Statistic	Single WS	All WS	Increased FTP File Size	5 Mbps background load	10 Mbps background load	10-x Mbps background load
Utilization →	0.5	0.11	1	51	99	98
Utilization ←	0.05	0.008	.35	49.5	99	97.5
FTP DL response time	2.1s	2.31s	4.15s	4.35s	450s	9s
TCP retrans count	0	0	0	0	6	1

1. We only considered the link between the server and the switch because we want to see how much traffic leaves the server versus entering it. The traffic to the server is small because it is a simple file request, and the traffic outgoing is large because it is sending a file with FTP.

2. Yes, if all workstations are active and requesting files from the server, the network load will increase significantly, mostly in the → direction (from the server to the workstation).

3. This should increase the load on the network by a factor of 80 – since the file size is being increased tenfold, and the file needs to be distributed to 8 peers, it should take 80 times longer for everyone to receive the file. The download response time will be increased x10, and the retransmission count will be nonzero since collisions, router buffer overflows, and other errors can be expected with such a heavy load.

4. The network is no longer stable. The download response time is not roughly averaged anymore, it increases linearly, and quite steeply. The retransmission count is >0, finally (I was thinking something was wrong with my simulation), which means messages are either running into full buffers or colliding with one another.

To stabilize the network, we have to decrease the background load by at least 250Kbps.

During this lab, I reinforced the knowledge I had gleaned from the lectures, especially regarding network load, collisions, and retransmission. It was a helpful simulation to show us the effect of different loads, and I wish there were more we could do with it.