



Cybersecurity Research Proposal

*Securing the Wireless Network Architecture for an Airline Industry
that is Resilient to Denial-of-Service Attacks*



DoS Attack



What is DoS attack ?

A DoS attack on a wireless network is a type of cyberattack that aims to disrupt or disable the network's ability to provide services to its users. DoS attacks can be carried out in a number of ways, but they all share the same goal of overwhelming the network with traffic or exploiting vulnerabilities in the network's protocols.

Signs of DoS attack



- Slow performance and degradation
- Network disconnection
- Outages
- Alerts from Security system

Importance of Securing Wireless Network

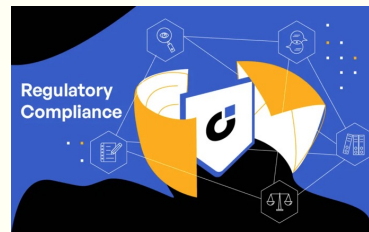
Airline Business Operations



Financial loss



Regulatory compliance



Safety for passenger and crew



Customer satisfaction



Research Question?



Which existing methodologies and strategies have been found to be most effective in securing the Wireless network for Airline industry against DoS attack





AIMS AND OBJECTIVE

Aims and Objective



This study will aim at determining the different techniques that may be employed in securing the wireless network from DoS attack.

Key Literature Review

- **Aviation Cyber Security:** A Risk Assessment and Management Framework by the International Civil Aviation Organization (ICAO) (2020)
- **Cybersecurity in the Aviation Industry:** A Comprehensive Review by the National Academies of Sciences, Engineering, and Medicine (2019)
- **Wireless Network Security in the Airline Industry:** A Survey of Current Practices and Challenges by the IEEE Communications Magazine (2018)
- **Securing Wireless Networks in the Airline Industry:** Best Practices and Recommendations by the Air Transport Association (ATA) (2017)
- **A Zero-Trust Approach** to Wireless Network Security in the Airline Industry by the SANS Institute (2022)

Effect of DoS attack

Disruption of operations

Financial losses

Damage to reputation

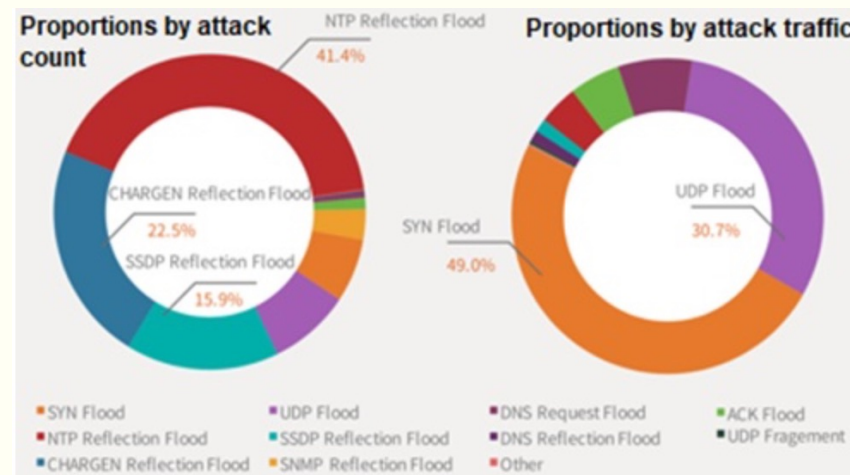
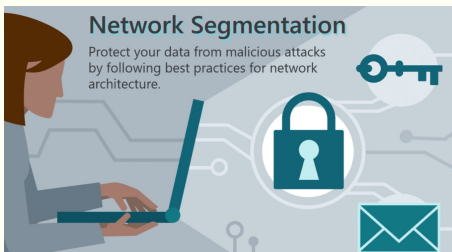


Figure 1

Existing Strategies

Network segmentation



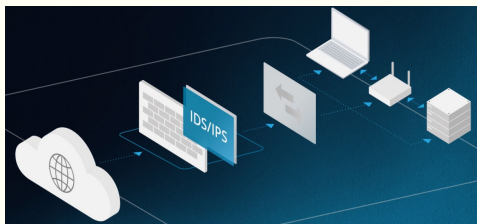
Strong authentication and encryption



Regular security assessments



Firewalls and intrusion detection



Access control



Methodology

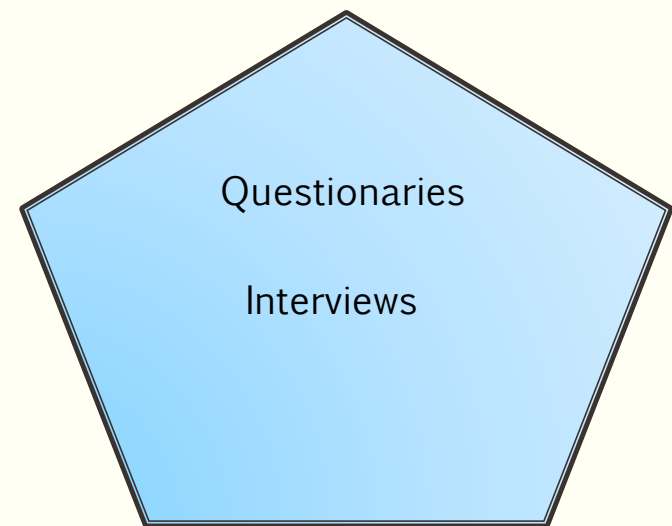


Peer reviewed journal

Existing Strategies

Regulatory compliances

Methodology

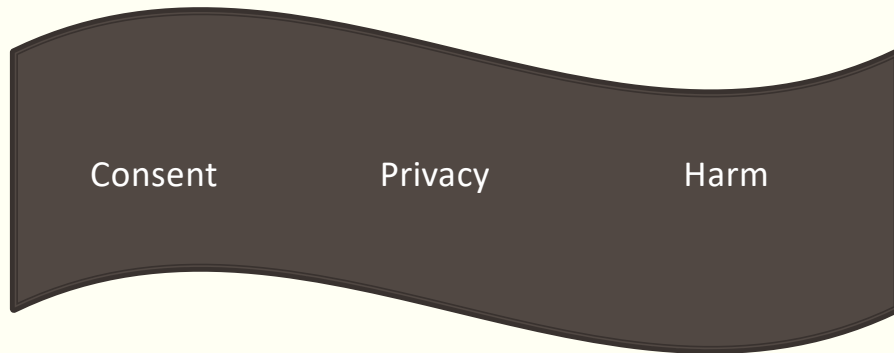


Data Analysis

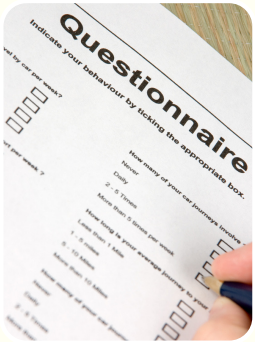


- Measure the prevalence of DoS attacks
- Identify the factors that contribute to DoS attacks on wireless networks
- Test the effectiveness of DoS attack mitigation techniques on wireless networks
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- Make predictions about future DoS attacks on wireless networks

Ethical consideration and Risk assessment



Artefacts



Questionnaires



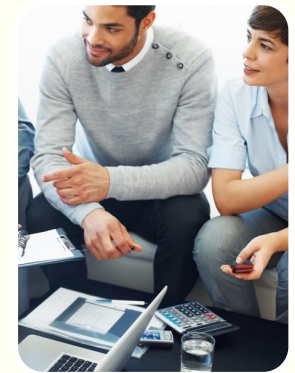
Interviews



Interview transcript



Recommendation report



Discussions & Presentation

Timeline

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References

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Q & A
