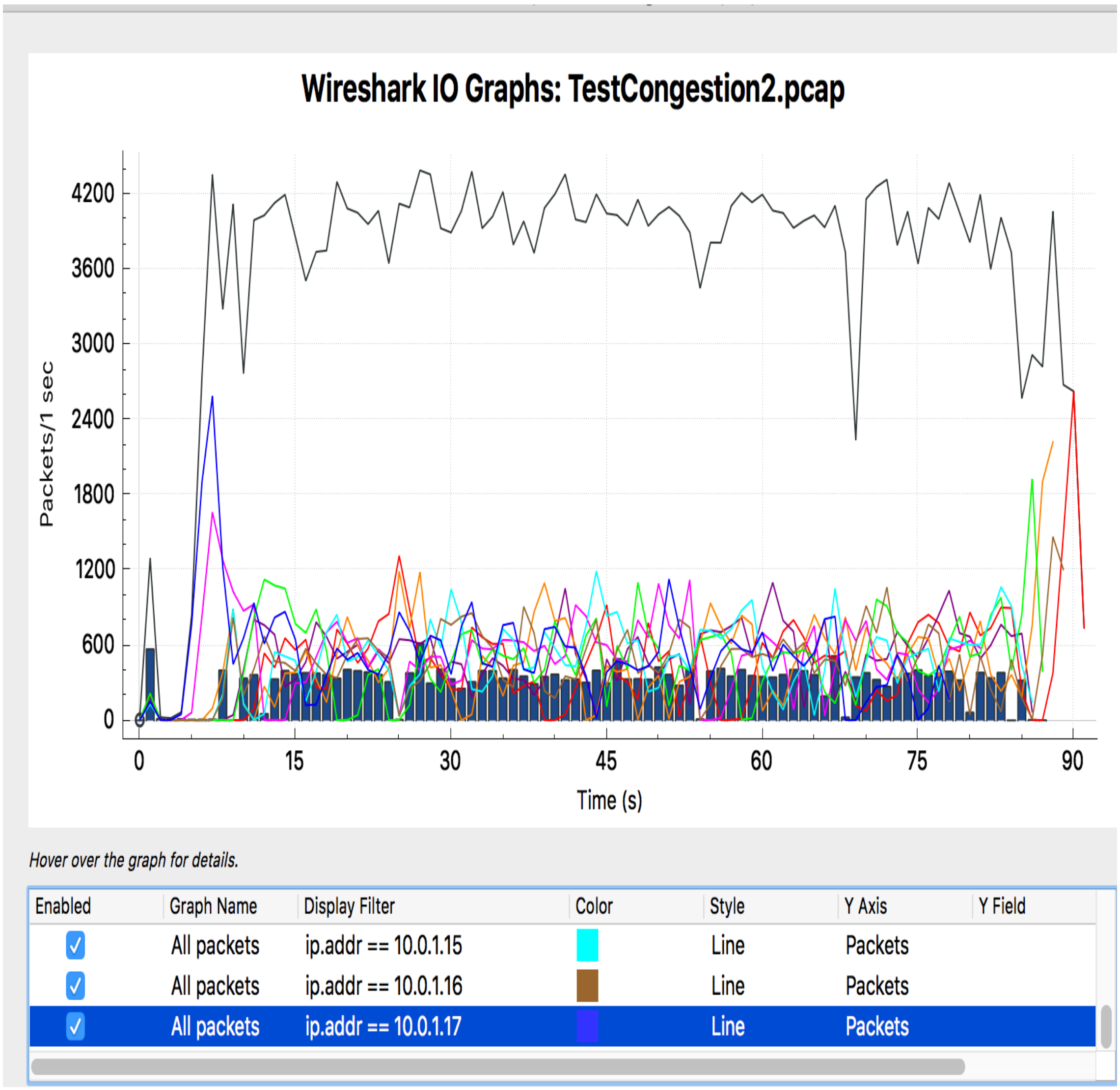
20140040 Keonil Kim
CS341 Project1 Report

1. IO Graph Screenshot



Hover over the graph for details.

Enabled	Graph Name	Display Filter	Color	Style	Y Axis	Y Field
☑	All packets	ip.addr == 10.0.1.15	🟦	Line	Packets	
☑	All packets	ip.addr == 10.0.1.16	🟫	Line	Packets	
☑	All packets	ip.addr == 10.0.1.17	🟦	Line	Packets	

2. KENS

TCPAssignment.hpp

In header file, I define a struct PidFd, which simply contains pi and fd. Also, I add operator< and operator== to use the struct as a key in the map container.

To handle bound socket, I define map named bind_list, which has struct PidFd as a key and struct sockaddr as a value.

Also, syscall_socket/close/bind/getsocketname are defined and my supporting function is_addr_same is also defined.

TCPAssignment.cpp

I implement 5 functions. In this document, when I state return, it means that I use returnSystemCall(syscallUUID, ‘return value).

1. syscall_socket
Simply, create new_fd with createFileDescriptor(pid) and return new_fd.

2. syscall_close
Construct PidFd struct with pid and fd in arguments.
By iterating through bind_list map, check if the fd to close exists in the list. If exists remove it from the map and return 0.

3. syscall_bind
Construct PidFd struct with pid and fd in arguments.
Firstly, check if the fd is already bound, by iterating through map container. If found, return -1, otherwise, continue.
Then, iterating through map containers, check if the new address to bind is violating bind rule or not. If it does, return -1, otherwise,

insert the new key-value pair to the bind_list and return 0.

4. syscall_getsockname

Construct PidFd struct with pid and fd in arguments.
Try finding the same pid&fd in map and if found, return -1, otherwise, copy the address to addr argument and return 0.

5. is_addr_same

argument types: struct sockaddr, struct sockaddr
return type: bool
Compare two sockaddr structs with bind rule.
Return ture if it violates bind rule, return false otherwise.