


WHITEPAPER

# Optimize and secure your ecommerce business



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# Booming business brings revenue spikes — and cyber security challenges

Ecommerce businesses, from virtual storefronts to mobile retail apps, are expected to collect over 20% of global retail sales in 2023.<sup>1</sup>

While overall online sales have taken a dip following the pandemic, consumers are still browsing on mobile devices, making purchases through social media platforms, and spending busy shopping seasons hopping between ecommerce sites — rather than braving brick-and-mortar stores.

And online businesses are reaping the rewards of this digital-first mindset: by one estimation, ecommerce sales are likely to total over **\$6 trillion in 2023**.<sup>2</sup> That makes every click, every virtual shopping cart, and every online buying decision a crucial one.

As online sales boom, however, a subsequent surge in cyber attacks and performance issues means that businesses have more to lose than ever, too. Poor site performance, especially on mobile platforms, directly translates to increased rates of cart abandonment. Cyber threats — including ecommerce fraud, inventory scraping, API abuse, and more — can further increase revenue losses, damage customer trust, compromise site infrastructure, and erode the positive brand reputation a business has earned.

With so much at stake, ecommerce businesses need a resilient cyber security strategy to keep threats at bay while ensuring a fast, seamless user experience. Keep reading to discover the five challenges facing ecommerce businesses in 2023 — and strategies to overcome them.

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1. Forbes Advisor. "38 E-Commerce Statistics Of 2023." <https://www.forbes.com/advisor/business/ecommerce-statistics>. Accessed June 30, 2023.

2. Forbes Advisor. "38 E-Commerce Statistics Of 2023." <https://www.forbes.com/advisor/business/ecommerce-statistics>. Accessed June 30, 2023.

## CHALLENGE #1

# Ecommerce fraud puts customers at risk

Online businesses lost \$41 billion due to ecommerce fraud in 2022 — a number that Statista predicts will jump to \$48 billion by the end of 2023.<sup>3</sup>

Ecommerce fraud encompasses a wide range of tactics used to steal customer data, infiltrate accounts, divert payments to attacker-controlled accounts, and more. Some of the most common forms of fraud include the following:

- **Account takeover** is a form of identity theft that can result in stolen customer data and opens the door to more widespread attacks
- **Phishing** emails are designed to entice targets into clicking on malicious links or engaging with attackers posing as legitimate companies and employees
- **Inventory hoarding and content scraping** rely on bots, which attackers use to buy and resell (i.e. scalp) inventory, mine pricing data, and carry out other malicious actions
- **Magecart attacks** use malicious JavaScript injections to skim online payment data

Even when consumers have not been directly affected by fraud, it may affect their purchasing decisions: 31% of respondents said a primary drawback of online retail was the risk of fraud.<sup>4</sup>

## P A C S U N

Due to their viral drop marketing strategy — limited edition online releases of high-demand merchandise — [Pacsun](#)'s online sales events were irresistible to automated bots and online profiteers.

Frequent attacks on their website and inventory left Pacsun struggling to stay online — and get products into customers' hands.

After switching to Cloudflare, **Pacsun blocked 99% of harmful bot traffic.**

"Before Cloudflare, we had to wait for the bad traffic, investigate its causes, and figure out how to build a rule to stop it. **Cloudflare, with machine learning technology behind it, is always on — it does the work unassisted.**"

— Scott Forrest, Chief Information Security Officer

## How to prevent ecommerce fraud

1

### Block bad bots

An automated bot management solution can detect, analyze, and block malicious bots before they reach your site — no manual configuration required.

2

### Detect phishing attempts

End-to-end phishing triage can help block sophisticated campaigns across different vectors — email, browser, SMS, and others — even when messages appear legitimate.

3

### Stop account takeover

Protect login portals and access points with multi-factor authentication (MFA), while blocking requests that use known stolen credentials.

3. Statista. "Value of e-commerce losses to online payment fraud worldwide from 2020 to 2023." <https://www.statista.com/statistics/1273177/ecommerce-payment-fraud-losses-globally/>. Accessed June 30, 2023.

4. Statista. "Drawbacks of e-commerce among global consumers as of February 2022." <https://www.statista.com/statistics/1308184/online-shopping-drawbacks-worldwide/>. Accessed June 30, 2023.

## CHALLENGE #2

# Application and API abuse take down online businesses

APIs form the connective tissue that help retail websites and applications collect customer payments, adapt quickly to consumer trends, and optimize the online shopping and delivery experience.

But when left unsecured, APIs can open the door to a variety of threats — including local file inclusion (LFI), cross-site scripting (XSS), and SQL injection (SQLi) — which trick browsers and applications into loading malicious code, exposing sensitive data, and carrying out other attacks.

Often, API-based attacks like these are part of attack-chaining methods. Put simply, attack-chaining exploits multiple vulnerabilities in order to access legitimate accounts, steal customer information, and execute additional attacks over a greater surface area.

Given the increasingly sophisticated tactics used to compromise vulnerable API endpoints, online retailers need dedicated, layered API protection that can detect and mitigate potential threats across their entire environment.



Attackers are increasingly targeting APIs to perform unauthorized actions and steal data. And [boohoo Group](#) couldn't afford to manually mitigate these attacks during a hectic holiday season.

When moving to Cloudflare, boohoo rolled out Cloudflare Bot Management and API Gateway to their mobile environment ahead of a busy Black Friday.

After the peak shopping period ended, their security team found that **security issues — like bot attacks and abusive traffic — decreased by as much as 90%.**

**"Considering how complex our surface is — with mobile and traditional websites, 13 brands, and so many geographies — it's impressive how quickly and easily we implemented Cloudflare."**

— Dorian Skeete, Head of Information Security

## How to mitigate API abuse

1

### Discover and manage APIs

The first step to API protection is API discovery — logging all internal and third-party API dependencies.

2

### Tailor defenses with a WAF

Customize web application firewall (WAF) rulesets to block advanced zero-day exploits and API abuse.

3

### Install an API gateway

Integrate API management and protections to monitor, authenticate, and secure all APIs.

### CHALLENGE #3

## Data breaches erode customer trust

On average, a data breach costs businesses approximately \$4.35 million in 2022. For businesses in the United States, that number jumped to \$9.44 million.<sup>5</sup>

In addition to steep revenue loss, data breaches can also compromise customer information — like payment details, addresses, phone numbers, and more — and break customer trust.

Not only do customers no longer feel they can trust retailers when their personal information is exposed or stolen, but the amount of time it takes to detect a breach (around nine months on average) also increases the likelihood of further incidents of compromise.

In a 2022 study, **18% of surveyed US-based customers reported abandoning their online shopping carts because they didn't trust the site with their credit card information.**<sup>6</sup> This fear is not baseless in nature: compromised credentials, like those exposed in a breach, often end up on the dark web for purchase by other malicious parties.

Once a customer's information is compromised, attackers can use stolen credentials to infiltrate accounts on other platforms (e.g. banking applications), redirect funds via stolen payment information, manipulate personal data to launch sophisticated phishing scams, and more.



AfterShip serves over 100,000 customers worldwide — so they need to guarantee data privacy when handling sensitive customer data.

Cloudflare enables AfterShip to successfully avoid targeted attacks against their platform and customers, helping safeguard them from potential breaches and unexpected site outages.

**"Cloudflare products are intuitive and easy to use and have helped us solve many security issues** we previously struggled with. Cloudflare provides AfterShip and our customers with a reliable and secure experience."

— Teddy Chan, CEO

### How to minimize the impact of a data breach

1

#### Provide strong SSL/TLS encryption

Encrypt traffic with TLS certificates to protect sensitive customer data and prevent data snooping.

2

#### Deny malicious requests with rate limiting

Rate limiting can be configured against malicious attempts to breach user accounts or steal credentials.

3

#### Secure sensitive data with data loss prevention (DLP)

DLP can help secure sensitive data in transit and prevent data exfiltration by insiders or external attackers.

5. IBM. "Cost of a data breach 2022." <https://www.ibm.com/reports/data-breach/>. Accessed June 30, 2023.

6. Statista. "Main reasons why consumers abandon their orders during the checkout process in the United States in 2022." <https://www.statista.com/statistics/1228452/reasons-for-abandonments-during-checkout-united-states> Accessed June 30, 2023.

**CHALLENGE #4**

# Retail traffic spikes impact ecommerce availability

It's no secret that consumers flock to online retailers during peak shopping periods, especially during the holiday season. In 2022, the National Retail Federation estimated \$9 billion in total online sales during Black Friday, with an additional \$11 billion in sales on Cyber Monday.<sup>7</sup>

But ecommerce businesses are not always prepared for the influx of traffic that hits their sites and applications — which can result in slower page loads, abandoned carts, and customer churn as consumers look for deals elsewhere.

Even worse: some traffic spikes are so severe that they may knock a site offline completely.

Extended outages may frustrate consumers, disrupt high-value periods for ecommerce retailers, negatively affect SEO rankings, and damage brand reputation and customer trust.

Take Amazon, for example. When their ecommerce site faced a 40-minute outage for US and Canada-based users, they lost an estimated \$5 million in potential sales.<sup>8</sup> Similarly, a five-minute outage for Google cost the company over half a million USD in potential ad revenue.<sup>9</sup>

## C&A

Leading European fashion retailer [C&A](#) needed to accommodate an influx of unpredictable digital crowds during Black Friday.

The problem? Their infrastructure was not set up to support massive traffic spikes.

With Cloudflare, **C&A effortlessly handled a 10x surge in demand** — without service degradation.

And **online shopping pages achieved up to <100 ms response times**, helping increase conversion rates.

“Black Friday took months of planning. Now, we don't have to give it a thought. Scaling happens automatically.”

— Michael Glauche, Cloud Infrastructure Architect

## How to manage traffic surges

1

### Implement DDoS protection

Choose a DDoS protection service that can absorb a high volume of attack traffic — without service degradation.

2

### Load balance incoming traffic

Maintain site and app availability during peak traffic periods by routing traffic away from failed servers.

3

### Use a waiting room

Redirect customers to a waiting room to avoid downtime and ensure a consistent user experience.

7. Forbes Advisor. “38 E-Commerce Statistics Of 2023.” <https://www.forbes.com/advisor/business/ecommerce-statistics>. Accessed June 30, 2023.

8. VentureBeat. “Amazon website goes down for 40 minutes, costing the company \$5 million.” <https://venturebeat.com/business/amazon-website-down/>. Accessed June 30, 2023.

9. VentureBeat. “5-minute outage costs Google \$545,000 in revenue.” <https://venturebeat.com/business/3-minute-outage-costs-google-545000-in-revenue/>. Accessed June 30, 2023.

**CHALLENGE #5**

# Slow site performance leads to customer churn

Consumer attention is a hot commodity, and the slower their site experience is, the more likely they are to jump to another online retailer — or even take their business offline.

While a certain degree of churn is inevitable, ecommerce businesses that fail to maximize their site speed, improve page load times, and optimize the user experience may see higher rates of cart abandonment and miss valuable opportunities to build customer loyalty.

To put this into perspective, consider three key statistics:

1. On average, it takes approximately **3.21 seconds for a web page to load**.<sup>10</sup>
2. For ecommerce sites, **conversion rates triple when the page load is one second** or less.<sup>11</sup>
3. **82% of consumers factor in page speed when making purchasing decisions**.<sup>12</sup>

For retailers trying to attract mobile consumers, this can present an even steeper challenge. While mobile shopping is more popular than ever, 84% of customers abandon their carts while browsing on mobile devices — often because the site is not optimized for that format.<sup>13</sup>

## Shoptop

Shoptop services a global consumer base, but was having trouble guaranteeing fast page load times outside of mainland China.

By switching to the Cloudflare CDN, **Shoptop saw overall site speed improve by 50%**.

Even better: within the first six months of using Cloudflare, **their overseas user base skyrocketed by 600%**.

“The solutions of many suppliers seemed to be relatively cheap, but when encountering a large volume of traffic, costs started to become very high. In the long run, **Cloudflare’s price and performance ratio was the real winner.**”

— Sam Huang, CTO

## How to accelerate site performance

**1**

### Adopt a robust CDN

Reduce latency by caching static content at the edge, so assets are delivered as close to visitors as possible.

**2**

### Use Anycast DNS

Anycast enables multiple DNS nameservers to advertise the same IP address, improving overall DNS resolution speed.

**3**

### Optimize images for mobile

Resize and compress image files so they are delivered as quickly as possible to both web and mobile consumers.

10. Portent. “Site Speed is (Still) Impacting Your Conversion Rate.” <https://www.portent.com/blog/analytics/research-site-speed-hurting-everyones-revenue.htm>. Accessed June 30, 2023.

11. Portent. “Site Speed is (Still) Impacting Your Conversion Rate.” <https://www.portent.com/blog/analytics/research-site-speed-hurting-everyones-revenue.htm>. Accessed June 30, 2023.

12. Unbounce. “Think Fast: The Page Speed Report Stats & Trends for Marketers.” <https://unbounce.com/page-speed-report/>. Accessed June 30, 2023.

13. Statista. “Top reasons for cart abandonment among online shoppers worldwide 2022.” <https://www.statista.com/statistics/1383326/reasons-for-cart-abandonment-worldwide/>. Accessed June 30, 2023.



# How Cloudflare can help

The Cloudflare network spans 300+ cities in over 100 countries worldwide, helping ecommerce businesses achieve unparalleled security, speed, and availability. With the sheer volume of traffic that passes through the network on a daily basis, Cloudflare is able to observe attack patterns on a massive scale and help protect customers from an increasing range of both automated and targeted attacks.

## 300

cities in 100+ countries, including mainland China

## 12,000

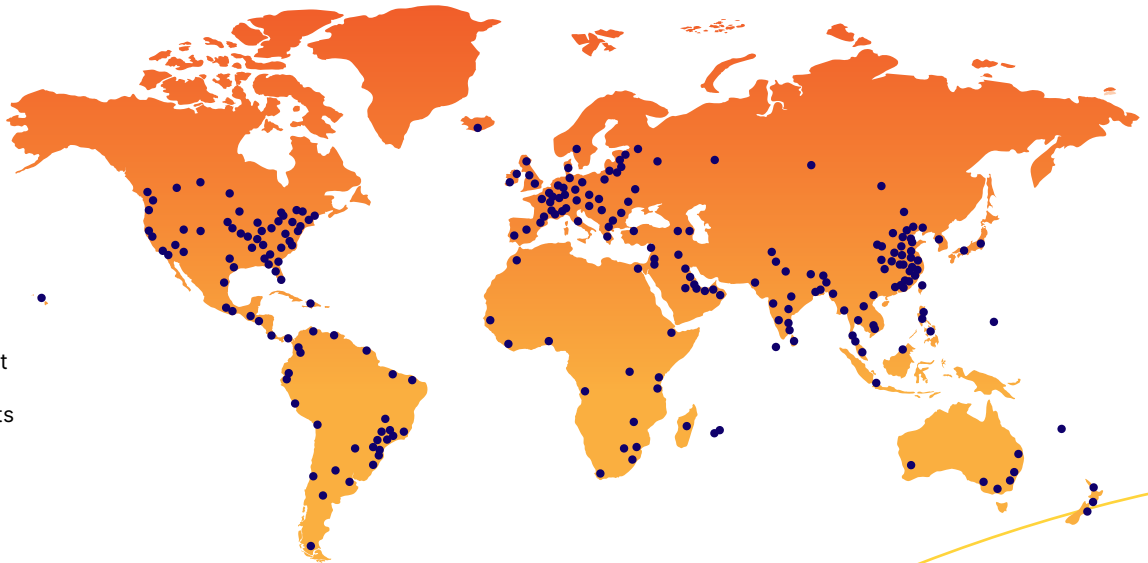
networks directly connect to Cloudflare, including every major ISP, cloud provider, and enterprise

## 192 Tbps







global network edge capacity, consisting of transit connections, peering and private network interconnects

## ~50 ms

from 95% of the world's Internet-connected population



Built on the backbone of this network, the Cloudflare security and performance portfolio helps ecommerce providers defend against attacks while maximizing site performance:

Challenge	Cloudflare solution	How Cloudflare helps
Malicious bots steal payment information, scrape pricing data, and compromise brand reputation	 <b>Bot Management</b>	Manage bots in real time by harnessing data from millions of Internet properties on the Cloudflare global network
Attackers compromise API endpoints to execute malicious actions or exfiltrate customer data	 <b>API Security</b>	Secure APIs with strong client certificate-based identity and strict schema-based validation
Supply chain browser attacks exploit common third-party JavaScript dependencies	 <b>Page Shield</b>	Get instant notifications when JavaScript is being served from known malicious URLs
API abuse, brute force login attempts, and DoS attacks can take down ecommerce sites and applications	 <b>Advanced Rate Limiting</b>	Get cost-effective protection from incoming attacks and deep insights into malicious traffic patterns
Sudden traffic spikes can significantly impact site availability and performance	 <b>Waiting Room</b>	Protect origin servers from being overwhelmed by routing excess site visitors to a custom-branded waiting room
Large image files often cause slow page loads for users or come with rising storage costs	 <b>Images</b>	Store, resize, optimize, and deliver images at scale — from a single API

## Ready to get started?

Contact us

today for your free assessment.

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