



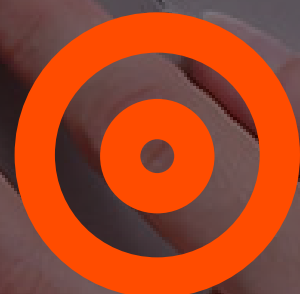
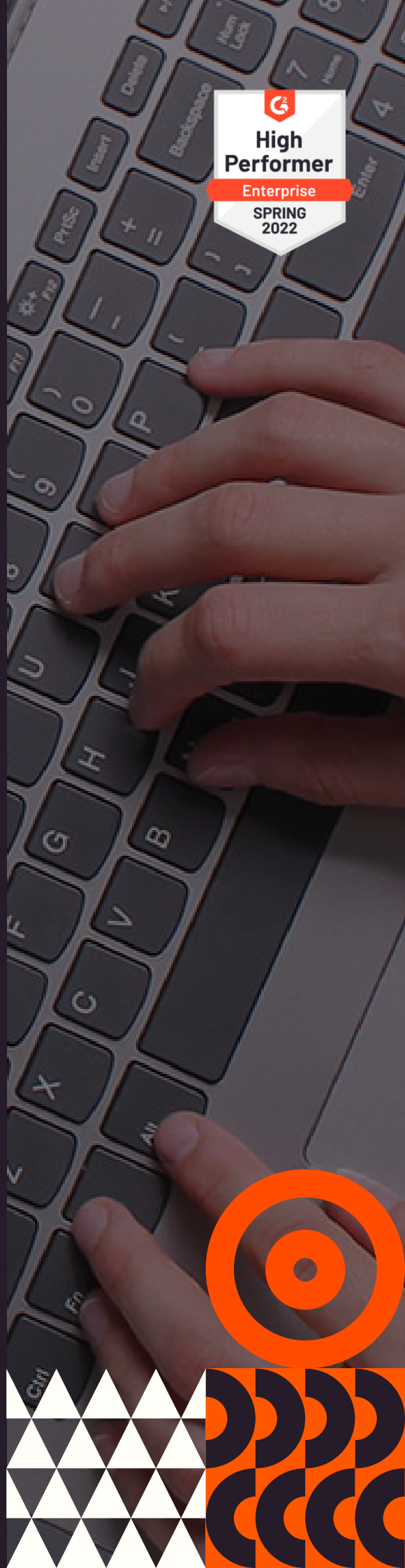
WHITE PAPER

THE **CDN** IMPACT ON **SEO:**

how speeding up
your website
can promote
your business
online

We've collected different studies, insights,
and expert opinions in order to understand
how CDN affects website ranking.

May 2022 | gcore.com



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| Introduction

SEO (Search Engine Optimization) is a key factor in promoting a business online. If your website doesn't appear on the top position of search engine results pages (SERPs), many of your potential customers will never know about your presence on the web.

CDN (Content Delivery Network) is a set of geographically distributed and interconnected cache servers that store web content closer to the users. The main goal of a CDN is to reduce file transfer time that decreases webpage loading speed.

In this paper, we'll reveal how a CDN can help you reach the top search ranking positions and benefit from having a fast website. We've assembled the results of different studies, search engine guidelines, and developers' insights to help you better understand how fast webpage loading time can improve a website's SERP positions.

| SEO ranking factors: what they are and how they affect a website's ranking

SEO ranking factors are parameters used by search engine algorithms to determine a website's search results rank. There are numerous factors. According to some sources, there are more than 200 of them, but the exact number remains unknown.

However, search engines don't reveal the factors that are really considered by their algorithms in order to avoid cheating by website developers. This means that if we want a website to progress in the search index, we can only rely on search engine general guidelines, their employees' insides, and our own practical experience.

In the meantime, these algorithms are constantly being updated and improved. Many SEO requirements that were relevant five years ago have now become outdated.

Since we are talking about CDN, the page loading speed will be the main topic of discussion. Google has often emphasized that their algorithms take this parameter into account. But how important is this factor and how does it influence website ranking now? Let's consider this question.

| How Google's page loading speed requirements have changed over time

The first time that Google announced website load speed as an important ranking factor was in 2010. According to the release, the company conducted a series of studies and found out that website load speed affected user experience. Users prefer fast websites. Therefore, Google started prioritizing such resources in search results.

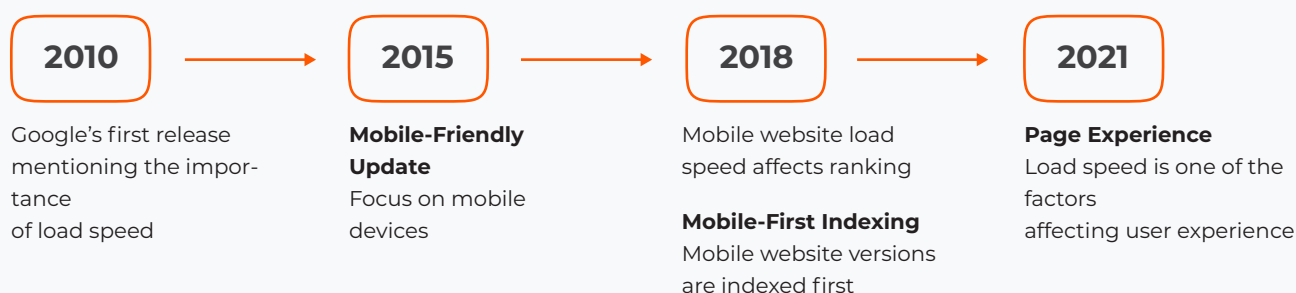
In 2015, Google's Mobile-Friendly Update was released. Since then, search algorithms started considering mobile optimization as an important SEO ranking factor. This announcement contained no specific information on website speed, but declared that mobile versions of websites are more sensitive to the loading speed than their desktop versions.

Traditionally, mobile devices have less computing resources and slower Internet connection. Even if a website opens quickly on a desktop computer, it usually takes more time to open it on a smartphone or tablet. This is why a mobile-friendly website will automatically run fast on desktop computers.

In 2018, Google announced explicitly that mobile website load speed was going to be used as a ranking factor.

In the same year, Google launched Mobile-First Indexing, i.e., an indexing system for mobile devices.

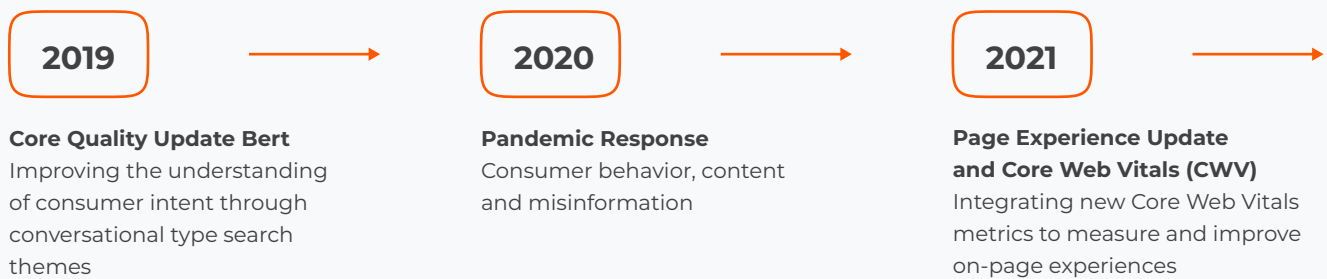
Prior to these changes, search engine indexed websites using their desktop version. From then on, Google started indexing and ranking the mobile version first. Mobile versions of some web resources differ a lot from the desktop versions (for example, they may be less convenient to use or slower to load), which results in inconvenience for users. In 2021, the new search engine updates were focused on Page Experience metric. In these releases, Google highlighted page speed again but defined it as one of the factors influencing user experience.



| Figure 1. Google updates related to load speed

| Google's focus on the user experience. Updates, algorithms and ranking systems





| Figure 2. Google updates aimed at improving user experience

| Impact of user experience on search results

On June 15, 2021, Google announced its focus on Page Experience.

The main idea of this update is that from now on the search engine is going to pay more attention to page usability. This means that the websites that are convenient for the users to interact with will get higher ranking positions.

The search engine evaluates Page Experience by a number of “signals”. The main signals include:



To assess these criteria, Google has developed a special metrics system. We will tell you about it below.

Besides these “signals”, the search engine also looks at website optimization for mobile devices, data transfer via the HTTPS protocol, and absence of annoying ads.

In the release, Google says that the Page Experience metric is used to show the cumulative quality of a user’s interaction with a website. However, it covers only a small part of the hundreds of other criteria that affect website search ranking.

Even if we consider only the updates that affect speed, we will see that all Google algorithm updates are aimed at improving user experience one way or another.

The importance of user experience is reflected in user behavior metrics. Numerous studies confirm their importance.

For example, SEMrush, the SEO promotion and marketing platform, analyzed many ranking factors and highlighted the most important ones. Behavioral factors (time on site, bounce rate, number of pages per session) are included in the top 4 of the most important factors.

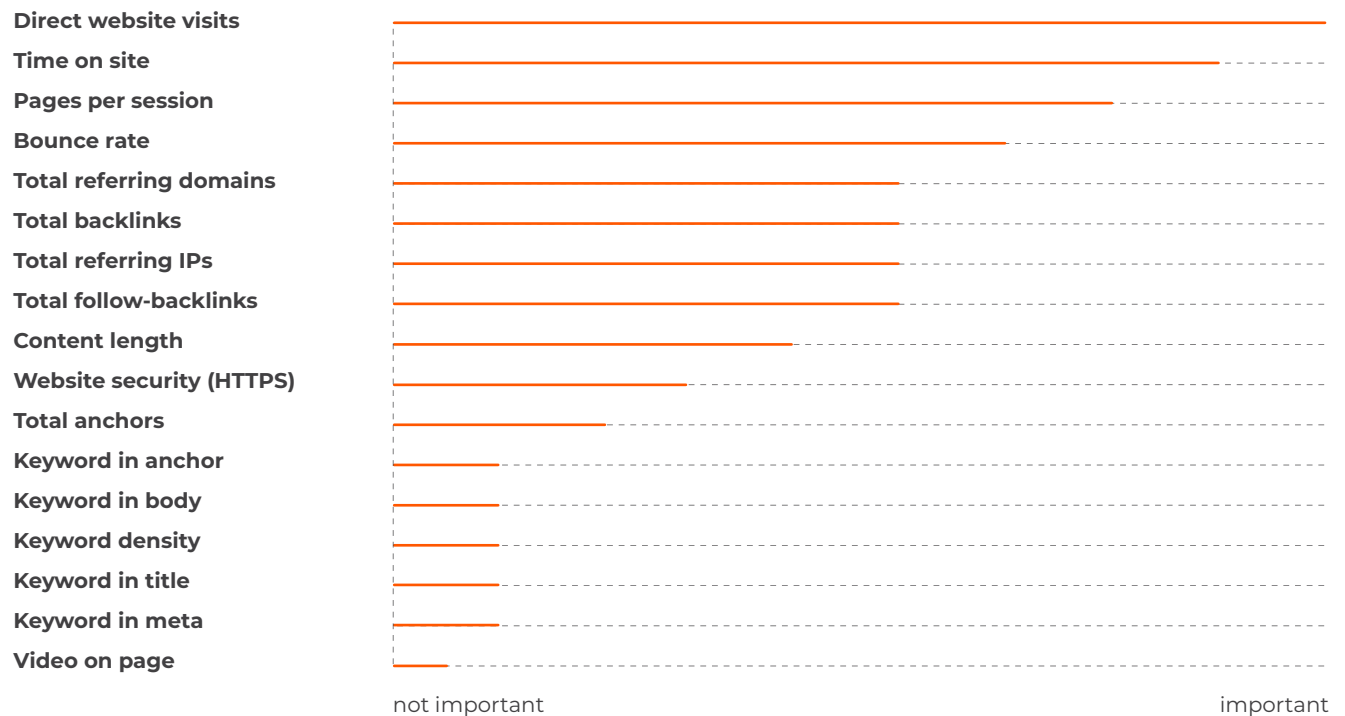


Figure 3. The rating of ranking factors by SEMrush

The SEJ SEO magazine conducted a survey among over 2,800 SEO professionals and found out which factors they consider to be the most important ones. User behavior took second place, and the gap between the first and the second place was very small. The survey participants mentioned website load speed among other important factors. This parameter took the tenth place in the list.

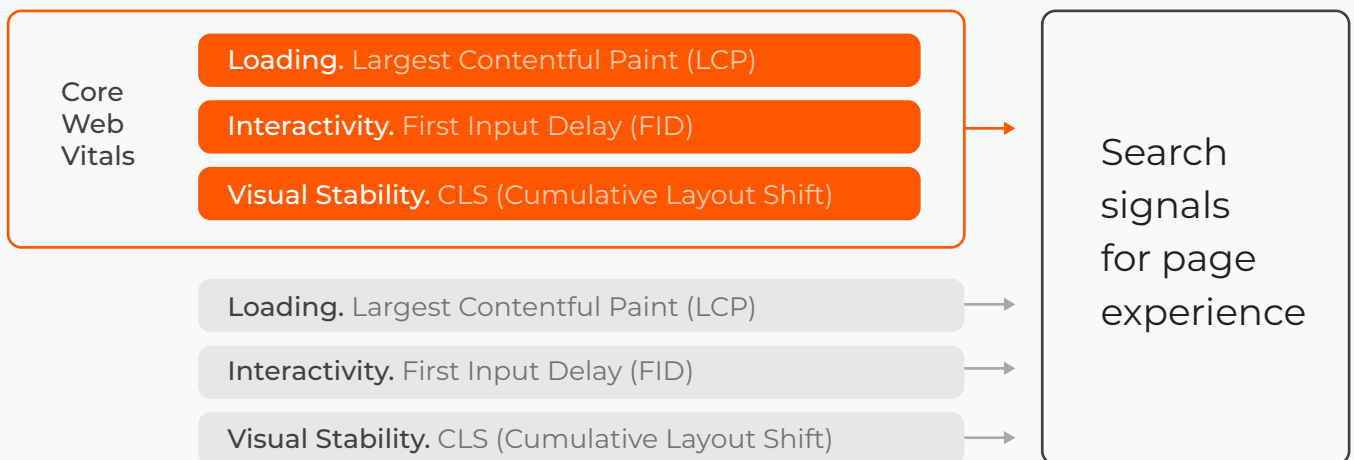
Ranking factor	Percentage	Weight
1. On-page elements (meta tags: title, description, h1)	32.8%	763
2. Organic user behavior (CTR, bounce rate, time on site)	30.9%	720
3. Content depth and relevance	24.6%	572
4. Structured data (schemes)	21.1%	490
5. Content freshness	19.0%	442
6. Mobile friendliness	17.9%	417
7. Brand recognition	17.8%	413
8. Topic relevance	17.5%	406
9. Links	17.4%	404
10. Website load speed	13.8%	320
11. Internal linking	13.7%	318
12. Domain authority	12.4%	289
13. Website security (HTTPS)	11.9%	278
14. E-A-T	9.4%	218
15. Social signals	7.1%	164

| How website load speed affects search results

So, we've found out that user experience plays an important role in SEO promotion. How does the website load speed affect this process?

Core Web Vitals: metrics to assess user experience

Core Web Vitals are Page Experience metrics introduced by Google in order to measure page speed, interactivity, and visual stability. These parameters allow us to measure how convenient it is to use a particular website.



| Figure 4. The “signals” considered by Core Web Vitals

Core Web Vitals metrics include three parameters:

LCP

(Largest Contentful Paint) is a metric that shows the time spent on rendering the largest part of content on the first page screen.

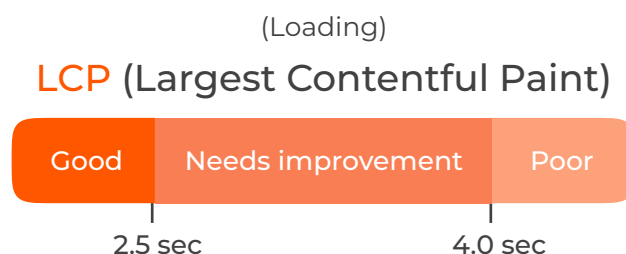
FID

(First Input Delay) is a period of time between the moment the user starts interacting with the page and the moment the browser reacts to this interaction.

CLS

(Cumulative Layout Shift) is a metric showing to what extent the page content can shift after it has already been displayed on the screen.

Since we're talking about speed, LCP is the most interesting Core Web Vitals metric for us. In fact, it reflects the user's perception of the content load speed. By including it in Core Web Vitals, Google emphasizes that website load time has a direct impact on user experience. Any LCP value that is below 2.5 s is considered good.



| Figure 5. Scale of LCP values

LCP is a complex metric that is influenced by other speed metrics—FCP and TTFB.

FCP (First Contentful Paint) shows how much time passed between the moment the page started loading and the moment the first content element appeared on the screen. It reflects the user’s perception of the loading process.

TTFB (Time To First Byte) is the time that passed between the moment when the request was sent to the server and the moment when the first byte of information was received in response to this request. This is a very important metric as it affects LCP, FCP, and FID. You can read more about it in our article called “What is TTFB and how to improve it”.

TTFB impact on website search ranking

Even though Google doesn’t emphasize the importance of TTFB in the Core Web Vitals system, this metric has a quite significant impact on website ranking. One of the leading internet marketing professionals Neil Patel confirmed this in his research.

His team analyzed website load speed for 143,827 links from Google’s top search results to find out how each speed metric correlated with the website’s search position.

The test was performed using the free WebPageTest tool.

The result showed that TTFB does correlate with a website’s high position in the search results. The pages that rank first have a shorter time to first byte than the pages that rank lower.

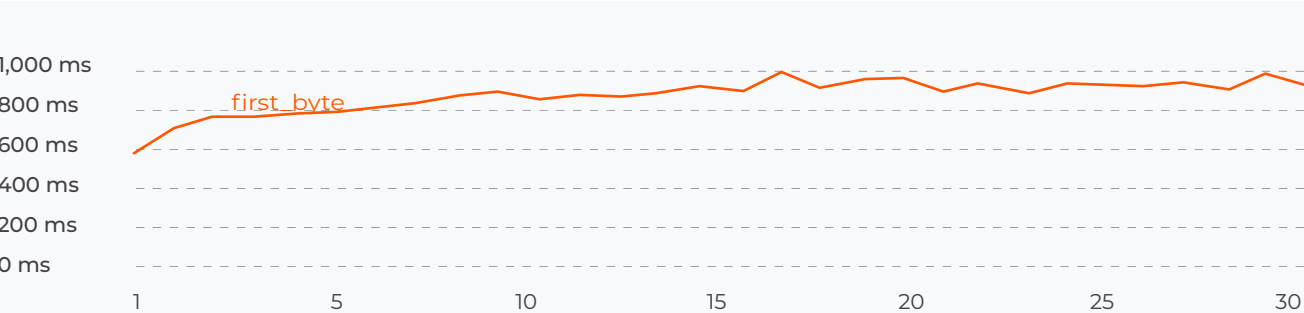


Figure 6. TTFB value in the top 30 Google search results

At that, Time To First Byte correlates with a website’s search results position much more than all other metrics that were tested in the study.

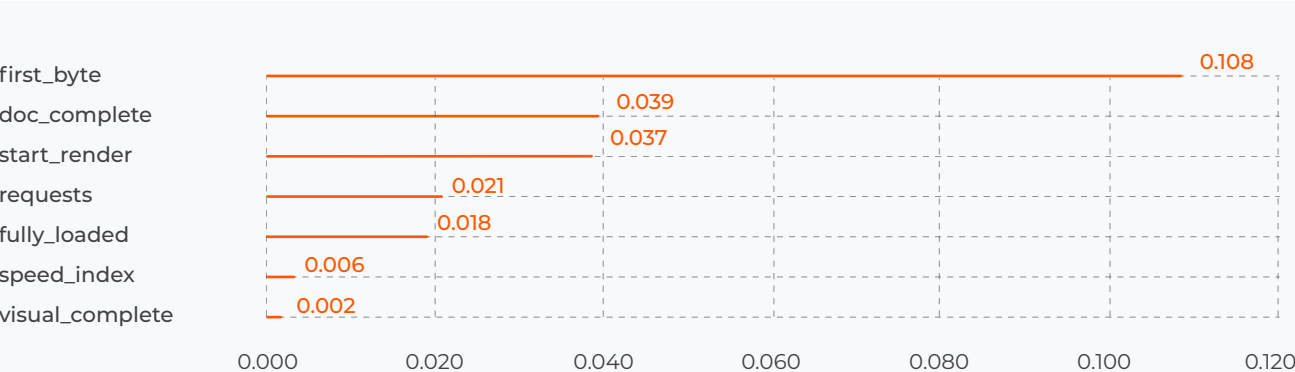


Figure 7. Correlation of website load speed metrics with site positions in search results

This means that TTFB is most likely one of the most important factors connected with page load speed and affecting website ranking.

Success stories: how website load speed affects user behavior

Different studies and experiments have shown the impact of website load time on user experience: web page acceleration leads to increased visitor engagement and improved business parameters.

His team analyzed website load speed for 143,827 links from Google's top search results to find out how each speed metric correlated with the website's search position.

I Case studies



Telecom

↓ 31% LCP ↑ 15% visitor-to-lead conversion
↑ 11% items added to cart
↑ 8% sales



Video service

↓ 3.1× LCP ↑ 108% CTR



Online retail

↓ 55% LCP ↑ 23% session duration



Online retail

↓ 3× LCP ↑ 16.9% mobile conversion



Online

Improved CWV ↓ 2.6% bounce rate



Online

↓ 100 ms page load time ↑ 0.7% income per session



Retail

↓ 20% page load time ↑ 10% conversion
↓ 9% bounce rate ↑ 12% income



Travel indus-

Improved CWV ↑ 80–100% mobile conversion
↑ 192% domain ranking

| Research

Chromium

CWV as recommended ↓ 24% bounce rate

Portent

↓ 4.42% conversion ↑ 1 s load time during the first 5 s

Google

2018

↑ 10 s load time
↑ 123% mobile bounce rate

2019

↑ 1 s load time
↓ 20% conversion

2020

↑ 8.4% conversion for online retail
↑ 10.1% conversion for travel websites
↓ 0.1 s load time

All these cases show the correlation between page speed loading and important business metrics, but we need to remember that there are other factors that affect user behavior as well.

For example, the conversion rate is influenced not only by speed but also by content quality and webpage usability. A fast website with poor content and inconvenient UI has little chance to deliver the desired user experience.

| How CDN helps improve a website's positions in search results

How CDN works

Let's imagine that your web server is France, whereas some of the users live in China. When a user from China visits your website, the browser sends a request to France. The server is supposed to process it and send the response back to China. The request and the response need to pass a long distance between the countries, which takes a lot of time.

If you use CDN, the CDN server in China saves data from a French server in cache after the first user request from this region. All following Chinese users will ask the CDN point to get website data, avoiding long distance journey to the French origin server.

Before



After



CDN reduces TTFB

CDN reduces the distance between the client and the server, which means that requests and responses reach their destination faster.

TTFB metric is based on the time needed to send a request and receive a response by Lowering this time you can reduce the TTFB. CDN's impact on TTFB has been mentioned in many different studies. For example, the Search Facts SEO agency found that using CDN reduces TTFB by 85%.

We've already explained how TTFB correlates with the search results. It would be logical to conclude that content delivery network is an important tool for improving your website's ranking.

Low request and response time is a result of not only the reduced the distance, but also well-done routing. That's why content delivery network needs to be build with smart connectivity and optimized DNS balancing.

How CDN improves LCP

1. Reduced file transfer time

Thanks to CDN, files are sent from a smaller distance and reach the user faster. Consequently, the page content can be rendered and displayed faster. This means that the LCP value will be better.

2. Reduced file size

The lower the data weight, the less time you need to deliver it to the user's browser. Most CDN providers use "on-the-fly" content compression like Brotli and Gzip, which help significantly reduce total file size.

A Google research confirmed that using Brotli compression does reduce LCP.



| Figure 9. LCP before and after Brotli compression

The advantage of "on-the-fly" compression mechanisms is that the file weight is reduced during the content delivery process. You can upload the sources to your server and enable CDN supporting Brotli or Gzip. The content will be compressed in CDN, and you won't need to change any other configurations on your side.

CDN and HTTPS

Using HTTPS is one of the Page Experience "signals". Many SEO specialists believe that using SSL encryption is necessary for improving website search ranking. For example, it is ranked 10th in the rating of the most important factors made up by SEMrush and 13th in a similar SEJ study.

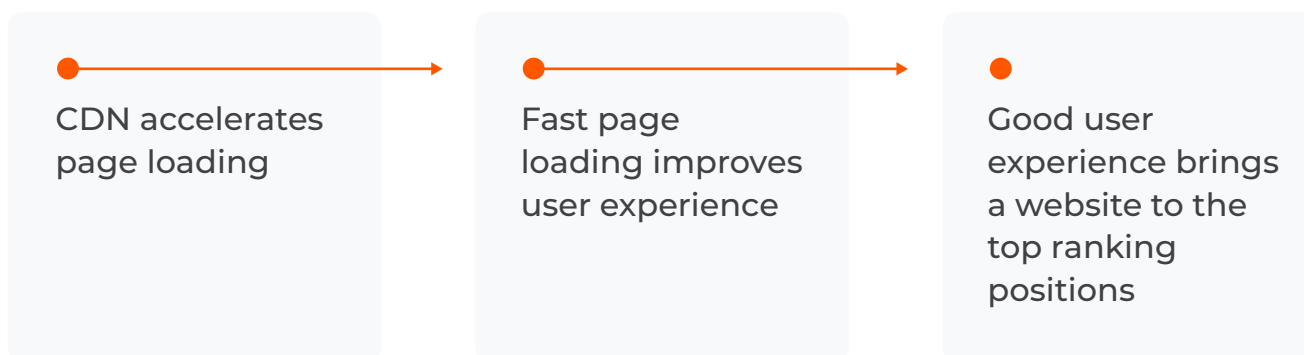
Now, protecting your website with SSL encryption has become quite simple: many CDN providers give their clients an SSL certificate as a free bonus.

Conclusion

Having a lot of clues and guidelines from search engines, we can only guess what the ultimate weights of SEO ranking factors are. But all sources emphasize the constantly increasing importance of user experience in search engine optimization.

To bring user experience and website performance to one dimension, Google has developed Core Web Vitals, the system of key metrics displaying the quality of user interactions with a website. With the number of parameters like LCP (Largest Contentful Paint) and TTFB (Time To First Byte), it helps web developers to evaluate how page load speed correlates with search ranking results.

A CDN significantly reduces the time spent on transferring files over the network, which expectedly improves the LCP and TTFB values. This means that a content delivery network can be considered as one of the necessary SEO mechanisms, especially when operating on global markets.



With Gcore CDN

To make the most of this tool, choose a reliable CDN provider with good coverage and advanced functionality.

Global CDN by Gcore accelerates your webpage loading and keeps server response time low due to smart DNS routing. With built-in security tools and edge image optimization, it brings you a full-featured solution for running business online.

| About Gcore

Gcore is an international leader in public cloud and edge computing, content delivery, hosting, and security solutions. We manage a global infrastructure designed to provide enterprise-level businesses with first-class edge and cloud-based services.

Trusted by



"It was important for us to have a partner who had the necessary knowledge and was fully involved in the project. That's why we decided to partner with Gcore."

David Celis | Wagner ICT

WAGNERGROUP 



"Gcore provided us with not only quality infrastructure, but also excellent technical support when connecting the service."

Nathan Ihlenfeldt | Stage Audio Works

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