



# Lifting The Lid On Google's Core Web Vitals Update

Box UK / Found  
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**simply brilliant thinkers**  
making software brilliantly simple



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**PAGE SPEED.**  
**WHY IT MATTERS?**



# HOW FAST IS YOUR SITE TODAY?

PageSpeed Tools > Insights

HOME

GUIDES

REFERENCE

SUPPORT

## PageSpeed Insights



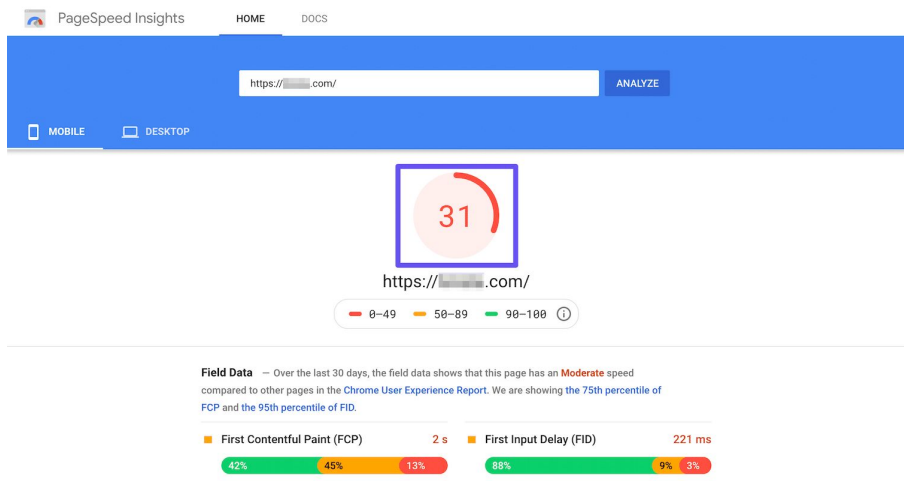
Make your web pages fast on all devices.

Enter a web page URL

ANALYZE

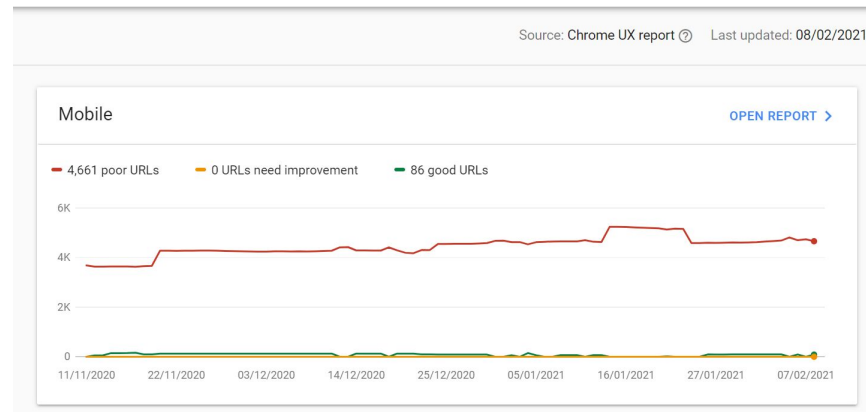
Google “google page speed test”

# HOW FAST IS YOUR SITE TODAY?



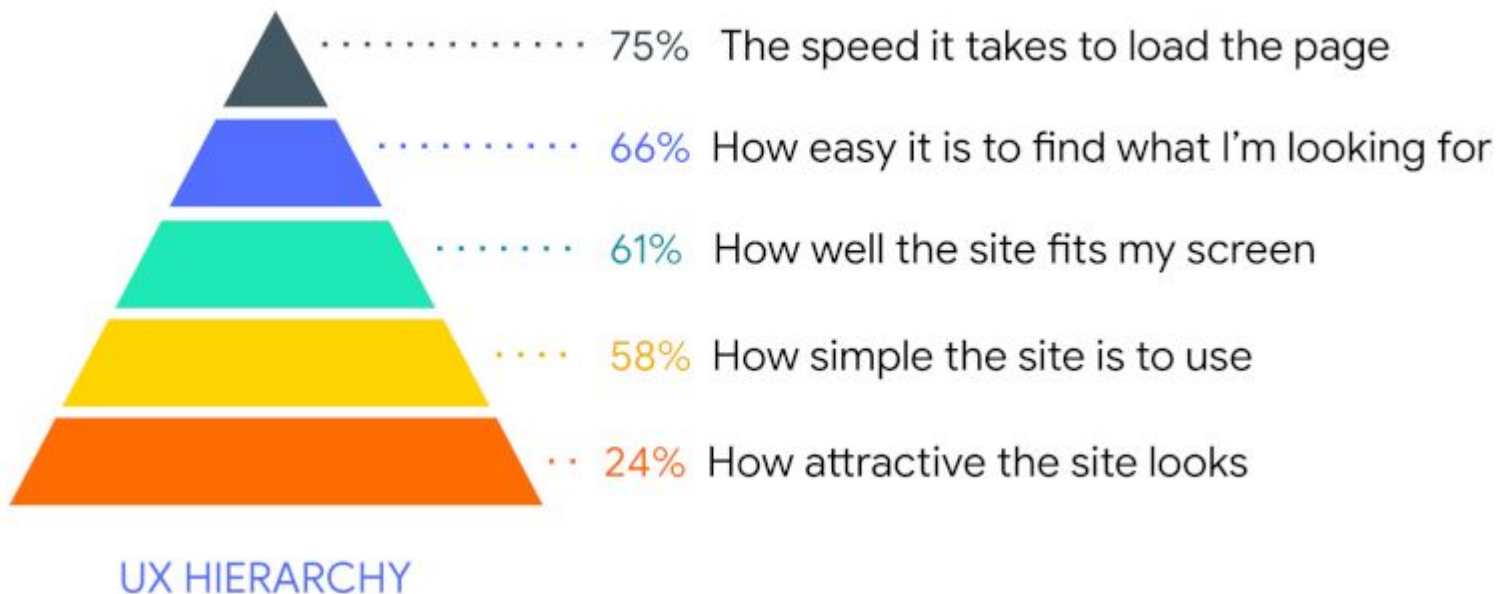
Page Speed Insight

## Core web vitals



Google Search Console

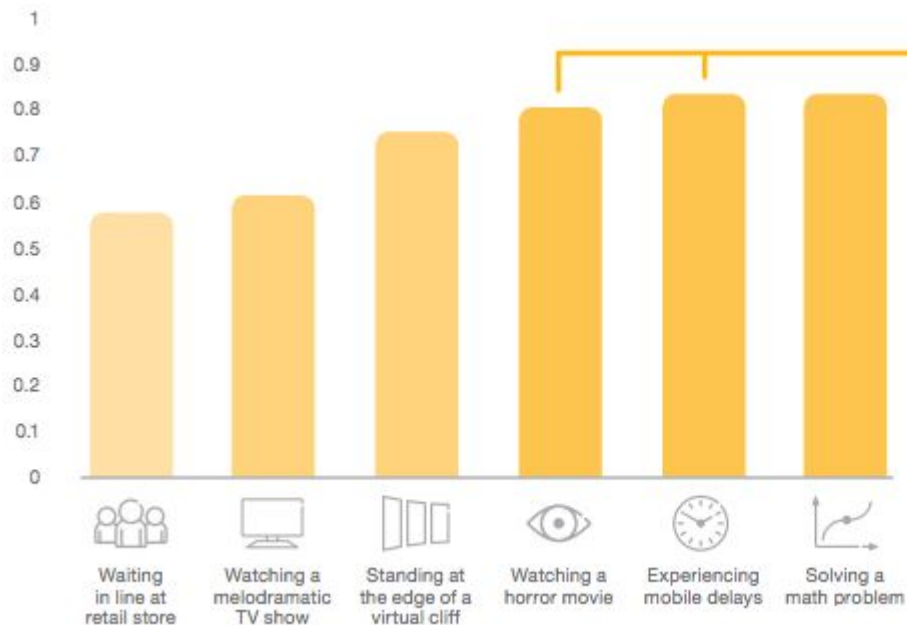
# SPEED & UX HIERARCHY.





# SPEED & UX HIERARCHY.

Cognitive load associated with stressful situations



The level of stress caused by mobile delays was comparable to watching a horror movie

Source: Ericsson ConsumerLab, Neurons Inc., 2015

# IMPACT ON BOUNCE RATES.



As page load time goes from:

**1s to 3s** the probability of bounce **increases 32%**

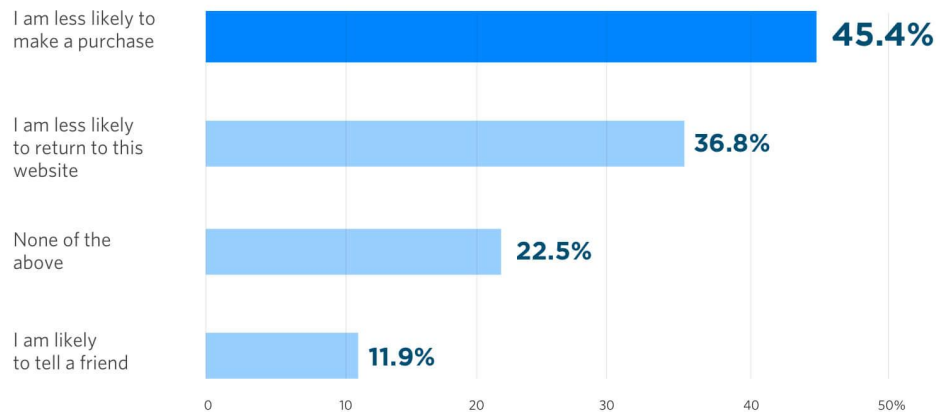
**1s to 5s** the probability of bounce **increases 90%**

**1s to 6s** the probability of bounce **increases 106%**

**1s to 10s** the probability of bounce **increases 123%**



# SLOW LOAD TIMES & SALES.



# IMPACT ON QUALITY SCORES.



This keyword is eligible to run ads

Ad showing in search results?

**An ad isn't showing now**

- This candidate isn't triggering ads to appear on Google right now because of a low Ad Rank. Ads are ranked based on your bid and Quality Score. [Learn more](#)
- This candidate is not triggering ads to appear on Google right now because of a low Ad Rank. Ads are ranked based on your bid and Quality Score. [Learn more](#)

**TEST AGAIN**

[Ad Preview and Diagnosis](#)

Quality Score	Expected clickthrough rate
3/10	Below average
	Ad relevance
	Below average
	Landing page experience
	Average

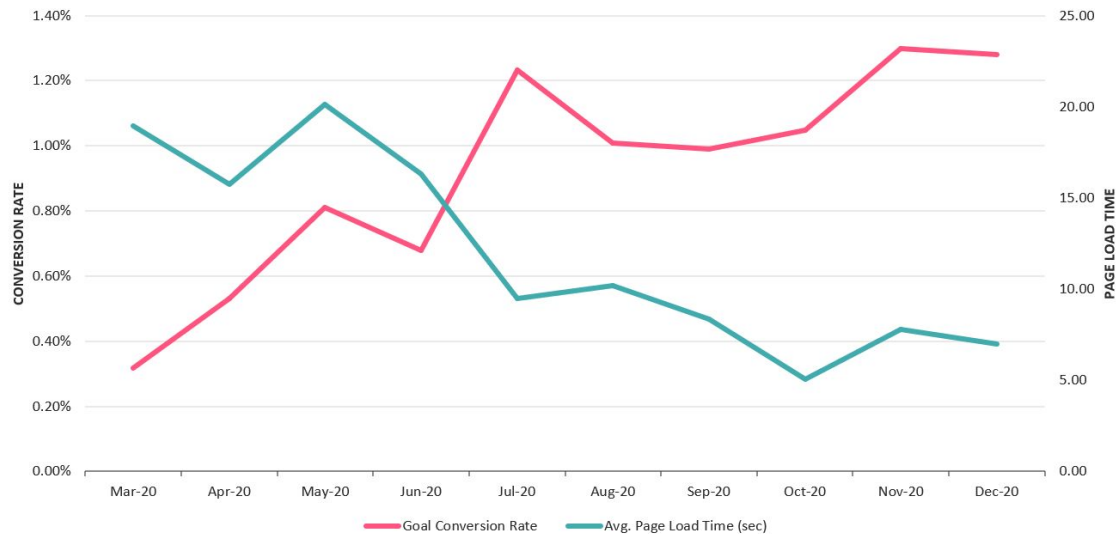
[Learn more](#)

# IMPACT ON CONVERSIONS.



For every second delay in mobile page load, conversions can fall by **up to 20%**.

SOASTA, The State of Online Retail Performance, April 2017.



# PAGE SPEED SUCCESS STORIES.

## WALMART

FOUND THAT FOR EVERY 1 SECOND IMPROVEMENT IN PAGE LOAD TIME, CONVERSIONS INCREASED BY 2%.

## COOK

INCREASED CONVERSIONS BY 7% BY REDUCING PAGE LOAD TIME BY 0.85 SECONDS.

## MOBIFY

FOUND THAT EACH 100MS IMPROVEMENT IN THEIR HOMEPAGE'S LOAD TIME RESULTED IN A 1.11% INCREASE IN CONVERSION.

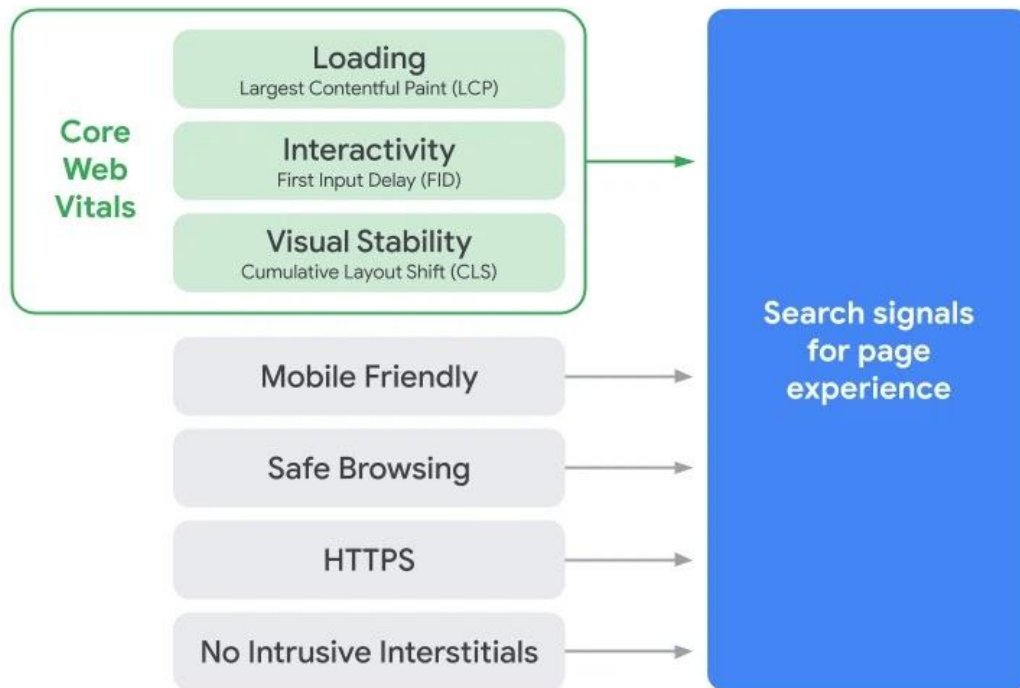


"TODAY WE'RE ANNOUNCING THAT **THE PAGE EXPERIENCE SIGNALS IN RANKING** WILL ROLL OUT IN MAY 2021."

# WHAT ARE CORE WEB VITALS?



# WHAT ARE CORE WEB VITALS?





# CORE WEB VITALS METRICS.

(Loading)

## LCP

Largest Contentful Paint



(Interactivity)

## FID

First Input Delay



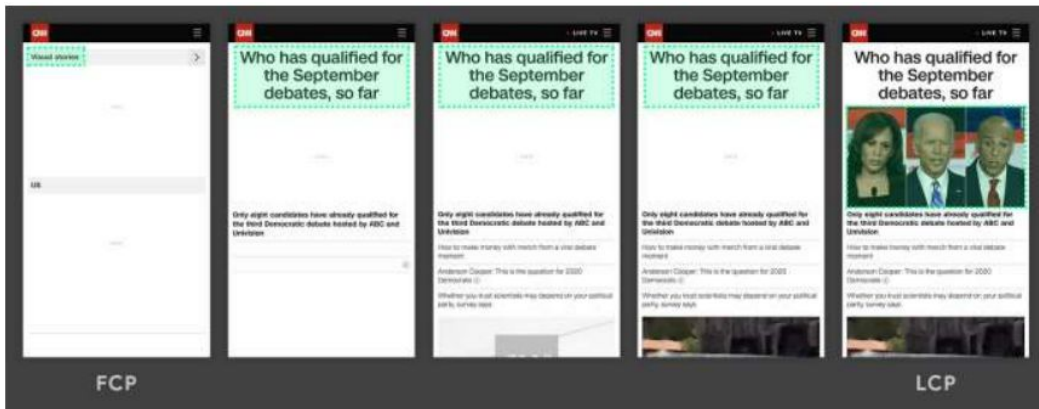
(Visual Stability)

## CLS

Cumulative Layout Shift



# LARGEST CONTENTFUL PAINT.



First  
element is  
loaded

Largest  
element is  
loaded

(Loading)

# LCP

Largest Contentful Paint



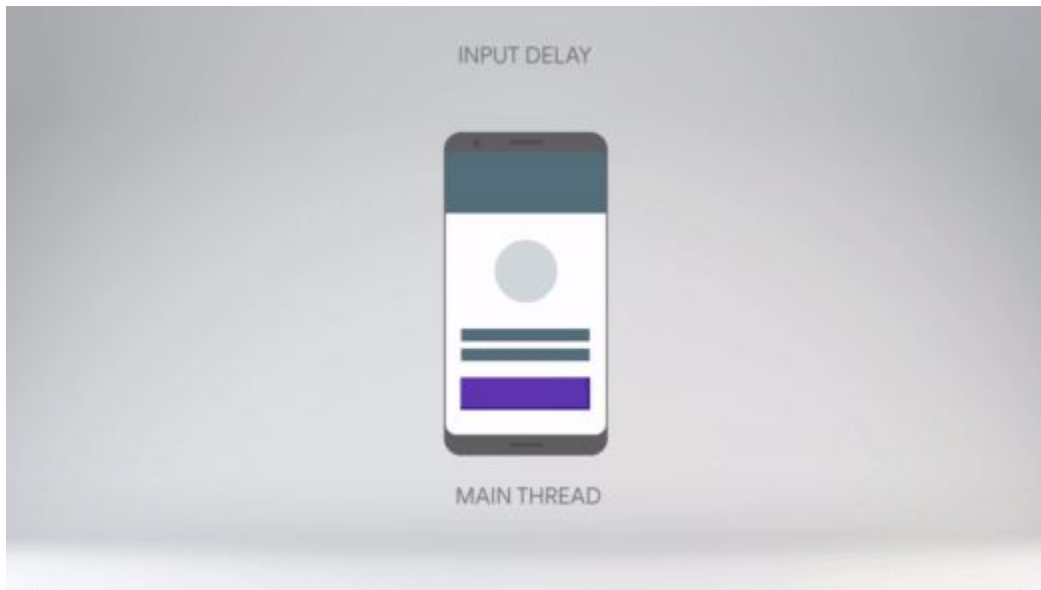
# LARGEST CONTENTFUL PAINT.

The metric only counts the loading time of what is relevant to the user experience, that is:

- Images
- image tags
- video thumbnails
- background images with CSS
- text elements, such as paragraphs, headings, and lists



# FIRST INPUT DELAY.



(Interactivity)

# FID

First Input Delay



# FIRST INPUT DELAY.

All of the following HTML elements need to wait for in-progress tasks on the main thread to complete prior to responding to user interactions:

- Text fields, checkboxes
- Select dropdowns
- Scroll
- Links

*(Interactivity)*

## FID

First Input Delay



# CUMULATIVE LAYOUT SHIFT.

(Visual Stability)

# CLS

Cumulative Layout Shift



# WHAT TO DO? 'EASY' FIXES





# PREVENT REPEATED DOWNLOADS

(aka caching) | FID, LCP

- Browsers can save copies of downloaded content for future use - known as “caching”
- Use a tool like Gift of Speed’s [cache checker](#) to measure current performance
- Add a plugin like [Hummingbird](#) to handle caching, or speak to your web host/developers

## The outcome?

- Content loads more quickly, and your web pages appear sooner

<i>Largest Contentful Paint</i>	<i>Cumulative Layout Shift</i>	<i>Total Blocking Time</i>
3.431s	0.04	1.1117s

*Page load with no content cached*

<i>Largest Contentful Paint</i>	<i>Cumulative Layout Shift</i>	<i>Total Blocking Time</i>
2.115s	0.008	0.970s

*Page load **with** content cached*

# REDUCE YOUR DOMAINS

*(or optimise your content loading) | FID, LCP*

- Check how many domains your web site accesses via [Chrome Developer Tools](#)
- Try to limit the number of different domains you are using to download files
- Even if more complicated, it can be more efficient to keep files on your own domain

## The outcome?

- Really simply, page speed will increase





# INVEST IN FAST HOSTING

LCP

**The faster your host responds to requests for your site, the faster your visitors will see your web pages...  
...and the happier Google will be!**



# INVEST IN FAST HOSTING

LCP

**How quickly is your host returning your site?**

Check at [Google Page Insights](#)

**How is your site being served?**

Check at [HTTP2.Pro](#)

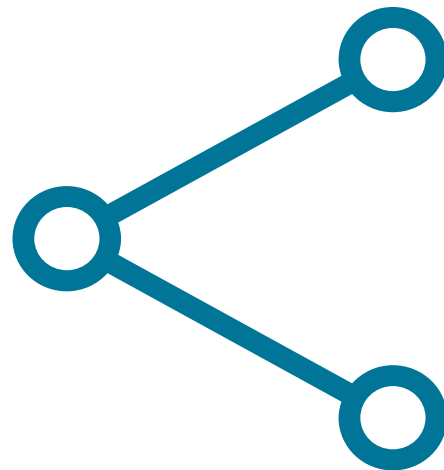
# REMOVE UNUSED PLUGINS

*LCP, FID*

- Every widget, service, and plugin could be slowing down your site
- Try [turning off plugins temporarily](#) - to test how they affect your Page Speed Insights scores
- [Remove](#) what you don't need; look at [alternatives](#) for those you do

## The outcome?

- This is potentially a really [quick win](#) to improve your scores



# USE A CDN... SOMETIMES

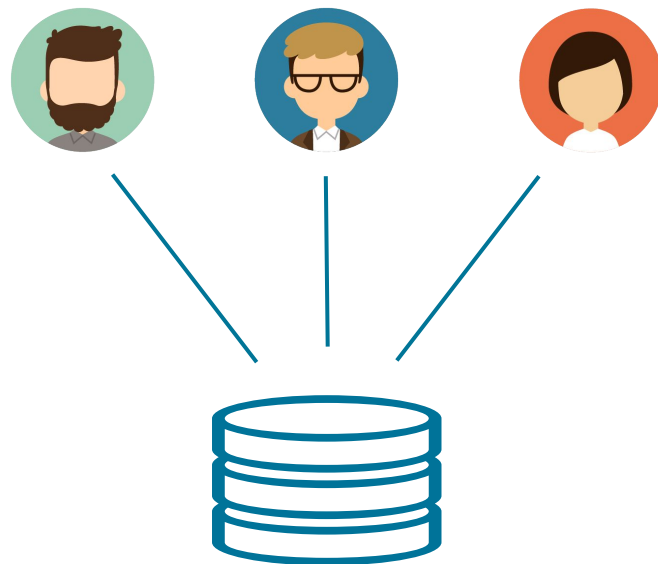
*LCP, FID*

A content delivery network (CDN) serves files like images extremely quickly **BUT**

- Limit your use to one or two CDNs only
- Use a CDN only if you are loading *lots* of content from it...
- ...otherwise look at services like [Cloudinary](#)

## The outcome?

- If you need a lot of images or videos on your site, this can be a way of speeding up your performance - [but you need to get it right](#)



# THE 'EASY' FIXES

	<i>DEV?</i>	<i>DIFFICULTY</i>	<i>PLUGINS</i>
<b>PREVENT REPEATED DOWNLOADS</b>   <i>LCP, FID</i>	X	↓	✓
<b>REDUCE YOUR DOMAINS</b>   <i>FID, LCP</i>	✓	↔	n/a
<b>INVEST IN FAST HOSTING</b>   <i>LCP</i>	X	↔	n/a
<b>REMOVE UNUSED PLUGINS</b>   <i>LCP, FID</i>	X	↓	n/a
<b>USE A CDN... SOMETIMES</b>   <i>LCP, FID</i>	✓	↔	✓

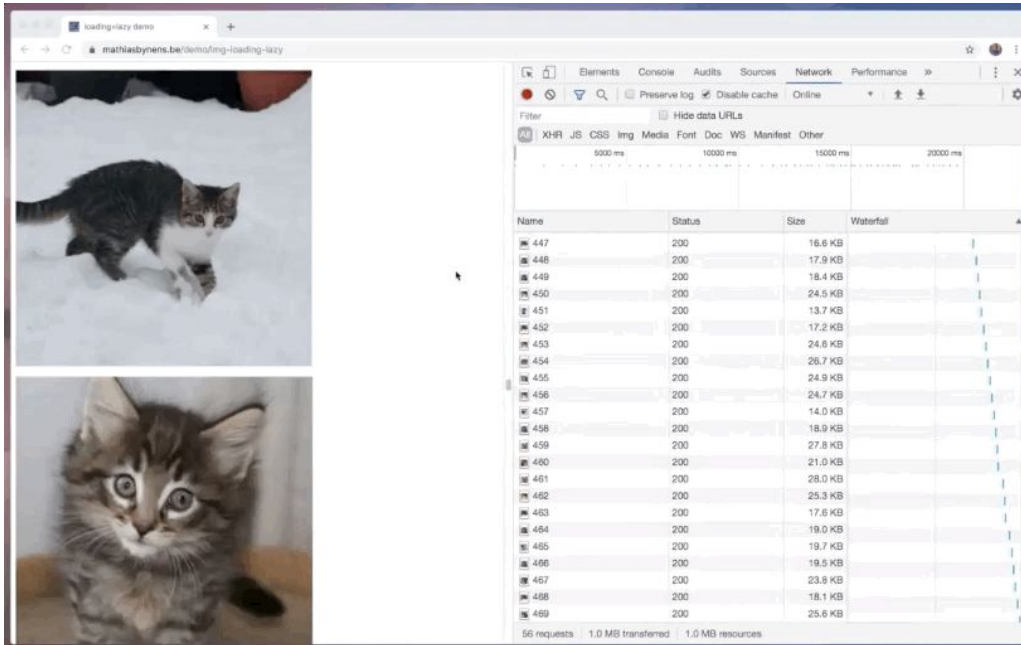


# WHAT TO DO? HARDER FIXES



# LAZY-LOAD CONTENT

LCP



## What?

- Browsers can 'lazy load' things like images and videos, loading them only as the visitor scrolls the page
- Plugins (like [Lazy Load by WP Rocket](#)) are available for this - but you might need a developer for the full benefit

## Why?

- The top part of the page will be 'display-complete' sooner - serving Google's needs quicker too.



# REDUCE FILE SIZE

LCP



Use modern compression formats like WebP  
Take advantage of specialist hosts (Cloudinary)  
Or resize your content before upload (TinyPNG)

# REMOVE IMAGE 'POP-IN'

*CLS*

You know when you see the thing you want to click, click it and then actually as the page loads you realise you've clicked something else?

**Tell the browser the size (or relative size) of images or videos.**

## To note...

- Your content management system might already do this, and plugins are available
- If you have a bespoke site, speak to your developers!



# REMOVE IMAGE 'POP-IN'

*CLS*



# REMOVE IMAGE 'POP-IN'

*CLS*



# CONSIDER YOUR FALLBACK FONT

(See [font style matcher](#)) | CLS

The fox jumped over the lazy dog, the scoundrel.

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*Georgia (16px) to Google Merriweather (16px)*

# CONSIDER YOUR FALLBACK FONT

(See [font style matcher](#)) | CLS

The fox jumped over the lazy dog, the scoundrel.

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*Georgia (18px) to Google Merriweather (16px)*



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*Georgia (18px) to Google Merriweather (16px)*

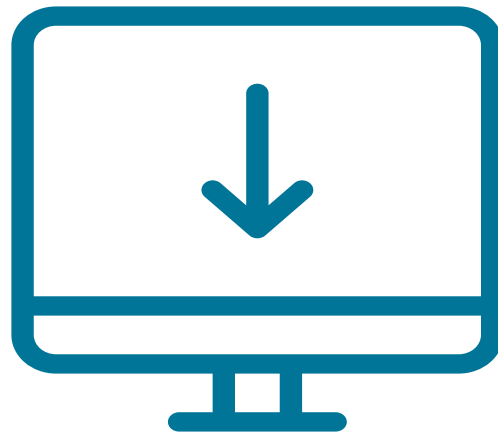
# LOAD IMPORTANT ITEMS FIRST

*(Render blocking) | LCP, FID*

- Your web page code needs to load all the things the browser needs to display at the top of your pages as soon as possible
- Try to make sure that nothing gets in the way of this, including 'render blocking' processes
- Your site should aim to minimise render blocking, and maximise priority downloads, so that they happen as soon as possible

## The outcome?

- If the assets shown at the top of the page are prioritised, then the top part of the page will be display-complete sooner



# CHECK YOUR SERVER

*(Caching again...) | LCP, FID*

- The speed of the code that generates your web site may contribute to slow server response times, potentially making effort you spend on browser optimisations less effective.
- Use a plugin like [Hummingbird](#) to speed things up, or speak to your hosting provider to ask about server-side caching
- Review plugins and themes and replace those causing slow load times

## The outcome?

- Reducing server response time to page requests will have a cumulatively positive effect on your Insights score, as well as your visitor experience



# THE HARDER FIXES

	<i>DEV?</i>	<i>DIFFICULTY</i>	<i>PLUGINS</i>
<b>LAZY LOAD CONTENT</b>   <i>LCP</i>	✓	↔	✓
<b>REDUCE FILE SIZE</b>   <i>LCP</i>	X	↓	✓
<b>REMOVE IMAGE 'POP-IN'</b>   <i>CLS</i>	✓	↑	✓
<b>CONSIDER YOUR FALLBACK FONT</b>   <i>CLS</i>	✓	↔	n/a
<b>LOAD IMPORTANT ITEMS FIRST</b>   <i>LCP, FID</i>	✓	↔	✓
<b>CHECK YOUR SERVER</b>   <i>LCP, FID</i>	✓	↔	✓



## simply brilliant thinkers making software brilliantly simple

At Box UK our team of simply brilliant thinkers, consultants and application developers mastermind simply brilliant solutions to the world's toughest web and software projects.

It's why blue chip organisations around the world, from airlines to car manufacturers, international banks to global charities, choose to trust us with the execution of their digital strategies, from the development of enterprise-level custom software platforms to the delivery of award-winning multi-channel experiences.

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