THE FUTURE OF DIGITAL CURRENCY & BLOCKCHAIN

PRINCETON REUNION

MAY 2022
Final Piece
Of the protocol puzzle

“The one thing that’s missing, but that will soon be developed, is a reliable e-cash, a method whereby on the Internet you can transfer funds from A to B, without A knowing B or B knowing A.”

– Milton Friedman, 1999
Pantera Thesis

Cryptocurrency and blockchain technologies are the underpinnings of a new financial infrastructure, similar to how the internet was the underpinning of a new information infrastructure.
MoIP

Money over Internet Protocol

Blockchain technology is to payment monopolies/oligopolies what VoIP was to telephone monopolists, only more extreme

Blockchain technology enables a borderless, socially-connected world
Fat Protocols, Thin Apps

In the sharing economy, value is disproportionately distributed to the application layer. In blockchain, most value will accrue to the underlying protocols.

![Web Market Share vs Blockchain Value Capture Diagram]

**Applications**
Coinbase, Binance, BlockFi, Abra, Brave, Veem, BitGo, et al.

10%

**Protocols**
- TCP/IP
- HTTP
- TLS/SSL
- FTP, et al.

**Blockchain Value Capture**

- **Bitcoin**
- **Ethereum**
- **Polkadot**
- **Solana**
- **Other Protocols**
- **Other Companies**
# Protocol Evolution

Blockchain protocols have evolved over the past decade.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Enables</th>
<th>Breakthrough</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitcoin</td>
<td>Global transactions &amp; store-of-value</td>
<td>Decentralized, trustless value transfer. Solved the double spend problem</td>
</tr>
<tr>
<td>Ethereum</td>
<td>Smart contracts, token issuance</td>
<td>Self-enforcing contracts that allow for programmatic control over financial transactions</td>
</tr>
<tr>
<td>Polkadot</td>
<td>Blockchain interoperability &amp; enhanced scalability</td>
<td>Cross-blockchain transfers of any type of asset. Scalability enhancements</td>
</tr>
</tbody>
</table>
Multi-Chain Ecosystem

Cross-chain infrastructure allows for a diverse ecosystem of blockchains with distinct characteristics.

<table>
<thead>
<tr>
<th>Blockchain</th>
<th>Launch</th>
<th>Focus</th>
<th>Strengths</th>
<th>Weaknesses/Tradeoffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitcoin</td>
<td>Jan 2009</td>
<td>Store-of-value</td>
<td>First of its kind, very decentralized, most widely known</td>
<td>Energy intensive, low throughput</td>
</tr>
<tr>
<td>Ethereum</td>
<td>Jul 2015</td>
<td>Smart contracts</td>
<td>First of its kind, decentralized, most developers</td>
<td>Low throughp, high transaction costs</td>
</tr>
<tr>
<td>Solana</td>
<td>Mar 2020</td>
<td>Smart contracts</td>
<td>Fast transactions, low fees, strong community</td>
<td>Less decentralized, occasional network outages</td>
</tr>
<tr>
<td>NEAR</td>
<td>Apr 2020</td>
<td>Smart contracts</td>
<td>High throughput via sharding, developer friendly tools</td>
<td>Strong competition, fewer applications developed</td>
</tr>
<tr>
<td>Polkadot</td>
<td>May 2020</td>
<td>Interoperability</td>
<td>Parachains, high throughput, strong founders</td>
<td>Early development, limited parachain availability</td>
</tr>
<tr>
<td>Avalanche</td>
<td>Sep 2020</td>
<td>Smart contracts</td>
<td>Fast transaction speeds, high throughput</td>
<td>Late start relative to competitors, expensive to be a validator</td>
</tr>
</tbody>
</table>
Decentralized Finance

Cryptocurrency and blockchain technologies will disrupt a myriad of industries, but we believe most value will be created in the decentralized finance or “DeFi” sector. This is how the basic financial primitives will look in this ecosystem.

UNIT OF ACCOUNT
Stable currencies can be used for trade and commerce.

EXCHANGE
Decentralized exchanges allow for trading of assets with no intermediary.

LENDING & ISSUANCE
Globally-accessible lending products enabled through programmable tokenized debt.

MARGIN
Borrow cryptocurrencies on margin using other cryptocurrencies as collateral.

LEVERAGE
Smart contracts can be structured to allow for leverage.
Web3

Web3 is the next evolution of the internet where users control their own data and platforms are owned by the community. Decentralized applications offer the ability to remove rent-seeking incumbents that extract value from both merchants and consumers.

<table>
<thead>
<tr>
<th>WEB2 APPS</th>
<th>WEB3 DAPPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing Economy</td>
<td>Origin</td>
</tr>
<tr>
<td>Music</td>
<td>Audius</td>
</tr>
<tr>
<td>Online Gaming</td>
<td>Decentraland</td>
</tr>
<tr>
<td>Freelance</td>
<td>Braintrust</td>
</tr>
<tr>
<td>Video Streaming</td>
<td>Livepeer</td>
</tr>
<tr>
<td>Browser</td>
<td>Brave</td>
</tr>
<tr>
<td>Storage</td>
<td>Filecoin</td>
</tr>
<tr>
<td>Social Media</td>
<td>DeSo</td>
</tr>
<tr>
<td>Payments</td>
<td>USDC</td>
</tr>
</tbody>
</table>
NFTs

Non-Fungible Tokens

A unit of data on a blockchain, where each NFT can represent a unique digital item, and thus they are not interchangeable. Tokens can represent virtually anything, including assets like music, art, video, game items.

Marketplaces like MakersPlace and OpenSea allow users to buy, sell, and create NFTs.

1. Source: Chainalysis, The NFT Market Report

$41 billion

Market¹

Beeples EVERYDAYS: THE FIRST 8000 DAYS
Sold for 39k ETH or $69mm

CryptoPunks are 10,000 uniquely generated characters
CryptoPunk #7523 Sold for $11.7mm
Gaming and the Metaverse

The integration of NFTs with the metaverse and blockchain-based games enables players and creators to generate value in digital realms. The play-to-earn model turns the adage “video games are a waste of time” on its head.

<table>
<thead>
<tr>
<th>Decentraland</th>
<th>Genopets</th>
</tr>
</thead>
<tbody>
<tr>
<td>A virtual world where people can buy plots of land in the form of NFTs. Users can build businesses, rent out land, and partake in live events within the community.</td>
<td>A move-to-earn game built on Solana where players evolve their NFT pets through daily activity. Users can battle each other and sell pets they’ve raised for crypto.</td>
</tr>
</tbody>
</table>
Asymmetric Opportunity

We’re still in the early stages of adoption. Cryptocurrency may serve as a global reserve currency or a viable alternative to fixed-supply assets like gold.

Smart contract platforms can be the underpinning of a new open financial system.

Cryptocurrency Market Size $1.5 trillion  
Bitcoin, Ethereum, Polkadot, etc.
Fed Bond Bubble

The Fed’s manipulation of the U.S Treasury and mortgage bond market was so extreme that it was $15 TRILLION overvalued (relative to the 50-year average real rate).

Real Rates – the interest rate one gets after inflation – are at a negative 5.46%, a 50-yr low. No economically-rational investor would buy something guaranteed to lose that much money every year.
WHY NOW

The Price of Paper Money

It seems like the price of everything is surging up. A better perspective is that the value of most things is relatively stable - it’s just the value of paper money that is moving.

To help visualize what Quantitative Easing is doing to the price of the US dollar we’ve plotted the value of the US dollar - as quoted in terms of things that cannot be quantitatively eased.
**Pantera**

*pan terra* (Latin), ‘spanning the earth’

*pantera* (Italian and Spanish), ‘panther’

*pan era*, ‘spanning eras’

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Investor Relations
+1 650 854 7000
ir@panteracapital.com

San Francisco  Menlo Park  New York City  San Juan