Edge conference London 2014

Session notes for session: *Page Load Performance*

Moderator: *Steve Thair*

Panel: *Andy Davies, Luke Blaney, Wesley Hales, Pat Meenan, Peter Hedenskog*

Notes scribed by: *Matt*

Intro

Andy Davies' introduction

- Intro
    - Frustrated with the web - it's too slow - too many sites too slow.
    - Steve Sounders invented the concept of speeding up web pages... (umm)
    - We know how to make sites faster - minimise latency (doesn't change - governed by the speed of light), minimise round trips (eg. merge resources together in build system, switch on gzip, etc), minimise blocking (we have to wait for CSS to load, JS to execute, have to wait for web fonts - sometimes).
    - Guardian divide the site into above the fold/below the fold. Turn the initial TCP packet into everything you need to render the page. (HTML, CSS, JS) by splitting the page into content, enhancements and leftover (analytics, ads)
- Browser
    - Browsers do a good job. (Spec says use only 2 connections - but browser know better)
    - Browser have a preloader
    - Faster JS engines, new image formats
    - New protocols (HTTP2) - http1 doesn't fit very well on top of TCP (on some tests 30% uplift in performance - including TLS overhead)
    - Doesn't get rid of the challenge of optimising for legacy client (http1 users won't go away)
- Our pages are getting fatter
    - We're including more blocking resources. E.g. people hate web fonts because it hides the content.
    - We can automate some of the optimisations (simplify build services)
    - We have great tools for measuring performance. We can measure page load but Andy thinks we don't measure enough.
    - Need to move from which pages are slow to why are they slow?
    - "Am I destined to be a human network waterfall pattern matcher?"
    - Are there tools to help us automate fixing performance issues?
- Performance is an aspect of user experience

- We need to design for performance.
- It’s just another constraint like time/budget.
- You could have a performance budget.

Discussion

1. Peter O’Shaunessey - “Using branched loading, the Guardian have made their faster and smaller with responsive design. Is there still an argument for having a separate mobile / desktop site”

Wesley - It really depends on your organisation. If you have a heavy client side application (single page, etc) then you might not want to scale that down to be the same on mobile... People still build for desktop first.
Pat - Depending on how extreme you’re trying to get - first 15k on mobile above the fold easier than on desktop. If not easier - but different. Going to be hard to make an über optimised site that is as good on mobile & desktop
Andy - Responsive design is about building a site on as wide a range of devices as possible - you can build really small mobile site. Guardian site 700k on mobile.
Luke - Most of this is an organisational issue. If you started fresh you’d do things differently. I think from a performance point of view if you’re supporting every individual browser - it’s easy to make one browser really good - but it’s much much harder to do things / need to make compromises.
Andy - It depends if it’s good enough for your audience.
Pat - Don’t think it’s worth looking at the 700k - what we should care about is how much is needed for the initial experience.
??? - It’s just fundamentally harder to make a responsive site more performant. Responsive doesn’t lend itself naturally to being as performant as specifically optimised sites.
Pat - It’s also normal for some m.’s to have fewer things that slow down a page (eg. ads)
??? - There’s a lot more excess on responsive sites.
Andy - We need more tools to make what the Guardian have done.
Pat - It is damn hard to build a fast site - we need it to make it easy.
Andrew Betts - It’s a really frustrating trade off as adding more and more devices it gets harder and ultimately responsive web design can’t be performant

Andrew Betts - Do concatenation and spriting become antipatterns in HTTP2 and, if so, when?

Andy - I think we need to be aware of what we’re doing when we’re spriting. If we split up our resources they can have more appropriate cache lifetimes.
Luke - In some cases spriting could already be an antipattern and HTTP2 just makes that more obvious.
Peter - Supporting HTTP1/HTTP2 is hard

Wesley - I’m already doing this (laughter) - I don’t care about older browsers but it is hard...
Andy - Can we push resources rather than concatenating in HTTP2?
Pat - I don’t think it’s even just pushing. The big problem we’re going to have is when we have to support both. Splitting things into chunks is good for the browser too
Luke - If the client can understand - eg we download images in batches via json data uris
Pat - but that’s horrible and we’re back to making it hard
Luke - yeah it’s horrible

Jonathan Fielding - Should we deliver appropriate resources on HTTP1 and HTTP2?

Steve - But then you end up with the same m. vs desktop duplication of work problems...
Wesley - HTTP2 will reduce the number of hoops we as developers we have to jump through.
Pat - At some point you could choose to switch your optimisation over to HTTP2 when enough traffic coming that way
Andy - Or you can do automate optimisations in a protocol aware way
Steve - What’s the timeline for HTTP2 - not until November.
Pat - IE11, Chrome, Firefox support SPDY.
Steve - SPDY still a long way away but you can start playing

Patrick Hamann - We need to move past the onload event and metric. What is the new golden metric, or is there one?

Peter - We need to know when the above the fold content is in the browser...
Pat - If you own the site you’re trying to measure, instrument it - put on load handlers for your above the fold images. Doing it generically is when you start to get into difficult cases. It’s a much harder, unsolved problem. You need to move beyond the technical point of everything finished because there’s so much more to your web pages than that - single page apps, etc.
Andy - Start render time is when people start to see stuff - not a bad place
Pat - Make sure you test your pages first to make sure the metrics make sense for your site.
Steve - Only about half the audience measure their page load time

Christopher Imrie - In advertising when you’re building adverts you have polite load. The minimum viable content you need without distracting the user. The restrictions means that we have to be as efficient as possible. We defer everything we need.
Patrick Hamann - Going back to measurement and metrics, now we have resource/priorities API is here we can now have discussions with our advertising to allow Guardian access to advert perf data.

Pat - You generally do want to get your adverts loaded early so that you can make money! How do you get your ads quickly without competing with your content.
Christian Heilmann - flash probably solved a lot of problems but never got out. Ads companies don’t often share their solutions.
Imre - We find having a dedicated mobile site helps. Desktop might have rich, immersive

experience but mobile can be simpler... make more money.

Steve - No golden metric it's the one you roll yourself - and beacon it back to somewhere you actually look at it.

Patrick Hamann - We're now very well equipped to measure our initial page load perf but we're seeing a rise in long living applications?

Andy - User timing!
Pat - It's back to instrument it and figure it out. Hopefully the browsers are giving you all the measurements you need. Time it, beacon it back and if you can't get what you need let browser vendors know.
Luke - In our web app we don't wait for ajax requests so we don't mind so much about the speed. There's a limit of about 50mb.
Wesley - we have tools like timeline in dev tools like rendering and painting...
Pat - Request animation frame is your best friend but we're back to it's not easy. It's doable but hard.

??? IE 11 has a lazy load attribute images could we have that to prioritise above the fold content?
Wesley - There is no fold in the browser!!
Pat - IE has some stuff already - lazy/postpone as an attempt to eliminate the JS Lazy load implementations...
??? Alois Reitbauer - For a single app do we need new tools and visualisation - there are commercial ones... We need more support from framework vendors.

Rich Howard - What role will automated front end optimisation tools play? Are they another complicated layer of abstraction or are they a necessary?

Luke - I'm afraid of things are magic. Varnish respects headers but others... do weird things
Wesley - I don't know if it's needed or not... I don't know if developers should just know the rules...
Peter - As a developer I want to know what happens, it makes me feel insecure...
Steve - but as an operations manager waiting for developers to make the site faster I'd like to pay some money and make my site faster
Andy - For some people it's the only way to go. Trading off the cost of employing developers against the convenience and reliability of just deploying a soltuion

??? - We're getting asked to do more and more with less and less time... and it's actually the business who dictates this. I think these kinds of automated tools and devices are the only way we're going to be able to keep up.

Wesley - and for those of us aren't perf experts, it's hard to get time to get time to work on

performance.
Pat - There are some classes of optimisations that you're going to be more comfortable about handing off. Eg image optimisations. You're not going to want to maintain every image format library.
Luke - We've had problems with mobile operators messing with our code. If you're a developer that knows what you're doing, then the appliance just gets in the way.
Steve - I don't see the world getting less complex...
Guy (Akamai) - Two things - One. Akamai is supposed to be an extension of your platform, can be tuned and tweaked to your needs. Two. If you can automate it why do it manually?
Imre - Often these layers out of a developer's control.
??? - I'm interested in the hardware side of this. [Move on due to time restraints]

Paul Lewis - How should teams balance branding and personality (images/web fonts) and how can they measure branding meaningfully?

Wesley - It's the same kind of argument as mobile vs desktop. Do you want more performance or better looking.

Paul Lewis - I'm looking for a meaningful discourse between designers and developers.
??? Guardian - It's all about making compromise.
Andy - The thing lots of people do is just chuck the whole font (without taking any of the glyphs you don't need). You can sometimes achieve 60% save in file size.
Steve - The question is how do you get the business to engage in this conversation. 1. Measure performance. 2. Measure money performance. 3. start AB testing.
Pat - Make sure the performance metrics are in with the business metrics. If you want a conversation just strip out all the web fonts - they'll come find you!
Imre - Clients are aware of performance, they're afraid of it... The really big brands are talking performance because they're afraid of the site going down.

Steve - Play the fear, uncertainty and doubt card