MICHIGAN STATE UNIVERSITY

Alpha Presentation

Next Generation Malware Detection, Clustering and Heuristics

The Capstone Experience

Team Proofpoint

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From Students…
…to Professionals

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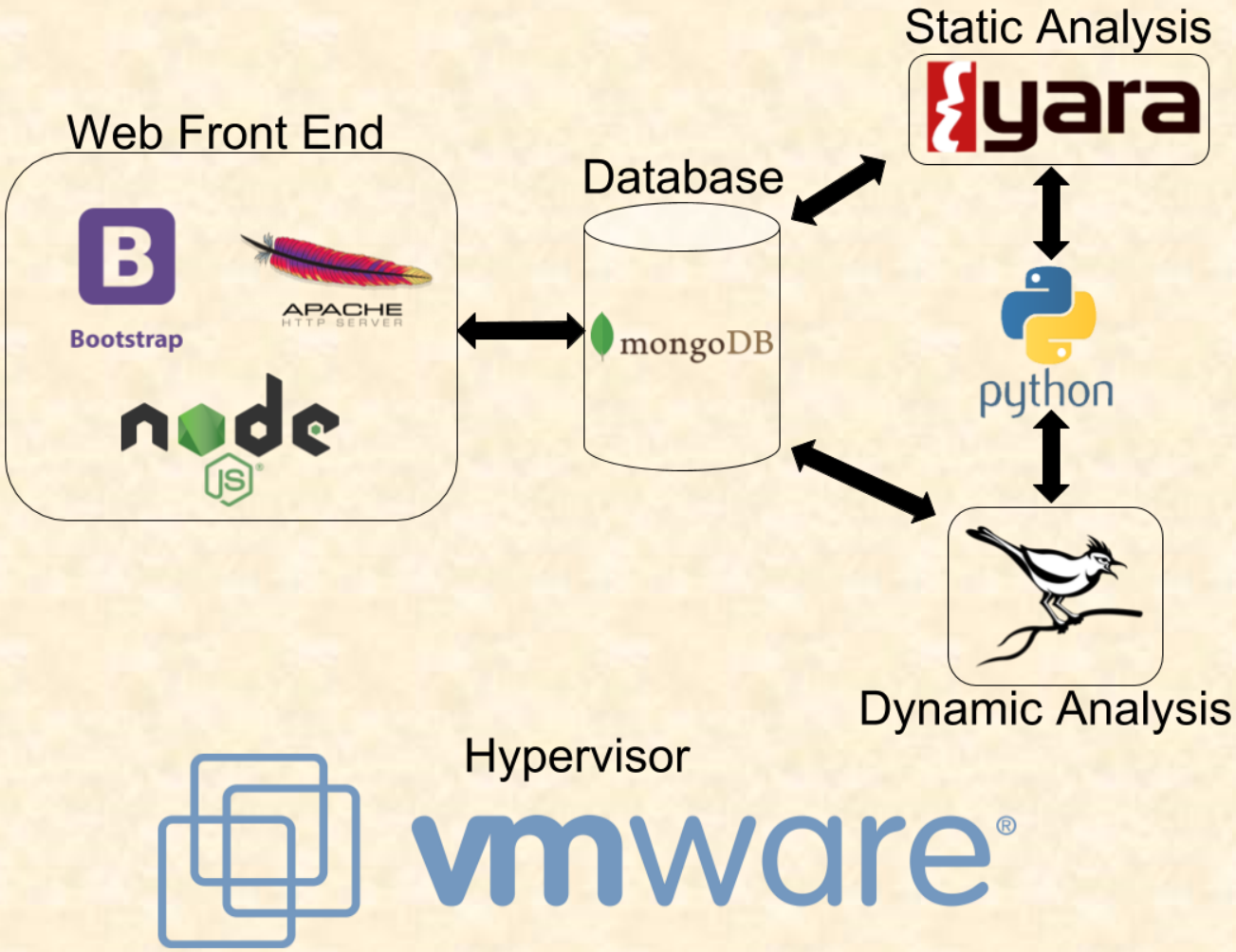
Project Overview

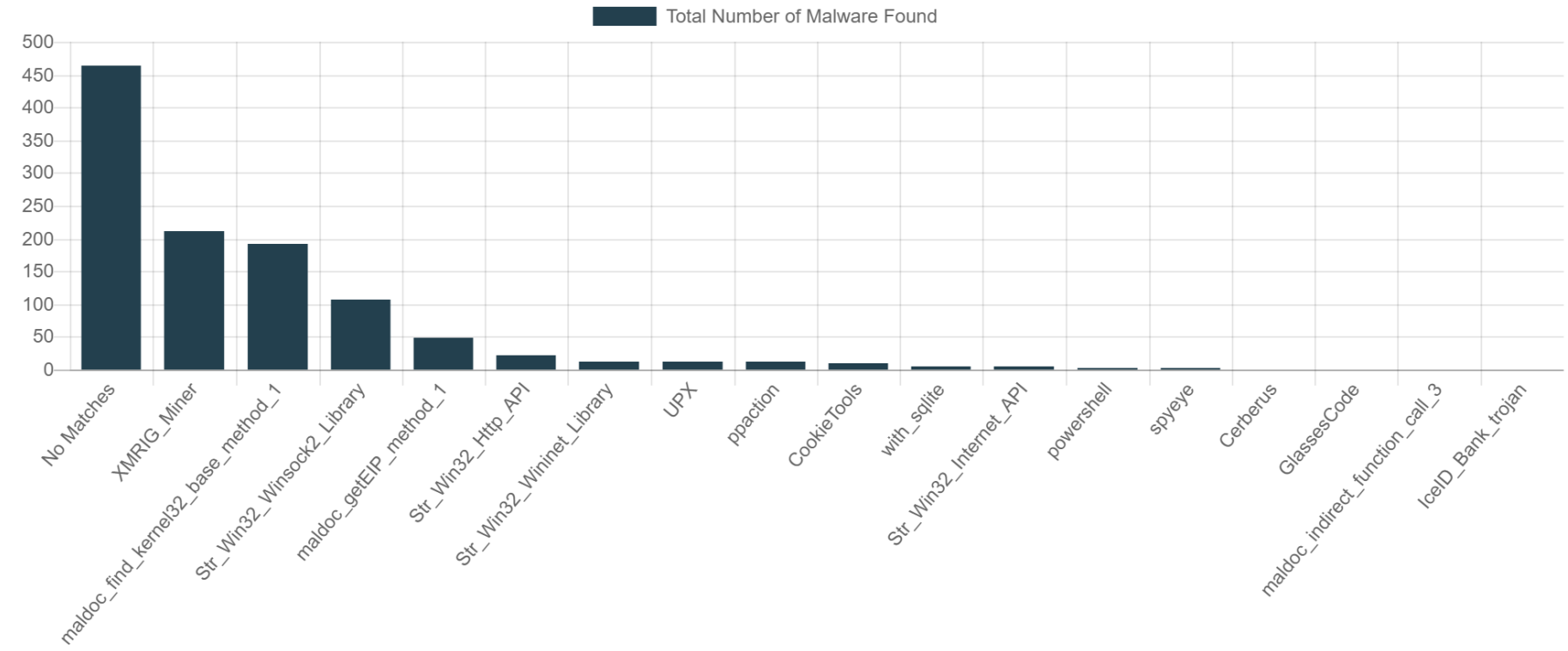
- Efficiently analyze different types of malware
- Cluster similar malware
- Provide dashboard for malware analysis data
- Provide framework for signature generation

System Architecture



Bar Graph on Dashboard

Dashboard



Filtered Results for Table

Analyzed Malware

Show 50 entries

Search: XMRIG_Miner

SID	File Name	File Type	Flagged?	YARA Match
1	C6A13AFC5831096B0CCB54FBB2B3D14E4BA06E9C7A363C884B1383C5EE81FAA	PE32 executable (DLL) (GUI) Intel 80386 (stripped to external PDB), for MS Windows	No	XMRIG_Miner
8	48678EC33D22C571774ACE303C4C771B46C8121FBE46AFA807E54787671DE13	PE32 executable (DLL) (GUI) Intel 80386 (stripped to external PDB), for MS Windows	No	XMRIG_Miner

In Depth Analysis of a File

In-Depth Analysis of 6BDE693CE8EB45445C0B38E3DE3AF97E0D21C8D33E8408B52E711EA67ABFD27

File Statistics and Information

File Information	Statistic Information
File Extension	PE32+ executable (console) x86-64, for MS Windows
File Size	330.8 KB (330752 bytes)
Total Analysis Time	0:00:00.286
Static Analysis Time	0:00:00.286
Dynamic Analysis Time	00:00:00

File Hashes

Hash Types	File Hash
PE Hash	3:N9K8gKRTEJ3HXKTn2QhgER4QmNWdtTqoEqhRYR+Ngk7n4R:N7TENXbQTR45iTqolhR8+yF
SHA256	6BDE693CE8EB45445C0B38E3DE3AF97E0D21C8D33E8408B52E711EA67ABFD274
SHA1	8200F58FC04B9731F20EB436E7D9C29ABB74D676
MD5	08C8682AB609AB30F189EC06EEE3CBD3

Similar Malware

File Name	PE Hash
517E899D1F9EB8656F3683E9216C904BD1061E0DFB26308C1A4E35ABB913167	3:N9K8gKRTEJ3HXKQLxchQndTGz6VXU55VtDSdmUkRgWQkMKSR:N7TENXL1HRPXsOmm1JR
4E33D223ED5CC0ADEE5612589A3AB69720321CFF9335F627430E2C73E9833E4	3:N9K8gKRTEJ3HXKRqHnhzQTUXhfkQnXUmjjnWQvXSRWVg26cPUn:N7TENX7HhzGOhVPjTWQtK238n
695C7B02EB9F73BB5E736C7088693D013CD84CE5F778CAF9F93537739427178	3:N9K8gKRTEJ3HXKThlnVXgSSWn1ITHQWlt/SIQWSS1XSUSVn:N7TENXvg1ljyMGCUSVn

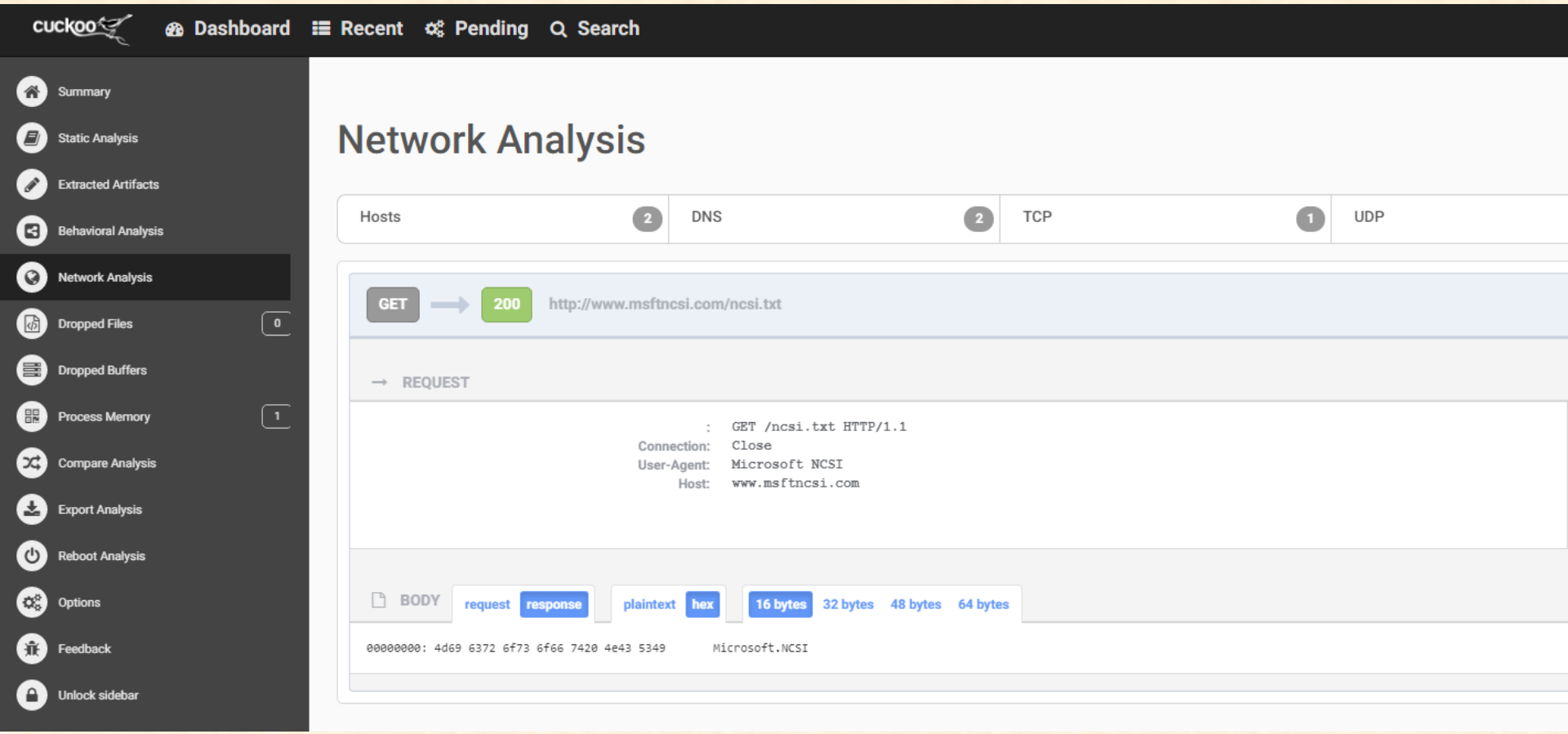
Similar Malware to a File

Similar Malware

File Name	PE Hash
517E899D1F9EB8656F3683E9216C904BD1061E0DFB26308C1A4E35ABB913167	3:N9K8gKRTEJ3HXKQLxchQndTGz6VXU55VtDSdmUkRgWQkMKSR:N7TENXL1HRPXsOmm1JR
4E33D223ED5CC0ADEE5612589A3AB69720321CFF9335F627430E2C73E9833E4	3:N9K8gKRTEJ3HXKRqHnhzQTUXhfkQnXUmjjnWQvXSRWVg26cPUn:N7TENX7HhzGOhVPjTWQtK238n
695C7B02EB9F73BB5E736C7088693D013CD84CE5F778CAF9F93537739427178	3:N9K8gKRTEJ3HXKThlnVXgSSWn1lTHQWIt/SIQWSS1XSUSVn:N7TENXvg1ljyMGCUSVn
1564EB85D5375925DDF81B7B879756B586B12C75DD902B02081BE0F6A03333C	3:N9K8gKRTEJ3HXKUG+QBSJEhhU7cSQEdTncQhhkX3ggJIWTd:N7TENXPG+4gEhkjQERnc0heQg1Td
0A33AC9B6EB9B66AC8366B3335AC18E923B354D3156A516124E95CBDD244938	3:N9K8gKRTEJ3HXKVfjmWG/tTTlk2mWnWQRAUQoQvRuQhn/W:N7TENXpWgFlk2hBxQ1Ru6/W

PE Hash
3:N9K8gKRTEJ3HXKQLxchQndTGz6VXU55VtDSdmUkRgWQkMKSR:N7TENXL1HRPXsOmm1JR
3:N9K8gKRTEJ3HXKRqHnhzQTUXhfkQnXUmjjnWQvXSRWVg26cPUn:N7TENX7HhzGOhVPjTWQtK238n
3:N9K8gKRTEJ3HXKThlnVXgSSWn1lTHQWIt/SIQWSS1XSUSVn:N7TENXvg1ljyMGCUSVn

Cuckoo Webpage



What's left to do?

- Dynamic analysis decision logic
- Automated signature generation
- Develop more robust clustering
- Automate Cuckoo node generation
- Seamlessly integrate Cuckoo web interface with ours
- Finalize website functionality and design

Questions?