

Virtual Private Networks

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Contents

1	Virtual Private Networks	2
1.1	Importance of VPNs	2

Chapter 1

Virtual Private Networks

1.1 Importance of VPNs

In this day and age, networking is everywhere, especially considering the exceedingly fast expansion of the Internet. The Internet, the ultimate network of networks, has radically changed our day-to-day life. Just several years ago, simple everyday habits, such as quickly searching for a piece of information on Google, streaming your favorite songs or paying your bills with just a few clicks would have seemed possible only in a distant future. And yet here we are today, achieving even more impressive tasks, making use of all kinds of networks available within our laptops, phones, tablets and even home electronics, thanks to the IoT.

Unfortunately, the Internet's rapid development also comes with a few important drawbacks which are regrettably often overlooked — the most significant one being cybersecurity. *Cybersecurity* is the protection of computer systems and networks from the theft and damage of hardware, software or electronic data, as well as from the disruption of the services they provide.¹ Imagine the consequences if someone managed to obtain all of your credit card information when you are attempting to make an online payment. The damages rise significantly in the case of similar data theft at major companies, which could lead to huge amounts of loss in revenue. In fact, Juniper Research² estimates that cybercrime will cost businesses over \$2 trillion in 2019 alone.

Surprisingly enough, simple data theft was quite uncomplicated a few years ago, when HTTP was predominantly used on the web.

¹Wikipedia definition, https://en.wikipedia.org/wiki/Computer_security

²<https://www.juniperresearch.com/home>