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THE ART OF POSSIBLE

SESSION ID: PART4-W02

AI-Equipped Threat Actors vs. AI-Enhanced Cyber Tools: Who Wins?

#RSAC

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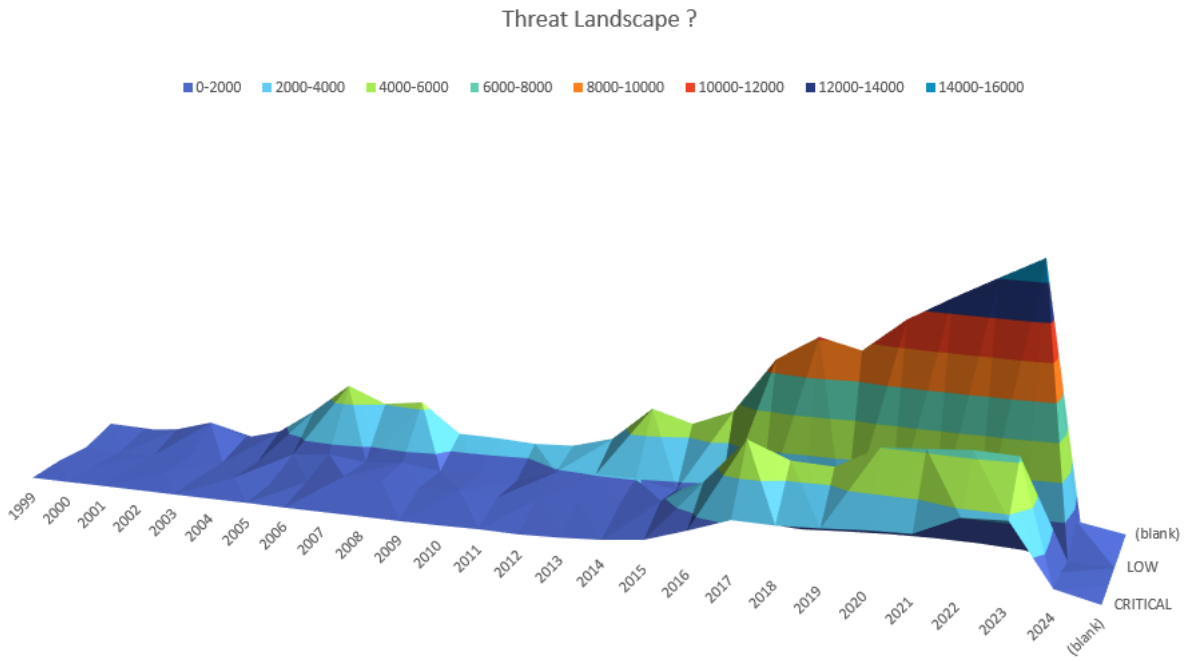
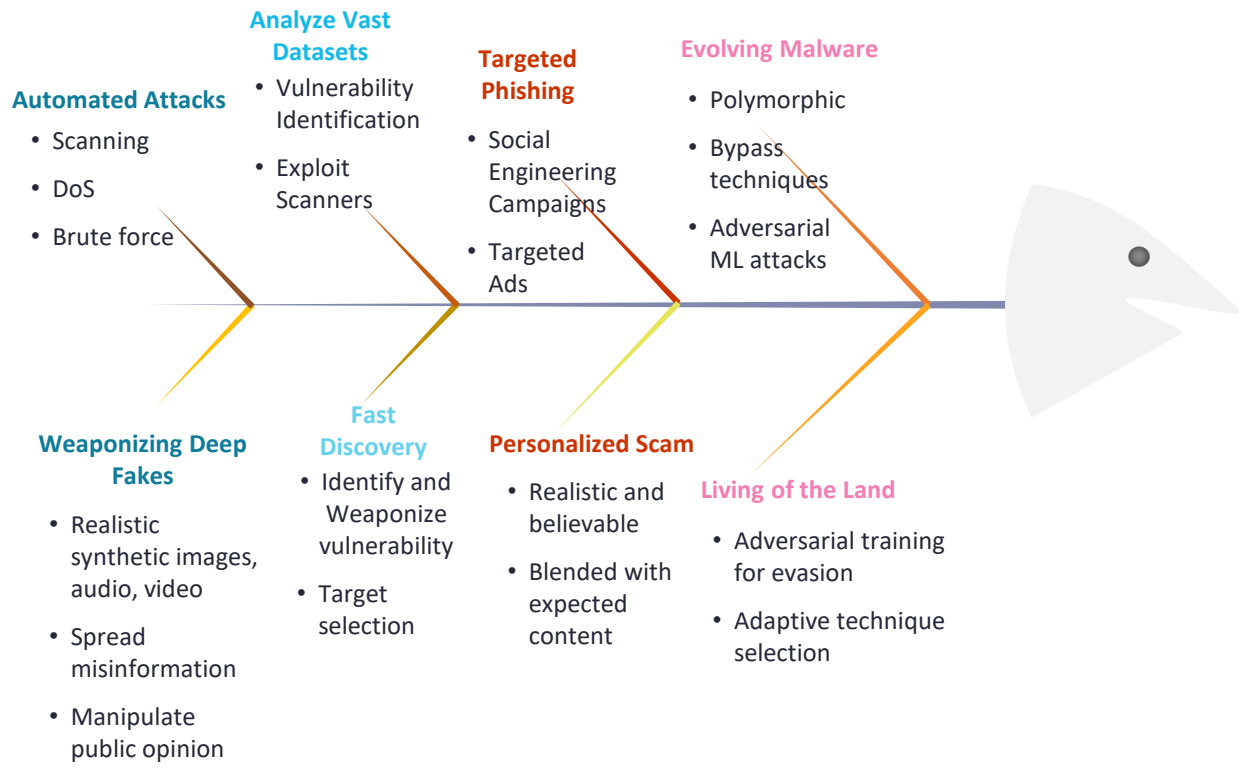
Agenda

- AI-Powered Threat Landscape
- Surge in Novel Cyberattacks
- Predictive Approaches to Defense
- Observed Outcomes
- Key Takeaways

Facing the AI-Powered Threat Landscape

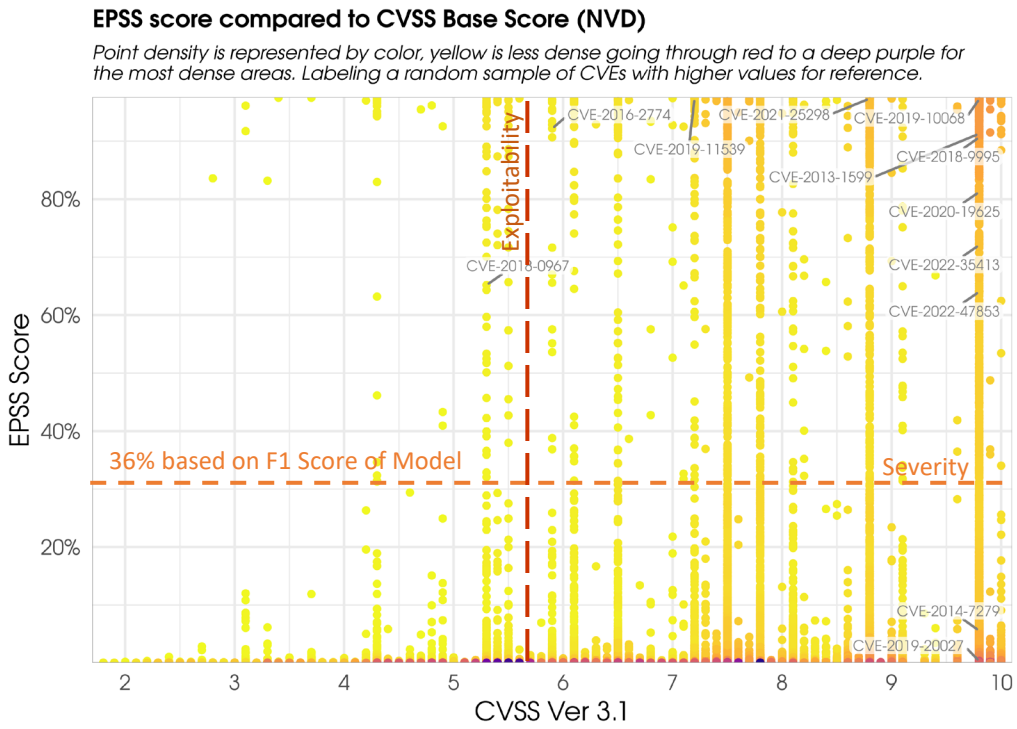




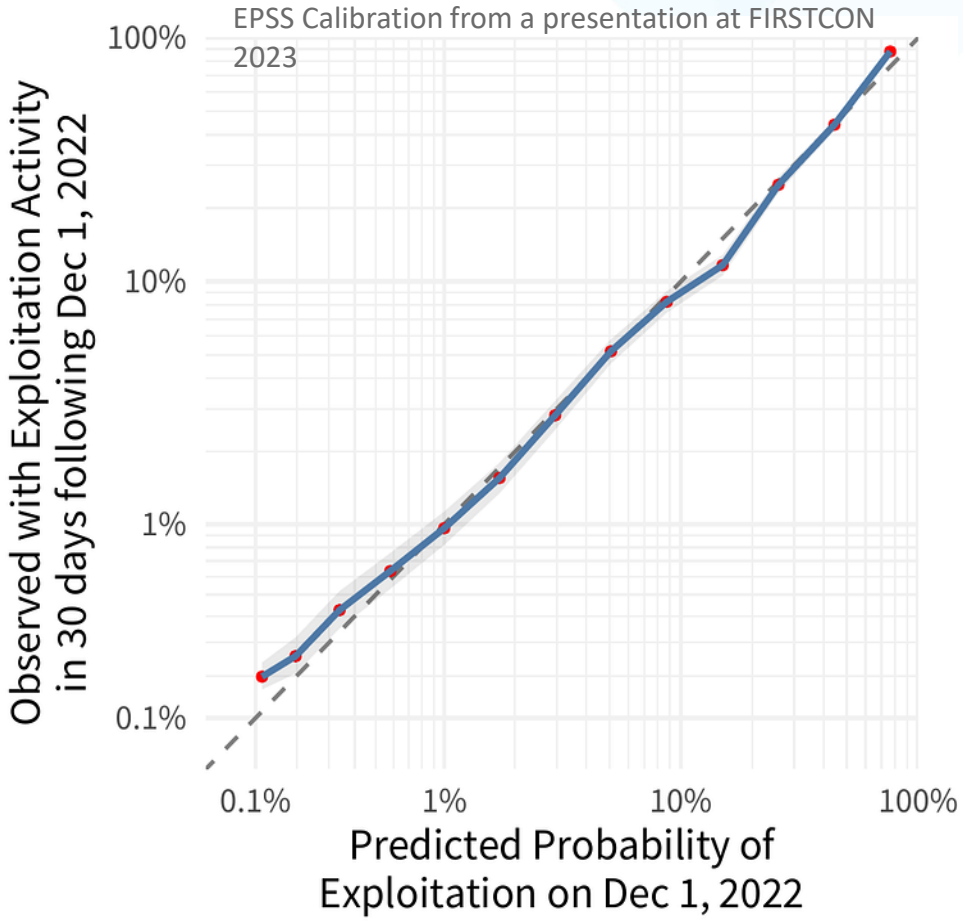
BlackBerry CYLANCE

Discovery - Exploit Prediction

- EPSS predicts probability of a CVE being exploited in 30 days.
- Augment EPSS output with environment specific attributes to prioritize

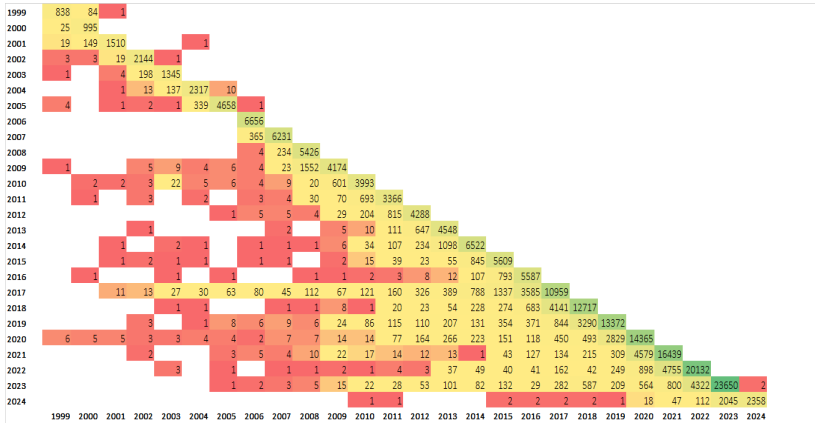


Source: https://first.org/epss/data_stats, 2024-02-28

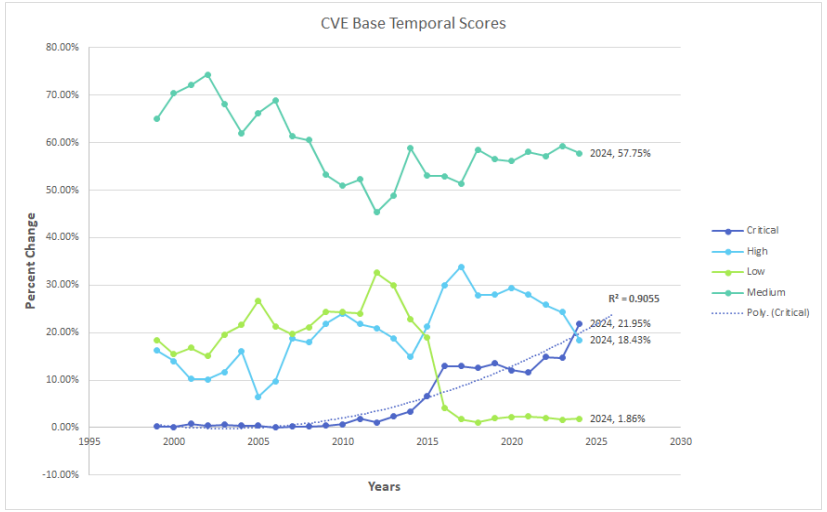


BlackBerry CYLANCE

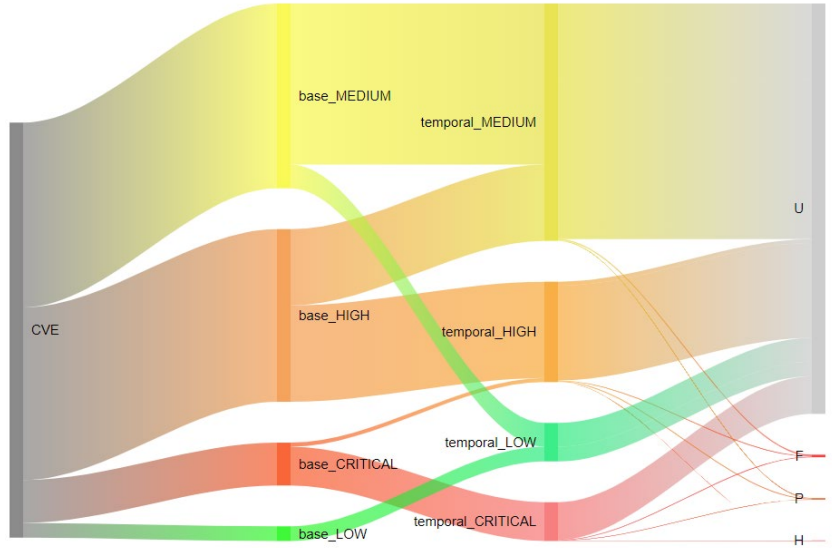
Analysis and Prioritization



Disparity between CVE year and publication year



CVE Base Temporal Score as rate over time



CVE -> CVSS Score -> Exploit Probability Score

Defensive

- Understand vulnerability and exposure to manage
- Threat zero mitigations

- Threat Zero protect first
- Correlate EPSS Predictive score to Inventory

- Cluster cisa_kev, metasploit, epss, nuclei, poc_github and prioritize Functional , PoC, High
- Reduce noise to better focus

Offensive

- Time to identify and exploit vulnerability
- target profile discovery org->product->vulnerability

- Richer threat landscape more targets
- EPSS to discover exploitable vulnerability

- No obvious course

BlackBerry CYLANCE

AI & Generative AI as a Force Multiplier

Leveraging AI and Gen-AI models

Defensive

Data Analysis & Synthesis

- Find & Fix vuln. and mis-configurations
- Correlate Security events
- Reveal probabilities of attack paths

Content Generation

- Generate code
- Make code more secure
- Generate Blue Team Tests

Automation & Augmentation

- Automate Incident response
- Generate and prioritize patch
- Summarize malicious code

Offensive

- Find and exploit vulnerability and configurations
- Locate attack surfaces and exploit
- Generate Novel Malware
- Create better phishing emails
- Modify malware to evade detections
- Automate low effort disruption attacks
- Offer Phishing and Malware-As-Service

Securing AI and Gen-AI Models

Model Development

Secure development environment and OSS/Vendor Supply chain

Model Deployment & Integrity

Secure Runtime environment
Apply Least privilege OWASP top 10

Data Privacy

Differential Privacy and De-identification with Encryption

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BLACKBERRY **STOPPED 3.3 MILLION** CYBERATTACKS .

~26 ATTACKS EVERY MIN.

70% INCREASE FROM PREVIOUS REPORTING PERIOD

2.9 NEW UNIQUE MALWARE SAMPLES PER MINUTE.

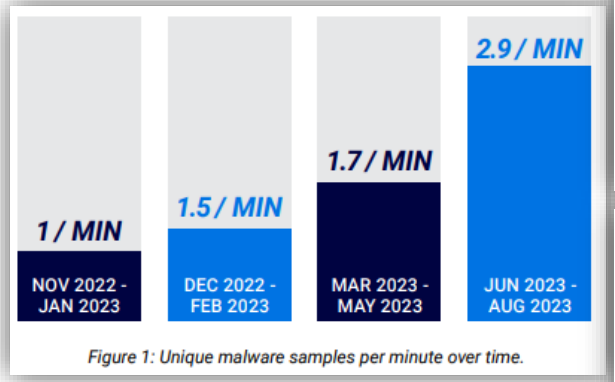


Figure 1: Unique malware samples per minute over time.

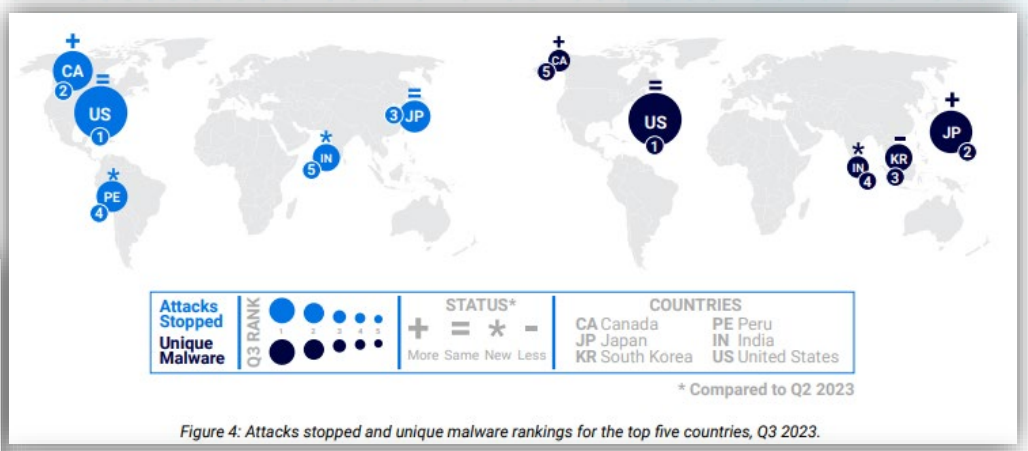


Figure 4: Attacks stopped and unique malware rankings for the top five countries, Q3 2023.

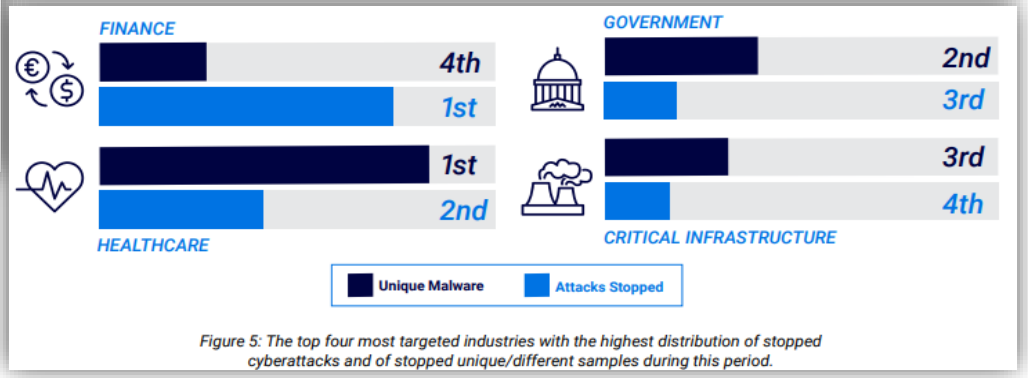
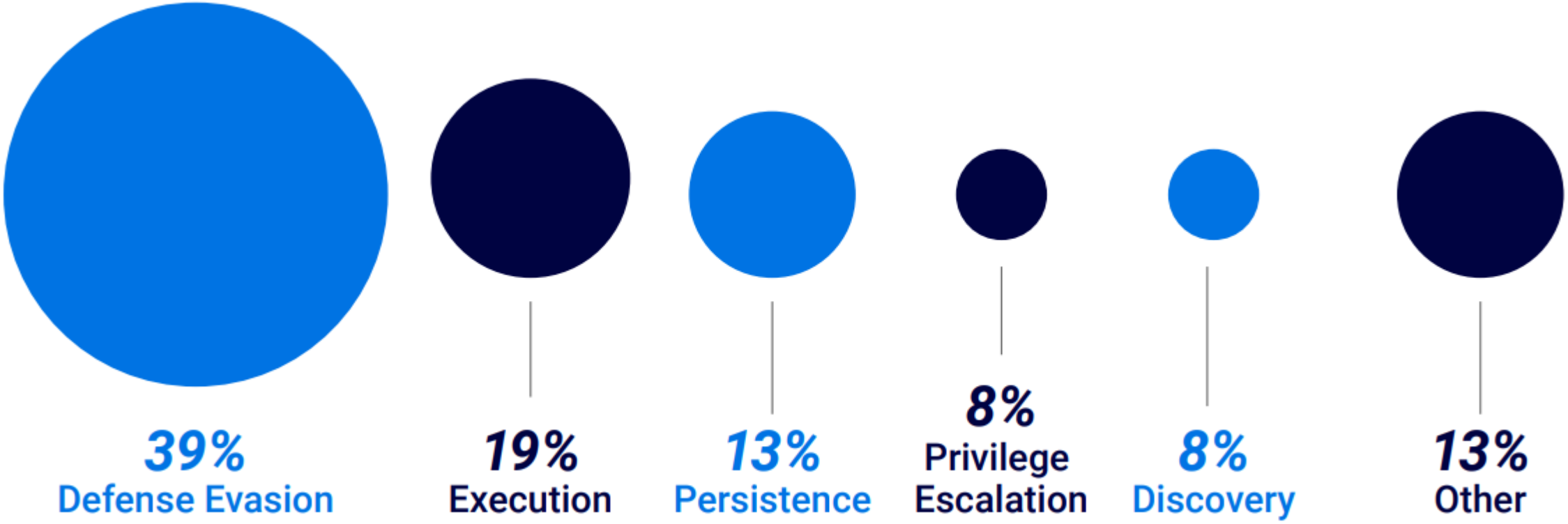


Figure 5: The top four most targeted industries with the highest distribution of stopped cyberattacks and of stopped unique/different samples during this period.

BlackBerry CTI Report – Nov 2023

From Traditional Threats to AI-Driven Attacks

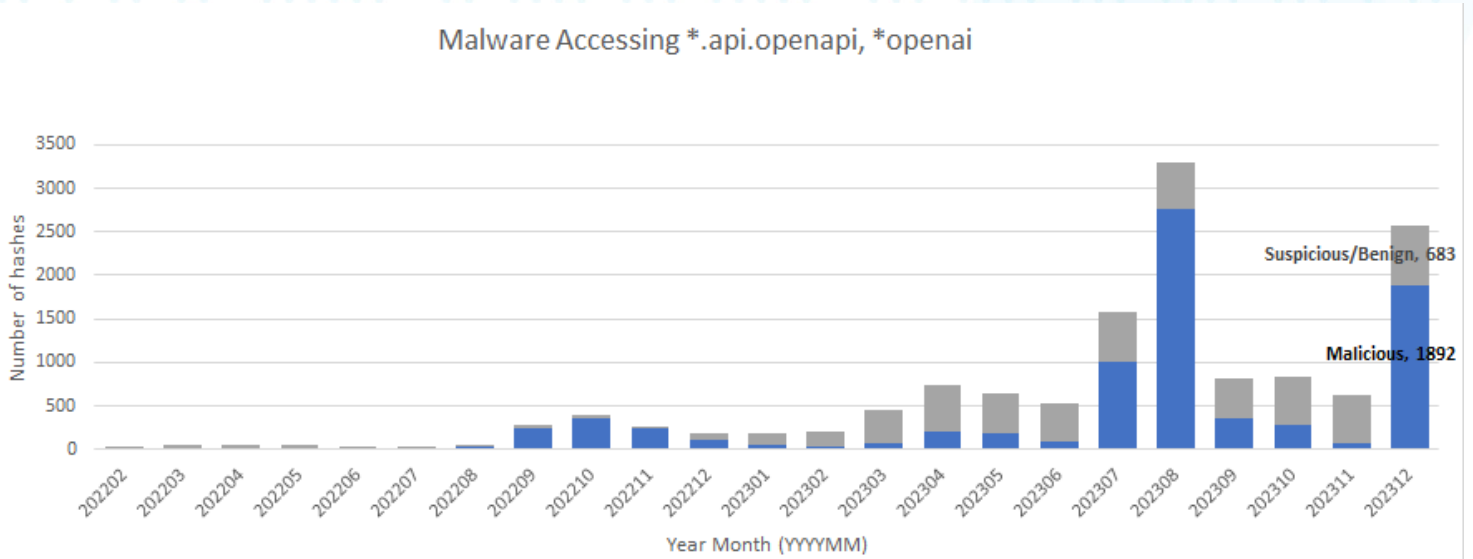
Shift from Traditional cyber threats to AI-assisted ? attacks, highlighting the most prevalent portion to be defense evasion.

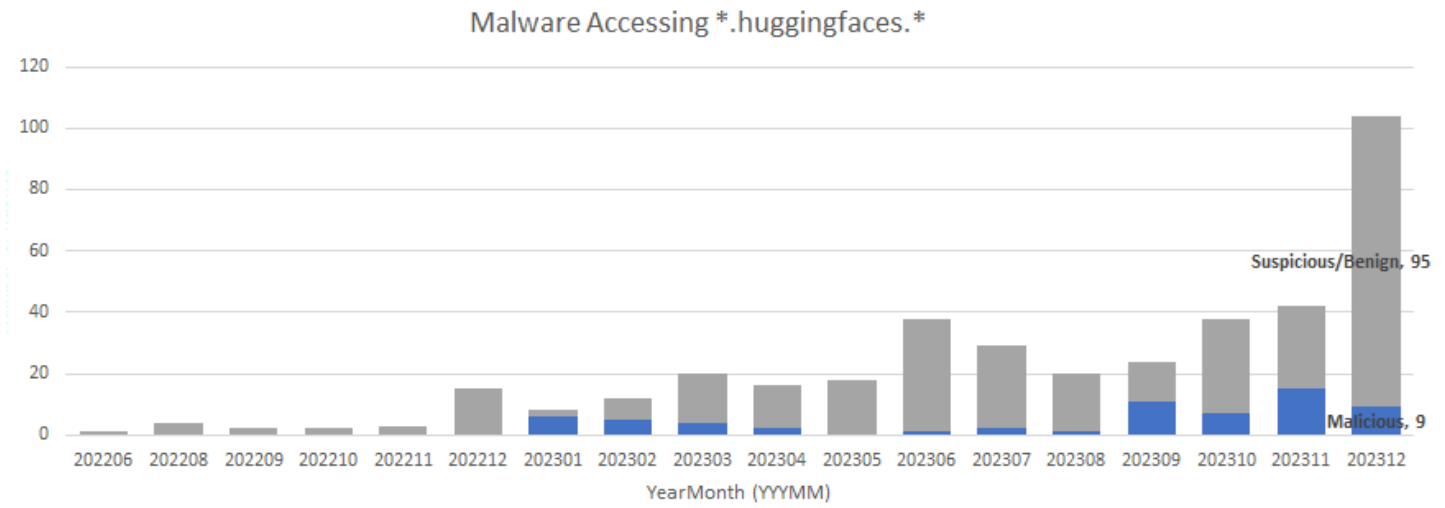


Tactics From BlackBerry CTI Report – Nov 2023

Observations from Prevalence Data

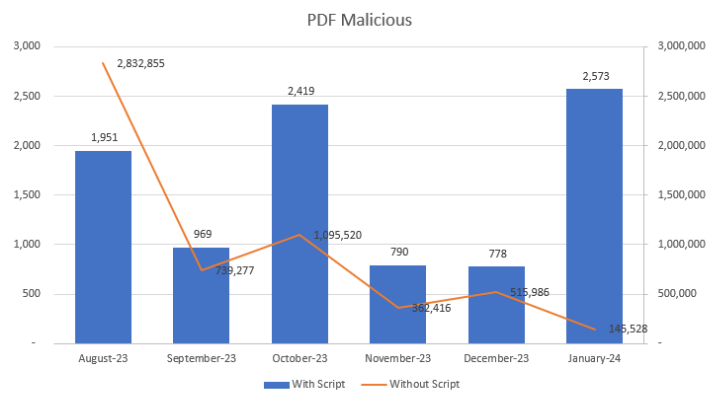
- Malware ML model convicts that touch OpenAI API
- Malware our models convict that are using hugging face site

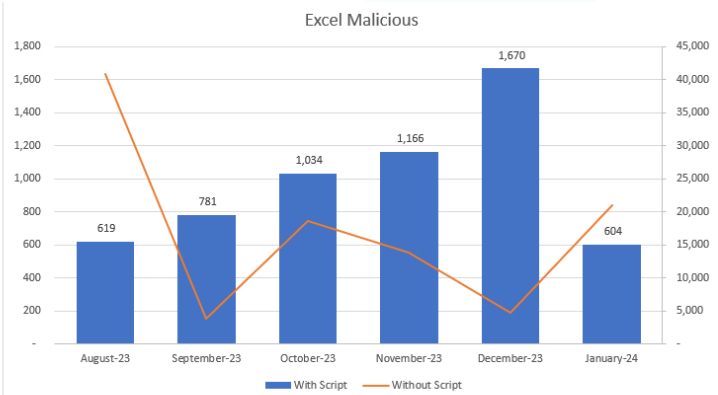


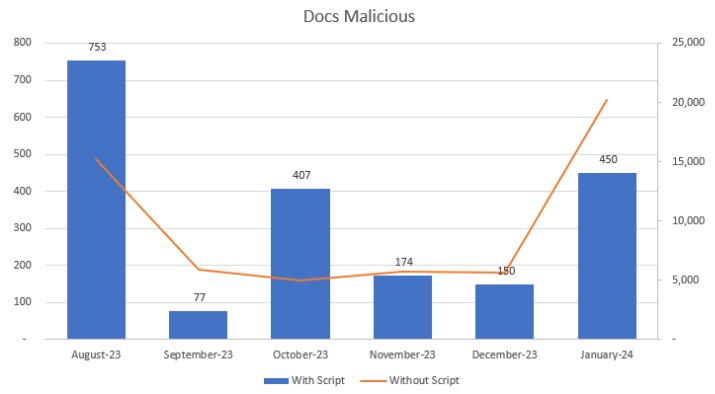


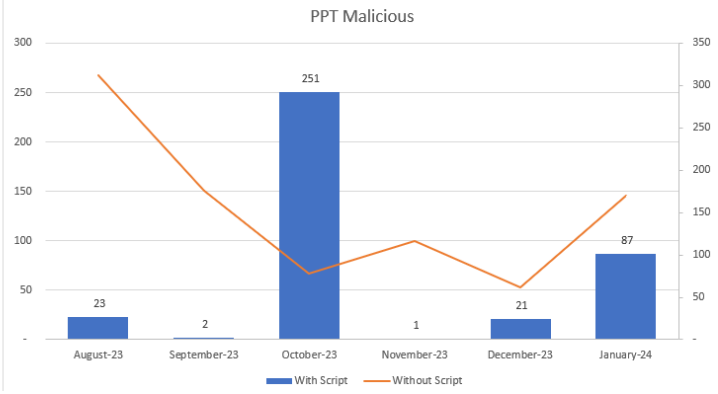
Observations from Prevalence Data

- Malicious document files that ML Model convicts
- Doc files exhibit maliciousness without embedded scripts



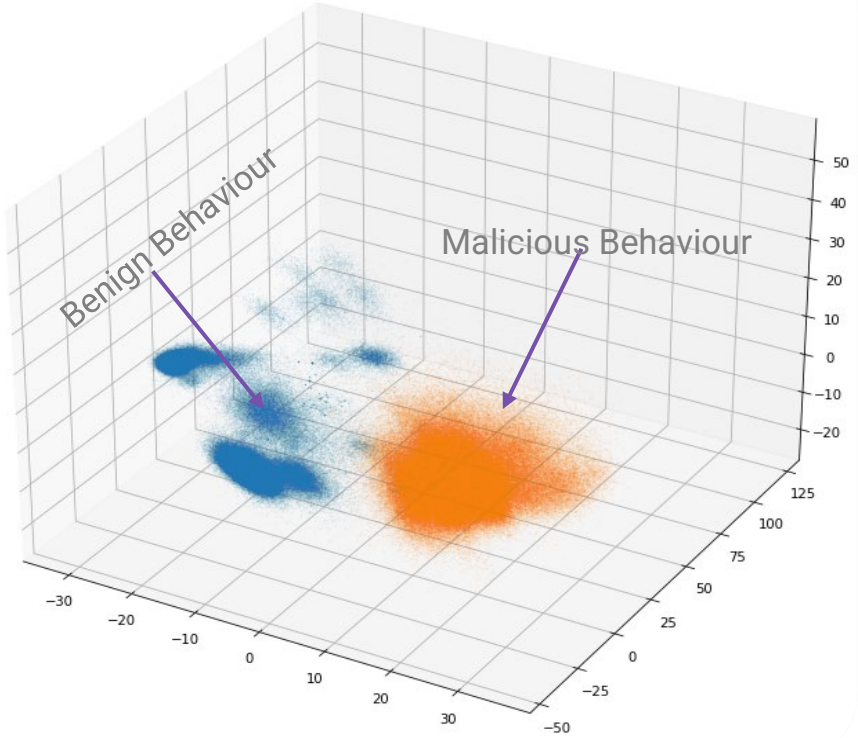




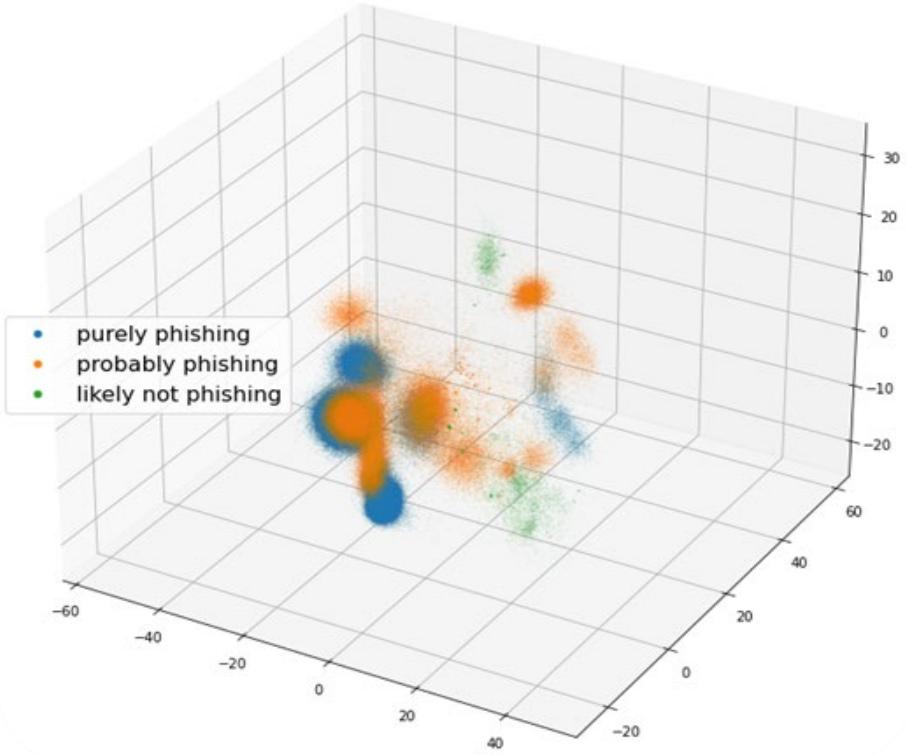


Probing-In Documents - With and Without Scripts

PDF Document Model



Analysing for Content



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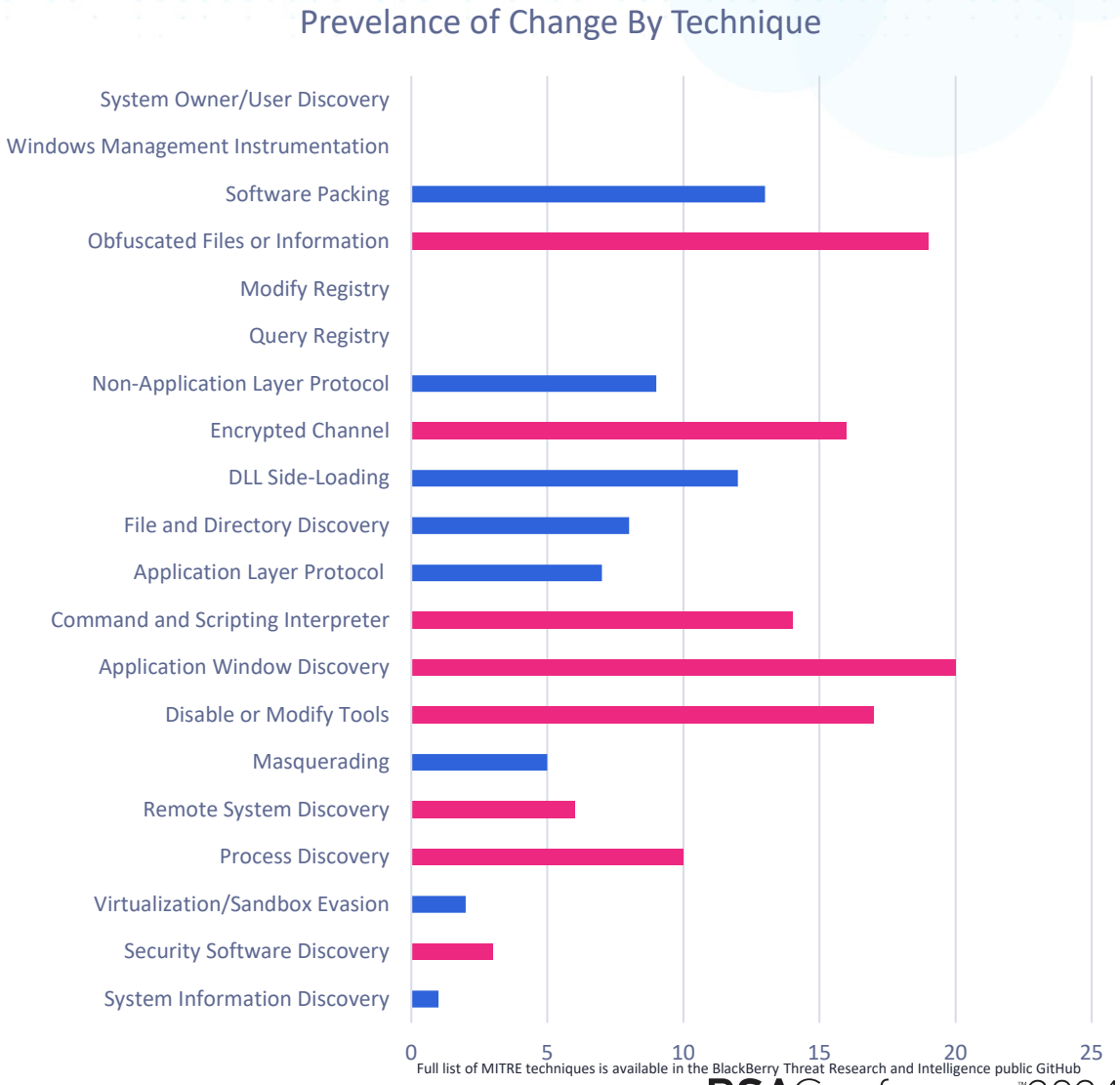
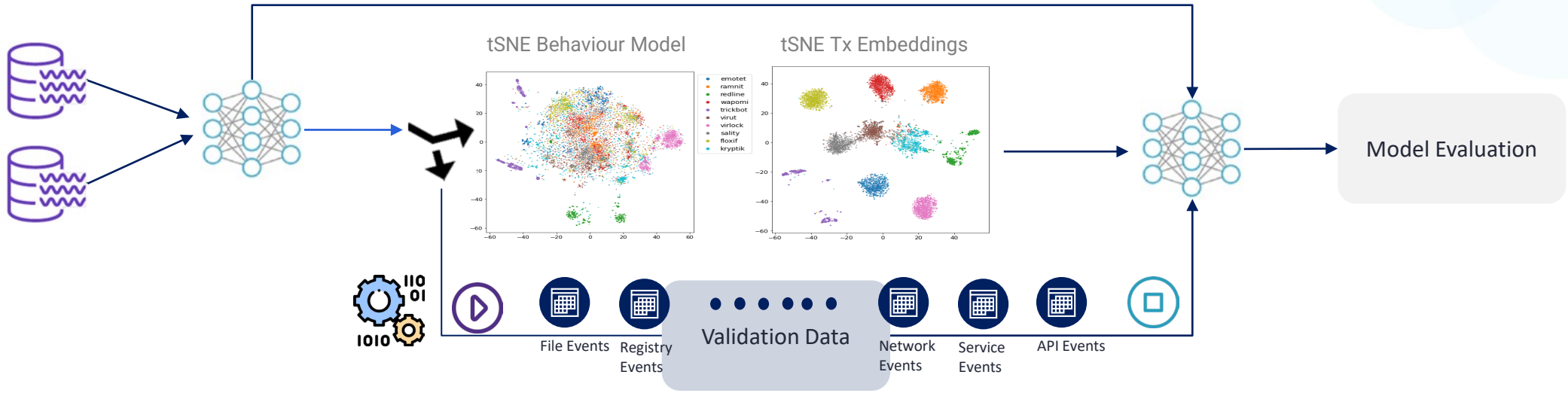
Intent and Behavior cannot be hidden

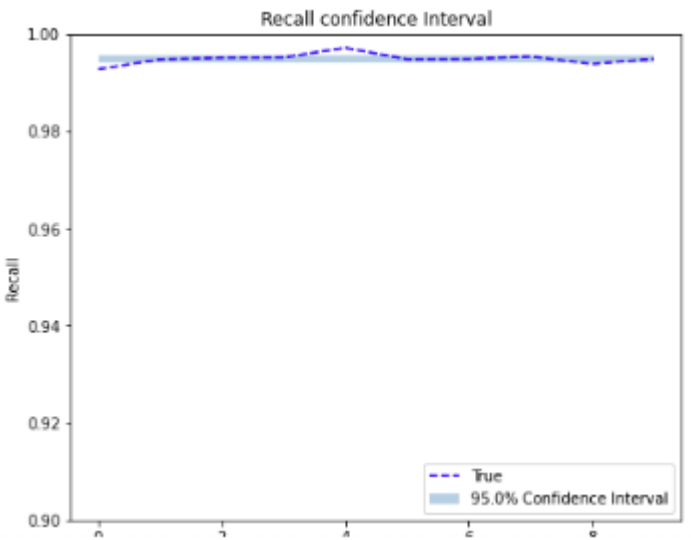
- Observed behaviour taken by threat groups – Nov 2023 Report
- Prioritization based on these top 20 techniques
- Discovery tactic is the most prevalent, associated with four of the five techniques in the top five.

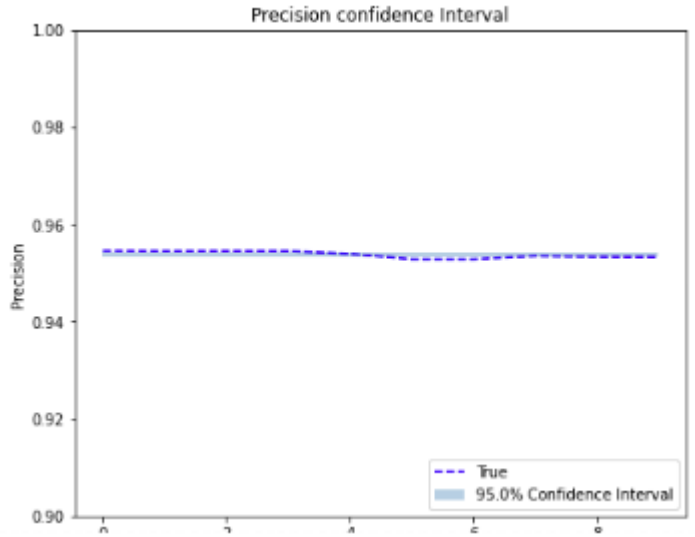


Process Behavior prediction



How confident are we with Models Recall And Precision ?





BlackBerry CYLANCE

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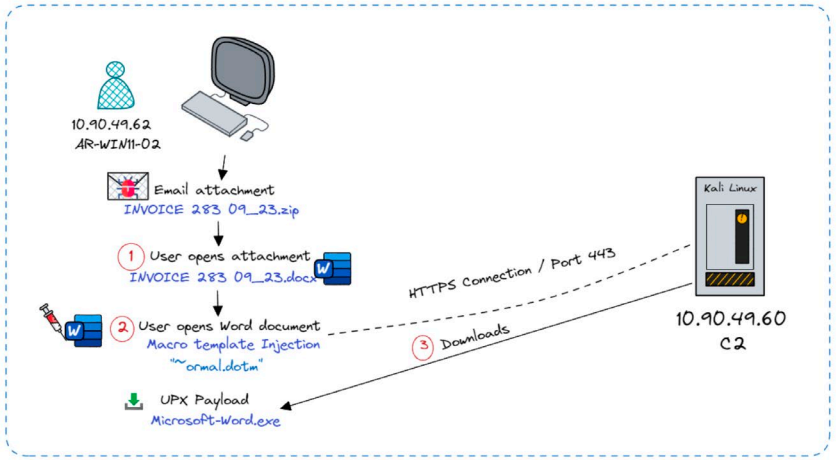
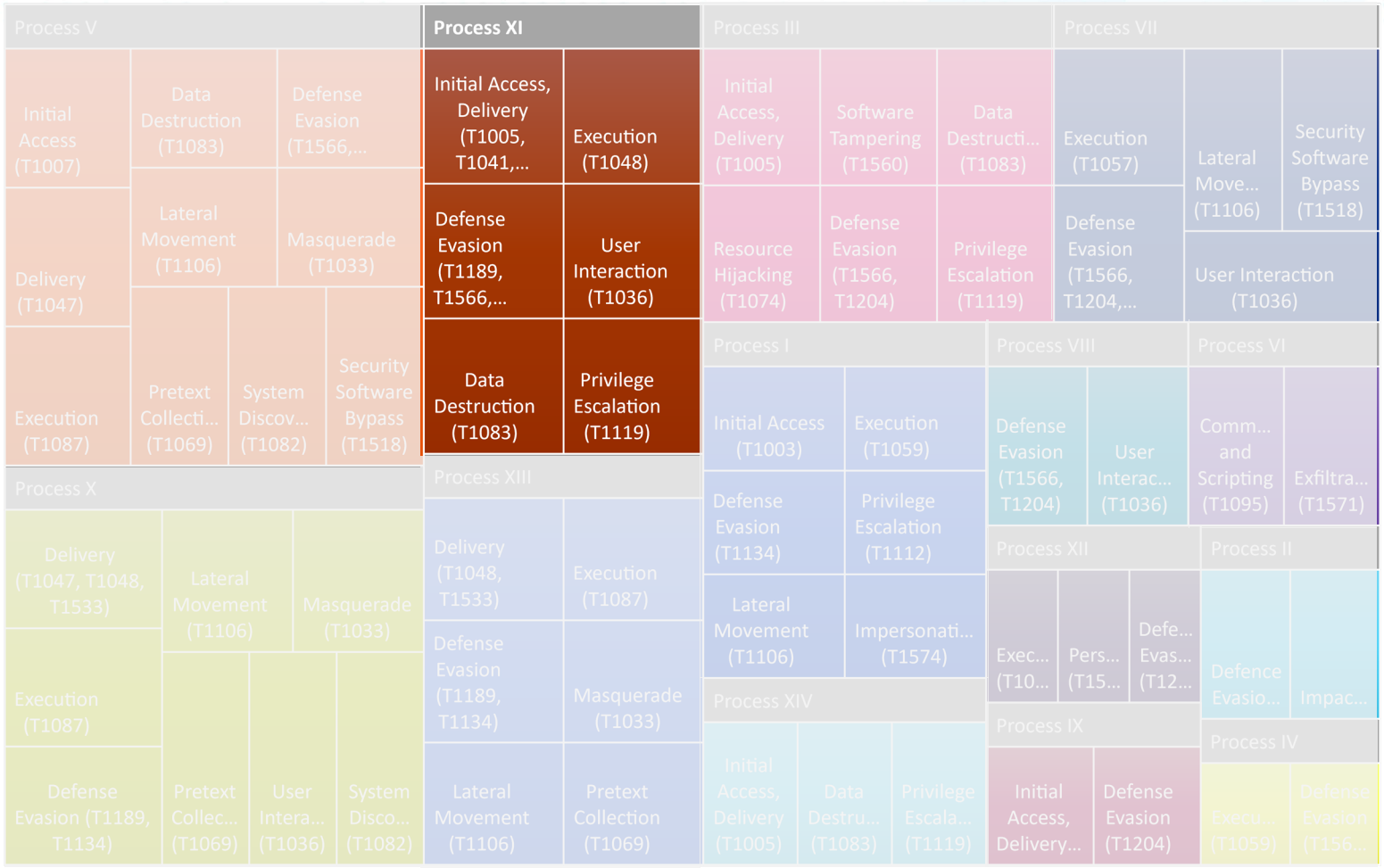
Step 1

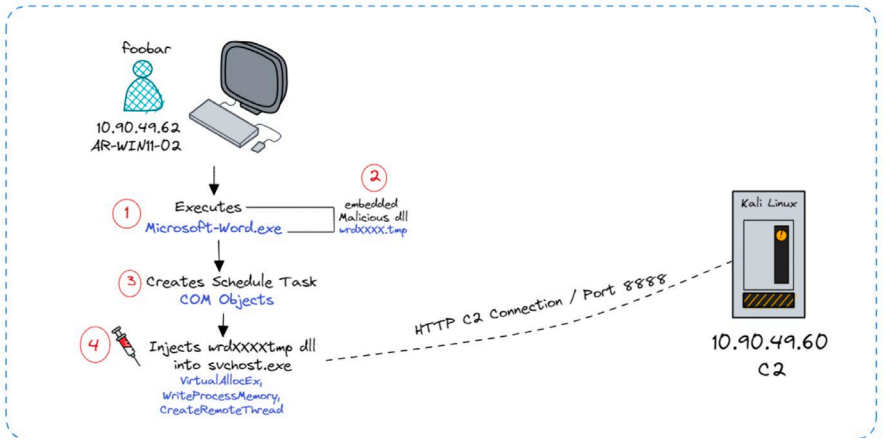


Malicious Behaviour Detections based on Mitre TTP

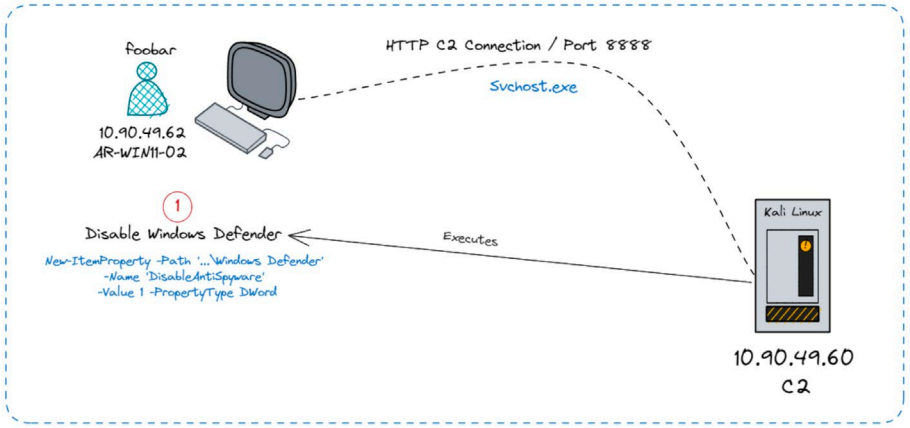


Model Score (maliciousness): 0.9883317

Step 2



Step 3



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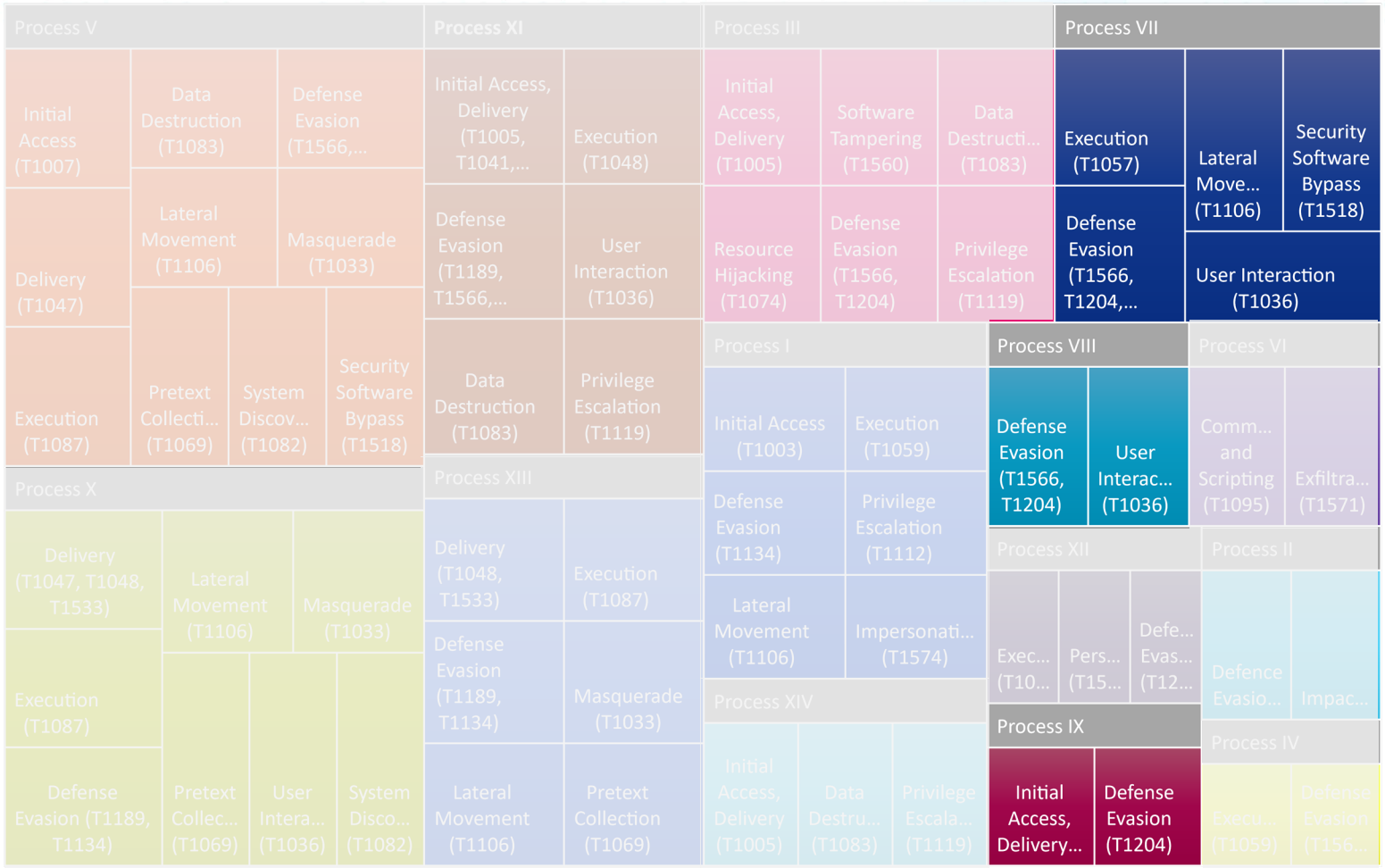
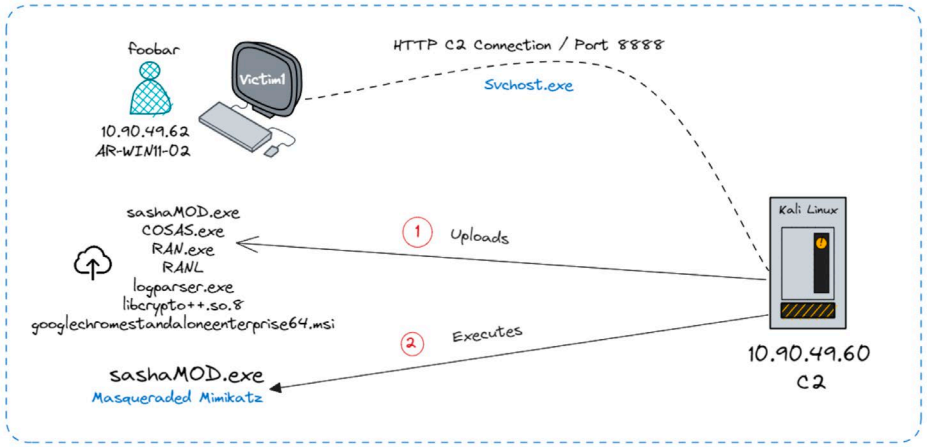
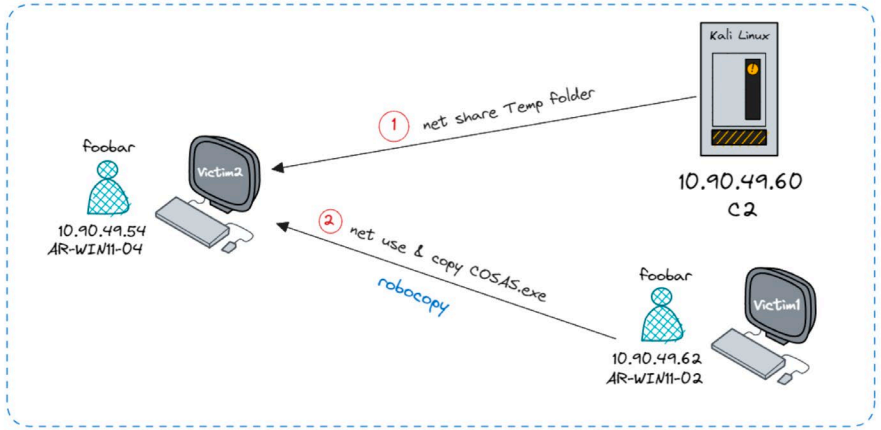


Model Score (maliciousness): 0.97976273, 0.96840143, 0.82308644

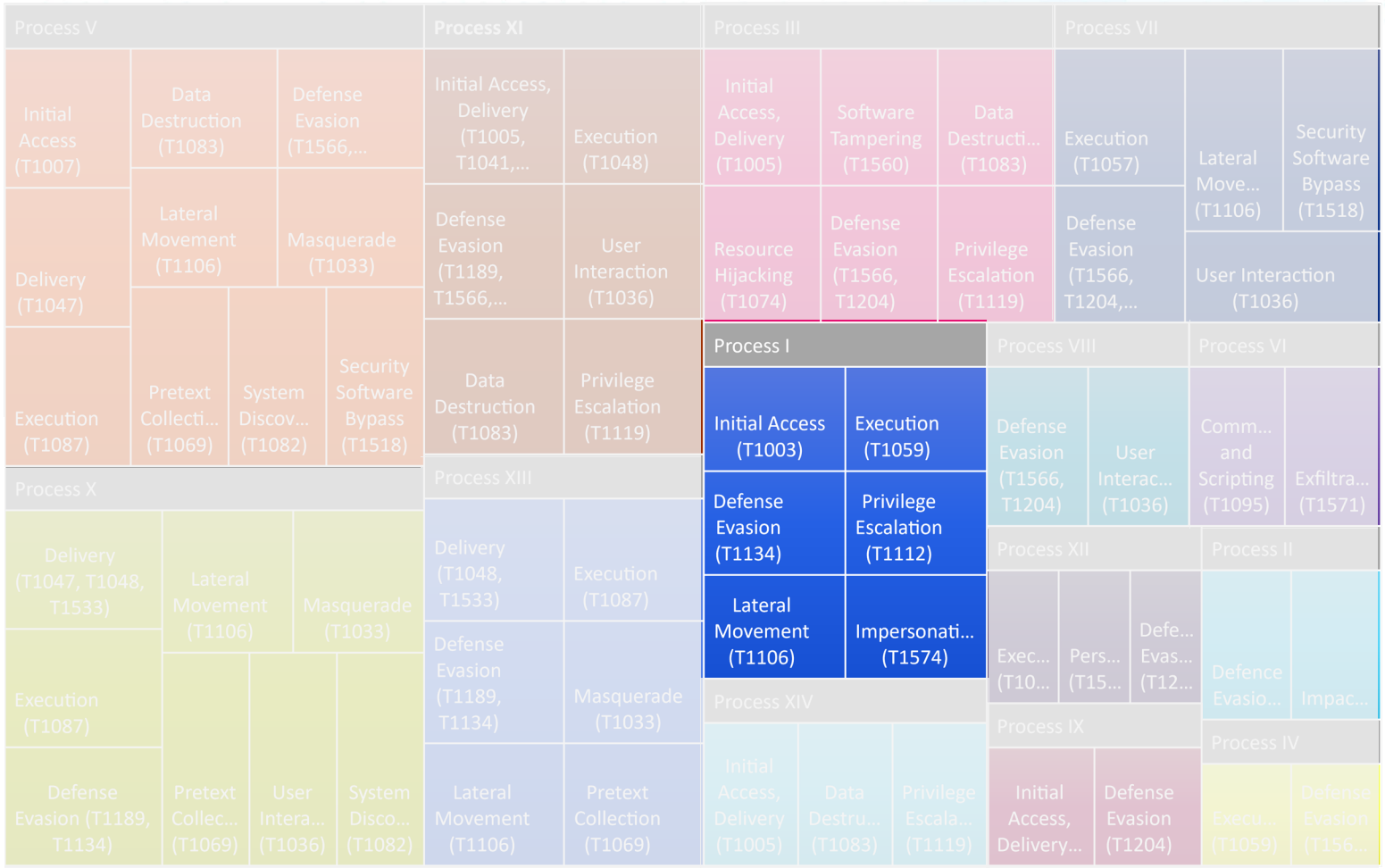
Step 4



Step 5

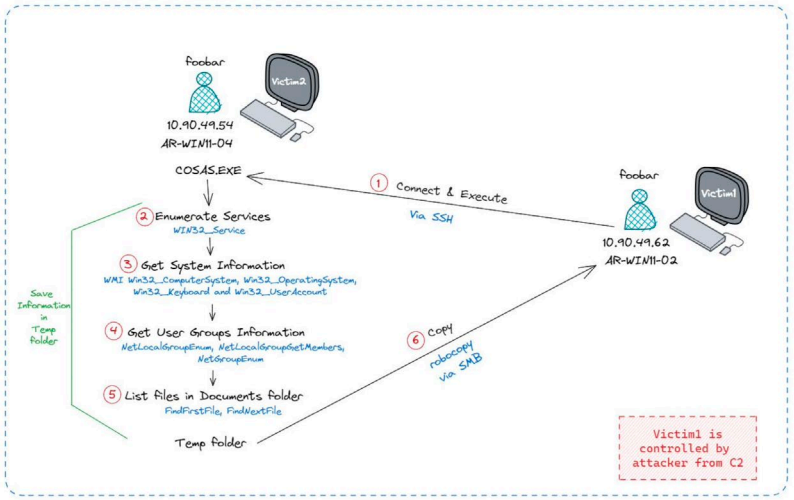


Malicious Behaviour Detections based on Mitre TTP

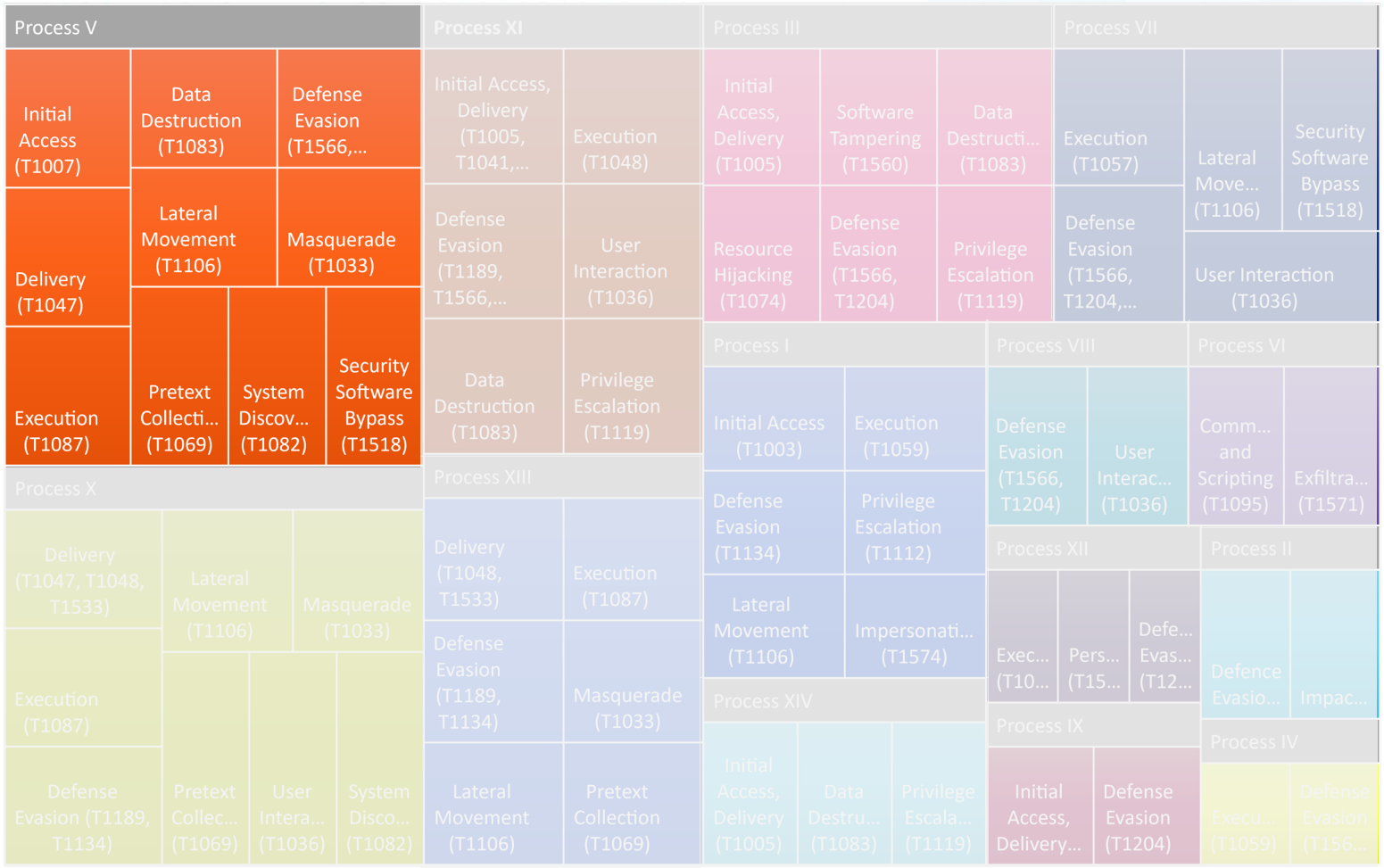


Model Score (maliciousness): 0.79279643

Step 6

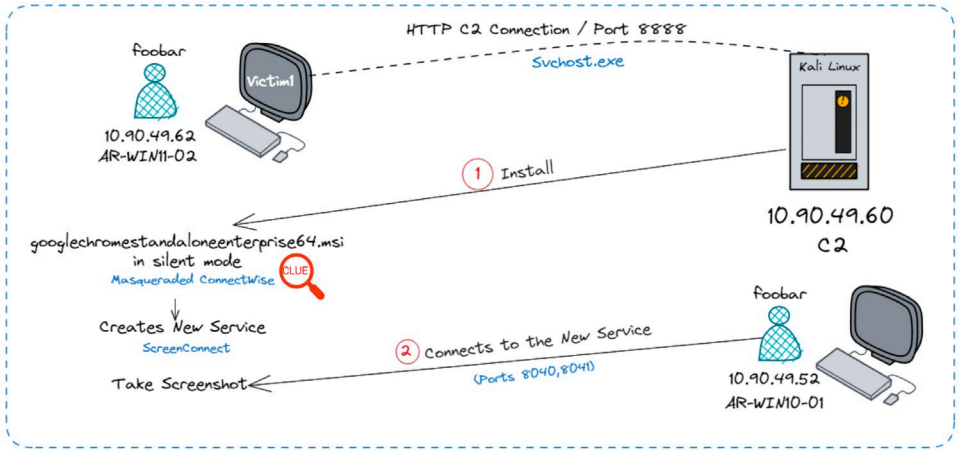


Malicious Behaviour Detections based on Mitre TTP

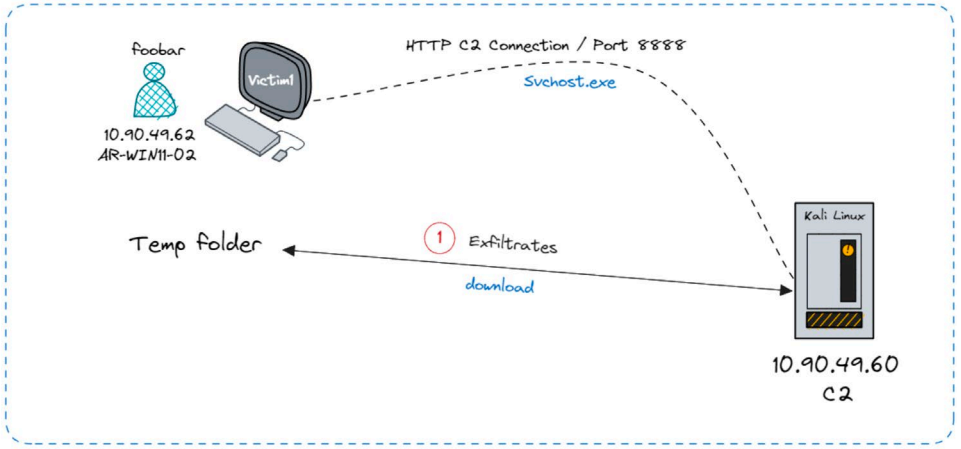


Model Score (maliciousness): 0.9131431

Step 7



Step 8



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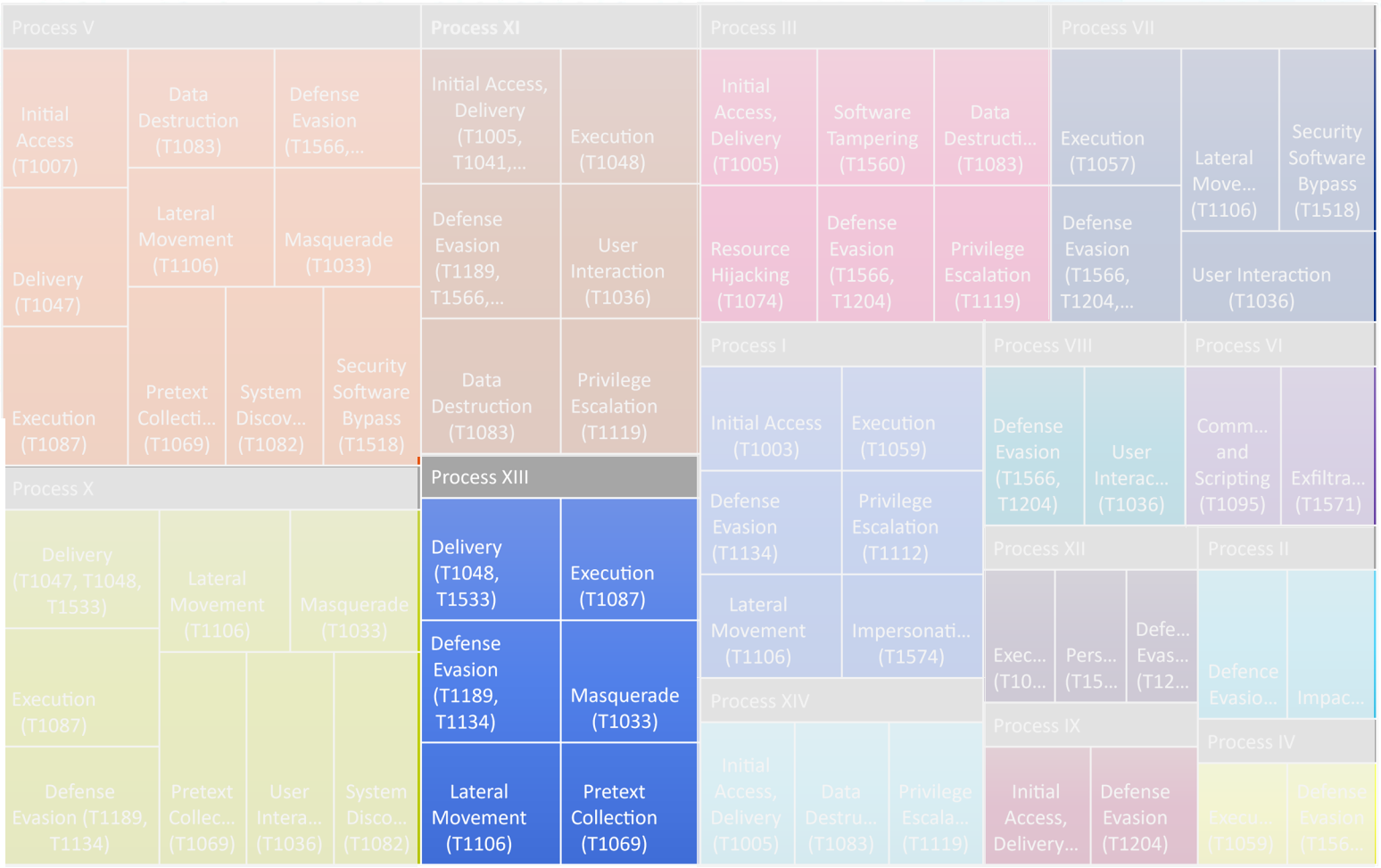
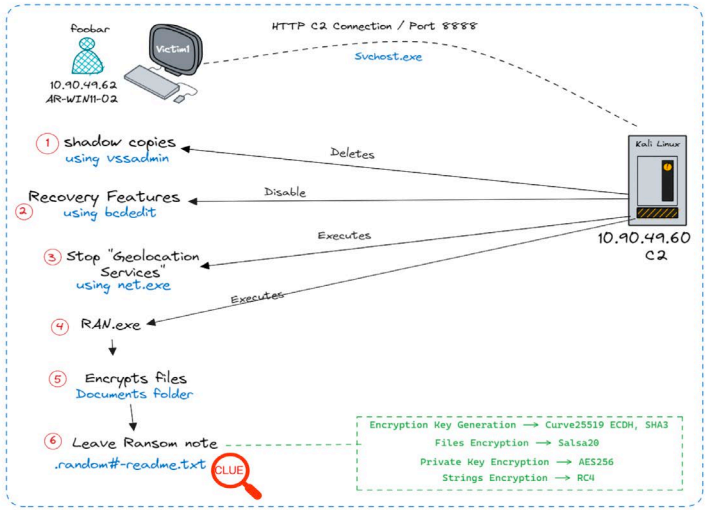
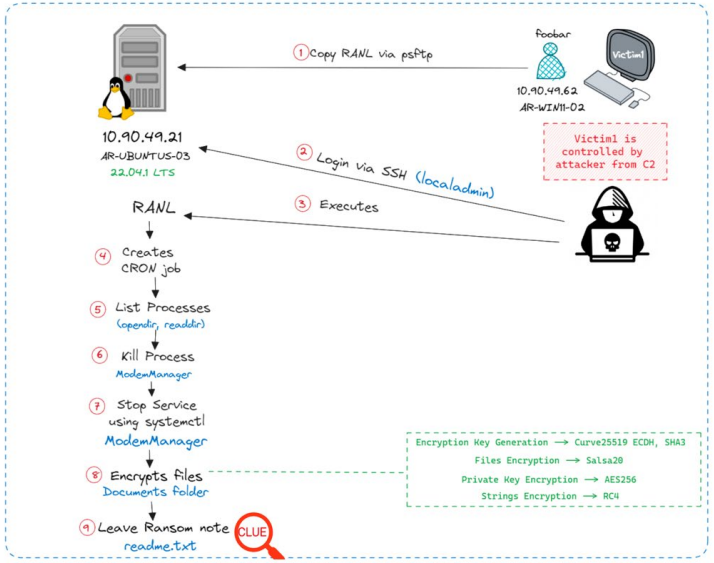


Model Score (maliciousness): 0.9131431

Step 9



Step 10



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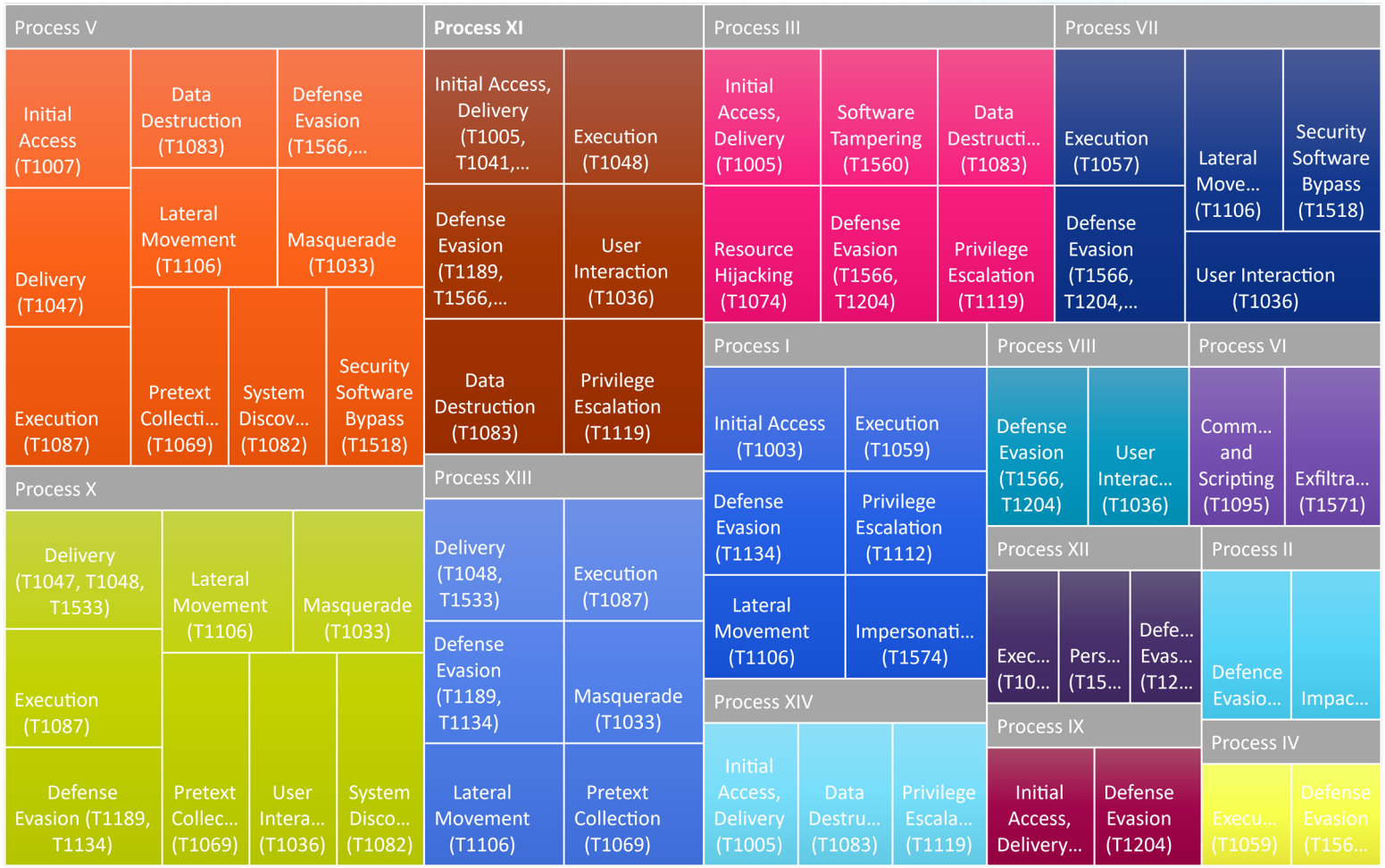

Model Score (maliciousness):0.8190064, 0.8338462

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Apply What You Have Learned Today

- Short Term you/your team should: Explore
  - Evaluate if Exploit predictability scoring Model is applicable
  - Review analysis and prioritization of exposure
  - Align your search with documented techniques ATLAS Matrix | MITRE ATLAS™
- Near-Term you/ your team should: Enable
  - Consider AI Center of Excellence in Cyber Security
  - Invest in Protect first Methodology
  - Explore open-source tools/projects https://github.com/cylance/IntroductionToMachineLearningForSecurityPros
- Mid-Term you / your team should: Evolve
  - Leverage community intelligence in threat simulation with Generative models:
  - Community links here : Educational Resources · OWASP/www-project-top-10-for-large-language-model-applications Wiki · GitHub
  - Validate detection and protection efficacy and align with emerging legislation
  - Legislation/ Responsible AI links here: The Act Texts | EU Artificial Intelligence Act & Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems (canada.ca)
  - Responsible Artificial Intelligence (Responsible AI) | Groups | LinkedIn