

Lab WiFi Report

Andrea Botticella*
andrea.botticella@studenti.polito.it
Politecnico di Torino
Turin, Italy

Renato Mignone*
renato.mignone@studenti.polito.it
Politecnico di Torino
Turin, Italy

Elia Innocenti*
elia.innocenti@studenti.polito.it
Politecnico di Torino
Turin, Italy

Simone Romano*
simone.romano2@studenti.polito.it
Politecnico di Torino
Turin, Italy

ABSTRACT

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

1 BACKGROUND AND OBJECTIVES

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

"Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?"

2 METHODOLOGY AND CONCEPTS

2.1 Selected Tools

2.2 Network Performance Metrics

*The authors collaborated closely in developing this project.

3 EXPERIMENTAL SETUP AND TEST CASES

3.1 Equipment and Configuration

In this section, we describe the hardware and software configuration used to perform our network performance measurements. Table 1 summarizes the main devices, their interfaces, and relevant specifications.

Table 1: Summary of Hardware and Network Configuration

Device	Key Specifications
PC1	Victus 16-s1005nl Notebook Operating System: Ubuntu 24.04.2 LTS Ethernet Interface: Realtek RTL8111/8168/8211/8411 Wireless Interface: Realtek RTL8852BE (802.11ax)
PC2	Microsoft Surface Laptop Go 3 Operating System: Ubuntu 24.10 Ethernet Interface: via Anker PowerExpand+ USB-C Hub Wireless Interface: Intel Alder Lake-P CNVi (802.11ax)
Router	Vodafone Power Station Wi-Fi 6 Ethernet Ports: 4 × 1 GbE ports Wi-Fi: Dual-band 802.11ax (2.4 GHz / 5 GHz)
Cables	CAT.5E (up to 1 Gbps)

This hardware setup allows us to compare Ethernet versus Wi-Fi performance under a consistent router and cabling environment. In the next section, we detail the evaluation scenarios and the measurement methodology.

3.2 Evaluation Scenarios

4 ANALYSIS AND FINDINGS

4.1 TCP Performance

4.2 UDP Performance

5 CONCLUSION

...

A APPENDIX

...