

# Mobile Communications

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## Faculdade de Engenharia da Universidade do Porto

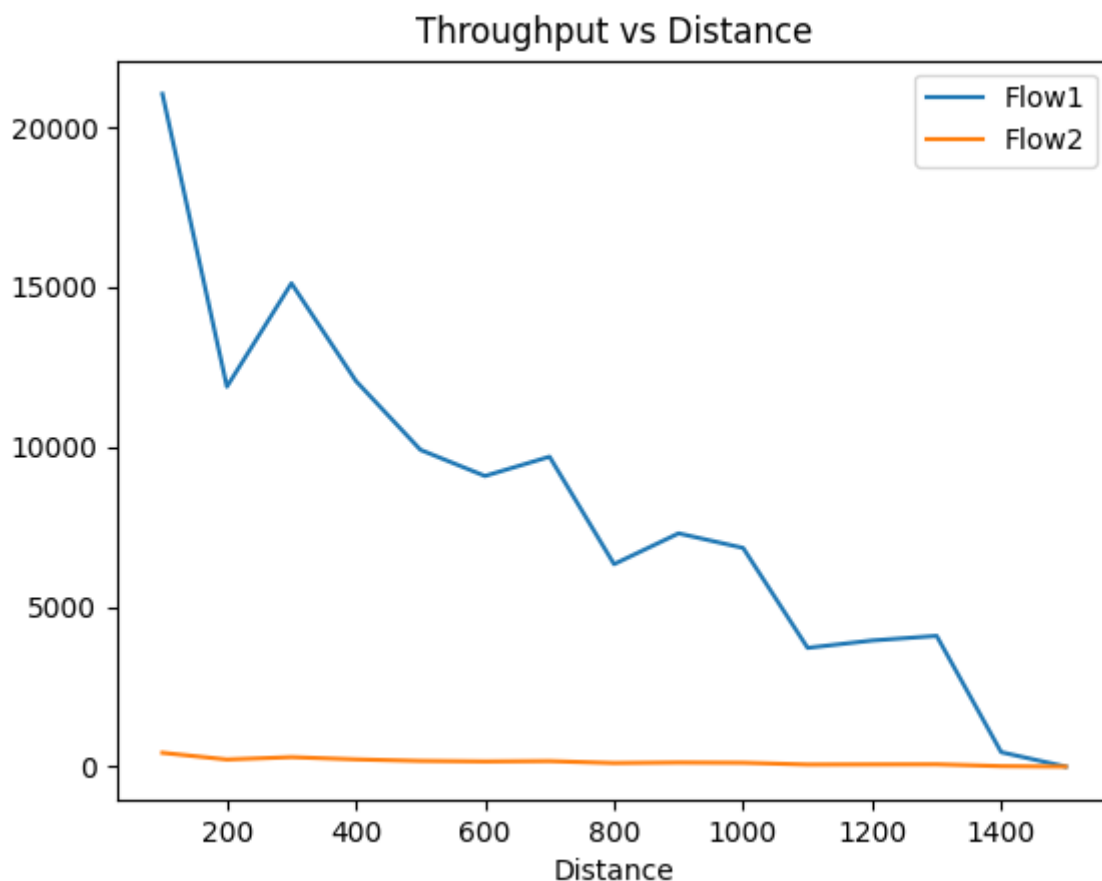
Network Simulation – WiFi

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### First Study – Throughput vs distance

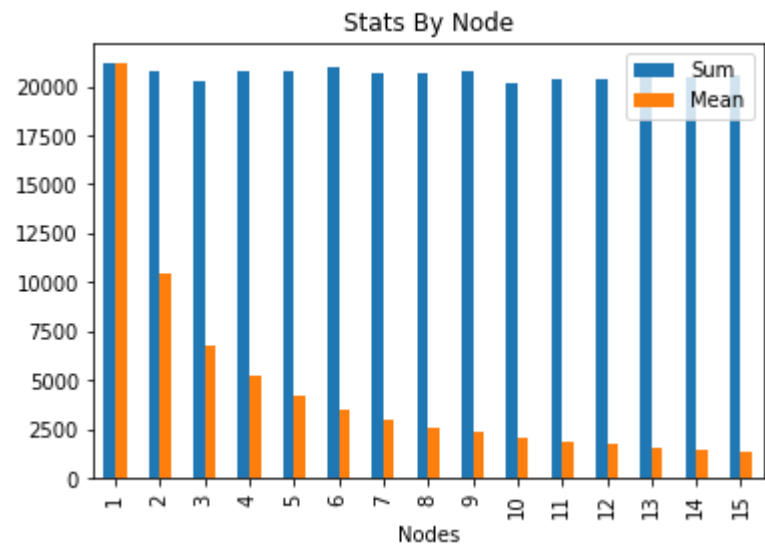
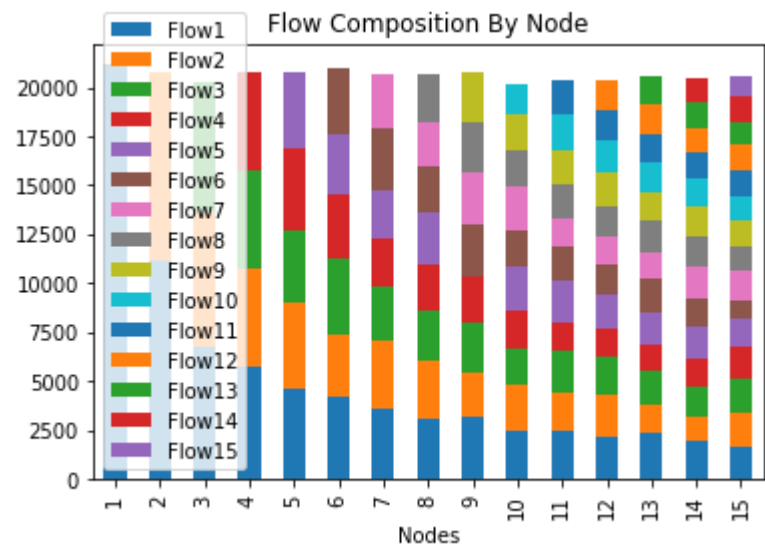
For this study we have created python code to run and log the results of the scenario described in the first study. The main goal was to visualize the effects of the distance on the throughput of a connection. We concluded the TCP flow decreases with distance until it reaches the 1500 distance, where the throughput showed is zero. In this study we have concluded that the longer the distance, the lower the throughput, as expected



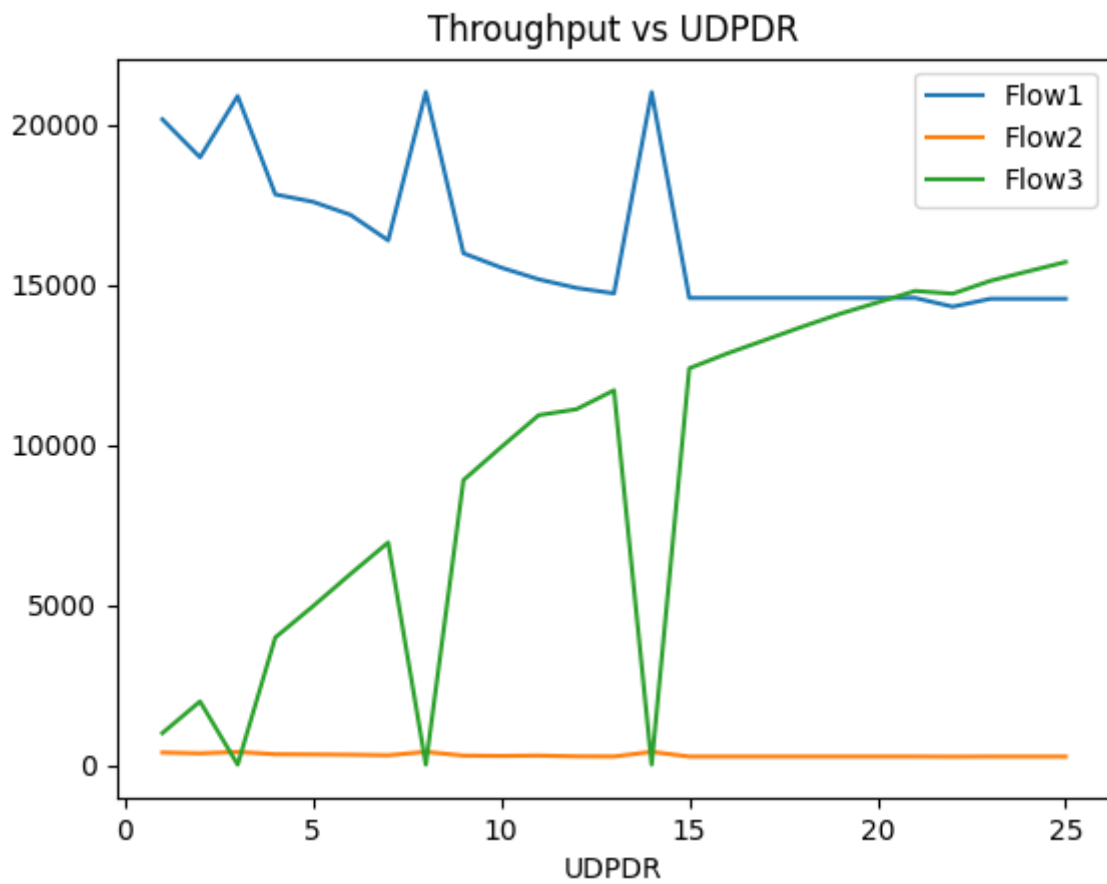
### Second Study - Throughput vs number of STAs

In the same way we have created a similar python code to execute and visualise the results. The objective this time is to understand the impact of multiple stations (STAs) in the throughput. In this study we reach the conclusion that the throughput maximum will be divided by the number of STA and each of them will

work with their percentage of the maximum. To note that there might be some cases that one of the STA will drop but still the throughput will be divided by the rest of the STA's



Third Study



## Fourth Study

Comparing the 4th study with the first we see that the use of a relay allowed for double of the transmission range.

