CS307 : System Practicum

vTorrent : BitTorrent Client

Group 22

vTorrent :
Project Description

Development of a BitTorrent based file sharing system only for IIT Mandi local area network.

Components for this system.

- BitTorrent Client
- .torrent file server
- Tracker

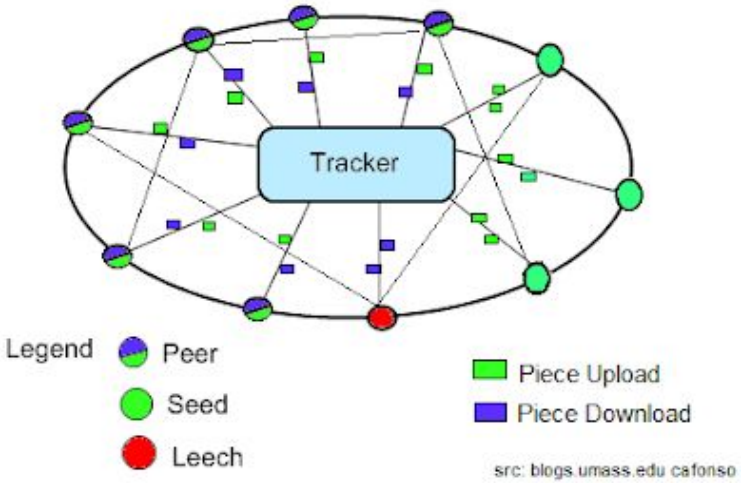
Components of System : Technical Description

- To achieve this system configuration, 2 VM's were used with linux operating system with network interface set to bridged adapter. This resulted in **both VM's to receive ip from Home router with ip address 192.168.1.0/24**.
- So now system includes 4 components

UserName	Work	IP
vaibhav-X510UNR	vTorrent Client	192.168.1.12
client2	FTP File Server	192.168.1.4:20
client2	Tracker	192.168.1.4:8080
client1u	qbitTorrent Client	192.168.1.2

Tracker

- Tracker is the heart of BitTorrent swarm.
- Every peer sharing one given file is connected by tracker i.e, tracker has status of file at each peer.
- It helps peers to find suitable peers to share files.
- To reduce one point failure, more than one trackers are used for each file.

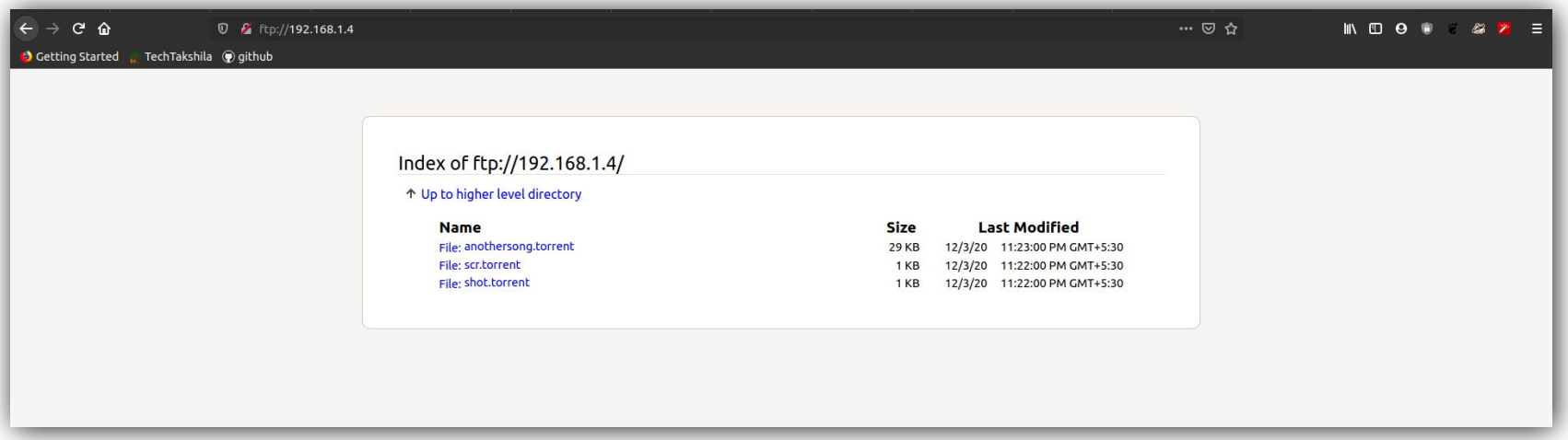


Tracker

- To achieve this system we used open source bitTorrent tracker ***opentracker.***

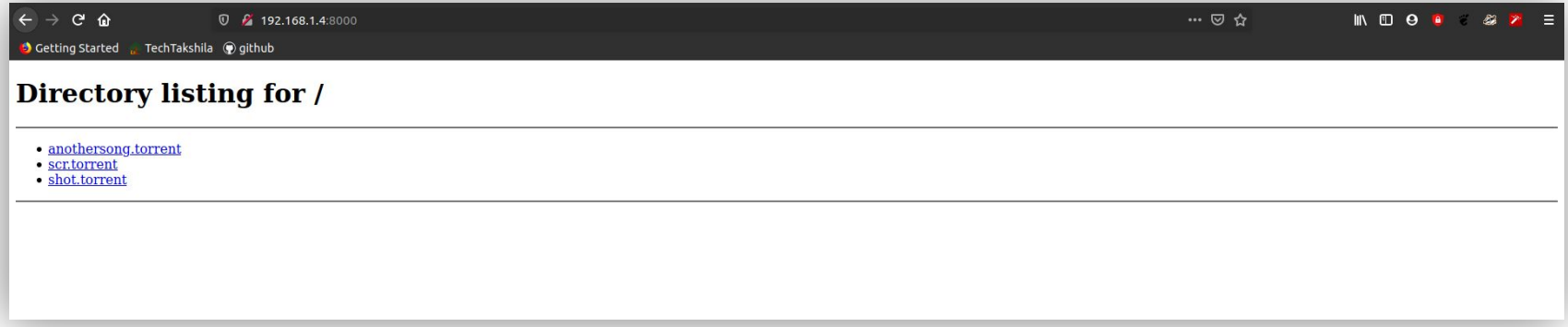
File Server(ftp)

- Hosted a central ftp server on client2 with ip 192.168.1.4
- User have to login with their LDAP user and password.
- Users cannot see each others files.



File Server (http)

- A Central Place to hold all torrent files available for public use for IIT Mandi.
- Cannot upload files without admin privileges.



vTorrent Client

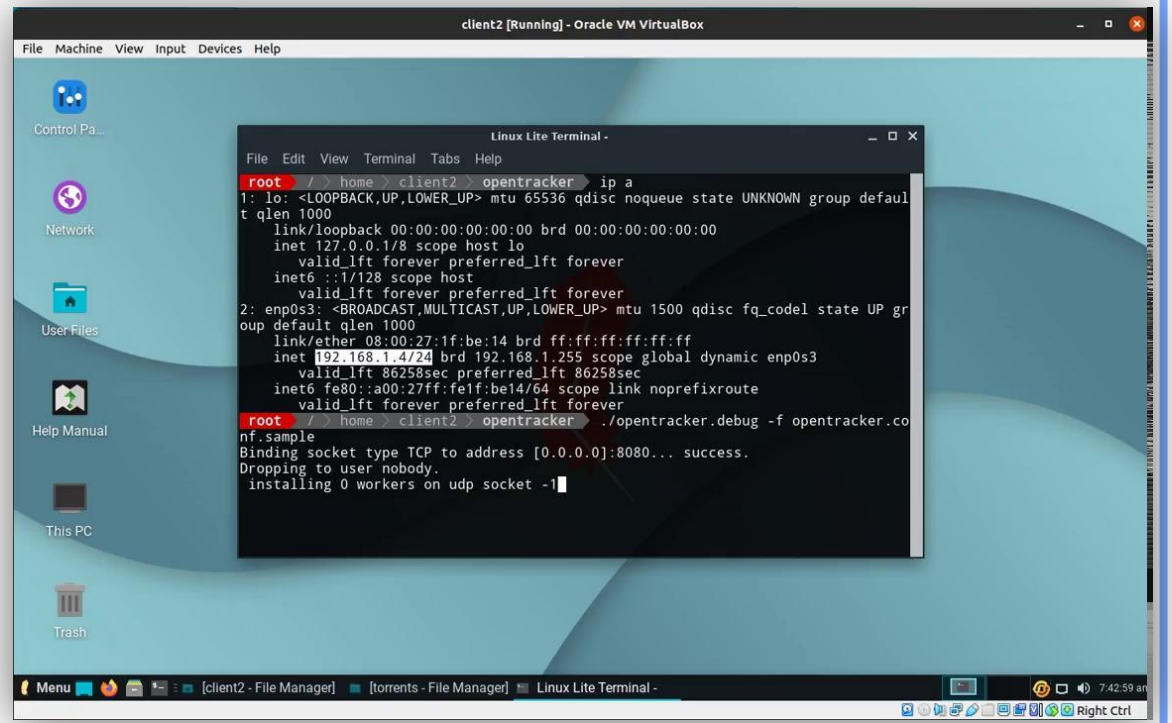
- A BitTorrent specification based python client with asyncio enabled.
- Created a python package for ease of use.

```
vaibhav@vaibhav-X510UNR:~/Downloads$ vtorrent -h
usage: vtorrent [-h] [--path PATH] [-cname CNAME] [--tracker TRACKER] torrent

vtorrent v0.1.1

positional arguments:
  torrent            The metainfo file path (.torrent)

optional arguments:
  -h, --help         show this help message and exit
  --path PATH        The download directory path, defaults to './downloads'
  -cname CNAME       To convert normal file into .torrent file, (input name of
                     the normal file)
  --tracker TRACKER  address of the tracker in format { http://server-
                     ip:server-port/announce }
vaibhav@vaibhav-X510UNR:~/Downloads$
```

Working of Components

Working of tracker

This video is working of the tracker listening on port 8080/tcp at ip 192.168.1.4



Working of file server

This video is working of the ftp server present at 192.168.1.4, it is accessed from laptop 192.168.1.12 with LDAP id and passwd.

Working of client

- This video is working of the client with torrent file of ubuntu 20.10.iso taken from official ubuntu website.
- This shows that client is able to connect to tracker and download from peers.

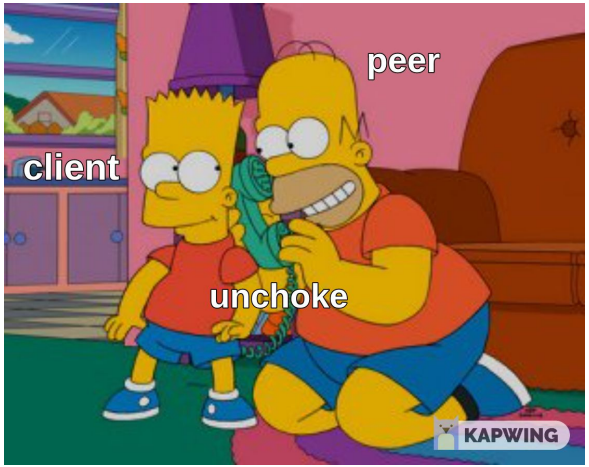
PWP (Peer wire protocol)

- According to BTP/1.0 PWP facilitates the exchange of pieces of the file. The Bittorrent Client maintains the **state information** for each connection that it has with a remote peer.

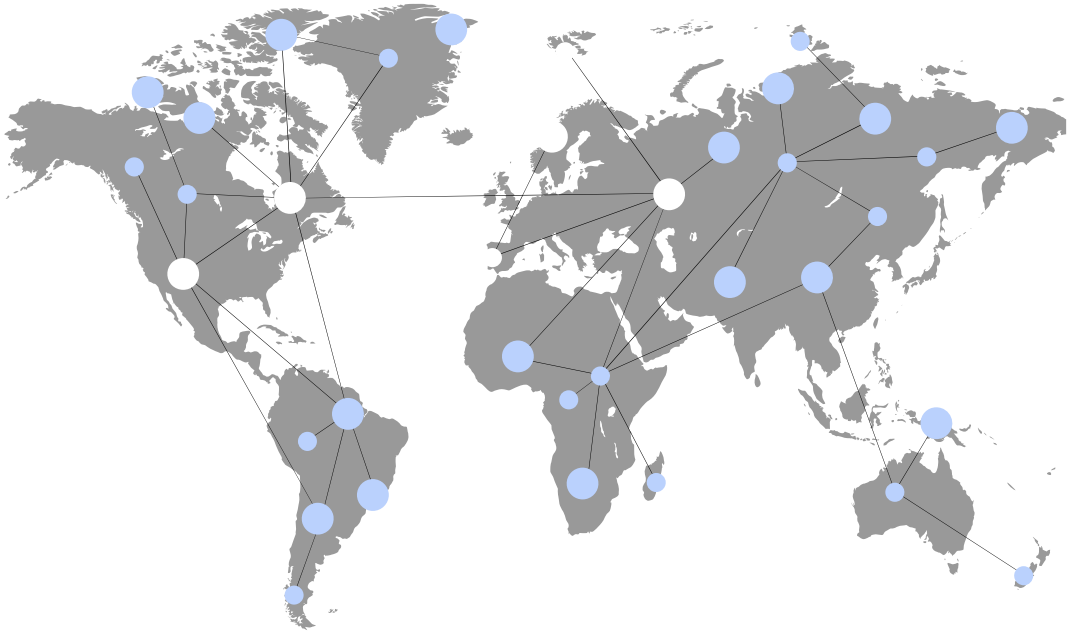
State	Significance
am choking	client is choking the peer
peer choking	peer is choking the client
am interested	client is interested in peer
peer interested	peer is interested in client

Client is getting choked

- Without peer uploading, the client is getting choked by other peers.
- Solution : code the uploading of requests.



Peer To Peer



Client Services

Security

vTorrent offers security by using only private trackers and file serving system.

Create torrent

vTorrent can create .torrent metafiles for you.

Group 22

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Thanks!

Does anyone have any questions?


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