

# Managing High-Traffic Websites:

## A Guide for Digital Agencies

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# Introduction

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Clients love when they experience high traffic to their website: more eyes on a page means more dollars in the bank, or better brand exposure, or both. Win-win, right? However, there is an exception to this rule: **when high traffic equals poor visitor experience.**

Poor visitor experience may come in the form of slow page loading, broken links or images, or worse, site crashes and outages.

You can bet that if any of your clients encounter this type of incident, they'll be on the phone to you in a quick minute, demanding a fix right now!

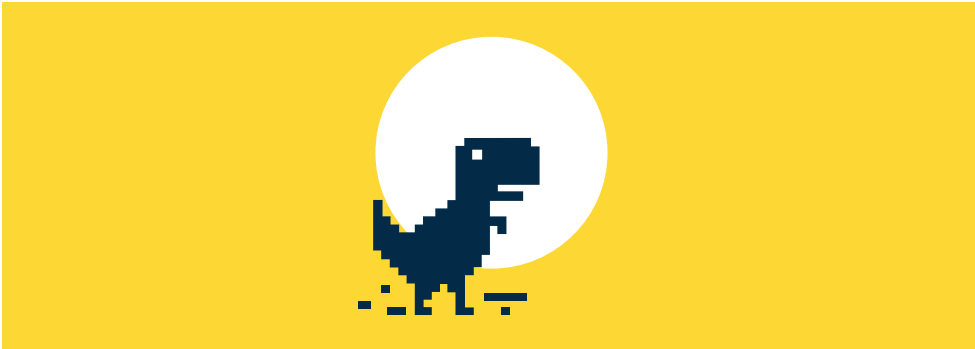
Whether your agency offers clients a website, web app, or mobile app design and development, you need to make sure that the underlying infrastructure their

product runs on can support traffic demands – or you'll wind up with some very unhappy clients on your hands.

Scaling websites for high traffic means careful design and configuration considerations on your side, as well as educating your clients on their web hosting needs. Skimping on either can have serious implications on performance.

**In this guide we take a look at what makes a website crash (plus fixes), design considerations to avoid unnecessary crashes due to high traffic demands, different types of hosting servers and their use, and some advanced server techniques for dealing with high traffic.**

# What makes a website crash?



## On-page errors

When we talk about on-page errors, it's when you may see a region of the page with a glitch, or the entire site may have failed to load. This can be caused by errors in coding or errors in plugins. This is usually a quick fix: check over any site updates for programmatic errors, plugin patches that haven't been applied, new plugin patches that may have caused an error, or outdated plugins that may no longer work with the website and need to be uninstalled or replaced.



## Expired domains

This isn't a crash error, it's simply when the ownership of a domain has run out. To combat this, set up your clients for auto-renewing domains. Be sure to send emails informing them that auto-renewal is upcoming, reducing the chance of billing disagreements.



## Host errors

Occasionally, server misconfiguration can be the root cause of websites going down. This can be the case when switching over to different server setups or hosts moving over to different infrastructure behind the scenes. It can also be from host hardware failure, including network failure.

To protect against these errors, hosts should provide load balancing, staggered migration, backups, etc. Experienced managed service providers, like [Vodien](#), can be utilised to mitigate these risks.



## Hacking attempts

Hacking attempts can either originate from outside malicious actors, or from testing website security. Hacking techniques such as cross-site scripting, SQL injection, and backdoors can be used to gain access to the backend of a website and may ultimately crash a website, or worse — lead to data theft and/or deletion.

Building security into websites, avoiding known vulnerabilities, and testing thoroughly helps protect against hacking attempts.



## High traffic loads

### EXPECTED HIGH TRAFFIC

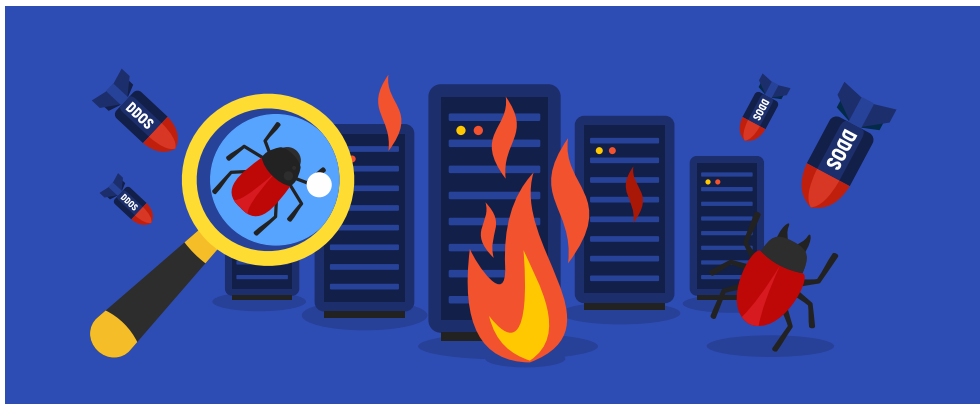
A large number of visitors to a website can cause it to crash, timeout, or

lead to long wait times. Expected high traffic events include time-sensitive events (such as the incident where Avengers: Endgame ticket sales [caused cinema websites to crash](#)) or targeted marketing launches that will reach a large audience (such as [McDonald's Loungewear Collection causing significant downtimes](#)). Elastic load balancing can reduce crashes, which we will touch on a bit later.

### UNEXPECTED HIGH TRAFFIC

Occasionally, other events outside of a company's control lead to an unexpected influx of traffic. Examples include fashion designers who have a celebrity wear a piece of their clothing (e.g. [Meghan Markle's choices crashing numerous Australian boutique websites](#)), or if a Reddit post with many viewers goes viral featuring a website or small business (known as the [Reddit Hug of Death](#)). Again, elastic load balancing can reduce crashes.

### MALICIOUS HIGH TRAFFIC



The third type of high traffic event is the most difficult to deal with, as traffic may not attenuate over time, unlike expected high traffic or unexpected high traffic events. A malicious high traffic event is known as a Distributed Denial of Service (DDoS) attack. This is where a coordinated attack is made on a website, by sending large amounts of traffic to the site, generally from oblivious malware-infected devices controlled by a botnet.

A recent example [targeted a number of financial brokerage platforms](#).

Defending against DDoS attacks requires advanced network filtering.

DDoS attacks may be sustained until the instigator calls off the attack or the botnet is taken down.

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## Basic website setup to guard against traffic-based crashes

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No matter the website you're setting up – whether it's for a small business or an enterprise client – you'll need to consider how to mitigate the risk of website crashes from all root causes.

There are various ways you can design a website or app to optimise the content for speed. Under pressure from excess traffic loads, a website that loads faster will be less likely to crash or frustrate site visitors.



## Size matters



Website content must be optimised so that less traffic goes over the network. In practice, this means doing tasks such as reducing image resolutions, embedding YouTube videos instead of hosting videos on your client's servers, and minifying Javascript code. The less data transmitted from your client's own servers, the faster the site will load.



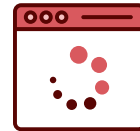
## Dynamic content vs static content

While dynamic content is often a feature request of clients — making their website far more personalised for visitors — static content loads at far faster speeds. When experiencing spikes in traffic, websites with a lot of dynamic content will suffer, frustrating the site visitor. Keep it simple if you can.



## Caching

Caching data both on the server-side and the client-side can help considerably with load times, allowing websites to perform under a heavy network load. This takes skill on both your front-end and back-end developers' behalves, so ensure your devs know how to do it well — or hire people that can.



## Present loading pages

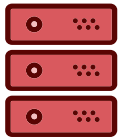
Noticed how complex web apps have clever loading pages to distract you from the time it takes to deliver content to the browser? You can use user experience here as a way to keep waiting visitors from getting frustrated with load speeds. Fun facts or a slew of silly loading messages are currently popular loading page techniques.



[How else can you reduce your page load time? Click here.](#)

# Different kinds of hosting servers and their uses

With differing requirements, it can be tricky to choose which type of servers or combination of servers will best serve your clients. Offsite hosting options differ significantly, so it's important to know what your clients will need.



## Dedicated servers

**Dedicated servers** are exactly what they sound like: a server that is purely dedicated to your own purposes (i.e. a singular client of yours). Dedicated servers are real bare metal hardware. Whereas in the past, your clients may have had their own server on site for web hosting, this is often a machine at a web hosting company's facility instead.

Depending on the service arrangement with the hosting company, dedicated servers can either be managed by your internal people remotely (requiring systems administrators to manage these correctly), or managed by the hosting service provider if you don't have the expertise in house.

### PROS

Full resources of each dedicated server are always available

Added security of being the only tenant on the server

### CONS

Expensive

Server resources are wasted if not fully utilised

### BEST FOR . . .

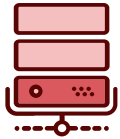
Dedicated servers are best for clients who have very strict compliance terms, in particular for data security standards, including monitoring and logging. It can also be a good choice for very high traffic clients, or web apps with intensive workloads.

For example, if you handle clients with heavy database I/O loads that need service in near-real time — such as e-commerce websites with 1000+ products — these should use dedicated servers to ensure smooth user experience at all times.

Other user cases are when a website features heavy video rendering (requiring significant server-side resources), a website with machine-learning backend functionality, or a web app that requires lots of client-server interactions.



**Still unsure whether or not to upgrade to a dedicated server hosting?**



## Shared servers

**Shared servers** are again bare metal hardware servers offered by the hosting company. But this time, your client shares tenancy with other customers of the hosting service. Each tenant shares server resources, although it may not be evenly distributed among tenants. If other tenants have heavy workloads, it may affect the resources available for your client.

### PROS

Much more affordable

Less wasteful of hardware resources so more environmentally friendly

### CONS

Can have other tenants hogging resources that will affect your client's performance

Potential security concerns from shared tenancy for highly sensitive information

### BEST FOR . . .

New small businesses or individuals that are just starting out. Choosing between shared server hosting providers and plans is also important here; cut-rate hosting providers overload servers with customers which can lead to poor performance.



## Virtual private server

A **virtual private server** (VPS) acts like a dedicated server, but it's actually a partition of a server, much like a shared server. There are some key differences, however.

A VPS mimics a real-life server down to CPUs and memory available. It is a full virtual server architecture, but it may not be the same as the bare metal server it's running on. Because a VPS mimics a full real-life server, it means you are allocated those exact resources, so you will not need to worry about tenants on other VPSs (on the same physical server) hogging resources.

Again, like dedicated server hosting, there is the option to choose either unmanaged or managed VPS hosting.

### PROS

Cheaper than a dedicated server

Can choose any server architecture you wish

### CONS

More expensive than shared servers

May need to use a managed service provider, depending on your level of system administration skill

### BEST FOR . . .

A majority of clients looking to host their website/app. Examples would be small to medium sized businesses such as professional services (accountancies, engineers, lawyers, etc.) or trades (landscaping, construction, etc.). Other clients may include government departments or non-profit organisations.

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## Which type of servers can handle high traffic loads the best?

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Clients that have high traffic needs have traditionally been directed to **dedicated server hosting**. However, **VPS hosting** can also handle high traffic needs given the right configuration.

It's important to make the distinction between fairly steady high traffic needs and fluctuating high traffic needs. Steady high traffic needs require dedicated servers or VPS.

For fluctuating high traffic needs, you can implement an elastic solution that brings on new servers on demand under high traffic. This is beyond the scope of this guide, but you can [ask us for more information](#) if this sounds like an issue you may face often.

## Advanced server techniques for dealing with high traffic

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Beyond the right type of server for each of your clients, there are some other strategies that you can implement to deal with high traffic loads. These may be critical to provide your clients the support they need and avoid crash incidents.



### Content Delivery Networks (CDNs)

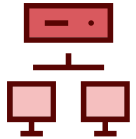
CDNs are a series of servers (of any type) located in various physical locations around the world. By dispersing resources, it allows websites to handle traffic more effectively, particularly if traffic comes from a range of different locations. Hosting services offer CDNs as part of many packages.



### Regular backups

Server failures happen. Hardware components can break. There can be power or network outages that prevent regular service. The obvious fix for this is having complete backup servers in different locations, so as soon as a fault happens, a client's site can be rolled over to a recent backup — with little to no disruption to site visitors.





## Load balancing

**Load balancing** is a technique that can be implemented either in hardware or software to distribute traffic across a series of servers. This means that even with server failures, traffic increases, or decreases, servers can provide 'stable' infrastructure so that visitors won't experience any decrease in user experience. With elastic server scaling, servers can be brought online as traffic starts to spike, then brought offline when traffic resumes to normal conditions.



## Security measures to prevent DDoS attacks

DDoS attacks are tricky because they appear as regular site visits, only they're really from a staggering influx of machines.

In this situation, you need to be able to tell which access attempts are from real site visitors versus slave botnet machines. This requires a combination of clever software and hardware designed to deflect the attack. Since it must be implemented on the server side, hosting providers need to offer this service to support their customers. Our [A.I. Sentry solution](#) offers DDoS protection for our customers.



**READ: 8 Key Essentials for Your High-Traffic Website**

# Vodien for digital agencies

As a digital agency, it's your business to make the best websites and applications for your clients, but you may not be specialists in hosting infrastructure. The best products not only look great, they work smoothly, quickly, and without fail — which is why choosing the right hosting is a critical part of your business. That's where we come in and provide assistance. Determining the right hosting strategies is our business.



## Hosting options

CDNs are a series of servers (of any type) located in various physical locations around the world. By dispersing resources, it allows websites to handle traffic more effectively, particularly if traffic comes from a range of different locations. Hosting services offer CDNs as part of many packages.

### This includes:

#### UNEXPECTED HIGH TRAFFIC

Our bare metal servers come with a range of different architectures and memory sizes, as well as the option of managed or unmanaged configuration.

## VIRTUAL PRIVATE SERVERS

Choose your own virtual server architecture. We have unmanaged and managed VPS servers available with a range of core options and storage sizes.

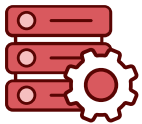
## BUSINESS WEB HOSTING (shared servers)

For more lightweight business hosting on shared servers, we have plans that can accommodate 5-40 websites, depending on your client base.

## WORDPRESS HOSTING (shared servers)

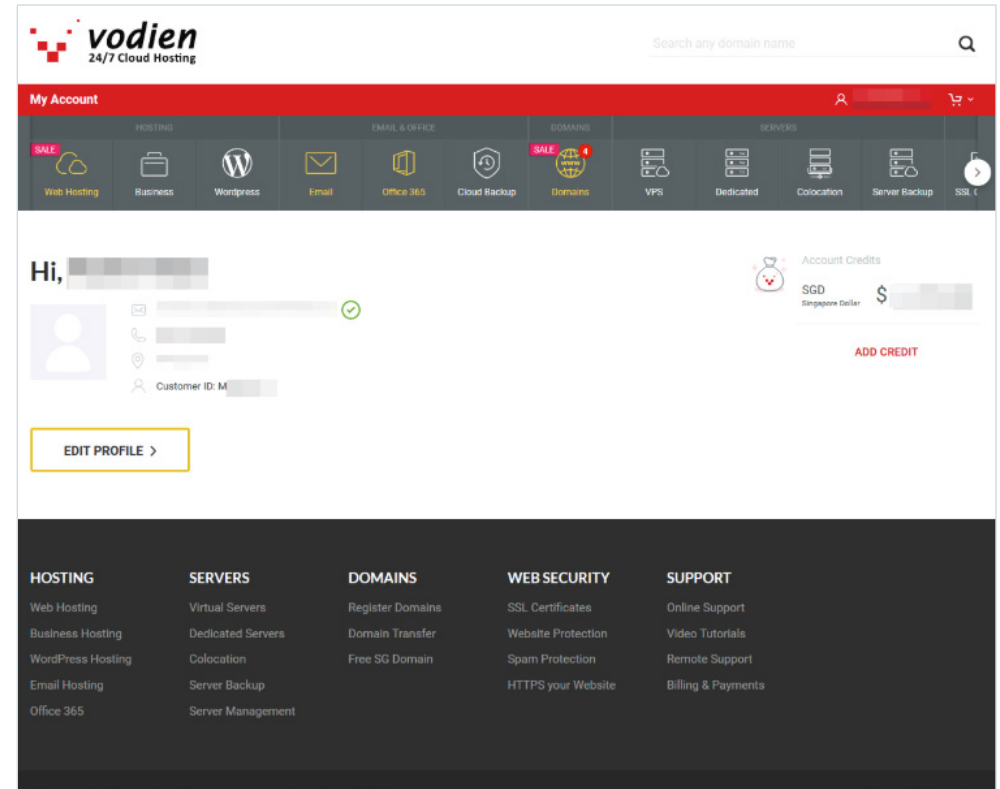
Consider our WordPress hosting option for clients needing individual WordPress websites who would like to self-manage after handover.

Each of these server options comes with a range of different options themselves, so the perfect balance of needs and costs can be achieved. Many agencies will find themselves requiring a combination of different hosting solutions to suit various different clients on their books.



## Managed vs unmanaged servers

We're well aware that plenty of agencies have in-house expertise to configure servers for optimum usage – and that plenty don't. That's why we offer both **unmanaged** and **managed** options for our hosting.



**UNMANAGED HOSTING** is quite a bit cheaper, so if you have server-side configuration gurus you'll be able to save some money for your clients by going down the DIY route.

**MANAGED SERVICES** mean that we take care of the configuration for you, which leads to less errors (and better results for your clients) if you don't already have that experience in the field.

There's also the option for us to walk you through setup and management so you do have the in-house knowledge to successfully manage your own hosting servers through us.



## Consultancy services

While you may work with a majority of clients that have similar needs, sometimes you may deal with new projects or clients that have requirements that are outside of your regular operations. For instance, you may land a contract with a healthcare provider than has strict data privacy rules, or a high-traffic ecommerce site looking for a complete website design overhaul.

In these situations, we can provide assistance in guiding you towards the best hosting solution for a case you haven't come across before.

We're also happy to help come up with custom hosting bundles that best suit your agency's current and incoming client requirements.

**You can trust Vodien with your web hosting needs and services. We are dedicated to giving our customers the best possible packages for each of your clients; not providing bulk cheap hosting that falls over under pressure.**



**Contact our Vodien support team to learn how we can best serve your business.**



**We're available for you 24/7.  
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