NetSecure Day

INTRINSEC
Innovative by design

Découverte de périmètre

Comment un hacker cartographie la surface web de votre entreprise ?

Qui suis-je ?

- Promo ESIGELEC 2018
- 4 ans d’expérience en sécurité informatique
- CTF
- Bug bounty

@aikarifb

Florent BESNARD

Consultant Red Team

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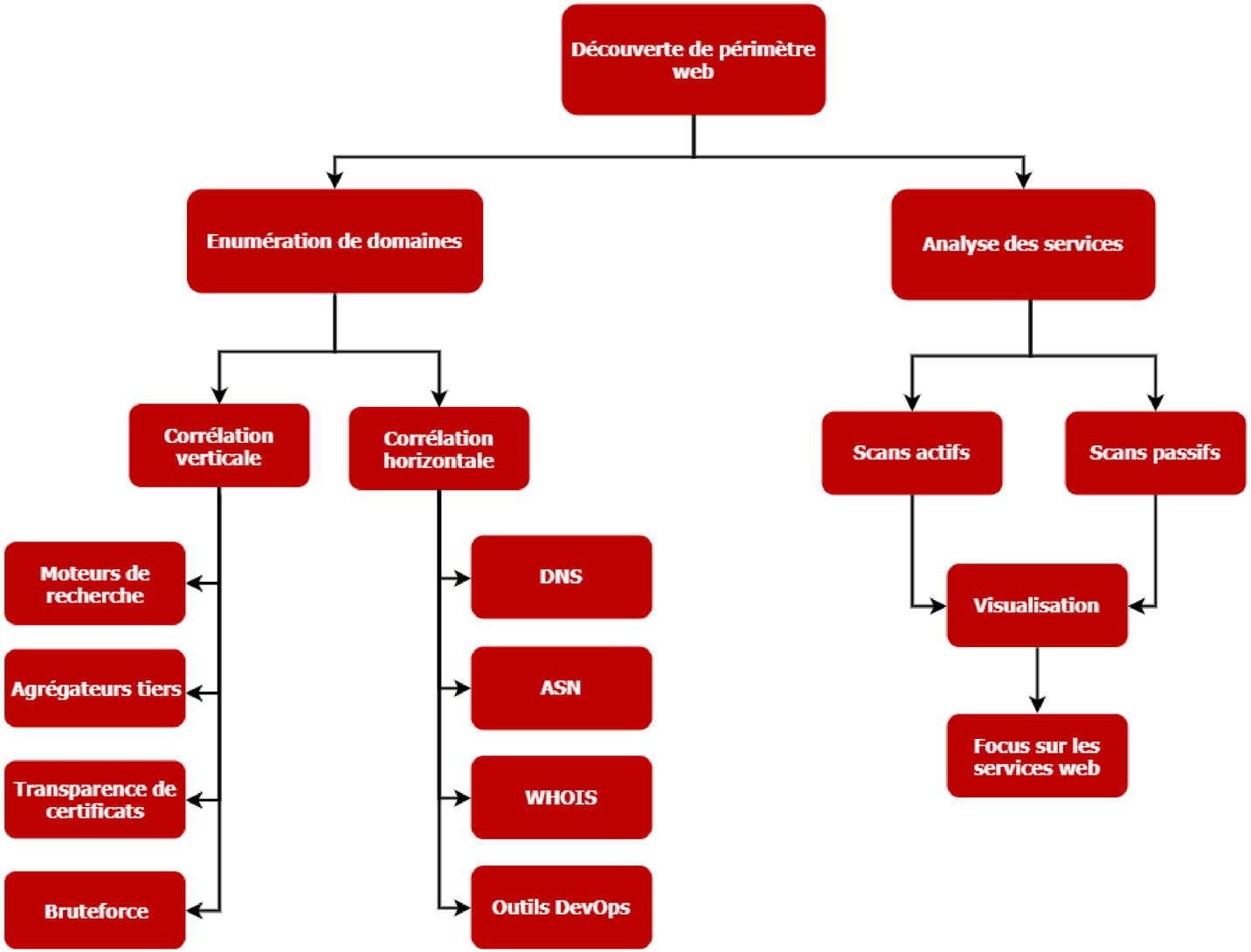
Avant de débuter

- Ne faîtes pas de tests « sauvages »
- Il existe des centaines d’outils
- Cette méthodologie en est une parmi tant d’autres

Pourquoi faire de la « recon » ?

- Augmenter la surface d’attaque
- Obtenir des informations sur les technologies utilisées
- Identifier les vulnérabilités avant que les autres ne le fassent
- Identifier des vecteurs d’exploitation triviaux sans efforts majeurs (identifiants, infos personnelles, etc.)
- Faciliter l’exploitation, la rendre plus rapide et plus furtive (75% de recon pour 25% d’exploitation)

Approche générale



Enumération de domaines

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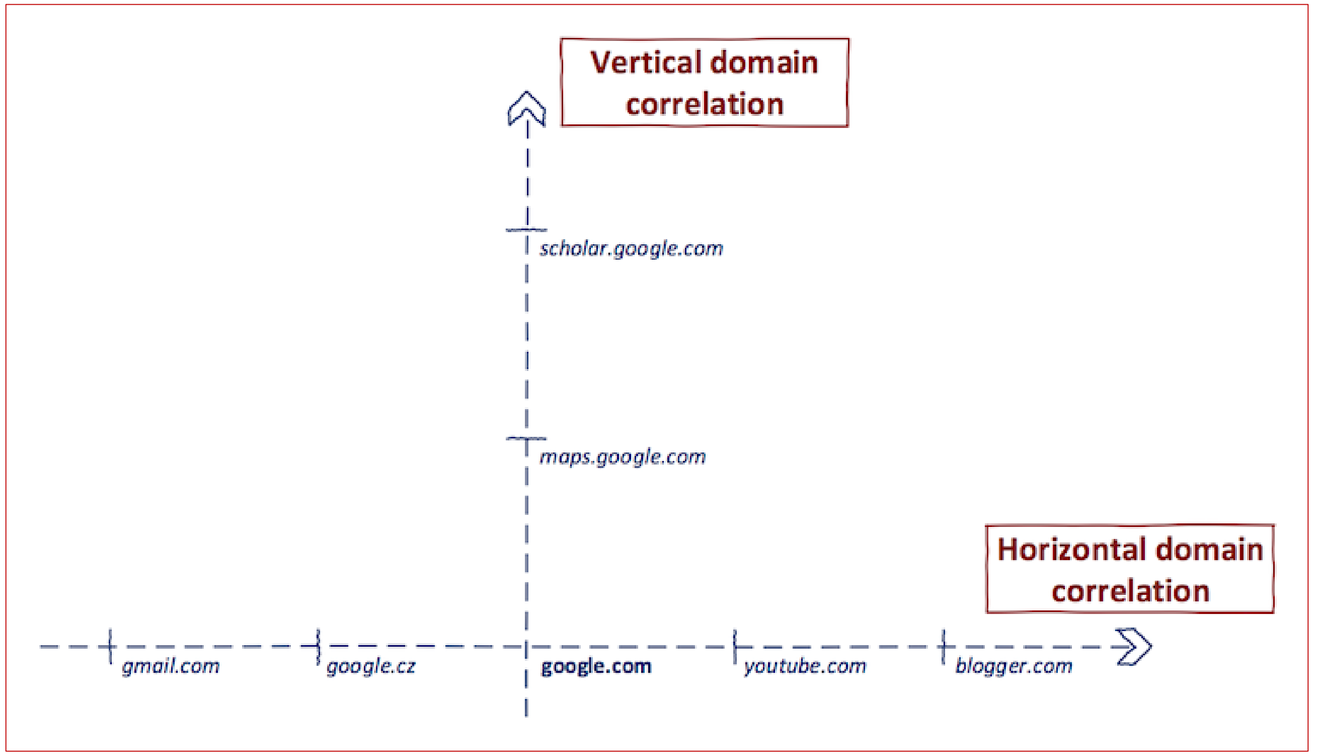
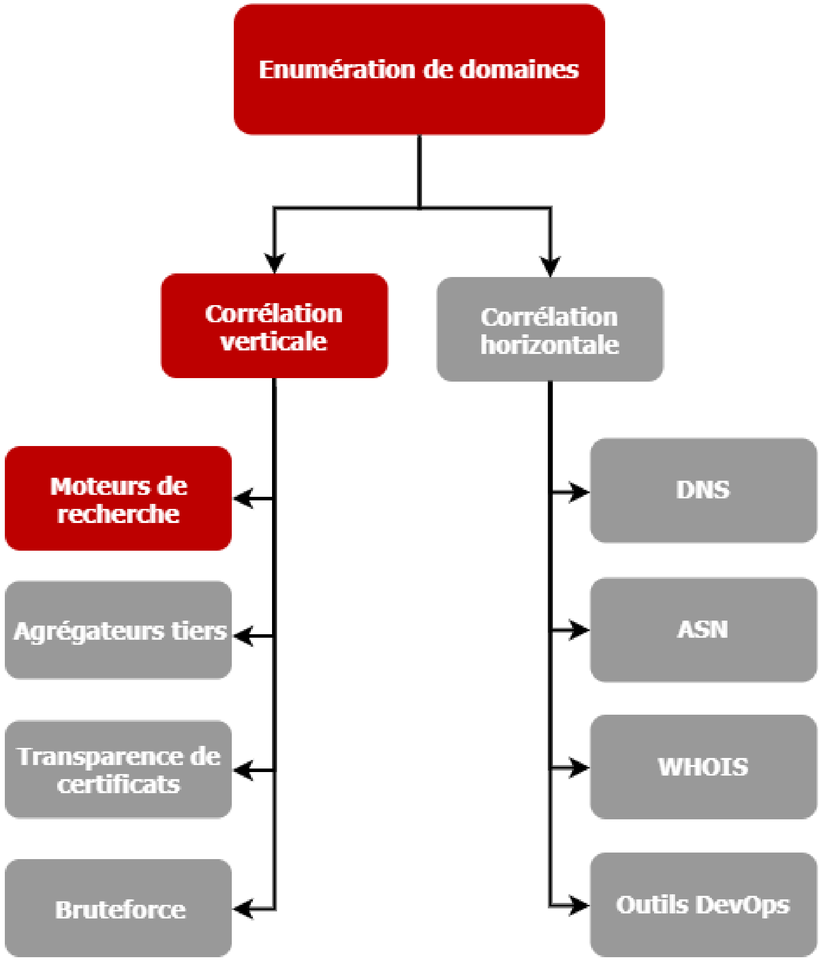
Enumération de domaines

- Corrélation de domaines :
  - Verticale : identifier les domaines qui partagent le même domaine parent (simple)
  - Horizontale : identifier les domaines qui ne partagent pas le même domaine parent (complexe)



https://0xpatrik.com/content/images/2018/04/hvv.png

Moteurs de recherche



Moteurs de recherche

Google

Bing

Yandex

yahoo!

DuckDuckGo

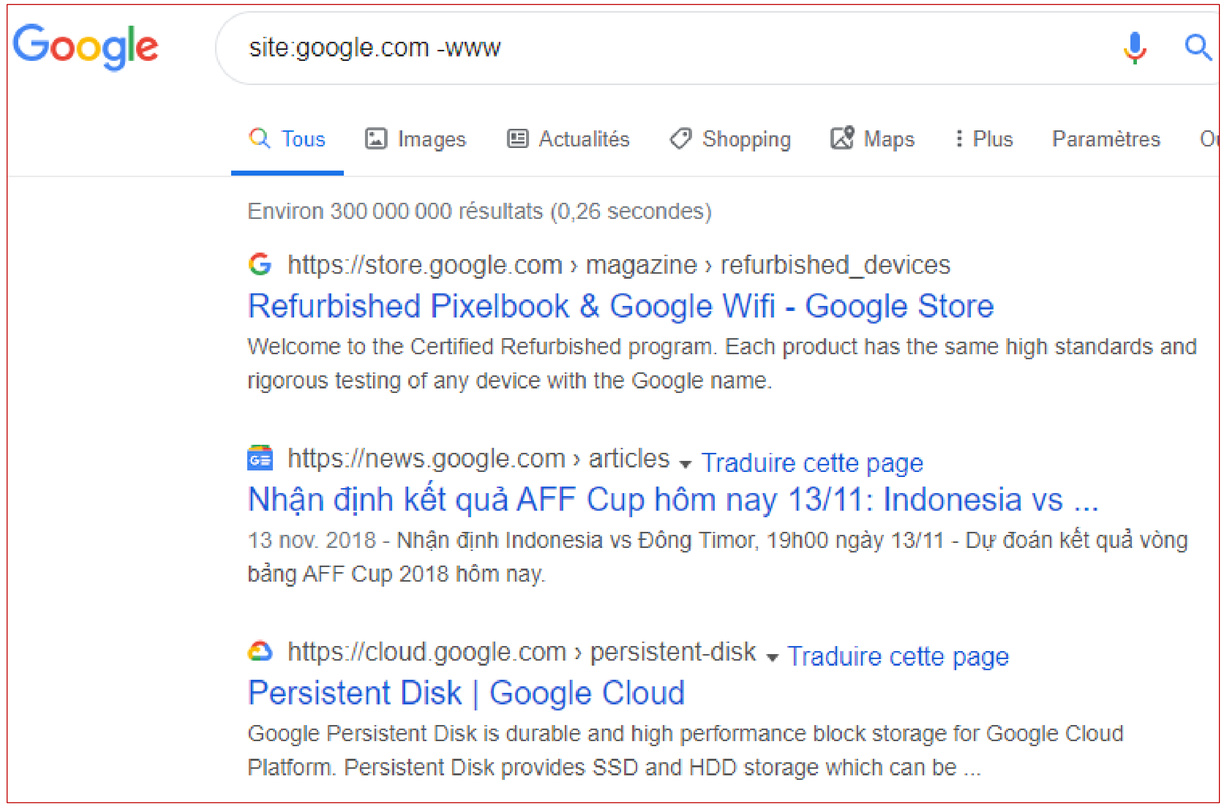
Moteurs de recherche

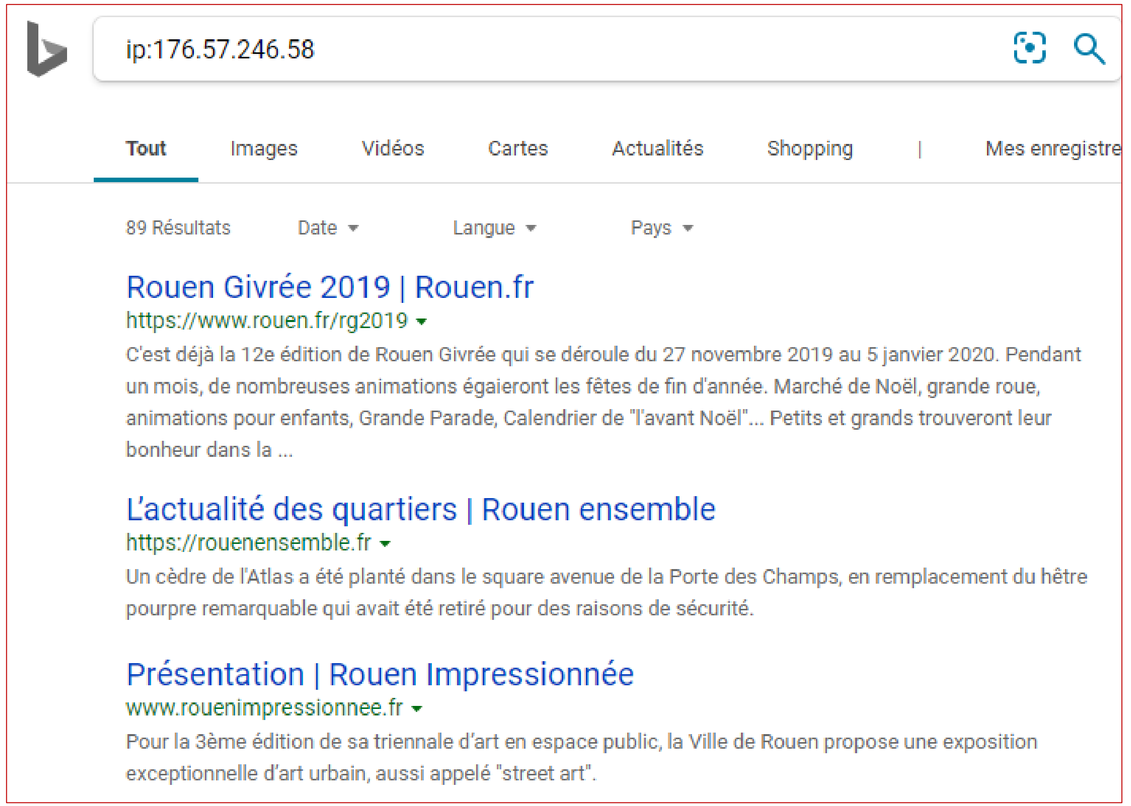
- Outil qui permet de rechercher des ressources à partir de mots-clés
- Crawling et indexation des données (même les données sensibles !)
- Les résultats sont organisés selon une logique propre à chaque moteur
- Certains moteurs permettent l'utilisation de dorks

- Quelques dorks :
  - « site:google.com » : pages du domaine google.com et de ses sous-domaines
  - « site:google.com -www » : idem sans le sous-domaine www
  - « site:news.google.com ext:pdf » : fichiers PDF du domaine news.google.com
  - « site:google.com inurl:robots.txt OR intext:CHANGELOG.txt » : pages du domaine google.com et de ses sous-domaines contenant le terme robots.txt dans l'URL ou le terme CHANGELOG.txt au sein de la page

- Chercher les marques déposées, les copyright, les conditions d'utilisation

Moteurs de recherche





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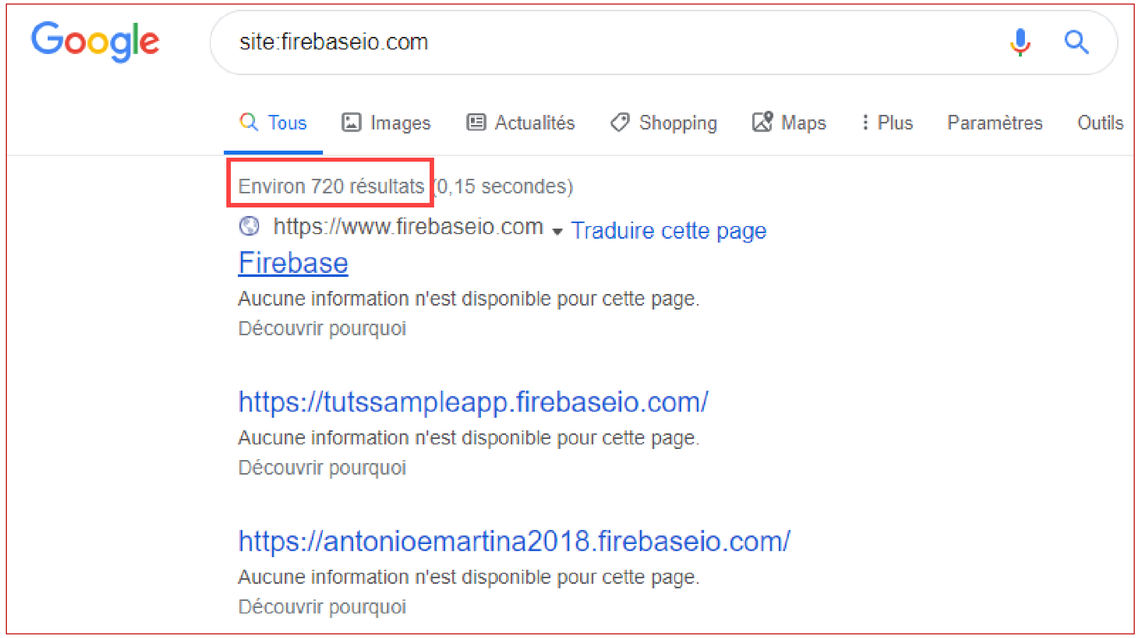
Moteurs de recherche

- Lorsque des URL sont très similaires, elles peuvent être considérées comme des doublons
- Même si les contenus sont totalement différents…
- Aller sur la dernière page afin de les afficher



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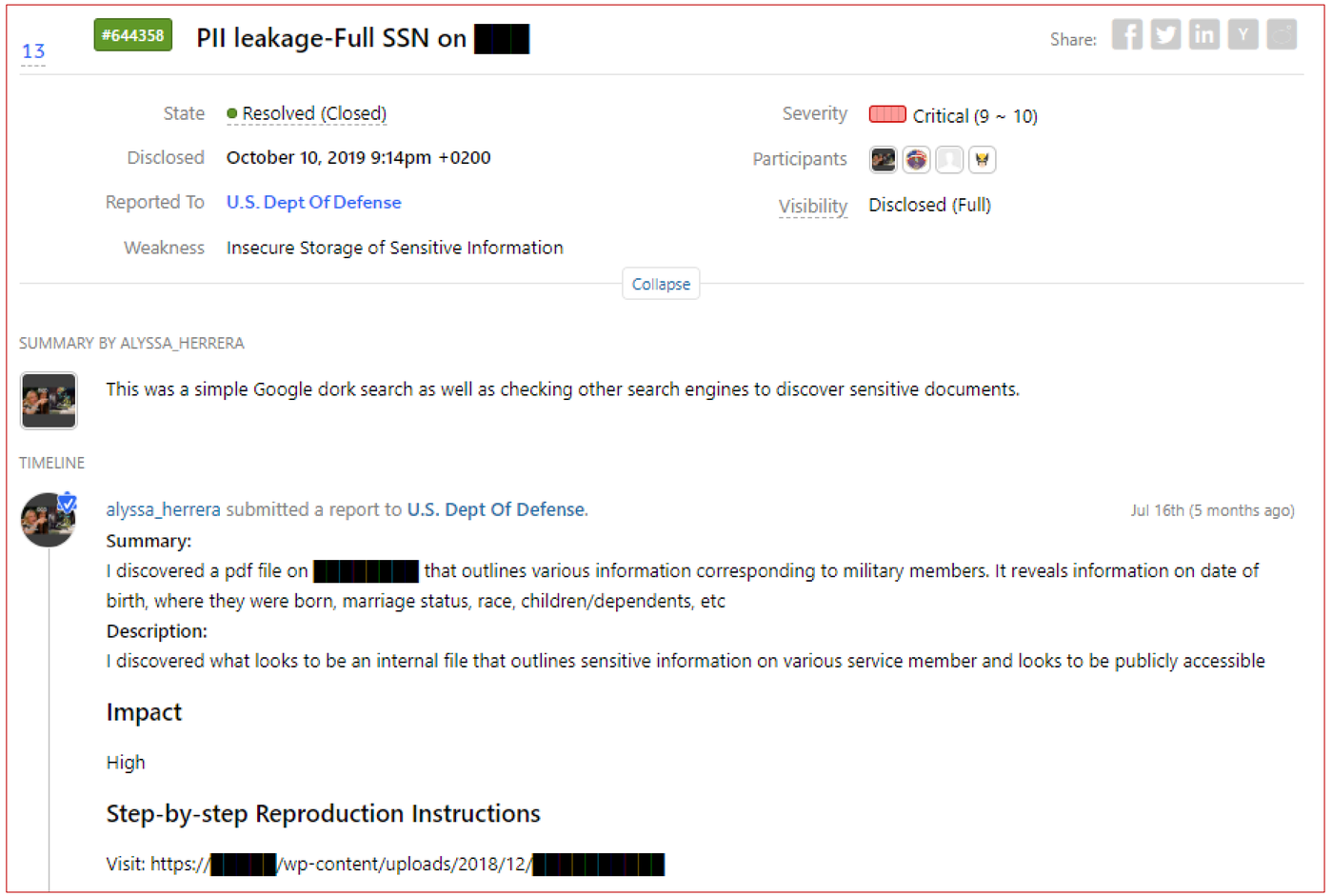
Moteurs de recherche

- https://hackerone.com/reports/644358 par @alyssa_herrera_



13 #644358 PII leakage-Full SSN on [redacted]

Share:

State: Resolved (Closed)
Severity: Critical (9 ~ 10)
Disclosed: October 10, 2019 9:14pm +0200
Participants:
Reported To: U.S. Dept Of Defense
Visibility: Disclosed (Full)
Weakness: Insecure Storage of Sensitive Information

Collapse

SUMMARY BY ALYSSA_HERRERA

This was a simple Google dork search as well as checking other search engines to discover sensitive documents.

TIMELINE

alyssa_herrera submitted a report to U.S. Dept Of Defense. Jul 16th (5 months ago)

Summary:

I discovered a pdf file on [redacted] that outlines various information corresponding to military members. It reveals information on date of birth, where they were born, marriage status, race, children/dependents, etc

Description:

I discovered what looks to be an internal file that outlines sensitive information on various service member and looks to be publicly accessible

Impact

High

Step-by-step Reproduction Instructions

Visit: https://[redacted]/wp-content/uploads/2018/12/[redacted]

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Moteurs de recherche

inurl:/wp-content/uploads/2018/12/

Tous Maps Images Actu

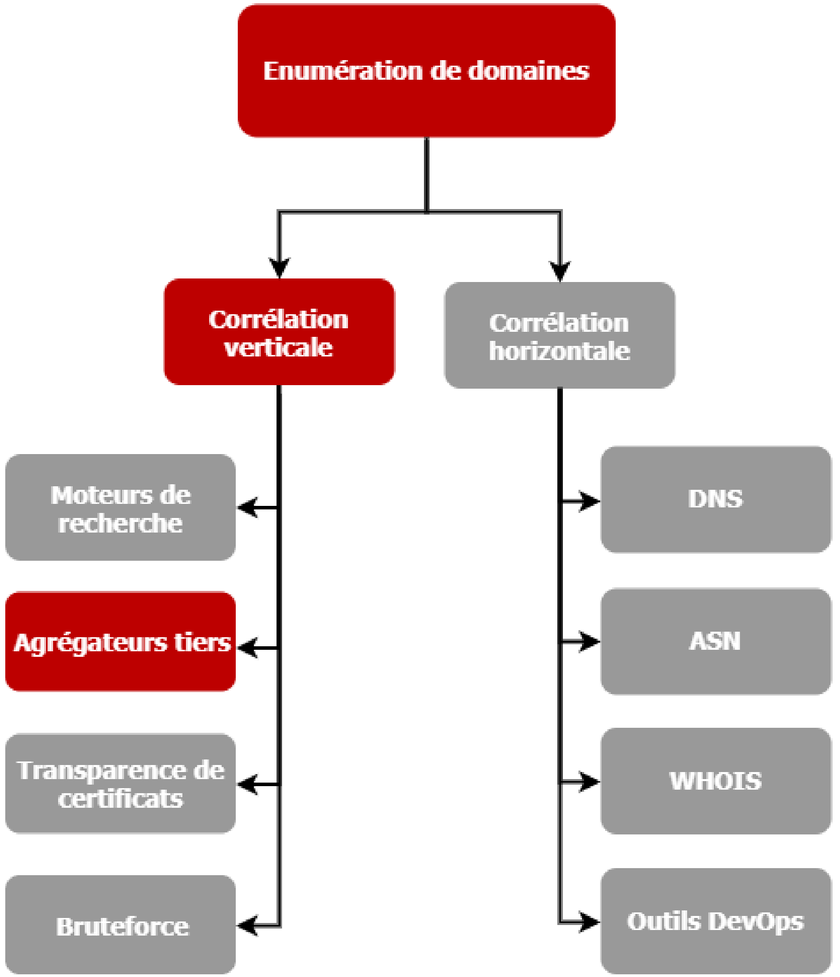
Environ 5 260 000 résultats (0,43 secondes)

inurl:/wp-content/uploads/

Tous Images Actualités Vid

Environ 274 000 000 résultats (0,30 secondes)

Agrégateurs tiers



Agrégateurs tiers

- Différents outils collectent les domaines à notre place
- Données publiquement accessibles
- Résultats potentiellement invalides

Exemple : DNSDumpster

Host Records (A) ** this data may not be current as it uses a static database (updated monthly)

google.fr	172.217.164.131 iad30s24-in-f3.1e100.net	GOOGLE - Google LLC United States
store.google.fr	216.58.193.78 sea15s07-in-f14.1e100.net	GOOGLE - Google LLC United States
cse.google.fr	172.217.6.46 sfo03s08-in-f46.1e100.net	GOOGLE - Google LLC United States
translate.google.fr	172.217.164.99 sfo03s18-in-f3.1e100.net	GOOGLE - Google LLC United States
archive.google.fr	216.58.194.174 sfo07s13-in-f14.1e100.net	GOOGLE - Google LLC United States
adssettings.google.fr	216.58.195.78 sfo07s16-in-f78.1e100.net	GOOGLE - Google LLC United States

Agrégateurs tiers

Exemple : VirusTotal

Enregistrements DNS, domaines (et URLs), commentaires, etc.

DETAILS | RELATIONS | COMMUNITY 10

Last DNS Records

	Record type	TTL	Value
	A	299	172.217.212.101
	A	299	172.217.212.113
	A	299	172.217.212.138
	A	299	172.217.212.102
	A	299	172.217.212.100
	A	299	172.217.212.139
	AAAA	299	2607:f8b0:4001:c03::65
+	CAA	21599	pki.goog
+	MX	599	alt2.aspmx.l.google.com
+	MX	599	alt1.aspmx.l.google.com

DETAILS | RELATIONS | COMMUNITY 10

Passive DNS Replication

Date resolved	IP
2019-12-09	216.58.204.142
2019-12-09	216.58.209.238
2019-12-09	216.58.213.174
2019-12-09	172.217.22.142
2019-12-09	172.217.20.206
2019-12-09	172.217.19.238
2019-12-09	172.217.1.110
2019-12-09	108.177.111.102
2019-12-09	108.177.111.138
2019-12-09	108.177.111.139

• • •

Subdomains

crowdsource.google.com	172.217.212.139	172.217.212.101	172.217.212.100
mt1.google.com	108.177.111.138	108.177.111.113	108.177.111.101
enterprise.google.com	74.125.202.102	74.125.202.139	74.125.202.101
images.google.com	172.217.214.100	172.217.214.101	172.217.214.138
domains.google.com	108.177.120.113	108.177.120.138	108.177.120.139
events.google.com	209.85.146.102	209.85.146.113	209.85.146.139
confidential-mail.google.com	108.177.112.139	108.177.112.138	108.177.112.113
apps.google.com	172.217.219.113	172.217.219.139	172.217.219.100
dl-ssl.google.com	74.125.201.190	74.125.201.93	74.125.201.91
ipv4.google.com	74.125.126.113	74.125.126.102	74.125.126.138

uhhhwhat
6 months ago

google spies on u bad site

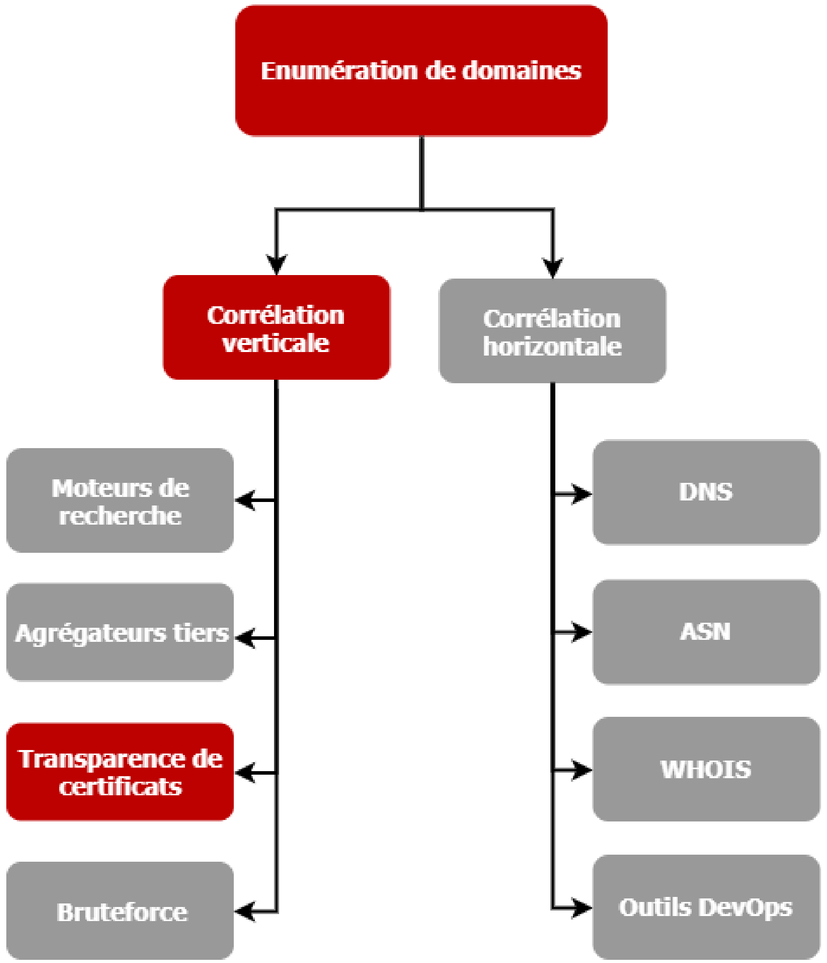
VirusTotalVul
1 year ago

Official google website.

danielva
1 year ago

test

Transparence de certificats



Transparence de certificats

- En 2011, l'autorité de certification DigiNotar est compromise
- Renforcer les contrôles sur les certificats émis par les autorités de certification
- Déceler les certificats frauduleux ou invalides
- Accessible par tous

Exemple : crt.sh & certspotter.com

Criteria	Identity LIKE '%.rouen.fr'

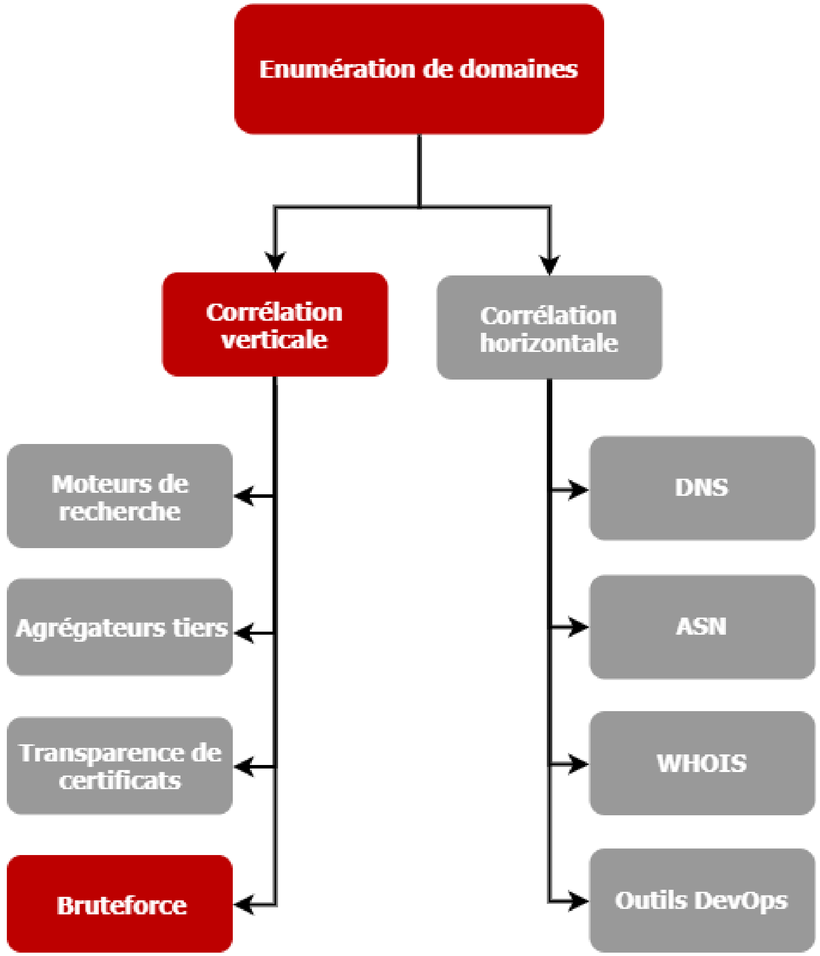
crt.sh ID	Logged At ⇧	Not Before	Not After	Identity	Issuer Name
2102637471	2019-11-12	2019-11-12	2022-02-06	autodiscover.rouen.fr	C=GB, ST=Greater Manchester, L=Salford, O=Sectigo Limited, CN=Sectigo RSA Organization Validation Secure Server CA
2102637471	2019-11-12	2019-11-12	2022-02-06	mail.rouen.fr	C=GB, ST=Greater Manchester, L=Salford, O=Sectigo Limited, CN=Sectigo RSA Organization Validation Secure Server CA
2102637419	2019-11-12	2019-11-12	2022-02-06	autodiscover.rouen.fr	C=GB, ST=Greater Manchester, L=Salford, O=Sectigo Limited, CN=Sectigo RSA Organization Validation Secure Server CA
2102637419	2019-11-12	2019-11-12	2022-02-06	mail.rouen.fr	C=GB, ST=Greater Manchester, L=Salford, O=Sectigo Limited, CN=Sectigo RSA Organization Validation Secure Server CA
2064836816	2019-11-02	2019-11-02	2020-01-31	*.demarches.rouen.fr	C=US, O=Let's Encrypt, CN=Let's Encrypt Authority X3
2064836816	2019-11-02	2019-11-02	2020-01-31	demarches.rouen.fr	C=US, O=Let's Encrypt, CN=Let's Encrypt Authority X3

```
user@server:~$ curl -s "https://certspotter.com/api/v0/certs?domain=rouen.fr" | jq '.[].dns_names[]' | sed 's/\"//g'
| sed 's/\*\.//g' | sort -u
ad-mairie.rouen.fr
autodiscover.ad-mairie.rouen.fr
autodiscover.rouen.fr
demarches.rouen.fr
hdvmsg30.ad-mairie.rouen.fr
mail.rouen.fr
rouen.fr
```

Transparence de certificats

Exemple : certstream

Bruteforce


Enumération de domaines
Corrélation verticale
Corrélation horizontale
Moteurs de recherche
Agrégateurs tiers
Transparence de certificats
Bruteforce
DNS
ASN
WHOIS
Outils DevOps

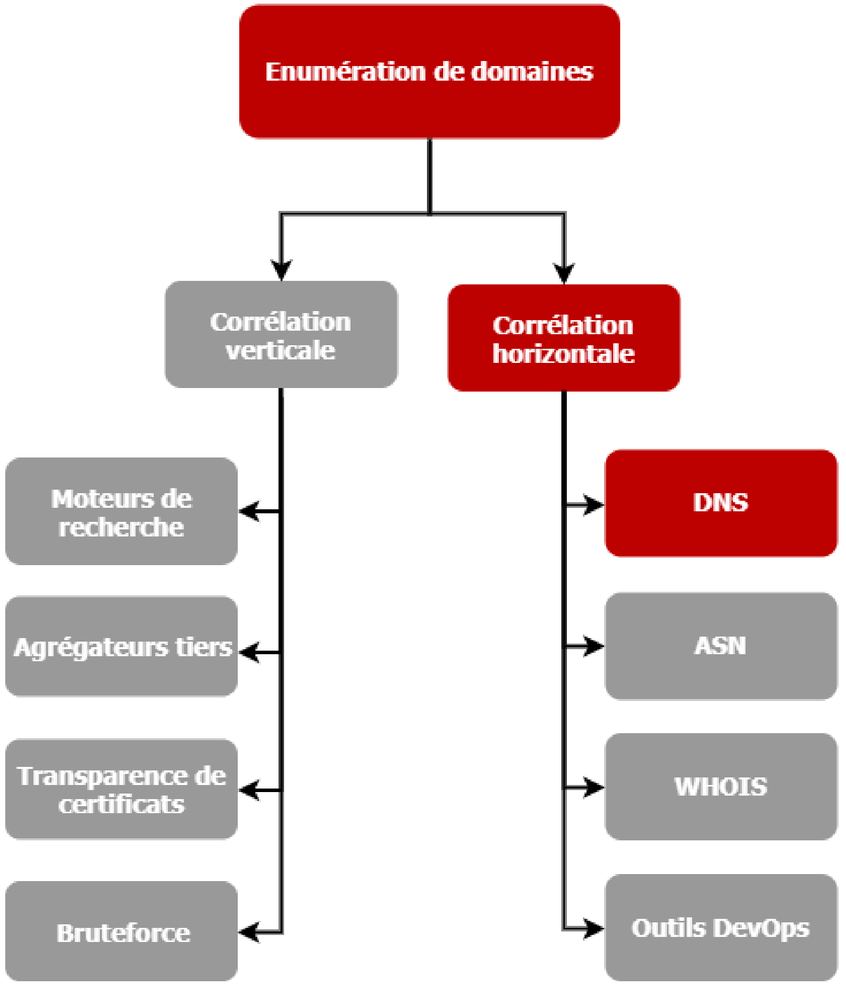
Bruteforce

- De nombreux dictionnaires disponibles
- Utiliser des permutations

Exemple : aiodnsbrute & all.txt (@jhaddix)

```
user@server:~$ aiodnsbrute -w Wordlists/all.txt -t 1024 intrinsec.com
[*] Brute forcing rouen.fr with a maximum of 1024 concurrent tasks...
[*] Using local resolver to verify intrinsec.com exists.
[*] Using recursive DNS with the following servers: ['127.0.0.53']
[*] No wildcard response was detected for this domain.
[*] Wordlist loaded, proceeding with 1136964 DNS requests
[+] forms.intrinsec.com                ['93.187.41.210']
[+] formulaire.intrinsec.com           ['93.187.40.195']
[+] ftp.intrinsec.com                  ['93.187.40.198']
[+] FTP.intrinsec.com                  ['93.187.40.198']
[+] fuji.intrinsec.com                 ['93.187.43.198']
[+] gapps.intrinsec.com                ['93.187.40.195']
[+] ged.intrinsec.com                  ['194.6.240.6']
[+] googleapps.intrinsec.com           ['93.187.40.195']
[+] himalaya.intrinsec.com             ['54.36.216.202']
[+] horizon.intrinsec.com              ['93.187.40.74']
```

DNS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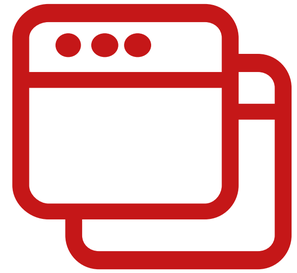
DNS

Serveur web



www.netsecure-day.fr

3 – Requête à l'adresse IP obtenue

4 – Réponse avec le contenu de la page

Vous

1 - Quel est l'adresse IP de www.netsecure-day.fr ?

2 - Voici l'adresse IP : 104.28.21.74

Serveur DNS

DNS

- Transfert de zone
- Réplication des enregistrements entre serveurs DNS
- Permet de récupérer tous les noms de domaines associés

Exemple : host

```
user@server:~$ host -l zonetransfer.me nsztm1.digi.ninja
Using domain server:
Name: nsztm1.digi.ninja
Address: 81.4.108.41#53
Aliases:

zonetransfer.me has address 5.196.105.14
zonetransfer.me name server nsztm1.digi.ninja.
zonetransfer.me name server nsztm2.digi.ninja.
14.105.196.5.IN-ADDR.ARPA.zonetransfer.me domain name pointer www.zonetransfer.me.
asfdbbox.zonetransfer.me has address 127.0.0.1
canberra-office.zonetransfer.me has address 202.14.81.230
dc-office.zonetransfer.me has address 143.228.181.132
deadbeef.zonetransfer.me has IPv6 address dead:beaf::
email.zonetransfer.me has address 74.125.206.26
home.zonetransfer.me has address 127.0.0.1
```

DNS

Exemple : dig

```
user@server:~$ dig axfr @nsztm1.digi.ninja zonetransfer.me

; <<>> DiG 9.10.3-P4-Debian <<>> axfr @nsztm1.digi.ninja zonetransfer.me
; (1 server found)
;; global options: +cmd
zonetransfer.me.        7200    IN      SOA     nsztm1.digi.ninja. robin.digi.ninja. 2019100801 172800 900 1209600
3600
zonetransfer.me.        301     IN      TXT     "google-site-
verification=tyP28J7JAUHA9fw2sHXMgcCC0I6XBmmoVi04VlMewxA"
zonetransfer.me.        7200    IN      MX      0 ASPMX.L.GOOGLE.COM.
zonetransfer.me.        7200    IN      A       5.196.105.14
zonetransfer.me.        7200    IN      NS      nsztm1.digi.ninja.
_sip._tcp.zonetransfer.me. 14000 IN     SRV     0 0 5060 www.zonetransfer.me.
14.105.196.5.IN-ADDR.ARPA.zonetransfer.me. 7200 IN PTR www.zonetransfer.me.
asfdbbox.zonetransfer.me. 7200  IN      A       127.0.0.1
dc-office.zonetransfer.me. 7200 IN      A       143.228.181.132
deadbeef.zonetransfer.me. 7201  IN      AAAA    dead:beaf::
email.zonetransfer.me.  7200    IN      A       74.125.206.26
home.zonetransfer.me.   7200    IN      A       127.0.0.1
internal.zonetransfer.me. 300   IN      NS      intns1.zonetransfer.me.
```

DNS

- Enregistrement PTR
- Enregistrement « à l'envers » : associe une adresse IP à un nom d'hôte
- Utile pour les serveurs de messagerie sortants

```
user@server:~$ host -l zonetransfer.me nsztm1.digi.ninja
Using domain server:
Name: nsztm1.digi.ninja
Address: 81.4.108.41#53
Aliases:

zonetransfer.me has address 5.196.105.14
zonetransfer.me name server nsztm1.digi.ninja.
zonetransfer.me name server nsztm2.digi.ninja.
14.105.196.5.IN-ADDR.ARPA.zonetransfer.me domain name pointer www.zonetransfer.me.
asfdbbox.zonetransfer.me has address 127.0.0.1
canberra-office.zonetransfer.me has address 202.14.81.230
dc-office.zonetransfer.me has address 143.228.181.132
deadbeef.zonetransfer.me has IPv6 address dead:beaf::
email.zonetransfer.me has address 74.125.206.26
home.zonetransfer.me has address 127.0.0.1
```

DNS

- Sender Policy Framework (SPF)
- Norme de vérification du nom de domaine de l'expéditeur d'un mail
- Combattre l'usurpation de domaines légitimes
- Utile pour déterminer des adresses IP appartenant à une entreprise

Mécanisme	Description
ALL	Correspond à tout
A	Adresse IP dans enregistrement A ou AAAA
IP4	Adresse IP dans plage IPv4
IP6	Adresse IP dans plage IPv6
MX	Adresse IP dans enregistrement MX
PTR	Adresse IP dans enregistrement A du domaine indiqué dans l'enregistrement PTR
EXISTS	Si le domaine est résolu
INCLUDE	Si le domaine correspond

DNS

- Sender Policy Framework (SPF)
- Norme de vérification du nom de domaine de l'expéditeur d'un mail
- Combattre l'usurpation de domaines légitimes
- Utile pour déterminer des adresses IP appartenant à une entreprise

Qualifieurs	Description
+	Résultat favorable
?	Résultat neutre
~	Léger échec
-	Echec total

DNS

Exemple : rouen.fr

```
user@server:~$ dig TXT rouen.fr
rouen.fr.               1800    IN      TXT     "v=spf1 ip4:46.218.136.21
ip4:46.218.136.22 ip4:176.57.246.58 include:spf.protection.outlook.com -all"
```

```
user@server:~$ whois 176.57.246.58

inetnum:        176.57.246.56 - 176.57.246.59
netname:        VILLE_DE_ROUEN
descr:          VILLE_DE_ROUEN
country:        FR
```

DNS

- Projet SONAR de Rapid7
- Récupération d'une large liste de domaines : dumps TLD zone files, parsing HTTP, certificats SSL, etc.
- Scan actifs de l'ensemble d'Internet (IPv4)

- Forward DNS :
  - Pour chaque domaine, récupération des enregistrements DNS : A, AAAA, NS, MX, TXT et CNAME.
- Reverse DNS :
  - Pour chaque domaine, récupération de l'enregistrement DNS PTR

File Name	SHA1-Fingerprint	Size	Updated At
2019-11-29-1574985929-fdns_a.json.gz	0e8cfa1263fef9741af18622ef4773cd03e9d908	19.7 GB	Nov. 30, 2019
2019-11-29-1574985803-fdns_aaaa.json.gz	c0aa6bc7f22b5203da10ba2250d8b33922f9776c	1.6 GB	Nov. 30, 2019
2019-11-25-1574640596-fdns_cname.json.gz	500b40dac3b1ae95887c7678665d7b4107981359	2.2 GB	Nov. 25, 2019
2019-11-23-1574520243-fdns_any.json.gz	e27c1e584ad487dc836a5117ee6945ffc6b775d3	30.7 GB	Nov. 25, 2019

Bonus / HS – Subdomain takeover

- https://hackerone.com/reports/383564 par blurbdust

31 #383564 **Subdomain takeover on svcgatewaydevus.starbucks.com and svcgatewayloadus.starbucks.com**

Share:

State	Resolved (Closed)	Severity	Critical (9 ~ 10)
Disclosed	July 23, 2018 7:45pm +0200	Participants	
Reported To	Starbucks	Visibility	Disclosed (Full)
Weakness	Privilege Escalation		
Bounty	$4,000		

TIMELINE

blurbdust submitted a report to Starbucks. Jul 19th (about 1 year ago)

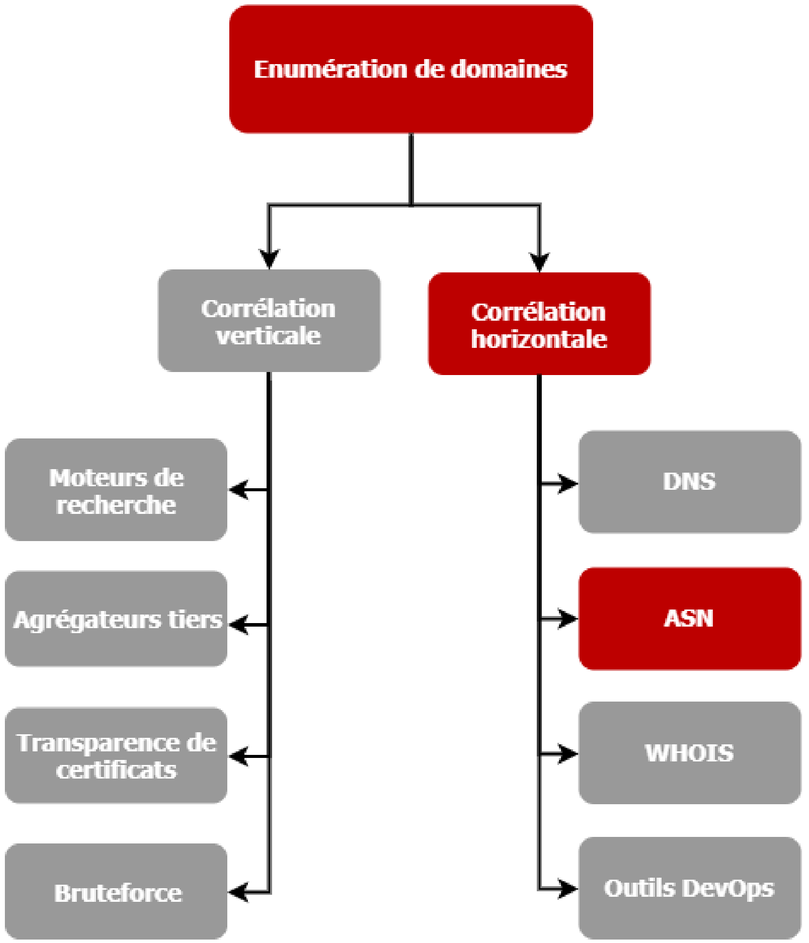
Hello,

Two starbucks.com subdomains are pointed to Azure with an unclaimed CNAME record. Anyone would be able to serve content on these subdomains.

svcgatewayloadus.starbucks.com

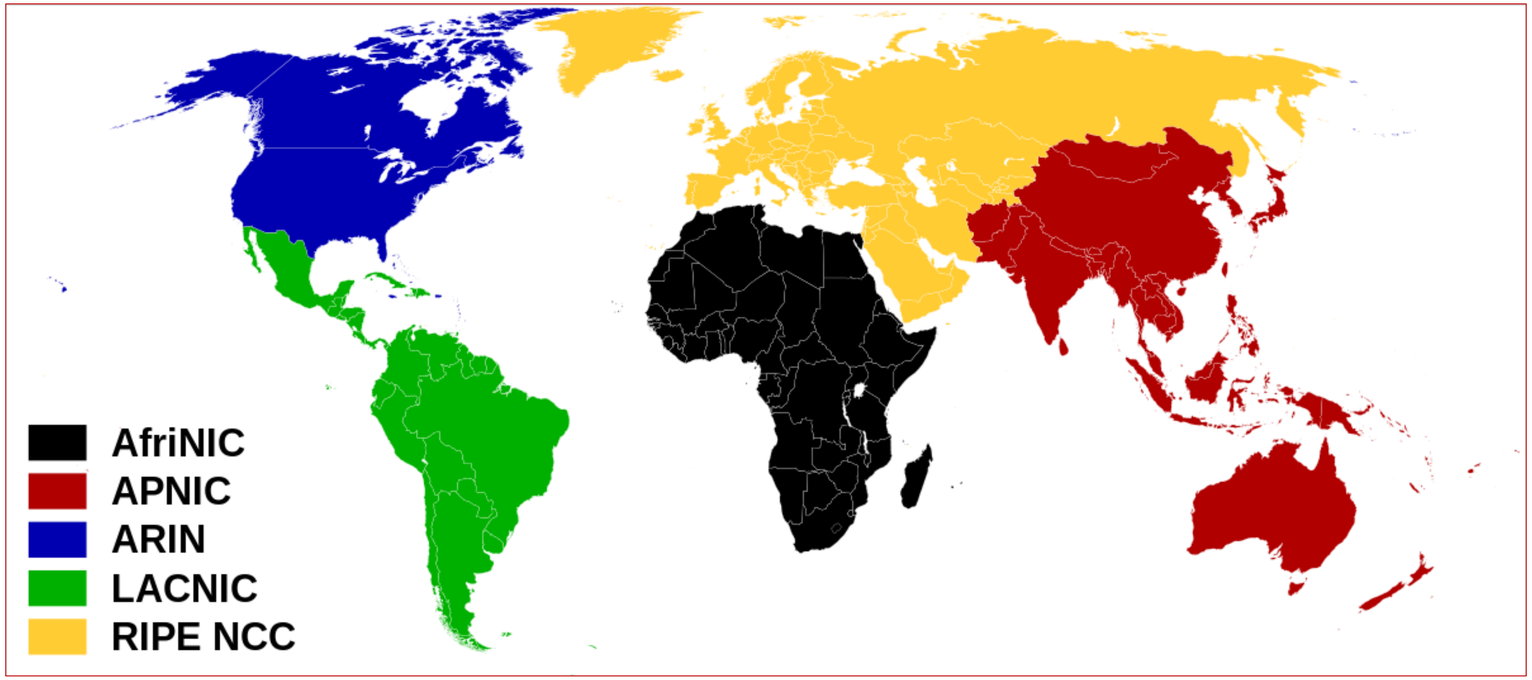
```
;; Server: 1.1.1.1:53
;; Size: 191
;; Unix time: 1531965036
;; ->>HEADER<<- opcode: QUERY, status: NXDOMAIN, id: 3697
;; flags: qr rd ra ; QUERY: 1, ANSWER: 1, AUTHORITY: 1, ADDITIONAL: 0

;; QUESTION SECTION:
svcgatewayloadus.starbucks.com. IN A

;; ANSWER SECTION:
svcgatewayloadus.starbucks.com. 600 IN CNAME s00197tmp0crdfulload0.trafficmanager.net.
```

Autonomous System Number



Autonomous System Number

- Ensemble de réseaux informatiques gérés par un ou plusieurs opérateurs réseau
- Nécessaire aux opérateurs pour contrôler le routage / échanger des informations avec d'autres FAI
- Internet Assigned Numbers Authority (IANA)
- Presque 100.000 AS loués en 2019
- Permet d'identifier des plages IP appartenant à une entreprise

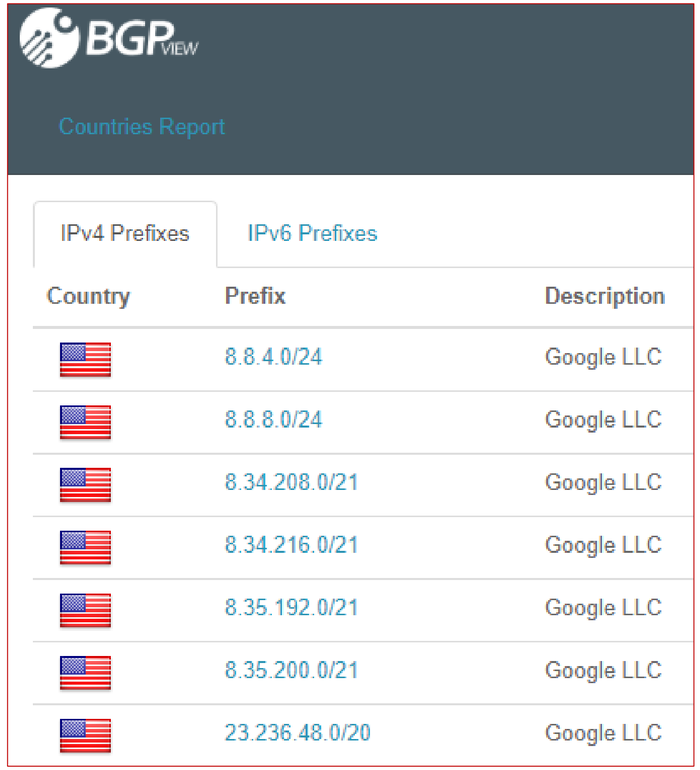


https://upload.wikimedia.org/wikipedia/commons/thumb/9/95/Regional_Internet_Registries_world_map.svg/1200px-Regional_Internet_Registries_world_map.svg.png

Autonomous System Number

- Exemple : déterminer des plages IP appartenant à Google LLC

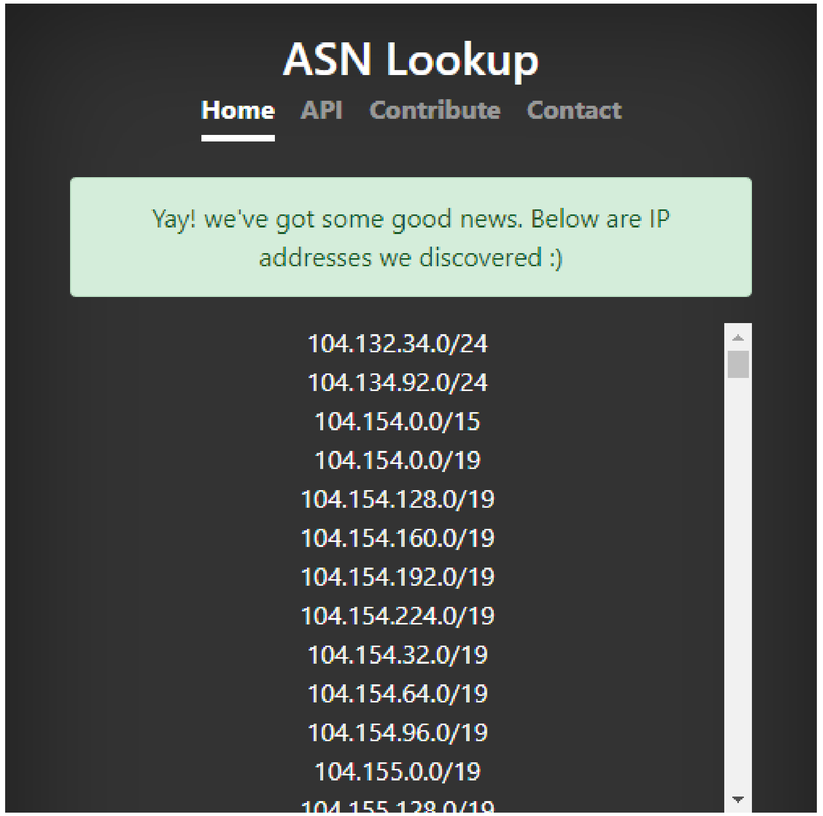
```
user@server:~$ dig google.com +short
216.58.209.238

user@server:~$ whois 216.58.209.238

NetRange:       216.58.192.0 - 216.58.223.255
CIDR:           216.58.192.0/19
NetName:        GOOGLE
NetHandle:      NET-216-58-192-0-1
Parent:         NET216 (NET-216-0-0-0-0)
NetType:        Direct Allocation
OriginAS:       AS15169
Organization:   Google LLC (GOGL)
RegDate:        2012-01-27
Updated:        2012-01-27
Ref:            https://rdap.arin.net/registry/ip/216.58.192.0
```



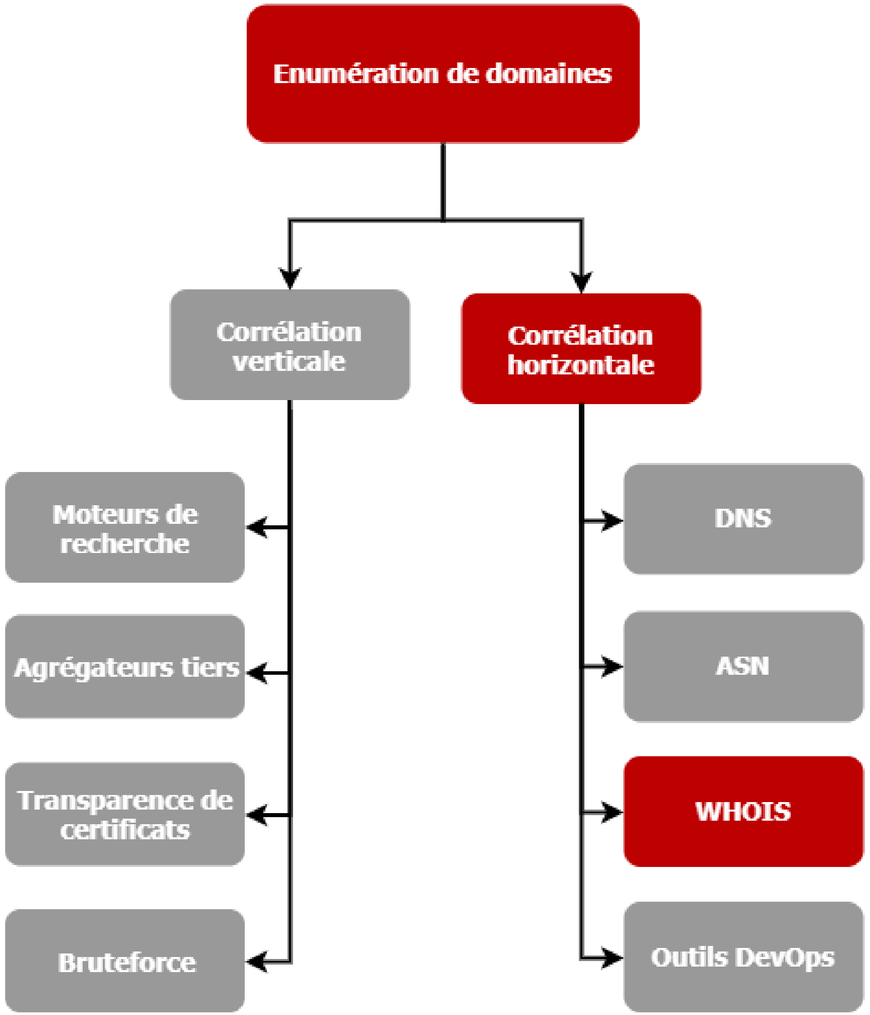
https://bgpview.io/asn/15169#prefixes-v4

Autonomous System Number

- Outil : ASN Lookup par @yassineaboukir : https://github.com/yassineaboukir/Asnlookup
- Intégration avec Nmap et Masscan



WHOIS


Enumération de domaines
Corrélation verticale
Corrélation horizontale
Moteurs de recherche
Agrégateurs tiers
Transparence de certificats
Bruteforce
DNS
ASN
WHOIS
Outils DevOps

WHOIS

- Permet d'effectuer des recherches sur des noms de domaine

Exemple : google.fr

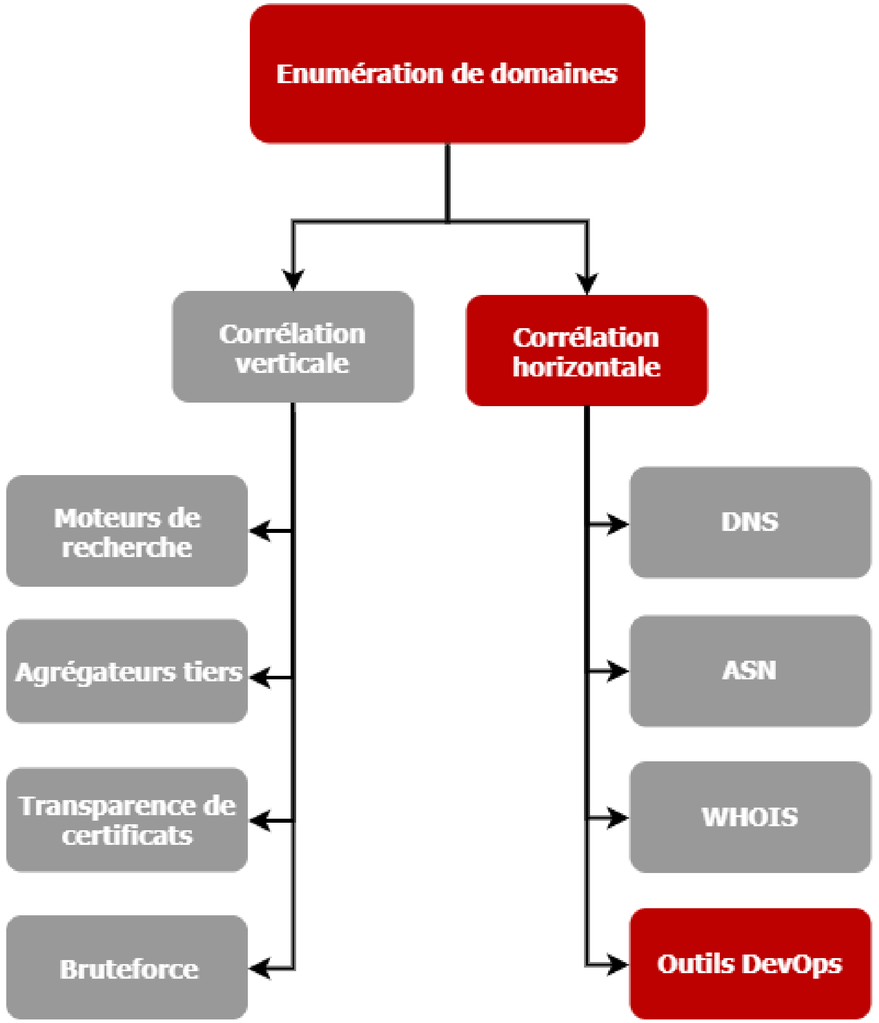
```
user@server:~$ whois google.fr

nic-hdl:     GIH6-FRNIC
type:        ORGANIZATION
contact:     Google Ireland Holdings
address:     70 Sir John Rogersons Quay
address:     2 Dublin
country:     IE
phone:       +353 14361000
e-mail:      dns-admin@google.com
registrar:   MARKMONITOR Inc.
changed:     2015-03-20T21:13:41Z nic@nic.fr
anonymous:   NO
obsoleted:   NO
eligstatus:  ok
eligsource:  REGISTRAR
eligdate:    2011-12-30T17:15:32Z
reachmedia:  email
reachstatus: ok
reachsource: REGISTRAR
reachdate:   2015-03-20T21:13:41Z
source:      FRNIC
```

dns-admin@google.com

Reverse Whois » EMAIL [*dns-admin@google.com*] { **93,854 domain names** }

NUM	DOMAIN NAME	REGISTRAR	CREATED	UPDATED	EXPIRY
1	google.fr	-	26 Jul 2000	28 Nov 2019	30 Dec 2020
2	waze.com	MarkMonitor Inc.	1 Apr 2000	28 Feb 2019	1 Apr 2020
3	alooma.com	MarkMonitor Inc.	1 May 2004	9 Apr 2019	1 May 2022
4	deepmind-archive.com	MarkMonitor Inc.	20 Nov 2019	20 Nov 2019	20 Nov 2020
5	doodleforgoogle.com	MarkMonitor Inc.	20 Jul 2009	14 Nov 2019	20 Jul 2020
6	capitalg.com	MarkMonitor Inc.	11 Aug 2002	1 May 2019	1 Jun 2020
7	deepmind.com	MarkMonitor Inc.	14 Mar 2003	5 Nov 2019	14 Mar 2020

Outils DevOps



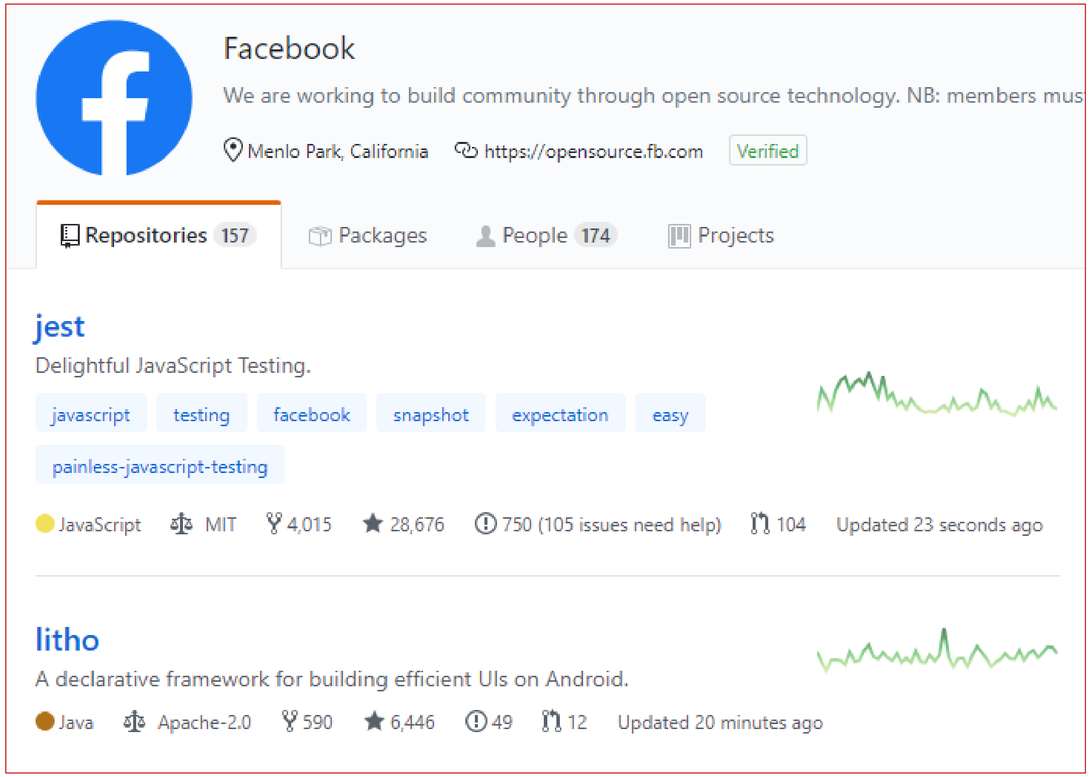
Outils DevOps

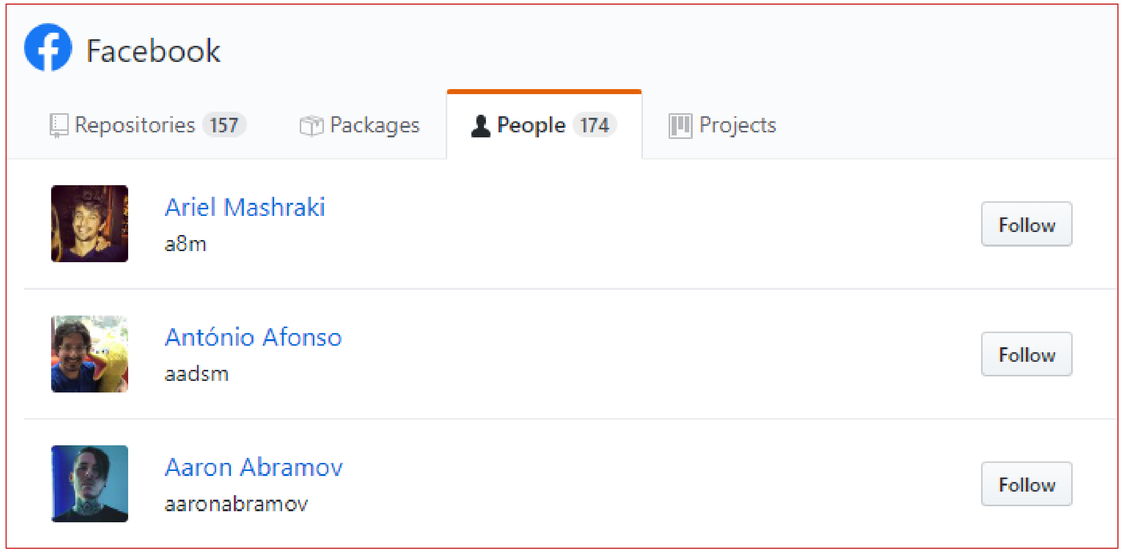
- Plateformes d'hébergement de code

GitHub

GitLab

Atlassian Bitbucket





INTRINSEC
Innovative by design

Outils DevOps

- https://hackerone.com/reports/396467 par @th3g3nt3lman

514

#396467 **Github Token Leaked publicly for https://github.sc-corp.net**

Share:

State	Resolved (Closed)	Severity	Critical (9.8)
Disclosed	October 8, 2018 2:57pm +0200	Participants	
Reported To	Snapchat	Visibility	Disclosed (Full)
Asset	app.snapchat.com (Domain)		
Weakness	Cleartext Storage of Sensitive Information		
Bounty	$15,000		

TIMELINE

th3g3nt3lman submitted a report to Snapchat. Aug 17th (about 1 year ago)

Description :

GitHub is a truly awesome service but it is unwise to put any sensitive data in code that is hosted on GitHub and similar services as i was able to find github token indexed *7 hours Ago* by user [redacted] - *Software Engineer - Snap Inc*

Issue & POC :

You can find the leak in this link :
https://github.com/%E2%96%88%E2%96%88%E2%96%88%E2%96%88%E2%96%88/leetcode/blob/0eec6434940a01e490d5eecea9baf4778836c54e/TopicMatch.py

```
import os
import requests
import sys
pull_number = 76793
pull_url = "https://github.sc-corp.net/api/v3/repos/Snapchat/android/pulls/" + str(pull_number)
payload = {}
payload["Authorization"] = "token " + "9db9ca3440e535d90408a32a9c03d415979da910"
```

Outils DevOps

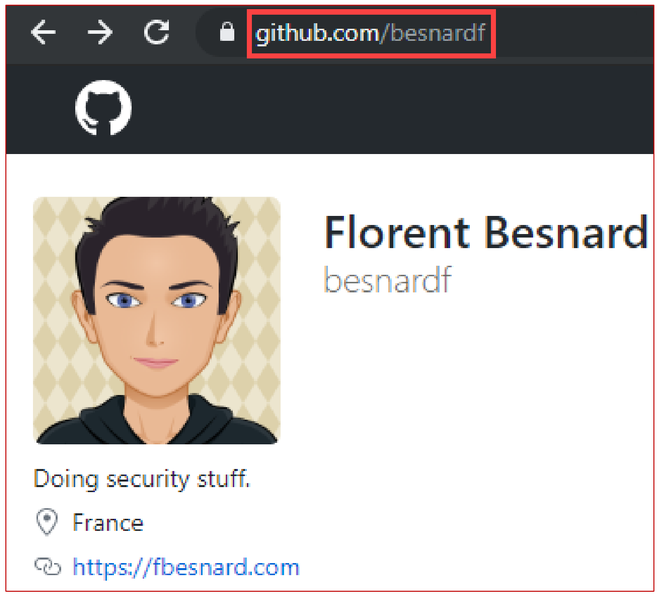
- Plateformes de « pasting »
- Partager des données volatiles / morceaux de code

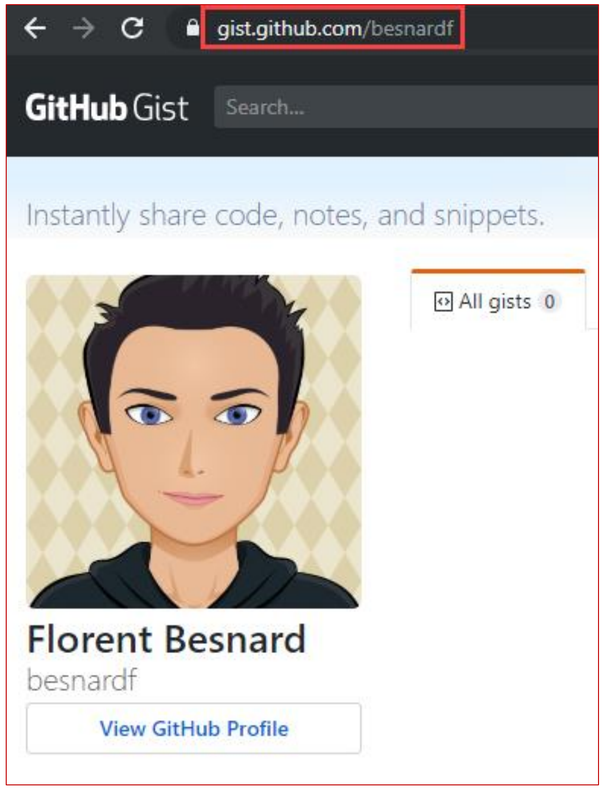
PASTEBIN

GitHub Gist

Outils DevOps

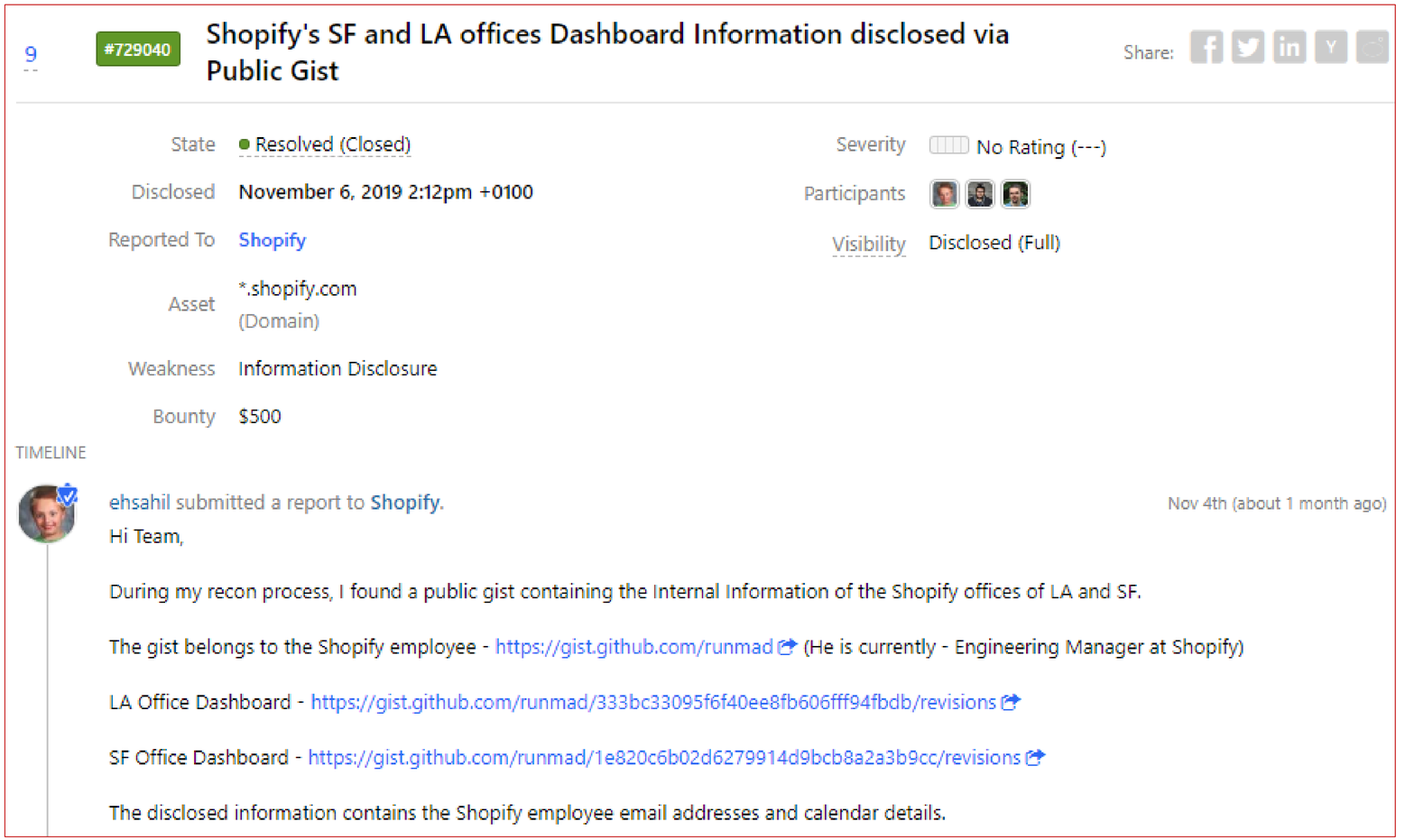
Exemple : Gist





Outils DevOps

- https://hackerone.com/reports/729040 par @ehsahil



9

#729040

Shopify's SF and LA offices Dashboard Information disclosed via Public Gist

Share:

State	Resolved (Closed)	Severity	No Rating (---)
Disclosed	November 6, 2019 2:12pm +0100	Participants	
Reported To	Shopify	Visibility	Disclosed (Full)
Asset	*.shopify.com (Domain)		
Weakness	Information Disclosure		
Bounty	$500		

TIMELINE

ehsahil submitted a report to **Shopify**. Nov 4th (about 1 month ago)

Hi Team,

During my recon process, I found a public gist containing the Internal Information of the Shopify offices of LA and SF.

The gist belongs to the Shopify employee - https://gist.github.com/runmad (He is currently - Engineering Manager at Shopify)

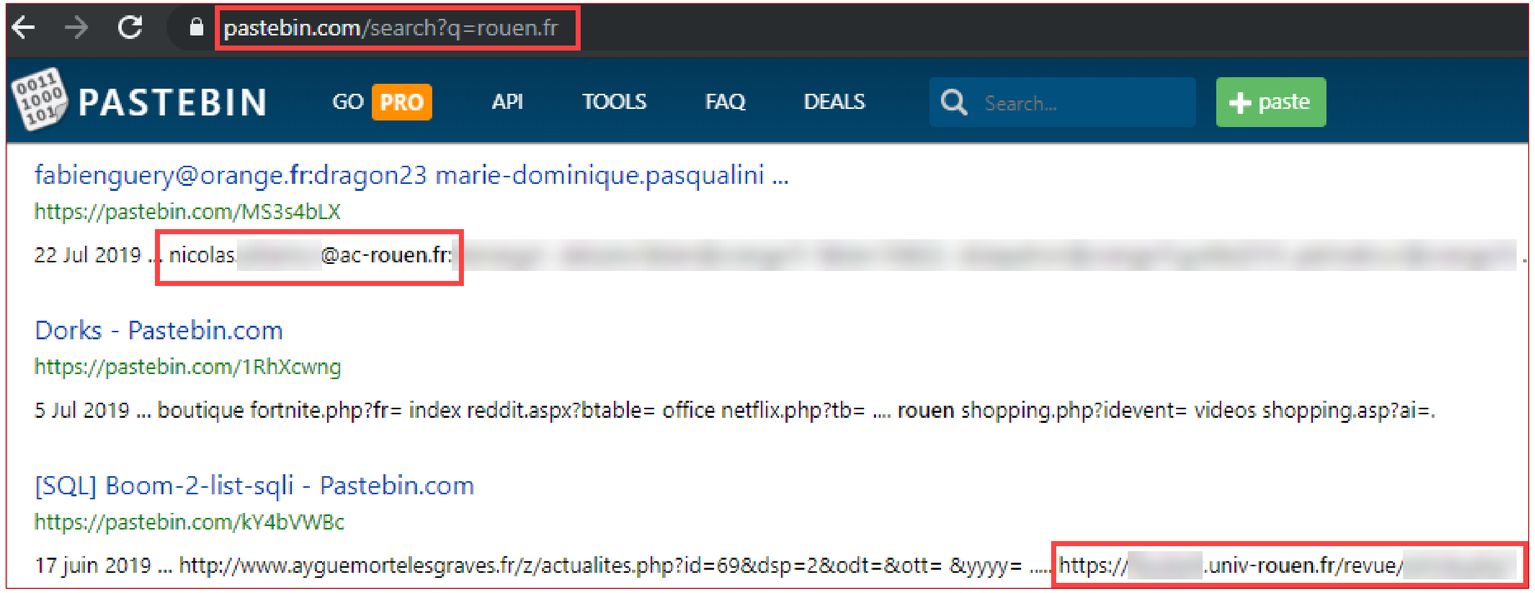
LA Office Dashboard - https://gist.github.com/runmad/333bc33095f6f40ee8fb606fff94fbdb/revisions

SF Office Dashboard - https://gist.github.com/runmad/1e820c6b02d6279914d9bcb8a2a3b9cc/revisions

The disclosed information contains the Shopify employee email addresses and calendar details.

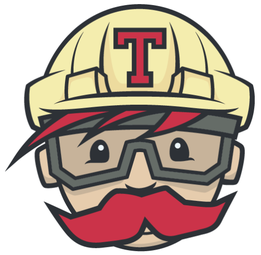
Outils DevOps

Exemple : Pastebin



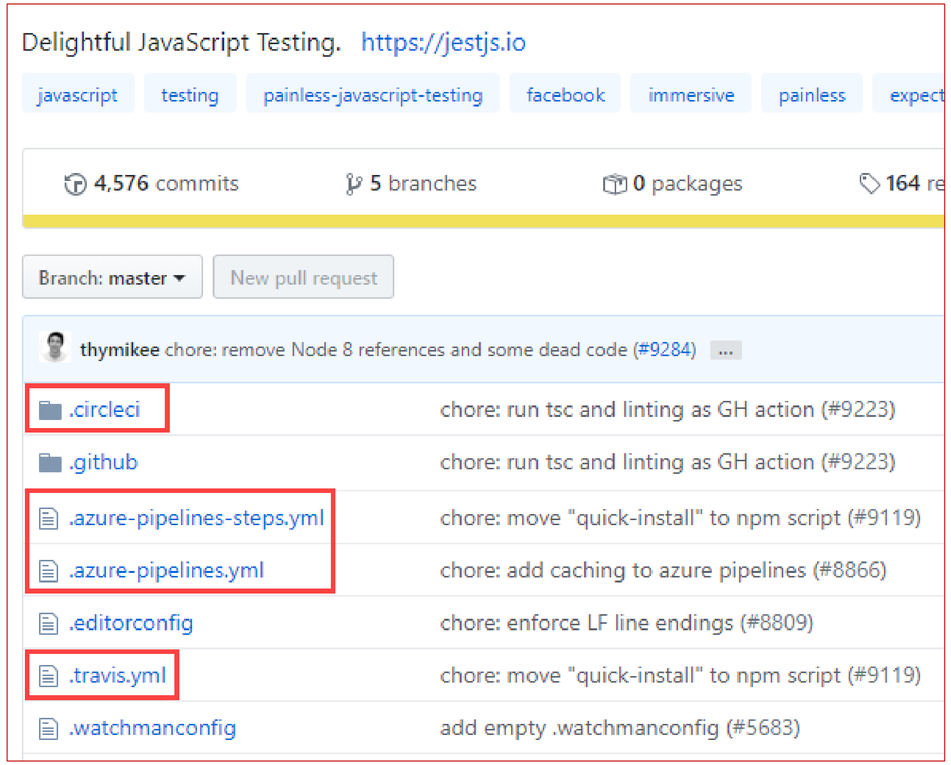
Outils DevOps

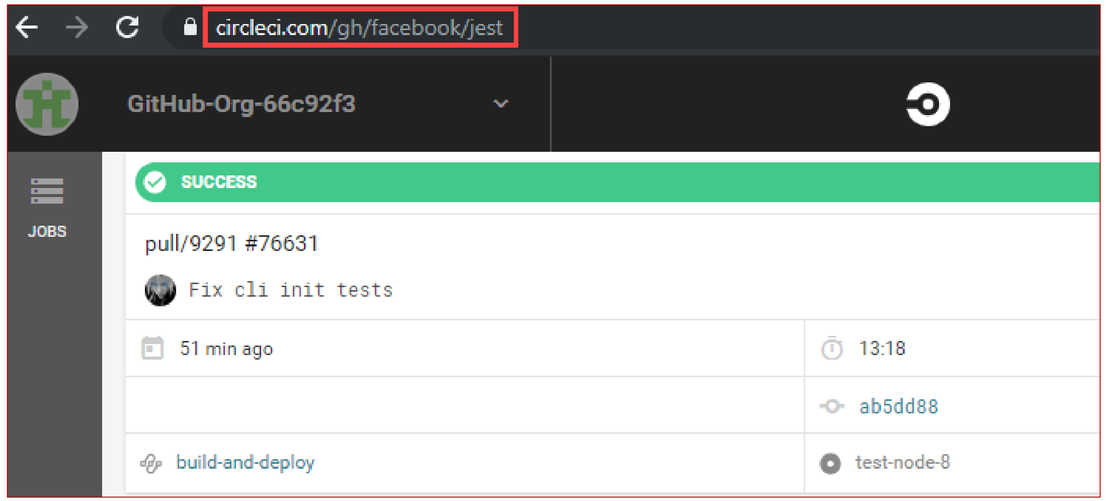
- Plateformes « CI/CD »
- Compiler, tester et déployer du code

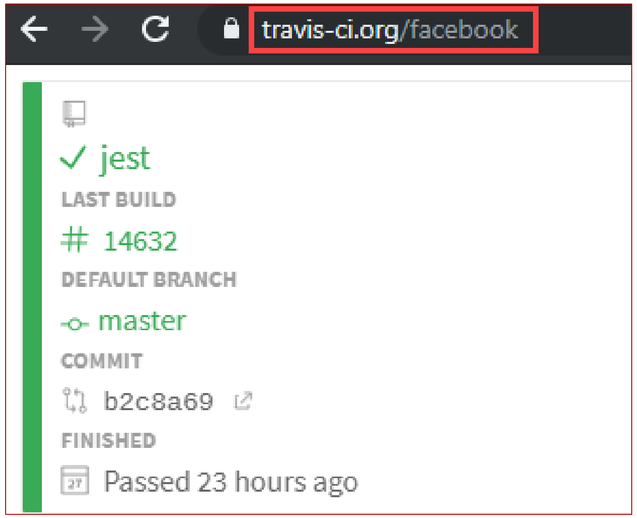


Outils DevOps

Exemple : github.com/facebook/jest



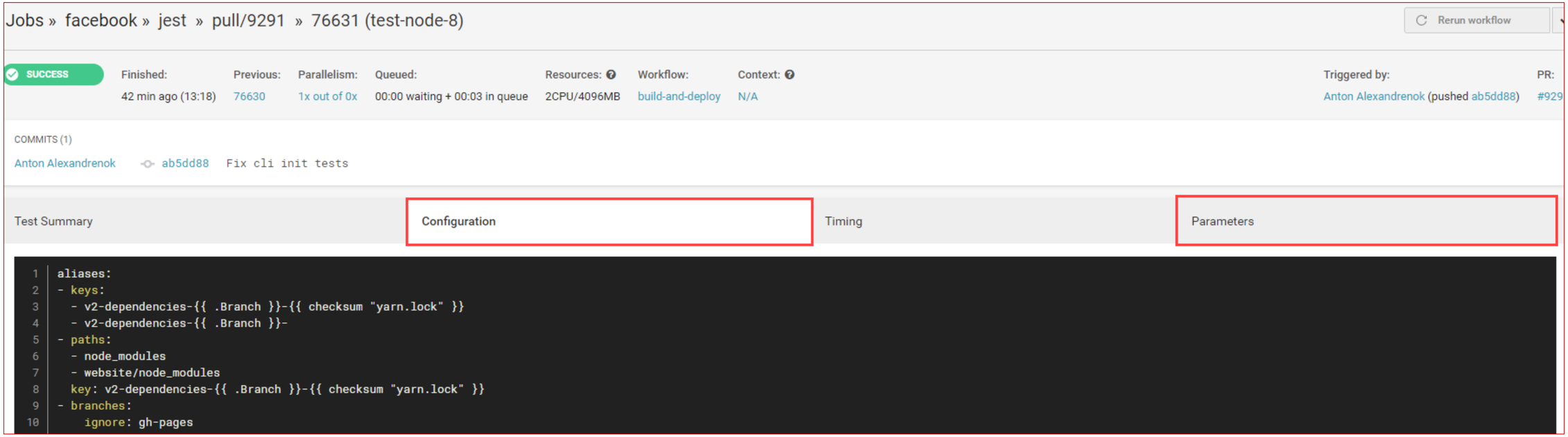




INTRINSEC
Innovative by design

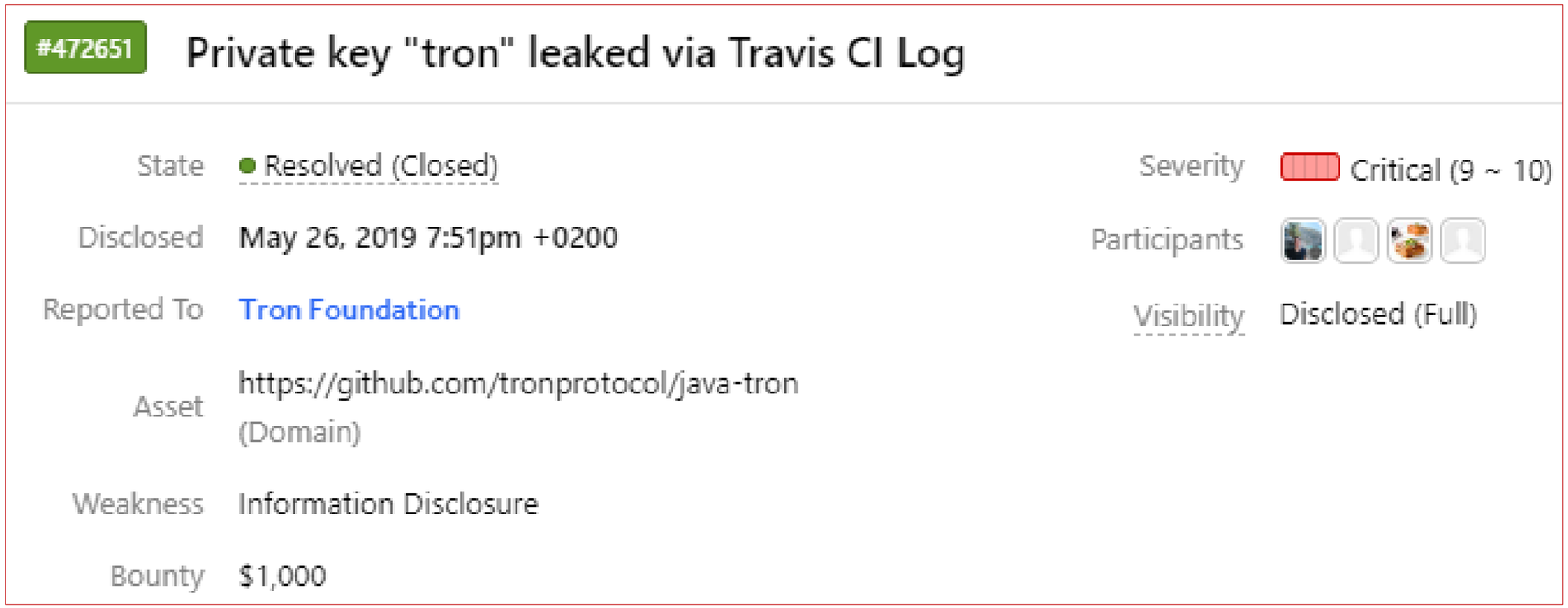
Outils DevOps

Exemple : github.com/facebook/jest



Outils DevOps

- https://hackerone.com/reports/472651 par @rhynorater



#472651 Private key "tron" leaked via Travis CI Log

State	Resolved (Closed)	Severity	Critical (9 ~ 10)
Disclosed	May 26, 2019 7:51pm +0200	Participants	
Reported To	Tron Foundation	Visibility	Disclosed (Full)
Asset	https://github.com/tronprotocol/java-tron (Domain)		
Weakness	Information Disclosure		
Bounty	$1,000		

Outils DevOps

- https://hackerone.com/reports/472651 par @rhynorater

Methodology

The following methodology was used to find this vulnerability:

1. List all the repos under `/tronprotocol` on travis-ci.org
2. For each of these repos, grab each of the builds
3. For each of the builds, grab the config and the job log(s)
4. Grep through the job logs and config for sensitive looking strings (see trufflehog regex and work by ed and karim)

https://edoverflow.com/2019/ci-knew-there-would-be-bugs-here/

Outils DevOps


```
416 Network availability confirmed.
417
418 127.0.0.1 localhost nettuno travis vagrant
419 127.0.1.1 travis-job-ccd9db7e-2aca-42c2-918b-978d26e5a65b travis-job-ccd9db7e-2aca-42c2-918b-978d26e5a65b ip4-loopback trusty64
420
421 W: http://ppa.launchpad.net/couchdb/stable/ubuntu/dists/trusty/Release.gpg: Signature by key
    15866BAFD9BCC4F3C1E0DFC7D69548E1C17EAB57 uses weak digest algorithm (SHA1)
422 $ jdk_switcher use oraclejdk8
423 Switching to Oracle JDK8 (java-8-oracle), JAVA_HOME will be set to /usr/lib/jvm/java-8-oracle
▶ 424 Adding ssh known hosts (BETA)                                                    ssh_known_hosts.0
▶ 433 $ git clone --depth=50 https://github.com/tronprotocol/java-tron.git tronprotocol/java-tron   git.checkout   0.84s
442
443 Setting environment variables from repository settings
444 $ export encrypted_e5855cb9e09c_key=[secure]
445 $ export encrypted_e5855cb9e09c_iv=[secure]
446
```

Outils DevOps

7 .travis.yml

```
@@ -6,21 +6,18 @@ script:
6  6    - ./gradlew test
7  7    - cat tron > ~/.ssh/id_rsa
8  8    - chmod 600 ~/.ssh/id_rsa
   9  + - cat tron
9  10   addons:
19 16   deploy:
20 17     provider: script
21 18     script: bash deploy.sh
22 19     on:
23 -        branch: develop
   20 +     branch: feature/deploy
24 21   before_install:
25 22   - openssl aes-256-cbc -K $encrypted_e5855cb9e09c_key -iv $encrypted_e5855cb9e09c_iv
26 23     -in tron.enc -out tron -d
```

2 deploy.sh

```
@@ -1,5 +1,5 @@
1  1    #!/bin/bash
2  -  - ./gradlew clean shadowJar
   2  + # ./gradlew clean shadowJar
3  3    ssh tron@47.93.9.236 -p 22008 mkdir java-tron
4  4    scp -P 22008 build/libs/java-tron.jar tron@47.93.9.236:/home/tron/java-tron/
5  5    scp -P 22008 start.sh tron@47.93.9.236:/home/tron/java-tron/
```

Outils DevOps

- Buckets
- Solution cloud utilisée à des fins de stockage : scalabilité, disponibilité et sécurité
- N'importe quel type de données : sauvegarde, données clients, données applicatives, etc.

Google Cloud Storage :
- https://BUCKET.storage.googleapis.com/OBJET
- https://storage.googleapis.com/BUCKET/OBJET

Amazon S3 :
- https://BUCKET.s3.amazon.com/OBJET
- https://s3.amazon.com/BUCKET/OBJET

Azure Blob Storage :
- https://BUCKET.blob.core.windows.net/OBJET

Outils DevOps

- https://github.com/RhinoSecurityLabs/GCPBucketBrute par @rhinosecurity
- Permutations
- Requêtes auprès de l'API www.googleapis.com

```
user@server:~$ python3 gcpbucketbrute.py -k facebook -u

Generated 1216 bucket permutations.

    EXISTS: facebook-resources
    EXISTS: facebookvideos
    EXISTS: facebook-events
    EXISTS: facebook0
    EXISTS: facebook_reports
    EXISTS: facebookpublic
    EXISTS: facebook_test
    EXISTS: facebook01
    EXISTS: facebook_export
```

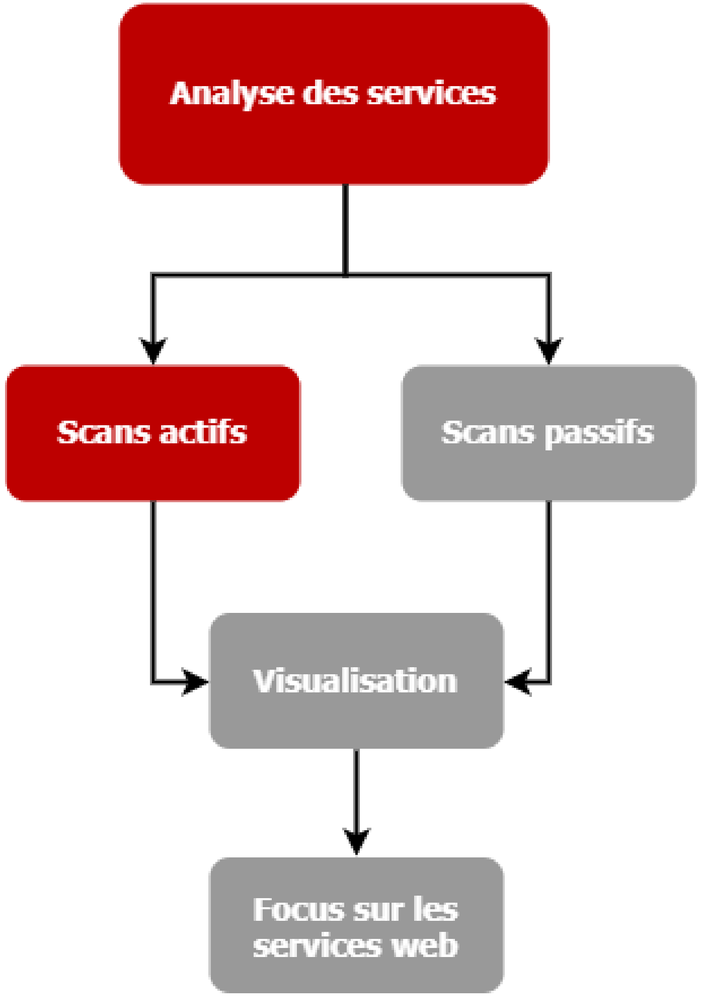
Outils DevOps

- https://github.com/hehnope/slurp par hehnope
- Permutations (presque 30.000)
- Requêtes auprès de s3-1-w.amazonaws.com

```
user@server:~$ slurp domain -t facebook.com -p Wordlists/permutations.json
INFO[0000] Building permutations....
INFO[0000] Processing permutations....
INFO[0025] FORBIDDEN http://facebook-2011.s3.amazonaws.com (http://facebook.com)
INFO[0039] PUBLIC http://facebook-ac.s3.ca-central-1.amazonaws.com/ (http://facebook.com)
INFO[0044] FORBIDDEN http://facebook-ad.s3.amazonaws.com (http://facebook.com)
INFO[0052] PUBLIC http://facebook-ads.s3.amazonaws.com (http://facebook.com)
INFO[0067] FORBIDDEN http://facebook-alpha.s3.amazonaws.com (http://facebook.com)
INFO[0074] PUBLIC http://facebook-analytics.s3.ap-northeast-2.amazonaws.com/ (http://facebook.com)
```

Analyse des services

Scans actifs



Scans actifs

- Prend du temps
- Peuvent déclencher un IDS/IPS
- Meilleure représentation des services accessibles

- 2 outils généralement utilisés : Nmap et Masscan

	Nmap	Masscan
Avantages	• Synchrone (plus de précision) • Moteur de scripts • S'adapte à la charge supportée par la cible	• Asynchrone (plus rapide)
Inconvénients	• Scans très lents lorsqu'il y a plusieurs centaines de cibles	• Résultats peu précis lorsque l'on augmente la fréquence • Accepte seulement les adresses IP

Scans actifs

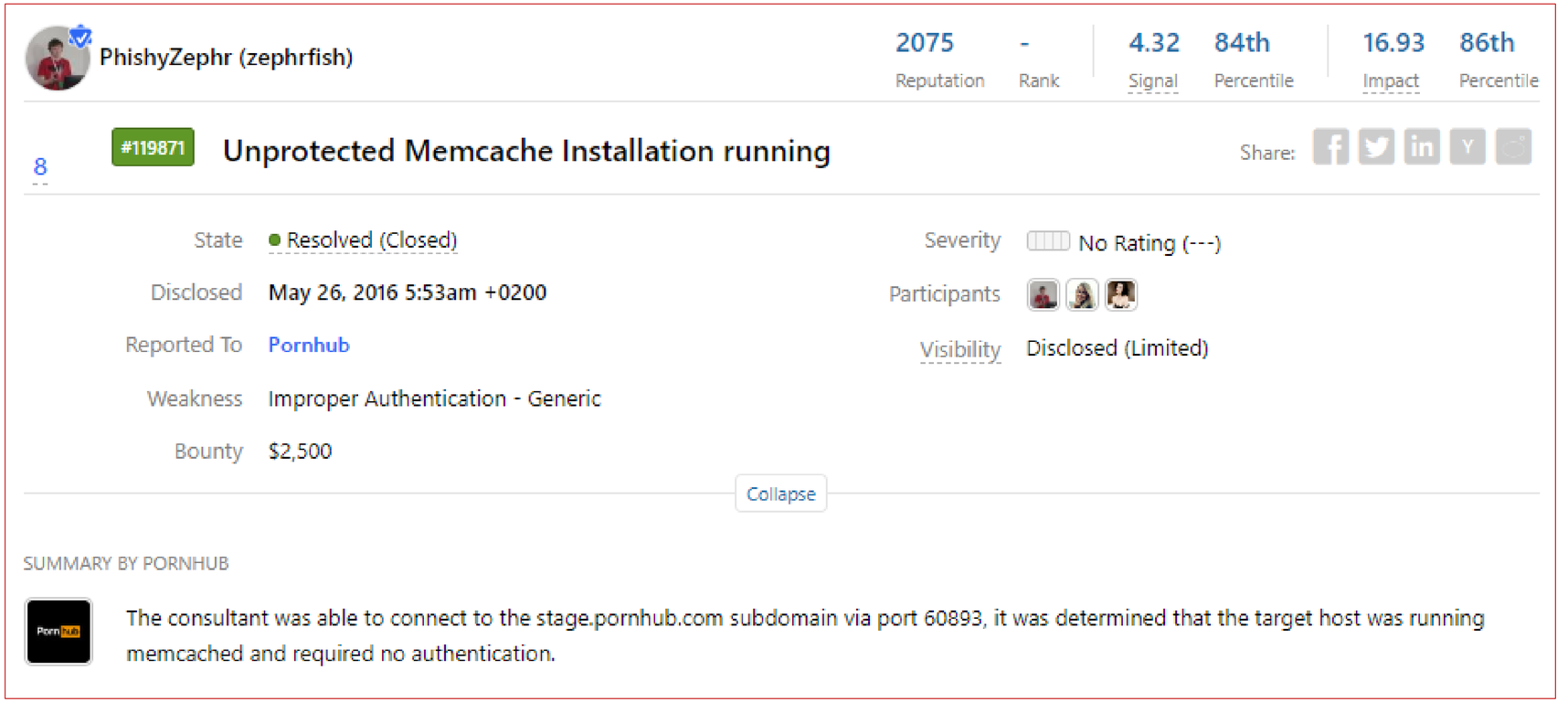
Exemple : Nmap

```
user@server:~/Tools$ nmap -T4 -A scanme.nmap.org

Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.15s latency).
Other addresses for scanme.nmap.org (not scanned): 2600:3c01::f03c:91ff:fe18:bb2f
Not shown: 996 closed ports
PORT      STATE SERVICE    VERSION
22/tcp    open  ssh        OpenSSH 6.6.1p1 Ubuntu 2ubuntu2.13 (Ubuntu Linux; protocol 2.0)
| ssh-hostkey:
|   1024 ac:00:a0:1a:82:ff:cc:55:99:dc:67:2b:34:97:6b:75 (DSA)
|   2048 20:3d:2d:44:62:2a:b0:5a:9d:b5:b3:05:14:c2:a6:b2 (RSA)
|   256 96:02:bb:5e:57:54:1c:4e:45:2f:56:4c:4a:24:b2:57 (ECDSA)
|_  256 33:fa:91:0f:e0:e1:7b:1f:6d:05:a2:b0:f1:54:41:56 (EdDSA)
80/tcp    open  http       Apache httpd 2.4.7 ((Ubuntu))
|_http-server-header: Apache/2.4.7 (Ubuntu)
|_http-title: Go ahead and ScanMe!
9929/tcp  open  nping-echo Nping echo
31337/tcp open  tcpwrapped
```

```
user@server:~$ nmap -p- -sS -sV -sC scanme.nmap.org

Starting Nmap 7.60 ( https://nmap.org ) at 2019-11-10 19:04 CET
Stats: 0:05:54 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 35.28% done; ETC: 19:21 (0:10:44 remaining)
Stats: 0:40:03 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan
SYN Stealth Scan Timing: About 43.77% done; ETC: 20:36 (0:51:23 remaining)
```

Scans actifs

- https://hackerone.com/reports/119871 par @zephrfish



PhishyZephr (zephrfish)

2075	-	4.32	84th	16.93	86th
Reputation	Rank	Signal	Percentile	Impact	Percentile

8

#119871 Unprotected Memcache Installation running

Share:

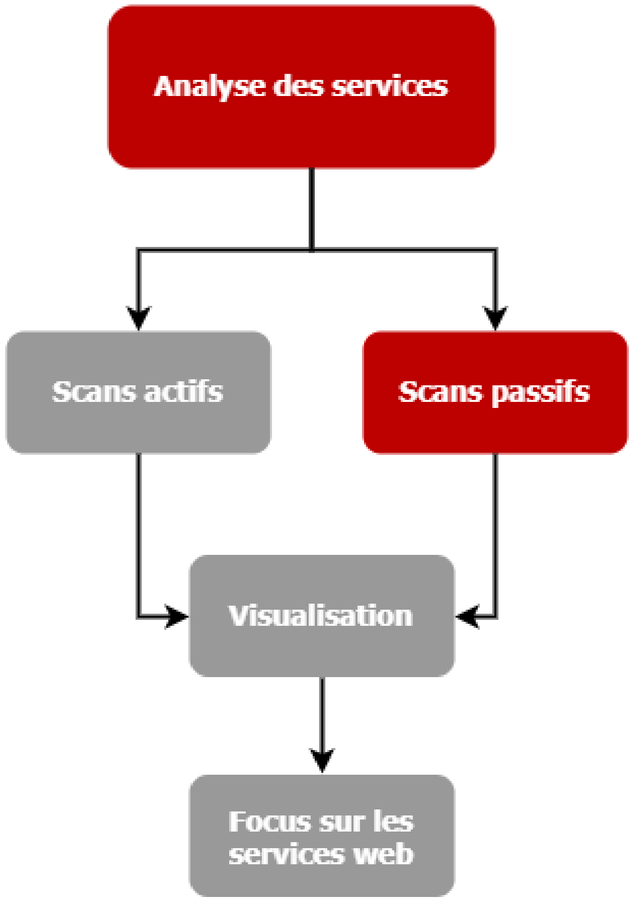
State	Resolved (Closed)	Severity	No Rating (---)
Disclosed	May 26, 2016 5:53am +0200	Participants	
Reported To	Pornhub	Visibility	Disclosed (Limited)
Weakness	Improper Authentication - Generic		
Bounty	$2,500		

Collapse

SUMMARY BY PORNHUB

The consultant was able to connect to the stage.pornhub.com subdomain via port 60893, it was determined that the target host was running memcached and required no authentication.

Scans passifs



Scans passifs

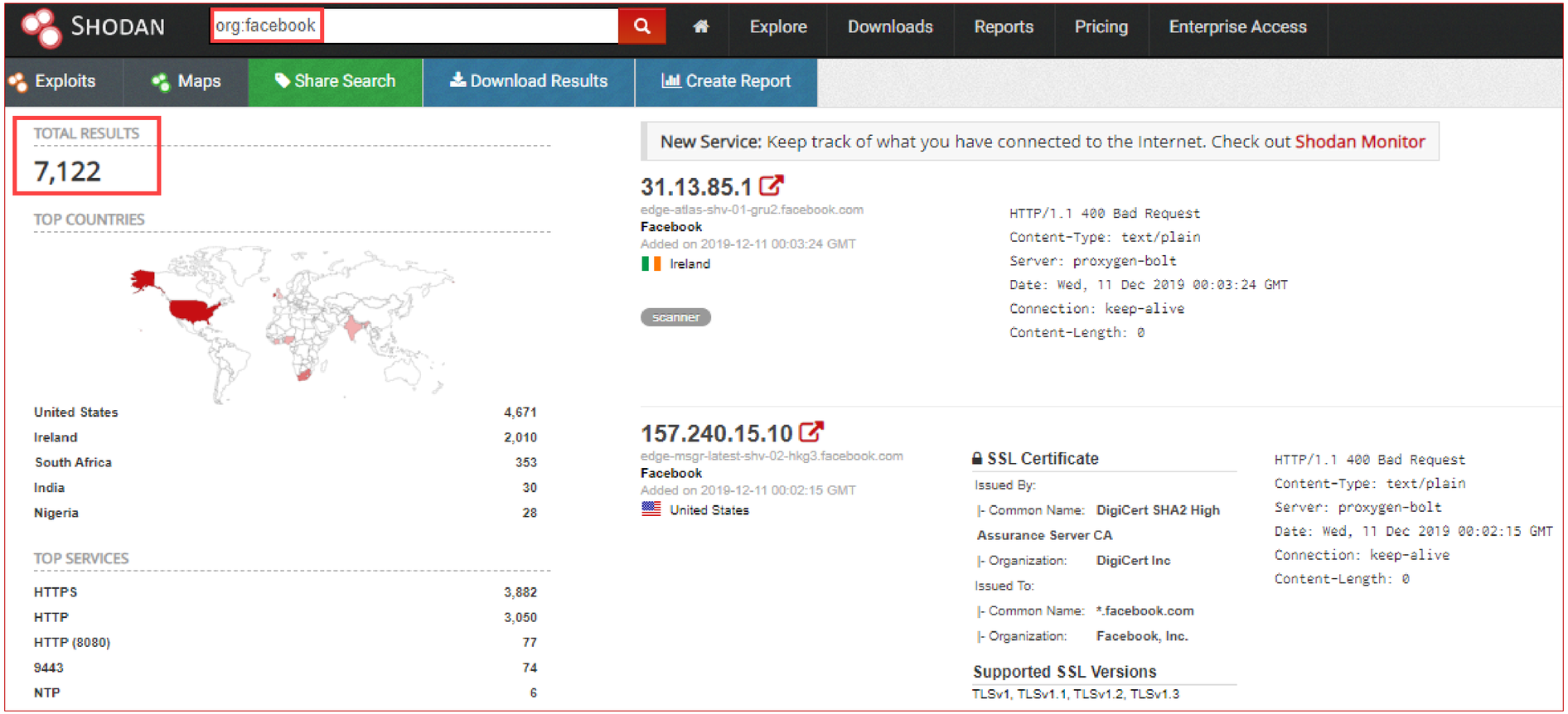
- Utilisation d'outils / données tierces Shodan, Censys, etc.
- Résultats désormais potentiellement invalides
- Pas de connexion directe avec la cible

- Shodan :
  - Net:x.x.x.x/x
  - Org: « entreprise »

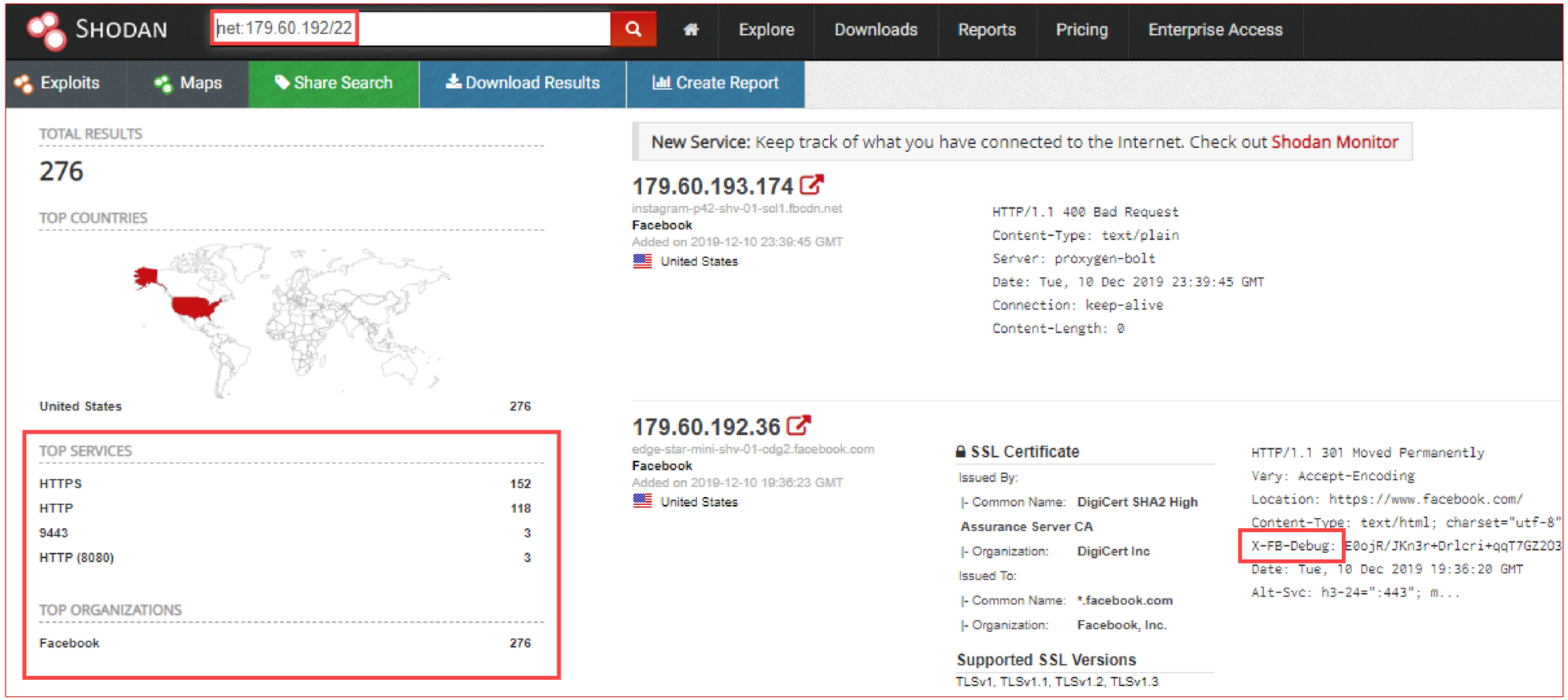
- Censys :
  - Ip:x.x.x.x/x
  - Autonomous_system.asn:<ASN>
  - Autonomous_system.organization:« entreprise »

Scans passifs

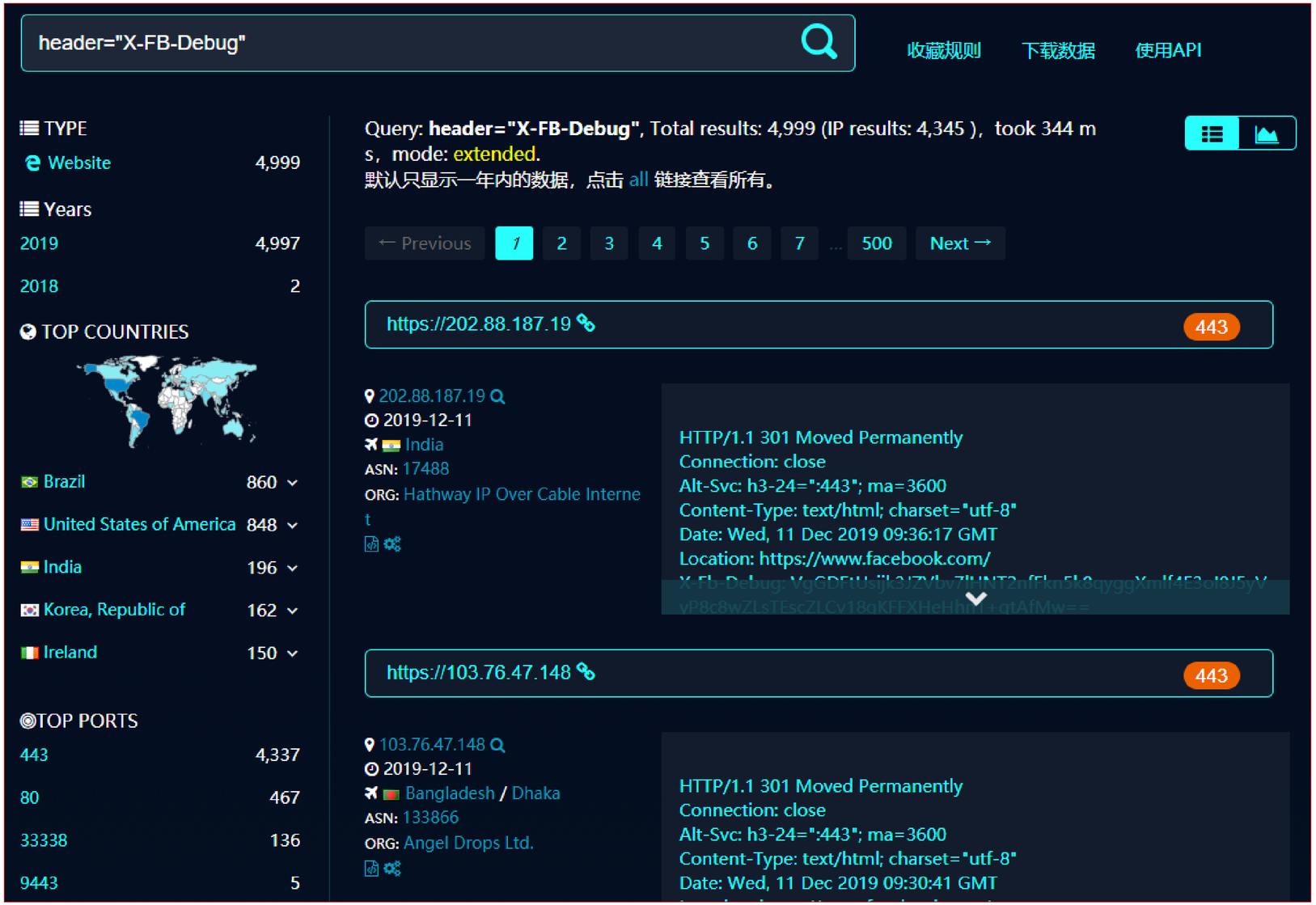
Exemple : Shodan & Fofa



Scans passifs

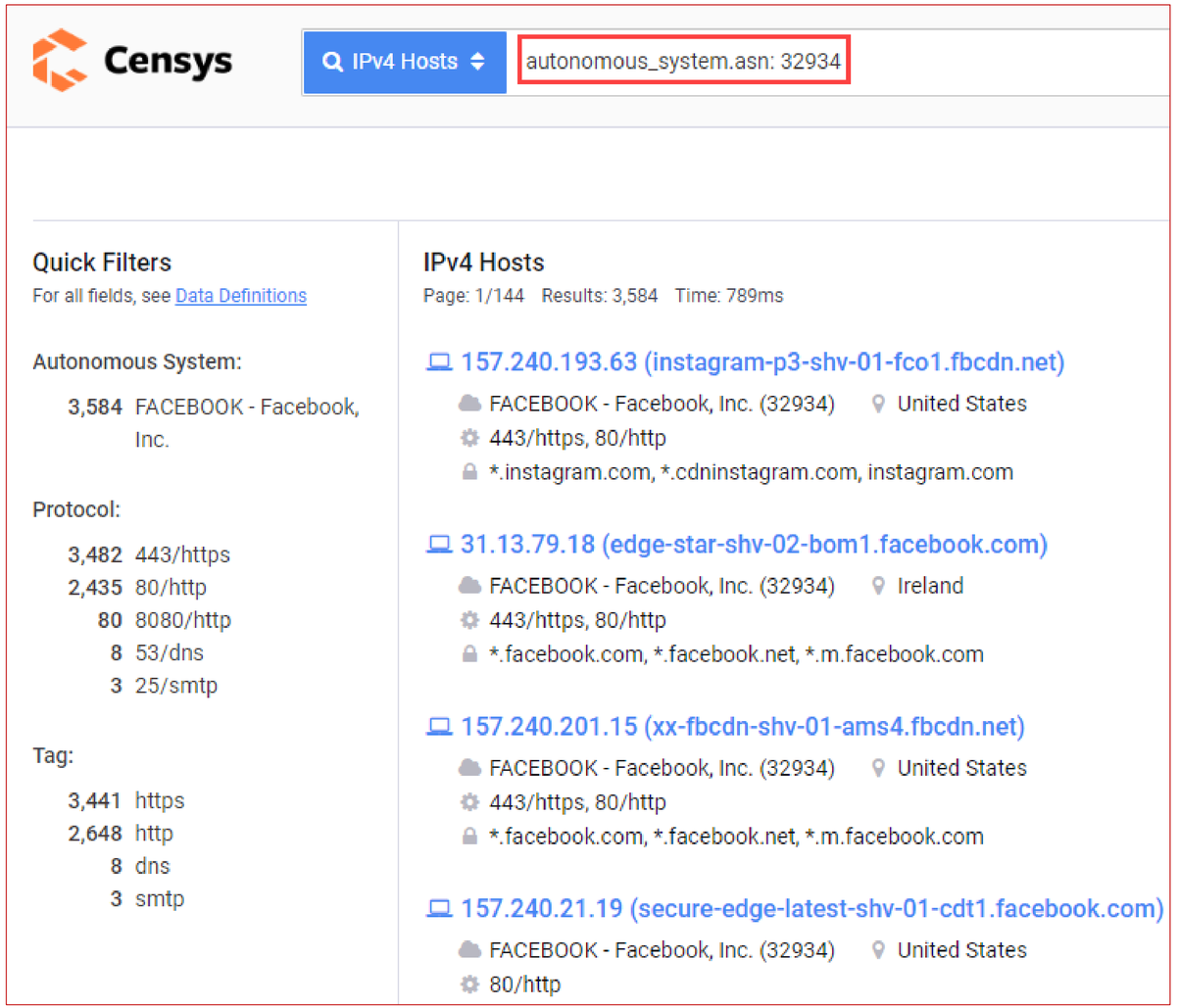


Scans passifs



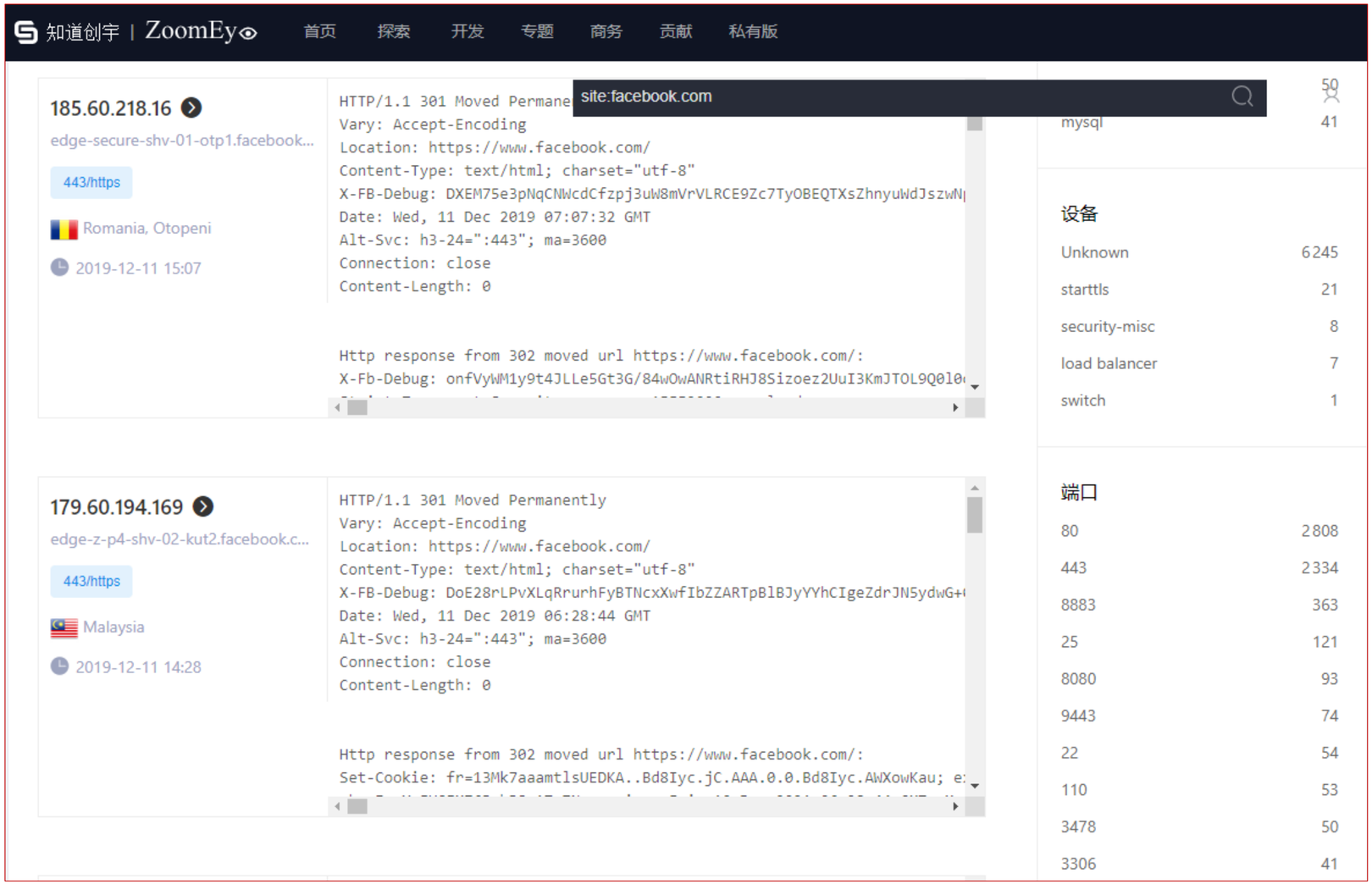
Scans passifs

Exemple : Censys

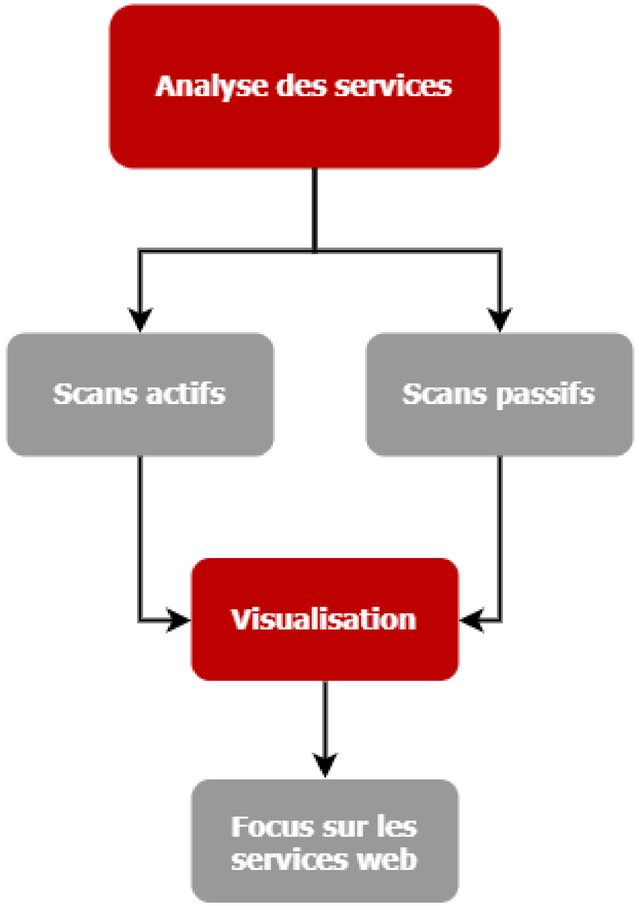


Scans passifs

Exemple : ZoomEye



Visualisation



Visualisation

- Impossible d'analyser tous les services identifiés
- Automatisation nécessaire

Exemple : Aquatone

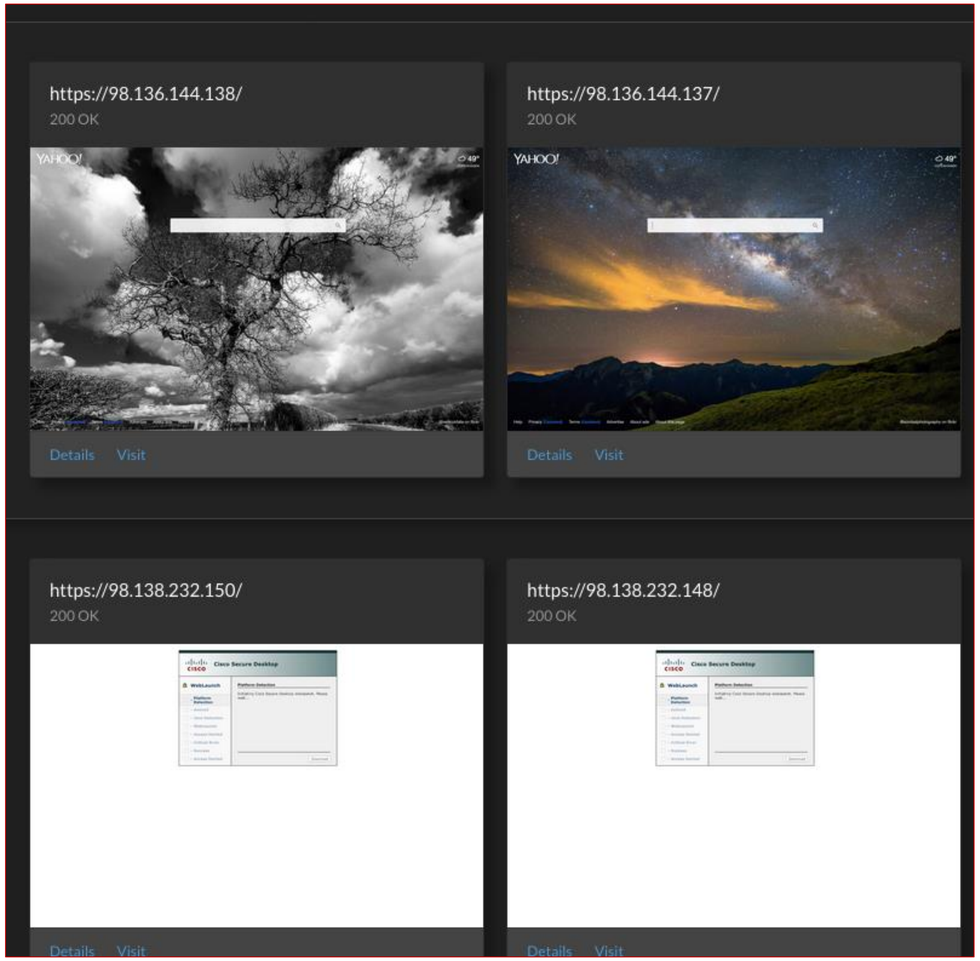
```
└─▷ $ cat hosts.txt | gshuf | head -n 500 | aquatone
aquatone v1.3.2 started at 2018-11-04T12:29:33+01:00

Targets     : 500
Threads     : 4
Ports       : 80, 443, 8000, 8080, 8443
Output dir  : .

lo0.tor74-63-gra.ne1.yahoo.com port 80: open
lo0.tor18-82-gra.ne1.yahoo.com port 80: open
et19-1.fab7-2-gdc.ne1.yahoo.com port 80: open
et24-1.fab5-2-gdc.ne1.yahoo.com port 80: open
lo0.tor344-476-pdb.ne1.yahoo.com port 80: open
lo0.tor211-282-gra.ne1.yahoo.com port 80: open
dp-propane-broker-bcp1.data.ne1.yahoo.com port 80: open
et-9-3-2.clr2-a-gdc.ne1.yahoo.com port 80: open
vn.yahoo.com port 80: open
et-0-0-0.clr2-a-gdc.ne1.yahoo.com port 80: open
lo0.tor111-169-pdb.ne1.yahoo.com port 80: open
lo0.tor225-381-pdb.ne1.yahoo.com port 80: open
lo0.tor287-429-pdb.ne1.yahoo.com port 80: open
ds25.ab.ne1.yahoo.com port 80: open
usw2-1-lbc.ne1.yahoo.com port 80: open
lo0.tor336-380-gra.ne1.yahoo.com port 80: open
lo0.tor288-354-pda.ne1.yahoo.com port 80: open
lo0.tor16-80-gra.ne1.yahoo.com port 80: open
sandycm-pda-01.netops.sg3.yahoo.com port 80: open
ge-0-1-4.msr1.ne1.yahoo.com port 80: open
```

https://michenriksen.com/images/aquatone_1_3_2/start.png

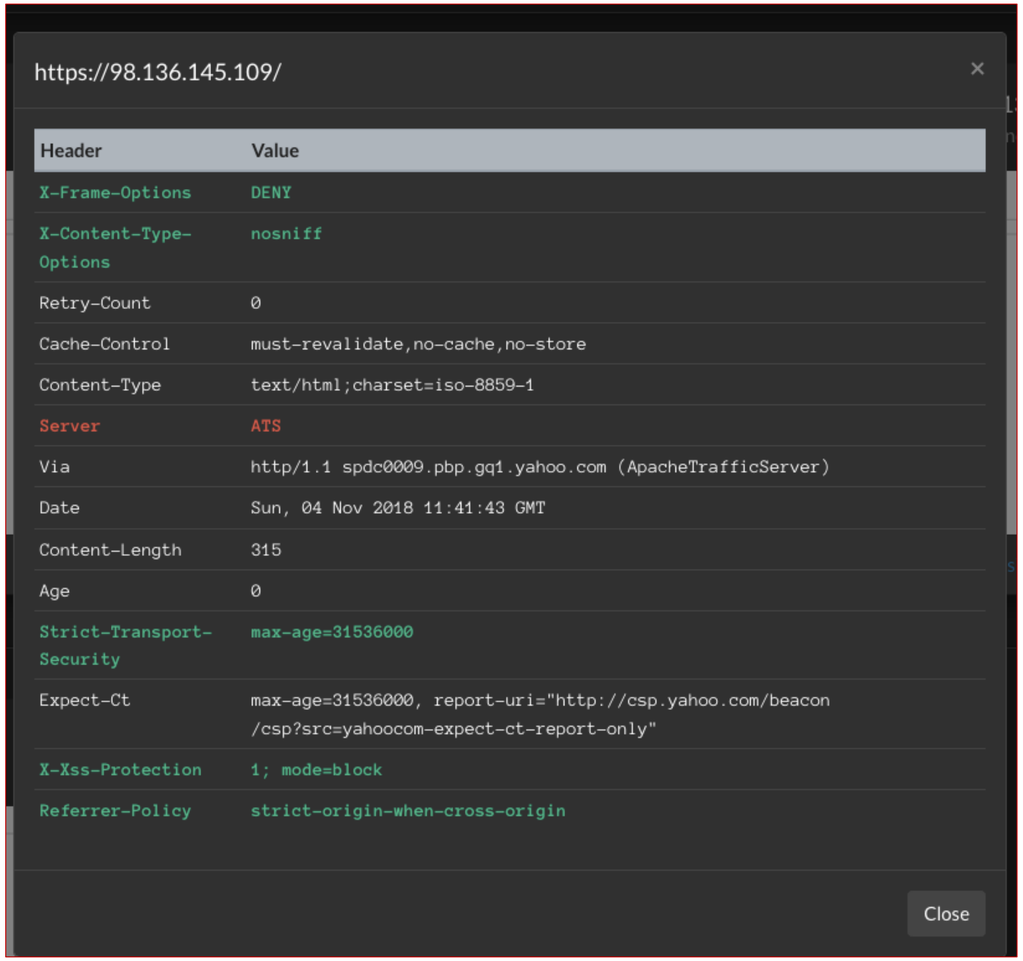
```
└─▷ $ cat masscan.xml | aquatone -nmap
aquatone v1.3.2 started at 2018-11-04T12:39:57+01:00

Targets     : 796
Threads     : 4
Ports       : 80, 443, 8000, 8080, 8443
Output dir  : .

http://69.147.80.205/: 401 Unauthorized
https://188.125.95.254/: 404 Not Found on Accelerator
http://98.139.159.40/: 200 OK
https://98.136.100.146/: 404 Not Found on Accelerator
http://98.138.219.61/: 404 Not Found on Accelerator
http://188.125.90.201/: 404 Not Found on Accelerator
http://69.147.83.62/: 404 Not Found on Accelerator
http://69.147.82.75/: 401 Unauthorized
http://98.136.96.140/: 200 OK
http://209.73.186.53/: 502 Server Hangup
https://69.147.86.138/: 401 Unauthorized
https://203.84.220.182/: 404 Not Found on Accelerator
http://98.139.225.43/: 502 connect failed
http://69.147.86.12/: 404 Not Found on Accelerator
https://98.138.219.75/: 404 Not Found on Accelerator
http://98.138.219.77/: 404 Not Found on Accelerator
http://87.248.106.202/: 404 Not Found on Accelerator
http://203.84.194.189/: 403 Forbidden
https://69.147.118.77/: 200 OK
https://188.125.95.253/: 404 Not Found on Accelerator
```

https://michenriksen.com/images/aquatone_1_3_2/masscan.png

Visualisation



https://michenriksen.com/images/aquatone_1_3_2/masscan_report.png



https://michenriksen.com/images/aquatone_1_3_2/report_details.png

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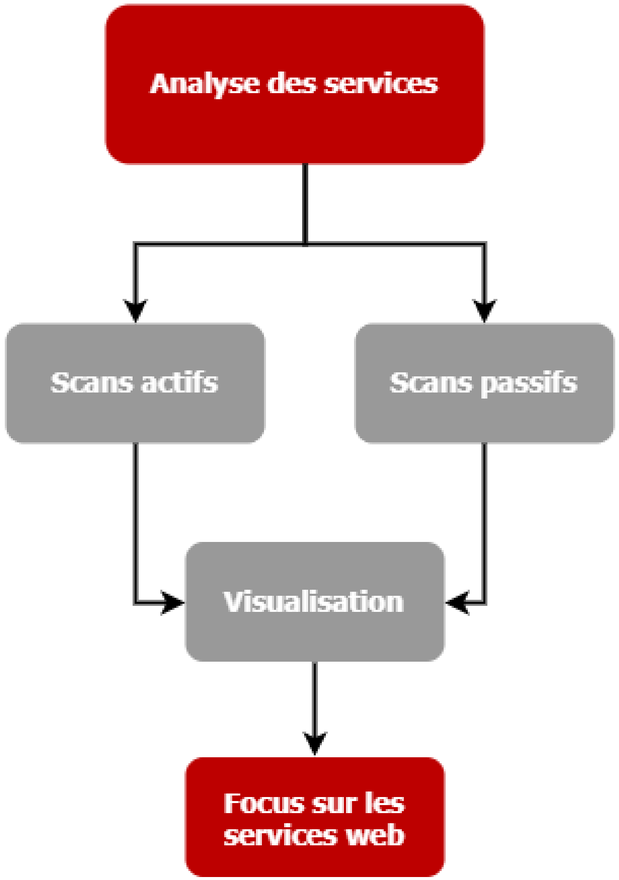
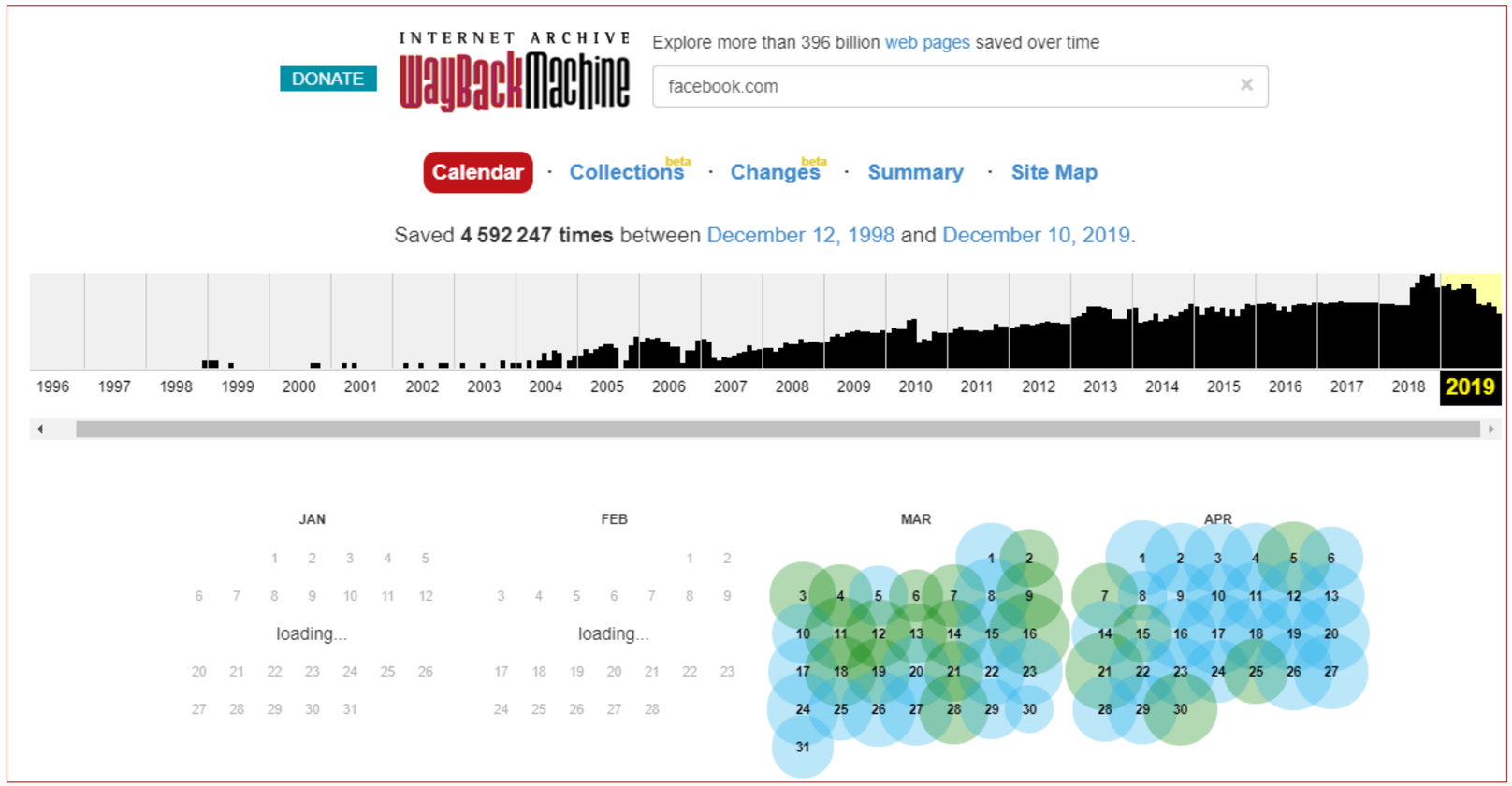
Focus sur les services web

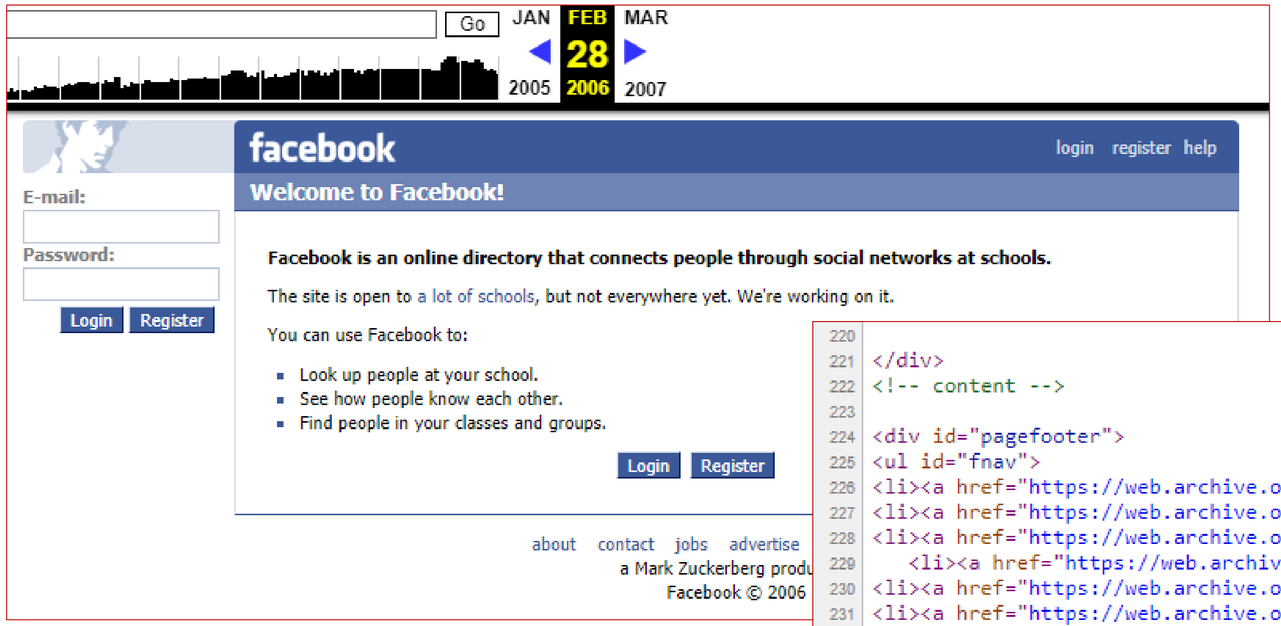


Archives web

- The Internet Archive (Wayback Machine)
- Capture et enregistre des pages web depuis 1996
- Identifier des pages désormais inaccessibles



Archives web




```
</div>
<!-- content -->

<div id="pagefooter">
<ul id="fnav">
<li><a href="https://web.archive.org/web/20060228155307/http://www.facebook.com/about.php">about</a></li>
<li><a href="https://web.archive.org/web/20060228155307/http://www.facebook.com/contact.php">contact</a></li>
<li><a href="https://web.archive.org/web/20060228155307/http://www.facebook.com/jobs.php">jobs</a></li>
   <li><a href="https://web.archive.org/web/20060228155307/http://www.facebook.com/media.php">advertise</a></li>
<li><a href="https://web.archive.org/web/20060228155307/http://www.facebook.com/terms.php">terms</a></li>
<li><a href="https://web.archive.org/web/20060228155307/http://www.facebook.com/policy.php">privacy</a></li>
</ul>
  <p>a Mark Zuckerberg production</p>
  <p>Facebook <span title="9">&copy;</span> <span title="10.1.0.77">20</span><span title="760136">06</span></p>
</div>
```

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Archives web

- Outil Waybackurls par @tomnomnom : https://github.com/tomnomnom/waybackurls

```
user@server:~/Tools$ echo 'www.netsecure-day.fr' | ./waybackurls
http://netsecure-day.fr
http://www.netsecure-day.fr:80/?p=14
http://www.netsecure-day.fr:80/?p=2173
http://www.netsecure-day.fr:80/?p=617
http://www.netsecure-day.fr:80/?p=643
http://www.netsecure-day.fr/_images/favicon.ico
http://netsecure-day.fr/_images/logo.png
http://www.netsecure-day.fr:80/_mail/Hack'in_Day.html
http://www.netsecure-day.fr:80/association
http://www.netsecure-day.fr:80/cdn-cgi/l/email-protection
http://www.netsecure-day.fr:80/comments/feed/
http://www.netsecure-day.fr:80/conference-nsd14/
http://www.netsecure-day.fr:80/contact/
```

Code côté client

- Fonctionnalités / design des pages web
- Chercher certains mots-clés : « api », « url », « // », « http:// », « https:// », « location.search », etc.
- Chercher les paramètres / variables, références à des fonctionnalités « cachées »
- Chercher les commentaires

Code côté client

Exemple : LinkFinder

```
user@server:/tmp/LinkFinder$ python3 linkfinder.py -i https://fr.yahoo.com -d -o cli

Running against: https://s.yimg.com/oa/build/js/site-a4d72cd5.js

/beacon
application/json
/api/cms/entry/athena/
https://s.yimg.com/oa/build/css/site-ltr-ffbc30a0.css
image/png
https://s.yimg.com/oa/build/images/favicons/yahoo.png
6nqIfv7x/MZnl2Sp8W7ddSZ0jR7ZAxyj
/redirect?to=https%3A%2F%2Fmydata.oath.com%2F%23sharingdata
/collectConsent/partners?sessionId=3_cc-session_0a2b864e-b274
FR&amp;step=EU_SINGLEPAGE
/consent
https://guce.yahoo.com/copyConsent?sessionId&amp;#x3D;3_cc-se
212677be758a&amp;amp;inline&amp;#x3D;false&amp;amp;lang&amp;#
https://fr.yahoo.com/?guccounter&amp;#x3D;1
```

File: https://s.yimg.com/oa/build/js/site-a4d72cd5.js

/beacon

```
var url = '/beacon';
```

/api/cms/entry/athena/

```
var mapiUrl = 'https://' + domain + '/api/cms/entry/athena/' + editionCode + '-' + entryId;
```

File: /api/cms/entry/athena/

/redirect?to=https%3A%2F%2Fmydata.oath.com%2F%23sharingdata

```
Découvrez - en plus sur la manière dont < a href = "/redirect?to=https%3A%2F%2Fmydata.oath.com%2F%23sharingdata"
```

Bruteforce

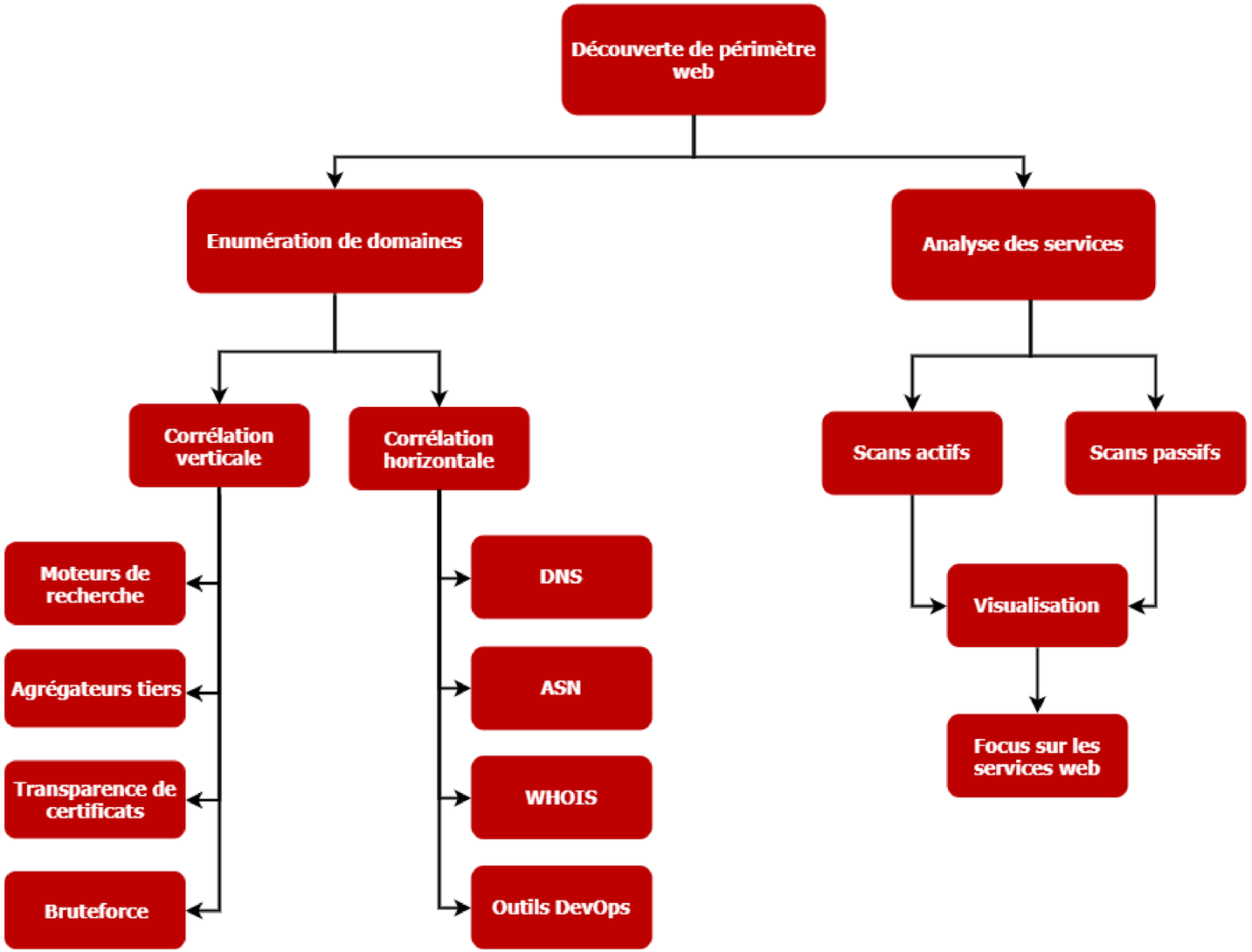
- Virtual host : https://github.com/codingo/VHostScan par @codingo_
- Paramètres GET / POST
  - https://github.com/maK-/parameth par maK-
  - https://github.com/s0md3v/Arjun par @s0md3v
- Répertoires / fichiers
- Mire d'authentification
- Dictionnaires : https://github.com/danielmiessler/SecLists par @danielmiessler

Application mobile

- Version mobile d'une application web
- Différentes versions, différents endpoints
- Téléchargement d'APK :
  - https://apkpure.com/
  - https://apps.evozi.com/apk-downloader/
  - https://www.apkmirror.com/

- https://github.com/s0md3v/Diggy/blob/master/diggy.sh

Conclusion


Découverte de périmètre web
Enumération de domaines
Analyse des services
Corrélation verticale
Corrélation horizontale
Scans actifs
Scans passifs
Moteurs de recherche
Agrégateurs tiers
Transparence de certificats
Bruteforce
DNS
ASN
WHOIS
Outils DevOps
Visualisation
Focus sur les services web

Conclusion

- Nombreux outils, nombreuses sources de données
- Peu coûteux et très utile
- Automatisation nécessaire :
  - Périmètres larges
  - Agrégation des données
- Mise en place de monitoring :
  - Fuites de données (identifiants de collaborateurs)
  - Usurpation d’identité (certificats frauduleux)
  - Services publiés
  - Legacy

Merci !

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Contact

contact@intrinsec.com

01 41 91 77 77

www.intrinsec.com

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