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Center of Excellence in AML

...

Cybercrime and Crypto



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Bybit Hack

...

\$1.4B in ETH Stolen, Insolvency Concerns Rise

\$1.4+ Billion Stolen by Lazarus Group



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- North Korean State Actors, specifically TraderTraitor, targeted & hacked Bybit's ETH cold wallet.
- 514,722 ETH + ETH derivative tokens withdrawn from Bybit.
 - 94.7% of Bybit's ETH holdings.

Asset	Quantity	Approximate \$ Value
ETH	401,346.76	\$1.1 billion
Lido Staked ETH	90,375.54	\$250.6 million
Mantle Restaked ETH	15,000*	\$44.0 million
Mantle Staked ETH	8,000	\$23.5 million



Lazarus Group Targeted Bybit's ETH Wallet

- Bybit's four multisig signers made a routine transaction.
- Hacker(s) spoofed transaction details on Safe Wallet interface.
 - Signed transaction changed the smart contract logic of Bybit's ETH cold wallet.
- Malicious code originated from Safe Wallet's infrastructure, not Bybit's.
 - A Safe Wallet developer machine was compromised.
 - A Javascript file of app.safe.global was replaced with malicious code on February 19.
 - Code specifically targeted Bybit's ETH multisig wallet on the next transaction made.



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Preliminary Conclusions

- The benign JavaScript file of **app.safe.global** appears to have been replaced with malicious code on **February 19, 2025, at 15:29:25 UTC**, specifically targeting Ethereum **Multisig Cold Wallet of Bybit** (`0x1Db92e2EeBC8E0c075a02BeA49a2935BcD2dFCF4`). The attack was designed to activate during the next Bybit transaction, which occurred on **February 21, 2025, at 14:13:35 UTC**.
- Based on the investigation results from the machines of Bybit's Signers and the cached malicious JavaScript payload found on the Wayback Archive, we strongly conclude that AWS S3 or CloudFront account/API Key of Safe.Global was likely leaked or compromised.

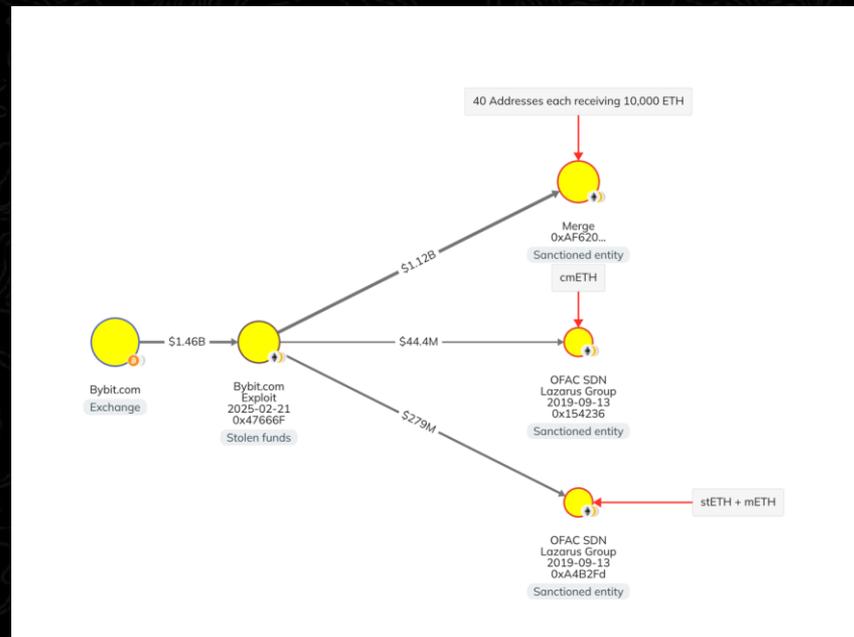
(Note: In September 2024, Google Search announced its integration with the Wayback Archive, providing direct links to cached website versions on the Wayback Machine. This validates the legitimacy of the cached malicious file.)

- Further investigation should be conducted to validate the findings and the root cause.



Lazarus Quickly Laundering ETH

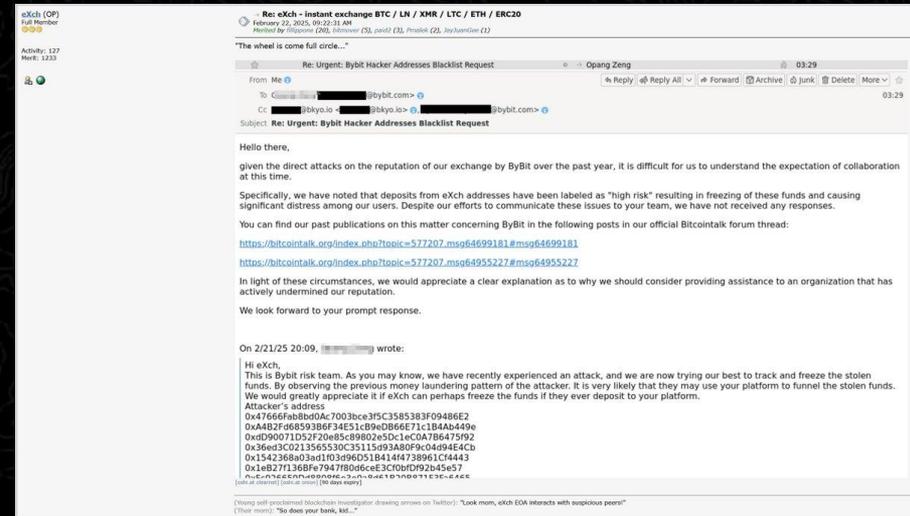
- Hacker(s) have sent funds to more than 13,000 addresses.
 - Difficult for exchanges to monitor and freeze.
- Exchanges, including Mantle and Bitget, have frozen \$42.8 million (3.07% of total hack amount).
 - Majority (15,000 cmETH) recovered by the mETH Protocol Team immediately after hack.





Lack of Cooperation by eXch

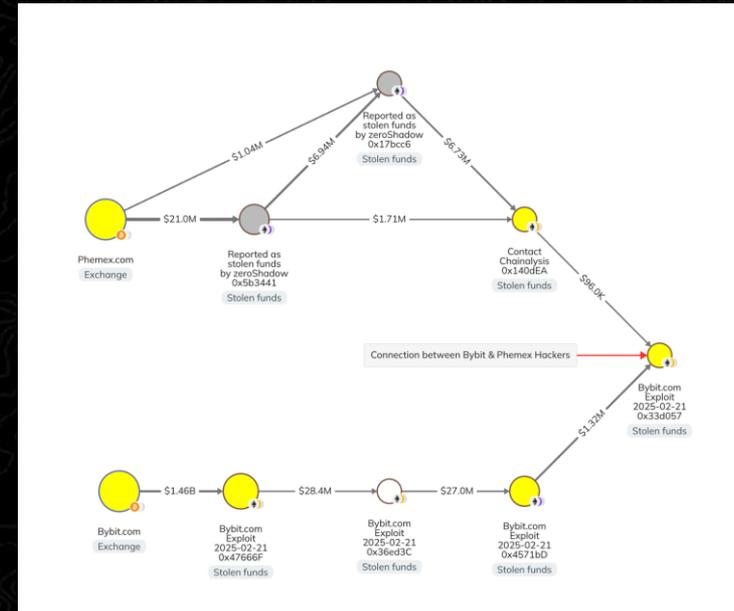
- Hacker(s) have sent \$94.2 million to eXch, but they have refused to respond to Bybit's requests.
- eXch is a centralized, non KYC exchange registered in Belize.
- eXch uses Thorchain when lack of liquidity.
 - Thorchain primarily used to bridge ETH into BTC.
 - 3 validators voted to halt ETH trading on Thorchain.
 - Lead dev stepped down on February 27.





Address Overlap Leads to Lazarus Connection

- In January 2025, Phemex, a Singapore based centralized exchange was hacked for more than \$85 million by Lazarus Group.
 - The hackers behind Phemex sent approximately \$96,000 to 0x33d05.
 - Bybit hackers sent \$1.32 million into this address.
- Similarities to Previous Lazarus Hacks
 - WazirX
 - Radiant Capital





Bybit at Insolvency Risk

- Majority of Bybit's ETH holdings were stolen.
 - 514,722 ETH stolen.
 - 543,453 ETH in reserves at time of hack.
- So far, Bybit has been able to process all of its withdrawals.
 - Inca continues to monitor for user reports.
- Bybit secured the total amount of hacked ETH through bridge loans, OTC purchases, and other purchases.
 - Updated Proof of Reserves report on February 23 indicates Bybit returned to full 1:1 backing on client assets.

Executive Summary

The primary objective of this audit is to provide a comprehensive confirmation that ByBit (hereinafter - Auditee, Bybit), a leading digital asset exchange, diligently safeguards user liabilities for in-scope digital assets. Through rigorous Proof of Reserve audit procedures, including Proof of Liabilities, Proof of Ownership, Reserves calculation, and Proof of Reserves Assessment, Auditee has demonstrated its commitment to transparency and user trust.

During the meticulous Proof of Reserves process, Bybit has successfully proved that its holdings provide full coverage for user liabilities, maintaining a remarkable 1:1 ratio for all in-scope assets. This assurance is substantiated by the compelling findings outlined.



Bybit may be Underreporting Liabilities

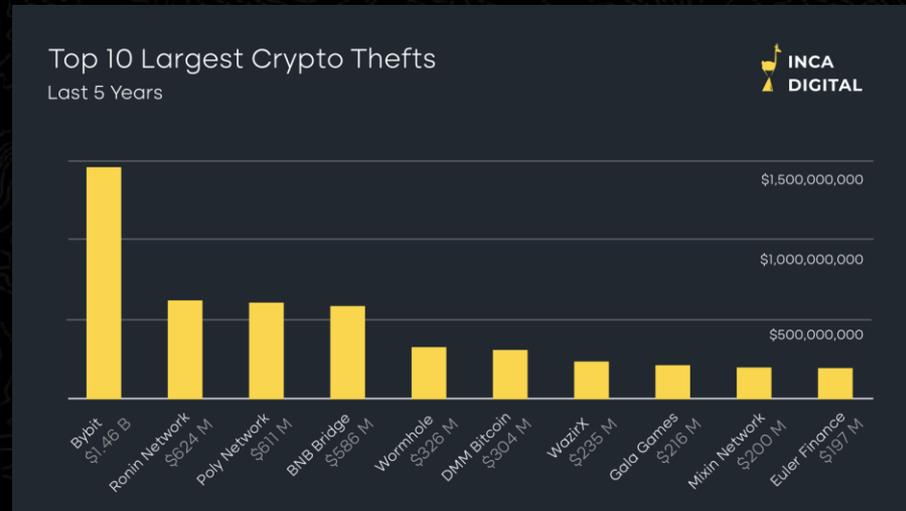
- Bybit uses a Merkle tree implementation that may enable them to underreport liabilities.
 - The 'Path' instance can be constructed to only reflect the highest balance while the remaining balances are omitted.
 - The total liability displayed would be significantly lower than the actual liability sum.
- A sudden large mass of withdrawals could lead to Bybit not being able to meet customer liabilities.

```
public final class Path {
    private String auditId;
    private Integer height;
    private Integer type;
    private String hash;
    private Balance balance;
    private String nonce;
    public Path(int height, Integer type, String hash, Balance balance) {
        this.height = height;
        this.type = type;
        this.hash = hash;
        this.balance = balance;
    }
    public static Path instance(String leftHash, String rightHash, Balance
    balance1,
    Balance balance2, int height, Integer type) {
        if (!balance1.validate() || !balance2.validate()) {
            return new Path();
        }
        Balance balance = balance1.add(balance2);
        String data = "" + leftHash + rightHash + balance.getBtc() +
        balance.getEth()
        + balance.getUsdt() + balance.getUsdc() + height;
        String s = CryptoUtil.sha256Str(data);
        return new Path(height, type, s, balance);
    }
}
```



Hacks will Continue to get Worse

- Largest cryptocurrency theft to date, and nearly \$800 million more than Ronin Network's \$624 million hack in 2022.
- Lazarus Group continuously evolving.
 - Laundering outpacing tracing overwhelms exchanges.
 - Always searching for new attack vectors.
 - Traditional intelligence techniques similar to Inca.





Preventing Future Attacks

- Risk intelligence.
- Coordination between exchanges
- Custody risk mitigation
 - Separation of Cold Wallets
 - Bug Bounty Programs
 - Higher bounties encourage white hats to monitor for vulnerabilities.
 - Small price relative to 10% bounty instituted by Bybit on stolen funds.
 - Verification Tools
 - Ensure transaction shown is what is actually being signed.

BYBIT

What is the bug bounty given out when a vulnerability is approved?

Please refer to the table below for the bug bounty available based on the level of the vulnerability detected.

Level	Bounty
Low	50 to 200 USDT
Medium	500 to 1000 USDT
High	1000 to 2000 USDT
Critical	2500 to 4000 USDT

BYBIT | LazarusBounty

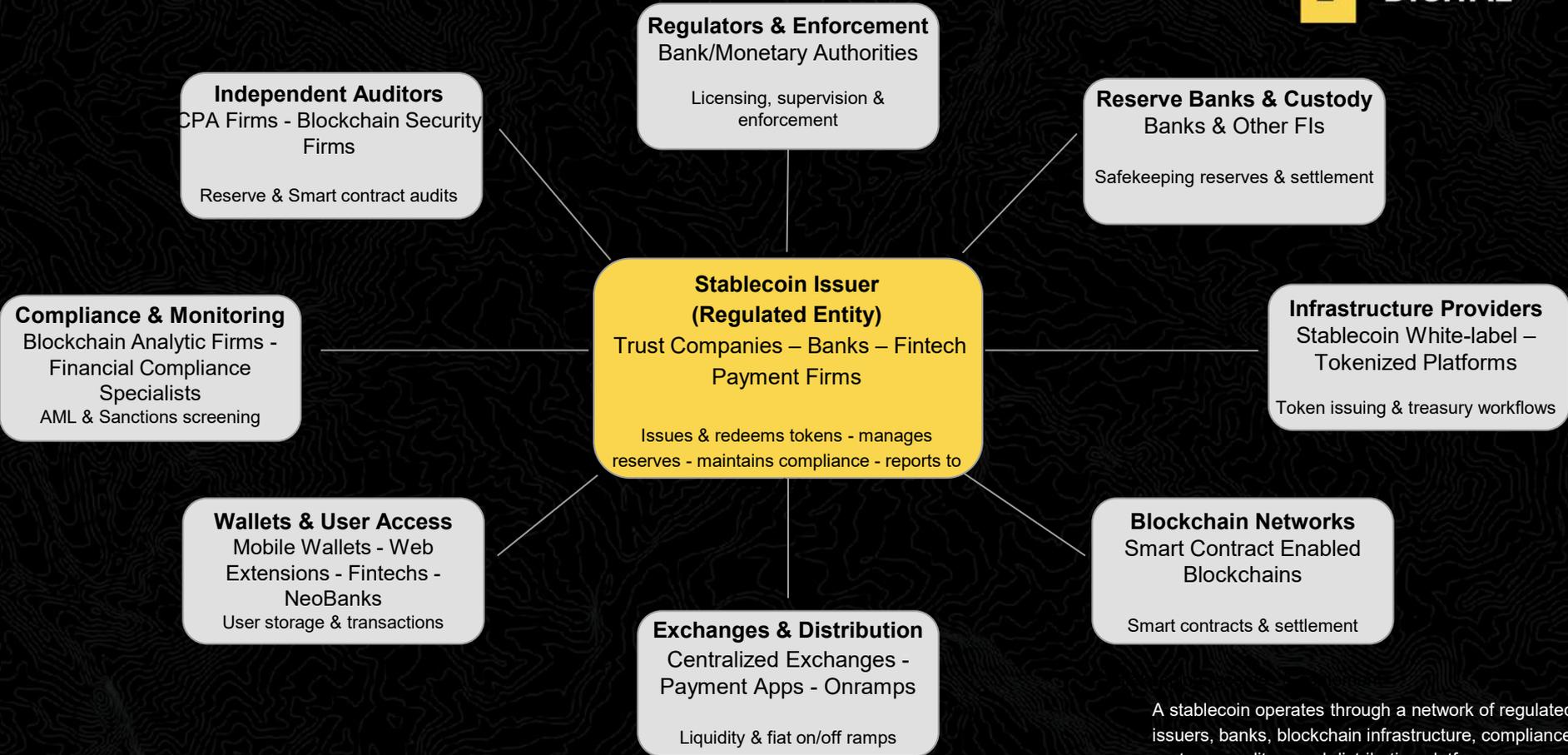
Total Bounty	Awarded Bounty	Bounty Hunters
\$140,000,000	\$4,278,798	12

1. The bounty will be awarded immediately once the funds are confirmed as frozen.
2. The total bounty is 10% of the recovered funds, distributed as follows:
 - a. 5% to the entity that successfully froze the funds.
 - b. 5% to the first reporters who helped trace the funds, leading to their freezing.

Stablecoin Ecosystem Map



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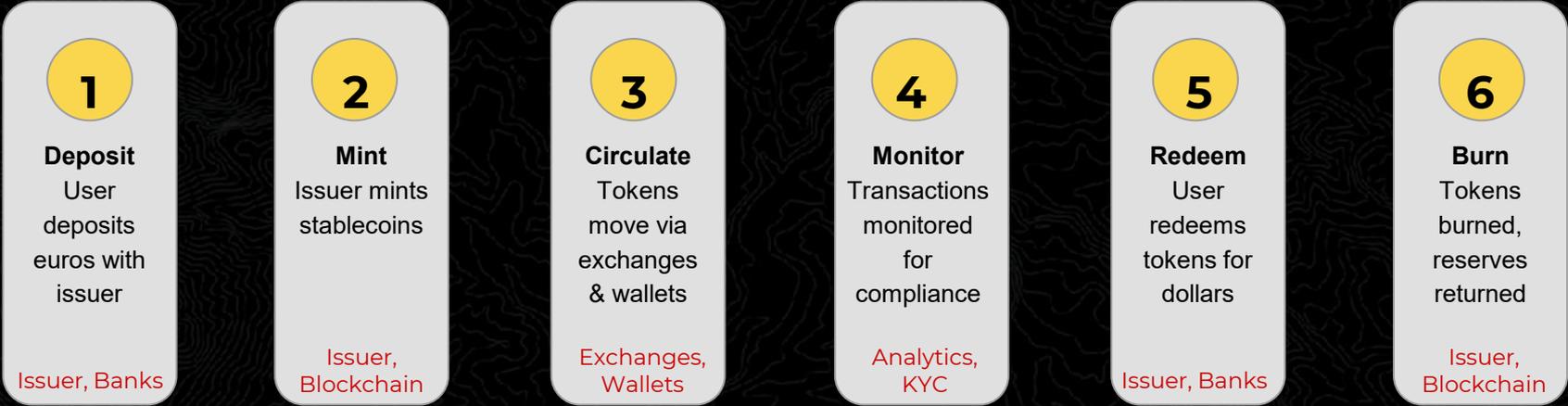


A stablecoin operates through a network of regulated issuers, banks, blockchain infrastructure, compliance systems, auditors and distribution platforms.



Lifecycle of a Stablecoin Transaction

At each stage, the stablecoin issuer remains the regulated entity responsible for maintaining reserves, regulatory reporting, and compliance programs.



Stakeholders by Stage:

- Deposit/Redeem: Banks, Issuer compliance team
- Mint/Burn: Blockchain networks/infrastructure providers
- Circulate: Exchanges, Wallets, On-ramps
- Monitor: Analytics, KYC, Auditors

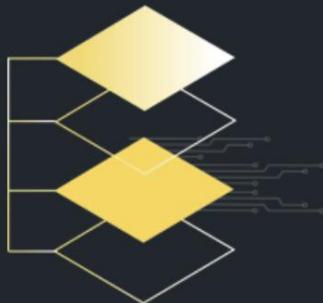


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Inca Digital collects complex data and turns it into clear, risk-focused intelligence for crypto and banking.

Collection

Aggregating multi-source data: real-time trading data, dark web data, blockchain transactions, social media (Twitter, Reddit, Telegram, Discord), and proprietary client data.



Analysis

Applying AI-driven analytics to unstructured data, detecting trends, anomalies, and emerging threats. Custom models identify tactics, techniques, and procedures (TTPs) impacting your business.



Intelligence

Delivering actionable insights through tailored intelligence reports, citation-backed raw data feeds, automated threat flags, and interactive dashboards—all with hands-on support from your assigned military intelligence expert.



Action

Turning intelligence into outcomes: direct collaboration with law enforcement and regulators, support for BSA/SAR filings, takedown requests, and asset recovery through Inca's litigation division.





1. Overview

- 1.1 Supply Metrics
- 1.2 Daily Active Addresses
- 1.3 On-Chain Time Zone Metrics

2. Holders

- 2.1 Holder Metrics [Ethereum]
- 2.2 Holder Metrics [Solana]

3. DEX

- 3.1 DEX Metrics [Ethereum]
- 3.2 Lending Metrics [Ethereum]
- 3.3 DEX Metrics [Solana]

4. CEX

- 4.1 CEX Holdings [Ethereum]
- 4.2 CEX Holdings [Solana]
- 4.3 CEX Volume

5. Threat Intel

- 5.1 Geolocation Analysis
- 5.2 Scam Contract Analysis
- 5.3 Scam Activity Analysis

1. Overview

Key metrics and daily activity snapshot of INCA on Ethereum and Solana.

1.1 Supply Metrics

Total Circulating Supply [All Blockchains]
Ethereum + Solana

\$790.05m

Circulating Supply [Ethereum]

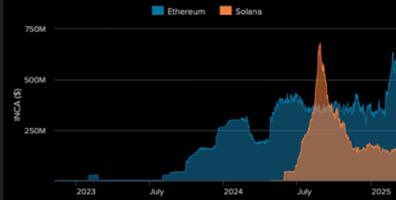
\$629.42m

Circulating Supply [Solana]

\$124.54m

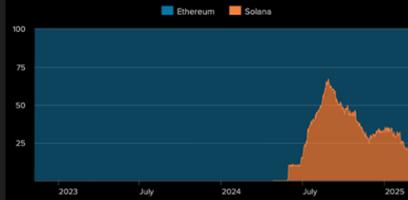
Circulating Supply by Blockchain

Tracks INCA supply growth and distribution across blockchains.



Circulating Supply by Blockchain [Normalized]

Shows relative INCA distribution across blockchains as percentages.



1.2 Daily Active Addresses

Daily Active Addresses [Ethereum]

Unique Ethereum addresses interacting with INCA daily.

576

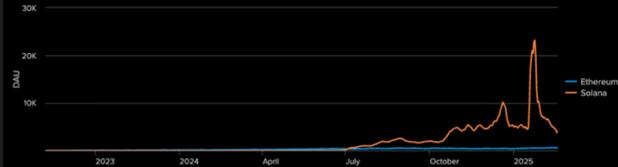
Daily Active Addresses [Solana]

Unique Solana addresses interacting with INCA daily.

4,022

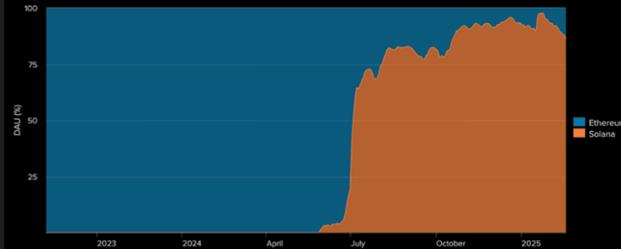
Daily Active Addresses by Blockchain - 7D MA

Unique addresses transferring INCA daily.



Daily Active Addresses by Blockchain

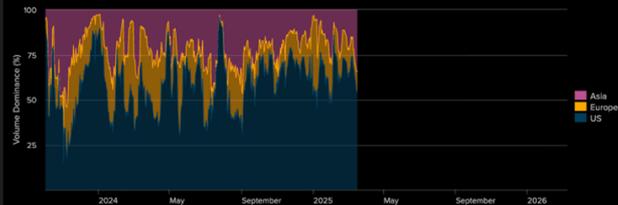
Unique addresses transferring INCA daily.



1.3 On-Chain Time Zone Metrics

Volume by Time Zone, Normalized

Transaction volume by time zone. USA leads in volume.



Transaction Count by Time Zone, Normalized

Transaction count by time zone. USA leads in activity.



2. Holders

Analysis of INCA holder distribution on Ethereum and Solana.

2.1 Holder Metrics [Ethereum]

Top 100 INCA Holders [Ethereum]

Largest INCA holders on Ethereum ranked by balance. Issuer leads all other holders by 2x.

Address	Name	Entity	Balance	USD Value	Change (24h)	Change (7d)
0x76ff...699c			\$ 23,185,255	\$ 14,126,151	\$ 26,320,511	\$ 22,471,209
0x5a4...83e9	Defiance Capital	Fund	\$ 19,519,204	\$ 0	\$ 0	\$ 0
0xf5ad...8c79	Crypto.co: Hot Wallet	CEX	\$ 19,798,008	\$ 10,345,052	\$ 847,165	\$ 16,481,442
0xf64...dc2b	Crypto.co: Hot Wallet	CEX	\$ 16,739,897	\$ 29,133,792	\$ 16,585,211	\$ 16,375,354
0xb73a...b453	Defiance Capital	Fund	\$ 16,144,474	\$ 0	\$ 0	\$ 0
0xfec5...a22d	Issuer: Hot Wallet	Issuer	\$ 12,576,818	\$ 171,435	\$ 852,523	\$ 2,983,334
0x8e5...22df	Aave: Aave Ethereum INCA	Lending	\$ 10,731,868	\$ 3,437,211	\$ 3,731,723	\$ 7,965,245
0xfc13...165a	Curve.fi: CurveFiLiquidity	DEX	\$ 7,859,761	\$ 1,574,248	\$ 1,189,977	\$ 5,215,468
0xf65b...b4bb	LayerZero: INCALocker	Bridge	\$ 7,841,136	\$ 2,540,819	\$ 7,082,714	\$ 6,810,921
0xb3c...8cf7	LayerZero: INCALocker	Bridge	\$ 6,951,278	\$ 2,418,161	\$ 7,486,839	\$ 3,364,387
0x8ef...429c	Bybit: Hot Wallet	CEX	\$ 6,855,766	\$ 1,105,897	\$ 1,332,748	\$ 5,499,477

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INCA Holdings by Entity [Ethereum]

Shows the current INCA holdings by entity type on Ethereum.

Entity	Balance	MA	3M Δ
Issuer	\$ 207,308,446	\$ 63,07507	\$ 84,270,446
Bridge	\$ 166,537,336	\$ -8,845,568	\$ 163,691,768
Fund	\$ 85,784,664	\$ -46,893,078	\$ 138,677,742
EOA	\$ 41,790,446	\$ 9,873,869	\$ 29,916,576
CEX	\$ 48,029,596	\$ 8,019,027	\$ 30,988,569
Lending	\$ 14,845,841	\$ 1,807,919	\$ 13,037,922
DEX	\$ 11,688,708	\$ 6,283,800	\$ 10,052,241
Hot	\$ 1,073,088	\$ 0	\$ 1,073,088
Custodian	\$ 3,793,294	\$ 28,704,691	\$ 973,527
DAO	\$ 13,874	\$ 0	\$ 0

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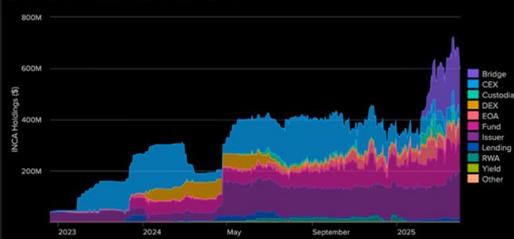
Daily INCA Holdings NetFlow by Entity Type [Ethereum]

Past 3 Months



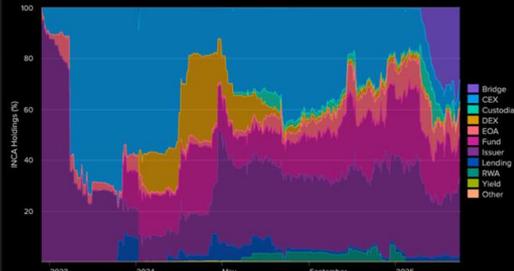
Holdings by Entity Type Over Time [Ethereum]

Normalized distribution of INCA holders on Ethereum over time.



Holdings by Entity Type Over Time, Normalized [Ethereum]

Normalized distribution of INCA holders on Ethereum over time.



2.1.1 Bridge Holdings [Ethereum]

Berachain - INCA Holdings

Total amount of INCA held on Berachain.

\$202,766,283

Fractal Bridge - INCA Holdings

Total amount of INCA held on Fractal.

\$189,168

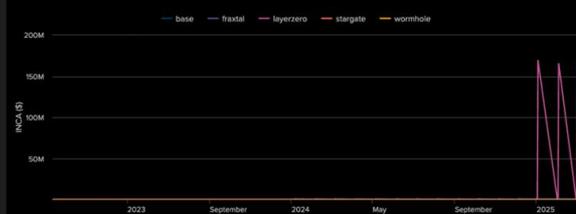
Wormhole Bridge - INCA Holdings

Total amount of INCA held on Wormhole.

\$288

INCA Holdings by Bridge

Tracks total amount of INCA held in known bridges over time.



Top Bridge Users by Holdings - Berachain

LayerZero INCAOFTADAPTER

Address	Label	Balance	Total USD Deposited	Total USD Withdrawn
0xb93a78fpe1286a7b984b9	yawn.eth	\$ 21,912,737	\$ 23,416,441	\$ -1,583,783
0xe833b059d8c333c414c		\$ 19,009,590	\$ 19,009,590	\$ 0
0x2ab2c9e5680693354a829	taketai.eth	\$ 17,650,326	\$ 17,961,218	\$ -310,894
0xf9fc588e980202b2c7c		\$ 14,081,000	\$ 14,081,000	\$ 0
0x429e298a2c1e1fa554845	Nexo	\$ 12,816,371	\$ 12,816,371	\$ 0
0x37ee4443a9546cc1872e	Gnosis Safe Proxy	\$ 9,000,000	\$ 9,000,000	\$ 0
0xd465330c338804ff2757c		\$ 5,267,857	\$ 5,267,857	\$ 0
0xdf9e9dfce0be78a71a9		\$ 5,000,000	\$ 5,000,000	\$ 0
0x5e11c080c0a049320p		\$ 4,565,487	\$ 4,565,487	\$ 0
0x78cb3d4f1143c88d		\$ 4,587,260	\$ 4,872,882	\$ -385,542

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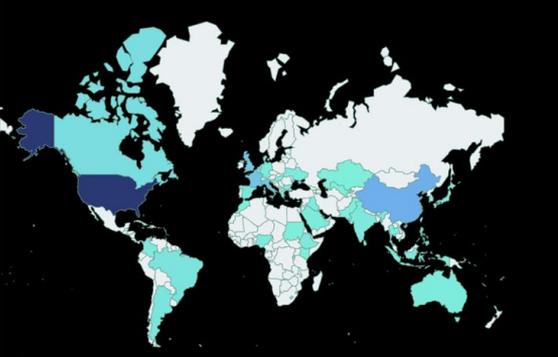
5. Threat Intel

Geographic usage patterns and potential security risks for INCA.

5.1 Geolocation Analysis

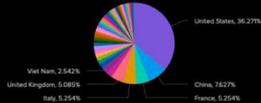
Geographic Distribution of INCA Social Media Engagement

Breakdown by country of origin of users discussing INCA on social media



Distribution of INCA Social Media Engagement

INCA-related social media activity by country.



INCA Social Media Users from Sanctioned Jurisdictions

Geographic data and location verification of INCA social media users in sanctioned regions.

User	Location	Location Proof	User Proof
same_label	Russia	Link to Social Media Post or Profile	Link to Social Media Post or Profile
eduard_kab3716	Moscow, Russia	Link to Social Media Post or Profile	Link to Social Media Post or Profile
FINANCE	Russia	Link to Social Media Post or Profile	Link to Social Media Post or Profile
INMAN_VEARONE	Venezuela	Link to Social Media Post or Profile	Link to Social Media Post or Profile
umveinecrypto	Bryansk, Russia	Link to Social Media Post or Profile	Link to Social Media Post or Profile
Cryptoday_mq	Iran	Link to Social Media Post or Profile	Link to Social Media Post or Profile

Distribution of INCA Social Media Engagement

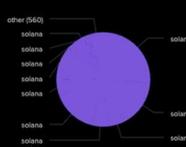
INCA-related social media activity by country.

Country	Users
United States	214
China	45
France	31
Italy	31
United Kingdom	30
Canada	15
Viet Nam	15
Brazil	10
Argentina	9
Spain	9
Netherlands	9
Philippines	9
Taiwan, Province of China	9
Ethiopia	7
Indonesia	7
India	7
Japan	7
Korea, Republic of	7

5.2 Scam Contracts

Total Scam Volume by Blockchain

Solana leads all blockchains in scam volume.



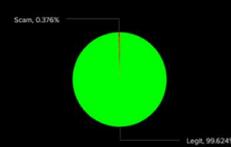
Top Level Scam Contract Metrics

INCA scam contract overview. 34m volume across 65k transactions.

Blockchain	Volume	Total Scam Contracts	Transaction Cnt
solana	\$ 21,637,247	198	85,419
ethereum	\$ 4,318,975	69	11,381
base	\$ 1,859,769	70	15,381
bnb	\$ 984,070	124	9,543
arbitrum	\$ 56,405	4	126
polygon	\$ 381	3	12

Total Volume by Scam Flag

Light volume dominates all INCA trading activity.



All INCA Scam Contracts

Comprehensive scam contract list. Insights into fraudulent activities across blockchains.

Blockchain	Project	Contract Address	Token Pair	Amount USD	Swap Cnt	First Seen	Last Seen	Flag
solana	metora	0x4c19c986801159f66a2810f1010f70e6d	INCA-USDT	\$ 8	2	12/8/24	12/9/24	Scam
solana	pumpdofun	0x5527666cc83b7e34581897b37e5df38044a59fc	INCA-SOL	\$ 189	12	12/6/24	12/6/24	Scam
solana	metora	0x4679c12081330913204540e66175260801d94	INCA-USDT	\$ 935	6	12/5/24	12/5/24	Scam
solana	pumpdofun	0x458081e1851e4fe29a11baaf8635e4e88b3abcc	INCA-SOL	\$ 181	12	12/5/24	12/5/24	Scam
ethereum	uniswap	0x8ec9e8088a827c28238c20595943a3a9919	METH-INCA	\$ 1,285	6	12/28/23	12/28/23	Scam
solana	metora	0x52767b534af40550b14a05843adb7c6ada933978c	USDT-INCA	\$ 360	12	12/28/24	12/28/24	Scam
solana	metora	0x0a2f3e13c2812e3740e0b04f3003970f604f41	INCA-e-USDC	\$ 20	1	12/27/24	12/27/24	Scam
solana	raydium	0x4f18631a20e4c18c4f321642439318936358f3d	INCA-e-USDC	\$ 193	58	12/25/24	2/17/25	Scam
solana	metora	0x8f7e3813649f0815416cc7953d8a9993ee71a0b	INCA-e-USDC	\$ 25	4	12/25/24	12/26/24	Scam
solana	pumpdofun	0x888a11b14568492da524e2169a886c92c0b178c	INCA-SOL	\$ 1,976	11	12/21/24	12/21/24	Scam





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How Inca can Help

This situation further underscores the necessity of advanced, data-driven ecosystem and risk intelligence to preempt and mitigate risk at scale. Blockchain forensics firms excel in post-incident analysis, however, a holistic solution is needed to detect systemic vulnerabilities and anticipate emerging threats before they happen.

Inca's intelligence infrastructure continuously monitors transactional flows, market anomalies, adversarial network behaviors, social media, corporate structure, and code repositories, providing real-time insights into risks before they escalate into full-scale incidents. This proactive approach is critical in an environment where nation-state actors like Lazarus operate with increasing sophistication and speed, and where the operational maturity of large crypto services like Bybit are largely unknown.

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