

INTRODUCTION TO DEEP WEB

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Abstract - The deep web also known as invisible web or hidden web are parts of the World Wide Web and its contents are not indexed by standard search engines for any sort of reason. The content of the deep web is hidden behind HTML forms. The surface web is the opposite term to the deep web. Common uses of the deep web are web mail and online banking but they are also paid for services with a paywall such as on demand video and many others. Everyone who uses the Web virtually visits what could be reflected as Deep Web sites on a daily basis without been aware. A place where whole sections of internet within which all of the websites are hidden from the view of regular web surfers, and also in which the people using them are hidden from view is referred as deep web . Deep web is the anonymous internet where it is much difficult for hackers, spies or government agencies to track internet users and have a look on which websites they are using and what are they doing there.

Key Words: Deep web, Dark web, Tor network.

1. INTRODUCTION

The large part of the Internet that is inaccessible to conventional search engines is known as deep Web (invisible Web). Messages, chat messages, social media sites private content, electronic bank statements, electronic health records and other content of the deep web are accessible over the Internet but are not crawled and indexed by search engines like Google, Yahoo, Bing or DuckDuckGo.

There are various reasons for not indexing deep Web. Some reasons may be of the content been proprietary, in which only the approved visitors entering through a virtual private network (VPN) can access the contents. Sometimes the contents may be commercial .In this case the content residing behind the member wall can only be accessed by customers who have paid a fee. In a case where the content contains personal identifiable information (PII), it can only be accessed through a portal site by individuals who have been granted access privileges and is protected by compliance regulations . When components lack a permanent uniform resource location (URL) and mashups have been generated on the fly , they become part of the deep web

It is not known exactly how large the deep web is, but it is estimated by many experts that the search engines crawl

and index less than 1% of all the content been accessed over the internet. Surface web is that part of the Internet which is crawled and indexed by search engines

2. LEVELS OF THE DEEP WEB

Level 1

It is the most common web or internet. We use it pretty much daily as well as know and understand it. It generally comprises of the 'Open to the Public' part of the Web.

Level 2

It is commonly known as the Surface Web. Services such as Reddit, Digg, and temporary email are included in it. Chat boards and other social enabling content can be found in this level as it is essentially a communications platform. To reach it in any fashion is not difficult.

Level 3

level 3 is called Bergie Web. Services besides WWW or Web services are been included here. It consists of Internet newsgroups, Google locked results, FTP sites, honeypots and other sites such as 4Chan. If you know where you are going, this level is relatively simple to reach.

Level 4

Level 4 is known as Charter Web or Deep Web. Hacker groups, activist communications, banned media and other darker layers of the online society are included in this websites. This is what we basically refer to as Deep Web. Typical Web search engines cannot find the sites on this layer . You have to be invited by an existing member. In order to be able to access these sites

Level 5

In this level, things get a little creepy. The level is known as Dark Web through the normal Internet

These websites are not accessible to this level. You will need to get on the TOR network, or some other private networks .Dark Web sites are also referred to as TOR Hidden Services or onion sites. On the TOR network there is a variety of legal and illegal content. Illegal materials such as bounty hunters, drugs, human trafficking, hacker exploits, rare animal trade and other black market items are been included in these sites. Whenever we refer to Dark Web, we are normally referring to the TOR network.

Playing the levels

- Level 0: common web
- Level 1: surface web
 - Reddit
 - Digg
 - Temp email services
- Level 2: Bergie web
 - Google locked results
 - Honey Pots
 - Freehive, Bunny Tube etc
- Level 4: Charter Web
 - Hacking Groups
 - Shelling Networking
 - AI Theorist
 - Banned videos, books etc..
- Level 5:
 - Onion Sites
 - Human Trafficking , Bounty Hunters, Rare Animal Trade.
 - Questionable Materials
 - Exploits , Black Markets, Drugs.

Fig -1 : Different levels of Deep web.

3. TOR NETWORK

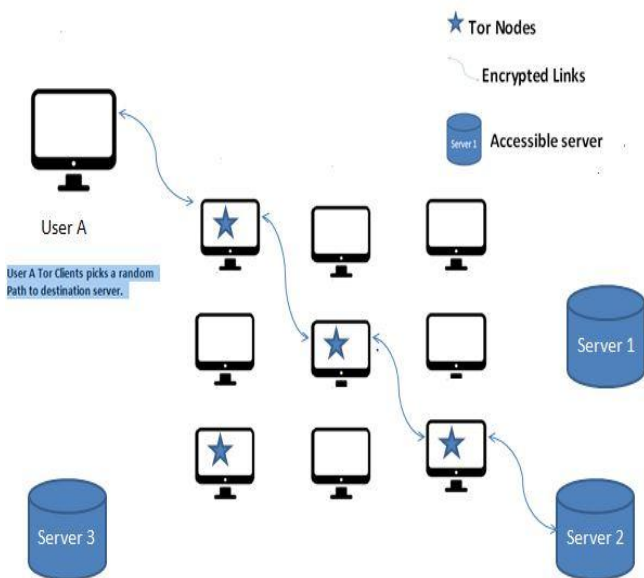


Fig - 2 : TOR Network Diagram.

TOR stands for "The Onion Router". To run TOR software installed on your computer and TOR connections managed by network of computers both are considered. In simple terms, TOR permits you to route web traffic through several other computers in the TOR network so that the party on the other side of the connection can't trace the traffic back to you. More TOR users means more protection for your information, since you are using other computers to route your connections and sessions . It creates a number of layers that conceal your identity from the rest of the world as the name implies.

4. HOW TO ACCESS DEEP WEB

For entry points into Dark Net Deep Web, onions, and Tor are the way to go in terms of gathering a background. Much of the information currently on the surface of Internet about the actual underbelly of the web is outdated. The Under-web has been changing, ever since Silk Road's take down last year.

You first have to download the Tor add-on for Firefox to get into the Deep Web these days. You are securing your anonymity to browse by downloading the Tor Browser Bundle from the Tor Project , which is the main drawback for using Tor. Tor builds a circuit of encrypted connections through a randomized relay, once you have downloaded the browser bundle. In general terms that means that as Tor randomly pings your IP address from one place to the other your online activity is covered , thus making whatever you do less traceable.

Multiple Redditors advice reading the warning page of Tor Project's, as they discourage torrent downloading and file sharing while using Tor. To follow protocol maintaining your anonymity while chatting, browsing or navigating is the core idea of this. This clearly includes giving away your personal information like phone numbers ,email addresses, time zones, names or home addresses in any situation.

Tor 4.0, the newest iteration of the Tor browser, was released in October 2014. To enable use behind China's massive Internet firewall It primarily contains a variety of product designed .

Placing duct tape on your webcam, turning off cookies and JavaScript ,enabling your computer's firewall, are some of the precautions that can be included. Treading cautiously is key, where you want to be completely free of an identity, so . Using cross-reference tools, malware, and remote administration tools the NSA and other government outlets peruse the Dark Web and onion sites frequently to find users engaging in illegal activity.

While the Deep Web gathers the drugs, retail of weapons and illicit erotica, some useful tools are also available for thrill seekers, journalists and researchers. Mere access through Tor is not illegal but can arouse suspicion with the law which is worth noting . Deep Web is the beginning point of most of the illegal transactions but those transactions most often flow elsewhere for retail, in-person meetups ,thus due to this most people get caught by law enforcement officials.

To allow Tor to be used on an Android or iOS device several browsers exist .OrWeb, Anonymous Browser Connect Tor, the mobile Firefox add-on, Onion Browser, and Red Onion and some of the browser. Security concerns have been raised for all of these browsers which is one of the most important concern and that anonymous browsing cannot be 100% guaranteed for any of these.

5. DEEP WEB VS DARK WEB

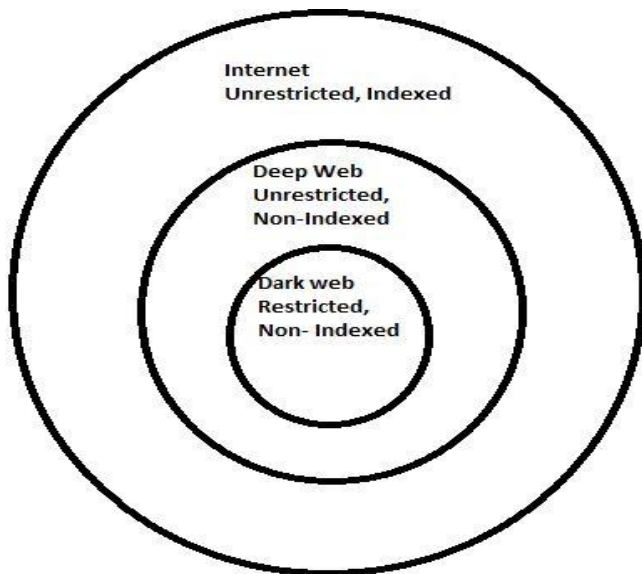


Fig - 3 : Deep web, Dark web and Internet.

The Internet: Regular type of internet everyone uses to read news, visit social media sites, and shop.

The Deep Web: The deep web is not indexed by the major search engines and is a subset of the Internet. This means that instead of being able to search for places you have to visit those directly. They're waiting if you have an address but there aren't directions to get there. The Internet is too large for search engines to cover completely thus Deep web is largely present.

Deep web commonly refers to all web pages that search engines cannot find. Hence it includes the 'Dark Web' along with all web mail pages, user databases, registration-required web forums and pages behind pay walls.

The Dark Web: The Dark Web also known as Dark net that is indexed, but to be able to access it, requires something special

e.g. authentication to gain access.

The Dark Web often resides on top of additional sub-networks such as Tor, Free net and I2P. It is often associated with criminal activity of various degrees, including pornography, buying and selling drugs, gambling, etc.

While the Dark Web is used for criminal purposes more than the standard Internet or the Deep Web, there are many legitimate uses for the Dark Web as well. Things like using Tor to analyze reports of domestic abuse, government oppression, and other crimes that have serious consequences for those calling out the issues are included in Legitimate uses.

Internet Deep web Dark web	Indexed	Non-indexed
Restricted	-	Dark Web
Unrestricted	Internet	Deep Web

Fig - 4 : Deep web vs Dark web vs Internet.

6. BENEFITS OF DEEP WEB

There are multiple purposes of the dark web sites but the important reason behind its usage is to remain anonymous. For privacy concern the hidden web is been used.

Benefits

- Information remains safe and You won't let your information out.
- Dark web sites are not crawled by any spiders.
- Tor browser is used to access hidden web to talk anonymously.
- services like emails, I2P, Free net, Tor, P2P, Tail OS and VPN are been provided.

7. CONCLUSION

A huge amount of new and rare knowledge is been contained by deep web that would help us evolve in various fields and thus connects to other side of information. It allots us with the ability to be fully free and independent in our own views without any censorship. Finally, deep web is the way of distribution of many illegal goods and activities.

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