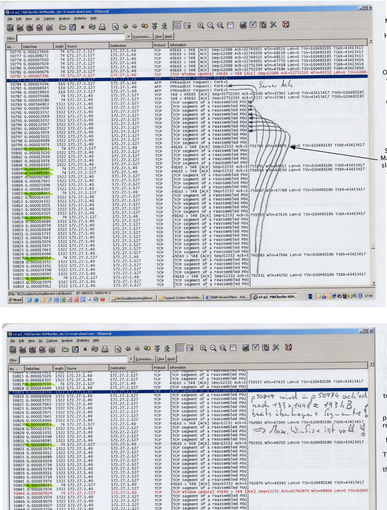
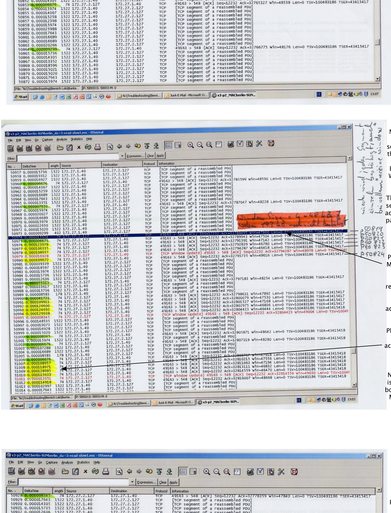


Server
IP: 172.27.1.40
Media: 1000MBit/s
OS: Solaris 10
Helios EtherShare 4

Client
IP: 172.27.2.127
Media: 100MBit/s
OS: Mac OS X 10.4.7
w/ Helios UANtest

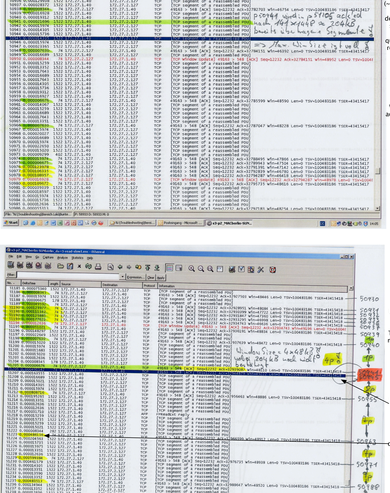
Kontakt in Berlin:
Oliver Seehaus via Mike

Sun sends packets, Mac acknowledges very slowly (see lines) and one packet by the time.



Packet 50814 gets acknowledged with packet 50974, meaning that 133 packets with 1448 bytes each (193KB total) are transmitted meanwhile. This unacknowledged packets remain in the retransmission queue of the sun, waiting for acknowledgment.

The Mac acknowledges very lazily, forcing the Sun to slow down the data transfer.



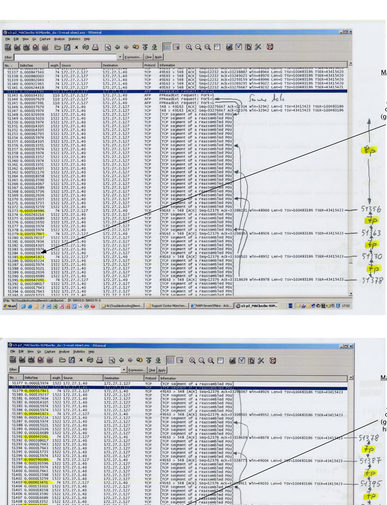
Now the behaviour changes. The Sun seems to notice that the acknowledges are delayed, maybe because it's a slow WAN connection or sth. similar.

The Server does only send more packets if acknowledges for prior packets are received. This throttles the connection down significantly.

Please note that the Mac tells the Sun his receive window is empty and he is ready to receive even more data, even though has not acknowledged all prior data.

Please also note that the Mac delays acknowledges by about 100µs.

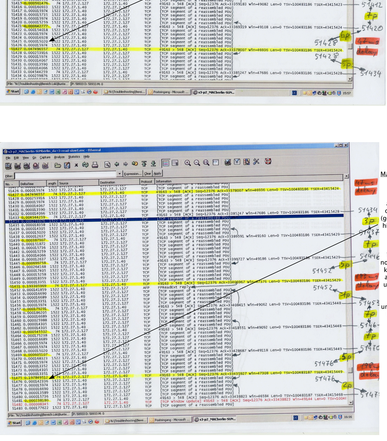
Now the connection is throttled down by both, the Sun and the Mac. This will even get worse, please read on.



Packet 50941 gets ack'ed after 141*1448 transferred segments (51205) (=2048byte), which is more than the defined window size, so both (the Sun's transmission queue, and the Macs receive window) are full.

Questions

Why does the Mac ack only one packet at one?



Behaviour change of the Mac

The Mac starts to ack more than one packet at once.

Please note that delay!

Questions

Why doesnt the Mac start to ack more than one packet earlier?

Why does the Mac delay by about **0.5ms** each time?

Please read on..

Mac slows down even more

The Mac keeps ack'ing more than one packet at once (good!), but increases his delay.

Mac slows down **even** more

The Mac keeps ack'ing more than one packet at once (good!), but increases his delay even more, now the delay is **50ms**.

Mac slows down **even** more

The Mac keeps ack'ing more than one packet at once (good!), but increases his delay even more, now the delay is **200ms**.

The data flow has now dropped to some kilobits per second, and stays that way, until the connection is closed and reopened (a.k.a. unmount & re-mount the AFP-volume).