

Enhancing Observability and Reliability in Wireless Networks with Service Mesh Technologies

Sachin Singh

Independent Researcher

Orcid ID :0009-0004-9477-7175

sachinsingh11@outlook.com

Abstract: *In the ever-changing evolution of wireless networks, it is always challenging to maintain the reliability of the networks and also its ability to support important applications. This paper examines the possibility of using service mesh technologies such as Istio and Linkerd to handle these challenges by improving media resilience and observability. Service meshes add a strong fundamental layer that aids in the communication between services and can include services such as load balancing, service discovery, traffic management and failure containment. Metrics, logs, and traces help reduce network traffic, are crucial for real-time decision-making and compensate for wireless intricacies such as signal fading or mobility as well as power limitations. This research introduces a fresh approach to utilizing service mesh solutions for enhancing and strengthening wireless networks, providing a much-needed guide on the effectiveness of these tools in contemporary network settings.*

Keywords: Service Mesh, Wireless Networks, Reliability, Observability, Linkerd, Security