CSX 2017 EUROPE
CYBERSECURITY NEXUS
AN ISACA CYBER EVENT

M&A, Forgotten Son of Information Security

Dr. Marco Ermini, CISA CISM

Agenda

- Why M&A need Cyber Security support?
- Aren't they just ordinary business transactions?
- They seem to occur nearly every day, so what is so special about them that they require special security support, or any security support at all?
- What value does a security professional bring to the team?

The Academic Minute…

- Black's Law Dictionary defines mergers and acquisitions as the following:
  - Merger: The union of two or more corporations by the transfer of property of all, to one of them, which continues in existence, the others being swallowed up or merged therein…
  - Acquisition: The act of becoming the owner of a certain property…
  - Divestiture: to deprive; to take away; to withdraw

The Academic Minute…

- Acquisition of Total Assets
  - Liquidate
  - Break up and sell
  - Integrate
- Acquisition
- Merger
- Divestiture

The Academic Minute…

- It is all about…

1. Costs Control,
2. Market Share,
3. Regulatory Landscape
4. Others…

Business Drivers

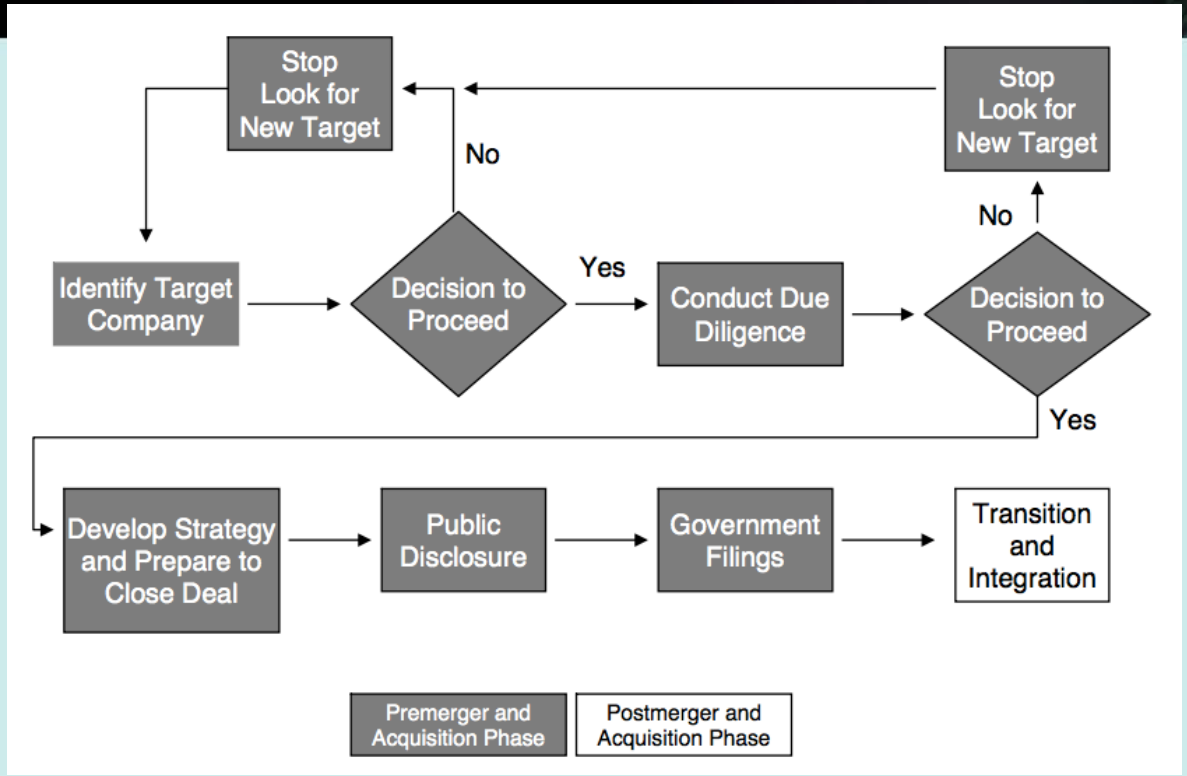
- Confidentiality
- Speed
- Business as usual
  - Zero Impact
- Informed Business Decision on Risk

Why M&A Fail?

- The acquiring company does not properly assess the value of the target company
- Inability of the acquiring company to successfully integrate the target company that leads to a failed acquisition

“It is well known in the M&A community that most acquisitions fail to create shareholder value, that is, they end up as a negative sum after paying acquisition premium and banker fees, impossible to get synergies to make up loss. The acquisitions that do create value are either a version of corporate venture capital (large company scooping tiny team), or mid-cap industrials buying a supplier. Few and far between…“

Typical M&A Diagram Flow



The Four “C”s

The Four Cs

- Capture
- Connect
- Combine
- Consolidate

Threats and Response

Scoping the Threats

- Special Interest Groups – gain from the Operation
  - Financial Criminals
  - Competitors
  - Acquisition / Merger Company
  - Disgruntled Employees
- General Interest Groups – gain from Impact
  - Script Kiddies / Hackers
  - Hacktivists / Terrorists
  - Spies

Scoping the Risks

- Publicity, raising profile — your interest gets attacker's interest!
- Impact on:
  - Resources
  - Technologies
  - Infrastructure
- Disgruntled Employees
- Change in threat and risk model
- Absorbing unknown / Confusion
- Creating new attack vectors and window of opportunity
- Business drivers can force this the Security Manager very quickly
- **Are we all really equipped for change?**

The Security Manager

The Role of a Security Manager

- Protecting the effort itself
  - Confidentiality of the total effort
  - Confidentiality of the team's work
- Evaluating the security condition of the target company
  - Impact on the deal's value
  - Asking the right questions
- Providing subject matter expertise
  - Identify Security Requirements for the New Company
  - Controlling Rumors
  - Managing Global/International Aspects
  - "Team Consultant"
  - Low Hanging Fruits

Importance of Confidentiality

- Premature Disclosure of Intent
  - Loss of key employees
  - Bidding wars
  - SEC Liability
  - Loss of Initiative
  - Loss of Goodwill
    - Target Company
    - 3rd Parties relationships
    - Customer relationships

Protecting the operation

- Unintended Release
- Unauthorized Release
- Protection from competitive intelligence efforts
- Documents Control

The Security Manager in action

- Preliminary background investigations
  - Collection of Open-Source information
- Due diligence
  - More in-depth look
  - Estimation of Costs of Cyber Security
- Operations security
  - Protect operational activities
  - Develop and implement protective measures
  - Appropriate for each phase of the acquisition

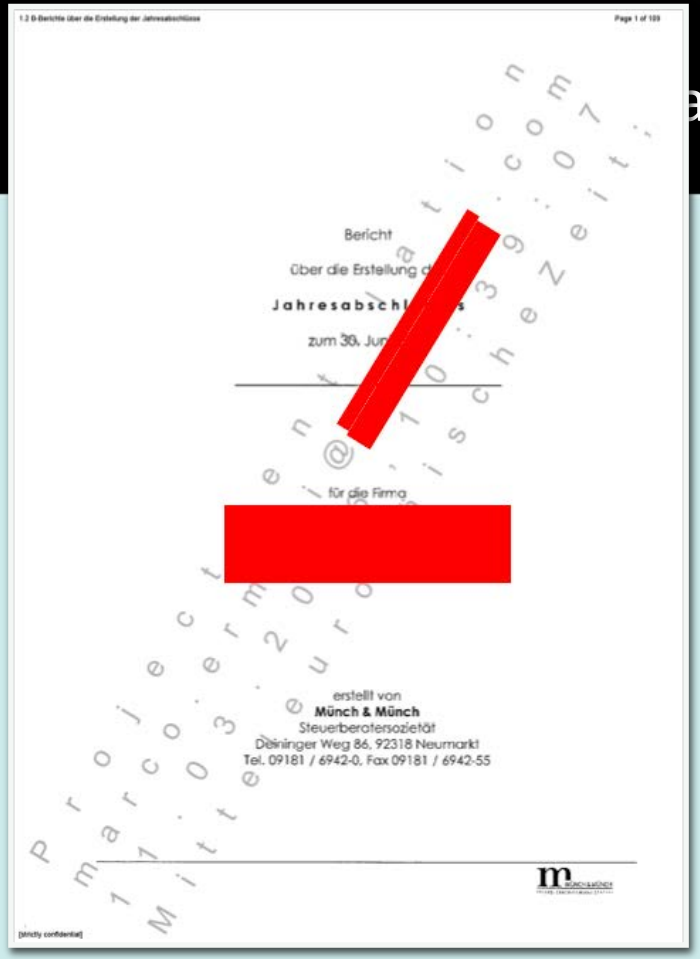
Preliminary Work

How can I verify an M&A Target candidate?

- You cannot *explicitly* test your acquisition's candidate
- You cannot simply ask them for their vulnerability assessments' results
- Not all companies have a structured and mature security program
- You cannot silently test them either

External Sources

- Professional Associations
- Service Providers
- Public (Open) Sources
- Job Applications/Job Postings



1.2 D-Berichte über die Erstellung der Jahresabschlüsse — Page 1 of 103

Bericht

über die Erstellung d[redacted]

Jahresabschl[redacted]s

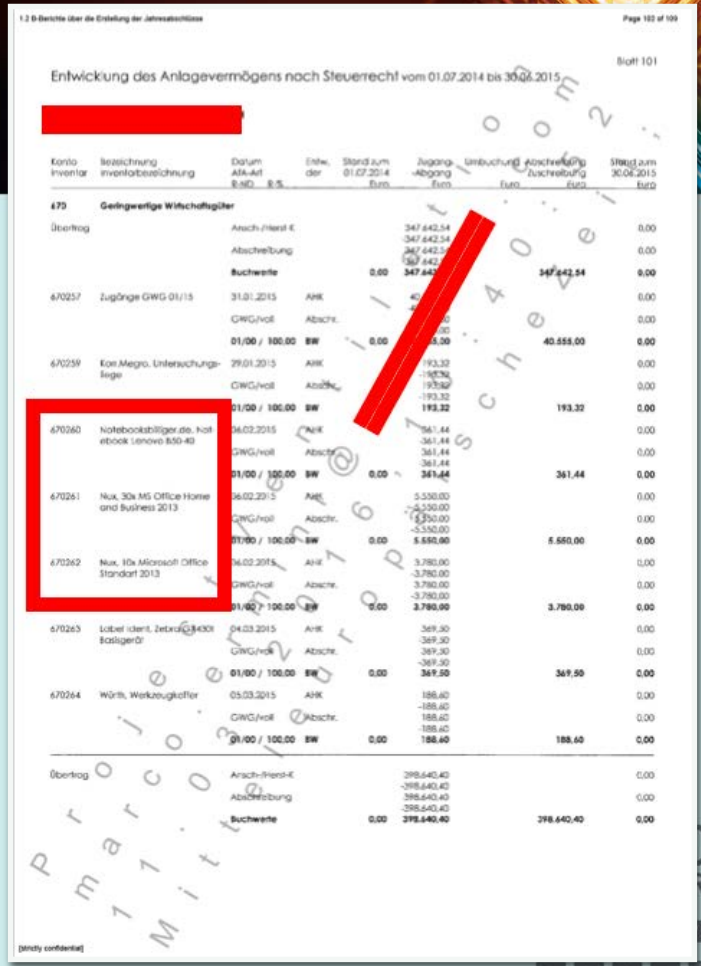
zum 30. Jun[redacted]

für die Firma

[redacted]

erstellt von
Münch & Münch
Steuerberatersozietät
Deininger Weg 86, 92318 Neumarkt
Tel. 09181 / 6942-0, Fax 09181 / 6942-55

[strictly confidential]



1.2 D-Berichte über die Erstellung der Jahresabschlüsse — Page 102 of 103

Blatt 101

Entwicklung des Anlagevermögens nach Steuerrecht vom 01.07.2014 bis 30.06.2015

[redacted]

Konto Inventar	Bezeichnung Inventarbezeichnung	Datum AfA-Art B-ND B-S	Entw. der	Stand zum 01.07.2014 Euro	Zugang Abgang Euro	Umbuchung Euro	Abschreibung Zuschreibung Euro	Stand zum 30.06.2015 Euro
670	**Geringwertige Wirtschaftsgüter**							
Übertrag		Anschaffungs-/Herstellkosten			347.642,54			0,00
		Abschreibung			347.642,54			0,00
		Buchwerte		**0,00**	**347.642,54**		**347.642,54**	**0,00**
670257	Zugänge GWG 01/15	31.01.2015	AHK		40.555,00			0,00
		GWG/voll	Abschr.		-40.555,00			0,00
		01/00 / 100,00	**BW**	**0,00**	**0,00**		**40.555,00**	**0,00**
670259	Kon.Megro. Untersuchungs-liege	29.01.2015	AHK		193,32			0,00
		GWG/voll	Abschr.		-193,32			0,00
		01/00 / 100,00	**BW**		**193,32**		**193,32**	**0,00**
670260	Notebookbilliger.de, Notebook Lenovo B50-40	06.02.2015	AHK		361,44			0,00
		GWG/voll	Abschr.		-361,44			0,00
		01/00 / 100,00	**BW**	**0,00**	**361,44**		**361,44**	**0,00**
670261	Nux, 30x MS Office Home and Business 2013	06.02.2015	AHK		5.550,00			0,00
		GWG/voll	Abschr.		-5.550,00			0,00
		01/00 / 100,00	**BW**	**0,00**	**5.550,00**		**5.550,00**	**0,00**
670262	Nux, 10x Microsoft Office Standart 2013	06.02.2015	AHK		3.780,00			0,00
		GWG/voll	Abschr.		-3.780,00			0,00
		01/00 / 100,00	**BW**	**0,00**	**3.780,00**		**3.780,00**	**0,00**
670263	Label Ident, Zebra GK420t Basisgerät	04.03.2015	AHK		369,50			0,00
		GWG/voll	Abschr.		-369,50			0,00
		01/00 / 100,00	**BW**	**0,00**	**369,50**		**369,50**	**0,00**
670264	Würth, Werkzeugkoffer	05.03.2015	AHK		188,60			0,00
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		01/00 / 100,00	**BW**	**0,00**	**188,60**		**188,60**	**0,00**
Übertrag		Anschaffungs-/Herstellkosten			398.640,40			0,00
		Abschreibung			-398.640,40			0,00
		Buchwerte		**0,00**	**398.640,40**		**398.640,40**	**0,00**

[strictly confidential]

Due Diligence

Toolkit: https://github.com/markoer73/M-A

“Capture” of Security Controls

- 13 Domains to verify

1. Digital Identities
2. Admin Accounts
3. Endpoints/Client Systems
4. Servers
5. Networks
6. Hosting
7. Email
8. Data Recovery
9. Boundary Defenses
10. Assets Inventory
11. Operational Security
12. Physical Security
13. Wireless Networks

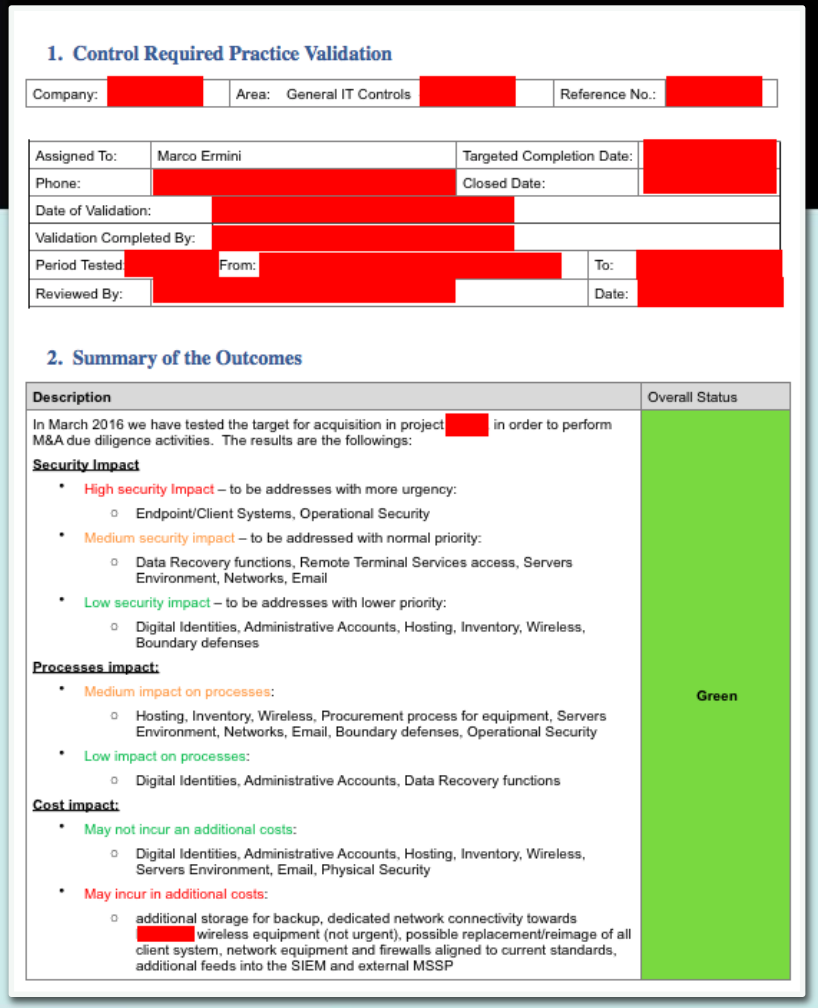
Example of Policy Requirement

Domain	Verification	How-to	Objectives	Minimum Acceptable Level
Digital Identities	Verify status of identities in main identity store (use of unique IDs, generic accounts, password policy, Groups' usage, GPOs, Federations, etc.). Verify if anything is outside of the main identity store (e.g. VPN accounts, Cloud accounts, supplier accounts, etc.).	• Interview with IT admins from Target. • Snapshot of information from AD/LDAP. • Interview with business units which manage other tools (Cloud etc.), to understand how this is managed	• Ensure appropriate controls are in place to protect Target environment and data • Get an idea of the complexity of the DI structure of the Target. • Understand usage of Cloud applications and identities. • Understand how restriction of access to information happens in Target.	• There is a Directory Service • Unique IDs are used • Permissions are assigned via Groups in the Directory Service • Service and Cloud accounts are gathered, minimized, and under control • Sensitive files are shared in a secure way
Admin Accounts	Verify status of admin account management in main identity store, if managed there. Verify if anything is outside of the main identity store (e.g. VPN accounts, Cloud accounts, supplier accounts, etc.)	• Interview with IT admins from Target. • Snapshot of information from AD/LDAP and other tools.	• Ensure admin account controls are defined, implemented and reviewed to protect systems and data • Understand how IT administrative actions are performed, what the procedures and practices are, and who has the ownership and responsibility.	• Admin accounts are managed under a Directory Service • Admin accounts are unique for each admin • Central ownership of who gets appropriate rights • Process for removing rights as appropriate

Example of Interview Questions

Domain	Minimum Acceptable Level	Key Topics for Discussion
Digital Identities	• Directory Services of any kind are used • Unique IDs are used • Permissions are assigned via Groups in the Directory Service • There is an adequate password policy in place • Service and Cloud accounts are gathered, minimized, and under control • Sensitive files are shared in a secure way	• How many people are present in the company? Get overview of employees' org chart/roles, and how many people are in IT and Security. • How old is the company? Get brief history, acquisitions, etc. • Which DS is used? (AD, which version?) • Get overview of Groups, GPOs, shared accounts, shared mailboxes, federated services, password policy (for AD, request screenshots). • Is every system and device connected to DS and follow password policy, or there are systems which have their own passwords (e.g. Wi-Fi, network devices, etc.)? • What is the process by which Group ownership, permissions and accesses to systems and applications are granted? • Get overview of Cloud services used and how accounts are managed, if SSO is used and how, especially concerning files and documents sharing with third parties. • Is Cloud Sharing such as Box, Dropbox etc. being used?
Admin Accounts	• Admin accounts are managed under a Directory Service • Admin accounts are unique for each admin • Central ownership of who gets appropriate rights • Process for removing rights as appropriate	• Get overview of how administration is performed, if AD Groups and GPOs are used, if shared accounts and/or shared mailboxes are used for admin accounts • Understand how permissions are granted and removed from users as their work and function changes in the company

Risk Assessment



1. Control Required Practice Validation

Company: [redacted]	Area: General IT Controls [redacted]	Reference No.: [redacted]

Assigned To:	Marco Ermini	Targeted Completion Date:	[redacted]
Phone:	[redacted]	Closed Date:	
Date of Validation:	[redacted]		
Validation Completed By:	[redacted]		
Period Tested: [redacted]	From: [redacted]	To:	[redacted]
Reviewed By:	[redacted]	Date:	[redacted]

2. Summary of the Outcomes

Description	Overall Status

In March 2016 we have tested the target for acquisition in project [redacted] in order to perform M&A due diligence activities. The results are the followings:
Security Impact
• High security Impact – to be addresses with more urgency:
  ○ Endpoint/Client Systems, Operational Security
• Medium security impact – to be addressed with normal priority:
  ○ Data Recovery functions, Remote Terminal Services access, Servers Environment, Networks, Email
• Low security impact – to be addresses with lower priority:
  ○ Digital Identities, Administrative Accounts, Hosting, Inventory, Wireless, Boundary defenses
Processes impact:
• Medium impact on processes:
  ○ Hosting, Inventory, Wireless, Procurement process for equipment, Servers Environment, Networks, Email, Boundary defenses, Operational Security
• Low impact on processes:
  ○ Digital Identities, Administrative Accounts, Data Recovery functions
Cost impact:
• May not incur an additional costs:
  ○ Digital Identities, Administrative Accounts, Hosting, Inventory, Wireless, Servers Environment, Email, Physical Security
• May incur in additional costs:
  ○ additional storage for backup, dedicated network connectivity towards [redacted] wireless equipment (not urgent), possible replacement/reimage of all client system, network equipment and firewalls aligned to current standards, additional feeds into the SIEM and external MSSP
	Green

- Management Summary with a clear status
- Clearly indicate the area that will need additional attention
- Especially indicate where the additional costs will incur (e.g. new wireless equipment, re-imaging of the endpoints, reimplementation of firewall, etc.)

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4. **Controls which will require more adjustments (insufficient)**

7. Endpoint/Client Systems

- Endpoints require being standardised to [redacted]s ones.
- Endpoints will require disk level encryption.
- Endpoints will require antimalware protection to be elevated to [redacted]s standards.
- Remote access via Terminal Services need to receive a security assessment, can be potentially insecure.

Evaluation:

- **Security Impact: high.**
- **Process impact: medium.**
- **Cost impact: the cost of client replacement, processes alignment including procurement, and field service will have a cost impact.**

8. Servers Environment

- Servers will need to be aligned with [redacted]standards in terms of patch distribution (SCCM) and receive periodic and urgent security patches when available.
- Servers will require antimalware protection to be elevated to [redacted]s standards.

Evaluation:

- **Security Impact: medium.**
- **Process impact: medium.**
- **Cost impact: it may not incur an additional cost, and actually concur into a consolidation.**

9. Networks

- Linux Firewall and SOHO equipment such as FritzBox will need to be upgraded to [redacted] standard.
- Should be evaluated wether the DMZ is still required once joining [redacted] or should it be moved to [redacted].

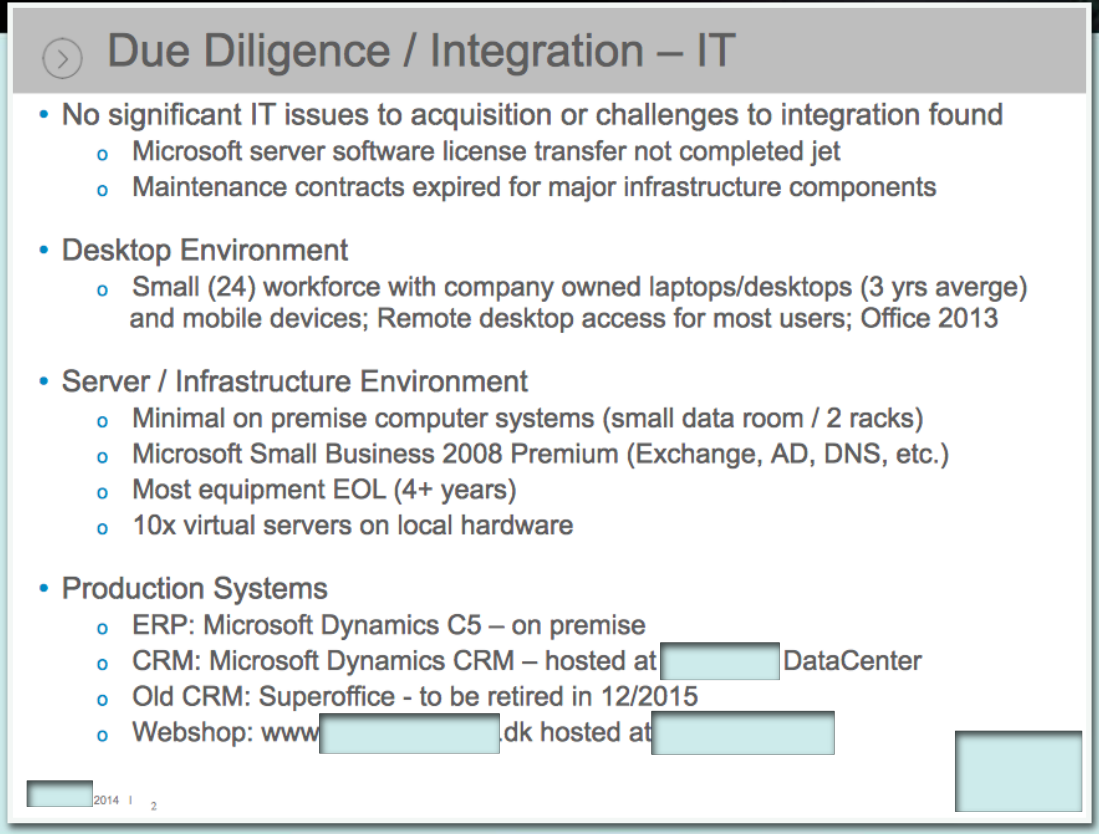
Evaluation:

- **Security Impact: medium.**
- **Process impact: medium.**
- **Cost impact: the cost of new network equipment must be budgeted, as well as connectors to [redacted] and other required licenses.**

Impact Assessment

- Indicate the kind of impact:
  - Security
  - Processes
  - Costs
- Indicate expected remediation, aligned with IT
- If not possible to estimate costs immediately, indicate how they should be calculated (e.g. need to provision new firewall cluster)

Summarize Findings aligned with IT – in one Slide



Costs aligned with IT for integration

FY2016		
Item	Capital	recurring/monthly
Day one need		
Vodafone MPLS Line (10Mbit)	2.000,00 €	1.500,00 €
Firewall (Palo Alto)	12.000,00 €	100,00 €
Cisco Core Switch	20.000,00 €	100,00 €
Cisco Bridging Router	2.000,00 €	
Cisco Wireless Controller	2.500,00 €	
Cisco Access Point (3x)	1.500,00 €	
Consulting (ext. Resources)	5.000,00 €	
	45.000,00 €	1.700,00 €
FY2017		
Item	Capital	recurring/monthly
10x Notebook EOL Replacement	11.000,00 €	
Option 1: Build up T Infrastructure on premise		
SCCM Server (Distribution Point)	4.000,00 €	50,00 €
2x physical servers (VMWare)	10.000,00 €	100,00 €
Storage (VNX)	30.000,00 €	250,00 €
Backup Data Domain		500,00 €
	44.000,00 €	900,00 €
Option 2: Move applications into s Managed Data Cener ( )		
5x hosted virtual servers		3.000,00 €
Storage for hosted applications		1.000,00 €
	0,00 €	4.000,00 €

Connect

Starting to work in Clear Sight

- The news is out
- Information Completeness is paramount
- An Integration Plan is proposed
  - Technical Integration
    - Networks, PCs, applications, data centers, hosting…
  - Business Processes and Systems
  - Timing
- The Integration Plan must also negotiate from an “as-is” to a “to-be” state for the Target

Combine

Target Characteristics	Security Guidelines	SLAs
➤ Little to no geographical diversity ➤ No separate legal entities ➤ No/limited need to keep the same facilities ➤ No/limited to keep the existing technologies ➤ Purchased for limited product portfolio, technology, talent, or local presence	➤ Baseline security controls Target is fully absorbed into IT infrastructure ➤ All IT labor is absorbed into IT global business units	➤ Security controls established or confirmed in less than 100 days
MEDIUM ➤ Similar to previous kind, but Target has certain identifiable complexities that require specific sensitivity during integration ➤ Fewer than 500 employees ➤ Needs to be stand-alone for a certain period of time ➤ During stand-alone time, Target maintains defined non-compliances ➤ Supports its own IT infrastructure during the stand-alone phase	➤ Integration of Target may be full, hybrid, or standalone ➤ All IT labor is absorbed into IT global business units	➤ Operation integration of some IT infrastructure may take +180 days ➤ Processes may take 3 to 9 months
LARGE ➤ More than 500 employees ➤ Relatively large operations ➤ Significant multinational presence and subsidiaries ➤ Target contains certain identifiable complexities that require specific sensitivity during integration	➤ Integration of Target may be full, hybrid, or standalone ➤ IT labor can stay funded by Target company	➤ Operation integration of some IT infrastructure may take +180 days ➤ Customized integration plan ➤ IT Support is shared ➤ Processes take more than 12 months

Combining the two companies

- Resources, staffing, processes, and systems are combined
- Business processes are as much as possible leveled
- IT tools are unified
- ***Active Directory merging strategy is key!***
- The Target company has comparable / same security
- Exceptions are documented and signed off by leadership (executives, CISO)
- Agreed-upon designs are implemented
- Operations — including InfoSec – are turned to standard support
- Weekly or recurring meetings can be setup to assess progresses

Planning the Active Directory Integration

- Training for the technicians performing the migration
- Scheduled outages
- Companies' cultural differences such as who's allowed access to AD and Exchange, or how file system security is set
- Network differences between the two sites
- Network, AD, or Exchange anomalies
- Customer and employee communication

Pain Points in Active Directory Integration

- Deciding the strategy
  - Integrate the Target into the Acquiring
  - Build a new, combined AD
  - Migrate legacy objects into a new AD
- ***One Company, One Email!***
  - Free/Busy Information
  - Exchange/Lync/Office/AD versions
  - Office 365?
- External Federations/Partners/ADFS?
- DNS configuration/forwarding
- SID history/filtering
- Evaluate purchase of a dedicated AD migration/upgrade tool

Adjusting Policies

Merging Policies

- Safeguards against disgruntled employees
- New employee contracts
  - Are existing Policies still relevant?
  - Are we “dumbing down” their security?
- Existing employee contracts
  - Do they protect you?
  - Do they meet new relationship?
- Identify key policies — yours vs theirs
  - Work with Legal Departments

Merging InfoSec

The New Security Department

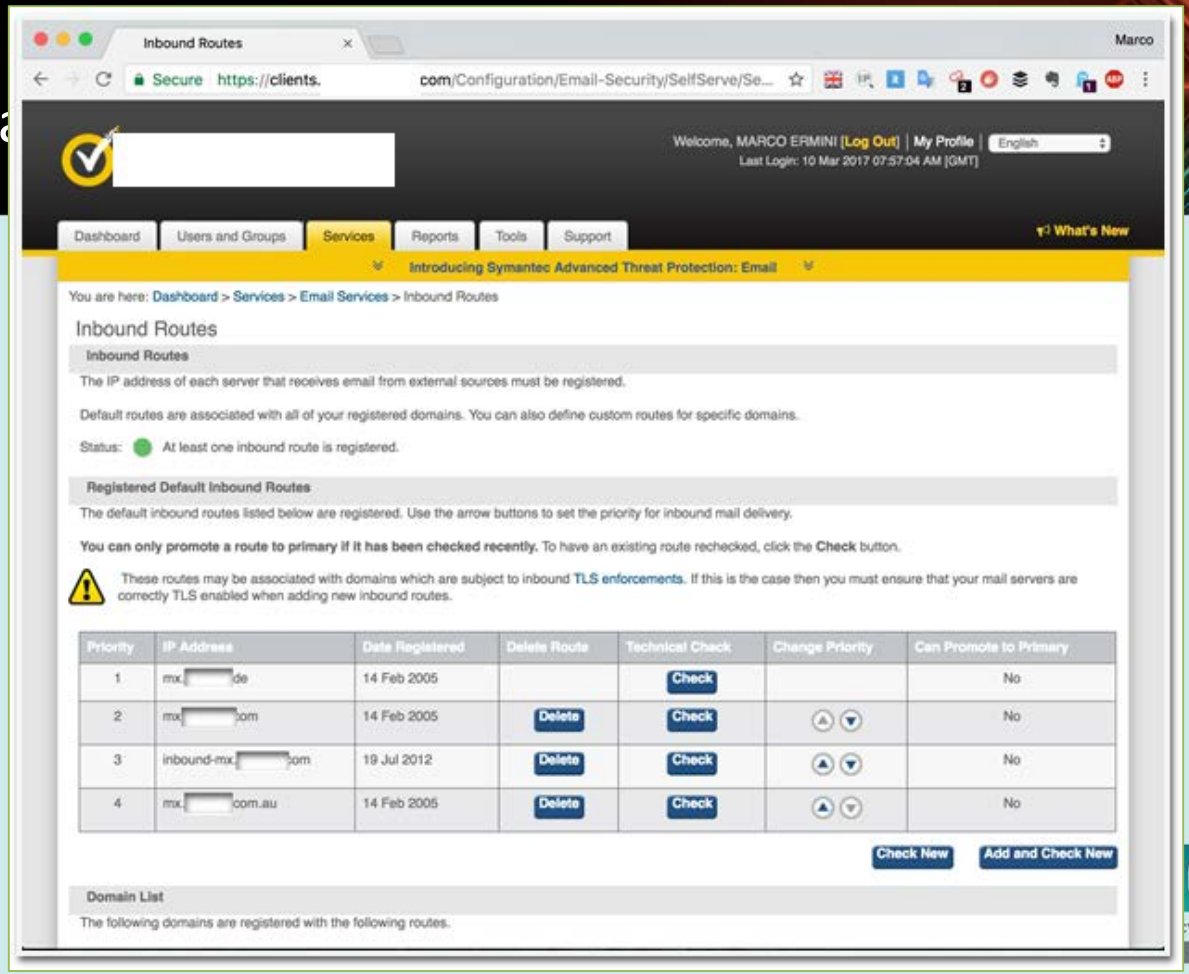
- Cost/Budgeting
  - Pre-merger: OpEx
  - Merger: CapEx, Processes
  - Post-merger: Optimization
- Communications

What if I am on the weak side?

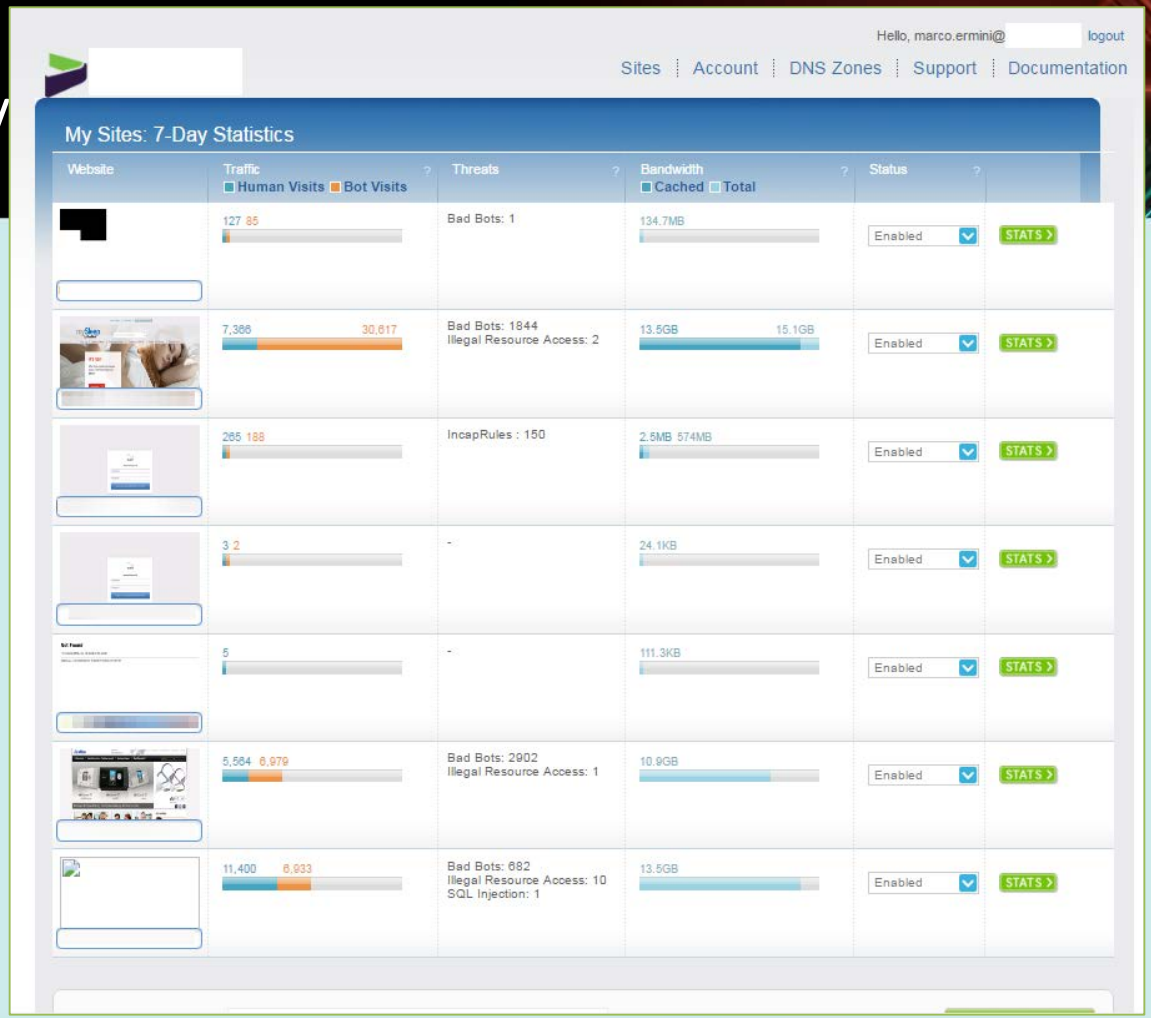
1. Identify specific strengths that can be useful in the merging
   - Experience from security incidents
   - Technological implementations
   - Local knowledge and compliance
2. Be prepared to learn
   - What is the current Cyber Security philosophy?
   - Who is taking security-related decisions?
3. Don’t rush your career decisions
   - Can bring new opportunities
   - Meet the new management

Leveraging the Cloud

Cloud Ema



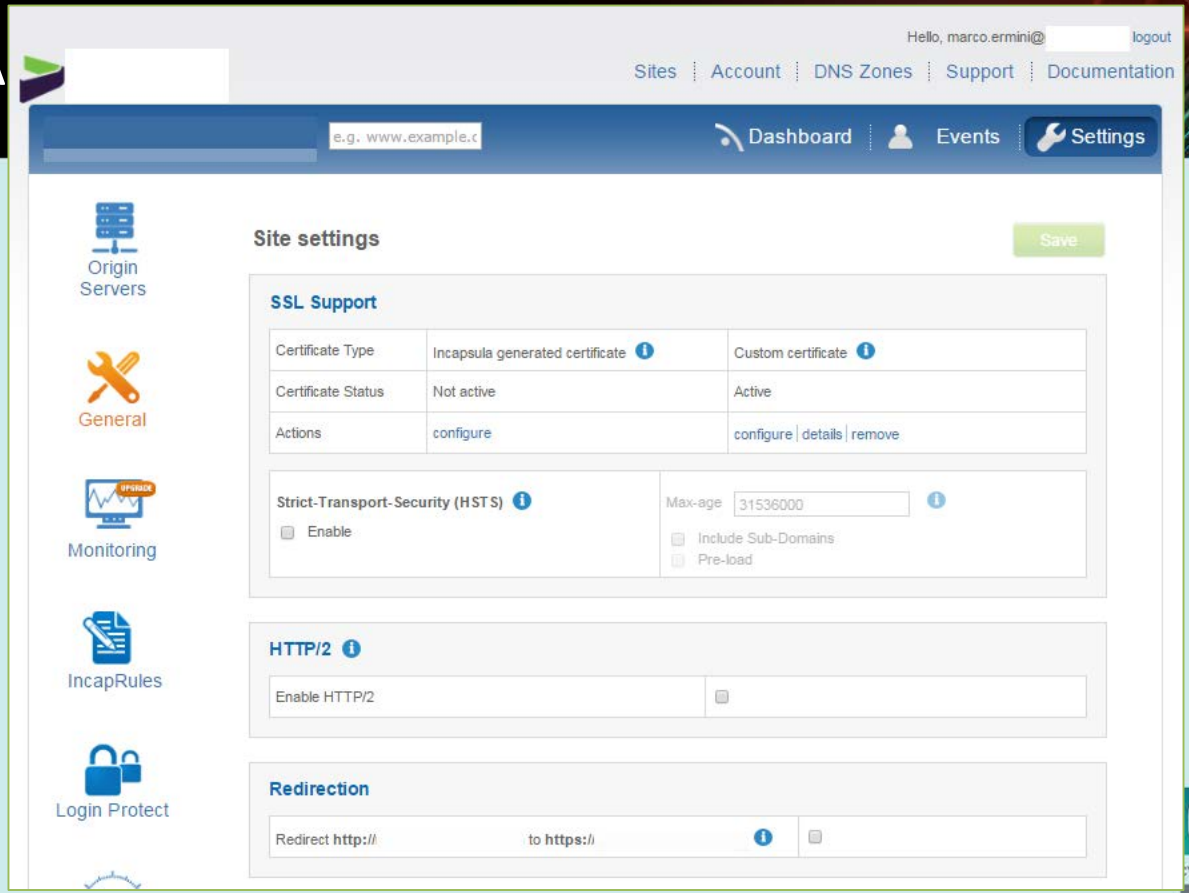
SaaS WAF/



Moving to a Cloud-Based ERP or Email Solution

- Traditional M&A dogma is “transition, then transform”
- Companies however are leveraging migration to key technologies to the Cloud during the M&A process as an enabler
- Can simultaneously replace aging, capital-intensive technology with a subscription-based operating model
- Ideal also for divestitures
- Boarding is considerably faster and cheaper than traditional on premise solutions (Accenture estimates 30% for both)
- Ultimate flexibility during a post-deal transition

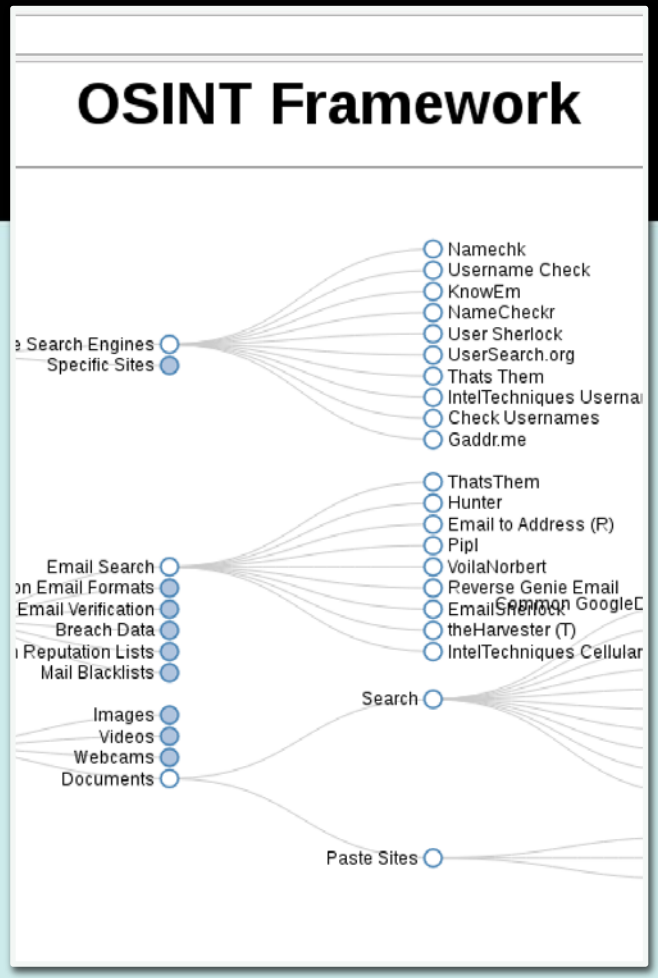
Cloud WA



Open Source information gathering

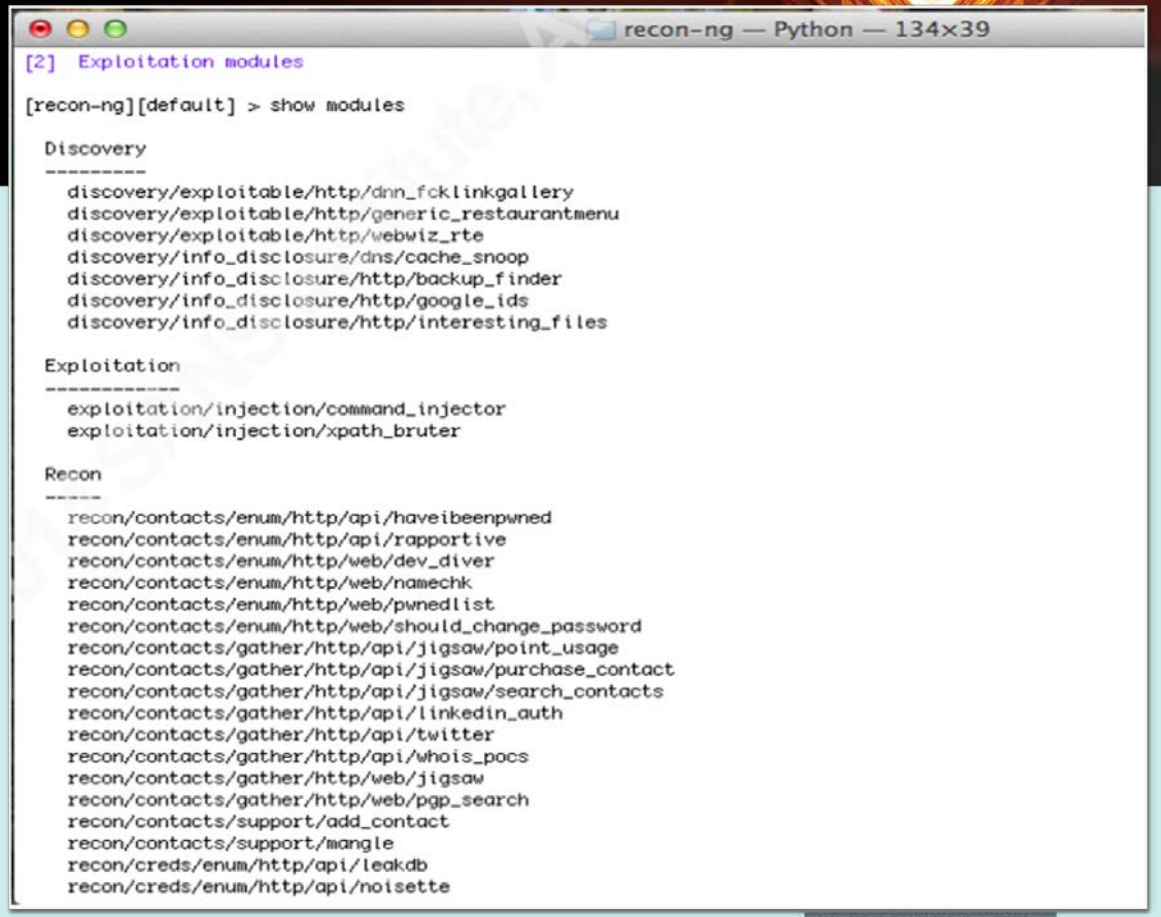
Backup Slides

Open Source Intelligence

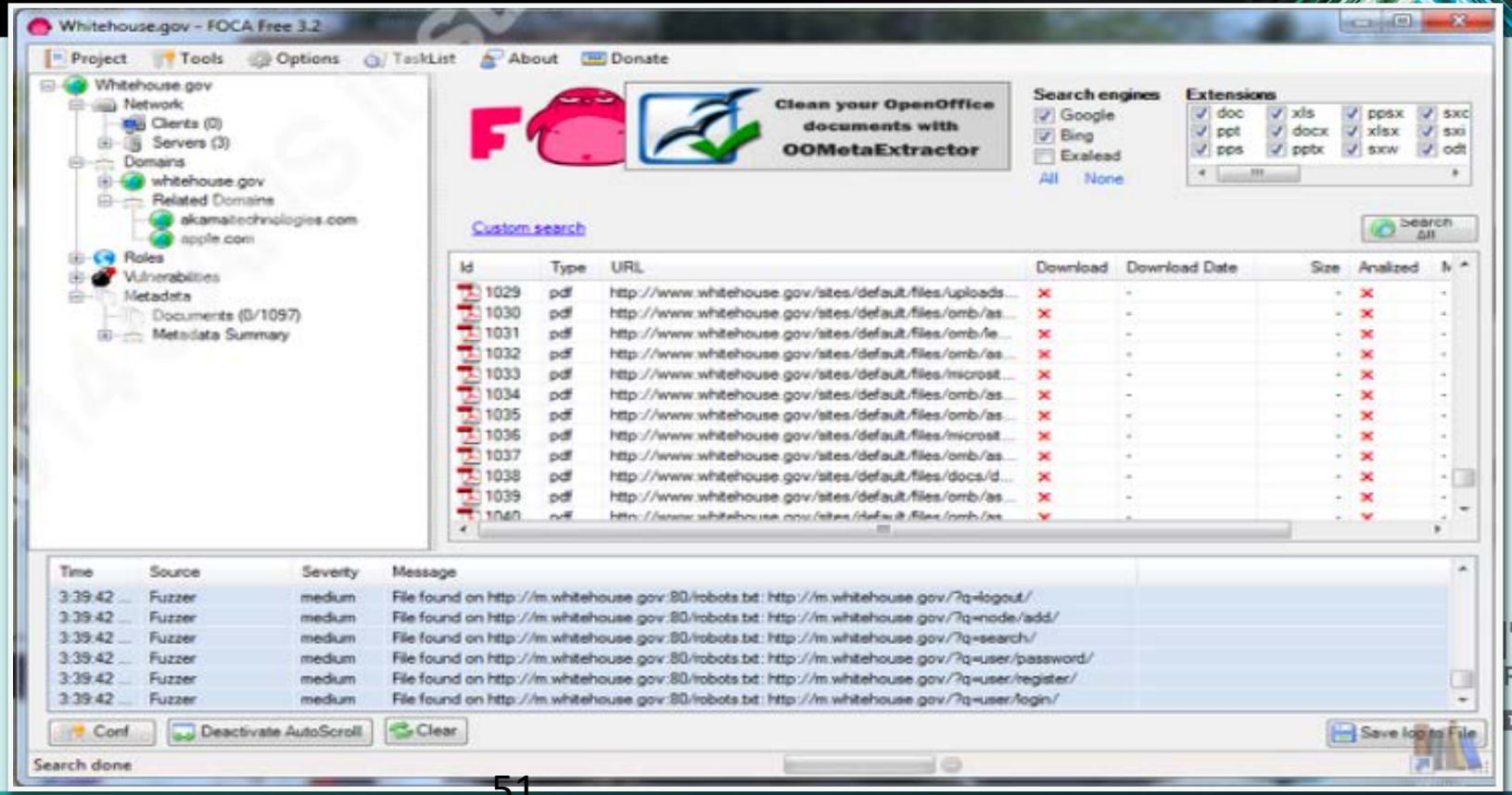


- Collection of free tools and source of information
- They divide into
  - Tools which can run locally
  - Search Engine “dorking” (e.g. Google hacking)
  - Semi-closed sources
  - Exploitation of sites which have originally other purposes (e.g. social networks, dating sites…)

METASPLOIT recon-ng



FOCA Search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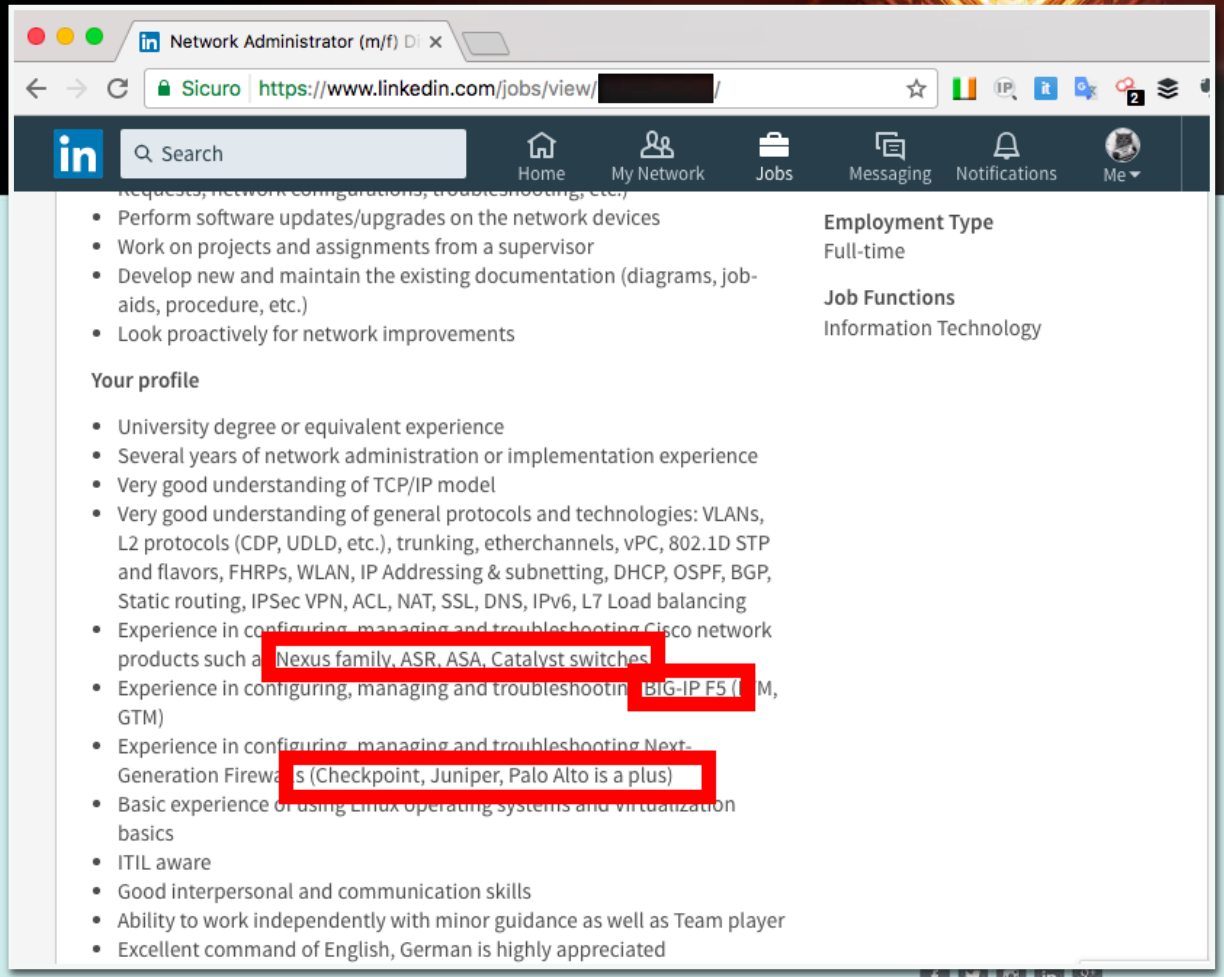
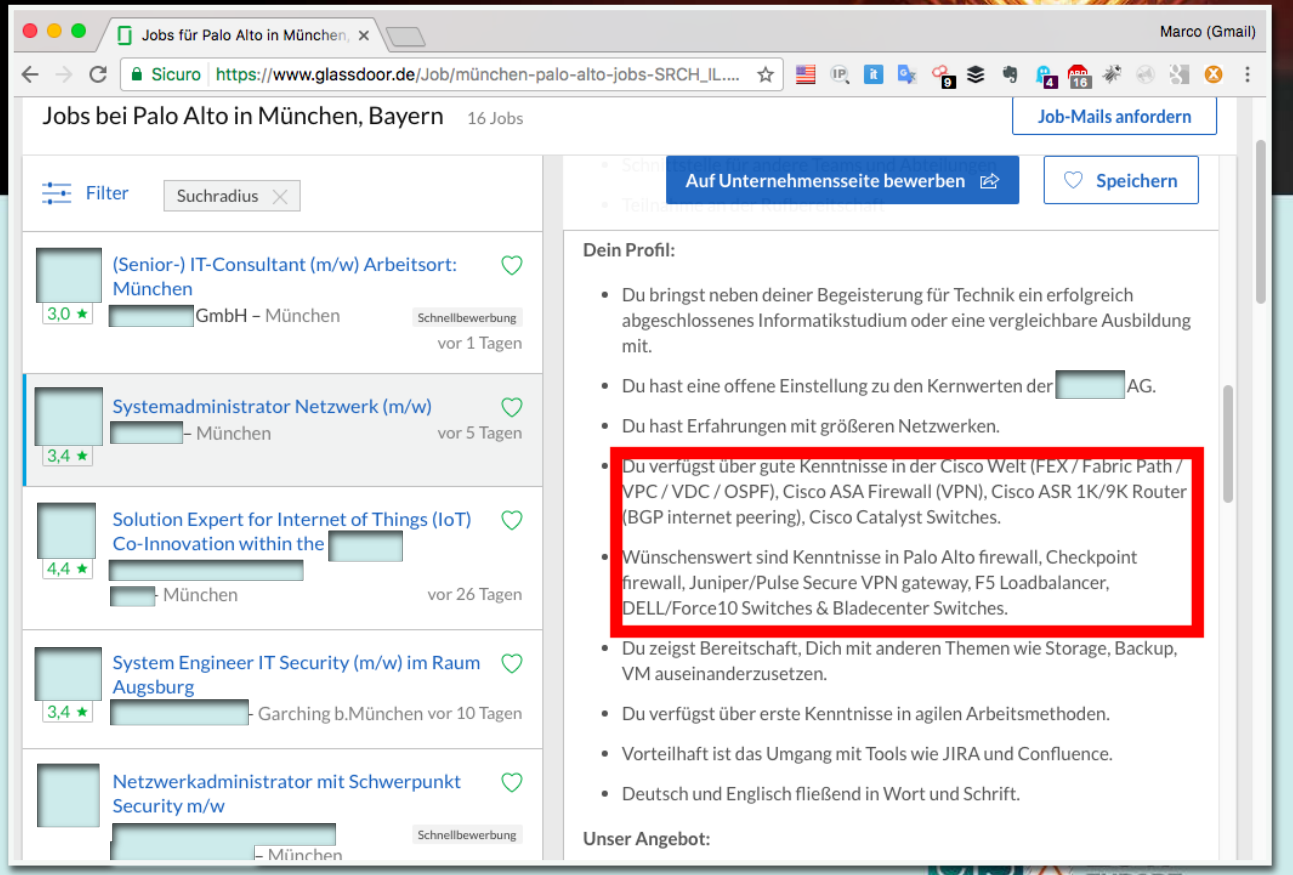
Message
3:39:42 ... Fuzzer medium File found on http://m.whitehouse.gov:80/robots.txt: http://m.whitehouse.gov/?q=logout/
3:39:42 ... Fuzzer medium File found on http://m.whitehouse.gov:80/robots.txt: http://m.whitehouse.gov/?q=node/add/
3:39:42 ... Fuzzer medium File found on http://m.whitehouse.gov:80/robots.txt: http://m.whitehouse.gov/?q=search/
3:39:42 ... Fuzzer medium File found on http://m.whitehouse.gov:80/robots.txt: http://m.whitehouse.gov/?q=user/password/
3:39:42 ... Fuzzer medium File found on http://m.whitehouse.gov:80/robots.txt: http://m.whitehouse.gov/?q=user/register/
3:39:42 ... Fuzzer medium File found on http://m.whitehouse.gov:80/robots.txt: http://m.whitehouse.gov/?q=user/login/
Conf
Deactivate AutoScroll
Clear
Save log to File
Search done

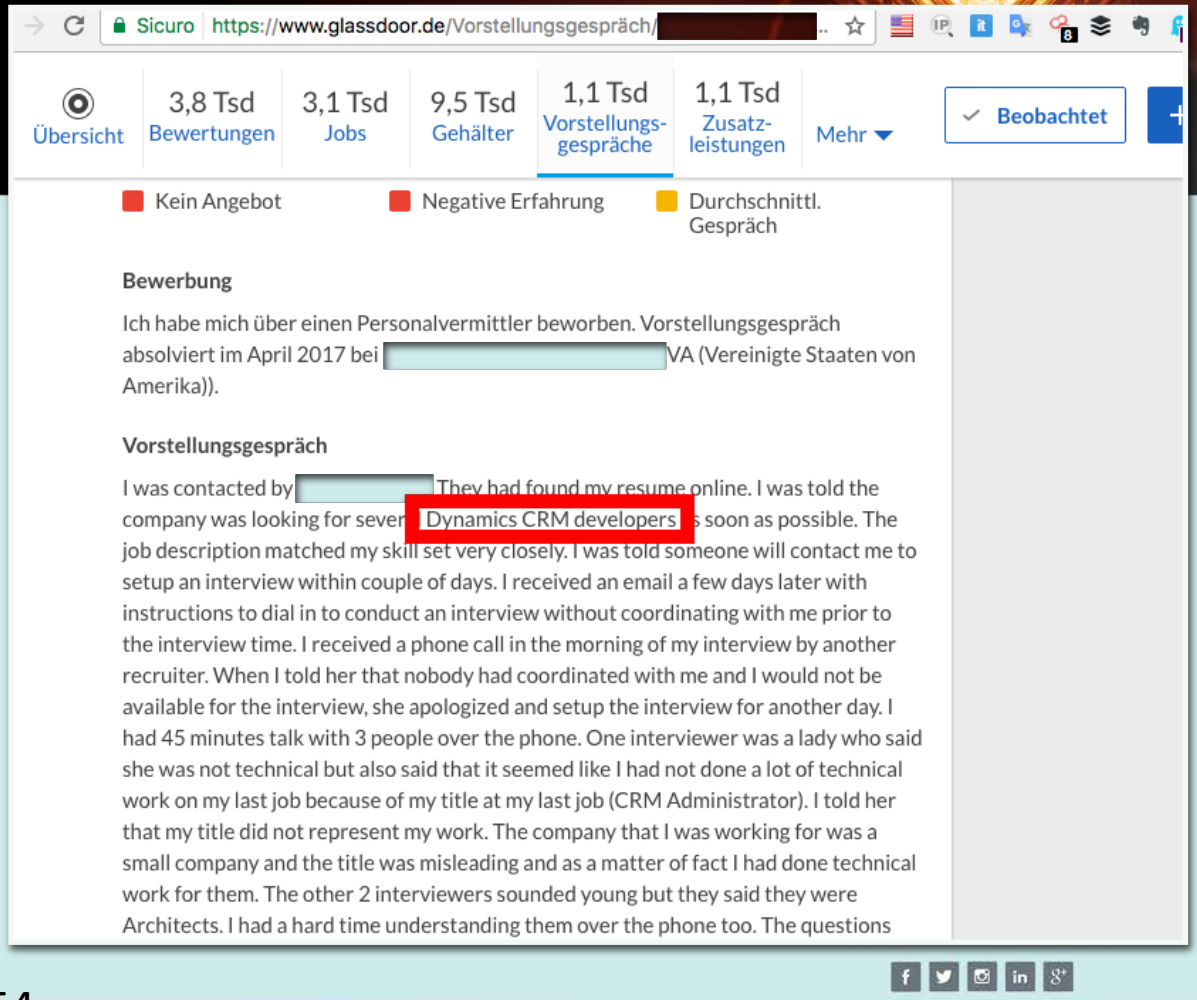
Job Posting's Harvesting



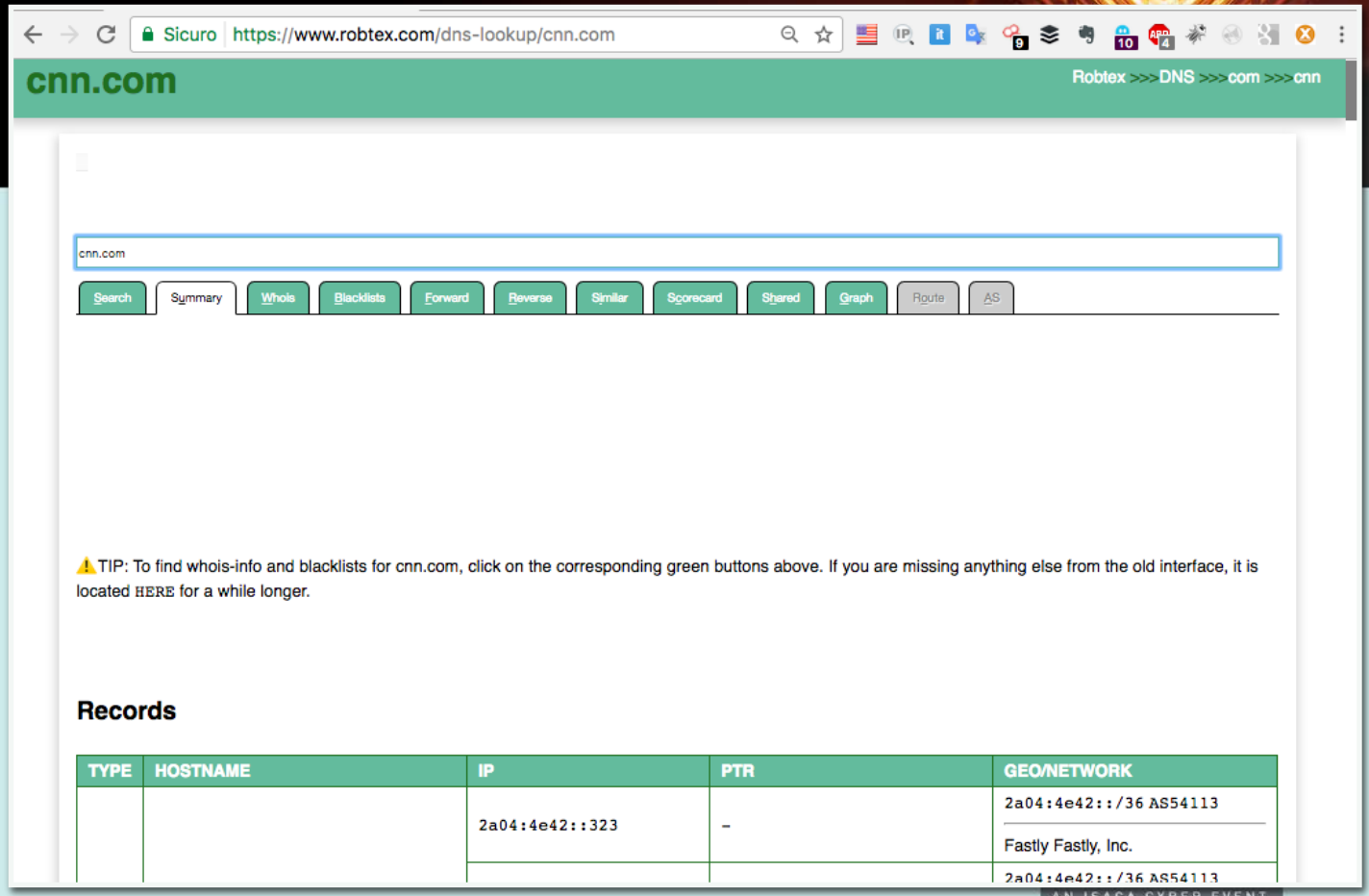
Job Posting's Harvesting



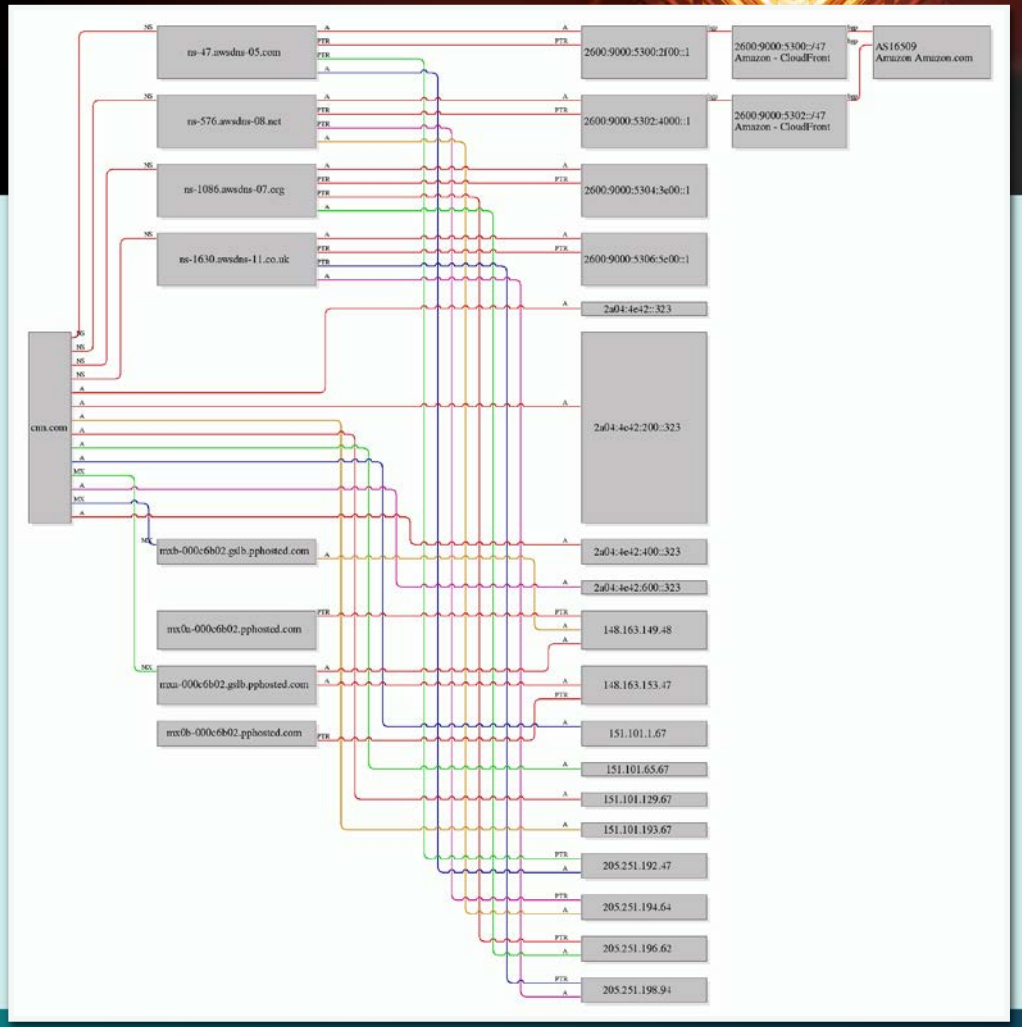
Job Interviews' Harvesting



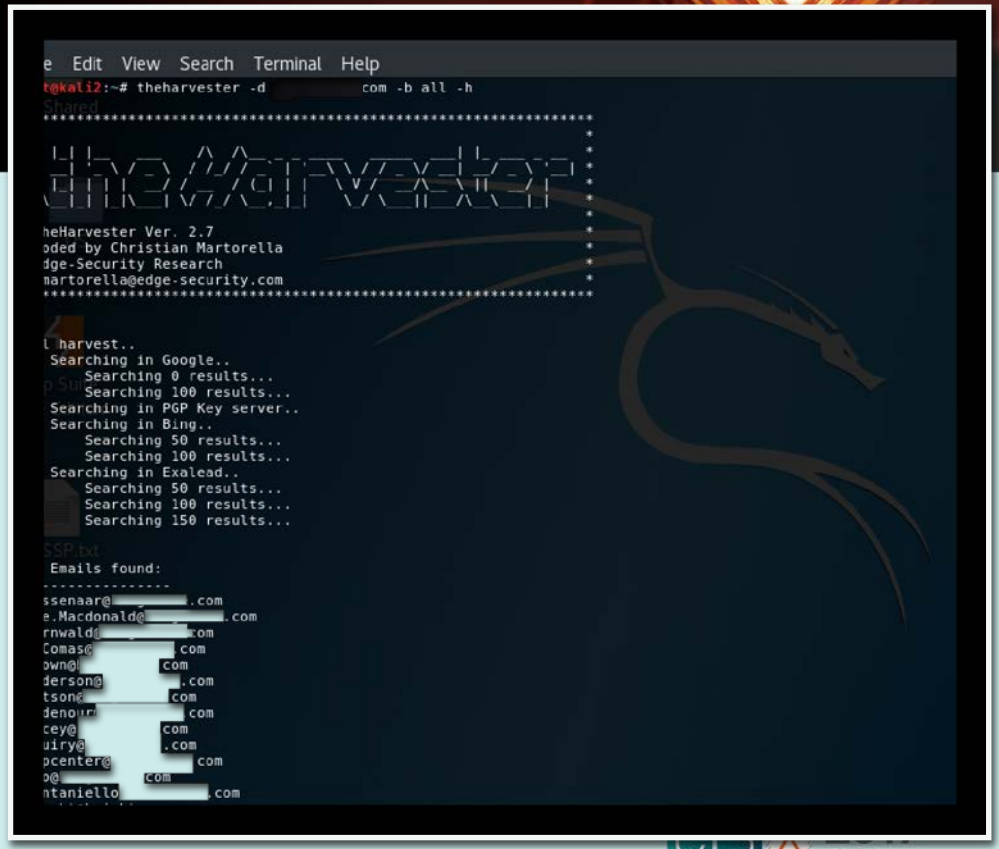
robtex.com


Sicuro https://www.robtex.com/dns-lookup/cnn.com
cnn.com
Robtex >>>DNS >>>com >>>cnn
cnn.com
Search
Summary
Whois
Blacklists
Forward
Reverse
Similar
Scorecard
Shared
Graph
Route
AS
TIP: To find whois-info and blacklists for cnn.com, click on the corresponding green buttons above. If you are missing anything else from the old interface, it is located HERE for a while longer.
Records
TYPE
HOSTNAME
IP
PTR
GEO/NETWORK
2a04:4e42::323
-
2a04:4e42::/36 AS54113
Fastly Fastly, Inc.

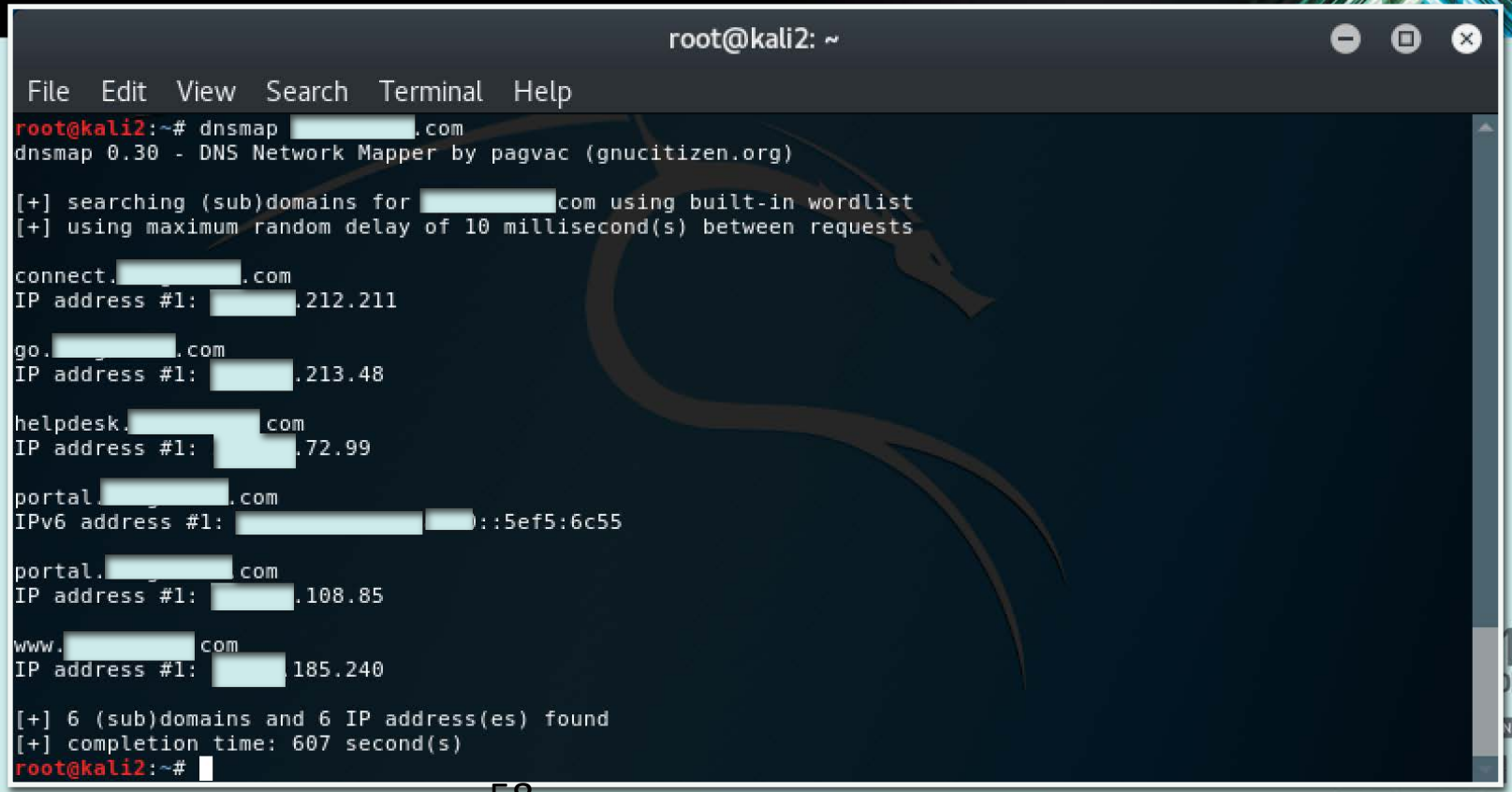
robtex.com


ns-47.awsdns-05.com
ns-576.awsdns-08.net
ns-1086.awsdns-07.org
ns-1630.awsdns-11.co.uk
cnn.com
mxb-000c6b02.gslb.pphosted.com
mx0a-000c6b02.pphosted.com
mxa-000c6b02.gslb.pphosted.com
mx0b-000c6b02.pphosted.com
2600:9000:5300:2f00::1
2600:9000:5302:4000::1
2600:9000:5304:3e00::1
2600:9000:5306:5e00::1
2a04:4e42::323
2a04:4e42:200::323
2a04:4e42:400::323
2a04:4e42:600::323
148.163.149.48
148.163.153.47
151.101.1.67
151.101.65.67
151.101.129.67
151.101.193.67
205.251.192.47
205.251.194.64
205.251.196.62
205.251.198.94
2600:9000:5300::/47
Amazon - CloudFront
2600:9000:5302::/47
Amazon - CloudFront
AS16509
Amazon Amazon.com

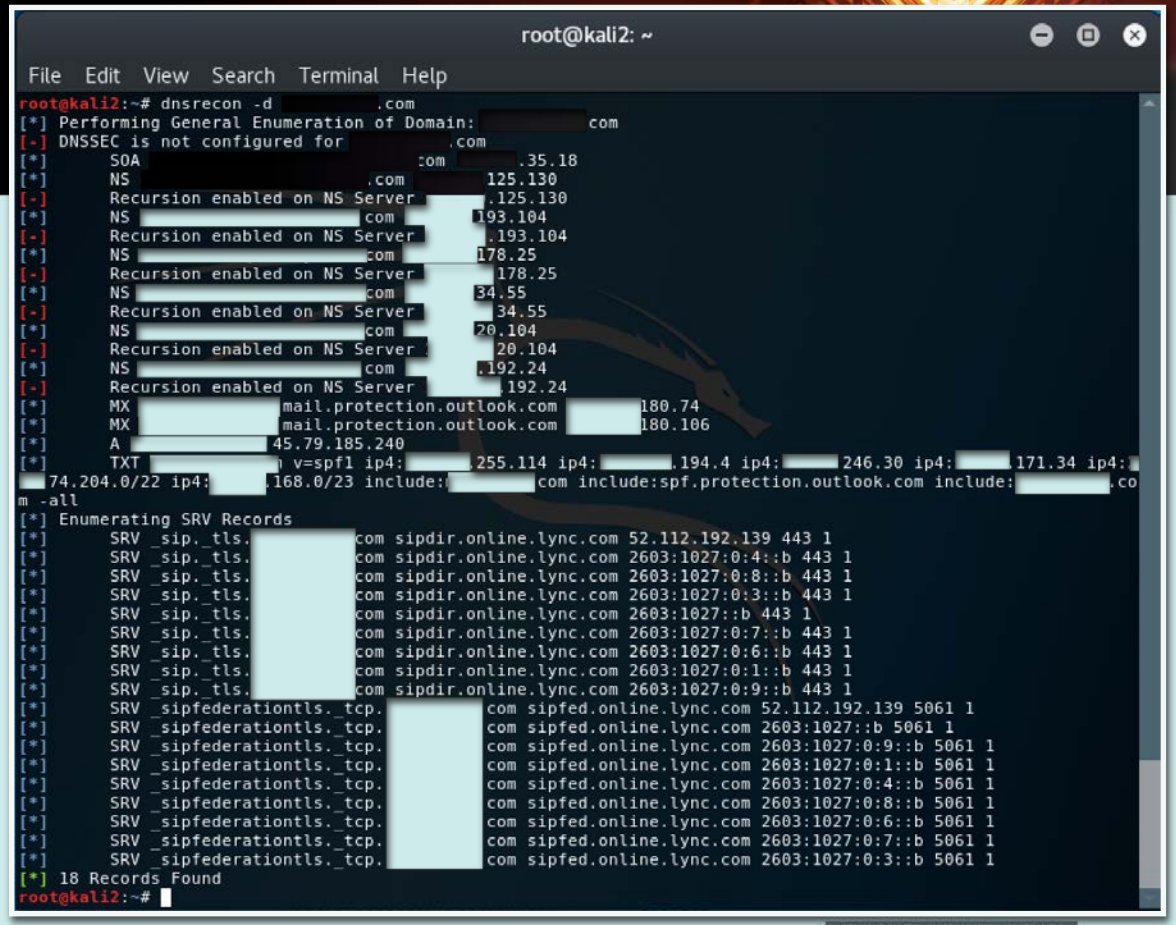
Harvesting of Corporate Emails



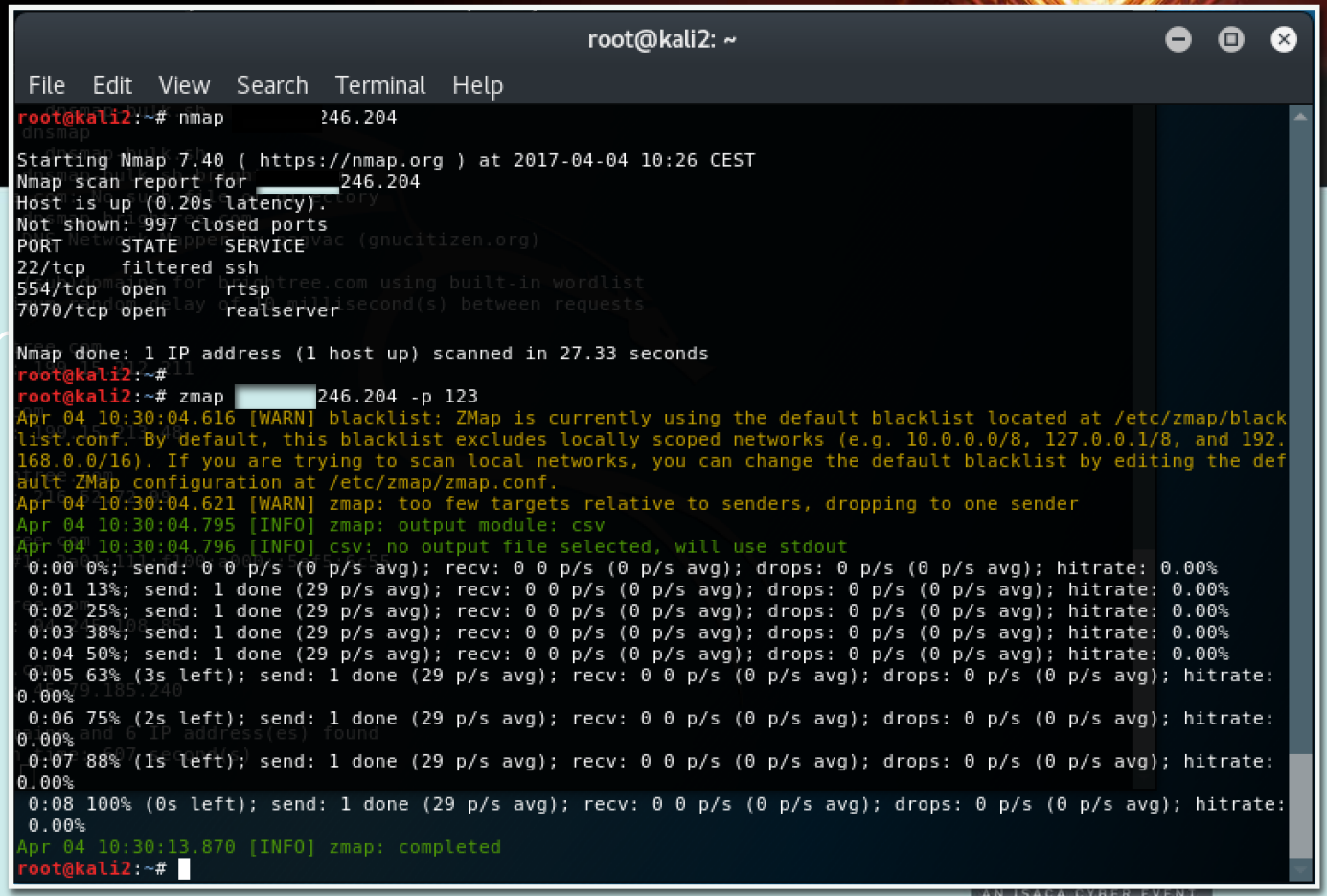
Gathering of domain names



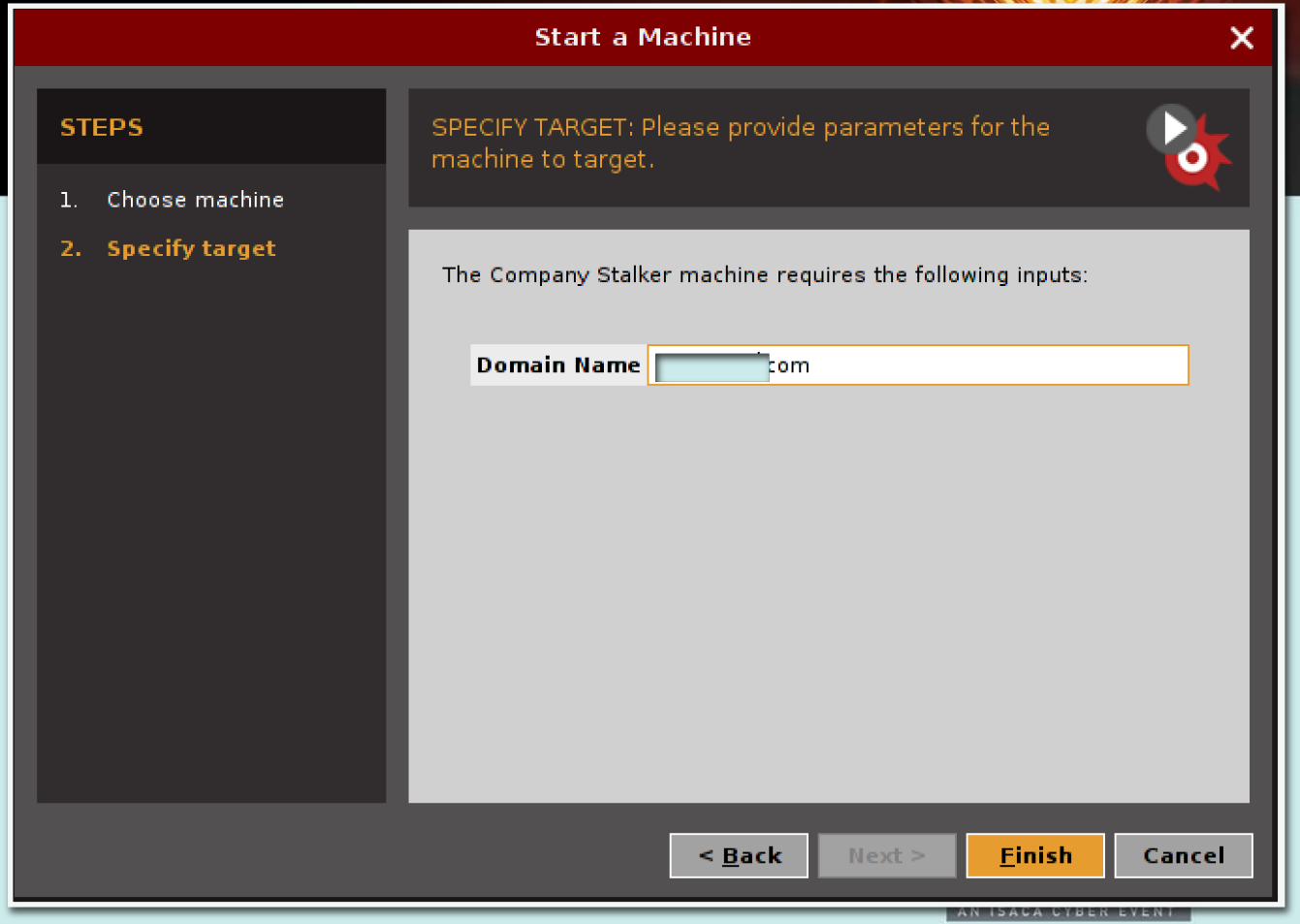
Gathering of domain names



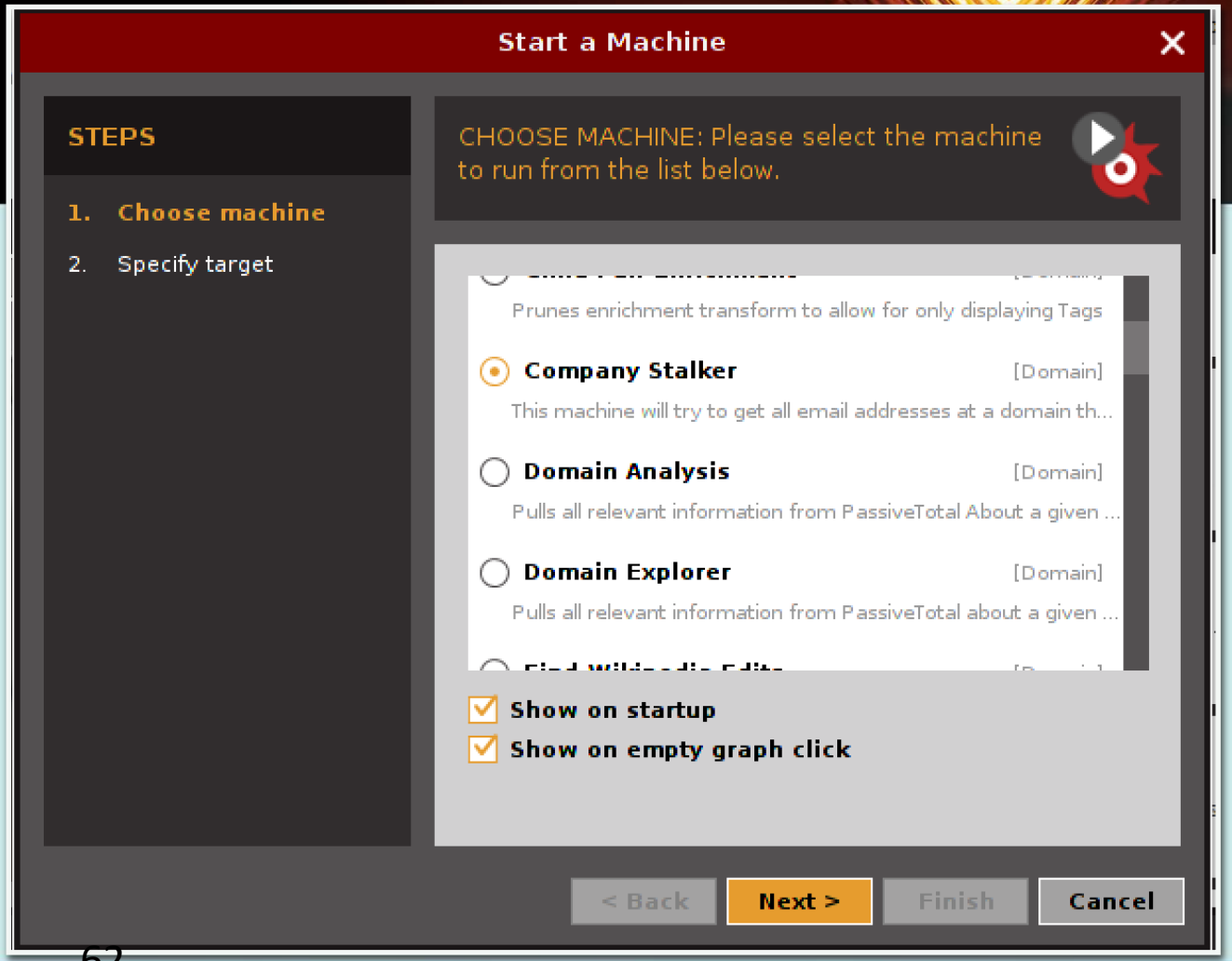
Old (and new) fash
scanning



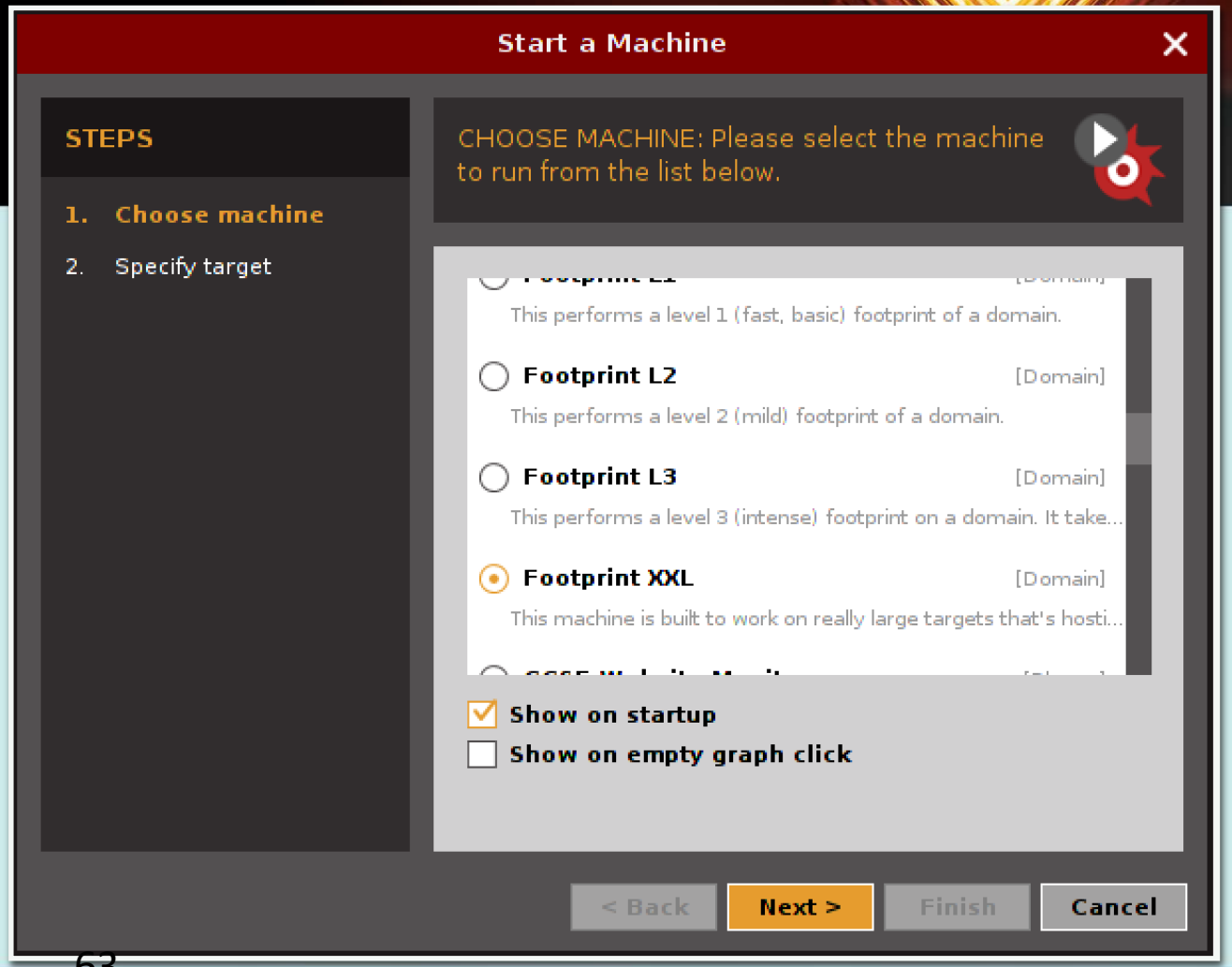
Maltego

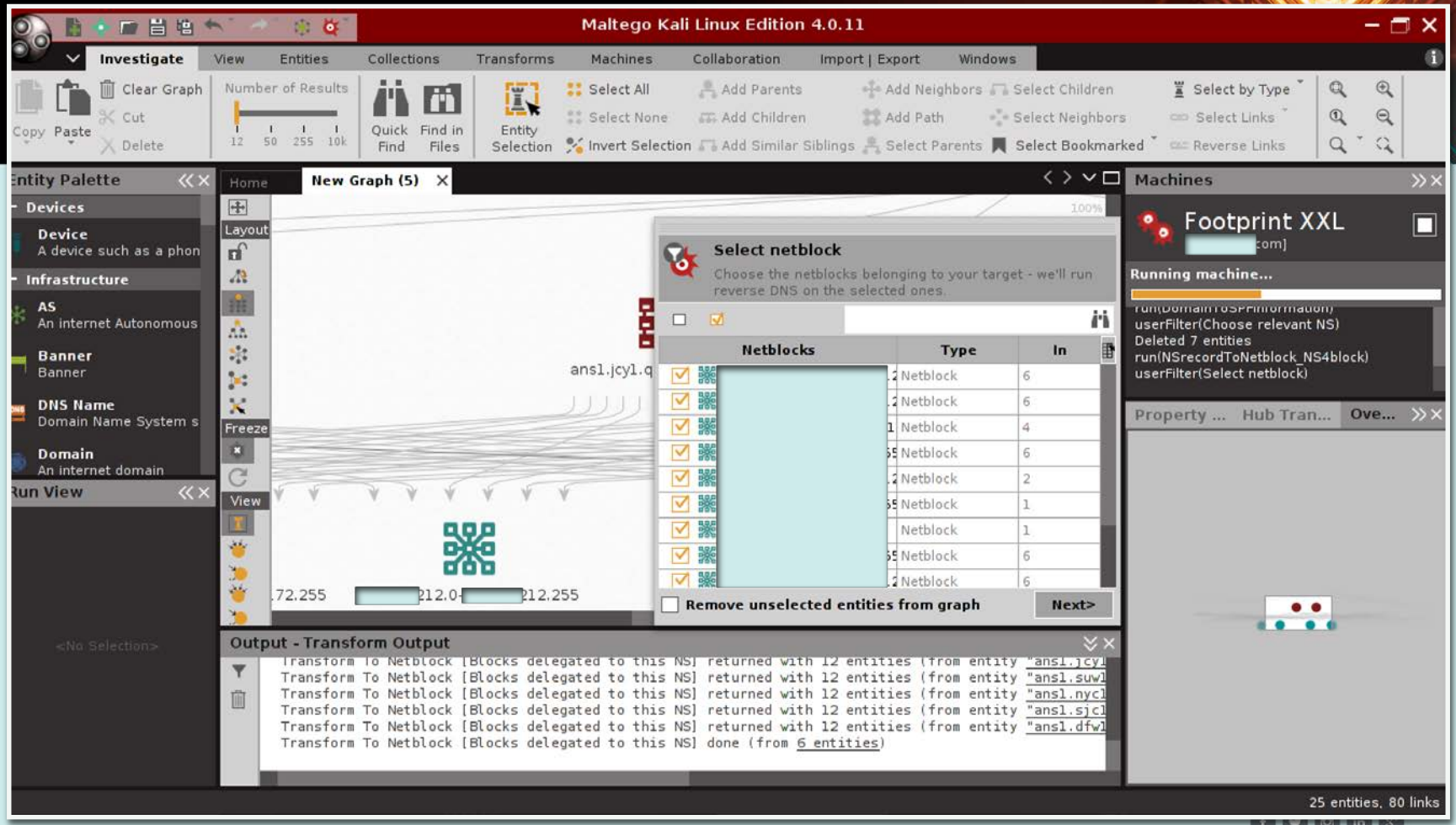

Start a Machine
STEPS
1. Choose machine
2. Specify target
SPECIFY TARGET: Please provide parameters for the machine to target.
The Company Stalker machine requires the following inputs:
Domain Name
com
< Back
Next >
Finish
Cancel

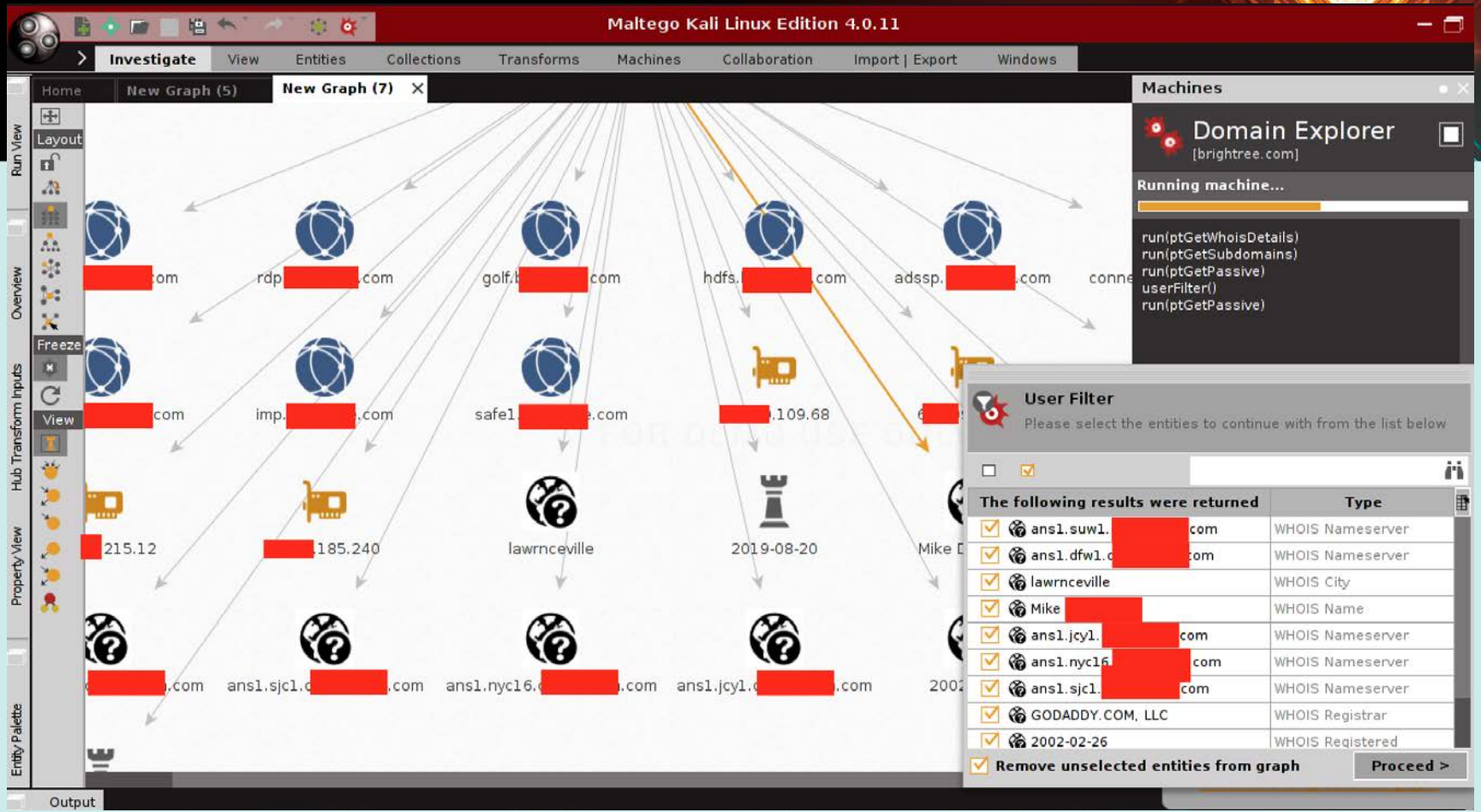
Maltego

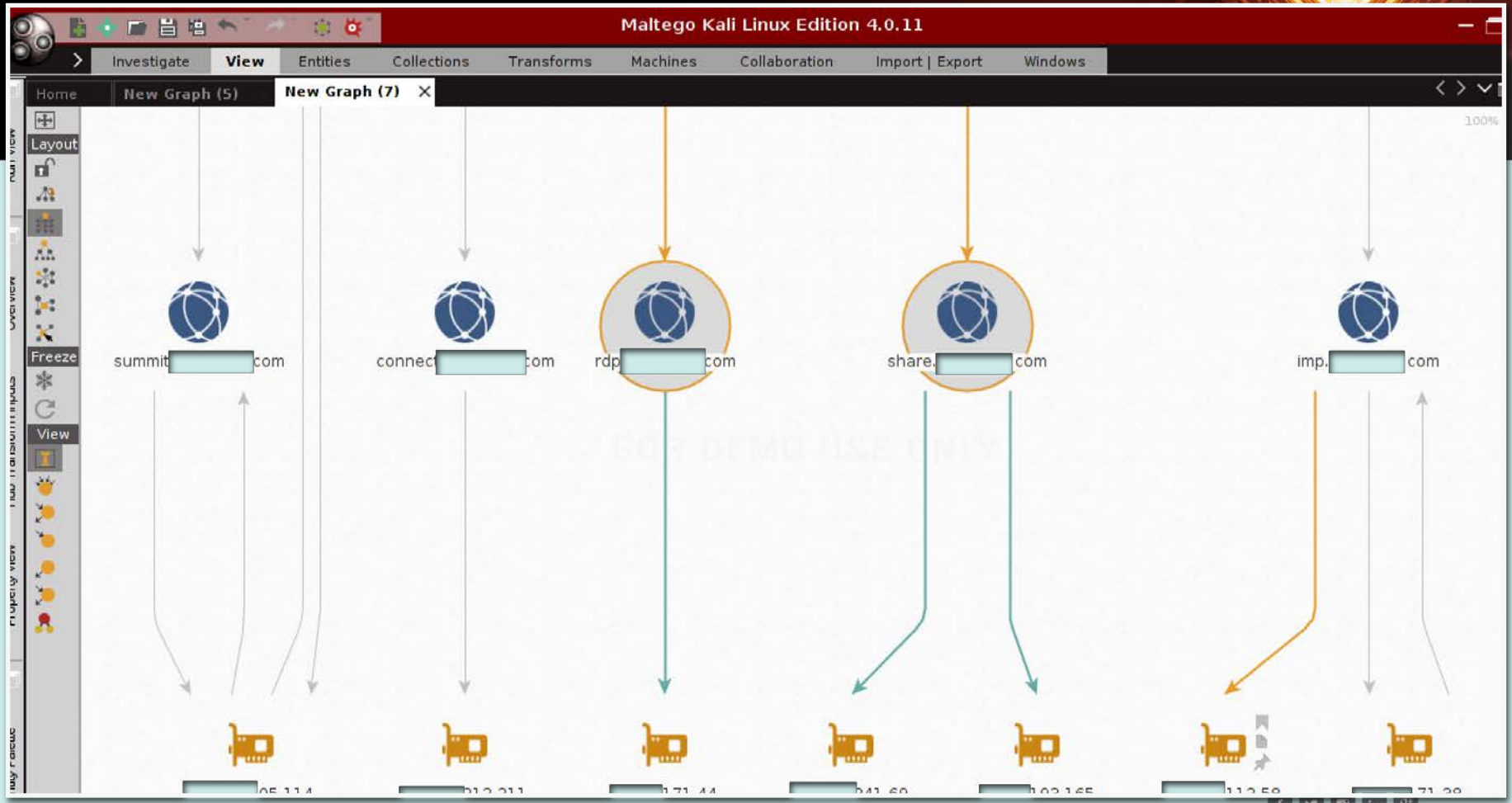

Start a Machine
STEPS
1. Choose machine
2. Specify target
CHOOSE MACHINE: Please select the machine to run from the list below.
Prunes enrichment transform to allow for only displaying Tags
Company Stalker [Domain]
This machine will try to get all email addresses at a domain th...
Domain Analysis [Domain]
Pulls all relevant information from PassiveTotal About a given ...
Domain Explorer [Domain]
Pulls all relevant information from PassiveTotal about a given ...
Show on startup
Show on empty graph click
< Back
Next >
Finish
Cancel

Maltego

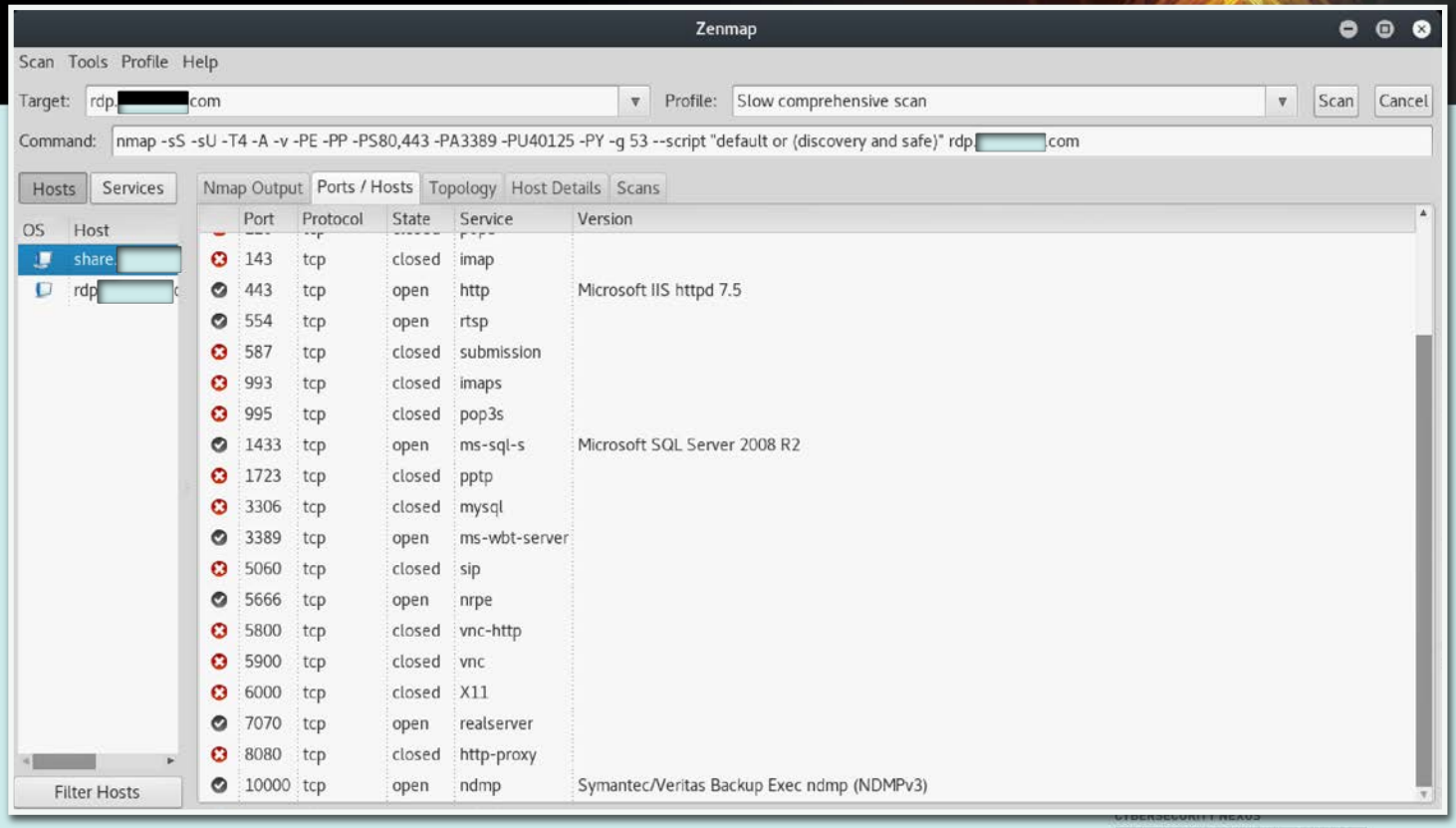

Start a Machine
STEPS
1. Choose machine
2. Specify target
CHOOSE MACHINE: Please select the machine to run from the list below.
This performs a level 1 (fast, basic) footprint of a domain.
Footprint L2 [Domain]
This performs a level 2 (mild) footprint of a domain.
Footprint L3 [Domain]
This performs a level 3 (intense) footprint on a domain. It take...
Footprint XXL [Domain]
This machine is built to work on really large targets that's hosti...
Show on startup
Show on empty graph click
< Back
Next >
Finish
Cancel


Maltego Kali Linux Edition 4.0.11
Investigate
View
Entities
Collections
Transforms
Machines
Collaboration
Import | Export
Windows
Clear Graph
Cut
Delete
Copy
Paste
Number of Results
12
50
255
10k
Quick Find
Find in Files
Entity Selection
Select All
Select None
Invert Selection
Add Parents
Add Children
Add Similar Siblings
Add Neighbors
Add Path
Select Parents
Select Children
Select Neighbors
Select Bookmarked
Select by Type
Select Links
Reverse Links
Entity Palette
Devices
Device
A device such as a phon
Infrastructure
AS
An internet Autonomous
Banner
Banner
DNS Name
Domain Name System s
Domain
An internet domain
Run View
<No Selection>
Home
New Graph (5)
Layout
Freeze
View
100%
ans1.jcy1.q
.72.255
212.0-
212.255
Select netblock
Choose the netblocks belonging to your target - we'll run reverse DNS on the selected ones.
Netblocks
Type
In
Netblock
Remove unselected entities from graph
Next>
Output - Transform Output
Transform To Netblock [Blocks delegated to this NS] returned with 12 entities (from entity "ans1.jcy1
Transform To Netblock [Blocks delegated to this NS] returned with 12 entities (from entity "ans1.suw1
Transform To Netblock [Blocks delegated to this NS] returned with 12 entities (from entity "ans1.nyc1
Transform To Netblock [Blocks delegated to this NS] returned with 12 entities (from entity "ans1.sjc1
Transform To Netblock [Blocks delegated to this NS] returned with 12 entities (from entity "ans1.dfw1
Transform To Netblock [Blocks delegated to this NS] done (from 6 entities)
Machines
Footprint XXL
Running machine...
userFilter(Choose relevant NS)
Deleted 7 entities
run(NSrecordToNetblock_NS4block)
userFilter(Select netblock)
Property ...
Hub Tran...
Ove...
25 entities, 80 links


Maltego Kali Linux Edition 4.0.11
Investigate
View
Entities
Collections
Transforms
Machines
Collaboration
Import | Export
Windows
Home
New Graph (5)
New Graph (7)
Layout
Freeze
View
Run View
Overview
Hub Transform Inputs
Property View
Entity Palette
Machines
Domain Explorer
[brightree.com]
Running machine...
run(ptGetWhoisDetails)
run(ptGetSubdomains)
run(ptGetPassive)
userFilter()
run(ptGetPassive)
User Filter
Please select the entities to continue with from the list below
The following results were returned
Type
ans1.suwl.
WHOIS Nameserver
ans1.dfw1.
WHOIS Nameserver
lawrnceville
WHOIS City
Mike
WHOIS Name
ans1.jcy1.
WHOIS Nameserver
ans1.nyc16
WHOIS Nameserver
ans1.sjc1.
WHOIS Nameserver
GODADDY.COM, LLC
WHOIS Registrar
2002-02-26
WHOIS Registered
Remove unselected entities from graph
Proceed >
lawrnceville
2019-08-20
Output


Maltego Kali Linux Edition 4.0.11
Investigate
View
Entities
Collections
Transforms
Machines
Collaboration
Import | Export
Windows
Home
New Graph (5)
New Graph (7)
Layout
Freeze
View
100%
summit com
connect com
rdp com
share. com
imp. com

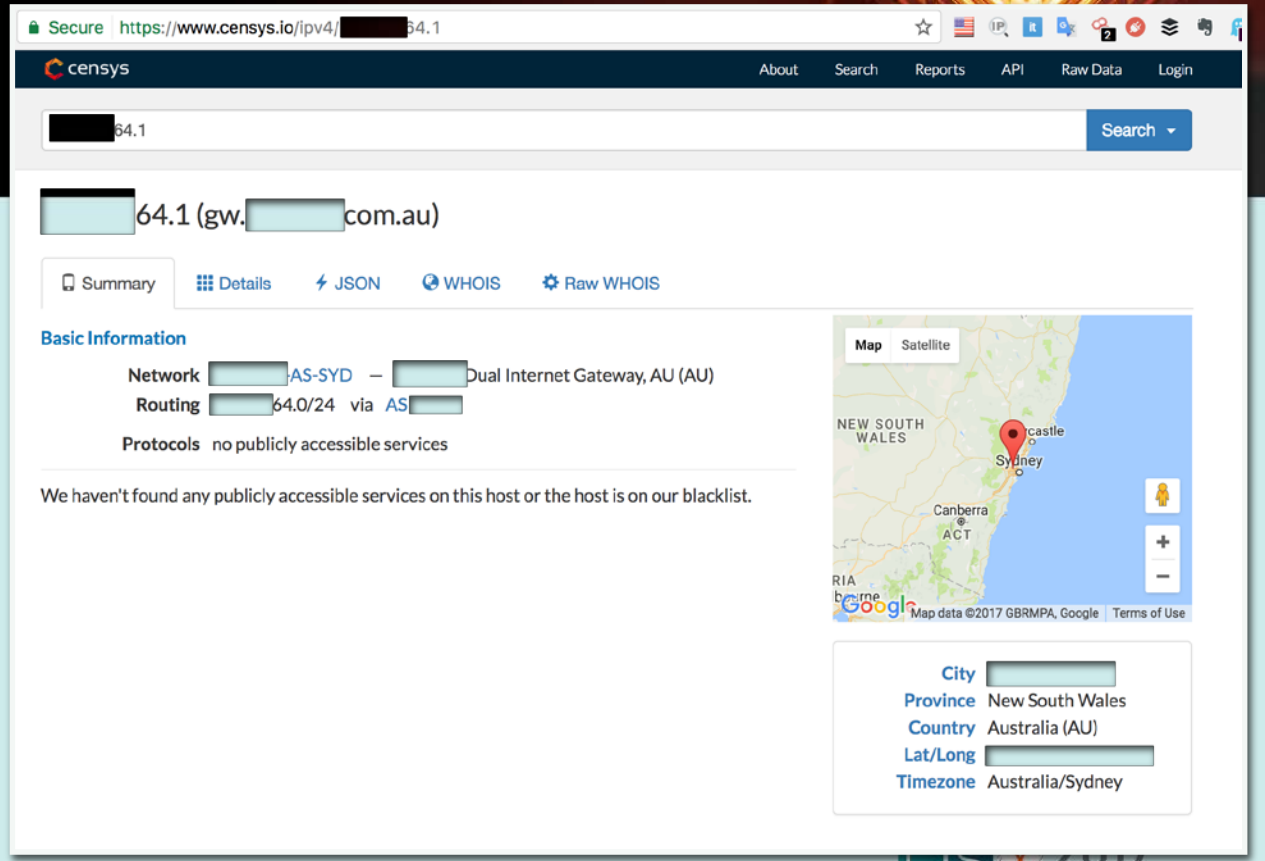
NMAP


Zenmap
Scan Tools Profile Help
Target: rdp.[redacted]com
Profile: Slow comprehensive scan
Scan Cancel
Command: nmap -sS -sU -T4 -A -v -PE -PP -PS80,443 -PA3389 -PU40125 -PY -g 53 --script "default or (discovery and safe)" rdp.[redacted]com
Hosts Services
OS Host
share.[redacted]
rdp[redacted]
Filter Hosts
Nmap Output Ports / Hosts Topology Host Details Scans
Port Protocol State Service Version
143 tcp closed imap
443 tcp open http Microsoft IIS httpd 7.5
554 tcp open rtsp
587 tcp closed submission
993 tcp closed imaps
995 tcp closed pop3s
1433 tcp open ms-sql-s Microsoft SQL Server 2008 R2
1723 tcp closed pptp
3306 tcp closed mysql
3389 tcp open ms-wbt-server
5060 tcp closed sip
5666 tcp open nrpe
5800 tcp closed vnc-http
5900 tcp closed vnc
6000 tcp closed X11
7070 tcp open realserver
8080 tcp closed http-proxy
10000 tcp open ndmp Symantec/Veritas Backup Exec ndmp (NDMPv3)

censys.io (semi-free)

- Parsing and collection of various publically-available information
- Example: certificates
  - SSLVPN in France and Munich
  - Date Center presence in Munich, San Diego, Sydney
  - Demo-site of Hybrid (e-commerce technology)
  - Using Akamai services in Sydney

censys.io - Geolocation



shodan.io

208.27.123.[redacted]

[redacted]

Added on 07.01.2014

Williamston

Details

[redacted]

[2J[H

****** Important Banner Message ******

Enable and Telnet passwords are configured to "password".

HTTP and HTTPS default username is "admin" and password is "password".

Please change them immediately.

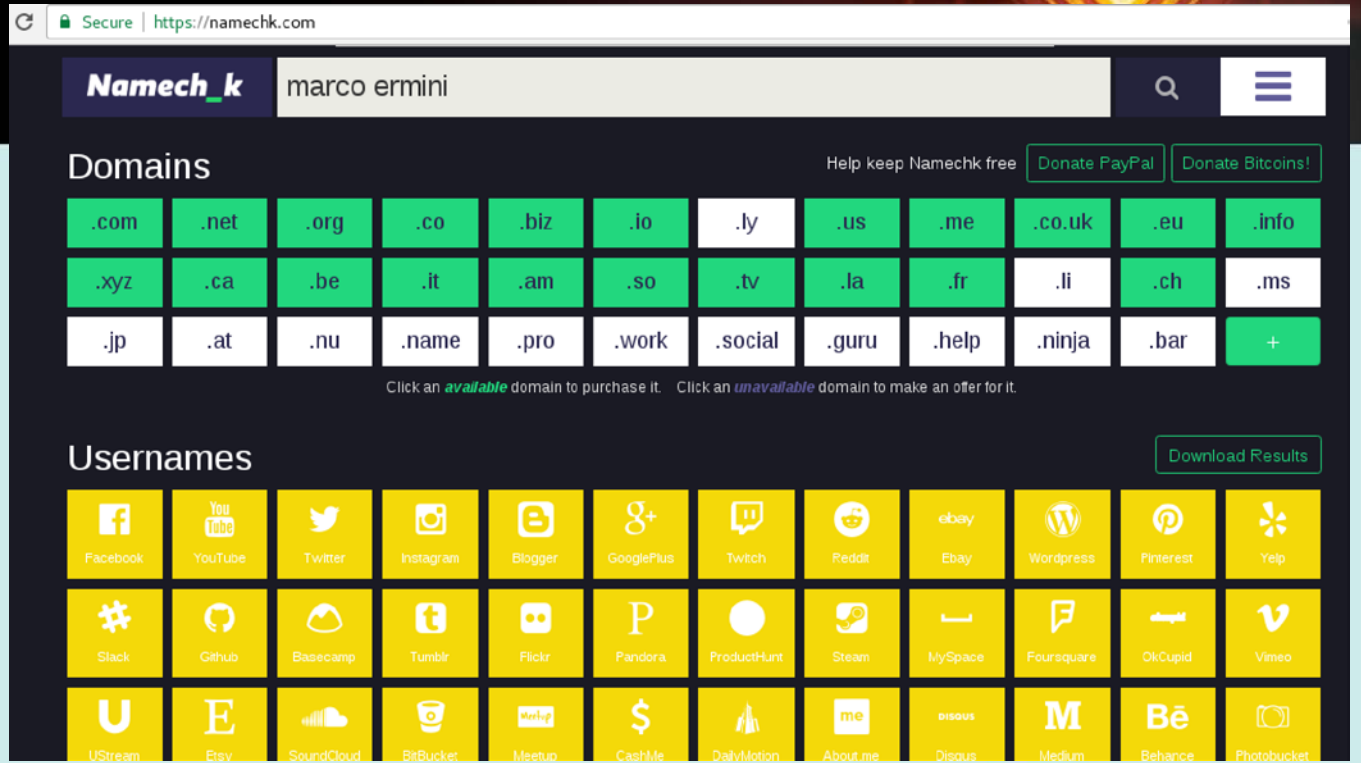
The ethernet 0/1 interface is enabled with an address of 10.10.10.1

Telnet, HTTP, and HTTPS access are also enabled.

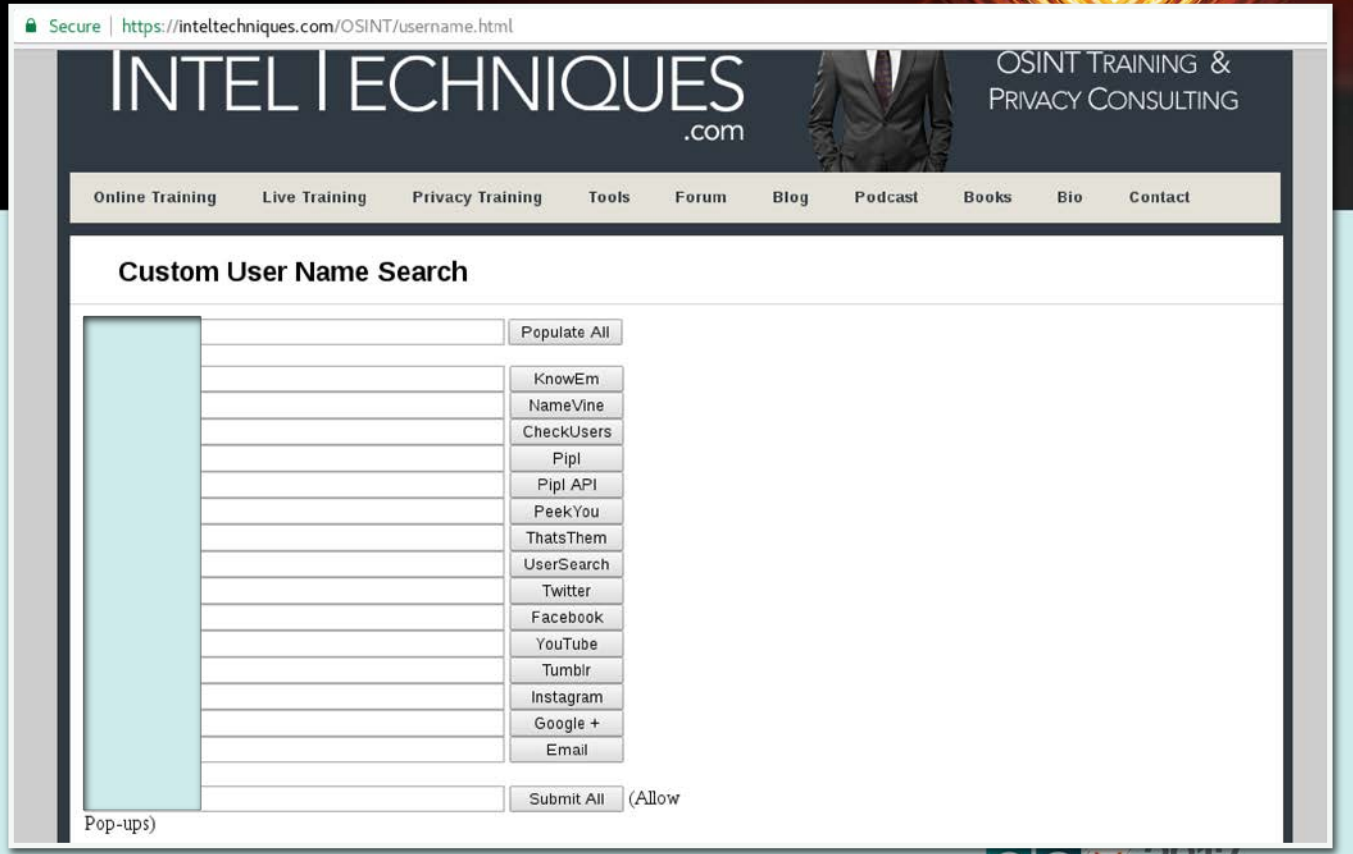
To remove this message, while in configuration mode type "no banner motd".

****** Important Banner Message ******

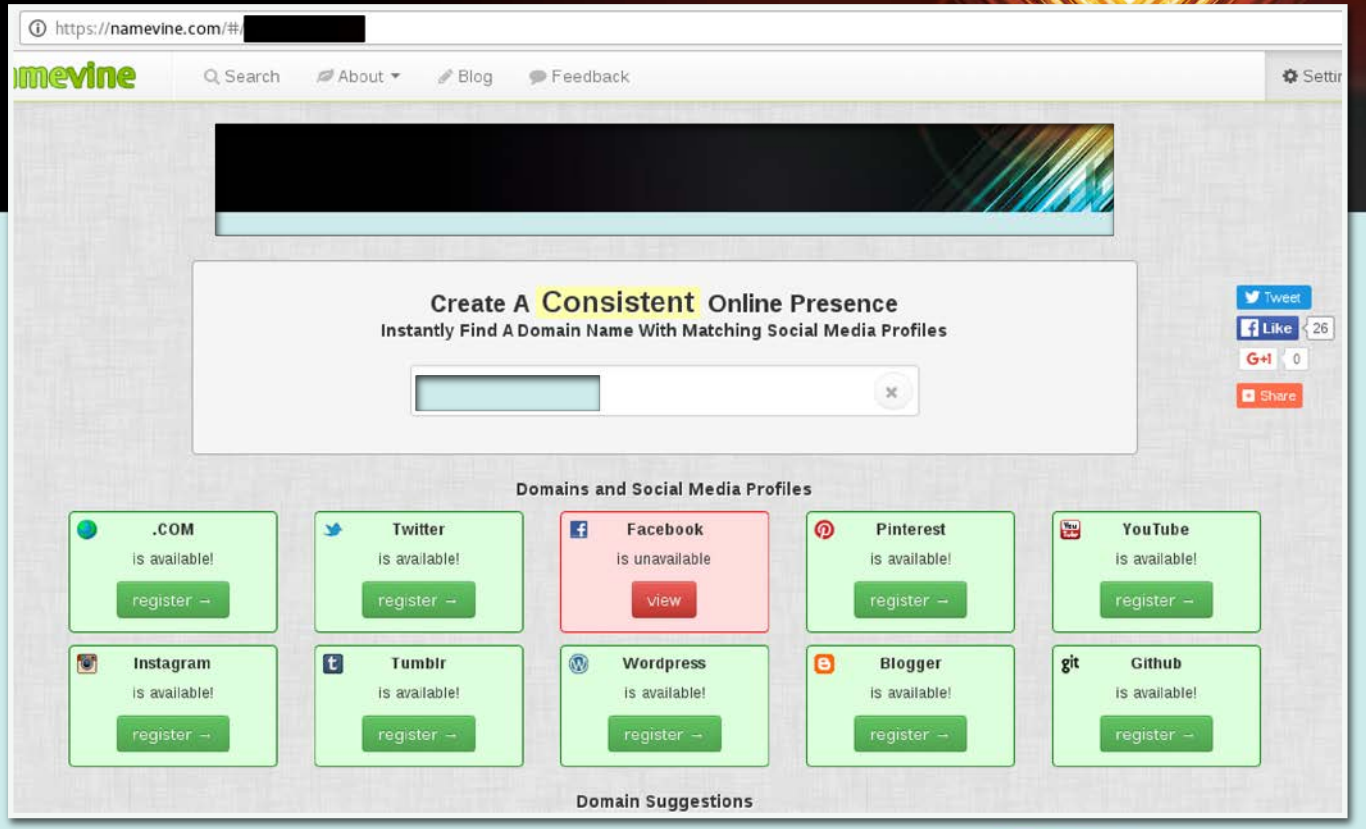
VIPs “Dorking”



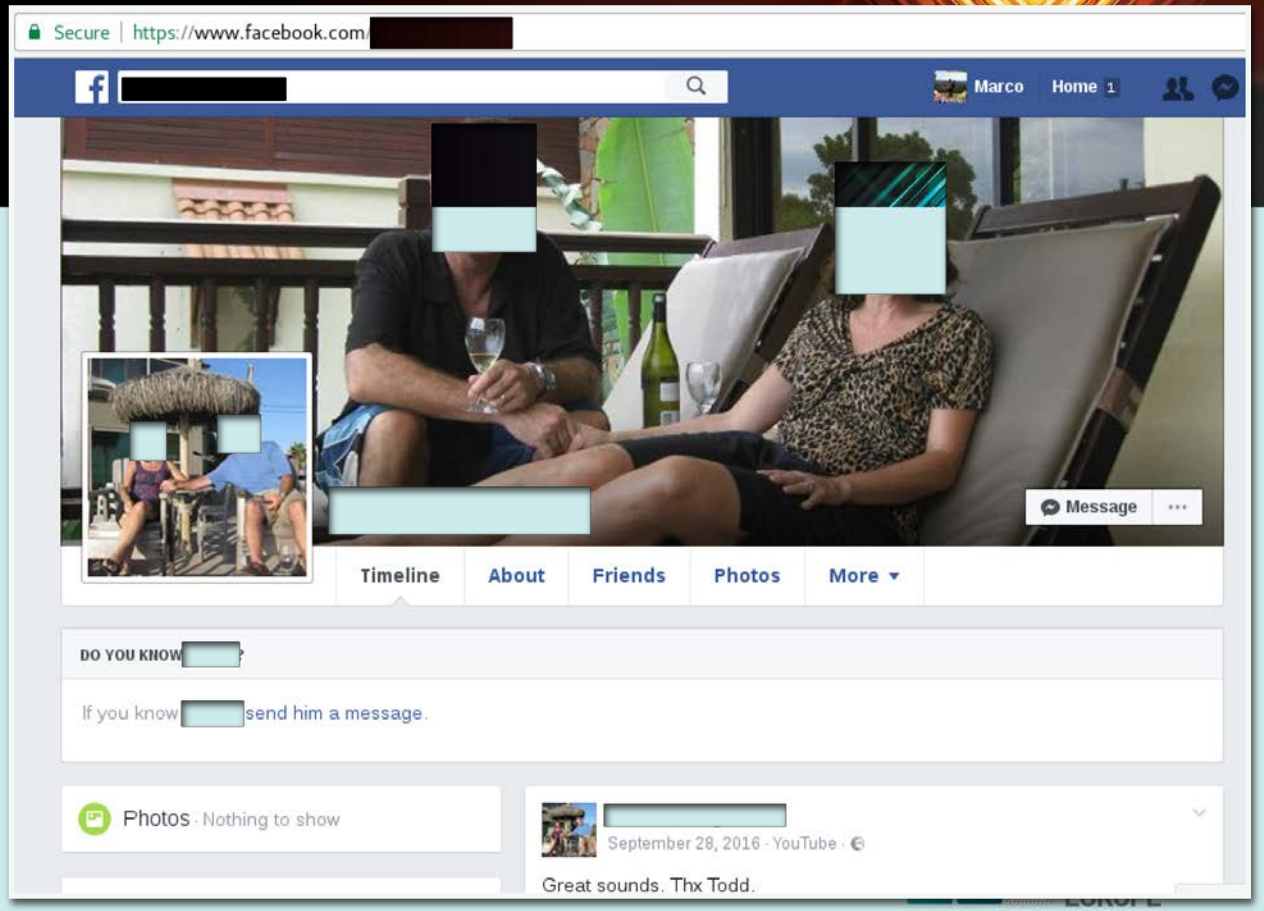
VIPs "Dorking"



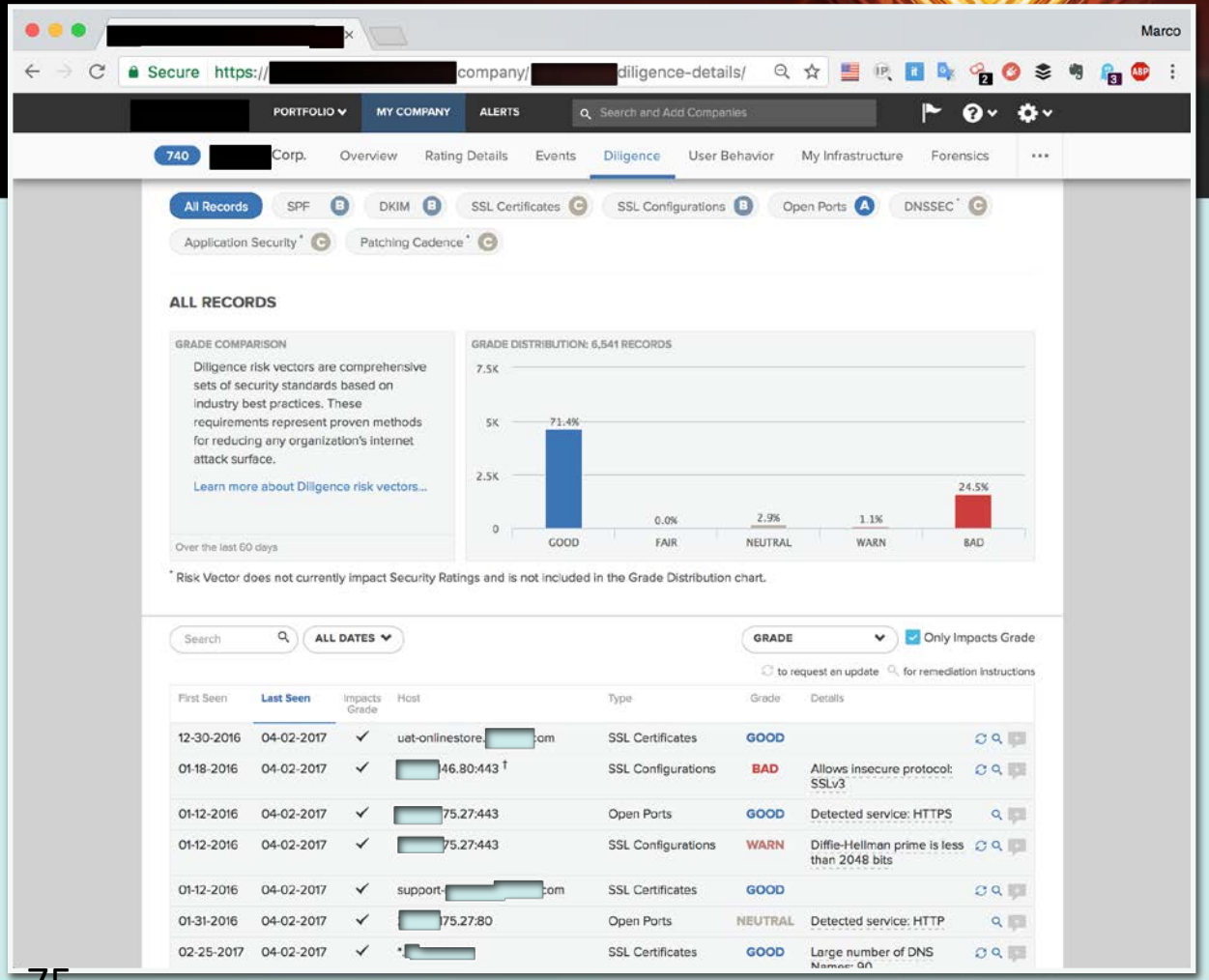
VIPs “Dorking”



VIPs “Dorking”



Cyber Security Ratings Firms



CyberSecurity Ratings Firms

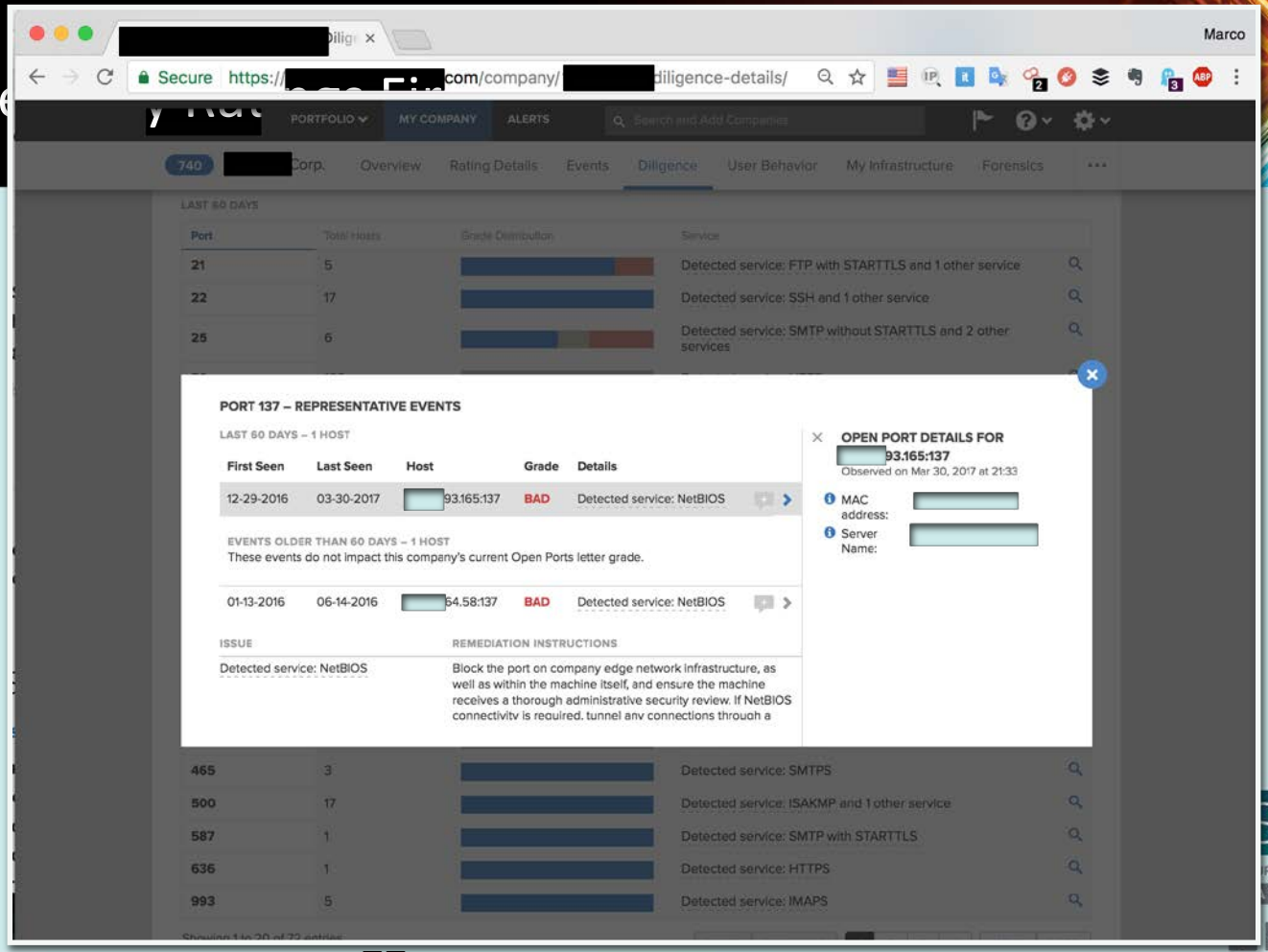
03-30-2017	04-02-2017	✓	spf1.[redacted].com 2 PAST EVENTS ^	SPF		WARN	Effective but allows a large number of hosts

First Seen	Last Seen	Impacts Grade	Grade	Details
03-24-2017	03-29-2017	×	WARN	Effective but allows a large number of hosts
06-06-2016	03-23-2017	×	BAD	SPF record is ineffective

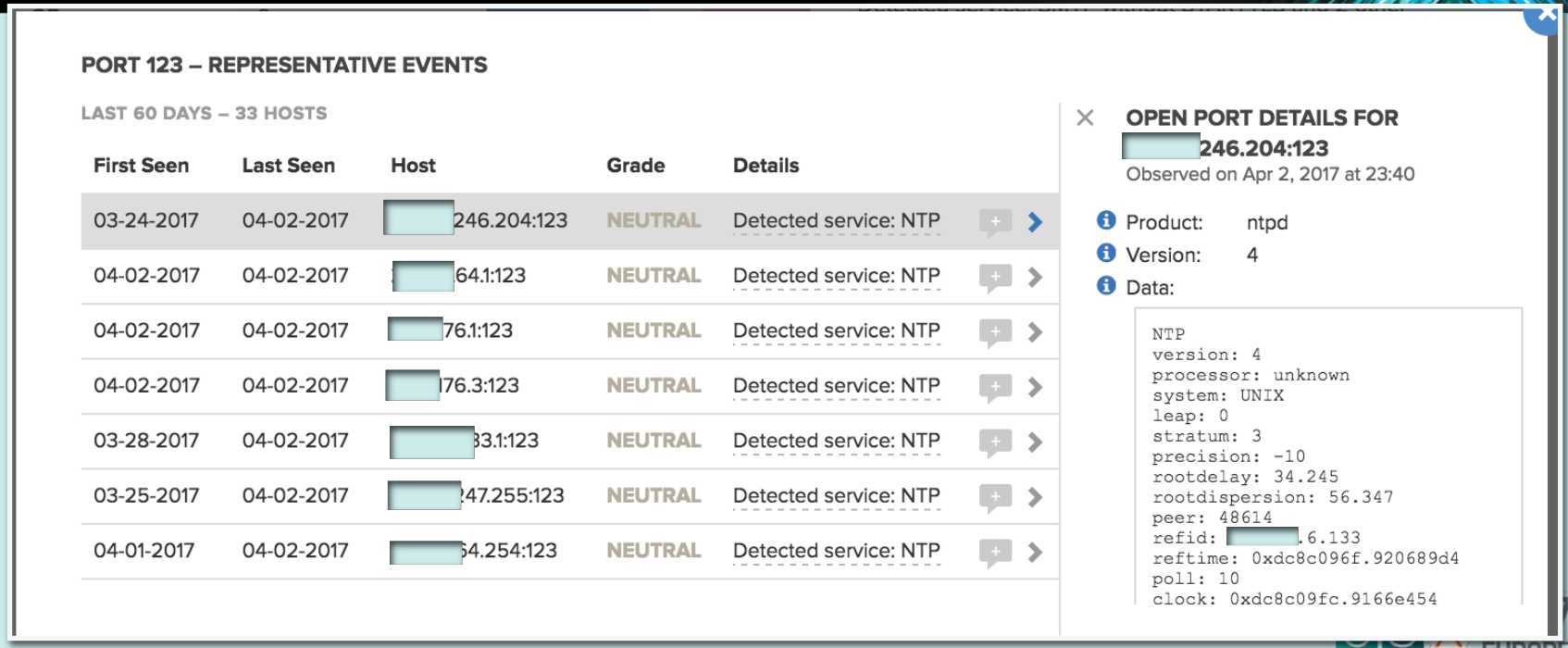
03-30-2017	04-02-2017	✓	spf2.[redacted].com 3 PAST EVENTS ^	SPF		WARN	Effective but allows a large number of hosts

First Seen	Last Seen	Impacts Grade	Grade	Details
03-24-2017	03-29-2017	×	WARN	Effective but allows a large number of hosts
08-20-2016	03-23-2017	×	BAD	SPF record is ineffective
06-06-2016	08-19-2016	×	BAD	SPF record is ineffective

CyberSe


Marco
Secure https://[redacted].com/company/[redacted]diligence-details/
PORTFOLIO
MY COMPANY
ALERTS
740 [redacted] Corp.
Overview
Rating Details
Events
Diligence
User Behavior
My Infrastructure
Forensics
LAST 60 DAYS
Port
Total Hosts
Grade Distribution
Service
21 5 Detected service: FTP with STARTTLS and 1 other service
22 17 Detected service: SSH and 1 other service
25 6 Detected service: SMTP without STARTTLS and 2 other services
PORT 137 – REPRESENTATIVE EVENTS
LAST 60 DAYS – 1 HOST
First Seen
Last Seen
Host
Grade
Details
12-29-2016 03-30-2017 [redacted]93.165:137 BAD Detected service: NetBIOS
EVENTS OLDER THAN 60 DAYS – 1 HOST
These events do not impact this company's current Open Ports letter grade.
01-13-2016 06-14-2016 [redacted]54.58:137 BAD Detected service: NetBIOS
ISSUE
REMEDIATION INSTRUCTIONS
Detected service: NetBIOS
Block the port on company edge network infrastructure, as well as within the machine itself, and ensure the machine receives a thorough administrative security review. If NetBIOS connectivity is required, tunnel any connections through a
OPEN PORT DETAILS FOR [redacted]93.165:137
Observed on Mar 30, 2017 at 21:33
MAC address: [redacted]
Server Name: [redacted]
465 3 Detected service: SMTPS
500 17 Detected service: ISAKMP and 1 other service
587 1 Detected service: SMTP with STARTTLS
636 1 Detected service: HTTPS
993 5 Detected service: IMAPS

CyberSecurity Ratings Firms



PORT 123 – REPRESENTATIVE EVENTS

LAST 60 DAYS – 33 HOSTS

First Seen	Last Seen	Host	Grade	Details
03-24-2017	04-02-2017	[redacted]246.204:123	NEUTRAL	Detected service: NTP
04-02-2017	04-02-2017	[redacted]64.1:123	NEUTRAL	Detected service: NTP
04-02-2017	04-02-2017	[redacted]76.1:123	NEUTRAL	Detected service: NTP
04-02-2017	04-02-2017	[redacted]76.3:123	NEUTRAL	Detected service: NTP
03-28-2017	04-02-2017	[redacted]3.1:123	NEUTRAL	Detected service: NTP
03-25-2017	04-02-2017	[redacted]47.255:123	NEUTRAL	Detected service: NTP
04-01-2017	04-02-2017	[redacted]4.254:123	NEUTRAL	Detected service: NTP

OPEN PORT DETAILS FOR [redacted]246.204:123

Observed on Apr 2, 2017 at 23:40

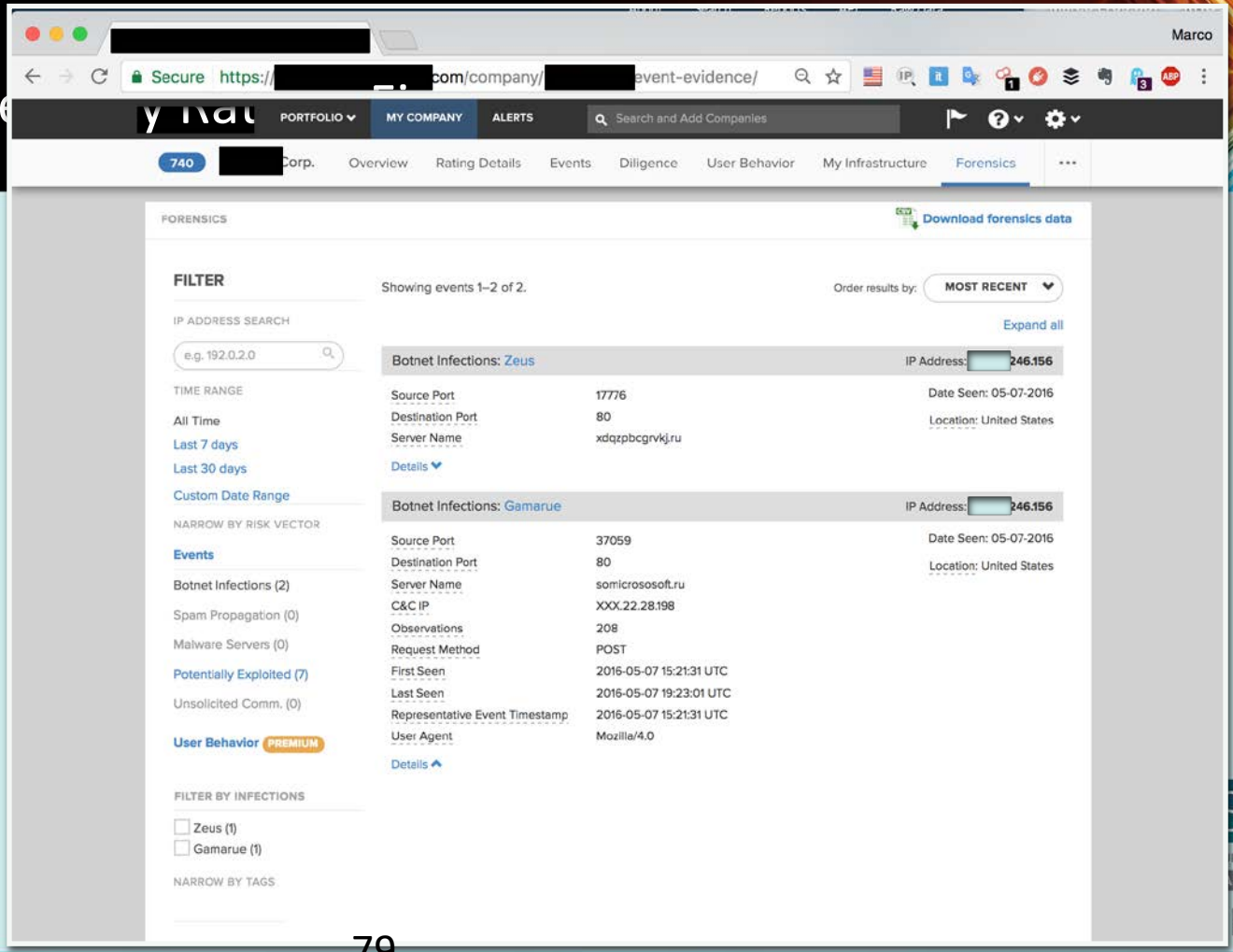
Product: ntpd

Version: 4

Data:

```
NTP
version: 4
processor: unknown
system: UNIX
leap: 0
stratum: 3
precision: -10
rootdelay: 34.245
rootdispersion: 56.347
peer: 48614
refid: [redacted].6.133
reftime: 0xdc8c096f.920689d4
poll: 10
clock: 0xdc8c09fc.9166e454
```

CyberSe


Marco
Secure https://[redacted].com/company/[redacted]event-evidence/
PORTFOLIO
MY COMPANY
ALERTS
Search and Add Companies
740
[redacted] Corp.
Overview
Rating Details
Events
Diligence
User Behavior
My Infrastructure
Forensics
FORENSICS
Download forensics data
FILTER
IP ADDRESS SEARCH
e.g. 192.0.2.0
TIME RANGE
All Time
Last 7 days
Last 30 days
Custom Date Range
NARROW BY RISK VECTOR
Events
Botnet Infections (2)
Spam Propagation (0)
Malware Servers (0)
Potentially Exploited (7)
Unsolicited Comm. (0)
User Behavior PREMIUM
FILTER BY INFECTIONS
Zeus (1)
Gamarue (1)
NARROW BY TAGS
Showing events 1–2 of 2.
Order results by: MOST RECENT
Expand all
Botnet Infections: Zeus
IP Address: [redacted]246.156
Source Port 17776
Destination Port 80
Server Name xdqzpbcgrvkj.ru
Date Seen: 05-07-2016
Location: United States
Details
Botnet Infections: Gamarue
IP Address: [redacted]246.156
Source Port 37059
Destination Port 80
Server Name somicrososoft.ru
C&C IP XXX.22.28.198
Observations 208
Request Method POST
First Seen 2016-05-07 15:21:31 UTC
Last Seen 2016-05-07 19:23:01 UTC
Representative Event Timestamp 2016-05-07 15:21:31 UTC
User Agent Mozilla/4.0
Date Seen: 05-07-2016
Location: United States
Details

Data Breaches

Secure https://www.forbes.com/sites/leemathews/2017/03/15/donald-trump-expo...

Security / #CyberSecurity

MAR 15, 2017 @ 02:00 PM 2,797

The Little Black Book of Billionaire Secrets

Donald Trump Exposed Among 33M Records In Massive New Database Leak

Lee Mathews, CONTRIBUTOR

Observing, pondering, and writing about tech. Generally in that order. FULL BIO

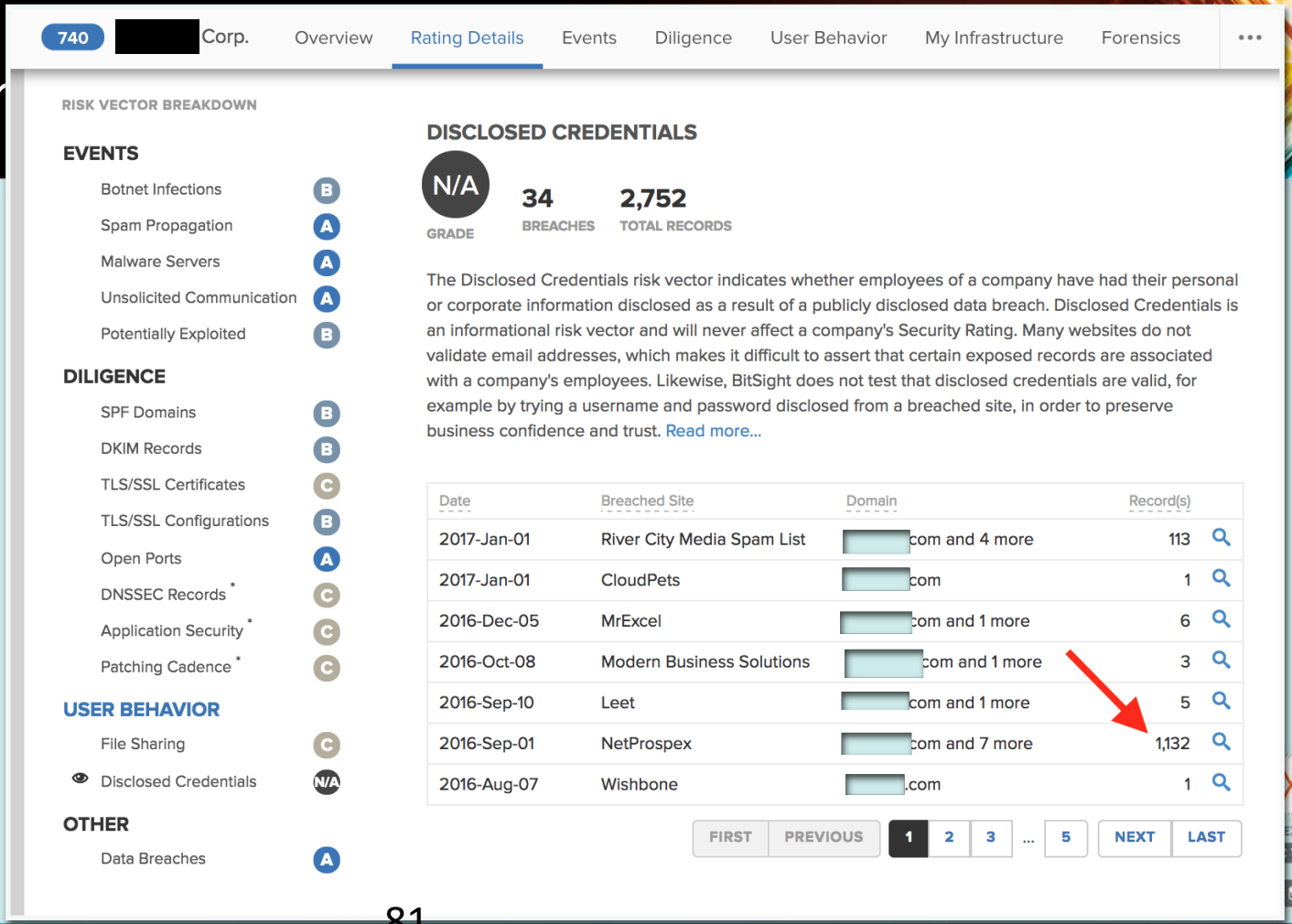
Opinions expressed by Forbes Contributors are their own.

Researchers have discovered yet another massive cache of private data that was exposed online. This particular database was a whopping 52.2 gigabytes in size, and it included contact information and organizational structures of thousands of U.S. businesses and agencies.

Datacenter image courtesy Pexels

Troy Hunt, the security researcher who I spoke with

Cyber


740
[redacted] Corp.
Overview
Rating Details
Events
Diligence
User Behavior
My Infrastructure
Forensics
RISK VECTOR BREAKDOWN
EVENTS
Botnet Infections B
Spam Propagation A
Malware Servers A
Unsolicited Communication A
Potentially Exploited B
DILIGENCE
SPF Domains B
DKIM Records B
TLS/SSL Certificates C
TLS/SSL Configurations B
Open Ports A
DNSSEC Records * C
Application Security * C
Patching Cadence * C
USER BEHAVIOR
File Sharing C
Disclosed Credentials N/A
OTHER
Data Breaches A
DISCLOSED CREDENTIALS
N/A
GRADE
34
BREACHES
2,752
TOTAL RECORDS
The Disclosed Credentials risk vector indicates whether employees of a company have had their personal or corporate information disclosed as a result of a publicly disclosed data breach. Disclosed Credentials is an informational risk vector and will never affect a company's Security Rating. Many websites do not validate email addresses, which makes it difficult to assert that certain exposed records are associated with a company's employees. Likewise, BitSight does not test that disclosed credentials are valid, for example by trying a username and password disclosed from a breached site, in order to preserve business confidence and trust. Read more...
Date
Breached Site
Domain
Record(s)
2017-Jan-01 River City Media Spam List [redacted]com and 4 more 113
2017-Jan-01 CloudPets [redacted]com 1
2016-Dec-05 MrExcel [redacted]com and 1 more 6
2016-Oct-08 Modern Business Solutions [redacted]com and 1 more 3
2016-Sep-10 Leet [redacted]com and 1 more 5
2016-Sep-01 NetProspex [redacted]com and 7 more 1,132
2016-Aug-07 Wishbone [redacted].com 1
FIRST
PREVIOUS
1
2
3
...
5
NEXT
LAST

Cyber

NETPROSPEX - 2016-SEP-01

Description

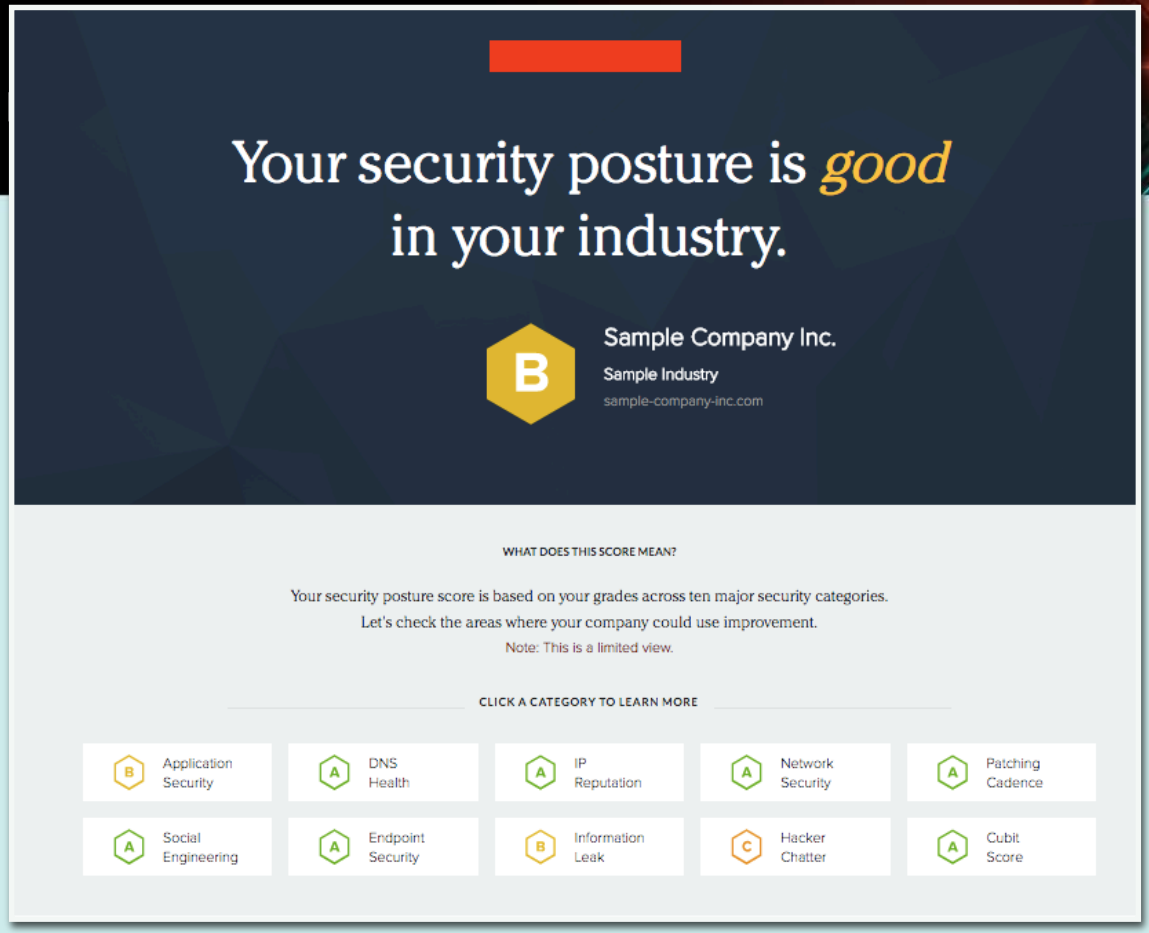
In 2016, a list of over 33 million individuals in corporate America sourced from Dun & Bradstreet's NetProspex service was leaked online. D&B; believe the targeted marketing data was lost by a customer who purchased it from them. It contained extensive personal and corporate information including names, email addresses, job titles and general information about the employer.

Disclosed Attributes

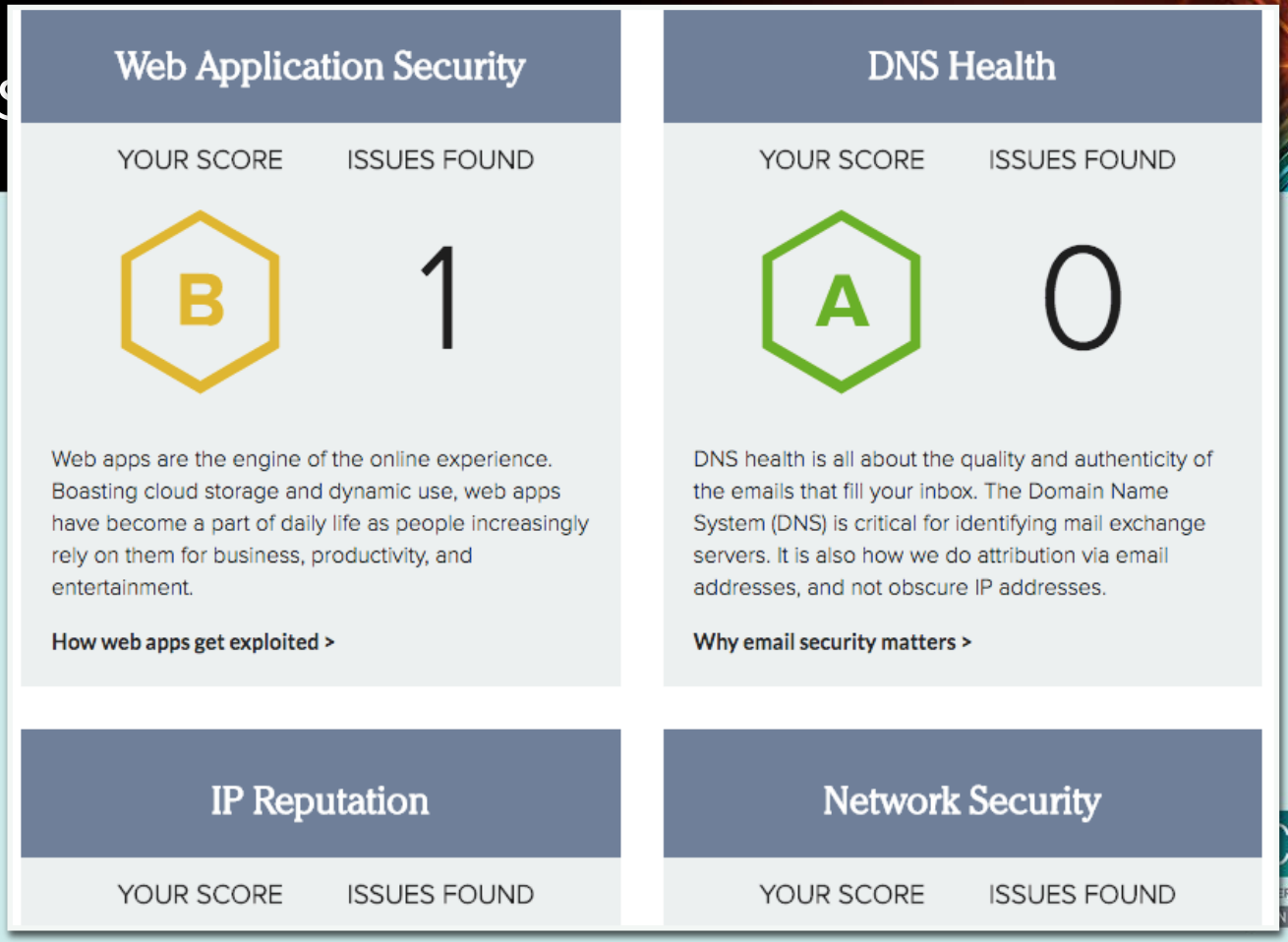
Email Addresses, Name, Phone numbers, Physical Address

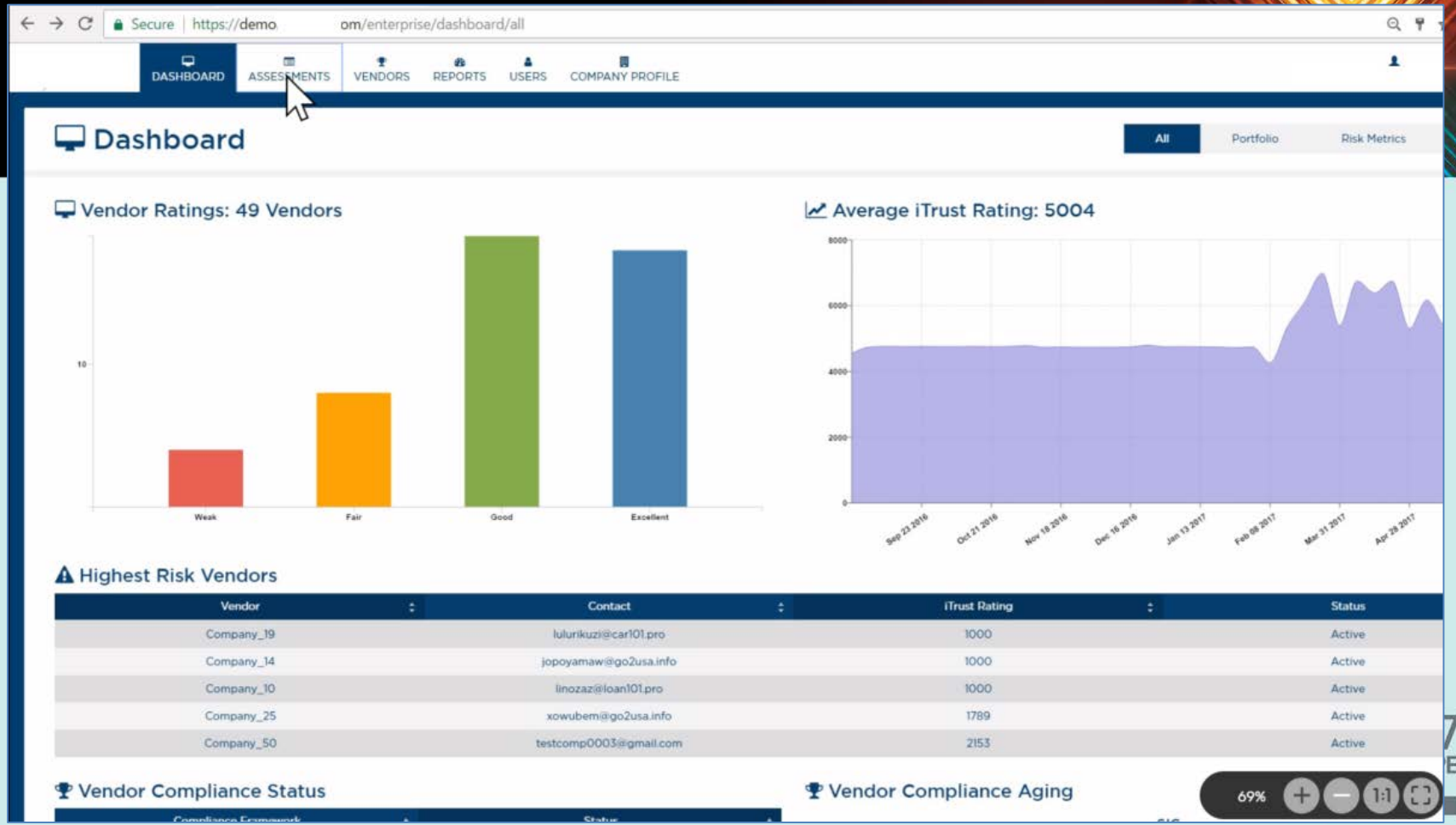
Domain(s)	Record(s)
[redacted]com	845
[redacted]com	204
[redacted].com	44
[redacted]com	11
[redacted]net	7
[redacted]com	7
[redacted].com	7
[redacted]com	7

CyberSecu


Your security posture is good in your industry.
B
Sample Company Inc.
Sample Industry
sample-company-inc.com
WHAT DOES THIS SCORE MEAN?
Your security posture score is based on your grades across ten major security categories.
Let's check the areas where your company could use improvement.
Note: This is a limited view.
CLICK A CATEGORY TO LEARN MORE
B Application Security
A DNS Health
A IP Reputation
A Network Security
A Patching Cadence
A Social Engineering
A Endpoint Security
B Information Leak
C Hacker Chatter
A Cubit Score

Cyber


Web Application Security
YOUR SCORE
ISSUES FOUND
B
1
Web apps are the engine of the online experience. Boasting cloud storage and dynamic use, web apps have become a part of daily life as people increasingly rely on them for business, productivity, and entertainment.
How web apps get exploited >
DNS Health
YOUR SCORE
ISSUES FOUND
A
0
DNS health is all about the quality and authenticity of the emails that fill your inbox. The Domain Name System (DNS) is critical for identifying mail exchange servers. It is also how we do attribution via email addresses, and not obscure IP addresses.
Why email security matters >
IP Reputation
YOUR SCORE
ISSUES FOUND
Network Security
YOUR SCORE
ISSUES FOUND


Secure | https://demo om/enterprise/dashboard/all
DASHBOARD
ASSESSMENTS
VENDORS
REPORTS
USERS
COMPANY PROFILE
Dashboard
All
Portfolio
Risk Metrics
Vendor Ratings: 49 Vendors
10
Weak
Fair
Good
Excellent
Average iTrust Rating: 5004
8000
6000
4000
2000
0
Sep 23 2016
Oct 21 2016
Nov 18 2016
Dec 16 2016
Jan 13 2017
Feb 08 2017
Mar 31 2017
Apr 28 2017
Highest Risk Vendors
Vendor
Contact
iTrust Rating
Status
Company_19
lulurikuzi@car101.pro
1000
Active
Company_14
jopoyamaw@go2usa.info
1000
Active
Company_10
linozaz@loan101.pro
1000
Active
Company_25
xowubem@go2usa.info
1789
Active
Company_50
testcomp0003@gmail.com
2153
Active
Vendor Compliance Status
Vendor Compliance Aging
69%
1:1

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THANK YOU!

Marco Ermini

2017