Website Creation Workshop
With Christina Hills

"How to Speed Up Your WordPress Site"

Christina: Hello and welcome this is Christina Hills with the Website Creation Workshop and welcome to this special call with my guest expert Chris Ferdinandi.

What he's going to be doing is talking about a site that is a wicked fast WordPress site. Let me tell you a little bit about Chris and then I'll turn it over to him and he's going to present and answer questions at the end.

Chris Ferdinandi helps people build wicked fast WordPress sites that work for anyone on any device. He's the author of *Wicked Fast Websites* and consults and runs workshops on WordPress performance. He also open sources code, writes articles and gives talks.

Chris loves pirates, puppies and Pixar movies. I love Pixar movies too. And he lives near horse farms in rural Massachusetts…oh that sounds nice.

He runs the site Go Make Things a Bailey puppy lab mix from Tennessee. Welcome everybody Chris Ferdinandi.

Chris: Hello and thanks for having me Christina I'm really excited to be here. I didn't realize quite how long my bio was until I heard you read it out loud.

Christina: It's a great bio. What I love about you Chris is you are the expert in making WordPress sites fast and it's really frustrating when a website is slow. So I'm super excited to hear what you have to share today.

Chris: Excellent. Let's get started. What I want to specifically talk to everybody about is how to build WordPress sites that load not just really fast but the number I'm targeting here is under 1 second even on cheap shared hosting.

Why should you even care about this? I'm going to assume if you're on the call you do but you may have to make an argument with a business partner or manager or someone on why this is worth spending time or money on. Let's talk a little bit about the economics of web performance.

The reality is slow websites cost businesses millions of dollars in lost revenue every year and I'm probably being a little conservative with that number. A few years ago Google did a really interesting experiment where they decided to double the number of search results that get returned when someone uses their search engine. By adding about 10 extra results the page slows down by about 500 milliseconds which is half a second and they actually found a 20% decrease in search traffic as a result of that extra delay. Not just search traffic but also ad revenue along with that.

Amazon did a similar experiment where they deliberately slowed down their site by 100 millisecond intervals, so 1/10th of a second and found that those delays resulted in a 1% loss in sales, which may not seem like a huge amount until you start thinking about the volume Amazon does and realize that 1% loss in sales is $254 million for them in a single quarter. That's a billion a year from 1/10th of a second of latency.

Train Line is a website in the UK that helps customers purchase train tickets. It's kind of like a Travelocity for trains in Europe. They found reducing the latency on their site by 1/3rd of a second resulted in an additional 8 million pounds in

customer spend. GT Magazine reduced their total load time by 80% and their website traffic increased by 80% to match and they're very ad driven so that's a huge amount for them. Fire Fox the web browsing company found by reducing their page load time by 2.2 seconds resulted in 15% more downloads in their web browser.

So we're at this weird time when performance matters more than ever but websites are also getting bigger. Back in 2010, 6 years ago, the average web page was 600 kilobytes and in 2013 that number doubled to 1.2 megabytes and there is about 1000 kilobytes in a megabyte. At the beginning of this year that number was up to 2 megabytes and as of right now its closer to 2.6 megabytes. So what we're seeing is megabytes are doubling every 3 years.

That used to not be such a big problem because computers got faster, the internet connections got faster and anyone who was around during the dial up days will know what I'm talking about. But then the mobile thing happened and suddenly the devices we were using to access the web were wildly varied in terms of how fast they were, how capable they were, what they can actually do, the connections we're using to access the web. So when I'm home I'm on Wi-Fi but when I'm out on the road not so much.

For an increasing number of people mobile isn't just one way to access the web, it is the way they access the web. Google has found that more than half their web searches now happen on mobile devices. This has become such a big thing for them they're now creating a special for mobile index of websites that will give priority over desktop based indexes. So if your site is mobile friendly and works well on a mobile device it will rank better in Google as a result.

Christina: You're saying Google is going to have a separate search result for people on

mobile and if your site is mobile responsive it will also affect the desktop searches. Is that what you said?

Chris: Yes. They rank sites that are both fast and mobile friendly higher than sites…

Christina: Wow okay.

Chris: Yeah so speed and mobile friendliness which kind of go hand in hand these days are 2 big issues for Google. 65% of all emails are initially opened on a mobile device. And Facebook has found that more than half their traffic now happens on a mobile device and almost half of their users are mobile only meaning they never sign in on a desktop at all.

As far back as 2012 one study highlighted by Harvard Business Review found almost a 3rd of all Americans used a mobile device as their only or primary way o of accessing the web. I'm sure everybody can understand this, you have a smart phone and you find yourself on the couch and you think of something and you want to look it up. You could get up and go into the other room to your laptop or desktop to look it up or you can pull out the computer you have in your pocket and look it up on the spot.

This trend makes sense but it also has a huge impact on performance because bandwidth isn't evenly distributed. I live in an area that has really great cell coverage. I get 4 GLTE at my house which is about as fast as my Wi-Fi is. So if I go outside and lose my Wi-Fi signal I still have my fast internet. That's not true for everybody and not true for me everywhere. If I go into the city where AT&T has terrible coverage and by the city I mean Boston, my single drops to almost nothing particularly if I'm in the shadow of a large building. This is true for a lot of my city dwelling friends.

Christina: Yeah New York City has that problem too.

Chris: It does.

Christina: Yeah the internet in New York is terrible.

Chris: If you get caught in bad weather, sometimes storms lightning and clouds in particular can disrupt mobile signals. That's here in North American where we can take for granted we have really great infrastructure. If you live in a more isolated area, not even necessarily outside the US, but if you're in very rural America or in a developing area where some of your customers could potentially live this becomes more of an issue. For those folks their best case scenario internet connection may be 3 G or worse. I've even heard of some locations in Edge Network which is what your cell phones used to have as a signal before browsing the web on them was a thing people did regularly is the norm.

So you can't take for granted that your people have a good, your customers or clients have a good internet connection to reach your site. As a result slow websites are unusable for millions of people around the world.

One study found that 40% of your visitors will leave your site if it takes more than 3 seconds to load and that is on desktop devices too not just on mobile. Ironically, people's performance expectations are higher on mobile devices even though the web connections they use to access your site are worse and the devices are less capable. On a mobile device you can expect to see about 53% or a little more than half your visitors leave if your site takes more than 3 seconds which is kind of silly.

Christina: Can I make a comment about that? To me that makes sense and why don't you go back to that slide. If I'm on my mobile device and looking at a web page I'm generally not doing anything else. but if I'm at my desk and a web page is taking a long time I'll turn my head away, write some notes, I'll do other things at my desk because it's easy to multi-task.

Chris: I actually never thought of that as the reason why this number doesn't make sense. Thank you that make a lot of sense now that you explained it like that.

Christina: Yeah anyway keep going this is really good.

Chris: So that number skyrockets if you add 2 more seconds to it. So by 5 seconds almost 3/4th of your visitors have left your site if they haven't been exposed to some content they can start reading or interacting with. And that's on desktop devices too and so that's not even a mobile only statistic.

This is so important and as I mentioned a bit earlier Google has started factoring web performance into how they rank sites. So faster sites rank higher and slower sites rank lower in Google.

And we're in the middle of this perfect storm where websites are getting bigger, the devices we use to access the web are weaker and less predictable and user expectations around performance are higher than ever. And anyone who grew up in the old AOL days remembers the dial tone when you connected, you may remember how patient you could be waiting 20 minutes to an hour for an MP3 to download or the 10 minutes for a website to load. These days it's nothing like that at all.

What I want to spend the rest of this talk speaking about is what you can do

about it. The good news is that little changes can make a big difference in the performance of your site.

So a quick overview how this topic is going to go. We're going to spend a little time up front on how you measure web performance because there's a lot of different ways to do it and some are better than others. Then we'll spend a good amount of time talking about browser quirks and what you can do about them. Probably one of the things that has the biggest impact on how slow your site is is some weird quirks on how the web browser tends to load web pages and there's things you can do to get around that.

We're also going to talk a little about that page bloat, websites are getting bigger so what can you do to curve some of it. Finally and nobody freak out we're going to talk a little about server optimization and these are 100% non-coder friendly. So we'll be talking about both plug-ins and phone calls you can make to your web host to do these sorts of things so you won't have to touch a line of code.

Then again we'll have some Q & A but I do want this to be a really interactive session. We have a fair bit of time and so if anyone has questions as I'm going through…Christina is the process share in the chat room and you'll ask them?

Christina: Yes right.

Chris: Perfect.

Christina: And they're used to waiting until the end, but if something comes up I'll just ask you.

Chris: Okay feel free to interrupt. Also no expectation that you take notes on everything

my slides are currently available on GoMakeThings.com/talks. I'm also going to make sure Christina has a copy that she can share with the group.

Christina: Yes I'll definitely do that.

Chris: Christina gave me a lovely intro at the beginning but a little bit about who I am and why you should care. I'm Chris Ferndinandi of GoMakeThings.com and I work with a lot of clients primarily focused on making their WordPress sites faster but also usable for everyone and so people with disabilities and things like that.

Most recently I wrapped up a project with Harvard Business School where among other things we did an audit of their performance which had a website that was taking a little over 5 seconds to start showing content and we brought that number down to about a second.

I also love working with non-profits, animal rescues and organizations like that. I've been with Paws New England for a long time. I'm so passionate about this stuff I even wrote a book about it which as much as I'd love to tell you all to go buy it and read it, it's really code heavy. So for this audience it's probably not a good fit.

With that in mind let's actually talk about how you measure web performance. I always like to start off by asking how fast is fast enough. I kind of give it away on the title slide. The answer is 1 second and the reason I choose that number is there's been a number of cognitive studies that have been done on the way people interact with computers and websites. The thing they find is you might start to lose a lot of visitors after 3 seconds; the user breaks their mental focus on what they're doing after about 1 second.

You can imagine why that's so important when you start thinking about trying to migrate someone through a checkout process on a retail site or get them to join your newsletter list so you can contact them as a possible client or referral. If it takes a while for that page to load and they get distracted and go someplace else they may forget and leave that tab open and never come back or come back later and decide they not really interested after all.

So making sure someone can stay focused on what they're doing is critically important, which is why I generally say around 1 second.

Now that may sound like an impossibly fast number to hit. I'm cheating a little with that number because total load time which is what people normally think of when they're thinking of how fast does my website go is not really the right number. There are 2 measures we really care about and the first is time diversified and that's how quickly your server starts sending data back to your browser. If I hope my browser and type in Google.com and hit Enter how quickly from when I hit enter does it take for wherever Google's website lives to start sending information about their site back to my browser.

Then the 2nd number is start render time. So once the browser gets that data how long does it take to start actually displaying content to your visitor? Start render time is the number we really want to have around a second.

The most important thing about both these metrics is that perceived performance matters more than actual performance. As long as the user has content they can start looking at and interacting with it doesn't matter if some large image at the bottom of your page or some other content they haven't seen yet takes a bit longer to load. They may never know about it or kind of I'm bored I'm going to go

somewhere else itch doesn't hit them because they have the thing they're looking for and can start working with it.

So there is one really great tool I recommend for measuring both these numbers and its www.WebPageTest.org. This is a project that used to be run by AOL of all companies and they later open sourced it and Google picked it up and they now post it for free so anyone can use it. You type in your URL and you can select a bunch of different criteria like location, type of browser, etc. When you click Start Test you're going to get a bunch of numbers back about your performance.

One thing I actually recommend people do is if you look at this you can see under Advanced Headings there's Connection and it defaults to Cable which is really fast. I recommend trying this with a bunch of different connections, so maybe 3G or an Edge Network. You can leave everything else to default but it's interesting to see how your site performs in different networks and so at home versus out on a mobile phone.

The numbers we care about, you want your time to first byte to be between 100 and 300 milliseconds which is about a 3rd of a second or less. If you're on really expensive shared hosting you probably won't hit that number. In my experience hosts like Go Daddy and Dream Host are closer to about 600 milliseconds. That's okay I wouldn't worry about that. If you notice that number is up around 1, 2 or 3 seconds I'd freak out but as long as it's in the 700 millisecond or lower range you're okay.

For start render time and you want to see it at about 1 second on cable and about 3 seconds on 3G and around 5 seconds on an Edge Network. These numbers if your time to first byte is closer to that 500 to 600 millisecond range which mine has been in the past these numbers will be a little bit higher. Your cable

connection may be closer to 1.5 but you're in the ball park so that's good.

There is a good chance if you're on WordPress and have some plug-ins installed and a nice theme set up your numbers will be a bit higher than this. What I want to talk about for the rest of this presentation is how you can get these numbers down.

First, one thing I want to mention is a lot of folks that I talk to have heard of Google Page Feed Insights where you pop in your URL and get this really nice number score like out of 100 with recommendations on things you can do better. So people will come to me in a panic cause their number is really bad and they want to know what they can do about it.

This site is useful for some things but determining how fast your site really is despite its name is not really one of them. The reason being this site tends to look for indicators that your site is fast and so it will look for did you do these right performance best practices we like to see but it doesn't really measure how fast your site really is.

So what I found in my own instance is my site today is faster than it's ever been. It loads; the start render time is under a second. But my Google Page Feed Insight score is the worst it's ever been. If you're familiar with this site and looking at your numbers here and getting a little anxious I wouldn't use this number as the one you look to, to determine how fast your site actually is.

One interesting other piece of data you might want to look at though is this really cool site called www.WhatDoesMySiteCost.com. You pop in your site URL and hit Test My Site and it cross references information from web page tests against some global data around the average cost of mobile data plans and average

income levels and it will give you some information around how fast or how expensive rather your site is in different countries. You can see in my case my site is most expensive in Canada where it costs about 8 cents a page load. But as a percentage of Gross National Income Canada doesn't even hit the Top 10. In developing areas where incomes are a lot lower, like Madagascar, you can see one page on my site is a bigger percentage of their daily income.

If you do business in developing areas or globally this might be an interesting number for you to look at just to get a sense for how able people are to access and use your site.

With that in mind let's talk about some annoying browser quirks and things you can do to address them. In order to understand some of the things we'll be talking about and how you address them it's important to understand how browser's work and what happens when you visit a web page.

If you type a URL into a browser and hit Enter the browser reaches out to the server where that website lives and say excuse me I'd like this web page. The server sends the HTML file for that web page back to your browser which then starts reading that file from the top down. As it reads through this file it starts displaying the content it finds in a process known as Painting. So as it encounters text it starts rendering that text, if it encounters an image it starts downloading that image and then displays it. It's pretty straightforward and makes sense.

There are some quirks to this process and one of them is that if you have (3) 100 kilobyte files they actually take more time to download and display than a single 300 kilobyte file does even though the total weight of those 2 different groups of files is identical, it's 300 kilobytes in both cases.

Christina: I didn't know that that's interesting.

Chris: The reason is because when a server sends these files there's a little security handshake process that happens. It sends along something known as an http header that has some additional information about that file and where it came from, the server it sits on and whether or not it's secure. That file brings with it some additional weight. So every time you do one of these back and forths you're adding a bit of weight. So there is a handshake process that has to happen every time. Then there is something known as a DNS look up where you try and find the location of that file, sometimes it's not there and you get redirected somewhere else. Then every now and then that file just doesn't show up and there's an error but that takes a bit of time too. Every single one of these things adds some latency and it's a lot of places for things to go wrong.

This is compounded by the fact that today browsers only download 2 files at a time. If I'm a browser and I'm reading through a web page and you have 5 images I'm going to download the first 2 I come across and the remaining 3 are going to get held back in a queue and will sit there until 1 of those first 2 images is downloaded and then it will start downloading the next one.

While that's happening it stops rendering all the other stuff so you need to wait for all these files to finish downloading and you can get a pretty big backlog as a result. One way you can get around this is by combining files of a similar file type together in a process known as concatenation. Don't get too freaked out by the file name I'm just using this as an example.

Let's say you had 2 files named FUG and Canvass.js, you might want to put those into a single file called txt.js or you have drop down menus, and something for responsive videos and another script for mobile windows you'd like to see those

all in a single file called Name.js.

If you work in WordPress one of the most wonderful things about it is we have this beautiful plug-in eco-system where you can add any functionality you want through a plug-in. The problem is because each of these plug-ins is its own little modular thing they all load each of their own files individually and they're all separate because they come from different plug-ins.

Fortunately you can solve this problem with another plug-in. I've tried a lot of these and the one I found to be the absolute best is MinQ. It hasn't been updated in over 2 years and I think it's actually 3 years at this point and that usually freaks people out because the general rule of thumb is if a plug-in hasn't been updated in a while be careful it could have bugs or security holes.

MinQ hasn't been updated because it just works. Nothing about the way WordPress functions has changed in the last 3 years so they haven't had to modify it at all. What I like best about it is I've tried a lot of these and all the rest of them I tried when they combine the files they end up doing it in a weird way and sometimes one file depends on another and the plug-ins don't respect that and your whole site breaks as a result.

MinQ is really good about respecting file dependencies and loading things intelligently and so it avoids all those breaking issues. I've never had MinQ break a site, knock on wood, on me before and so I can't recommend this highly enough.

Christina: Wait can you go back to that other slide? For those of us who aren't coders and we're used to them if it hasn't been updated stay away from it. You're saying this one is totally fine because it still works.

Chris: That's generally a good rule of thumb.

Christina: Yeah but why don't the plug-in authors who have written MinQ and it's fabulous cause I've heard of it from other developers, why don't they take the time to update so that that warning goes away?

Chris: I'm not entirely sure what they can do and this gets a little bit into the way these systems work. In order to update it like they're not going to change any of their code because it works perfectly fine. The only they can really do is change the version number. In web development there is this thing known as semantic versioning and so if something has a version number of say 3.1.1 each of those numbers mean something. The first number means it adds a bunch of new features and breaks previous versions, the 2nd number means its adding new features and the last number the little one means it's fixing some bugs.

So for them to just update the version number without making any changes breaks the semantic versioning and it's generally frowned upon. I wish there was a way to indicate in WordPress's plug-in directory that while this hasn't been updated it's been tested or vetted and doesn't have any security issues. That's the thing you really care about; the frequency of update is not necessarily the best measure of efficacy.

Christina: Right we just want to know that it hasn't been abandoned and it's a good plug-in and it's safe.

Chris: Yeah that's the sort of thing you care about and that's a WordPress plug-in directory issue. Yeah I'd normally recommend you follow that if it hasn't been updated in a while rule but as a developer I've turned on debug mode and tested

my site with this and there's no errors and it's a good plug-in and I strongly recommend it.

Christina: Okay great.

Chris: The way this works is if you're signed into your site and you haven't turned off the toolbar that displays on your site when you're logged in you'll have this new thing on there called MinQ up on the top next to your sign in name. If you click on that it will show you a list of all the different scripts and styles being loaded on your page. All you want to do is click on this and highlight everything under NQ Script and then Command or Control C or right click Copy to copy it and then you go back to your dashboard under Settings MinQ and you'll turn on Enable Script Modification and then paste everything you copied into the box. Then you do the same thing with Style modification.

When you're done hit Save Changes and MinQ will handle everything else. You don't even have to think about it. It does a very good job of handling everything for you. It's a brainless don't have to think about it way of taking care of this.

Christina: Back up for a second in case anyone missed it. So when you add MinQ it's doing what with these scripts?

Chris: What MinQ is going to do is the first time your site loads after you activate it and add the list of scripts you want, it is going to grab all those files which sit somewhere on your server and are put there by the plug-in and it will take them all and combine them all into a single file and then somewhere in the loading process of WordPress it runs through this loop where it grabs all the different scripts and styles that have been loaded by your plug-ins and starts loading them.

MinQ shuts that off and says don't load those load these 1 or 2 combined files instead. It does it in a very intelligent way and so if a file changes or you update a plug-in it will flush that combined file and create a new one and give it a new name so that the browser downloads it.

But basically it's modifying let's load all these files process that happens when someone visits your WordPress site.

Christina: If you disable or add a plug-in would you need to do that copying and pasting thing again?

Chris: Potentially, if the plug-in has some additional scripts that weren't captured in the initial process…

Christina: I got it.

Chris: That's a little arduous and so it's mildly annoying but…I've used plug-ins that don't require you to do that before and every single one I tried ends up breaking functionality because it's not intelligent about how it loads it.

I've made a decision having a little more manual work up front and a touch more control by having a site that doesn't break is obviously superior to automatic but will potentially break your site.

Christina: Right and this sounds like a good thing to do after you've built the site and figured out what you want and where your site is stable and you're not adding and removing plug-ins. I find when I first build a site it's like I'm not sure how I'm going to do it and I add plug-ins and take them away. But then I get to a point where I've had my site for a while, I've got the plug-ins I want and it's not really

changing all that much.

Chris: Yeah. Now if you're at that point and you add a new one and forget to do this it's not the end of the world, 1 or 2 extra script files aren't going to destroy you. But it's just a good practice.

One of the other challenges with Java Script files in particular is they block rendering. When a web browser is running down the HTML document and finding images and downloading those it's going to continue to render the text. Just because it encountered images it's not going to stop rendering any text on your page.

But a Java Script file which are frequently loaded by plug-ins you install will. The reason they do this is because Java Script files frequently add content to a page or move content to a page or move stuff around on a page. It's a little like animated scripting magic. Web browsers are lazy and don't want to render something that's just going to get moved or changed later and they'll have to re-render it. So they wait until that file has been downloaded and read and know exactly what it's going to do before they continue creating anymore content on your page.

I guess the thing to worry about with this is file location matters. If you put all your scripts at the top of your page and this is getting a bit into how plug-ins load files but if you put those at the top of the page it means when someone loads your site they're not going to see any content at all – none of your texts, none of your images anything until all those files have downloaded and been processed by the browser.

If you put them at the bottom of the page all your content will show and then the scripts will load and run. But people will have already seen your stuff and be able

to start interacting with it.

Christina: If we're not coders we're not really…this doesn't fully come into play. It's more maybe the plug-ins we use.

Chris: No and here's why this is important. In WordPress you can specify a location for where that file loads. This is code so don't get freaked out but in WordPress you have this NQ script function that says here is a script and I want to load it. This very last argument here says load it in the header or the footer. If it's a default it sets the header and if it set to true it loads in the footer. By default it loads in the header and if the plug-in developer doesn't put anything there it reverts back to the default and as a result a large number of plug-ins that you use are loading all your scripts in the header and they are going to kill your performance.

The good news is you can also solve this with a plug-in. I've written a plug-in called Scripts to Footer that you install it, activate it and then you forget about it and it will take all the scripts that all your plug-ins load and move them from the header to the footer so you don't have that issue.

So even though you're not a coder or developer and you can't necessarily go in and manually change all these plug-ins to do what you want you don't have to and can just let this plug-in do it all for you.

I do like to mention how it works because I think it's important to understand why plug-ins matter and why you should install it. Sorry Christina if I went a little too into the…

Christina: No that's okay. I mean it's getting us to think about what's happening behind the scenes.

Chris: Yeah I don't expect anyone to go out and write their own plug-in.

Christina: Exactly!

Chris: But I do think it's important to understand what's happening with your site so you can kind of understand why some of these things matter and why things are happening the way they are.

So that's it for weird browser quirks. There is a handful of other little things you can do but they're really developer focused and if we're following the 80/20 rule they're probably more in that 80% of stuff that only has a 20% impact and so we don't have to worry about that today.

I do want to spend a little time talking about how to reduce the overall weight of your website because this is a really big issue too. Again code I'm not expecting you to write it but a typical Style sheet or Java Script file that gets loaded by one of your plug-ins or theme looks a little something like this.

You have comments and line breaks after each thing and a bunch of space in between and all that stuff actually adds a lot of space of the comments, line breaks, the space between different snippets of code. One of the things you can do to reduce the overall weight of your site is reducing that white space in a process known as "minification." It results in files that look like this, they're hideous and unreadable but they're actually, in some cases, 75% smaller than the unminified version.

Christina: I want to stop here for a second. I would never have imagined spaces and comments would make that…they're just text files and I'd never imagine…

Chris: It's crazy right?

Christina: Yeah.

Chris: Yeah and I've seen in my own instance files of a megabyte or more can get reduced to a fraction of that removing all the white space. This again is a plug-in and theme problem because WordPress requires that plug-in and theme authors provide the human readable all the white space, line breaks and comments in a version of their files in order to get listed in the directory.

I understand why, they want people to be able to take this stuff and modify it on their own if they want to but it's bad for performance. The good news is you can once again address this problem with MinQ. So if you've installed it and using it in addition to combining your files for you it's also going to, as part of its process, strip out all that white space.

So you don't need to do anything extra to do that. If you've installed it and are using it it's going to automatically remove the white space for you. Once again huge kudos for MinQ.

Similarly you can also minify the actual HTML output of your website. It has a much less impactful result on performance but I did write a plug-ins that takes care of that and it's called HTML Minify and the link will be in this slide so you don't have to write it down. You just install it, activate it and it handles it for you.

It probably reduces the overall weight of your HTML file by say 10 or 12% which is usually a couple of kilobytes so it's not a huge amount but on a slower connection every kilobyte counts and so I'd probably still do it. There's no

downside to doing it.

As much as I advocate the minification of files and removing all the white space, the real problem today is images. 63.5% of an average web page's weight is in images. It's almost 2/3rds of a websites size is images these days and it makes sense. The web is a much more engaging visual beautiful place than it was a decade ago.

But we have these conflicting interests where you have these amazing devices that have really gorgeous high density displays, retina displays on the I-Phone and like super high density displays on Androids and desktops too. Then at the same time you have really low bandwidth computing. You have these pockets in your computer that have really spotty internet connections. How you balance these competing interests is really important if you want to make sure your site is fast and usable and as small as it can be.

One thing you can do is pick the right image format. For those uploading files to the media uploader and then installing them in your posts or articles or pages the right format matters. So the format called PNG is really good for MoGos and clean simple small images. It's what is known as a lost less format so you get no pixilation around the edges of lines and everything is nice and crisp. But as a result files can sometimes be bigger than the PNGs.

For things like photos and other noisy images that have a lot of stuff going on visually JPEGs are way better cause they're typically smaller. They do have a little more graininess to them but you never notice because there's so much going on in the picture too.

I recommend test and measure. So when I'm creating a picture or image to use

for an article I like to create it in a couple of different formats and then see how big each one is. It can vary quite a bit based on what's in the image.

There is this other thing you can do to your image called "smooshing." It always gets a giggle cause it's a funny phrase.

Christina: It's so funny. It's so not high tech the word "smooshing."

Chris: Yeah and it's the official word for this. Smooshing is the process of removing all of the meta data associated with an image. So anybody who has a nice DSLR if you've ever pulled that photo over and looked at it in editing software you could probably notice there is a bunch of data associated with that image – where it was taken, what camera it was shot on, the aperture and shutter speed, ISO level of the image, etc. there is all sorts of extra information. That actually adds a lot of weight to a photo.

I took one of my DSLR photos and one of my I-Phone photos and I ran them through smooshing software that removes all that meta data and the file size was reduced by 30%. It's quite a bit of extra weight in these files that really doesn't need to be there.

There are 2 really awesome tools for smooshing. If you're on a Mac or Apple device ImageOptim is this really great desktop software. You just drag and drop your files in and it will run through them all and smoosh them for you. If you're o Windows or don't want to download another app on your machine there is also this great website called B64.io and it works them same as ImageOptim and there's one extra little step cause you have to download the images after it finishes processing them; whereas, with ImageOptim it just optimizes the ones right there on your computer. It's a really great free alternative for someone not

on a Mac.

Christina: And have you heard of Tiny PNG?

Chris: Yes I have and it's good for PNGs. So ImageOptim and B64.io use Tiny PNG in the background for PNGs. The way both of these work is they have like 8 or 10 different optimization tools that run images through depending on the file format and how big it is. So Tiny PNG is great for one type of file like B64.io and ImageOptim it just figures it out for you and you don't have to think about it.

Christina: Tiny PNG now says they'll do JPEGs as well.

Chris: Interesting. I haven't tried them in a while. I do know the last time I looked at it these tools were getting files that were a lot smaller than Tiny PNG and I would probably still steer people here but whatever tool you prefer.

Christina: Okay.

Chris: Anything is better than keeping these as is, so feel free to…the most important thing is to optimize.

Christina: And it's amazing it can reduce the file size by like 70% and then you visually look at both files side by side and you can't see the difference. Sometimes you can see the difference but most of the time you can't tell.

Chris: Yeah it's pretty crazy. One other thing, there's a few different types of JPEG and the 2 most popular on the web are called Baseline and Progressive and they load a bit differently. Let me visually show you what that looks like.

The one on the right, the Progressive JPEG loads a really grainy version at first and then gets clearer over time as it renders. Baseline JPEG, on the left, starts at the top and builds down in full high quality resolution the whole time. Let's look at that again for a second.

This is where we get into the perceived performance versus actual performance. Progressive JPEGs field faster than Baseline JPEGs do even though they take the exact same time to load. It's because you're getting the full image at once and may not notice it's grainy. Or if you're on a smaller mobile device it might not look grainy at all the first time around because it's big enough for your screen.

I strongly recommend using them and you're probably sitting there thinking how do I do that? The good news is if you're smooshing your images, your JPEGs ImageOptim and B64.io convert your JPEGs to Progressive ones when they go through the optimization process. As long as you're smooshing them that piece is already handled for you.

Christina: Are you saying the Progressive vs. Baseline that's in the actual file?

Chris: Yeah it's interesting and I don't fully understand the technology behind it I just know it works so I haven't bothered to explore why it works too aggressively. But JPEG has about 4 different types of JPEG formats and 2 happen to be Progressive and those are the ones you typically see on the web.

Yeah I'm not entirely sure what is different under the hood, like if you were to open it up and look at the code to see how it works. But they render differently and…

Christina: Interesting.

Chris: Yeah.

Christina: Do you know if you take a picture with your camera, your I-Phone do you know what kind of JPEG file it makes?

Chris: Most out of the box are…I know with my I-Phone and my DSLR and I have a Canon they are Baseline by default. I'm not entirely sure why but that seems to be the format that gets typically spit out. So going through this process is really important. I think you should assume your JPEGs are Baseline unless you know otherwise.

Christina: Okay.

Chris: Similarly while we're talking about this one other important thing to do is compress your JPEGs. What I mean is there is this process where you can set how much data…well like if the print analog is per square inch and in the web world it's per pixel. How much data is included there?

So you're really nice fancy camera, your I-Phone or Android camera will give you an uncompressed JPEG image. It has a very high level of data per pixel. Removing some of that data will make your file a lot smaller and will not visually change the way it looks.

This is a side by side of a photo, my wife and I went down to this place for our anniversary a few years ago and took a photo of our coffee cups side by side. I left one uncompressed and compressed the other and the one that was compressed is 71.6% smaller than the original even though it looks visually identical.

70 is considered quality high JPEG compression for the web and the way these numbers work the smaller the number is the more compressed it is. WordPress has a default compression level of 90 which is a lot larger or it did historically. As of Version 4.4 that number is now down to 82 but still a bit higher than I'd like to see. 90 is what you'd like to see for a photo you're going to print out and for rendering on the web 70 is great. It's nice and crisp and you really can't tell the difference.

What these means is if you were really into photo editing and wanted to compress your image yourself and the uploaded it to the WordPress Media Uploader there is a chance when that image gets spit back out and inserted into your posts it will be larger than the original full size image you uploaded even if you're using a thumbnail version that's smaller in dimension than the original file you uploaded.

Fortunately this is easy to change and there is a plug-in called Image Compress and Sharpen that allows you to change the compression rate of what Media Uploader does to your photos. I have it set by default its 70 and you can change it to anything you want. Also if you check the box Convert All Your JPEGS it will convert all your JPEGs for you during that compression process.

There is one last checkbox there for Sharpening Images. If you go below 70 sometimes your images start to get a little grainy and weird looking. It makes them a lot smaller but they can sometimes get a little fuzzy. Checking Sharpen will run through some processes to make them look a little crisp again while keeping the file size small. If you don't want to mess with that I think just the default is perfect.

Christina: Can you describe again what that number means?

Chris: Yeah. It's a little and I don't want to say arbitrary but it has to do with the amount of date per pixel. If you were to think about it in print terms let's say you have a photo and it has within a square inch a bunch of different colors that create that picture, if you were to remove every 3rd or 4th like pinhead size bit of color from that photo you'd use a bit less paint but the photo would start to look a little fuzzy as you took away more little pinhead sized bits of paint.

This is effectively the digital equivalent of that. You're including less information in each pixel and if you take away too much the edges start to get fuzzy and if you include too much you end up with a file that is really large and doesn't look visually different from one that has less data in it.

Christina: So the 70 is it 70 something per something or…?

Chris: It doesn't seem to be related to a percentage. This is where someone who is all the time video editor could probably explain what these numbers mean better than I could.

Christina: Got it.

Chris: 100 is fully untouched and as high as you can get. 90 is you print it and it still looks good and 70 it still looks great for the web and anything below that starts to get a little fuzzy and awkward looking. Unless you have Adobe Illustrator or some kind of photo editing software so you can actually go and specify this is the number I want. I'd let WordPress handle this piece for you with Media Uploader.

Christina: Okay so before your talk today I thought smooshing and compressing was the

same thing. So it sounds like compressing is sort of like compressing the pixels and smooshing is that getting rid of that meta data?

Chris: Yes.

Christina: Got it. I thought they were the same thing I didn't know that.

Chris: They go hand in hand and do both but they are slightly different.

Christina: Okay got it.

Chris: This is a place holder so you don't have to remember this code. One of the other big challenges is around having images that look great on everything from a really large high density desktop display all the way down to a tiny mobile phone screen and everything in between.

Historically the way this has been handled is you serve one really large file to all those devices and tell it to scale itself down or up based on how big the content area it's displayed in is. The problem with that is for that to work you need to send the largest possible image and it doesn't necessarily make sense to send the same photo to an I-Phone or Android that you send to that big desktop computer you have.

Ideally different screen sizes or view ports should get different images. The ideal way to do this would be to tell the browser or device I have 3 or 4 image options for you so pick the one you think is best. The good news is that allows browsers too potentially or users to make decisions around things like speed vs. aesthetics. Do I want the most beautiful image possible or the one that will load the fastest? Or maybe even considerations around things like I'm on my data right now and

don't have a lot of data in my plan so I'd rather have the smaller image because I don't want to eat through my whole data allowance that sort of thing.

Right now we as the people who create or build websites are making decisions that should really be made by the web browser and visitor. The good news is there's a technology that exists today that allows us to do just that. There is this thing called Source Set where historically an image if you were to insert it with the Media Uploader underneath the wysiwyg or What You See Is What You Get editor you'd see a snippet of code that looks a bit like the part that's not great out here – image source = MM the URL of that image.

Today you can now actually specify some additional information. So this Source Set allows you to patch in here are some other images you might consider and here's how wide they are. Then you also tell the browser some information about your website. So here are some sizes you should care about…when your screen is bigger than say 600 pixels this column is only 1/3rd of the page wide and when it's smaller than that it's 100% of your screen wide. I don't expect you to remember this I'm just explaining how it works.

Then the browser can say okay based on that and how big this device is I want that image medium because that's the best size for what I have going on right now.

The problem is that markup sucks. You go from this to this and it's really annoying to write and you have to do a bunch of math. So the good news is there is a WordPress way to do this that you don't have to mess with any of that. WordPress does this automatically for you as of WordPress Version 4.4. If you're on one of the newer versions of WordPress this is happening automatically and your visitors are now going to get better images based on the device they're on

and so that's awesome.

If you're on an older version of WordPress there's a plug-in called RICG Responsive Images and RICG is short for Responsive Image Coalition Group, it's the group of web developers that are working on specifications. This plug-in got pulled into WordPress Core as a Version 4.4. If you have the newer version this plug-in is redundant and it won't do anything. But if you're on an older version of WordPress that you can't update for whatever reason and I know sometimes if you're at a corporate setting or a university setting that's not always an option or you just don't know how.

Christina: Yeah most people are keeping their sites up to date but I can imagine because you just mentioned it that you might be in some kind of corporate setting and for some reason they have to be on an old version of WordPress. But I think most of us are keeping it up to date and so that's awesome.

Chris: Yeah so this is baked right in.

Christina: That's cool!

Chris: It's just a beautiful thing. I like to point it out because a lot of people don't realize it and it's a neat thing.

With that said let's talk server optimization which I know what everybody has been looking forward to. This is the most exciting part of this talk. G Zip so besides being a very funny word is the process of compressing website files on the server before sending them to the browser.

So if anybody has ever zipped a group of files on your computer to send to

someone so they're smaller you conceptually understand how this works. Rather than sending all those image files full size it's going to compress them and send them to the browser and the browser uncompresses them and displays them. It can reduce the overall size of your website by 70% or more which is huge.

The way you turn this on usually involves some code on your server and it varies based on who your host is. Some web hosts have this turned on automatically, mine does and others like Go Daddy don't have it turned on automatically but if you call them they will activate it for you. Others like Blue Host have a means of turning it on but you have to use some code which is really uncomfortable. So if you're unsure I'd…well there's 2 things actually.

First if you go to GZipWTF.com and put in your URL you'll get back a report that tells you whether or not your files are being G Zipped. You can see in mine where it says Resources by Compression all 4 of my files are G Zipped and then 0 aren't which is great. So if you had none for G Zip or a bunch that weren't then you'd know your server isn't G Zipping.

The biggest thing I can recommend here because there's not really a great plug-in based solution for this but if you find your stuff isn't G Zipped I'd give your web host a call and ask them if it's something they can activate for you. They may say no and if they can't it's not a huge deal but…

Christina: Let me pause you because I want to make sure everyone is getting this concept. You've got your website and where would things need to be zipped up, as the browser is talking to the server?

Chris: Yeah the website owner doesn't necessarily do anything here. What's happening is that thing at the beginning where the browser says to the server hey I need this

site and then the browser is reading through and it's like oh I also need all these images and Java Script files and stuff and it reaches back to the server and says send me this stuff to.

The server has 2 different ways of sending those files. It could just send those files as is or it can compress them which happens on the server and you don't have to compress them ahead of time or anything. Then it sends them to the browser and then the browser uncompresses them. It just makes them travel faster over the "wire" so to speak, so over your data plan or Wi-Fi network and they're smaller files so they go faster and load faster. Even though the browser has to uncompress them once it gets them it is still a lot faster than sending them uncompressed.

Christina: So this website GZipWTF.com will let me know if I put my website in there if the zipping is already happening on my site.

Chris: Yes and there are certain hosts where they can do it but you have to go in and set up this PHP.ina file and configure it and drop in some information. If you're not a developer and like I'm a developer and I hate doing it. It's very difficult. If you're not a developer it's basically impossible for you to do it. But some hosts will do it for you if you call and ask them.

Christina: Got it.

Chris: I can't promise that your web host will do this but if they're not it might be worth giving them a call just to ask.

Christina: I think what you're teaching us is one more of those little things that you can do to speed up your site.

Chris: Absolutely and this can actually make a pretty big difference in speed. But this is the piece de resistance of my talk right here is I'm going to tell you the most important thing you can do for web performance on your site. If you ignore everything else about my talk this is the most important part.

We talked a bit about how the browser process works, you type in a URL and hit Enter and the browser reaches out to the server for some files. When you run a site through WordPress there's actually a couple of other steps that happen before the server sends that website back to the browser.

Because WordPress is a database and template driven system you write your content and then you can swap out themes at will and that content remains there and gets plopped into the new themes that you switch in and out. What happens is the server has to grab the content from the database and then grab your template files for the way the navigation, body content and footers are supposed to look and then it mashes that content into those templates, creates an HTML file and then finally sends that back to the browser.

This is a slow process. It's really bad on shared inexpensive hosting that I'd imagine a lot of people use. If you have a dedicated virtual private server that cost you $50 to $150 a month this probably isn't that slow for you. But if you're like me and paying somewhere between $5 and $20 a month this is a very slow process and it happens literally every single time someone visits your site or any page on your site.

So if I visit your Home page and then go to your About page and then go back to your Home page that process will happen all over again even thought I just visited your Home page 30 seconds ago and the content probably hasn't changed.

The good news is you can tell WordPress to compile those static HTML files ahead of time so it doesn't have to run through that process every time.

The way you do that is through what's known as a caching plug-in. WordPress has a few articles on their site on web performance and they typically recommend W3 Total Cache or WP Super Cache. I find these really complicated to set up and have a bunch of options you need to choose and if you get it wrong it really doesn't have the performance impact you're looking for.

The one I recommend for most people is Comet Cache. What I love about this is it involves zero thinking at all. You activate it and make sure yes Enable Comet Cache is checked from the settings and that it works. It's really smart and so if you change some content on a page and hit Update or Publish it's going to rebuild that static HTML file so that when someone goes there they'll get the new stuff and not the old version. If someone leaves a comment on your blog it's going to flush the previously built mark up for that page and create a new one and so new visitors will see that new comment.

It's just a really useful totally free plug-in that requires no effort on your part and just works flawlessly every time.

Christina: Is the reason why you like Comet Cache better than Total Cache and the other one is it just because this is simpler and has less settings?

Chris: Yeah. If you're not a developer you don't know what a lot of these terminologies are. It will ask you things like how often do you want to flush it? Do you want to enable this feature? Where do you want to store this file? What do you want to do with these different types of content? You don't necessarily know what the right answer is.

Comet Cache has really smart defaults that you can change if you want to but you don't have to, to get the maximum benefit out of this plug-in. It literally works. I've seen installing this plug-in can reduce start render times on sites from 5 seconds down to 2 seconds.

Christina: That's great.

Chris: Not changing anything else. Not doing any of those other optimizations. It's fantastic! And the little side bonus here and I didn't include it in the screen shot and should have but if you scroll down a bit on the settings page one of the options is to enable G Zip on your files. So if your server isn't doing that for you already, Comet Cache can handle that for you and so you don't have to know how to code and it can take care of it for you. Doing it on the server is better, Comet Cache will use some different method for doing it and it's a little less efficient but if you call your host and they can't do it you still have an option which is awesome.

Christina: That sounds great. Would there be any reason to get the Pro version versus the free version?

Chris: For I think 99.9% of your users no. There's one benefit of the Pro version is if you had a site where you were displaying different content to different users based on whether or not a cookie is set for example, the Pro version provides you with an I don't know code way to generate different versions of your HTML file based on presence of that cookie. But most people aren't doing that or you have a plug-in relying on that it's telling WordPress not to pre-build the page for that particular instance.

Honestly, I've used this on tons of sites and haven't ever paid for the Pro version. I don't think there's a need to.

Christina: Got it.

Chris: They even say it in their description and tell you most of their users will never need to buy Pro.

Christina: That's interesting. That's great. This is great.

Chris: Yeah this is the #1 thing you can do for performance on your site.

Christina: So start there and see what happens.

Chris: Yeah I'd start there but I like to save it till the end because it's the big…

Christina: Yeah. Yeah. Yeah.

Chris: So a quick recap do all the things. Combine your files which you'd do using MinQ, load JS in the footer using my Scripts to Footer plug-in, remove white space again with MinQ, make sure you pick the right image format and I strongly recommend running them through ImageOptim or 64.io before you upload them. And use Responsive Images and if you're on the latest WordPress it is doing it for you.

Then from the server side enable G Zip if you can but absolutely use that caching plug-in.

Christina: That's great.

Chris: Once you've done all this stuff I'd recommend testing your page again, a web page test. I like to see a before and after, it's a cool way to see how things have changed. So get a baseline and I'd recommend doing it on Cable, 3G and Edge just to see how you work on each of those.

As a reminder, your targets are 1, 3 and 5 seconds respectively. And then run that test again after you've made your tweaks and see how things improve.

Christina: When you say Edge are you referring to our smart phones?

Chris: Edge is a type of network that exists. If you ever looked at your phone and notice up in the top where it has the bars, instead of 3G or 4G it has a little E that means you're on an Edge network meaning you're somewhere so remote that you're getting a really, really bare bones data network.

Christina: Right.

Chris: It's the slowest of slow.

Christina: Right.

Chris: Typically most phones today are on 3G or 4G or faster but if you're selling to folks in developing areas or working with people who are in more rural areas of the country an Edge network may be more common than you think.

Christina: Yeah.

Chris: Sometimes when you're commuting and you're on a train they run off an Edge network because you're going through the middle of nowhere.

Christina: Yeah that was a question that came in and I wanted to clarify that it has to do with phones.

Chris: Oh yeah so sorry. Although so yeah it doesn't have a lot to do with desktop but if your customers are, for example, using DSL satellite connection for their internet they may have speeds at times that are comparable to an Edge network. There's also still a good number of people who are lower income that are working on phones with bad internet connections like inexpensive smart phones and pay-by-the-month mobile plans that have to use a certain amount of fast internet will give you slow stuff. But on desktop computers too DSL will sometimes be really slow and there are people who literally still have dial up because it's really inexpensive and it's really slow.

Christina: All right and I don't know if you're at the end of your slides because we do have some questions.

Chris: Yeah I am so let's get to the questions.

Christina: All right. Do sliders affect the speed of a website, if you're using sliders?

Chris: Yes in the sense that they're dependent on Java Script. So depending on where that script is being loaded and how fast it is it can negatively impact the performance but once it's up and running no. The bigger challenge with sliders depending on how they're used they're kind of ineffective.

So if you are using them to display a gallery of photographs I think they're great. If you're using them on a marketing site right at the top you'll have a big series of images with calls to action on each one the data shows that most people don't

click beyond the first image. So in that case I'd argue they're not hurting your performance but they're wildly ineffective for your business goals and you should do away with it.

Christina: Yeah.

Chris: That's a different talk for a different day.

Christina: Right yeah and it depends on how you're using it. But coming back to sliders you'd still want to compress and smoosh those photos?

Chris: You want to compress and smoosh the photos. You would also want to make sure your concatenating the scripts that power the slider with all the other stuff using MinQ and probably load that down in the footer so you're not holding up other content on your page while you wait for it to load.

Christina: Okay that's a great answer. Let me read Linda's question…if you want to go back and compress images on your website and so let's say you already uploaded them and now we're listening to your awesome presentation can you compress the pictures in your library and add them back? Will they automatically go back to the page compressed or do you have to go back and modify every page or post individually?

Chris: If you install WordPress that Image Compression Sharpen plug-in I told you about it will change the compression rate on all your new photos but on your old photos they will remain with their old compression rate. But WordPress has a ton of free plug-ins that usually includes regenerate thumbnails somewhere in the name. They allow you to with one click recreate all the images on your site. It will maintain the same URL's for all those images so it won't break anything but you

can install the compressed plug-in, Compression Sharpen plug-in, install Regenerate Thumbnails and then do…it's like a one click process and regenerate all my thumbnails and it will recreate all those images in a smaller size for you. So it saves you from having to go back and manually do this for all your old posts and pages and things.

Christina: Yeah and I've used that Regenerate Thumbnails before and when I switched themes I had to regenerate my thumbnails again cause my new theme was using different sizes.

Chris: Yeah that makes sense.

Christina: We have a couple more questions but most people are saying excellent information, but I think I have a couple more questions if you don't mind.

Chris: Not at all.

Christina: Larry says since many of us use Jetpack I wonder how many of these functions are built into it. You know Jetpack has Photon where it's taking your images and actually serving them up from Jetpack servers. Can you comment on that?

Chris: Yes Photon is awesome! Photon will definitely do a fantastic job of serving smaller images if you're comfortable with them living somewhere else. They will even if your browser supports it serves your images in a new format called Web M that is smaller than JPEG or PNG.

Yeah if you're using Jetpack Photon will handle a lot of issues for you. I don't necessarily know if that means I'd not compress and smoosh my stuff before I upload it because I don't have a ton of visibility to what WordPress is doing on

their servers with that. but most of this other stuff isn't built into Jetpack and if it were I would just recommend installing Jetpack because I love it and install it on all my sites too.

Christina: I think what you're saying is the formula is you take your pretty picture that you took on your high res camera and do your smooshing and compressing all that stuff on your desktop before you even upload it to WordPress. Then you upload it to WordPress and Photon will then take it away as well and improve your speed.

Chris: Yeah and let me do a quick check on specifically what they do on Photon. I know they serve it from a CDN which is great. Yeah it's going to resize them, it will serve them potentially in a more optimized format but I'd still run them through the smoosher and still install the Compression Sharpen plug-in.

Photon is basically serving more size or format optimized things and by size I mean dimensions. So instead of say 5,000 x 3,000 pixels it will serve a 1,000 x 2,500 pixel size because it's more appropriate for the screen or whatever. Yeah I'd still do the other stuff in addition to Photon which is great.

Christina: Okay cool. Again just to reiterate smooshing is getting rid of that meta data stored in the image and compressing is reducing the number of pixels that your eye can't really detect anyway.

Chris: That's correct.

Christina: Or your device isn't even rendering.

Chris: Yes.

Christina: Cool and I just see one more question and if anybody else has questions you can put them in now. A question about speed with regards to the theme you use. I use Divvy and I teach Divvy and Divvy by Elegant Themes and I'm sure you've heard of those.

Chris: I have.

Christina: Is that one that you know slows down site performance? What should we think about in terms of site performance and theme selecting?

Chris: This is a challenging topic because so much of it comes down to what's happening under the hood. Like the really core things are, are they loading a ton of individual Java Script and CSS files or combining them into one? And are they loading that stuff at the top or bottom of the page?

I haven't necessarily gone out and checked individual themes to see which ones do a better job of this for 2 reasons (1) when I work with clients I tend to build sites for them from scratch so I don't mess with the off the shelf stuff much. But even if I did the beauty of WordPress is the eco-system and there's plug-in based and programmatic based ways to work around all those issues.

So I don't necessarily think even if a WordPress theme does a terrible job with that stuff and say it loads 12 different files and loads them all at the top of a page, if you install a plug-in like MinQ it almost doesn't matter because you can address all those things after the fact even if the theme author did not.

I would say I'd choose the theme that best meets the needs of your business or site and then make sure you're installing a couple of the plug-ins, the stuff we talked about today and work around any deficits in the way the theme is built.

Christina: That's a great answer.

Chris: I don't want to limit choice. WordPress is all about freedom of expression and the ability to easily create websites that do what you need so I wouldn't want to restrict that for anyone and there is no need to.

Christina: Right and I think that's a great answer. Part of why I like Divvy is it makes it easy for the non-designer to put together something that looks really nice. I like how you say pick the theme that's going to work for you and then speed up your site using these other methods.

It looks like one more question came in and then I think we can wrap this up. Debra asks how do we check the meta data on an image. She uses a lot of stock photos and so what software can she use to check the files for meta data before uploading? Or is it possible that stock photos have already been scrubbed out; the meta data has been scrubbed out of stock photos?

Chris: A lot of times they have and so, for example…oh what is the site? I completely drew a blank on the site I used to use. Yeah a lot of…

Christina: I-Stock or Getting Images?

Chris: No it's actually not one of the big name ones but I know when I looked at this before they tend to…sorry I'm going to quickly look this up. The short answer is I don't know. I usually just run them through a smoosher anyway.

Christina: I see okay.

Chris: But in my experience most stock images when I've run them through they barely get reduced like 0.3% which leads me to believe they're doing a lot of optimization ahead of time. But I'm positive there's some free tools to do this on your computer.

So it looks like in OSX you can right click on an image if it's in, for example, the photos app and go Info and I've seen that before and it will pull up all the info about the image. It's been a while since I worked with Windows but actually it looks like there are some free apps that let you do that as well.

I Googled "how to check meta data images windows" and the very first answer that came up was this Help Desk Geek article that seems to have information about all the different platforms and they recommend checking there if you're really interested in doing it. I apologize this is just an area where…

Christina: That's okay.

Chris: I take for granted that you want to rip all that stuff out and don't even bother checking in the first place.

Christina: You've really answered the question in that you don't really think about this and you just smoosh it out and get rid of it.

Chris: Yeah. I had someone ask me before if there was a way to keep specific stuff. For example, the photographer once who really wanted to keep copyright and ownership info on the meta data on his image and I think that's a really valid argument for keeping some meta data in. There are tools that will let you manually edit or add that information back in if that's something you need. I just can't necessarily recommend one because the clients I typically work with haven't

had that need. I apologize and wish I had a better answer for you than Google it but unfortunately that's the best I have for this one.

Christina: No it's a great answer. We just have to pick and choose where we want to spend our time researching things and there's a lot of things that I do and I just do it and don't ask why. I think that's the answer that you're giving.

Debra I'm not clear on your question. She says it's an extra step to smoosh it. I think the first site you gave does the smooshing, the B64.io…doesn't that do the smooshing?

Chris: One thing and I should probably mention this in my talks but there are some plug-ins like WP Smoosh ImageOptimization, We'll Smoosh Your Images For You, so I'd probably install this if you want to avoid the extra step. I found it doesn't do quite as good a job as ImageOptim, the files come back a bit bigger. So if you really want to get die hard about this I'd do the middle step in between. But if you don't want to be bothered at the very least install this plug-in and it should automatically smoosh every image when you upload it.

That is a fair point and it is an extra step.

Christina: Right. But it sort of is and sometimes in the beginning you're using stock photos and not sure which ones you want to use. But once you settle in on something I think it's worthwhile to take that extra step especially if you're going to have a blog post that will be searched in Google and you're going to share it on social media and something you're going to keep around.

Chris: Yeah.

Christina: Chris this was awesome! This was such a good presentation and really awesome. I'll just read some of these comments. Darlene says really terrific information and she'll definitely listen to the replay. Donna said she did check her site on her cell phone and it seems to be loading quickly so she's happy about that. Debra says thank you, Jenny says great information very timely too. So a lot of awesome call, good stuff and thank you Chris.

Chris: I'm going to make sure I get you a copy of my slides so you can share them with your community. If anyone has any questions for me after the fact my contact info is at www.GoMakeThings.com and so please don't hesitate to reach out.

Christina: Awesome! Awesome! Thank you Chris for coming and sharing. We'll get this replay out and up for you. Again my name is Christina Hills and we will see you all next time, bye-bye everybody.

