



Zoompf's Web Performance Blog



Note: Archived Content

This is the archived version of the Zoompf blog. Since our acquisition by Rigor (</blog/2015/10/zoompf-gets-acquired>), all our new research and posts on web performance are being published on The Rigor Blog (<http://rigor.com/blog>)

Web performance at the speed of light!

 Zoompf Performance (</contact>) on April 30, 2015. Category: random (</blog/category/random>)



(/wp-content/uploads/2015/04/speed-of-light-726251_1280.jpg)

Image courtesy of Pixabay.

Did you know the data on your website – text, images, code...everything! – travels at the speed of light? Hard to believe, isn't it? But it's true. The bits of data traveling from your web site to the browser screens of your audience move at the speed of light. So why isn't your web site's performance just like the Millennium Falcon at light speed? To put it simply, there are too many traffic lights between your web server and your audience.

Unfortunately, there's not a direct fiber connection between your web server and your audience's device, mobile or desktop. Instead, there are what we call "hops" in between your web server and your audience. In the simplest of terms, a hop is an internet router on the path between your web server and your audience's device. Depending on your server's geographic location and your audience's location, there could be dozens of hops. Kind of like a traffic light, these routers stop the data for the most brief of seconds, and then redirect the packets of data on their way to your audience's screens.

So even if you have a blazing fast web server, your web site may not perform very well at many other locations, because the data still has to travel across physical wires and RF airwaves to reach their destination. The good news is that data can be replicated very fast, and stored locally to speed things up. That's where we deploy what is known as a Content Delivery Network, or CDN.

There are two main functions of a CDN. First, a CDN caches certain content – e.g., video files – on servers (what we've referred to as hops, earlier) that are physically located in various locations around the globe. Second, the CDN provider, like Akamai (<http://www.akamai.com/>), works to make sure that the route that the data takes to get from point A (say, in Singapore) to point B (maybe Southern Mississippi) is logically the shortest, fastest route available with the minimum amount of latency (</blog/2011/12/i-dont-care-how-big-yours-is>).

So when you hear the term "data center" thrown about like "*Amazon is investing in a data center in [insert town name here]*", one of the many functions of that data center is to store content locally to that geography. Once stored there, the data has far fewer "traffic signals" to pass through on its way to its destination, which is your audience. Our example, Akamai, has literally thousands of these remote servers all over the world, so it's their business to bring your website data a lot closer to your audience's devices.

The speed of light is really, really fast (https://www.google.com/search?sourceid=chrome-psyapi2&rlz=1C1CKMB_enUS530US530&ion=1&espv=2&ie=UTF-8&q=speed%20of%20light&oq=speed%20o&aqs=chrome.0.69i59j69i60j0j69i57j0l2.2686j0j7), but when data traveling at the speed of light has to pass through 37 "traffic signals", it doesn't really feel like the Millennium Falcon anymore. Utilizing a CDN can greatly improve the performance of your website from a user's perspective.

[Next Post \(/blog/2015/05/what-bagging-groceries-can-teach-you-about-web-performance\)](/blog/2015/05/what-bagging-groceries-can-teach-you-about-web-performance)

[Earlier Post \(/blog/2015/04/improve-performance-with-the-2-types-of-image-optimization\)](/blog/2015/04/improve-performance-with-the-2-types-of-image-optimization)

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