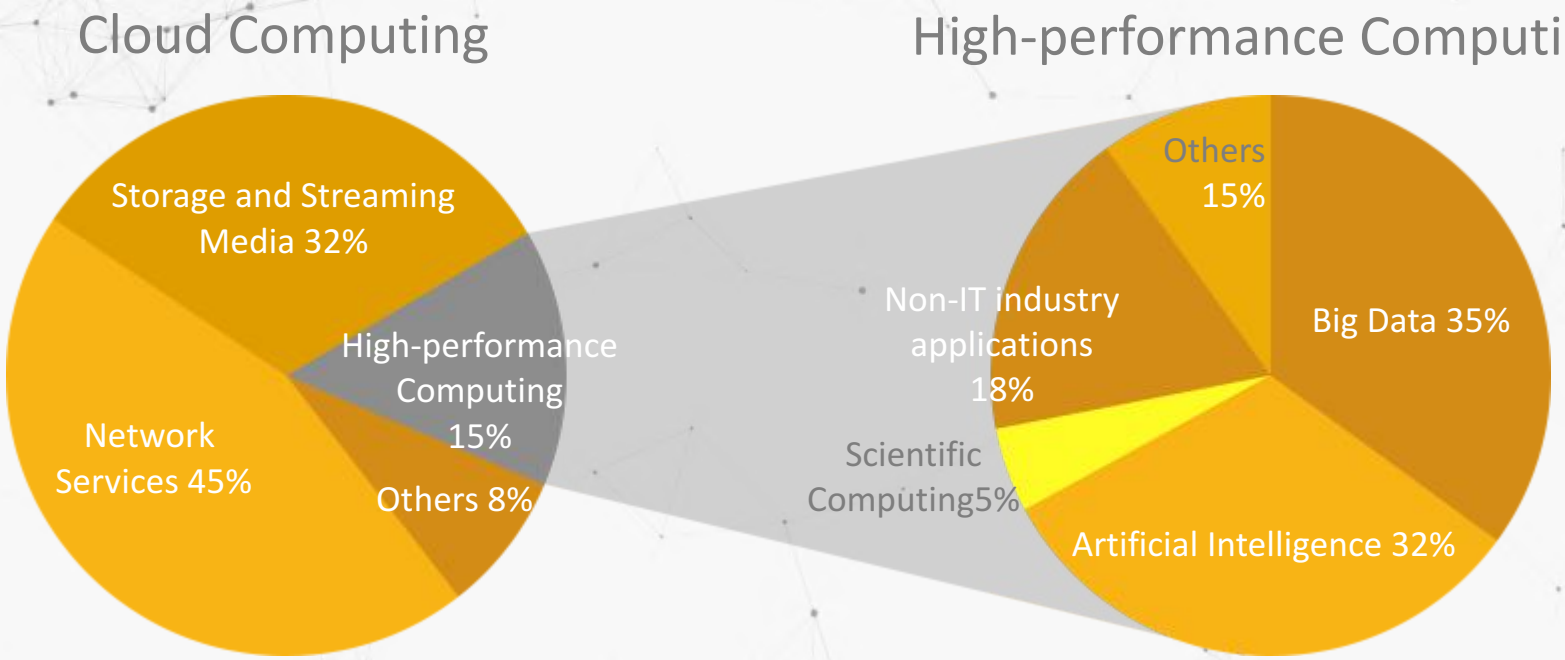
Mass Grid

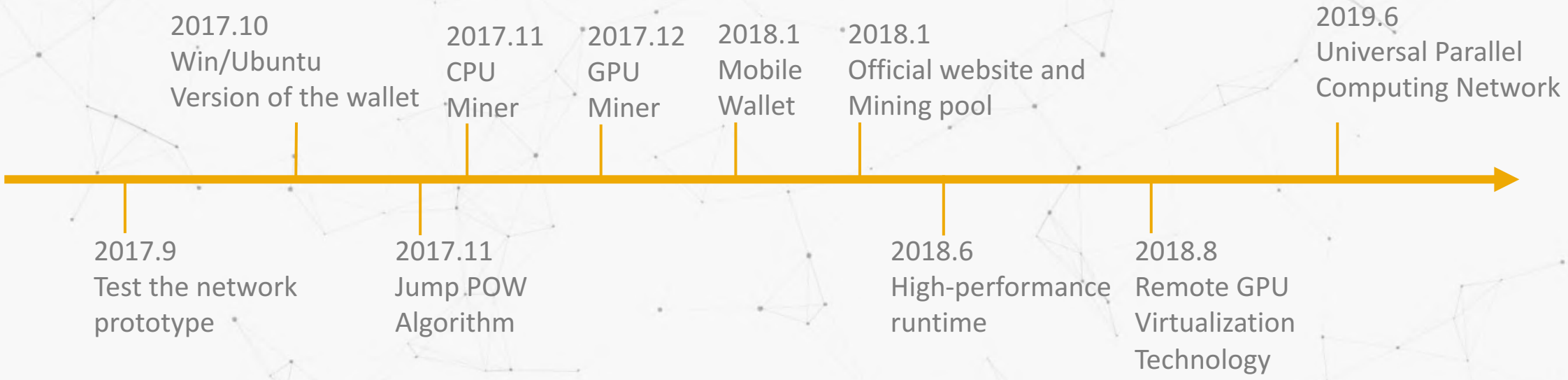
Decentralized High Performance Computing Network

Vision



- With the rise of machine learning, big data, rendering services and search engines, high performance computing and parallel applications are becoming faster and more demanding.
- The goal of MassGrid is to become the world's largest distributed GPU high-performance cloud computing network.
- MassGrid intends to transform the meaningless POW hash computing to general parallel computing that could be used for practical purpose through our improved POW algorithm and redesigned blockchain network architecture.

Road Map


2017.9
Test the network prototype
2017.10
Win/Ubuntu Version of the wallet
2017.11
Jump POW Algorithm
2017.11
CPU Miner
2017.12
GPU Miner
2018.1
Mobile Wallet
2018.1
Official website and Mining pool
2018.6
High-performance runtime
2018.8
Remote GPU Virtualization Technology
2019.6
Universal Parallel Computing Network

Technical Features

Jump POW Algorithm

Jump POW Algorithm is MassGrid's patented blockchain technology, it can resist quantum attack and ASIC hardware takeover, make the network safer, fairer and guarantee all network nodes are capable to run general parallel algorithm

GPU Computing Virtualization

GPU Virtualization Technology virtualizes remote GPU hardware resources to client devices. GPU virtualization enables users to freely schedule hardware resources that are physically distributed around the world.

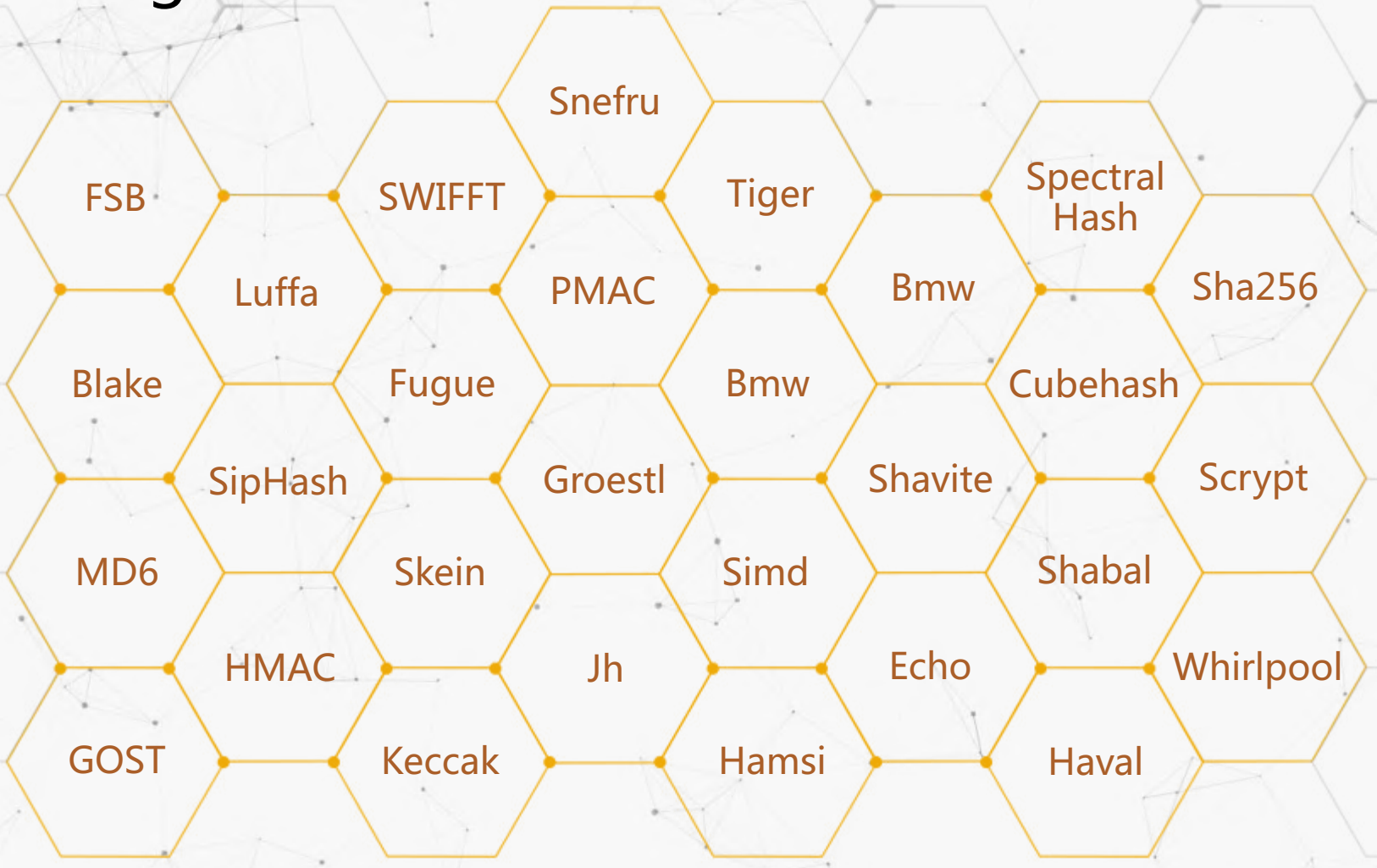
Smart Task Distribution

MassGrid's P2P-based exchange system is based on smart contracts and runtimes, users can customize the functions and pay rules for their specifc requirement, making trading more flexible and extendable.

What is Jump POW Algorithm

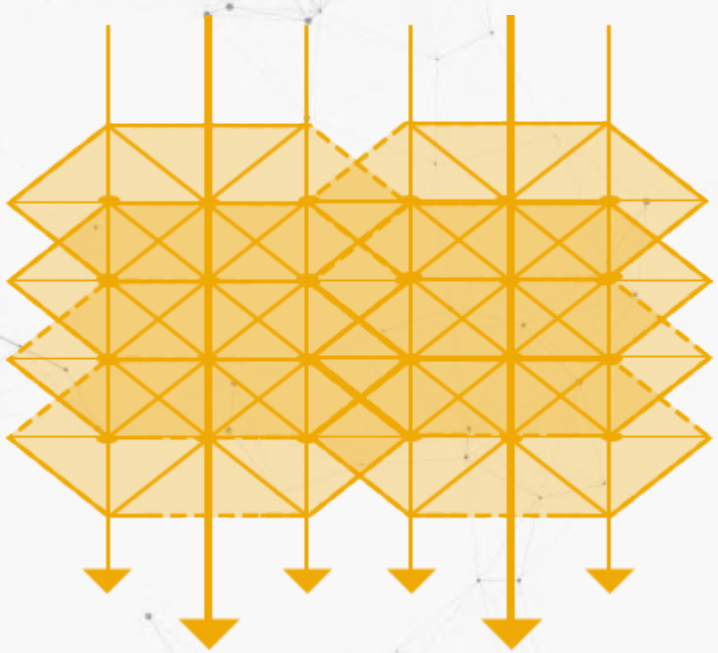
- Most cryptocurrencies are based on a fixed hash algorithm, no matter how complicated the algorithm is and how much space complexity it has. In the long time there is always the risk that mining could be replaced by ASIC hardware and finally centralized.
- Jump hash constantly changes as blockchain’ s data changes, Jump hash selects one hash algorithm from an algorithm pool which contains dozens of algorithms according to certain rules, the combination of hash algorithm which will be used constantly changes at each block.
- MassGrid will eventually integrate 30 different Hash algorithms, to design an ASIC for MassGrid mining, all 30 hash algorithms must be implemented in the hardware, only 1/30 of the chip resource will be used during computing each time, the rest will be idle.
- Taken together, Jump Hash significantly increases the GPU's energy efficiency relative to ASIC, as GPU power consumption and price goes down, GPU-based Jump Hash POWs will outperform ASIC economically.
- By implementing Jump Hash in our network, we can force all POW nodes to use the GPU for computing.

POW Hash Algorithm Pool

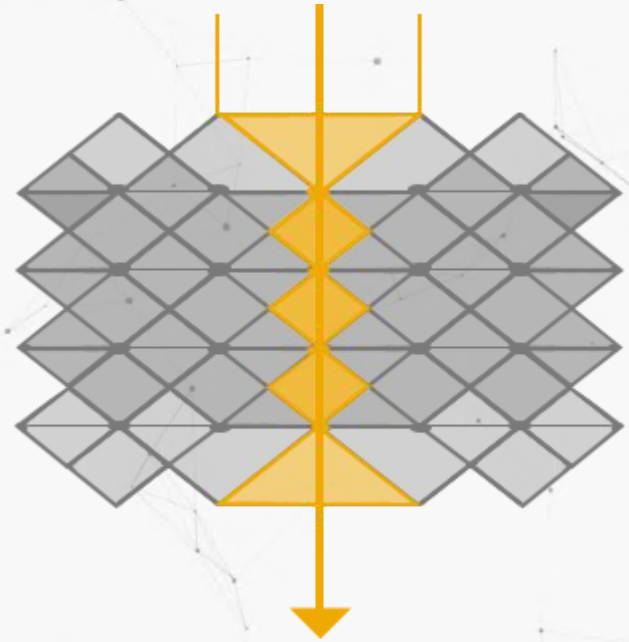


MassGrid's algorithm pool picks 30 hash algorithms out of hundreds, combines the SHA3 family with several dozens other top-secure algorithms. All algorithms have been widely used and tested in many application before.

Jump Hash algorithm GPU and ASIC comparison

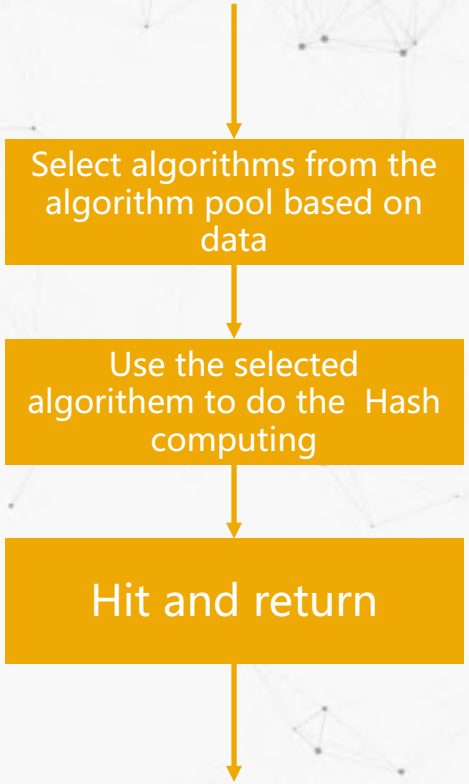


The programmable hardware structure of each computing unit on GPU dynamically switches algorithm to be able to achieve 100% hardware resource efficiency



Only 1/30 of chip resource will be used in the ASIC because of non- programmable hardware structure, the remaining resource are idle

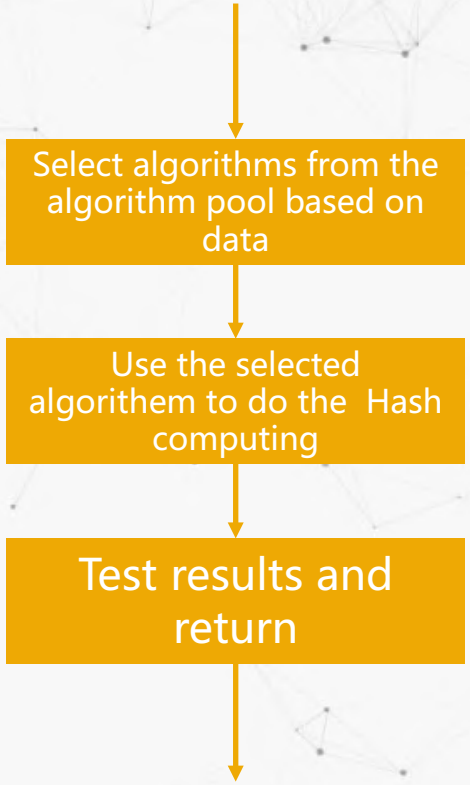
POW Computing Process




```
input blockData,lastBlockData ;
List hashIDs = GetHashIDByDataFactor(blockData,lastBlockData);
temp = blockData;
for( id in hashIDs){
   temp = jumpHash[id](temp);
}
return temp;
```

In our blockchain, every time a new data block needs to be generate, the Jump hash algorithm first extracts the data feature of the block or the previous block, and then selects one or several hash algorithm combinations according to the features of the data. Then uses this algorithm or a combination of algorithms for hashing, returning the correct result if hit or otherwise continuing.

POW Verification Process



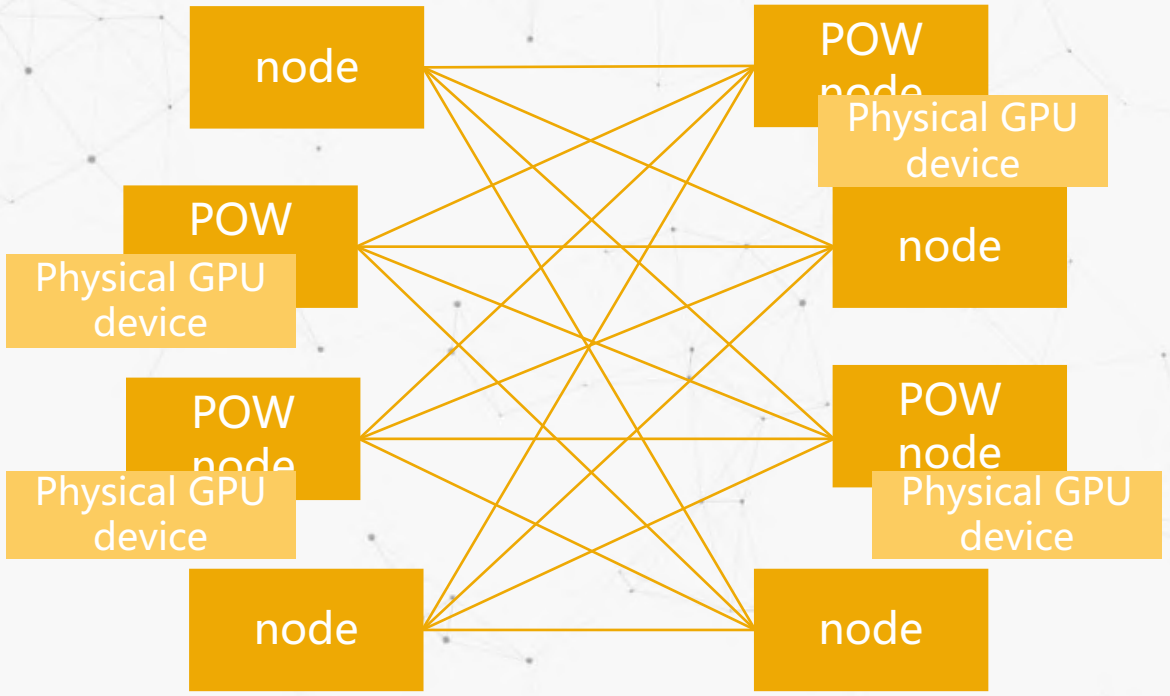

```
input hashResult ,blockData,lastBlockData ;
List hashIDs = GetHashIDByDataFactor(blockData,lastBlockData);
temp = blockData;
for( id in hashIDs){
   temp = jumpHash[id](temp);
}
return temp==hashResult;
```

When verifying the legitimacy of a data block, the Jump hash algorithm first extracts the data feature of the block or the previous block, and then selects one or several hash algorithm combinations according to the features, uses the algorithm or combination of algorithms for hashing, and compare the hash results to see it is correct.

GPU Computing Virtualization

- Hash is currently the only POW algorithm with great features such as adjustable computational complexity, easy to verify, no data dependence and low data transmission. However, compared to hash algorithms , general-purpose computing’ s complexity , data dependence , and data size varies with requirements, also it is not easy to verify, constraining general computing to fit POW can cause problems with poor generality of the computational network.
- By allowing users to access GPU resources in our computing network and allowing them to use virtualized GPUs to perform tasks and be paid by programmable contracts based on hardware performance and usage time, we have therefor changed general-purpose parallel POW computing to a matter of virtualized GPU time-shared leasing.
- The advantages of a distributed GPU hardware virtualization network are: a) Compatible with almost all GPU-based computing tasks. b) Easy to calculate payment based on hardware performance and leasing time. c) Scaling flexibly on demand.
- We hope to introduce a cross-platform and efficient GPU virtualization protocol that will agglomerate various types of GPU devices into computing resources. In the future, we hope to optimize the x86 architecture so that any GPU devices following the virtualization standard without Host could directly connect in the network.

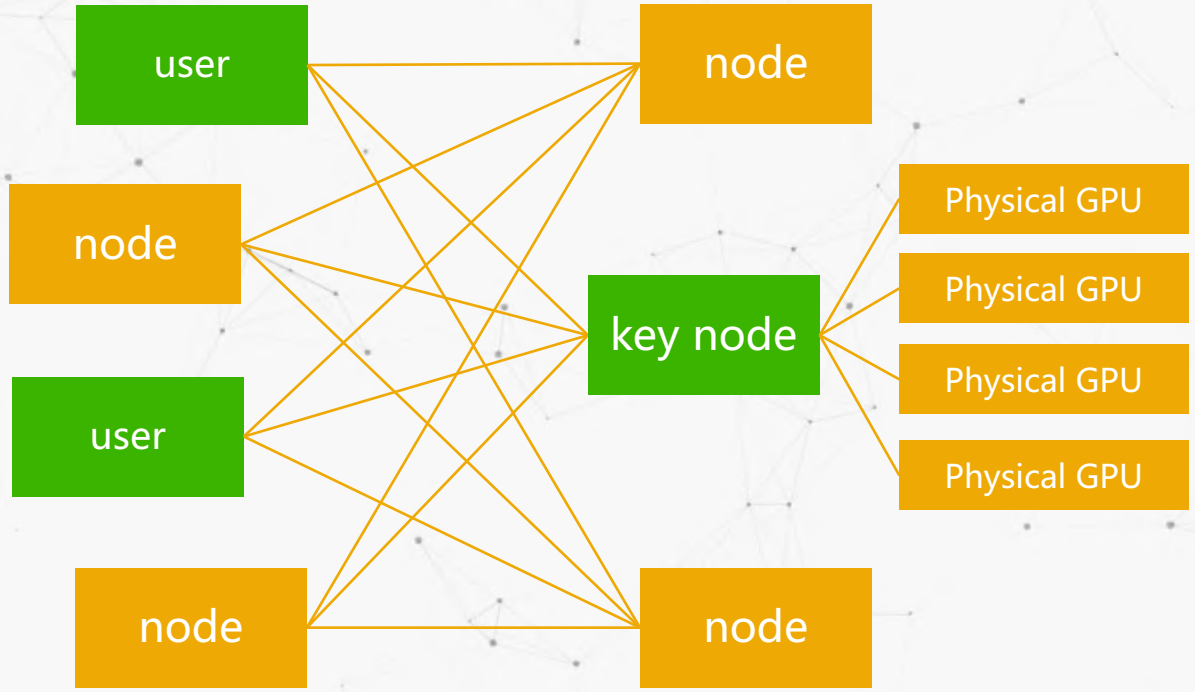
The First Phase of MassGrid



MassGrid first implements a blockchain p2p network based on the version 1.0 Jump hash algorithm that forces all nodes accessing the network to use the GPU or CPU as computing devices.

Among these nodes, some have GPU devices that efficiently run Jump hash algorithms that perform POW computing and provide cryptographic verification services for the entire network.

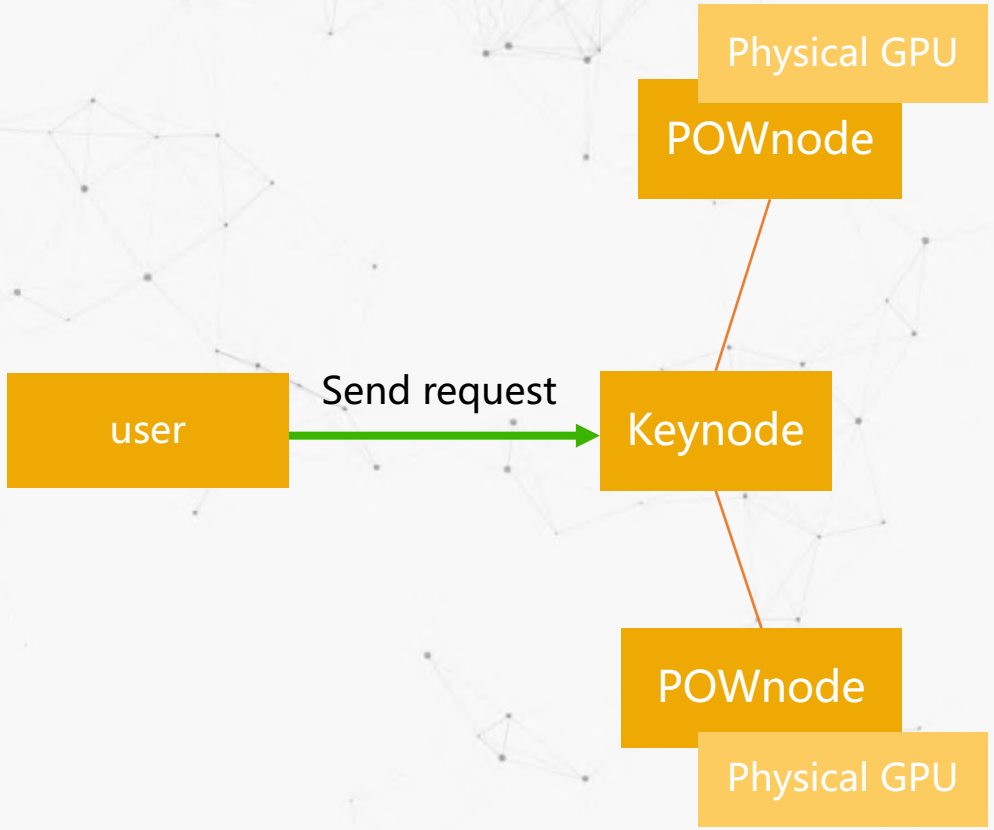
The Second Phase of MassGrid



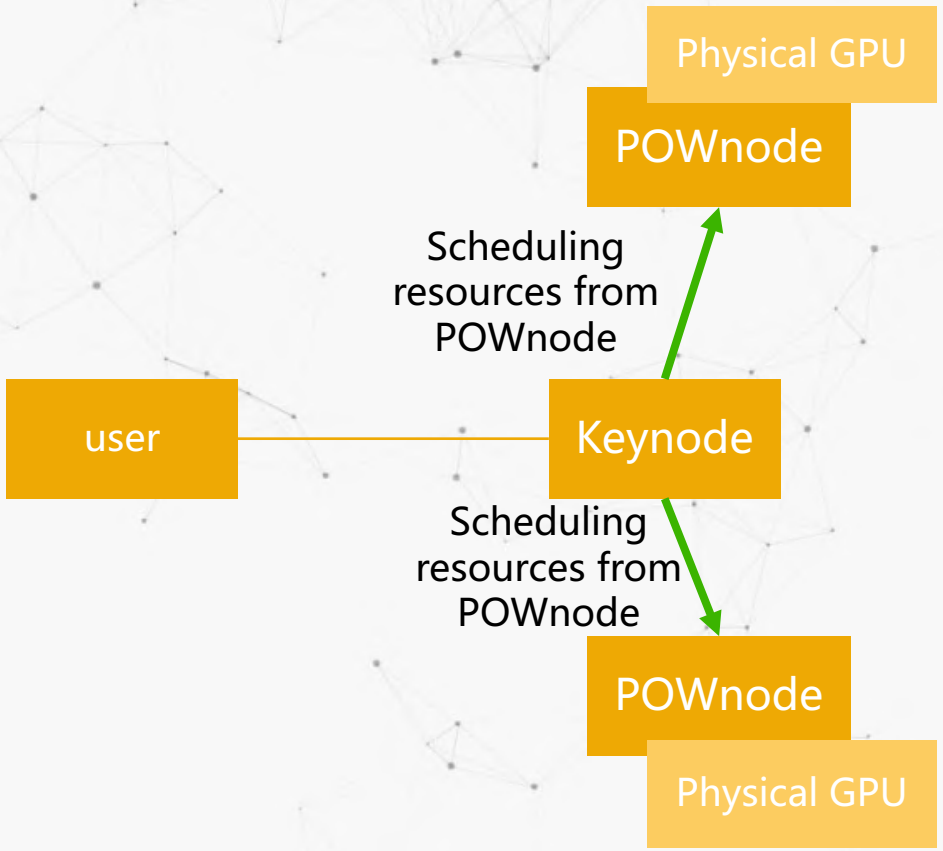
In the second phase, MassGrid will deploy multiple key nodes in the network. POW miners will register their physical GPUs to the key node. Key nodes will maintain a list of GPU resources. Through remote virtualization, the POW miners' physical GPUs will be mapped to users, user will use these resources and pay according to hardware performance and leasing time

POW Resource Trade Process

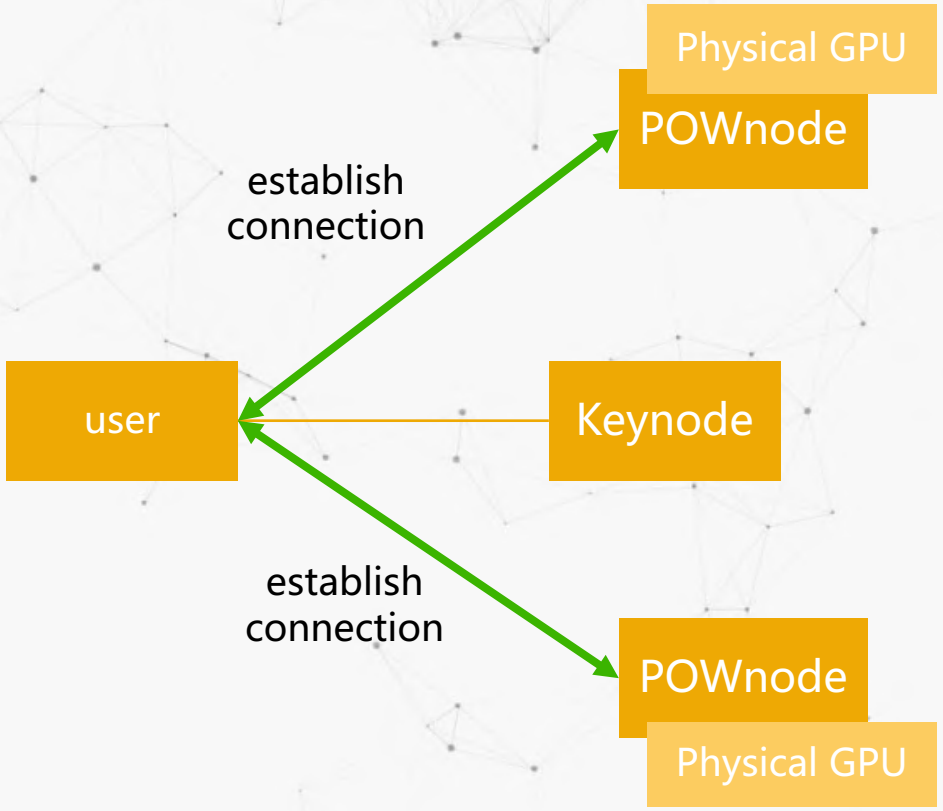
- POW miners, computing users, normal users, and Key nodes are connected to each other through a p2p network , they will automatically to do Jump Hash POW mining by default
- POW miners will also register their physical GPU to Key node, and the Key node will maintain a list of GPU resources
- When users initiate a GPU lease request, the request is submitted to the Key node. The Key node freezes the user’s budget by smart contract, establishes a virtualized connection for miner’s devices and users, and the connected GPU device stops POW mining , and begins to run the user’s computing job
- Client will automatically pay POW node once per Minute with smart contract by using MassGridCoin



- First, each Keynode maintains a large list of POW nodes that automatically register itself with Key node when it accesses the network.
- Users initiate GPU usage requests, submitting budgets and requirements to Keynode, waiting for Keynode evaluations;
- Requests initiated include: GPU memory requirements, bandwidth requirements, budget, data privacy levels;
- Key node verifies the legitimacy of the request, assesses the data bandwides/computation requirements and esponds;



- If the request is valid, Keynode looks for the optimal node for the user in the POW network according to the needs and the location of the user.
- Optimal node is assessed according to the connection latency between nodes and users, bandwidth and hardware specifications such as assessment;



- Keynode sends the connection instruction to the user and POW node;
- POW node stop POW mining, and establish a connection with user, virtualizate GPU hardware from POW node to user's client;
- User gain full access to this virtualized device;
- MassGridCoin is payed every minute via tiny high-frequency transpaction based on smart contracts from user to POW node

Core Team Members

Ma Guo Lin

After receiving his PhD in the United States, Ma Guolin successfully brought several companies' IPO in both China and the New York Stock Exchange. After his achievements, he now travels the world and develops passionate projects as he goes.

Frank Lee

Frank Lee is one of the original Bitcoin gurus and has been in the cryptocurrency community since the beginning. Credited as the first miner to design BTC & LTC mining chip , his knowledge and experience in the industry is exceptional.

Huang Xiang

After co-founding and acting CTO of a sports game/data analysis company, Huang is a highly skilled expert and experienced in rendering engine / cloud computing software development. The depth and knowledge of his skill-set is essential for system design and integration.

Perry Lei

Full stack engineer and currently the CTO of a Xiao Mi ecosystem company, Perry Lei has over a decade's worth of server side experience. In addition, he was also an early investor in cryptocurrency and mining as a hobby since 2012.

Liu Rui Hao

Liu RuiHao is an ACM award winner and algorithm researcher. He specially is an expert at high performance parallel computing and p2p network. Liu and his team have helped several mining company deployed dozens of large mining center across the world.

Maxime Alexandre Dupuis

Majored in Economics in 2012, Max has been involved in cryptocurrencies since its infancy. and was an early investor in several top exchange website and mining pools. Based in China since after 2012, he has also been involved in international business development for many years.

Foundational members & consultant

Huo Ju

Huo is a technology pioneer and a famous tech column writer in China. He has deep insight in technology and attracted several million subscriber and half billion page views to his personal blog

Guo Hong Cai

One of the most famous investors in the Chinese cryptocurrency community. He is angel investor of Ethereum and multiple successful blockchain technology projects. Guo also funded several world's biggest cryptocurrency exchange websites.

Wang Dong

Wang is the CTO of a top financial company, he has 10 years of experience in developing large scale stock exchange systems. Wang is also the leader of a big tech team with more than 300 engineer. The system his team is running handles and processes tens of millions deals per day.

Yao Yong

Yao is the CEO of a successful game company located in Beijing. He has ten year experience in internet software and game development. Yao is also a 3D engine and parallel computing expert. He translated and published the famous tech bible "GPU Gems".

Jason Ma

Jason used to work as a banker in Morgen Stanley. After several successful investment cases, Jason Ma moved to China and founded his own business. From there on, he has pursued his own passions and interests where cryptocurrency and investments are at the top.