



Final Presentation: Mining Pools

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How Do Pools Function?

- When more miners try to “crack the code”, finding new blocks gets computationally more difficult, which requires more computing power
 - Impractical and expensive for individual miners
- Enter: mining pools- group of miners working together to increase their chances of finding a block
- Functions of a mining pool: managing members of the pool’s hashes, searching for rewards, recording work completed by each member, and assigning proportional reward shares





Assigning work in a mining pool:

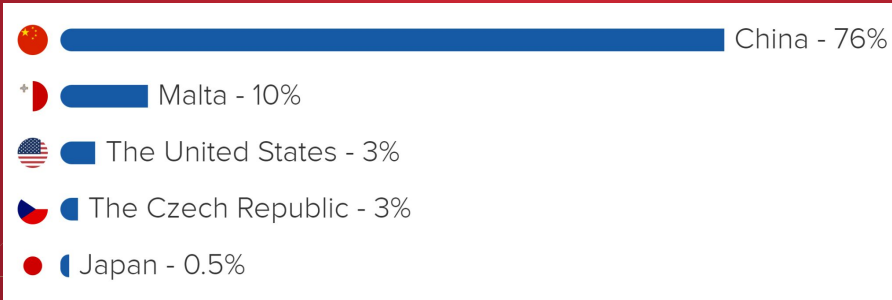
Usually assigned in two ways:

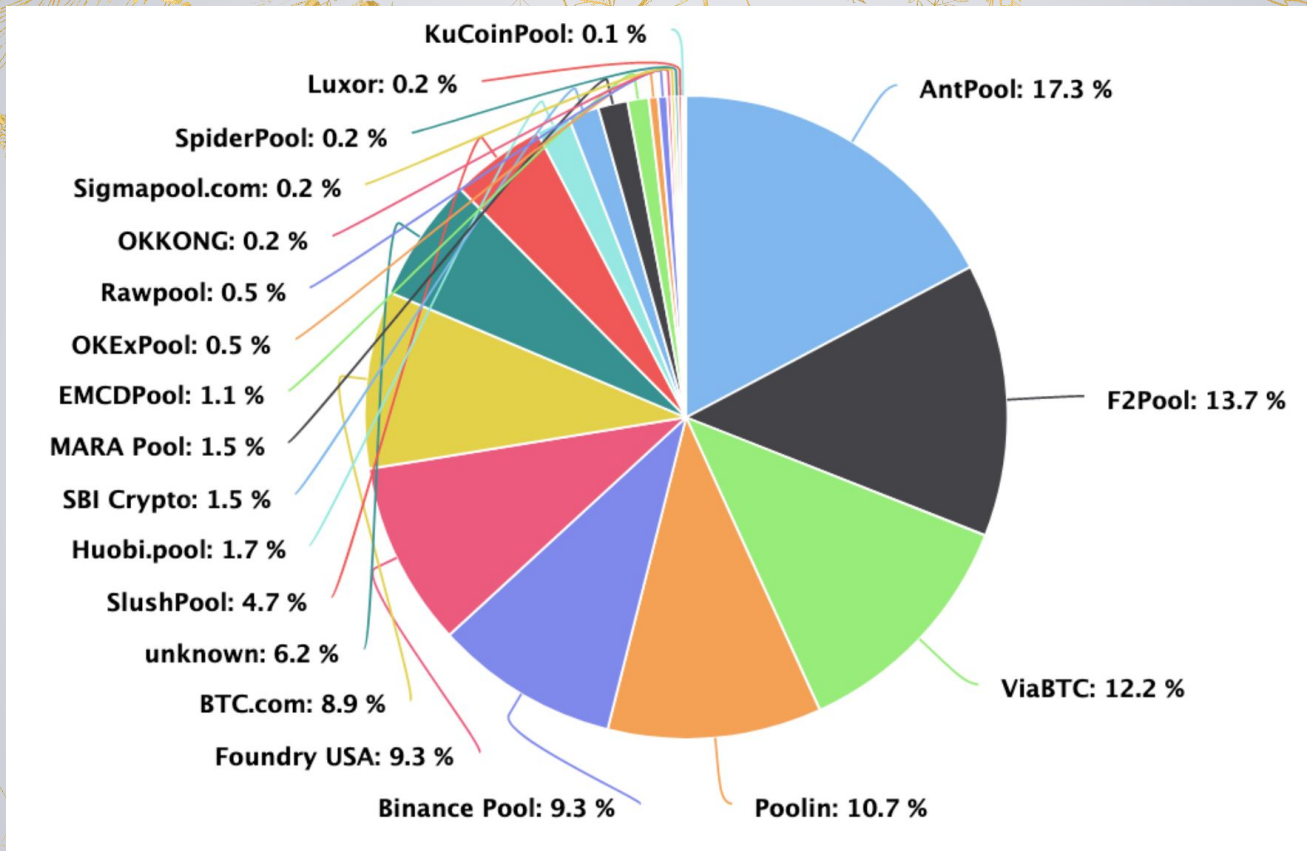
Method 1.) assigning members a work unit comprised of a particular range of nonce (the number that miners are computing for)

Method 2.) allowing members to decide how much work they want to do without any assignment coming from the pool

Pools already in existence

- 20 well known pools in existence
 - 15 based in China
 - Chinese pools control ~65% of the network hash rate
- Fees, pay-outs, reward allocation methods, and stability differ between pools





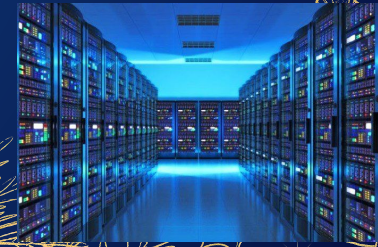
Pros and Cons of Pools

PROS

- ★ More Consistent Rewards than Solo
- ★ Expenses are distributed among the pool
- ★ Larger revenues in the Long Run

CONS

- ★ Rewards for Pool can be confusing and unfair
- ★ Goes Against Decentralized Values of Crypto



Things to Consider: Pool Forming

- ★ Coordinator?
 - ★ Coordinator allocates rewards
- ★ Fees?
 - ★ Range from 1-3%
- ★ How to allocate rewards?
 - ★ Different methods
- ★ Type of coin?
 - ★ BTC, ETH, etc.
- ★ Participants?
 - ★ Who is allowed to be a pool member

Formation of University Mining Pool

- ★ UC = coordinator
 - ★ Charge 1% fee to all participants
 - ★ Any university can join (if we approve their application)
 - ★ They must fund their rig
- ★ Rewards based on hashrate contribution
- ★ Name: ChiliPool
- ★ PPLNS Method
- ★ BTC
- ★ Allow members to decide activity/how much commitment (work not assigned)



Different Methods

- ★ PPS- Pay per share
 - Always paid based on valid shares submitted
- ★ FPPS- Full pay per share
 - Same as PPS except transaction fee is included
- ★ PPLNS- Pay per last (N)umber of shares
 - Miners paid proportionally only once block is found

	PPS	FPPS	PPLNS
 Regular payout			
 Luck factor			
 Transaction fee reward			
 Irregular connection			

 *Depends on the pool policy*



PPLNS Method (Method of Choice)

- Incentivizes loyalty to pool
- When a block is found, each miner is rewarded based on contribution to last N pool shares
- The more hashes you do, the more shares you earn
- **When block is mined by someone in group, all get rewarded proportionate to the amount of solutions they try (even if they do not get correct solution)**



Phases of Plan

★ Phase 1:

- Invite Ohio schools (Xavier, OSU, Miami, etc.)
- Contact individual Economics Departments
- University must fund rig- recommended rig is AntMiner Bitmain S19 Pro 110 (\$15,850)
- Pitch payoff period (~18 months), ability for university to profit off mining



Phases of Plan

★ Phase 2:

- Open up application to U.S. schools
- Schools must now apply- only 1 application per school
- It'll be ~exclusive~
- Have official domain similar to other pools



Phases of Plan

★ Phase 3:

- Open up application to universities all around the world
- Schools still must apply
- No school may have more than one pool entry, but may have more than one rig
- **Once universities begin profiting, at least 50% of earnings must be allocated to student scholarships**



Conclusion

- ★ This is a really profitable idea for us
 - UC would profit off of 1% coordinator & transaction fees
 - Establish our dominance
 - Lots of good press
- ★ This is a really profitable idea for other schools
 - “Free” money
 - ~18 month payoff period
 - Cryptocurrency is trendy



Sources

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