Blockchain Bootcamp Day 17 (31 minutes)

Difference between blockchains and networks.

* Private Blockchains
* Different blockchains and networks.
* Public blockchain -> everyone can participate. Ether costs money, it’s uncontrolled.
* Main Net
* Test Net -> Works the same way, but it doesn’t cost anything.(Test network).Allows specific aspects of the network. -> Tests new consensus algorithms, or new values of crypto economics.
* Go-ethereum can be used to create new blockchain.
* Private blockchain, you are only one. Nobdy else gets access. Create one private blockchain. Develop our dapps, and understand moving parts.

Genesis Json File

* A config file for go Ethereum to create private network. Used to create very first private block.
* You can call it anything you want as long it’s a json object.
* You can set the chain id of the genesis json to anything else but not 1, 2, 3.
* homesteadBlock -> should start in zero
* eip155Block(Ethereum improvement protocol) should also start on zeo
* difficulty -> is faster it will mine when less value. (0x20000)
* gasLimit -> important when deploying contracts. (0x800000)
* Gaslimit on main Ethereum network is 6 million. Can test more complicate contracts.
* Blockchain is a distributed ledger that stored how much ether is stored to a certain account.

Using Genesis Json File

* Initialized empty directory where the genesis.json file is in using geth.
* Create a new folder, and in the empty folder add the genesis.json to initialize private network.
* Geth init <genesis json file path> --datadir <name of chain data directory>
* Geth –datadir <chain data directory path>
* Geth sometimes maps another network to same chain id.
* Avoid another network from connecting to one blockchain.
* Geth –datadir <chain data directory path> --nodiscover -> will prevent other networks from connected to the node in the current network based on chainId.

Using private network

* You would to turn on miner to interact with dapps
* Attach to private network via the private network’s ipc file.
* Can create accounts in private network.
* Personal.newAccount(‘passphrase’)

How to mine ether in private network.

* Everything with geth is a file based database
* Be careful with keystore, make you copy your keystore
* If you would to start geth in light mode it would be light chain data.
* Every single transation in eth. Blockchain it would store in blocks.
* If the miner is still running, it will credit a account using the coinbase.
* Can use miner endpoint. Give it a account, via setEtherBase(account)
* Miner.etherBase and eth.coinbase is the same thing.
* When starting the miner, pass the number of threads. If you do cpu mining, you would specialized gpus.
* You would need mining running in order to accept transactions.
* Miner.start(1)-> running miner on 1 thread
* Miner gets slower and slower.
* Web3.fromWei(balance, ether
* When you have your private Ethereum network, you will also have access to a file-based database.

Tips and Tricks using Geth

* **-> a short cut to run private network, unlock first account, and start mining with 1 thread.**
* **Afterwards it will ask you for passphrase, and will start mining.**
* Why do you need a private network? In memory blockchain does not have a delay between miner committed and when the block is finally sealed. You immediately have a return value.
* If create a distributed application on a in-memory blockchain, you might have a bad experiences when deployed on mainnet.
* Go-Ethereum is a central to Ethereum world.