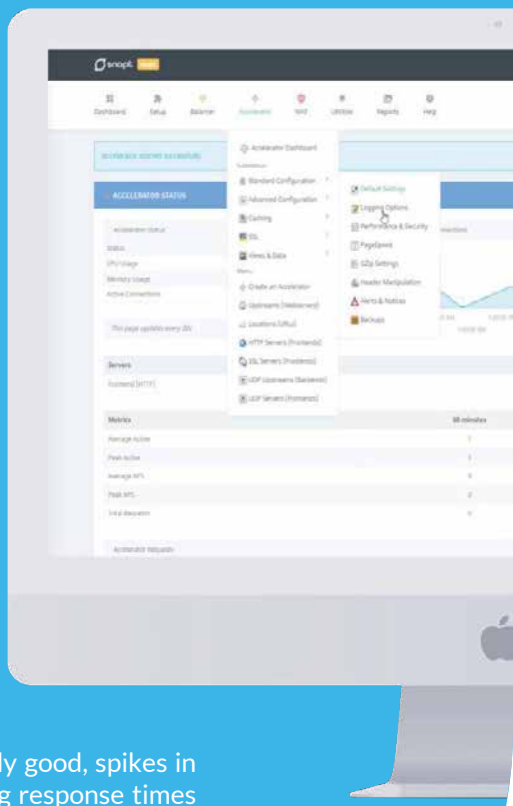
# HOW TO SURVIVE A TRAFFIC SURGE

TRAFFIC SURGES CAN BE AN OPPORTUNITY AND A CRISIS FOR YOUR ONLINE BUSINESS.

snapt

- This guide explains how you can prepare for traffic surges and how an application delivery controller (ADC) ensures your business survives and thrives during these critical scenarios.



# Web Traffic And Your Site

While attracting more visitors to your website or e-commerce shop is generally good, spikes in web traffic from planned or unexpected events can overload your site, slowing response times for customers or even taking the site down. Poor website performance not only affects your company's reputation and ability to attract and retain customers, but it also directly impacts your bottom line.

# Traffic Surge Scenarios

Traffic surges are caused by planned and unplanned events that drive an influx of visitors to a company's website or e-commerce store.

## Traffic Surges From Planned Events

Planned events include product launches, sales and holidays. For example, ahead of the Christmas holiday, Black Friday and Cyber Monday are notoriously huge online shopping days for retailers.
Likewise, an eagerly anticipated product launch will cause website traffic bursts, such as a new version of Apple's iPhone.

## Traffic Surges From Unplanned Events

Unplanned events are harder to anticipate. For example, when a media company publishes a major breaking news story online the site might experience a surge of visitors, or when a celebrity is seen wearing a certain fashion item consumers might suddenly rush to the designer's website to "get the look."

Generally, soaring website traffic is a sign of success. It can mean you're adding new customers, attracting more subscribers or selling more products. At the very least, an increase indicates greater engagement with your site. But when a traffic surge threatens to overload a site, the potential success can quickly turn into disaster.

# Why Do Websites Fail Under Load?

There are many moving parts in a website or e-commerce store, such as the web servers generating pages, the database servers loading product data and the billing system processing orders in the background. The most common reason why websites fail is because the web servers become overloaded.

## Load From Generating Pages

Modern web pages typically use the PHP programming language to generate dynamic pages on the web server along with a database to store user data, such as MySQL. Both components are very load-intensive for the web server, and the database load increases proportionately to your website load.

## Load From SSL Transactions

In addition to processing raw web requests, another heavy workload for web servers is all the SSL transactions that create secure links between the web servers and browsers. Encrypting and decrypting requests use large amounts of CPU resources, especially the initial session negotiation when clients first connect. If a site's traffic profile is large numbers of small connections, that could put excessive load on the system.

## Consequences Of Overloading

When it takes longer to load a page than it takes to get a new request for the page, a pile-up occurs. Quality of service starts to deteriorate for some users and then gets worse, affecting even more users, as browsers and users rapidly refresh and try to reload pages. Eventually, things spiral out of control, the web servers can't deliver any pages and the site goes down.

Your website must have excess capacity under maximum load and servers should never be overloaded. Once it happens, it's extremely difficult to come back online as the load will instantly increase as users hammer the system. It doesn't take much to stress the system – websites struggle to recover when overloaded by just 5%.

# The Challenge Of Managing Traffic Surges

Traffic surges are difficult to manage because the amount of traffic is unpredictable and load testing is complex and expensive. Also, the culprits for poor performance can often be external components, such as a credit card processor or database.

## Load Testing Capacity Is Insufficient

You can load test your system to measure performance under intense load. But a company's ability to load test is usually below its capacity for traffic because the tests are costly. It is difficult to really know how much traffic a system can handle, especially in a surge scenario.

## Traffic Surge Volume Is Unpredictable

It's even more difficult to gauge just how much traffic to expect. An e-commerce store can reliably predict that they will get three times more traffic if they have a sale. But a media company that breaks a story before any of its rivals could experience five-hundred-times more traffic.

## Unexpected Technical Problems Add Additional Stress

Even when events are planned and traffic surges are anticipated, companies can still be caught off guard. When Amazon launched its Prime Day sale in 2018, initial technical glitches caused outages for many users in the first few hours of the event.

No matter the size of the company, it's impractical to over provision capacity by having many expensive servers on standby just in case they might be needed in the event of a traffic surge.

# The Importance Of Uptime To Reputation, Relationships And Revenue

It's imperative to prevent traffic surges from degrading performance or taking your site offline. Your company's reputation, customer relationships and revenues depend on the performance of your website

## Performance Affects Your Site's Organic Traffic

Google takes website performance into account when calculating your site's quality score and how your site ranks in search results. A fast, stable and reliable website is more likely to be discoverable by new visitors in the first place.

## Performance Affects Your Website's Exit Rates

Users have high expectations and are quick to recognize which websites perform better than others. Nearly half of consumers expect a web page to load in 2 seconds or less. Statistics show that slow websites drive customers away, as 40% of people will abandon a website if it takes more than 3 seconds to load[1]. If your site is consistently fast and always up, even during a traffic surge, you will turn more visitors into customers.

## Performance Affects Your Ability To Attract And Retain Customers

A recent study found that 79% of customers who are dissatisfied with website performance are less likely to buy from that site again[2]. When your competitors struggle under the traffic load from seasonal sales or product launches and your site remains up and running, you can capture business from your rivals and your brand will earn a solid reputation for good service quality. By ensuring uptime and fast website response under extreme load, you can make the most of a traffic surge and win a competitive advantage.

## Performance Affects Your Revenue

It is well documented that slow website performance results in lost sales. If an e-commerce site is making $100,000 per day, a 1-second page delay could potentially cost $2.5 million in lost sales each year[3]. Faster loading pages means more revenue earning potential.

[1] https://www.akamai.com/us/en/about/news/press/2009-press/akamai-reveals-2-seconds-as-the-new-threshold-of-acceptability-for-ecommerce-web-page-response-times.jsp
[2] https://neilpatel.com/blog/loading-time/
[3] https://neilpatel.com/blog/loading-time/

# How To Survive Traffic Surges With An ADC

An application delivery controller (ADC) combines the functionality of a load balancer, web accelerator and web application firewall to ensure your business-critical website or service stays online, performs quickly, and is secure.

An ADC, like Snapt, protects your site from the negative effects of traffic surges by offloading load-intensive tasks from your web servers. This prevents overloading, accelerates page loads and handes failure gracefully.

## 01

### Dramatically Reduce The Load On Your Web Server

By offloading multiple tasks, including SSL termination and serving images, stylesheets and JavaScript, this frees up significant compute resources on your web server for generating web pages. Which allows the system to scale and cope with the extra load from a traffic surge. An ADC can reduce the load on your web servers by up to 70%.

## 02

### Prevent Large Bursts Of Traffic From Overloading Your Web Server.

If a site approaches overload, an ADC can reject users from accessing the site if necessary. Rather than risking your entire site going down and all users being disconnected, you can configure your ADC to temporarily block the small number of users that the system can't handle.

## 03

### Reduce The Time It Takes To Load Web Pages

This can be achieved by optimizing web content. By automatically rewriting website content (i.e., JavaScript, CSS, HTML) to minify, compress and re-encode, a site will load 50-80% faster on average.

## 04

### Balance The Load Between Multiple Servers Dynamically

Traffic is sent to the servers that are running the fastest and performing well in order to keep the queue as low as possible. Ideally, you want zero queuing and no long wait times as pages load for users.

## 05

### Handle Failure Gracefully

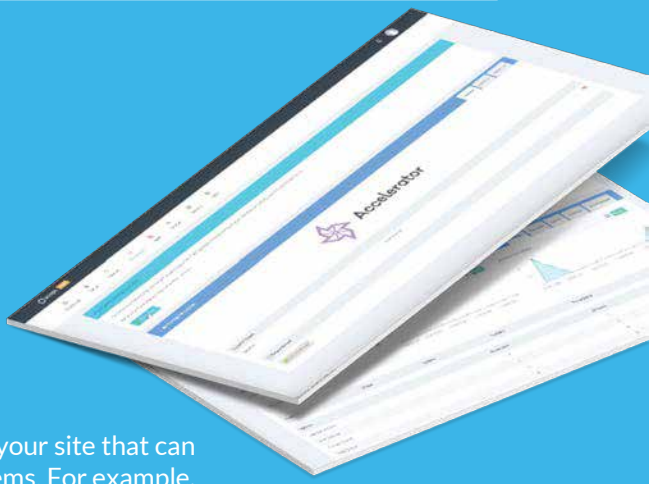
The ADC can redirect traffic from a server that's faltering to one that's healthy. If the system completely crashes, then the ADC can present a friendly message to users, serve up the last good copy of a page or redirect users elsewhere.

## 06

### Preventative Load Testing

Load testing is the practice of simulating activity to test a system's ability to stay operational and perform well under stress. This could be your website, ecommerce portal, application server, API, email service, or any other exposed application – either internal or external. Best practice recommends load testing your critical applications regularly, especially before large-scale events like Black Friday sales, product launches, school registration days, and more.

# Protecting Other Critical Components




Aside from your web server, there are other components related to your site that can fail during a traffic surge, including database servers and billing systems. For example, the load on database servers like MySQL and MSSQL increases as your website load surges. To prevent overloading databases, it's important to take steps such as caching database reads and increasing memory allowances.

If you have a backend billing system, be sure that the credit card processing system is scalable and that you have benchmarked the performance. For an event like a major sale or the release of popular concert tickets, you don't want your billing system to let you down during a traffic surge and deter people from making purchases. An ADC can provide the load balancing and scaling for critical billing resources.

# Conclusion

Traffic surges can be great for business – more visitors, new customers, increased revenue and better engagement with your website. But if your site is not prepared, a traffic spike can overload your web server and result in disastrous downtime that will affect your reputation, competitiveness and bottom line. It's not economically viable for any-sized company to over-provision capacity for traffic surges resulting from planned or unplanned events. The far more elegant and cost-effective solution is an ADC that offloads servers, prevents overloading, accelerates page load times and gracefully handles downtime.

Through finding, fixing, and preventing capacity and performance bottlenecks, Snapt's load testing service helps our clients stay online and accessible during large-scale events. Are you confident in your site's ability to handle your largest scale event?

**Put your site to the test**

**And book your load testing consultation with our team today.**