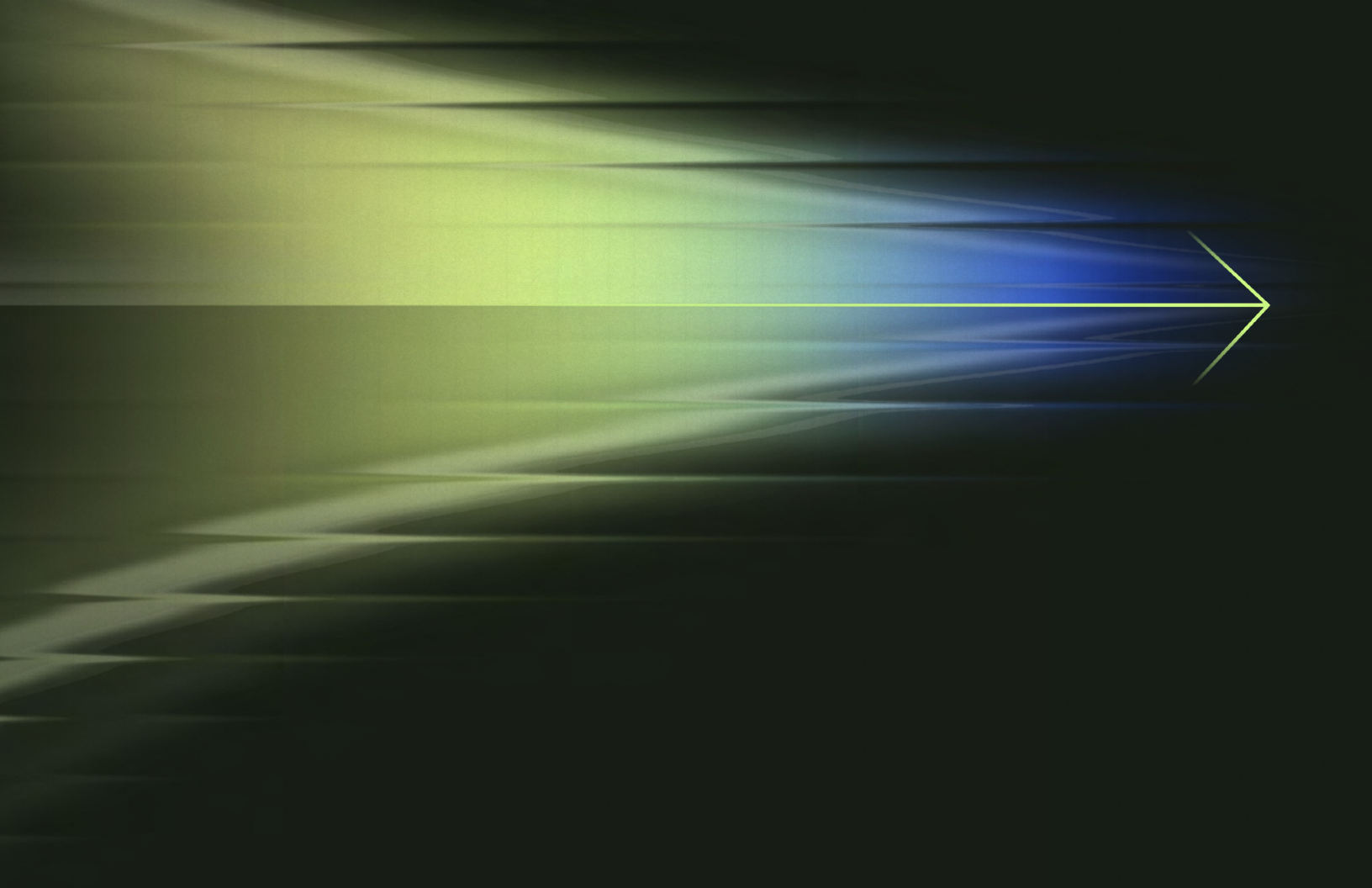


Commerce moves faster on Shopify

Why Shopify sites are faster and convert more



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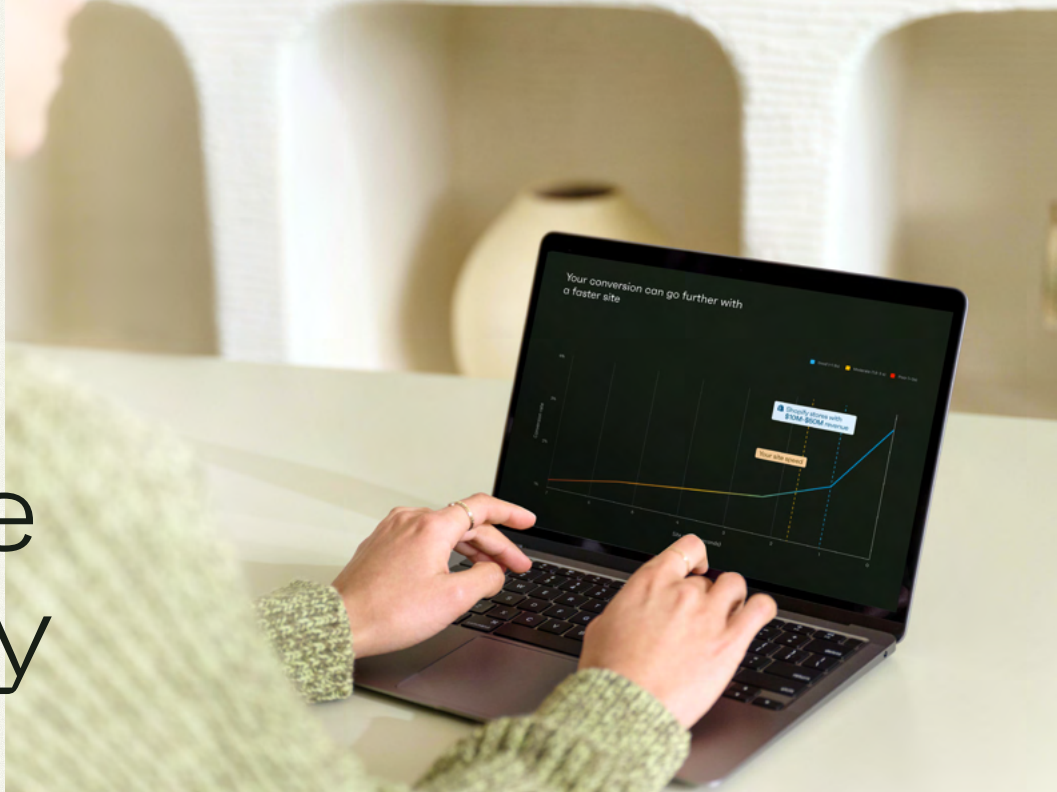
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01

Executive summary



Half a second doesn't sound like a long time. But in ecommerce, it can make a massive difference for shoppers. According to Shopify data and research, just a half second can have a dramatic impact on conversion and the entire customer journey.

A slow site impacts far more than your bottom line. In addition to lost customers and revenue, you also have to divert engineering resources away from innovation to fix a potentially long list of issues that are causing the problem. Improved web performance empowers businesses like yours to gain more autonomy over your website and redistribute research and development (R&D) resources back to foundational projects that can truly set your business apart.

The core of Shopify's development philosophy is to tackle complexity for our customers so they don't have to. We take this philosophy seriously, and we're proud that our work has been confirmed by real-world, public data.

Here's a brief summary of what we found:

1.8x

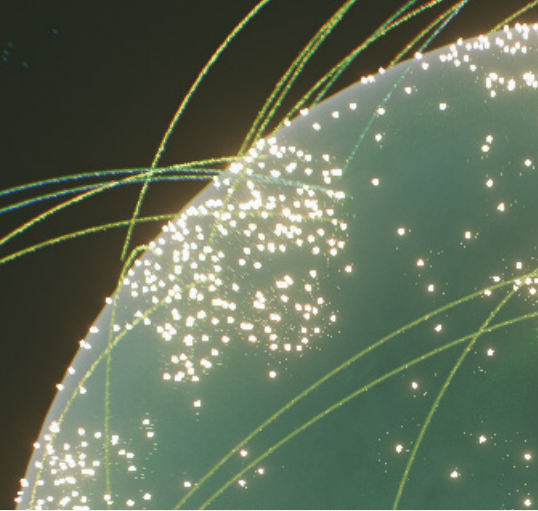
Shopify stores are the fastest in the world, rendering 1.8x faster than stores on other platforms.

93%

93% of brands on Shopify have a fast store, more than any other major commerce platform.

0.5s

Improving your site speed by a half second could increase conversion.



01 Executive summary

In this guide, we'll explore how having a faster site improves conversion. Plus, we'll unpack how Shopify gives our merchants the fastest sites in commerce, powered by best-in-class infrastructure that reduces the time and resources required to build one.



A quick note: we'll discuss some of the technical nitty-gritty that contributes to a fast website. If you're more curious about how site speed impacts the bottom line, [click or tap here to skip ahead](#).

Methodology and definitions

Before we get into the results, here's a breakdown of the methodology we used to guide our analysis, as well as a few industry-standard definitions that we will refer to throughout this report.

- **This report is based on publicly available data from Google.** Google aggregates website speed data from real users and presents it publicly as part of the industry standard method for measuring performance: Core Web Vitals (CWV).
- Our claim that Shopify stores are the fastest in the world was calculated based on public Google Core Web Vitals data for nearly 200,000 sites across a sampling of all revenue bands and all major commerce platforms.
- Our sample size for this study includes only storefronts natively built on Shopify. This report highlights how fast a Shopify site is by default, so we excluded headless builds from our analysis. However, our suite of headless tools empowers enterprise-level brands to build best-in-class custom experiences.

This study analysed homepage performance based on two metrics, including:

Time to First Byte (TTFB), which we refer to throughout this report as server speed, is the time it takes for the server hosting a website to respond to the customer's browser. This is a strong indication of the quality of the underlying infrastructure.

First Contentful Paint (FCP), which we refer to throughout this report as site speed, measures the time it takes for the first element of a page (such as text or an image) to become visible to the user.

You may have noticed that we used FCP over Largest Contentful Paint (LCP), which is also a Core Web Vitals metric. While LCP is important, it's heavily impacted by factors such as slow themes or an abundance of third-party plugins, which makes it difficult (and unfair) to use as a benchmark for site speed.



200K

sites were used to calculate and support our claim

02

The ongoing challenges of delivering seamless commerce experiences



Every retailer on the planet would agree that a fast website is critical to their success. The problem is that building the infrastructure to support it is still a massive challenge. There are two contributing factors that make server infrastructure a headache for some of the most experienced CTOs and CIOs on the planet, including:

1

The rising costs of server infrastructure

2

Keeping up with the speed of innovation

The rising costs of server infrastructure

Raise your hand if your business cases for building more modern server infrastructure have not gained much traction. While most non-technical executives would agree that site speed is important, it's also **expensive**. So too are the people you need to hire (and retain) to keep things up and running.

IT infrastructure is often one of the biggest expenses for a direct to consumer (DTC) retailer, and those costs have been rising steadily over the last few years with no signs of stopping. According to recent [BLS data](#), cloud services are projected to make up 14.2% of total information technology (IT) spending worldwide by 2024, up from 9.1% of spending in 2020.

It's easy to reflect back on [2006](#), when cloud servers became more widely available to businesses and promised to reduce costs dramatically. And sure, they are much cheaper than any on-premise solution you could build, especially with the amount of traffic an ecommerce website needs to handle. But as we've seen over the last couple of decades, cloud servers are still very expensive to set up and maintain.



14.2%

of total information technology spending is on cloud services, projected for 2024

Pricing models vary across each vendor and fluctuate based on your business's needs, but a typical midmarket company can easily spend up to \$10,000 per month just for a content delivery network (CDN) and hosting fees. This cost doesn't include essential third-party monitoring services like Splunk or Datadog, which are critical tools that come at a high cost.

This, of course, can vary based on the amount of traffic you send to the CDN, all of which you pay for. In response, many companies attempt to reduce their monthly costs by making surprisingly substantial tradeoffs on their website. Many performance experts will start by reducing the size of product images across the entire site. While this may increase your site speed and reduce costs, it's a big tradeoff, especially as you compete with retailers on Shopify who don't have to make this concession.

Once you have the technology in place, you need senior-level employees in place—all of whom command high salaries on the open market. In 2024, the average salary for an infrastructure engineer is just over \$106,000. When you extrapolate that over a typical Infrastructure org chart, the cost of filling those seats adds up quickly.

Even if you were to support your server infrastructure with a skeleton crew, here's what your org chart needs to look like:

Role	Average salary
CDN lead or network engineer	\$122,796
Security lead	\$147,426
Operations lead	\$109,739

Note: These figures are average salaries based on public data from Glassdoor. The actual compensation for the senior-level candidates you'll need for these roles will vary based on years of experience, required skills, and location.

Your immediate reaction to this table is likely twofold. First, this is a really barebones team. Beyond that, wouldn't you just have these people on staff anyway? In most cases, yes. But we've seen examples of retailers on Shopify grow into midmarket-level organisations with up to \$10 million in gross merchandise value (GMV) without any in-house technical resources.

Keeping up with the speed of innovation

A growing majority of enterprises are exploring how they can stay at the bleeding edge of innovation in ecommerce. An even larger majority of enterprises has discovered that doing so is not only expensive, but difficult to keep up with. Marginal improvements to network latency have proven to be a challenge for PhD-level mathematicians—and tech leaders aren't shy about speaking up about their frustrations.

According to Lenovo, 57% of CIOs said they'd replace half or more of their company's current technology if given the chance to start from scratch, and 25% said they'd replace most or all of it. Enterprises have responded by following through on these desires to rip out most of their legacy systems and start over—and many of them have done so by letting Shopify handle all of their infrastructure needs.



57%

of CIOs said they'd replace half or more of their company's current technology if given the chance to start from scratch.

25%

said they'd replace most or all of it.

Shopify has invested so heavily in platform infrastructure because we don't want our customers to worry about the costs and resources required to scale their businesses.

This empowers our users to spend more time and allocate additional budget to projects that deliver more value to their customers, rather than toiling away at building (and rebuilding) their site and server infrastructure.





03

What makes Shopify's infrastructure so strong

Slowest TTFB

1.99s

Average TTB

1.4s

Shopify

0.51s

All Shopify plans are fully hosted by our servers, which have proven to be fast and reliable enough for some of the biggest retailers on the planet. According to Google Core Web vitals, the average Shopify site has a Time to First Byte (TTFB) or server speed of 0.51 seconds. The average TTFB of other commerce platforms is 1.4 seconds, with the slowest clocking in at 1.99 seconds.



In other words, Shopify has the fastest server speed in commerce, on average by 2.8x and up to 3.9x faster.

These are eye-popping differences in server speed, which are made possible by Shopify's approach to innovation and experimentation. This manifests itself in two ways: large investments to modernise our cloud infrastructure and building upon existing relationships with industry partners.

Constant investments to modernise our cloud infrastructure



\$9.3B

in Black Friday Cyber Monday sales in 2023



35%

Shopify sites got 35% faster last year.

Shopify made a massive investment to expand our cloud server availability, which is most evident in three ways. To supplement our already strong points of presence in North America, we expanded our fleet of Google Cloud servers to locations across Europe, which makes sites render closer to users and keeps businesses closer to their customers. We also use a Cloudflare CDN on top of it, which has over 300 points of presence.

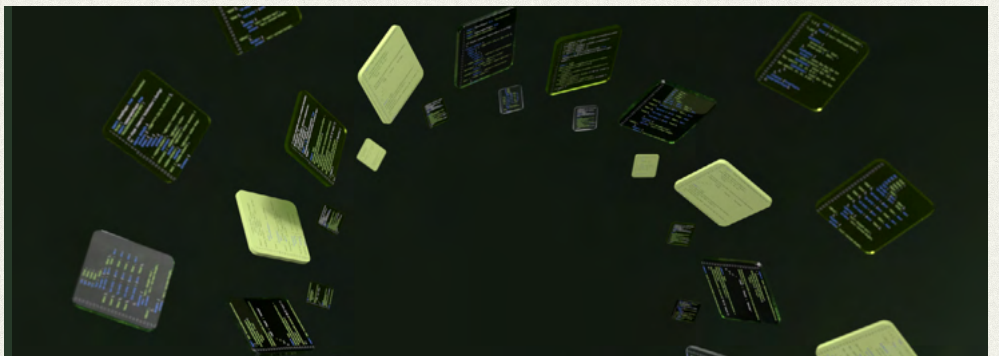
While this investment benefits merchants on a daily basis, it was never more evident than on Black Friday Cyber Monday weekend in 2023, when more than 61 million consumers globally purchased from brands powered by Shopify, generating \$9.3 billion in sales. Shopify is also the platform of choice for flash sellers, powering some of the largest sales the world has ever seen. And the result of that is a completely battle-hardened infrastructure.

Beyond our expanded fleet of cloud-based servers, we also announced that Shopify sites got 35% faster last year. This massive leap was a result of several key changes, including:

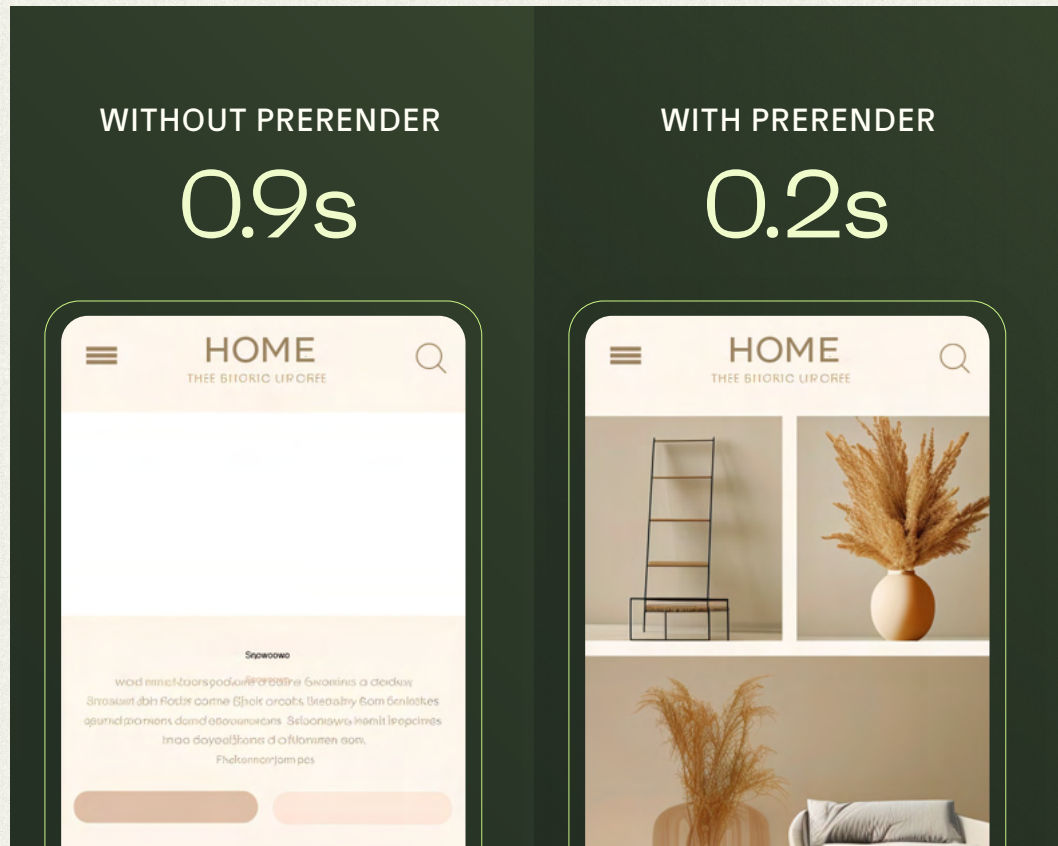
- 1 Consolidated hosting, which means that static content now shares the same domain as your storefront instead of using `cdn.shopify.com`.
- 2 Theme sections and blocks can intelligently apply lazy-loading techniques based on the location on the page.
- 3 Static content is now hosted on the same hostname as your storefront. When Shopify started, the best practices for browsers was to host static content like images, javascript, and CSS on a separate domain like `cdn.shopify.com`.

Relationships with industry partners

We're constantly looking for ways to experiment with our partners in an effort to make websites faster for our merchants. Recently, we've begun working with Google Chrome to implement Speculation Rules across our sites. Google Chrome prerenders a page when a user types a URL into the search bar, enters a search term into the search bar, or meets any other conditions under which a website uses its Speculation Rules API to tell Chrome which pages to prerender.



As is shown here, Speculation Rules can allow for what feels like a near-instant rendering of an incredibly media-rich website.



While we are still experimenting with Speculation Rules for Shopify sites on a broader level, we've begun turning it on for sites on a limited basis. In the time that we've done so, we've already seen a 200–300 millisecond improvement in render times.

This is just one example of Shopify's commitment to constant innovation. In our [Winter 2024 Editions](#), we announced over 100 new foundational product updates designed to help enterprises elevate their commerce businesses. This summer we just announced over 150 new features.

While we're happy to report that Shopify sites are the fastest in commerce, we also believe it's important to constantly push the envelope—and we're always looking for new ways to experiment and improve our infrastructure to give customers blazing fast websites.

We also work with a vast network of partners who collaborate with businesses to optimise site speed, especially as their tech stacks evolve and become more complex.

One example is **CQL**, which helps Shopify brands optimize different areas of performance, including:



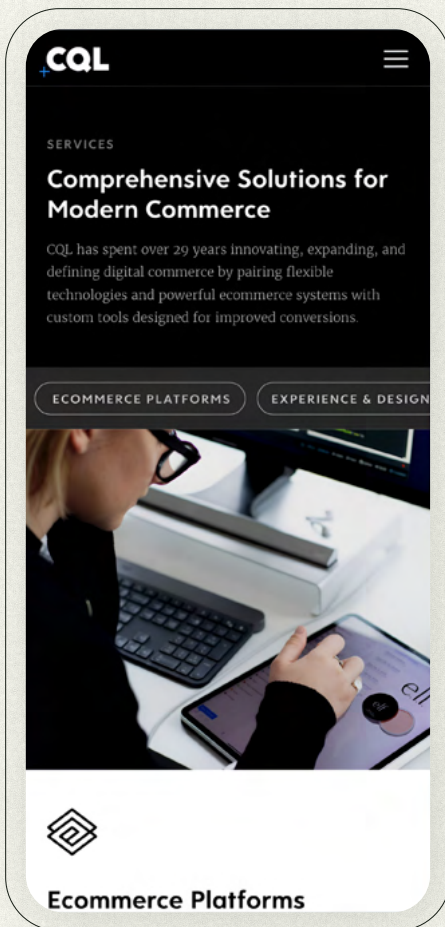
Optimising and prioritising images and media, using the Shopify CDN and responsive best practices so the customer gets the most impactful media quickly.



Focusing on the interaction between third-party scripts and platforms so great tools that work well in isolation continue to function at their best in an ecosystem.



Revisiting existing sections and customisations to take advantage of new Shopify functionality and evolving performance standards.



CQL's team tells us that by aligning performance goals to Google's Core Web Vitals, their clients have seen significant SEO benefits after migrating to Shopify. CQL also tells us that Shopify's reliable hosting infrastructure frees their developers up to support site speed projects in new ways.

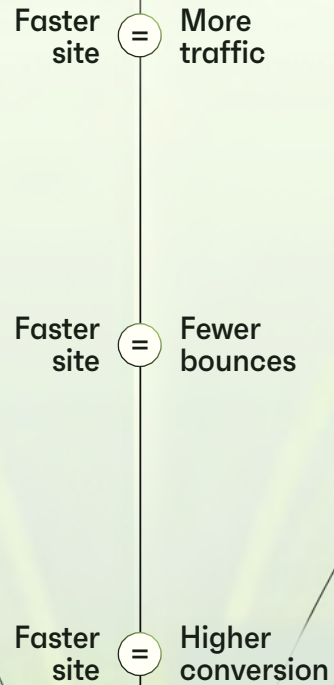
04

How site speed impacts conversion rates

Okay, so we've established that Shopify's server infrastructure is the best in commerce. But what does that mean for the bottom line? As it turns out, quite a bit.

We've been talking about site speed in terms of milliseconds. And while most sites load quickly enough to the untrained eye, those seemingly minor improvements have a dramatic effect on conversion. According to Shopify data and research, increasing your site speed by even a half second can increase your conversion rate. It's also worth noting that the average Shopify site speed is 1.2 seconds on average.

Now, saying that conversion rates increase as a direct result of faster site speeds is perhaps not breaking news. Still, there are other tangentially related benefits to site speed that ultimately impact your ability to attract, retain, and convert users into buyers.



How site speed impacts SEO

In 2010, Google announced that they would start using site speed as a new signal in their search ranking algorithms. They added:

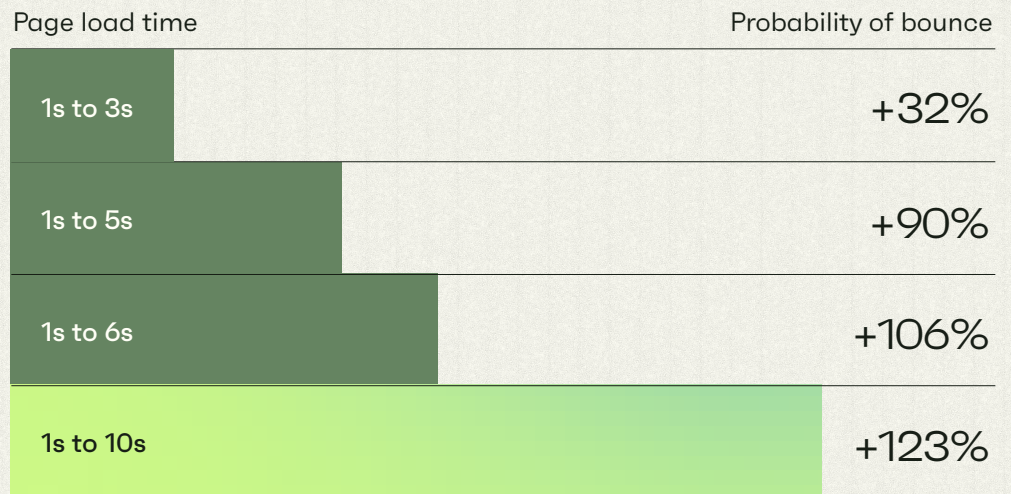


Faster sites create happy users and we've seen in our internal studies that when a site responds slowly, visitors spend less time there.

This has proven to be true repeatedly in the time since Google announced this algorithm update. As your search rankings worsen, so too does the amount of traffic your website receives. Ultimately, this gives your store fewer opportunities to convert the users that do visit your site into customers.

Research also shows that internet users are more impatient than ever before. [Semrush](#) recently reported that your bounce rate (or the percentage of users who land on a page and then leave) nearly triples if your page takes longer than three seconds to load. For example, bounce rate at 2 seconds is 41%. Bounce rate at 1.5 seconds is 35%.

Slow page load times increase bounce rate



Source: [Semrush](#)

Conversely, we analysed the Google CWV data we collect when a buyer lands on a Shopify site and found that a half-second increase to your site speed can [improve your bounce rate](#). Here's a closer look at how making the jump to Shopify impacts conversion.

05

Shopify increases your site speed and conversion



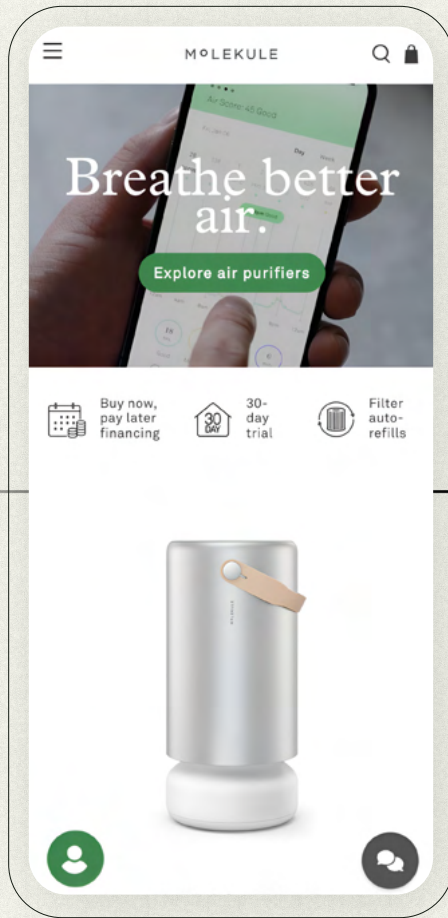
Okay, time to answer the million dollar question: why should I let Shopify handle my server infrastructure?

The answer is twofold. First, Shopify’s commitment to staying at the bleeding edge of server infrastructure on your behalf is unmatched. More importantly, the data shows that Shopify stores are the fastest in the world—and improving at an incredible rate.



On average, we found that our stores render **1.8x faster** than stores on other platforms. And based on FCP data, **93%** of brands on Shopify have a website that Google places in their “fast” category, more than any other platform.

While we’ve proven that a half-second increase can improve conversion, we’ve seen several examples of businesses that were able to achieve that increase easily by migrating to Shopify.



One such example is Molekule, whose checkout page loading times ballooned to over a minute on their previous platform. Since migrating to Shopify, the company has seen a drastic jump in both site speed and conversion rates.

75%

increase in device conversion rate

10%

increase in traffic

7%

growth in net subscribers



Our transition to Shopify has supercharged our ecommerce performance and facilitated a complete turnaround in our subscription revenue growth. With Shopify now managing the ecommerce complexities for us, our team is fully dedicated to solving technical challenges, fostering product innovation, and delivering exceptional value to our customers through the Molekule app.

Rachel Beisel

Senior Vice President of Marketing
Molekule



06

Exponential business growth from just a half-second site speed improvement



The numbers don't lie. Based on massive amounts of publicly available data, Shopify sites have proven to be the fastest in commerce by a wide margin. Beyond that, Shopify sites are fast by default, thanks in large part to our industry-leading infrastructure that lets businesses build websites that are snappy for all users, regardless of their location.

We could have filled several pages of this report with nothing but examples of brands whose sites were immediately faster after they migrated to Shopify. These aren't incremental increases, either. Companies like [Transformer Table](#) scaled to over \$100 million in annual sales after migrating to Shopify—and they cited a 67% increase in site speed as a major contributor to that success.

Migrating to Shopify gives you a clear path to launching a fast commerce website quickly. Not only will your website be quick, but it'll empower you to make money quickly—and ultimately allow you to evolve into the type of company you dreamed of when you launched it.



See how your site speed stacks up with our Site Speed Audit

