Behind the Scenes: The Industry of Social Media Manipulation Driven by Malware

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GoSecure Research

Back in 2015-2016

ESET

Mitacs

Université de Montréal

Linux/Moose Botnet

450977dc7ba2ec0879fb17c612e248ece

Run Script ▾ Run Template ▾

3	4	5	6	7	8	9	A	B	C	D	E	F	0123456789ABCDEF
00	70	61	73	73	77	6F	72	64	20	69	73	20	ror.password is
6E	67	00	00	00	70	61	73	73	77	6F	72	64	wrong...password
00	75	74	68	65	6E	74	69	63	61	74	69	6F	:...uthenticatio
61	69	6C	65	64	00	00	00	00	73	68	0D	0A	n failed....sh..
00	70	73	0D	0A	65	63	68	6F	20	2D	6E	20	....ps..echo -n
22	48	33	6C	4C	30	57	6F	52	6C	44	22	0D	-e "H3lL0WoRlD".
6D	6F	64	0D	0A	00	00	00	00	48	33	6C	4C	.chmod......H3lL
52	6C	44	00	00	65	6C	61	6E	32	00	00	00	0WoRlD..elan2...
6E	33	00	00	00	63	68	6D	6F	64	3A	20	6E	elan3...chmod: n
66	6F	75	6E	64	00	00	00	00	63	61	74	20	ot found....cat
6F	63	2F	63	70	75	69	6E	66	6F	0D	0A	00	/proc/cpuinfo...
20	2F	78	78	2F	72	6E	64	65	2E	70	68	70	GET /xx/rnde.php
25	64	26	66	3D	25	64	26	6D	3D	25	64	20	?p=%d&f=%d&m=%d
50	2F	31	2E	31	0D	0A	48	6F	73	74	3A	20	HTTP/1.1..Host:
2E	67	65	74	63	6F	6F	6C	2E	63	6F	6D	0D	www.getcool.com.
6E	6E	65	63	74	69	6F	6E	3A	20	4B	65	65	.Connection: Kee
6C	69	76	65	0D	0A	0D	0A	00	6C	6F	00	00	p-Alive.....lo..
2E	30	2E	30	2E	31	00	00	00	2F	70	72	6F	127.0.0.1.../pro
00	2F	70	72	6F	63	2F	25	73	2F	63	6D	64	c.../proc/%s/cmd
65	00	00	00	00	6B	69	6C	6C	20	25	73	00	line....kill %s.
63	2F	69	6E	69	74	2E	64	2F	72	63	53	00	/etc/init.d/rcS.
6D	65	2F	68	69	6B	2F	73	74	61	72	74	2E	/home/hik/start.
00	2F	65	74	63	2F	63	72	6F	6E	74	61	62	sh../etc/crontab
00	2F	65	74	63	2F	63	72	6F	6E	2E	68	6F	..../etc/cron.ho
79	2F	78	00	00	2F	65	74	63	2F	72	63	2E	urly/x../etc/rc.
63	00	00	00	00	31	39	32	2E	31	36	38	2E	d/rc....192.168.
00	25	64	00	00	53	79	73	20	69	6E	69	74	1.3.%d..Sys init
4B	00	00	00	00	2D	6E	6F	62	67	00	00	00	: OK....-nobg...
73	79	6E	63	00	42	61	64	20	69	6E	69	74	No sync.Bad init
00	25	64	20	25	64	20	25	64	0A	00	00	00	....%d %d %d....
C0	03	01	A8	C0	03	01	A8	C0	00	00	00	00	..¨À..¨À..¨À....
6E	2F	73	68	00	2D	63	00	00	65	78	69	74	/bin/sh.-c..exit
00	00	00	74	40	00	00	00	20	00	00	00	01	0....t@... ....

Linux/Moose ?

Linux/Moose
An IoT botnet that conducts social media manipulation

Social Media Manipulation

LA PRESSE .CA

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Comment devenir influenceuse (en trichant)

ÉMILIE BILODEAU, **MARTIN TREMBLAY**
La Presse

PARTAGE
Partager 12 K
Tweeter

Quinze mille abonnés achetés. Des mentions « J'aime » générées par des robots. Des photos truquées. Notre journaliste a multiplié les méthodes controversées pour faire mousser la popularité de son personnage

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57 posts 14k followers 426 following

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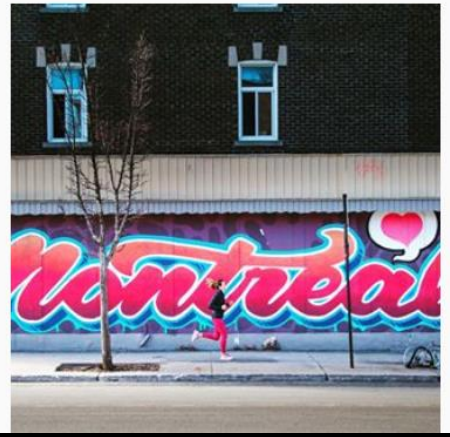
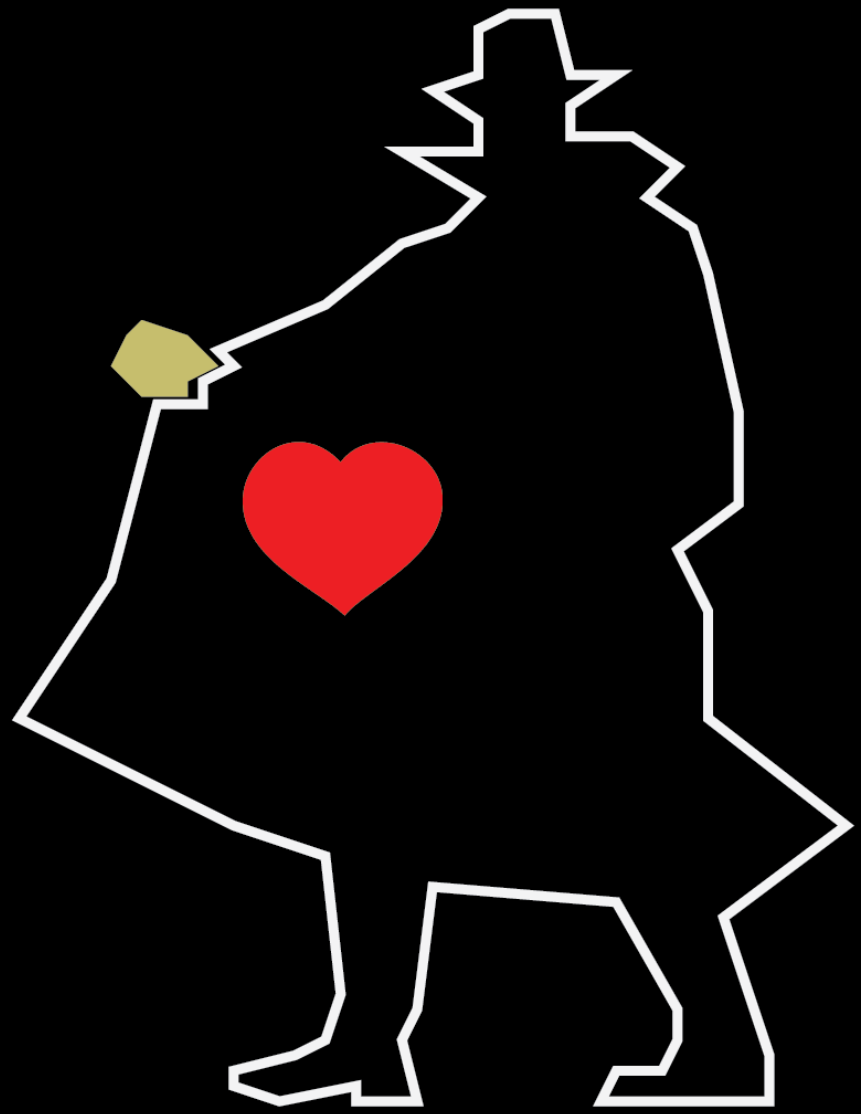
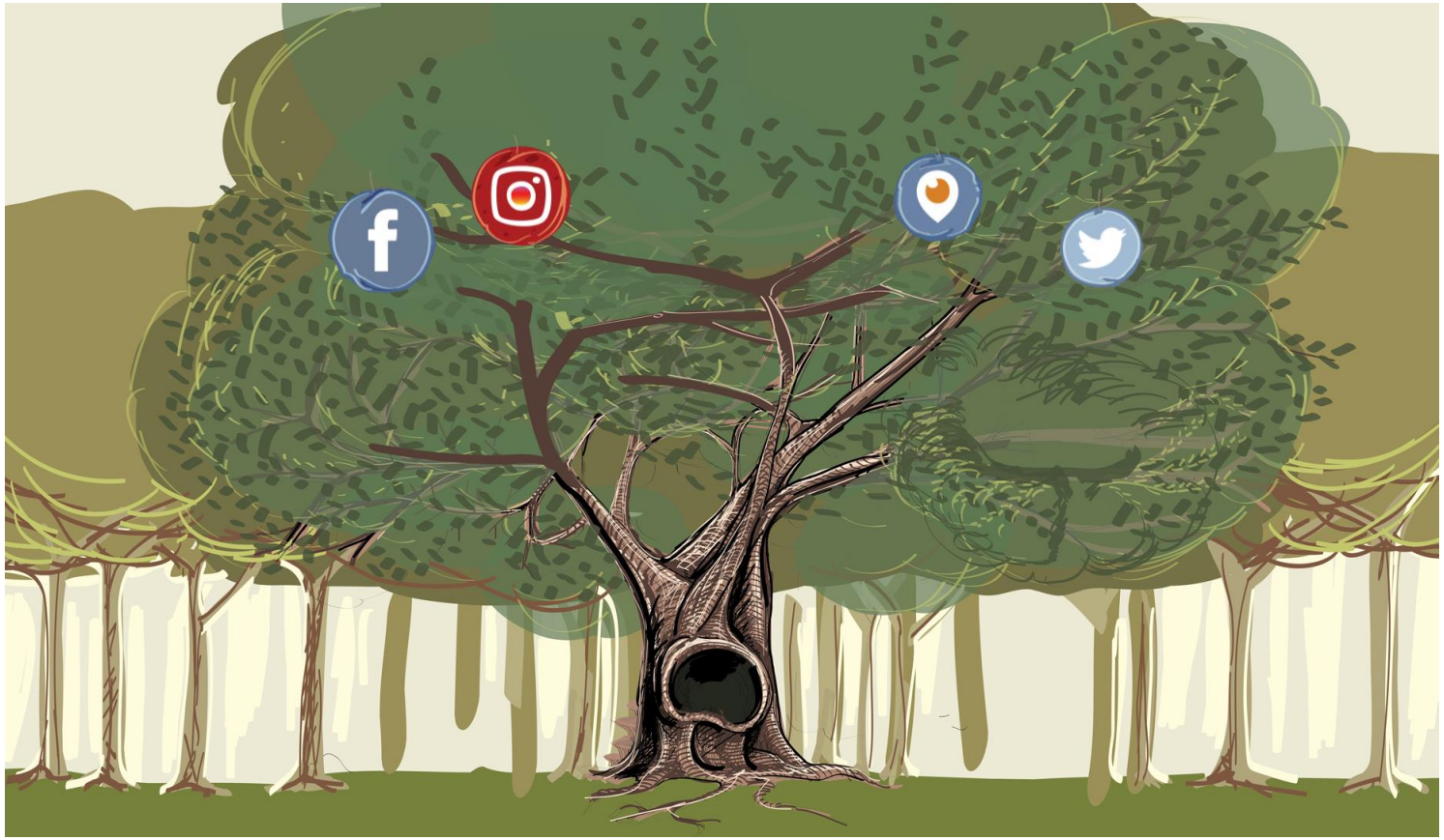
plus.lapresse.ca/screens/e3969255-e91e-42d8-936e-286adddec4e2__7C___0.html?...

POSTS TAGGED



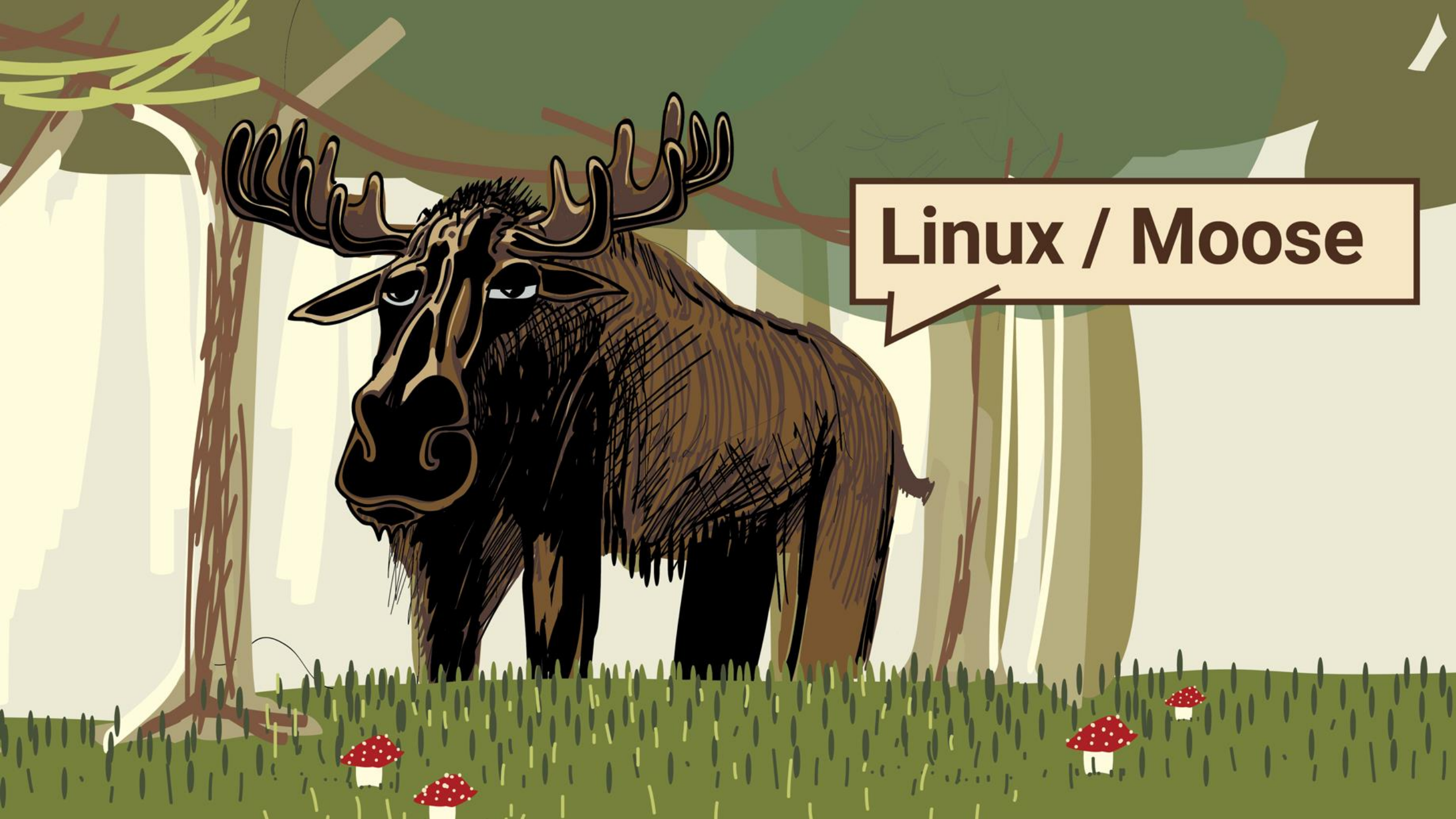


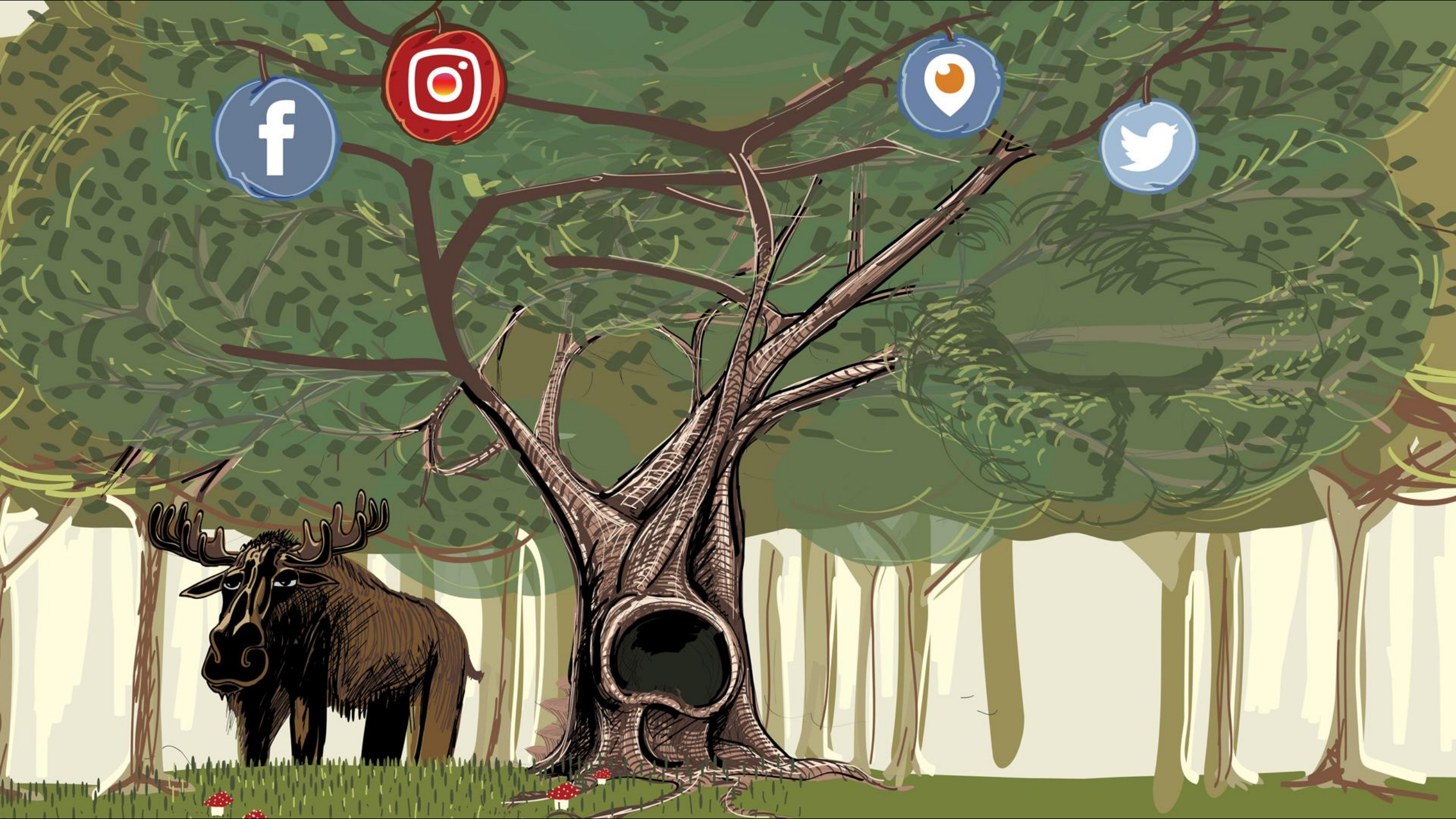


The Ecosystem of Social Media Manipulation

Presentation is about:

- A four-year long investigation
- Various investigative techniques
- A mapping of all actors involved


Linux / Moose

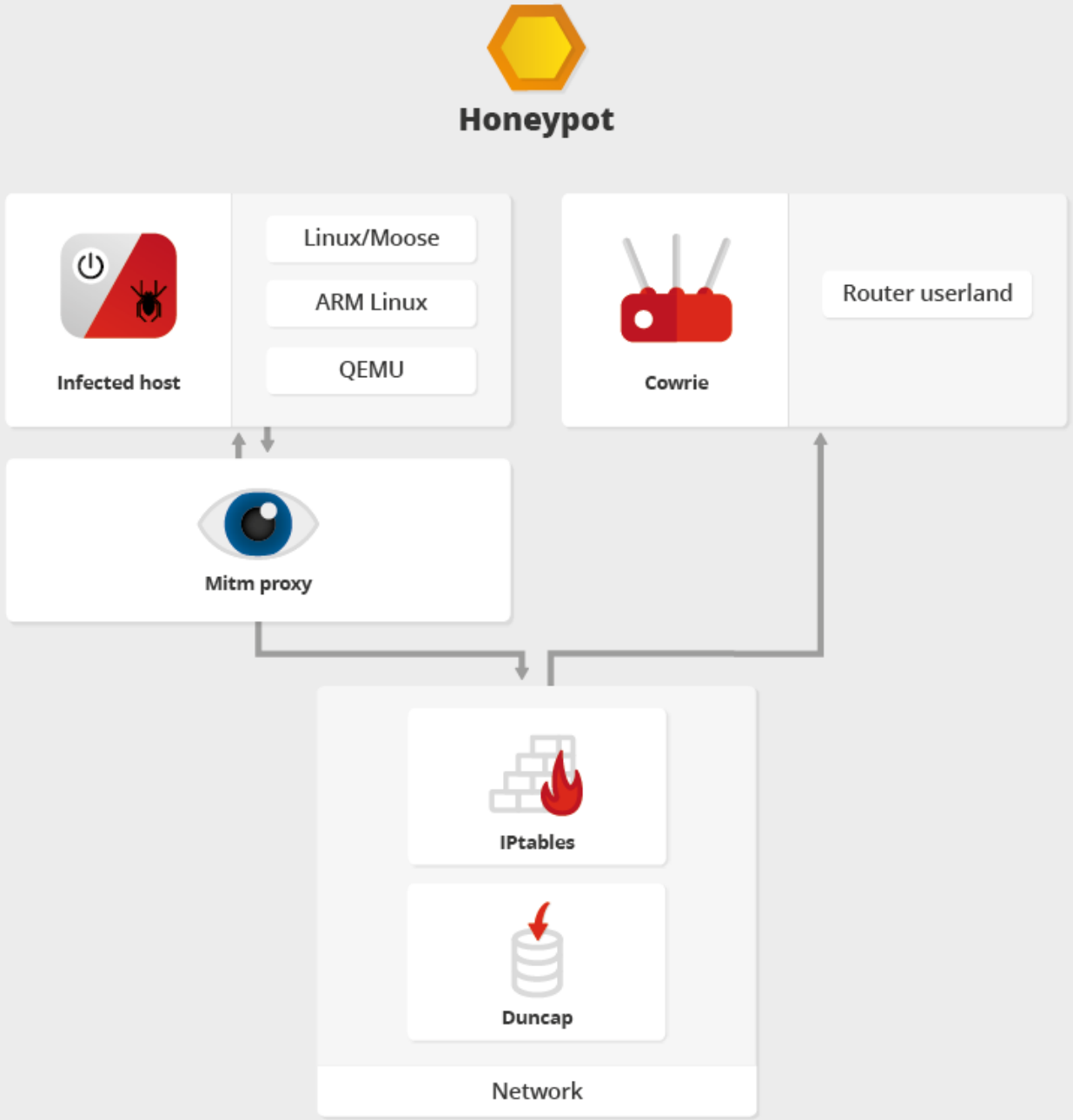


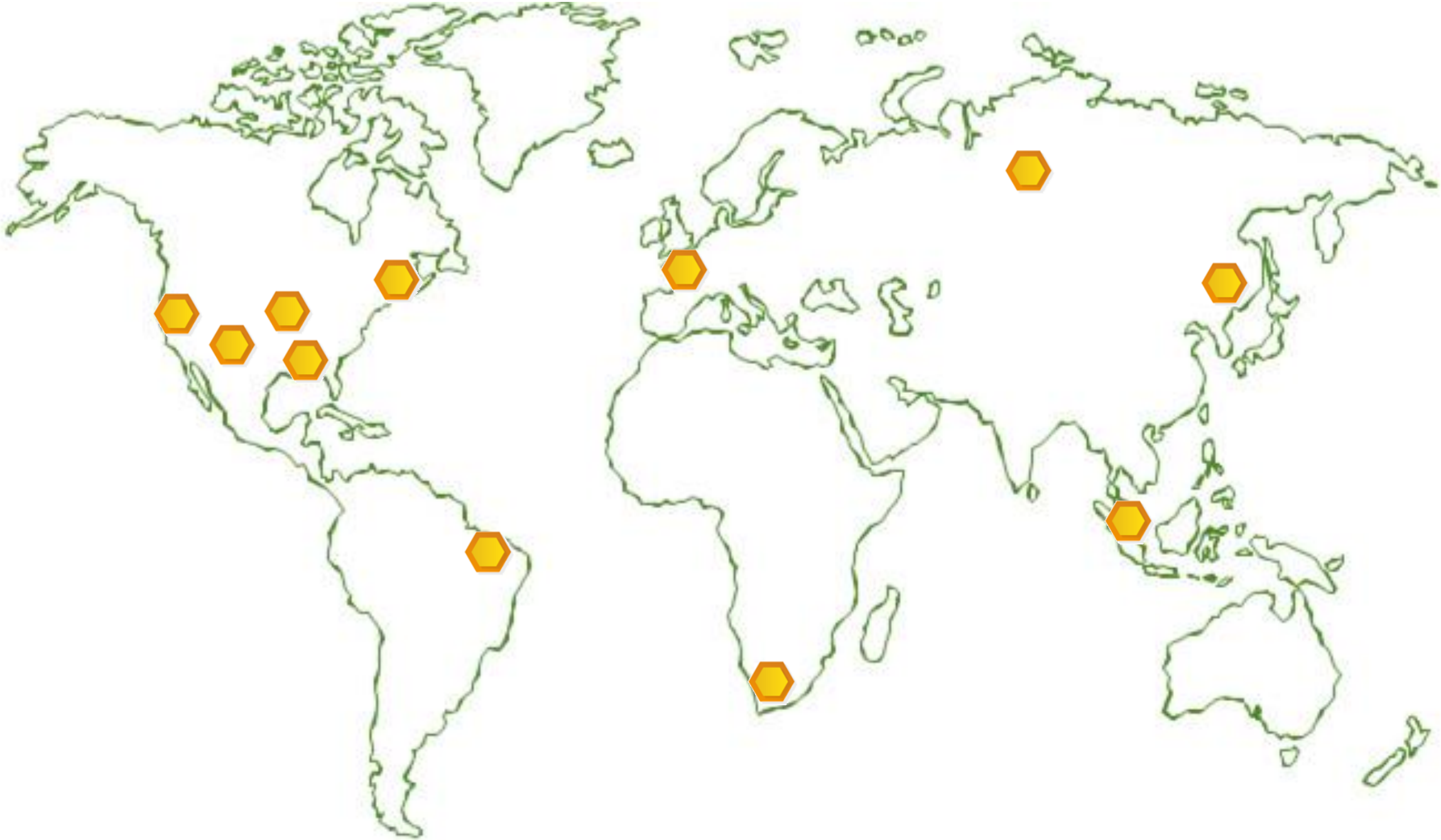
Linux/Moose

- Affects routers / Internet of Things (IoT)
  - Embedded Linux systems with busybox userland
- Worm-like behavior
  - Telnet credential brute force
- Payload: Proxy service
  - SOCKSv4/v5, HTTP, HTTPS

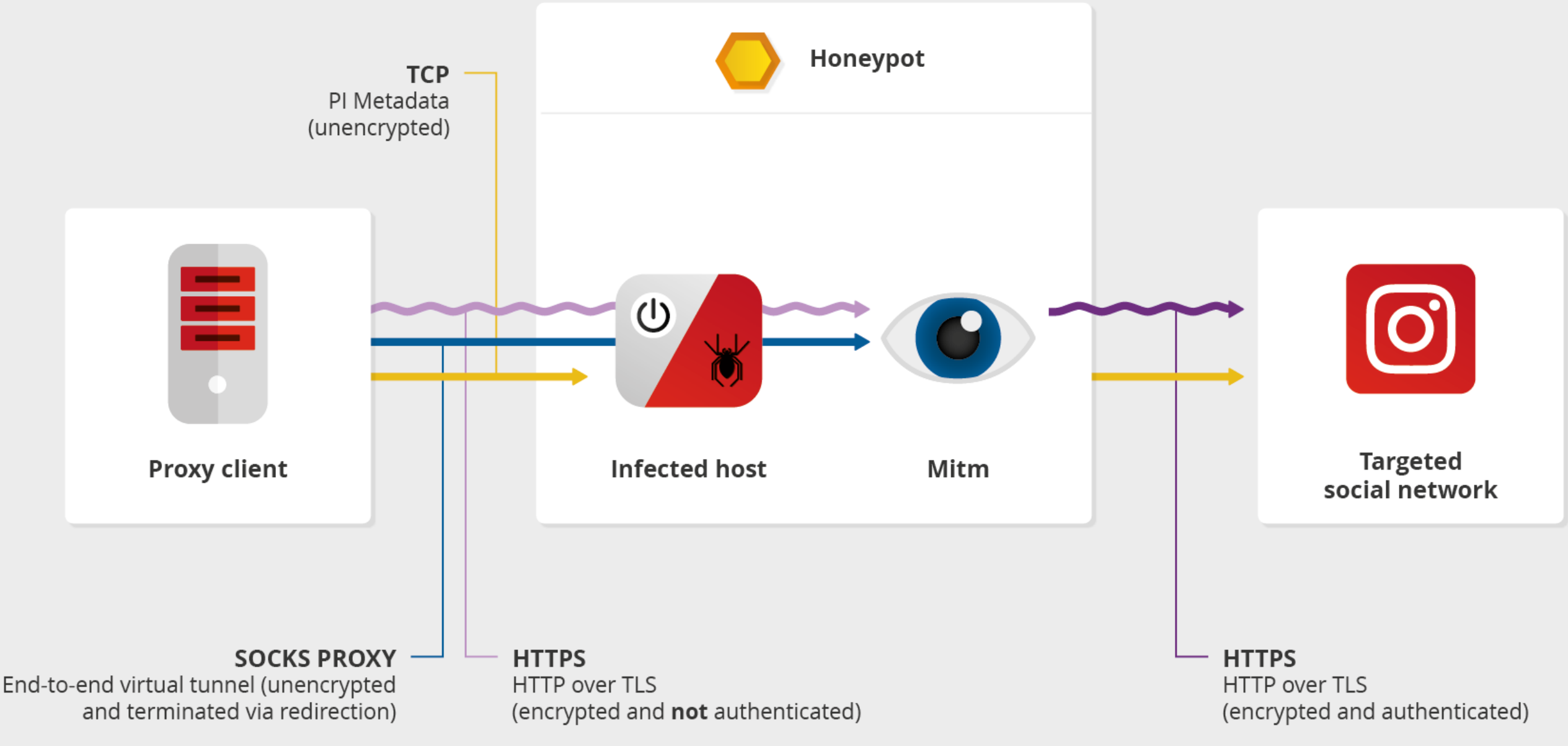
Honeypots

- Software-based
- Low interaction
- Side-loaded an ARM virtual machine
  - Which we infected





HTTPS Man-in-the-Middle (MITM) Attack




Accessed the raw traffic!

What did we have?

- Several infected hosts used by operators
- HTTPS traffic in plaintext
- C&C traffic
- Publicly available seller market

EGO
MARKET

When Greed
for Fame Benefits
Large-Scale Botnets

Can We Trust Social Media Data?
Social Network Manipulation by an IoT Botnet

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ABSTRACT

The size of a social media account's audience – in terms of followers or friends count – is believed to be a good measure of its influence and popularity. To gain quick artificial popularity on online social networks (OSN), one can buy likes, follows and views, from social media fraud (SMF) services. SMF is the generation of likes, follows and views on OSN such as Facebook, Twitter, YouTube, and Instagram. Using a research method that combines computer sciences and social sciences, this paper provides a deeper understanding of the illicit market for SMF. It conducts a market price analysis for SMF, describes the operations of a supplier – an Internet of things (IoT) botnet performing SMF – and provides a profile of the potential customers of such fraud. The paper explains how an IoT botnet conducts social network manipulation and illustrates that the fraud is driven by OSN users, mainly entertainers, small online shops and private users. It also illustrates that OSN strategy to suspend fake accounts only cleans the networks a posteriori of the fraud and does not deter the crime – the botnet – or the fraud – SMF – from happening. Several solutions to deter the fraud are provided.

CCS Concepts

Human-centered computing → Collaborative and social computing → Collaborative and social computing theory, concepts and paradigms → Social media • Security and privacy → Intrusion/anomaly detection and malware mitigation → Malware and its mitigation • → Human and societal aspects of security and privacy

Keywords

Social media fraud (SMF); Online social networks (OSN); IoT botnets; Market analysis.

1. INTRODUCTION

Online social networks (OSN) are primary outlets for many activities such as advertising, personal communications, news broadcasts, political announcements and advocating social causes. They now engage a large portion of the world's population, making it possible for individuals, companies and governments to reach a large audience through the acquisition of a fan base, also known as 'followers' and/or 'friends'. In most cases, attracting new followers and friends is done by publishing interesting content online. In some cases, however, actors elect to buy their fan base, a strategy that is part of social media fraud (SMF). SMF is the process of creating likes, follows, views or any other online actions on OSN like Facebook, Twitter, YouTube and Instagram to artificially increase an account's fan base. This method falsifies social media data and creates disinformation that could lead to a decrease in users' trust in OSN. This paper studies the illicit market where SMF services are bought and sold to better understand the potential impact of that market on OSN. With a research method that combines computer sciences and social sciences, this paper evaluates the supply and demand for SMF services. The supply analysis is two-fold: a market price analysis for SMF services and an in-depth evaluation of the operations of an IoT botnet acting as a supplier in the market. The demand analysis contains a profiling of 'potential customers' of SMF, retrieved from accounts found in the IoT botnet communications. The results provide an in-depth understanding of the extent to which social media data can be trusted and who contributes to falsifying it.

The following text presents a literature review of what is known about SMF and social network manipulation by botnets. Then the research methodology is developed, followed by the result and the discussion section.

2. LITERATURE REVIEW

OSN have been the target of various malicious activities such as identity theft [3], spam campaigns [22] and political online manipulation [12]. Those behind the malicious activities exploit the trust relationship between OSN users to manipulate, distort,

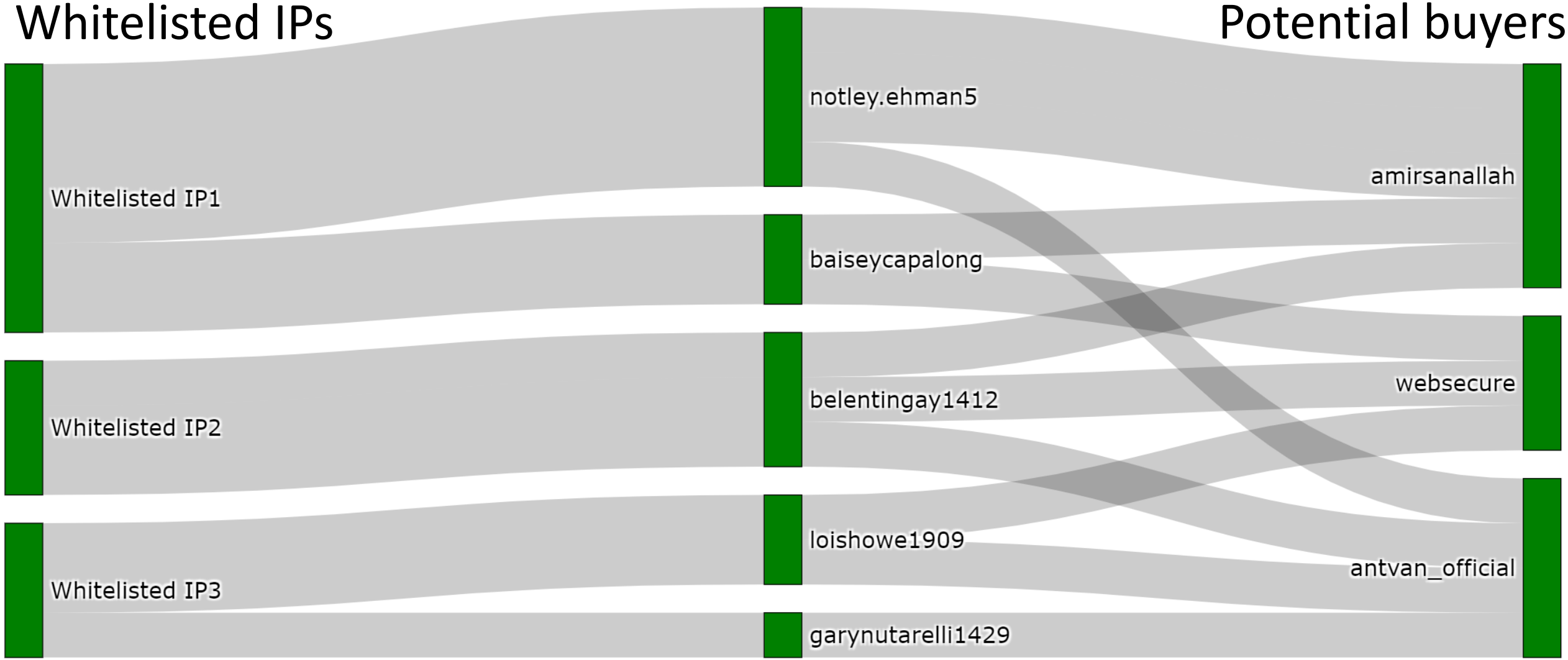

connection:
li $v0, 0x10
sw $v0, 0x68+addrlen($fp)
la $v0, config
lw $a0, (srvsockfd - 0x441658)($v0)
addiu $v1, $fp, 0x68+addr
addiu $v0, $fp, 0x68+addrlen
move $a1, $v1 # addr
move $a2, $v0 # addrlen
jal accept
nop
sw $v0, 0x68+sockfd($fp)
lw $v0, 0x68+sockfd($fp)
nop
bgez $v0, connected
nop
connected:
lw $v1, 0x68+addr.sin_addr($fp)
addiu $v0, $fp, 0x68+srv_whlst_eflag
move $a0, $v1 # ip_addr
move $a1, $v0 # whitelist entry flag
jal is_in_whitelist
nop
beqz $v0, fail
nop
pass the socket and config to a worker thread
li $a0, 0xC # size
jal pthread_malloc
nop
sw $v0, 0x68+shd_mem($fp)
lw $v1, 0x68+addr.sin_addr($fp)
lw $v0, 0x68+shd_mem($fp)
nop
fail:
lw $a0, 0x68+sockfd($fp)
jal close
nop
j connection
nop
End of function thd_serve10073

Whitelisted IPs

Reseller model?

Traffic analysis

Variables	
	Honeypots used
	Websites targeted
	TLS fingerprints
	User agents
	API calls
	Timestamps
	Accounts created on social networks
	Accounts followed on social networks

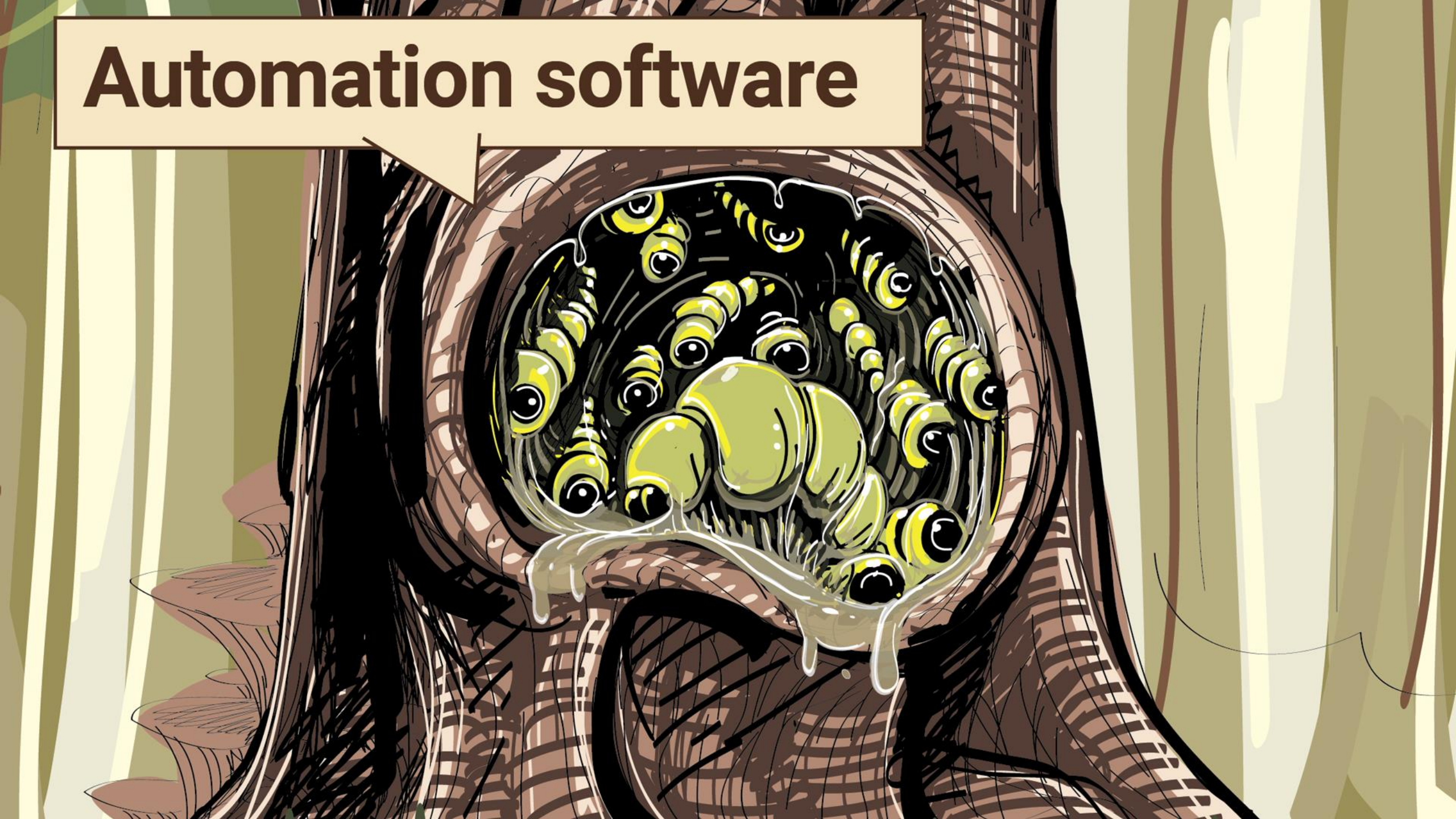

Whitelisted IPs
Potential buyers
Whitelisted IP1
Whitelisted IP2
Whitelisted IP3
notley.ehman5
baiseycapalong
belentingay1412
loishowe1909
garynutarelli1429
amirsanallah
websecure
antvan_official
Fake accounts

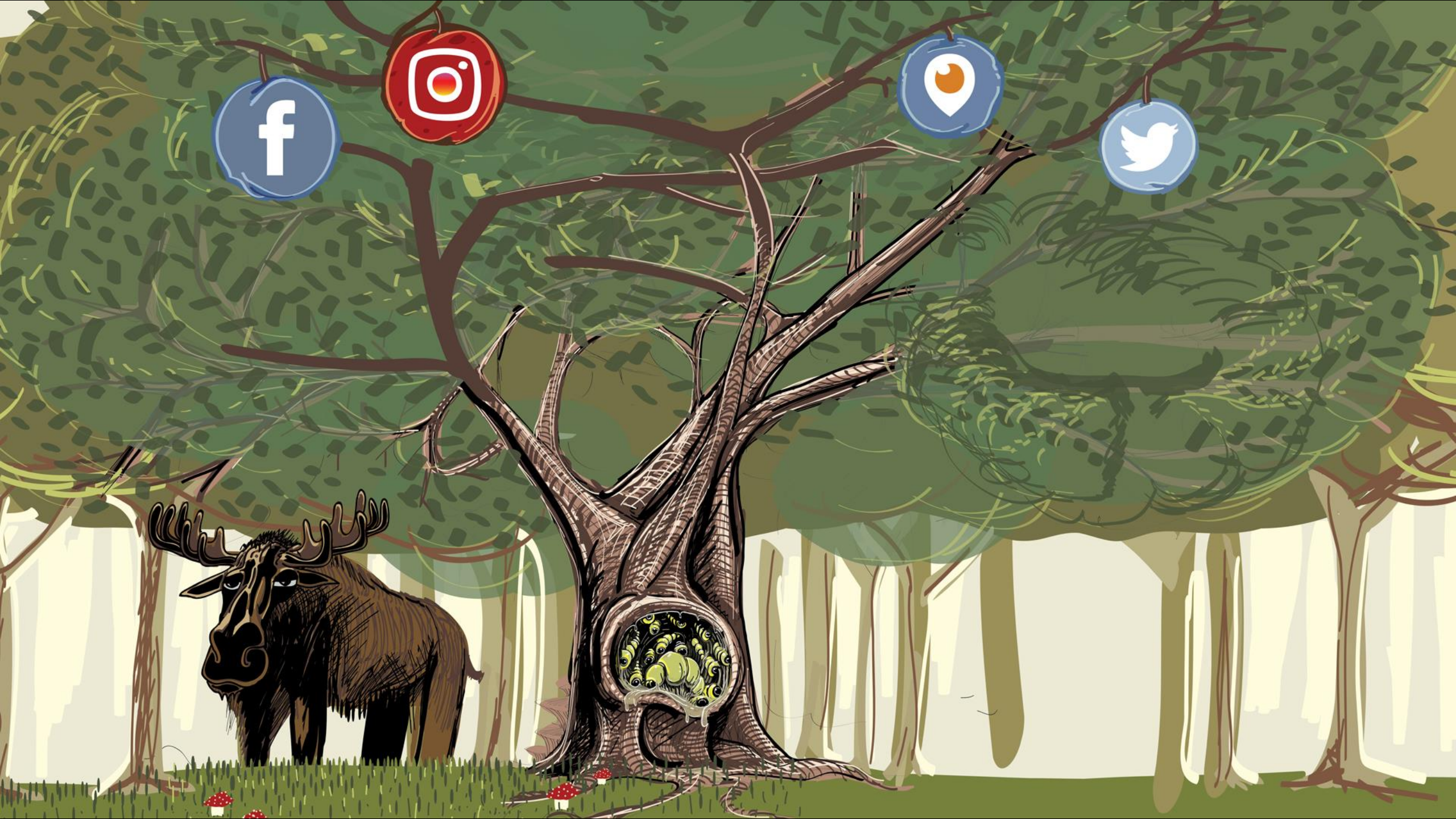
Where do we stand?

Each whitelisted IP addresses have their own list of fake accounts

Additionally, the whitelisted IP addresses:

- Run on Windows servers
- Remote desktop protocol is actively used


Automation software



Automation Software

- We tried to find the Linux/Moose provider
  - Based on User-Agents: Mobile and Desktop
  - Socks proxy support
- Found different features
  - Scales Social Network Account Management (1000s of accounts)
  - Proxy-type HTTP / Socks
  - Per account User-Agents (Mobile and Desktop)
  - Custom browsing patterns
- Found different business models
  - Unlimited accounts
  - One-time fee / Pay-per-month / Pay-per-account

GramDominator

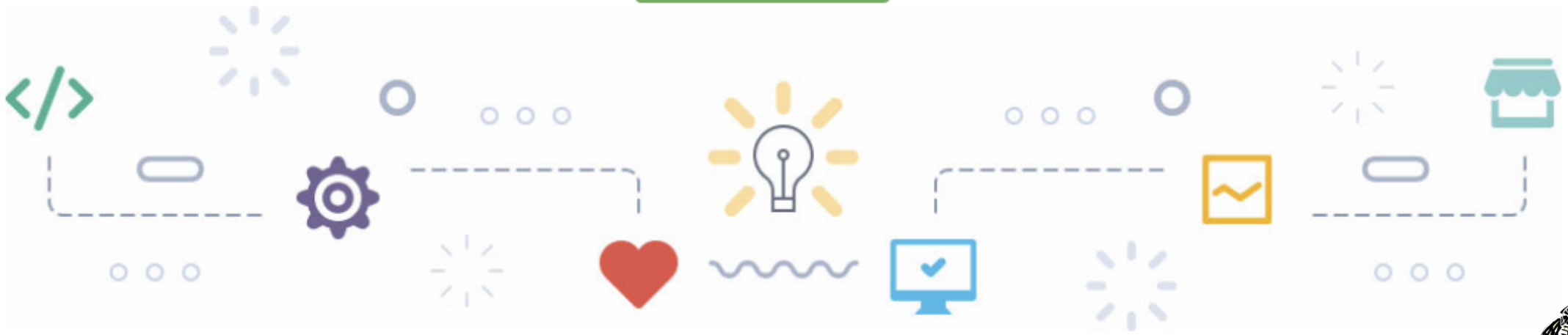
HOME FEATURES PRICING FREE MOBILE APPS BECOME AN AFFILIATE HELP JOIN FB GROUP LOGIN

Everything You Need

to increase Instagram traffic and sales

Not just scheduling but complete automation

Buy Now

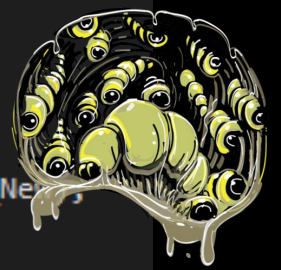


- Filter people to follow by specific text in description
- Unfollow users who are following back (all your followers)
- Unfollow users (all your following)
- Unfollow inactive profiles who has not posted within last xx days
- Unfollow custom list of users
- Unfollow only users not following you back
- Auto add to blacklist once unfollowed
- Multiple photos posting from multiple accounts (Give each photo it's own caption...)
- Find and repost photos by keywords
- Find and repost custom list of photos
- Find and repost photos of specific users
- Find and repost photos of followers of specific users

hasntags in photo caption...)

- Comment on a user's photos
- Comment on custom list of photos (your own list of photo IDs)
- Comment on popular photos
- Proxy support (public/private/socket/http...)
- Tasks scheduling and continuous automation
- Import and export data (all activities done with your accounts for your campaigns)
- White-list users (special list of users who should not be unfollowed...)
- Blacklist users (unwanted users who should not be followed)
- Spintax support
- Tasks Randomization
- Run several Instagram accounts at the same time
- Plus much more...

```
1033                    objInstagramUser.DataBaseid = (int)x.Id;
1034                    if (!string.IsNullOrEmpty(x.DevUid))
1035                    {
1036                        objInstagramUser.guid = x.DevUid.Replace("android-", "");
1037                    }
1038                    objInstagramUser.UserAgentMobile = x.MobileUserAgent;
1039                    if (string.IsNullOrEmpty(objInstagramUser.UserAgentMobile))
1040                    {
1041                        string useragent = new DeviceGenerator().Useragent;
1042                        using (GDEntities gdentities = new GDEntities())
1043                        {
1044                            gdentities.TblInstagram_Account.FirstOrDefault((TblInstagram_Account Y) => Y.Id ==
                              (long)objInstagramUser.DataBaseid).MobileUserAgent = useragent;
1045                            gdentities.SaveChanges();
1046                        }
1047                    }
1048                    objInstagramUser.SetRequestParametersAndProxy();
1049                    IGGlobals.loadedAccountsDictionary.Add(objInstagramUser.username, objInstagramUser);
1050                    IGGlobals.listAccounts.Add(string.Concat(new object[]
1051                    {
1052                        objInstagramUser.username,
1053                        ":",
1054                        objInstagramUser.password,
1055                        ":",
1056                        objInstagramUser.proxyip,
1057                        ":",
1058                        objInstagramUser.proxyport,
1059                        ":",
1060                        objInstagramUser.proxyusername,
1061                        ":",
1062                        objInstagramUser.proxypassword
1063                    }));
1064                    new Thread(delegate()
1065                    {
1066                        this.autoUpdationOfaccount(ref objInstagramUser, ref objAccountManager_ViewModel_Ne
1067                    }).Start();
1068                }
```



```
1033            objInstagramUser.DataBaseid = (int)x.Id;
1034            if (!string.IsNullOrEmpty(x.DevUid))
1035            {
1036                objInstagramUser.guid = x.DevUid.Replace("android-", "");
1037            }
1038            objInstagramUser.UserAgentMobile = x.MobileUserAgent;
1039            if (string.IsNullOrEmpty(objInstagramUser.UserAgentMobile))
1040
1041        public string PhoneId { get; private set; }
1042
1043        // Token: 0x1700004F RID: 79
1044        // (get) Token: 0x060000C8 RID: 200 RVA: 0x0000A8D0 File Offset: 0x00008AD0
        public string Useragent
1045        {
1046            get
1047            {
1048                return string.Format(ConstantVariable.UseragentCommonFormat, new object[]
1049                {
1050                    ConstantVariable.IgVersion,
1051                    this.AndroidVersion,
1052                    this.AndroidRelease,
1053                    this.Dpi,
1054                    this.Resolution,
1055                    this.ManufacturerBrand,
1056                    this.Model,
1057                    this.Device,
1058                    this.Cpu,
1059                    ConstantVariable.UseragentLocale
1060                });
1061            }
1062        }
1063
1064
1065
1066
1067
1068
```

Windows PowerShell (x86)

```
PS C:\Users\jake\Desktop\gram> [Reflection.Assembly]::LoadFile("C:\Users\jake\Desktop\gram\BaseLib.dll")

GAC    Version        Location
---    -------        --------
False  v4.0.30319     C:\Users\jake\Desktop\gram\BaseLib.dll


PS C:\Users\jake\Desktop\gram> $devGen = new-object BaseLib.DeviceGenerator
PS C:\Users\jake\Desktop\gram> $devGen.Useragent
Instagram 40.0.0.14.95 Android (24/7.0; 640dpi; 1440x2560; HUAWEI; LON-L29; HWLON; hi3660; en_US)
PS C:\Users\jake\Desktop\gram> $devGen = new-object BaseLib.DeviceGenerator
PS C:\Users\jake\Desktop\gram> $devGen.Useragent
Instagram 40.0.0.14.95 Android (23/6.0.1; 640dpi; 1440x2560; samsung; SM-G930F; herolte; samsungexynos8890; en_US)
PS C:\Users\jake\Desktop\gram> $devGen = new-object BaseLib.DeviceGenerator
PS C:\Users\jake\Desktop\gram> $devGen.Useragent
Instagram 40.0.0.14.95 Android (24/7.0; 640dpi; 1440x2560; HUAWEI; LON-L29; HWLON; hi3660; en_US)
PS C:\Users\jake\Desktop\gram>
```

THE SOCIAL DOMINATOR

Social | English

- Accounts Manager
- DashBoard
- Auto Activity
- Publisher
- Proxy Manager
- Settings
- Other Configurations

Account Details

Add Account | Import Multiple Accounts | Select | Update | Export | Delete

SOCIAL NETWORK	USER NAME	STATUS	GROUP NAME	PROXY ADDRESS	FRIENDSHIP COUNT
1	[redacted]	Success	premium	Local Ip	352

Info | Error List

7/9/2019 2:18:32 PM	Instagram	synchronizing Feeds Successful.
7/9/2019 2:18:28 PM	Instagram	Started Feeds synchronization.
7/9/2019 2:18:28 PM	Instagram	synchronizing Followings Successful.
7/9/2019 2:18:23 PM	Instagram	Started Followings synchronization.
7/9/2019 2:18:23 PM	Instagram	synchronizing Followers Successful.
7/9/2019 2:15:51 PM	Instagram	Started Followers synchronization.
7/9/2019 2:15:31 PM	Instagram	Account login status : Success
7/9/2019 2:15:30 PM	Instagram	Login successful.
7/9/2019 2:15:29 PM	An error occured in exception handler for the webrequest. Code: 405	
7/9/2019 2:14:55 PM	Instagram	details updated successfully.

Loaded Memory : 4096 MB | Available Memory : 1814 MB | Activity Log | CPU Usage : 5 % | Date : 07

THE SOCIAL DOMINATOR

Social | English

Accounts Manager

DashBoard

Auto Activity

Publisher

Proxy Manager

Settings

Other Configurations

Account Details

Add Account | Import Multiple Accounts | Select | Update | Export | Delete

SOCIAL NETWORK	USER NAME	STATUS	GROUP NAME	PROXY ADDRESS	FRIENDSHIP COUNT
	1	Success	premium	Local Ip	352

Info

7/9/20

7/9/20

7/9/2019 2:18:28 PM Instagram synchronizing Followings Successful.

7/9/2019 2:18:23 PM Instagram Started Followings synchronization.

7/9/2019 2:18:23 PM Instagram synchronizing Followers Successful.

7/9/2019 2:15:51 PM Instagram Started Followers synchronization.

7/9/2019 2:15:31 PM Instagram Account login status : Success

7/9/2019 2:15:30 PM Instagram Login successful.

7/9/2019 2:15:29 PM An error occured in exception handler for the webrequest. Code: 405

7/9/2019 2:14:55 PM Instagram details updated successfully.

Loaded Memory : 4096 MB | Available Memory : 1814 MB | Activity Log | CPU Usage : 5 % | Date : 07

THE SOCIAL DOMINATOR

Social | English

Accounts Manager

DashBoard

Aut

Pub

Pro

Sett

Oth

Account Details

Add Account | Import Multiple Accounts | Select | Update | Export | Delete

SOCIAL NETWORK	USER NAME	STATUS	GROUP NAME	PROXY ADDRESS	FRIENDSHIP COUNT

THE SOCIAL DOMINATOR

Accounts Manager

Account Details

Social | English

Add Account | Import Multiple Accounts | Select | Update | Export | Delete

7/9/2019 2:18:28 PM	Instagram	[redacted]	synchronizing Followings Successful.
7/9/2019 2:18:23 PM	Instagram	[redacted]	Started Followings synchronization.
7/9/2019 2:18:23 PM	Instagram	[redacted]	synchronizing Followers Successful.
7/9/2019 2:15:51 PM	Instagram	[redacted]	Started Followers synchronization.
7/9/2019 2:15:31 PM	Instagram	[redacted]	Account login status : Success
7/9/2019 2:15:30 PM	Instagram	[redacted]	Login successful.
7/9/2019 2:15:29 PM	An error occured in exception handler for the webrequest. Code: 405		
7/9/2019 2:14:55 PM	Instagram	[redacted]	details updated successfully.

Loaded Memory : 4096 MB | Available Memory : 1814 MB | Activity Log | CPU Usage : 5 % | Date : 07

THE SOCIAL DOMINATOR

Social | English

Accounts Manager | Account Details

Add Account | Import Multiple Accounts | Select | Update | Export | Delete

DashBoard

SOCIAL NETWORK	USER NAME	STATUS	GROUP NAME	PROXY ADDRESS	FRIENDSHIP COUNT

THE SOCIAL DOMINATOR

Accounts Manager | Account Details

Social | English

Add Account | Import Multiple Accounts | Select | Update | Export | Delete

Info | Error List

7/9/2019 2:18:32 PM	Instagram	synchronizing Feeds Successful.
7/9/2019 2:18:28 PM	Instagram	Started Feeds synchronization.
7/9/2019 2:18:28 PM	Instagram	synchronizing Followings Successful.
7/9/2019 2:18:23 PM	Instagram	Started Followings synchronization.
7/9/2019 2:18:23 PM	Instagram	synchronizing Followers Successful.
7/9/2019 2:15:51 PM	Instagram	Started Followers synchronization.
7/9/2019 2:15:31 PM	Instagram	Account login status : Success
7/9/2019 2:15:30 PM	Instagram	Login successful.
7/9/2019 2:15:29 PM	An error occured in exception handler for the webrequest. Code: 405	
7/9/2019 2:14:55 PM	Instagram	details updated successfully.

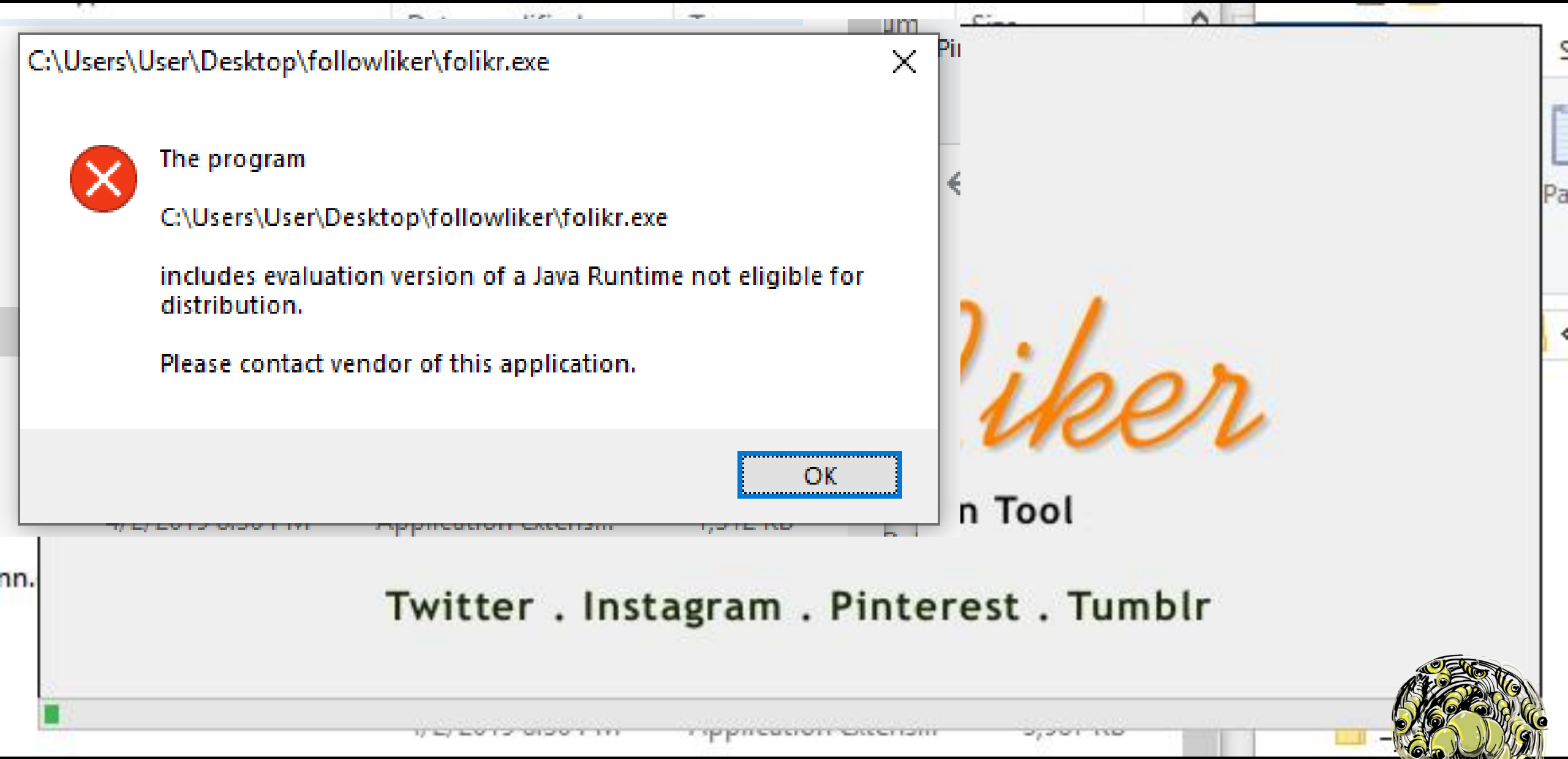
Loaded Memory : 4096 MB

Available Memory : 1814 MB

Follow Liker

Social Media Automation Tool

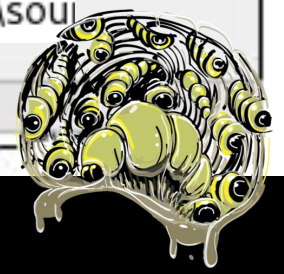
Twitter . Instagram . Pinterest . Tumblr


C:\Users\User\Desktop\followliker\folikr.exe
The program
C:\Users\User\Desktop\followliker\folikr.exe
includes evaluation version of a Java Runtime not eligible for distribution.
Please contact vendor of this application.
OK
n Tool
Twitter . Instagram . Pinterest . Tumblr

C:\Users\User\Desktop\followliker\folikr.exe

IDA View-A | Strings window | Hex View-1 | Structures

Address	Length	Type	String
.rdata:10011748	00000014	C	GetExpireAPIVersion
.rdata:1001175C	00000014	C	GetNativeExpireTime
.rdata:10011770	0000000A	C	IsExpired
.data:10012000	00000062	C	D:\\JetCheck\\buildsystem-distribs\\distribs\\jet_eval_3month_reg_en\\sou
.data:10012064	0000001A	C	ASSERT: file %s, line %d\n
.data:10012080	00000062	C	D:\\JetCheck\\buildsystem-distribs\\distribs\\jet_eval_3month_reg_en\\sou
.data:100120E4	0000001A	C	ASSERT: file %s, line %d\n
.data:10012108	0000000B	C	bin\\jc.exe
.data:10012114	0000000D	C	jetrt\\jc.dat
.data:10012124	0000000B	C	bin\\jc.dat
.data:10012134	0000000B	C	bin\\jc.dat
.data:10012144	0000001A	C	ASSERT: file %s, line %d\n
.data:10012160	00000062	C	D:\\JetCheck\\buildsystem-distribs\\distribs\\jet_eval_3month_reg_en\\sou



C:\Users\User\D

IDA Vi

Address

.rdata:100
.rdata:100
.rdata:100
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001

RunAsDate v1.37 - Run a program with the specified date/time
Copyright (c) 2007 - 2019 Nir Sofer

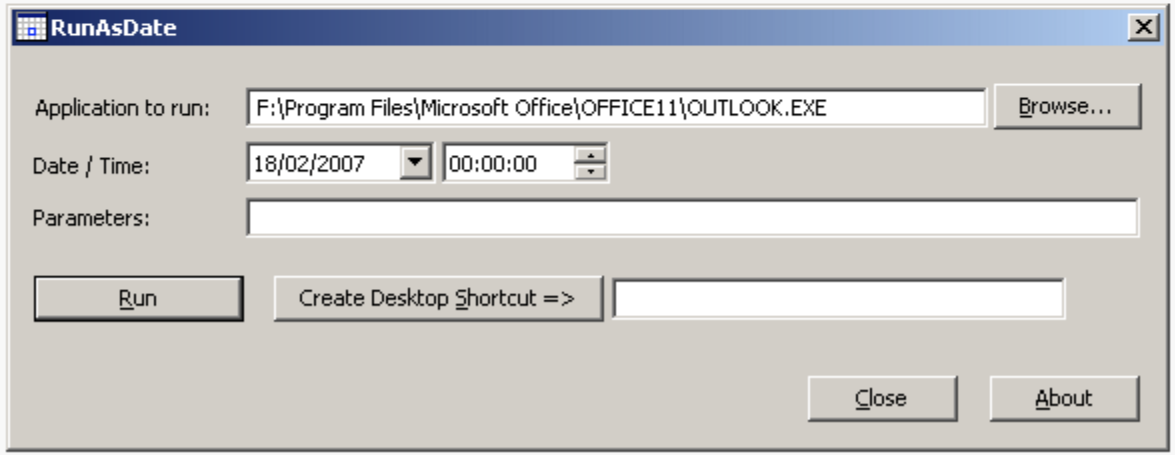
AddThis

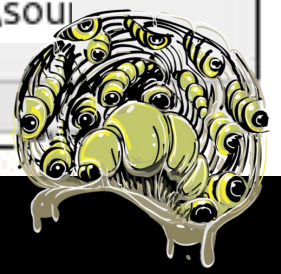
See Also

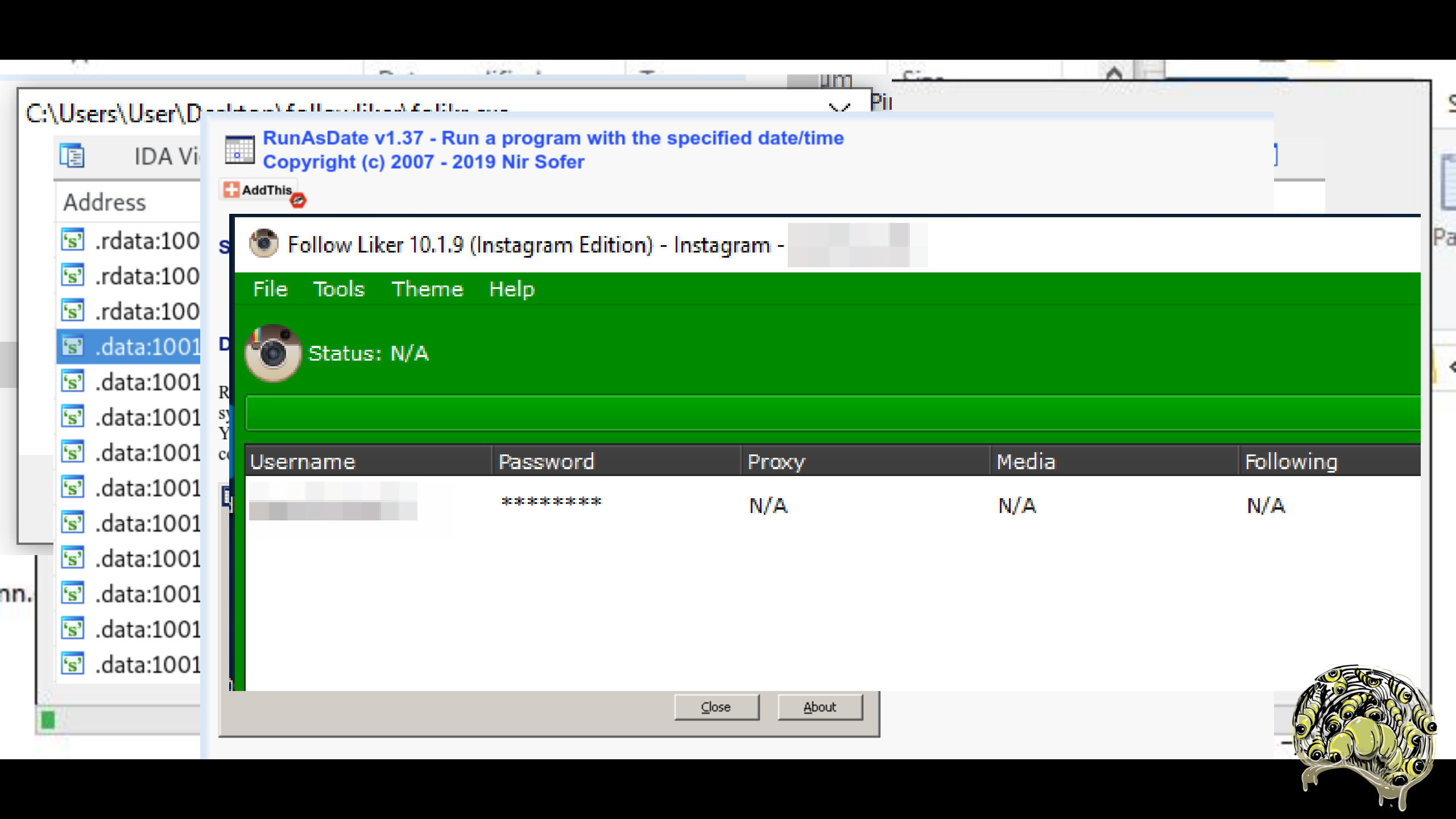
- NirCmd - Do many useful tasks from command-line, without displaying any user interface.

Description

RunAsDate is a small utility that allows you to run a program in the date and time that you specify. This utility doesn't change the current system date and time of your computer, but it only injects the date/time that you specify into the desired application.
You can run multiple applications simultaneously, each application works with different date and time, while the real date/time of your system continues to run normally.






RunAsDate v1.37 - Run a program with the specified date/time
Copyright (c) 2007 - 2019 Nir Sofer
AddThis
Follow Liker 10.1.9 (Instagram Edition) - Instagram -
File
Tools
Theme
Help
Status: N/A
Username
Password
Proxy
Media
Following
****
N/A
N/A
N/A
Close
About
Address
.rdata:100
.rdata:100
.rdata:100
.data:1001
.data:1001
.data:1001
.data:1001
.data:1001
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.data:1001
.data:1001

Automation Software Summary

	Architecture	Browser	Packer	Our Target?
GramDominator / Socinator	.Net	CEF	Not packed	No socks proxy support
FollowAdder	Xojo / REALBasic	CEF	Obscure Xojo framework	No unlimited accounts
MassPlanner	C++ / .Net	CEF	Themida / WinLicense 2.x	Only one overridable User-Agent
FollowingLike	.Net	BotSocial, a custom browser in .Net	ILProtector	Custom User-Agent feature too recent
FollowLiker	Java compiled to native code	HtmlUnit Java Library	Excelsior JET	Doesn’t interact with Instagram similarly

Where do we stand?

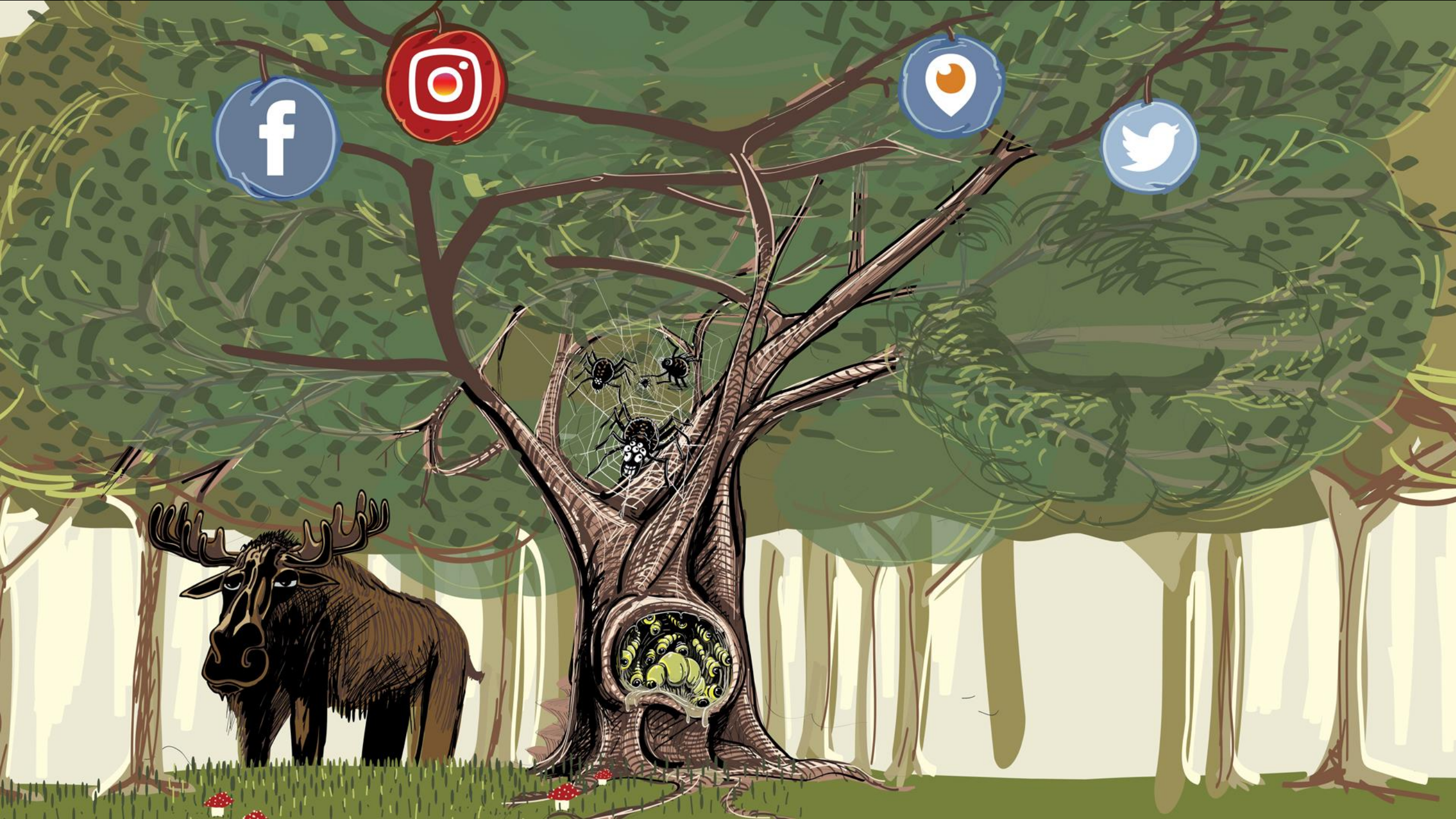
Found several automation software vendors

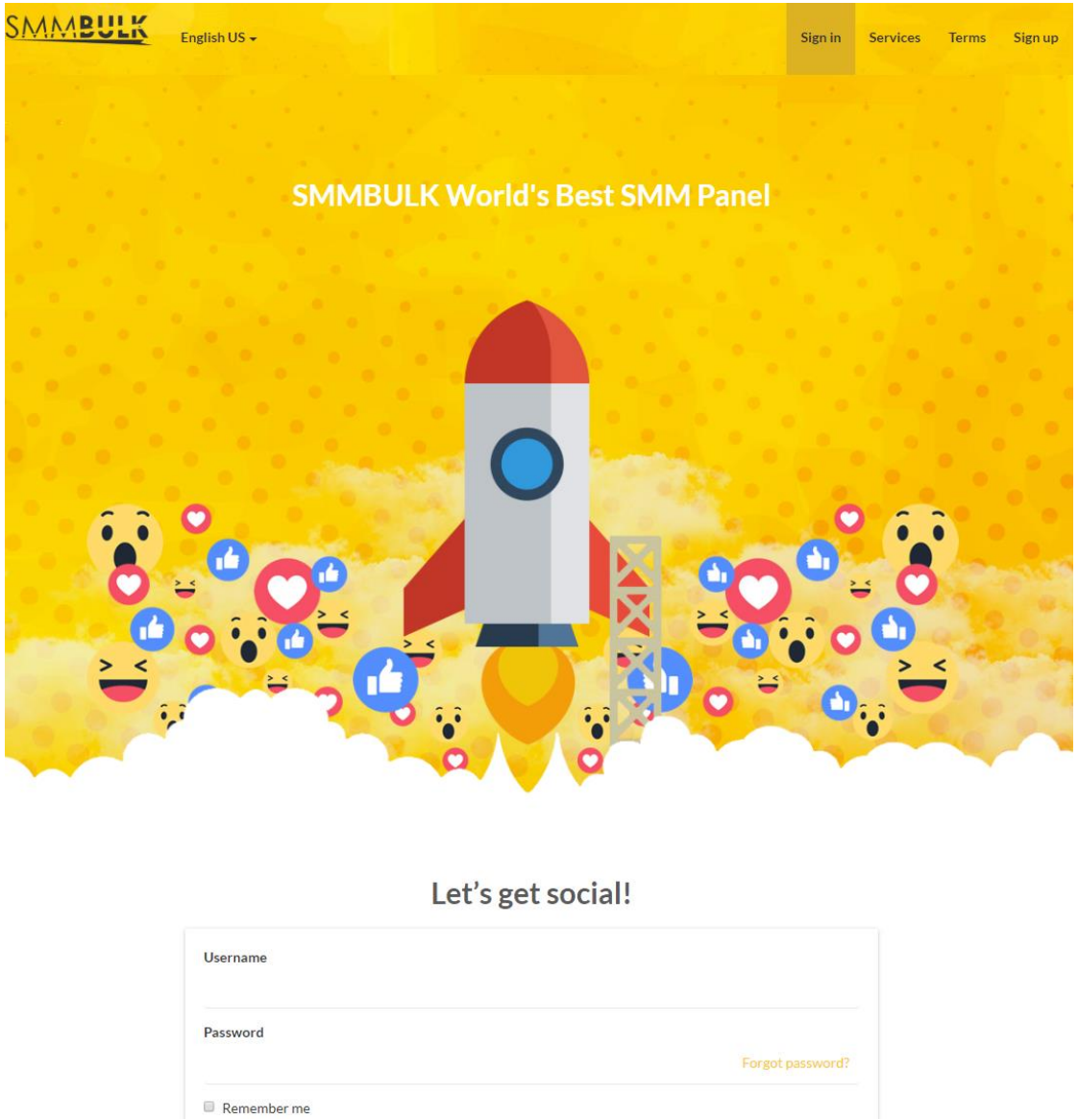
Reseller model is not at the botnet level

Found in the decrypted traffic

```
<HTTPFlow
  request = Request(GET 173.252.91.17:443/medianesia.panel/)
  response = Response(200 OK, text/html, 4.43kB)>
[redacted]
{   'client_conn': {   'address': {   'address': ([redacted],
                                      'use_ipv6': False},
                       'clientcert': None,
                       'ssl_established': True,
                       'timestamp_end': None,
                       'timestamp_ssl_setup': 1466824317.305581,
                       'timestamp_start': 1466824315.828804},
```


Reseller panels





	😘 SMMBULK 😘				
259	Website Hosting (Monthly) | PACKAGE 1	3.00	1	1	3$ per month 2 GB Web Space 500GB Bandwidth 20 Email Accounts 10 MySQL Databases cPanel Control Panel 10 Sub Domains 10 FTP Accounts plz contact us after order
	Instagram likes				
249	IG Likes APP1	0.70	100	1500	instagram likes app1 min 50 max 5k fast real
	Instagram Views				
253	IG Video View APP1	0.02	500	250000000	Views From REAL profile Speed 10k-50k per days min 100 max 10000000 start : 1 min to 30 min
	IG Followers (Guaranteed)				
254	IG Followers APP1 MAX 50k	5.00	10	70000	min 10 max 50k speed : 10k - 30k / day auto refill 20 day real
255	IG Followers APP2 MAX 100k	5.00	10	100000	min 10 max 100k real auto refill 20 day speed : 10k to 30k per day
257	IG Followers APP4 MAX 350k	2.50	50	350000	min 50 max 350k start : 0 to 10 min speed : 10k to 40k per day real

Reseller panels

- Sell popularity in bulk
- All look alike

Simple Investigation N=343

Fingerprint of the web application

Domain registration information

HTML content

IP address

RISKIQ | 188.165.29.223 | perfectpanel.com | Tours | Upgrade

First Seen 2018-01-10
Last Seen 2019-08-01
ASN OVH SAS
Netblock 188.165.0.0/16

Ovh-Sas | Routable | Categorize

FILTERS

DOMAIN (1,294 / 1,294)

- 0rders.com 1
- 1001servis.com 1
- 10xyourmedia... 1
- 13igpromoter.... 1
- 1kview.com 1

Show More

UNIQUE RESOLVE (1 / 1,294)

- Show Uni... 1,294

STATUS

SOURCE (2 / 1,301)

- riskiq 1,294

RESOLUTIONS

Show : 25 | 1-25 of 1,294 | Sort : Last Seen Descending | Download | Copy

Resolve	First	Last	Source	Tags
perfectpanel.com	2019-03-13	2019-08-01	pingly, riskiq	
extra-like.com	2019-07-29	2019-08-01	riskiq	
ezyboost.com	2019-01-14	2019-08-01	riskiq	
grampanel.com	2019-01-09	2019-08-01	riskiq	
totalfama.com	2019-07-20	2019-08-01	riskiq	
zawdly.com	2019-07-31	2019-08-01	riskiq	
followiz.com	2019-01-07	2019-08-01	riskiq	
painelmaismidia.com.br	2019-05-20	2019-08-01	riskiq	
companyo.com	2019-05-23	2019-08-01	riskiq	

The best SMM panels platform

All-in-one solution for reselling or providing SMM services.

Features

User panel for your customers

Where they can place orders, see orders history, add funds to balance, submit support tickets, etc.

Accept online payments

Seamlessly integrates with PayPal, Skrill, WebMoney, Perfect Money, Payza, Bitcoin, etc.

Orders processing

Connect any APIs for automated orders processing or manage orders manually.

Easy customisation

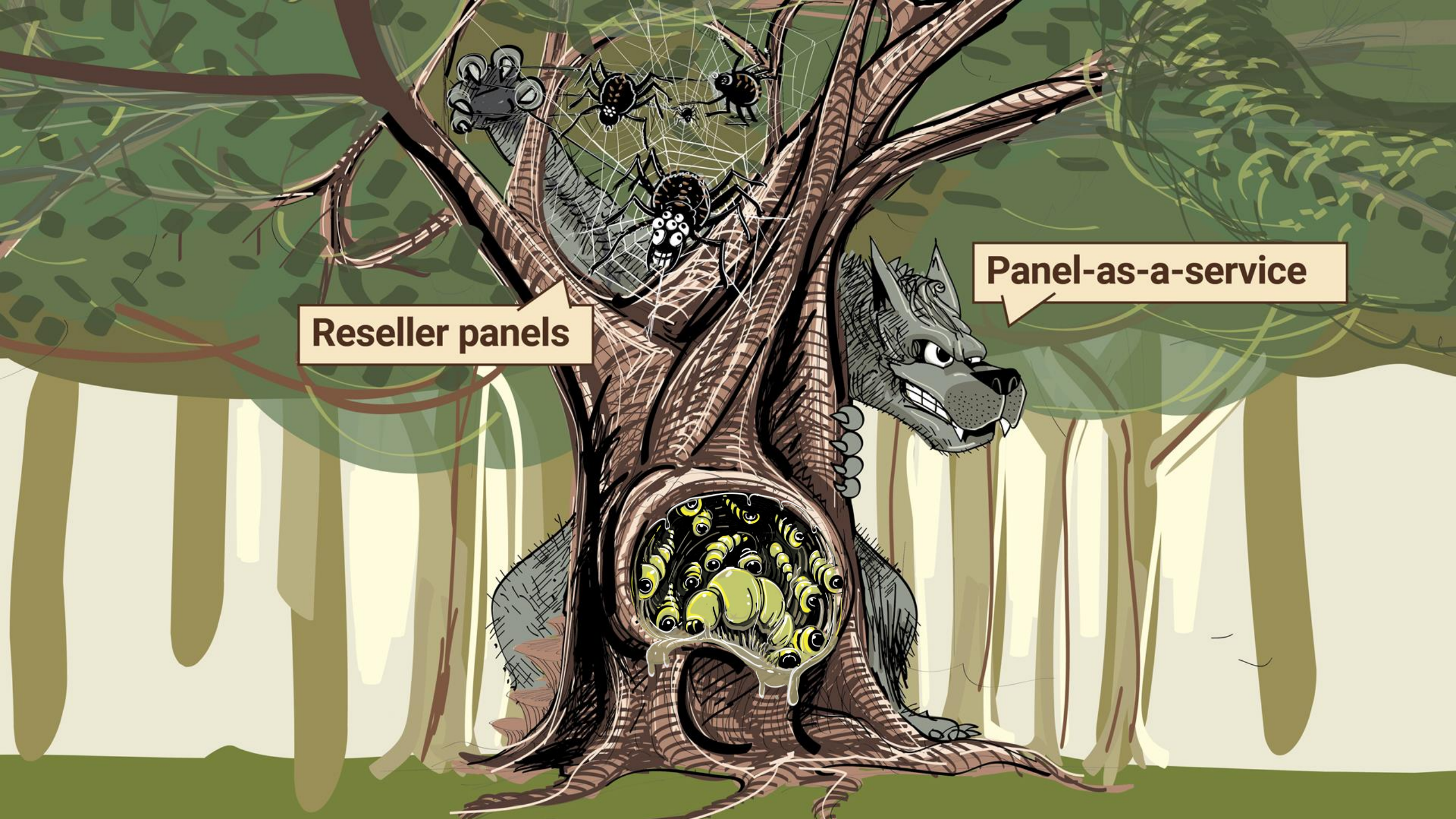
Set any currency. Change site language. Chose theme. Edit content, menu, SEO attributes and other options.

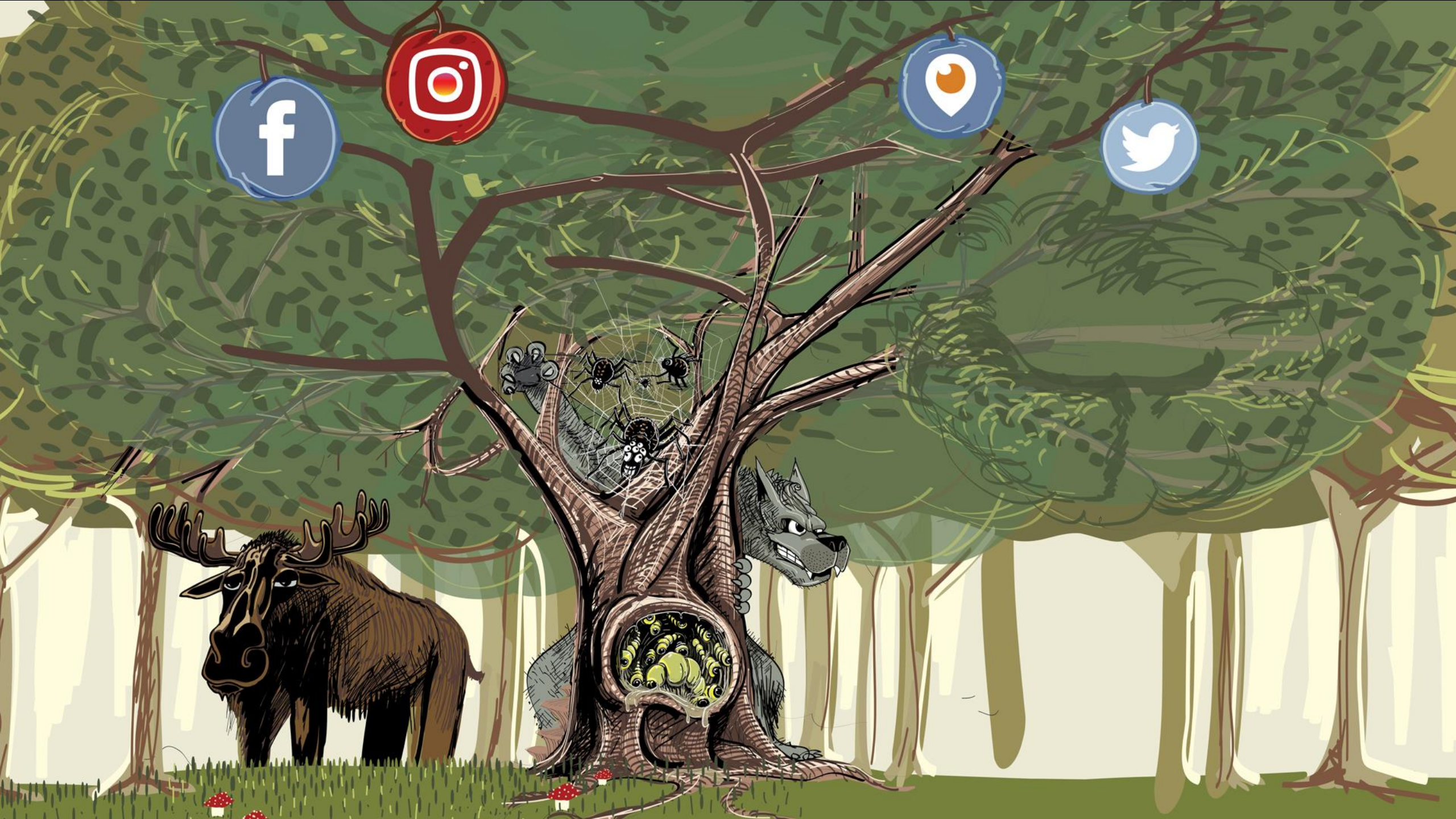
User API

Easy-to-integrate API for your customers.

Powerful admin dashboard

Manage users, services, orders, tickets. Configure automation. Review stats. And many more.


Reseller panels
Panel-as-a-service



Panel-as-a-Service

All in one solution :

- Ready to go software
- Provides web hosting
- Domain name sometimes included

Features:

- API to receive orders
- API to send orders
- Track your workers

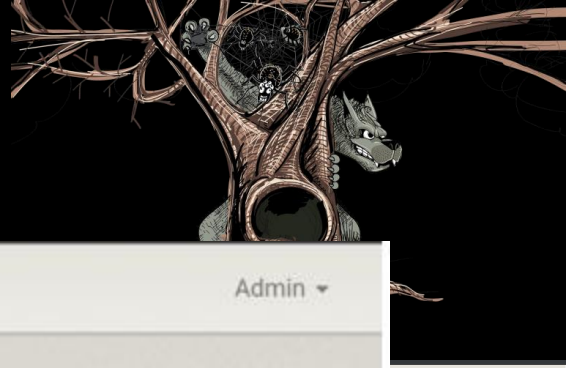
Dashboard | Settings | Funds Load History | Users | Orders | Broadcasts | Refill Requests | API Fetch | Support | Automate | Admin

Create New

Show 25 entries

Search:

UserID	Name	Email	SkypeID	Funds	Role	Status	Date	Last Login	Action
13	askdn	alksjd@sjddo.com		₹0	USER	Active	2018-08-02 01:46:46	11 months ago	
12	Pradeep Singh	meriemailid6@gmail.com		₹150	USER	Active	2018-07-21 01:13:55	11 months ago	
11	adsdsad	asdsdsdasdas@sdsds.csss		₹0	USER	Active	2018-07-13 03:49:51	1 year ago	
10	Yash	yashbaghmar19@gmail.com		₹98.74	USER	Active	2018-07-10 11:53:05	1 year ago	
9	rajmakkar08	rajmakkar08@gmail.com		₹23	USER	Active	2018-07-07 18:29:33	1 year ago	
8	techkd	techkd04@gmail.com		₹0	USER	Deactivated	2018-06-25 18:07:30	1 year ago	
7	atul	atultiwari1958@gmail.com		₹4999996	USER	Active	2018-05-28 20:47:39	1 year ago	



Dashboard | Settings | Funds Load History | Users | Orders | Broadcasts | Refill Requests | API Fetch | Support | Automate | Admin

Select an API

Select an API

https://indiansmm.com//api/v2

https://smmpapa.com/api/v2

smmpapa

https://cheapsmmindia.in/api/v2

https://cheapsmmindia.in/api/v2

https://smmlites.com/api/v2

https://indianSMM.com

https://jl.com/

demo

https://justanotherpanel.com/api/v2

Admin

Create

Show

UserID
13
12
11
10
9
8
7

tion

FAQs | Terms & Conditions | Privacy Policy | About Us | Contact Us | Version: ADVANCED

Conversations on BlackHatWorld about finding the main SMM provider

May 11, 2019 #6

aixboss
Registered Member

Joined: Oct 14, 2018
Messages: 55
Likes Received: 6
Gender: Male

Jemham said:

what are the SMM panel that you're using guys ? I've been using few lately but I'm not satisfied

mostly all panels using the same provider
the only difference is prices.....
many panel holders not refund money when not working the service...
They lie and keep the money or selling fake offers
If anyone knows this provider he is welcome to contact me privately.
a good one is justotherpanel but the support takes a very long time for response messages.

Conversations on BlackHatWorld about finding the main SMM provider

Apr 17, 2018 #4

Daltonmediastudio
Jr. VIP
Jr. VIP

Joined:	Aug 27, 2016
Messages:	340
Likes Received:	59
Gender:	Male
Occupation:	Egypt
Location:	Online
Home Page:	https://smmfansfaster.com/

no one will reveal the main provider
for them he is their hidden ghost

Conversations on BlackHatWorld about finding the main SMM provider

Apr 16, 2017 #29

SMMSnab
Registered Member

Joined:	Mar 30, 2017
Messages:	91
Likes Received:	21
Gender:	Male
Occupation:	SMM aficionado
Home Page:	http://smmeta.com

Guys, unless you're spending $1k/day on smm panels, you don't need to search for the original supplier: a) he wouldn't be interested in your volumes; b) you just need to find the most reliable reseller from the most cheap resellers - and get it on with it, that would be enough =)

In this market you have to put your efforts not in buying cheaper, but in selling more.

Thanks x 4

Conversations on BlackHatWorld about finding the main SMM provider

Jan 6, 2019 #19

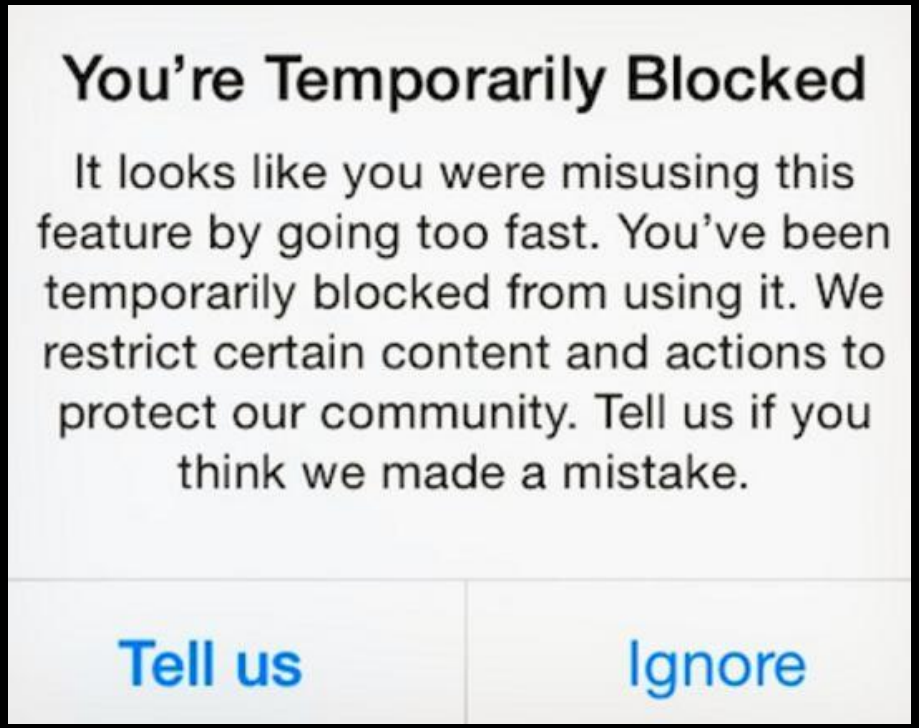
ellay
Jr. VIP
Jr. VIP

Joined: Nov 25, 2017
Messages: 1,245
Likes Received: 416
Home Page: https://www.smmstudia.com

There cannot be 1 provider. They are several. Some panels also are providers. Big panels provide the most of the services and they are reselling each other services. (connected via API)

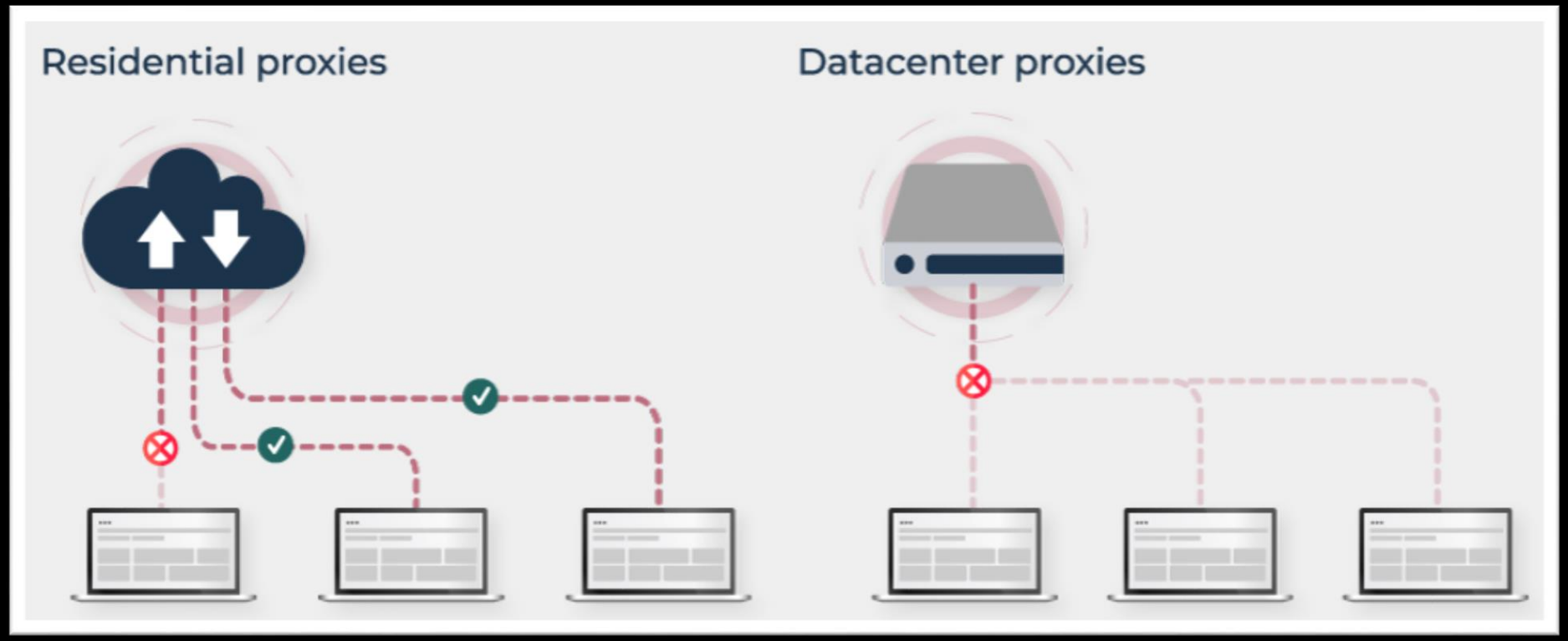
Where do we stand?

- A system of resellers and panel-as-a-service providers
- Automation software to create and orchestrate fake accounts



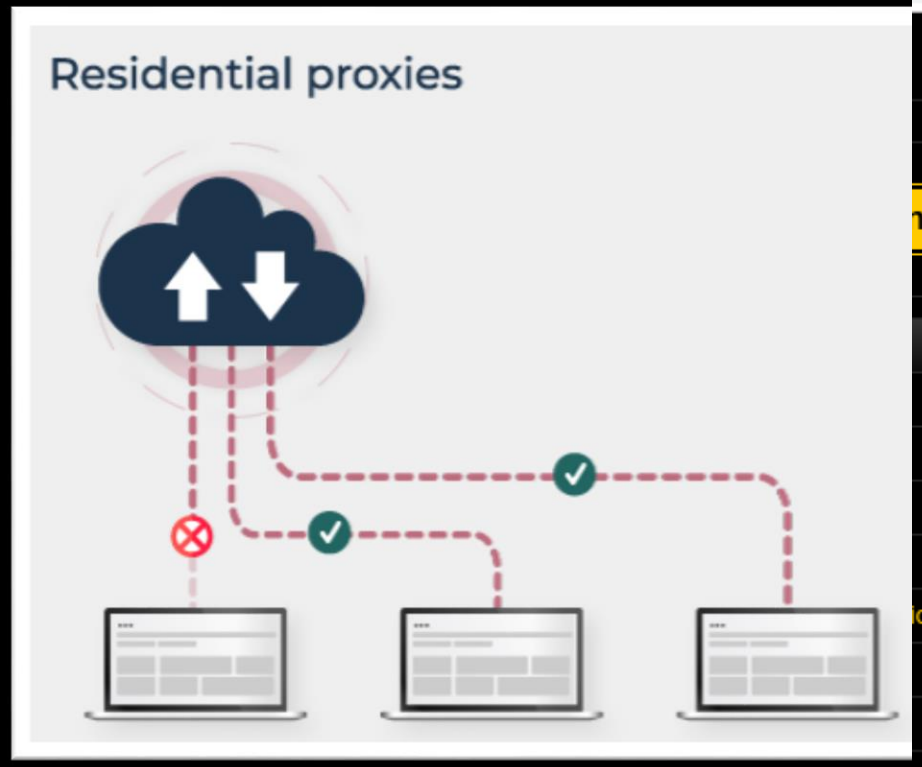
Working around Blocks

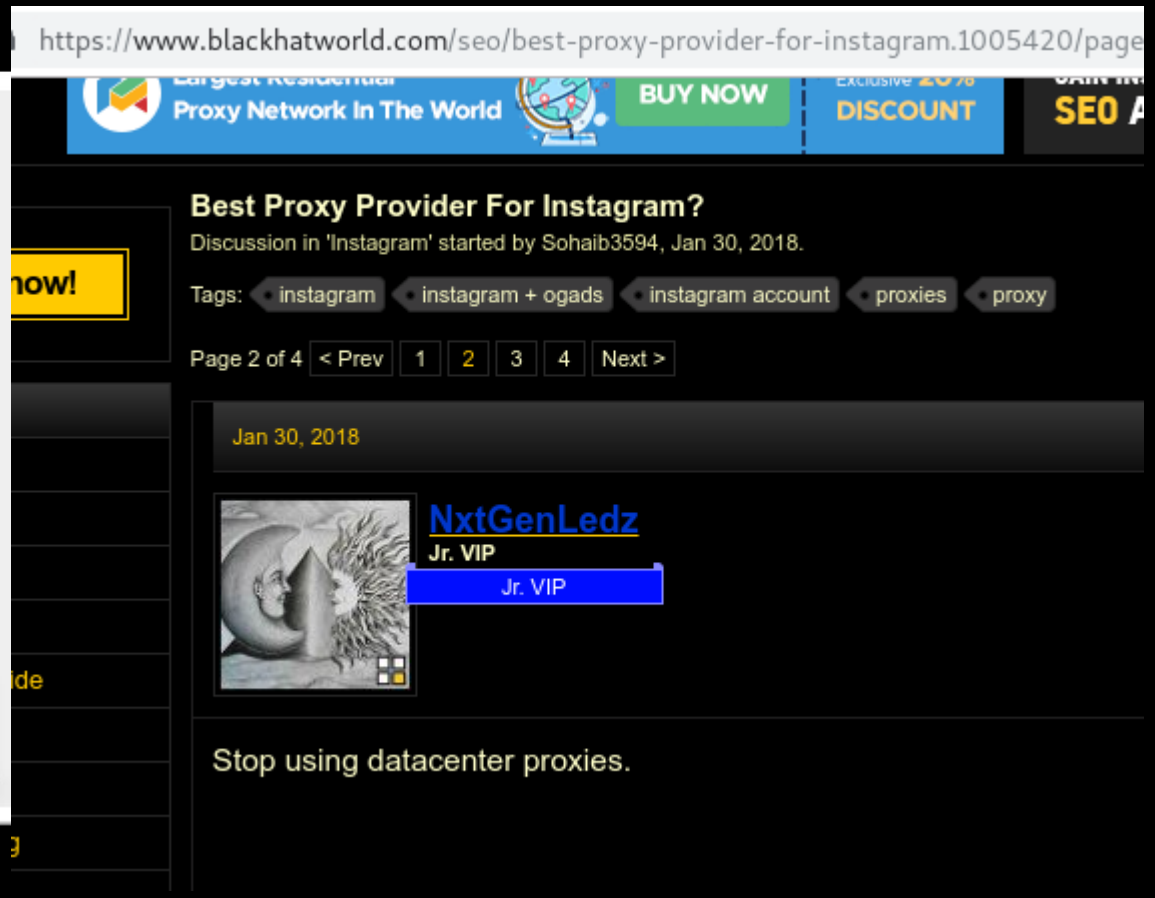
- Automation software supports proxy lists



Working around Blocks

- Automation software supports proxy lists



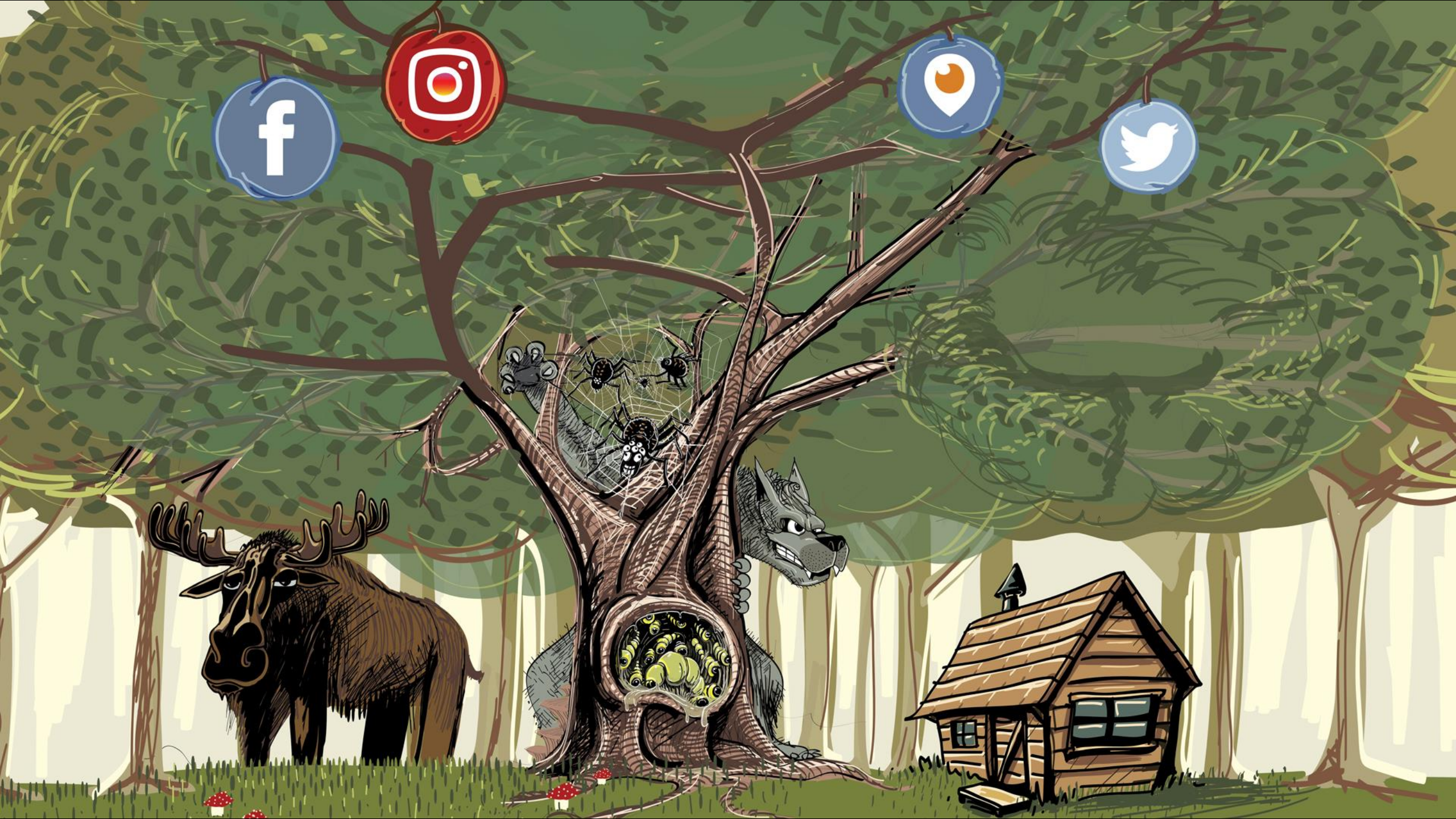


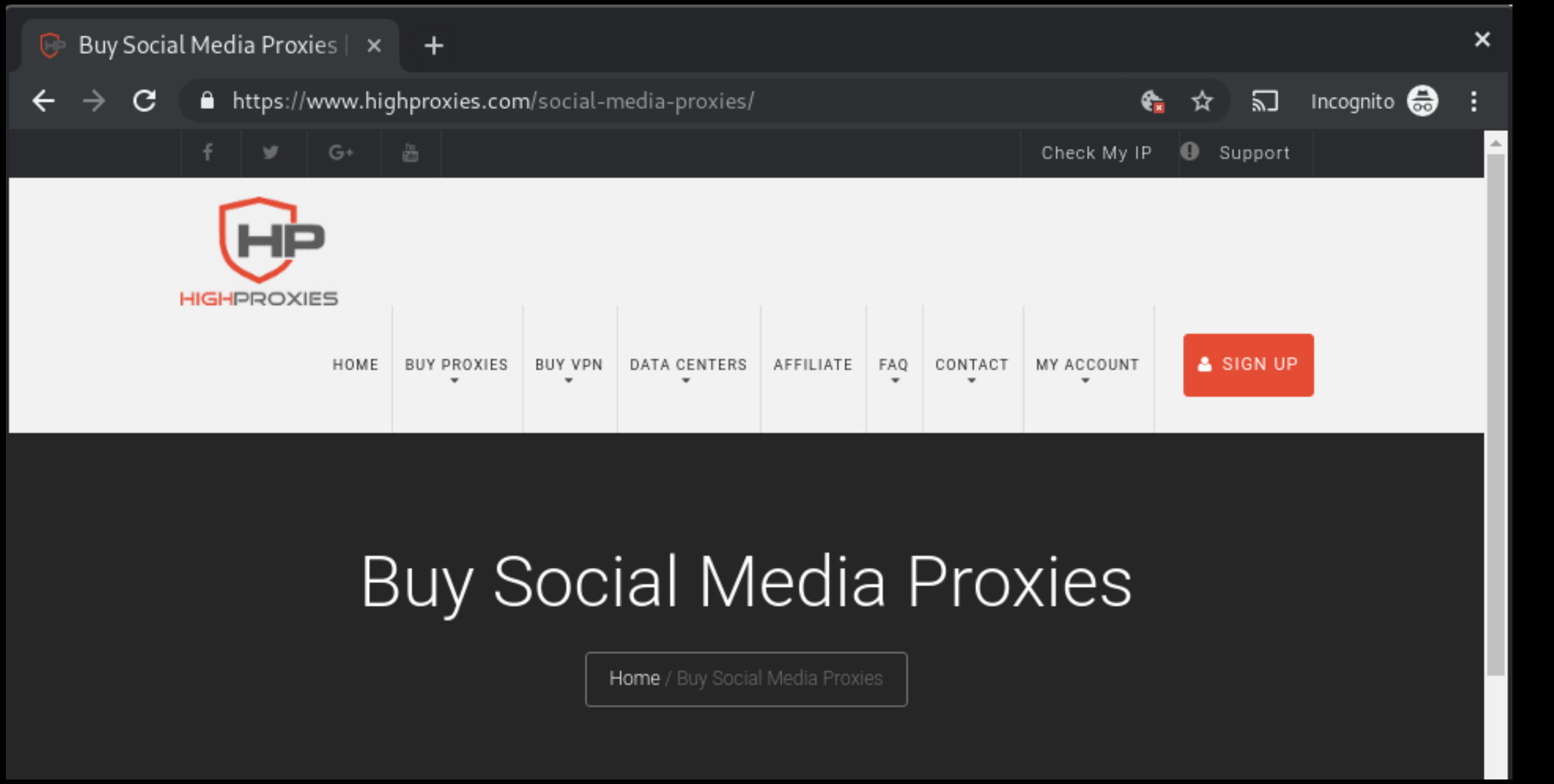
A New Actor Enters the Game

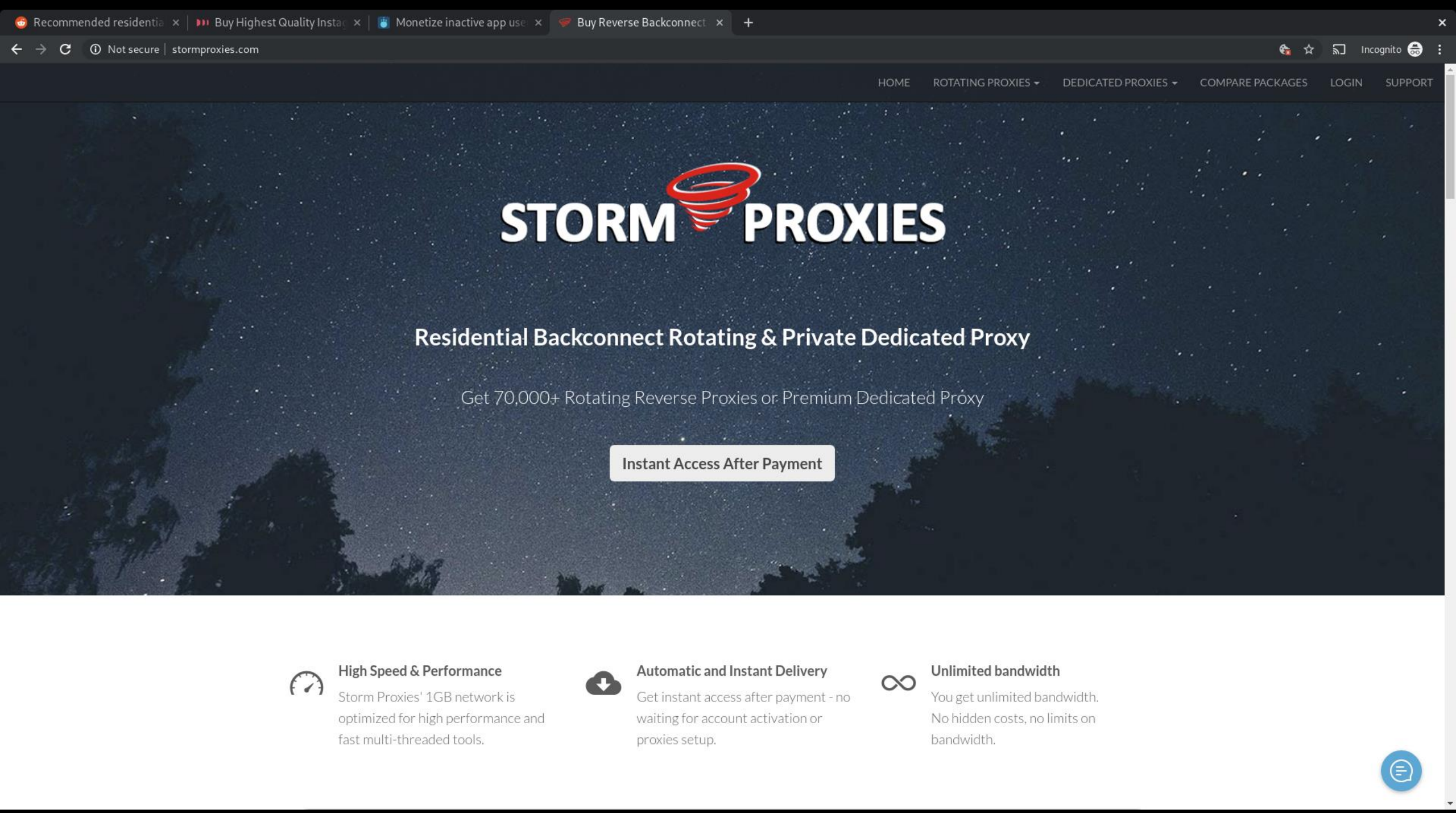
Previously Studied Botnet

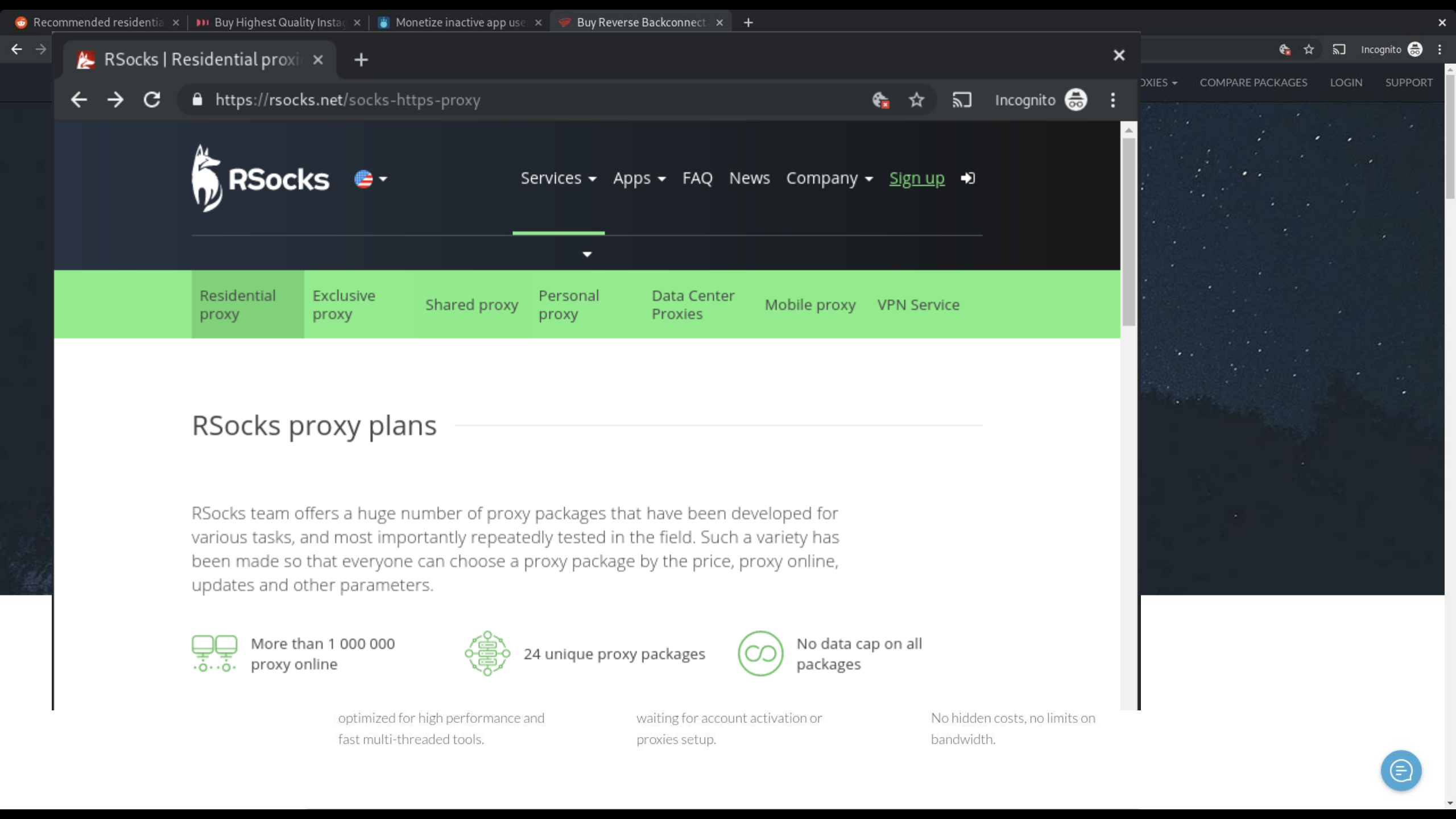
Residential Proxy Services

Residential proxy services




Buy Social Media Proxies
https://www.highproxies.com/social-media-proxies/
Incognito
Check My IP
Support
HIGHPROXIES
HOME
BUY PROXIES
BUY VPN
DATA CENTERS
AFFILIATE
FAQ
CONTACT
MY ACCOUNT
SIGN UP
Buy Social Media Proxies
Home / Buy Social Media Proxies


Recommended residentia
Buy Highest Quality Instag
Monetize inactive app use
Buy Reverse Backconnect
Not secure | stormproxies.com
Incognito
HOME
ROTATING PROXIES
DEDICATED PROXIES
COMPARE PACKAGES
LOGIN
SUPPORT
STORM PROXIES
Residential Backconnect Rotating & Private Dedicated Proxy
Get 70,000+ Rotating Reverse Proxies or Premium Dedicated Proxy
Instant Access After Payment
High Speed & Performance
Storm Proxies' 1GB network is optimized for high performance and fast multi-threaded tools.
Automatic and Instant Delivery
Get instant access after payment - no waiting for account activation or proxies setup.
Unlimited bandwidth
You get unlimited bandwidth. No hidden costs, no limits on bandwidth.


Recommended residentia
Buy Highest Quality Instag
Monetize inactive app use
Buy Reverse Backconnect
RSocks | Residential proxi
https://rsocks.net/socks-https-proxy
Incognito
COMPARE PACKAGES
LOGIN
SUPPORT
RSocks
Services
Apps
FAQ
News
Company
Sign up
Residential proxy
Exclusive proxy
Shared proxy
Personal proxy
Data Center Proxies
Mobile proxy
VPN Service
RSocks proxy plans
RSocks team offers a huge number of proxy packages that have been developed for various tasks, and most importantly repeatedly tested in the field. Such a variety has been made so that everyone can choose a proxy package by the price, proxy online, updates and other parameters.
More than 1 000 000 proxy online
24 unique proxy packages
No data cap on all packages
optimized for high performance and fast multi-threaded tools.
waiting for account activation or proxies setup.
No hidden costs, no limits on bandwidth.

Recommended residentia | Buy Highest Quality Insta | Monetize inactive app use | Buy Reverse Backconnect

Buy Aged Instagram Acco

https://valar-solutions.com

Incognito

Valar Instagramis

Feedback: 279/11/4

Tools Directory | Referral Program

PROJECTS

API Tokens Virtual Bal...

$1.00 ∞ in stock

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$0.04 ∞ in stock

Valar-SMM.Com Insta...

$1.00 ∞ In stock

Valar-Boost.Com Mot...

$1.00 ∞ in stock

RE PACKAGES | LOGIN | SUPPORT

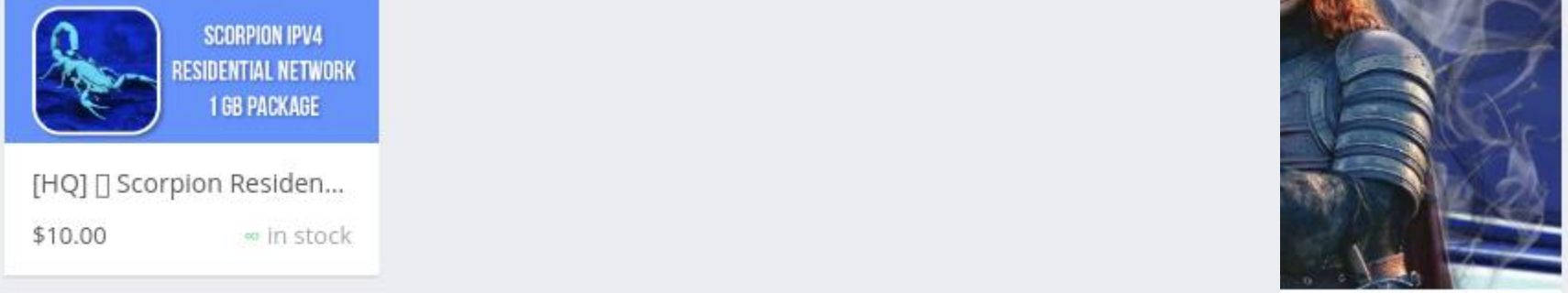
Recommended residentia | Buy Highest Quality Insta | Monetize inactive app use | Buy Reverse Backconnect

Buy Aged Instagram Acco

https://valar-solutions.com

Incognito

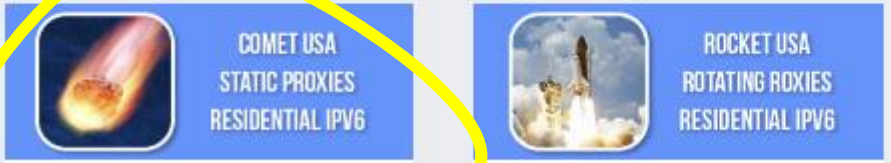
HQ IPV4 RESIDENTIAL PROXIES



[HQ] Scorpion Residen...

$10.00 ∞ in stock

PROXIES FOR SOCIAL NETWORKS



[IPv6] Comet Static AT...

$0.50 ∞ in stock

[IPv6] Rocket Rotatin...

$1.50 ∞ in stock

[IPv4] Mushroom Stat...

$1.00 ∞ in stock

Referral Program

API Tokens Virtual Bal...

$1.00 ∞ in stock

Valar-SMS.Com Chea...

$0.04 ∞ in stock

Valar-SMM.Com Insta...

$1.00 ∞ in stock

Valar-Boost.Com Mot...

$1.00 ∞ in stock

Recommended residentia | Buy Highest Quality Insta | Monetize inactive app use | Buy Reverse Backconnect

Incognito

Luminati is honored to receive, from the leading industry research firm Frost & Sullivan the Market Leadership Award 2019

Luminati

Networks Tools Use cases Resources Pricing Contact Log in Sign up

Residential Proxy Network

Luminati provides the most advanced Residential Proxy service offering the fastest and largest real-peer IP network in the world.

Start Now

Start Your 7-day Free Trial Today!

Use cases

Ad Verification Services

Verify advertisements and affiliate link compliance along with the absence of malware

Price Comparison

Aggregate and compare accurate pricing data for retail, travel and eCommerce to ensure a competitive advantage with geo-located IPs

Market Research Services

Analyze business and market environments worldwide for well-informed decision making

Web Data Extraction

Collect accurate data using 35+ million rotating IPs from across the globe, never getting blocked or misled

Brand Protection

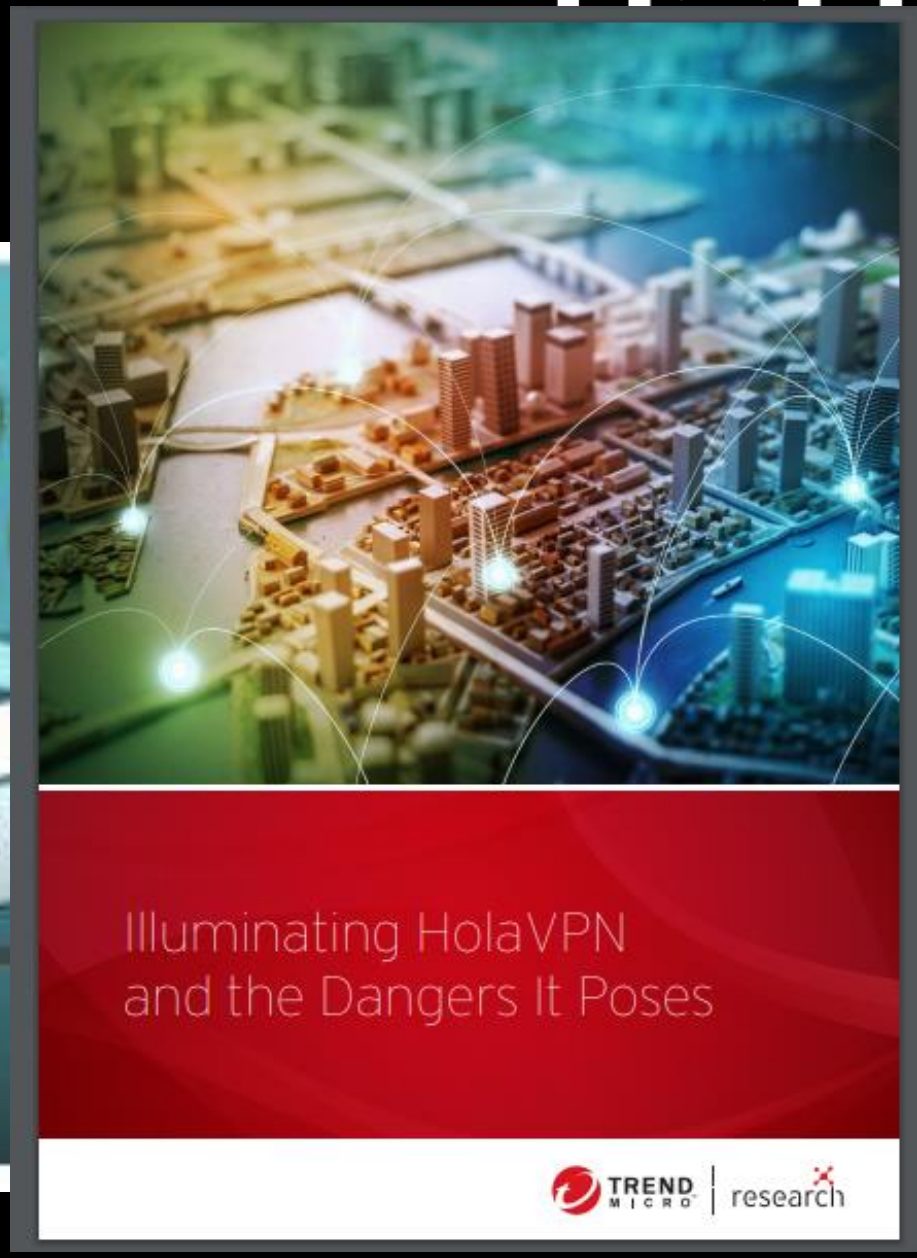
Protect your brand and all online assets by ensuring proper use of copyright content

Account Management

Manage social media accounts including Facebook, Twitter, Linkedin, Craigslist, eBay and more, without getting banned o disabled

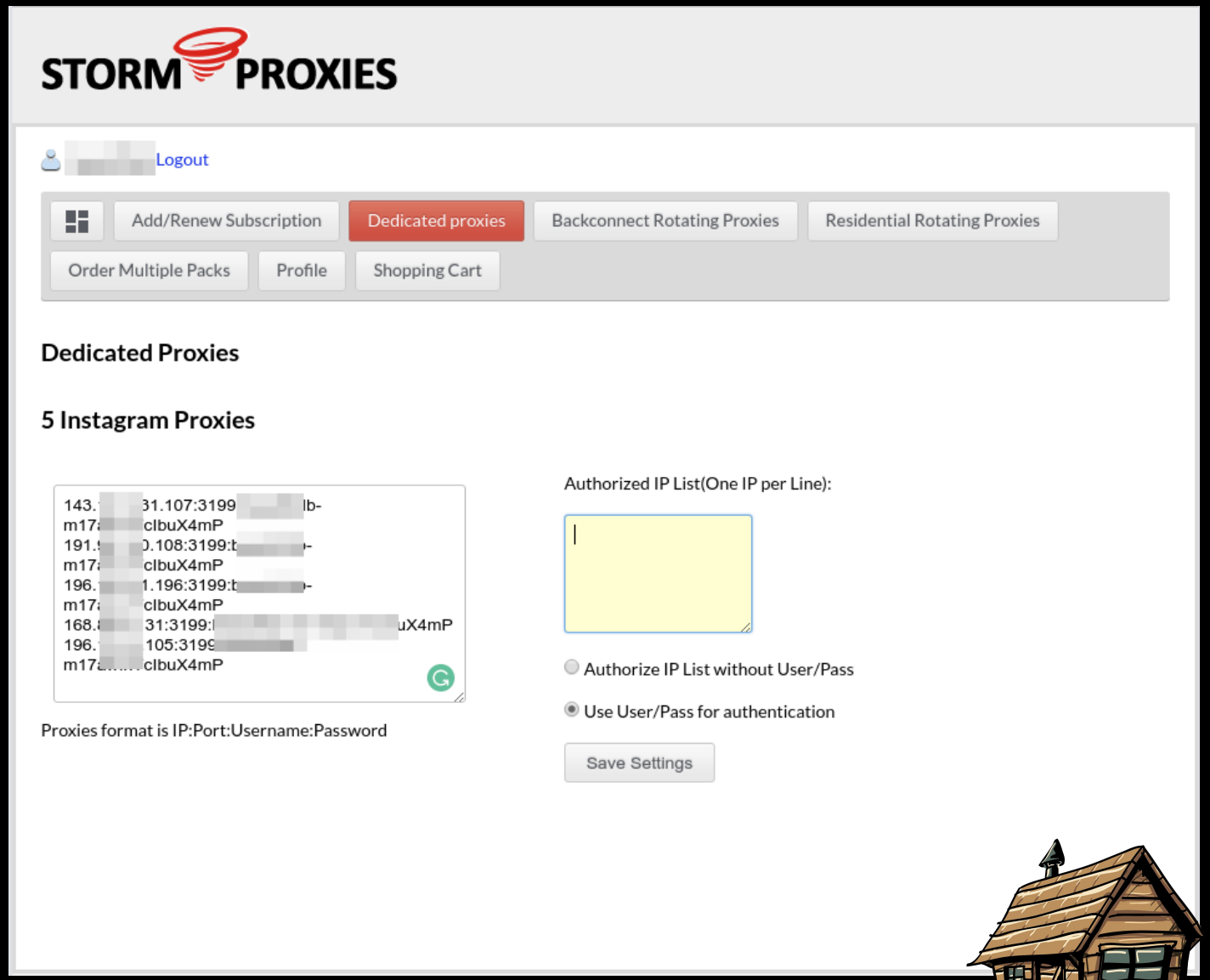
Shocking Business Model

Shocking Business Model



Storm Proxies

- Received IPs from USA: Kansas City, Lincoln NE and Sunnyvale CA
- ISPs have conflicting information:
  - Digital Energy Technologies Chile with Org Host1Plus
  - Victoria Mahe with Org Joe's Datacenter, LLC
- Traceroute leads to the US



Storm Proxies (cont)

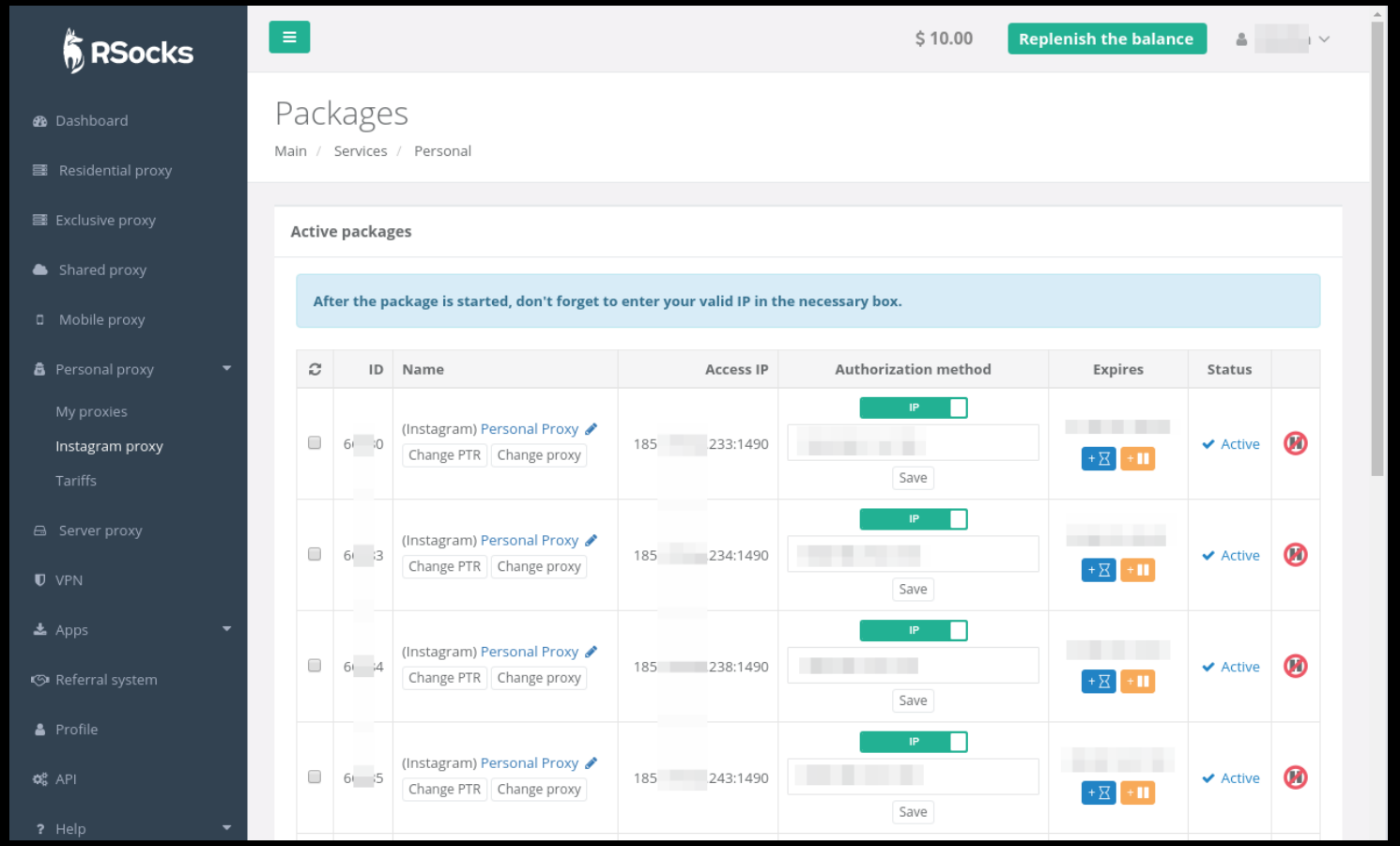
- Uses Squid for proxying
- Doesn’t protect scans to localhost
- Linux system
- Most likely Debian Jessie
  - Exim 4.84_2
  - Squid 3.4.8

```
Nmap scan report for 191 [redacted] 108
Host is up (0.071s latency).
Not shown: 65531 closed ports
PORT      STATE    SERVICE    VERSION
111/tcp   open     rpcbind    2-4 (RPC #100000)
3199/tcp  open     http-proxy Squid http proxy 3.4.8
11211/tcp filtered unknown
46082/tcp open     status     1 (RPC #100024)
Device type: general purpose
Running: Linux 3.X|4.X
OS CPE: cpe:/o:linux:linux_kernel:3 cpe:/o:linux:linux_kernel:4
OS details: Linux 3.2 - 4.0
Network Distance: 16 hops
```

```
"IP";"FQDN";"PORT";"PROTOCOL";"SERVICE";"VERSION"
"127.0.0.1";"localhost";"25";"tcp";"smtp";"Exim smtpd 4.84_2"
"127.0.0.1";"localhost";"111";"tcp";"rpcbind";"2-4 (RPC #100000)"
```

RSocks

- Received IPs all from same subnet in Russia
- ISP: Adman LLC
- Traceroute confirms Russia



Supported protocols: SOCKS4, SOCKS5, HTTP(S)

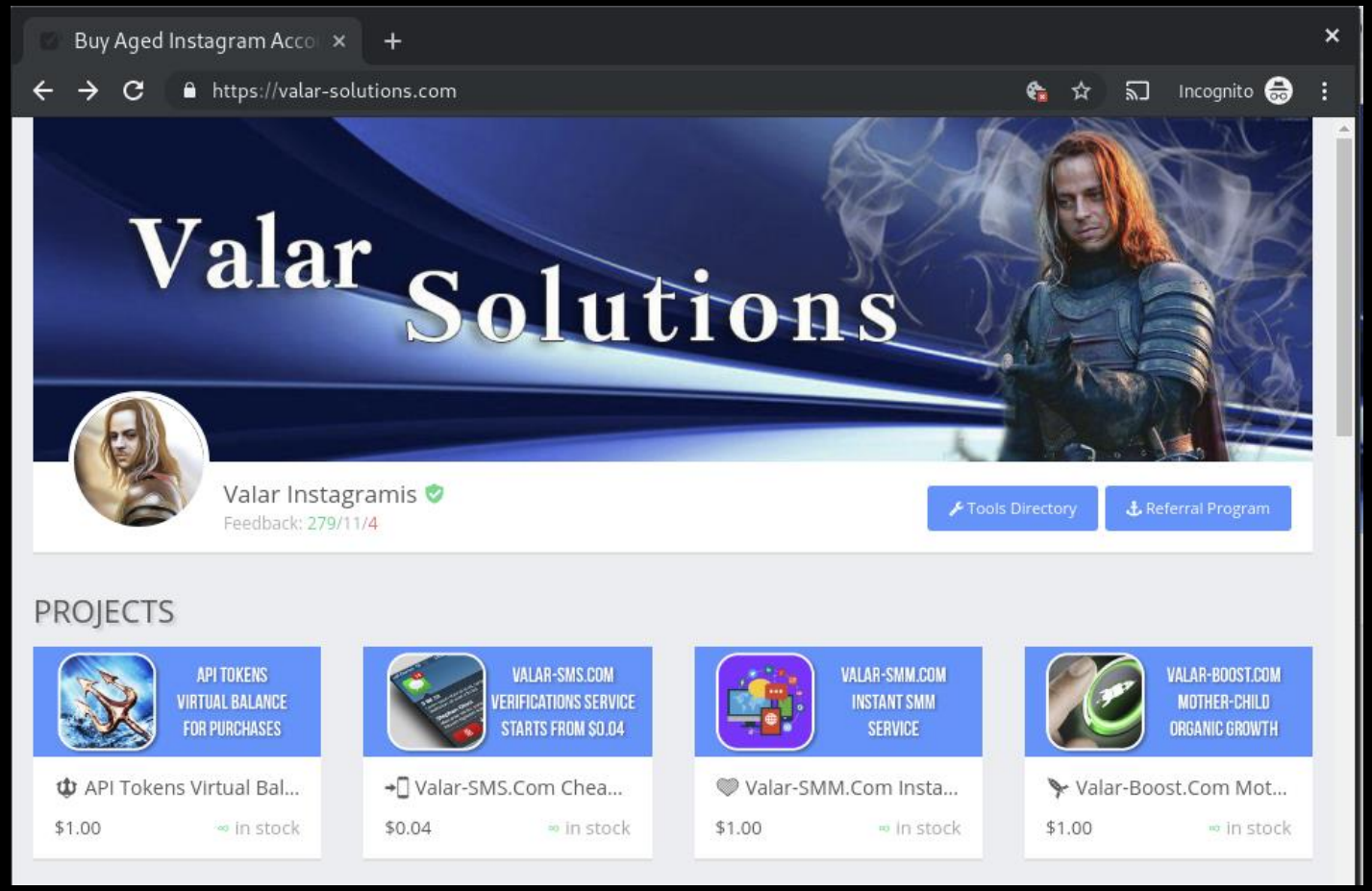
RSocks (cont)

- Exposes SSH on 3389
- Doesn’t protect scans to localhost
- Unable to fingerprint proxy service
- Most likely Debian Jessie
  - SSH banner deb8u7

```
"127.0.0.1";"localhost";"3000";"tcp";"tcpwrapped";""
"127.0.0.1";"localhost";"3128";"tcp";"tcpwrapped";""
"127.0.0.1";"localhost";"3306";"tcp";"tcpwrapped";""
"127.0.0.1";"localhost";"3389";"tcp";"ssh";"OpenSSH 6.7p1 Debian 5+deb8u7 (protocol 2.0)"
"127.0.0.1";"localhost";"3986";"tcp";"tcpwrapped";""
"127.0.0.1";"localhost";"4899";"tcp";"tcpwrapped";""
"127.0.0.1";"localhost";"5000";"tcp";"tcpwrapped";""
"127.0.0.1";"localhost";"5009";"tcp";"tcpwrapped";""
```

Valar Solutions

- Received a single IP from France
  - Scaleway, Dedibox
- Traffic goes out an IPv6 address in the USA
  - AT&T Internet Services



Valar Solutions

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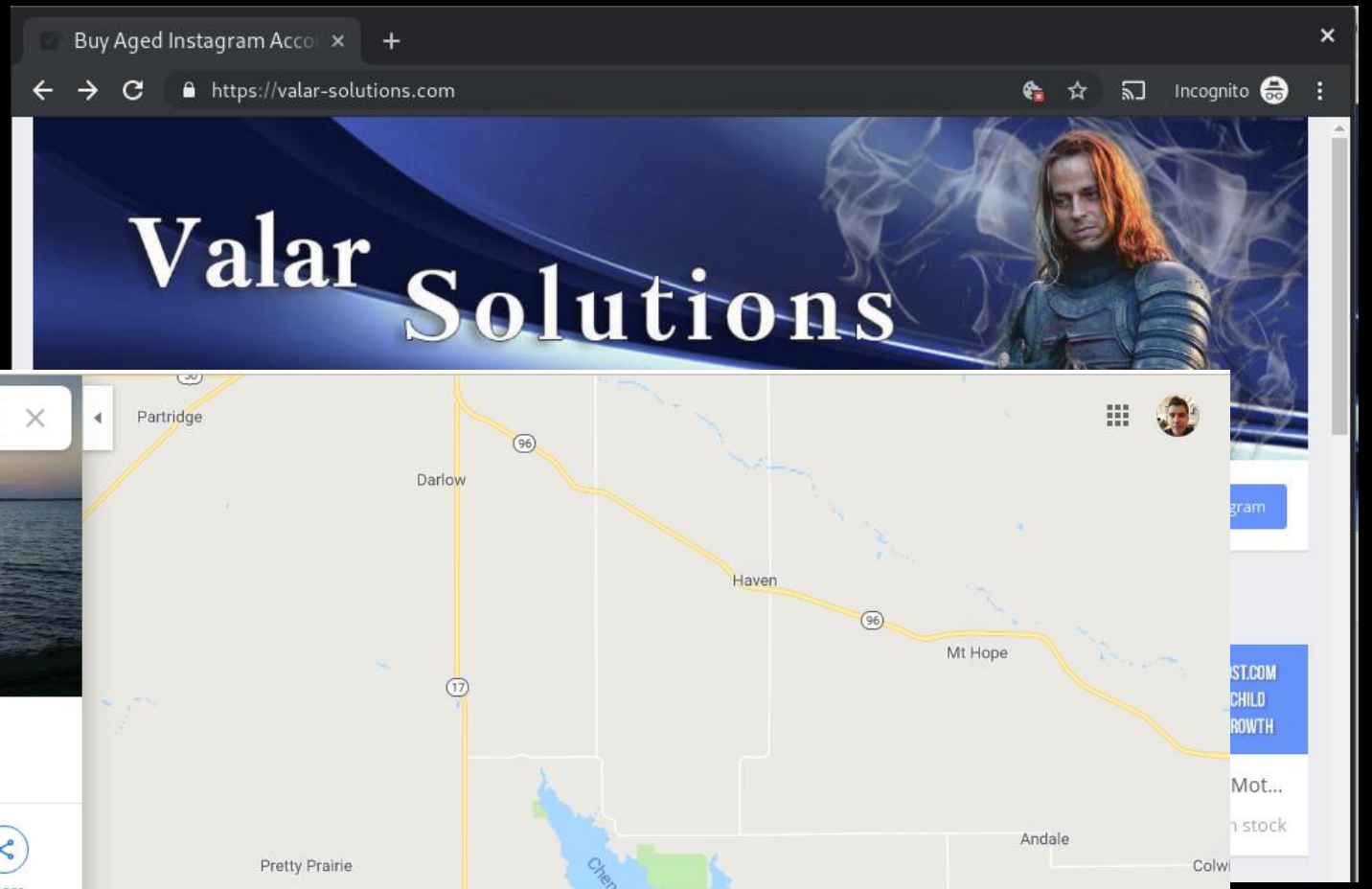
  address in th
  - AT&T Inter



Valar (cont)

- Uses 3Proxy
  - on 1067 non-continuous ports
  - Identified by nmap
  - Confirmed by error message strings that match source code
- Protects from localhost scans
  - Both IPv4 and IPv6
- IPv6 sealed from outside
- Proxy entry is Debian 9
  - Nginx + OpenSSH

```
Nmap scan report for 140-[redacted]-212.rev.cloud.scaleway.com (212.[redacted].140)
Host is up (0.099s latency).
Not shown: 64467 closed ports
PORT      STATE    SERVICE    VERSION
22/tcp    open     ssh        OpenSSH 7.4p1 Debian 10+deb9u6 (protocol 2.0)
80/tcp    open     http       nginx 1.10.3
10012/tcp open     http-proxy 3Proxy http proxy
10028/tcp open     http-proxy 3Proxy http proxy
10058/tcp open     http-proxy 3Proxy http proxy
10121/tcp open     http-proxy 3Proxy http proxy
10134/tcp open     http-proxy 3Proxy http proxy
10135/tcp open     http-proxy 3Proxy http proxy
10154/tcp open     http-proxy 3Proxy http proxy
10365/tcp open     http-proxy 3Proxy http proxy
10710/tcp open     http-proxy 3Proxy http proxy
10750/tcp open     http-proxy 3Proxy http proxy
10806/tcp open     http-proxy 3Proxy http proxy
10905/tcp open     http-proxy 3Proxy http proxy
10912/tcp open     http-proxy 3Proxy http proxy
```

Residential Proxy Providers Summary

	Infrastructure	Geoip / Whois	Powered by Malware?
Luminati	Leveraging willing participants' phones	Unknown	Unlikely
Storm Proxies	Debian 8 (Jessie) with Squid	Misleading information	Unlikely
RSocks	Debian 8 (Jessie) with unknown proxy	Small unknown ISP	Unlikely
High Proxies	CentOS/RHEL 7 with Squid	Misleading information	Unlikely
Valar Solutions	Debian 9 (Stretch) with 3Proxy. Tunnel between France and USA. IPv6.	Legit AT&T Internet Services	Unlikely

For More

Resident Evil: Understanding Residential IP Proxy as a Dark Service

Xianghang Mi*, Xuan Feng*, Xiaojing Liao*, Baojun Liu†,
XiaoFeng Wang*, Feng Qian*, Zhou Li‡, Sumayah Alrwais§, Limin Sun¶, Ying Liu†
*Indiana University Bloomington, †Tsinghua University, ‡IEEE Member,
§King Saud University, ¶Institute of Information Engineering, CAS
*{xmi, xf1, xliao, xw7, fengqian}@indiana.edu, †lbj15@mails.tsinghua.edu.cn,
liuying@cernet.edu.cn, ‡lzcarl@gmail.com, §salrwais@ksu.edu.sa, ¶sunlimin@iie.ac.cn,

***Abstract*—An emerging Internet business is residential proxy (RESIP) as a service, in which a provider utilizes the hosts within residential networks (in contrast to those running in a datacenter) to relay their customers' traffic, in an attempt to avoid server-side blocking and detection. With the prominent roles the services could play in the underground business world, little has been done to understand whether they are indeed involved in Cybercrimes and how they operate, due to the challenges in identifying their RESIPs, not to mention any in-depth analysis on them.**

In this paper, we report the *first* study on RESIPs, which sheds light on the behaviors and the ecosystem of these elusive gray services. Our research employed an infiltration framework, including our clients for RESIP services and the servers they visited, to detect 6 million RESIP IPs across 230+ countries and 52K+ ISPs. The observed addresses were analyzed and the hosts behind them were further fingerprinted using a new profiling system. Our effort led to several surprising findings

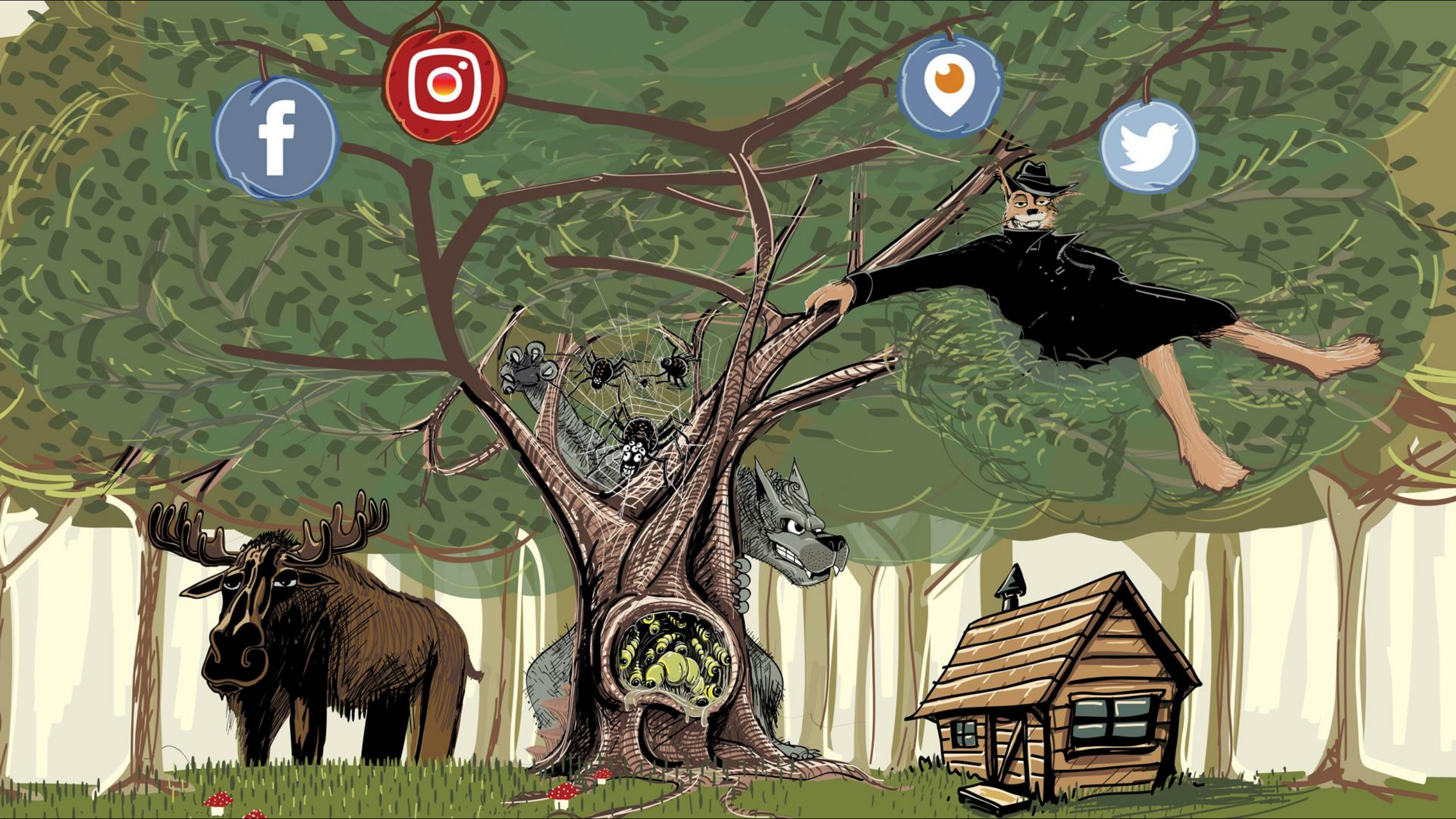
owners) as intermediaries to circumvent the restrictions imposed by target services, for the purposes such as aggressive resource access (e.g., registering multiple accounts), data scraping, and others. This emerging market gives rise to a new service model we call *Residential IP Proxy as a Service* (RPaaS), offered by companies like Luminati [3], StormProxies [49], Microleaves [38], etc. These providers all control a large number of residential hosts, which they claim joined their services willingly, to proxy their customers' communication with any Internet target. Once abused, these residential proxies can outperform conventional public proxies or even anonymity networks to help their clients masquerade as clean and benign sources to communicate with the targets. Such communication may violate the target's service terms at the very least (e.g.,

Where do we stand?

- IoT botnet or residential proxy services
- Automation software
- Reseller panels and panel-as-a-service providers

Who buys from reseller panels?


Customer-facing sellers



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Accelerate Your Social Growth

Quickly gain followers, viewers, likes & more
with our blend of marketing tactics.

GET STARTED NOW

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From trending tweets, to viral videos. We make it happen.

The Follower Factory

Everyone wants to be popular online. Some even pay for it. Inside social media's black market.

By NICHOLAS CONFESSORE, GABRIEL J.X. DANCE, RICHARD HARRIS and MARK HANSEN

JAN. 27, 2018

Leer en español

Español

Attorney General James Announces Groundbreaking Settlement With Sellers Of Fake Followers And "Likes" On Social Media

Settlement is First in the Country to Find that Selling Fake Followers and "Likes" Is Illegal Deception and that Fake Activity Using Stolen Identities Is Illegal Impersonation

Attorney General's Press Office: (212) 416-8060

nyag.pressoffice@ag.ny.gov

Press Release Archive

› July 2019
› June 2019
› May 2019

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If you're interesting in buying views, we suggest choosing a well rated and reliable service provider.

Find The Best Alternative

SocialBoss.Org - innovative social media promotional solutions (Instagram, Twitter, YouTube ...).

InstaGrowing.Net - High-Quality Instagram Likes, Views and Followers

YoutubeGrow.Com - High-Quality Youtube Views, Subscribers and Likes

Your Social Media Success Starts Right Here

From trending tweets, to viral videos. We make it happen.


Buyers

Potential Buyers

Linux/Moose

86% of the relayed traffic focused on Instagram

List of potential customers:

522 accounts

Method:

Content analysis

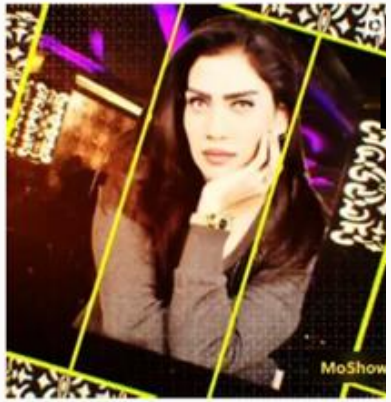
Entertainment Industry (20%)

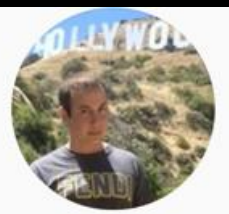
[redacted] Follow

272 posts 30.9k followers 78 following

[redacted]

POSTS TAGGED





[redacted] Follow ···

1,451 posts 202k followers 7,241 following

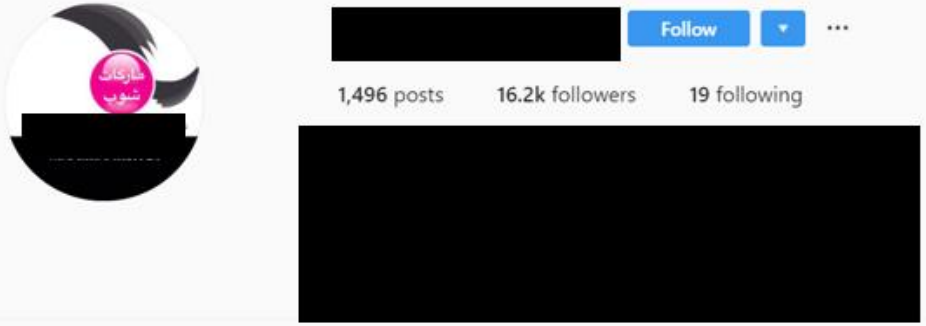
[redacted]

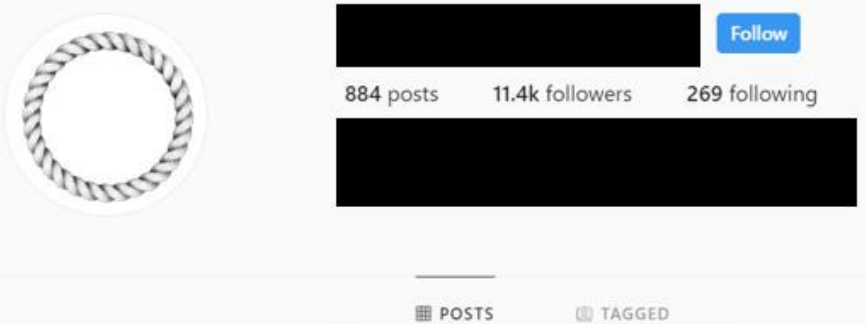
24 • Reality TV Personalty/Actor • Global Jetsetter • Self-Made

[redacted]

POSTS TAGGED

Selling Products and Services (21%)





Personal Profiles (26%)

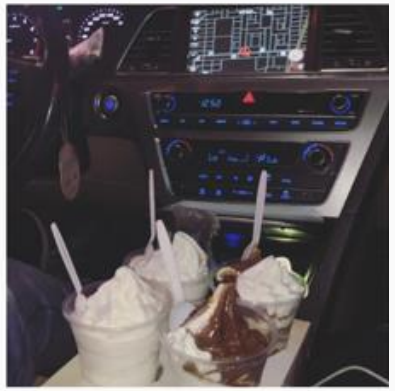
[redacted] Follow

218 posts 12.6k followers 599 following

[redacted]

POSTS TAGGED






[redacted] Follow

190 posts 17.4k followers 665 following

[redacted]

POSTS TAGGED






The Unexpected Ones

[redacted] Follow

1,368 posts 90.6k followers 13 following

[redacted]

POSTS TAGGED

[redacted] Follow

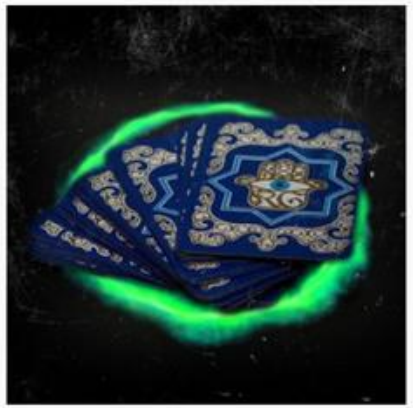
956 posts 141k followers 1 following

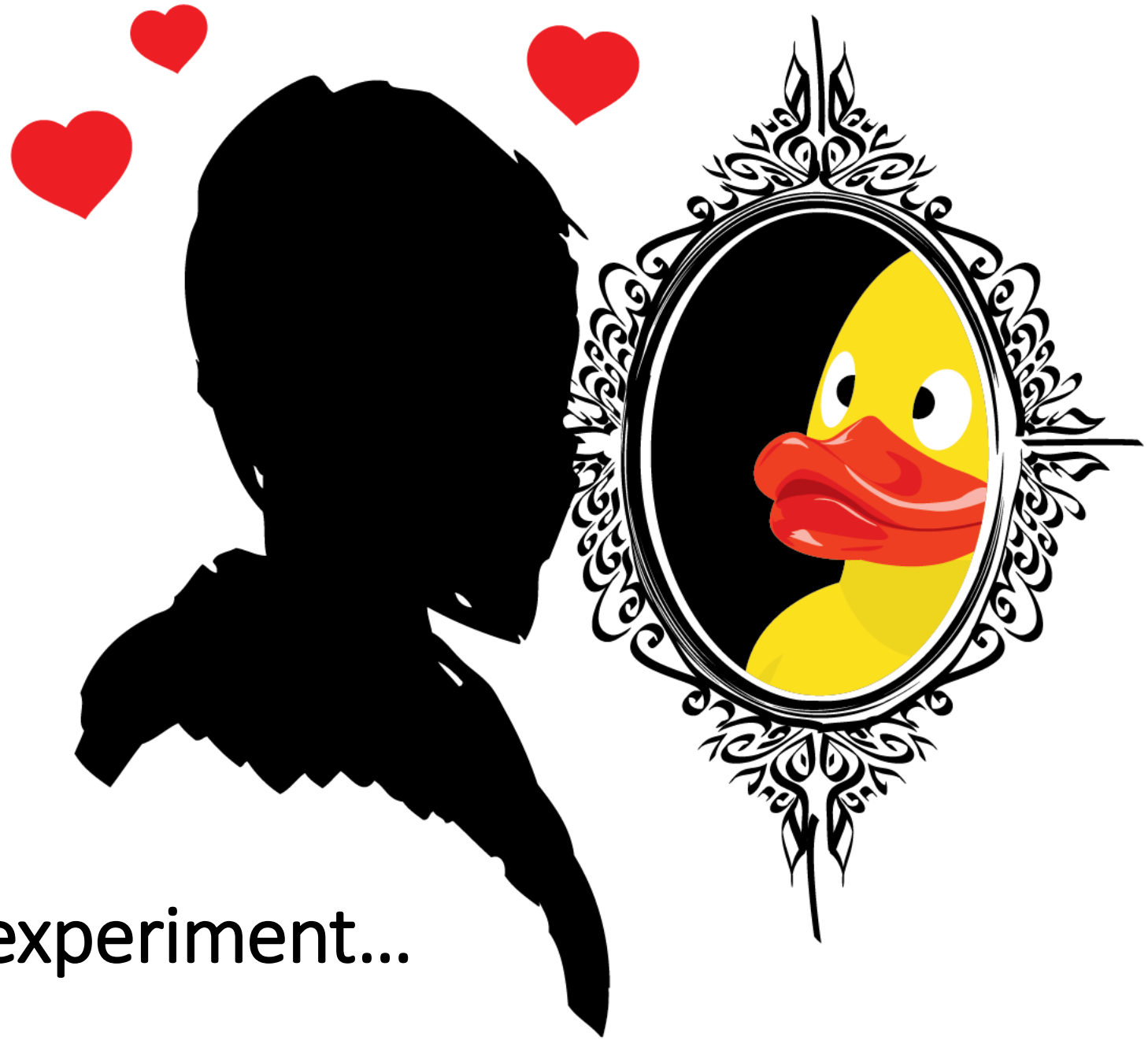
[redacted]

♠ READING
♦ PSYCHIC
♣ SPIRITUAL
♥ MAGIC

[redacted]

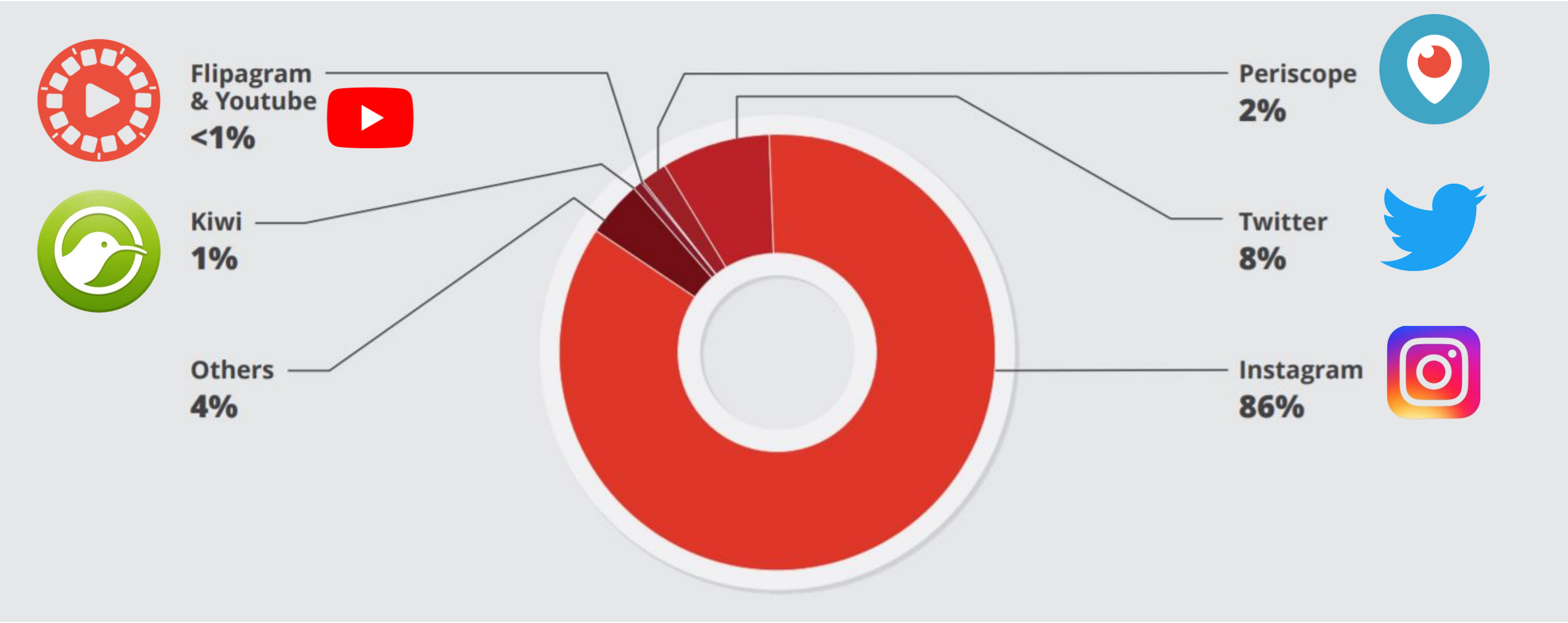
POSTS TAGGED



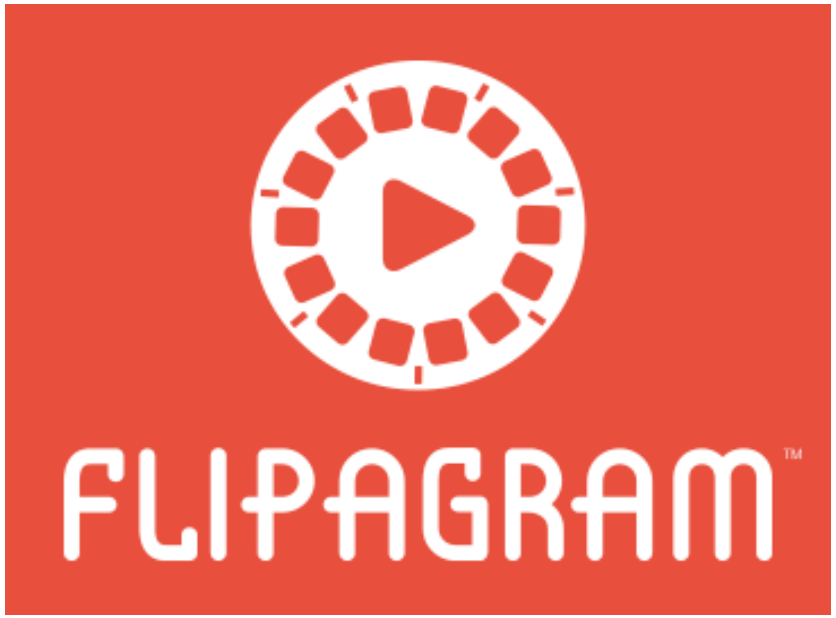


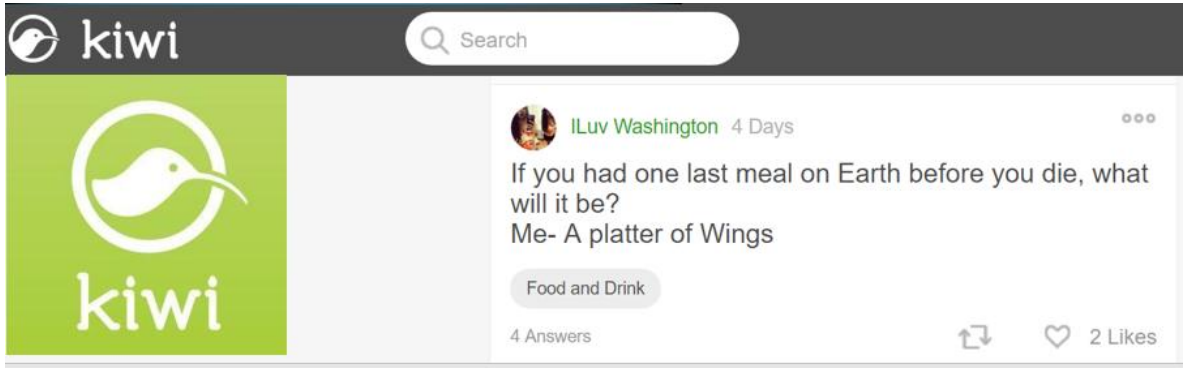
We made an experiment…

Linux/Moose's Targeted Social Networks




Periscope


FLIPAGRAM™


kiwi
Search
kiwi
ILuv Washington 4 Days
If you had one last meal on Earth before you die, what will it be?
Me- A platter of Wings
Food and Drink
4 Answers
2 Likes

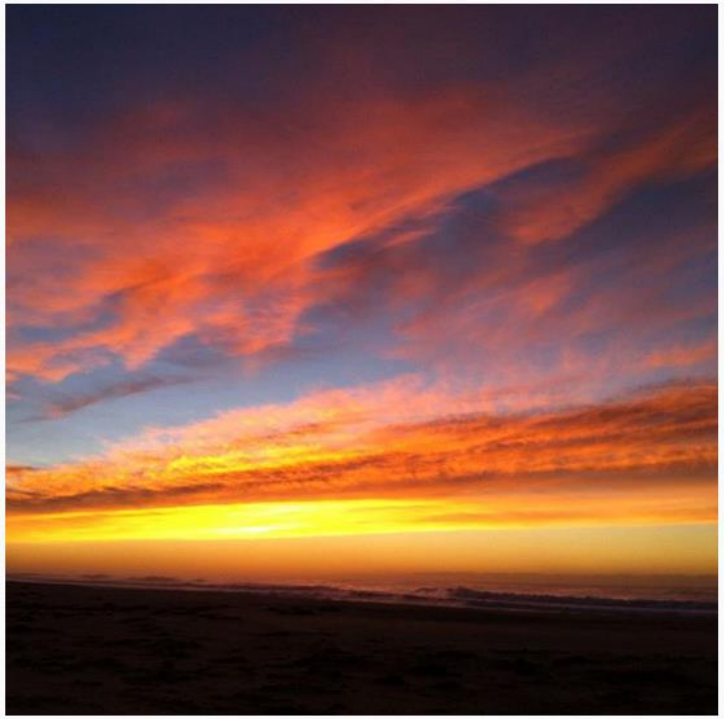
beautifulbird33

Edit Profile

Marika I'm a young photographer. Just starting on social media. Follow me for outstanding seasonal photos. For now: White and Cold; Gloomy and Sparkling.

8 posts **8,054** followers **72** following

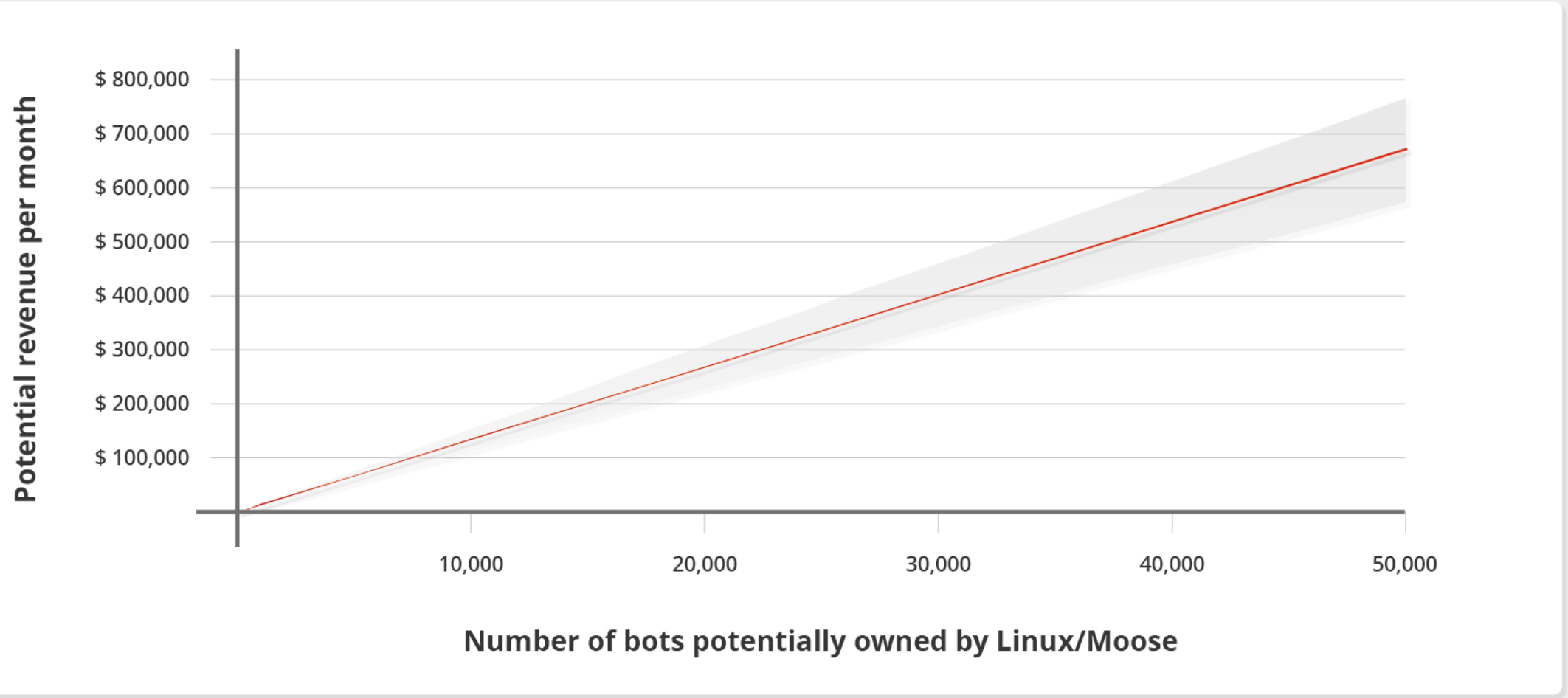
POSTS TAGGED



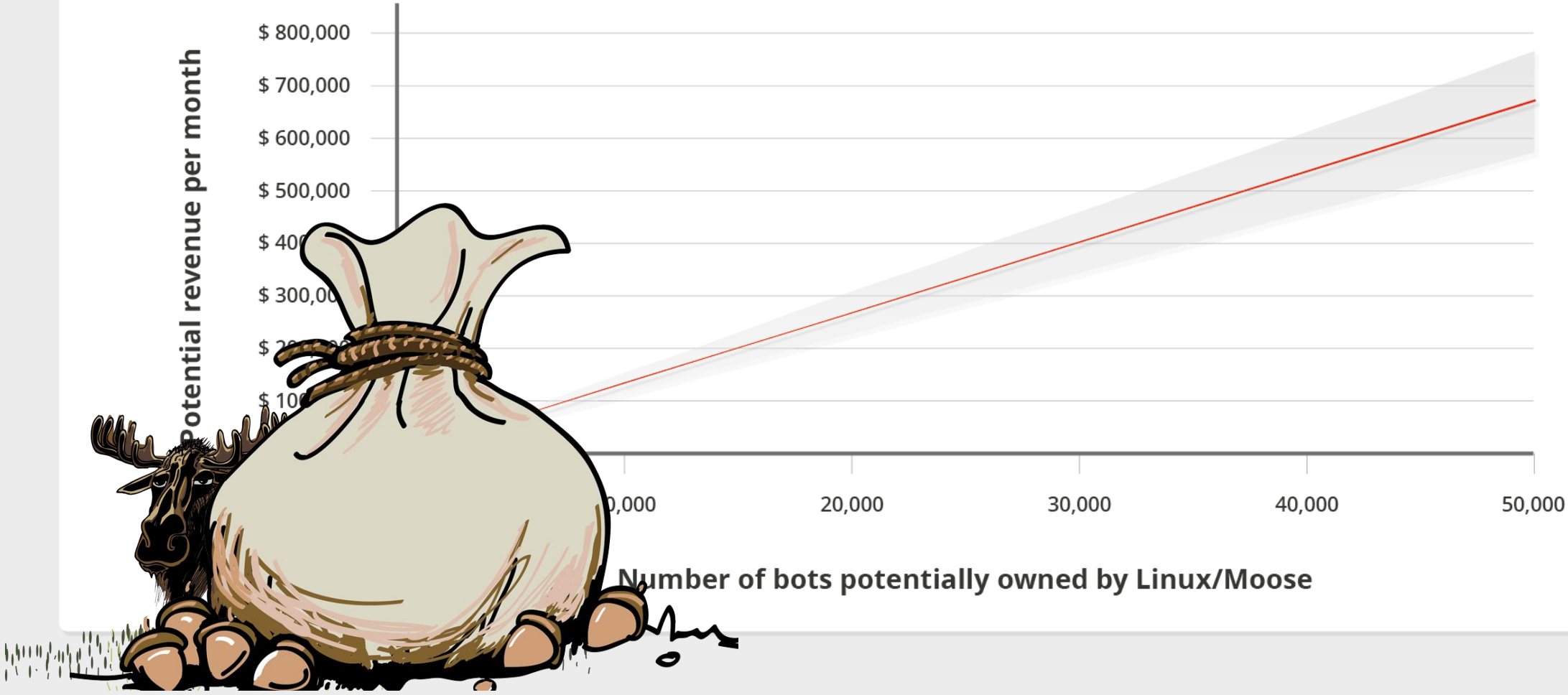
```
<HTTPFlow
  request = Request(GET 173.252.91.17:443/beautifulbird33/)
  response = Response(200 OK, text/html, 4.76kB)>
173.252.91.17
{   'client_conn': {   'address': {   'address': [redacted],
                                      'use_ipv6': False},
                       'clientcert': None,
                       'ssl_established': True,
                       'timestamp_end': None,
                       'timestamp_ssl_setup': [redacted],
                       'timestamp_start': [redacted],
    'error': None,
    'id': 'd5d77c1a-69e8-47d5-99f2-0c1746882a00',
    'intercepted': False,
    'request': {   'content': '',
                   'first_line_format': 'relative',
                   'headers': (   ('host', 'www.instagram.com'),
                                  (   'User-Agent',
                                      'Mozilla/5.0 (Windows NT 5.1; rv:17.0) Gecko/20100101 Firefox/17.0'),
                                  (   'Accept',
                                      'text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8'),
                                  ('Accept-Language', 'en-US,en;q=0.5'),
                                  ('Accept-Encoding', 'gzip, deflate'),
                                  (   'Referer',
                                      'https://www.instagram.com/beautifulbird33'),
                                  ('Connection', 'keep-alive')),
                   'host': '173.252.91.17',
                   'http_version': 'HTTP/1.1',
                   'is_replay': False,
                   'method': 'GET',
                   'path': '/beautifulbird33/',
                   'port': 443,
                   'scheme': 'https',
                   'stickyauth': False,
                   'stickycookie': False,
                   'timestamp_end': [redacted]
```


Revenue

In 2016


Potential revenue per month
$ 800,000
$ 700,000
$ 600,000
$ 500,000
$ 400,000
$ 300,000
$ 200,000
$ 100,000
10,000
20,000
30,000
40,000
50,000
Number of bots potentially owned by Linux/Moose

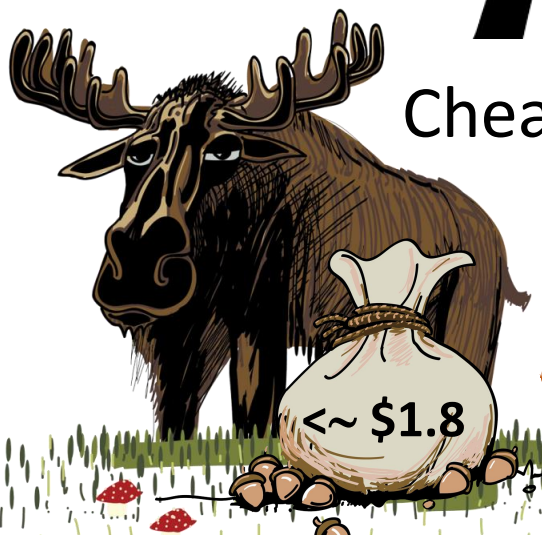
In 2016

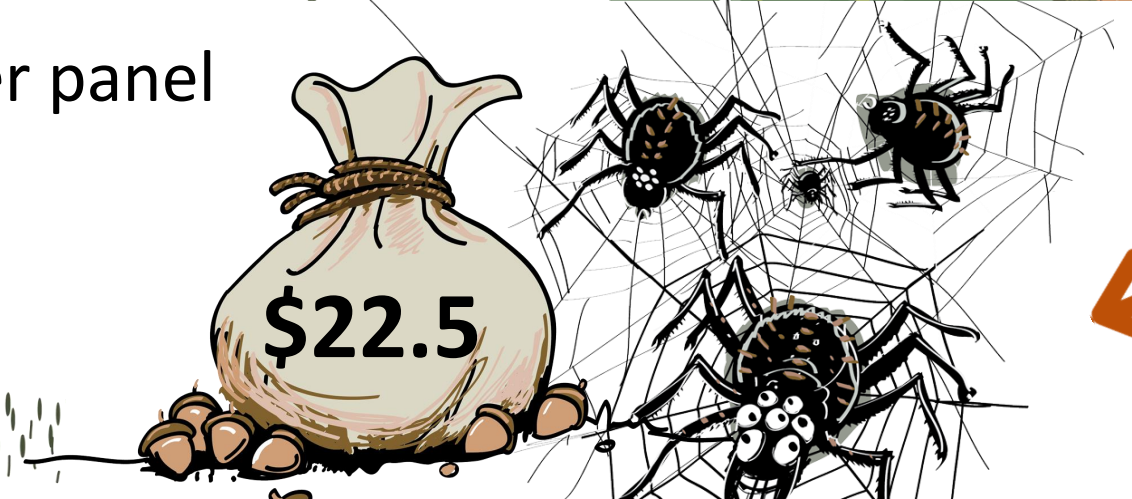

$ 800,000
$ 700,000
$ 600,000
$ 500,000
$ 400
$ 300,00
$ 100
Potential revenue per month
20,000
30,000
40,000
50,000
Number of bots potentially owned by Linux/Moose

Squirrel buys 10,000 Instagram followers

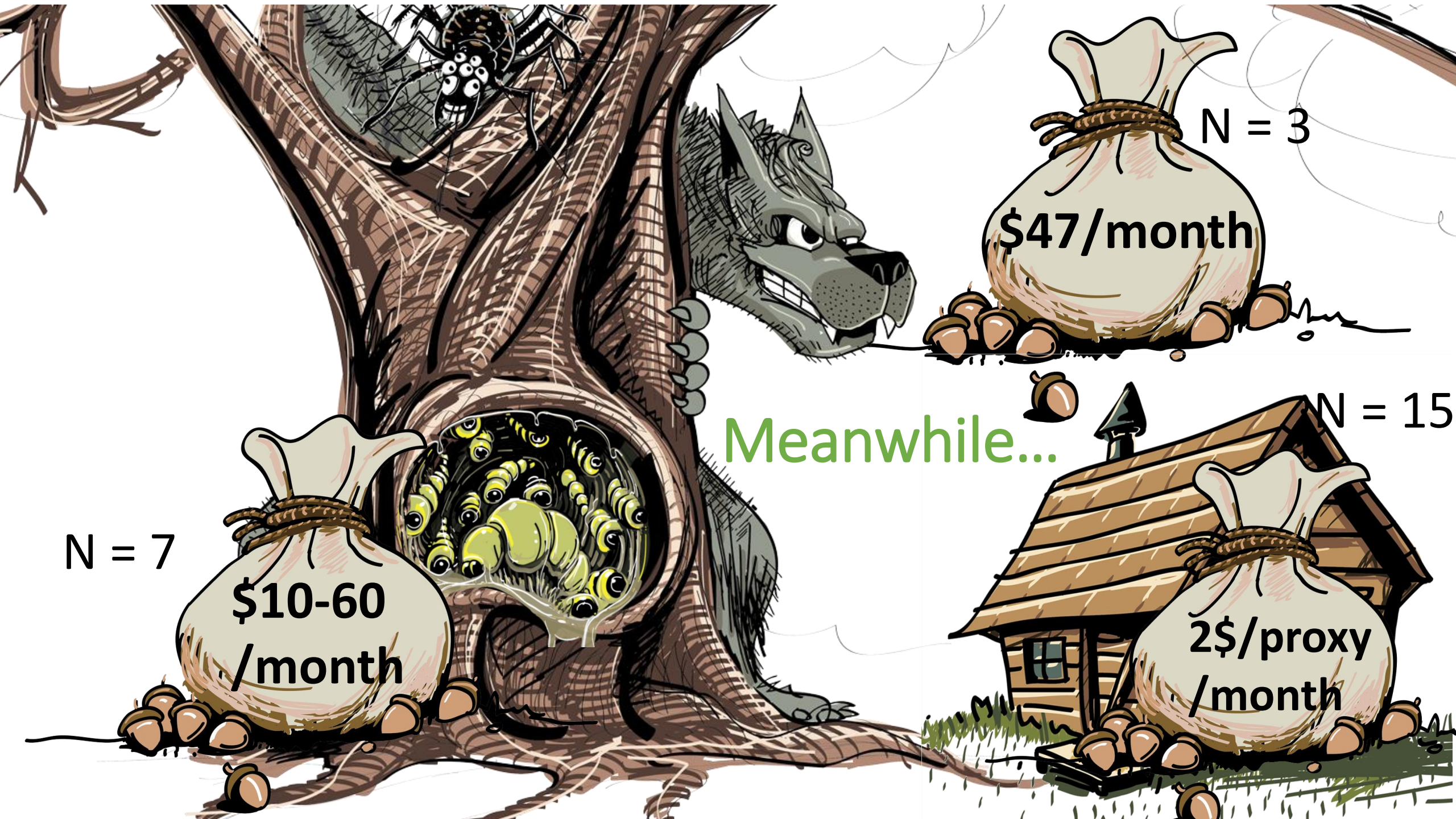
N = 36

Cheapest reseller panel





N = 33


N = 3
$47/month
Meanwhile...
N = 15
2$/proxy
/month
N = 7
$10-60
/month

You want to be trending:

Buy 10,000 followers provided within a week

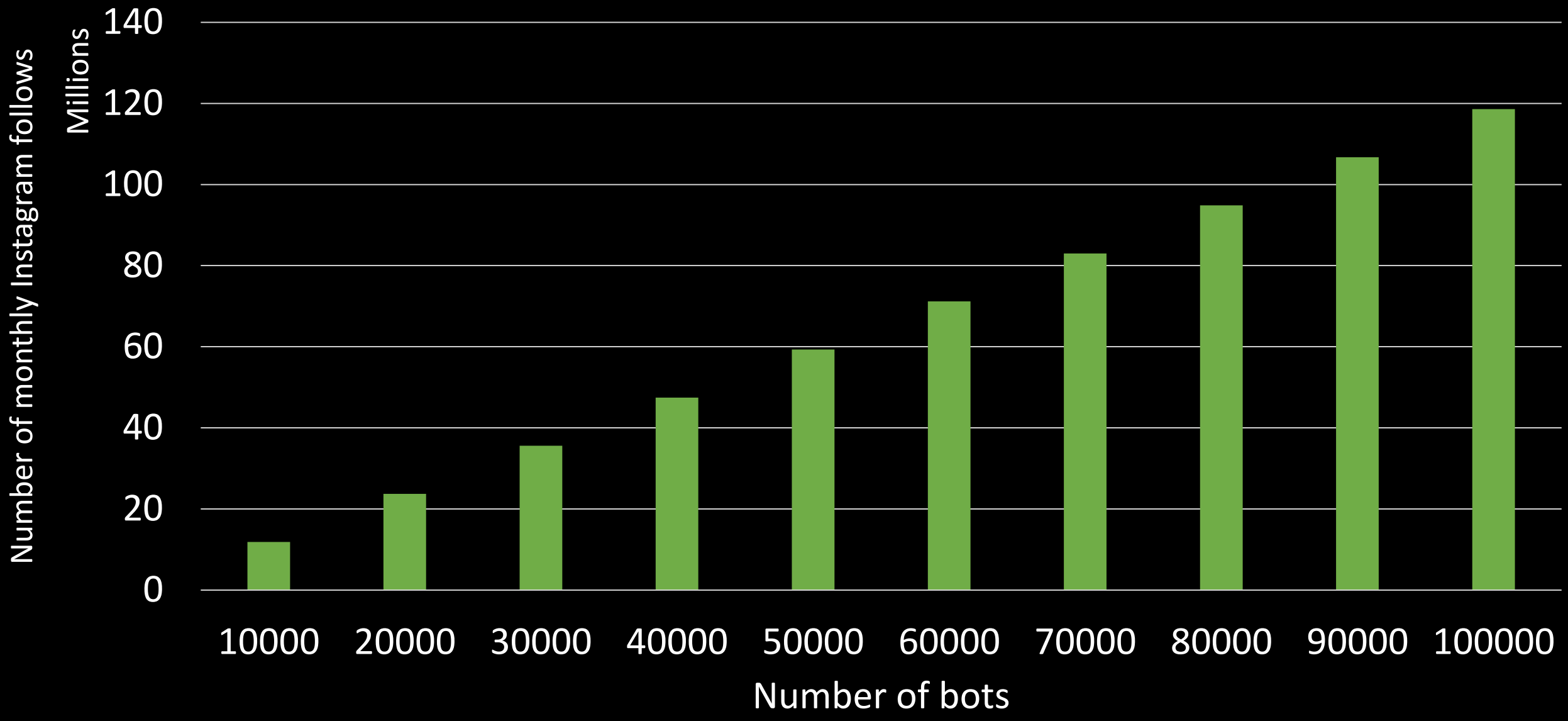
Each bot (honeypot) performed, on average, 1,186 follows per month on Instagram

280 follows per week

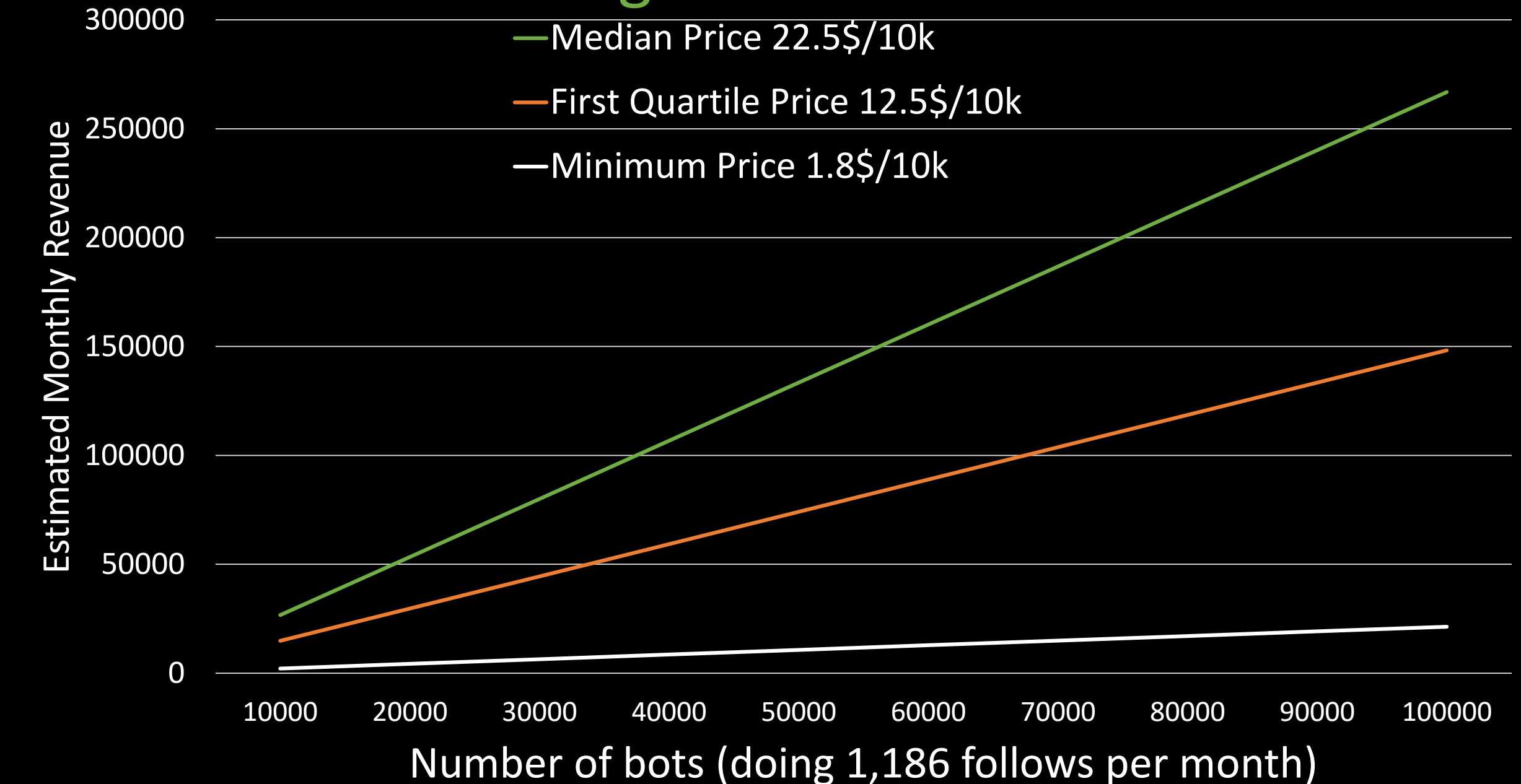
36 proxies at a median cost of 2$/month: flat cost of $72

¯_(ツ)_/¯

Let’s estimate Linux/Moose’s Capacity



Botnet Owner Earnings based on Reseller Panel Prices




The Ecosystem of
social media manipulation
GoSecure
POWERED BY COUNTERTACK

Other Research Avenues

- Click farms
- Compromised accounts
- Troll farms

What to do next?

Policy makers:

Look into the sale of social media manipulation

Law enforcement:

Target the middle-man

Social networks:

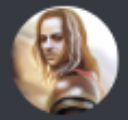
Continue to flag any robotic activity

August 2, 2019

AriefR Last Friday at 9:57 AM

mee too

since yesterday



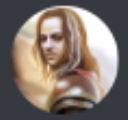
Valar [CEO] Last Friday at 10:41 AM

@funniestpoke Its global issue, nobody able to reg accs now

😩 1

AriefR Last Friday at 10:44 AM

Really? @Valar [CEO] tried with many proxy provider, vpn, gcloud vps, 4g, useragent, no result.



Valar [CEO] Last Friday at 10:49 AM

@AriefR Yes nothing helps

darkair Last Friday at 10:57 AM

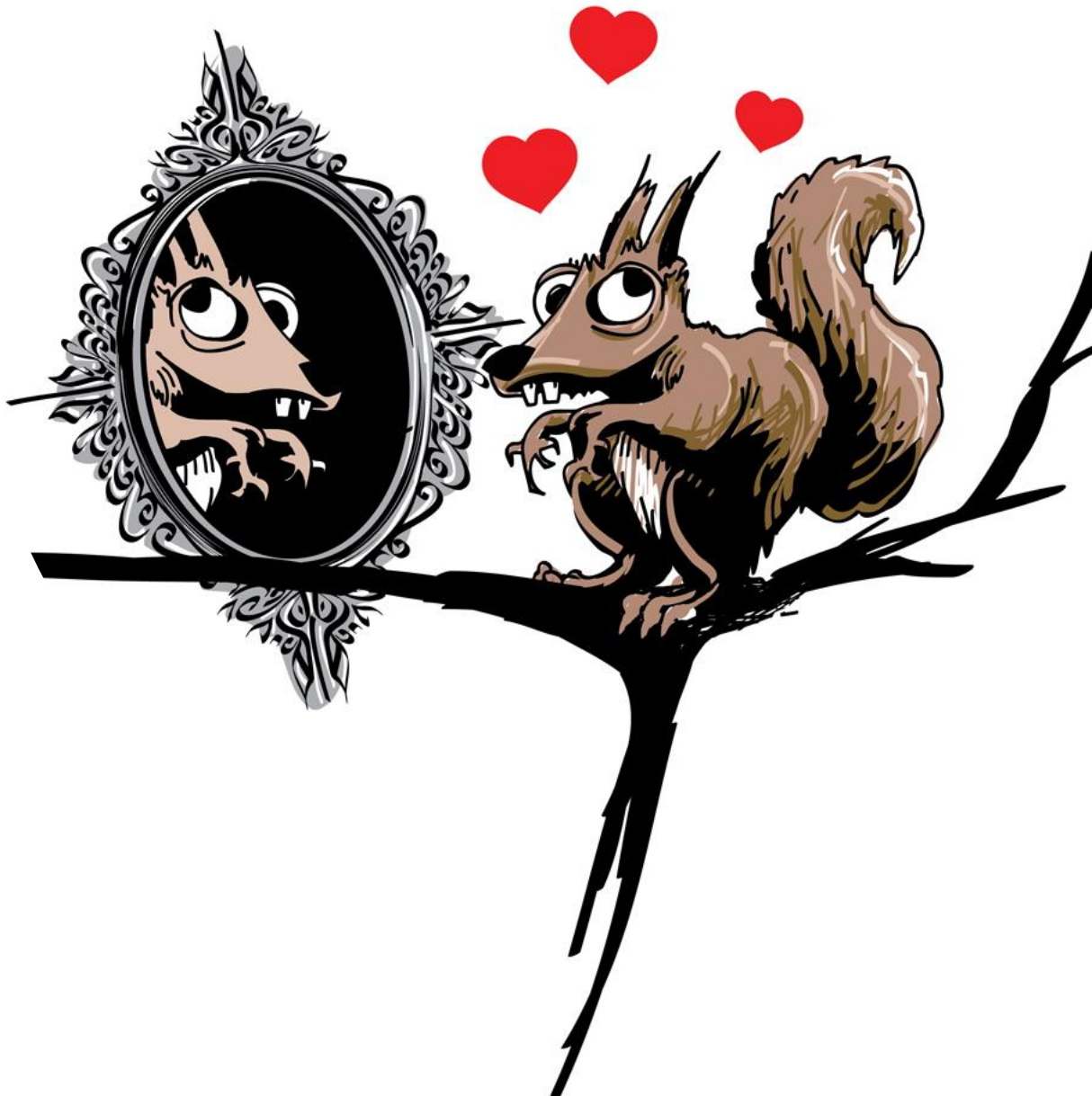
so no one can create new instagram accounts?

Individuals (you)

Focus on the content rather than the container!

What is this person bringing to society? Is this post legit?

What are the sources?



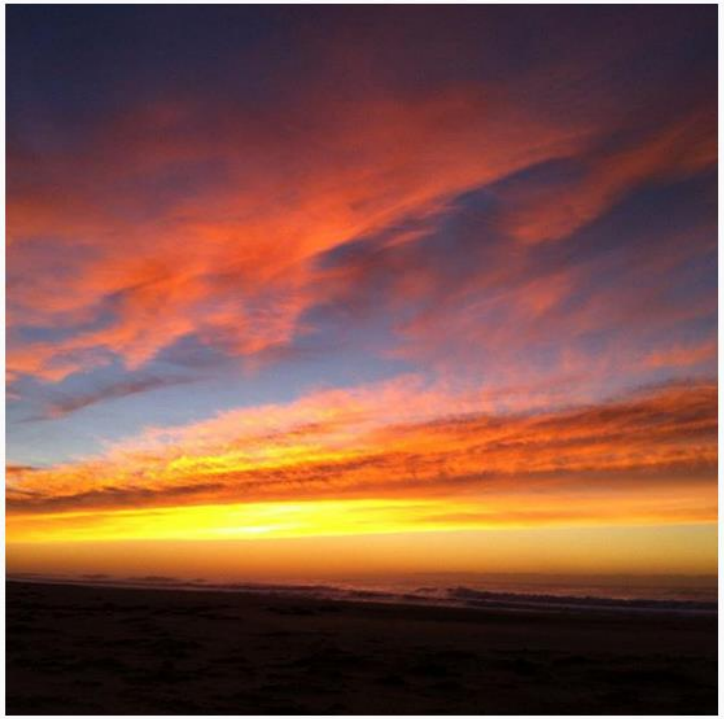
beautifulbird33

Edit Profile

Marika I'm a young photographer. Just starting on social media. Follow me for outstanding seasonal photos. For now: White and Cold; Gloomy and Sparkling.

8 posts **8,054** followers **72** following

POSTS TAGGED



beautifulbird33 Edit Profile

11 posts **442** followers **990** following

Marika

I'm a young photographer. Just starting on social media. Follow me for outstanding seasonal photos.

For now: Summertime! but still quite cold..

POSTS IGTV SAVED TAGGED

Thank you! Questions?

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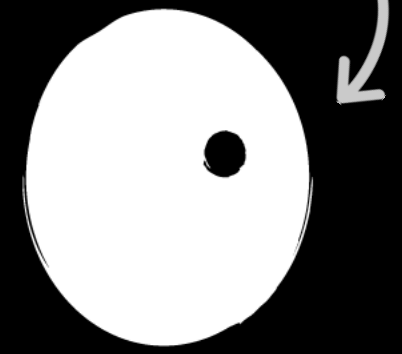
Artwork



jeremie@tunghat.ca

https://gosecure.net/blog/

https://nsec.io/