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A beginner's guide to Ethereum

What is Ethereum?

According to the Ethereum website, "Ethereum is a decentralized platform that runs smart contracts." This is an accurate summary but in my experience when first explaining Ethereum to friends, family, and strangers it helps to compare Ethereum to Bitcoin since a lot of people have at least heard about Bitcoin before. This beginner's guide

should help those who are new to Ethereum to understand the high level differences between the two.

	bitcoin	ethereum
concept	digital money	smart contracts
transaction	send from alice to bob	send from alice to bob if.. • date = jan 1, 2018 • bob's balance < 10 eth
market cap (as of feb 2017)	~$18 billion	~$1 billion
founder	satoshi nakamoto (unknown)	vitalik buterin and team
release date	jan 2009	july 2015
release method	early mining	presale raised $18M in bitcoin

Comparison

Simply put, Bitcoin can be described as digital money. Bitcoin has been around for eight years and is used to transfer money from one person to another. It is commonly used as a store of value and has been a critical way for the public to understand the concept of a decentralized digital currency.

Ethereum is different than Bitcoin in that it allows for smart contracts which can be described as highly

programmable digital money. Imagine automatically sending money from one person to another but only when a certain set of conditions are met. For example an individual wants to purchase a home from another person. Traditionally there are multiple third parties involved in the exchange including lawyers and escrow agents which makes the process unnecessarily slow and expensive. With Ethereum, a piece of code could automatically transfer the home ownership to the buyer and the funds to the seller after a deal is agreed upon without needing a third party to execute on their behalf.

The potential for this is incredible! Think of the numerous applications that act as a third party to connect you with others based on some set logic (e.g. Uber, Airbnb, eBay). Many of the centralized systems we use today could be built in a

decentralized manner on Ethereum. With Ethereum you can make these transactions trustless which opens up an entire world of decentralized applications. Decentralization is important because it eliminates single points of failure or control. This makes internal collusion and external attacks impractical. Decentralized platforms cut out the middlemen which ultimately leads to lower costs for the user. There are a few decentralized applications I am particularly excited about.

Identity

There are many websites a person can create a digital identity on (e.g. Facebook, Twitter, LinkedIn). This is cumbersome to manage and at the end of the day you are not in full control of your information as it is still owned by a centralized entity. With Ethereum you can have a decentralized identity management

system like uPort that allows you to be in full control of your data. There is no centralized server that has access to your private data, can get hacked, edit your information, or get shut down.

Right now in the US we have credit bureaus (e.g. Experian, TransUnion, Equifax) that other institutions like banks rely on to tell them your credit. Credit bureaus can put certain groups such as international and young people at a disadvantage. Lending Club, a peer to peer lending platform, addresses the problem of traditional financial services relying solely on FICO scores by offering additional data points like home ownership, income, and length of employment. Ethereum applications like uPort can go one step further by allowing you to control your own data, identity, and reputation.

Computing Power / Storage

Consider all of the spare computing power and storage a regular person might have on their computer. If it is not being used, then why not make it available to someone else? It is a similar concept to renting out a spare bedroom on Airbnb. An added benefit to using a decentralized application is that there are no centralized servers that are prone to censorship.

There are several projects in development to allow people to rent spare computing power and storage from those that have it. Filecoin allows people to rent out their computer storage to others and get paid for it. Similarly, Golem allows people to rent out their computing power. Ideas like these are not completely new. Since 2000, Folding@home has allowed volunteers to contribute spare computing power for scientific research at Stanford University. Now

this concept can be monetized and applied to other industries, potentially lowering costs.

Social Media

Akasha is a decentralized social media platform. There are no centralized servers so no single party has complete control over the content. This means that the platform is resistant to censorship. An added benefit of building a decentralized application for social media on Ethereum is that one can create a system that financially rewards high quality content. This is like Reddit but you can send small amounts of money to the poster instead of upvotes.

Rights Management

Decentralized applications may be used to bring transparency to multiple industries. For example

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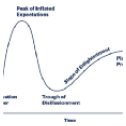

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SingularDTV offers an entertainment rights management platform which allows transparent distribution of funds to the creators, investors, crew, actors, and others involved in a project. There is no centralized party which can prevent a certain group from getting access to their funds because the terms are enforced by code. Everyone will get paid according to the terms discussed up front and no third party is needed to mediate.

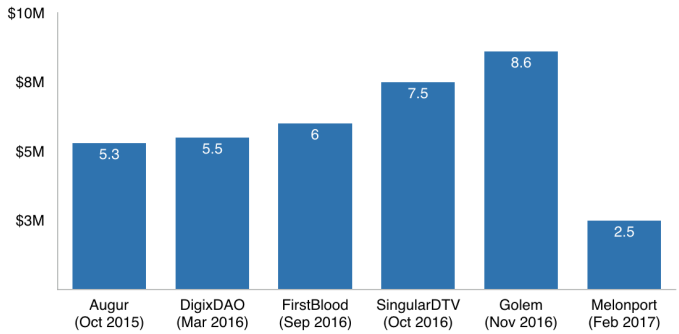
Managing Companies

A time consuming and often expensive aspect of starting a new company is allocating and managing shares. As companies grow and raise more funds they eventually need to issue and move shares around. Aragon is an example of a promising project that has an easy to use interface for managing the company's cap table and raising

capital.

Raising Capital

Lastly, one of the major use cases for Ethereum is decentralized fundraising from a global network of investors. Crowdsales lower the barrier to entry for developers working on high risk projects. Since Ethereum launched in July 2015 we have seen unprecedented amounts of funds raised for decentralized applications through crowdsales. Ethereum itself was funded through a crowdsale that raised $18 million in bitcoin and a project called The DAO raised $160 million. Some other notable crowdsales are shown below:



Amount raised at time of crowdsale (not implied valuation)

For more information about how these tokens work, refer to How to Raise Money on a Blockchain with a Token, Blockchain Token Securities Law Framework, and The difference between App Coins and Protocol Tokens.

Resources

This post only covered a handful of Ethereum's countless use cases. The space is constantly growing and innovating. Below are some links that may help you understand Ethereum further and keep up with the exciting news.

Understanding Ethereum

- Ethereum is the Forefront of Digital Currency
- App Coins and the Dawn of the Decentralized Business Model

- Ethereum whitepaper
- Bits on Block Gentle Introduction Series
- Proof of Stake FAQ

Keeping up with Ethereum

- Ethereum Subreddit
- Week in Ethereum News
- The Control
- Smith + Crown
- The Dapp Daily
- Silicon Valley Ethereum Meetup (check out your local meetup)

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