



# MassGrid

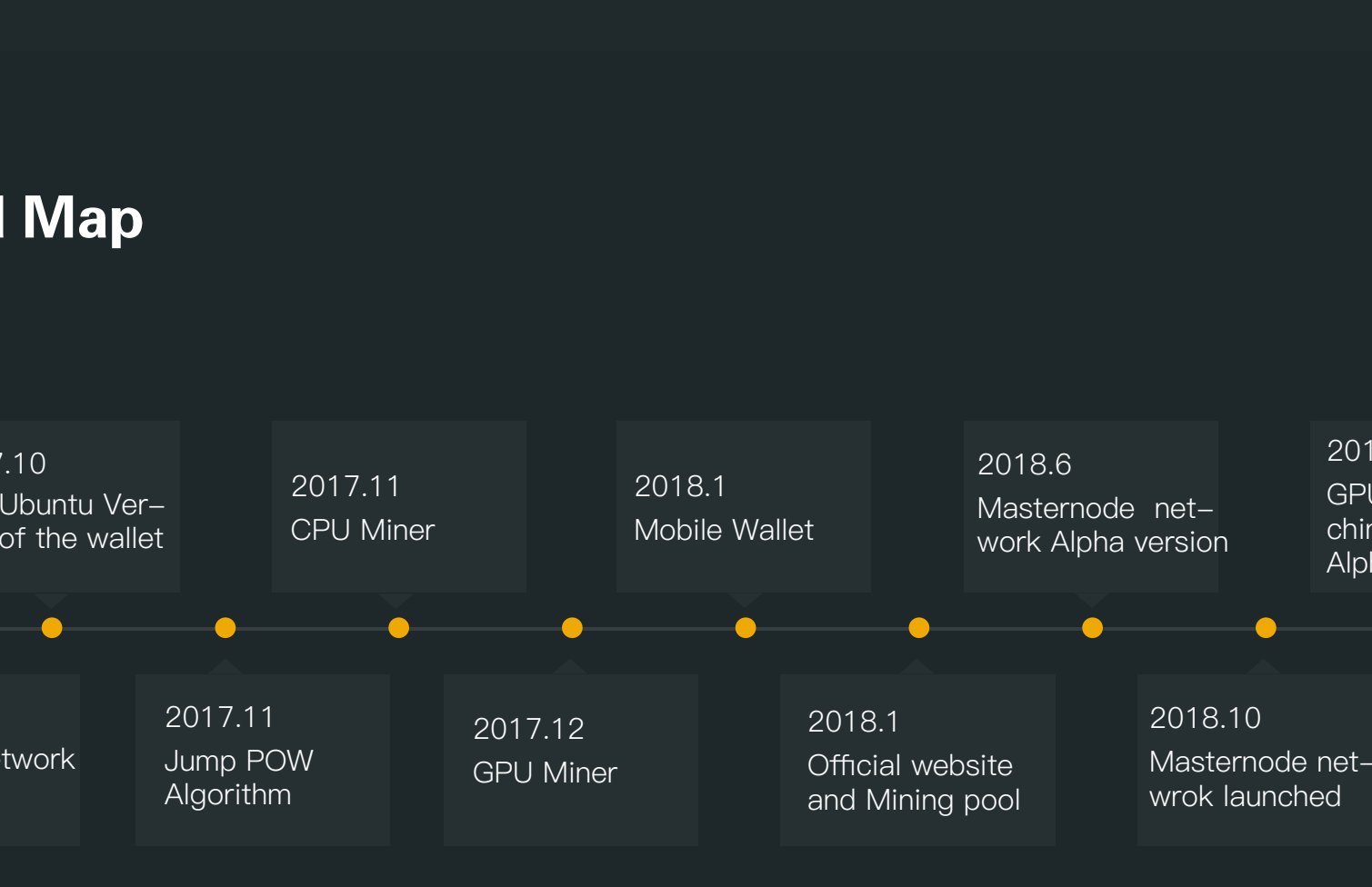
## Decentralized High Performance Computing Network

### 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



### 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 DOCKER Virtualization Technology virtualizes remote GPU hardware resources to a client's devices. GPU DOCKER 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 specific requirement, making trading more flexible and extendable.

### What is Jump POW Algorithm

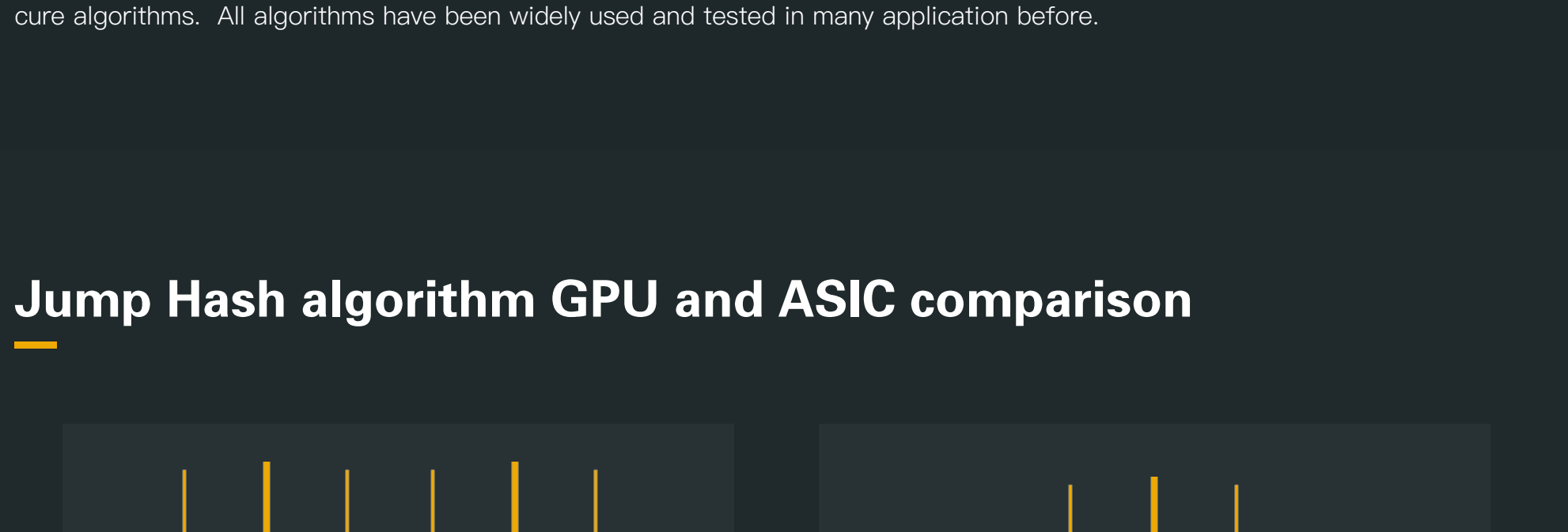
Most cryptocurrencies are based on a fixed hash algorithm, no matter how complicated the algorithm is and how much space complexity it has. In the long time there is always the risk that mining could be replaced by ASIC hardware and finally centralized.

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.

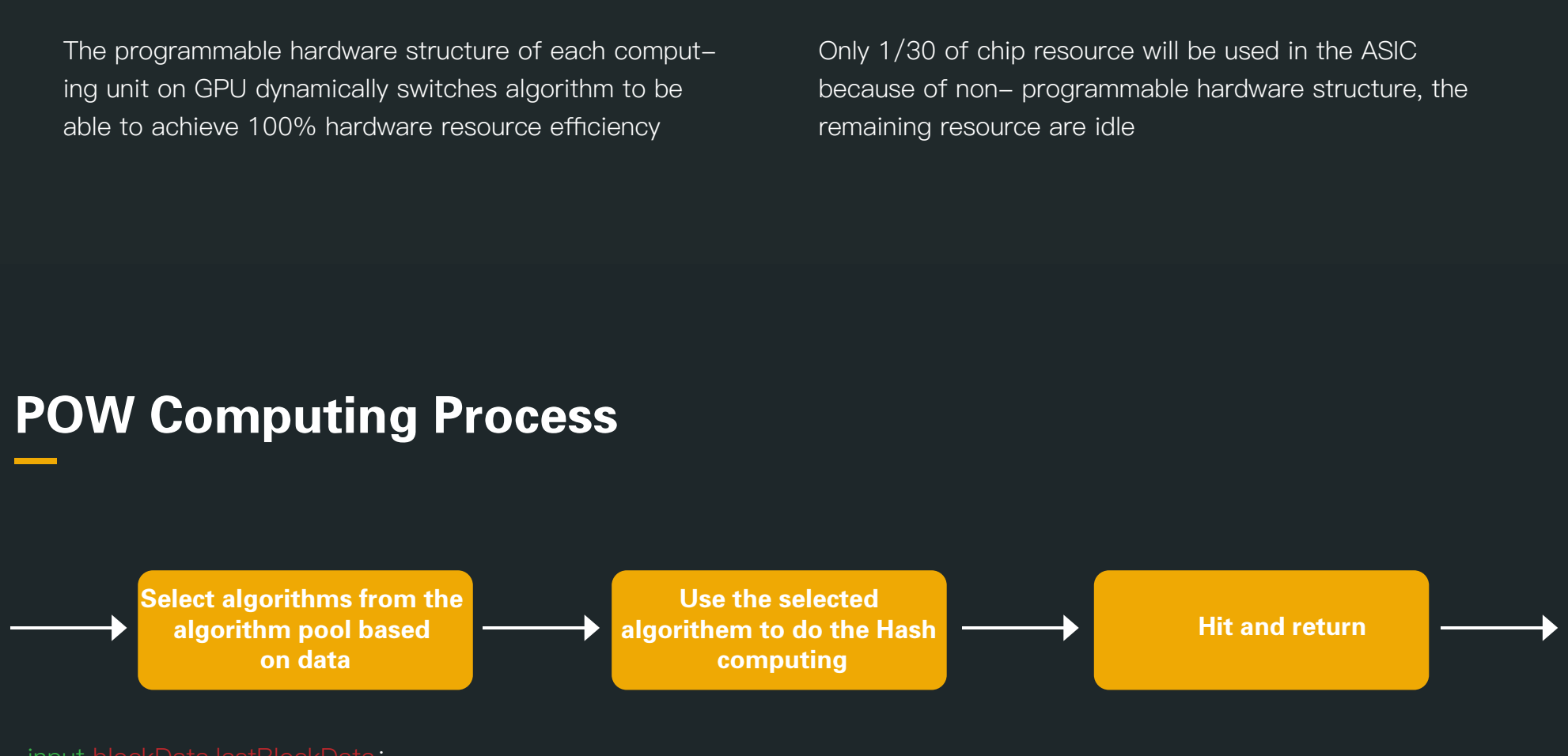
Taken together, Jump Hash significantly increases the GPU's energy efficiency relative to ASIC, as GPU power consumption and price goes down, GPU-based Jump Hash POWs will outperform ASIC economically.

By implementing Jump Hash in our network, we can force all POW nodes to use the GPU for computing.

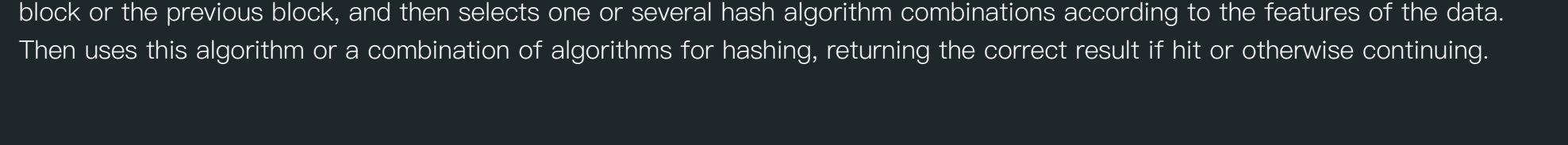


MassGrid's algorithm pool picks 30 hash algorithms out of hundreds, combines the SHA3 family with several dozens other top-secure algorithms. All algorithms have been widely used and tested in many application before.

### Jump Hash algorithm GPU and ASIC comparison



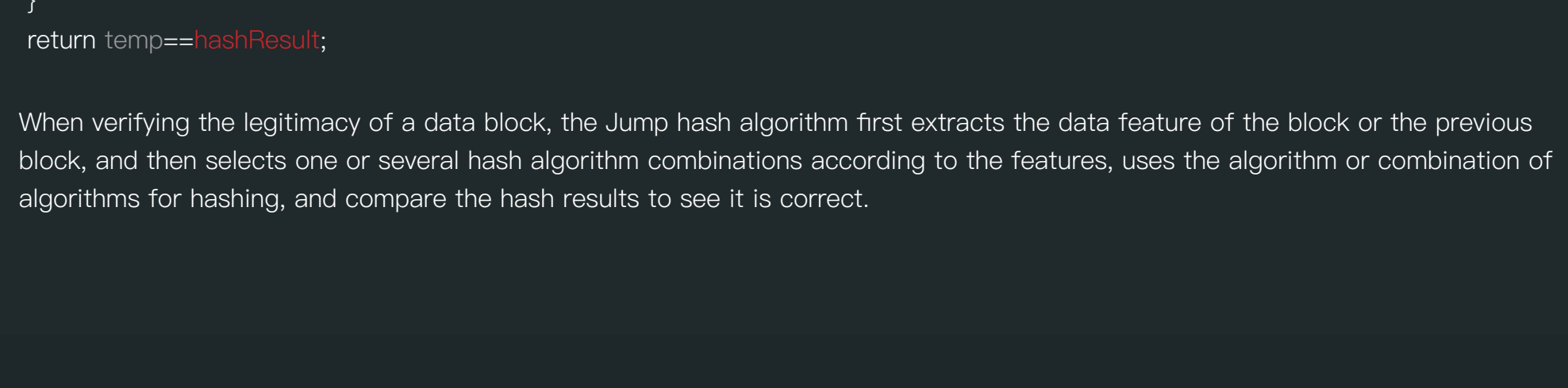
### POW Computing Process



```
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 generated, 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.

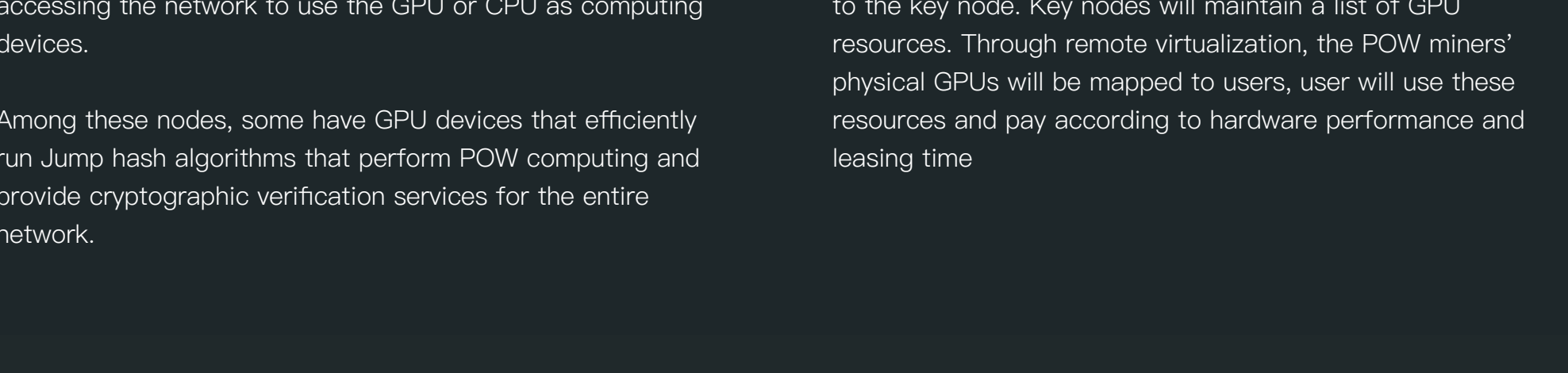
### GPU Computing Virtualization

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 based on hardware performance and usage time, we have therefore 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.



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.

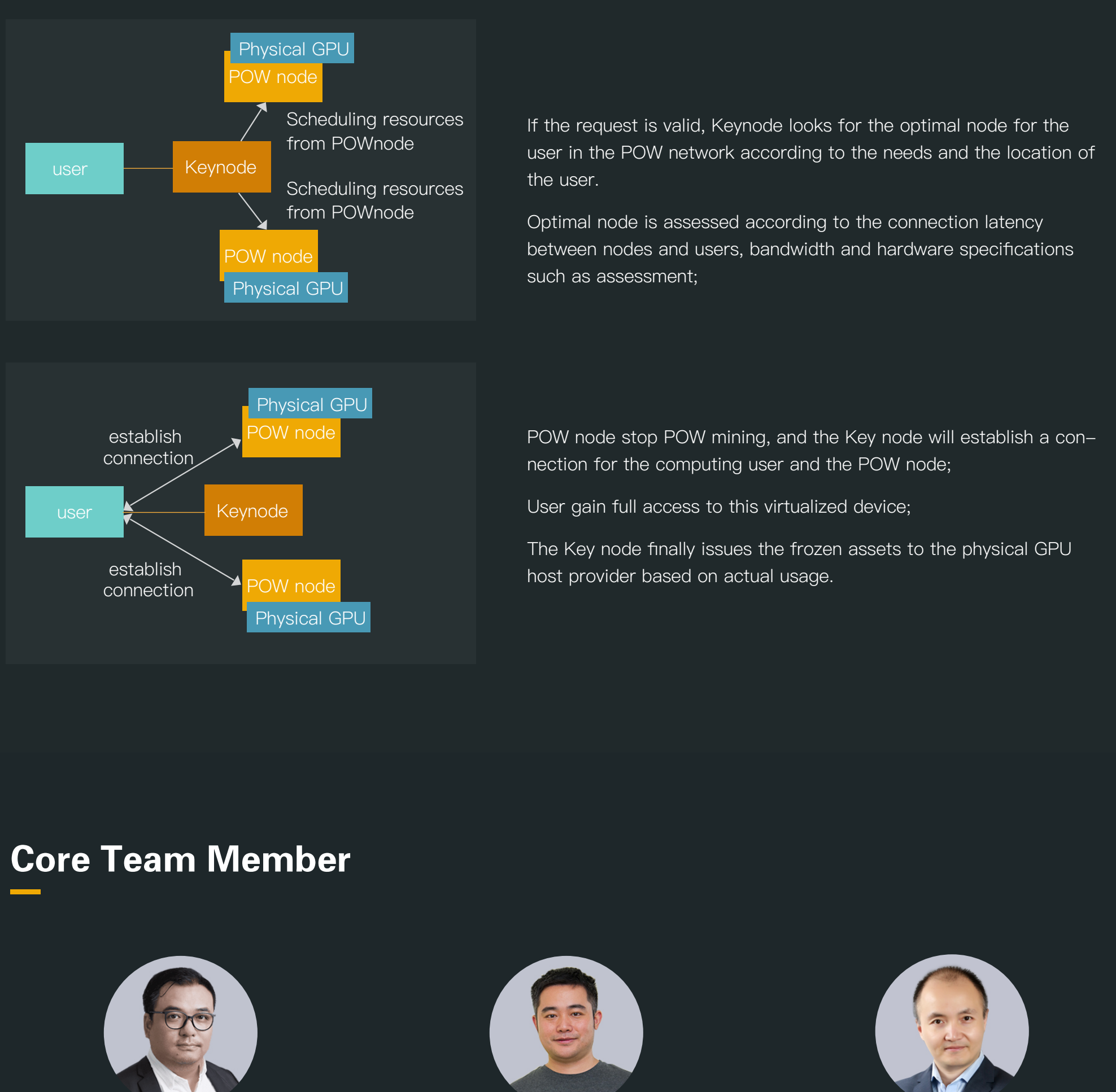
### POW Resource Trade Process

POW miners, computing users, normal users, and Key nodes are connected to each other through a p2p network, they will automatically do Jump Hash POW mining by default

POW miners will also register their physical GPU 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

The Key node finally issues the frozen assets to the physical GPU host provider based on actual usage.



### Core Team Member

**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 company, Huang is a highly skilled expert and experienced in software development & management. The depth and knowledge of his skill-set is essential for intuitive 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 has a special expertise in high performance parallel computing and p2p network. Liu and his team have deployed several mining company operated dozens of huge 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 websites and mining pools. Based in China since after 2012, he has also been involved in international business development for many years.

**Anonymity**

coming soon

### Foundation Member & consultant

**Huo Ju**

Huo is a technology pioneer and a famous tech column writer in China, he's deep insight in technology attracted several million subscriber and half billion page view to his personal blog.

**Guo Hong Cai**

One of the most famous investor in Chinese crypto currency community, He is an angel investor of ETH and multiple successful block chain technology projects. Guo also funded several of the world's biggest cryptocurrency exchange website.

**Wang Dong**

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