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ANALYSING THE STRUCTURE OF NETWORK OF NETWORKS

PROJECT REPORT

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1. **DELIVERABLE DESCRIPTION**

   (a) **Data Collection:** We used command prompt to ping and trace route to the destinations(Total number of servers 11) from five different sources.Our Try of using public glasses failed because 80/100 proportion of the results from server end were timed out for 4-5 websites(servers).Therefore we used two different vpns(osaka and worthington) .We collected data of all servers from sources in notepad files.All raw files can be found at -clickableWe used a python code using the package selenium that made the tedious work of ”finding Asn Numbers,Organsiatons names,Locations of each Ip address one by one” truly enjoyable.All the notepad files were input to the code and thus we collected the preprocessed Information.All the processed files can be found at -clickable.The python code can be found at -clickable.Overall structure of the Final product(PIC) can be seen through this xlsx file-clickable generated by the code -clickable

   (b) **Sketch** Since the quintessential purpose was to visualise the internet topology,we restricted ourselves to draw the complete Network manually without using any library.The End product can be found at - clickable or clickable.It can be seen that there are lesser no of nodes as compared to what one would expect while analysing the Internet.In our case ,the possibles reasons are our selections of sources and destinations having lot of common Intermediataries.

2. **FINDINGS ABOUT THE INTERNET TOPOLOGY**
   (a) We found same ISPs/Organisations having different AS Numbers across different locations.Also same AS numbers having different ISPs .
   (b) Most Servers from IITH network are accessed Through the ISP: Jio Reliance Incomm Limited, Maharashtra(55836)
   (c) Most Connections of the Servers from osaka pass through ISP:Data Camp limited(212238) ,Tokyo ,japan.Then most of them pass through ISP: Data Camp Limited (60068),Miami,US before reaching the respective servers.
   (d) Similary,Most Connections of the Servers from Worthington(US) pass through ISP:Data Camp limited(60068) ,Tokyo ,japan.
   (e) Most websites rely on cloudfare as data centers.
   (f) We also found some ISPs in some locations which do not have any AS number .Basically AS number 0 Indicates the absence of AS number of that organsiation in that location.

(g) We found that the path taken from the source to the destination and to the server is not determined or optimal .It is just random (Can be seen through the PIC)

(h) Most servers from the airtel network are accessed through the Bharti Airtel(9498),new delhi.Similary Most servers from jio are accessed through Reliance Jio Incomm Limited Maharastra(55836)

(i) We found the same ISP under different organsiations

Finally,we can say that nowadays network has grown very vast .This the primary reason for the random connections from source to the destination(server).