



Godiva Donut

Ent. CSIRT's Blue Team, Detection Engineering, Threat Intelligence, Incident & Response. HITCON (Hacks in Taiwan Conference) volunteer. chroot study group member.



Strawberry Donut

Data Scientist focused on Fraud Detection. Operationalized multiple fraud detection ML pipelines.

Researching the underground world as a hobby.

Please protect our identity. Slides will be released.



Agenda

- The Underground card shops business 產業現況和分工: AI 和技術進步帶來挑戰
- No-OTP Phishing vs.
 Real-time Phishing 同步魚:中間人攻撃
- PhaaS: Phishing-as-a-Service & Case Study 魚塘:雲端代管訂閱制釣魚網站平台 案例
- Detection & Countermeasures
- Conclusion & Next Steps

Disclaimer

This research is conducted in full compliance with the law, and no criminal activity was involved.

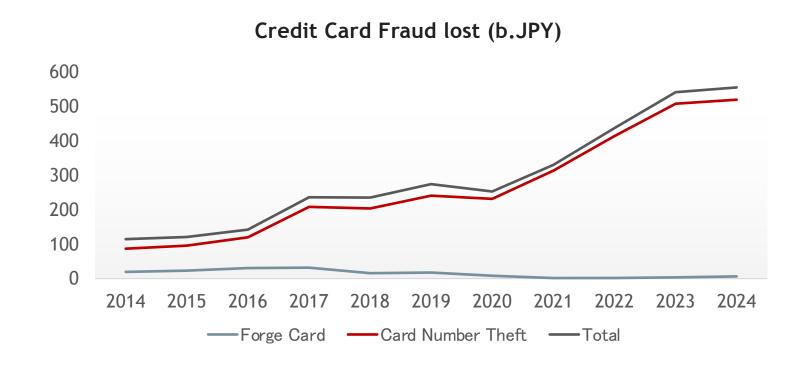


In Taiwan, card fraud caused 3.2 billion TWD lost in 2023. Over 12.4 billion TWD all kinds of scam lost in 2024.



Source: 工商時報

In Japan, credit card fraud reached 55 billion yen in 2024, the highest amount ever.



Source: 日本クレジット協会

Methods to acquire credit card info

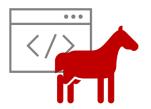








User hacked



JavaScript Injection

Data Breach

Phishing

Trojan Malware

Al's Impact: Lowering costs & increasing incentive for phishing attacks

- LLM-assisted social engineering phishing emails have higher click-through rates compared to those created by humans.
- LLM can automate phishing generation, cutting labor costs by 95% (20x faster)
- A phishing site can be made or updated with LLM in a few mins

Phishing sites grew 20X in 5 years



Source:

- Devising and Detecting Phishing Emails Using Large Language Models, IEEE
- フィッシング対策協議会

「Amazonを不正利用された」――SNS上で報告相次ぐ「二段階認証を突破された」などの声も

Amazon Misused - Reports Flood Social Media: 'Two-Factor Authentication Bypassed'

「Amazon.co.jpを不正利用された」――X(元Twitter)では9月上旬からそんな投稿が相次いでいる。「Amazonギフトカードを大量購入された」「二段階認証を設定していたのに、それを突破された」などの報告が上がっている。







Goal: to understand the structure of Real-time phishing, and how it changed the phishing value chain

Chinese card shop ecosystem targeting APAC

APAC is one of the main targets of credit card fraud

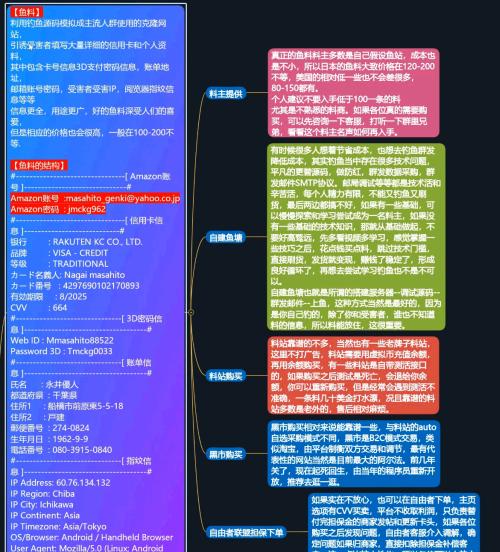
- Lots of Leaked Data in the dark web
- Lower Language barrier: to send out phishing sites & cooperate with local criminals
- Cheap Price for sim card purchase
- Lots of card fraud marketplaces in the dark web (IRC/Forum → QQ/WeChat → TG)



Goal: to understand the value chain of Chinese carding fraud

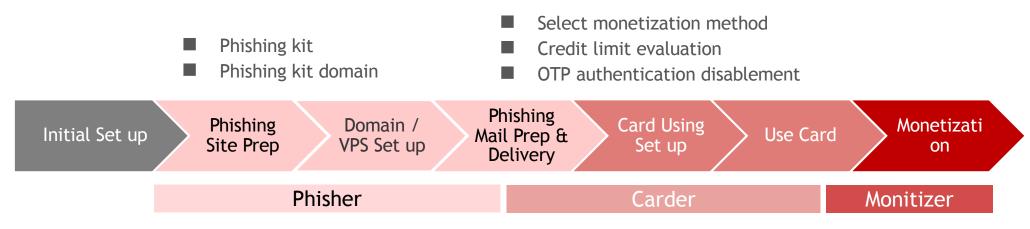






No-OTP Phishing vs. Real-time Phishing 同步魚(中間人攻擊)

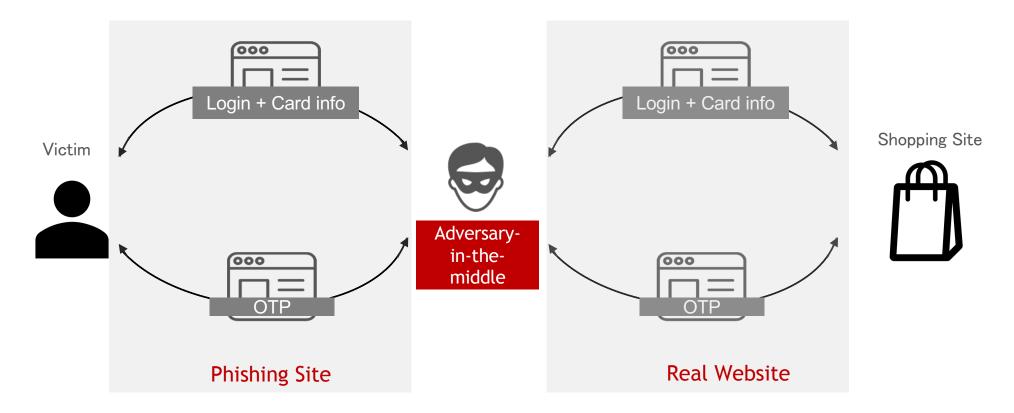
No-OTP Phishing 傳統流程:從釣魚網站、盜刷到套現



- VPS / RDP setup
- Residential Proxy
- Check IP not in blacklist
- Change MAC or hardware ID
- Clean cookies / DNS / cache

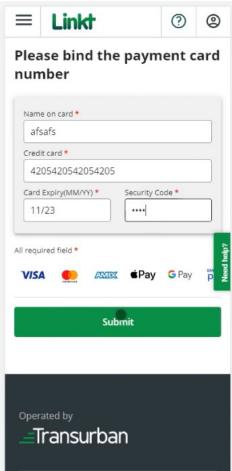
- e-mail database
- Email address domain preparation
- Phishing e-mail lure setup
- SMTP setup to deliver lure mail

Real-time Phishing 同步魚 became popular since 2020~

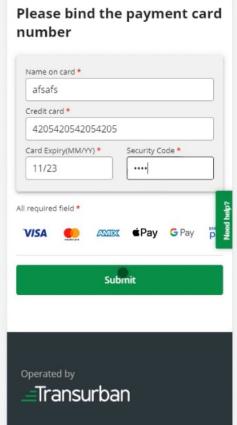


CN Actors called the TTP Real-time Phishing 同步魚 while Microsoft referred it as Adversary-in-the-middle Phishing.

https://www.microsoft.com/en-us/security/blog/2023/06/08/detecting-and-mitigating-a-multi-stage-aitm-phishing-and-bec-campaign/



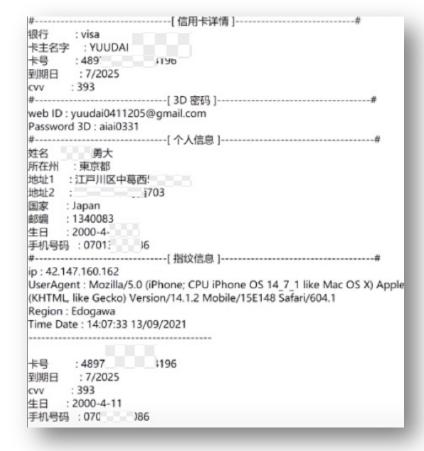
Victim



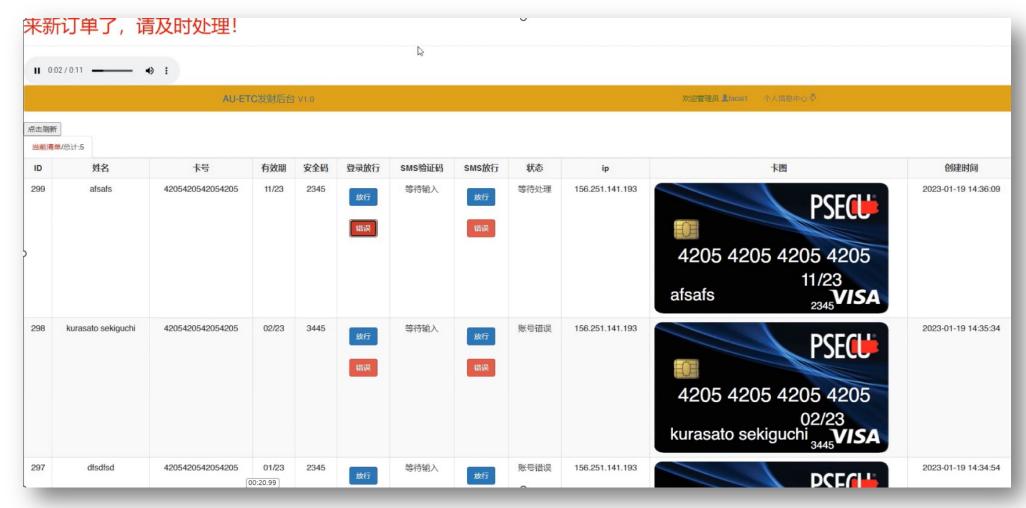
Adversary-

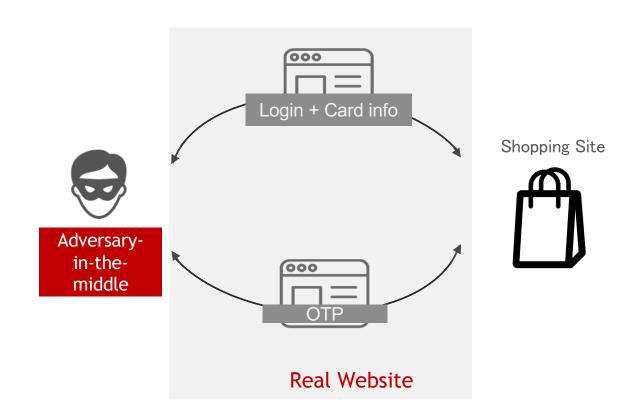
in-the-

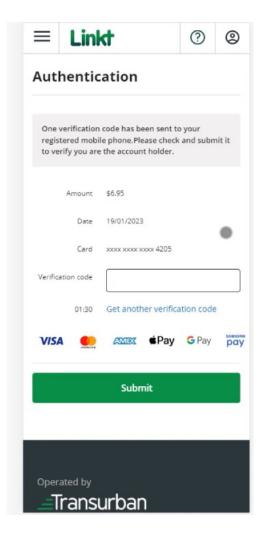
middle



Actor 後台:















Why doesn't OTP code work well?

- Adversary-in-the-middle always relay
- Or just ask the user for challenge code





PhaaS: Phishing-as-a-Service 魚塘 (雲端代管訂閱制釣魚網站平台)





真正的鱼料料主多数是自己假设鱼站,成本也 是不小,所以日本的鱼料大致价格在120-200 不等,美国的相对低一些也不会差很多, 80-150都有。 个人建议不要入手低于100一条的料 尤其是不熟悉的料商。如果各位真的需要购 买,可以先咨询一下客服,打听一下群里兄弟,看看这个料主名声如何再入手。 有时候很多人想着节省成本,也想去钓鱼群发 **张成本,其实钓鱼当中存在很多技术问题,** 平凡的更替源码,做防红,群发数据采购,群 发邮件SMTP协议。邮局调试等等都是技术活和 辛苦活,每个人精力有限,不能又钓鱼又刷 货,最后两边都搞不好,如果有一些基础,可 以慢慢探索和学习尝试成为一名料主,如果没 有一些基础的技术知识,那就从基础做起,不 有一些基础的22个对似,那就从基础的股户, 要好高骛远,先多看视频多学习,感觉掌握一 些技巧之后,花点钱买点料,跳过技术门槛。 直接刷货,发货就变现,赚钱了稳定了,形成 良好循环了,再想去尝试学习钓鱼也不是不可 自建鱼塘也就是所谓的搭建服务器--调试源码 群发邮件--上鱼,这种方式当然是最好的,因为 是你自己钓的,除了你和受害者,谁也不知道 料的信息,所以料能放住,这很重要 料站靠谱的不多,当然也有一些老牌子料站, 这里不打广告,料站需要用虚拟币充值余额, 再用余额购买,有一些料站是自带测活接口的,如果购买之后测试是死亡,会退给你余 额,你可以重新购买,但是经常会遇到测活不 准确,一条料几十美金打水漂,况且靠谱的料 站多数是老外的,售后相对麻烦 黑市购买相对来说能靠谱一些,与料站的auto 自选采购模式不同,黑市是B2C模式交易,类 似淘宝,由平台制衡双方交易和调节,最有代 表性的网站当然是目前最大的阿尔法。前几年 关了,现在起死回生,由当年的程序员重新开 放,推荐去逛一逛。

如果实在不放心, 也可以在自由者下单, 主页

选项有CVV买卖,平台不收取利润,只负责替

付完担保金的商家发帖和更新卡头,如果各位

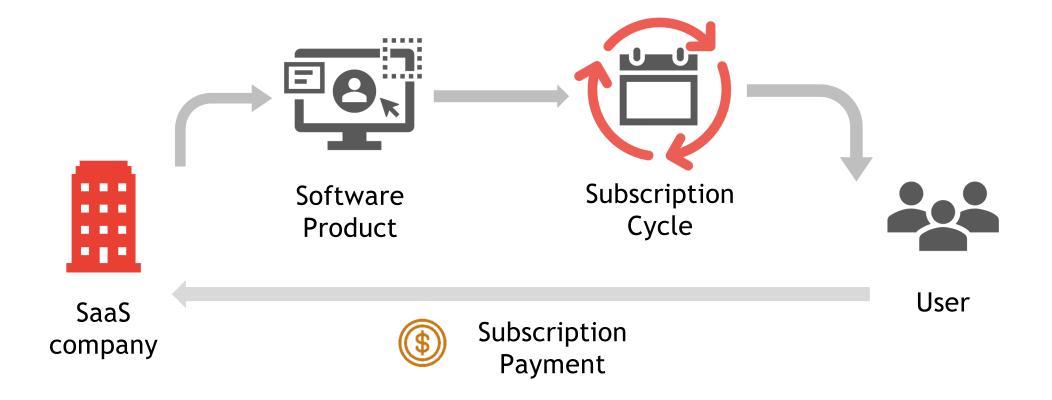
购买之后发现问题,自由者客服介入调解,确

定问题如果归商家,直接扣除担保金补偿客

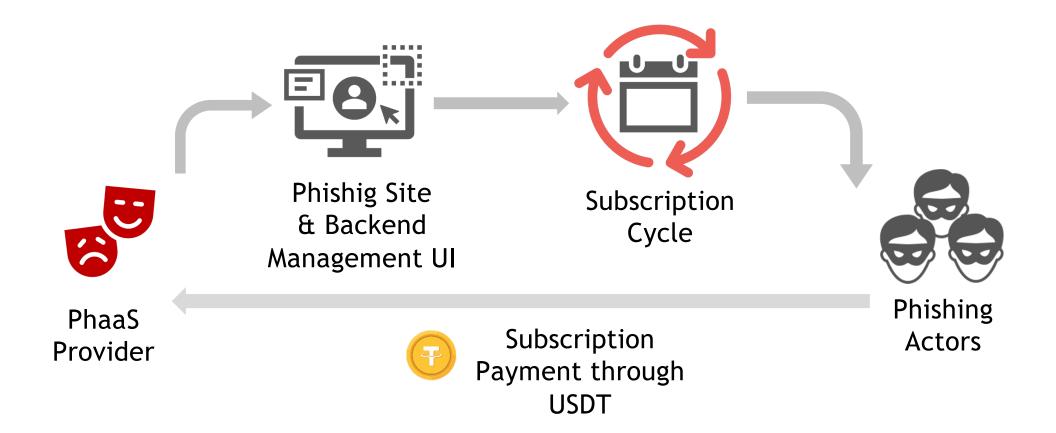
料主提供

自由者联盟担保下单

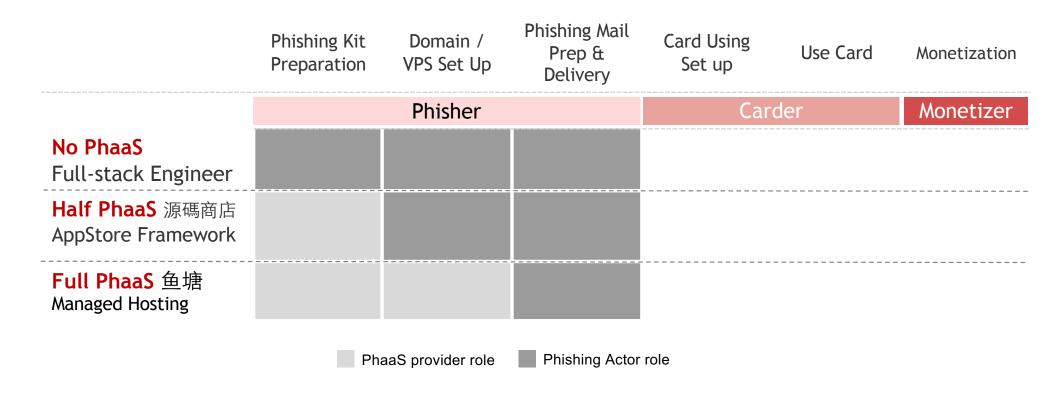
SaaS Business Model explained



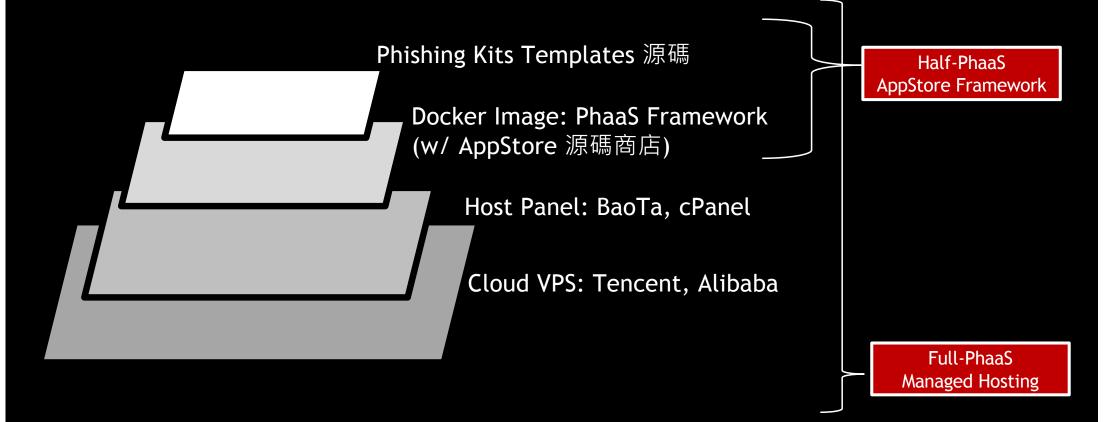
PhaaS Business Model (魚塘) 雲端代管訂閱制釣魚網站



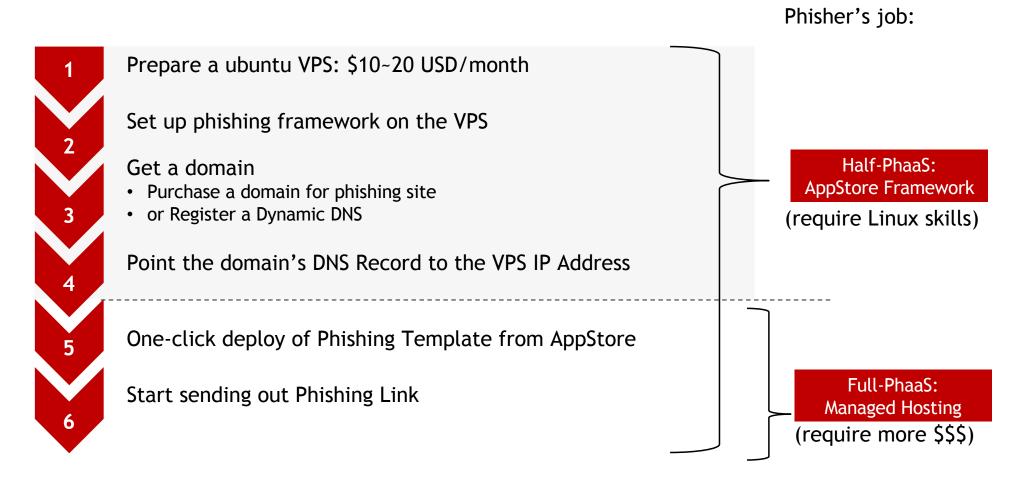
Types of Phishing-as-a-Service



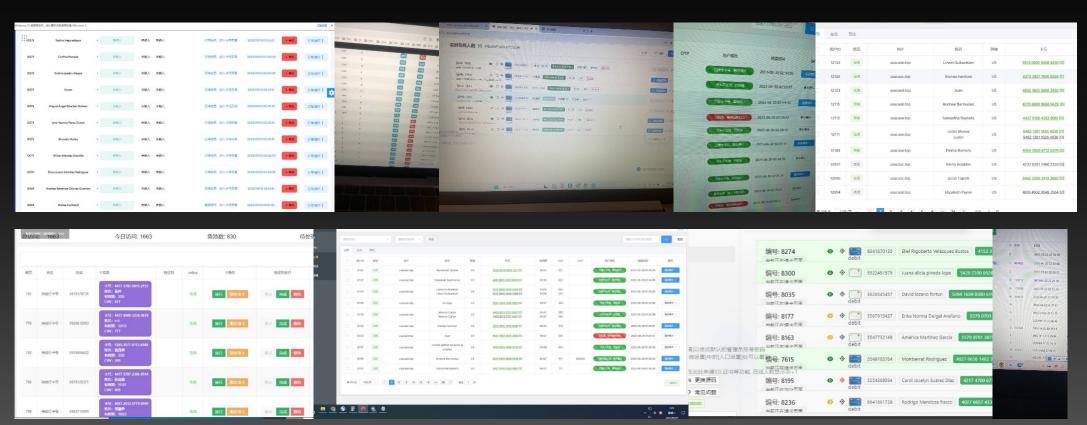
Tech Stack of Half / Full PhaaS

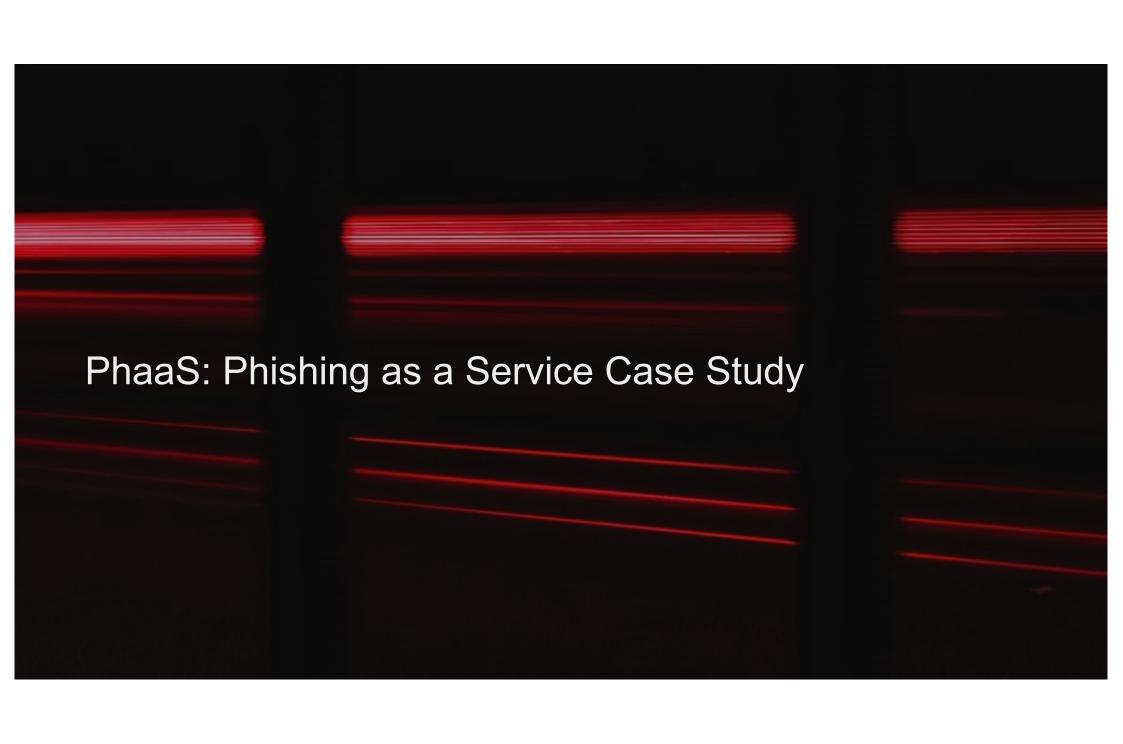


Definition of Half/Full PhaaS



From early 2023, 50+ of PhaaS providers observed across Chinese Card Shops, mostly w/Real-time Phishing





Case Study 1/2 - Panda Shop 熊貓源碼商店

- Subscribers: 2600+
- Focused on Delivery Services
- Pricing: Pay with USDT

| Options | Daily | Weekly | Monthly |
|-----------------------------------------------------|-------|---------------|----------|
| No PhaaS Phishing Kit Source Code | | 520U One time | <u>)</u> |
| Half-PhaaS AppStore Framework No domain & VPS | 30U | 90U | 220U |
| Full-PhaaS Managed Hosting | | 120U | 260U |



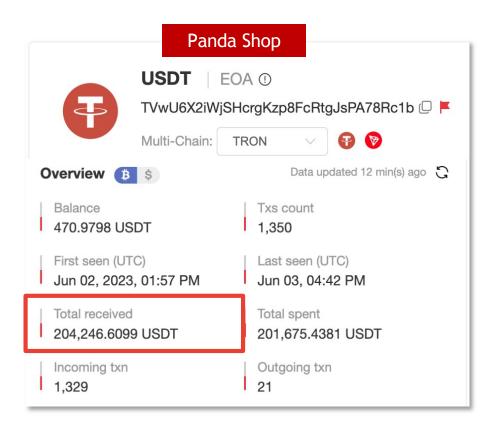
Case Study 2/2 - Magic Cat 神奇貓貓

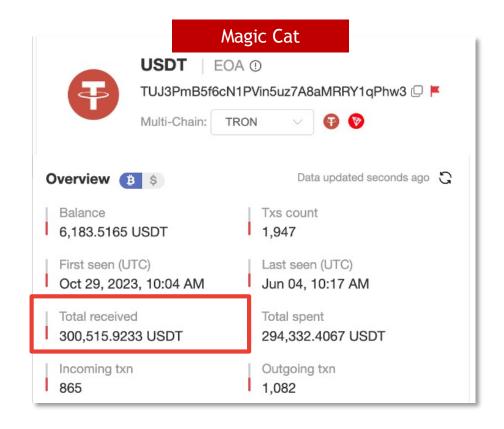
- Subscribers: 3000+
- Focused on various Post Office theme
- Pricing: Pay with USDT

| Options | Daily | Weekly | Monthly |
|-----------------------------------------------------|-------|--------|---------|
| No PhaaS Phishing Kit Source Code | | - | |
| Half-PhaaS AppStore Framework No domain & VPS | - | 88U | 288U |
| Full-PhaaS Managed Hosting | - | 138U | 338U |

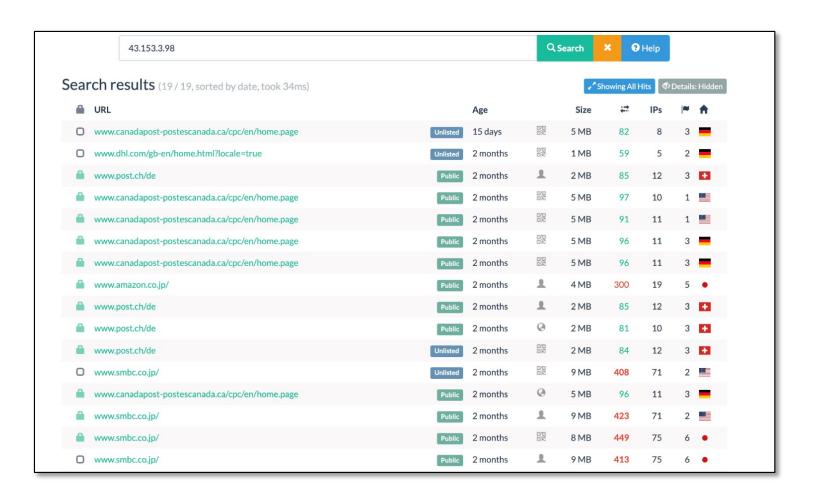


PhaaS Providers: Earning like senior software engineer!

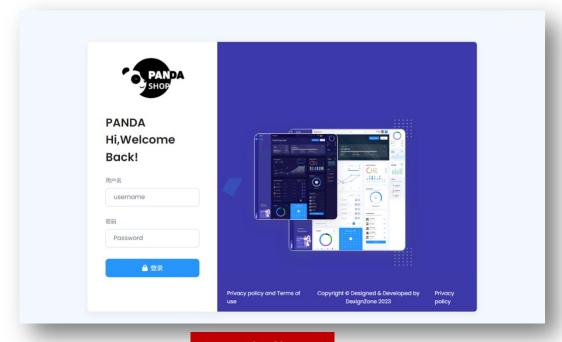




A lot of related phishing sites built on the same VPS IP



Let's explore the frameworks



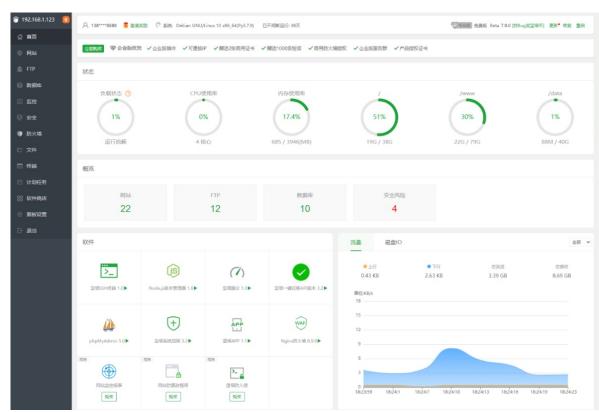


Panda Shop

Magic Cat

How to deploy a PhaaS Framework to VPS

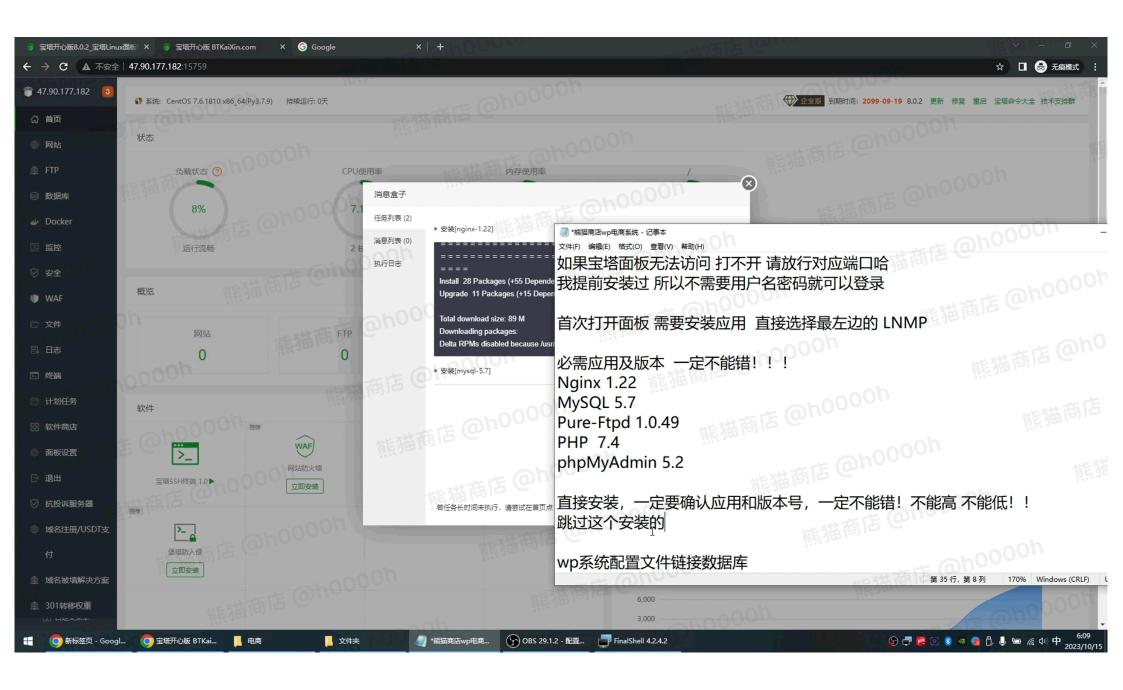
- 宝塔Linux面板 一鍵 installOR
- Docker install curl https://deploy.magiccat.world/install.sh
- 教學影片 step by step





熊猫商店电商搭建教程

认 准 熊 猫 商 店 , 为 你 的 钓 鱼 之 路 保 驾 护 航!



MagicCat Docker & License Daemon

● Docker 安裝 script 貼上就自動裝,隨機產生後台密碼

```
Total reclaimed space: 305.9MB

[+] Restarting 4/4

/ Container root-api-1

/ Container root-mysql-1

/ Container root-web-msg-sender-1

/ Container root-web-l

Started

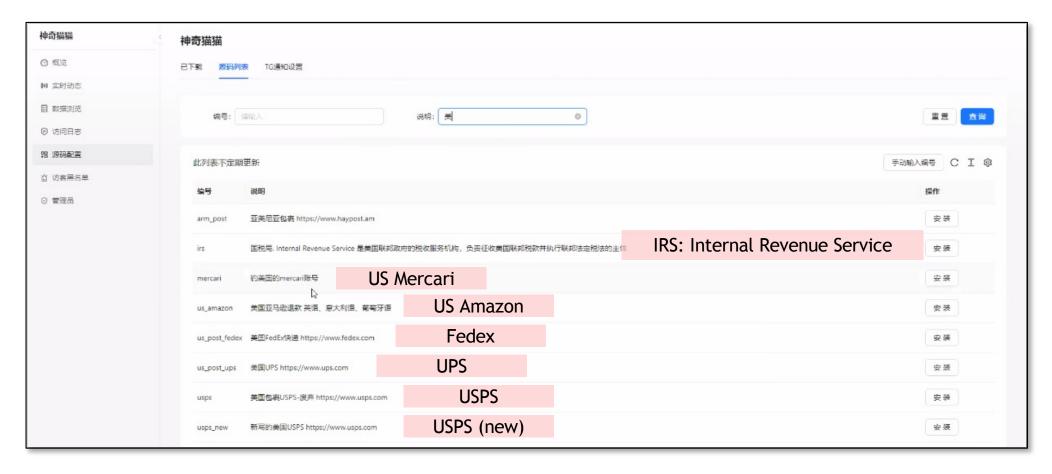
/ Container root-web-l

Started

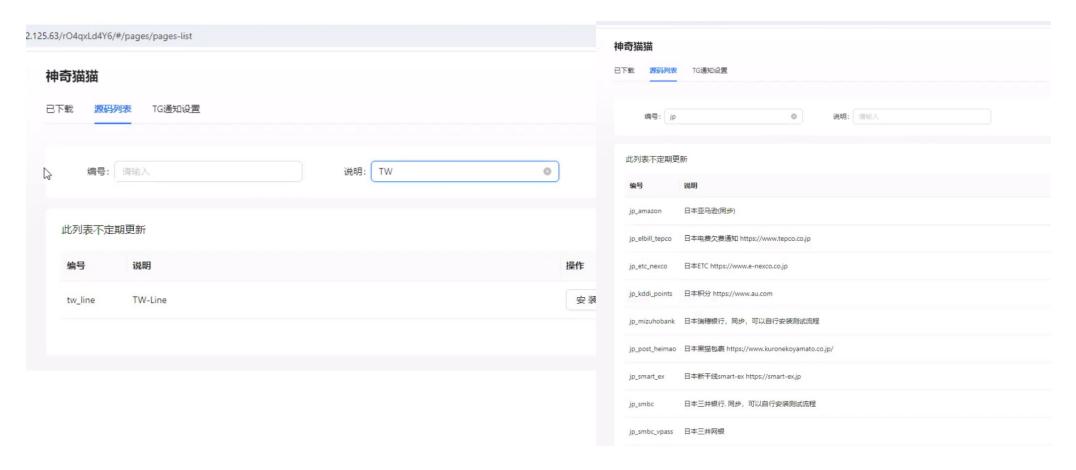
root@example:~#
```

```
root@example:~# cat public/config.json
{
    "admin-entrypoint": "cg5cGavQrl", 后台登录地址
    "admin-user": "0Kitu8Bbri", 后台账号
    "admin-passwd": "YqVzX7ngNuCkoOn"
}root@example:~#
```

App Store - US phishing sites



App Store - SG phishing sites



| 编号 | 说明 操作 | chl_post | 智利 http://www.correos.cl/ | isl_post | 冰岛包裹 https://posturinn.is | mys_points_ | c 马来celcom积分https://www.celcom.com.my/ | sgp_etc | 新加坡ETC https://vrl.tta.gov.sg |
|--------------|----------------------------------------------------|--------------|----------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------|--------------|------------------------------------------------------|
| abw_post | 阿鲁巴包裹 https://www.postaruba.com | civ_post | 科特迪瓦包裹 https://laposte.ci.post | isr_gov | 以色列政府补贴 https://b2b.btl.gov.i/ | E mys_points_ | r 马来西亚maxis积分https://www.maxis.com.my | sgp_points_f | :新加坡fairprice.com.sg积分https://www.fairprice.com.sg |
| ago_post | 安哥拉包裹 http://www.correiosdeangola.co.ao/ | col_etc | 哥伦比亚ETC https://www.gov.co | ita_etc | 意大利ETC https://www.telepass.com | mys_points_t | t 马来西亚touchngo积分https://www.touchngo.com.my | sgp_points_s | s 新加坡Singtel积分https://www.singtel.com |
| alb_post | 阿尔巴尼亚包裹 https://www.postashqiptare.al | col_points_c | li 哥伦比亚claro电信积分 https://www.c | ita_points_tir | r 意大利TIM积分 https://www.tim.it | mys_post | 马来西亚包裹 https://www.pos.com.my/home | sgp_post | 新加坡包裹 https://www.singpost.com |
| amazon_pos | rl 亚马逊包裹(英语,默认\$可以自行修改货币来用于其它国家) htt | t col_post | 哥伦比亚包裹 https://www.4-72.com. | (ita_post | 意大利包裹 https://business.poste.it | mys_post_jte | e 马来包裹(英语) https://www.jtexpress.my/ | slv_post | 萨尔瓦多包裹 https://www.correos.gob.sv |
| aomen_dian: | x https://www.1888.com.mo | cri_points | 哥斯达黎加积分 https://www.grupoice | ita_postepay | · 意大利Postepay网银 https://www.pos | t nam_post | 纳米比亚包裹 https://www.nampost.com.na | smr_post | 圣马力诺包裹 https://www.poste.sm |
| aomen_yidor | https://www.1888.com.mo | cri_post | 哥斯达黎加 https://correos.go.cr | jam_post | 牙买加包裹 https://jamaicapost.gov.jr | n netflix | 奈飞会员体验 https://www.netflix.com | srb_post | 塞尔维亚包裹 https://www.posta.rs |
| apple | 日本苹果·有ID和填卡步骤 | cub_post | 古巴包裹 https://www.correos.cu | jor_points_ar | : 约旦arabbank积分(英语/阿拉伯语) ht | t nga_post | 尼日利亚包裹 https://www.nipost.gov.ng | svk_post | 斯洛伐克包裹 https://www.posta.sk/ |
| appleid_en | AppleID | cyp_post | 塞浦路斯包裹 https://www.cypruspost | t jor_post | 约旦包裹 https://jordanpost.com.jo | nic_post | 尼加拉瓜包裹 http://www.correos.gob.ni | svn_points_t | ε 斯洛文尼亚电信积分 https://www.telekom.si |
| appleid_refu | r AppleID退款(钓卡) https://support.apple.com/apple-id | cze_post | 捷克包裹 https://www.ceskaposta.cz | jp_amazon | 日本亚马逊(同步) | nld_cjib | 荷兰交通罚款 https://digitaalloket.cjib.nl/ | svn_post | 斯洛文尼亚包裹 https://www.posta.si/zasebno |
| are_damanh | n 阿联酋健康卡 https://damanhealth.ae | darcula | 电商支付插件,支持woocommerce、s | jp_elbill_tepco | t 日本电费欠费通知 https://www.tepco | o. nld_easypark | r 荷兰easypark账号异常 https://www.easypark.com/nl | swe_post | 瑞典包裹 https://www.postnord.se/ |
| are_points_b | x 阿联酋积分 https://www.bankfab.com | deu_points_t | tı 德国电信Telekom积分 https://www.te | l jp_etc_nexco | 日本ETC https://www.e-nexco.co.jp | nld_post | 荷兰包裹 https://postnl.post/?language=nl | tha_cimbtha | ii 泰国cimbthai网银 https://www.cimbthai.com |
| are_points_d | lı 阿联酋DU积分(英语) https://www.du.ae | deu_post | 德国DHL包裹 https://www.dhl.de/ | jp_kddi_point | : 日本积分 https://www.au.com | nor_etc | 挪威ETC https://www.autopass.no | tha_krungsr | ii 泰国krungsrionline网银 https://www.krungsrionline.com |
| are_points_e | i 阿联酋航空积分 https://www.emirates.com/ | deu_tvpaym | e 德国电视费滞留金缴费单 https://www | ı jp_mizuhobaı | r 日本瑞穂银行・同步・可以自行安装 | nor_post | 挪威包裹 https://www.posten.no | tha_points_a | ii 泰国积分 https://www.ais.th |
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| are_points_n | x 阿联酋Noon商城积分 https://www.noon.com | dhl_post_fr | 摩洛哥-DHL包裹-法语 https://www.dh | ip_smart_ex | 日本新干线smart-exhttps://smart-ex | .j nzetc | 新西兰ETC https://www.nzta.govt.nz | tha_post_fla | s 泰国包裹 https://www.flashexpress.co.th/ |
| are_post | 阿联酋包裹(英语/阿拉伯语) https://www.emiratespost.ae | dnk_post | 丹麦包裹 https://www.postnord.dk | jp_smbc | 日本三井银行,同步·可以自行安装; | ∬ nzl_post | 新西兰包裹 https://www.nzpost.co.nz/ | tkm_post | 土库曼斯坦包裹 https://post.tm |
| are_post_ara | a 阿联酋aramex包裹 https://www.aramex.com/ae/en | dom_post | 多米尼加包裹 https://inposdom.gob.d | ijp_smbc_vpa | : 日本三井网银 | omn_points_ | : 阿曼Omantel积分 https://www.omantel.om | tto_post | 特立尼达和多巴哥包裹 https://ttpost.net |
| are_post_zaj | ε 阿联酋包裹 https://zajel.com | dubai_water | 迪拜水费缴纳,英语和阿拉伯语 https: | kaz_points_k | ι哈萨克斯坦Kcell积分https://kcell.kz/k | d omn_post | 阿曼包裹 https://www.omanpost.om/ar/node | tun_post | 突尼斯包裹(法语) https://www.poste.tn |
| arg_etc | 阿根廷ETC https://telepase.com.ar | dza_post | 阿尔及利亚包裹 https://www.poste.da | z kaz_post | 哈萨克斯坦包裹 https://post.kz/servic | ontario : | 西班牙的 ontario 资料 | tur_etc | 土耳其ETC https://www.kgm.gov.tr |
| arg_post | 阿根廷包裹 https://www.correoargentino.com.ar/ | ecu_points_ | n 厄瓜多尔movistar积分https://www.m | ken_post | 肯尼亚包裹(英语) https://posta.co.ke | pak_post | 巴基斯坦包裹 https://ep.gov.pk | tur_post | 土耳其包裹 https://www.ptt.gov.tr/ |
| arg_post_tw | c 阿根廷包裹-另一个官网的 https://www.andreani.com | ecu_post | 厄瓜多尔包裹 https://www.serviciopos | kgz_post | 吉尔吉斯斯坦(俄语) https://kyrgyzpos | t pan_post | 巴拿马包裹 https://www.correospanama.gob.pa/ | tw_line | TW-Line |
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| au_mygov | 澳大利亚 税务退款 https://my.gov.au | esp_bbva | 西班牙BBVA网银 https://www.bbva.com | r kor_etc | 韩国ETC https://www.hipass.co.kr | | 菲律宾BDO网银 https://www.bdo.com.ph | uk_gov_vehic | :I 英国纳税提醒 https://vehicletax.service.gov.uk |
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usps

70% Post Office 20% Telecom Bill

南非积分 Vodacom积分·支持英语、德语、西班牙语、希腊语 https://www.vodacom

美国包裹USPS-废弃 https://www.usps.com

Youtube会员体验 https://www.voutube.com

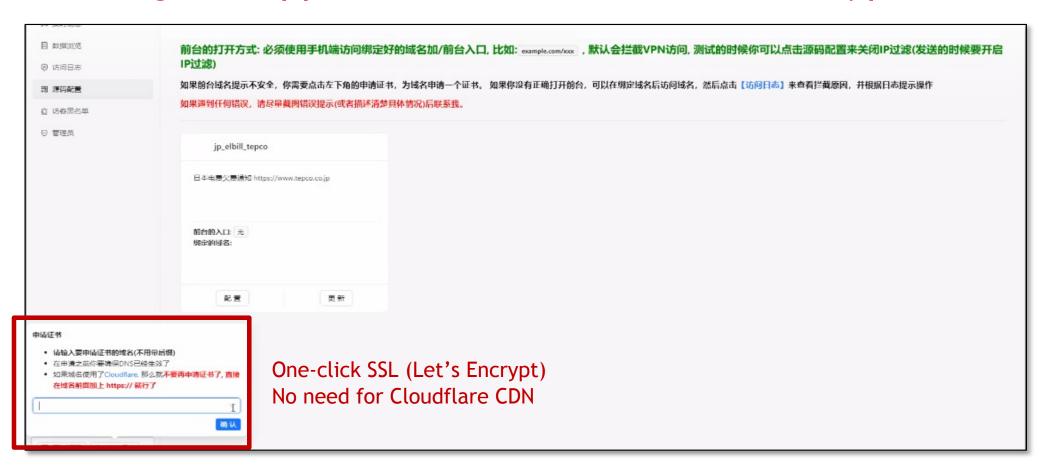
南非包裹

10% Others

Downloaded phishing template displayed

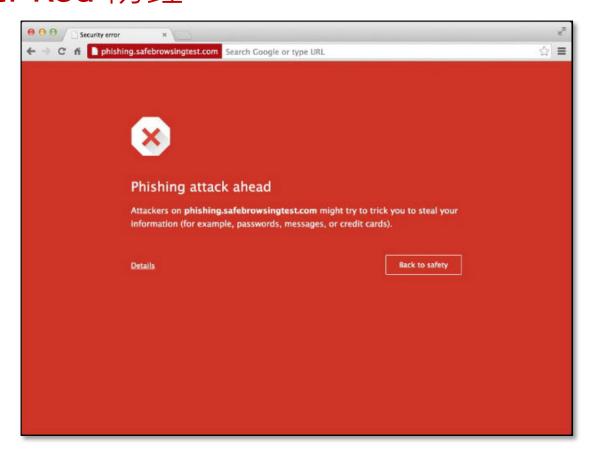


Phishing Site App store, with one-click SSL Encryption





Anti-Red 防红

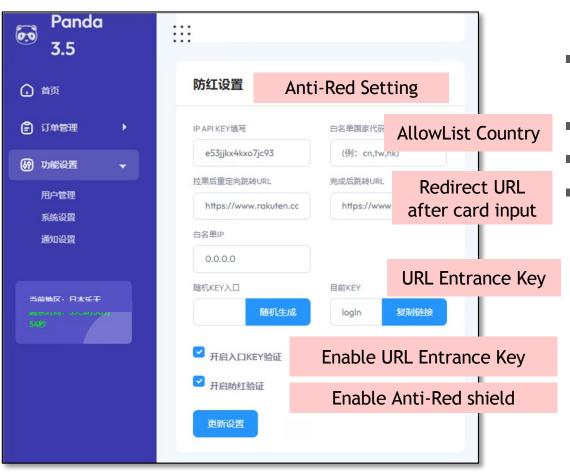




Anti-Red: A method to block out organizations and visitors that may threaten the existence of the website



User-friendly Anti-Red Features



- IP API Key: GeoIP/Reputation lookup
- Allowlist IP, Countries
- Redirect URL
 - Entrance Key when visiting URL

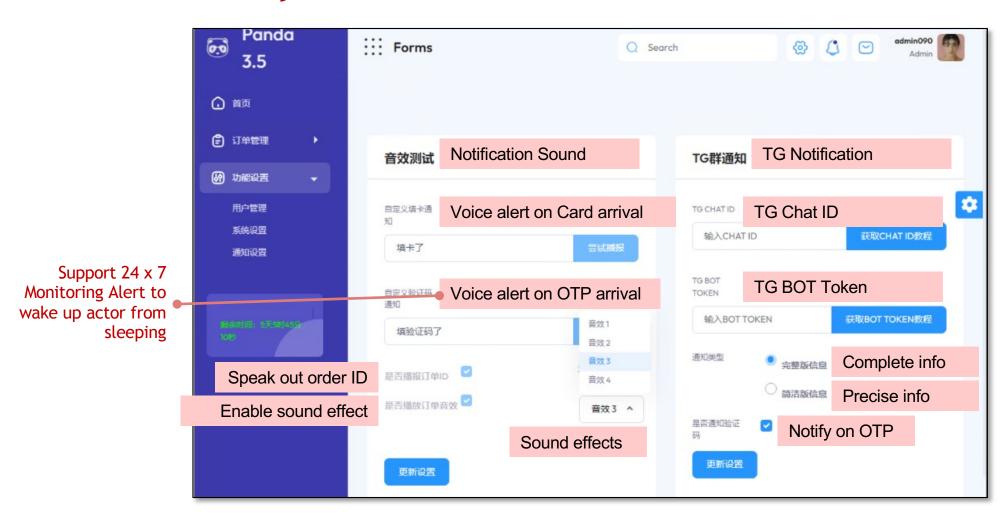
Only when URL parameter is correct can the phishing site be accessed

[X] http://tepco.phisher.tk

[V] http://tepco.phisher.tk/?donut

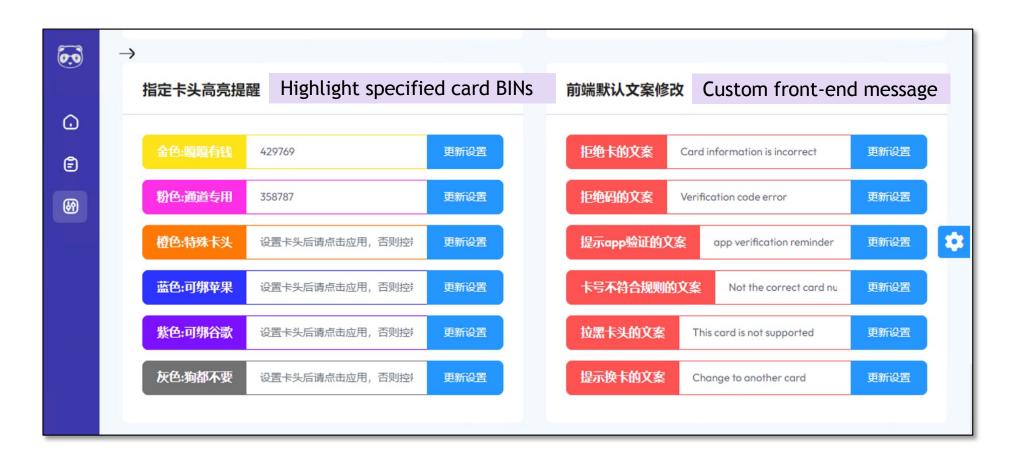


Actors work very hard 24 x 7 值班工讀生



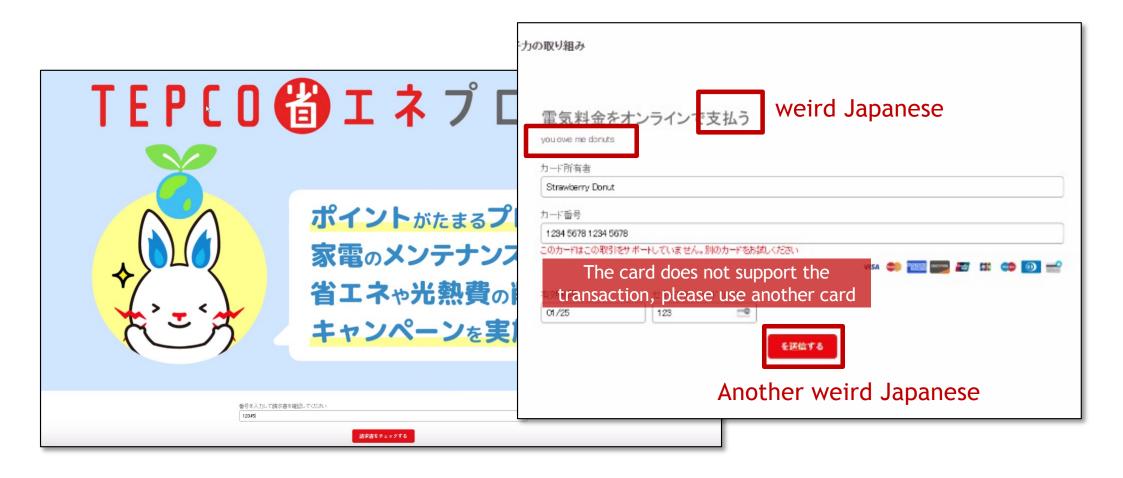


Support Front End & Notification Change

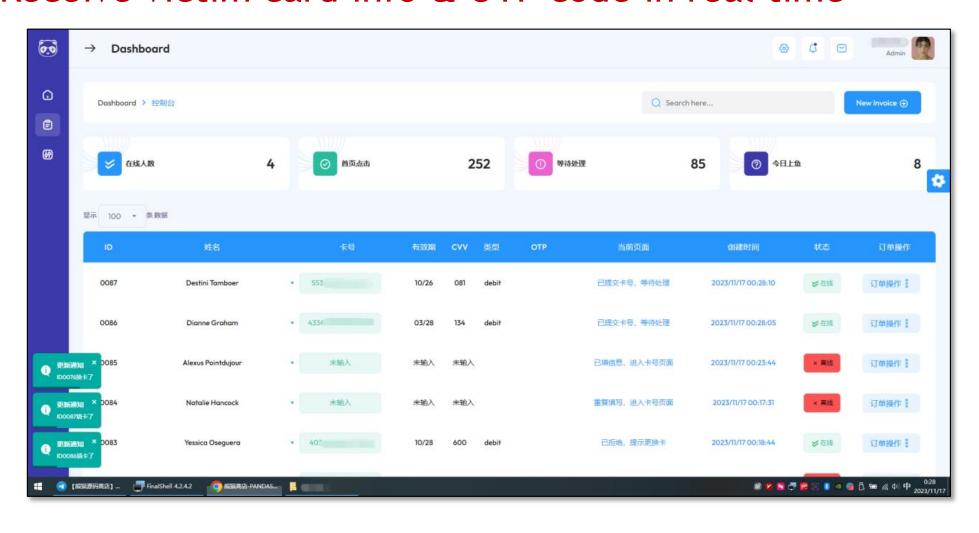




Let's try the phishing site...



Receive victim card info & OTP code in real time





Meanwhile behind the scene... (actor's backstage)



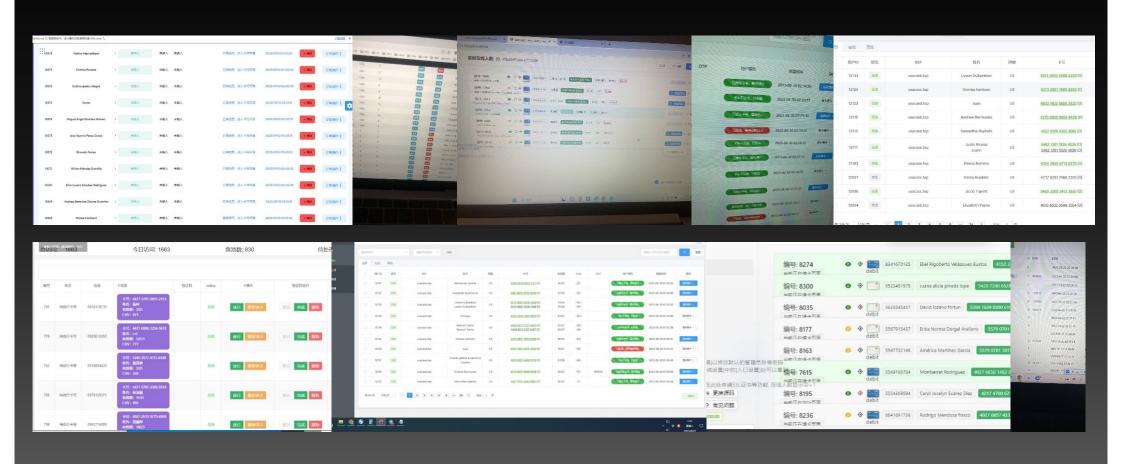


OTP page



- Unnatural Japanese instructions & Button
- Master Card Logo

50+ versions of PhaaS observed in Chinese Card shop





Real-time Phished Collected Victim Info

Essential

- Card Number: Accept / Deny
- OTP: Accept / Deny
- Card Expiration Date
- CVV

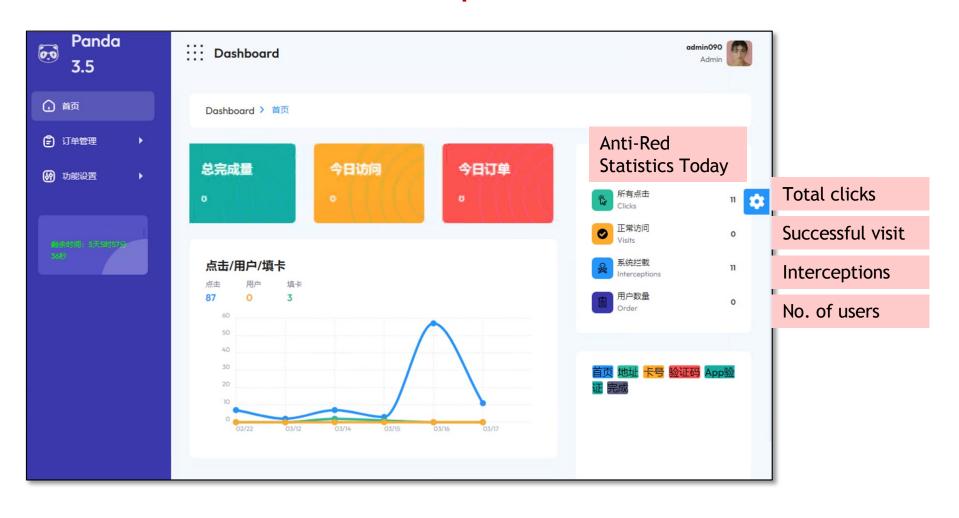
Advanced

Personal Info: Name, Phone,
 Zipcode, Birth Date, e-mail

Meta-data

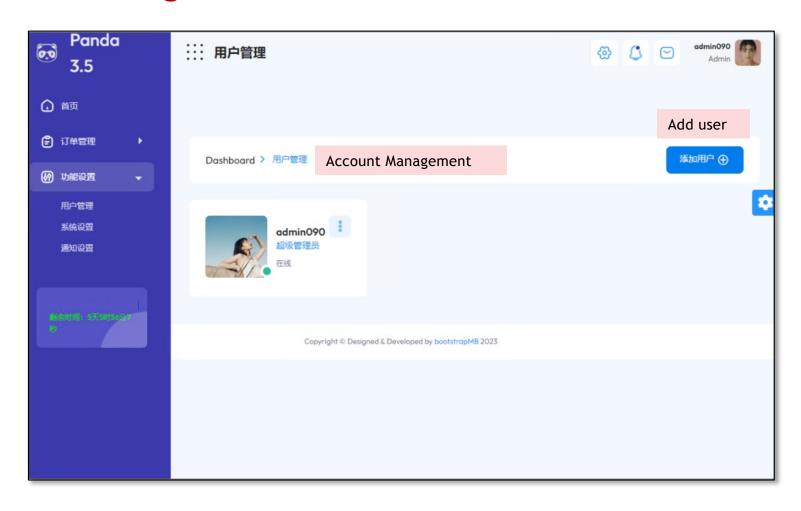
- Card Type: Debit / Credit
- BIN info: Card country, Brand, Issuer Bank, Card Rank
- IP
- Visitor Status: Online / Offline
- Visitor Stage: Accessing / Filling in card info / Waiting for OTP input / Completed input
- Referral Link

Visualization Dashboard - example

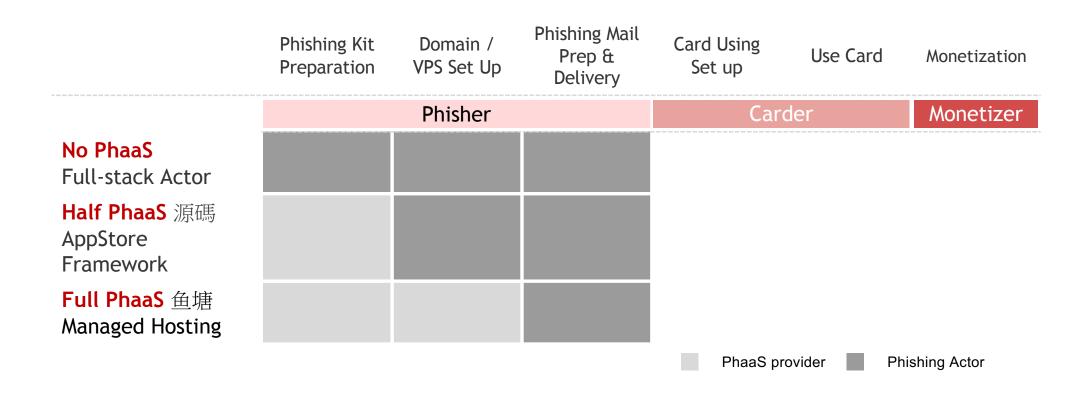




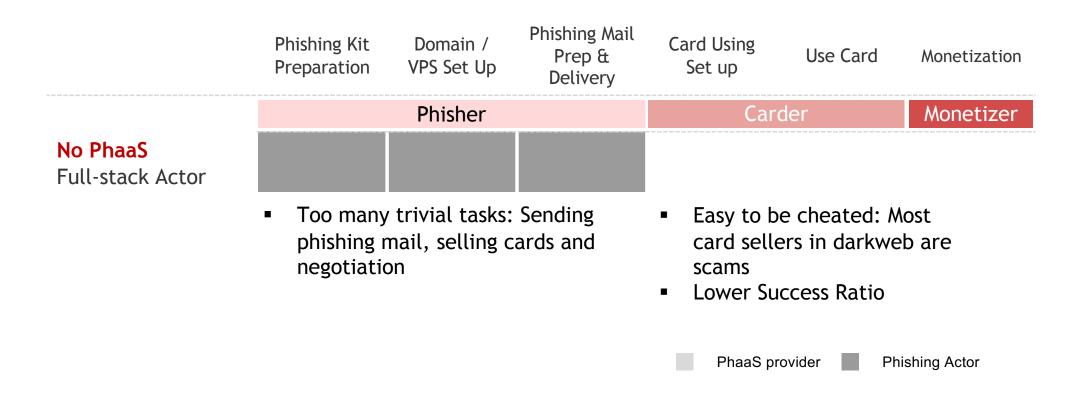
Account Management 增加帳號給工讀生



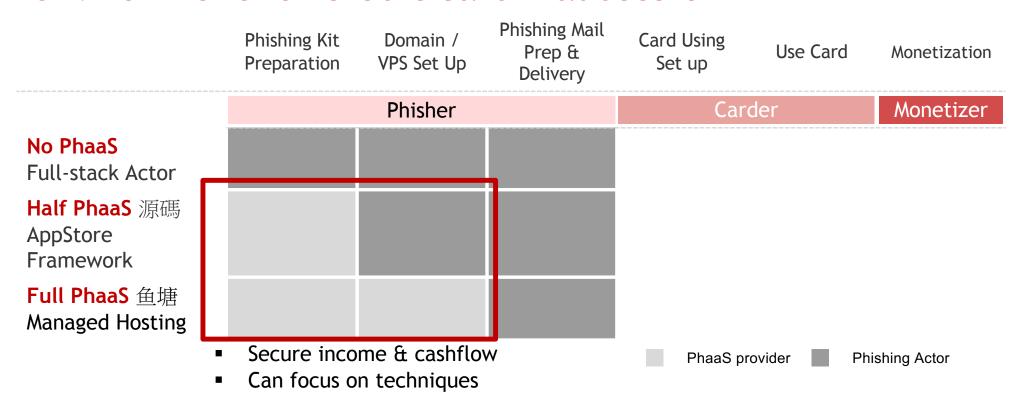
Types of Phishing-as-a-Service



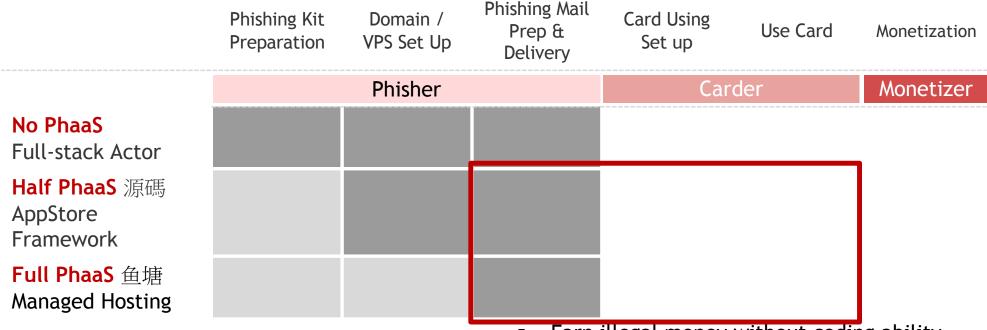
Disadvantages of No-PhaaS



Advantages of PhaaS: A more secure and positive environment for credit card fraudsters



Advantages of PhaaS: A more secure and positive environment for credit card fraudsters



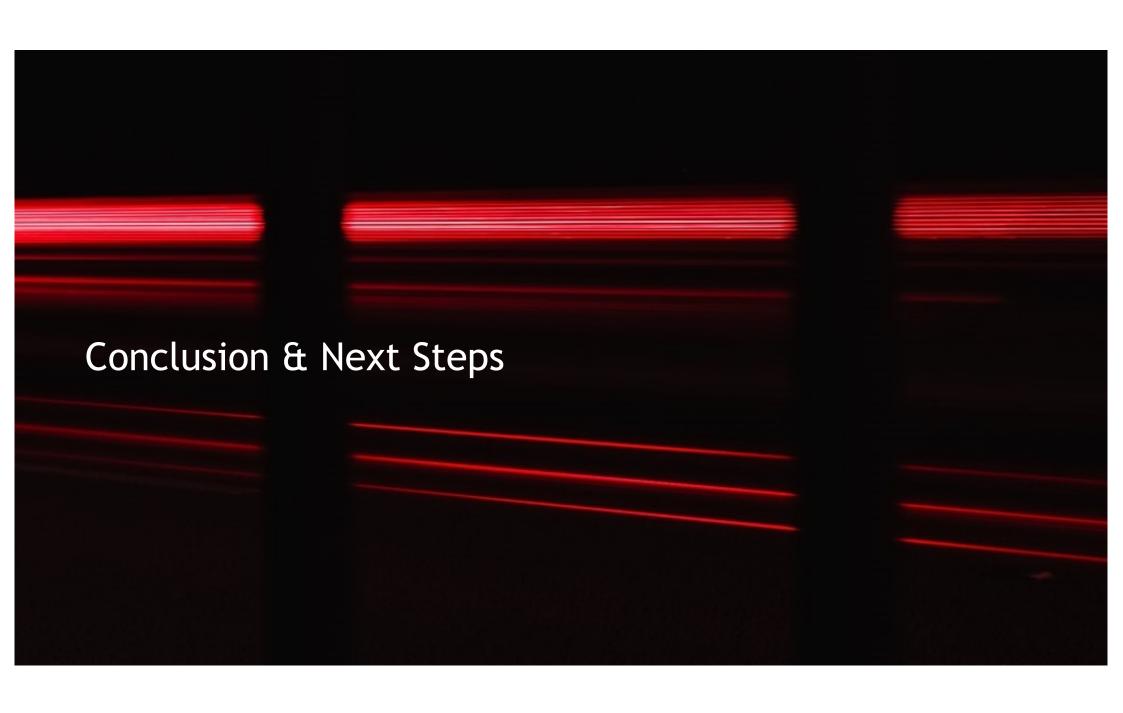
- Earn illegal money without coding ability
- Low possibility to be cheated
- Have more control on the card information and quality

Multiple income sources for the PhaaS providers

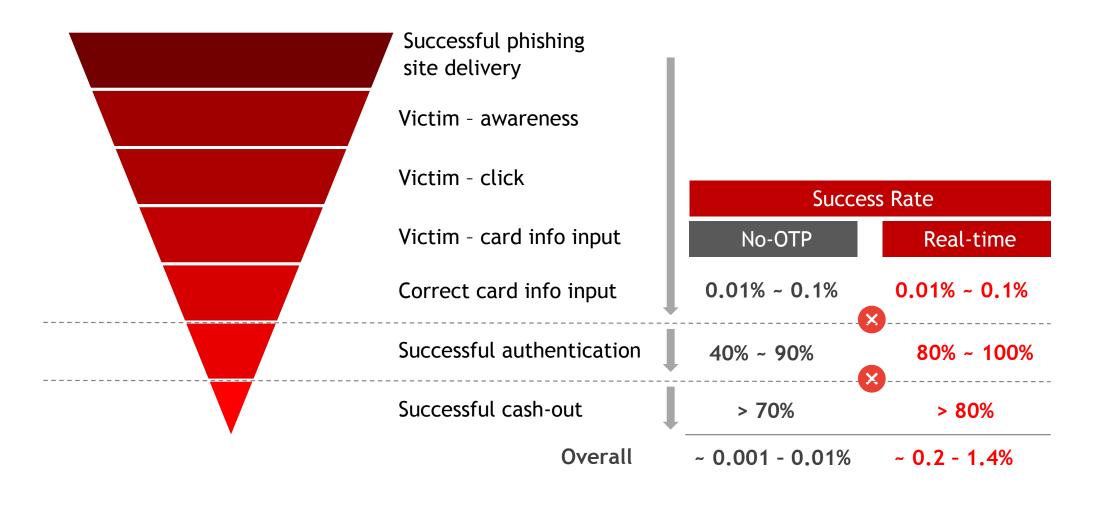
info to resell / resue

| | Phishing Kit Preparation | Domain / VPS Set Up | Phishing Mail Prep & Delivery | Card Using Set up | Use Card | Monetization |
|----------------------------------------|--------------------------------|------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
| | | Phisher | | Car | Monetizer | |
| No PhaaS Full-stack Actor | | | | | | |
| Half PhaaS 源碼 AppStore Framework | | | | | | |
| Full PhaaS 鱼塘 Managed Hosting | | | | | | |
| | Can focus of | ome & cashflo on techniques nd-hand card | ■ Low p | illegal money bossibility to bossibi | e cheated | , |

and quality



Success Rate of Real-time phishing is 2X of No-OTP!

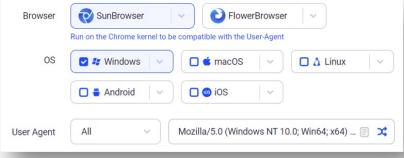


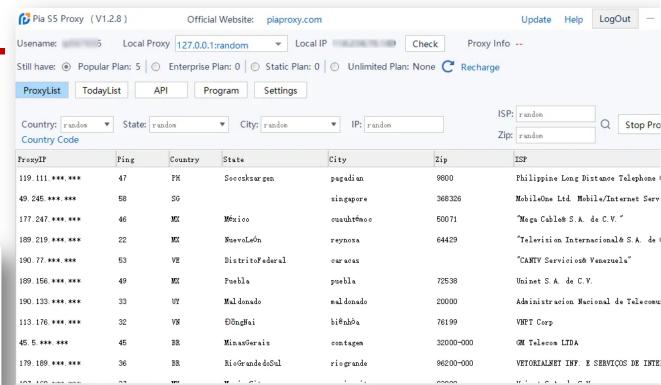
No-OTP phishing fraudsters always mimic victims' environment in a more sophisticated manner than Real-time phishing

No-OTP Phishing

Challenges for defenders

- IP addresses can be forged through Residential Proxy
- User-agent can be forged through tools such as Adspower





Real-time phishing is easier to detect due to inconsistent environment/behavior

No-OTP Phishing

Challenges for defenders

- IP addresses can be changed through Residential Proxy
- Useragent can be changed through tools such as Adspower

Countermeasures for defenders

- Residential proxy database
- 3DSecure
- Passkeys and FIDO
- For Non-real-time services: Contact your customer

Real-time Phishing

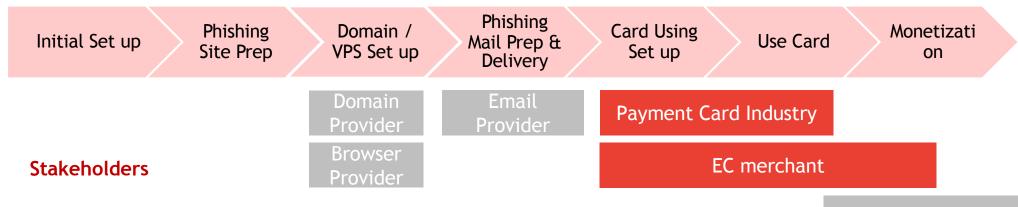
Challenges for defenders

Card Holder protection issue

Countermeasures for defenders

- User Agent, IP, ISP, Language, screen size, geoinfo not recorded → Can Easily Detect abnormal user behavior
- Fraudsters typically reuse device fingerprints & User Agents → Simplifying the tracking process
- For Non-real-time services: Contact your customer

Countermeasures across the Phishing Value Chain



Logistic Company



Payment Card Industry

- Mobile Identity Verification: Identity verification through telecom SIM
- Call/SMS your customer to verify transactions

EC

- Strong Authentication: Passkey, FIDO, Biometric Authentication, etc.
- Device Fingerprinting, timezone, GPU, IP reputation
- Leverage AI/ML fraud detection Model
- Call/SMS your customer to verify transactions

Key Takeaways

- PhaaS (Phishing-as-a-Service, 魚塘) 雲端代管訂閱制釣魚平台的流行,
 代表釣魚產業的專業分工更細緻化,用 AppStore 快速佈署新 phish kit,
 平台內建防紅等多種規避偵測,讓沒有技術背景的 actor 也能輕鬆上手!
- Real-time phishing (同步魚) 中間人攻擊的流行,突破 OTP 驗證機制, actor 必須 24 小時值班,收到通知立刻盜刷交易,尚不易模擬完整環境
- 專業分工、攻擊手法、經濟環境讓各國釣魚網站以 +50% YoY 高速成長, 盗刷成功率達以往兩倍, GenAI 以 20 倍速產生新社交釣魚信和 Phish Kit
- 防守方也必須不斷更新偵測方法,傳統阻擋規則逐漸被 ML 偵測模型取代 參數的增加、每週重新訓練、各方情資交換、合作阻擋才能應對新手法。



Thank you

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Twitter @strawberrylux