Ethical issues of Peer-to-Peer file sharing of BitTorrent

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Abstract—**BitTorrent is a content distribution protocol that enable efficiency of Peer-to-Peer (P2P) file sharing which is the process of transferring and sharing digital files between computers . It is legal to use peer-to-peer file sharing clients such as BitTorrent or Torrent. However, sharing and downloading copyright material is illegal. Bittorrent have been known as an efficient way to share and get copyrighted material. In some countries, there are methods applied in order to deal with this problem such as the cooperation between the internet provider and the copyright owners . However, in Vietnam this phenomenon seems to be a usual activity to everyone. Hence, we would like to discuss about the ethics of using this type of protocol in this country.**

Keywords—**BitTorrent, Peer-to-Peer, file sharing, ethics, Vietnam**

I. INTRODUCTION

Internet has been considered as one of the vital factors for the development of society due to its functions to every field of life. Starting from 1965, the first wide-area computer network was built by Lawrence G. Roberts MIT Researcher, based on the connection between the TX-2 computer in Mass and the Q-32 in California with a low speed dial-up telephone line [1]. This was the evidence of the ability of communicating between the time-shared computers, running programs or accessing data between them. After that, as the technology continued to improve, this kind of information infrastructure was evolved in different aspects such as speed, adaptation or security. As a result of creating and developing of organizational structures, the influences of Internet reach not only the communication between computers but entire society in many fields using online tools for other purposes as well [1].

As the society evolves, the needs of transferring large data between people through the use of Internet does also. Due to some disadvantages of Client-Server networking, the new kind of mechanism for accessing and retrieving files from one computer to the others named peer-to-peer file sharing was invented and used widely [2]. And the first name of software envisioning this process is Napster created in 1991, followed by the development of Kazaa and BitTorrent. This also leads to many of issues in society and the major point the authors would like to mention in this paper is the copyright materials transferred through this method. According to our research from the relative works which are discussed in the third section, Vietnam is one of the countries which are commonplace for this phenomenon because of peoples lack of knowledge and awareness in this country. Therefore, we the authors choose Vietnam as a turning point to debate this problem using theories and principles of ethics.

In section II, we would like to discuss about the general information and knowledge about peer-to-peer file sharing and its related concepts. There are also information about the works relating to our ethical issue. In section III, we present about the methods we based on, which are the main theories in ethic, and discuss the problems based on these theories. For a more throughout explanation regarding our works, please refer to this section. In section IV, we conclude our works based on the discussion in section III.

II. BACKGROUND AND RELATED WORK

A. Background

Peer-to-Peer (P2P) network consist of 2 or more PCs, which are called "peers". Peers share their resource such as bandwidth, processing power, disk space with the network, without need a centralized server. [3]

Peer-to-Peer file sharing is the distribution and sharing file using Peer-to-peer network. To download, you will need a software rather than a traditional web browser [4]. In peer-to-peer file sharing, you download from peers who has the file, or part of its, rather from centralized server. Then when you has the file, you upload it to other peers who need the file. [5]

In 1999, peer-to-peer file sharing is popular with Napster. Napster use central servers that link user who has the files with who has the file. Then two users would transfer the file privately, but only music file. [6]. Later, Napster was shutdown due to copyright infringement in July 2001 [7].

After Napster, the second generation peer-to-peer file sharing, like Kazaa, that do not use central server. [8]

BitTorrent is a Peer-to-Peer sharing protocol which was release on July 2, 2001 [9]. Similar to Napster, Bittorent use central server called tracker[5]. To upload, uploader will create a .torrent file which contain information about the file, tracker will store these infomation. Downloader will download .torrent file, and use these information find peers with the helps of tracker which can be hosted by anyone [5]. Althoght

BitTorrent need tracker as central server, multiple tracker can exist, as any .torrent can be register with multiple trackers, make BitTorrent less central vulnerability [5]. Bittorent also has DHT, Local Peer Discovery, Peer exchange reduce the dependency on central server. Hence, it is difficult to take down file while it is already on the network.

B. Related work

There are many research article and law about BitTorrent and pirate, copyright infringement. Bright, Stephen explain why BitTorrent is not effect by international law [10]. G Douglas's Copyright and Peer-To-Peer Music File Sharing: The Napster Case and the Argument Against Legislative Reform study Napster case, which is shut down due to copyright infringement [7]. Siganos, Georgos and Pujol, Josep M and Rodriguez, Pablo prove that BitTorrent can be minitored [11].

III. METHODOLOGY

In this section, we evaluate the ethics issues of BitTorrent.

A. Subjective Relativism

According to Subjective Relativism, user participating in the networking community has the right to decide for himself or herself the concept of right and wrong, which are the ones they see fit [12] . Using Bittorrent, in particular, is really the one they find it easy to send or retrieve files on the Internet regardless of the others opinions even though it is copyrighted materials; they only choose the straight forward ways for themselves get data they want since they see that it would be a way to help them save money. In contrast, in term of the aspect of owners, they would think that the action of sharing their creative works is completely wrong; it could be considered as an unethical issue in their opinion.

B. Cultural Relativism

Regarding the theory of Cultural Relativism, the actual moral guidelines of a society is actually the one deciding the concepts of right and wrong [12]. Instead of remaining stable in the same period of time, it presents differently from place to place. In fact, the issue of using Bittorrent to download and upload copyrighted materials that could be considered wrong in a society may not be really the wrong one in other society. On the one hand, this is true in the situation of Switzerland, which is called The safest country for downloading torrent [13]. Additionally, The Netherlands, Vietnam and Mexico are also the countries which are legal to download works of art such as music, books and movies as long as it is used personally. The downloading of copyrighted content through file sharing services (Bittorrent) is a little bit more risky in Canada after enacting mandatory data logging and monitoring by Internet Providers and VPN service providers based in January 1nd, 2015, affecting Canadian bittorrent users who were previously allowed to download torrents largely without issue[13]. On the other hand, considering other countries comprising USA this action is totally wrong according to the governments laws of these countries. In other words, that action violates the intellectual property issue that could affect the owners profit as well as the development of companies significantly.

C. Divine Command theory

As regard to Divine Command theory in ethic, every action which is considered wrong is the one that contraries the will of God and every right action would be the one that obeys the will of God [12]. In fact, there are a number of holy books that are contributed to various regions, translated into different languages and it also cannot address all moral problems that can be faced with in real society. However, when dealing with the problem of copyright violation, there are actually plenty of sentences that bible says about intellectual property since the problem of treating anothers property or acting toward people in the society are really mentioned a lot in holy books. For instance, "You shall not steal. [14] or Cursed is the one who moves his neighbor's landmark[15] are the ones related to the action violating intellectual copyright [16]. Therefore, according to this ethical theory, this action is totally wrong in the way of treating others property.

D. Kantianism

In regards to the theory of Kantianism, actions of people are considered right if it is guided by moral laws which are universal. In order to decide whether a moral rule is appropriate, Kant proposed two formulas of Categorical Imperative [12]. The authors would like to use these two formulas in order to apply to this problem. Using the first formulation, it could be true that Bittorrent users in Vietnam who sharing copyright contents are using others creative works as a means to an end. It means that they do not care ether others interest or the result of their actions; they would like to save their money from purchasing contents such as music or movies which can be downloaded easily and quickly using p2p services. Considering the first formulation, if this kind of action is applied generally in the society, there would have serious consequences not only to copyright owners but other companies that are related to the works as well. As the number of people using Bittorrent increases, this could lead to opposite trend to the number of consumers for copyrighted materials. This problem could affect the profits of creative worker, resulting in the number of creative products. Besides that, with companies working for these copyright products especially the weak ones, this problem is extremely vital to them since it could control their development as well as their survival in the market.

E. Act Utilitarianism

As regards Act Utilitarianism theory, the Greatest Happiness Principle, a good action is the one whose net effect is to produce more happiness than unhappiness and otherwise [12]. According to the situation of problem, the authors would like to debate this problem based on its benefits. Considering the case of downloading a copyrighted movie on the Internet using Bittorrent and this movie have not been released on the television yet. Most of people download and watch it because

they would like to see it as soon as possible. As expected, after the movie is showed on the television, there are only a small number of views who did not watch it from downloading. As a results, this could affect the development of companies of communication dramatically even have a big impact on the weak companies survival, causing unemployment as well as influencing the economy of country. This could be said that the drawbacks of this actions outweigh its benefits, so the action of downloading copyrighted materials is not accepted in this ethical theory. [17]

F. Rule Utilitarianism

According to the ethical theory of Rule Utilitarianism applying the Principle of Utility to moral rules, an action is morally right if it is followed by everyone, leading to the greatest increase in total happiness [12]. In this case, the authors would like to discuss the moral rule of downloading copyrighted contents from Bittorrent. On the side of Bittorrent users, retrieving copyrighted contents could save them money and they could use that money to improve their standard living. Another advantage is that it could lead to generate new revenue streams, free access to cultural materials and learning [18] . On the other side, this problem could lead to enormous impacts on the number of copyrighted contents as well as its owners such as artist, singer They would not want to produce their creative products without receiving any profits since they may have problem with their finance if they continue to do so or they do not have any motivation in. Besides that, another negative effect of using Bittorrent is that users computer could be monitored by others, providing viruses easily into their network [19]. Altogether, it could be seen that peoples happiness would be decreased. Hence, this theory does not accept this model rule.

G. Social Contract

The next theory that the authors would like to discuss is Social Contract. In order to apply this theory, the authors consider the right of downloading

H. title

IV. CONCLUSION

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