Voice Fraud

Threats and Mitigation Strategies

Endre Syvertsen - Telenor Linx

Nashim Mullick - PCCW Global

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Voice Fraud Top Fraud Methods

Definitions

In recent years, wholesale carriers have been consistently exposed to high volumes of IRSF, CLI spoofing, and OBR fraud, resulting in significant financial and operational impact. While traditional technical fraud methods remain widespread, fraudsters are increasingly adopting region-specific strategies by targeting high-cost destination numbers.

International Revenue Share Fraud (IRSF)

A motivation for committing fraud that has the end goal of generating traffic to high-rate destinations or premium-rate end numbers. This encompasses many techniques to generate fraudulent traffic and is the most prevalent in the industry.

Missed Call Campaigns / Wangiri Fraud

Missed call fraud campaigns and/or Wangiri fraud (Japanese term, as the fraud first occurred in Japan) is a telecom fraud scheme based on CLI spoofing, spamming, deception and IRSF, and in most instances targets unsuspecting mobile end-users in a country and/or subscribers ('Target Subscribers') of a specific mobile operator ('Target Mobile Operator').

Call hijacking

Rerouting of legitimate traffic to a non-legitimate, usually high-rate destination to obtain additional monetary benefit from the original traffic.

Hacking of a customer telephone system

Control of a customer phone system is obtained by a bad actor, and the system is utilised to generate traffic to high-rate destinations. Usually the traffic origination is software-generated, and a lot of fraudulent volume can be generated in a very short time.

False Answer Supervision

When a bad actor returns a fraudulent answer signal to routing carriers, thereby triggering the billing process of an otherwise uncompleted call.

OBR Fraud / CLI Spoofing

Altering the Caller ID information to deceive the recipient into answering the call, typically by making it appear as a different subscriber's number, facilitating impersonation fraud, inter-carrier wholesale fraud, and spamming.

Bypass

Routing traffic through unauthorised or illegal channels, often using SIM boxes, to avoid paying legitimate termination fees. This leads to revenue loss and degraded service quality for telecom operators.

Source: i3 Forum, Fraud classification and recommendations on dispute handling: Release 4.0, April 2023; GLF FRAUD REPORT 2024

Collaborative Action Across Teams and Industry

To Ensure Effective Fraud Prevention

Fraud prevention extends beyond dedicated teams. Carriers must build a culture of integrity, viewing fraud as a serious violation requiring accountability. Cross-functional collaboration, staff training, global standards, and industry engagement are key to a unified approach.

1. Market Awareness & Industry Collaboration

- **Cross-Carrier Fraud Intelligence Sharing:** Collaborating through global industry body like GLF, i3Forum and GSC will ensure knowledge-sharing of behavioral indicators, alignment on best practices and a unified industry-wide response to fraud.
- **Systemic Approach to Improvement**: Embed a culture of continuous learning and refinement through collaborative industry groups and strengthen inter-operator dialogue to proactively address fraud risks and align on best practices.

2. Robust Fraud Prevention Solutions

- **Technology Integration:** Keep your anti-fraud systems up to date with the latest detection capabilities, integrating automation for traffic pattern analysis, real-time call validation, and alert mechanisms to promptly identify suspicious activity.
- **Trend Monitoring & Strategic Response:** Continuously monitor fraud trends (e.g., IRSF, Wangiri, CLI spoofing) to adapt counter measures across networks.
- **Role of IT & Network Support Teams:** Fraud prevention teams should empower IT and network support teams with timely updates on detected fraud attacks and emerging threats, enabling them to implement necessary configurations and support rapid incident response.

3. Dispute Management & Payment Integrity

- **Structured Dispute Process:** Enforce a transparent, time-bound process for withholding payments related to fraud incidents, minimising financial leakage.
- **Cutting Off Revenue to Fraudsters:** Take swift action to block and recover suspicious payouts, in alignment with i3Forum and GLF Code of Conduct (CoC) guidelines, as well as existing bilateral agreements, to disrupt the financial incentives behind fraudulent activity.
- **Compliance & Documentation:** Maintain detailed logs and audit trails to ensure traceability and protect against false claims.

4. Account Management, Product & Marketing Teams

- **Fraud-Resistant Customer Experiences:** Equip account managers, product, and marketing teams to design secure onboarding flows with embedded fraud controls—ensuring a seamless user journey while building and maintaining customer trust**.**
- **Collaborative Product Development:** Strengthen cross-team collaboration among account, product, technical and compliance teams to embed fraud prevention into product roadmaps and long-term strategies.

How Voice Fraud Attacks

Have Changed Over Time

Case Study

Case Study – Commonly Known Traffic Patterns

Example-1

A-Number	B-Number	B-Number Ranges	Origination Country	Destination Country	Call Date	Call Time	Duration (seconds)	Duration	Customer
44x35564x516	22625673345	226256733xxx	UK	BURKINA FASO	10-05-25	6:15:46	684	0:11:24	<< Customer>>
44x35564x516	22625673340	226256733xxx	UK	BURKINA FASO	10-05-25	6:15:41	499	0:08:19	<< Customer>>
44x842505054	22625673355	226256733xxx	UK	BURKINA FASO	10-05-25	6:15:17	635	0:10:35	<< Customer>>
44x842505054	22625673355	226256733xxx	UK	BURKINA FASO	10-05-25	6:15:06	610	0:10:10	<< Customer>>
44x842519032	22625673345	226256733xxx	UK	BURKINA FASO	10-05-25	6:14:47	553	0:09:13	<< Customer>>
44x355640883	22625673331	226256733xxx	UK	BURKINA FASO	10-05-25	6:12:12	679	0:11:19	<< Customer>>
44x934298691	22625673320	226256733xxx	UK	BURKINA FASO	10-05-25	6:11:47	536	0:08:56	<< Customer>>
44x355640883	22625673330	226256733xxx	UK	BURKINA FASO	10-05-25	6:10:52	597	0:09:57	<< Customer>>
44x934298691	22625673321	226256733xxx	UK	BURKINA FASO	10-05-25	6:06:57	523	0:08:43	<< Customer>>
44x842519032	22625673310	226256733xxx	UK	BURKINA FASO	10-05-25	6:06:32	484	0:08:04	<< Customer>>
44x35564x516	22625673345	226256733xxx	UK	BURKINA FASO	10-05-25	6:05:15	542	0:09:02	<< Customer>>
44x842505054	22625673350	226256733xxx	UK	BURKINA FASO	10-05-25	6:04:29	630	0:10:30	<< Customer>>
44x35564x516	22625673345	226256733xxx	UK	BURKINA FASO	10-05-25	6:04:16	592	0:09:52	<< Customer>>
44x842519032	22625673310	226256733xxx	UK	BURKINA FASO	10-05-25	6:04:13	637	0:10:37	<< Customer>>
44x934298691	265999810734	265999810xxx	UK	MALAWI	10-05-25	6:10:23	1011	0:16:51	<< Customer>>
44x355640883	265999810927	265999810xxx	UK	MALAWI	10-05-25	6:10:20	922	0:15:22	<< Customer>>
213660634136	265999810734	265999810xxx	UK	MALAWI	10-05-25	6:00:40	1498	0:24:58	<< Customer>>
44x934298691	265999810734	265999810xxx	UK	MALAWI	10-05-25	5:59:34	1155	0:19:15	<< Customer>>
44x35564x516	265999810734	265999810xxx	UK	MALAWI	10-05-25	5:58:45	1548	0:25:48	<< Customer>>
44x35564x516	265999810927	265999810xxx	UK	MALAWI	10-05-25	5:57:45	1428	0:23:48	<< Customer>>

Example-2

A-Number	B-Number	Origination	Destination	Call Date	Call Time	Duration (seconds)	Duration	Customer
1215xx34787	12844401307	USA	BRITISH VIRGIN ISLANDS	03-05-25	6:59:41	300	0:05:00	<<customer>>
1215xx34559	12834501310	USA	BRITISH VIRGIN ISLANDS	03-05-25	6:58:45	300	0:05:00	<<customer>>
1215xx34559	9613145073	USA	LEBANON	03-05-25	6:58:45	300	0:05:00	<<customer>>
1215xx34559	96171030016	USA	LEBANON	03-05-25	6:58:45	300	0:05:00	<<customer>>
1215xx33635	16644101904	USA	MONTSERRAT	03-05-25	6:57:44	300	0:05:00	<<customer>>
1215xx33635	16644101905	USA	MONTSERRAT	03-05-25	6:57:43	300	0:05:00	<<customer>>
1215xx33635	16644101906	USA	MONTSERRAT	03-05-25	6:57:39	300	0:05:00	<<customer>>
1215xx33635	252625919364	USA	SOMALIA	03-05-25	6:57:37	300	0:05:00	<<customer>>
1215xx33635	252632919099	USA	SOMALIA	03-05-25	6:57:34	300	0:05:00	<<customer>>
1215xx33635	252625919240	USA	SOMALIA	03-05-25	6:57:33	300	0:05:00	<<customer>>

The two examples illustrated highlight widely known traffic patterns:

1) Detection based on **Sequential dialing pattern / machine generated profile.** The Called/B-Number exhibits a sequential or simultaneous calling pattern, with calls being terminated to High-Risk or High-Cost destinations.

2) Calls **with same Duration**: Peak number of calls with the same call duration for the given monitoring period.

Sample Call Recordings

Case Study: Trends in Emerging Fraud Attack Patterns

Multiple destinations short calling pattern

Call Date Time (GMT)	Date	Customer	CallingNumber	CalledNumber	Call Duration (seconds)	Destination
<yyyy>-11-25 14:44:13.000	11-25	Customer -1	xx677070734	212600007000	12	Morocco
<yyyy>-11-25 14:44:15.000	11-25	Customer -1	xx677070734	212600008000	9	Morocco
<yyyy>-11-25 15:32:14.000	11-25	Customer -1	xx677015225	212600007000	4	Morocco
<yyyy>-11-25 15:32:14.000	11-25	Customer -2	xx677015225	212600008000	3	Morocco
<yyyy>-11-25 15:57:28.000	11-25	Customer -3	xx677111835	242800011428	1038	Congo
<yyyy>-11-25 16:00:01.000	11-25	Customer -1	xx677015225	242800011428	981	Congo
<yyyy>-11-25 16:00:23.000	11-25	Customer -1	xx677015225	242800011428	1022	Congo
<yyyy>-11-25 16:15:33.000	11-25	Customer -3	xx677070734	21620259129	23	Tunisia
<yyyy>-11-25 16:15:34.000	11-25	Customer -2	xx677015225	242800011428	744	Congo
<yyyy>-11-25 16:15:34.000	11-25	Customer -1	xx677880985	21621386500	21	Tunisia
<yyyy>-11-25 16:31:50.000	11-25	Customer -1	xx677880985	25270777017	748	Somalia
<yyyy>-11-25 16:31:50.000	11-25	Customer -1	xx677070734	23574283300	23	Chad
<yyyy>-11-25 16:32:09.000	11-25	Customer -2	xx677880985	25270777017	1354	Somalia
<yyyy>-11-25 16:32:09.000	11-25	Customer -3	xx677880985	2699001439	806	Comoros
<yyyy>-11-25 16:32:22.000	11-25	Customer -3	xx677070734	25270777017	1127	Somalia
<yyyy>-11-25 16:32:26.000	11-25	Customer -2	xx677880985	2699001439	812	Comoros
<yyyy>-11-25 16:48:12.000	11-25	Customer -1	xx677880985	2699001439	450	Comoros
<yyyy>-11-25 17:18:10.000	11-25	Customer -2	xx677070734	25270777017	1354	Somalia
<yyyy>-11-25 17:18:23.000	11-25	Customer -2	xx677880985	21628823121	22	Tunisia
<yyyy>-11-25 17:18:33.000	11-25	Customer -2	xx677015225	242800011428	1149	Congo
<yyyy>-11-25 17:18:33.000	11-25	Customer -3	xx677111835	242800011428	877	Congo
<yyyy>-11-25 17:18:33.000	11-25	Customer -3	xx677070734	21620299000	19	Tunisia
<yyyy>-11-25 17:28:33.000	11-25	Customer -1	xx677070734	21645702230	21	Tunisia
<yyyy>-11-25 18:41:09.000	11-25	Customer -3	xx677070734	23574281300	26	Chad
<yyyy>-11-25 18:41:10.000	11-25	Customer -2	xx677111835	23574282300	24	Chad
<yyyy>-11-25 22:22:14.000	11-25	Customer -3	xx677070734	23574284300	22	Chad

Sample Call Recordings

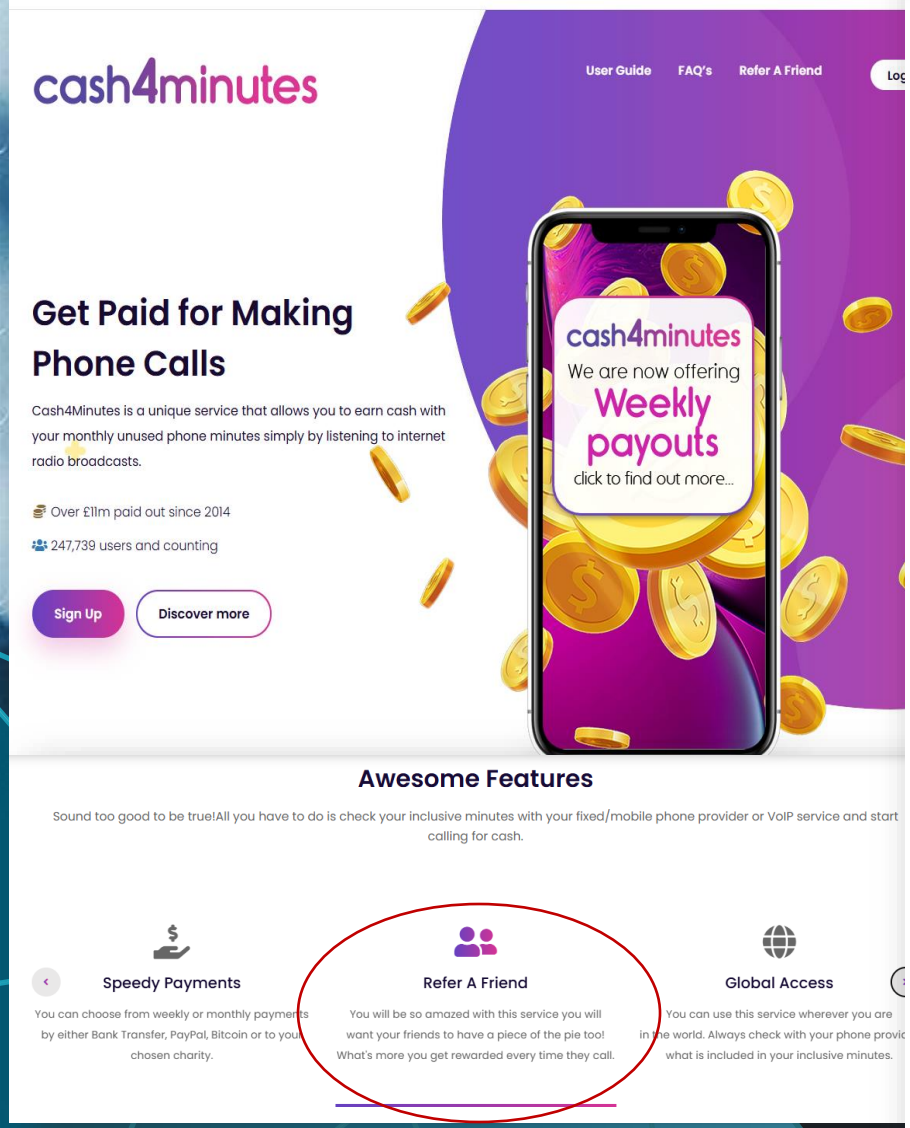
Concurrent calling pattern

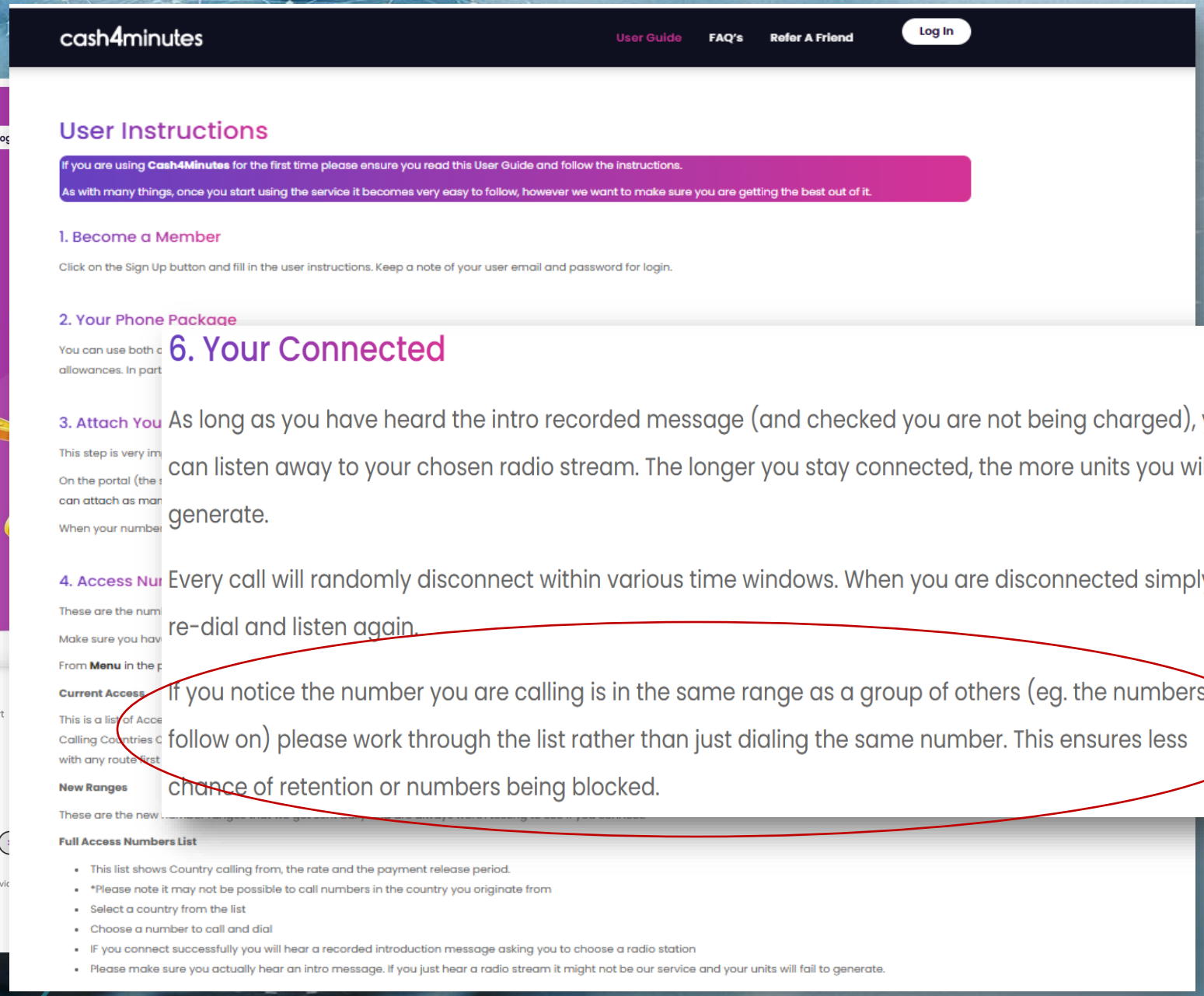
A-Number	B-Number	Origination	Destination	Call Date	Call Time	Duration (seconds)	Duration	Customer
17036443498	50379408880	USA	EL SALVADOR	22-05-25	19:40:59	38	0:00:38	<< customer>>
17036443498	50378901353	USA	EL SALVADOR	22-05-25	19:40:58	38	0:00:38	<< customer>>
17036443498	50377373078	USA	EL SALVADOR	22-05-25	19:40:57	36	0:00:36	<< customer>>
2347034287810	50378742587	NIGERIA	EL SALVADOR	22-05-25	19:40:56	36	0:00:36	<< customer>>
2347034287810	50378871181	NIGERIA	EL SALVADOR	22-05-25	19:40:55	35	0:00:35	<< customer>>
2347034287810	50378878056	NIGERIA	EL SALVADOR	22-05-25	19:40:54	96	0:01:36	<< customer>>
2347034287810	50378878056	NIGERIA	EL SALVADOR	22-05-25	19:40:54	96	0:01:36	<< customer>>
17036443498	50375495938	USA	EL SALVADOR	22-05-25	19:40:53	36	0:00:36	<< customer>>
17036443498	50378832102	USA	EL SALVADOR	22-05-25	19:40:52	34	0:00:34	<< customer>>
17036443498	50377361609	USA	EL SALVADOR	22-05-25	19:40:51	92	0:01:32	<< customer>>
12133402429	22658909305	USA	BURKINA FASO	22-05-25	4:46:58	6	0:00:06	<< customer>>
12133402429	22678826365	USA	BURKINA FASO	22-05-25	4:46:58	5	0:00:05	<< customer>>
12133402429	22658909265	USA	BURKINA FASO	22-05-25	4:46:55	6	0:00:06	<< customer>>
12133402429	22678827175	USA	BURKINA FASO	22-05-25	4:46:52	6	0:00:06	<< customer>>

- Fraudsters actively monitor how carriers block traffic and adjust their patterns to bypass detection.
- Sophisticated technology and deceptive methods are used in the fraudulent attack.
- Involves multiple breakouts or destinations.
- Calls are terminated to different called numbers.
- Traffic is machine-generated without any sequential or recognisable pattern.
- Concurrent calling pattern calls within the same minute. More than one call per minute

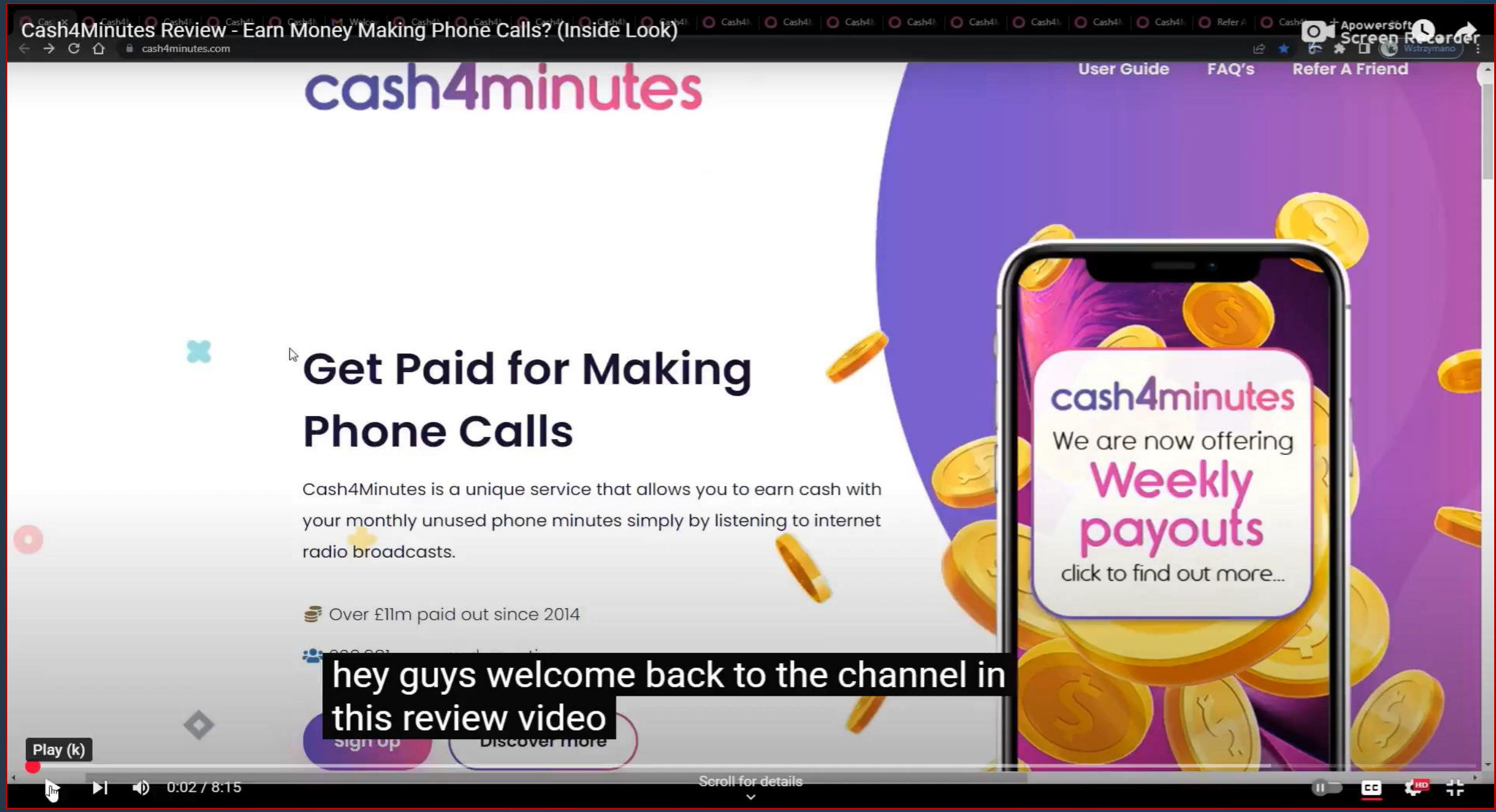
Disclaimer: This website screenshot, along with the URL link, is provided solely for educational purposes

https://cash4minutes.com/





Disclaimer: This video is provided solely for educational purposes



IRSF (International Revenue Share Fraud)

Description: **IRSF (International Revenue Share Fraud)** occurs when a fraudster partners with an **International Premium Rate Number (*IPRN)** provider charging high rates for call termination. The fraudster gains revenue through a profit-sharing model. The calls are artificially or falsely generated and routed through multiple carriers to reach their intended destination. Given the income that can be generated through terminating at a high-priced destination, it is one of the most common options to create financial benefit from fraud.

Step 1: The fraudster obtains International Premium Rate Numbers (IPRNs) from a provider and drives high volumes of traffic to them using methods such as:

- Fraudulently Obtained SIM cards.
- PBX Hacking.
- Wangiri Fraud (Missed call campaign).

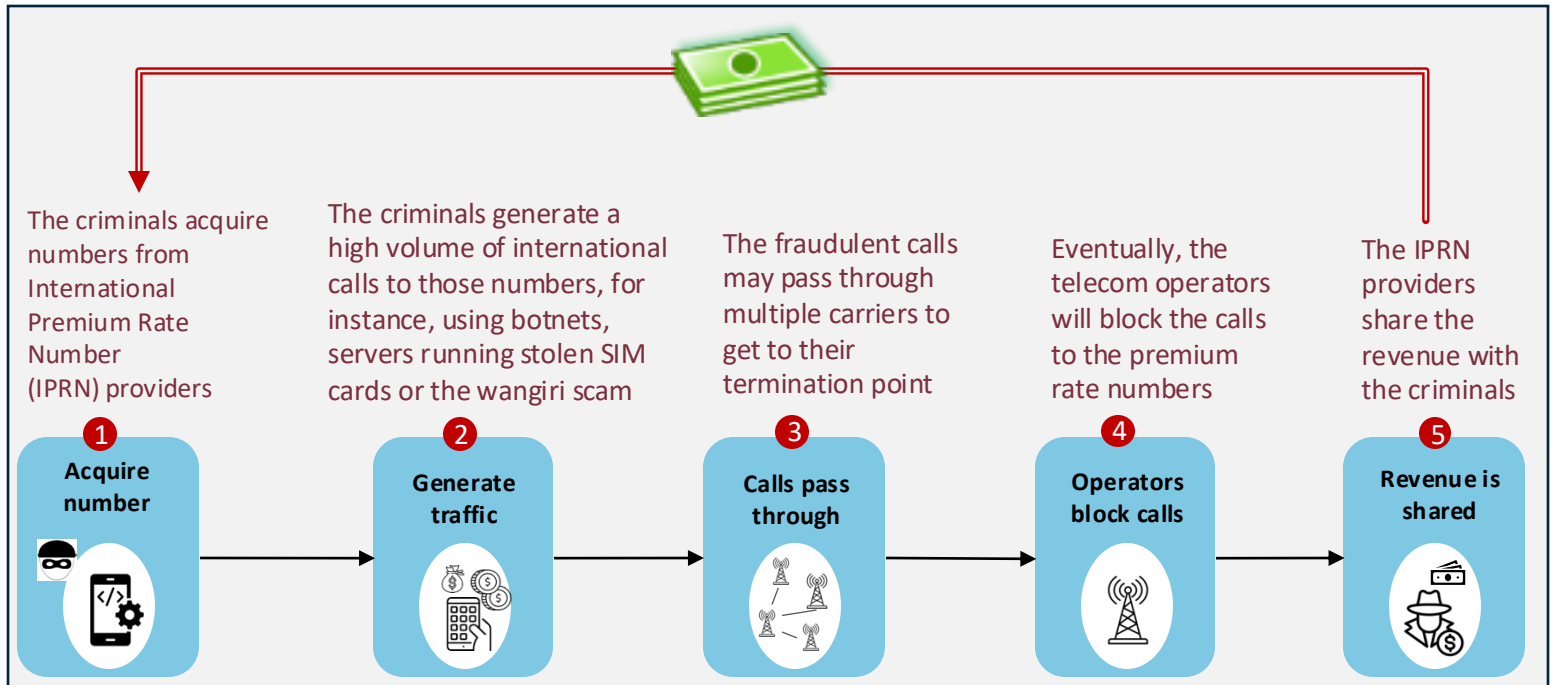
These calls are typically non-legitimate and artificially inflated, often generated in a short period of time with no real service delivered. The objective is to exploit revenue-sharing arrangements for financial gain.

Step 2: Calls are artificially generated to International Premium Rate Number (IPRN).

Step 3: Each carrier along the way collects a share of the revenue, and the premium rate number provider receives a fee for completing the call.

Step 4: Finally, the premium rate service provider shares a portion of its revenue with the fraudster responsible for generating the calls

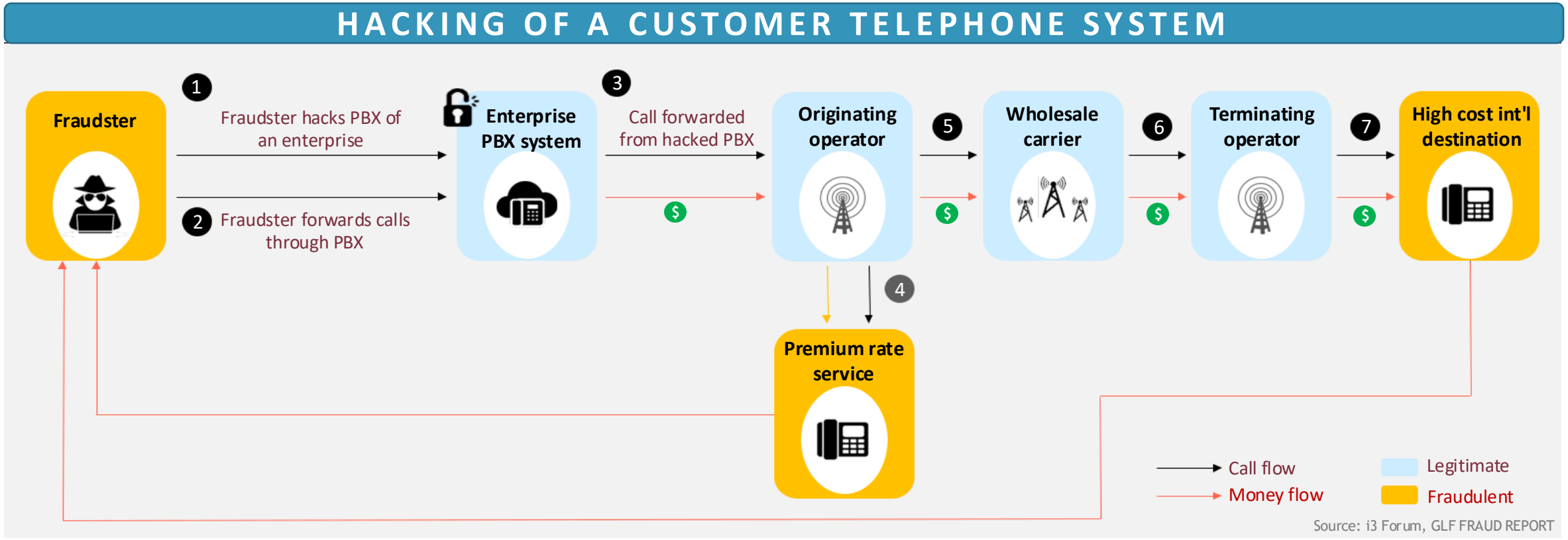
HOW DOES IT WORK?



What is *IPRN? An International Premium Rate Number (IPRN) is a type of special phone numbers that is used for premium-rate services, where callers are charged at a higher rate than for a standard phone call. These numbers are typically used for services such as competitions, games, and adult content, where the caller pays a premium price for accessing the service.

Source: EUROPOL; i3 Forum, Fraud classification and recommendations on dispute handling: Release 4.0, April 2023; GLF FRAUD REPORT 2024

Telephone System Hacking

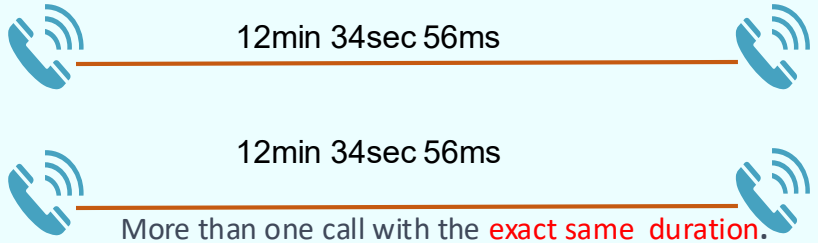


- **Exploitation of System Vulnerabilities:** Hackers gain unauthorized access to a business's PBX system by exploiting weak passwords, default credentials, or unpatched software. Once inside, they configure call-forwarding or dial-throughs to high-cost international destinations. Access often goes unnoticed, especially if the system is not actively monitored.
- **Traffic Manipulation for Revenue:** The attacker originates large volumes of calls—usually from IP-based sources or using automated tools—to route traffic through the compromised PBX. In some cases, malicious software is used to generate Artificially Inflated Traffic (AIT). These calls are directed to premium-rate numbers that terminate overseas, enabling the hacker to collect revenue.
- **Linked Fraud Types & Financial Risk:** This type of fraud can result in significant financial losses for businesses before it is detected. PBX hacking often acts as an enabler for other fraud schemes, including: Artificially Inflated Traffic (AIT), Number plan misuse (use of unassigned or misallocated numbers), Call hijacking (or short-stopping) and International Revenue Share Fraud (IRSF), Generation of calls to manipulated country-code-B numbers

Approaches to Detect Voice Fraud Scenarios

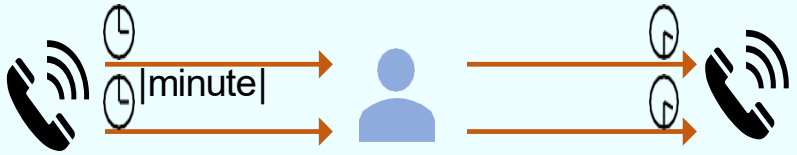
- **Sequential Dialling / Machine-Generated Patterns:** Example: Calls occurring at the same time and/or having identical time intervals between each call.
- **Fake Recordings:** Fraudsters may play pre-recorded audio (e.g., conferencing tones) to simulate live services, tricking detection systems and justifying abnormal traffic.
- **Abnormal ACD / ASR Metrics:** Answer-Seizure Ratios (ASRs) and Average Call Duration (ACD) values that are significantly disproportionate to expected norms—even for Premium or Value-Added Services.
- **Massive Traffic Volumes:** Unusually high call volumes involving the same A-Number or B-Number, or a sudden surge in traffic toward specific destinations, especially those associated with high-risk or high-cost country codes.
- **Invalid CLI or Number Format Patterns:** CLI spoofing (e.g., unallocated or manipulated numbers) and unusual number formats (e.g., CC 0). Switch configurations should be enabled to automatically recognize and block such patterns.

Calls with same duration: Number of calls with the same call duration. Dialing machines tend to produce numerous calls within the same duration range

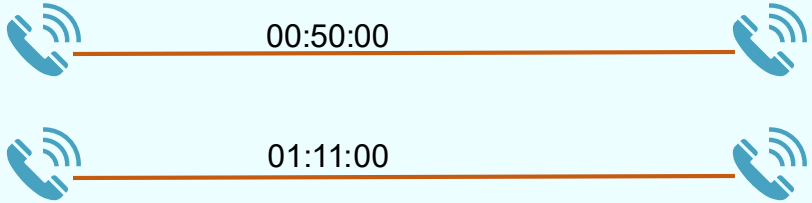


More than one call with the exact same duration.

Concurrent Calls: Calls started within the same minute. More than one call per minute. Neglecting the call status (successful/ successful). Automatic dialers can produce hundreds calls within a minute.



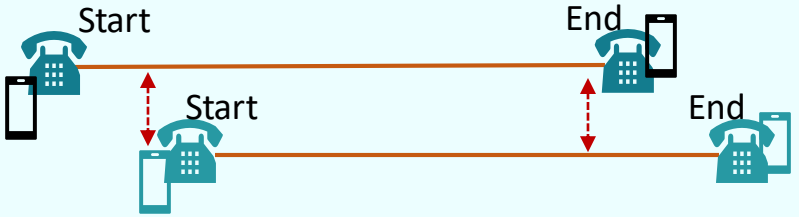
ACD (Average Call Duration): ACD that are completely disproportional /abnormal in a short period of time



(50sec +71sec)/2 = 60,5 sec

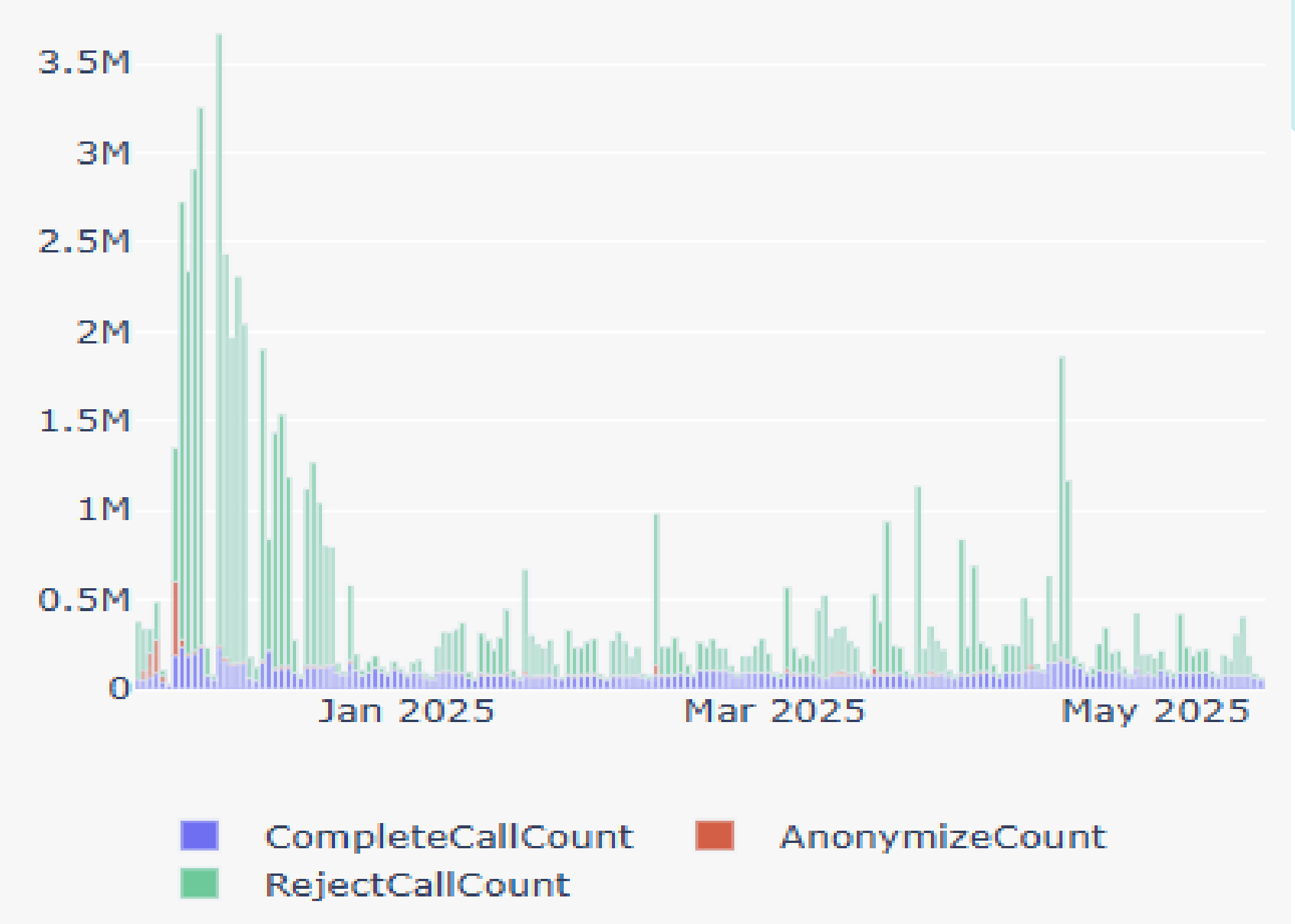
Average Call Duration exceeds one minute.

Overlapping Calls: Overlapping Calls: or looped calls (loops), are multiple call that overlap one another, More than one call in **parallel.**



Norwegian Scam call shield

Securing Norwegian cli towards Norway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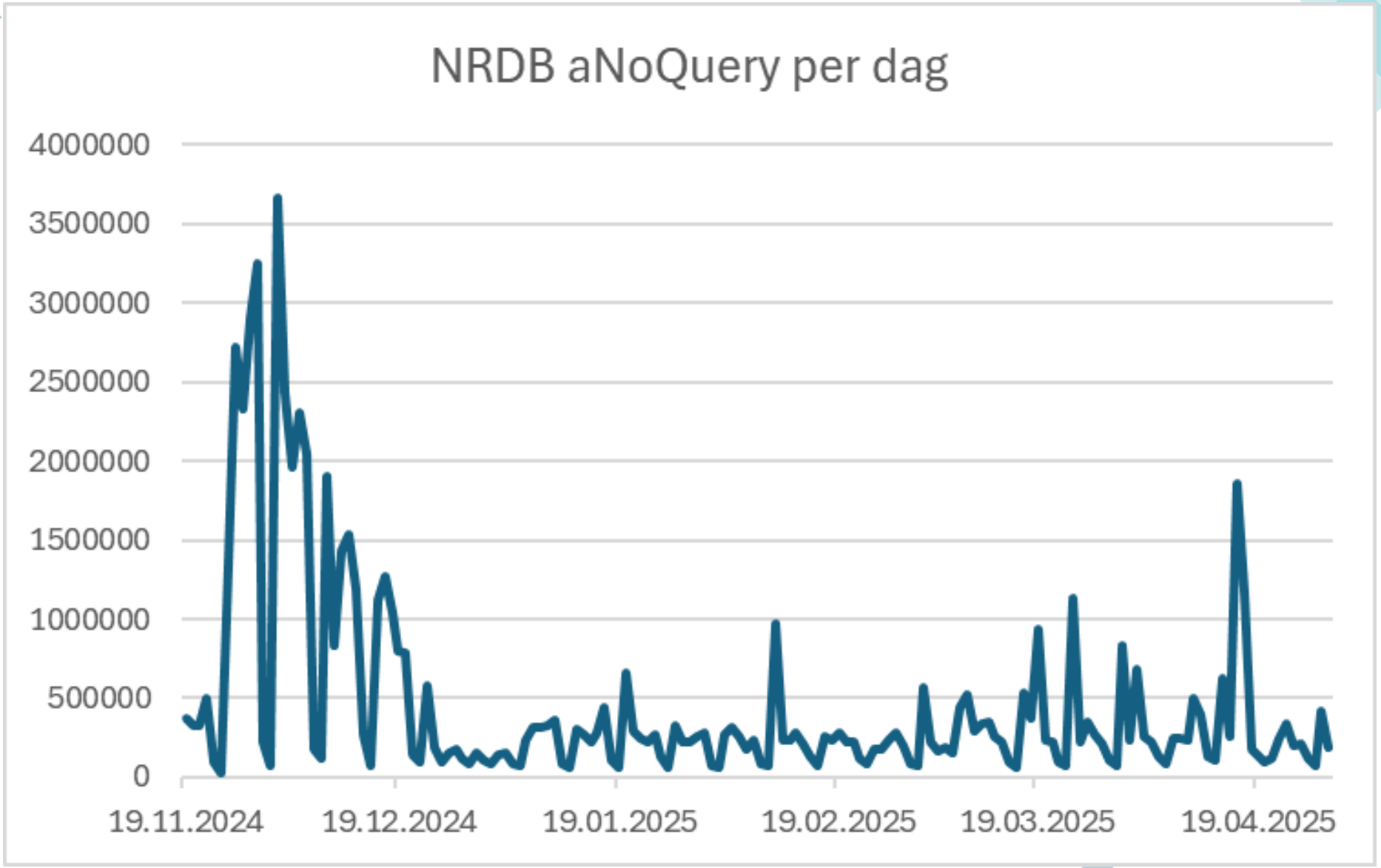
RejectCallCount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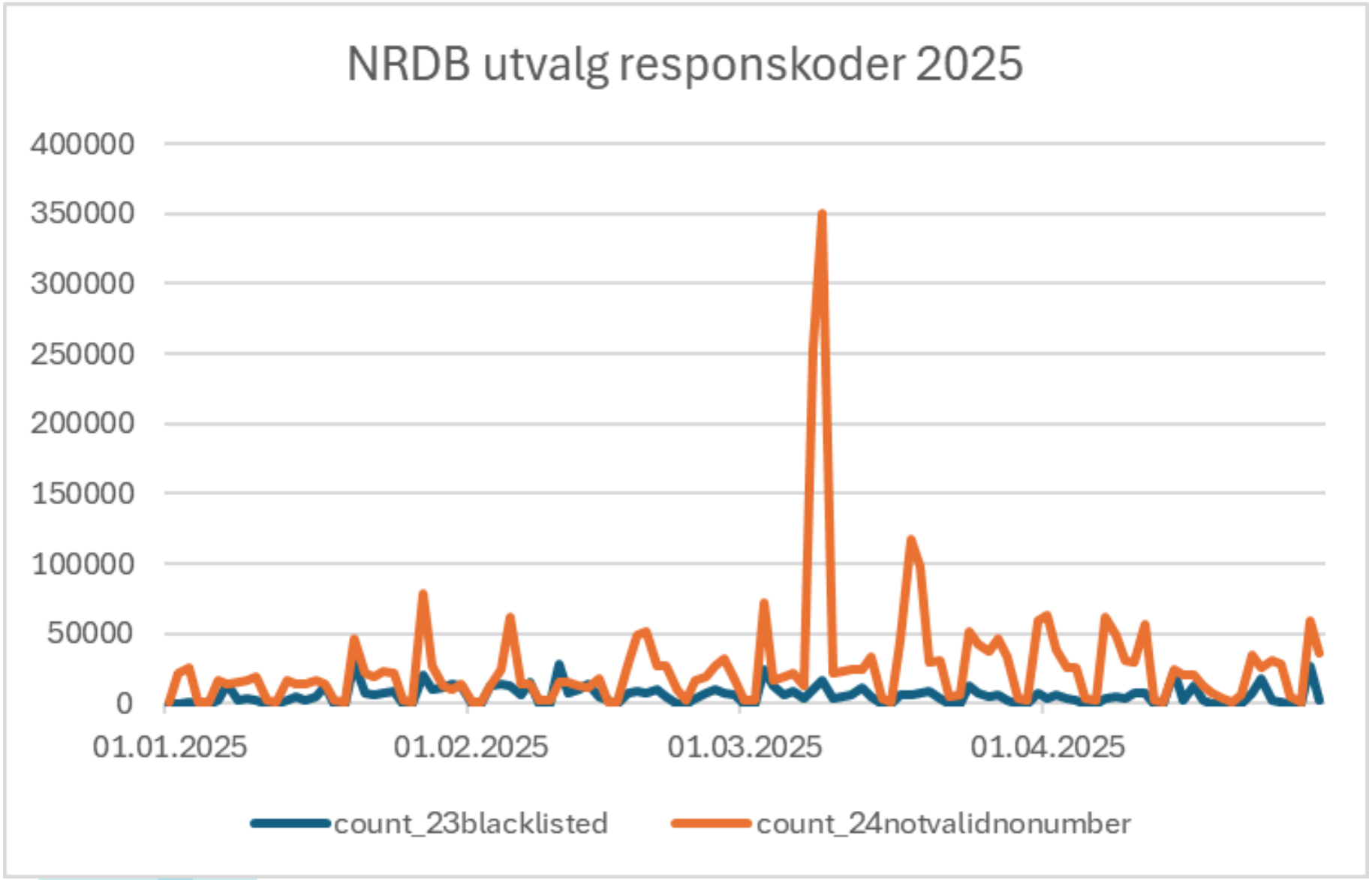
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Questions?

THANK YOU