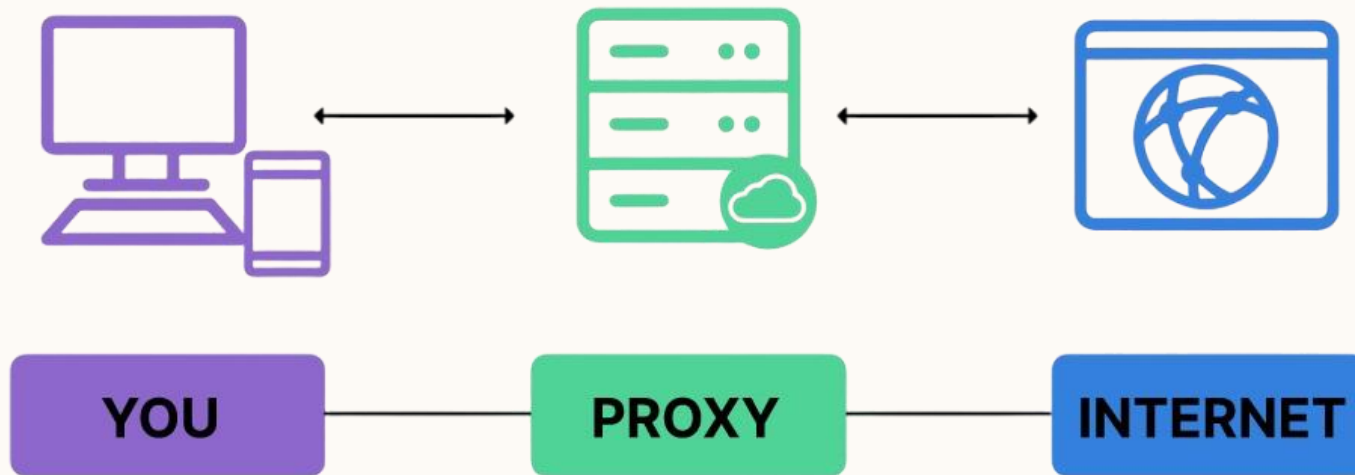


# **ANALYSIS AND REVIEW OF THE RESIDENTIAL PROXY ECOSYSTEM**

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# INTRODUCTION



- Residential Proxies- A service wherein a web server acts as an intermediate of traffic between a client and a web server
- As these proxies are seeing a steep increase in use, a knowledge gap surrounding their usage is being formed
- This presentation/research aims to discuss the criteria to pick and provide a good proxy. Ultimately helping both users and providers.

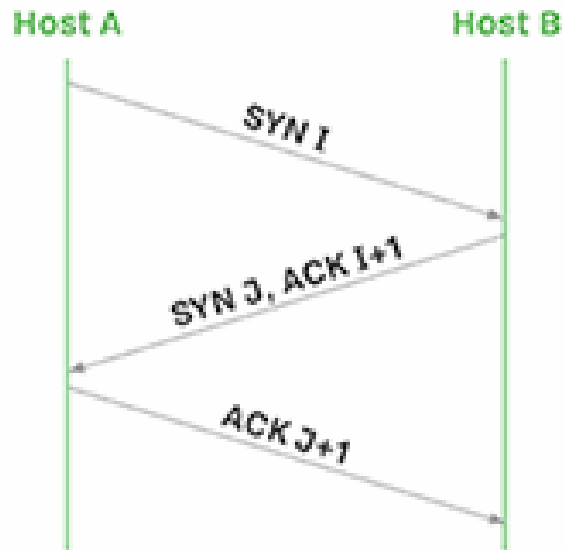
# METHODOLOGY



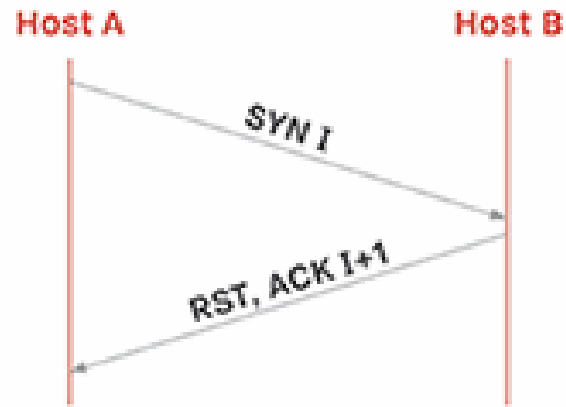
- The paper aims to study three criteria to evaluate Vulnerabilities, Privacy Risks, and Ethical Implications associated with Residential Proxies
- To achieve this, a Standard Literature Review Methodology has been followed for all three of the criteria
- Additionally, a set of tests have been run to determine the vulnerabilities that a residential proxy may have. The findings are then consolidated into a tabular format, where necessary and optional checks have been advised

# DISCUSSION-VULNERABILITIES

## OPEN PORT



## CLOSED PORT



- The Vulnerabilities of Residential Proxies are determined as per their evaluation on renowned IP Database. [1][2][3]
- A high quality residential proxy evades detection on such databases and maintains a low spam score.[4][5]
- Hence it's imperative an IP address passes the vulnerability check, as it impacts both its security and effectiveness.

# DISCUSSION-VULNERABILITIES

Port and Service	Special Requests	Whois Records	Detected as Proxy	Detected Non Resi	Detected as Spam
			✓	✓	✓
✓			✓	✓	
	✓		✓	✓	✓
		✓	✓		✓
✓	✓			✓	
	✓	✓	✓		✓
✓		✓	✓		✓
✓	✓	✓			

The factors found to be affecting Residential Proxy vulnerability and detectability:

1. Port and Service Scans: Proxies need a dedicated port to proxy communication. It is found that a Proxy with closed/filtered ports pass the check as DB are unable to determine if a proxy service is running.
2. Special Requests- IP database services often send special requests to fingerprint the host device of an IP or in this case a proxy. It is crucial to drop all unauthenticated requests.[6][7]
3. Whois Records- Proxy IP Addresses registered under a residential org with an RIR, enhance vulnerability score.[8][9][10][11][12]

# DISCUSSION-PRIVACY RISKS



## Resi Proxies Vs. VPNs

- Residential Proxies- mostly utilize the light proxy protocols like http and socks. And are hence used at scale by businesses to gather public web-data.
- VPNs use resource intensive tunnelling protocols that offer encryption on top of internet anonymity, and are hence more suited for personal use.
- This comparison makes it clear that Residential Proxies are a service meant to collect already public web data, and should not be used for sensitive personal information.

# DISCUSSION-ETHICAL IMPLICATIONS



This research finds three main Ethical Implications surrounding residential proxies:

- **Consent:** a Residential Proxy Provider must first seek consent from a Residential IP owner to distribute their IP as a Residential Proxy. This has been extensively enforced in the industry using an EULA.[\[14\]](#)
- **Distribution:** Acquired Residential Proxies must only be distributed by providers to client after due KYC process and vetting of use case.[\[15\]](#)
- **Usage:** A residential proxy user must adhere to scientific scraping practices.[\[16\]](#)

# CONCLUSION

The paper offers a comprehensive literature analysis of the vulnerabilities, privacy risks, and ethical implications associated with residential proxies(a powerful web data tool)

1. Three Vulnerability checks have been tested for and are advised to be undertaken for a Residential Proxy, namely-

- Port and Service Scans- Must filter all open ports in order to ensure both undetectability and security of network.
- Special Requests- should be dropped In order to ensure undetectability of network.
- Whois Records- must point to a residential ISP as registrations records may at times be used to detect a proxy.

2. Privacy

- Residential Proxies are strictly to be used for public information gathering, and not for sensitive private information.

3. Ethical Implications

- Providers must follow the standard industry practice of:
  - a. Seeking clear consent from Resi IP owners
  - b. KYC and Use-case based distribution system
- Users must follow ethical and scientific scraping practices including but not limited to proxy rotators, robot file configurators, and fingerprinting.



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**THANK  
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