CRYPTO LOSSES IN 2023

PREPARED BY IMMUNEFI

Crypto Losses in 2023

The team at Immunefi, the leading bug bounty and security services platform for web3 which protects over $60 billion in user funds, has assessed the volume of crypto funds lost by the community due to hacks and scams in 2023.

OVERVIEW

The global web3 space was valued at over **$934 billion** in 2022. That capital represents an unparalleled and attractive opportunity for blackhat hackers.

We have reviewed all instances where blackhat hackers have exploited various crypto protocols, as well as cases of protocols that have allegedly performed a rug pull in 2023. We have located 319 such instances, including both successful and semi-successful hacking attempts, as well as alleged fraud.

In total, we have seen a loss of **$1,803,050,600** across the web3 ecosystem in 2023. **$1,699,632,321** was lost to hacks in 2023 across 247 specific incidents and **$103,418,279** was lost to fraud in across 110 specific incidents. Most of that sum was lost by two specific projects: Mixin Network, a transactional network for digital assets, and Euler Finance, a DeFi protocol.

This number represents a 54.2% decrease compared to total losses in 2022, when hackers and fraudsters stole **$3,948,856,037.**

Crypto Losses in 2023

KEY TAKEAWAYS IN 2023

- The two major exploits of the year, Mixin Network and Euler Finance, alone accounted for $397,000,000, representing 22% of all losses in 2023.
- In 2023, hacks continued to be the predominant cause of losses at **94.3%** in comparison to frauds, scams, and rug pulls, which amounted to only **5.7%** of the total losses.
- The Lazarus Group was responsible for **$308,600,000** stolen in 2023, representing **17%** of the total year losses. The group was allegedly behind the high-profile attacks on Atomic Wallet, CoinEx, Alphapo, Stake, and CoinsPaid.
- In 2023, DeFi continued to be the main target of successful exploits at **77.3%** as compared to CeFi at **22.7%** of the total losses.
- The two most targeted chains in 2023 were BNB Chain and Ethereum. BNB Chain suffered the most individual attacks with 133 incidents, representing 41.6% respectively. Ethereum witnessed 95 incidents representing 29.8% of the total losses across targeted chains. Polygon came in third with 10 incidents, representing 3.1% of total losses across chains. Avalanche followed with 6 incidents.
- In total, **$241,701,085** has been recovered from stolen funds in **19** specific situations. This number makes up **13.4%** of the total losses in 2023.
- The number of attacks spiked: the number of single incidents increased **89.8%** YoY from 168 in 2022 to 319 in 2023. At the same time, the total number of losses decreased by **54.2%** compared to 2022, amounting to **$3,948,856,037**. The more active projects are out there, the easier it is for hackers to find vulnerabilities at least somewhere.
- BNB Chain surpassed Ethereum and became the most targeted chain.
- While most of the hackers' interest is directed toward DeFi, organized hacker groups like Lazarus have switched to primarily targeting CeFi, most likely due to their outsized returns.
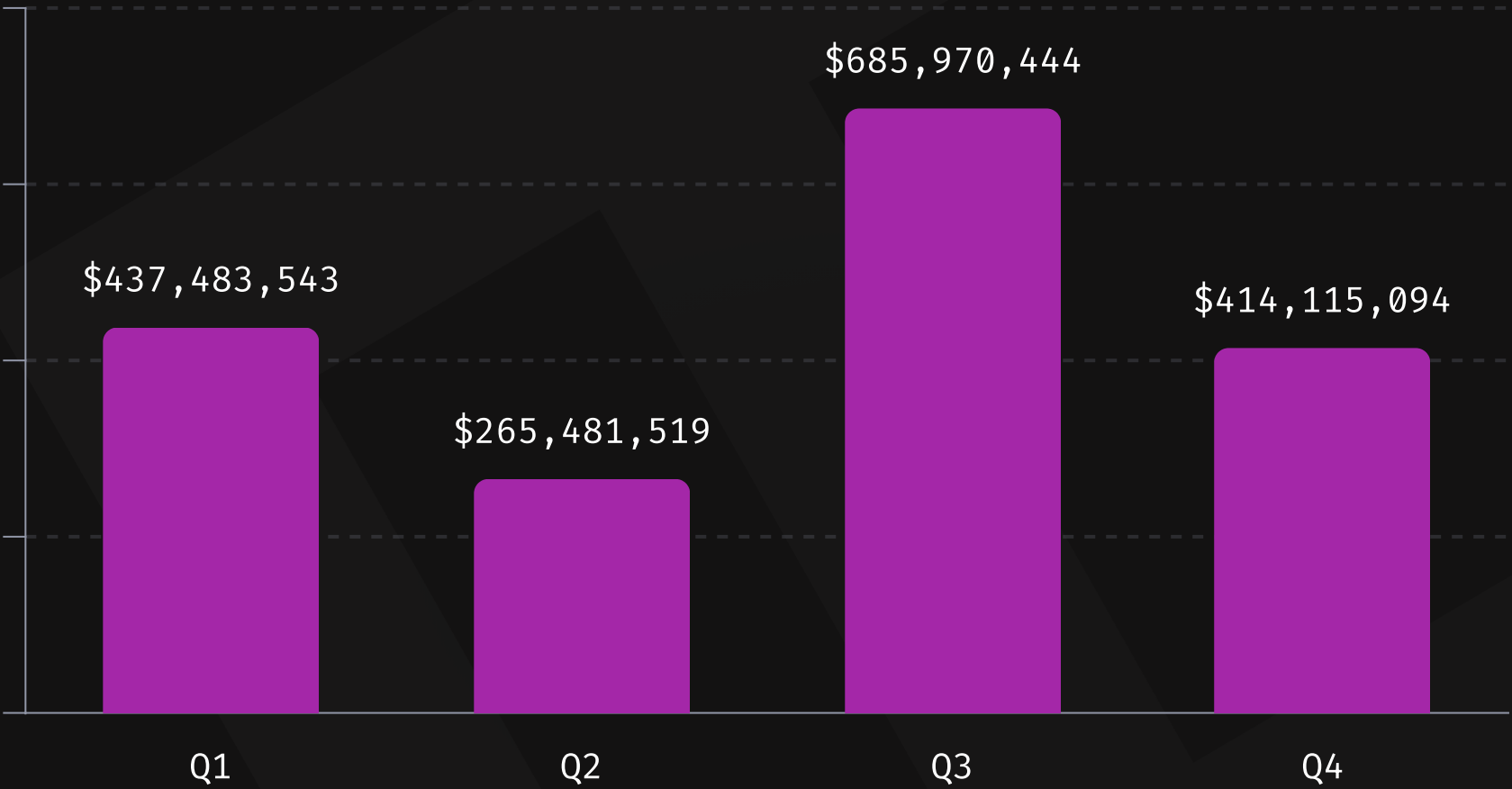
Top 10 Losses in 2023

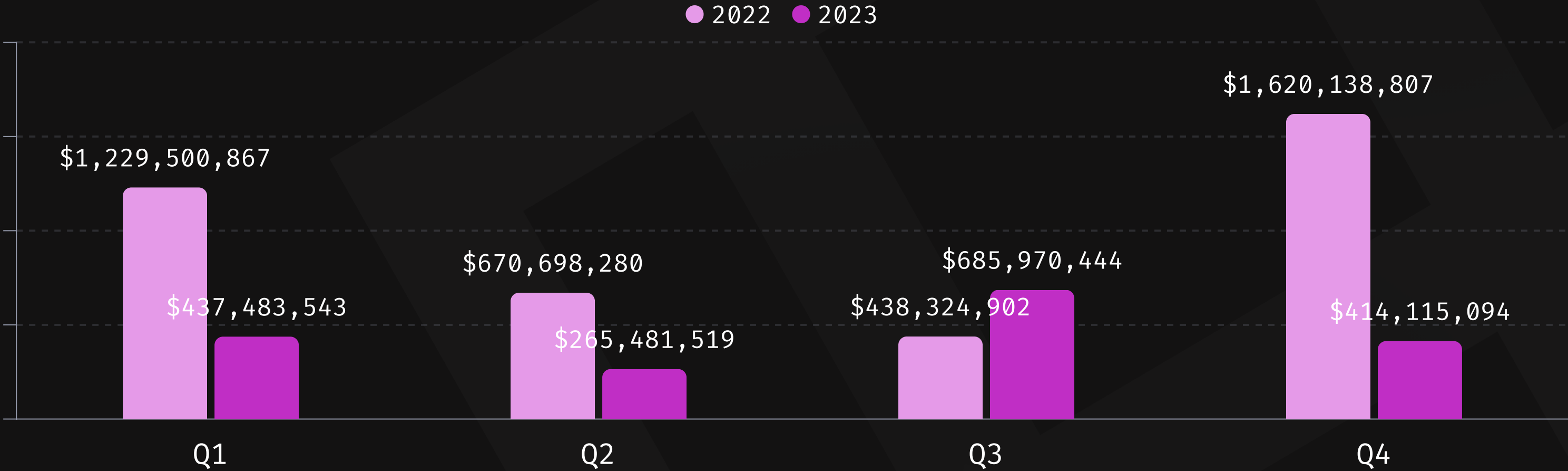|	
Mixin Network	$200,000,000
Euler Finance	$197,000,000
Multichain	$126,000,000
Poloniex	$126,000,000
BonqDAO	$120,000,000
Atomic Wallet	$100,000,000
Heco Chain	$85,400,000
CoinEx	$70,000,000
Alphapo	$60,000,000
KyberSwap	$48,300,000

Losses by quarter in 2023

In 2023, Q3 took the lead with $685,510,444 in total losses across 75 incidents, representing 38% of the total losses.

Losses by quarter in 2023

2022 VS 2023

In 2022, Q4 took the lead with $1,620,138,807 in total losses across 55 incidents, representing 41% of the total losses.
In 2023, Q3 took the lead with $685,970,444 in total losses across 75 incidents, representing 38% of the total losses.

● 2022 ● 2023

- Q1: $1,229,500,867 (2022), $437,483,543 (2023)
- Q2: $670,698,280 (2022), $265,481,519 (2023)
- Q3: $438,324,902 (2022), $685,970,444 (2023)
- Q4: $1,620,138,807 (2022), $414,115,094 (2023)

Losses by quarter in 2023

Q1 2023

The total losses in Q1 2023 were **$437,483,543.** This number represents a 64.4% decrease compared to Q1 2022, when hackers and fraudsters stole $1,229,500,867. Most of that sum was lost by two specific projects: Euler Finance and BonqDAO. These projects together amounted to a total loss of $317,000,000.

Q2 2023

The total losses in Q2 2023 were **$265,481,519.** This number represents a 60.4% decrease compared to Q2 2022, when hackers and fraudsters stole $670,698,280. Most of that sum was lost by two specific projects: Atomic Wallet and Fintoch. These projects together amounted to a total loss of $131,600,000.

Q3 2023

The total losses in Q3 2023 were **$685,970,444.** This number represents a 56.5% increase compared to Q3 2022 when hackers and fraudsters stole $438,324,902. Most of that sum was lost by two specific projects: Mixin Network and the Multichain. These projects together amounted to a total loss of $326,000,000.

Q4 2023

The total losses in Q4 2023 were **$414,115,094.** This number represents 74.4% decrease compared to Q4 2022, when hackers and fraudsters stole $1,620,138,807. Most of that sum was lost by two specific projects: Poloniex and Heco Chain. These projects together amounted to a total loss of $211,400,000.

Top losses by quarter in 2023

Q 1

Euler Finance	$197,000,000
BonqDAO	$120,000,000
Angle Protocol	$17,000,000
Balancer	$11,900,000
MyAlgo	$9,200,000
Platypus	$8,500,000
Safemoon	$8,500,000
LendHub	$6,000,000
Idle Finance	$5,900,000
Shata Capital	$5,140,000

Q 2

Atomic Wallet	$100,000,000
Fintoch	$31,600,000
Ethereum MEV*	$25,000,000
Bitrue	$23,000,000
GDAC	$14,000,000
Yearn Finance	$11,600,000
Jimbos Protocol	$7,500,000
Hundred	$7,400,000
Deus Finance	$6,380,000
Terraport*	$4,000,000

Q 3

Mixin Network	$200,000,000
Multichain	$126,000,000
CoinEx	$70,000,000
Alphapo	$60,000,000
Curve/Vyper	$57,842,000
Stake	$41,300,000
CoinsPaid	$37,300,000
Fortress	$15,700,000
Poly Network	$10,201,612
HTX_Global*	$8,000,000

Q 4

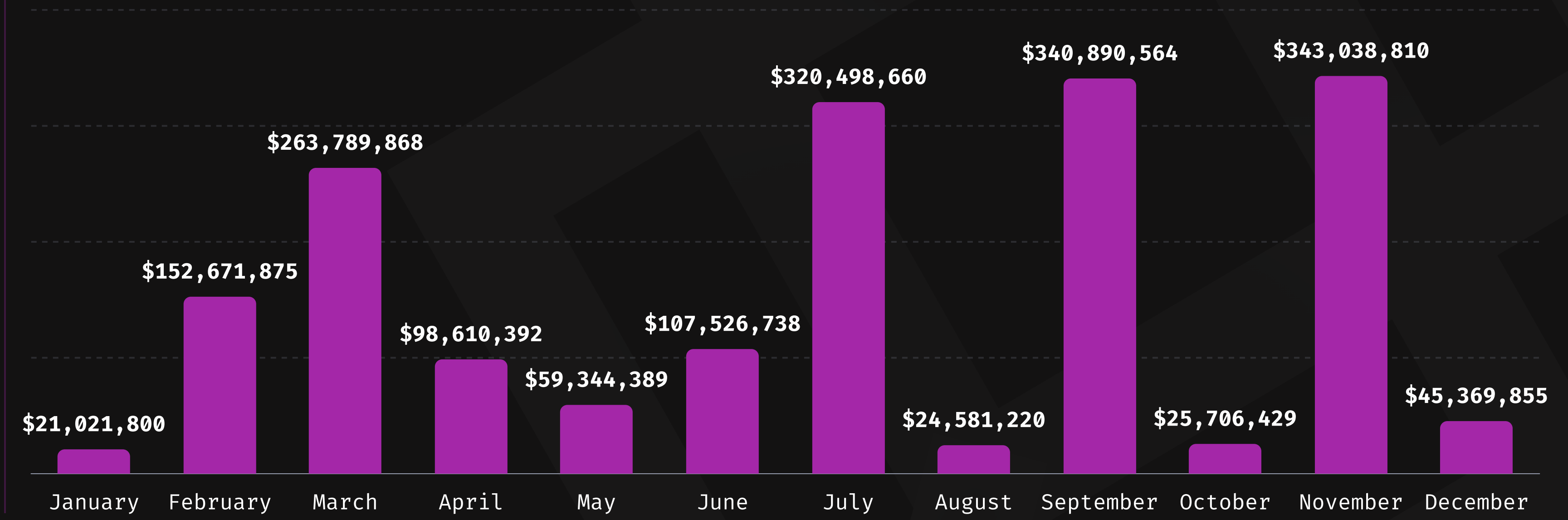|	
Poloniex	$126,000,000
Heco Chain	$85,400,000
KyberSwap	$48,300,000
HTX Exchange	$30,000,000
HXA Token	$29,586,973
Kronos Research	$26,000,000
dYdX	$9,000,000
Fantom*	$7,359,282
Raft Protocol	$3,250,000
Stars Arena	$3,000,000

Ethereum MEV bots*, Hundred Finance*, Terraport Finance*, HTX_Global (Huobi)*, Fantom Foundation*

Monthly Losses in 2023

OVERVIEW

In total, the ecosystem has witnessed $**1,803,050,600** in losses year-to-date (YTD) across 319 specific incidents. Overall, Q3 in 2023 recorded the highest losses, primarily driven by more than $320 million in July and over $340 million in September.


Month	Loss
January	$21,021,800
February	$152,671,875
March	$263,789,868
April	$98,610,392
May	$59,344,389
June	$107,526,738
July	$320,498,660
August	$24,581,220
September	$340,890,564
October	$25,706,429
November	$343,038,810
December	$45,369,855

Major Exploits in 2023 Analysis

Most of the 2023 loss sum was lost by two specific projects, Mixin Network and Euler Finance, totalling $397,000,000. Together, these two projects represent 22% of 2023 losses alone.
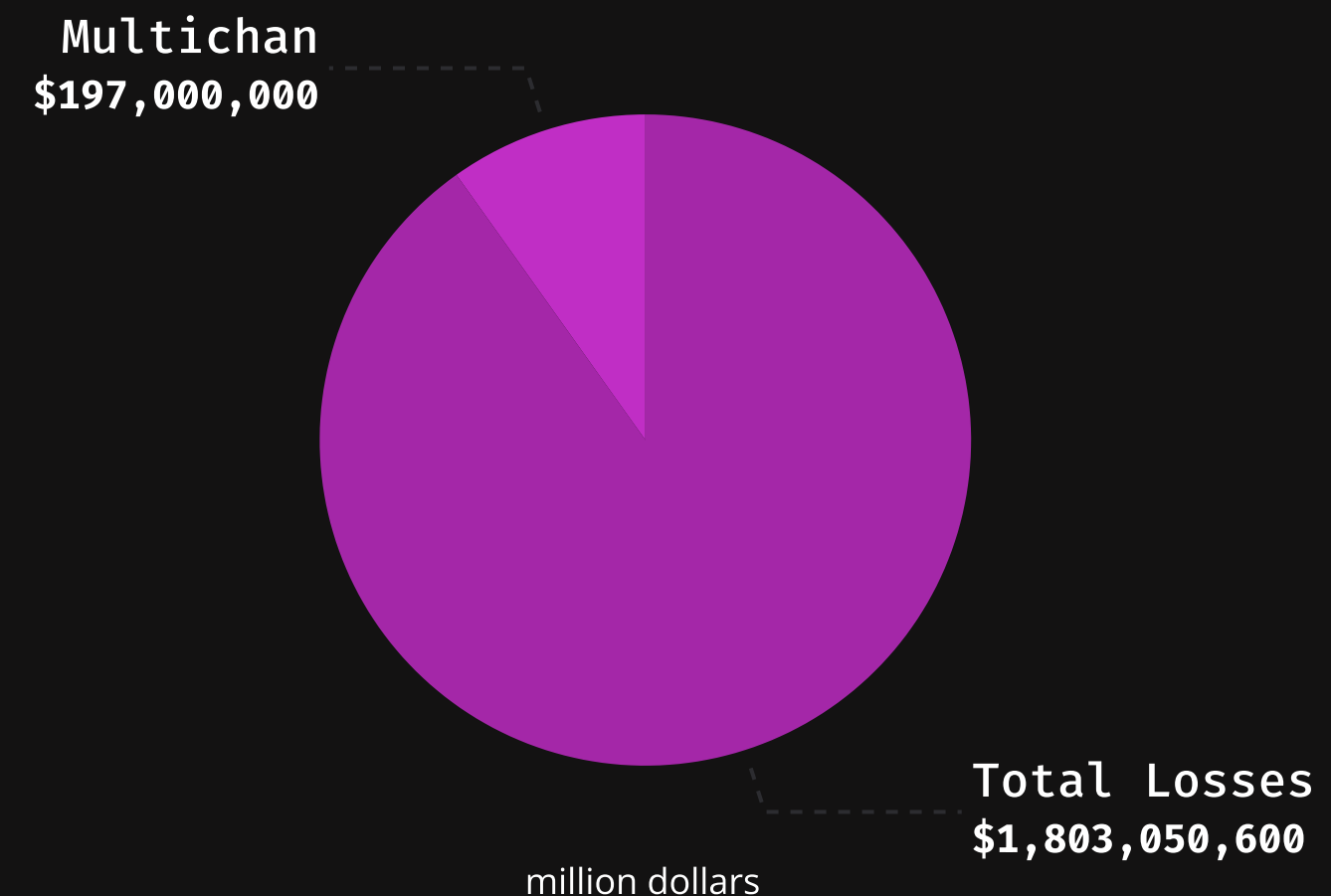
MIXIN NETWORK, $200 MILLION

- On September 23rd, 2023, the decentralized Mixin network was breached, and cybercriminals took $200 million-worth of digital tokens at the time.
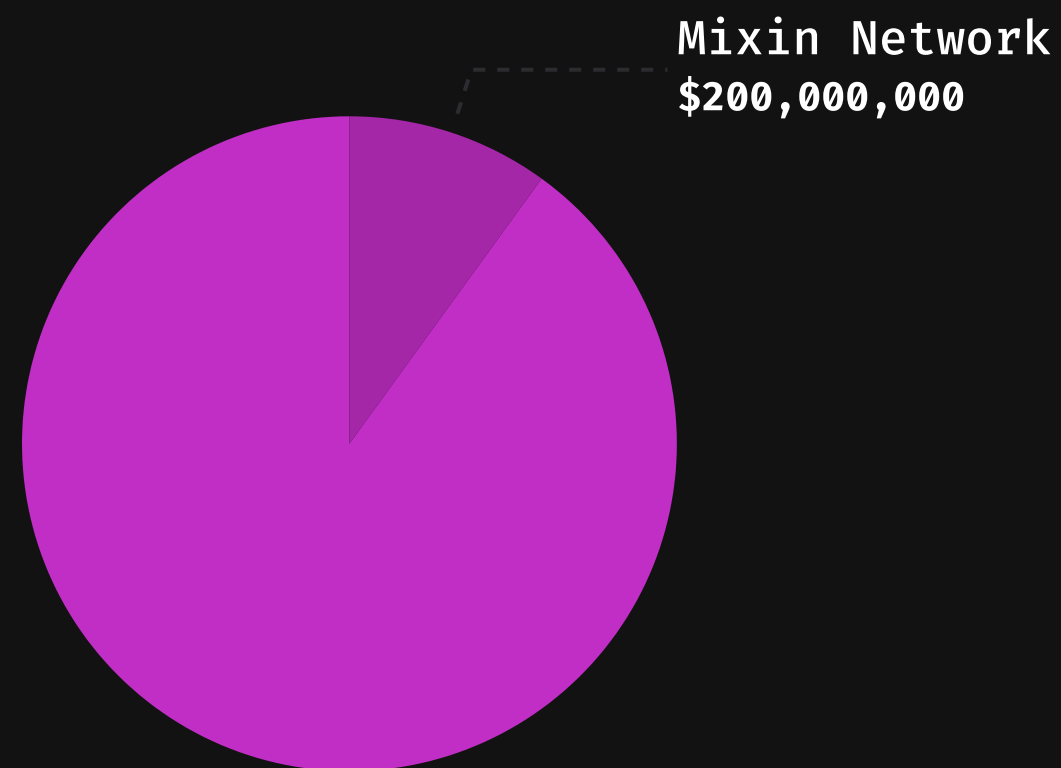
EULER FINANCE, $197 MILLION

- On March 13th, 2023, Euler Finance, a DeFi lending protocol, suffered a flash-loan attack that resulted in a $197 million loss. The attacker drained several assets, including $136 million of stETH, $34 million of USDC, $19 million of WBTC, and $8.7 million of DAI.

Mixin Network
$200,000,000

Multichan
$197,000,000

Total Losses
$1,803,050,600

Total Losses
$1,803,050,600

million dollars

Major Exploits in 2023 Analysis

- The Immunefi team produced a report assessing the volume of crypto funds lost due to the attacks of the Lazarus Group, a North Korea-affiliated hacker group. The Lazarus Group was responsible for **$308,600,000** stolen in 2023, representing **17%** of the total year losses. The group was allegedly behind the high-profile attacks on Atomic Wallet, CoinEx, Alphapo, Stake, and CoinsPaid.

For more information about the Immunefi Lazarus Group Report, please visit immunefi.com/research.

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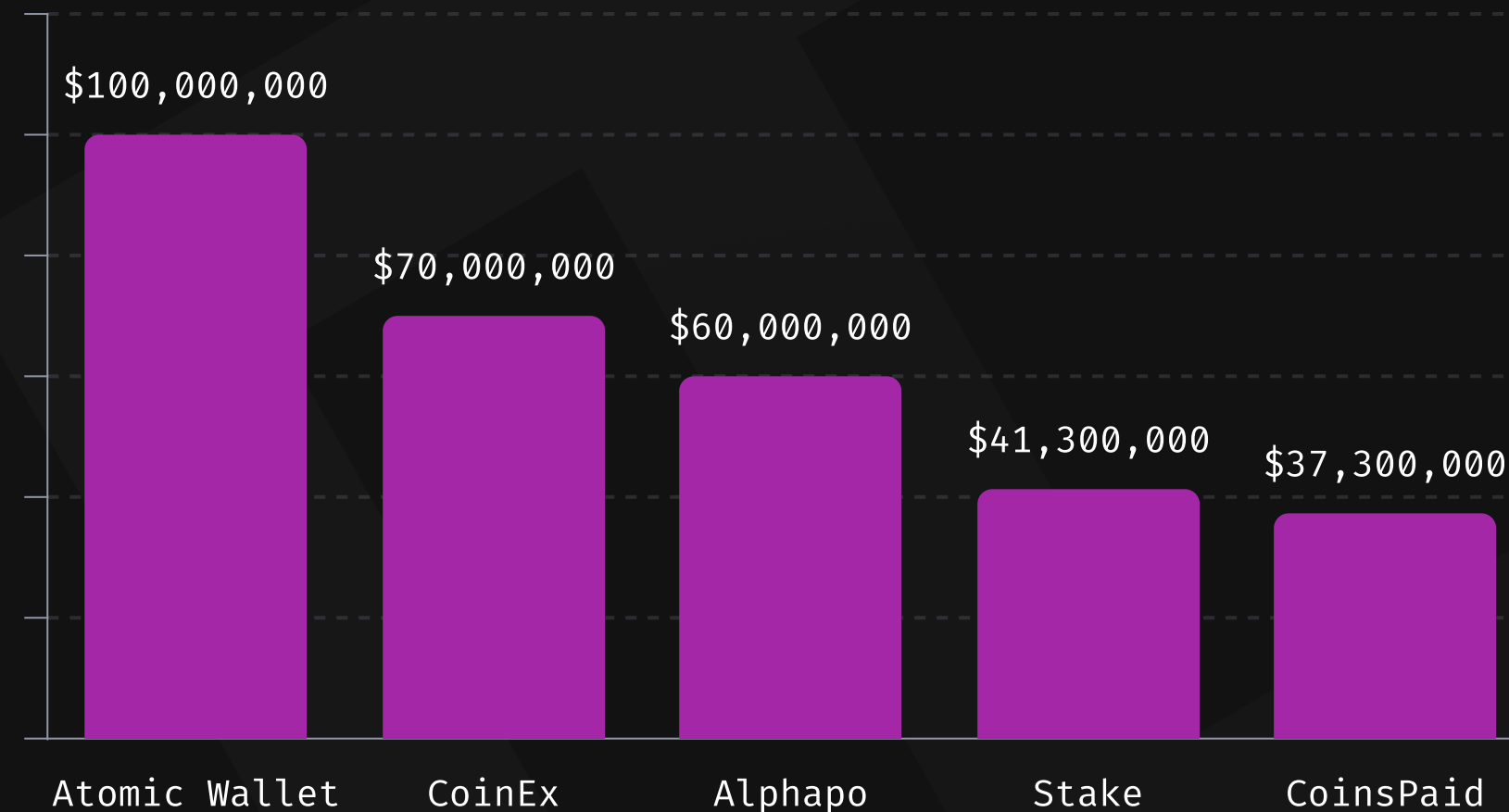
Hacks vs. Fraud Analysis

In 2023, hacks continue to be the predominant cause of losses as compared to frauds, scams, and rug pulls. An analysis of the losses shows that fraud accounts for 5.7% of the total losses in the 2023, while hacks account for 94.3%.
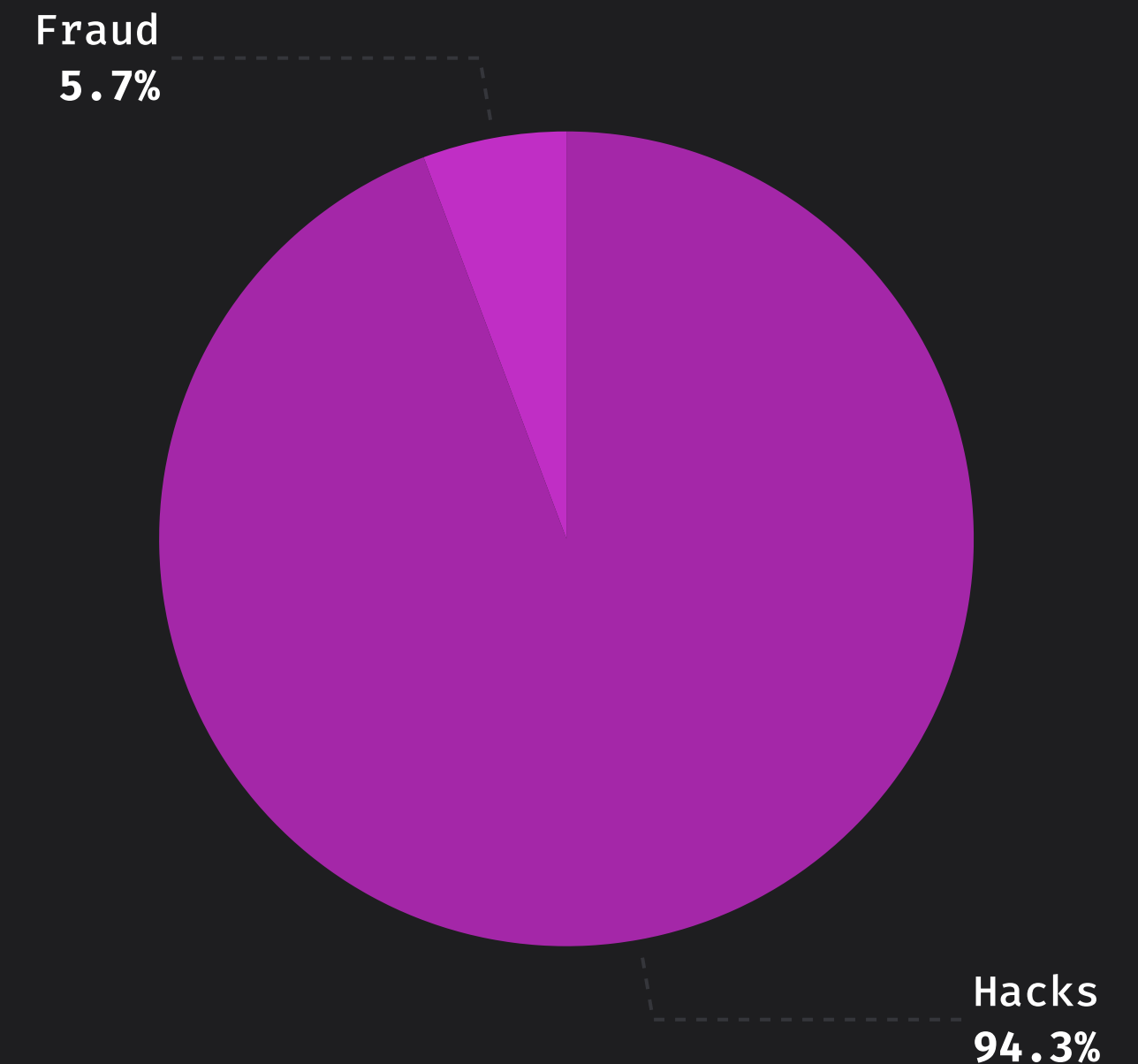
OVERVIEW

- **Hacks**
  In total, we have seen a loss of **$1,699,632,321** to hacks in 2023 across 219 specific incidents. These numbers represent a 54.9% decrease compared to 2022, when losses caused by hacks totalled $3,773,906,837

- **Fraud**
  In total, we have seen a loss of **$103,418,279** to fraud in 2023 across 100 specific incidents. These numbers represent a 40.9% increase compared to 2022 when losses caused by frauds, scams, and rug pulls totalled $174,949,200.

Fraud
5.7%

Hacks
94.3%

DeFi vs. CeFi Analysis

In 2023, DeFi continues to be the main target for exploits, compared to CeFi. DeFi represents 77.3% of the total losses, while CeFi represents 22.7% of the total losses.
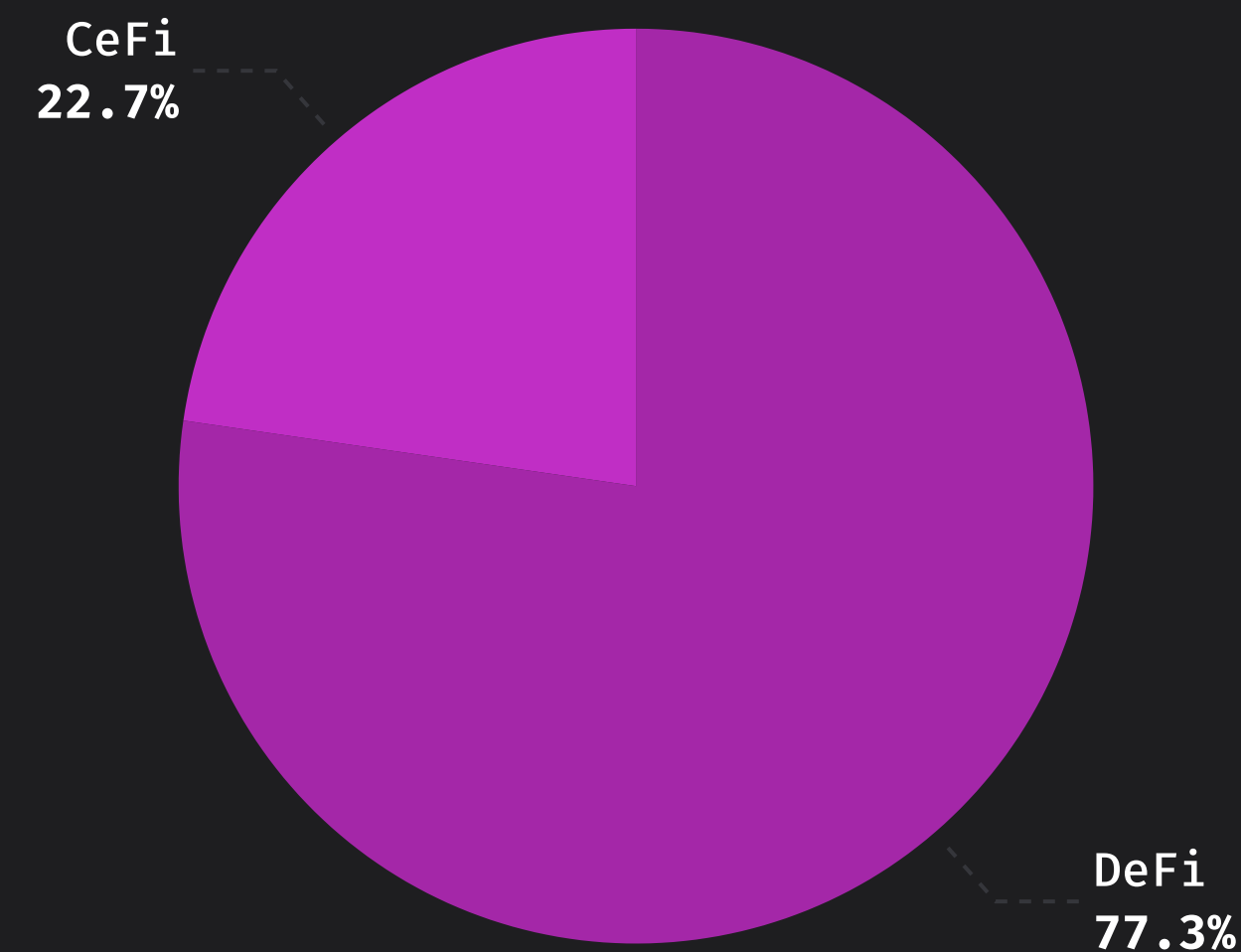
OVERVIEW

- **DeFi**
  DeFi has suffered **$1,394,142,600** in total losses in 2023 across 306 incidents. These numbers represent a 56.1% decrease compared to 2022 when DeFi losses totalled $3,180,023,103.

- **CeFi**
  CeFi has suffered **$408,908,000** in total losses in 2023 across 13 incidents. These numbers represent a 46.8% decrease compared to 2022 when DeFi losses totalled $768,832,934.

CeFi
22.7%

DeFi
77.3%

Losses by Chain

The two most targeted chains in 2023 were BNB Chain and Ethereum. BNB Chain suffered the most individual attacks with 133 incidents, representing 41.6% respectively. Ethereum witnessed 95 incidents representing 29.8% of the total losses across targeted chains.

OVERVIEW

- Ethereum and BNB Chain represent more than half of the chain losses in 2023.
- Polygon came in third with 10 incidents, representing 3.1% of total losses across chains. Avalanche followed with 6 incidents.

Others
71

Ethereum
95

Polygon
10

Avalanche
6

BNB Chain
133
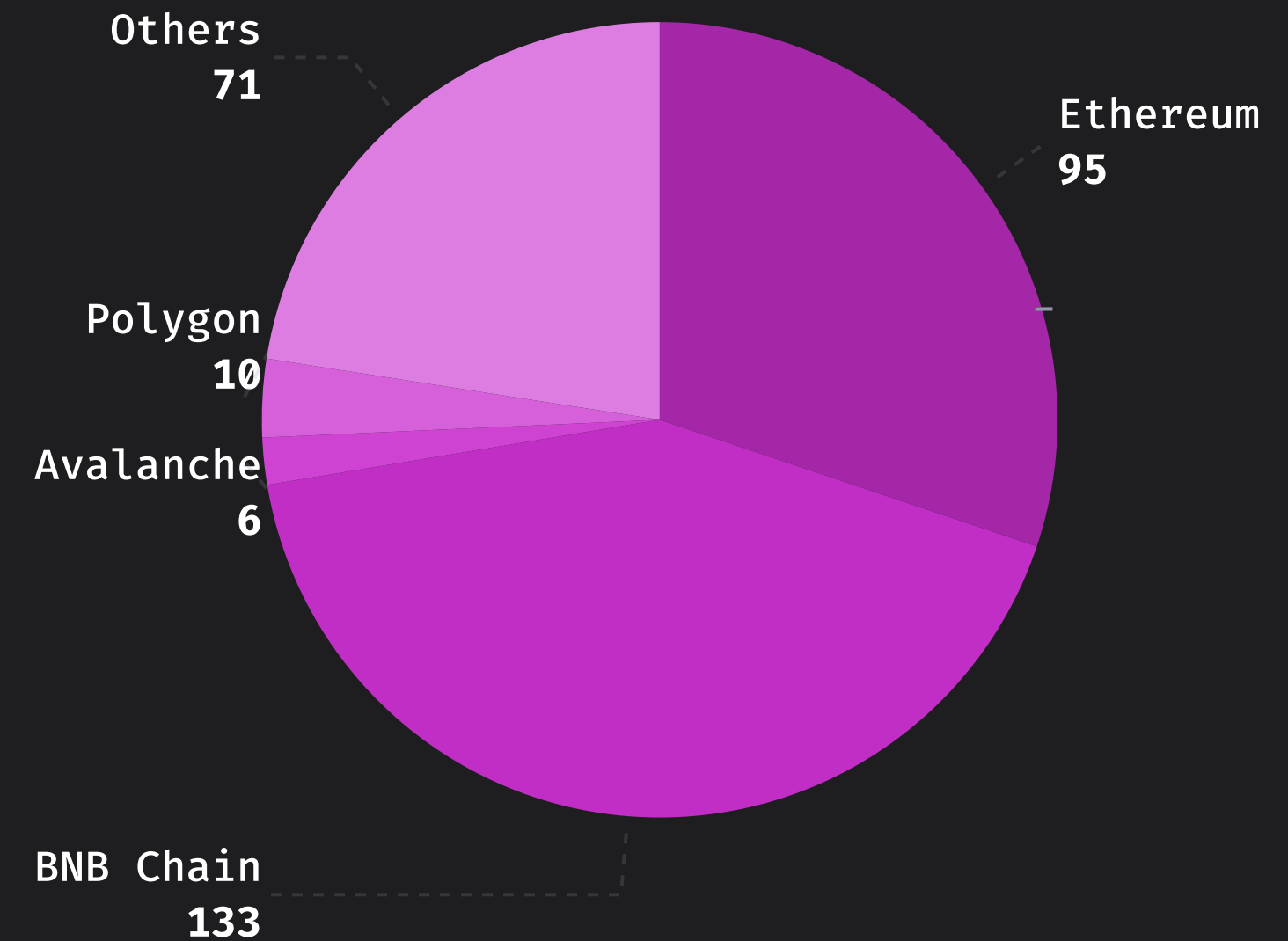
Funds Recovery

In total, **$241,701,085** has been recovered from stolen funds in **19** specific situations. This number makes up **13.4%** of the total losses in 2023.
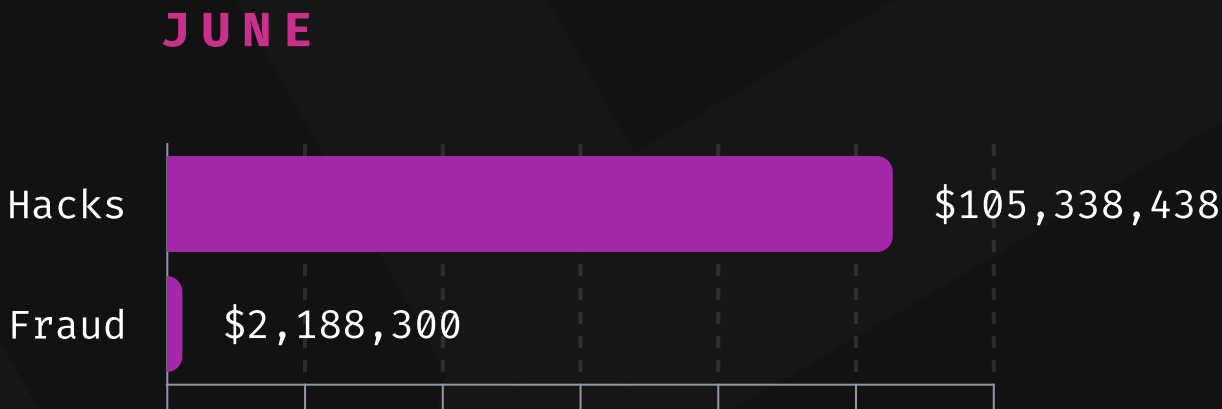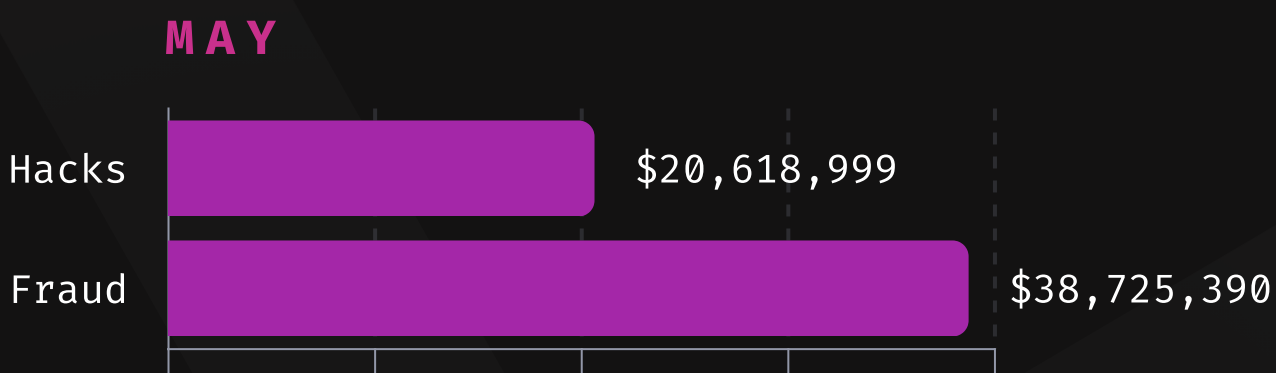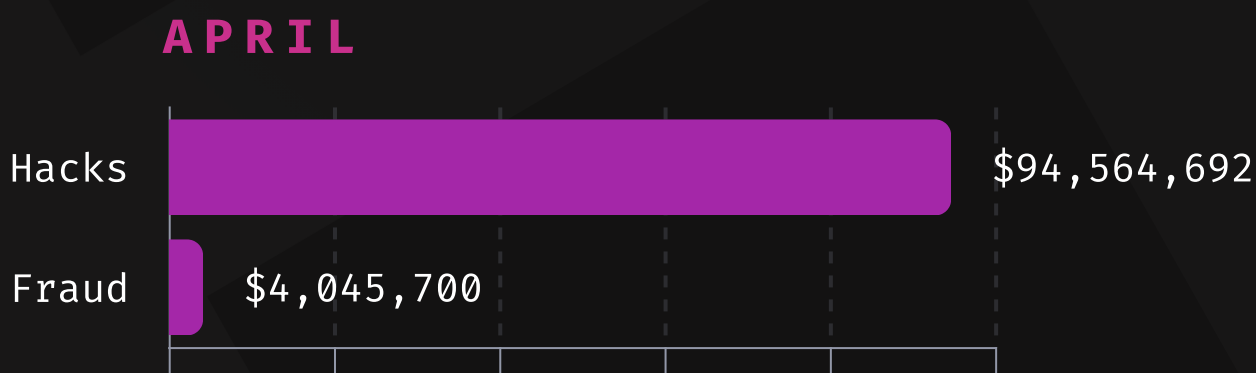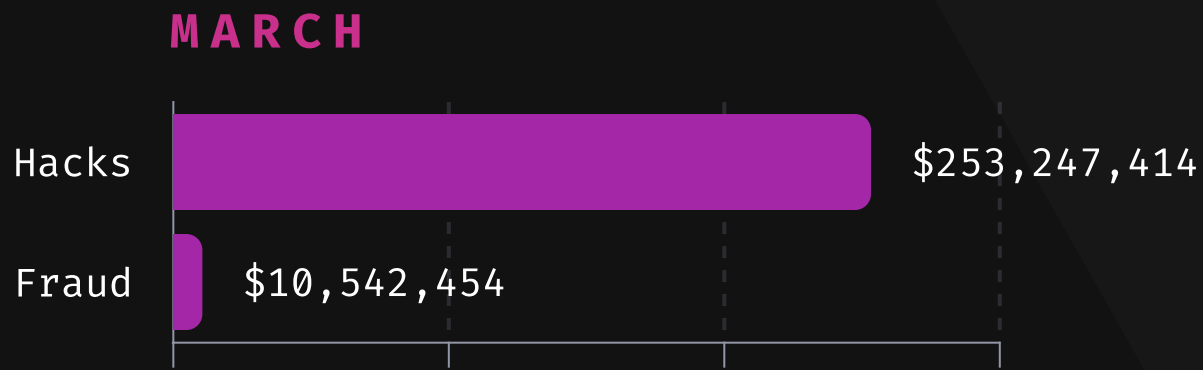
	Stolen	Recovered		Stolen	Recovered
Curve/Vyper	$57,842,000	$38,093,189	Sentiment	$969,000	$862,569
MetronomeDAO	$1,626,000	$1,463,400	MetaPoint	$920,000	$63,000
Palmswap	$901,000	$720,800	FilDA	$700,000	$560,000
GMBL.COMPUTER	$800,000	$382,000	EDE Finance	$580,000	$420,000
Euler Finance	$197,000,000	$177,000,000	Allbridge	$570,000	$465,000
SperaxUSD	$250,000.00	$250,000	Stars Arena	$3,000,000	$2,677,077
Atomic Wallet	$100,000,000	$1,000,000	Astrid	$228,000	$182,000
Deus Finance	$6,380,000	$5,500,000	HTX Exchange	$30,000,000	$8,200,000
SushiSwap	$3,340,000	$723,450	KyberSwap	$48,300,000	$4,670,000
PeapodsFinance	$230,000	$207,000			

In Focus: Crypto Losses 2023 | Monthly Overview

TOTAL LOSSES: HACKS VS. FRAUD

JANUARY

Hacks	$12,669,800
Fraud	$8,352,000

FEBRUARY

Hacks	$152,671,875
Fraud	$0

MARCH

Hacks	$253,247,414
Fraud	$10,542,454

APRIL

Hacks	$94,564,692
Fraud	$4,045,700

MAY

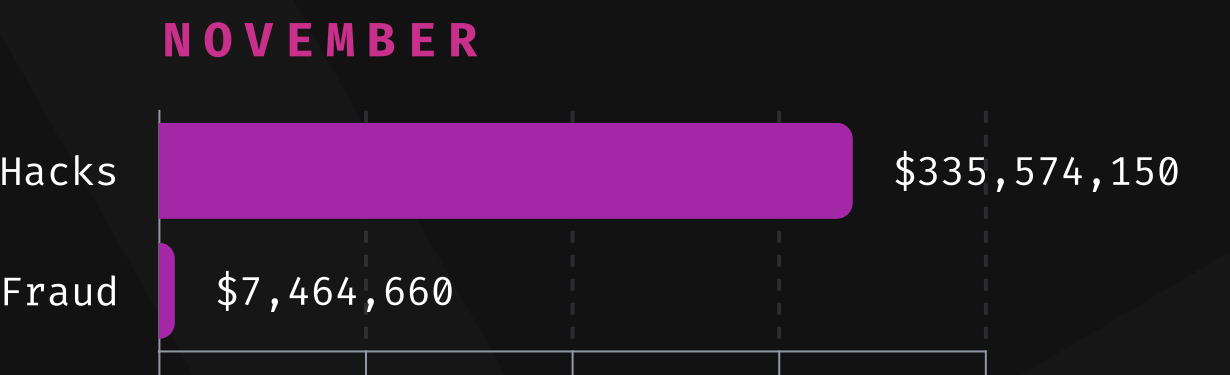|	
Hacks	$20,618,999
Fraud	$38,725,390

JUNE

Hacks	$105,338,438
Fraud	$2,188,300

In Focus: Crypto Losses 2023 | Monthly Overview

TOTAL LOSSES: HACKS VS. FRAUD

JULY

Hacks	$305,929,271
Fraud	$14,569,389

AUGUST

Hacks	$17,027,809
Fraud	$7,553,411

SEPTEMBER

Hacks	$340,353,500
Fraud	$537,064

OCTOBER

Hacks	$18,406,845
Fraud	$7,299,584

NOVEMBER

Hacks	$335,574,150
Fraud	$7,464,660

DECEMBER

Hacks	$43,229,528
Fraud	$2,140,327

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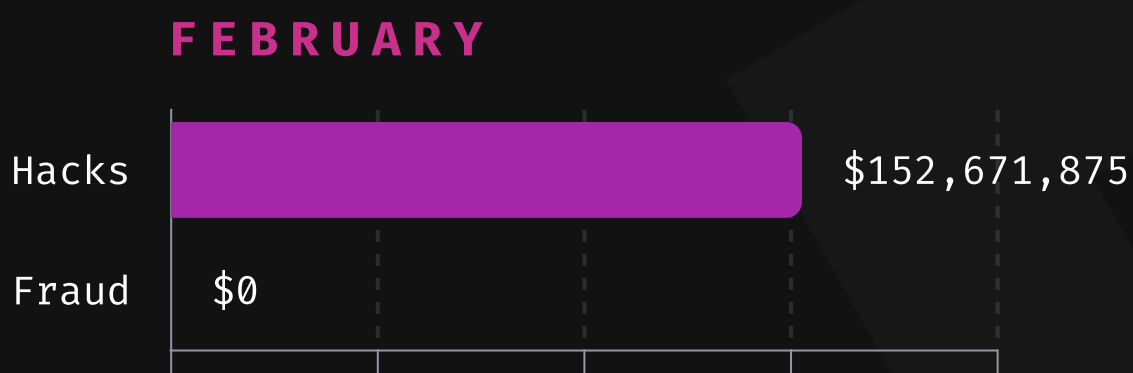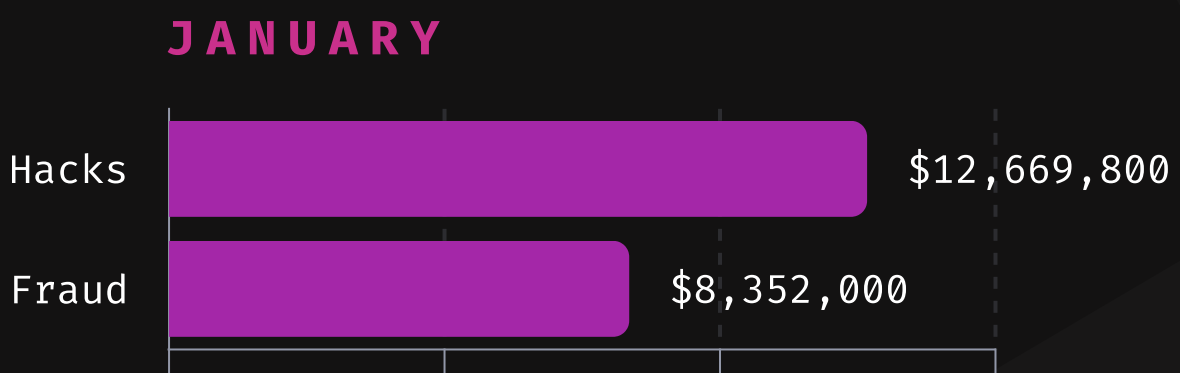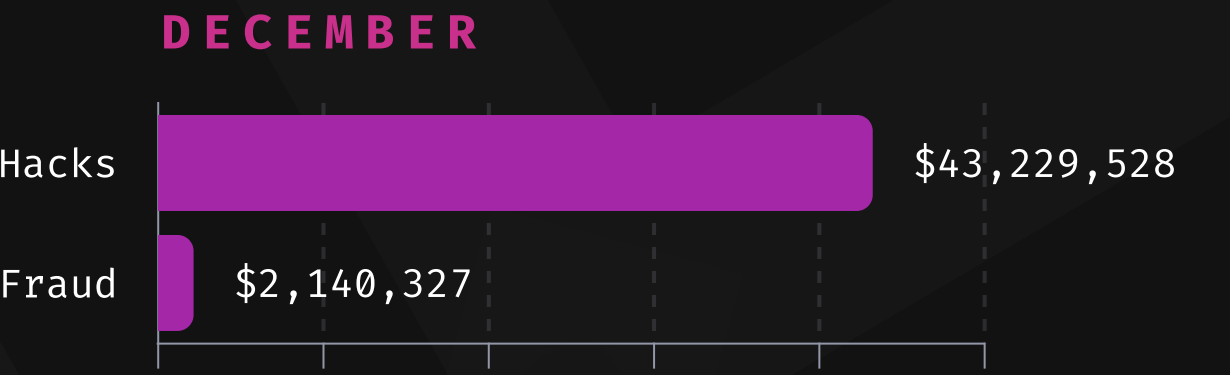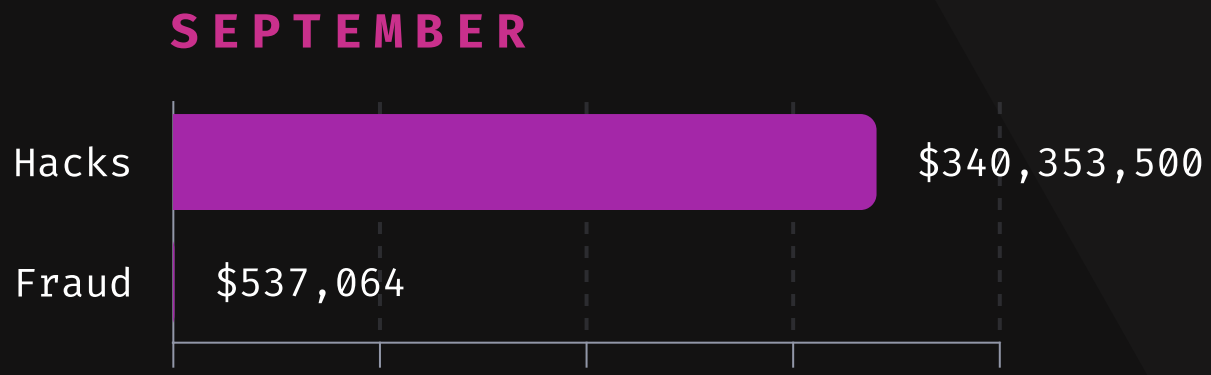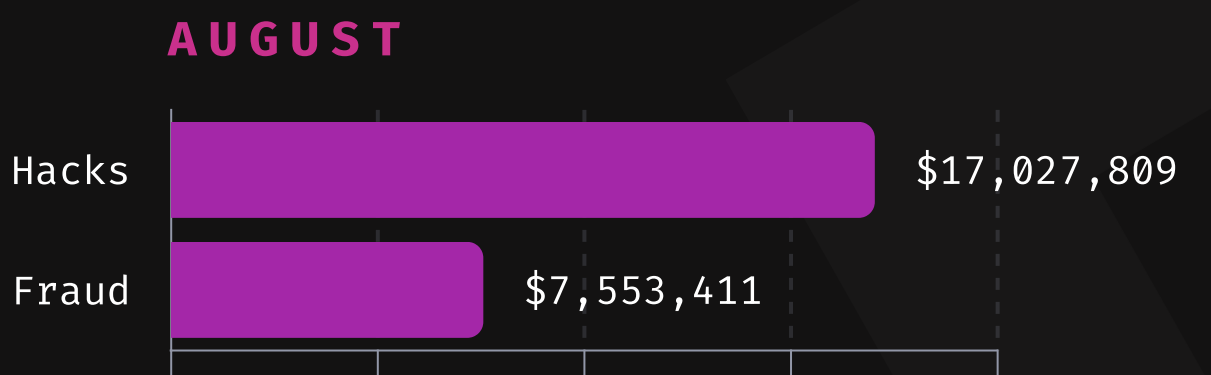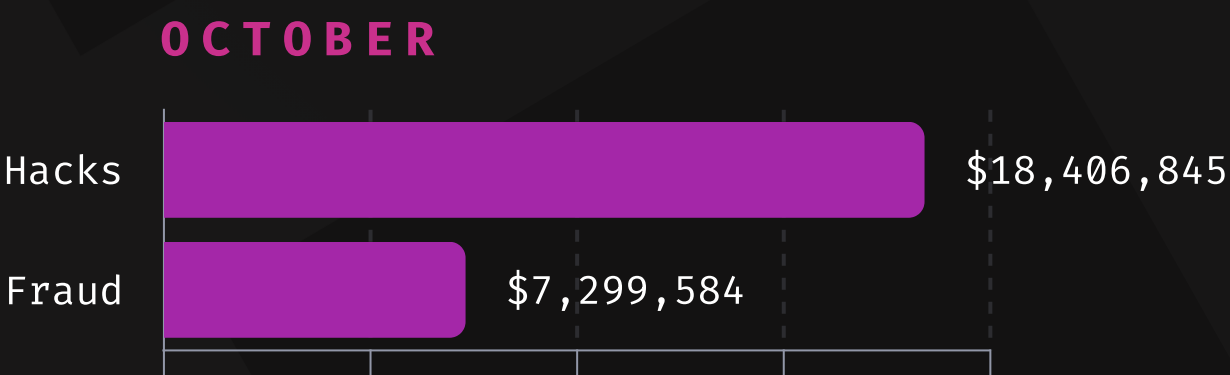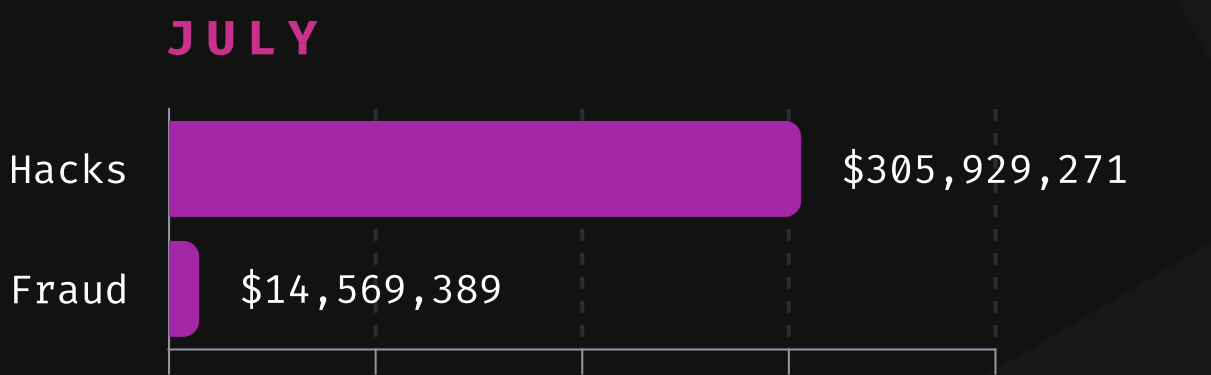
In 2023, despite a reduction in overall losses compared to the previous year, the Web3 sector experienced a substantial surge in hacking attempts and fraud incidents, with the frequency of such cases nearly doubling. Unfortunately, more projects are becoming susceptible to attacks. While decentralized finance remained the primary target of successful exploits, this year marked a significant shift as CeFi began to draw more attention from hacker groups, including the notorious Lazarus.

Mitchell Amador
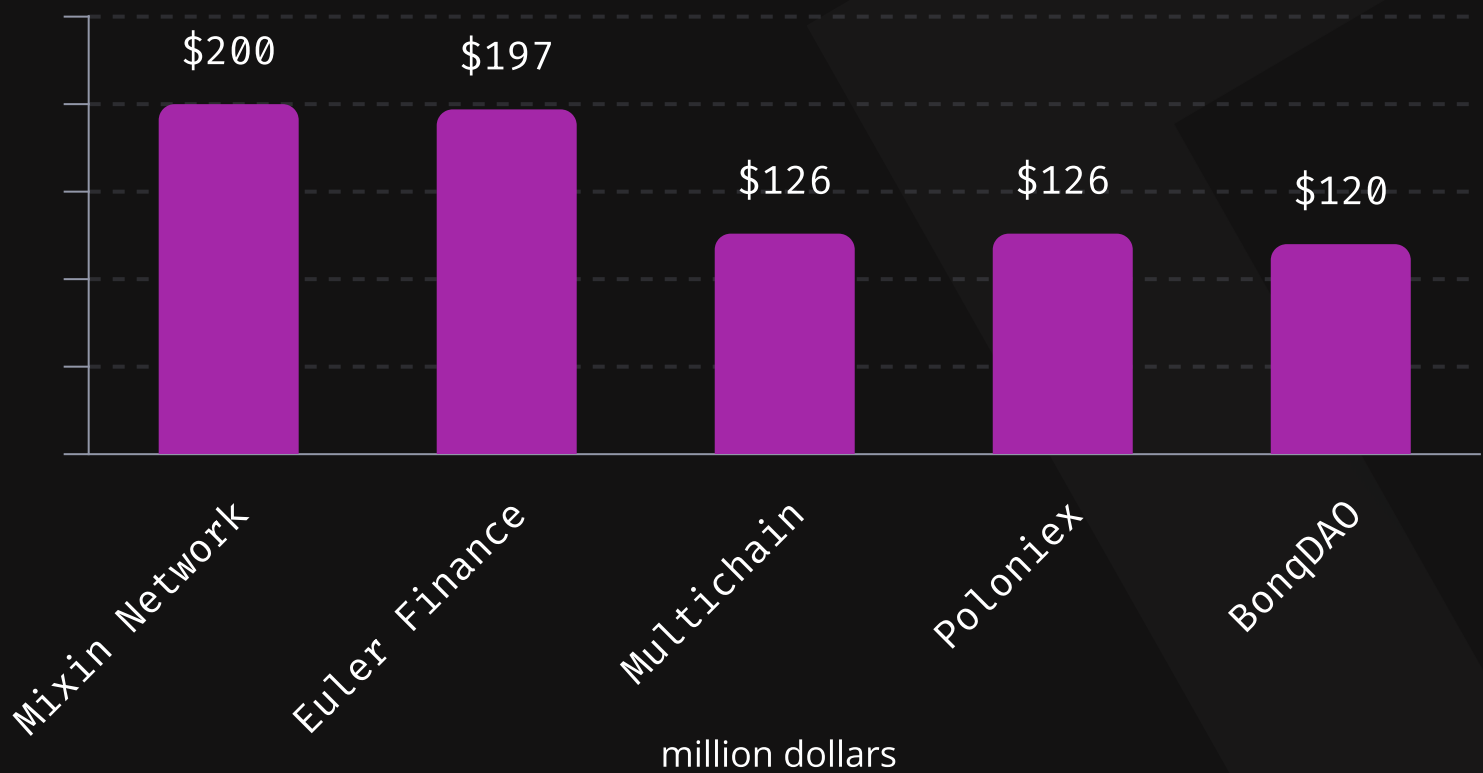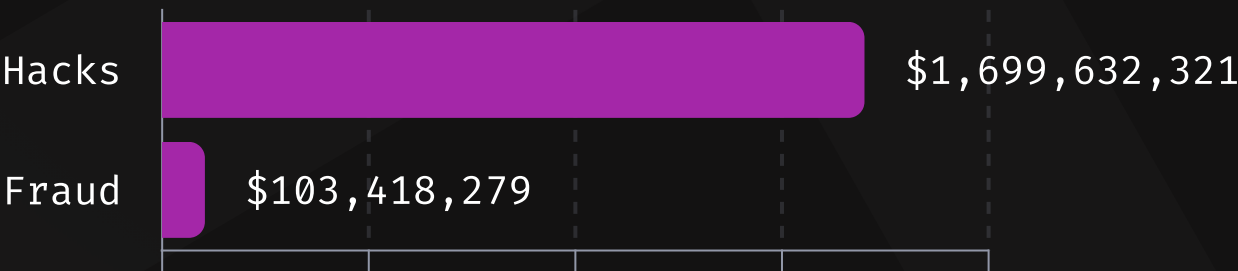Founder and CEO at Immunefi

Crypto Losses 2023

Immunefi

TOTAL LOSSES YTD

$1,803,050,600

IN 2022

$3,948,856,037

MAJOR LOSSES

$200	$197	$126	$126	$120
Mixin Network	Euler Finance	Multichain	Poloniex	BonqDAO

million dollars

HACKS VS. FRAUD

Hacks — $1,699,632,321
Fraud — $103,418,279

DEFI VS. CEFI

DeFi — $1,394,142,600
CeFi — $408,908,000

TOP LOSSES BY CHAIN

Ethereum — 95
BNB Chain — 133
Polygon — 10
Avalanche — 6

For more information about the **Crypto Losses Report**, please visit immunefi.com/research.
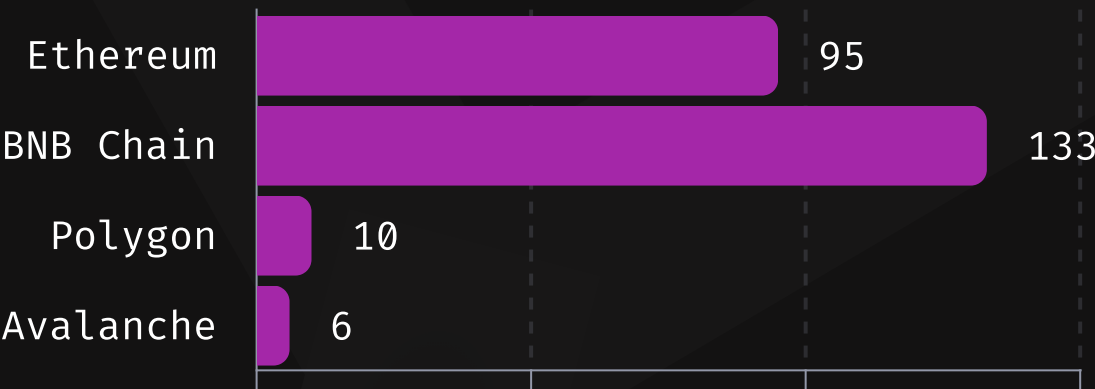
Web3 security in 2024

- In 2024, the number of new protocols and projects will likely continue to grow.
- With the persistent rise in cryptocurrency prices, next year may see the most substantial losses in Web3 ever.
- The ongoing challenges related to the project's infrastructure will remain a major source of vulnerabilities, as the general approach within the industry is not changing fast enough.
- While the DeFi sector may experience an increase in individual attacks, organized groups are expected to focus on CeFi projects due to their potential of outsized returns.

CRYPTO LOSSES IN Q4 2023

Crypto Losses in Q4 2023

Overview of the volume of crypto funds lost by the community due to hacks and scams in Q4 2022, as assessed by Immunef.

OVERVIEW

In total, we have seen a loss of **$414,115,094** across the web3 ecosystem in Q4 2023. **$397,210,523** was lost to hacks in Q4 2023 across 50 specific incidents and **$16,904,571** was lost to fraud in across 40 specific incidents. This number represents a 74.4% decrease compared to Q4 2022, when hackers and fraudsters stole $1,620,138,807.

Most of the sum in Q4 was lost by two specific projects: Poloniex, a cryptocurrency exchange**,** and Heco Chain, a decentralized public chain.

KEY TAKEAWAYS IN Q4 2023

- The 2 major exploits of the quarter totalled **$211,400,000** alone, accounting for **51.1%** of all losses in Q4 2023.
- In Q4 2023, hacks continued to be the predominant cause of losses at **95.9%** in comparison to frauds, scams, and rug pulls, which amounted to only **4.1%** of the total losses.
- In Q4 2023, DeFi continued to be the main target of successful exploits at **55.5%** as compared to CeFi at **44.5%** of the total losses.
- The two most targeted chains in Q4 2023 were BNB Chain and Ethereum. BNB Chain suffered the most individual attacks, with 39 incidents representing 43.3% of the total losses across targeted chains. Ethereum witnessed 36 incidents, representing 40% respectively. Avalanche followed with 3 incident.
- In total, **$15,729,077** has been recovered from stolen funds in **4** specific situations. This number makes up **3.8%** of the total losses in Q4 2023.

Top 10 Losses in Q4 2023

|	
Poloniex	$126,000,000
Heco Chain	$85,400,000
KyberSwap	$48,300,000
HTX Exchange	$30,000,000
HXA Token	$29,586,973
Kronos Research	$26,000,000
dYdX	$9,000,000
Fantom Foundation	$7,359,282
Raft Protocol	$3,250,000
Stars Arena	$3,000,000

Major Exploits in Q4 Analysis

Most of the Q4 loss sum was lost by two specific projects: Poloniex and Heco Chain, totalling **$211,400,000**. Together, these two projects represent 51.1% of Q4 losses alone.

POLONIEX, $126 MILLION

- On October 10, 2023, a crypto exchange, Poloniex, saw more than $126 million worth of crypto assets exit one of its wallets due to a hack.
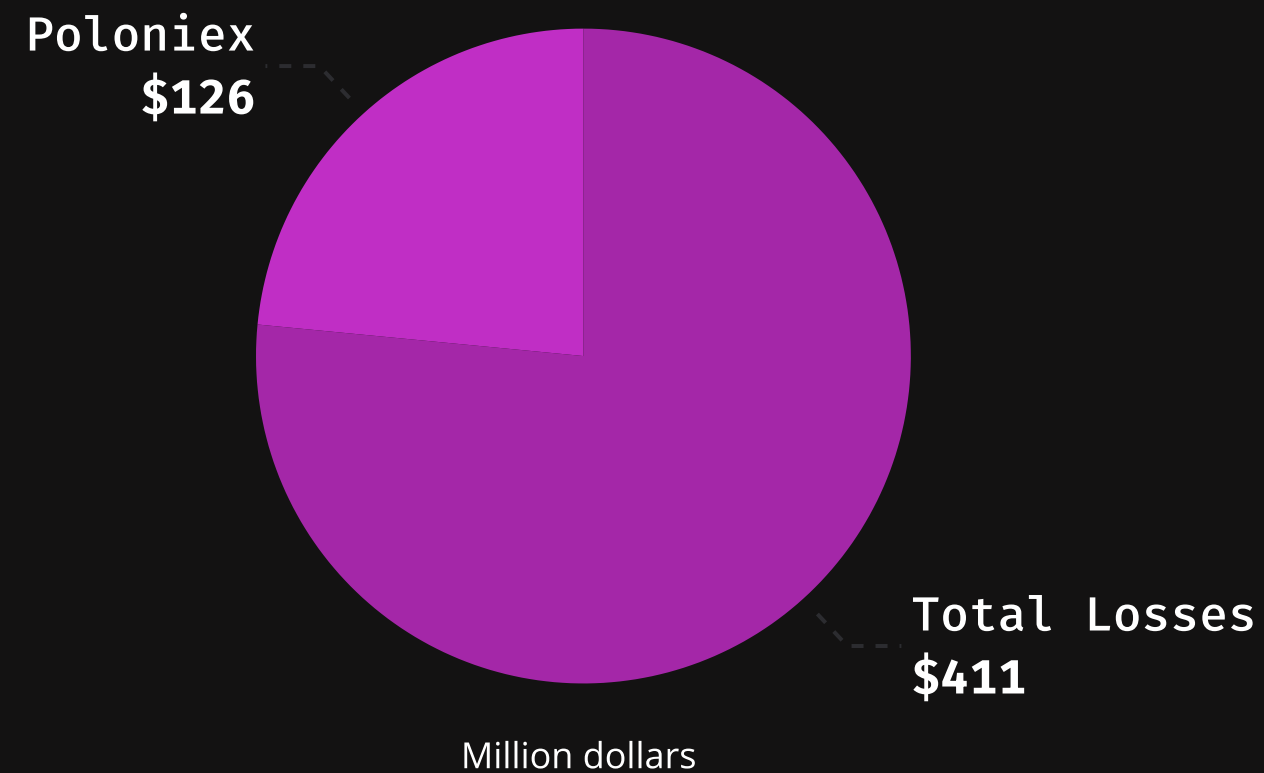
HECO CHAIN, $85,4 MILLION

- On October 22, 2023, $85.4 million worth of cryptocurrency has been stolen from the cryptocurrency platform Heco Chain.

Poloniex
$126

Total Losses
$411

Million dollars

Heco Chain
$85

Total Losses
$411

Million dollars
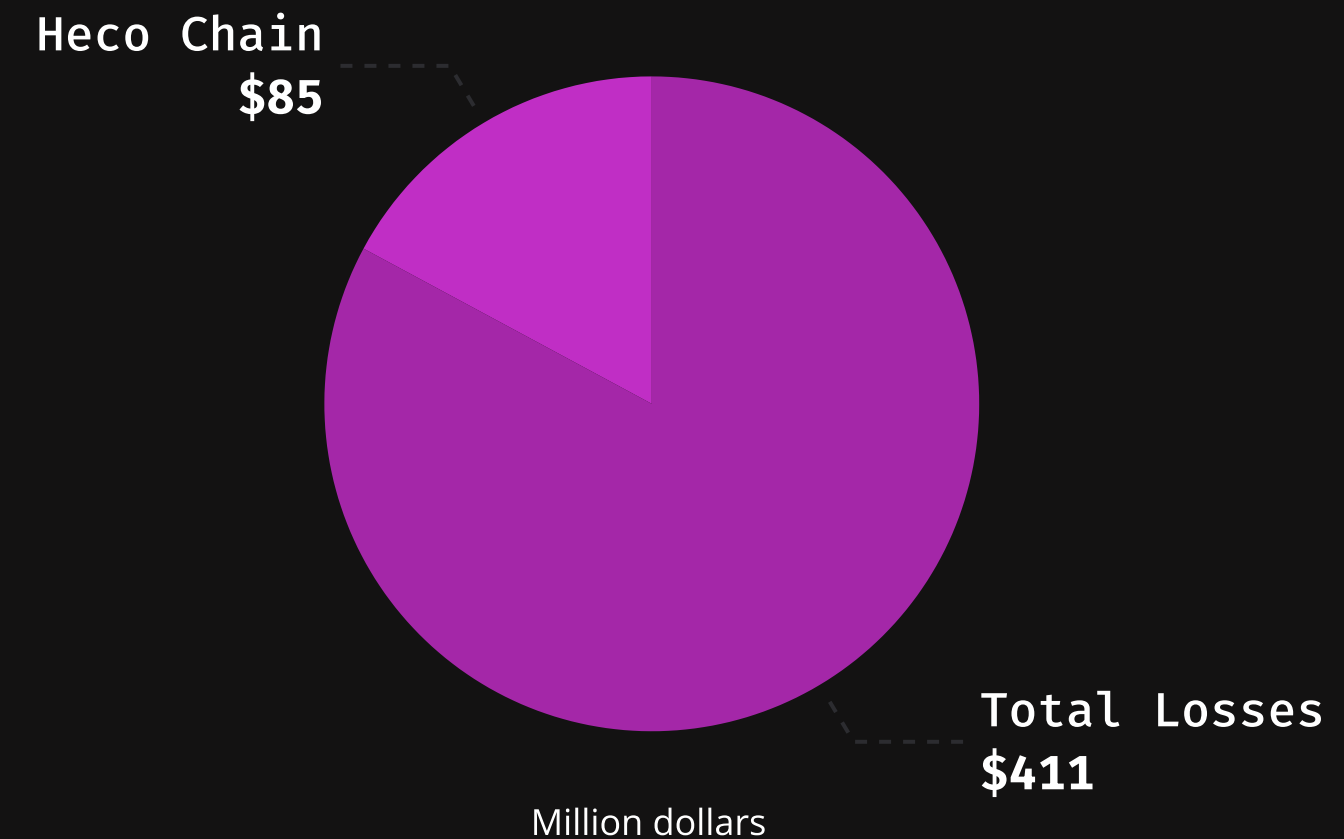
Hacks vs. Fraud Analysis

In Q4 2023, hacks continue to be the predominant cause of losses as compared to frauds, scams, and rug pulls. An analysis of the losses shows that fraud accounts for 4.1% of the total losses in the Q4 2023, while hacks account for 95.9%.
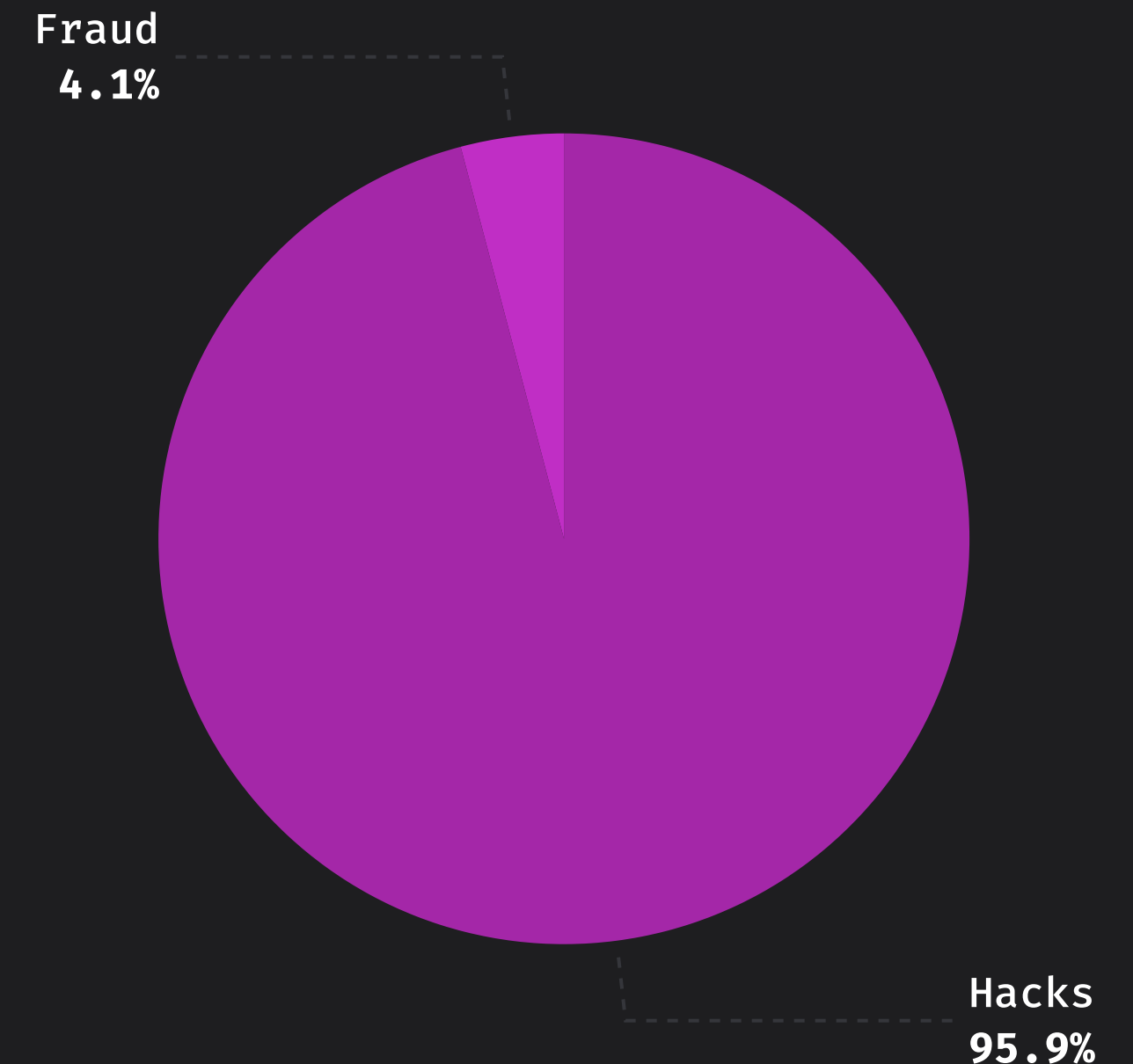
OVERVIEW

- **Hacks**
  In total, we have seen a loss of **$397,210,523** to hacks in Q4 2023 across 50 specific incidents. These numbers represent a 73.5% decrease compared to Q4 2022 when losses caused by hacks totalled $1,499,813,207.

- **Fraud**
  In total, we have seen a loss of **$16,904,571**to fraud in Q4 2023 across 40 specific incidents. These numbers represent a 85.9% decrease compared to Q4 2022, when losses caused by frauds, scams, and rug pulls totaled $120,325,600.

Fraud
4.1%

Hacks
95.9%

DeFi vs. CeFi Analysis

In Q4 2023, DeFi continues to be the main target for exploits, compared to CeFi. DeFi represents **55.5%** of the total losses, while CeFi represents **44.5%** of the total losses.
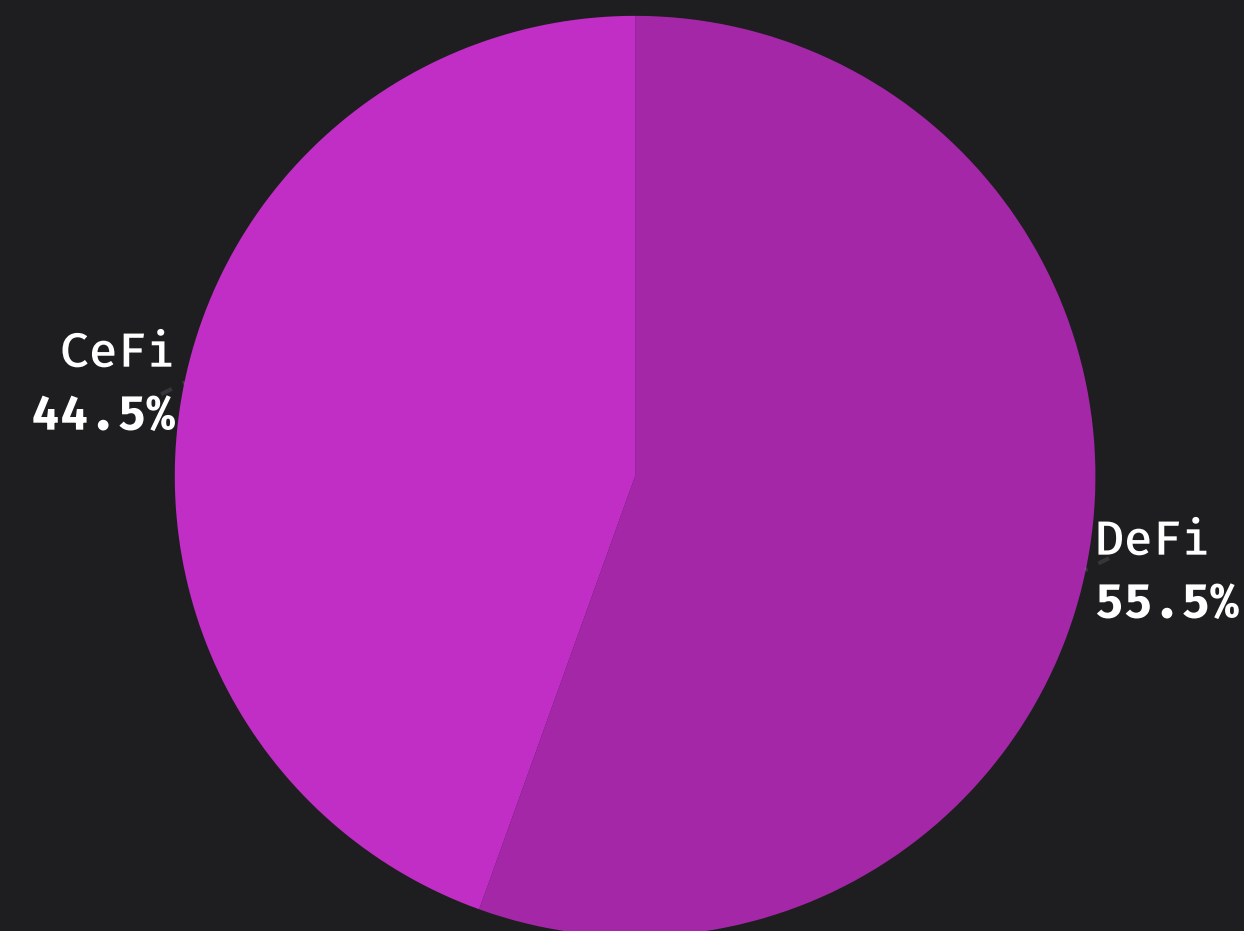
OVERVIEW

- **DeFi**
  DeFi has suffered **$229,715,094** in total losses in Q4 2023 across 86 incidents. These numbers represent a 75.4% decrease compared to Q4 2022, when DeFi losses totaled $933,040,173.

- **CeFi**
  CeFi has suffered **$184,400,000** in total losses in Q4 2023 across 4 incidents. These numbers represent a 73.1% decrease compared to Q4 2022, when DeFi losses totaled $687,098,634.

CeFi
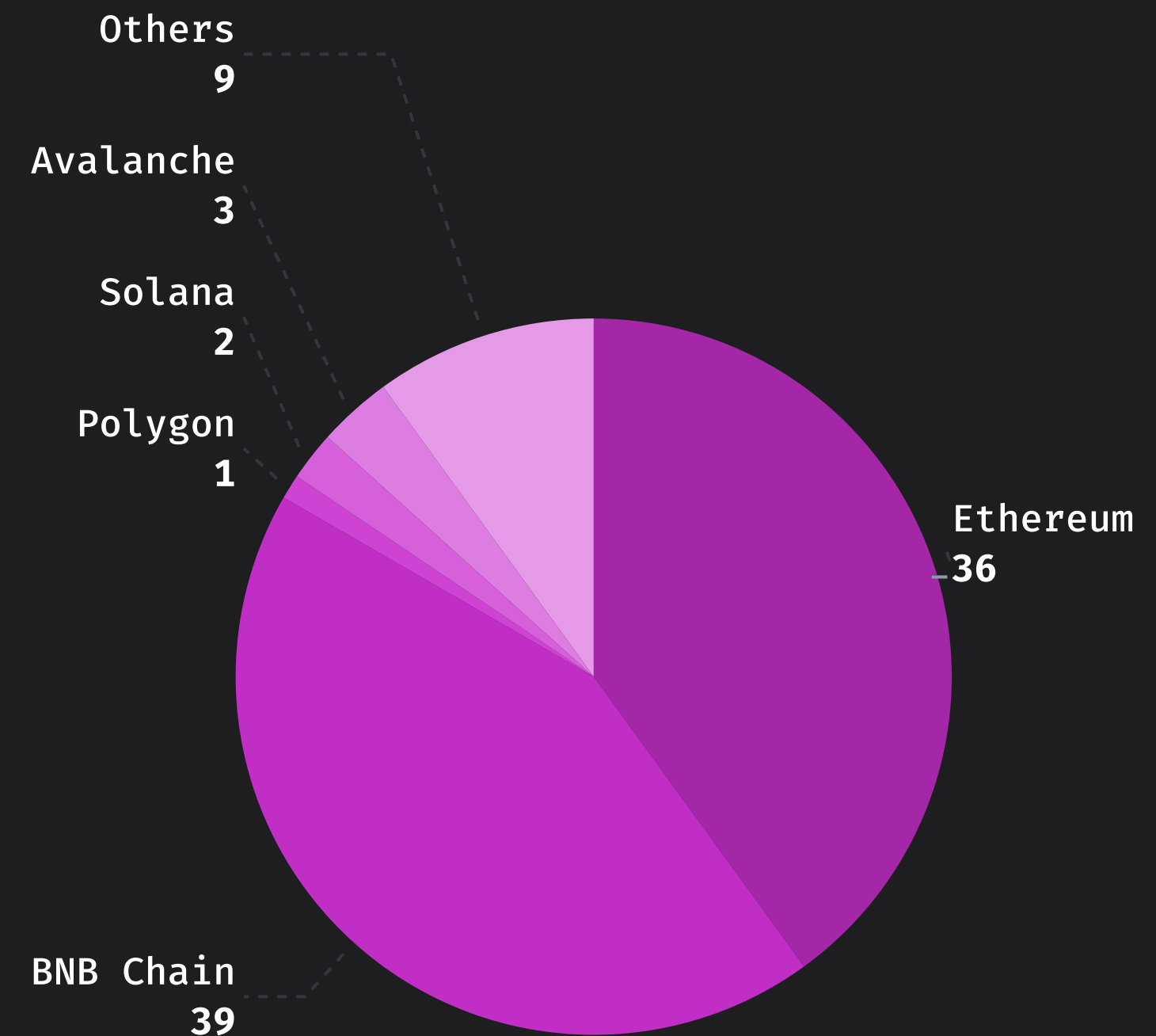44.5%

DeFi
55.5%

Losses by Chain

The two most targeted chains in Q4 2023 were BNB Chain and Ethereum. BNB Chain suffered the most individual attacks, with 39 incidents representing 43.3% of the total losses across targeted chains. Ethereum witnessed 36 incidents, representing 40% respectively.

OVERVIEW

- BNB Chain and Ethereum represent more than half of the chain losses in Q4 2023. Avalanche came in third with 3 incidents, representing 3.3% of total losses across chains.
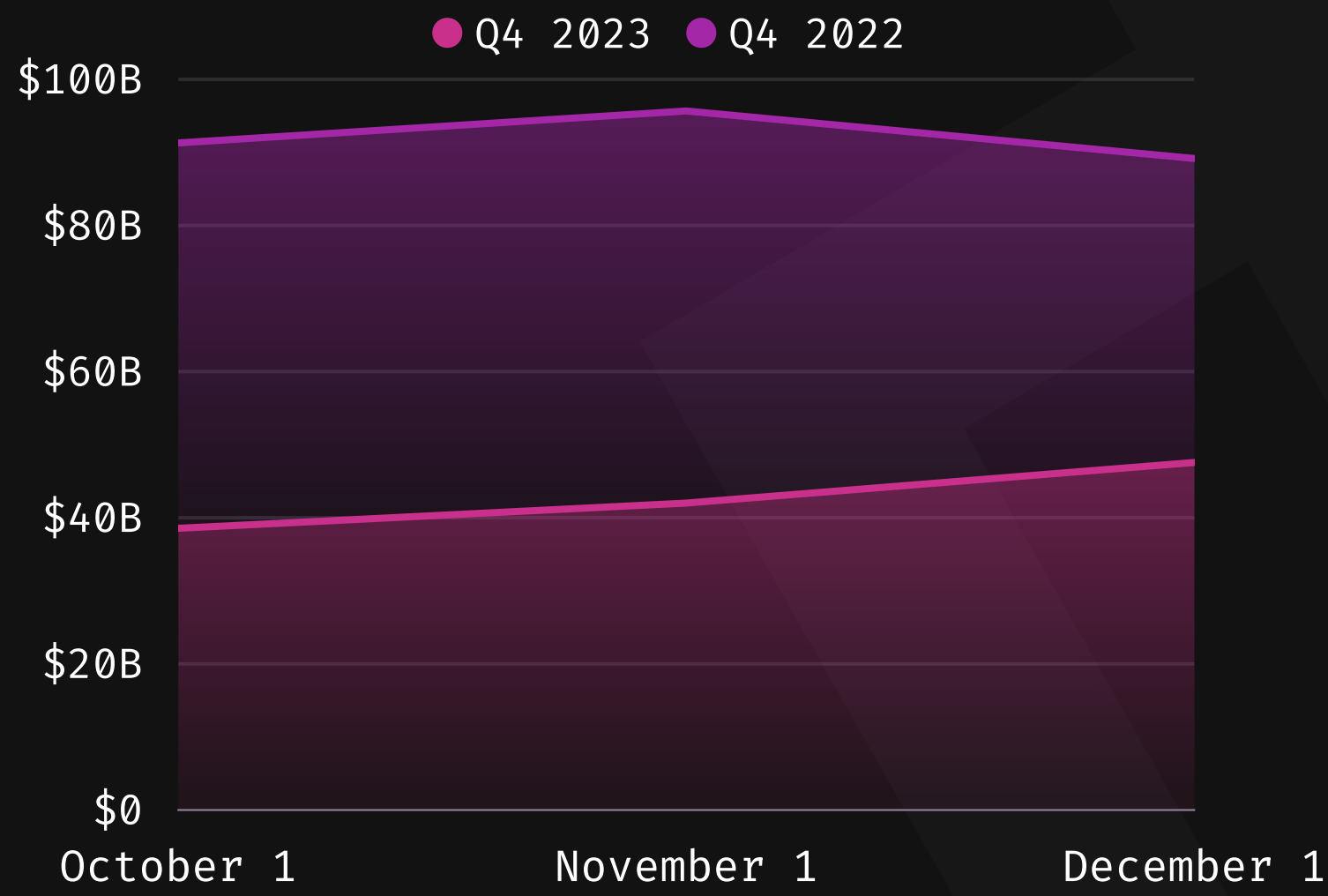- Solana followed with 2 incidents and Polygon with 1.

INSIGHTS

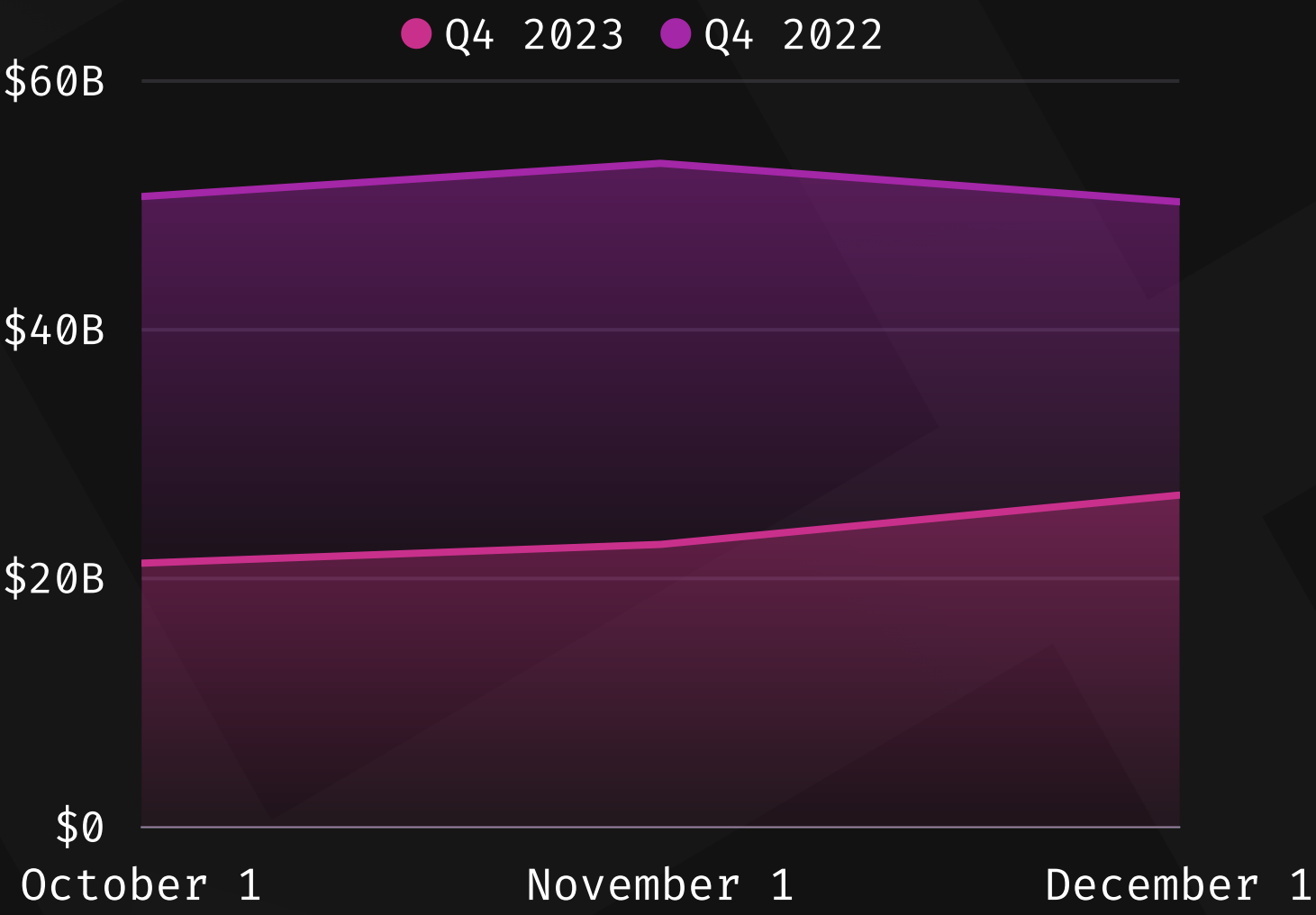- In Q4 2023, BNB Chain surpassed Ethereum and became the most targeted chain.

Others
9

Avalanche
3

Solana
2

Polygon
1

Ethereum
36

BNB Chain
39

In Focus: Q4 2022 vs. Q4 2023

TVL (USD) ALL PROTOCOLS

● Q4 2023 ● Q4 2022

$100B
$80B
$60B
$40B
$20B
$0

October 1   November 1   December 1

Total Value Locked

TVL (USD) ETHEREUM

● Q4 2023 ● Q4 2022

$60B
$40B
$20B
$0

October 1   November 1   December 1

Total Value Locked

In Focus: Q4 2022 vs. Q4 2023
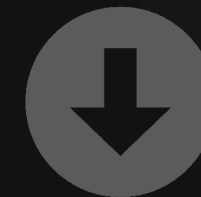
HACKS VS. FRAUDS

73.5%

Hacks

Losses are down 73.5% when compared to the previous period.

85.9%

Fraud

Losses are also down 85.9% when compared to the previous period.

In Focus: Q4 2022 vs. Q4 2023
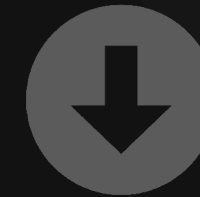
DEFI VS. CEFI

75.4% ⬇

DeFi

Losses are down 75.4% when compared to the previous period.

73.1% ⬇

CeFi

Losses are down 73.1% when compared to the previous period.

Immunefi

Immunefi is the leading bug bounty and security services platform for web3 protecting over $60 billion in user funds. Immunefi features a massive community of whitehat hackers who review projects' blockchain and smart contract code, find and responsibly disclose vulnerabilities, and get paid for making crypto safer. With Immunefi, whitehat hackers are rewarded based on the severity of the vulnerability that they discover, creating incentives for as many experts as possible to examine project code for vulnerabilities.

Immunefi has pioneered the scaling web3 bug bounties standard, meaning that rewards should be priced accordingly with the severity of an exploit and the volume of funds at risk, which resulted in the company building the largest community of security talent in the web3 space.

TOTAL BOUNTIES PAID
Immunefi has paid out over **$80 million** in total bounties, while saving over **$25 billion** in user funds.

TOTAL BOUNTIES AVAILABLE
Immunefi offers over **$155 million** in available bounty rewards.

SUPPORTED PROJECTS
Trusted by established, multi-billion dollar projects like Chainlink, Wormhole, MakerDAO, TheGraph, Synthetix, and more, Immunefi now supports more than 300 projects across multiple crypto sectors.

LARGEST BUG BOUNTY PAYMENTS IN THE HISTORY OF SOFTWARE
Immunefi has facilitated the largest bug bounty payments in the history of software:
- **$10 million** for a vulnerability discovered in Wormhole, a generic cross-chain messaging protocol.
- **$6 million** for a vulnerability discovered in Aurora, a bridge, and a scaling solution for Ethereum.
- **$2.2 million** for a vulnerability discovered in Polygon, a decentralized Ethereum scaling platform that enables developers to build scalable, user-friendly dApps.

Disclaimer:

- Immunefi uses publicly available data and news reports in order to access and collect alleged frauds, scams, and rug pulls. Including such incidents in this report does not constitute a determination from Immunefi that a fraud, scam, or rug pull event did occur.
- The full dataset can be found **here.**

Notes:

- The Total Value Locked (USD) data has been extracted from DefiLlama.
- Immunefi assesses the volume of crypto funds lost by the community due to hacks and scams by reviewing, validating, and classifying publicly available data. In this report, Immunefi considered only rug pulls for its fraud category. A rug pull is a project that creates an image of credibility and attracts outside capital through token sales or other means with the sole purpose of stealing deposited user funds and disappearing.

More:

- If you're a developer thinking about a bug-hunting career in web3, we got you. Check out our **Web3 Security Library**, and start taking home some of the over $155M in rewards available on Immunefi — the leading bug bounty platform for web3.

For more information, please visit **https://immunefi.com/**