

INTERFERENCE OF SIMULATED IEEE 802.11 LINKS WITH DIRECTIONAL ANTENNAS

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ABSTRACT

- WiFi-based Long Distance (WiLD) networks have emerged as a promising alternative approach for Internet in rural areas.
- The main hardware components of these networks are commercial off-the-shelf WiFi radios and directional antennas.
- During our experiences with real-world WiLD networks, we encountered that interference among long-distance links is a major issue even with high gain directional antennas.
- In this work, we are providing an in-depth analysis of these interference effects by conducting simulations in ns-3.



EXISTING SYSTEM

- A major problem for rural areas is inaccessibility to affordable broadband Internet connections.
- This may force companies and people into a difficult decision: whether to leave a specific region or stay behind and hope for better connectivity.
- To decrease the costs of broadband in rural regions, various alternatives are evaluated to establish high-bandwidth connections
- WiFi radios are well developed, sold at a decent charge, have a low energy consumption and perform solidly in the license free Industrial, Scientific and Medical (ISM) or Unlicensed National Information Infrastructure (U-NII) band



PROPOSED SYSTEM

- The real-world interference effects, we implemented a module to load radiation pattern of commonly used antennas.
- We analyze two different interference scenarios typically present as a part of larger networks.
- The results show that side-lobes of directional antennas significantly influence the throughput of long-distance WiFi links depending on the orientation.
- This work emphasizes that the usage of simple directional antenna models needs to be considered carefully



SOFTWARE REQUIREMENT

- Ansoft HFSS(High Frequency Structure Stimulator)
- CST

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REFERENCES

- E. Z. Tragos, A. Fragkiadakis, I. Askoxylakis, and Y. a. Siris, "The impact of interference on the performance of a multi-path metropolitan wireless mesh network," Proc. IEEE Symposium on Computers and Commun., pp. 199-204, 2011.
- B. Raman, K. Chebrolu, D. Gokhale, and S. Sen, "On the Feasibility of the Link Abstraction in Wireless Mesh Networks," IEEE/ACM Trans. Netw., vol. 17, no. 2, pp. 528-541, apr 2009.
- S. M. Das, H. Pucha, D. Koutsonikolas, Y. C. Hu, and D. Peroulis, "DMesh: Incorporating practical directional antennas in multichannel wireless mesh networks," IEEE 1. Sel. Areas Commun., vol. 24, no. 11, pp. 2028-2039, 2006

