

Criminal Abuse in RIPE IP space

October 18th, 2018, Amsterdam

Dhia Mahjoub, PhD., Head of Security R&D, Cisco Umbrella

Anti-Abuse WG



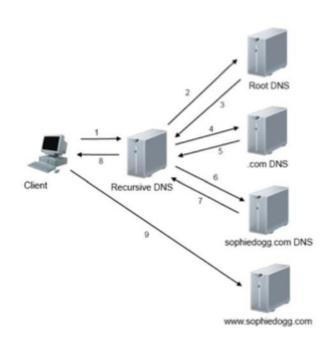
Who am I?

- * @DhiaLite
- * Head of Security R&D at Cisco Umbrella
- * 15+ years experience in network security, network traffic analysis
- * PhD in graph algorithms applied on sensor networks problems
- * Regular speaker at Black Hat, Defcon, Flocon, Virus Bulletin, NCSC One Conference, FIRST, TF-CSIRT
- Collaboration with LEAs



Worldwide DNS data

- 30 data centers worldwide, 11 in Europe
- ~150 billion queries a day
- Translates to around 24 TB a day
- Valuable client query information

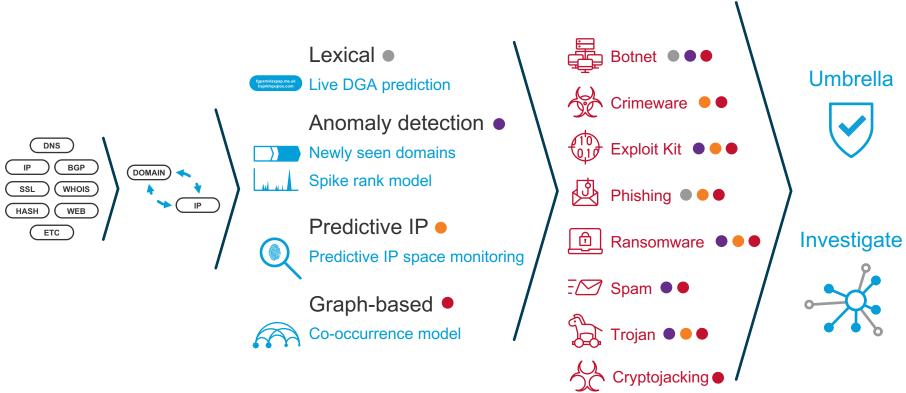


Data center locations



Threat detection at scale

Meta-data pattern analysis at scale



Cyber-crime attacks

IP space

Rogue outgoing traffic

- SSH/wordpress brute-forcing
- Mass scans
- DDoS attacks
- Spam sending







Toxic hosted content



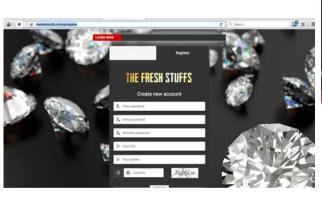
- Malware C2
- Ransomware
- Phishing
- Cybercrime forums
- Stolen credentials marketplaces
- Criminal exchange services
- Criminal jabber servers

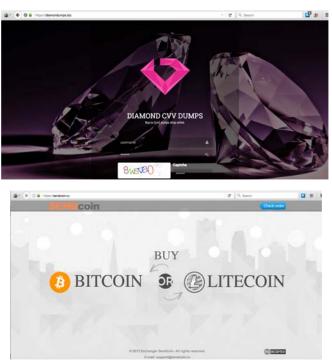






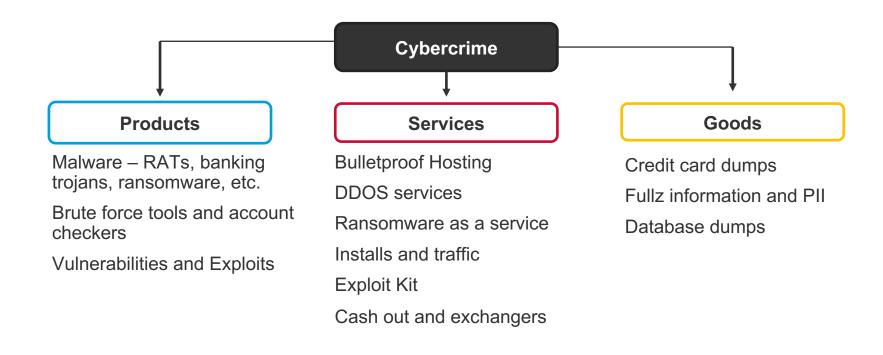




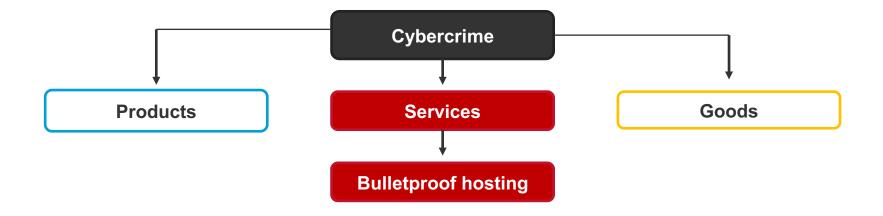




Cybercrime Ecosystem



Bulletproof Hosting

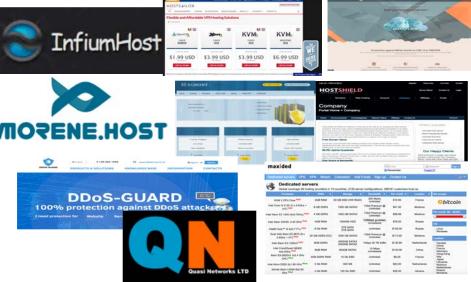


Bulletproof hosting provider (BPH)

A criminal hosting provider who shields their customers from abuse complaints and take down action.

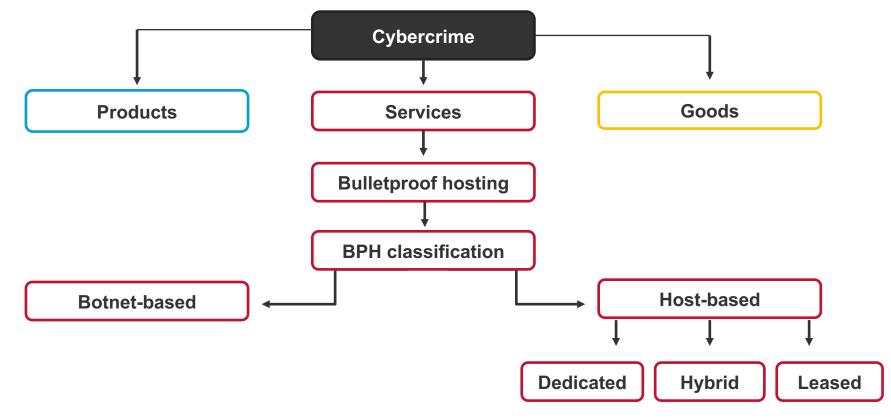
Spectrum of Hosting Providers





Good Abused Bulletproof

A Taxonomy of BulletProof Hosting



Bulletproof Hosting business model

Dedicated hoster recipe

Low barrier of entry (Approx <\$2K)

- 1. Register business offshore
- 2. Register own ASN and lease IP space
- 3. Setup website(s) or stay underground
- 4. Drive customers forums (open, closed), social media
- 5. Generate revenue through hosting or sending traffic
- 7. Handle abuse
- 8. Shut down, move elsewhere, repeat

Dedicated BPH technical features

Leaf ASN

Offshore business registration



Anonymous payment methods



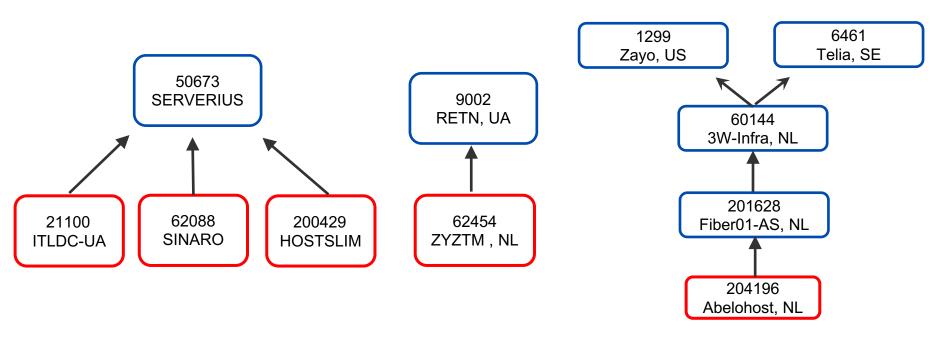


Small IP range

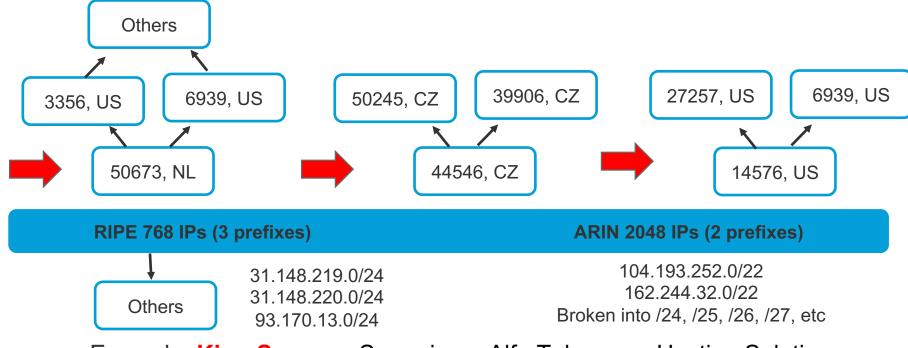
Toxic hosted content or outgoing traffic

Leaf (Stub) ASN or leaf ASNs chain

- Have only upstream peers, no downstream
- Frequent pattern for questionable/bulletproof hosters

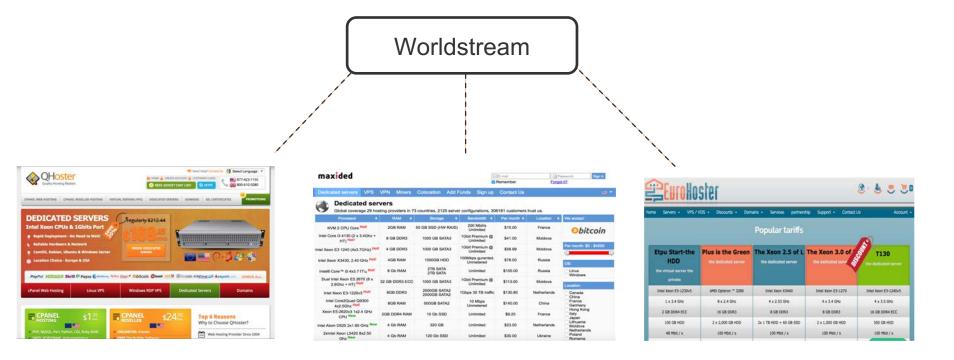


1 hosting provider spreading footprint on multiple ASNs



Example: King Servers: Serverius - Alfa Telecom - Hosting Solutions

Resellers: 1 ASN used by multiple hosting providers



Dedicated BPH technical features

Leaf ASN

Offshore business registration



Anonymous payment methods





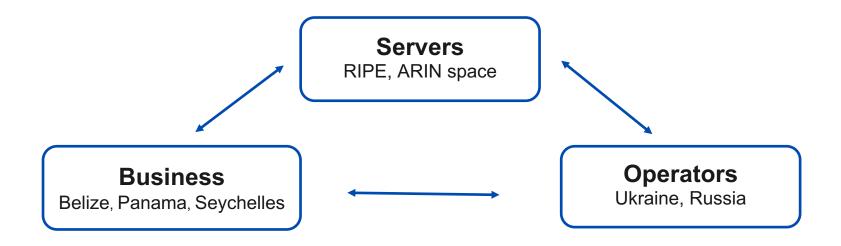
Small IP range

Toxic hosted content or outgoing traffic

Register Business in Offshore Jurisdictions

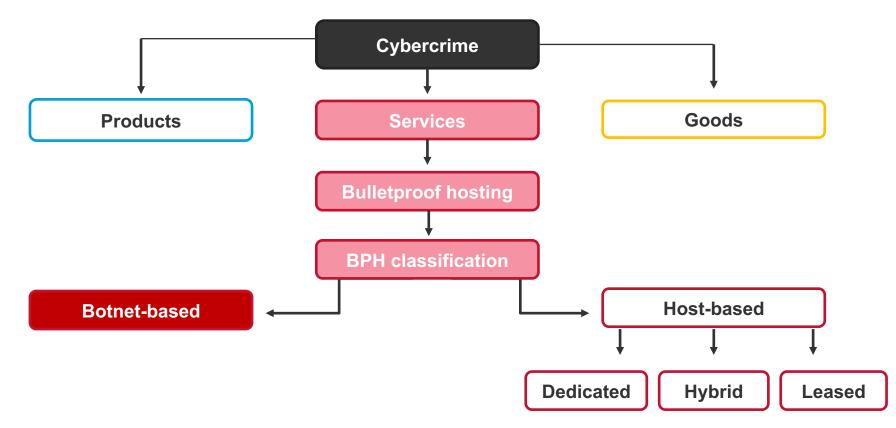


Multiple Layers of Resistance



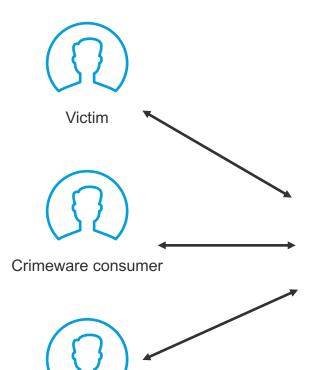
Example BPH operations

Botnet-based BPH



ZBot Fast Flux BPH Operation

Covered at Black Hat 2014, Botconf 2014, Defcon 2017



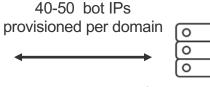
Researcher

Actor(s) grow and maintain FF network
*FF service offered in underground forums



Zbot Fast Flux Proxy Network aka Fluxxy, Darkcloud

Botnet comprised at its peaks of 30-40K compromised residential IPs, mainly in UA, RU



Criminal customer's site origin IP

000

Toxic content delivered

Short lifetime: malware, ransomware

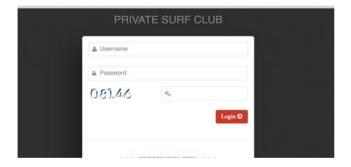
Medium lifetime: phishing

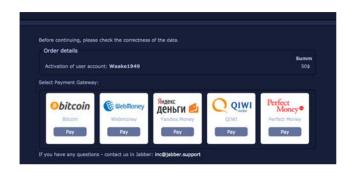
Long lifetime: carding, cybercrime forums

Threats delivered by ZBot Fast Flux proxy network

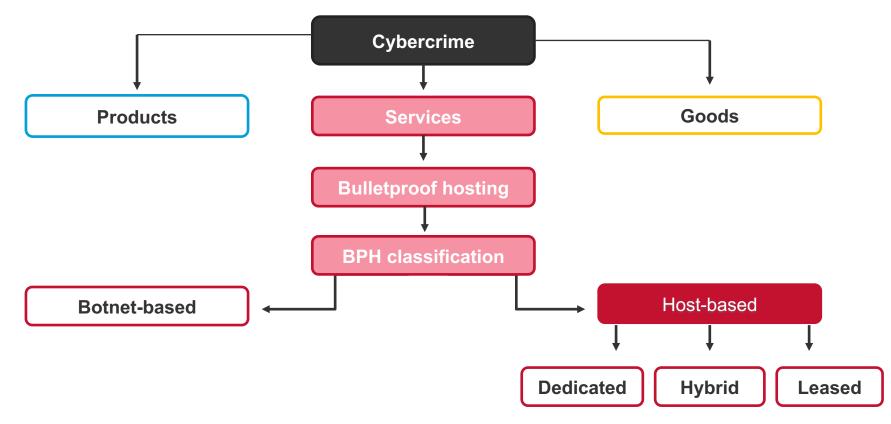






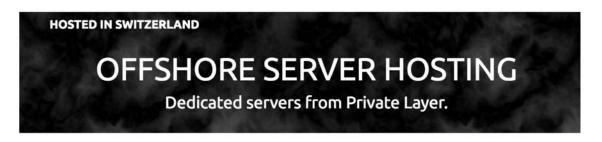


Host-based BPH



Abuse in Swiss space

Custom Solutions



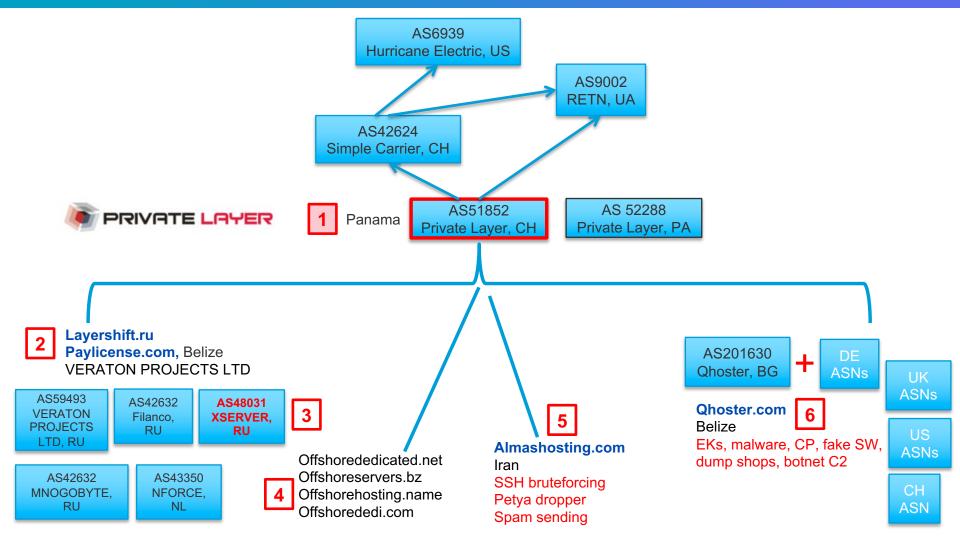
OFFSHORE DEDICATED SERVERS

Key Advantages

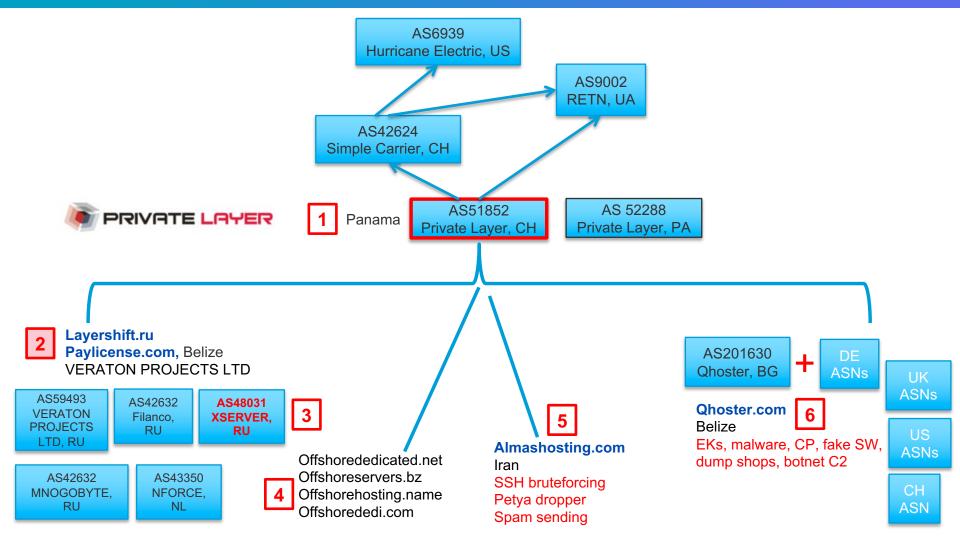


Select And Configure Your Offshore Server

Processor/s	Physical Memory	Hard Drives	Bandwidth Transfer	Price / Per Month	
Intel Xeon Westmere 5620	8 GB DDR3	1.00TB SATA	10 TB Premium	\$229.00	Configure



- Offers anonymous offshore hosting on shared hosting, VPS and dedicated servers
- IP space split between hosting companies operating from Panama, Switzerland, Belize, Russia, Iran





Domains Hosting Software Licenses

g VPS OpenVZ About us VPS KVM Dedicated

Data center Multibyte (Russia, Moscow)



A company with 9 years of experience in the market of Internet providers and data center operators. It has its own optical network in Moscow and direct connection to all major Russian telecommunications operators.



Data Center Filanco-Datahouse (Ukraine, Kiev)

Data center launched by the group of companies "Filanko" within the framework of the DataHouse.ua project in 2012. An international traffic exchange point is deployed on the site, which ensures fast operation speed with the Russian and European segments.



Data Center ITL (Ukraine, Kharkov)

ITL Group is an international group of companies united under one brand. The main activity of the ITLDC division is the provision of colocation services, lease of dedicated servers and provision of VDS-hosting services.



Data Center Dataplace (Netherlands, Rotterdam)

The date center of Dataplace was developed in 2009. In 2010, has already accepted the first customers. It has all modern security systems, cooling and huge capacities.



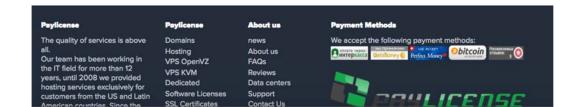
The data center of Equinix (Switzerland, Zurich)

The company was founded in 1998. The date center in Zurich has a platform of more than 28 thousand square meters. The data center is certified by ISO9001; 2008 and ISO27001; 2005. Peering with more than 70 Internet providers.



Data Center Parsonline (Iran, Tehran)

The biggest date is the center in Iran. The technical site is more than 6,5 thousand square meters. Modern equipment, air conditioning and uninterruptible power supplies.



organisation: ORG-VPL3-RIPE
org-name: VERATON PROJECTS LTD
org-type: OTHER

address: City Belize
address: 1 mapp street
address: P.O.Box: 0000

address: Belize

address: Central America
phone: +5 078 8336509
fax-no: +5 078 8336509
abuse-c: AR18973-RIPE

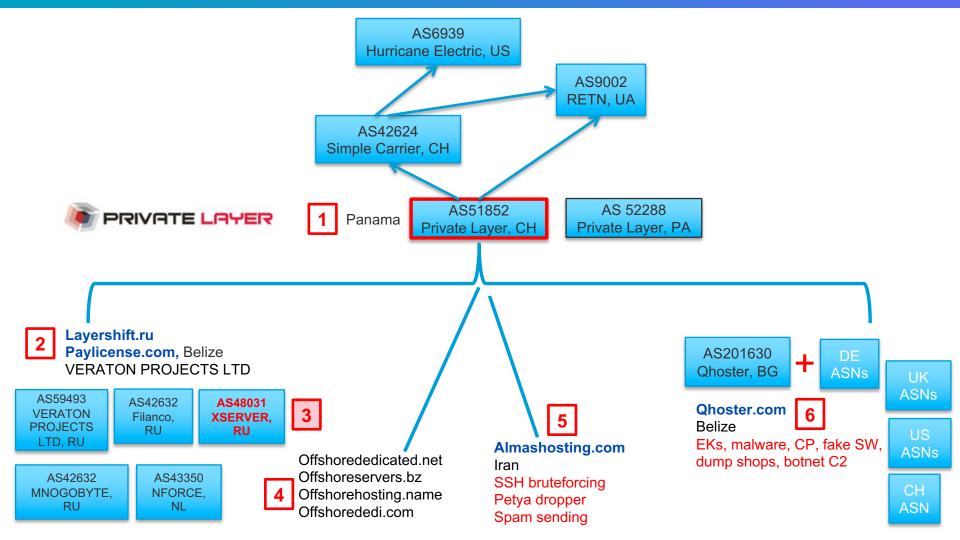
admin-c: DVVP-RIPE

tech-c: DVVP-RIPE
mnt-ref: MNT-PINSUPPORT

created: 2010-05-12T20:22:57Z last-modified: 2017-10-30T14:53:09Z

source: RIPE# Filtered

Login to update







O- ENTRANCE



CAUTION Grace dollar

For all our customers a constant discount rate of the dollar:

\$1 = 20 USD.

\$ 1 = 50 rubles.

< >

VIRTUAL SERVER



DEDICATED SERVER





HIGH UPTIME!

We always strive to provide only quality services with high reliability

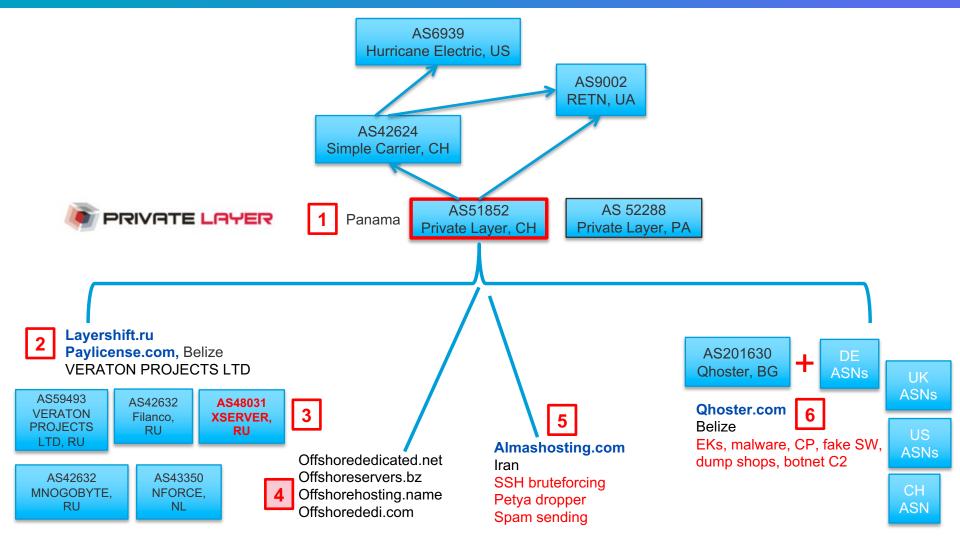


WE WORK OFFICIALLY!

We will give you all the necessary documents. If you do or do not want, we will refund you money

Send us a message

iivosite



ROOT SERVER

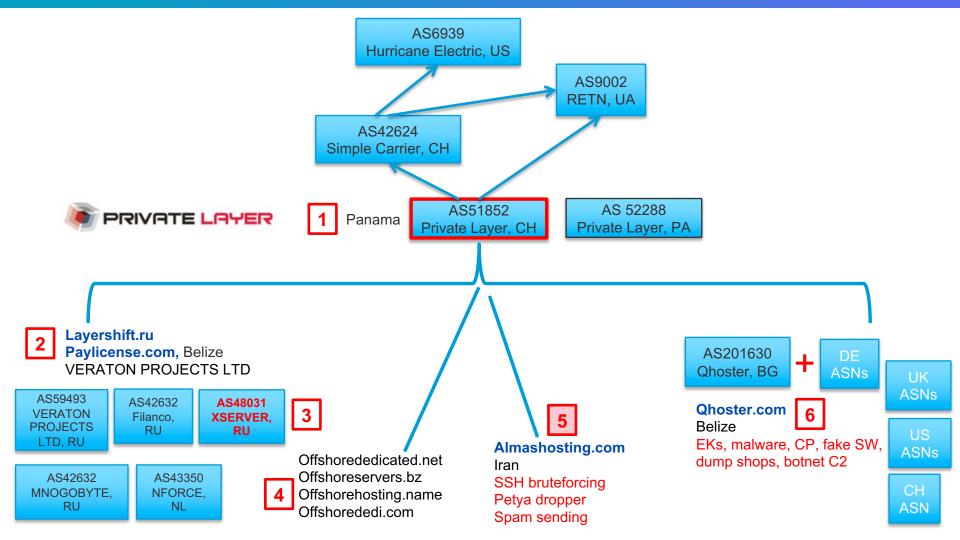
Privacy Protected Offshore Dedicated Servers To Satisfy Your Highest Needs.

VIEW PLANS











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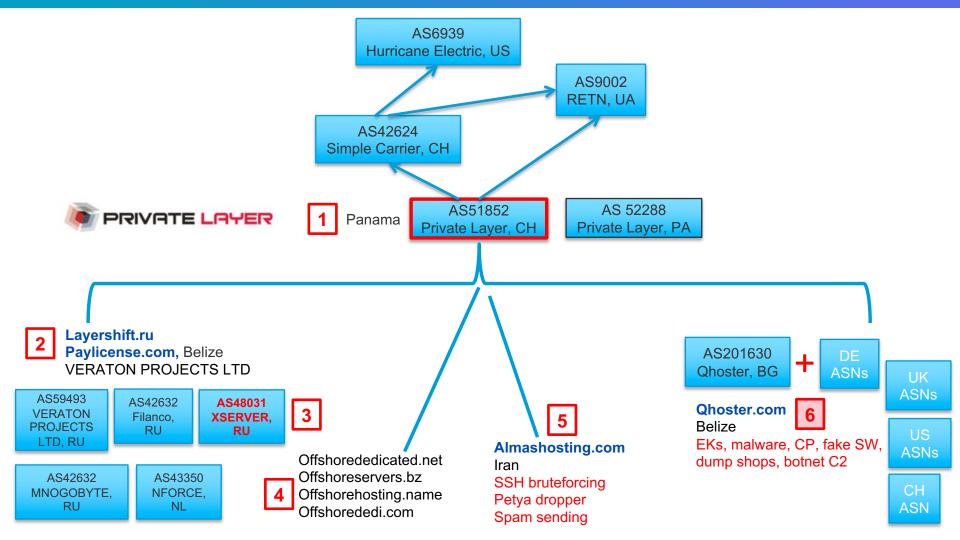




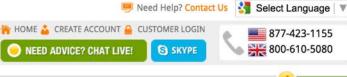


صفحہ اصلی









CPANEL WEB HOSTING

CPANEL RESELLER HOSTING

VIRTUAL SERVERS (VPS)

DEDICATED SERVERS

DOMAINS

SSL CERTIFICATES

PROMOTIONS



- Rapid Deployment No Need to Wait!
- **Reliable Hardware & Network**
- CentOS, Debian, Ubuntu & Windows Server
- **Location Choice Europe & USA**

Regularly \$212.44

ORDER DEDICATED **SERVER**



PayPal NETELLER Skrill Payza @ Webmoney Perfect Money Obitcoin Okash CashU @ Itacoin SchidTrust A paysafe Card















cPanel Web Hosting

Linux VPS

Windows RDP VPS

Dedicated Servers

Domains



PHP, MySQL, Perl, Python, CGI, Ruby (RoR)

SMTP POP3/IMAP Anti-snam/virus





UNLIMITED cPanels

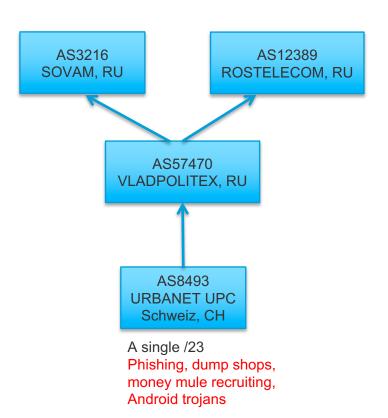
FRFF Site Builder Software

Top 6 Reasons

Why to Choose QHoster?



Web Hosting Provider Since 2004



un service de cablecom

Home

News Produits

Support

Contact

Services

Contact

Service après-vente (SAV)

c/o Cablecom Rue de Galilée 2

CH-1400 Yverdon-les-bains Hotline: 0844 844 770 Fax: 024 423 36 01 Email: info@urbanet.ch

URL: http://www.urbanet.ch RDV pour mises en service, changement d'abonnement, résiliation, déménagement, dépannage modem, dérangement réseau pour notre clientèle

privée.

Le SAV est ouvert du lundi au vendredi de 8h 00 à 17h 00

Helpdesk Clients réseaux SEIC & TRN

Hotline: 0900 900 770 URL: http://www.urbanet.ch

Communes concernées : Luins ; Vinzel; Gland; Prangins; Nyon; Crassier; Duillier; Coinsins; Vich; Begnins; Trélex; Genolier; Grens; Signy; Chéserex; Gingins; Arnex; Borex; Commugny; Tannay; Coppet; Founex; Crans

Le helpdesk est ouvert du lundi au vendredi de 8h 30 à 19h 30 (gratuit)

Support Clients réseau TVT Services SA

Hotline: 021 631 51 20

URL: http://www.tvtservices.ch

Communes concernées: 1020 Renens; 1022 Chavannes-Près-Renens; 1023

Crissier; 1024 Crissier.

Contact

Administration

Support Client

last carding service



usa dumps. local states

ICQ 2238395 - NEW ICQ

JABBER lastcarding@jabbim.cz email lastcarding@safe-mail.net

Attention! ICQ 2238456 was HACKED and STOLEN
Be careful and use new contacts! Click here for info

News Main page

Rules & Service Policy USA Dumps Tips Tutorial Software

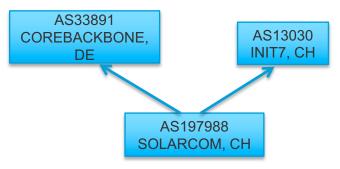
Chip EMU Software 2016 Click here for info Write 201,221 code track2 on chip, works worldwide

Last Carding News

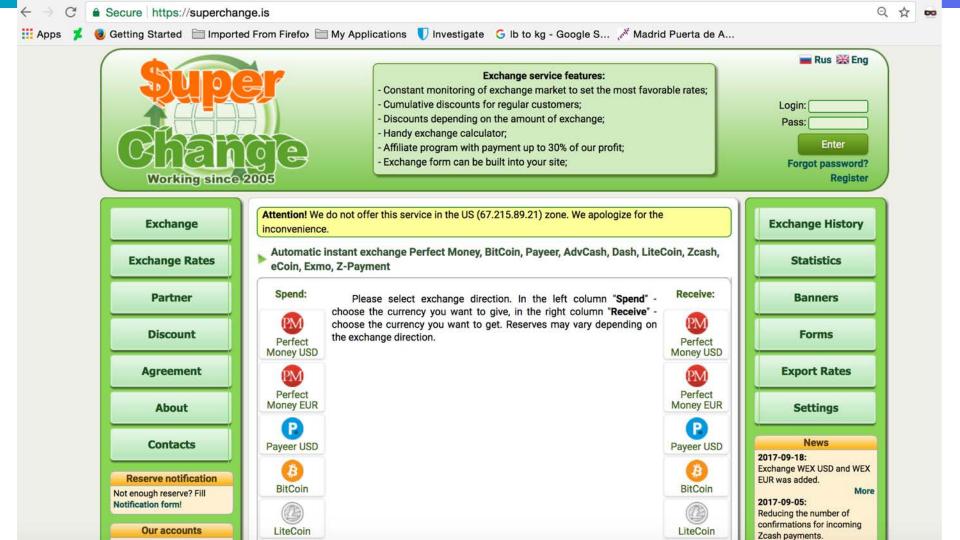
02 October 2017 ultrafresh base update

HUGE MEGA UPDATE: AZ,CA,CO,CT,DC,FL GA,HI,ID,IL,IN,KY,MA,MD,MI,MS,NC ND,NJ,NV,NY,OK,OR,SC,TX,VA,WA,WI,WY

18 September 2017 ultrafresh base update



Illegal video streaming, pharma, fake merchandise, exchange services (PM-bitcoin), bitcoin mining, bitcoin based gambling, freedom of speech: free snowden, justice for assange, wikileaks



Abuse in Dutch space

Hostzealot - Fortunix



CERTIFICATE OF REGISTRATION OF A LIMITED PARTNERSHIP

Partnership No. 10336

I hereby certify that the firm

FORTUNIX NETWORKS L.P.

having lodged a statement of particulars pursuant to section 8 of the Limited Partnership Act 1907, is this day registered as a limited partnership

Given at Companies House, Edinburgh, the 7th March 2012.

Bulgarian hoster with UK business registration; address used by officers featured in the Panama papers/offshore leaks

Suite 1 78 Montgomery Street, Edinburgh, Scotland, EH7 5JA

Fortunix Networks

Customized Dedicated Server, Clustering & Co-location solutions in Europe, North America and Asia.

email: info@fortunix.net

Image phone: 1.888.9325681

the DBA: hostzealot.com



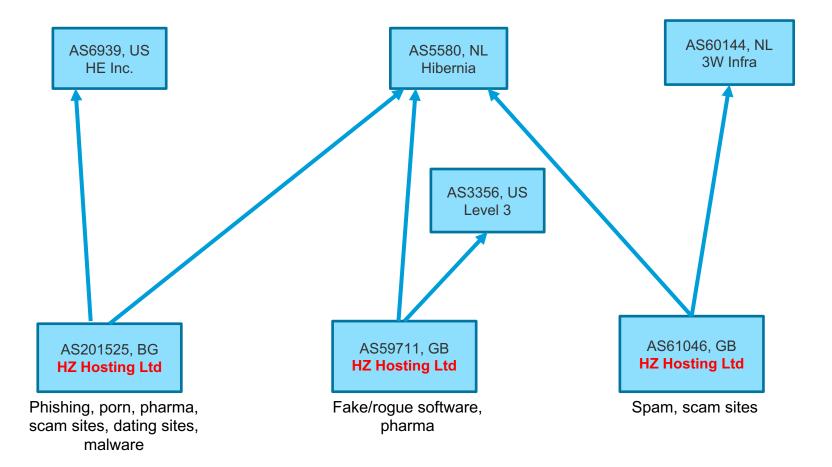
dedicated servers

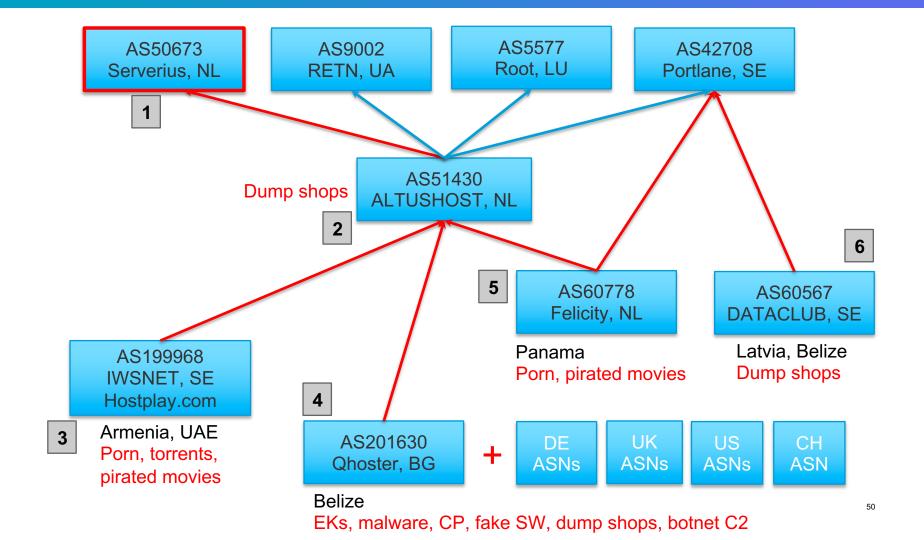


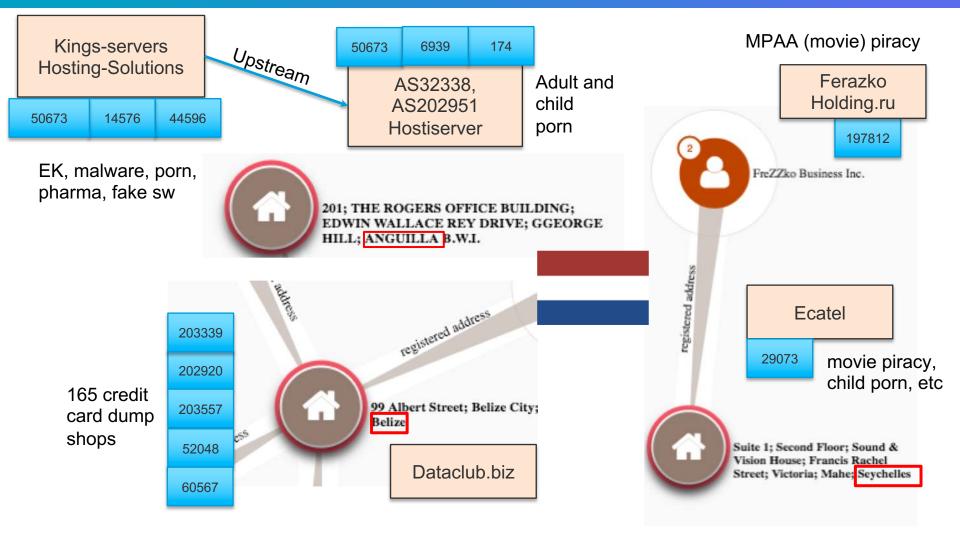
single-processor servers

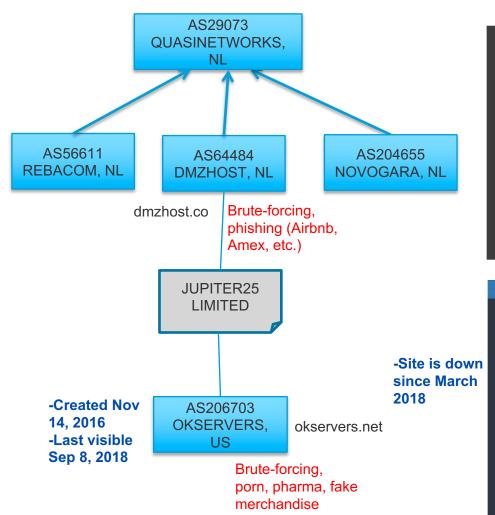
СРИ	Frequency	RAM	Disk	traffic	Price	
Intel Atom C2750	8x2.4 GHz	4GB	250 GB	5TB	\$ 59 / month	BUY
Intel Core i3-series	2x3.5 Ghz	8GB	500 GB	10 TB	\$ 89 / month	BUY
Intel Xeon E3-1230v2	4x3.3 GHz	8GB	500 GB	10 TB	\$ 99 / month online	RUY

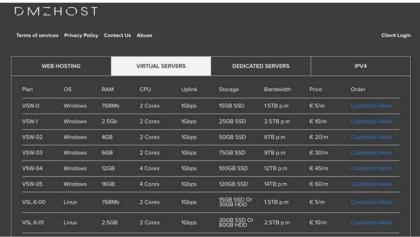
Hostzealot infrastructure

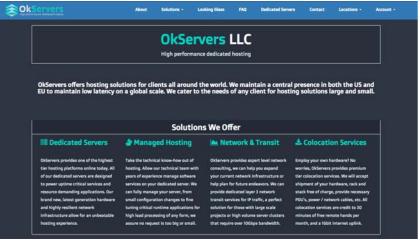


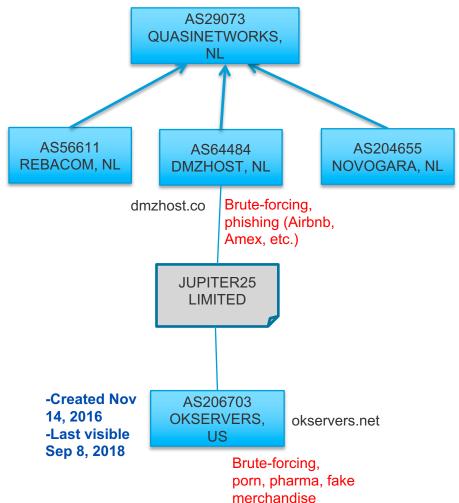


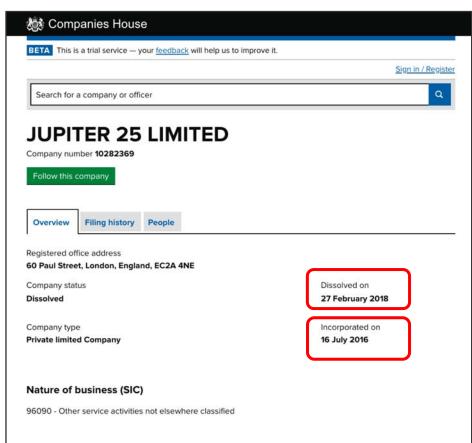


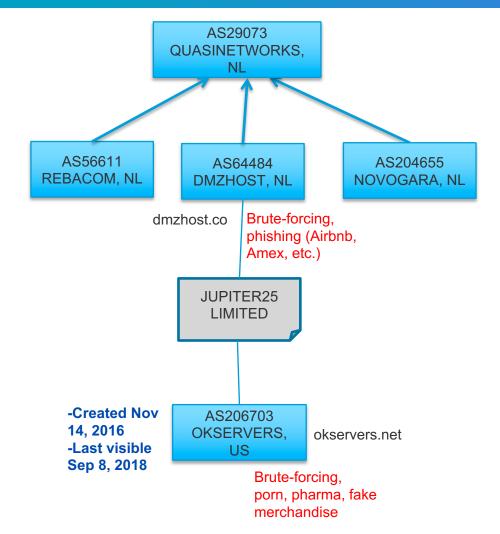


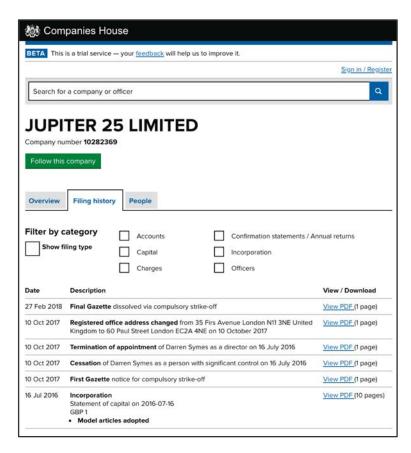


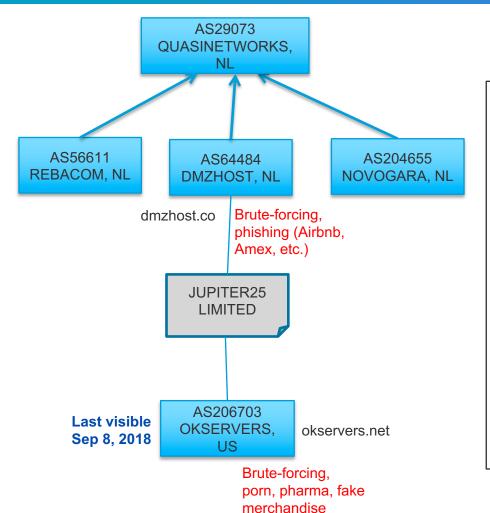


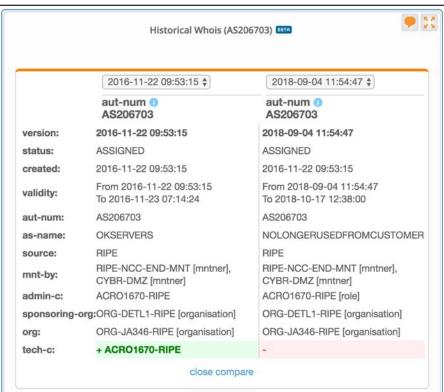






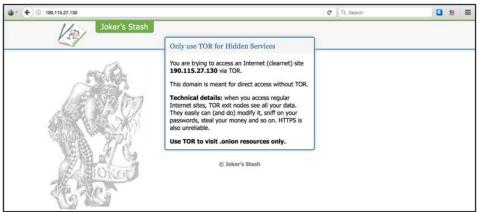






Top carding and cybercrime forums

Top carding site: Joker's stash





Top carding site: Joker's stash

•All Joker's stash domains have been on RIPE IP space + some Iranian hosters

•190.115.27.130: Banner on port 443/tcp on 190.115.27.130: [ssl] cipher:0xc013, jstash03.link, jstash-bazar.link, jstash-bazar.store, jstash03.link, jstashbazar.link, www.jstash-bazar.store, www.jstash03.link, www.jstashbazar.link

•190.115.27.130 is on AS262254, Dancom LTD, registered in Belize, but part of the DDOS-

GUARD, RU operation







Top carding site: Joker's stash

Other hosters used by Joker's stash domains:

- •INFIUM, UA (AS50297)
- •DOTSI, PT (AS49349) a.k.a BlazingFast
- •SINARO, NL (AS62088), a.k.a Morehost

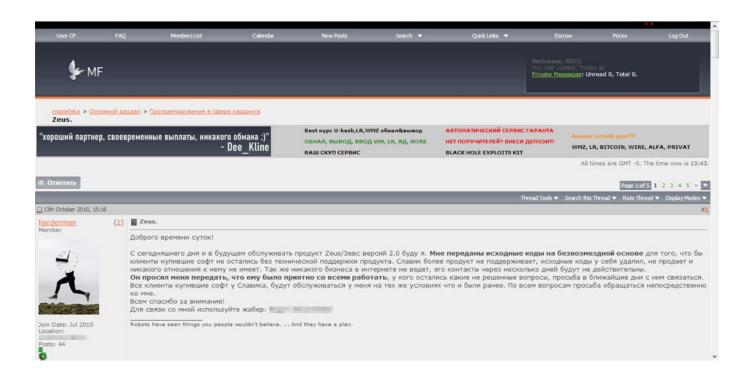
All three have regularly been involved in hosting toxic content: abused or complicit ??







Top cybercrime forum:maza



Top cybercrime forum:maza

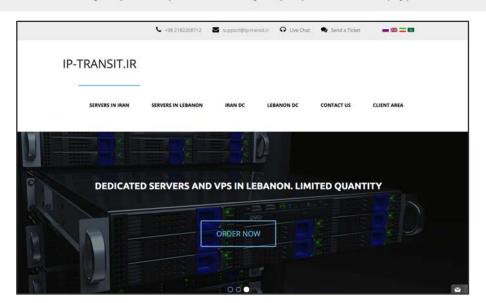
- Maza domains used RIPE IP space + currently on Iranian BPH hoster
- Current IP has also hosted Joker's stash domains and their jabber server

Known domains hosted by 193.142.30.30

maza.cc mfbook.in mfclub.ws mfshop.me xmpp.jclub.pw privetarnold.net www.jclub.pw www.privetarnold.com jclub.pw privetarnold.com pay.privetarnold.net

AS59580 BATTERFLYAIMEDIA, IR

AbdAllah (aka Mykhailo Rytikov, Webhost, Whost



Operational Recommendations

- 1. Understand and expose TTPs of rogue/gray hosting providers
- 2. Share intel with security community/LE, monitor and take early action
- 3. Ask registries to scrutinize ASN and IP space requests more closely?
- 4. Work on whois policies with RIPE
- 5. Datacenters scrutinize peering or co-location requests?

Some related Work

- Hack in the Box, Amsterdam 2018 https://conference.hitb.org/hitbsecconf2018ams/sessions/commsec-privacy-and-protection-for-criminals-behaviors-and-patterns-of-rogue-hosting-providers/
- SANS CTI Summit 2018 https://www.youtube.com/watch?v=gHewB06Bnrk
- FIRST/OASIS Borderless Cyber Conference and Technical Symposium 2017 https://www.oasis-open.org.events/files/Borderless Cyber 2017%20final Dec7 2017.pdf
- Virus Bulletin 2017 https://www.virusbulletin.com/blog/2017/11/vb2017-paper-beyond-lexical-and-pdns-using-signals-graphs-uncover-online-threats-scale/
- •Defcon 2017 https://www.youtube.com/watch?v=AbJCOVLQbjs
- •Black Hat 2017 https://www.youtube.com/watch?v=PGTTRN6Vs-Y&feature=youtu.be
- ■NCSC One Conference 2017
- Black Hat 2016 https://www.youtube.com/watch?v=m9yqnwuqdSk
- •RSA 2016 https://www.rsaconference.com/events/us16/agenda/sessions/2336/using-large-scale-data-to-provide-attacker
- BruCon 2015 https://www.youtube.com/watch?v=8edBgoHXnwg
- Virus Bulletin 2014 https://www.virusbtn.com/conference/vb2014/abstracts/Mahjoub.xml
- •Black Hat 2014 https://www.youtube.com/watch?v=UG4ZUaWDXS

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Thank you

Thanks

Atheana Altayyar Intel471 Sarah Brown