

Bridging Divides, Transcending Borders

The Current State of the English Underground

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For Raimund Genes (1963-2017)

Multiculturality and Linguistic Diversity

The English-speaking cybercriminal underground has been a major issue for cybersecurity professionals and law enforcement agencies worldwide. These forums – which we define as those with more than 50% of content in English and are listed in Link Base (a website that lists hacking and security forums by language) – have historically served as hubs for trading illegal goods and services, including stolen credit card information, hacking tools, and services. Over the last decade, technological advancements and law enforcement actions have reshaped this ecosystem, though pricing remains similar to 2015.

Drugs are no longer offered in these forums, unlike in 2015. Access-as-a-service now accounts for 50% of the threads, while crimeware remains 15%. CAV tools are scarcer.

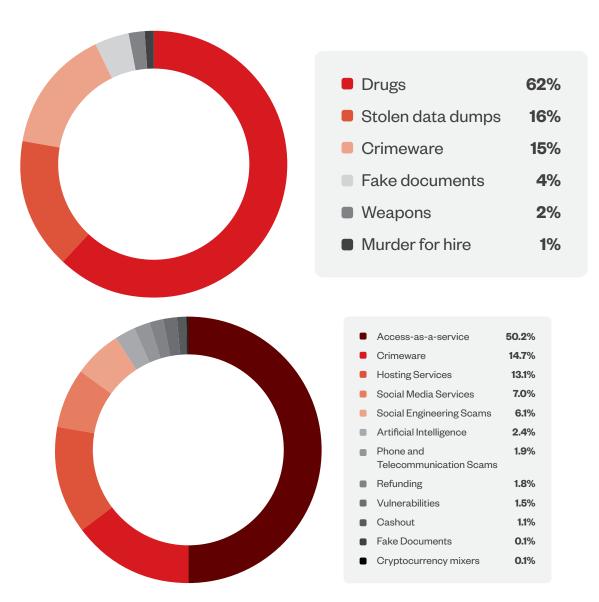


Figure 1. Distribution of products and services in the North American underground in 2015 (top) and in 2024 (bottom)

While English-language forums remain critical to this ecosystem, there is a growing trend of overlap and convergence with other languages and cultures – a clear shift compared with 2015. A key driver is the strategic efforts of law enforcement.

Coordinated international operations have dismantled many prominent English-speaking forums, forcing cybercriminals to migrate to jurisdictions with more lenient cybercrime regulations. These jurisdictions often host multilingual forums, encouraging a convergence of cybercriminals from diverse linguistic backgrounds.

This trend is driven not just by legal pressure but by the global nature of cybercrime. Cybercriminals seek environments that provide anonymity and protection from prosecution, leading to forums once dominated by Russian speakers to become melting pots for cybercriminals worldwide.

One notable trend since our 2015 report is the use of Telegram. In the past, English-based forums would disclose detailed service descriptions and pricing. Now, many advertisements ask buyers to join Telegram channels for transactions, offering more secure communication without revealing Bitcoin addresses, emails, or Jabber IDs that could be used to identify the seller. Despite the arrest of Telegram's CEO, most users believe the new rules won't affect them. Alternatives like Signal have been mentioned, but we have not seen widespread adoption.

New Trends Observed in Dark Web Marketplaces

According to the 2024 World Cybercrime Index (WCI), Russia, Ukraine, and China are the top countries where cybercrime originates, followed by the US, Nigeria, the UK, India, Romania, North Korea, and Brazil.

A metric used in WCI, the Technicality score (T-score), measures cybercriminal skill levels based on the top 15 countries. Russian and Ukrainian cybercriminals lead in technical expertise, whereas those in Nigeria engage in less technical forms of cybercrime. These findings mirror our own, showing that the English-speaking underground is not as technical as its Russian counterpart in threats like ransomware and exploits.



Figure 2. Top countries by cybercrime threat level according to the WCI report

Source: Pippa Havenhand, University of Oxford

In the past, new marketplaces emerged to replace those shut down by law enforcement. However, as of this report, we define marketplaces as places that offer mostly illegal products and services in exchange for payment with the use of TOR. and following the closure of Hydra Marketplace and Nemesis as well as Incognito's exit scam, there is no dominant marketplace.

A dark web market operates as a black market for illegal goods and services, such as drugs, weapons, counterfeit currency, stolen credit card details. Hydra Market, the largest and oldest darknet marketplace, was shut down by German authorities in 2022. In March 2024, they also dismantled Nemesis along with its digital infrastructure.

During the same time, Incognito's administrators executed an exit scam. They revealed that the messages were never encrypted and demanded payment from users to prevent the publication of all 557,000 orders and 862,000 cryptocurrency transaction IDs. The extortion fee was determined by the vendor's status level within the marketplace. Level 1 vendors were required to pay US\$100, while level 5 vendors faced a payment of up to US\$20,000. The admins were later arrested in May 2024.



Figure 3. The message left by the Incognito admins to their users

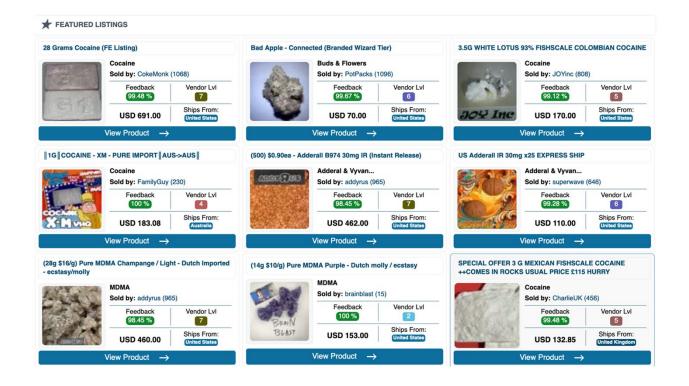
In 2015, popular marketplaces sold ATM malware, keyloggers, stolen account sales, and other kinds of malware. Now, English-speaking marketplaces primary deal with illicit drugs. Stolen accounts (e.g., streaming services, VPNs, cards) are priced similarly to those on non-Tor sites, rendering dark web marketplaces less advantageous except for drugs. The sale of weapons was common in 2015, but we found no listing in our research. The sale of drugs is a concern as it has significantly grown, with 2022 sales reportedly exceeding US\$470 million.²

Law enforcement has taken steps, including an international crackdown in 2021 that led to the arrest of 150 individuals and the seizure of over US\$31 million in assets. Despite these efforts, dark web marketplaces continue to adapt, reappearing under new names or migrating to different platforms, posing ongoing challenges for authorities.³

Another trend observed is complex CAPTCHAs on many marketplaces. CAPTCHA helps prevent bots, spam, and crawlers from accessing the site. The types of CAPTCHA vary, including geometric puzzles and image recognition. Some, like on the Torzon marketplace and Dread forum, use a circle that moves to different characters as more information is entered. Some websites request users to fill in characters, with highlighted characters based on the correct URL of the site. If the user encounters the wrong mirror or site, the CAPTCHA cannot be completed, preventing the user from entering a scam or copycat site.



Figure 4. Examples of CAPTCHA employed by dark web marketplaces



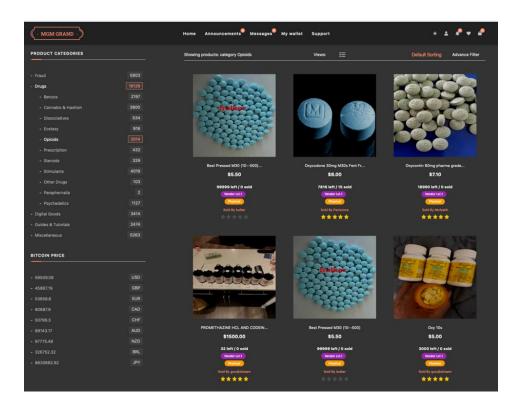


Figure 5. Examples of products sold in the Abacus (top) and MG (bottom) marketplaces

These are some of the popular sites we researched:

- **Abacus Market:** Established in 2021, it features such as Drugs & Chemicals Counterfeit Items, Digital Products Fraud, Guides & Tutorials, Jewels & Gold, Carded Items, Services, Software & Malware, and Security & Hosting. Drugs dominate the site, with all featured listings related to drugs.
- **TorZon:** Launched in September 2022 as an English Marketplace, it includes sections such as Drugs (Psychedelics, Stimulants THC), Fraud, Hacking, Digital Goods Counterfeits, Carding Ware, Services, Guides & Tutorials, Security & Hosting, and Software & Malware.
- MGM Grand: Launched in April 2021, it is the first dark web market with a mobile-friendly interface, making it easier for buyers to access it from mobile devices. It primarily sells drugs like antidepressants, tranquilizers, benzodiazepines, research chemicals, marijuana, and MDMA. It also features some digital goods, guides/tutorials, and leaked data. Listings on MGM Grand Market span various categories, including Fraud, Drugs, Digital Goods, and Guides & Tutorials.

Services Offered in Underground Forums

Phone and text scams

In 2015, phone scams were not prevalent but has since become popular as phone usage⁴ increased worldwide, with 8.58 billion mobile subscriptions in use in 2022. Telecom providers do not usually block text messaging, and most people do not have any SMS text filtering software on their mobile device. According to Robokiller, 9.2 billion spam texts were sent in July 2024 in the US alone.^{5,6}

Text message services

SMS services include bulk messaging, one-time password assistance, and disposable numbers. Cybercriminals often use disposable numbers for various activities because they can register accounts without worrying about being traced. These types of services help circumvent the SMS verification mechanisms widely used by online platforms to authenticate new accounts. Mobile phone numbers can be provided for one-time use or monthly rentals, with numbers available from many different countries. One-time passwords/activations via SMS range from US\$20 to US\$300 per year, depending on the country.

We also saw services for SMS spoofing, which works by manipulating the sender ID of a text message to make it appear as if it was sent from a different phone number. This can be done using various online services that allow users to send text messages with a fake sender ID. Prices for bulk messaging varied by country but mostly started as low as US\$0.01 per text but it can be pricey if sending thousands per day.

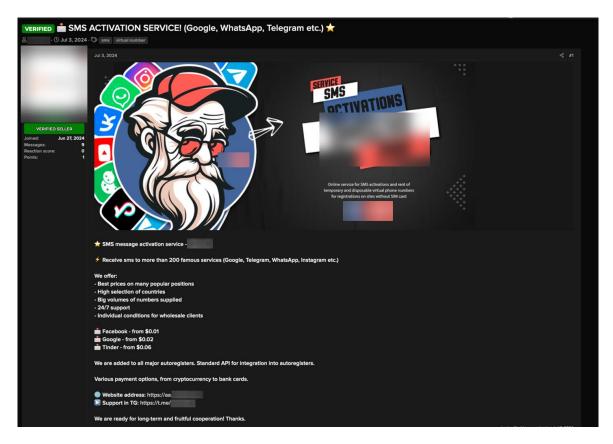


Figure 6. Advertisement from BlackBones offering SMS verification services

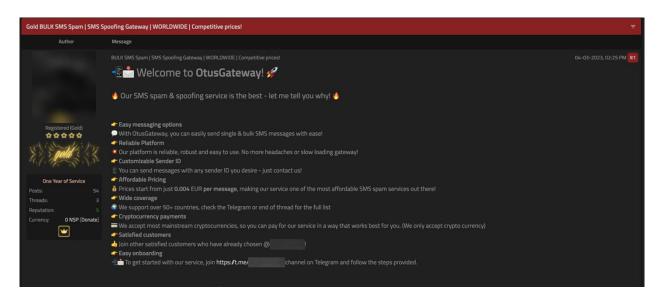


Figure 7. Spam and spoofing services advertised on Sinisterly, with prices starting at €0.004 per message

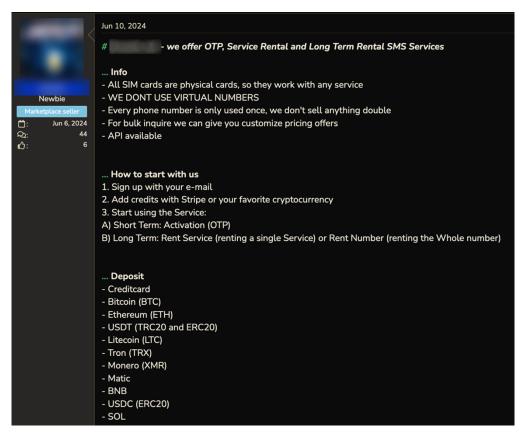


Figure 8. Advertisement on Black Hat World offering monthly SMS rentals for long-term use

iPhone scams and iCloud unlocks

In our 2017 research⁷ about the tools used to break into iCloud accounts to unlock stolen iPhones, such services at the time were widely advertised on both the underground markets and social media platforms like X (formerly Twitter). By 2019, discussions about iCloud unlocking services in the cybercriminal underground peaked, with around 900 postings in a single year. However, the release of iOS 14 and iPadOS 14 on September 16, 2020, introduced security features that made it harder to unlock iCloud-locked phones. Since then, fewer than 500 discussions about "iCloud unlock" have surfaced.

While we found free tools offering unlocking services, they lacked reviews verifying their effectiveness. With Apple continuously improving security and reliable unlocking software becoming scarce, we have observed a rise in incidents where victims are forced to surrender their phones and passcodes before the thief flees. We do not expect iCloud unlocking tools to regain popularity any time soon.



Figure 9. Free iCloud unlock tool for iOS 12 and above, as advertised on the Nulled forum in 2024

Other Services Peddled in the Cybercriminal Underground

Access as a service

Our 2021 research⁸ explored the thriving business of access brokers, who sell leaked credentials or direct access to corporate systems to other criminals. For example, ransomware attackers no longer need to exploit vulnerabilities or send spam emails to gain initial access to the system. They can simply buy their way in.

Access brokers offer what we call "access as a service," which provide other malicious actors with a way into corporate networks for a price. This new underground marketplace creates a disconnect between an initial corporate breach and the subsequent attacks that follow days or even months later.

There are three main types of access brokers:

- · Opportunistic sellers focus on making a quick profit and do not spend all their time on gaining access.
- Dedicated brokers are sophisticated and skilled hackers who offer access to a range of different company networks. Their services are often used by smaller ransomware affiliates and groups.
- Online shops offer RDP and VPN credentials. They guarantee access to a single machine rather than an entire network or organization. However, they provide an automated way for cybercriminals with lower skills to purchase access. Users can search by location, ISP, operating system, port number, admin rights, or company name.

Prices vary depending on the type of access, e.g., single machine, entire network, the company's annual revenue, and the amount of additional work required by the buyer.

RaidForums and BreachedForums were notorious hacking and data leak forums known for hosting, leaking, and selling data stolen from breached organizations. RaidForums was seized by law enforcement authorities in 2022. However, listings offering copies of the RaidForums databases that were previously available for free on their site can still be found in the underground.

BreachForums was created to replace RaidForums. Before its shutdown, the website had over 340,000 members. BreachForums was shut down in May 2024 and has been relaunched twice since. The only dominant English-speaking underground forum with the same popularity and listings for stolen databases continues to be relaunches of BreachForums.

We found one leak site, leakbase.io, with around 76,000 registered users, offering free stolen databases, similar to how RaidForums functioned. However, to view the download links, users must purchase viewing credits or pay a fee starting at US\$300 for VIP access or US\$500 for access to the forums and a link to download a collection of 3TB of databases curated by the forum admins. We also found a site, Breachbase, which is a paid, searchable site for leaked databases with prices starting at US\$4.99 a month.

BreachForums and its relaunches' listings can be compared with the Russian underground forum Exploit. Access-as-a-service offerings can demand prices over US\$10,000 on both forums. For brokers that list prices, we found that access to billion-dollar revenue companies is sold for around US\$20,000 and up. Companies with revenue of US\$1 to US\$5 million were sold for under US\$1,000. Prices for companies with smaller revenues can reach thousands of dollars if the company is of high interest, such as those in countries experiencing war or civil unrest.

Sample Offering	Price
RaidForum databases	Free
RDPs	US\$8 and up (monthly)
Chemical manufacturer in Israel	US\$2000 (one-time fee)
A billion-dollar company in Australia	US\$20,000 (one-time fee)
A government agency in South Korea	US\$500 (one-time fee)
An electricity, oil, and gas production company	US\$20,000 (one-time fee)
Full network access to a Polish company	US\$2500 (one-time fee)
A telecommunications company in Taiwan	US\$2000 (one-time fee)
An architecture and planning, engineering and design, and construction company in the Netherlands	US\$600 (one-time fee)

Sample Offering	Price
A healthcare service company in Maryland, US	US\$600 (one-time fee)
omanian population data US\$50,000 (one-time	
58K lines of Uganda's top customs taxpayers US\$2000	
A holding and conglomerate company in the US	US\$3,000

Table 1. Sample pricing for access-as-a-service offerings

Some prices on BreachForums are like those on eBay where a person can place a minimum bid or pay the buy-it-now price. One example is a Romanian population database, with a minimum bid of US\$1,000 and a buy-it-now price of US\$50,000, paid in cryptocurrency. Sellers on the Russian forum Exploit also use a similar style of bidding for access-as-a-service offerings.



Figure 10. Free RaidForum copy of leaked databases from 2020

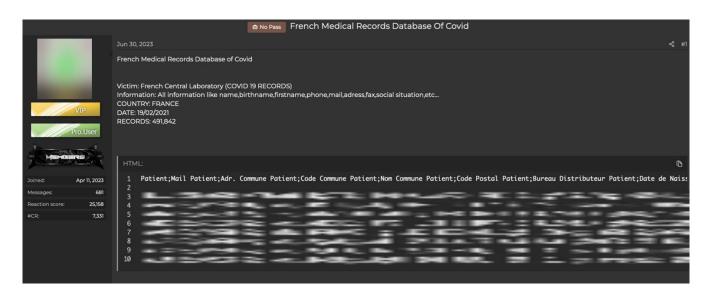


Figure 11: Sample Leakbase database offering of French medical records

In 2015, the average price of RDP access was between US\$10 and US\$25, depending on the target region, victim type, and access rights. The cost of accessing hacked site management portals (cPanel) ranged from US\$3 to US\$5. In 2024, these prices remained stable, with monthly plans starting at around US\$8. However, there has been a shift in the platforms where these sales occur. Previously, RDP sales were primarily found in dark web marketplaces. By 2024, these are now more commonly found in English underground forums, with many sellers creating their own shops.

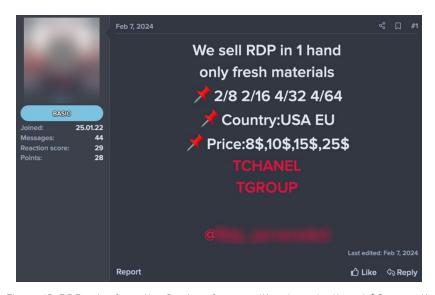


Figure 12. RDP sales from the Cardpro forum, with prices starting at \$8 a month

Al and GenAl offerings

The cybercriminal world is no stranger to AI and generative AI⁹ (GenAI), and over the past two years¹⁰, we have investigated¹¹ their abuse. Not much has changed since May 2024, but we also made notable findings.

Interest in GenAI in the underground has followed the public hype, as evidenced by new sections on underground forums dedicated to AI, such as the English hacking forums Hack Forums, which now has a section called "Dark AI," and Black Hat World, which has

the section, "AI - Artificial Intelligence in Digital Marketing". Malware developers tend to abuse ChatGPT to generate code snippets faster than they otherwise could. Based on our observation, they typically ask ChatGPT for certain functionalities. They would then incorporate AI-generated codes into malware or other components. As of now, we have not seen any GPT platform fully create a working malware code. In April 2024, researchers discovered phishing emails with a malware dropper whose code had clearly been generated by AI, as it contained a hashtag followed by hyperspecific comments about what the component achieved.¹²

Cybercriminals "jailbreak" ChatGPT to remove censorship limitations. ChatGPT and many other GPT tools are programmed with safeguards to prevent them from replying to illegal, harmful, and controversial topics. Some individuals in the underground community are focused on creating, finding, and sharing jailbroken versions of ChatGPT, both free and paid, that can bypass the chatbot's censorship limitations. ChatGPT supports many languages, which is an enormous advantage to spammers who need to create persuasive texts to fool as many victims as possible.

WormGPT was one of the most popular AI services that gained attention in 2023. It was first announced on Hack Forums in March 2023, with its goal of generating fast and stable replies, having unlimited characters, sidestepping censorship, and having a strong focus on privacy. The service was officially released to the public in June 2023 via a promotional post on Hack Forums. However, sales of the service came to a halt on August 8, 2023, due to excessive media exposure, which resulted in bad publicity. Since then, many threads have advertised WormGPT-like tools, with copycat versions being sold or claiming to develop a better WormGPT.

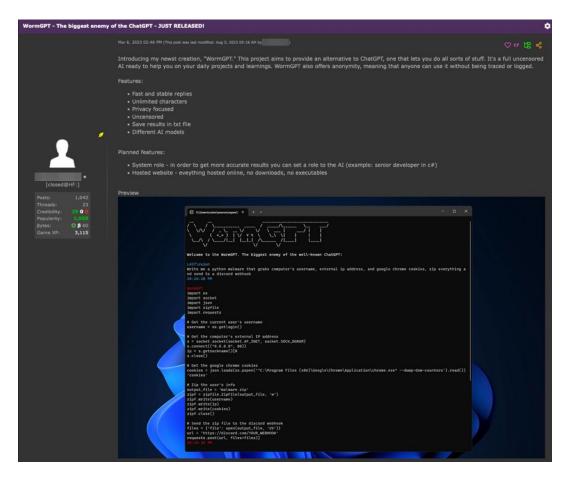


Figure 13. Original WormGPT advertisement on Hack Forums from a June 2024 posting

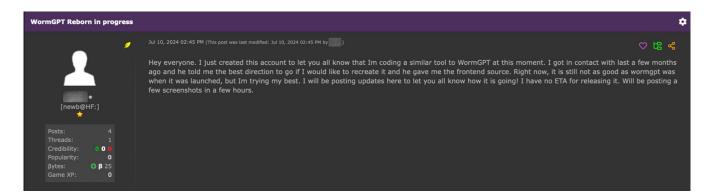


Figure 14. A seller advertising the rebirth of WormGPT on Hack Forums

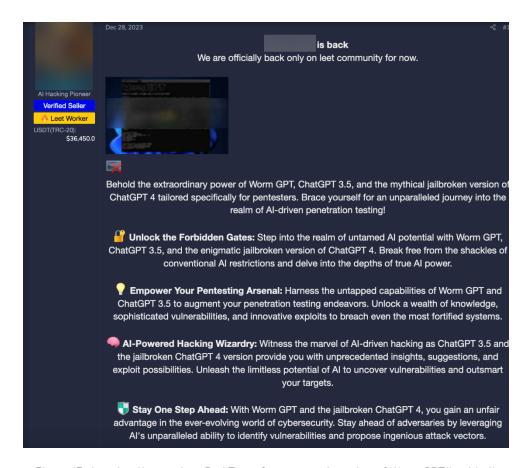


Figure 15. An advertisement on Red Team for a copycat version of WormGPT(Leet.Lat)

DarkBARD is an AI tool designed to disregard conventional rules, constraints, parameters, and values. It was originally programmed to deliver a "truly intelligent experience," with a US\$100 monthly price or US\$1000 for a lifetime license. EscapeGPT, advertised on Hack Forums, is a jailbroken GPT with "God mode" and no logs. We do not know if these tools work as advertised. Prices range from US\$65 to US\$370 with a lifetime license for US\$1,200.

Several open-source GPTs are shared in the underground for free, such as HackerGPT and PentestGPT. HackerGPT was shared on GitHub but has since been removed. PentestGPT is designed to automate the penetration testing process. FlowGPT is free and has a paid option, too. Stolen accounts are offered for US\$5 per month.

We also observed ChatGPT being abused for content and SEO services in the underground market. These services are usually advertised as a package or priced by the number of AI-produced pages. The cost per page ranges from US\$0.40 to US\$1, depending on the package, which starts at US\$100 and up to US\$500.

There are several threads discussing how AI and GPT can be monetized on various online platforms. Some responses suggest using AI to complete tasks such as translation, while others propose using it to write content for websites or social media platforms. Another idea is to use ChatGPT to generate multiple pages of content quickly, which could then be sold to clients. However, some sites have policies that prohibit AI-generated content. There are also services that offer accounts for ChatGPT, FlowGPT, Perplexity, and Claude, with prices starting at US\$3 for one month.

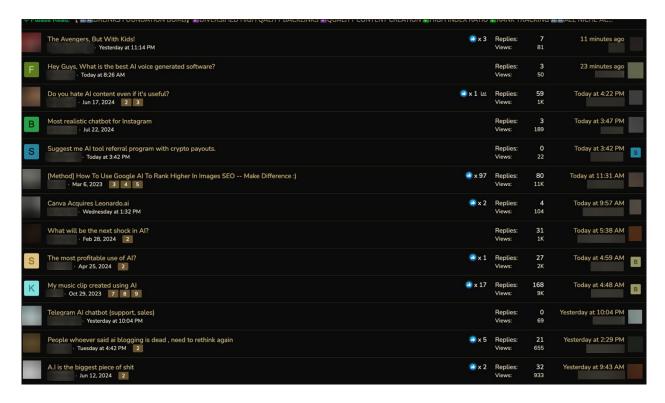


Figure 16. The AI - Artificial Intelligence in Digital Marketing section in BlackHat World

Offering	Price
ChatGPT 4 Plus	\$US90 yearly
EscapeGPT	\$64 month, \$369, \$1199
ChatGPT-4 AI Content Writing	• 25 HQ AI article: US\$0.5 per article (US\$12.50)
	• 50 HQ AI article: US\$0.5/article (US\$25)
	• 100 HQ Al article: US\$0.5/article (US\$50)
	• 200 HQ AI article: US\$0.45/article (US\$90)
	• 300 HQ AI article: US\$0.45/article (US\$135)
	• 400 HQ Al article: US\$0.4/article (US\$160)
	• 500 HQ AI article: US\$0.4/article (US\$200)

Offering	Price
Claude 3.5 accounts	US\$4 and up (monthly)
DarkBard	· US\$100 (monthly)
	• US\$1,000 (lifetime)
PentestGPT	Free
HackerGPT	Shared for free
FlowGPT accounts	US\$5 - US\$30 (monthly)

Table 2. Sample pricing for AI and GenAI offerings

Cryptocurrency mixers

Cryptocurrency mixers, also known as tumblers, enhance transaction privacy by breaking the link between the source and destination of funds. Users send their cryptocurrency to the mixer, which pools and shuffles it using algorithms before sending it to a specific address, making the original deposits difficult to trace. Bitcoin mixers are used to prevent the disclosure of people's personal transactions. When a transaction is made with any party, they keep all information about bitcoin holdings.

Mixers are not inherently illicit, as they serve legitimate purposes for individuals seeking privacy and protection from hackers. However, their use complicates regulatory compliance and anti-money laundering efforts, prompting some jurisdictions to regulate or ban them to prevent financial crime.

Cybercriminals abuse mixers to hide the origins of funds from activities like hacking, fraud, and drug trafficking, making it harder for law enforcement to track illicit transactions. Mixers can also be abused for money laundering by blending illicit funds with clean ones to evade detection by blockchain analysis tools.

Pricing for mixers varies, but they usually charge a percentage for each transaction. For the Blender mixer, fees range from 0.6% to 1.9% per operation, plus an additional 0.0003 BTC for each target address. The site Sinbad charges a percentage based on the priority of the outgoing transaction, with fees ranging from 0.5% to 2.5%.

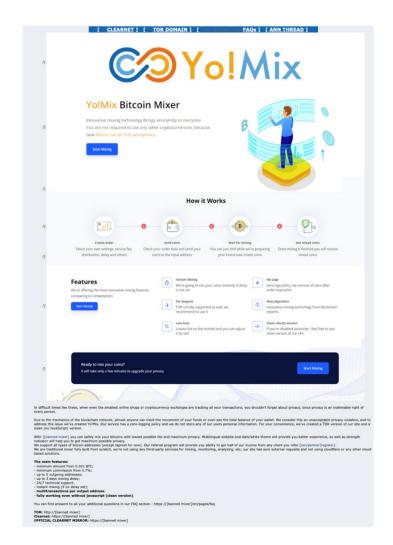


Figure 17. Yomix mixer advertised on the Bitcoin Talk forum

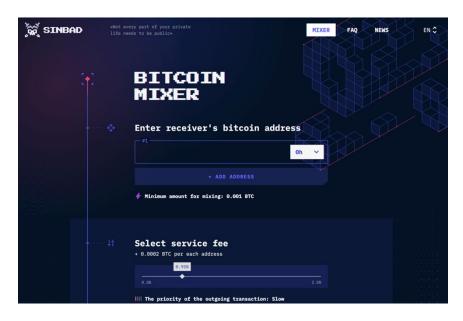


Figure 18. The Sinbad mixer showing the sliding fees for their service



Figure 19. Example screenshot of Tornado Cash

Tornado Cash, a mixer for Ethereum, was sanctioned¹⁴ by the US Treasury on August 8, 2022, for facilitating more than US\$7 billion in cryptocurrency laundering since 2019. Despite its legitimate use for users wanting privacy, it remains a tool for cybercriminals, including the Lazarus Group. Although sanctioned, Tornado Cash continues to be promoted in the underground, with alternatives like virgin bitcoin services offering ways to bypass mixers.

Sample Offering	Price
Blender	Fees range from 0.6% to 1.9% for each operation plus 0.0003 BTC for each target address.
CryptoMixer	The minimum fee is 0.5% plus 0.0005 BTC for every incoming transaction.
coinomize.biz	Fees range from 1% to 5%, depending on the desired anonymity, plus 0.0003 BTC in miner fee.
YoMix	The fees range from 0.7% to 5%.
Sinbad	fees range from.5%-2.5% + 0.0002 BTC per each address
Mixabit	For small amounts up to 0.01 BTC, there are no fees, except the bitcoin network fee. For larger amounts, the fee is only 0.5%.
audia6	3%
Virgin bitcoins	250 Virgin bitcoins (US\$262.5) 500 Virgin bitcoins (US\$520) 1,000 Virgin bitcoins (US1,025)

Table 3. Sample offerings of mixers mentioned in the underground

Cashout services

Cryptocurrency cashouts are essential for cybercriminals converting illicit digital assets into fiat currency or usable goods, often doing so by using cryptocurrency exchanges with weak Know Your Customer (KYC) and Anti-Money Laundering (AML) protocols. They use various techniques to obscure the origins of the funds and evade detection. Even exchanges with robust protocols can be exploited using stolen or synthetic identities. Peer-to-peer (P2P) trading platforms facilitate direct exchanges with less stringent verification, enabling criminals to avoid centralized scrutiny.

Cryptocurrency ATMs allow anonymous cash withdrawals, especially in areas with lax regulations. These ATMs often have limits that do not require extensive verification, making them attractive for small-scale cashouts. Instead of direct conversion, some criminals purchase high-value goods and services with cryptocurrency, such as luxury items or real estate, which can later be sold for cash.

Jurisdictions are strengthening KYC and AML requirements for exchanges, complicating the cashout process for criminals. Nevertheless, the anonymous nature of cryptocurrency and the global reach of the internet continue to challenge authorities in tracking and intercepting illicit cashouts. Continuous advancements in regulatory frameworks and technology are essential to counter increasingly sophisticated criminal techniques.

Cybercriminals are also abusing AI to evade verification processes. They are utilizing deepfake technology to create convincing but fake identification documents that can circumvent KYC checks and verification required by legitimate platforms and financial institutions



Figure 20. Sample deepfake image to bypass KYC measures

RedotPay is a Hong Kong-based Visa partner that allows users to directly cash out cryptocurrency directly. In the underground, however, some sellers offer "premium" services to bypass RedotPay's KYC measures. Notably, RedotPay is just one of the options/ cashout services they offer. These sellers also offer cashout services through gift cards, charging between 10% - 30% of the gift card's value.

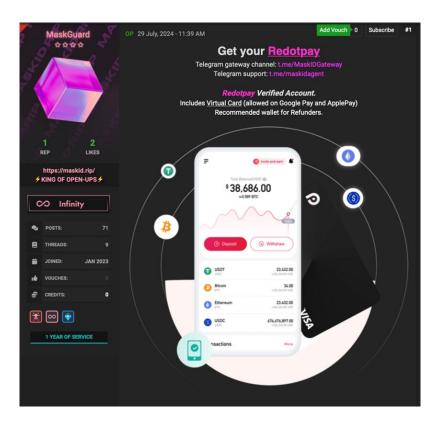


Figure 21. An advertisement for RedotPay-related services on the Cracked forum



Figure 22. An advertisement on Bit Coin Talk Forum for Bitcoin exchange services



Figure 23. A post about exchanging gift cards for crypto services

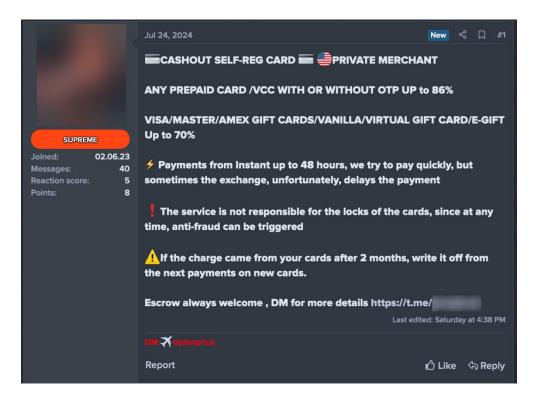


Figure 24. An advertisement for bitcoin-to-gift-card cashout services

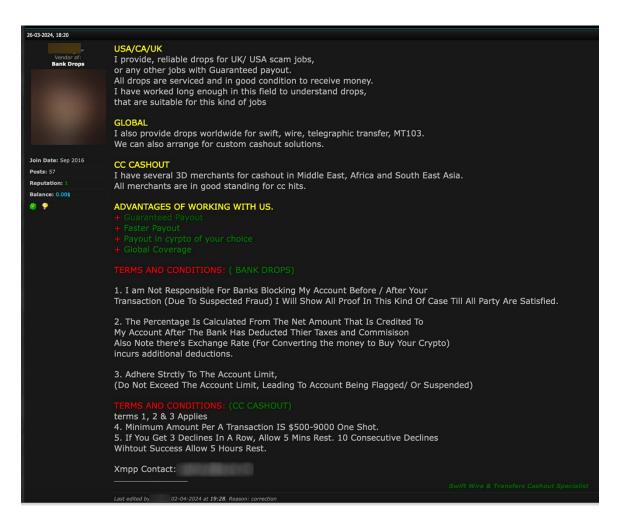


Figure 25. An advertisement on Club2CRD for cashout services

Sample Offering	Price
RedotPay	1x Premium KYC (US\$199) 1x virtual card (US\$5) 1x physical card (optional)
Bitcoins to gift cards	10% - 30% of the gift card's value
E-books	US\$20 and up
Shared methods	Free
Hutsom's KYC	Premade, clean, and KYC-ready accounts with full email access starting at US\$24.95

Table 4. Sample pricing for cashout services

Refunding Services

Refund fraud is a type of cybercrime involving the manipulation of retail systems to secure refunds for items that are not returned. The scheme often begins with the fraudster purchasing an item online or in-store, and then requesting a refund, claiming that the item is defective, lost, or unsatisfactory. Instead of returning the genuine item, the fraudster might send back a counterfeit, an unrelated item, or nothing at all. One method used is to place the items in the shopping cart and then provide the username/ password of the account. Another method is placing the order and waiting for the item to be delivered. An invoice is provided to the cybercriminal who will then call the store to get a refund. Once the refund has been confirmed, a refund fee must be paid within 24 hours or risk being reported to the retailer for fraud or have the refund canceled.

Insiders within the retailer's organization are crucial to this fraud. They can manipulate the refund process by approving fraudulent requests, ignoring discrepancies in returns, or diverting funds to the fraudsters. Mules are also essential, as they are recruited to receive and reship goods or launder money through their bank accounts. Mules might be aware of their role or could be unwitting participants, deceived through job scams or other tactics.

Refund fraud is a significant challenge for retailers, leading to financial losses and damaging reputation and customer trust by changing refunding policies. To combat it, retailers need robust fraud detection systems, regular audits, and employee training on recognizing fraud. Collaboration with law enforcement and sharing information about fraudsters are also critical measures to prevent future scams.

Most refunding services charge 10% to 30% for fees. Stores offered by cybercriminals include eBay, Best Buy, Shein, Temu, Walmart, and Amazon. A limit is usually advertised on how much can be spent per store. Many of these refunding services have reviews or vouches as "proof" of their success in obtaining refunds. We have seen screenshots of invoices with thousands of dollars of electronics refunded. Like cashout services, many people share free refund methods.



Figure 26. An advertisement for refunding services on DNCforums

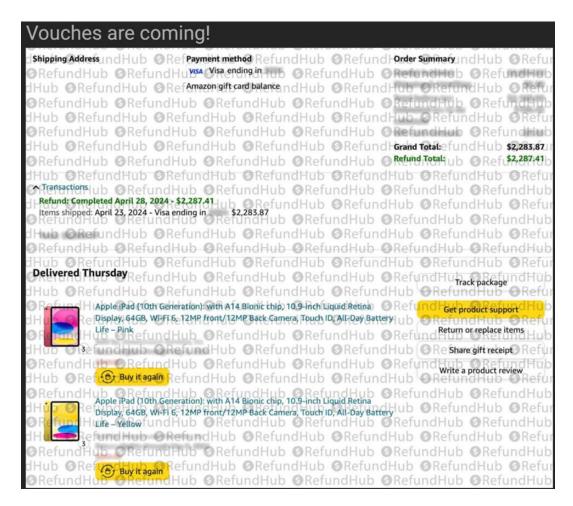


Figure 27. A sample of an Amazon invoice shared as part of a customer review

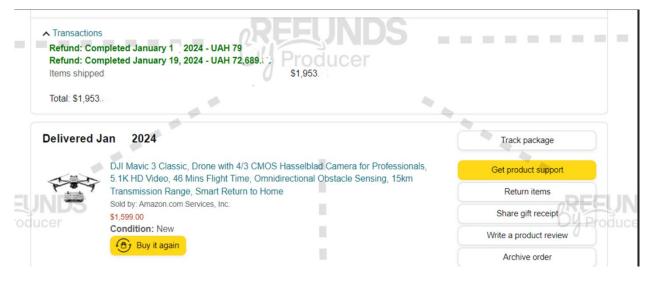


Figure 28. Another sample of an Amazon invoice shared as part of a customer review

Stores Offered	Price
Amazon (worldwide)	10% and up
Target	15% and up
Walmart	15% and up
Google	15% and up
Lenovo	15% and up
Dell	15% and up
Macy's	15% and up
Clothing stores (Nike, Ralph Lauren, Asos, adidas, Tommy Hilfiger)	10% and up

Table 5. Sample offerings for cashout refunding services

Social engineering services

Social engineering services, including those whose content is made by AI, are also sold in the underground. One notable service we saw is "Ewhoring," where scammers imitate partners in virtual sexual encounters, asking for money in exchange for pictures, videos, or sexually related conversations. Packs of multiple images, videos, and deepfakes of the people being imitated are offered on both English- and Russian-language forums. Ewhoring packs are sold as a group of multiple women or by individual models. Packages can include photos, videos, voices, and selfies, with prices starting at around US\$25. One-on-one mentoring services with experienced scammers are also offered for US\$100 and up. Some apps or people request specific verification pictures or videos, such as having the person pointing at a body part, showing a specific number of fingers in the air, or a person touching their hair. These are usually sold per person and start at US\$5.

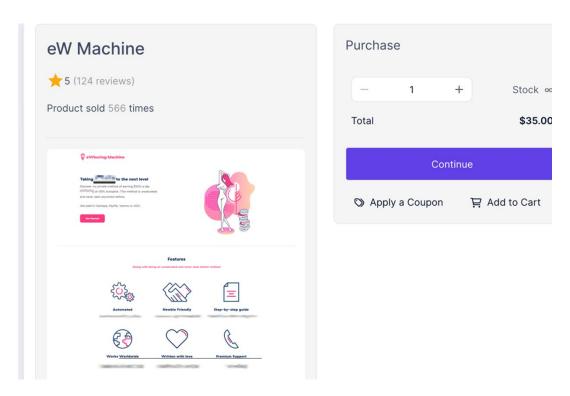


Figure 29. An advertisement for an Ewhoring autopilot service



Figure 30. Ewhore advertisement from Hackforums that was updated in May 2024.

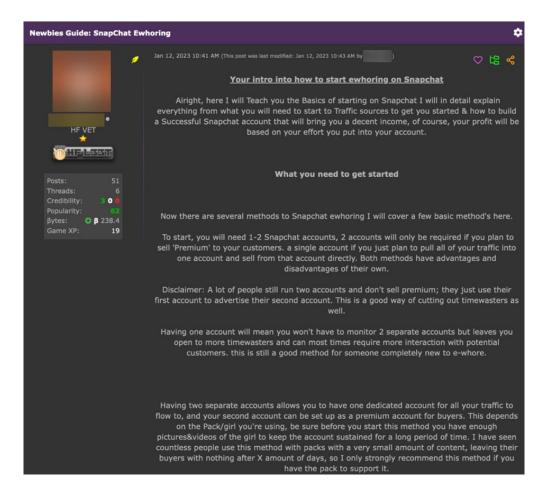


Figure 31. A sample Ewhoring guide using Snapchat

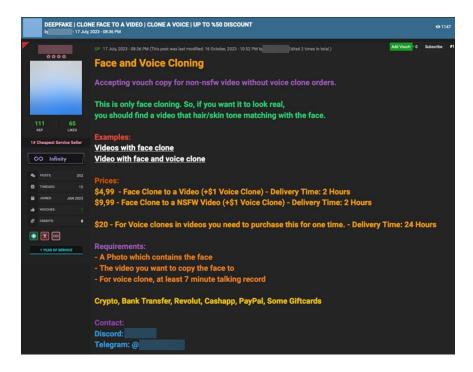


Figure 32. Deepfake services for voice and face

Offering	Price
Verification pictures	• US\$50 and up (dating apps)
	• US\$20 and up (1 - 3 photos)
Ewhore packs	US\$25 and up
Video Verification	US\$30 and up
Voice	US\$20 and up
Deepfake video	US\$200 and up per minute
How-to guides/e-books	Shared for free or US\$20 and up

Table 6. Sample offerings for social engineering services

Social media services

The underground market offers various services to boost social media accounts and websites. A popular service is Black Hat SEO, which uses tactics that prioritize search engine rankings over adhering to search engine guidelines. These services include using AI to author articles, private blog networks (PBNs), backlinks, and gaining followers.

PBNs are groups of websites that only exist to provide backlinks to another website and improve Google search rankings. Prices start at US\$30 for 10 PBN backlinks and can reach more than US\$100 depending on how many backlinks are needed.

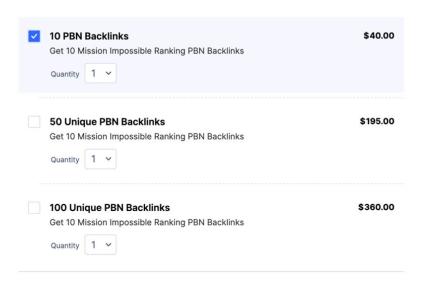


Figure 33. Sample pricing for PBN services

There are also backlink services, where a website owner is paid to include a backlink to a website from one of their pages. A seller on Breachforums offers this service for US\$70 per website, but we have seen prices lower than this in the underground.

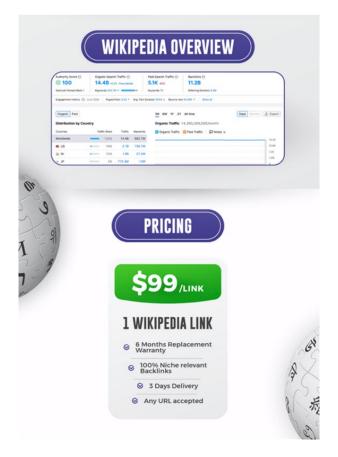


Figure 34. Backlink services offered on Black Hat World forum

One method to boost users is to purchase view bots, which generate fake views, livestream counts as well as inflate other channel statistics. These "viewbots" can be used on YouTube, Twitch, eBay, Twitch, and Mercari. Viewbots are sold by the number of hours or number of viewers, with prices starting at US\$12 for 50 viewers.



Figure 35. An advertisement for viewbots

Many forums also provide likes and followers similar to popular social media platforms. We discovered numerous services offering Instagram and YouTube likes, priced from US\$1 per 1,000 likes or follows. Prices for LinkedIn were significantly higher, which started at US\$40.

Offering	Average Price
Backlink	US\$50 and up (per backlink)
PBN Backlinks	US\$30 and up (10 posts)
Viewbots 150 views 1,500 views	US\$12 and Up US\$50 and up
Instagram likes	US\$1 per 50 likes
YouTube likes	US\$1 per 1,000 likes
YouTube views	US\$2 per 1,000 views
YouTube subscribers	US\$25 per 1,000 subscribers
Facebook page subscribers	US\$5 per 1,000 subscribers
Facebook "Add as Friend"	US\$7 per 1,000 friends
X followers	US\$20 per 1,000 followers
X reposts/retweets	US\$15 per 1,000 reposts
TikTok followers	US\$4 per 1,000 followers
TikTok likes	US\$2 per 1,000 likes
LinkedIn subscribers	US\$10 per 1,000 subscribers
LinkedIn hearts	US\$40 per 1,000 hearts

Table 7. Sample pricing for social media services

Sales of stolen accounts

Stolen online account credentials remain as popular as they were in 2015, with prices staying relatively similar. In 2015, prices for Hulu and Spotify accounts start at US\$5, and there are still accounts available for that same price. There is now a greater variety of accounts available than in 2015, including those from travel and restaurant apps, language learning, AI tools, adult sites, and streaming services. Many sellers advertise their shops in the listings to complete transactions and highlight all available accounts for sale. Some accounts are also priced below US\$5, but the seller can only guarantee it will work for one month. Others charge a little more for longer guarantees, which might be based on how long it takes to notice or ban new IP addresses logging into these accounts.

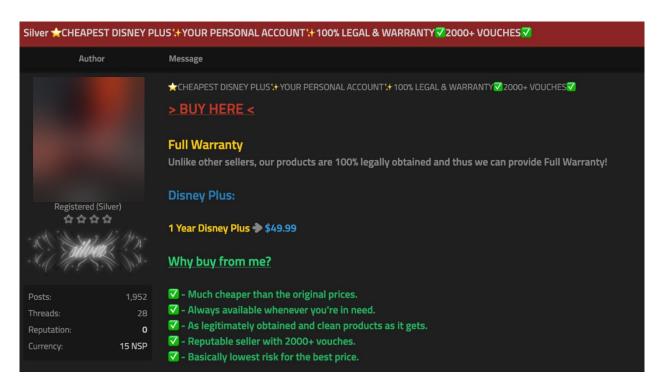


Figure 36. An advertisement for a yearly Disney Plus subscription for US\$49.99

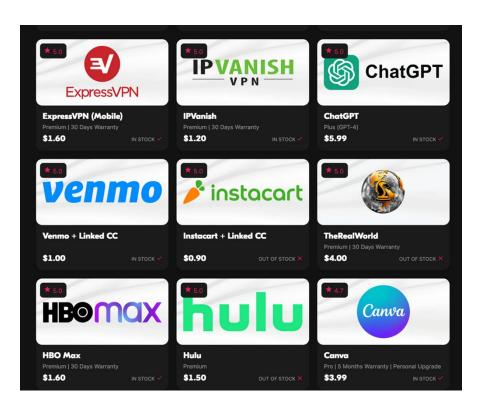


Figure 37. Prices for several accounts with a one-month warranty

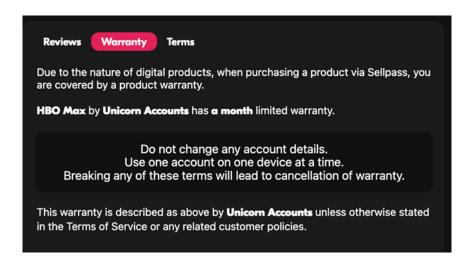


Figure 38. Sample warranty claims for stolen accounts

Sample Offering	Price
Disney Plus 1-year subscription	US\$30 and up
Hulu and HBO+ 1-year subscription	US\$5
Delivery services Grubhub and Instacart (1 month)	US\$1 and up
ChatGPT	US\$5 and up
Pornhub	US\$5 and up
Duolingo (yearly subscription)	US\$20 and up
OnlyFans and link to a credit card	US\$5 and up
McAfee LiveSafe - Total Protection (group subscription)	US\$2.50 and up
MullVPN (yearly subscription)	US\$12 and up
Adobe Cloud Creative (yearly subscription)	US\$49
Malwarebytes lifetime key	US\$14 and up

Table 8. Prices for stolen accounts

Bulletproof hosting services

Bulletproof hosting (BPH) services provide secure and anonymous web hosting for cybercriminals, offering high-level resistance to law enforcement takeovers to allow criminals to operate online freely¹⁵. BPH providers often turn a blind eye to illegal activities on their servers, including malware distribution, botnet command centers, phishing sites, and illicit marketplaces. The main appeal of BPH is the promise of anonymity and stability essential for sustaining criminal operations.

These services are typically more expensive than legitimate hosting due to the risks involved and their specialized nature. Providers often operate in jurisdictions with weak cybercrime laws or ineffective law enforcement, making it difficult for authorities to shut them down. This geographical insulation, combined with advanced security measures, ensures BPH remains available despite global law enforcement and information security industry scrutiny¹⁶.

Some providers also offer additional services like DDoS protection, data backup, and encrypted communication channels to further protect clients from disruption. Yalishanda, a prominent actor in the underground Bulletproof hosting market, has been offering services for over a decade. In early 2015, they registered on the "Exploit" Russian forum and began advertising on multiple-language forums. Yalishanda claims their servers are suitable for "any task," suggesting they can accommodate various criminal activities.

Prices vary depending on the service, and custom pricing is available for specific hosting purposes, negotiated separately

- Brute-forcing tools: US\$100 US\$250
- Network scanning tools: U\$\$200 U\$\$300
- Spoofing attack tools: US\$350

We are back on HackForums with best Fast-Flux service on market. PM me for our exploit forum thread with a tons of positive reviews.

Ladles and Gentlemen! We are glad to present to your attention a brand new FastFlux panel, from the old hosters who have had time to prove themselves from the best side.

In this panel, we took into all the wishes of our customers and our resellers. All wishes have been realized. We rewrote the entire panel from the start, making our own proxy server and abandoning nginx/haproxy and other standard web-proxy servers, and also focused on the privacy and security of our clients.

Benefits aimed at privacy/security:

- * We have completely written our own personal proxy server, which is installed in the encrypted container on the node. This container works before the first reboot of the node, after rebooting, access to it is lost even from us, which in turn completely excludes the possibility of the data center administrators to look at the config and determine the real ip-address of your server (backend). For this we use only KVM and XEN virtualization. No OpenVZ and etc,.
- * In addition, our proxy server creates a lot of fake connections to different ip-addresses with the same packet size as on your server (backend). Thus, it is the most difficult task for administrators to determine your real ip address during sniffing.
- * It makes no sense to write that all traffic is encrypted, because it is done a priori, in default.

Functional:

- * Add/remove domains/subdomains without the participation of support. Adding domains and updating dns occurs in 1-3 seconds. After the domain is added to the panel, it starts working instantly, no more waiting!
- * Manage dns records such as MX/ XT/CNAME, etc. directly from the panel, without the participation of the support.
- * Three non-killed public dns + personal FastFlux dns, which you manage yourself, without the participation of a support. In addition, FastFlux dns has the function of automatically replacing NS servers when a domain is locked. This function works without any support, everything is done automatically, which increases uptime and guarantees less gray hair on the client's head. Once a minute, our checker automatically checks your domain (where NS are raised) for blocking, if the domain is blocked, the system replaces the NS server (on your working domain) with a working one. This ensures 99% availability of your projects.
- * http/https/https the Hello SSL function is implemented. From now on, you no longer need to add SSL certificates to our panel; it is enough to add a certificate to your server.
- * Implemented a magic button for changing the proxy server. If for some reason you are not satisfied with the ip of the current node (hit the blacklist, slow speed), you can change it in one click, without the participation of the support.
- * Each client is allocated its own pool of ip-addresses, which in no way intersect with other clients. This guarantees the maximum time of the purity of the ip-address, before a possible hit in the blacklist. If ip hit the blacklist, then it is only your fault and not the fault of your neighbor.
- * Managing incoming and outgoing ports, you specify which ports you need to open, which one to which forward traffic to do by yourself, without participation of support.
- * Unlimited backends (IP adding/removing). Without participation of support.
- * Support for all known crypto domains, such as .bit and others for free!
- * Three domain registrars (Europe, China and Malaysia). These registrars are positioned on the forum as bulletproof, but we call them loyal. Registration is implemented both in one domain and list (bunch). After registration, you can manage your domains, change NS servers and more. In addition, a random name generator has been implemented for bulk domain registration. Domain registration is done without the participation of the support.
- * Added an additional function in the form of a checker for domains on blacklists and blocks, without the participation of a support. In addition, our jabber and telegram bot will tell you if a domain hit the blacklist or block so that you can respond as quickly as possible and replace the domain with a new one.
- * Purchase of SSL certificates in one click, directly in the panel, without the participation of the support.
- f * Automatic recharge through BTC/ETH, without the participation of support.

Please note that our service is made for people who value their time and nerves. We offer quality service focusing on serious people who are ready for long-term cooperation. Using our service - you will forget about the problems with hosting and can concentrate all your strength only on the realization of your ideas and ideas. We practically created for you the "MONEY" button. If you are looking for a cheap-low quality service, we recommend paying attention to neighbored topics. Thanks.

Figure 39. Sample advertisement for Yalishanda's Bulletproof hosting services on Hackforums

Blackout Host is another provider that offers competitive pricing at US\$13. This package includes: 50 GB of SSD storage, unlimited bandwidth, support for one domain and five subdomains, anti-DDoS protection, and free SSL certificates. Additionally, we saw an advertisement on Bitcoin Talk promoting servers for solving CAPTCHAs, with prices starting at US\$200.

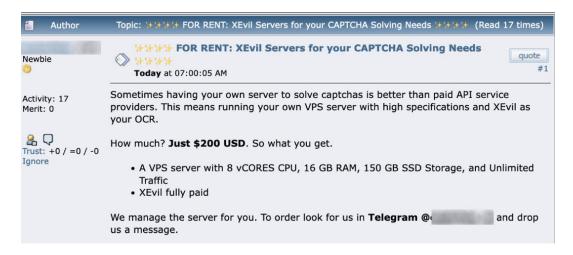


Figure 40. Server rentals for CAPTCHA on the Bitcoin Talk forum

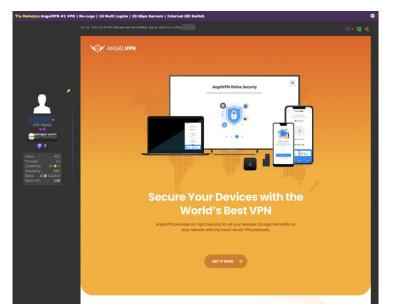


Figure 41. Advertisement for hosting services on Sinister.ly

Virtual private network (VPN) services

Unlike legitimate VPNs, criminal VPNs prioritize anonymity and often incorporate features like multihop routing, no-log policies, and payment methods that ensure anonymity, such as cryptocurrencies. They often operate in jurisdictions with lax cybercrime laws, hindering the authorities' ability to track or disrupt their activities.

These VPNs are advertised on underground forums and dark web marketplaces alongside other illegal services, with vendors highlighting their ability to resist law enforcement and circumvent internet restrictions. These services typically operate through subscription models, with prices varying based on the level of anonymity and features provided.



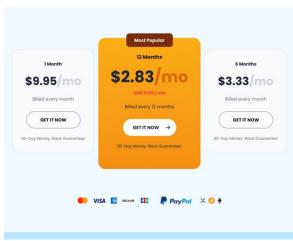


Figure 42. Advertisements offering Angel VPN on Hackforums with prices starting as low as US\$3.33 a month

There are also other people advertising and offering VPN accounts for popular providers like IPVanish, PIA, Windscribe, Mullvad, Pure, and HMA, priced between US\$2 - US\$10 per month.

Access to a private company's VPN through stolen credentials or using an exploit costs US\$500 in one-time payment. Prices vary depending on the type of company and revenue.

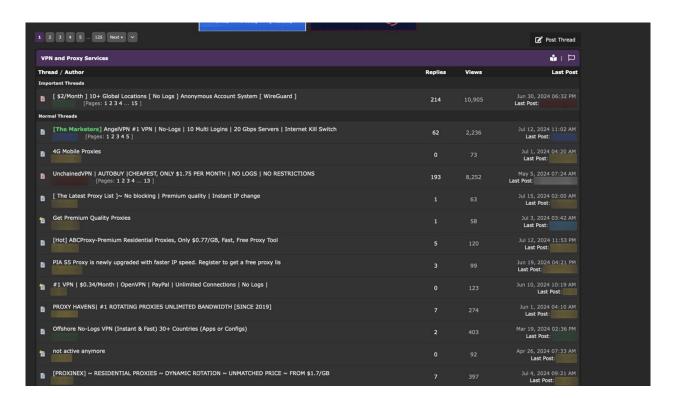


Figure 43. A sample screenshot of Hack Forums VPN and proxy services

Proxy services

Criminal proxies, or anonymous proxies, are intermediaries used by cybercriminals to mask their activities and identities. They provide residential IP addresses, often hijacked or rented, to make them appear like ordinary users. These proxies help evade detection during fraudulent activities like DDoS attacks, data scraping, and credential stuffing by concealing the true IP addresses of the perpetrators.¹⁷

In underground forums and marketplaces, anonymity proxies are sold with various subscription models, offering different levels of secrecy and speed. Vendors often market these proxies with guarantees of high uptime, fast connection speeds, and resistance to detection. These proxies can be categorized into residential and data center types, which differ in how they obtain IP addresses. Residential proxies use legitimate residential user IPs, while data center proxies are hosted on servers in data centers. Residential proxies are highly sought after for their ability to mimic legitimate user behavior, making them harder to detect by security systems. We've seen some discussions in the underground to build a mobile proxy farm for scraping and botnet activities. Proxy prices have not changed much since 2015. Prices for residential proxies can reach US\$100 a day and are charged sometimes by bandwidth. We have seen prices range from US\$6 a month to US\$50 and up.

The market for anonymizing tools is growing, driven by the rising demand for secrecy and evolving criminal tactics. The proliferation of anonymity proxies creates significant challenges for cybersecurity professionals, as it complicates efforts to track and mitigate cyberthreats.

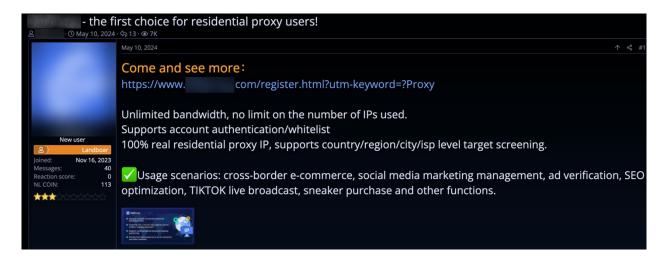


Figure 44. Proxy services on the Nilfiem forum

Offering	Price
Bullet Proof Hosting 1 domain 5 domains Unlimited Domains	US\$100 and up US\$300 and up US\$550 and up
Proxies Residential	US\$5 and up US\$6 - US\$50 per month
VPN IPVanish ,PIA, Windscribe, Mullvad, Pure, HMA VPN to corporate company	US\$2 - US\$10 US\$500 and up
Hosting	US\$10 and up per month

Table 9. Sample prices of hosting services

Carding Shops

Online credit card marketplaces, or credit card shops, are platforms for trading stolen credit card information and tools to exploit financial and personal data on the dark web. In 2022, global payment card fraud resulted in losses of US\$33.45 billion, with 40.69% of these losses in the US. The Federal Trade Commission (FTC) reported that consumers lost US\$246 million to credit card fraud in the same year.¹⁸

The market is saturated with carding shops, and prices have decreased significantly over the past few years. For as little as US\$1.50, fraudsters can acquire stolen credit and debit card information and even specify the desired region or state.

Historically, prices for stolen credit cards correlated with their credit limits and account balances. However, in 2024, pricing is arbitrary. Sellers with a reputation for reliable cards that do not get banned can command higher prices. Conversely, others' pricing is inconsistent. One site offered a Mastercard from Brazil with an expiration date of 2026 from Banco Santander for US\$49, while another was priced at US\$66. The same shop sold two Mastercard from China Minsheng Banking Corporation, with the card expiring in 2024 and costing US\$20 more than one expiring in 2026.

BriansClub, a popular dark web carding site established in early 2015, is one of the largest underground stores for stolen credit card data. In 2019, over 26 million credit cards were hacked from the site.

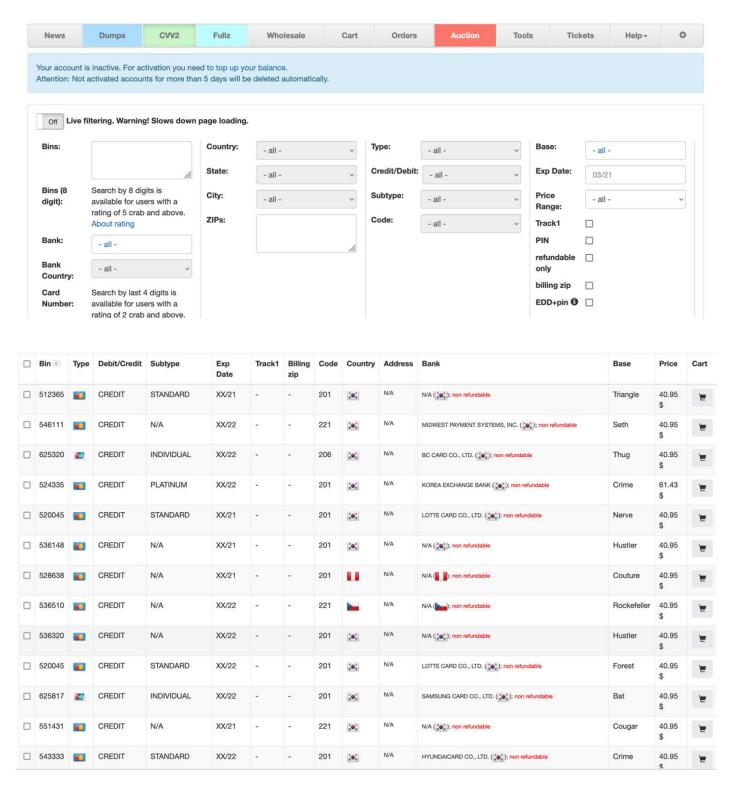


Figure 45. Sample offerings for BriansClub

BidenCash, a carding marketplace founded in 2022, gained notoriety as one of the most prominent platforms, operating on both clear and dark web networks. Multiple underground forums have banners advertising BidenCash. The primary objective of BidenCash centers on the sale of credit cards, personally identifiable information (PII), and SSH credentials. BidenCash is advertised on both Exploit and XSS's Russian-speaking underground forums with regular updates. For each sale facilitated through the website, BidenCash receives a 30% commission. The prices for these servers range from US\$5 to US\$10. To access the cards section, buyers must deposit US\$100 in bitcoins.



Figure 46. Sample banner advertisement of BidenCash

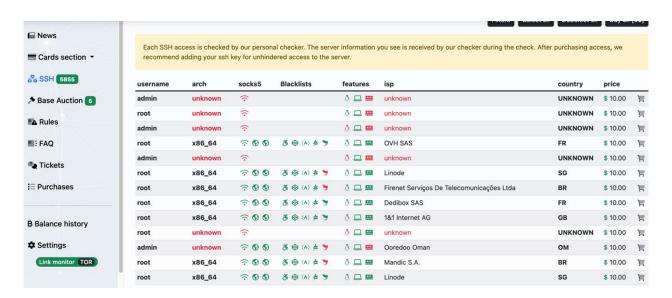


Figure 47. SSH offerings on BidenCash

Saint Patrick's Carding Shop launched in February 2023. The owner published advertisements across various online platforms, including special promotions designed to attract new customers. These incentives included a loyalty program that grants patrons supplementary rewards with each purchase made.

Based on my experience, I decided to implement a unique cumulative discount system that will allow you to receive additional bonuses for every purchase!

For every 1000\$ deposit, 25 "points" will be credited to the account.

- After reaching the amount of \$ 10,000, the status "EXCELLENT BUYER" is given and there is a discount on all cards \$1.
- After reaching the amount of \$ 20,000, the status of "MAJOR BUYER" is given and there is a discount on all cards of \$ 1.5.

For each purchase, you will be rewarded with points that can be used to make additional purchases or receive additional discounts.

Shop "points":

50 points - 50\$
100 points - 110\$
1000 points - 1250\$
100 points - 10 RANDOM CC USA.

But most importantly, what I want to share with you is our new feature - the ability to choose the best seller for our customers.

We have created a rating of our sellers based on customer feedbacks and ratings to help you make the right choice.

Moreover, we have created a system of levels for our clients.

With each new level you get not only bigger discounts, but also additional bonuses! What could be better than getting discounts that increase with every purchase?

We offer 10 levels providing unique benefits.

Each level will give a discount of -0.10\$ from the cost of cards, as well as an additional 10\$ at each level starting from level 2!

Figure 48. An advertisement for Saint Patrick's stash

Zero-day and N-day Market in Underground Forums

In our 2021 research¹⁹, we looked at how prices for exploits²⁰ were influenced by how long it had been out and if attackers exclusively used recent or older exploits. Since then, we have seen that exploits are cheaper, but fewer compared with Russian underground forums Exploit, Ramp, and Xss.

Several sample offerings have been identified, though many sellers now advertise on Russian-language sites where demand can lead to higher profit margins. We also suspect that some sellers conduct transactions via Telegram channels.

Some of the offerings we observed were:

- · A seller on Breachforums offered an authentication bypass vulnerability on a phone stalkerware website for US\$7,000.
- An advertisement in March 2023 for an Android zero-day remote code execution (RCE) exploit with a Bind payload for Android versions 10 - 13, priced at US\$100,000 on Cracked forum. This same seller also offered a WhatsApp zero-day RCE exploit, but the price was not disclosed.
- A reputable seller on Hackforums, with over 1,000 threads and over 200 transactions completed, offering a WordPress plugin zero-day exploit. This exploit uploads a file to approximately 110,000 affected websites and outputs a list of URLs. The price was negotiable, but the seller requested US\$10,000.
- On Breachforums in August 2024, an actor sold a Cisco IOS XE pre-authentication RCE vulnerability, with pricing to be negotiated via Telegram or Tox.
- · A zero-day exploit for a Canadian business listed on Hack Forums with a starting offer of US\$4,000 US\$5000.
- A private custom zero-day offered on Cracked and Breached forums in April 2024 for US\$999.99. It exploits TP-Link routers via RCE by chaining multiple vulnerabilities.

Discussions about vulnerabilities older than two years were scarce. Forum users frequently discussed proofs of concepts (PoCs) behind newly released CVEs in 2024. Occasionally, someone would request help exploiting a vulnerability over three years old and would often be ridiculed. Some of these discussions included the following:

- · CVE-2024-3273: Affects legacy D-Link products, all of which have reached end-of-life (EOL) or end-of-service (EOS) life cycle
- · CVE-2024-3807: The Porto theme for WordPress that was recently identified as vulnerable to a local file inclusion (LFI)
- · CVE-2024-6387: An unauthenticated RCE vulnerability in OpenSSH's server (sshd) that grants full root access
- **CVE-2024-40822:** Affects iOS, iPadOS, macOS, and watchOS that allows attackers with physical access to view contacts from the lock screen



Figure 49. WordPress plugin zero-day sold for US\$10,000 on Hack Forums

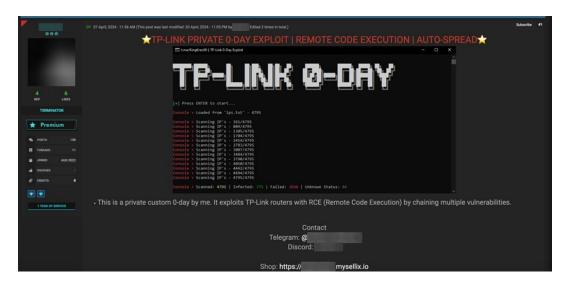


Figure 50. TP Link zero-day for sale on the Cracked forum

Crimeware Sold in Underground Forums

Counter antivirus (CAV) tools

Despite the takedown of services like Scan4you²¹, CAV tools are still growing in use among cybercriminals. CAV services enable malware developers to test their malicious software against AV programs to ensure it remains undetected. For example, Scan4you played a key role in the development of the Citadel malware, which infected over 11 million computers worldwide.²²

Even after successful law enforcement actions, such as the conviction of Scan4you's operator, demand CAV services persist. Current services include Antiscan (US\$0.10 per scan) and Kleenscan (US\$0.05 cents per scan). Checkzilla's price was at US\$1 per scan, but the service is down as of August 2024. All these CAV services are advertised both in English- and Russian-speaking underground forums.

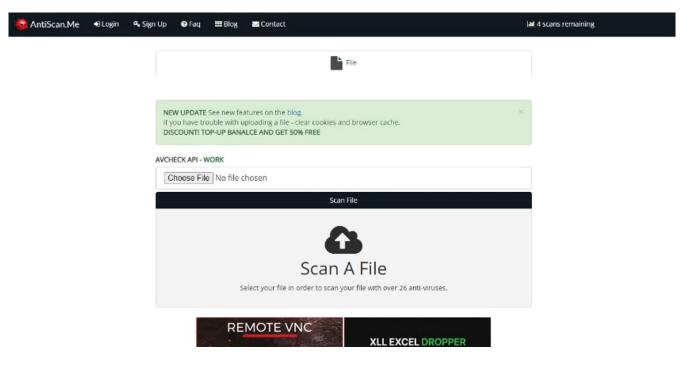


Figure 51. Antiscan is one of the popular CAV services in use

Offering	Price
AntiScan.me	US\$0.1 per scan
KleenScan	US\$0.05 per scan US\$2.99 per day US\$14.99 per month

Table 10. Sample prices of CAV tools

Crypter services

Crypters – commonly used to deliver remote administration tools (RATs), information stealers, and ransomware – are tools used by cybercriminals to help malware evade detection by encrypting, obfuscating, and altering the code of the malicious files. While crypters were the most sought-after in 2015, by 2024, services like access as a service, information stealers, and ransomware themselves gained more popularity.

Crypters are still valuable in the underground market, bought and sold on cybercrime forums. Private crypters are typically sold or shared through forums to a limited number of customers, with detailed instructions and transaction links. For example, on the Sinister forum, the Darkstorm crypter (offered for US\$99) includes a YouTube video demonstrating its functionality. On Hackforums, the Pepe crypter starts at US\$49 per build, claiming to have advanced encryption and support via chat. Ghost Crypter, also offered on Hackforums, is purportedly updated daily with randomized obfuscation techniques to improve "fully undetectable" (FUD) times. The prices are US\$30 per build, US\$70 for one month, or US\$150 for a lifetime subscription.

Many forums also share free and open-source code, GitHub links, or private crypters. On Hackforums, a free PoC crypter called Bubble Pop Crypter claims that it is a no-encrypt project and has maintained 2 - 4/70+ on VirusTotal runtime scans for a long time now. It supposedly works by "reconstructing an unencrypted program and pushing directly to calculated memory addresses, in

runtime". NJRAT's LimeCrypter – offered for free over the years – is designed for native and .NET files. It employs a unique approach to secure payloads by encrypting them within a .NET-based stub, which acts as a container for the encrypted payload, ensuring its contents remain concealed until execution. The free, open-source version is on GitHub.

Many crypters, whether paid or free, include a disclaimer stating that they "may only be used for personal, educational, or research purposes on your personal or otherwise authorized devices, for 'whitehat' activities," in the hope that this disclaimer will shield the developer from legal consequences.

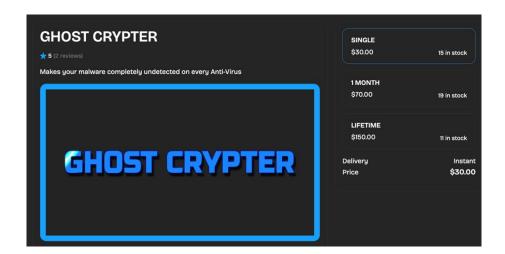
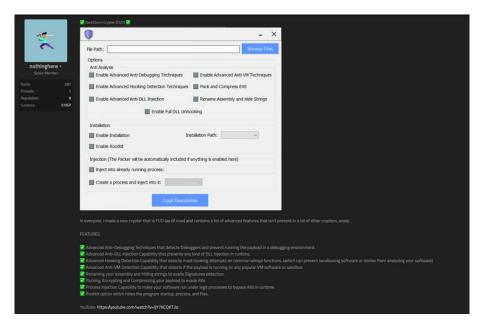




Figure 52. Ghost Crypter offered at US\$30 and up (left) and an advertisement for the free Bubble Pop Crypter (right)



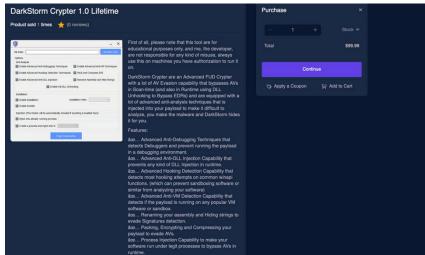


Figure 53. DarkStorm crypter from the Sinister forum

Offering	Price
Private Crypters-DarkStorm	\$99
PEpe Crypter	\$49 per build
Ghost Crypter	\$30 per build, 1 month \$70 or lifetime for \$150
GOrgon Private Crypter	\$45 per build
ByteCrypter	\$35 for 3 months, lifetime \$65
LimeCrypter	Free

Table 11. Sample prices for cryptors

Distributed denial of service (DDoS) and stressors

DDoS attacks and stressor services are used to overwhelm systems and networks as well as disrupt services, flooding targets with illegitimate requests to make them inaccessible to legitimate users. In 2015, DDoS services in the North American underground prices started at US\$5 for 40 Gbps for 300 seconds. By 2024, prices for the same service averaged around US\$10.

Stressor services, also known as "booter" or DDoS for hire, are disguised as system testing tools that allow users to rent access to massive botnets for launching attacks. Their low cost and ease of access make them appealing to cybercriminals and disgruntled individuals seeking to disrupt online services. In underground forums, these services offer tiered pricing plans based on attack volume and duration. Prices range from US\$10 to several hundred dollars per month, enabling Layer 4 (transport layer) and Layer 7 (application layer) attacks that consume the target's resources and cause outages. Despite their potential for significant disruption, these services are marketed and sold with relative impunity.

Stresser Cat is offered on nulled.io and several Russian-speaking forums such as wwh-club.co and Xss. According to Stresser Cat's advertisement, all servers are owned by them. Pricing starts at US\$10 for 300 seconds (about 10 minutes) with one concurrent session and goes up to US\$300 per month for 20 concurrent sessions and 14,400 seconds (about four hours).

Cloudnode, advertised in August 2024 on Nulled, mimics browser behavior with extensive customization options, allowing users to adjust POST data requests and proxy settings to bypass JavaScript challenges. It offers a customizable UDP-based method that exploits vulnerabilities in gaming platforms like FIVEM and GMOD, featuring optional TCP checksum headers and spoofed or randomized localized IP headers. Pricing starts at €7 for 300 seconds with one concurrent session, API access, and 24/7 support.

Moonrise is offered on Bitcoin Talk, Dark2Web, Nulled, and Crax_pro forums. According to the advertisement, their botnet boasts over a 500 Gbit capacity, with no attack restrictions. Pricing starts at US\$10 for 60 seconds.

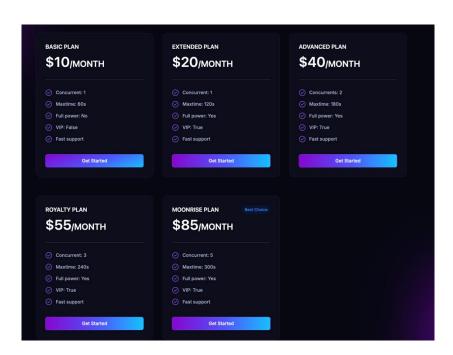
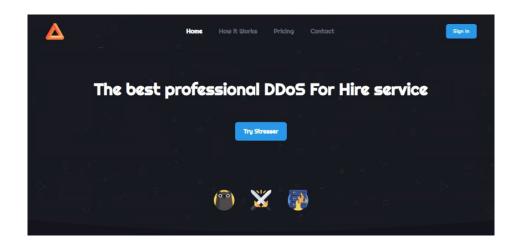


Figure 54. Moonrise's pricing model



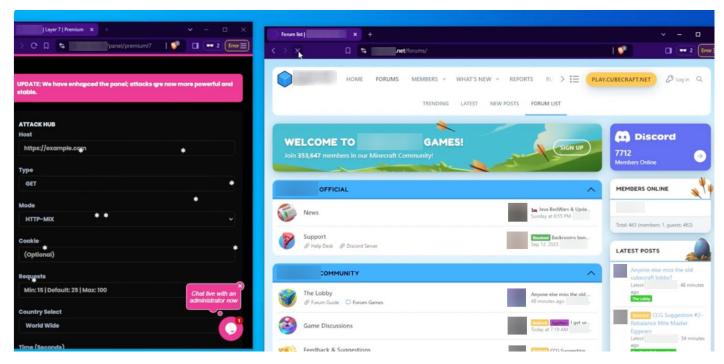


Figure 55. An advertisement for Stresser[.]cat, a DDoS-for-hire service (top) and control panel of Cloudnode.me's stresser (bottom)

Offering	Price
Stresser.cat	US\$10-300
Cloudnode.me	€7 (300 seconds, 1 concurrent session) €15 (600 seconds, 1 concurrent session) €40 (1,600 seconds, 2 concurrent sessions)
Moonrise Stresser	Basic plan: Concurrent session: 1 Attack time: 60 seconds VIP status: No Price: US\$10 Extended plan: Concurrent session: 1 Attack time: 120 seconds VIP status: Yes Price: US\$20
	Advanced plan: Concurrent session: 2 Attack time: 180 seconds VIP status: Yes Price: US\$40
	Royalty plan: Concurrent session: 3 Attack time: 240 seconds VIP status: Yes Price: US\$55

Table 12. Sample DDoS-as-a-service offerings

Information stealers

Information stealers are designed to infiltrate and extract sensitive information from compromised systems, including login credentials, financial information, browser histories, cookies, and even system information. Once the data is harvested, it is typically sent to a remote server controlled by the attacker, which can then be used for various nefarious purposes, such as identity theft, financial fraud, or sold on dark web marketplaces.

Agent Tesla is a well-known information stealer that logs keystrokes, captures screenshots, and collects credentials from applications such as web browsers and email clients. Agent Tesla's source code has been leaked on forums such as Cracked.io. Other well-known information stealers include RedLine, MetaStealer, LummaStealer, Vidar, and Racoon.

Their price ranges from US\$50 to US\$200 per month. The Seidr stealer is offered on Stressedforum at US\$70 per month, while Cinoshi, a malware-as-a-service platform with a toolkit including a stealer, botnet, clipper, and cryptominer, is offered for US\$50 for lifetime license. Cinoshi targets sensitive data from web browsers, including login credentials, credit card information, and cookies.

MetaStealer, a macOS infostealer first discovered in the wild in March 2023, is advertised on Russian forums, but we also found a seller offering it on the relaunched Breach forums at US\$200 per month. LummaStealer is sold on Hackforums and Russian forums, with prices starting at US\$250 per month. The lowest plan provides access to log analysis tools while the professional plan includes additional features such as traffic analysis tools. RedLine Stealer has been shared in several forums for free. It offers a customizable

file grabber, enabling attackers to collect credentials from web browsers, cryptocurrency wallets, and applications. Skuld is also offered for free on various online forums, including Cracked. This malware, written in Go, targets Windows systems and steals sensitive data from multiple sources, including Discord, browsers, cryptocurrency wallets, and other user data from every disk. The malware was used to target gamers and other Windows users in the US, Europe, and Southeast Asia.

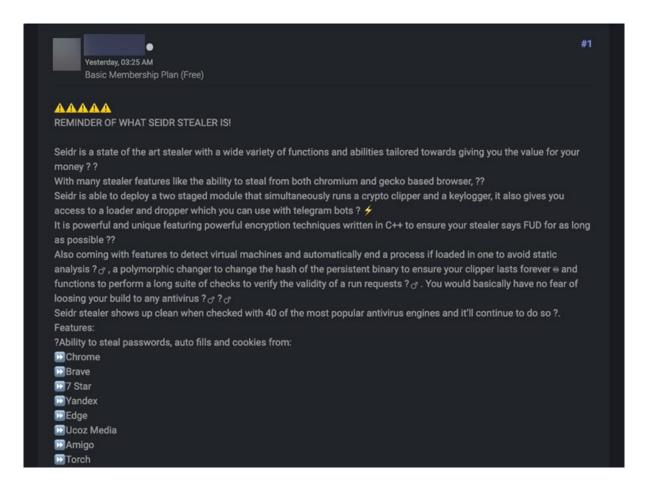


Figure 56. An advertisement for an infostealer on Stressedforums

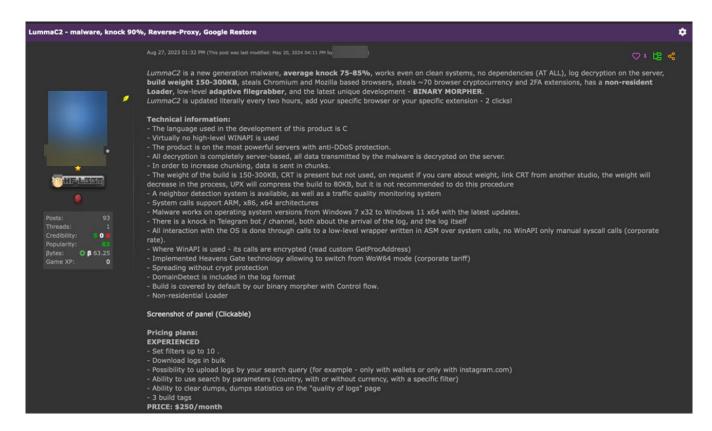


Figure 57. The Lumma infostealer advertised on HackForums

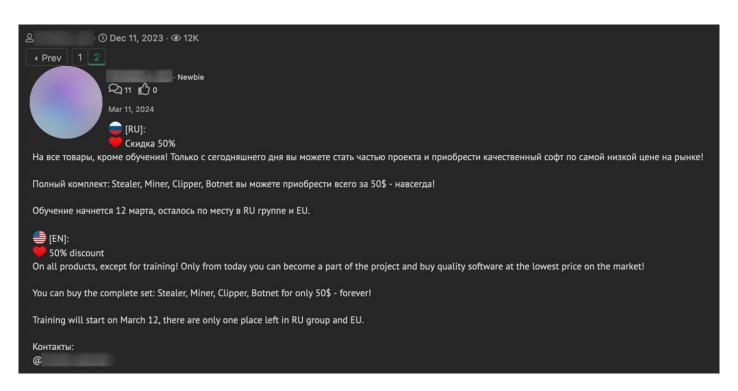


Figure 58. The Cinoshi infostealer offered at US\$50

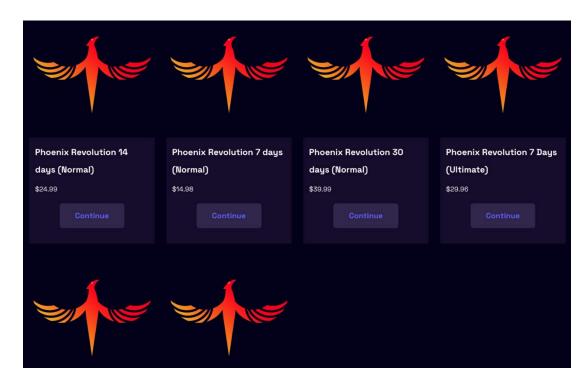


Figure 59. The Phoenix Reborn infostealer shop advertised in an English forum



Figure 60. A private infostealer source code for sale

Offering	Price
Seider	US\$70 per month US\$200 per 3 months
Lumma	US\$250 ("Experience" plan) US\$500 ("Professional" plan) US\$1,000 ("Corporate" plan)
Cinoshi	US\$50 lifetime license
RedLine	Free

Offering	Price
Ghost Stealer	US\$20 (1 build) US\$50 (per month) US\$100 (lifetime license)
Metastealer	US\$200 (per month) US\$1500 (lifetime license) US\$500 (creator lifetime license)
Skuld	Free
Xfiles	US\$200 per month
Generic Steal source code	US\$500 and up
Phoenix Reborn	Starts at US\$24 a month

Table 13. Prices of information stealer offerings

Phishing as a service (PhaaS)

PhaaS offers even novice cybercriminals the tools needed to execute phishing attacks. These services bundle phishing kits, server infrastructure, and support, making it easier to launch large-scale phishing campaigns. PhaaS platforms often include features such as customizable phishing templates, automated setup processes, and detailed analytics on campaign performance, lowering the barrier of entry for cybercriminals and increasing the frequency of phishing attacks.

Greatness is an advanced PhaaS platforms targeting Microsoft 365 accounts. Launched in mid-2022, it has been used in sectors like manufacturing, healthcare, technology, and real estate. Features include multifactor authentication (MFA) bypass, IP filtering, and integration with Telegram bots. Attackers using Greatness can create convincing phishing pages that mimic the login portal of the victim's organization, complete with pre-filled email addresses to enhance credibility. Attackers can then use the captured credentials to access corporate networks.²³

Phishing services are rarely found in English forums but are more common in Russian forums and are typically discussed on Telegram channels. Discussions typically cover creating phishing pages and various how-to guides. Multiple threads ask for assistance with scam pages, which often receive responses, but the responders often directing the inquires to Telegram.

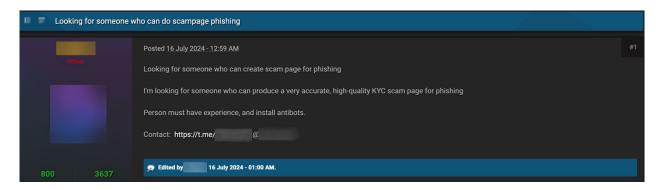


Figure 61. A post asking for phishing pages on the Nulled forum

We found one PhaaS offering, the Ghosthook Phishing Toolkit, sold for €600 per month on Hackforums, CryptBB, and Russian underground forums.

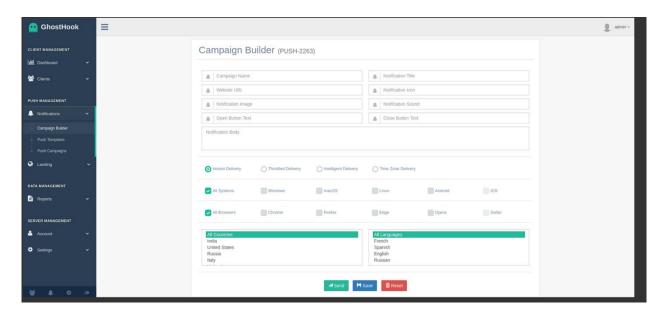


Figure 62. The Ghosthook Phishing Toolkit

RATs

RATs are used by cybercriminals to gain unauthorized remote access to computer systems. The sale and use of RATs in the cybercriminal underground remains a persistent threat. Some of these tools, such as DashExe, can be purchased online, starting from US\$17.95. The ability to customize RATs like DashExe also makes even novice cybercriminals more effective in spreading malware and compromising computer systems²⁴. Another example is the Spectre RAT, now on version 9.0. It is updated monthly and sold in English- and Russian-speaking underground forums. Monthly pricing starts at US\$425 for botnet, US\$275 for stealer, US\$50 for virtual private server (VPS), domain, and control panel, and US\$50 for proxy servers.

The Venom RAT malware is written in C# and has been distributed as malicious attachments in spam emails since its initial discovery in 2020. It utilizes an obfuscated Microsoft Office macro script to download malicious files, which are then executed using functions from a library. Additionally, PowerShell scripts are employed for further actions. Older versions are shared freely in forums.

Viper RAT, designed to target Android devices, went on sale in May 2024 on the Cracking, Crackingx, and Bph platforms. The malware has an extensive range of capabilities, including over 600 worldwide injections, phone unlocking, VNC control, and audio/video recording. These functionalities enable phishing redirection, further enhancing its malicious potential.

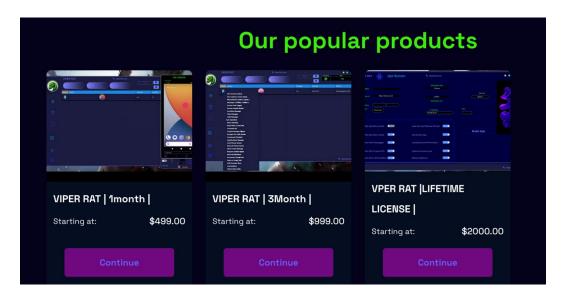


Figure 63. Viper's online store

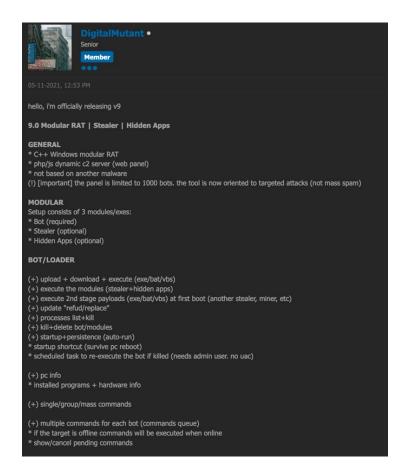


Figure 64. Spectre RAT and Stealer offered on an English-language website

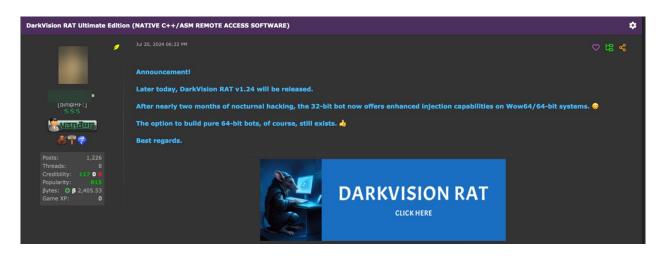


Figure 65. Darkvison RAT advertised on Hackforums

Offering	Price
Darkvision	US\$60 (lifetime)
Spectre RAT and Stealer	US\$450 (bot) US\$275 (Stealer) US\$50 (VPS, domain, panel)
Viper RAT	US\$499 (per month) US\$999 (3 months) US\$2000 (lifetime)
Venon RAT	US\$150 (three months) US\$350 (with HVNC)

Table 14. Sample RATs for Sale

IT-Enabled Crime in the Underground: Fake Document Services

Identity theft surged in 2024, with 25% (1.4 million) of 5.7 million cases of fraud reported by the FTC related to identity theft.²⁵ This is a lucrative market for criminals who offer fake document services such as passports, utility bills, tax forms, W-2s, and driver's licenses, which can be used to support citizenship claims or applications, open untraceable bank accounts, prove residence status, commit insurance fraud, and purchase illicit items.

From 2018 to 2023, US passport card fraud has resulted in US\$10 million in losses, with another US\$8 million in attempted losses.²⁶ In April 2024, a hacker sold the National Public Data (NPD) database – which contained the full name, address, date of birth, Social Security number, and phone number of 2.7 billion people – for US\$3.5 million on Breachforums.

The IRS flagged nearly 1.1 million tax returns as potentially fraudulent by March 2023, with refunds totaling US\$6.3 billion.²⁷ Tax returns and W2 forms from 39 states as well as personal details such as driver's license, social security, date of birth, and employer's name are sold for US\$80 per person. In the site Docz, which is dedicated to fake documents, business tax returns start at US\$8 for 2020 W2s with prices increasing for later years. Another site offered credit reports from Creditkarma, my.equifax, and creditsesame US\$10 - US\$75 based on credit scores.

The price for fake passports, available for the US and other countries, ranges between US\$50 and US\$1,500, depending on document quality, physical shipment vs. online template usage, and other customizations. We also identified a fake document site that generates AI-created images or allows users to upload their own, with prices starting at US\$99 for passports and US driver's licenses. Their platform allows every aspect of the document to be modified, including signature creation. Social Security Numbers (SSNs) are also available for purchase, priced at US\$1 per number, or US\$500 for 10,000 numbers in bulk.



Figure 66. An online passport scan generator



Figure 67. Sample offerings of fake document services



Figure 68. Fake document services for US and Canada

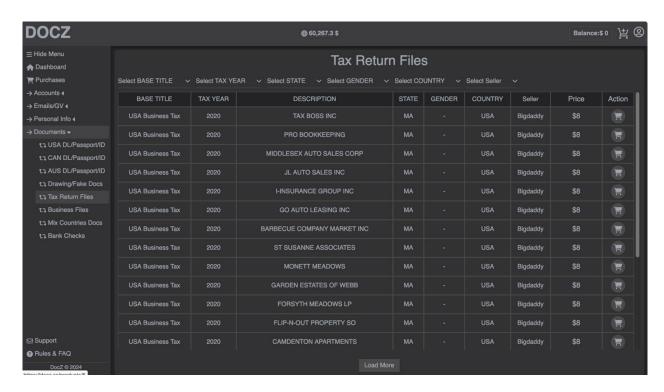


Figure 69. Docz.cc shop selling W2 from businesses



Figure 71. Credit reports, SSN, and driver's licenses for sale

Offering	Price
US business tax returns 2020 US business tax return 2023 US business documents packages	US\$8 and up US\$12 and up US\$20
Credit reports	US\$5 - US\$75
US W2 documents	US\$5 and up
Passports	US\$50 - US\$1,500
Drivers' licenses	US\$5 and up
SSN	US\$1 and up

Table 15. Pricing for fake document services

Conclusion

Since 2015, the English-speaking cybercriminal underground has transformed significantly. Weapons and malware are now rarely sold, and law enforcement has disrupted many English-speaking forums, prompting cybercriminals to more anonymous and multilingual spaces. Our findings also show that the English cybercriminal underground is now more inclusive and complex, welcoming cybercriminals from diverse backgrounds.

This shift allows greater collaboration and adaptability among cybercriminals, as seen in the increased use of communication platforms like Telegram, which complicates detection efforts and prosecution. Cybersecurity professionals and law enforcement agencies must continuously adapt their strategies to keep pace.

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