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CLOUD MINING FOR CRYPTOCURRENCY

19CSE447 – Cloud Computing Case Study

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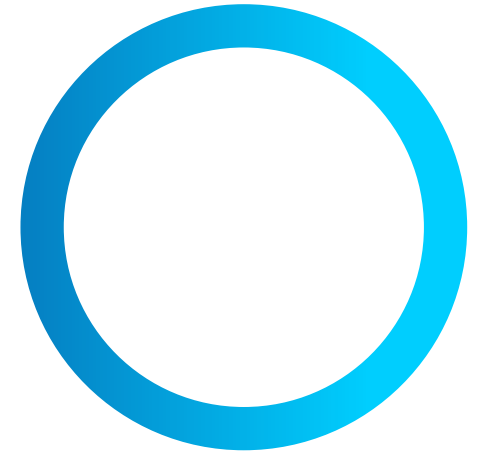JISHNU.R - CB.EN.U4EEE19118

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CRYPTOCURRENCY

- The cryptocurrency had it's boom during the 2008 recession when the financial institutions went bankrupt.
- The cryptocurrency is a concept where the transactions is based on peer to peer network without depending on the centralized network which is the governed by the government financial institution.
- It makes use of the blockchain technology where the ledgers in which the transactions are stored are distributed and de-centralized.
- Each transaction should be validated. In the fiat currency system, the government or the financial institution validates it alone and no other entities has access to the ledger.
- While in the decentralized ledgers the every computer connected to the network has the access to the ledger and each computer needs to validate the transaction.
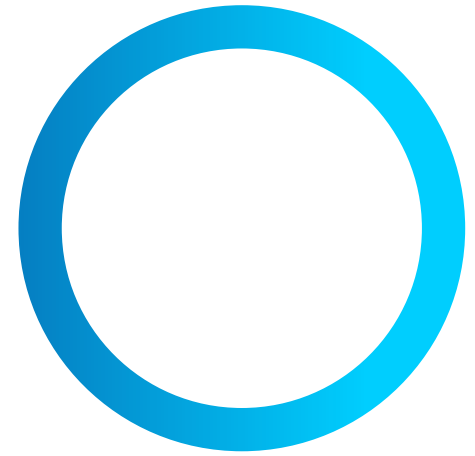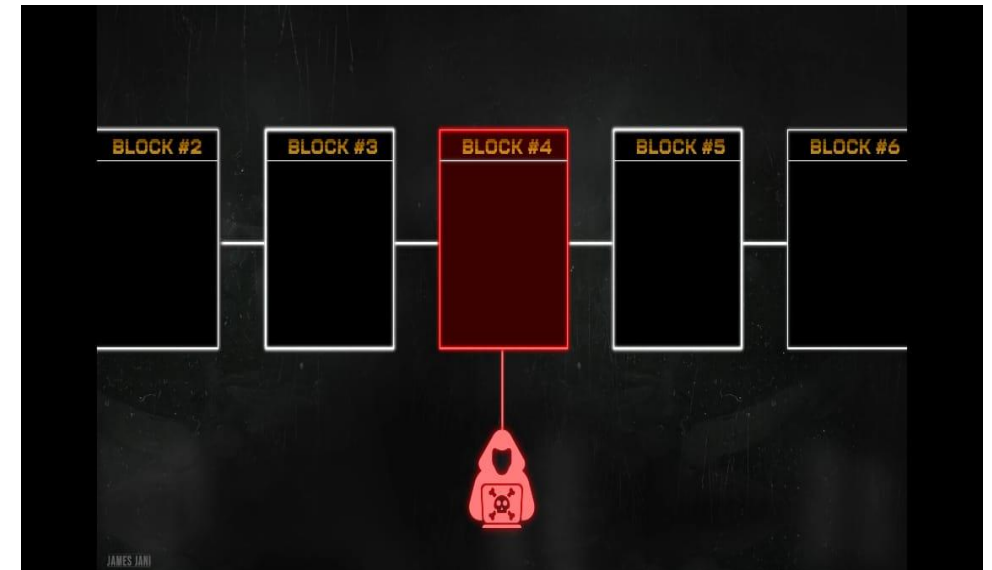
BLOCKCHAIN AND MINING

- After a set of transactions are made in a ledger block, the other set of transactions are stored in another ledger block that is denoted by a code called hash which links back to the previous ledger.
- This way of linking all the ledgers blocks is called the blockchain.
- Each computer has a private key and a public key. The private key is used to create a digital signature while the public key is used to verify the signature. This process of verifying the transactions in a block is called mining.

CONVENTIONAL MINING

- Mining can be divided into 3 types depending on the equipment from the technical point of view:

  - GPU mining, i.e. mining coins using graphics cards.

  - CPU mining, i.e. mining coins using central processors.

  - ASIC mining, i.e. mining using application-specific integrated circuits that work on certain algorithms.

- Rig is a frame with several graphics cards (usually 6-8) connected to one motherboard (with a cheap processor and a minimum RAM)
- As the profit of mining depends on electricity rates, the location for large scale mining is usually done in China where the cost of electricity is less.
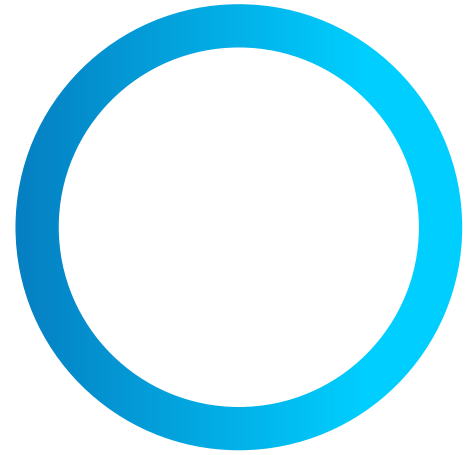
POOL MINING

- Pool mining is a joint group of cryptocurrency miners who combine their computational resources over a network for sucessful mining of cryptocurrency
- Rewards are usually divided between the individuals who contributed, according to the proportion of each individual's processing power
- The hardware and electricity cost of an individual will be less , so that increases the chances of profitability
- The miners are typically bound by terms set by the pool itself, which may decide how the mining process is approached.
- Rewards are usually divided between the individuals who contributed, according to the proportion of each individual's processing power
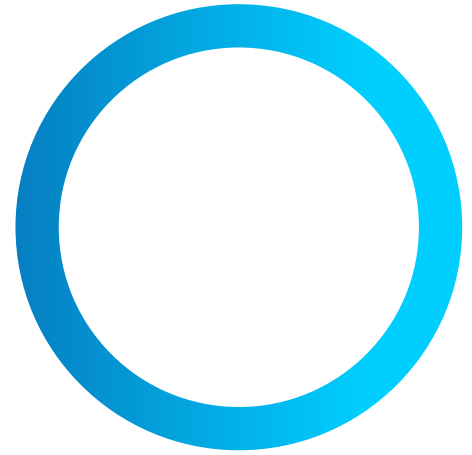
PRESENT CRYPTOCURRENCY

➢ Bitcoin (BTC)

➢ Ethereum (ETH)

➢ Tether (USDT)

➢ BNB (BNB)

➢ USD Coin (USDC)

➢ XRP (XRP)

➢ Binance USD (BUSD)

➢ Cardano (ADA)

➢ Solana (SOL)

➢ Dogecoin (DOGE)

➢ Polygon (MATIC)

➢ Polkadot (DOT)

CLOUD MINING:

- Cloud mining is a process in which a organization or a person mines for you, you just have to pay the rent for that.
- It doesn't need to maintain or buy any hardware product.
- Cloud mining is a process where the computational power required is provided by a cloud provider over internet and the user can pay as per the hash power they utilize.
- Which is the amount of energy required to compute a complex transaction on the blockchain. Higher hashing power with lower
  energy consumption is the ideal state of mining profitability.
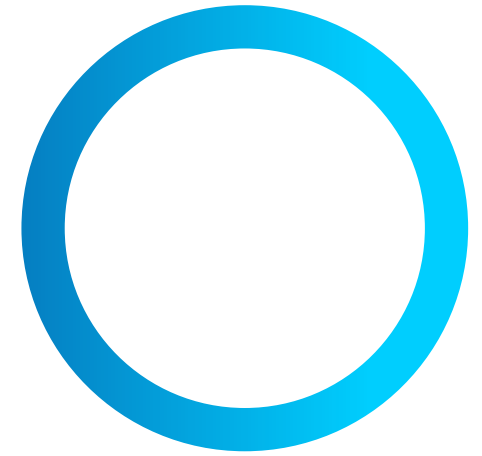
Platforms that provide cloud mining -- Genesis Mining

- Genesis Mining is a Cryptocurrency [cloud mining](#) service that offers an easy and safe way to purchase hashpower without having to deal with complex hardware and software setup.
- It is one of the largest cloud mining companies
- which was founded on end of 2013
- It has facilities in all continent
- They came up with the idea of mining as a service and built the first mining farm in Eastern Europe.
- https://www.genesis-mining.com/
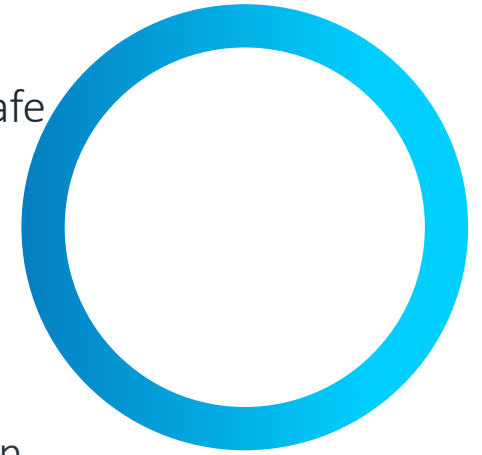
2013 · **Genesis Mining is founded!**
December

2014 · **Opening of our first facility in Iceland**
October

2015 · **We launch our first Bitcoin awareness campaign**
October

· **Our customer base reaches 100.000**
December

2016 · **Our Jamie Dimon billboard goes famous**
January

· **We sent a Bitcoin to space**
August

2017 · **CNN's "Quest Means Business" visits us in Iceland**
October

· **We reach the milestone of 2.000.000 customers!**
December

2018 · **Our first facility in Sweden starts running**
January

· **Our staged protest "Bankers Against Bitcoin" goes viral**
May

· **We win "Mining Initiative of the Year Award 2018" with our Radiant Technology**
November

2019 · **Anderson Cooper visits Enigma, Genesis Mining featured in "60 Minutes"**
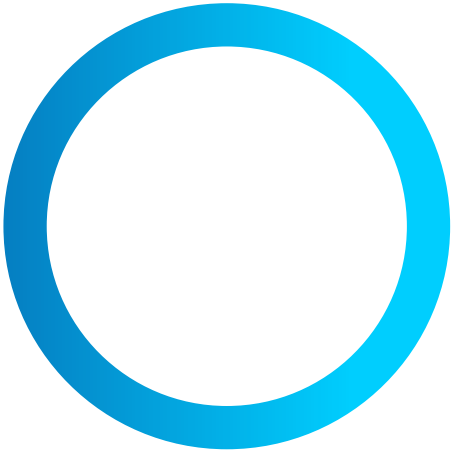May

Genesis Mining

Genesis Mining - Algorithm and Architecture

Most cryptocurrency protocols utilize different proof-of-work mining algorithms to enforce their blockchain rules. In the table below, you can see what type of architecture we deploy for mining the available cryptocurrencies. Please be aware that blockchain developers may make changes to features and specifications of the algorithm over time, which can result in the elimination of support for and/or a different use of chips utilized by Genesis Mining. You can find more information about that in the Terms of Service before purchase.

	฿ BITCOIN	⊟ DASH	ᴍ MONERO	♦ ETHEREUM	Ł LITECOIN	ⓩ ZCASH
● Architecture	ASIC	ASIC	GPU	GPU	ASIC	GPU
● Algorithm	SHA-256	X11	CryptoNight-R	Ethash	Scrypt	Equihash

Genesis Mining

Genesis Mining - Sample Pricing

Ethereum Mining

Radiant **Small**	Radiant **Medium**	Radiant **Large**	Radiant **Custom plan**
Starter	Best Buy	Professional	Create a custom Ethereum mining plan
$**499**⁹⁹	$**999**⁹⁰	$**4,999**⁰⁰	$**0**⁰⁰
12.50 MH/s	25 MH/s	125 MH/s	0 MH/s
24 Months Ethereum Mining *	24 Months Ethereum Mining *	24 Months Ethereum Mining *	Use sliders to enter value
Ethash Mining Algorithm	Ethash Mining Algorithm	Ethash Mining Algorithm	Ethash Mining Algorithm
Zero Maintenance Fee	Zero Maintenance Fee	Zero Maintenance Fee	Zero Maintenance Fee
OUT OF STOCK	OUT OF STOCK	OUT OF STOCK	PURCHASE PLAN
PLAN DETAILS	PLAN DETAILS	PLAN DETAILS	PLAN DETAILS
stars, based on reviews	stars, based on reviews	stars, based on reviews	No rating, yet.

Genesis Mining

Genesis Mining:

- The information on the type of architecture and algorithm for different crypto currency is taken from the genesis mining official website.

- The different plans and it's pricing is also given which starts from 500 dollars and goes till 5000 dollars. All the plans is for 24 months and each plan has different hash power.

- The plans are exclusively for Etherium. With the current update in Etherium 2.0 where the mining is based on the **Proof of Stake** rather than **Proof of work** like Etherium.

- The process of mining become obsolete so the cloud mining is no longer profitable.
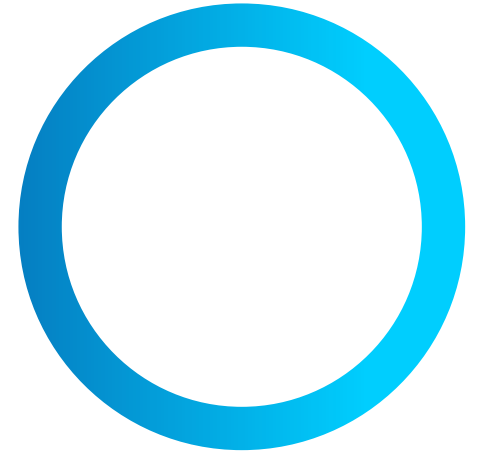
FPGA vs. ASIC Mining:

ASIC Mining :

- An application-specific integrated circuit (ASIC) is an electronic chip that performs a specific task

- Developing and manufacturing ASIC miners is expensive. However, they can mine faster than regular computers equipped with CPU/GPU

FPGA Mining :

- A field-programmable gate array (FPGA) is an electronic circuit that one can program to execute specific logical operations.

- Therefore, an FPGA miner can be programmed to mine a particular coin. However, it can be reprogrammed to mine a different cryptocurrency with another mining algorithm if needed.
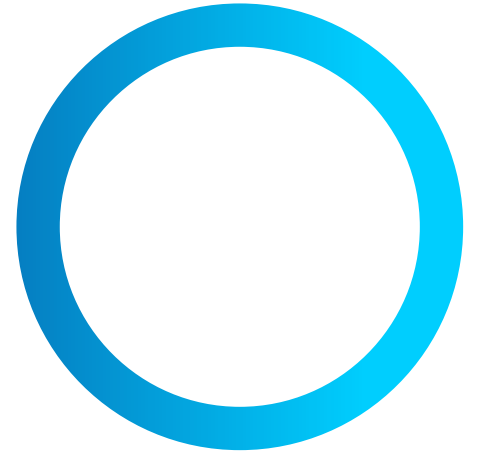
Advantages:

1. Un taxing:
   - No need for mining rigs and can be accessed through personal computers and laptops.
   - This method will have no impact the electricity bills.
   - There will be no overheating issues, no heavy loads on the wiring.
2. Privacy
   - The cloud mining is powered by block chain technology, which records data on timely basis and also cannot be altered by external sources.
   - They are equipped with heavy security systems and advanced privacy features which help conceal and protect our data.
3. Accessibility:
   - Cloud mining enables users to store any amount of data with a strong internet connection and supporting devices from any place.
   - It can be accessed using any operating system and even through mobile phones which use Android and IOS.
4. Flexibility:
   - Cloud mining lays a platform for mining different crypto coins in a single interface.
   - It also has the provision for utilizing any resource of preference.
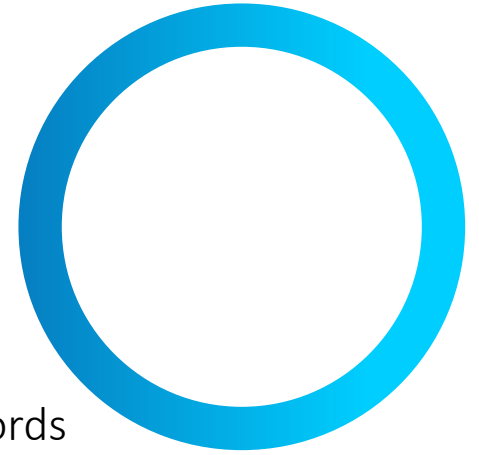
Disadvantages:

1. Low earnings:
   - Always a part of the earnings is retained by the mining farm expenses.
   - Also when the extraction of bitcoin becomes difficult, the mining generates very little profit.
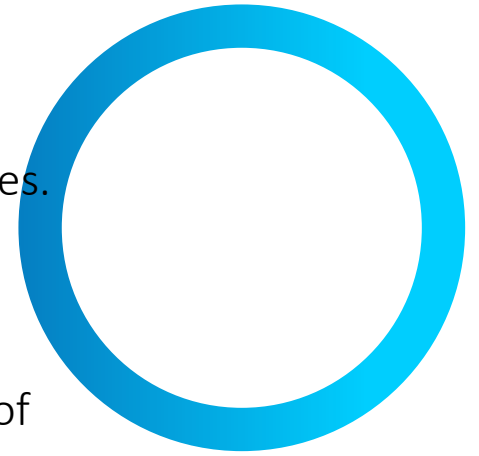2. Exposed to Scam:
   - Due to lack in regulation of the cloud mining sector, there are a lot of fraudulent platforms.
   - These fake platforms sell fake mining contracts and do not pay back the buyers.
3. Constrained:
   - The cloud mining platforms are often limited to popular major currencies, which restricts the access to new trends.
4. Dependency on Bitcoin Price:
   - When the price of Bitcoin drops, even contracts become useless resulting in losses.

Thank you !