ABSTRAK

IMPLEMENTASI PROTOKOL DNS *OVER* HTTPS (DOH) PADA DNS *SERVER* PT VASCOMM SOLUSI TEKNOLOGI UNTUK MENANGGULANGI KERENTANAN DNS *LEAK*

Pesatnya perkembangan teknologi informasi pada saat ini menimbulkan masalah keamanan jaringan. Saat ini DNS menjadi celah bagi *hacker* untuk melakukan penyusupan kepada pengguna internet. Celah tersebut dinamakan DNS *leak* atau kebocoran DNS. Terdapat beberapa cara untuk meminimalisir terjadinya DNS *leak*, diantaranya ialah penggunaan teknologi DNS *over* TLS, VPN, dan DNS *over* HTTPS. Penelitian ini mengusulkan penerapan metode protokol DNS *over* HTTPS untuk mengatasi masalah DNS *leak*, karena teknologi ini dapat membuat *query* DNS menjadi terenskripsi. Penelitian ini menyajikan sebuah studi komparasi 3 macam klien *Internet Service Provider* (ISP) di Indonesia yaitu Telkomsel, Indosat dan Axis yang menerapkan 2 kondisi, yaitu menggunakan DNS *server* yang mengimplementasikan protokol DNS *over* HTTPS dan DNS *server* yang tidak mengimplementasikan. Objek DNS *server* yang dilakukan pengujian dan penerapan protokol DNS *over* HTTPS adalah DNS *server* PT VASCOMM SOLUSI TEKNOLOGI. Dihasilkan informasi bahwa ketika klien mengimplementasikan protokol DNS *over* HTTPS pada DNS *server* nya, besar presentase DNS *leak* pada klien tersebut ialah 0%. Sebaliknya, jika klien tidak mengimplementasikan protokol DNS *over* HTTPS pada DNS *server* nya, besar presentase DNS *leak* pada klien ialah 100%. Dari informasi tersebut, dapat disimpulkan bahwa pengimplementasian protokol DNS *over* HTTPS pada DNS *server* dapat menanggulangi kerentanan DNS *leak.*

Kata Kunci: Keamanan Informasi, DNS, DNS *leak*, DoH, ISP

ABSTRACT

IMPLEMENTATION OF DNS OVER HTTPS (DOH) PROTOCOL ON PT VASCOMM SOLUSI TEKNOLOGI DNS SERVER TO MANAGING DNS LEAK VULNERABILITY

The rapid growth of information technology currently poses a threat to network security. Recently, DNS could be a gap for hackers to seize internet users' personals. The gap is called DNS leakage. There are many ways to minimize DNS leakage, including the use of DNS over TLS, VPN, and DNS over HTTPS technologies. This study proposed the application of DNS over the HTTPS protocol method to managing the DNS leak issues, as this technology could make DNS queries encrypted. This study presents a comparison between three kinds of Internet Service Provider (ISP) clients in Indonesia such as Telkomsel, Indosat, and Axis which applied two conditions, using a DNS server that utilized DNS over HTTPS protocol and DNS server that did not apply HTTPS protocol. The DNS server object that was executed and implemented the DNS over HTTPS protocol was the DNS server of PT. VASCOMM SOLUSI TEKNOLOGI. It was found that clients who implemented the DNS over HTTPS protocol on its DNS server, a large DNS leak on that client is 0%. Conversely, clients who did not implement DNS over HTTPS protocol on its DNS server, a large DNS leak at the client is 100%. From this information generated, it could be concluded that the implementation of the DNS over HTTPS protocol on the DNS server could reduce the DNS leak vulnerabilities.

Keyword: Information Security, DNS, DNS leak, DoH, ISP