Implementation of Cloudflare Hosting for Speeds and Protection on The Website

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Abstract. Information is one of the important factor in the success of a company. Information can be distributed through official websites that are intentionally made for marketing purposes. The website created must meet standards in terms of speed and safety. CloudFlare is one of the CDN (Content Delivery Network) web performance and security company. CloudFlare is the first defense against hacker attacks, DDOS Attack and protection from other threats.CloudFlare protects and speeds up websites. The website is registered and is already on the cloudflare server. All access to the website through CloudFlare first. CloudFlare automatically optimizes the delivery of webpage data so it becomes faster with excellent performance. CloudFlare blocks threats and limits bots. CloudFlare improves quality speeds by up to 95% and reduces spam and threats significantly. Smart system caching on cloudflare saves bandwidth, which means saving money and reducing the burden on the server. CloudFlare lowers bandwidth by an average of 60%. CloudFlare cuts open time for 50% website page, which means higher speed. **Keywords**: Implementation, Cloudflare, Speeds, Protection, Website.

1. Introduction

The internet is used as a business tool to improve the competitiveness of companies, because it can help the company's marketing program. The company will be increasingly recognized by consumers around the world. Companies that use cyberspace can gather millions of people very easily. Cyberspace is a communication medium that is different from other marketing tools. Companies must have a website in order to use cyberspace. Website is one of the needs that is the priority of the company in developing the business. The website is not only used as a medium of information, but also as a medium to bring the company closer to the customer. Some benefits for companies that have a websites, as follows:

- Sources of Information for Customers
- Credibility
- Expanding Market / Market Segmentation
- Increase Sales

- On Visiting Customers Whenever
- Bringing the Customer Closer

Based on the description, it can be said that to improve the competitiveness of companies, develop marketing programs, increase the effectiveness of marketing programs, then the use of the internet through websites are needed by companies. This is because in the era of globalization where there is a free market that causes increasingly fierce business competition both from within and outside the country, the company is required to be able to develop its business activities as well as possible. By processing a website, the company can prove its consequences in providing convenience for customers who want to find information about the company or even shop online. Therefore the website must have a performance that is reliable enough to be used to the fullest. Cloudflare functions to maximize both performance and protection against hacker attacks.

2. Literatur Review

2.1. Cloudflare
Cloudflare is one of the CDN (Content Delivery Network) that can make the website faster loading speed. The main function of the CDN are to safeguard the website, the first defense against hacker attacks, Ddos attack as well as protection from other threats. Cloudflare has several server sites throughout the world [1]. This site distributes copies of the same data to clients to reduce latency and increase availability [2]. The process of storing website data in its data center also has a positive effect on many things besides security and speed. Cloudflare protects and speeds up web sites online. So that by using cloudflare the website of the company will be better in terms of speed of access for users and security from hacker attacks and others[3]. The advantages of using cloudflare are as follows:
- Hide the original IP address of the web hosting so that hackers cannot attack the server.
- Cache the site so that resources to load the site faster and reduce server load [4].
- Provides protection against all DDos attacks by changing security- site security.
- If the site is down, cloudflare will continue to serve cached data until the site is up again.
- If the registar does not provide the option to add DNS records, we can use the nameservers and add the host DNS records there.
- Cloudflare offers free services and allows us to add multiple domains at once.
- We can block access from certain regions or countries, if we receive many attacks from certain countries.
- Provides free SSL, which can also be used on shared hosts.

2.2. Website
A website is a collection of web pages that are interconnected and can be accessed through a home page using a browser. To open a website, a browser is required such as Firefox, Edge, Safari or Chrome. Types of websites ranging from personal Websites, Online store, Blogs and more. In terminology the website is a collection of web pages that are usually summarized in a domain or subdomain, which is located on the World Wide Web (WWW) on the internet. The World Wide Web consist of all websites available to the public[8]. The pages of a website are accessed from a URL that becomes the "root" called the homepage. A web page is a document written in HTML (Hyper Text Markup Language) format that is almost always accessible via HTTP, a protocol that conveys information from a website server to be displayed to users through a web browser.

2.3. Website Speed Measurement Tools
The loading speed of a website is very important. Because the faster the content appears, the faster visitors can read the contents of the website. So that visitors will feel satisfied and like the website. That way the loading speed must always be noticed for website owners, if you want the website ti be

liked by visitors. To be able to find out the speed of loading a website can use a number of trusted tools.

3. Research Methods

The stages that are passed for implementing cloudflare are Requirements Gathering, Selection and Design, Implementation, Operation, Review and Evaluation [5].

- Requirements Gathering: The stage of gathering information needed for Cloudflare implementation and analyzing needs.

- Selection and Design: Select the device / website that will be used for applying Cloudflare after analysis.

- Implementation: Implementing prototypes into the project environment by paying attention to the stages in when applying Cloudflare to a company / personal website.

- Operation: does the cloudflare operation stage work properly.

- Review and Evaluation: the stage of the review and evaluation process after Cloudflare is applied to the website. In this stage a comparison between the performance of the website before and after using cloudflare is also carried out by using several website speed measuring tools.

Based on the literature described earlier, Work Breakdown Structure Cloudflare Application can be described as in Figure. 1 and Figure. 2:
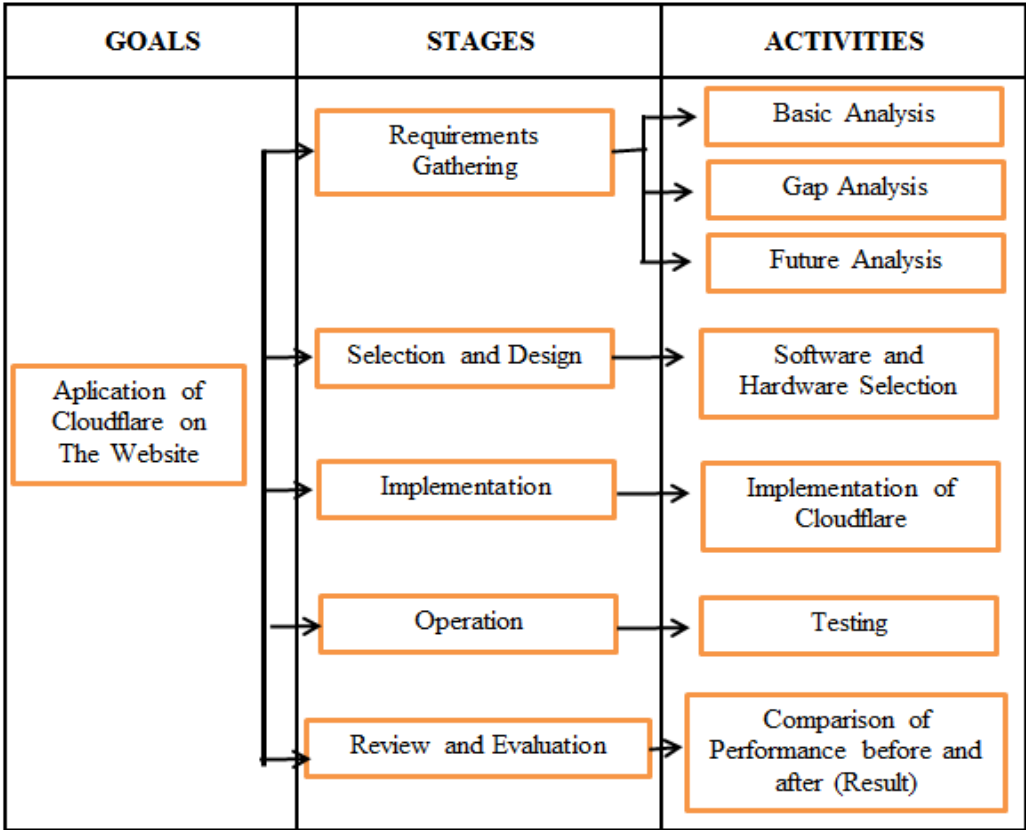

Figure 1. Work Breakdown Structure Application of Cloudflare.

Based on The Breakdown Structure above, the detailed conceptual framework scheme is as follows:
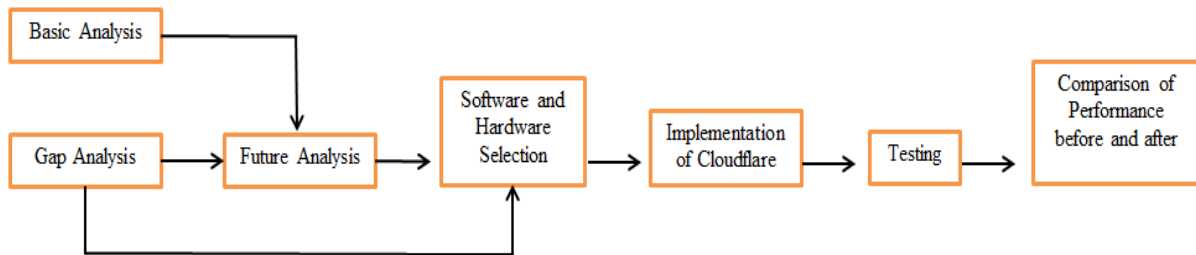

Figure 2. Details of the Conceptual Framework Scheme.

4. Research Results

In this section, some steps taken in collecting data about the organizational needs needed will implement cloudflare, the steps are[6]: Basic Analysis, data collection is done to find out about the need for cloudflare usefulness that will be applied to the website, Viewed from the current website Gap Analysis carried out comparison to websites that are running with other websites, There are differences in the speed of access.
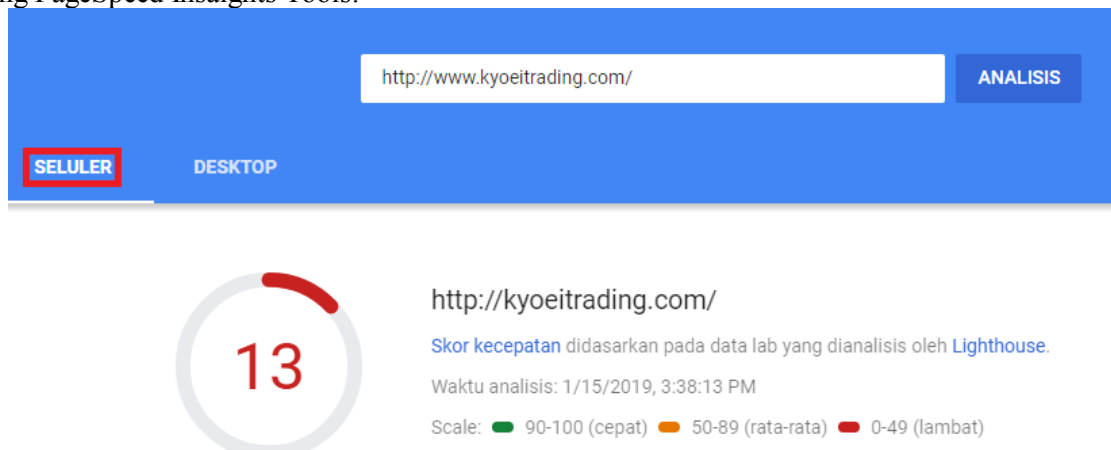
Using PageSpeed Insaights Tools:

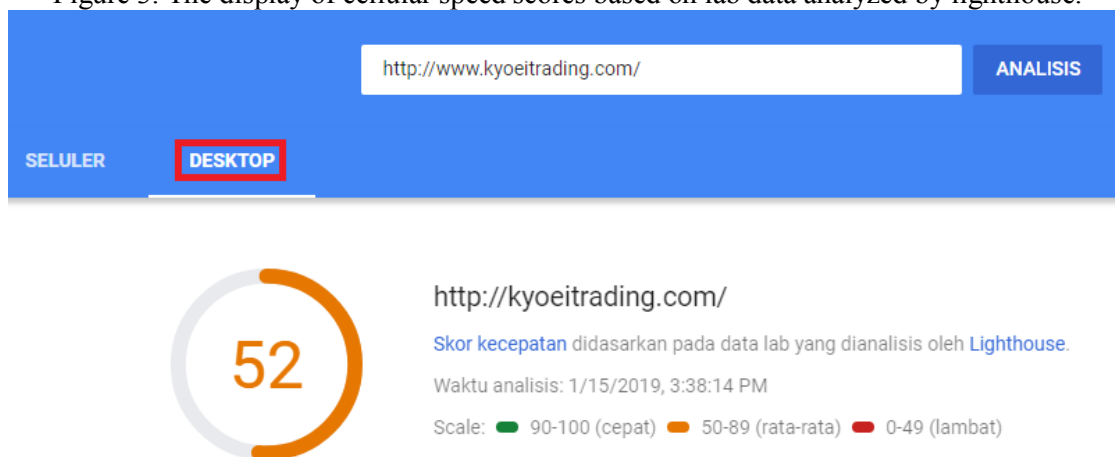Figure 3. The display of cellular speed scores based on lab data analyzed by lighthouse.

Figure 4. The desktop speed score display based on lab data analyzed by lighthouse.

Based on Figure 3 and 4 it can be seen that the website http://www.kyoeitrading.com/ has a low speed score if accessed via cellular and average speed score if accessed through the desktop.
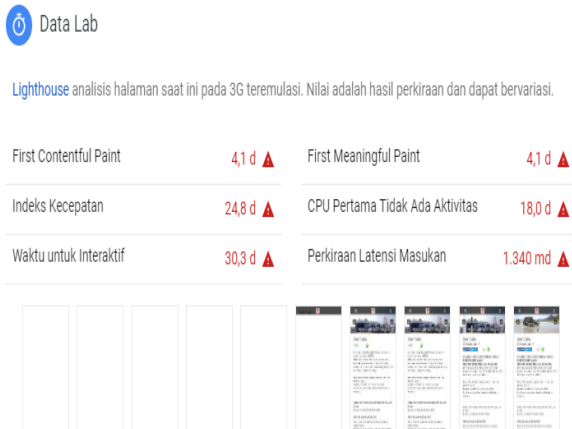
Figure 5. Cellular (Left) and Desktop (Right) view of lighthouse lab data analysis.

Then, future analysis, the process of applying cloudflare on the Kyoei Denki company website that is able to maximize website performance is better than before[7].

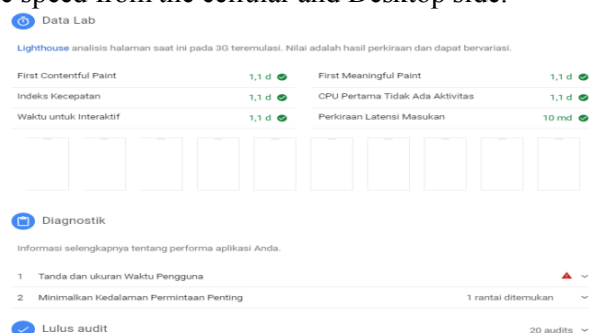Figure 6. Opportunity to optimize website speed from the cellular and Desktop side.
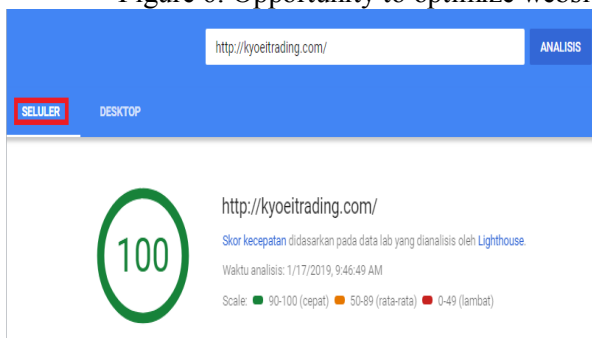
Figure 7. Display after activation cloudflare on the website kyoeitrading.com

5. Conclusions

The aim of this research is to apply cloudflare on the company's website and see the comparison between before and after implementing cloudflare. Websites can be faster and safer. The speed of website access before using cloudflare is 56% (Middle) access via desktop, while the speed of website access via cellular is 12% (Slow), after using cloudflare the speed of access using cellular or desktop reaches 100%. And based on lighthouse lab data shows quite a lot of changes that are better than before.

6. References

[1] The Cloudflare global anycast network. Cloudflare. https://www.cloudflare.com/network/. Accessed: 2019-01-02.

[2] M. Prince. A brief primer on anycast. Cloudflare Blog. https://blog.cloudflare.com/a-brief-anycast-primer/, October 2011. Accessed: 2019-01-02.

[3] H. A. Alzoubi, S. Lee, M. Rabinovich, O. Spatscheck, and J. Van Der Merwe. A Practical Architecture for an anycast CDN. *ACM Trans. Web, 5(4):17:1-17:29,* October 2011.

[4] M. Calder, A. Flavel, E. Katz-Basset, R. Mahajan, and J. Padhye. Analyzing the performance of an anycast CDN. In Proceedings, IMC'15, Pages 531-537, New York, NY, USA, 2015. ACM.

[5] Hidayatno. (2008). *Rekayasa Sistem Jaringan Komputer*. Diakses 19 April 2015, dari http://dokumen.tips/documents/makalah-rsjk-jarkom.html.

[6] M. Prince. How does Cloudflare work? Quora. https://www.quora.com/How-does-Cloudflare-work, September 2012. Accessed: 2019-01-02.

[7] D. Cicalese, D. Giordano, A. Finamore, M. Mellia, M. M. Munafo, D. Rossi, and D. Joumblatt. A First look at anycast CDN traffic. CoRR, 1505.00946, 2015.

[8] Simarmata, Janner, 2010. *Rekayasa Web*, Penerbit Andi, Yogyakarta.

[9] Efendi Ilham, 2018. *IT-Jurnal,* Indotekno. Accessed: 2019-01-02.

[10] Gunawan Khairil, 2016. *Cloudflare,* Indowork. Accessed: 2019-01-02.