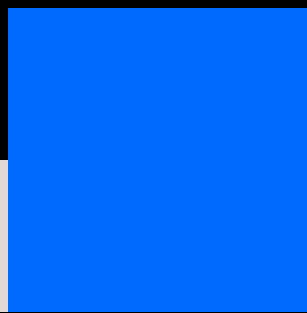
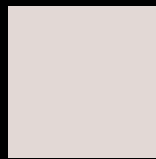


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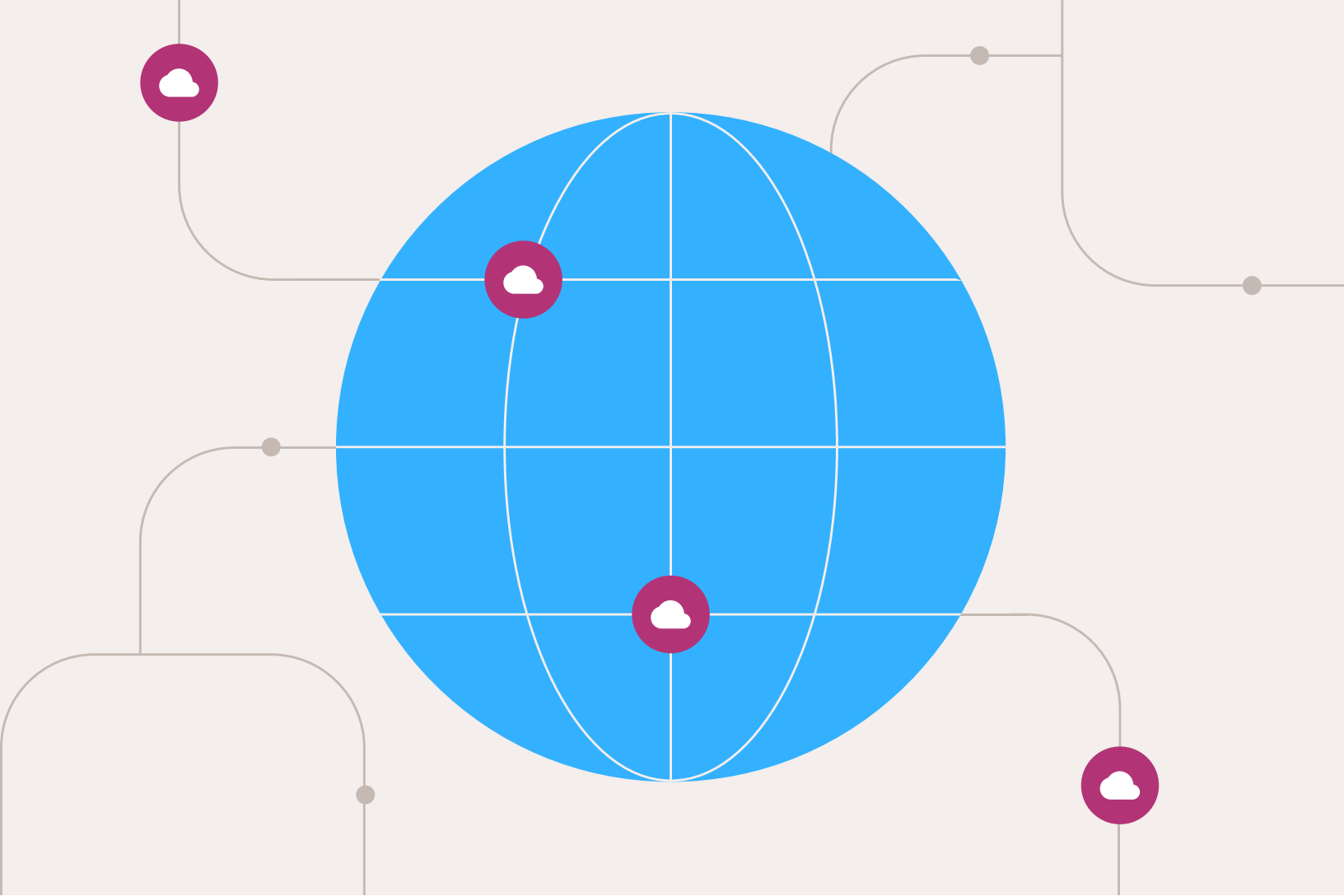
# The ecommerce edge

Winning with performant, scalable,  
and secure content delivery

**fastly**<sup>®</sup>



**Google** Cloud



With over 5 billion internet users around the globe,<sup>1</sup> the modern human experience—across continents, cultures, and industries alike—is rapidly becoming a digital one. Ecommerce has become a global mainstay, and it’s on the rise.

By 2025, B2C ecommerce revenue is projected to grow 50% from benchmarks set just four years earlier.<sup>1</sup> And with nearly a quarter of all purchases expected to take place online by 2026, the global ecommerce market is projected to grow to \$8.1 trillion USD in the same timeframe.<sup>2</sup>

As the market grows and online purchasing behavior continues to evolve, consumer expectations are increasing as well. Customers are no longer satisfied to shop only in stores or online; they’re also mobile. Across devices, prospects and potential customers bounce around from site to site and don’t care who else is trying to access your content at the exact moment they are. Wherever they are—on whatever platform or channel—they’re not only expecting a seamless, responsive, and instantaneous experience, they’re looking for a personalized one. In less than a second on your site, they’ve already formulated an opinion about your business,<sup>3</sup> and if your site doesn’t perform, they’ll leave.

1. [Statista](#), 2023; 2. [Forbes](#), 2023; 3. [Forbes](#), 2018

# Challenges in ecommerce content delivery

To win—and keep—customers, your organization must not only deliver superior content; it must also deliver a superior digital customer experience. But as a business leader who has elected to read this ebook, you've likely already discovered that this isn't always as easy as it seems.

## Performance challenges

Ecommerce businesses have only seconds to capture customer attention. Research suggests that if your website takes more than three seconds to load, 40% of users will leave.<sup>4</sup> Additionally, nearly 70% of consumers in one industry survey reported that page speed influenced their willingness to purchase online.<sup>5</sup> As our collective attention spans continue to dwindle, time spent on websites is dropping too.<sup>6</sup> On average, customers spend five minutes or less on a retail website.<sup>1</sup> And with 72% of desktop online shoppers and a whopping 84% of mobile online shoppers selecting then leaving items before ever making a purchase, abandoned shopping carts are becoming alarmingly common.<sup>2</sup>

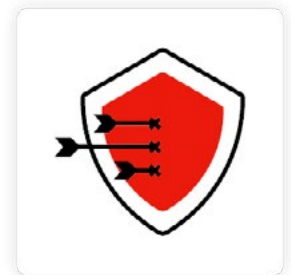
If your content doesn't deliver when and how it's supposed to, both prospects and customers will likely take their time, attention, and business elsewhere. That said, ecommerce sites must be lightning fast and frictionless across websites, mobile, and applications. But legacy architecture can easily become overwhelmed resulting in poor performance, slow load times, and dismal conversions. Additionally, a slow site can compromise SEO rankings, site traffic, and potential revenue.

## User experience challenges

Ecommerce customers not only expect a performant user experience, they expect a personalized one. Over  $\frac{3}{4}$  of consumers surveyed by McKinsey reported frustration with companies that don't deliver personalized digital experiences.<sup>7</sup> Additionally, in another industry report, 77% of respondents had chosen, recommended, and even paid more for a user experience tailored to their preferences and needs.<sup>8</sup> Where consumers are concerned, inadequate personalization is more than just a matter of preference; it's quickly becoming a matter of trust costing billions in yearly sales.<sup>9</sup> But exemplar personalization brands are generating 40% more revenue than companies that don't personalize digital experiences.<sup>7</sup>

## Reliability challenges

During peak shopping periods such as Black Friday, Cyber Monday, or other holiday seasons, ecommerce websites experience a surge in user traffic. The spikes and surges of high site traffic



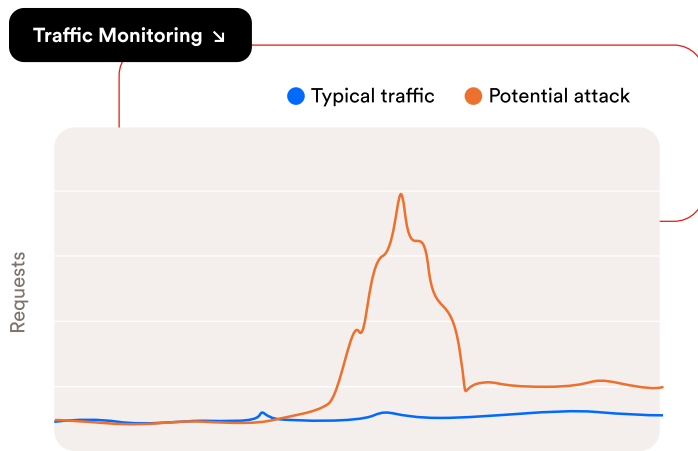
(e.g., product releases, sales, and unfortunately cyberattacks) can result in a host of challenges, including but not limited to jammed or overwhelmed servers, slow loading times, compromised performance, security threats, website and/or app unresponsiveness, site crashes, and server cost increases.

1. Statista, 2023; 2. Forbes, 2023; 4. Tech Times, 2020; 5. Unbounce, 2018; 6. Contentsquare, 2023; 7. McKinsey, 2021; 8. Forrester, 2017; 9. Accenture, 2017

# Challenges in ecommerce content delivery

## Security challenges

High traffic can also come with security implications—it can bring unwanted attacks and threats to your site. By nature, ecommerce sites and servers house sensitive customer data, like usernames, passwords, and payment information, which makes them valuable targets for cyberattacks. For example, in distributed denial of service (DDoS) attacks, hackers leverage botnets—that is, networks of compromised devices to flood a site with internet traffic, intentionally overwhelming its infrastructure. As bot traffic increases, bot attacks, which can be used to steal customer data and make fraudulent purchases, are

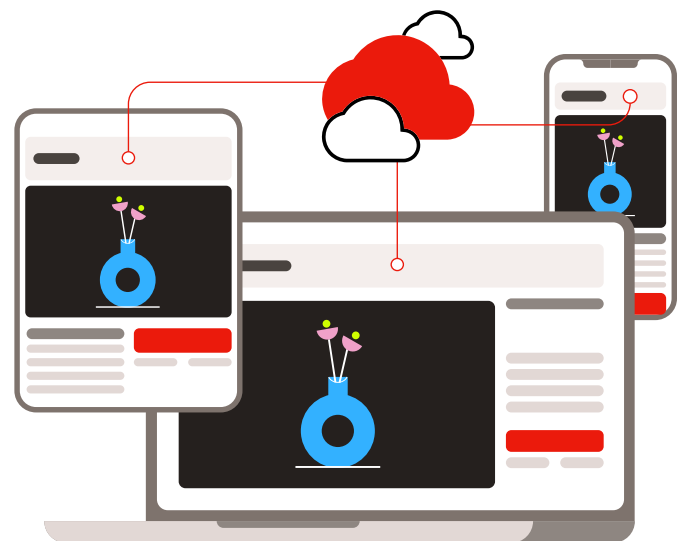


increasing as well. Nearly 28% of web traffic in 2021 came from bad bot actors.<sup>10</sup> These cyberattacks may not only cause servers to crash, but they can also be costly to both companies and consumers.

In 2022, online payment fraud totaled more than \$40 billion USD.<sup>11</sup> Further, automated attacks can be hard to detect and difficult to distinguish from legitimate site traffic surges. Legacy content delivery solutions may not only mishandle these attacks; they may unintentionally block legitimate traffic.

## Cost efficiency challenges

Website delays and outages can also be costly. A quarter of the respondents in a 2020 global survey reported that their average cost of server downtime ranged between \$300,000 and \$400,000 USD per hour.<sup>12</sup> Another source estimates that slow-loading websites cost retailers \$2.6 billion USD annually.<sup>2</sup> Even when things are working as they should, spikes and surges happen—not only with content delivery but also with costs. Performant and personalized ecommerce requires more data. More data requires more bandwidth. With centralized IT alone and/or legacy content-delivery solutions comprised of networks with different capacity limits and unpredictable pricing models, cost inefficiency, mismanagement, and overages are common. They can unnecessarily expose your organization to risk as well as cost your business both customers and revenue.



10. Statista, 2023; 11. Statista, 2023; 12. Statista, 2022; 2. Forbes, 2023

# A primer on content delivery networks (CDNs) and edge computing

A CDN—that is, a geographically distributed network of servers—can help to address many of the challenges specific to ecommerce content delivery. Often comprised of edge servers, CDNs decentralize data computation, offload workloads from origin servers, and cache files across and/or at the edge of the network. They offer a layer of built-in redundancy—distributing, processing, and synthesizing data closer to end users. What this means for your prospects and customers is a better user experience. And what it means for your business is not only reduced costs and security risks but also increased revenue potential. With the right solution, you have a baseline tool to deliver superior customer experiences and differentiate your business from competitors. But not all CDNs are the same. Legacy solutions simply can't keep up in an industry where expectations and technology continue to change. That said, [here are five things to look for in a modern CDN.](#)

## 1. Promotes peak performance

To run a successful ecommerce business, a powerful and consistently high-performing CDN is non-negotiable. Across devices and networks, your CDN must distribute content quickly and efficiently. The math is quite simple: The faster your load times and site speeds, the more likely and longer customers will stay on your site. The longer they stay, the more and more likely they'll spend. Additionally, the faster your site is, the more likely customers will find it in the first place. Search engines such as Google prioritize site speed and user experience in their rankings algorithms.

## 2. Improves user experience

Providing a personalized user experience not only benefits your customers, it benefits your bottom line. For example, fast-loading personalized content such as product recommendations are associated with higher customer engagement, conversion rates, average order value (AOV),

and repeat purchase rates. To deliver the personalized content and the user experience customers expect, your CDN must be able to process large amounts of data in real time.

## 3. Builds in reliable redundancy

Traffic spikes and surges will come—and they may come when you least expect them. Servers may go down and unwanted traffic designed to overwhelm your servers (e.g., DDoS attacks) can happen too. In any case, your ecommerce business needs to be prepared and your site needs to perform. Your CDN should offer redundancy to ensure that it can. Ideally, it should manage these fluctuations by distributing traffic load across multiple edge nodes. Its network should be sufficient to navigate all manner of internet weather. And it should be able to leverage multiple CDNs not only to sidestep traffic bottlenecks but also to provide multiple pathways to prevent outages.

## 4. Bolsters security

To earn and keep business, you must first earn and build trust. Your ecommerce site must protect customers' sensitive information, plus meet regulatory compliance standards. The CDN that backs it should too. It should also shield against distributed denial of service (DDoS) attacks by leveraging its distributed infrastructure to absorb and mitigate malicious traffic, preventing it from reaching your origin servers. Additionally, it should seamlessly employ various, layered security measures such as web application firewalls (WAFs), SSL/TLS encryption, and bot mitigation techniques to protect against threats and vulnerabilities. By caching and delivering content from edge servers closer to users, your CDN reduces the exposure of the origin server, making it less susceptible to direct attacks. Your CDN should provide visibility and programmability to empower your developers to make quick scaling and security decisions on the fly.

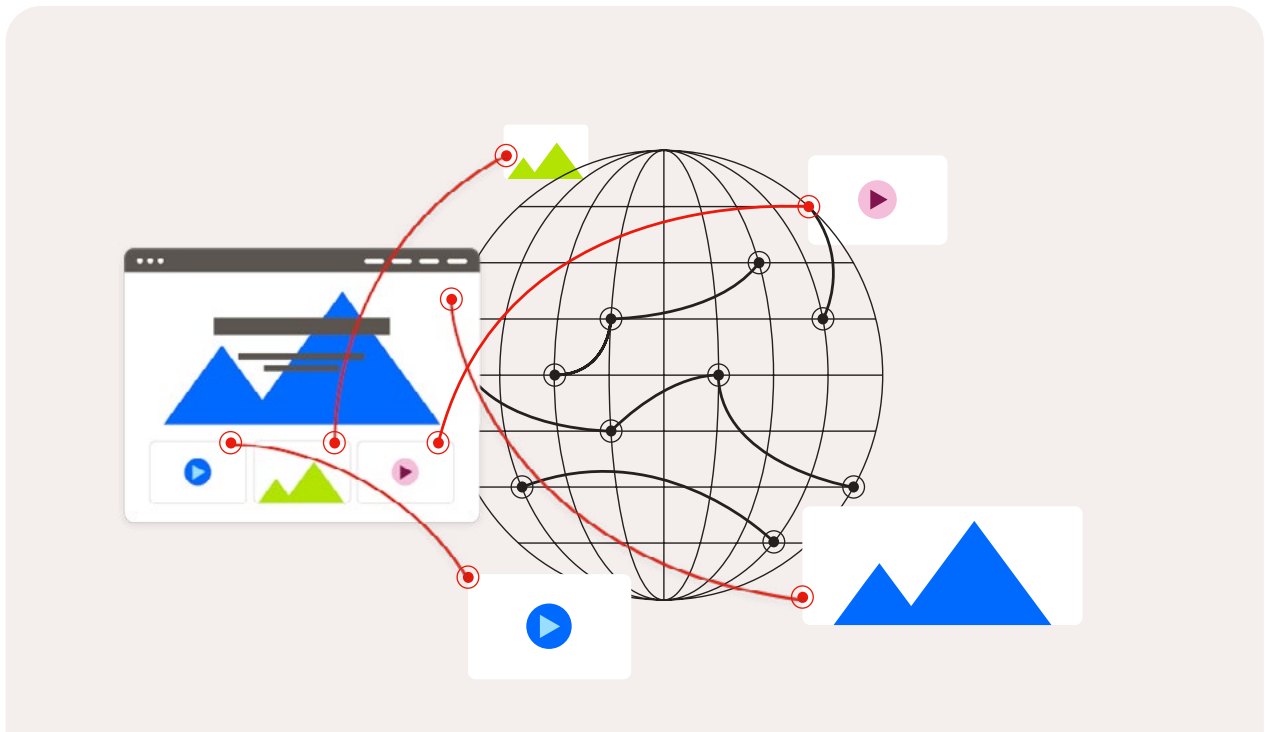
# A primer on content delivery networks (CDNs) and edge computing

## 5. Optimizes cost efficiency

Caching more—such as dynamic content and API calls—at the edge will not only improve your users' experience and your ecommerce site's performance, speed, reliability, and security. It can also save you money. Leveraging edge computing can help your ecommerce business to operate more efficiently. And offloading workloads from the origin can help to reduce egress costs as well as reduce your public cloud spend. To stick within budgets and prevent the overages and surprise costs that can come with traffic spikes or global malicious attacks, look for a CDN with transparent pricing and billing based on requests rather than bandwidth.

Ecommerce and its underlying technology is ever evolving, and it will continue to adapt to industry trends, consumer behavior, and customer demand. With a modern CDN and architecture, your business will be poised to leverage emerging technology and meet this demand. Your modern CDN should be an extension of your infrastructure that:

- Minimizes downtime.
- Optimizes the delivery of your app, web, and mobile traffic.
- Allows your content network to scale securely.
- Improves performance and cost savings along the way.



## Gain the ecommerce edge with Fastly

Fastly's edge cloud platform offers more than just a standard CDN. It offers a modern network with powerful, strategically placed, and software-defined POPs, plus 265+ Tbps\* of edge network capacity for better performance across the web, mobile, and apps. It's a fully configurable API-first network that integrates with common CI/CD tools for developer efficiency and control. It offers PCI-compliant built-in security, always-on DDoS mitigation, real-time visibility, and programmatic control. Additionally, it ensures performance, reliability, and scalability by working around "internet weather," automatically detecting and routing around origin connection issues in real time. It caches more content at the edge, with instant purge, origin shielding, and multi-CDN strategies, affording efficiency, security, and cost savings. For content that changes often, such as inventory values or personalized content, you can selectively purge cached data within 150 milliseconds.\*\* Live Event Monitoring Services ensure the user experience isn't impacted during high-traffic periods, including sales, new-product releases, and holidays.

To take security to the next level, Fastly's Next-Gen WAF provides scalable, advanced web application and API protection (WAAP) for your applications, APIs, and microservices, wherever they live, from a single unified solution. A highly accurate detection engine means you'll see virtually no false positives. In production, almost 90% of customers use the WAF in full blocking mode without concerns of blocking legitimate traffic.

Take performance, efficiency, and personalization a step further with Compute@Edge, and build high-scale, globally distributed applications and execute code at the edge—without having to manage the underlying infrastructure.

\*As of March 31, 2023

\*\*As of December 31, 2022

# Get the best of the edge and the cloud with Fastly + Google Cloud

With Fastly, a Premier Partner of Google Cloud, you can combine the speed, flexibility, and security of Fastly's edge cloud platform with the power of Google Cloud. For example, you can bypass the public internet and dramatically improve your performance and latency by taking advantage of direct network interconnects between Fastly and Google Cloud in over 25 locations. To further improve efficiency and reduce network costs, consolidate web requests to Google Cloud Storage or Compute Engine with Fastly's Origin Shield and Request Collapsing. These are just some of the ways our joint customers are optimizing their cloud services.

With Fastly and Google Cloud, you get the best of the edge with the best of the cloud. And since Fastly is available in the Google Cloud Marketplace, you can get a single bill for both and can apply eligible Fastly purchases toward your Google Cloud committed-use spend.

To find out more, to see how it works, or to get started, check out [Fastly in the Google Cloud Marketplace](#) or contact one of our [CDN experts](#).

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**Google Cloud**