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IP crimes in the Dark web

Authored By - Abhishek

INTRODUCTION

In a world that is dominated by Internet, there is a dark side of it too known as Dark web. It is an online underground market where illicit transactions are done ranging from selling weed to selling humans commonly known as Dark Web Market or DWM. While most of the people are still unfamiliar with Dark web, the users on this platform are increasing rapidly resulting in more and more illegal dealings.

In the present research, we are specifically going to focus on infringement of intellectual property rights that are perpetrated on the Dark web, what are the governmental organizations that controls these activities and what are the difficulties they face while dealing with these anonymous offenders. Offences such as buying and selling of cloned patented drugs, leaked research data, trade secrets of corporations etc. will be dealt under their respective heads. For this, I will be referring to various books and articles on similar topics. Moreover, I am going to include data which I have personally gathered by visiting online Black markets on the Dark web.

The Dark web, even in the western countries is globally still not mainstream. One of the main reasons for this is that most people are unaware of it and those who knows about are also aware that primarily it is used for illicit activities. For this particular reason, there are very few active members on the Dark web community but still in terms of economy, billions of dollars of transactions are done every year which is rapidly increasing with each year.¹

Before going deep into this article, first we should know about the basics of Dark web. Part I will introduce you to the concept of Dark web, how it works and how to access it. After that, in Part II the interrelation between the Dark web and IPR infringement will be discussed and also infringement under copyright, patent, trademark and other IP sectors. Part III will list

¹ ElBahrawy, A., Alessandretti, L., Rusnac, L. *et al.* Collective dynamics of dark web marketplaces. *Sci Rep* **10**, 18827 (2020)

various law enforcement agencies which investigates illegal markets in the Dark web and under Part IV an analysis will be done about why it is very difficult for the law enforcement agencies to trace these criminals. Finally, in Part V the article will be concluded by suggesting the need of creation of an inter-governmental organization for policing the Dark web market.

I. Welcome to Dark Web

The Internet we use today has millions of web pages but all of it is not accessible by ordinary browser and by ordinary means. On the basis of accessibility, web services can be divided into three parts i.e., the Surface web, the Deep web and the Dark web. Among the three, the Surface web is the one which most of us use in our day-to-day life like Google, Facebook, YouTube etc. but the surface web only accounts for only 4% of the information that is stored on the whole Internet and rest of the 96% is covered under Deep web and Dark web.² The Deep web is that part of web that is not included in the surface web and is not indexed by ordinary search engines and can only be accessed by a direct URL or IP address which are normally password protected. It may include research papers, journals, banking information, private forums etc. Below the Deep web comes the Dark web which can only be accessed by using a specialized routing software such as TOR, I2P etc. TOR (short for The Onion Router) is the most widely used browsing software when it comes to surfing the Dark web. It relies on a peer-to-peer secured network to hide the IP address of the computer. To access Dark web, one has to install any of these browsers which connects the computer's network to an anonymous computer which will change the source's IP address to another making it very difficult to trace it. The URLs on this web portal is not usual. It is made up of jumbled alphabets and numbers and always ends with ".onion".³ For example, "http://3g2upl4pq6kufc4m.onion/" is a URL of a search engine DuckDuckGo.

Generally, Dark web has been seen as the hub of criminal activities but it is really a double-edged sword. On one hand, you can hide your identity and browse securely and anonymously which is not possible on surface web but on the other hand criminals can use this opportunity to do all type of illegal activities mainly selling drugs, child pornography, fake IDs, counterfeit currency etc. Apart from these, counterfeit products, stolen research data, proprietary manufacturing information etc. are also sold amounting to infringement of IPR.

² Erdal Ozkaya & Rafiqul Islam, Inside the Dark web 9 (2019).

³ Kash Laden, THE DARK NET BLACK BOOK 2 (2014)

II. Intellectual Property crimes and Dark web

In the past two decades with the growth of Internet, Intellectual Property crimes are also increasing rapidly. Accordingly, when Dark web came, the offenders also found a new way to make money while simultaneously hiding their identity. From selling counterfeit products to selling trade secrets, all are transacted on the Dark web. The growing online trade, including in IPR infringing products, is closely related to the increasing use of parcel and postal services to import and distribute such goods. The high-frequency, low-volume traffic is one of the features of this crime area. Some vendors include the source of IPR infringing material in the description of a product. For instance, China is allegedly named as a source for counterfeit clothes; India, US, UK, or Canada for counterfeit medicines or steroids. Hong Kong often appears as a place of shipment, and is followed by countries like Germany, Netherlands, Poland or Ukraine, or generally the region “Europe”. The majority of products can be delivered worldwide, with some exceptions only available to specific countries.⁴

A. Copyright infringement and Dark web

There is a wide range of pirated goods on the Dark web like e-books, movies, music, software etc. but all of these are also easily available on the surface web. However, there is one difference on Dark web and that is anonymity. A normal website which provides pirated goods can easily be tracked by authorities on the surface web but on the Dark web the same task becomes problematical.

Apart from above, some really confidential data is also being sold on the Dark web. Information like medical research data on new drugs which are yet to be tested and approved are available on this web. WikiLeaks⁵, which is one of the largest collections of leaked information on the Dark web, has lots of confidential information which is available for free to the public. On Digital Thrift Store, the whole Harvard IRC server dump is only available for merely 4\$⁶.

One another way of stealing data on the dark web is by the method of Data exfiltration. In this

⁴ Europol Public Information, INTELLECTUAL PROPERTY CRIME ON THE DARKNET 4 (2017)

⁵ WikiLeaks, <http://gzq32tx5ckw3uodx.onion/> (last visited on Oct. 10,2021)

⁶ Digital Thrift Store, <http://kw4zlnfhxje7top26u57iosg55i7dzulijcyswo2clgc3mdlviswyyd.onion/product/harvard-irc-dump/> (last visited on Oct. 10,2021)

method. Data exfiltration is the process of transferring data from a storage medium to another. In the world of cybercrime, it refers to the theft process of data where hackers copy data from compromised servers to their own storage devices. Stealing data on the Dark web is considered more safe and more rewarding than stealing actual money. While stealing data there are less chances of tracing the offender while if one steals money on the Dark web, it will happen that some trail is left behind by the offender. Various corporations have their research data stored on the Internet which is in encrypted form. It is available on the DWM in both encrypted or decrypted form while former is available at a lower cost.⁷ While most of the times, these data stealers do not find any useful information but sometimes they hit the jackpot which results in huge losses to the corporations.

Also, various subscriptions of OTT platforms are now being sold on DWMs. Account information of various subscribers are gained by hacking, phishing or by other means and then they are sold for a very meagre price which adversely affects the music and movie industry. Counterfeit OTT devices are also available like Firestick, Apple TV etc. Gaming industry is also affected as sellers on Dark web are now providing stolen accounts of game distribution platforms like Steam, Epic Games etc.

B. Patent infringement and Dark web

Original and counterfeit medicinal drugs trafficking is rampant on the Dark web. Medicines which one cannot avail without some kind of prescription can be easily purchased on these websites. They are being used for both legitimate and illegitimate needs but largely for the latter. The medicines like Xanax⁸, Oxycodone⁹ etc. are available on plenty of websites. The counterfeit drugs on the Dark web are well known as “clone pills”. These clone pills are just a replica of patented drugs available at a lower price. A drug named Hysingla ER which is patented by Purdue Pharma Lp is available legally for 11\$/tablet(approx.)¹⁰ and the replica of

⁷ Erdal Ozkaya & Rafiqul Islam, Inside the Dark web 112 (2019).

⁸ MarketPlace,

<http://w4sgadshed4gfy4uuqru2dkcgscrmymbjvlvlpfxda3gsd7zr7whgtqd.onion/product/5d27dac0-230e-11ec-8b95-a1388c781f14/rules> (last visited on Oct. 10,2021)

⁹ MarketPlace,

<http://w4sgadshed4gfy4uuqru2dkcgscrmymbjvlvlpfxda3gsd7zr7whgtqd.onion/product/2cab45f0-22b8-11ec-a797-973e17841b41> (last visited on Oct. 10,2021)

¹⁰ Drugs, <https://www.drugs.com/price-guide/hysingla-er> (last visited on Oct. 10,2021)

this medicine is available on the Dark web for 3\$/tablet.¹¹

During Covid pandemic, there was a shortage of various drugs in the local market and some people resorted to Dark web for it. Corona Market¹², a website on which sellers provide various original and counterfeit drugs and replica vaccine at a lower price.

C. Trademark infringement and Dark web

The sale purchase of deceptively similar products is not like anything new. In almost every country, counterfeit products like fake Apple products, Nike shoes, luxury clothing from brands like Gucci are being widely sold at a significantly lower price. On the Dark web too, there are many websites which claims to sell genuine products at a reduced price but in reality, they are just knock off products. With the passage of time, these online Black markets are gaining potential because both the sellers and buyers prefers anonymity while doing these shady transactions and Dark web, as already mentioned, is infamous for its anonymity.

In a recent 2017 case, the FBI was able to capture the criminal behind the DWM which was known as AlphaBay. AlphaBay was just like the regular eBay but the difference was that it deals with illegal and counterfeit goods and services. The site was seized by a joint operation of FBI, Drug Enforcement Agency and European law agencies acting through Europol. It was estimated that the owner of the website amassed nearly 23 million\$ through the commissions.¹³

D. Trade Secrets and Dark web

Even the Trade secrets are not safe on the Dark web. Cyber criminals have adopted a new method to infiltrate the corporation's trade secrets. What they do is that they pose themselves as a company's representatives and then gather intel from it and sell it on the DWM. Officials of the company are also have been reported to sell trading secrets of the corporations on the

¹¹ MarketPlace,

<http://w4sgadshed4gfy4uuqru2dkcgscrmymbjylvlpxfda3gsd7zr7whgtqd.onion/category/7034b060-d40a-11eb-9ef0-2978eb34e847?page=2> (last visited on Oct. 10,2021)

¹² Corona Market, <http://coron2sr25x4ojw6qapvo3xx6jrpooz33xpdnouvungdkb5aatg7bdad.onion/> (last visited on Oct. 10,2021)

¹³ Alphasbay: how dark web marketplaces operate like eBay, THE INDEPENDENT (2017), <https://www.independent.co.uk/news/business/news/alphabay-dark-web-marketplace-ebay-online-us-justice-department-illegal-drugs-a7852486.html> (last visited Oct 11, 2021).

Dark web.

III. Challenges faced by law enforcement agencies while dealing with criminals on the Dark web

While criminal activities on the surface web is already widespread, the Dark web is specifically infamous for its criminal activities. There are various law enforcement agencies for the policing of cybercrimes.

Law enforcement agencies like Europol, Federal Bureau of Investigation(USA), National Crime Agency (UK) and other agencies have been working on the cyber criminal activities and so far, they have had a little success. Furthermore, there is no specialised investigating¹⁴ agency which specifically deals with criminal activities on the Dark web. In a recent case, the FBI discovers a DWM which goes by the name of Playpen which provides child pornography content. It took very long time and help of professional hackers to find out the real owner of that market. After finding a flaw in the website they have created an exploit that led to the de-anonymization of the owner.¹⁵ More recently, the National Crime Agency of UK has dismantled a drug market organisation which sells MDMA and Ecstasy on the Dark web which have been valued at 4.3 million euros. Analysis of encrypted messages led police to identify suspects it believed were involved in selling the drugs and laundering the money earned through black market trading using cryptocurrency.¹⁶ These are just a few cases in which law enforcement agencies were able to trace the criminals. Prima facie, it appears that the particular reason for the difficulties faced by these agencies is the anonymity of the offenders on the Dark web but if we dig deeper, we may find out that it is much more complex than it appears. Ahmed Ghappour in his Article “Searching Places Unknown: Law Enforcement Jurisdiction on the Dark Web”¹⁷ has very aptly explained the working of investigative agencies in relation to Dark web activities and why are they facing difficulties while dealing with them.

¹⁴ Dark web MDMA gang have £4.3m worth of drugs intercepted, police say, THE INDEPENDENT (2021), <https://www.independent.co.uk/news/uk/crime/dark-web-drugs-gang-mdma-b1826109.html> (last visited Oct 14, 2021).

¹⁵ C Easttom, Conducting Investigations on the Dark Web, Journal of Information Warfare, Vol. 17, No. 4 29(2018)

¹⁶ Dark web MDMA gang have £4.3m worth of drugs intercepted, police say, *supra* note 13.

¹⁷ Ahmed Ghappour, Searching Places Unknown: Law Enforcement Jurisdiction on the Dark Web, 69 Stan. L. REV. 1075 (2017).

Firstly, anonymity is the most basic reason why agencies face a hard time while tracing criminals on the Dark web. As already discussed in Part I, browsers like TOR relies on a peer-to-peer connection that means, for example, if I am in India and I am connected to a TOR network, my IP address will be changed to a different country which can be anywhere in the whole world. For this particular reason, no one simply can know your name, search history, location or anything at all and websites like Google, Facebook knows all about you.

Secondly, conventional payment methods like credit card payments, net banking etc. are not normally used while transacting on the DWM. Mostly, cryptocurrencies like Bitcoin, Ethereum etc. is used by the people who deals on DWM because it would be very difficult for someone to trace the source of payment while paying through cryptocurrency. For this particular reason, almost all the DWMs accept only cryptocurrency as the payment method.¹⁸

Thirdly, some of the DWMs have now adopted a new method to escape from the hands of police. To visit these places, one has to gain special access to the website provided personally by the owner which means that it cannot be visited by general public.¹⁹

Fourthly, law enforcement agencies face difficulty to investigate because of lack of international jurisdiction. If they are investigating nationally then it is much easier for them but if they are going to investigate internationally then they have to form a joint operation which is not an easy task.

Furthermore, these agencies have to appoint highly trained IT professionals to deal with the advanced technological issues such as hacking and exploiting of the web. All these issues require urgent need of improvement in the cyber law enforcement, both at national and global level. In the next part, some changes and improvements have been suggested to make the investigation smooth and rapid.

IV. Suggestions to improve Dark web policing

Every problem has a solution and accordingly modern problems require modern solutions. It

¹⁸ C Easttom, Conducting Investigations on the Dark Web, Journal of Information Warfare, Vol. 17, No. 4 29(2018)

¹⁹ Ibid

is a menace which affects almost every part of the society whether its general public, State, corporations, children etc. So, both at the legal and technical level various steps can be taken to enhance the policing level of law enforcement agencies. These suggestions are advised for all type of illegal activities on the Dark web whether they are related to IPR or not because tracking criminals in both the cases is more or less same.

Firstly, there is a need for making an international treaty which specifically deals with the present issue. WIPO can also come forward to include specific provisions related with IPR and Dark web in that treaty. This is crucial because without this there will always be a lack of extra territorial jurisdiction for the victim State and the State will always need prior permissions from the other State to conduct investigation which is a very hectic procedure.²⁰ Nations should also amend their laws to allow foreign government agencies to investigate upon it which will be beneficial to both the countries.

Secondly, advanced hacking tools and specialised cyber forensics equipment will surely help the enforcement agencies to track the criminals efficiently and effectively. It has been observed that conventional surveillance methods are most of the time ineffective in tracking cyber criminals especially on the Dark web. However, these tools must be used very judiciously as the cyberexfiltration especially in the overseas jurisdiction may violate the sovereignty of a nation.²¹

Thirdly, shipment authorities should also be instructed and regulated so that they can control the trafficking of illicit goods and custom authorities should also be instructed against these transactions because all the goods are nationally and internationally parcelled through major shipment companies.

In addition to above suggestions, governments should also start an awareness campaign in which people can be make aware about the do's and don'ts on the Dark web. For the time being, even if these few basic suggestions are implemented it will surely facilitate the investigative agencies to curb Dark web crimes.

²⁰ Ahmed Ghappour, Searching Places Unknown: Law Enforcement Jurisdiction on the Dark Web, 69 Stan. L. REV. 1135 (2017).

²¹ Ibid.

V. Conclusion

Intellectual Property theft is already a huge pain for the IP owners and to the law enforcement agencies and the advent of Dark web Market makes it more difficult to protect their rights. This is a global issue which can only be solved by taking collective efforts by the nations.

Cyber criminals are now shifting from conventional methods to non-conventional methods such as Dark web to make money over the internet which results in huge losses to both the corporations and individuals. The Dark web platform is a good example of what will happen if market is not regulated by legal authorities as it should be. Drugs trafficking and child pornography on the Dark web steals all the limelight from less heinous crimes such as IP infringement which is why the latter is overlooked by the enforcement agencies but with the rapid increase in illegal transactions over Dark web, it is high time that the nations shall adopt some reforms in their current administrations.

It is also suggested that more researches shall be conducted both on individual and organisational level so that more information and statistical data is collected related to the present issue. It would surely help in gaining more insight and thereby ultimately facilitating in the policing methods of law enforcement agencies.

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