



A Review of Dark Web: Trends and Future Directions

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INTRODUCTION

- The dark web is any form of network or content that requires special software to access that is created and managed to ensure the anonymity of the user
- The effort takes a dive into the skeleton of what constructs the dark web by compiling the research of published essays
- In this research, it intends to utilize systematic survey of different papers of Dark Web and project analysis to participate in the network and evaluate the trend on dark web

RESEARCH METHODOLOGY

- The main purpose of the systematic review is to identify, study, and investigate the suitable existing approaches
- Started with a “Search Process” to identify potential research papers from the scientific databases using pre-selected search keywords or strings including “Dark Web” and “Cybersecurity”
- Among various scientific databases, (i) IEEE Xplore (ii) ScienceDirect and (iii) Springer Link mentioned in Table I was used including bibliographic databases

TABLE I
GENERALIZED TABLE FOR SEARCH CRITERIA

Scientific Database	Initial Search	Total Inclusion
IEEE Xplore	49	8
ScienceDirect	112	6
Springer Link	35	3
ACM	15	0
Total	211	32

RESEARCH REVIEW

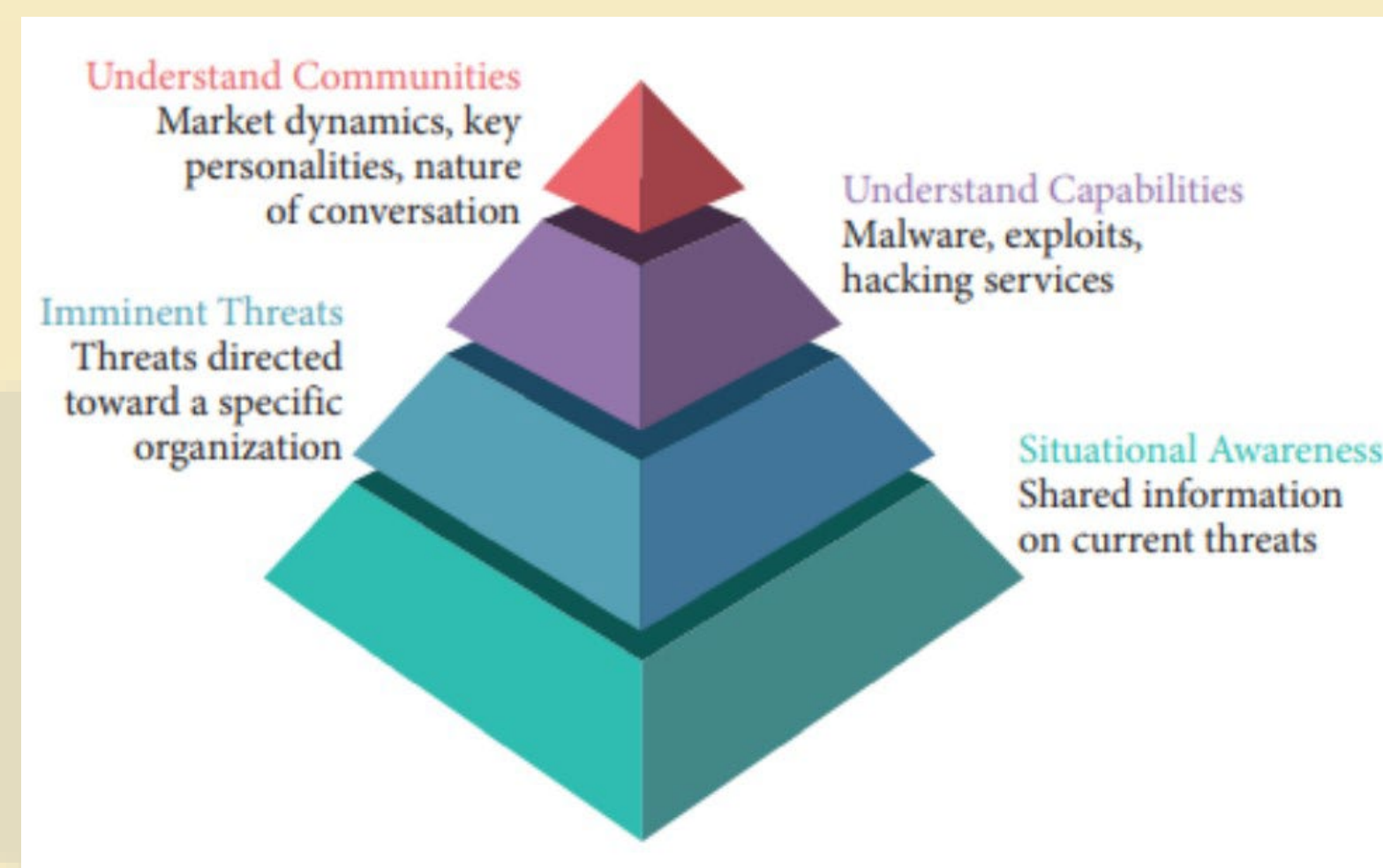


Fig. 1: Represents The tiers of Cyber threat intelligence

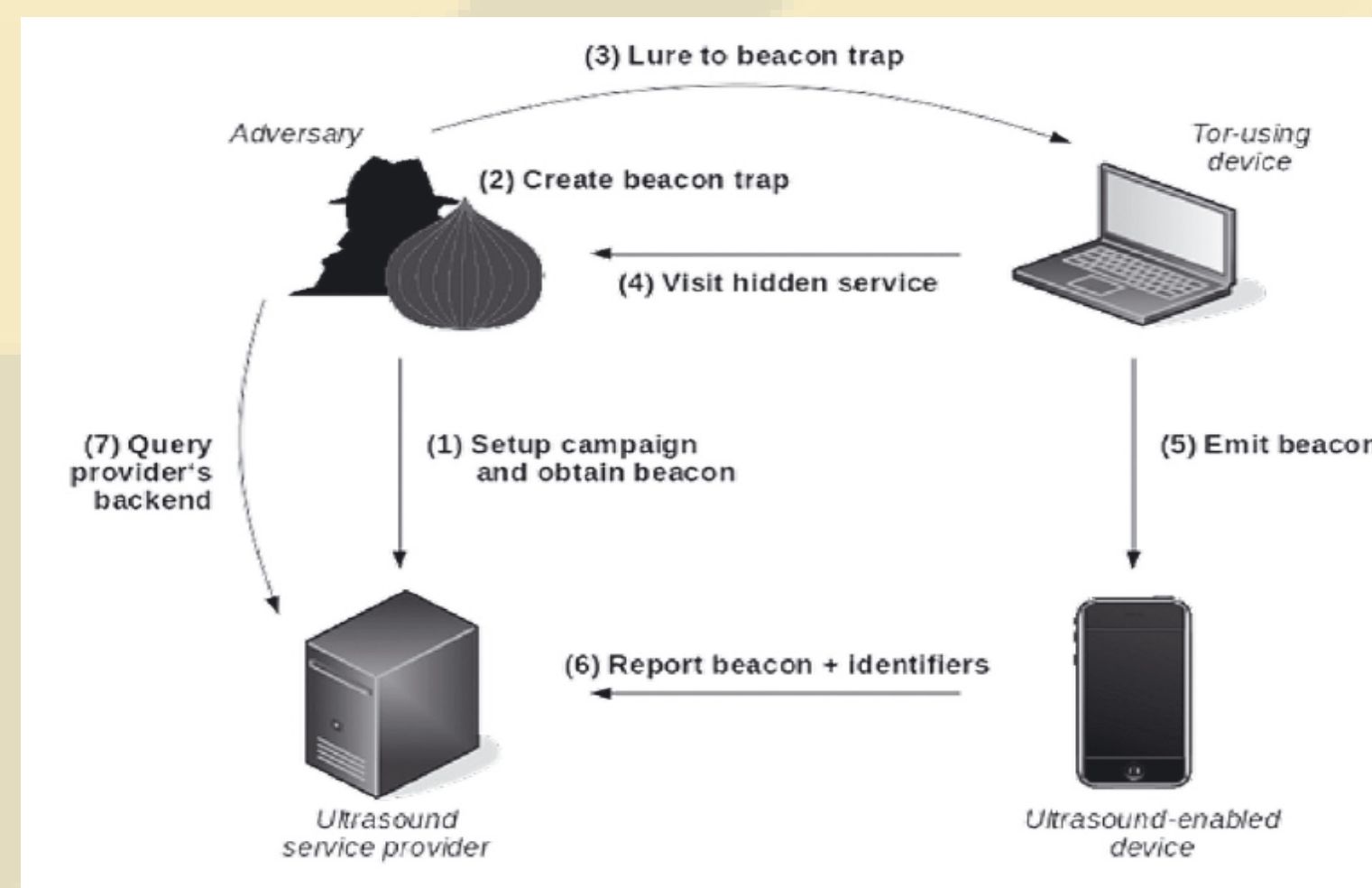


Fig. 2: Ultrasound Tracking Based Attack Scheme To De-anonymize TOR Users

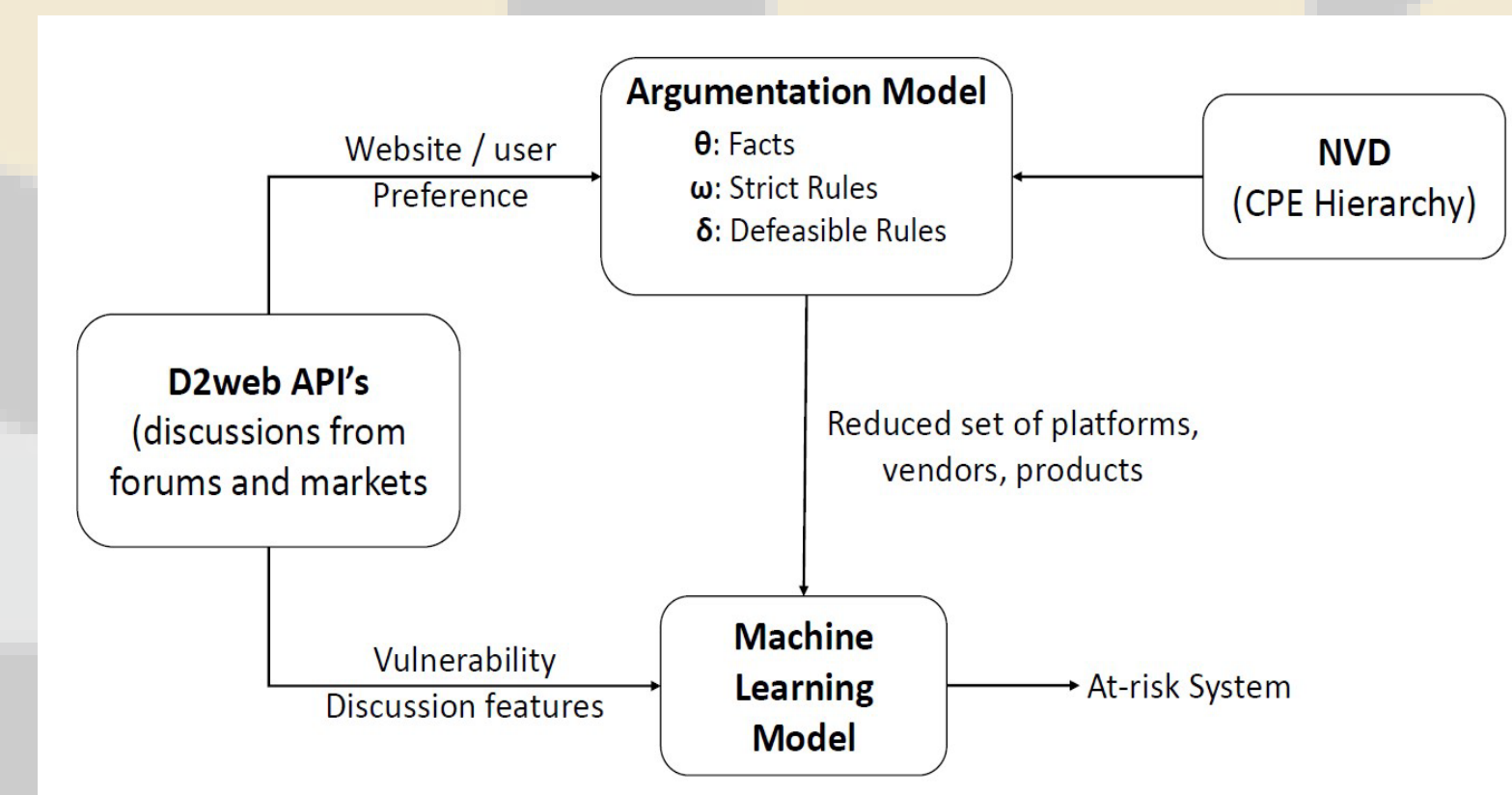


Fig. 3: Overview of the reasoning system

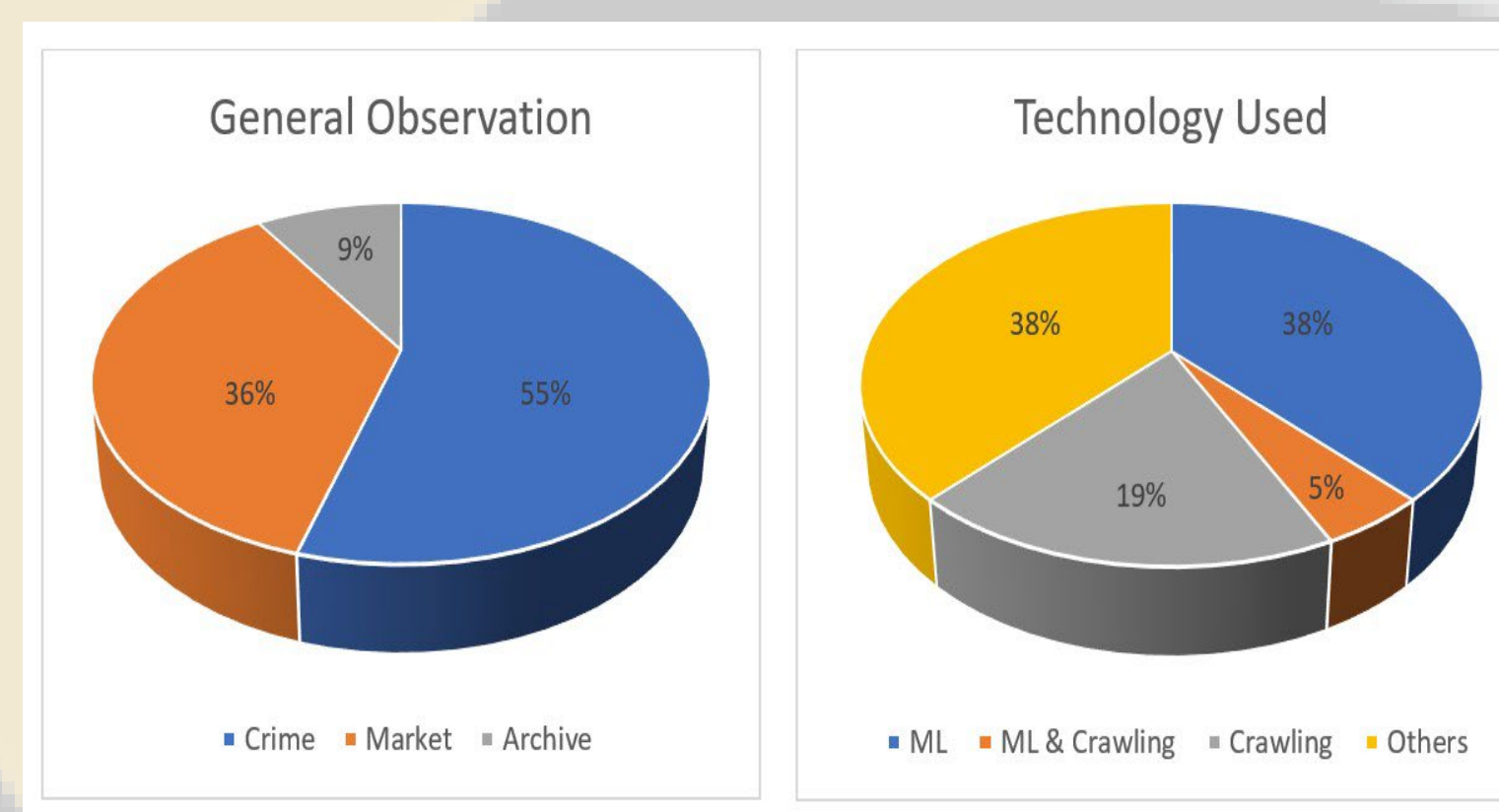


Fig. 4: Statistics of Dark Web Surveyed Papers

- A total of 32 papers related to dark web was surveyed and after reviewing the researcher classified the papers as General Observation on Dark Web and Different Technology used in this Dark Web given in fig 4.
- The general observation on dark web papers were related to criminal activities and related dark web market where different illegal activities were highlighted
- The different technology used on dark web were related to different Machine learning (ML) techniques, fingerprinting, crawling techniques (Fig 1,2&3) and other techniques like VSM Technology, RBS concept, APT logic, Lexicon keys related to improvised explosive device (IED) used by the terrorist organizations, CAPTCHA breakers, Penetration testing, and Vulnerability Assessment.



DISCUSSION

- This research has allowed to skim the surface of the vast contents of the dark web
- Exploring changed data and questions on reliability with new technology evolving, the methods used to scrap and search these forums with archived pages can be improved with new forms of machine learnings
- The next steps can be continued development and adapting to the changes with different techniques discussed can be ideal to investigate further insights on the Dark web

CONCLUSIONS

- The purpose is to protect the system from various kinds or keeping internet activity anonymous and private, which can be helpful in both legal and illegal applications
- This research findings can be the key in the progression for future techniques and technology in order to understand the dark web and shut down the illegal operations that inhabit it

REFERENCE CITED

[1] Shahriar Sobhan, Timothy Williams, Juan Rodriguez, Masrura Tasnim, Md Jobair Hossain Faruk, Edwin Mathew, Jack Wright & Hossain Shahriar (2022). “A Review of Dark Web: Trends and Future Directions”. IEEE COMPSAC STPSA -2022

ACKNOWLEDGEMENT

