

Understanding, Measuring, and Detecting Modern Technical Support Scams

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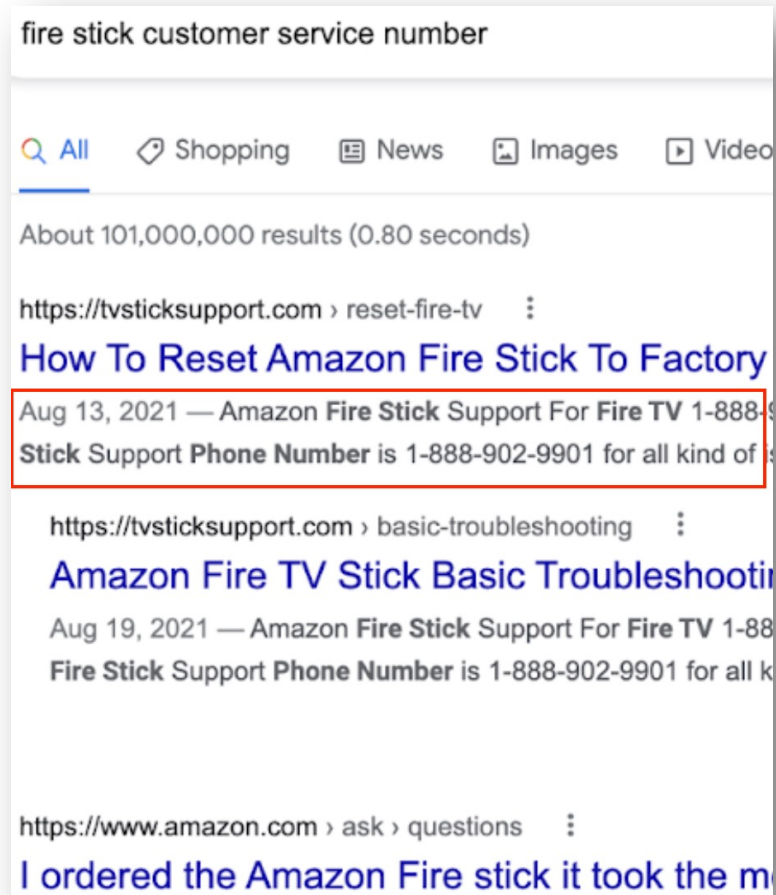
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Delft, Netherlands, 2023

Technical Support Scams (TSS)



Technical Support Scams (TSS)

HelpLine And HelpDesk Call Now

Delta Airlines Customer Service

24/7 Delta Airlines Reservation And Cancellation, Click On The Call Button To Connect To Our Agent

[CALL \(833\) 809-6418](tel:8338096418)

Printer Support Call Us Toll-Free +1-888-302-0939

FIX PRINTER ERROR CODES ONLINE

Type here Printer Error with Code name to find the Troubleshooting steps

Search here:

Call on given below Toll-Free numbers to get online support to fix the error

USA +1-888-302-0939	UK +44-808-164-5280	AUS +1-888-302-0939
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Our Services

Call For Printer Repair @ USA : +1-888-302-0939 , UK : +44-808-164-5280 Right

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CLICK ON THE NUMBER TO CALL APPLE SUPPORT

[+1-850-679-0582](tel:18506790582)

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Contact Yahoo Mail Customer Service Whenever You Need | Get Ultimate Guidance From Yahoo Support Team

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- ✔ Email attachment issues
- ✔ Forgot Yahoo mail Password
- ✔ Issues related to Security Question
- ✔ Various email errors and problems
- ✔ Hacked Yahoo Mail account

(USA/CA) 1-877-652-0068
(UK) +44-161-394-1039

YAHOO! MAIL

Easy Steps to Fix Yahoo Email Attachment Issues

TV STICK SUPPORT

Home Fire Stick Frozen Sound Problems Reset Fire Stick Basic Troubleshooting Blog

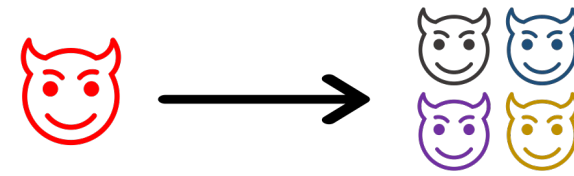
HOW TO USE AMAZON FIRE TV STICK FOR BEST EXPERIENCE

Need help? [1-877-943-5444](tel:18779435444)

TSS defense: State-of-the-art

- “Text-based” detection approach [1].
 - Prone to false positives as search engines are also inherently “text-based”.
 - Scammers often “evolves” into multiple scam topics easily.

We need a ***robust***, preferably ***scam-agnostic*** defensive approach based upon a ***deeper understanding*** of the TSS ecosystem!



Finding TSS Scammers...



tech support



Tech Support all calls


Public · 3.3K members · 10 posts a week

This group is about getting all tech support calls



February 2 at 8:02 PM · 🌐

Calls available according to new Google policies with good flow and quality for USA, UK and Australia besides this new updated tfn's of Zoom, Pbx and



INVOICE


United States

PayPal Inc.
7601 Penn Avenue,
South Richmond, MN 55423 USA
Toll Free Helpline 1 (855) 222-1111

Invoice Number: #PL98698/5655/585
Invoice Date: 31 January 2023
Payment Due: 31 January 2023
Amount Due (USD): \$349.85

Items	Quantity	Price	Amount
Geek Drive Anti Drive	1	\$349.85	\$349.85
Total:			\$389.56
Amount Due (USD):			\$389.56

Notes and Terms & Condition



Last Reminder - Confirmation Needed

Hello Customer—

Your subscription with us will expire today.
After the expiry date has passed your devices will become vulnerable for hackers.

Reference Code - XZ569867

Date - 30 January 2023
Account ID - 8567890
Total Amount - 399.99 Usd
Payment Method - Auto Debit

This charge appears on your statement as payment.

Terms and Condition
The subscription period will automatically renew unless you turn it off no later than 24 hours before the end of current period.

If you want to cancel call us on +1(888)307-8390

Related groups



Tech Support kolkata business

Public · 2.2K members · 4 posts a day

GOOD NEWS for ALL TECH SUPPORT BUSINESS. If you are facing problems mentioned above then dont panic. We are offering a customzie solution to your...



Tech Support calls..

Public · 7.6K members · 8 posts a month

Window Pop-up (Blue screen, Microsoft Security Essential) call available with relentless flow. These are high conversion of 30-65% .



6:53

Edit Chats

- Website vala** Monday 163
PAYOUT ZELLE CASHAPP... INSTANT
- ₹\$£€¢** Monday 377
PAYOUT ZELLE CASHAPP... INSTANT
- ZELLE ID AVAILABLE BEST** Monday 37
Australia Japan to Jap... blocking start
- Rock Bikers** Monday 627
Blockers (Best Rates) Trusted Ve... Best
- Social media marketing 20** Sunday 293
USA Email Data Available All Paid Domain...

Basis for Understanding TSS Ecosystem

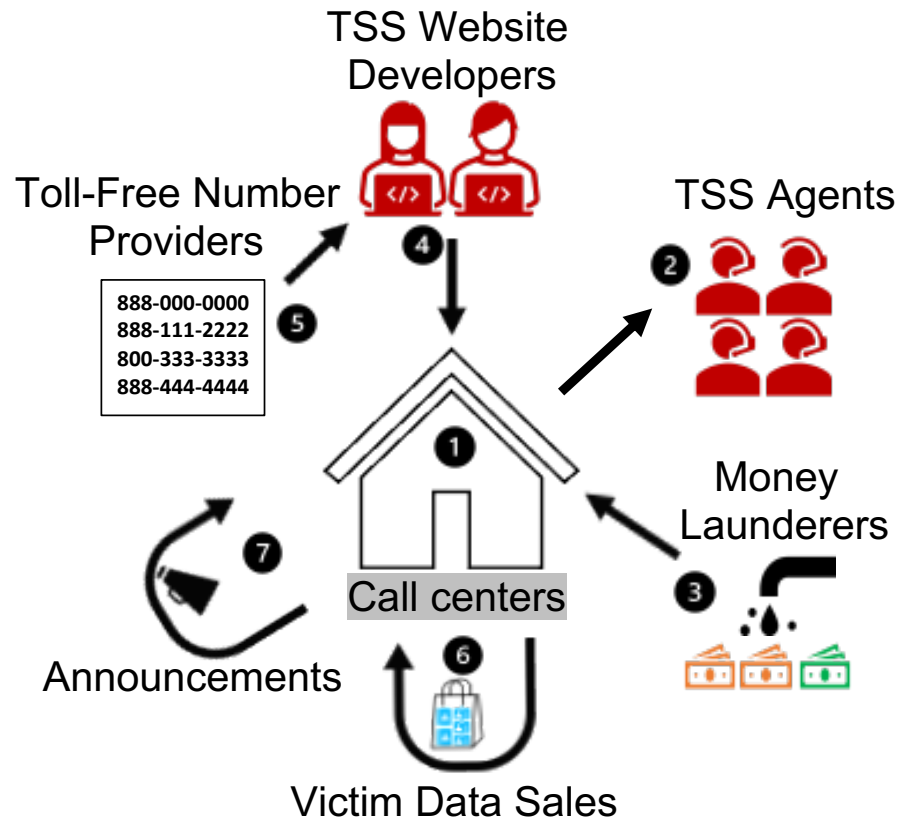
- 10 Facebook groups, 13 WhatsApp groups
- Obtained multi-month data from these groups.
- The data that revealed day-to-day TSS business operations.

- We subject the data to Qualitative Analysis



TSS Operations Map

Each arrow indicates a category of post found on WhatsApp & Facebook groups



The source of an arrow indicates which unit made a post on the group
The destination of the arrow indicates which unit the post was intended to

TSS Agents: hiring ads

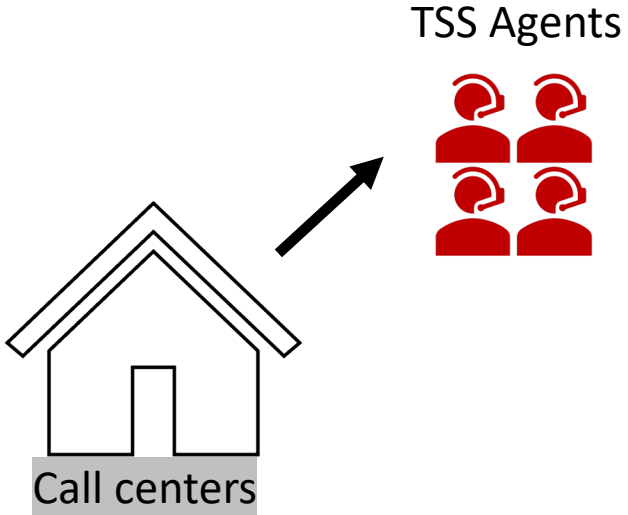
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Openings for 10 Sales Agents in North & west Delhi.
We are hiring candidates on commission basis. Great incentives
are also promised.
Candidate must have experience with Sales for any of Amazon
Refund, Cash app, Zelle, banking calls, Paid Email, Refund and
tech support Calls.

"Good call flow available."

\$\$\$ Next day or Weekly payout also available. Unlimited
earnings.

- 5 days working
 - great work environment
- Minimum working experience: 6-12 Months
Call or whatsapp right now: 989-989-5800
Dm for more info



TSS web developers: live victim call sales

Genuine Centers Ping Me

**QUALITY CALLS
AVAILABLE**

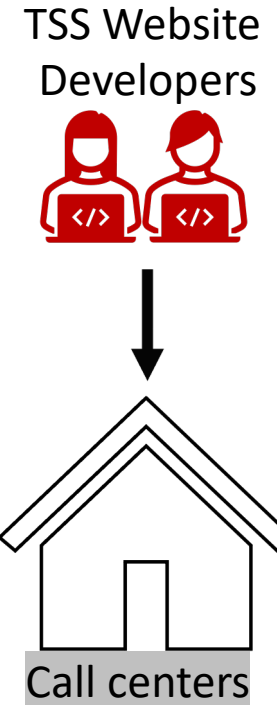
ROKU@550

CASHAPP@850

AMAZON@400

**GENUINE CENTERS PING ME
FOR REGULAR WORK**

TSS Web developers promote TSS sites using Blackhat SEO techniques or search-based ads

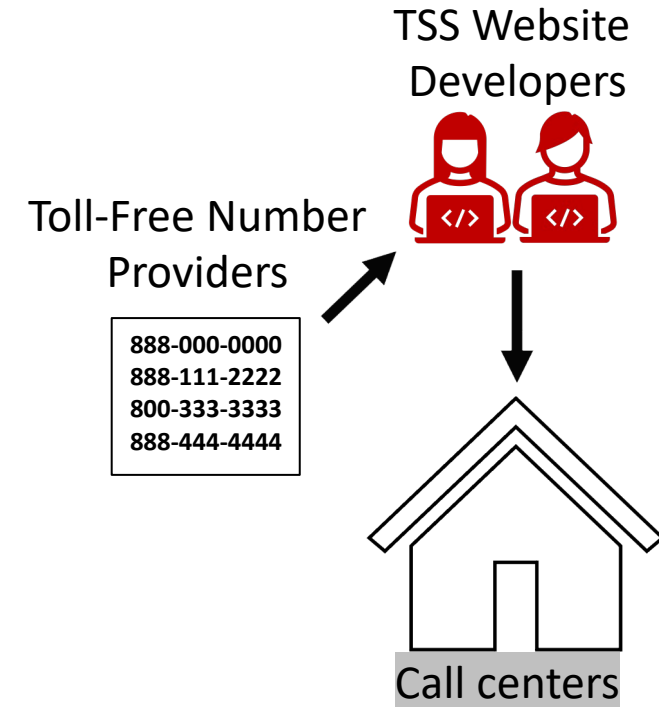


Toll-Free Number Providers

TFN/DID AVAILABLE

**For Routing
For Own Center
One Month Guarantee
For Non Suspension**

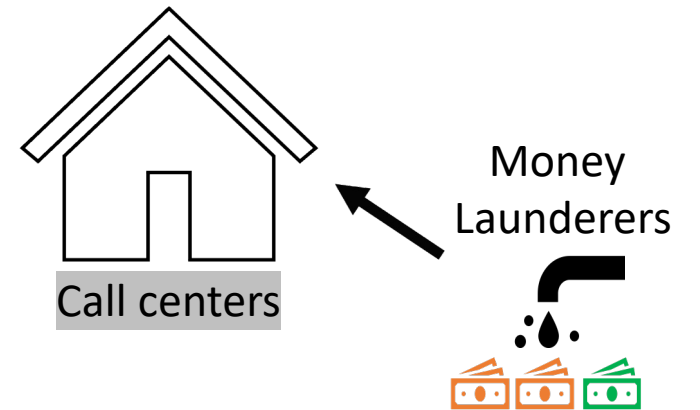
**IF ANY THING HAPPEN WRONG
WITHIN A MONTH YOU WILL GET
ANOTHER TFN/DID WITHIN 5 MIN**



Money laundering offers

whatsapp no update + [REDACTED]
Genuine guy u can meet me if you want after u can start working with me DM for proofs,rates,query.....

- 1.All major Giftcard blocking @goodrate
- 2.Physical wire 70% payout
- 3.Fedex 70% payout
- 4.Cashapp
- 5.Paypal
- 6.Gpay



Typical money laundering fees is around 30-40%

Miscellaneous: Victim data sales

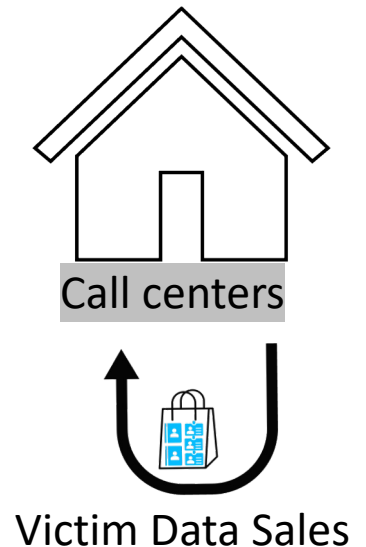
If you are looking for usa based data or leads your search ends here. We are providing almost all type of leads for international process. Following are leads type we are providing :

1) Tech Support Leads
(sales leads, refund leads, hp leads, dell leads, raw data)

2) Payday Leads
(Real time payday leads, Fresh pay day leads)

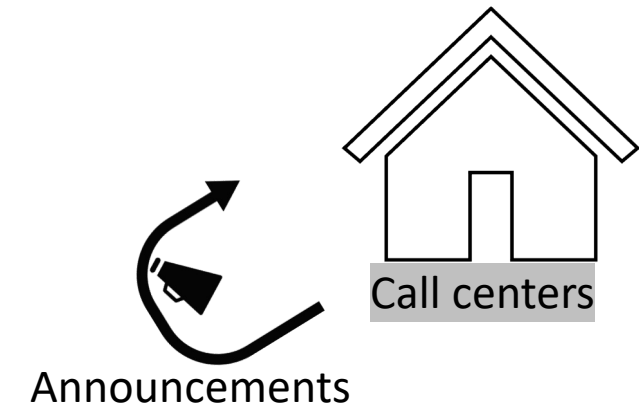
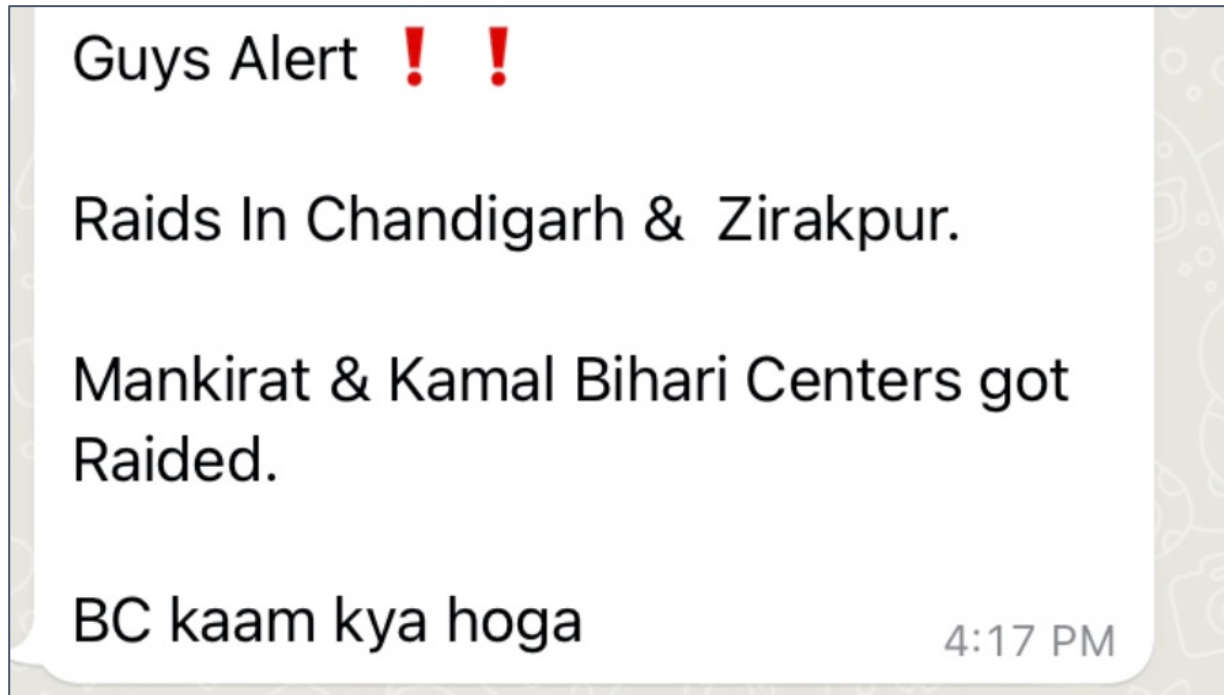
3) Old age leads
(plus 60 years customer with all details)

Book your order now:



Often highlight data of seniors who are more vulnerable to these scams

Miscellaneous: Announcements



Warnings about impending police raids or dishonest scam operators

TSS Data Summary

TSS category	# Posts	# Unique posts	# Post authors	# Comments
TSS agent hiring	1322	516	245	1005
Money launderers	6677	1435	541	3097
TSS webmasters	5167	1411	525	1908
Toll-free number providers	1129	258	107	190
Victim data sales	951	311	121	129



TSS category	# Posts	# Unique posts	# Post authors
TSS agent hiring	161	104	57
Money launderers	8887	2138	787
TSS webmasters	9444	2826	815
Toll-free number providers	3104	511	226
Victim data sales	2757	519	204

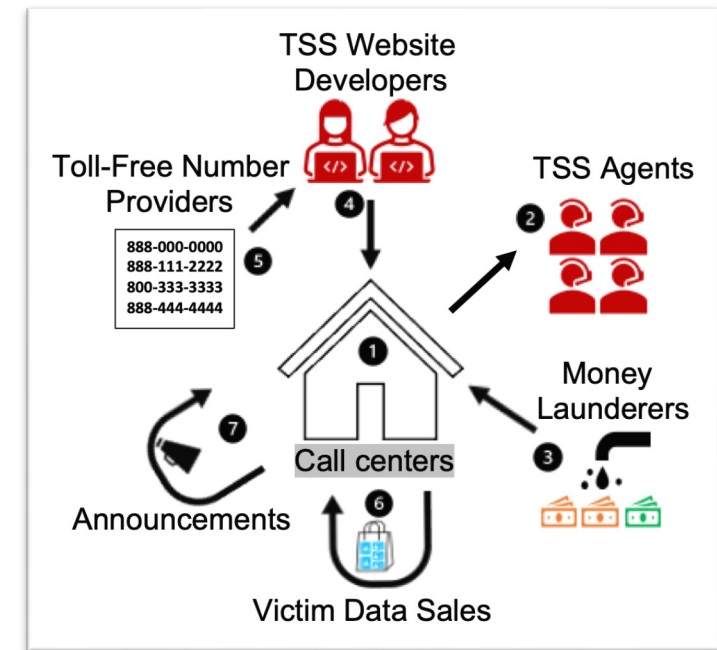


TSS web developers: Call prices

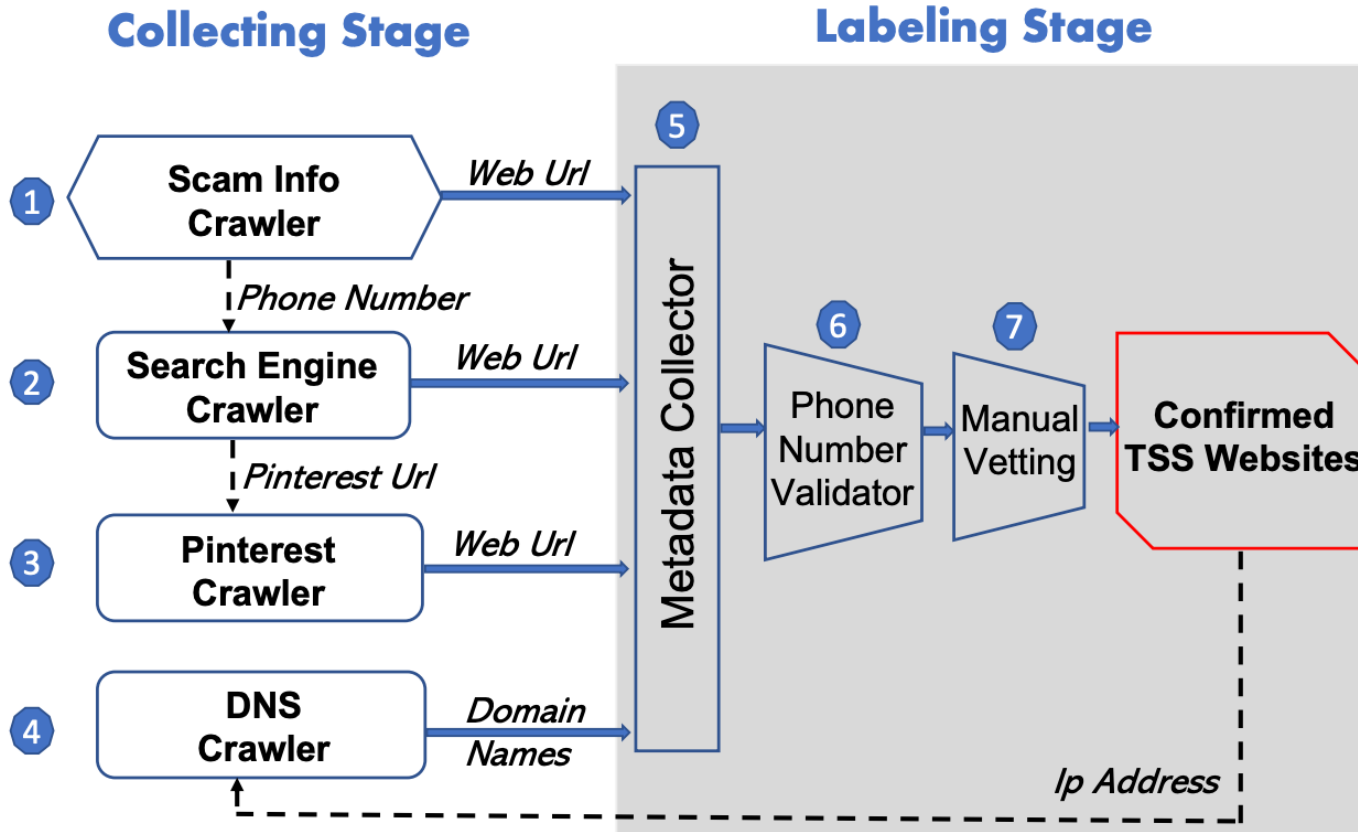
Brand name	min	median	max
Amazon	\$2.52	\$4.90	\$8.05
iOS	\$3.15	\$4.20	\$9.10
PayPal	\$5.11	\$6.37	\$7.70
Cash App	\$7.70	\$10.50	\$11.90
Norton	\$2.52	\$4.90	\$8.05
Roku	\$5.46	\$6.02	\$10.50
EBay	\$5.88	\$8.40	\$8.40
Windows	\$5.60	\$5.60	\$5.60
Delta	\$13.30	\$13.30	\$13.30

Median cost of each call is US \$6

=> *The average revenue for each victim call should be more than US \$6!*



TSS Data collection



- Elaborate pipeline beginning with a volunteer scam baiting community website
- 806 confirmed TSS websites
- Used LDA to derive **44 scam topics!**

Insights for Detection (1/3)

- Explicit age-based targeting of seniors.
 - **RQ:** Are there any discernible visual traits in the TSS websites?

TSS Site measurements: Visual indicators

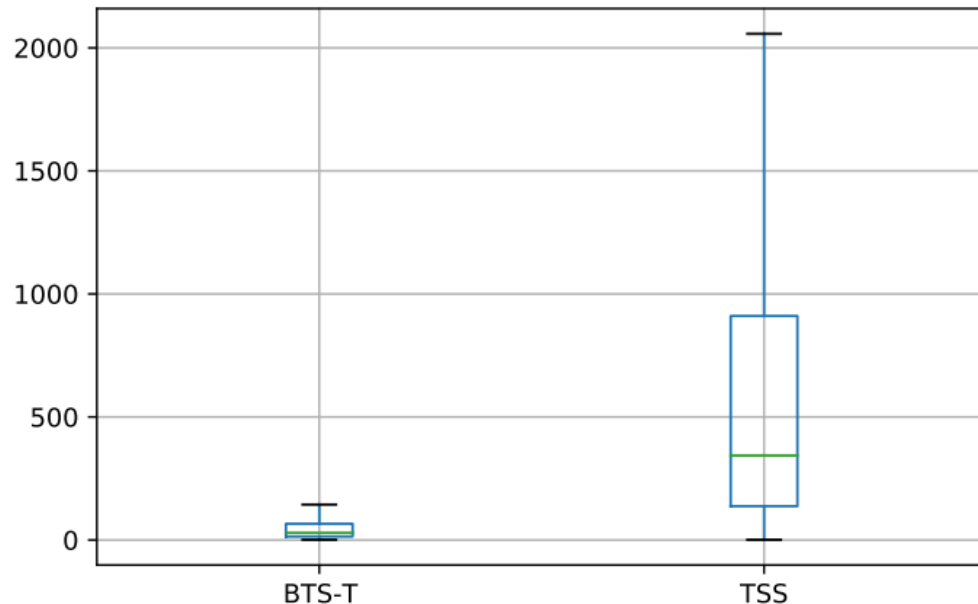
The screenshot shows the top portion of a website. At the top left, there is a phone icon followed by the number '+1-844-235-2085'. To the right of this is an email icon followed by the address 'support@antivirusupporthelplinenumber.us'. Below the contact information is the website's logo, which consists of a red shield with a white cross and the text 'ANTIVIRUS SUPPORT HELPLINE NUMBER'. To the right of the logo is a navigation menu with the items 'HOME', 'ABOUT US', 'SERVICES', 'BLOG', and 'CONTACT'. The main content area features a large banner. On the left side of the banner is a photograph of a woman with a headset working on a laptop. On the right side of the banner is a dark red background with white text that reads 'GET RELIABLE ANTIVIRUS CUSTOMER SUPPORT'. Below this, it says 'CALL US ON OUR TOLL FREE |' followed by the phone number '+1-844-235-2085' in a large, bold font. At the bottom of the banner, it says 'GET ONLINE HELP AND SUPPORT FROM HIGHLY TRAINED COMPUTER PROFESSIONALS'. Below the banner, the text 'ANTIVIRUS SUPPORT HELPLINE NUMBER' is displayed in red, followed by 'Your Only Antivirus Support' in a smaller red font.

- Median phone number text area:
 - TSS: **2856** pixels
 - Benign 3rd party TS: **1380** pixels
 - Benign official sites: **1100** pixels
- **50%** of TSS web pages has phone number repetitions vs. only **3%** of official Benign site pages

Insights for Detection (2/3)

- Explicit age-based targeting of seniors.
 - **RQ:** Are there any discernible visual traits in the TSS websites?
- Blackhat promotion of TSS websites.
 - **RQ:** Can this be utilized to detect TSS websites?

TSS Site measurements: Blackhat SEO



Backlink counts for TSS vs Benign sites



Likely due to inorganic link-farming Blackhat techniques used by TSS site developers

- Many TSS Backlinks appear on **spam-infested pages**.
- Sub-sites of `microsoft.com`, `ibm.com`, `hp.com`, `gnu.org` are allowing *followable* links in profile pages that get abused!

Insights for Detection (3/3)

- Explicit Age-Targeting.
 - **RQ:** Will this imply any visual characteristics in the TSS websites useful for detecting TSS sites?
- Blackhat promotion of TSS websites.
 - **RQ:** Can this be utilized to detect TSS websites?
- Effects of TSS Compartmentalization.
 - **RQ:** Are same phone numbers being re-used across campaigns?
 - **RQ:** Is there discernible *dynamism* (temporally) in phone number of a given TSS site?

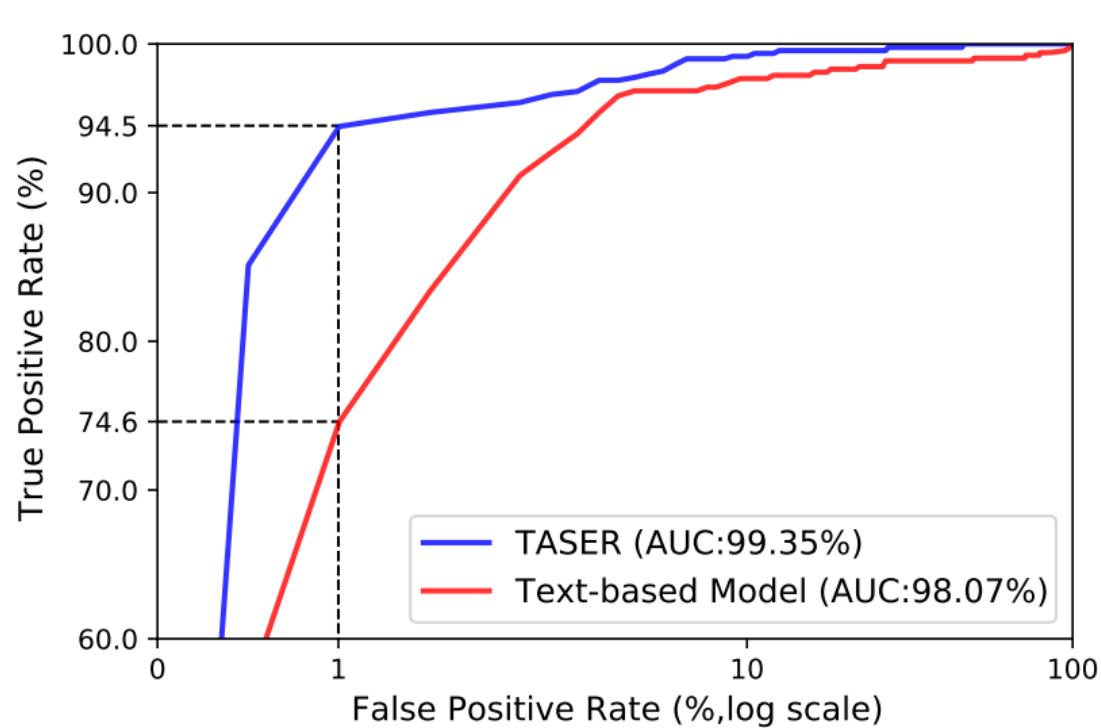
TSS Site measurements: Website Records

- **65%** of TSS sites share phone numbers with another TSS site!
- Only **0.58%** benign 3rd party TS sites do so

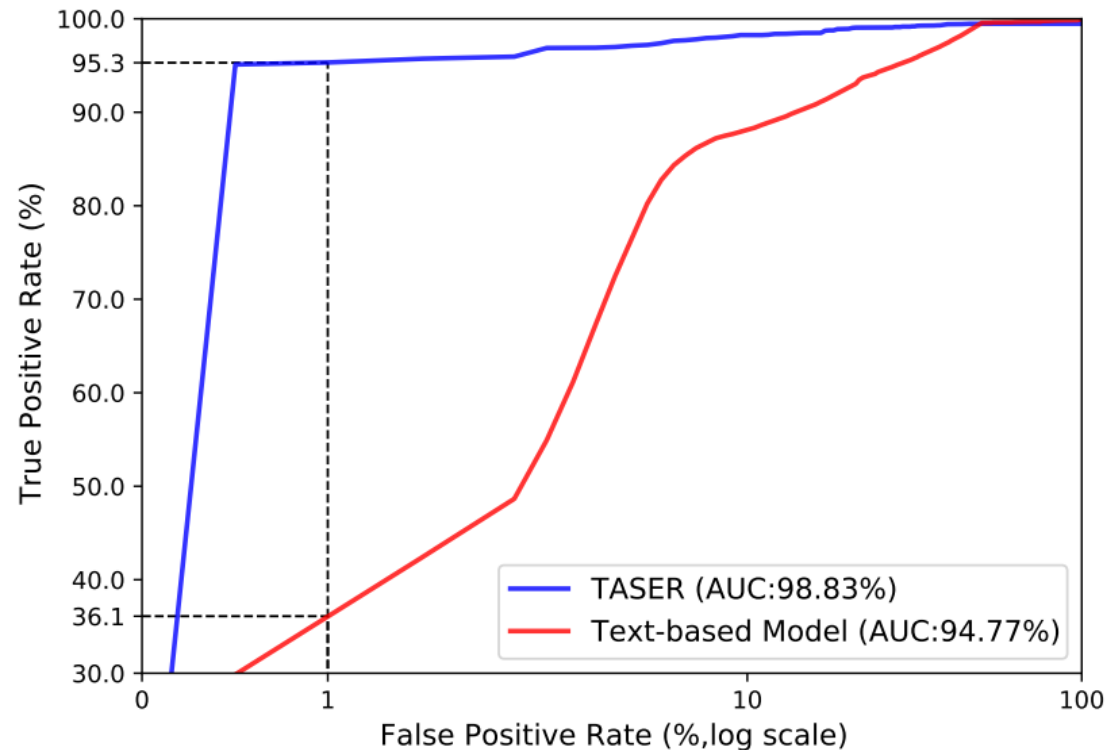
- **45%** of TSS sites changed phone numbers.
- Only **1.5%** of benign 3rd party TS sites did so!

- **81.6%** TSS sites use toll-free phone numbers .
- Only **9.5%** benign 3rd party TS sites do so!

Topic-Agnostic TSS Detection: TASR



(a) Cross-Validation RoC



(b) Topic generalization RoC

Conclusion

- First publicly available labelled TSS datasets and an effective detection method.

Code/data available at: https://github.com/NISLabUGA/TSS_ESP23

- Several insights into TSS marketplaces for future research.
- Immediate impact: Detailed disclosure reports to Google, Meta and law enforcement authorities.

