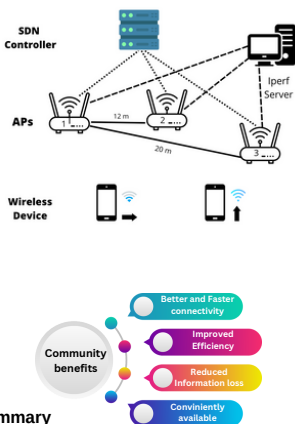


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Abstract

In high density Wi-Fi networks, due to a large number of access points (APs), the handoff mechanism is critical for maintaining service continuity. Wireless devices initiate the handoff process, which takes a few seconds. When working with delay-sensitive applications, this could lead to data loss. We propose an efficient, detection and discovery technique (DeRy) based on software defined networking (SDN) to reduce the handoff times. The AP traffic and signal strength values are reported to the SDN controller through received signal strength indicator (RSSI) manager and simple network management protocol (SNMP) manager. Decisions, such as, when to initiate the handoff (detection time) and which AP to connect to (discovery time) are taken by the SDN controller. Extensive simulation runs are carried on the Mininet-NS3-Wi-Fi network simulator for the performance evaluation of DeRy. The proposed scheme reduces the handoff times by 60-70% when compared to the traditional Wi-Fi network scheme.

Methodology



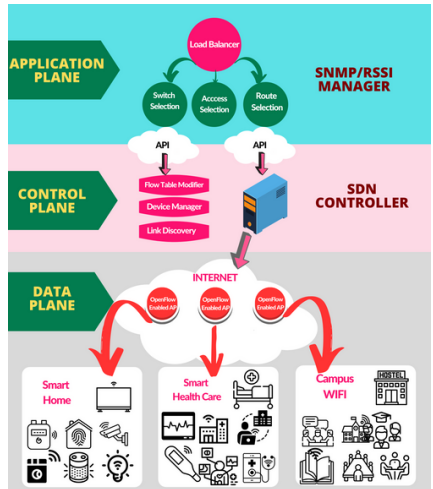
Summary

In this project, DeRy is proposed to reduce the handoff delays. The handoff procedure in a traditional Wi-Fi is started by the wireless devices itself, which makes it vendor specific. DeRy seeks to use a centralized SDN controller to regulate the detection phase (when the handoff is initiated) and discovery phase (which AP to re-link with), resulting in reduced handoff times. When compared to the traditional Wi-Fi networks, DeRy reduces handoff times by 60% to 70%, resulting in improved communication and less packet loss. Instead of using a single selection parameter, such as RSSI, as in standard Wi-Fi networks, the DeRy considers both RSSI and AP traffic factors for choosing the best destination AP. Considering multiple connections, the proposed DeRy is far better than the traditional Wi-Fi networks in terms of handoff times. We hope to study the performance evaluation of DeRy by considering metrics like throughput rate and packet loss rate while choosing the destination AP in near future.

Objective

This project proposes a DeRy approach based on SDN to improve the overall network management in terms of handoff times. The centralized controller collects the information of APs with the help of SNMP manager and RSSI manager. The association/dissociation decisions are made by the SDN controller. The controller then determines when to begin the handoff (detection phase) and re-associate the wireless device to the best available AP (discovery phase). Our solution brings innovation in three ways. Traditional networks use only one metric for handoff decisions, i.e., RSSI, creating hotspots in the Wi-Fi network. We propose a multi-criterion technique utilizing RSSI and traffic load on the APs. The second component of this study is that it considers both client and AP side information when reducing the handoff time, as opposed to earlier studies that only consider client side or AP-side information separately. Finally, the proposed approach demands no hardware modifications, it can work on any wireless device supporting the OpenFlow standards.

Applications



Future Recommendation

- Can be install in any place having alot of WiFi users such as Homes, Shopping malls, Airports, Hospitals, Universities, as it compatible with already present WiFi network structure. so new need to built new infrastructure for it.