first CDN by Akamai, the delivery of content has increased and diversified a lot. Now, there are audio, video, images, text, and various content formats, and CDN manages everything.

Evolution of Content Delivery Networks:

Zero Generation:

The starting point for CDNs. The first period was about setting up the servers, improving the caching, and caching proxy deployment. It was the time of infrastructure development, mirroring, and caching.

First Generation:

The focus of the first generation CDNs was delivering the two types of content on the web: dynamic and static content. The mechanism was simple: creating and replicating the content stored on the servers and then using intelligent routing to serve the content.

Second Generation:

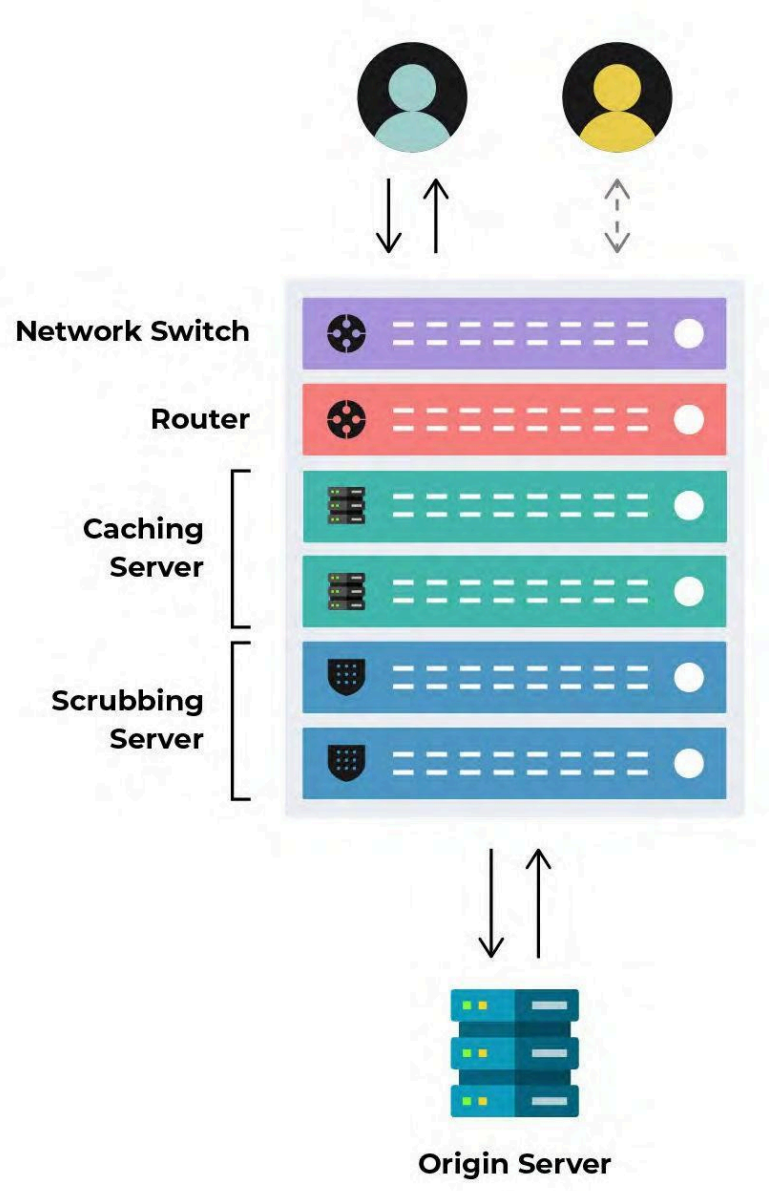
Video-On-Demand was the main focus of the second generation CDNs. The video streaming and audio content were getting popular among the users and news services, and the web was the channel to do it.

With the delivery of video and audio via CDN, it became easier to consume the content via smartphone, so, in a way, the third generation helped the content providers to cater to mobile users.

Architecture of Content Delivery Network

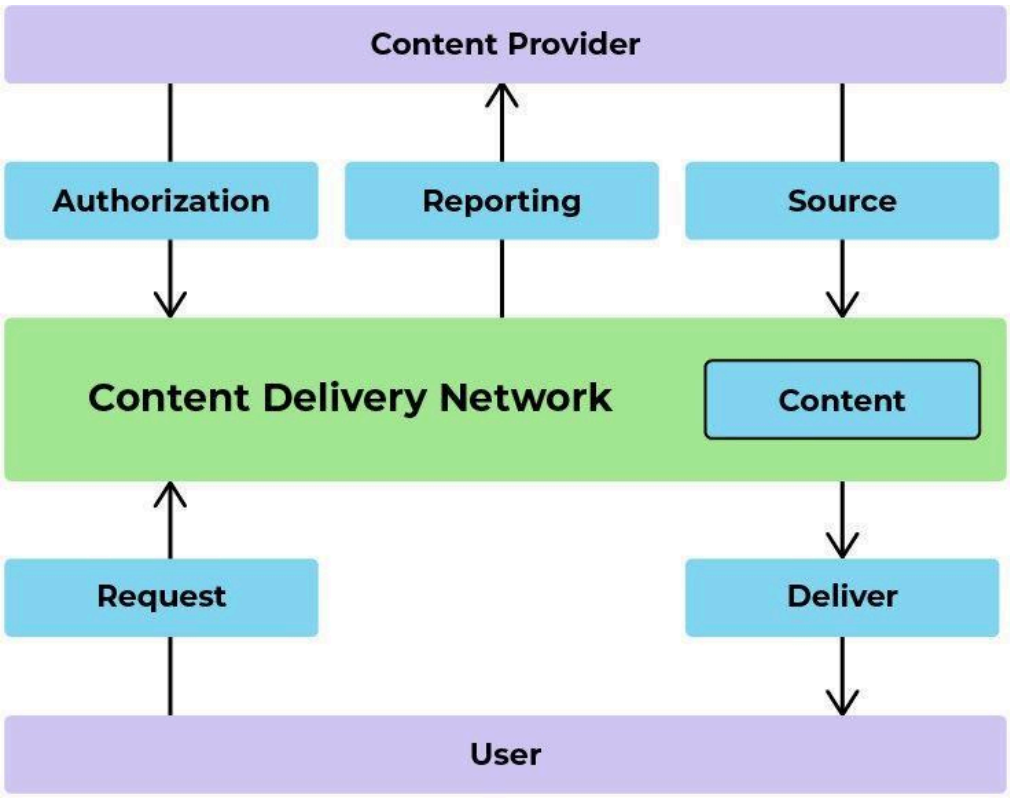
The building blocks of the Content Delivery Network infrastructures are PoPs (points of presence). They Are also known as Edge Servers. CDN PoPs are data centers responsible for establishing communication with the user in their geographic range.

The primary function is to bring the content closer to the user. Using Point of Presence to serve content reduces the round trip time, and the website loads fast for the visitors.



Each PoP contains multiple servers and routers to perform the caching, creating connection and optimization. Many CDNs provide security solutions, and in that case, the DDoS scrubbing servers are also present in the PoPs.

Let's see a simple model of a CDN:



Content Provider: The site or app, or entity that is providing the content. Like Facebook, or YouTube.

Authorization: The content provider has to permit the CDN to deliver its content. It is done via the CDN dashboard and changing the DNS.

Authorization: The content provider has to permit the CDN to deliver its content. It is done via the CDN dashboard and changing the DNS.

Source: Copy of the content sent by the content provider. This copy is saved by the CDN and served to the user.

Content: The actual content that is allowed to send to the user.

Request: The user's browser sends the request to the content provider to view the content. However, the CDN works as a middleman and intercept the request and respond with the cached content.

Deliver: CDN read the request and deliver the requested content

User: The end-user requesting the content from a content provider

This is the basic structure of a Content Delivery Network.

Scattered CDN vs. Consolidated CDN

The primary aim of the Content Delivery Network is to minimize latency. The location of PoP plays an important part in the CDN architecture.

The CDN has made agreements with other CDNs and significant network carriers. For the optimal connectivity, you would like to set your PoP at the place where all the providers' peers intersect.

These agreements and prime locations allow CDNs to reduce the round trip times.

Having a quality WordPress hosting is the first step because everything comes after this. If the server response time is large, no other improvements can improve the loading speed.

To measure the Server Response Time, you can use the Time to First Byte metric.

CDN follow two types of topology:

- Scattered CDN
- Consolidated CDN

Scattered CDN

In Scattered CDN Topology, a high number of medium and low capacity PoPs are scattered densely in a selected geographic location. The thought behind this topology is to get the optimal physical proximity.

That's why the PoPs are located close to each other, sometimes even a few dozen miles apart. When the copper was used as the wiring, the early CDN relied on the scattered model.

New CDNs, deployed during a transition period between copper and fiber wiring, worked on the scattered model. With time, the fiber wires become convenient to use; CDNs found that the marginal benefit of having a scattered server is not much. With new customization features added by the CDNs, it was complicated to configure deployment in scattered CDN.

Pros

- Physically close PoPs minimizes network latency
- Works efficiently in low connectivity areas
- Easy to deploy small PoPs

Cons

- High maintenance costs
- Multiple connection points prolong RTT

Consolidated CDN

In Consolidated CDN, a small number of high-capacity PoPs are strategically set up at the major data centers and cities. This type of topology is used to serve a broader range of users. Consolidated CDN is a modern approach to content delivery, made possible due to enhanced internet connectivity.

The centralized infrastructure is the most significant advantage of consolidated topology. It allows the CDN provider to maintain and deploy configuration quickly and efficiently. Moreover, high-capacity PoPs offer more durability during DDoS attacks.

However, consolidated topology is not good enough for the low connectivity areas. The deployments are more complex, and it is complicated to expand the networks.

Pros

- Better DDoS Mitigation
- Agile configuration deployment
- Low maintenance cost

Cons

- Not much effective in low connectivity areas
- Hard to deploy

Benefits of Content Delivery Networks

Content Delivery Network improves web performance by bringing the content closer to the user. But that is not the only advantage of CDN.

Advantages of CDN:

1. Boost in Response Time
2. CDN enables Global Reach
3. CDN Saves Money
4. 100% Percent Availability
5. Decrease Server Load
6. DDoS Protection
7. Analytics and Report

Boost in Response Time

An eCommerce store can see a 7% drop in sales if the speed of the web page gets 100 milliseconds slower. Larger the eCommerce store, larger would be the loss of the sales.

CDN makes sure that the store loads at the optimal speed. Latency does not become a hindrance to good user experience.

CDN enables Global Reach

62% of the World is using the Internet for now, and the growth rate is over 1000% in the last decade. The World is growing online, and the Internet is becoming more and more readily available.

The Internet enabled the user to access the global content. CDNs are helping the content providers to make their content available all across the globe. WIth cloud acceleration and local POPs, CDNs eliminate the latency issues during long-distance transactions and content delivery.

CDN Saves Money

CDN cuts down the cost of investing in an infrastructure needed to maintain the speed of the site all around the World.

You have to buy the hosting infrastructure for your site or app in a foreign country to deliver the content in that country. Else there will be network issues, latency problems, and so much downtime.

Instead of buying hosting or investing in infra, you can use CDN, which offers an extensive network of POPs at one platform.

If the company is on a tight budget, using CDN is a wise decision. Even big companies such as Shopify, IBM, Loreal, etc. use CDNs. Not only cost, but CDNs also cut down the lots of bureaucratic paperwork needed to set up hosting in a foreign country.

100% Percent Availability

The content of the app/site is distributed to many regions. So if the website does not open from one server, CDN quickly redirects the user to the other server.

So the site always remains life for the user. Even when there are hardware issues and network problems, CDN keeps the site live with its cache memory.

Decrease Server Load

Instead of offloading the content to a single server, and then delivering the content to all the users from that server, CDN distributes the content to multiple servers and then serves the content from the server that is close to the user.

Due to this, the load on the server reduces, and the overall delivery cost also decreases.

DDoS Protection

A hacking attack does not only affect the business economically and financially, but it tarnishes the reputation of the organization. If it is the eCommerce site, a successful hacking attack reduces the trust users had.

Customers put their debit card, or credit card information into the company's site because they trust it.

The hackers are getting creative day by day, and the web is also upgrading to fight them. There are various methods a site has to follow to keep their site secure, such as SSL certificate.

In DDoS attacks, the attackers flood the site with lots of traffic, all coming from different sources (victims who don't know that their machine is being used to DDoS attacks). You cannot block IP addresses, and you cannot differentiate between the real and bot visits.

CDN mitigate the DDoS attacks and protect the origin server while keeping the site live.

Analytics and Reports

When you allow the Content Delivery Network to serve the content on behalf of your site or app, CDN starts storing everything that is happening with your content and website.

CDNs offer lots of analytical information that you can analyze to find the trends and the consuming habits of your visitors.

You can observe the real-time load statistics, active regions, people of each region, what content is getting most served, and much more with the CDN.

Once CDN is added to the server, the usage logs are deactivated, and you can not get server reports. Overall, after an in-depth study of the reports, one can find many ways to optimize the site further for the user experience.

Disadvantages of CDN

There are a few disadvantages of CDN that you should know before using one.

1. Costly Bandwidth
2. Sensitive Information
3. Integration
4. SEO
5. Extra Step

Costly Bandwidth

On the one hand, it saves money, but you have to pay for the CDN service.You can use free CDNs, but they will not do enough for the large web sites.

Even the least high-quality CDN prices start from $0.10 per GB bandwidth. This is much more than the amount of bandwidth the regular hosting provides.

Sensitive Information

Storing sensitive information on the site will have potential threats to privacy. As everything you upload to the server is getting replicated to the servers all around the globe.

Moreover, those servers are not even yours; you are only hiring them.

Integration with CDN

Popular CMS and platforms such as WordPress, Drupal, Magento, etc., have tools and plugins that integrate them with CDN. But for the custom applications, CDN means adding lots of codes and deploying extra configurations.

SEO Problem

ServerGuy did a case study with CloudFlare and a site of our client to check the impact of the CDN on the traffic and ranking.

Our results showed that the ranking was down when we enabled the CDN.

However, the results are debatable, but the CDN integration impacts SEO.

Extra Step

Content Delivery Networks are like an extra step you are adding between the user and the content.

It is like creating one more “point of failure.” The site will not load if the CDN goes down or any issues arise. Although there are few cons of CDN, the advantages of CDN outweigh the disadvantages. And despite everything, we still recommend you to use CDN.

However, you should choose a premium quality of Content Delivery Network.

How to choose the Best CDN?

A CDN company that supports the needs of the organizations with ease is the best one for the organization. But to choose the best one is not that easy due to the continually changing requirements.

A CDN that stays ahead and continually improves its features enhances the delivery of various types of content to multiple types of devices while keeping the security in mind — would be ideal for the business. Such CDN will also help the business to grow and increase sales.

But the question arises:

What is the best CDN? Or. How to choose a CDN Provider?

There is not any single factor that makes CDN "best CDN." A CDN that is working excellent for one site may not work that great with yours.

So it depends on your requirements and business.

Here are the factors that you should look for before choosing any CDN.

1. Organization's needs
2. Geography
3. Speed
4. Pricing
5. Security
6. Support
7. Trial

As the demand for the CDN rises, the CDN starts to upgrade. So came the security services and advanced caching techniques, such as dynamic page rendering. The users began consuming the content via smartphones, and image Content Delivery Network became a thing.

#1 Organization's Needs

The first thing is to understand the needs of the organization. Before looking into the market and comparing the CDNs, make a list of features you need from the CDN.

You have to analyze your situation and traffic data. Ask questions to yourself.

- What kind of website is it?
- Are the competitors using CDN?
- Where is targeted traffic?
- What type of content do you need to serve to the users?
- What is the budget?
- What function do you need most from the CDN?

You have to make a complete report of your needs and requirements. Answering these questions will help you to make the right decisions.

Not all CDNs are the same.

Some focus on delivering the content, while some focus on security. There are CDN for images, text, and videos, all together and separately.

So understanding your requirement comes first.

#2 User Geography

Geographical location is everything while considering the CDN. The first thing is knowing where your audience is located. With the audience, I mean the customers, the visitors who are buying something or help generate revenue.

Is the traffic (that brings revenue) local, regional, or global?

After determining the location, you have to look for the CDN with Points of Presence in that area. And each PoP should have enough capacity to manage the fast delivery of your content to the users. Also, CDN must have connections with the local ISPs and regional networks. The more CDN is connected with local networks and carriers; quickly, it will be able to serve the content.

For local audiences, you don't need a Global CDN. You can use the CDN that has PoPs at your location. But if your targeted location is in another country, then you have to look for if the CDN is following that country's laws and regulations.

For example: Have to deliver content from the UK to China.

#3 Speed

After location, the most critical aspect to look at while making the decision is the CDN's speed. After all, it is one of the primary focus and reasons for using the CDN. To deliver the content as quickly as possible.

Essential factors to measure CDN speed are:

Response Time: time taken by the server to respond to the browser requests
Latency: Time taken by the content to transfer from one location to another
Throughput: consistent stability of the delivered content

The CDN provider must have an extensive network of PoPs. Because the more servers the CDN has installed all around the World, the faster it can deliver the content. A high number of CDN servers also improves reliability. More servers mean less redundancy and more scalability.

If you are going to use CDN, the user will get the content via CDN, not from your origin server. So the CDN will be accountable for the accessibility of the content.

Hosting companies also offer CDN with their hosting. Often, CDN becomes partners of premium hosting companies.

ServerGuy is partnered with CloudFlare and Sucuri, and if you take our hosting, you can enable the CDNs on your site.

#4 Pricing

There must be a balance between the cost and the performance of the CDN.

Again it depends on your business. A few seconds of delay can reduce the conversion by more than 20%. So, if you are running a mission-critical site or eCommerce store during a festive season, and a few milliseconds delay can reduce your sales a lot, then you might want a CDN with high performance.

If the millisecond's delay does not matter much, you can choose a CDN with overall excellent performance and low cost. But to check the importance of the few milliseconds on your sales, you have to do research and study the conversion reports.

It also depends on the time and season. The store does not sell the same amount of product all the time; however, sales increase by many folds during the festival.

You have to plan the requirements of CDN accordingly.

#5 Security

Security should also be a significant factor when you are looking for CDN. You will permit the CDN to serve content on your behalf, and the CDN will have a copy of your content on their servers. This asks for the CDN that is secure and can protect your content.

Encryption of the content makes sure that the customer's identity and information, transactions, and the data of the site are safe during the transfer, for example, HTTPS.

You should make sure that the CDN can handle the severe DDOS attack. DDoS attacks are the most common attack the cloud vendors have to fight. Can CDN serve the content properly during the attacks and protect your origin server?

Also, the CDN should be compliant with your content. If the content is sensitive information, then you have to look for the CDN that specializes in delivering that type of content.

Banks, Government agencies and large financial institutions have to opt for the CDN that cater specifically to them.

If the major concern is security, then look for the CDN that provides the most protection.

#6 Support

Last but not least is the support provided by the CDN. If the support is not good, it will be challenging to carry the partnership for the long term.
Your technical team might need help in integrating the CDN, your marketing team might want various reports, and your developer might look for the server reports.

The CDN should be able to assist customers via mobile, web, or any other device, with call, text, chat, and email support. Moreover, the staff should know what they are doing. Giving support means having expertise in the field.

Make a conversation with the support staff, and check if they are expert to handle the bad situation effectively and quickly during the festival.

You have to plan the requirements of CDN accordingly.

#7 Take A Trial

Most of the popular and premium quality CDN offers trials of their service. And once you select a few CDN, you should take a test to check their capabilities.

It happens in three steps:

Testing: Test the CDN for the performance, service, support, speed, security, responsiveness
Collect Data: Keep collecting the data at one place
Analyze: Analyze the data of the multiple CDNs to get a better picture of which CDN works best for your requirements.

Now while testing, you should look for:

Functionality: the efficiency of CDN, availability at all time and all the regions, constant high-quality performance, security of the source data, and user's information, ability to purge caching

Performance: keep calculating and noting down the speed and latency during the high traffic and low traffic time

Support: connect with the staff, and ask the question from the support team. Ask them to assist you in various tasks, see how professionally they help you.

If you know what you are looking for, and what the CDN is providing, you can make the best decision for your CDN requirements.

However, there are so many available in the market, but you need only one partner that helps you in improving your business and sales. And you will have to put the effort in searching.

Top 10 CDN Companies

The CDN market is growing at a CAGR of 27%. The value of the CDN market was estimated at USD 9 Billion in 2018, and it is expected to be valued USD 38 Billion by 2024.

More and more countries are getting the Internet, and internet traffic is increasing. The need for video content is quite high. There are lots of growth opportunities for the CDNs. A lot of companies are setting up CDN and the market is abundant with them.

Top 10 most popular and known CDN companies are:

- Akamai
- Cloudflare
- Amazon CloudFront
- Google Cloud CDN
- Microsoft Azure CDN
- Rackspace
- Imperva
- StackPath
- Alibaba Cloud
- Fastly

1. Akamai

Akamai is a Hawaiian word, where Akamai translates to 'smart' or 'witty' is a globally known popular CDN. It has a robust infrastructure used by many fortune 500 companies and organizations. Akamai is the most used commercial CDN service.

It was founded in 1998, and Akamai became the CDN service for the large organizations that require 100% reliability and availability of their content. Bloggers or small business owners do not use Akamai as it is costly, so the sites with large traffic use it.

Overall, Akamai is expensive, but it is the highest quality CDN.

Some facts about Akamai:

- 55% of companies on the Fortune 500 list use Akamai
- 50% of companies on the Global 500 list use Akamai
- 90% of the biggest online store uses Akamai
- US army use Akamai to serve content

Akamai has nearly 240,000 servers set up in 130 countries all around the globe.

Akamai users: Apple, Microsoft, Verizon, BBC, Valve, ESPN, Adobe, AMD, Hewlett-Packard and many more.

2. Cloudflare

ACloudFlare is the fastest growing company that caters to small, medium, and huge companies. It does not only serve content, but also has DNS, WAF, and DDoS mitigation. The DNS service offered by CloudFlare is known for its effectiveness and ability to secure access to China's network of sites.

Started in 2009, CloudFlare has offices in Singapore, London, and San Francisco. Large organizations such as Google, Baidu, Microsoft, etc. are backing up CloudFlare with sufficient funding ($180M).

You can make an account quickly on CloudFlare and add your site via DNSs. The self-service platform provides a lot of options and settings that you can configure from the dashboard. It also provides enterprise solutions to businesses of all sizes.

Small business owners or bloggers do not have to pay to use CloudFlare. The starting price is $20, for medium size sites. There are custom plans for large sites depending on location and usage.

Cloudflare CDN users: Marketo, DigitalOcean, Discord, IBM, Library, Udacity, Zendesk, Reuters, and many more

3. Amazon CloudFront

Amazon CloudFront is a CDN service provided by Amazon Web Services (AWS) that focuses on web developers. Amazon Web Services is a part of Amazon. It started in 2006 and catered to the cloud computing industry.

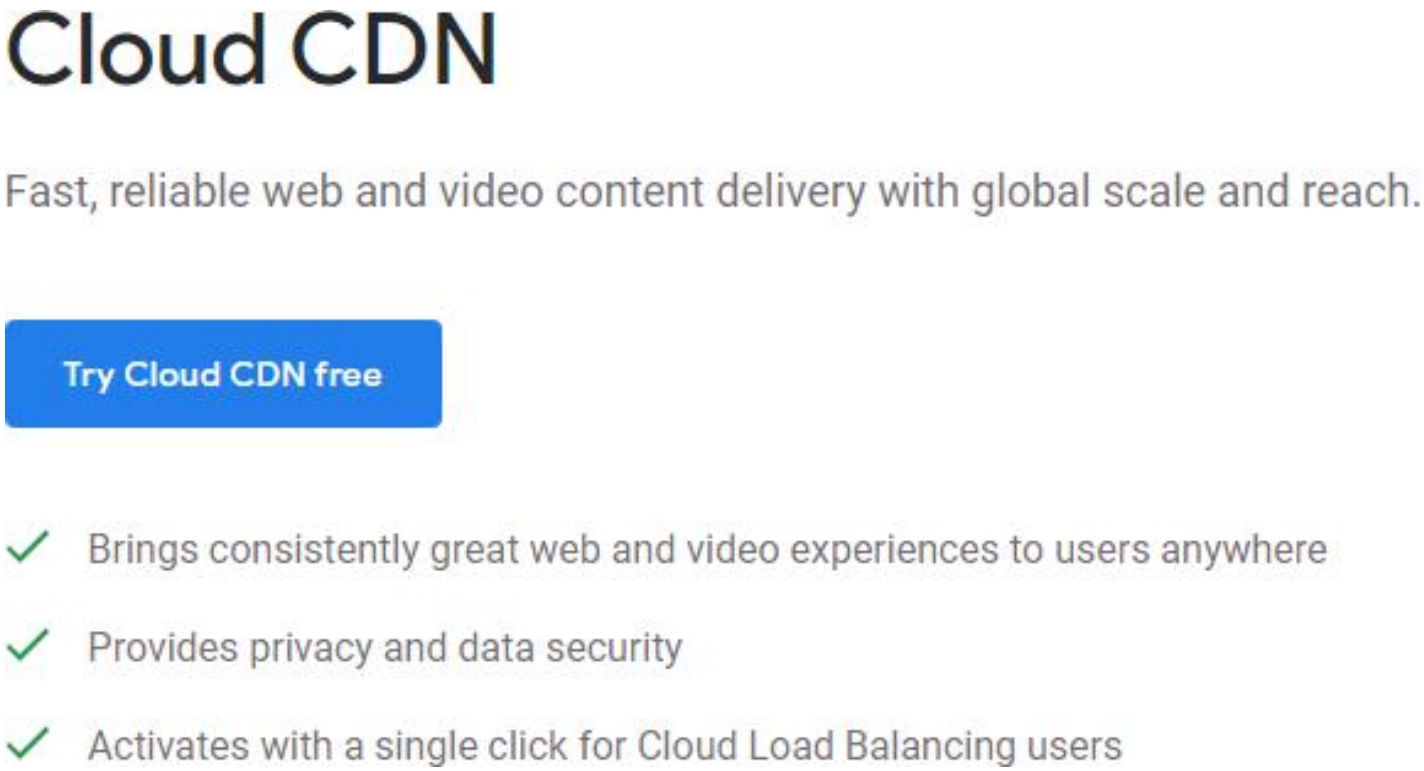
AWS is the biggest cloud hosting and solution provider in the World, and its CDN is also popular. However, CDN is only one service under the service portfolio of AWS and Amazon, but it is sturdy and reliable because of its robust infrastructure.

With CDN, Amazon also provides DDoS protection, storage, analytics, and much more.

Amazon CloudFront users: Hulu, Spotify, NASA, Slack, Kik, Canon, NHL, and many more.

CloudFront has 117 PoPs, out of which 106 are of small capacity, while 11 are big. The pricing is custom and depends on the usage, traffic, region, and bandwidth.

4. Google Cloud CDN

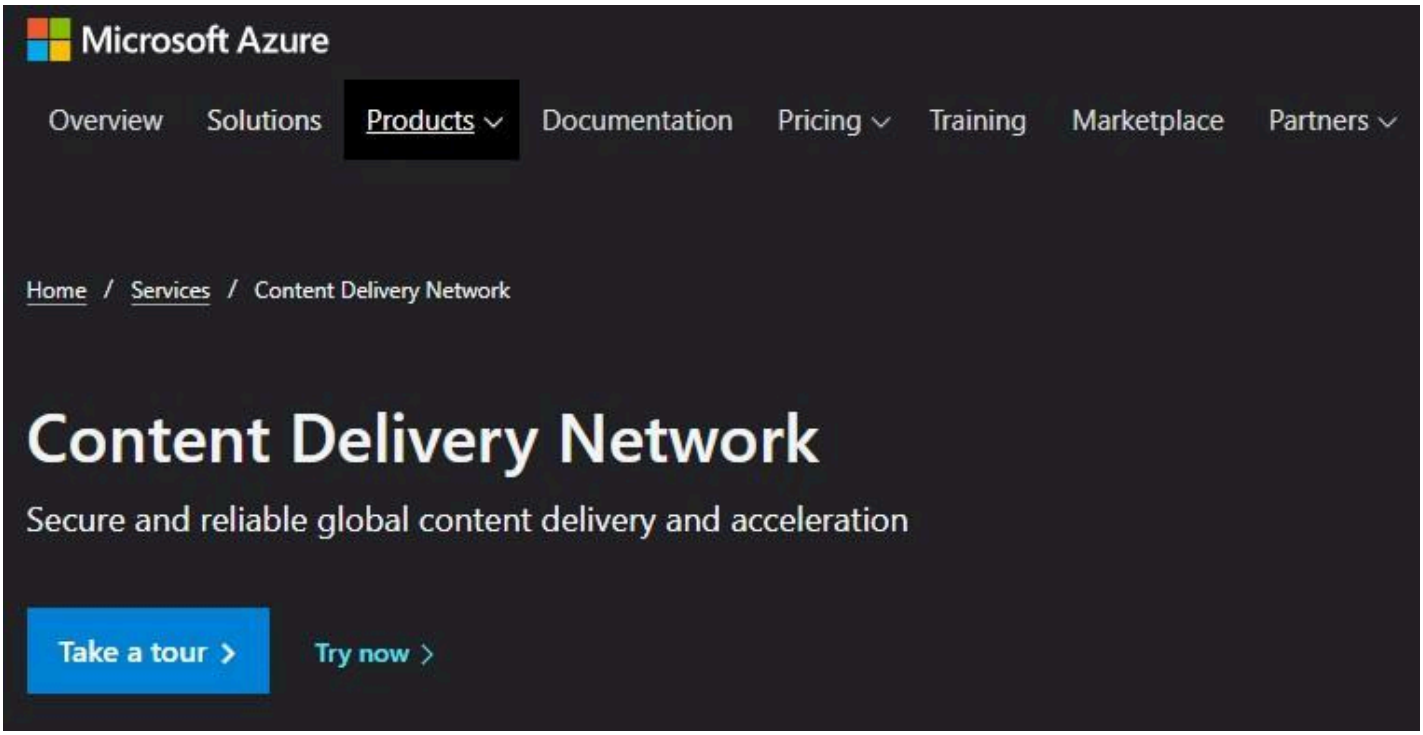


Google is already the biggest search engine right now. It has to transfer the content to a large number of users. Google has set up the infrastructure to serve its services and content to visitors such as YouTube, Gmail, etc....

For Cloud CDN, Google uses the same infra to cache and deliver the content for the client of Google Cloud Platform (GCP).

Google Cloud CDN users: Target, Twitter, The New York Times, PayPal, Bloomberg, 20th Century Fox, American Cancer Society, Nielsen, McKesson, eBay, and many others

5. Microsoft Azure CDN



Microsoft Azure has lots of services under its belt, and one of them is Azure CDN. Established in 2010, Azure CDN was formerly known as Windows Azure.

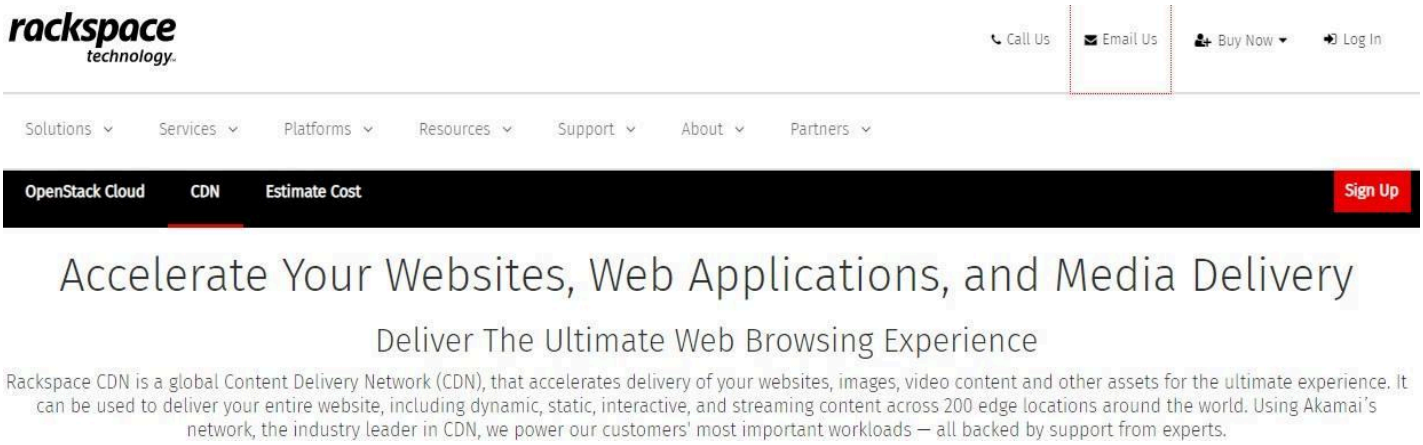
In comparison with Google Cloud and Amazon AWS, Microsoft Azure is more prevalent in developing markets. However, most of the Azure CDN users are already using Microsoft's Azure's platform cloud computing solutions.

Azure also offers plenty of free tools that let you manage the CDN from an easy to use dashboard.

In the beginning, Azure used to use the infrastructure of Akamai and Verizon to deliver the content for their clients. But in 2018, it launched its infrastructure with 54 PoPs in nearly 140 countries. Microsoft Azure is the first company to set up their server in Africa.

Azure CDN users: GeekWire, NBC Sports, Maersk, ePlan, HP, and many others.

6. Rackspace



The primary focus of the Rackspace was to give the ultimate support to the web hosting customers. Started in 1988, the company has grown big, and now supplies all types of virtual services, including CDN.

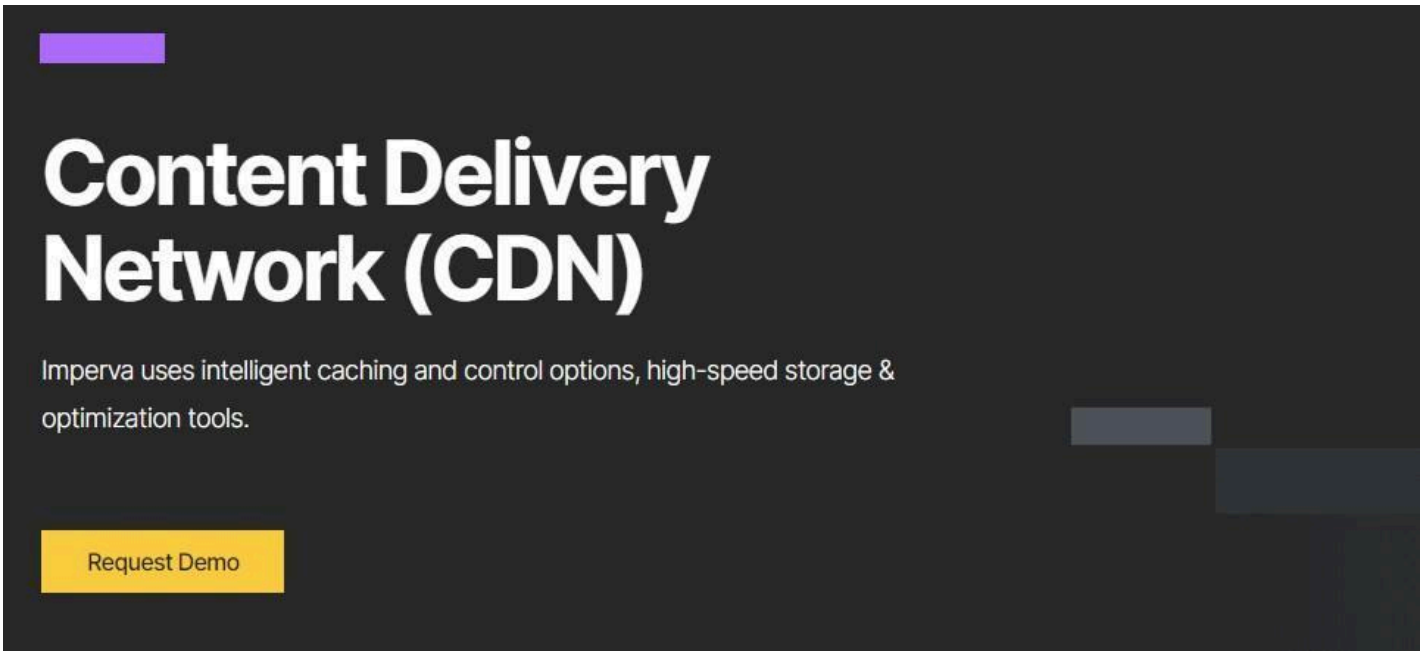
With two decades of experience in cloud computing, Rackspace is secure and has customer trust of more than 300,000 customers. And two-thirds of Fortune 100 companies. Also, Rackspace collaborated with NASA to build an open-source platform for cloud computing – OpenStack.

Rackspace has an extensive knowledge base, resource pages, and forums to support customers. There are many ways customers can connect with Rackspace. Rackspace takes support very seriously, as it is their USP.

With a total of 271 PoPs, Rackspace also uses PoPs of Akamai to serve content.

Rackspace CDN users: Pipedrive, Fujitsu, Feeding America, Kagool, Hillarys, Brigade, and many others.

7. Imperva



Imperva is a cybersecurity company, started in 2002. But it is still among the top 10 CDN list because of the acquisition of Incapsula.

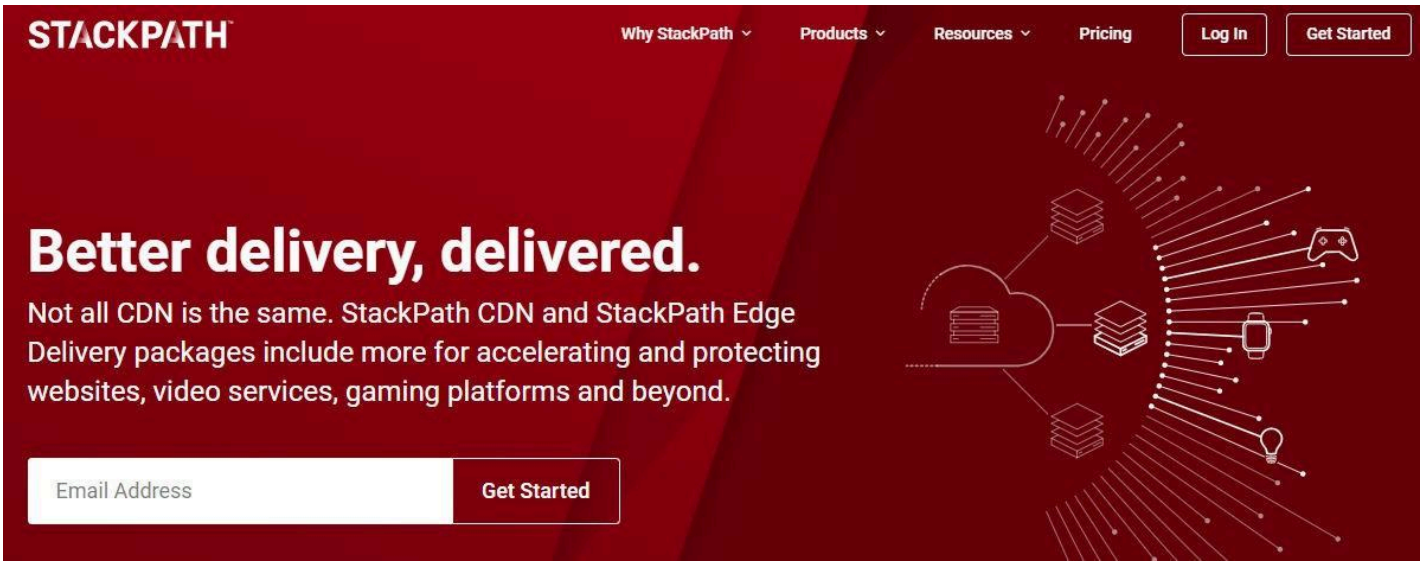
Now it is Imperva Incapsula.

Incapsula Inc. was founded as a cloud computing company, with CDNs attached to the web hosting to protect the data and accelerate the delivery. Even from starting, Imperva had the largest share (85%) in Incapsula. Then Incapsula separated itself from Imperva in 2009, and in 2014, Imperva brought the remaining shares.

Then Imperva started selling Incapsula CDN as one of their products until 2019 when Imperva shut down the Incapsula entirely and added its features to Imperva—naming it FlexProtect.

Imperva CDN users: Moz, Wix, Siemens, eToro, food, Just Eat, Infinity, Grindr, Liveperson, Zillow, Trello, Hitachi, and many others.

8. StackPath



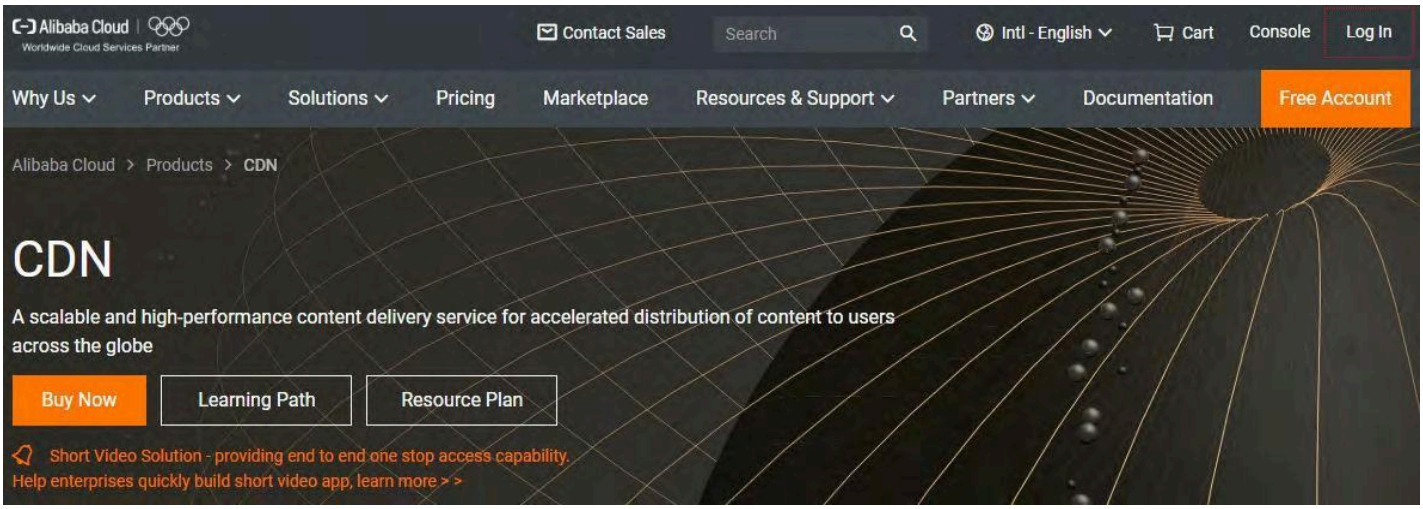
StackPath is a newly founded company (2015) from Dallas, US. The StackPatch aims to provide the most secure delivery of content.

The company got considerable investment from the ARBY partners ($180 Million), and due to this investment, StackPath bought the already set up infrastructure of two large CDN providers: MaxCDN and Highwinds.

StackPath infrastructure has MaxCDN and Highwinds servers, in addition to Stackpatch's infrastructure made of SSD servers, with the purpose of security. The pricing StackPtah offer is affordable for small and medium businesses, and it starts from $20/month.

StackPath's users: Garmin, Forbes, Adobe, Kodak, Hudl, Nissan, Yoast,ESPN, Android, StumbleUpon, TNW, Valve, Facebook LiveRail, Giphy, Beatport, Digitell, Steam, GameFly and many others.

9. Alibaba Cloud



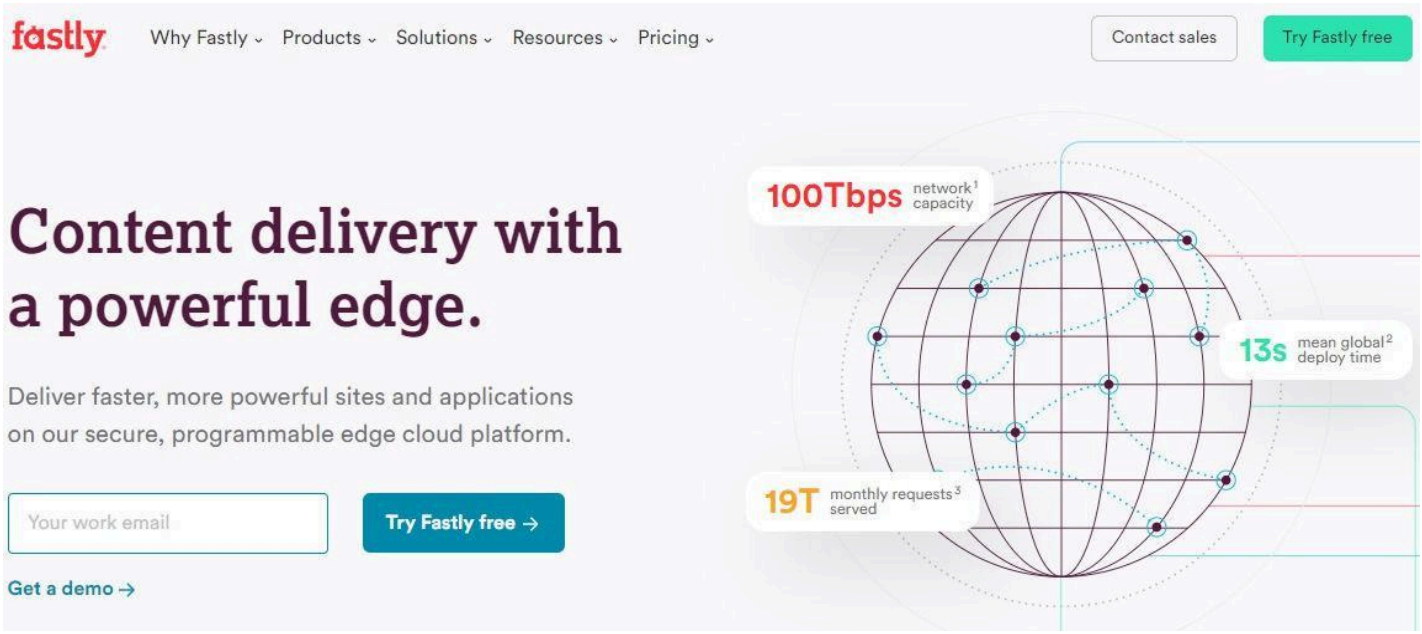
Alibaba Cloud is another new company. It is from China and a part of Alibaba Group. Alibaba Cloud is a cloud computing company, similar to Amazon Cloud, and CDN is one of the multiple services Alibaba Cloud provides.

Alibaba Cloud is the largest internet-related service provider in China. In 2015, Alibaba Cloud got funding from Alibaba Group, and they started a worldwide extension.

Pricing depends on various aspects such as location, bandwidth, and usage; however, there are different tiers of prices.

Alibaba Cloud CDN users: Royal Philips, Schneider, Strikingly, Teridion, Blogmint, Catchpoint, Imperium Financial Group, and many others.

10. Fastly



Fastly was founded in 2011, as a cloud computing company, in San Francisco, USA. The CDN by Fastly is unique as its SSD server uses Varnish (an HTTP web accelerator), which is more effective than the proxy server in caching.

Varnish caching allows the Fastly to update the content on the distribution nodes on the network edge as soon as any change occurs at the source. Due to this, Fastly earned the name “real-time CDN” in the CDN market. Fastly really helps the user who needs a fast and regularly updated CDN network.

Fastly has also acquired the Sumo CDN in 2014.

Fastly CDN users: The New York Times, Spotify, Pinterest, Imgur, The Guardian, Wired, Vimeo, Shazam, Github, Shopify, Stripe, Opera Browser, Trip Advisor, Ticketmaster, BuzzFeed, Etsy, TED, Kickstarter, Twitter, Yelp, Airbnb and many others.

Multi CDN

CDN can provide network security, and it can also reduce the loading time of your page, improve the delivery of content, and make sure content is available 100% of the time.

If it is such a helpful and powerful tool to enhance the entire business, why would we use only one? Why not, many?

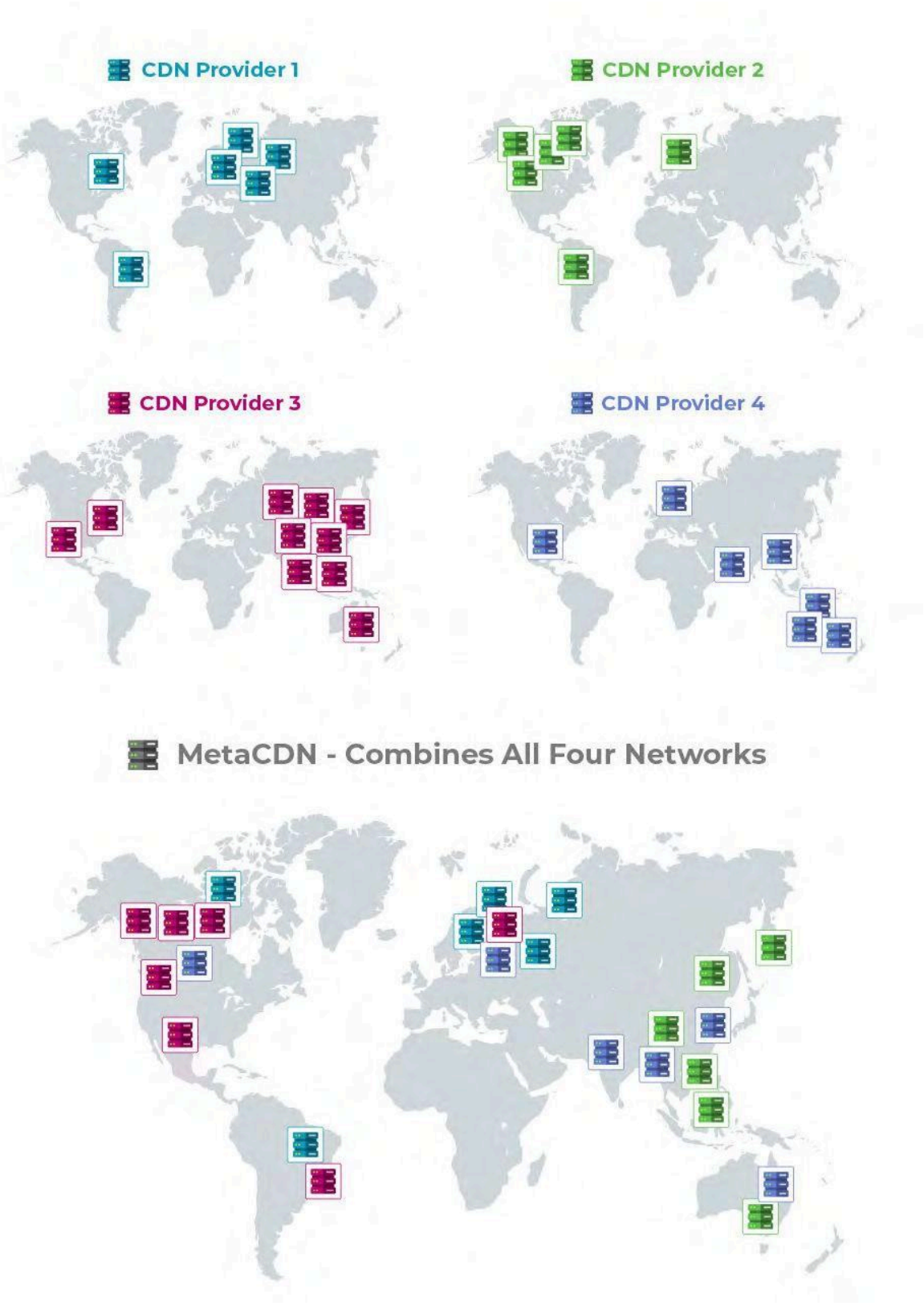
Would it not be more convenient and better if you can use multiple CDN, and serve the content from the server that is the optimal source for the user.

This Multiple Content Delivery Network approach to content delivery utilizes the service from various CDN providers at the same time to get the best of all the CDNs.

Such diversified CDN portfolios reduced the various risks. If one is down, then the other CDN will work, and you can be more confident about the availability of your site.

The reason why using multiple CDN is better than single CDN:

- Not all CDN perform same in all the region; you can redirect the user to the CDN working best in the given region
- CDN reliability varies, with multiple CDN you can redirect the user to the CDN who is most reliable by reading the historical data
- CDN have different features and functions; you can use one CDN for the security features, and other for the DNS pairing
- The process is automated, and you don't have to be present all the time to manage it
- All the large eCommerce store owners are leveraging the power of multiple CDNs


CDN Provider 1
CDN Provider 2
CDN Provider 3
CDN Provider 4
MetaCDN - Combines All Four Networks

Costly Bandwidth

New Regions, New Market

With the new CDN, you can enter into the regions that were not possible with the previous CDN. Not all CDN has servers everywhere, but you can use local CDN with global CDN to increase your reach.

Better Performance brings More revenue

Amazon increases its revenue by 1% for every improvement of 100 milliseconds in its page load speed. The loading time of the eCommerce store affects revenue and sales. For large stores, even the millisecond's matter, and for small businesses, each second is vital to save. Multiple Content Delivery Networks reduce the latency and push the speed of the site. Using a single CDN is suggested practice while using multiple CDN is best.

Cloud will Never Crash

Downtime can cause a lot of harm to the eCommerce website, both financially and reputably. Nearly 25% of customers will never return to the site if they find it down the first time. The trust factor will reduce among your customers. Down site is one of the things that shows that the business is not serious.

You should not put all of your eggs in one basket; similarly, you should not use only one CDN. If any issue arises in that CDN, your site will lose visibility.

Using Multiple CDN gives you space to redirect the user to another CDN server.

Take full advantage of Web

You never have to worry about adding a large file to your web page if you are using multiple CDN. Use multimedia, quality images, and videos on your webpage.

This way, the web page will load quickly without sacrificing the critical element to reduce the page's size.

How to use Multi-CDN?

The commercial CDN service providers provide the Multi-CDN to give better services to their clients. They collaborate and utilize each other's PoPs to serve the content. If the connection of one CDN is weak in a region, it redirects the requests to the partner CDN, and the user does not have to suffer.

Moreover, content providers can also build their multi-CDN network with the help of DNS providers. However, they will need a person with technical knowledge to handle the configuration and maintenance.

Image CDN

Image CDN is different from the standard content delivery network. The typical CDNs deliver content (including images) via points of presence (PoPs), the image CDN sends the image in the reduced sizes, tailored for the user's device.

There are three stages in the Image CDN process:

- Device Detection
- Image Optimization
- Pushing CDN

Device Detection:

The most critical task Image CDN does is to understand the device. It detects the user's mobile model, and it studies the factor that affects the loading of the image. Factors such as operating system, screen resolution, and dimension, pixel density, image rendering, etc....

Image Optimization:

After knowing all about the device, Image CDN resizes, compresses it, and converts it into an optimized version that loads quickly on that device.
The image is modified for the device the user is using, and by doing so, image CDN reduces the image payload by 80%.

Pushing CDN:

The working mechanism of Image CDN is similar to regular CDN. PoPs are located at various places, and the user gets the images from the closest server. When the same device requests the image, the Image CDN loads the image from the cache.

Does an Image CDN Impact Image Quality?

Image CDN provides a high-quality image to the user, but its quality will depend on the user's device. However, the quality will be lower than the original image due to compression, but that does not mean that image will lose its sharpness.

After a tipping point, the image's quality or size does not make any difference, as the device cannot render it at its full potential. The device has limitations.

But there is a point where the quality would be excellent for a device, and the image would be at its lowest file size. Image CDN aims to provide that image configuration. Tracking the device makes it possible for the Image CDN to serve the optimum image for the mobile/desktop.

Top Image CDNs:

- Fastly
- KeyCDN
- ImageKit
- CDN77
- BunnyCDN
- CloudFlare CDN
- Amazon CDN

The image CDN works a charm for the sites that are image-heavy, such as wallpaper sites, photo stock sites, eCommerce sites, gallery sites, art and painting sites, infographics sites, etc.

CDN for Video Streaming

Users are consuming video content a lot, and video streaming is emerging as the largest trend today. This new way of content consumption is proposing its unique challenges and technologies.

It is not wrong to say that video is the most attractive way of content on the Internet, as it is above the language barrier, and it is easy to consume.
But having CDN for video streaming is different from any other type of content distribution.

The biggest challenge is the user does not like to download video now, they want to watch it instantly on their device, without downloading any additional software. It becomes the responsibility of the sites to provide high-quality streaming to the users, without any loading.

Social media sites like Reddit, Facebook, Instagram are also pushing video content, as it is more profitable to have monetized video content than the text. However, eCommerce site owners also add a video of the product on their page to display the product.

Type of Video Content:

Video on Demand: Already recorded video that is available to stream at any time. Such as NetFlix, Amazon Prime, etc

Live Video: The content that the viewer can only stream when it is being recorded. Such as Facebook Live, Live Cricket matches on HotStar, etc

You can use CDN for both types of video content. There are many CDN providers that you can use.

CDN Myths and Misconception

Let's look at a few CDN myths that people have.

Myth #1: I will implement a CDN, and the site will load fast.

Yes, the primary function of the CDN is to improve the speed of the site, but it is not a magic bullet that will make your website fast. There are lots of necessary speed optimizations that one has to do to make the site fast. Moreover, the CDN works on the cache system. So for the first round of trips, the speed of the site will be lower with CDN.

Myth #2: Any CDN will work with my Site.

No. You need the right CDN for your site. If most of the visitors on your site are coming from Japan and implement a CDN that does not have any Points of Presence in Japan, it will not speed up the website. However, your site will load slower than before. You have to research and look for where your visitors are coming from, and what CDN works best in that region.

Myth #3: I will ask my Hosting provider to Implement CDN.

Although many hosting providers do provide free CDNs and enable the CDN if you request, CDN integration is not done on the server-side. It is a platform side integration. Magento and WordPress have plugins and extensions, but for custom platforms, you have to make several changes to integrate CDN properly.

Myth #4: One CDN is enough

If you have a large business and the visitors are coming from all across the globe, then one CDN is not enough. You have to use many CDNs, quality one for each of the profitable regions.

Myth #5: Free CDN is good

Free CDN might work okay for bloggers and portfolio sites, but when it comes to eCommerce businesses with serious sales, free does not work well.

You will have to take the premium CDN suitable for your site requirements.

Myth #6: CDN will protect the site for any web threat

Again, No. CDN can do things up to a limit. If you have WAF enabled CDN, then it is good. Some CDN also have DDoS Mitigation, but they come at additional charges. You cannot rely solely on a CDN.

Myth #7: More PoPs are better

It does not matter how many PoPs Akamai has if it does not have an edge server where most of your visitors are. It's not the number, but the location of these PoPs matters.

Conclusion

The CDN was designed to boost up the speed of content delivery. But CDN can work at its full potential if all other optimization has been done.

CDN is essential, but it is not the primary speed optimization. Run a GTmetrix Speed test of your site.If you have a WordPress site, you can read our WordPress speed guide. For Magento, check our Magento Speed Guide.

You must look to optimize your site for speed. And if the CDN is the way to do this, then you must install a CDN.

About Zeno Cloud

Zeno Cloud offers AWS Consulting Service and Cloud Solutions to businesses WorldWide. Our expert team will assess your cloud needs and deliver the solutions that will help your business to achieve its goals. We are certified Amazon partners.

amazon web services | Partner Network

CONSULTING PARTNER

aws certified Cloud Practitioner

aws certified Solutions Architect Associate

Contact Sales

+91-9852704704

sales@zenocloud.io

Contact Support

+91-9852704704

support@zenocloud.io

Contact Billing

+91-9852704704

billing@zenocloud.io

zeno CLOUD

Website

www.zencloud.io

USA Office

2093 Philadelphia Pike, Claymont, DE 19703, USA.