

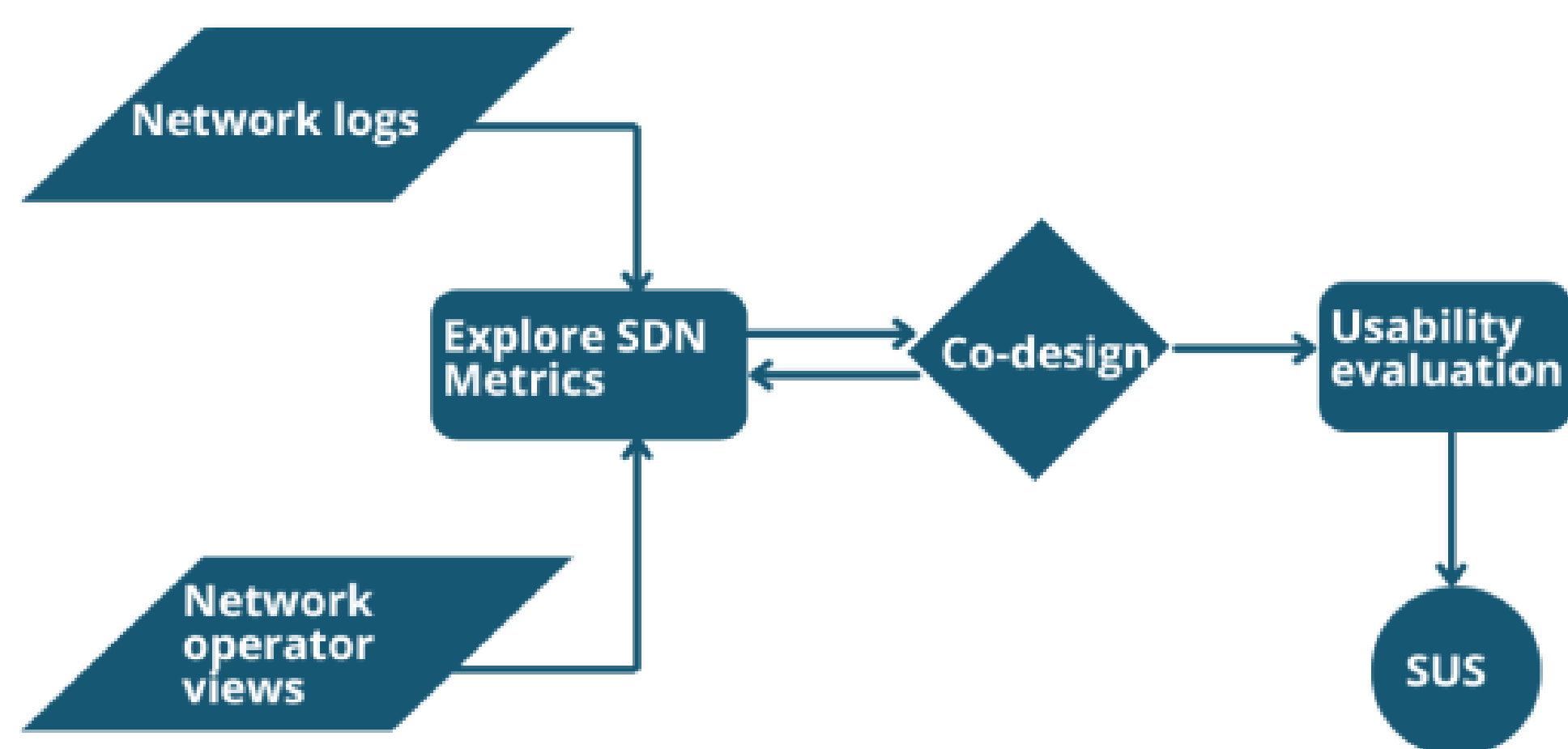
ENHANCING FAULT DETECTION IN SOFTWARE DEFINED NETWORK-BASED COMMUNITY WIRELESS NETWORKS

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INTRODUCTION

Community Wireless Networks (CWNs) face performance challenges due to limited human skill, infrastructure and a lack of customized monitoring tools. Current approaches to addressing performance issues in CWNs have primarily focused on technological enhancements, with little attention given to human factors. In collaboration with community wireless operators in Malawi, South Africa, and Colombia we analyzed network management pain points and co-designed a usable network management interface aimed at improving fault reporting effectiveness. We leverage Software-Defined Networking (SDN) to collect performance metrics with minimal overhead on the network

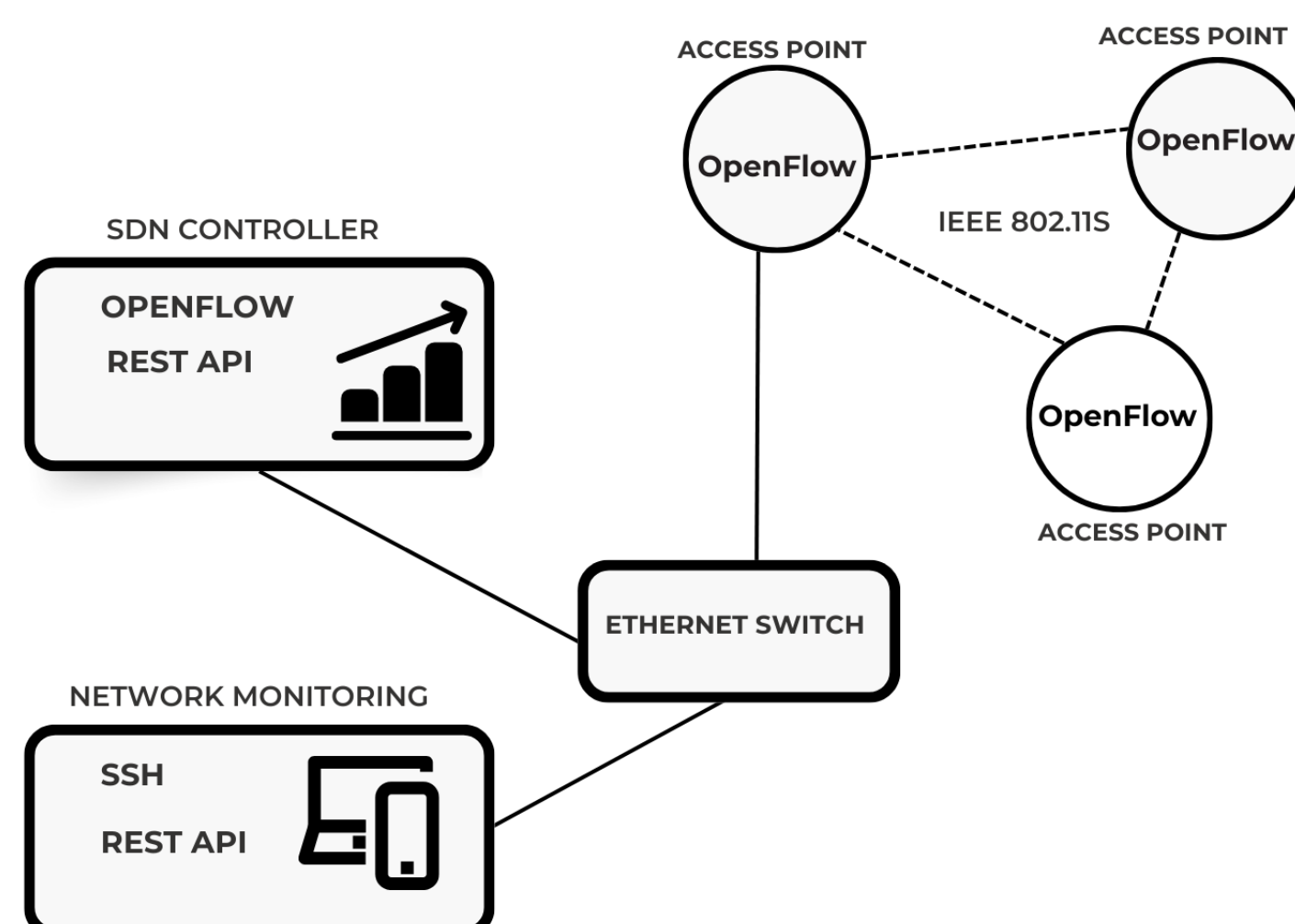
METHODOLOGY



OBJECTIVE

- Explore and visualize SDN controller's metrics for fault detection and performance reporting in CWN
- Evaluate the usability and performance trade offs of a co-designed NMI tool for CWN operators in an SDN architecture

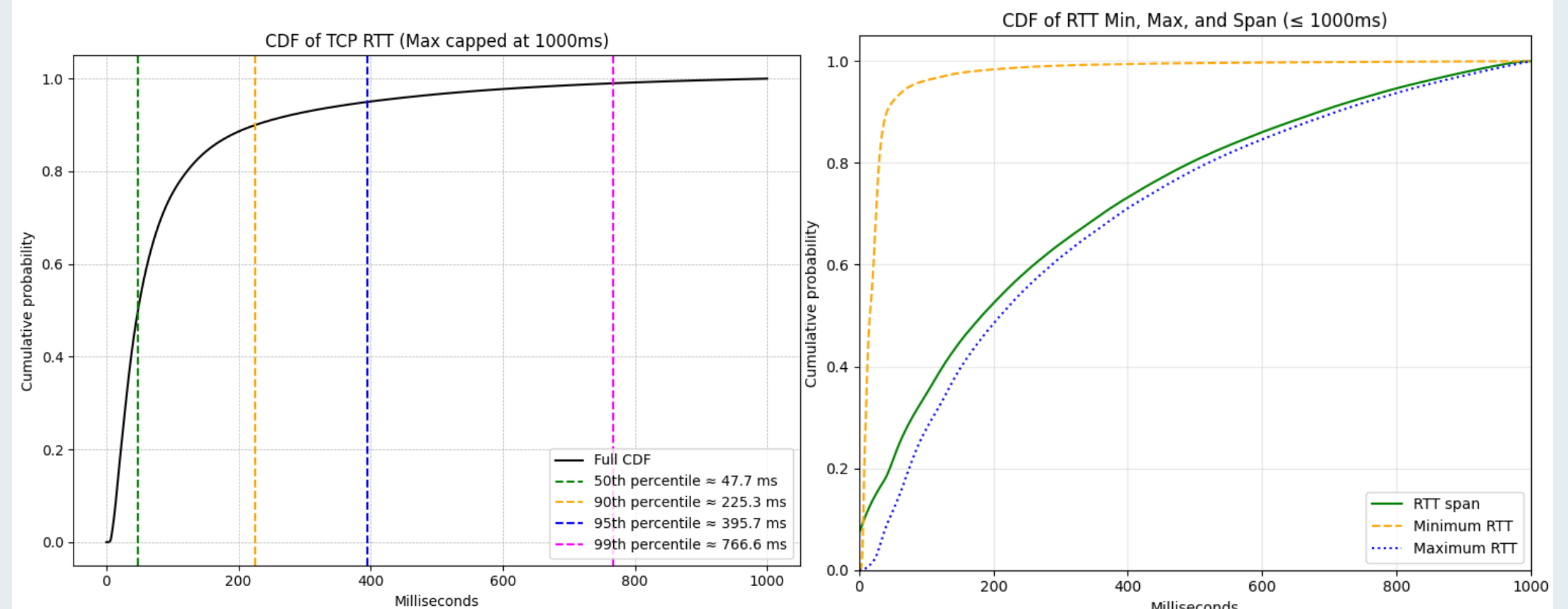
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CONCLUSION

The study explores SDN's global view of network to co-design a usable network monitoring interface to enhance fault detection and performance monitoring in the CWN. Furthermore, the research explores appropriate visual representations that are effective in communicating technical information in an easy-to-understand manner for CWN operators. The usability of the tool is evaluated with the student participants through a series of network monitoring experiments

NETWORK MEASUREMENTS



REFERENCES

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