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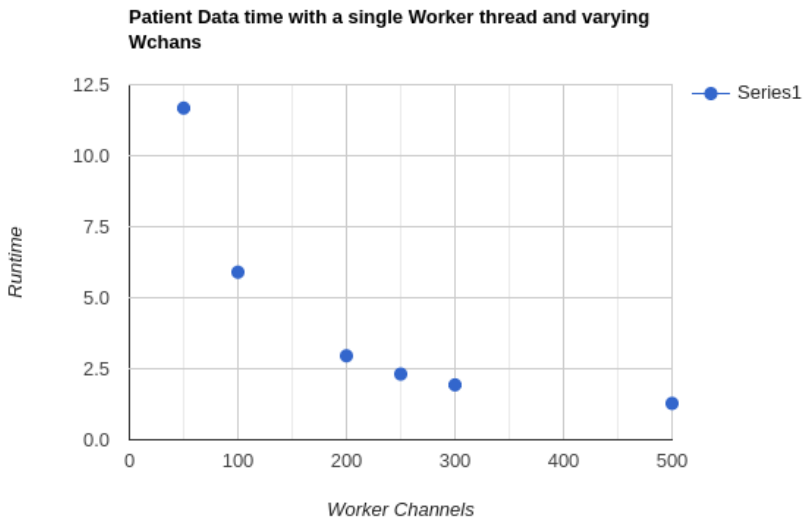
PA6: TCP/IP implementation

YOUTUBE LINKS: https://youtu.be/OAgZXlr7gUk

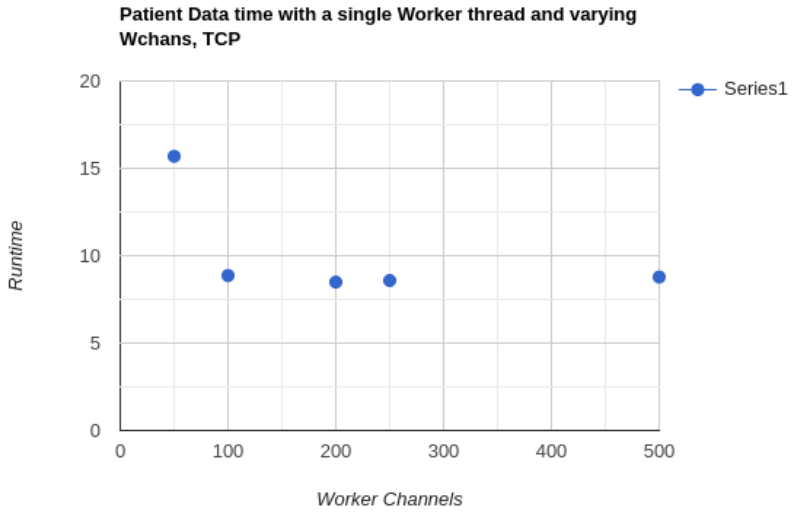
Timings:

 # 1 Varying worker threads vs varying worker channels @ -p 15 -n 15K -b 1024 -h 5

a

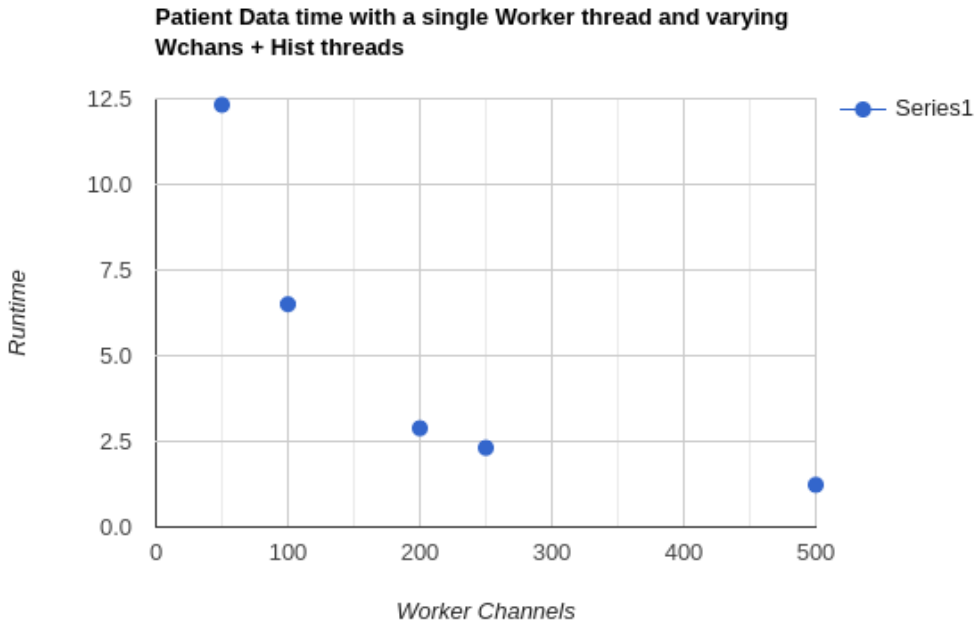


b

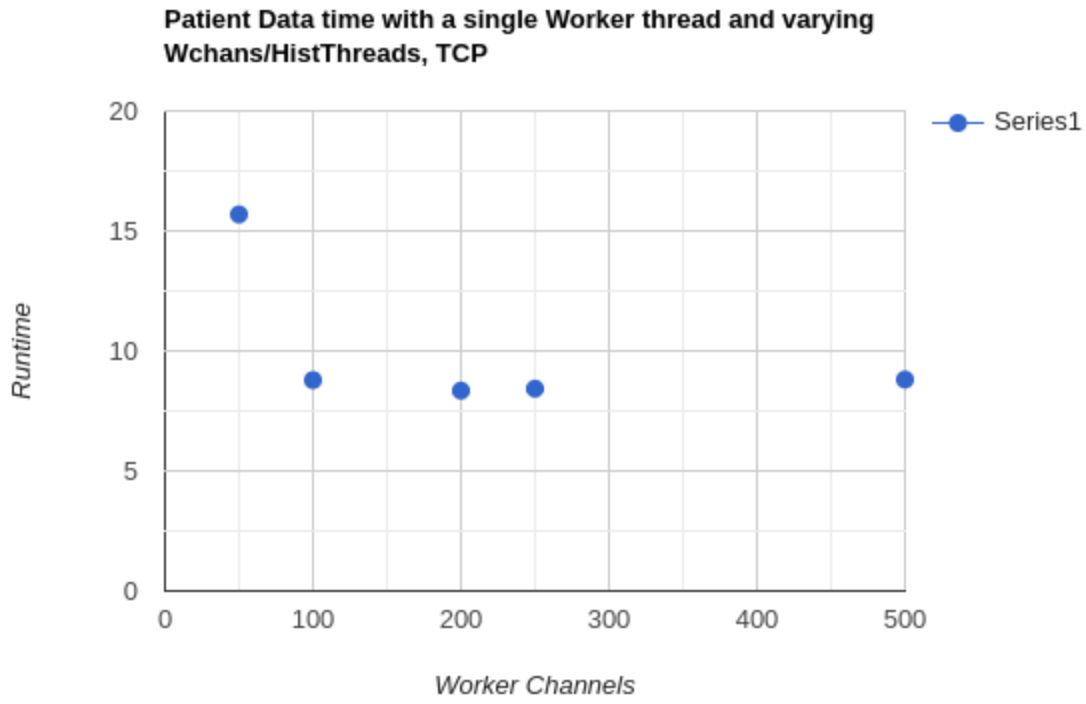


#2 Varying worker threads vs varying worker channels with various hist threads H(5, 50) -> W(50, 500)

a



b



TCP speed differs from the IPCs that we used in the earlier PA's because rather than actual interprocess communication, we are using a transfer communication protocol over a network, this means we send and receive data packets in the form of TCPRequestChannels, this is inherently slower than an IPC such as FIFO because we are relying on network latency and bandwidth. In the case of data transmission, our 15 patients 15K datapoints hit a bottleneck with TCP at around 100 Worker Channels, with a timing of around 8.5 seconds. FIFO communication meanwhile took 2 seconds less for 100 wchans, and the speeds kept increasing till ulimit was needed, this bottleneck is coming from the network latency, not so much as the bandwidth, since these channels send and receive messages and this delay that is added to each channel stacks up and eventually the bottleneck is apparent.