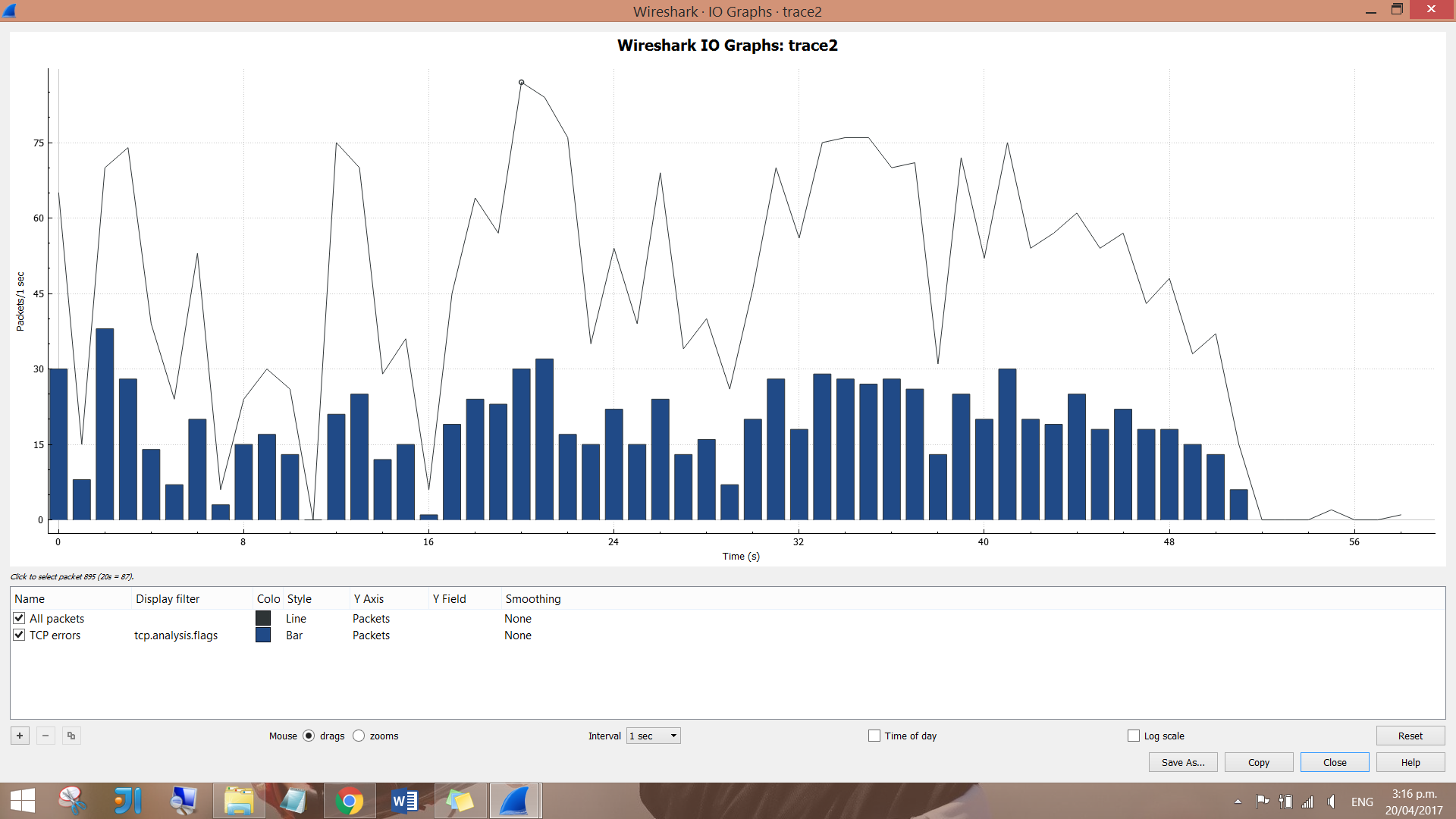
SOFTENG 364 Assignment 1

840454023, elee353

Task 1

Task 2

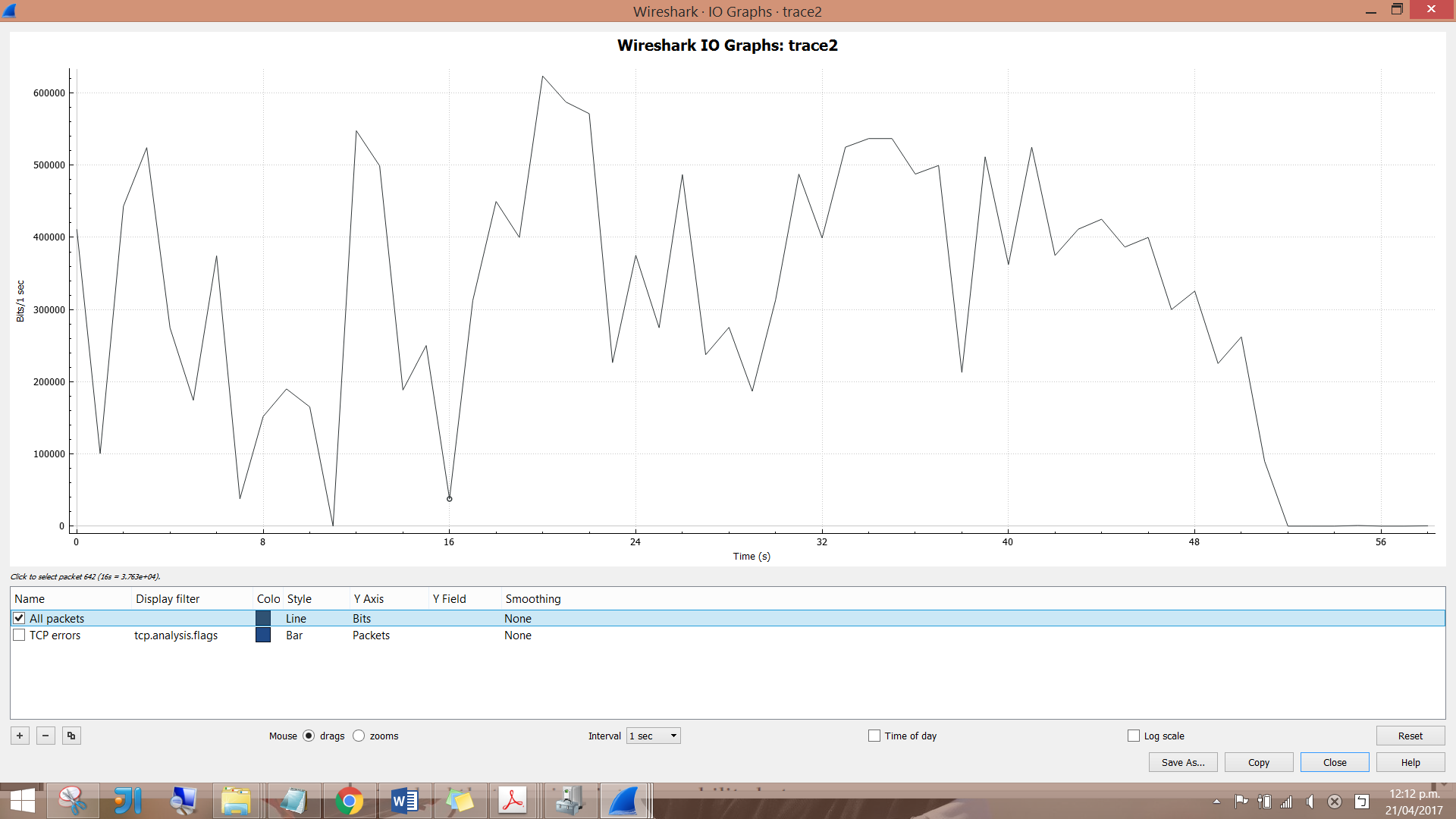
Q1.



The highest packets-per-second value seen was 87 packets per second.

It occurred in the 20th second.

Q2.

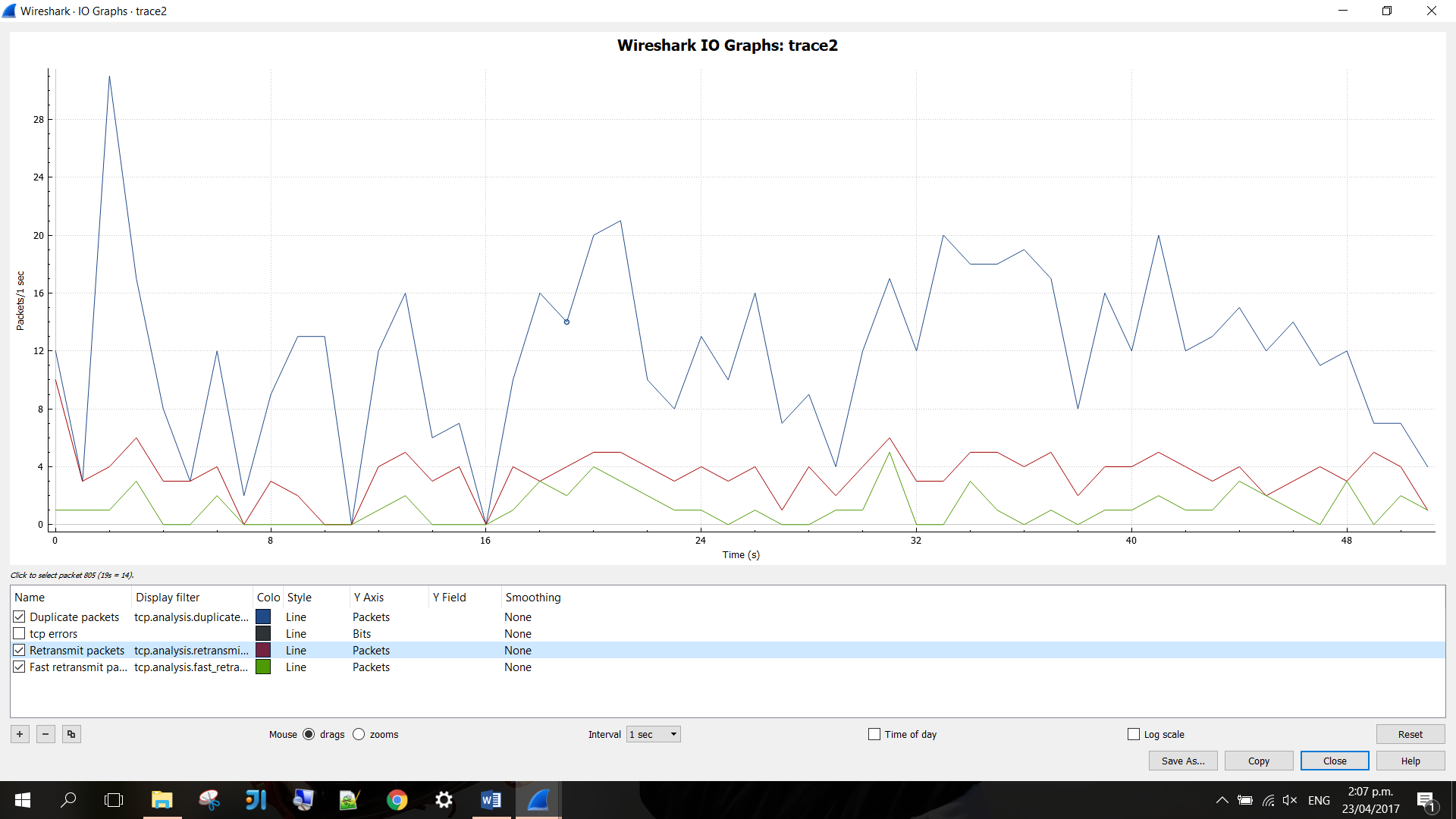
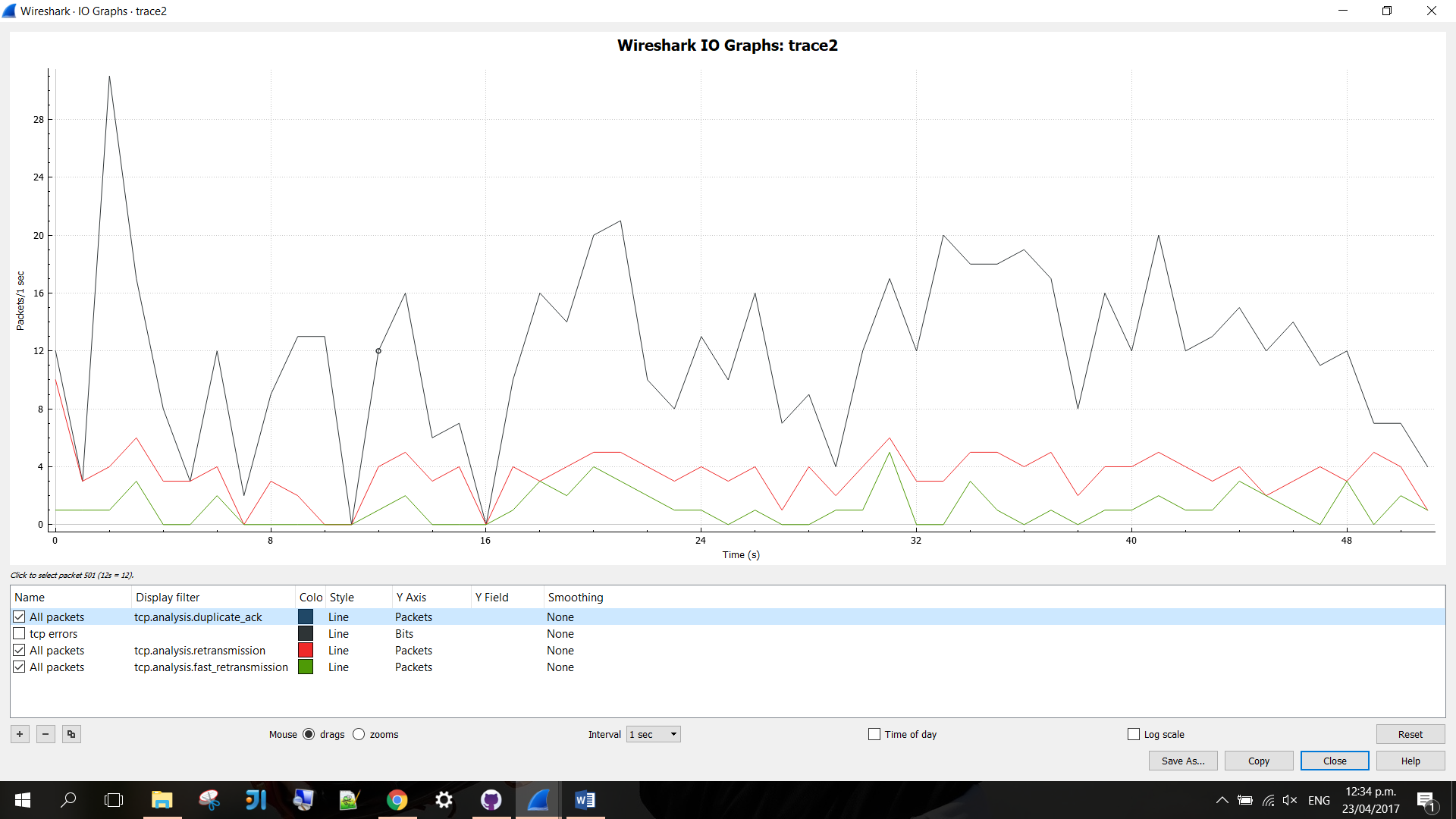


The highest bits-per-second value is 623500 bits per second.

It occurred in the 20th second.

Q3.

Apply filters: tcp.analysis.duplicate\_ack, tcp.analysis.fast\_retransmission, and tcp.analysis.retransmission.

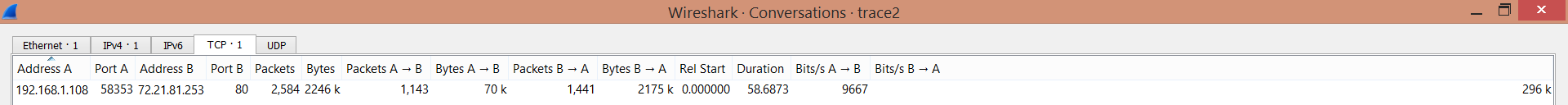
Q4.

Duplicate ACKs are sent when the receiver sees a gap in the packets it receives. The gap can be caused by a lost segment or just a reordering of segments.

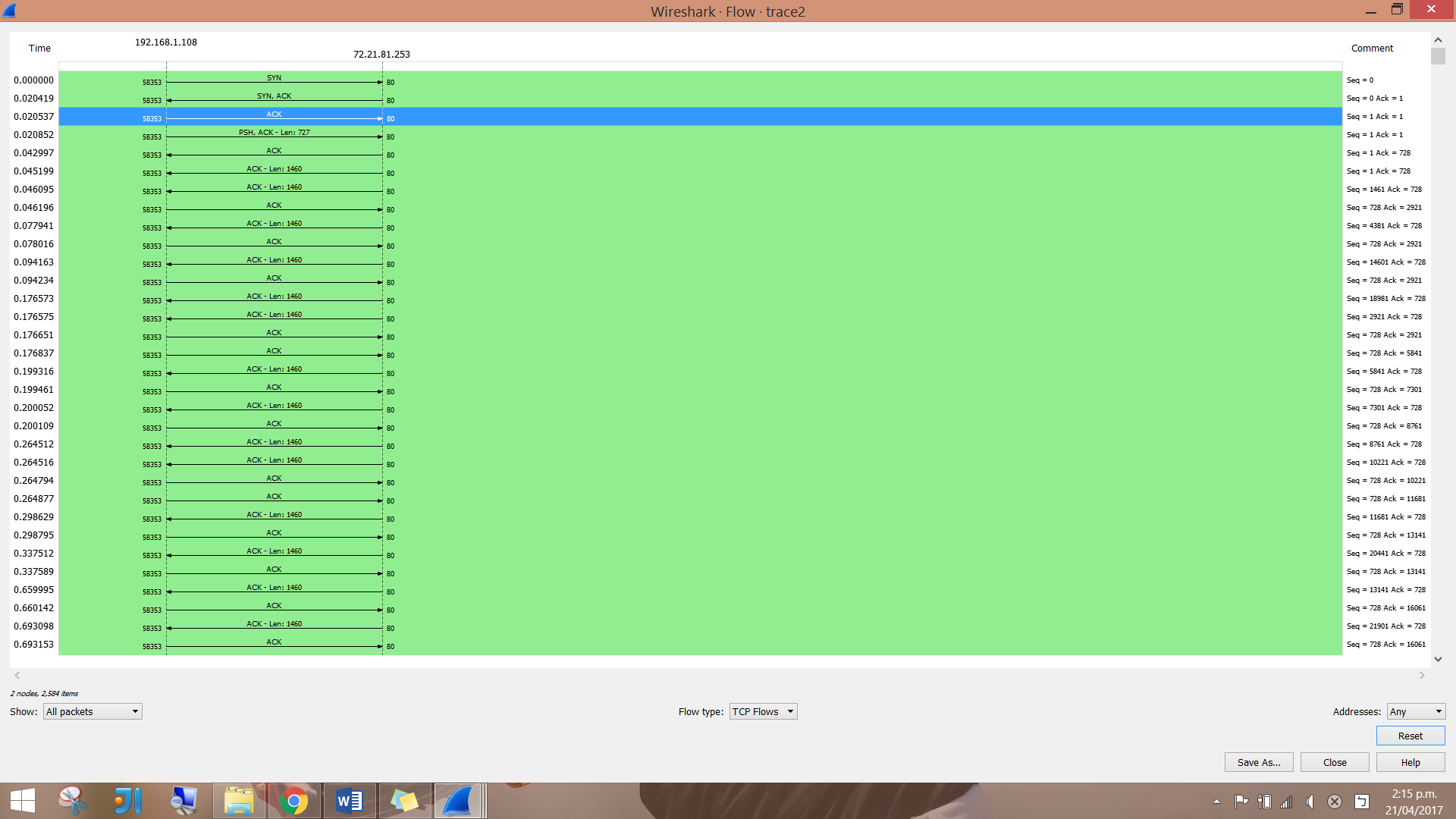
The sender will wait for a small number of duplicate ACKs to be received. If there is only one or two duplicate ACKs received before the reordered segment is processed, there is just a reordering of the segments and a new ACK will be generated.

If three or more duplicate ACKs are received in a row, it is a strong indication that a segment has been lost.

Q5.



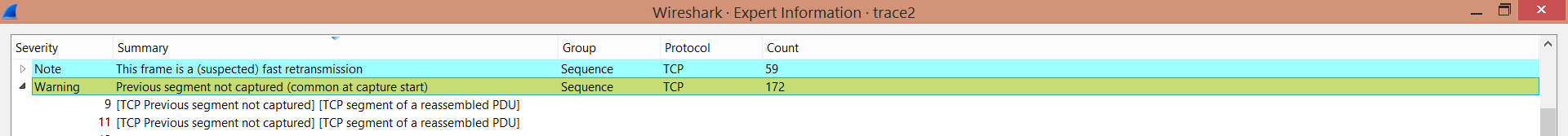


There are 2584 TCP conversations.

Q6.

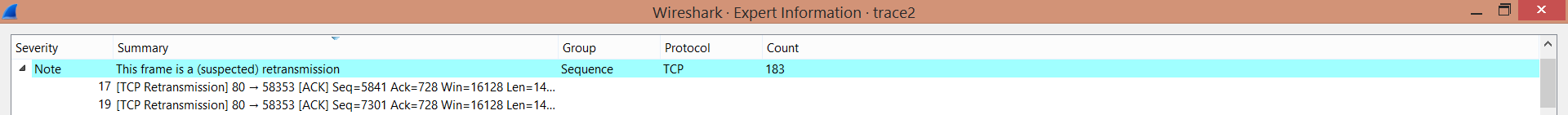
"Tcp previous segment not captured" means Wireshark did not see a packet that should have been in the trace.

This is caused by either the packet really wasn't seen on the wire due to a packet loss, or Wireshark did not record the packet fast and timely even though it **had been** on the wire.

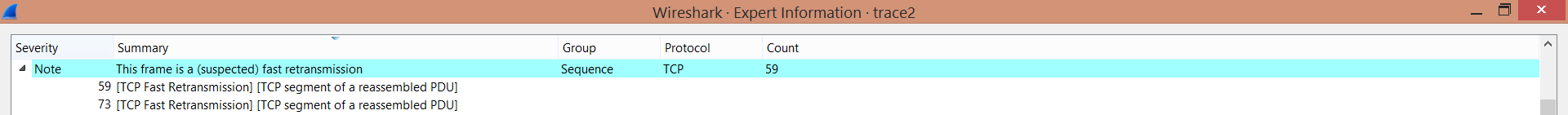


There is 172 times “previous segment not captured” has been detected.

Q7.



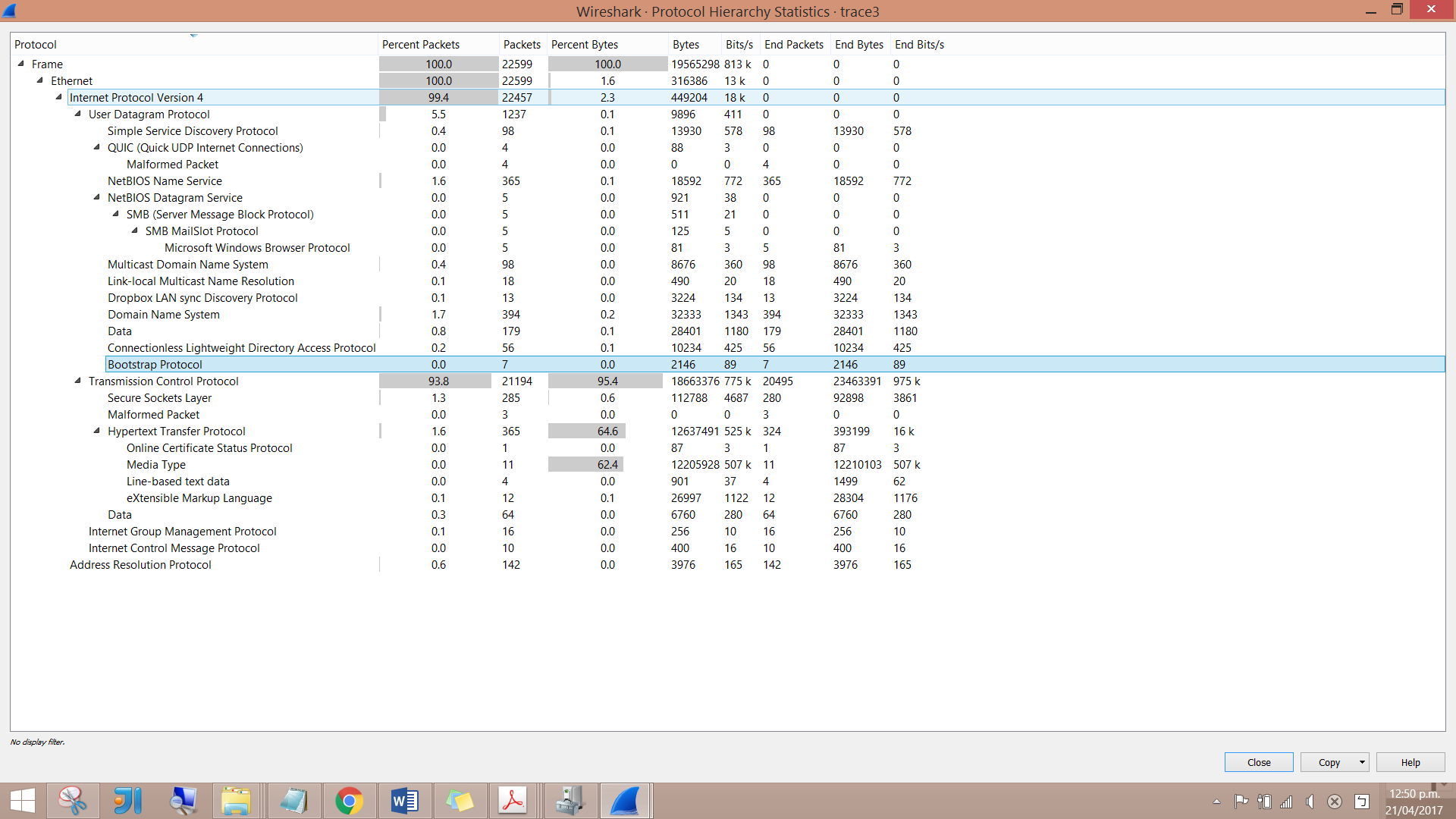
There are 183 retransmissions.



There are 59 fast transmissions.

Task 3

Q1.



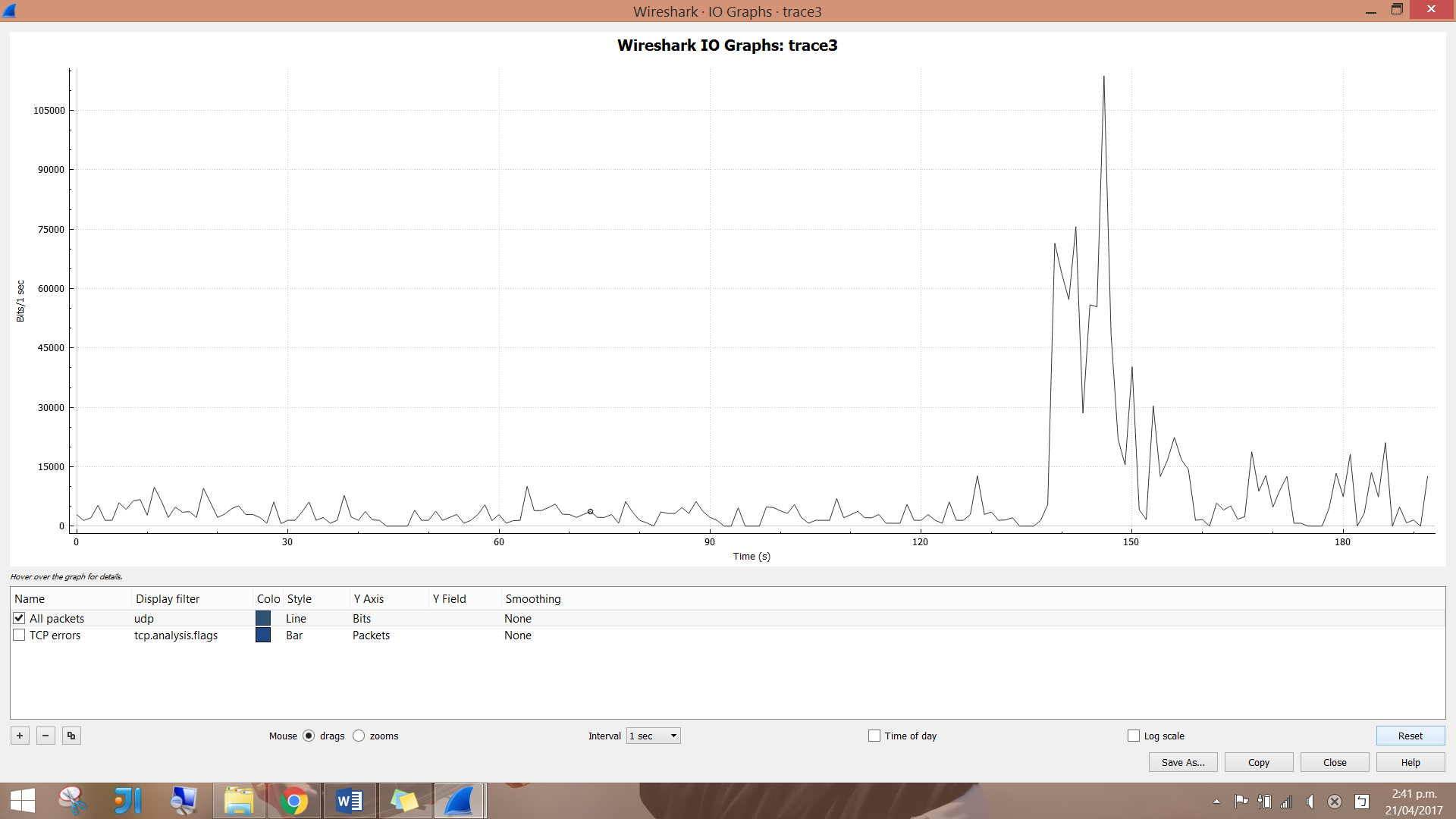
* ARP, NBNS, BROWSER, CLDAP, DB-LSP-DISC, DHCP, DNS, HTTP, OCSP, QUIC, SSDP, TCP, TLSv1, TLSv1.2, UDP
* 0 percent of the total was involved with DCHP messages.
* Both TCP and UDP are used here.

Q2.

Apply bootp, dns, tcp, and udp filters.



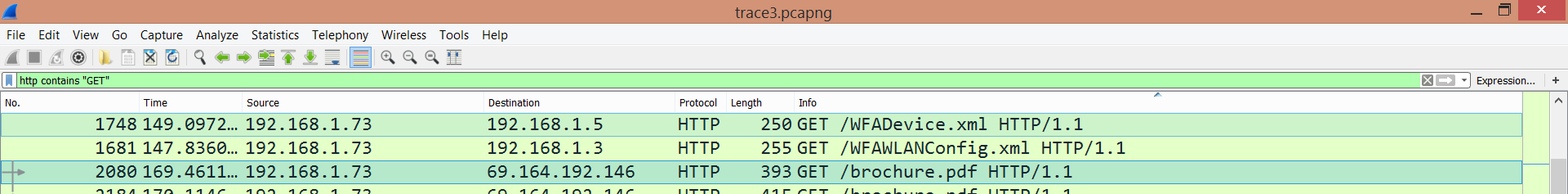
Q3.



The highest bits-per-second rate is 113700 bits per second.

It occurred in the 146th second.

Q4.



Request IP: 192.168.1.73

Response IP: 69.164.192.146

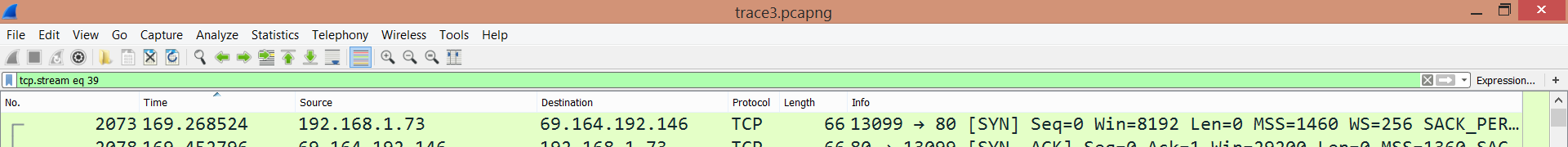
Q5.

* TCP conversation



Q6.



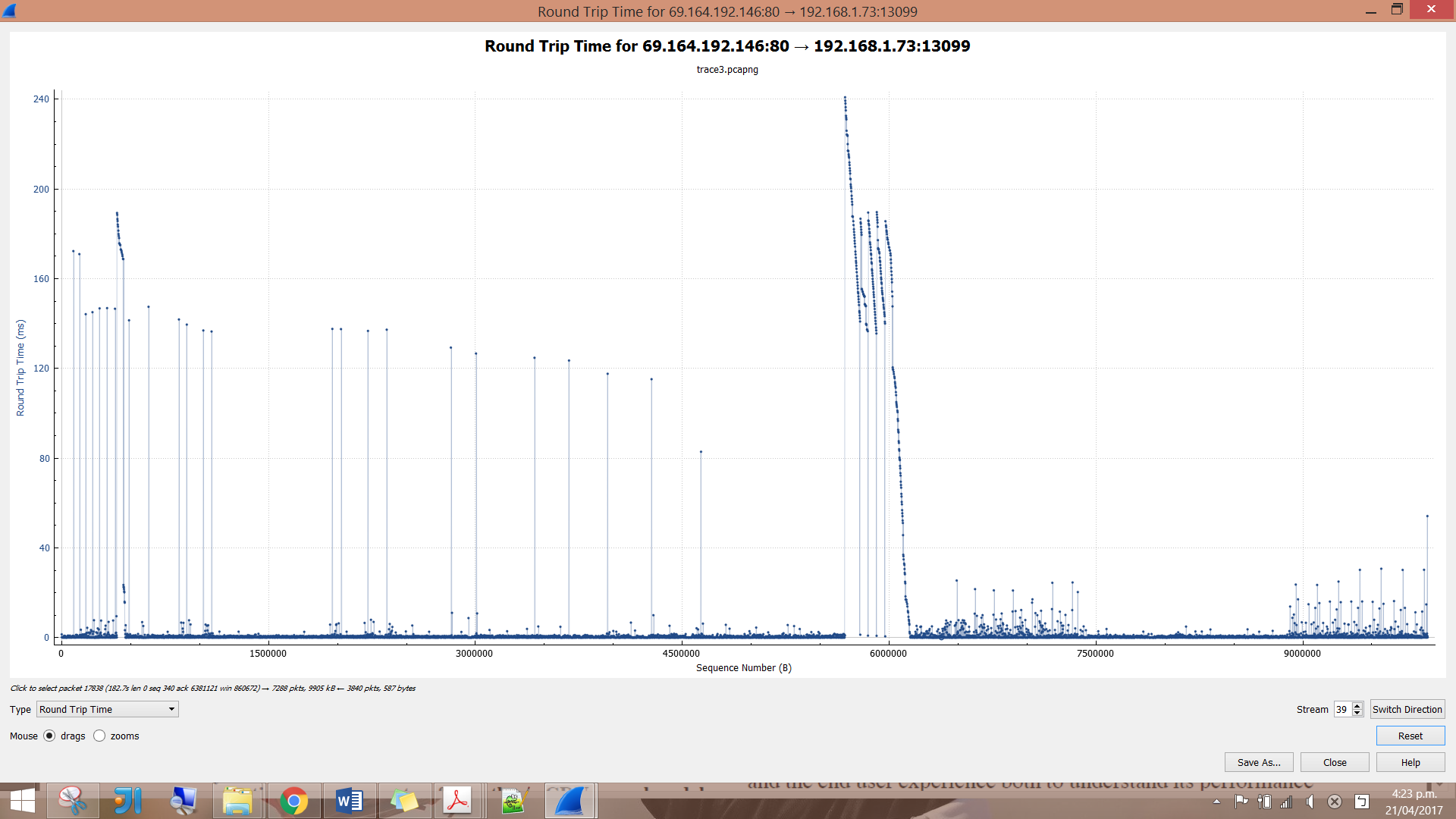




Download time = 192.372 – 169.269 = 23.103 seconds

Q7.

Q8.



The longest RTT occurred in packet 17280, in the 182.268th second.

Task 4

* General

Video traffic is the major consumer of internet bandwidth, because multimedia files are generally large. Videos are a sequence of images displayed at a constant rate, while digital images are arrays of pixels.

* Netflix
* YouTube
* Youtube is one of the most popular services on the internet, being the most visited website in the world.[YOUTUBE’S dash]
* One disadvantage of DASH is the amount of storage required to host all the videos in various bit rates and segment lengths on Youtube.
* Lightbox
* CDN, DASH
* Discuss how video streaming on the internet is achieved in general
* then discuss the approaches taken by the above three services
* the protocols involved
* facts pertaining to New Zealand
* Pictures
* reference all your sources, including any images taken from other sources
* 1200 words