

# **CipherMine business plan**

*Industrial cryptocurrency mining and high-performance computing.*

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# 1 Executive summary

CipherMine is a virtual cryptocurrency mining business. All shares are listed on the LTC Global exchange.

## 1.1 Goals

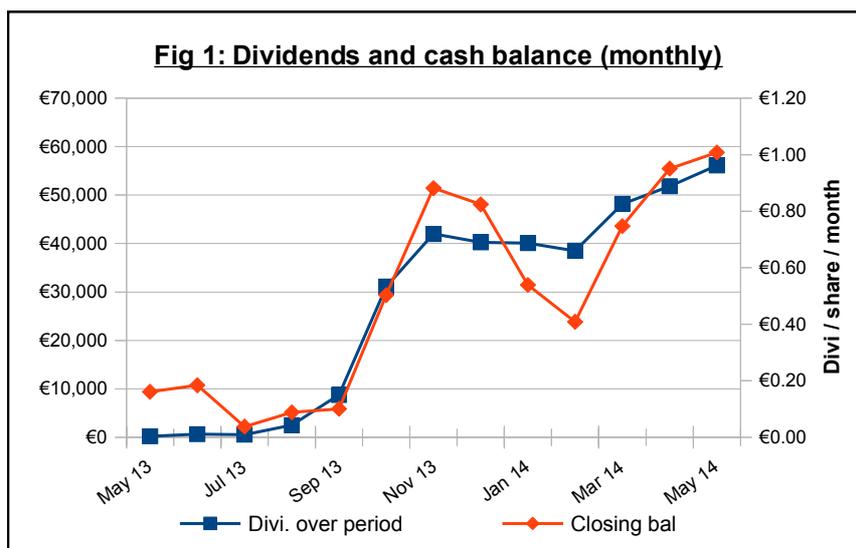
1. To provide a vehicle through which Litecoin (ŁTC) can be invested in mining cryptocurrencies.
2. To give shareholders a high, reliable, long-term return on investment via regular dividends and equity growth.
3. To aggressively invest in ASIC mining hardware to maximise early-mover advantage.
4. To promote ŁTC and the LTC Global exchange as a good alternate to Bitcoin (฿TC) and associated crypto-exchanges by being successful, and in doing so encourage a growth in value of ŁTC similar to ฿TC's.
5. To operate in a sustainable and environmentally-friendly manner.

## 1.2 Strategy summary

CipherMine is already in operation, at present mining script cryptocurrencies with a combination of heavily discounted CPU resources and GPU rigs, and SHA256 cryptocurrencies with FPGAs. Although our models and discussion herein focus on ฿TC and ŁTC, we apply mining clusters to whichever coins are most profitable (see 5.1.8). We have an aggressive strategy of hardware re-investment and have recently issued new shares to fund the purchase of BitFury ASIC hardware.

We have chosen LTC- Global since there is currently a dearth of mining companies on that exchange and because we believe that by being successful we can encourage ŁTC and LTC Global to become a main stream cryptocurrency and exchange with similar value explosions to that witnessed with ฿TC and shares on the ฿TC Trading Co exchange.

We shall invest 50% of profits back into hardware, as well as a 3-year straight-line amortisation / depreciation of existing hardware, and pay our 50% of profits as dividends. We have a detailed business model and forecast (available on request), the dividend forecast from which is shown in the figure 1. Note: this includes the expected BitFury purchases.



The assumptions used (see detail below) are hopefully conservative. Most importantly, we assume that ฿TC mining productivity will decrease significantly due to difficulty increasing, and have based our difficulty forecast on the last three months trend. We also assume a fixed price for both ฿TC (€60) and ŁTC (€2). Should they appreciate, as we hope, then our profitability will rise significantly. We shall be accounting in Euros, not cryptocurrencies, though dividends will be in ŁTC.

## 1.3 Key strengths / differentiators and assets

1. An outstanding, publicly visible principal with a wealth of technical and business expertise, backed up by a superb team of professionals with demonstrable experience.
2. A carefully considered, detailed and realistic business plan and model showing the growth potential.
3. 3,250 Avalon SHA256/฿TC-mining ASICs on order (~900 GH/sec, delivery late July - mid August).
4. 100 SHA256/฿TC-mining FPGAs deployed (~20 GH/sec)
5. 3 quintuple-AMD 7950 GPU script/ŁTC mining rigs deployed (~9 MH/sec), 3 on order (~18 MH/s total).
6. Cluster of 60 VMs ŁTC mining with Memset's spare compute (expandable).
7. We have the following arrangements with Memset Ltd:
  1. Use of their ultra-efficient, high-security (to British government standards) data centre for which CipherMine will only be charged power at cost (and there is a lot of spare space).
  2. Use of the spare compute in their virtual machine estate with a minimal at-cost charge.
  3. The expectation that they will purchase end of life GPU rigs from CipherMine for use in their GPU cloud.
8. A proprietary, scalable software suite for the automation of mining workers as well as auto-selection of best value cryptocurrency to mine and automatic conversion of alternate cryptocurrencies into ŁTC (CipherMiner).

## 2 **Glossary**

- ₿TC: Bitcoin
- ŁTC: Litecoin
- cryptocoin: Any peer-to-peer cryptographic currency which we deem appropriate (see “Choosing cryptocurrencies”).
- BTC TC: The ₿TC Trading Company, a ₿TC-based virtual stock exchange game (<http://btct.co>)
- LTC Global: Litecoin Global, the ŁTC-based virtual stock exchange game on which CipherMine is listed (<http://litecoinglobal.com>)
- ASIC: Application-Specific Integrated Circuits for SHA256 mining.
- FPGA: Field Programmable Gate Array for SHA256 mining.
- SFPGA: A FPGA for Scrypt mining.
- SHA256: A 32 bit hashing function. Mining SHA256 cryptocurrencies like ₿TC involves SHA256(SHA256(x)).
- Scrypt: An alternate hashing mechanism used by ŁTC and others designed to make GPU mining less effective.
- IPO: “Initial Public Offering” on our virtual cryptocurrency stock exchange game of choice.
- The company: Refers to CipherMine, the virtual business that this document is about.
- VM: Virtual machine.
- Wood Tech: Wood Technology LLP, Kate Craig-Wood's R&D company.
- R&D: Research and development, in this context in computing especially HPC.
- HPC: High performance computing (supercomputing clusters).
- DC: Data centre.
- HW: Hardware.
- P/E ratio: Pay-earnings ratio (see “IPO valuation discussion”)
- Alt coins: Herein “alt coins” refers to coins other than ŁTC or ₿TC, such as Feathercoin and Worldcoin (Scrypt ŁTC alternatives) or PPcoin and Terracoin (SHA256 ₿TC).
- Fiat: Fiat money refers to “real” money; GBP, USD, EUR and so forth, as opposed to cryptocurrencies.

## 3 **Warning**

CipherMine is a virtual company whose shares and dividends are to be quoted and distributed in a virtual cryptocurrency commodity which is not recognised as a legal security in any jurisdiction. It is our intention to provide our shareholders with an excellent return on investment in ŁTC (as described herein) but we, Kate Craig-Wood, Wood Technology LLP, Giles Russell, Ross Martyn and Simon Weald, are in no way liable for any losses you may incur in connection with CipherMine.

In this sense you should regard any investment like you would a very high risk equity investment; you cannot get your money back from the company whose shares you purchase. Further, be aware that the LTC Global exchange is unregulated and legally considered an online game. Should something go wrong you have no recourse in law. We, the founders, are not bound by company law nor are we qualified to provide financial advice.

**DO NOT INVEST MORE THAN YOU CAN AFFORD TO LOSE!**

## 4 Administrative details

### 4.1 Key personnel

Principal (CEO): Kate Craig-Wood  
Address: C/O Wood Technology LLP  
25 Frederick Sanger Road  
Guildford  
Surrey, GU2 7YD  
United Kingdom  
Email: [kate@ciphermine.com](mailto:kate@ciphermine.com)  
CV: <http://kate.craig-wood.com/cv.pdf>

Kate is (aka. woodrake on [bitcointalk.org](http://bitcointalk.org), woodtech on all other cryptocurrency sites) the principal founder of CipherMine. She is a highly successful and well-known British entrepreneur with deep expertise in cloud computing, hosting, data centre energy efficiency and cyber security. She is also in the final year of a part-time PhD with the local university's computing department. Her principal responsibilities in CipherMine are business administration, finance, purchasing and software development. Kate's shares will actually be owned by her personal consultancy/R&D business, Wood Tech (see below).

Giles Russell (aka. evilscoop on [bitcointalk.org](http://bitcointalk.org)) is our ASIC rig builder and we have set aside shares for him which will be released as the business relationship is proven. A part of that deal is where we hope to trade his skills to bolster our ASIC supply. Giles owns 3,000 shares from the outset and CipherMine has a further 8,000 set aside for him which he will receive in tranches of 2,000/month over the coming 4 months (or sooner) provided that he fulfills his side of our agreements.

Jan Heinicke-Clemm (aka. JohnDorien on [bitcointalk.org](http://bitcointalk.org)) is a new addition to our team. He is building our private mining pools (see section 5.1.8) and will be assisting Kate with software development projects, including our initial diversifications into [industrial-computing.com](http://industrial-computing.com) (see section 5.2.2). Since Jan is a new member of the team we have not given him share yet but have agreed to give him 500 on completion of the pool project and a further 500 on or before August 15<sup>th</sup> once he has demonstrated his merit. Since we did not make an allowance for additional share issues in the original contract and it is rather early to be asking for another share issue (which would dilute shareholders) Kate is giving Jan these shares out of her own portion.

Ross Martyn and Simon Weald are systems administrators at Memset. They are providing maintenance support of the mining equipment. It is necessary that the people providing that are Memset employees since we will be using their data centre (see sections 5.1.10 and 5.1.11). Ross and Simon have 2,000 shares each in CipherMine.

In the new share offering (5<sup>th</sup> July 2013) we are creating 10,000 new shares. 7,000 of these will be offered for sale to fund purchases of BitFury mining equipment (see below) and the remaining 3,000 for future hires. The first of those is to be Richard West, a programmer that has worked with Kate for the last few years and was the inventor of [is.gd](http://is.gd). We also intend to offer Katie Olver, Kate's press relations agent, some shares in exchange for her services - which have already proved valuable.

The team named above will be remunerated in the same way as investors; through dividends share value increase.

### 4.2 Tangible assets, real-world finance and taxation

The tangible assets (mining hardware) are owned by Wood Technology LLP. CipherMine is a virtual company. CipherMine shares convey no ownership, voting rights or any other rights in Wood Technology LLP. CipherMine's staff, partners, customers, employees, suppliers, shareholders and associates shall be held in no way liable for any losses associated with CipherMine. CipherMine has zero legal tender exposure in any jurisdiction.

Wood Technology LLP is a British limited liability partnership of which Kate Craig-Wood owns 99%. It is VAT registered (registration number GB138215131) allowing CipherMine to acquire physical assets without incurring VAT (sales tax). CipherMine's activities will be accounted for as part of Wood Technology's accounts, however this will only apply to cryptocurrencies when converted into real currencies (eg. when purchasing hardware). Wood Technology will also be the principal shareholder in CipherMine (see below). Should there be any legal challenge to Wood Technology LLP then it shall be addressed in the courts of England and Wales. There can be no legal challenge to CipherMine.

At this time it is our expectation that cryptocurrencies generated will continue to be regarded as commodities rather than cash and as such will not attract tax nor regulation. However, at the point where they are converted into fiat currency that could be deemed a profit. We shall properly account for all real currency movements, though we expect that we will be able to operate the business at a loss for some time (since our "profits" are principally cryptocurrency commodities). We plan to build cash reserves in case there is a tax implication in future, as shown in figure 1.

However, let there be no illusion that we intend to in any way avoid British tax. All money and transactions which have a real-world element, be that cryptocurrencies to fiat currency (or visa versa) and any purchase of tangible goods. Where hardware is being purchased with cryptocurrencies (eg. ASIC mining hardware) we shall value the purchase at the current EUR exchange rates on BTC-E.

It is the responsibility of all shareholders to pay any taxes on their CipherMine earnings applicable in their jurisdiction.

### **4.3 CipherMine ownership**

All CipherMine shares, including those belonging to the founders, shall be listed on the LTC Global virtual stock exchange game (<https://www.litecoinglobal.com>). This should give prospective investors great confidence in the business since in order for the founders to benefit we must maximise shareholder value for everyone (including us).

At our initial public offering (IPO) on LTC global on June 24<sup>th</sup> and 25<sup>th</sup>, we created 100,000 shares in total, with 80% representing the founders' holdings and the remaining 20% being dilution capital the proceeds from which have gone into the business. We raised ŁTC 15,667 (€28,200 EUR at that time) capital for investment in additional mining hardware.

That hardware has now been ordered in accordance with the motion to update our spend ratio to 85% SHA256 ASIC rigs and 15% GPU rigs. Evidence of the orders may be viewed at [docs.ciphermine.com/orders](https://docs.ciphermine.com/orders).

### **4.4 Currency/cryptocoin risk spreading**

We shall avoid keeping significant quantities of any cryptocoin. Only that which shall be distributed as dividends will be kept as such with the rest (the reinvestment fund) being converted to fiat (GBP or Euros) at the current exchange rate and kept in Wood Tech's bank accounts (with Coutts & Co).

### **4.5 Marketing and press relations**

#### **4.5.1 Marketing the CIPHERMINE security**

We believe it is in shareholders' interests for us to expend a little effort and a small amount of BTC and LTC promoting CipherMine to generally raise awareness of it. To that end Kate is working to promote the security, which in the short term should improve demand for the coming round of funding. We have taken out an advert on [forum.litecoin.org](https://forum.litecoin.org) and will do the same on [bitcointalk.org](https://bitcointalk.org). However, most importantly Kate is currently working with her PR agent, Katie Olver, in an attempt to get a story on CipherMine into the British national press. This has already been successful with [coverage in the Guardian's blog](#), as well as Forbes online and the [Daily Mail's money section](#).

#### **4.5.2 Service marketing**

In order to make best use of our planned diversification projects (see section 5.2.1) we will likely need to advertise them to some extent. Again, this is an area with which Kate is very familiar. As with the costs of running the mining rigs, the costs of marketing these services will be regarded as a cost of sale for CipherMine.

The press coverage we have had to date is an excellent start towards this and we intend to capitalise on this by using some of the new shares we are creating in the current funding round to push forwards the most synergistic development projects.

## **5 Business plan**

In order to reach our goals, as described in the executive summary, we have a carefully considered plan including a detailed and realistic business model, both described herein.

### **5.1 Cryptocurrency mining**

Initially our sole business activity shall be mining cryptocurrencies. We already have operational mining equipment as well as a large amount on order (see above), and in our IPO the capital raised will be used to purchase additional GPU rig hardware to add to the CipherMine estate. The rigs will be operated in an ultra-high efficiency, renewables-powered data centre in Surrey in the United Kingdom (operated by Memset Ltd, of which Kate Craig-Wood is the Managing Director and founder).

#### **5.1.1 Choosing cryptocurrencies**

As a preamble, we initially intend to mine LTC (scrypt) and BTC (SHA256). We shall regularly consider the profitability of our rigs and divert our scrypt and SHA256 clusters to other cryptocurrencies should it be more profitable. All dividends will be paid in LTC (see "Why LTC global", below). In order to minimise risks we shall convert the dividend element of profits into LTC at least weekly if not more frequently when mining alternative cryptocurrencies. Further, the reinvestment element of profits into cash (£GBP and/or €EUR) as often as practical at the current exchange rate. We are not in the business of cryptocurrency speculation.

However, we are also risk-averse as far as is practical. The recent 51% attacks on Feathercoin (FTC) are a good example of the risks of blindly chasing the most profitable coin to mine at any point (it resulted in many orphaned blocks and miners being short-changed). We are cautious in our explorations of cryptocurrencies other than BTC and LTC. We will also evaluate cryptocurrencies based on historical exchange stability and historical difficulty stability. So far, our intelligent selection of cryptocurrencies to mine is giving a 10-20% yield over LTC / BTC mining.

#### **5.1.2 GPU scrypt ("G-rigs") mining plan**

In the near-term (1-3 months) the plan is to principally mine LTC (or other scrypt-based cryptocurrencies) using GPU-based mining rigs. This has a fairly clear rate of return on investment in the short term. GPU mining does not have as bright a future as FPGA and ASIC mining however so this is mainly a bootstrap activity and we will only be spending 15% of our hardware fund on new GPU rigs.

In the medium-term (3+ months) we intend to exploit the fact that there will likely be many ex-BTC miners with GPU rigs which are no longer providing a good return on investment who wish to instead upgrade to Application-Specific Integrate Circuit (ASIC) hardware by attempting to purchase pre-built GPU rigs second hand at reduced prices. These will then be added to our estate and should provide an improved return on investment (ROI).

The model at present assumes we will be paying current market rate for new GPUs however, so if this second-hand purchasing plan works it should free up significant capital with which we will be able to accelerate our hardware expansion rate. GPU purchases are a relatively low risk investment since they have excellent re-sale value and we have a ready buyer in the form of Memset who are building out their GPU cloud.

#### **5.1.3 VM host CPU scrypt ("V-rigs") mining plan**

We have also secured a deal with Memset Ltd. to use their spare virtual machine host compute for scrypt mining solely in exchange for the dedicated hardware element (0.5GB of 32GB on the host) and power (approx 20 Watts per VM) used in this activity. This activity at present generates roughly 1,500 KH/sec of LTC mining across 60 VMs, but is power-intensive.

A significant portion of the LTC generated go towards covering the power and cooling costs thus the net gain is only about £1.0/day at present. We intend to scale this up while it is profitable and have the necessary automation tools to do so.

However, if LTC mining difficulty does increase at the predicted rate this activity will no longer be profitable by October. It is therefore merely a bootstrap activity (ie. we will stop when it is no longer profitable).

*Note that Memset Ltd. are in no way contractually bound to make their infrastructure and services available for these purposes (colocation/hosting and spare VM host compute), nor to purchase GPUs from CipherMine, and may revoke the arrangement at any time. However, this is unlikely given that Kate Craig-Wood is the company's managing director (CEO equivalent).*

#### **5.1.4 Scrypt FPGA (SFPGA / "S-rigs") mining plan**

We are actively monitoring the development of scrypt mining field programmable gate arrays (FPGAs) and when they become available we intend to switch our purchases of scrypt mining hardware from GPU to FPGAs. As per our research and development plan we may also explore developing scrypt ASICs based on the FPGA designs.

We are hopeful that either blockburner.net or enterpoint.co.uk will bring out suitable script-FPGAs within 6 months, and that is what our plan assumes (that we will be deploying such devices in 6 months time). At that time we shall move away from buying any new GPU hardware, though our models suggest they will be significantly less profitable by that point regardless. Once script FPGAs are available we will put the 30% of the hardware investment fund initially allocated to SHA256 FPGAs towards them.

### **5.1.5 SHA256 ASIC (“A-rigs”) mining plan**

We have ordered 3,250 Avalon ASIC chips which we shall be integrating ourselves into SHA256 (฿TC initially) mining rigs. Our intention is to build as many rigs as we can in as short a time as possible in order to exploit the leading edge of the ASIC mining revolution. Our orders are placed with Steamboat and we expect first deliveries in mid-late July.

We estimate that each rig consisting of 16 ASICs will yield 4.4-4.8 GH/sec. Our supplier (Steamboat) has told us that our batches should start shipping late July. Giles (aka. evilscoop), one of our founding partners, is our hardware builder and will be integrating the chips into functional rigs. They will then be shipped to Kate for hosting in Memset's data centre in Surrey. All costs associated with their build is included in the estimated €65/rig build cost.

Giles can build about 10 16-ASIC rigs per day, or roughly 200 per month. When we exceed that (or rather, 3,200 ASIC deliveries per month), we shall hire a full time systems integrator to build and also maintain the rigs.

However, since IPO BitFury have released their long-awaited 55nm ASICs. Each is capable of 1.56-2.7 GH/s, and they are selling complete 400 GH/s miners for €7,500. We strongly believe we should get in as soon as possible which is in part why we making an additional share offering (as of 5<sup>th</sup> July 2013).

### **5.1.6 SHA256 FPGA (FPGAs / “F-rigs”) mining plan**

Until script FPGAs become available, or we develop them, we had intended to be putting the 30% reinvestment spend on FPGAs towards SHA256 mining FPGA rigs. Although not as cost effective in capital terms as ASICs they do have the potential for resale, which is valuable, and are more immediately available. Further, Memset are investigating the potential market for offering a FPGA cloud infrastructure service so once they do become unprofitable for mining we can potentially sell them to Memset.

However, having acquired 80 Ztex clones (~215 SHA256 MH/s each) and 10 Dual-spartan Lancelots (~440 MH/s each) and recalculating the relative productivity with the recent reductions in ฿TC's value, we raised and passed a motion to divert the SHA256 FPGA spend towards ASICs. We will continue to review the relative efficacy.

### **5.1.7 Mining hardware acquisition**

A key element of the business plan is to acquire ASICs as rapidly as possible. Our business model suggests that by the end of our first year of trading we could have as many as 16,000 ASICs deployed with a further 3,000-4,000 on order. While this would not eliminate the supply it would likely account for a few percent of total network hashrate. 16,000 ASICs would produce roughly 4,500 GH/sec (4.5 TH/sec) SHA256. ฿TC's current total network hashrate is ~130 TH/sec.

We have deliberately constructed our business model to be very hardware-investment intensive. We shall re-invest 50% of profits in new mining hardware and shall also be operating a programme of hardware depreciation (ie. deducting amortised hardware costs from profits and adding that to the new hardware fund).

Having carefully modelled lower investment percentages such as the 30% offered by our competitors, we do not believe that their business models are sustainable in the face of the current rise in difficulty. An aggressive hardware investment plan is necessary to stay ahead of the curve. Also, once difficulty settles down to the amortised cost of hardware plus power for ASICs (which it will undoubtedly trend towards) it will pay big dividends (literally) to have acquired lots of kit.

Our UK builder, Giles, can build up to 10 16-ASIC ฿TC mining rigs per day, which we won't be using in the near-term. In the short term while we are waiting for our early ASIC orders to arrive we intend to supplement our supply by offering a build service to others in exchange for ASICs. We will build a rig in exchange for 2-4 ASIC chips. As part of this arrangement CipherMine will cover the supplier's costs in building the rigs in exchange for ownership of the traded chips.

At present we intend to split our reinvestment fund (50% of net profits plus depreciation) as 85% ASICs and 15% GPU post-IPO. We will adapt this ratio based on our model which allows us to forecast a number of scenarios. For instance, if ฿TC/script difficulty rises more slowly and ฿TC/SHA256 more swiftly then combined with the good resale value GPUs might become more attractive. Equally, if (as we expect) faster, more efficient SHA256 ASICs become available we would likely focus on them (we also intend to put R&D efforts into such).

### **5.1.8 Software and mining pools**

We already have a suite of software tools - scripts written in bash and Python - which allow us to automate the business operations. This will be increasingly important as we grow and acquire large numbers of mining rigs. The software is proprietary, ie. we do not intend to open source it. At present it performs the following functions:

- Automated setup of new mining rigs (which are all Xubuntu, headless builds)
- Automated remote management of mining rigs (changing between cryptocurrencies, restarts, etc)
- Automatic scraping of a number of data sources for programmatic auto-selection of best cryptocurrency to mine.
- API integration with BTC-E.com, Cryptsy and VirCurEx (latter still in testing) for automated selling of alt coins.

At present we choose which coin to mine based on a number of factors, including current profitability (difficulty vs. market price including stales ratio), exchange stability (if highly unstable we down-score), and historical profitability (mainly a function of price volatility, which again we down-score). We avoid coins which require a significant amount of mining time to yield one unit such as BitBar (BTB). We also avoid coins which we deem are currently vulnerable or experiencing 51% attacks. Despite the highly automated nature of our systems there is careful daily monitoring in addition to cater to such scenarios.

Our system currently re-evaluates and switches (if appropriate) every 5 minutes. To date the system has given us a 10-20% yield boost by selectively mining the most profitable coin in any particular 20 minute window. In general mining profitability is affected more by the total network hashrate than the price of a coin, so even though some of the “very” alt coins take 100+ confirms, and thus take a while, this is still a profitable activity. We do not intend to open source the software at present since the only alternative available, CryptoSwitcher, is very poor by comparison so our application (CipherMiner, screen shot to the right or [here](#)) is a competitive advantage.

```

CipherMine auto miner version 0.1 - Started: [2013-06-25 10:51:32]
Options (key): autoSell (s)  autoBuyLtc (b)  coinLock (l)  autoMine (m)
Status: Sleeping for 1188 more seconds  Best coins FTC or BTC

frig1: 1.38 GH/s U: 16.00/m | BTC | | So far this session:
grig1: 2.32 MH/s U: 64.23/m | FTC | | Balance: 0.058 BTC
grig2: 2.88 MH/s U: 61.26/m | FTC | | Balance: 0.000 LTC
grig3: 3.06 GH/s U: 35.26/m | BTC | | Bought: 0.052 BTC
grig4: 1.87 MH/s U: 54.48/m | FTC | | Bought: 0.000 LTC

[2013-06-25 13:40:47] Not buying LTC.
[2013-06-25 13:40:54] Going to sleep for 20 minutes
[2013-06-25 13:58:56] Going to next round
[2013-06-25 13:58:56] Starting round 1
[2013-06-25 13:58:56] Stat: Gathering coins profitability data
[2013-06-25 13:58:57] Analysing for best coins
[2013-06-25 13:58:57] Best coin: ftc (scrypt, 139.1%), alternate btc (97.8%)
[2013-06-25 13:58:58] Auto-mine disabled, leaving miners alone.
[2013-06-25 13:58:59] Selling alt coins to BTC
[2013-06-25 13:59:07] Sold 0.029 BTC-worth of ftc on BTCE
[2013-06-25 13:59:19] Not buying LTC.
[2013-06-25 13:59:23] Going to sleep for 20 minutes
[2013-06-25 13:59:24] Auto-mine enabled
[2013-06-25 13:59:24] Auto-mine disabled
[2013-06-25 13:59:38] Auto-mine enabled
[2013-06-25 14:01:17] Going to next round
[2013-06-25 14:01:17] Starting round 1
[2013-06-25 14:01:17] Stat: Gathering coins profitability data
[2013-06-25 14:01:20] Analysing for best coins
[2013-06-25 14:01:20] Best coin: ftc (scrypt, 139.1%), alternate btc (97.8%)
[2013-06-25 14:01:21] Stat: Reloading miners
[2013-06-25 14:01:22] - grig4 relaunched.
[2013-06-25 14:01:23] - frig1 relaunched.
[2013-06-25 14:01:24] - grig1 relaunched.
[2013-06-25 14:01:25] - grig2 relaunched.
[2013-06-25 14:01:26] - grig3 relaunched.
[2013-06-25 14:01:26] Selling alt coins to BTC
[2013-06-25 14:01:36] Sold 0.001 BTC-worth of arg on Cryptsy
[2013-06-25 14:01:48] Not buying LTC.
[2013-06-25 14:01:50] Going to sleep for 20 minutes

```

We use pooled mining for the most part at present. This makes it much more convenient to automate our estate and quickly integrate new cryptocurrencies as necessary. Generally we opt for reward mechanisms such as Round-Based Pay Per Share (RBPPS), Pay Per Last N Shares (PPLNS) or proportional since this gives us the best combination of low fees with returns as occasional, but loyal, miners. Note that we do not “pool hop” in the sense of joining a pool when a block is found. However, if a pool offers Pay Per Share (PPS) with a low fee then we would select that (but there are few such pools). We endeavour to always have two pools with different providers (ie. not different servers with the same pool) for each coin for resilience, making use of cgminer’s and bfgminer’s built-in auto-failover systems. However, we do consistently use the same pool for each cryptocurrency if they are available.

However, now that we have Jan on board we are building our own set of private pools. This immediately makes sense for most scrypt coins (other than LTC) since blocks are found quickly. We can save the 2-3% fees, operate Pay-Per Share (PPS) and not be subject to the unreliabilities and dodgy practices that we have come across in some pools. Within a few months we should have enough SHA256 and scrypt capacity to dispense with third party pools all together. Testing on the main private pools is approaching completion and we are starting to use them now. This will also make us less vulnerable to DDoS attacks; a common tactic for emergent coins is to DDoS their small number of pools to allow solo miners to gain a larger network share. Since our pools are private and hidden this will no longer affect us.

We have also decided to apply a small amount of our scrypt hashing power to emergency cryptocurrencies which have not yet been listed on an exchange. Typically new coins attract a lot of initial interest and have a spike in price, so in theory we can capitalise on this if we mine many blocks before their exchange launch. CryptogenicBullion (CGB) is an example of a coin we are experimenting with. We shall assess this activity based on yield in coming weeks.

### 5.1.9 Mining models

For the purpose of forecasting and testing our business case we have built a business model in the form of a complex spread sheet. For the purpose of this model we are only using £TC mining as our scrypt coin and \$TC as our SHA256 coin, but as mentioned above we shall diversify into other coins as profitability dictates; our estate is highly automated so it is easy for us to switch between coins. This model attempts to do the following:

1. Model our operational costs
2. Forecast the rate of difficulty increase (ie. reduction in mining productivity) over time based on recent historical data.
3. Based on the above, forecast our mining productivity (ie. \$TC/£TC acquired per day).
4. Model our cash flow.
5. Based on the above, forecast our rate of mining hardware acquisition and subsequent growth.

Wherever possible we have erred on the side of caution and been pessimistic. For example, we do not assume to predict that the value of \$TC or £TC in real world currencies like USD will go up over time (though it is certainly our hope that they shall). For the purposes of the model we have used fixed prices of €60.00/\$TC and €2.00/£TC (based on recent averages)

Mining difficulty of both \$TC and £TC has been increasing dramatically in recent months. We believe that this is in large part the result of \$TC-mining ASICs starting to be deployed in significant numbers combined with £TC recently (for a time

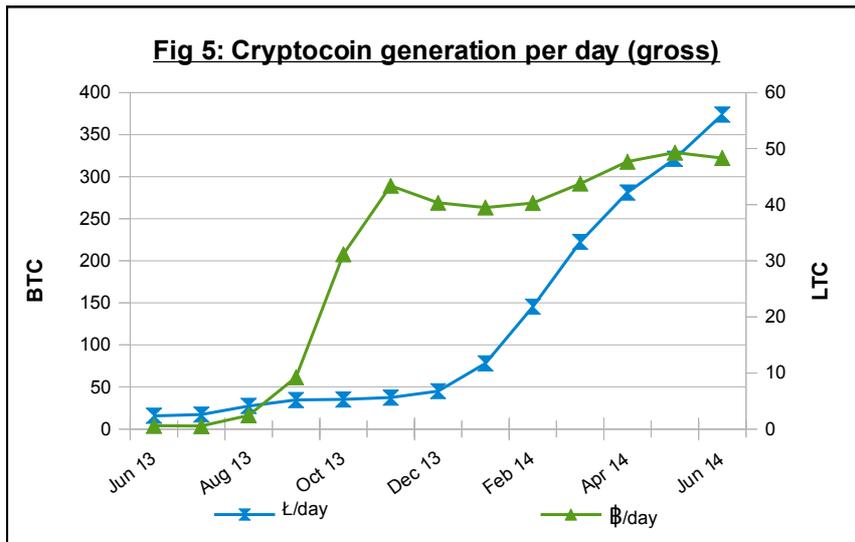
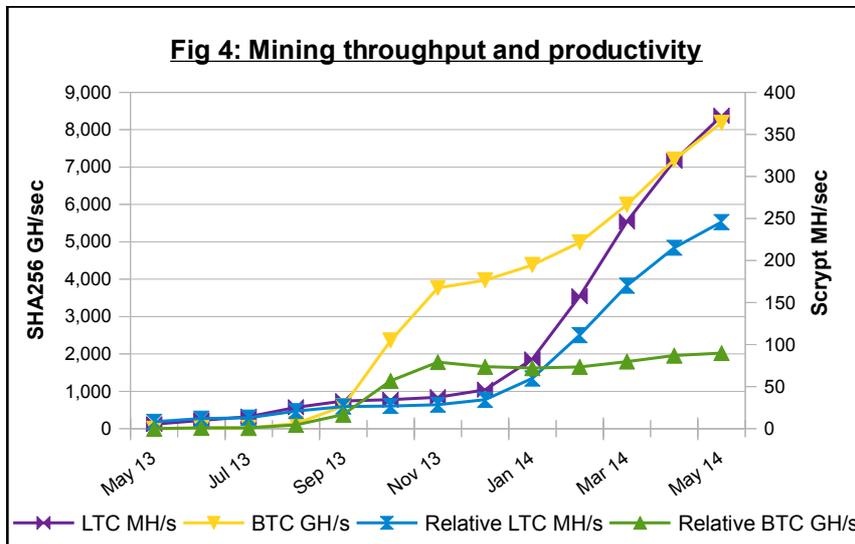
at least) being more profitable to mine with GPUs than BTC. The network hashrate for BTC appears to now be rising in a linear manner. This would fit if one assumes that there are a small number of individuals or organisations deploying ASICs as fast as they can (ie. the limit is a human factor).

However, to err on the side of caution for our BTC difficulty predictions we have assumed that a portion of recent growth is of a compound nature with the other being linear, based on the last two months. That predicts a difficulty of ~100m by July 2014 which we feel is reasonable and hopefully pessimistic.

LTC difficulty is harder to predict at present. If we use the above approach it becomes ineffective to mine LTC within a matter of months (based on recent difficulty). That would be unlikely to happen though since miners would not be wasting the power should the mining return not be profitable.

At difficulties above 1,000 the return on investment on rigs like our quad 7950s would be ~€1,080/year after power. The rigs cost ~€1,500 and we do not believe that at that rate of return miners are likely to be adding significant hashing power to the network once the return on investment for hardware goes beyond 18 months.

The exception to this would be if the value of LTC increased of course (which we expect), but then our LTC mining profits would also increase. It seems reasonable to assume that the profitability will max out at around this level, and that is the assumption in our model (continuing recent growth trends approaching that level, slower thereafter). Once FPGA script mining is available this will of course change the dynamic significantly. We are expecting to be able to deploy our script FPGA rigs towards the end of this year. See figures 4 and 5 below for predicted mining productivity.



Note that the dip in BTC generation in the Autumn/Winter (and the associated dip in revenues shown on figure 1) is as a result of the 5-6 BitFury rigs (400 GH/s each) coming online in October, but then there being a lull in new hardware acquisition due to the "lumpy" nature of BitFury equipment (€7,500 per rig at present) combined with our aggressive forecast of difficulty increases.

### **5.1.10 The data centre advantage**

One of our key differentiators is that we have a real, high-efficiency, high-security data centre to operate our mining rigs from. While in the short term this does add a small additional cost because we are having to pay an additional 10-20% for cooling, for anyone attempting to do mining at an industrial scale this will be necessary. Further, we have a very large amount of space available to us at no cost due to the special relationship with Memset.

For miners operating out of personal residences both space and cooling will rapidly become an issue, as will availability of power supply. With the Memset data centre we are not restricted on either. We have also allowed for some overheads in the maintenance and support of the mining rigs. If CipherMine's mining estate becomes large enough as to have an impact on Memset's business activities and resources Kate's plan is to give a significant proportion of her equity in CipherMine to Memset in order to provide a strong business case for Memset's continuing support.

Memset also has highly resilience network connectivity with multiple 10Gbps backhaul uplinks. Few things harm mining productivity more than network failures and given that many miners are operating out of private residences with the associated unreliable network connectivity (and reliance on one) this is an important factor. The same can be applied to power resilience; Memset's data centre is tier 3, N+1, and is resilient against mains power failures (UPSes and on-site diesel generators).

Security should also be a concern. Mining rigs represent a very significant capital investment. It is likely only a matter of time before some nefarious individuals cotton on to the fact that many miners have highly-thievable (ie. portable but expensive in the case of GPUs) equipment in their homes. Memset has ISO27001 accreditation as well as British government security accreditations.

Finally, Memset is a national leader in environmentalism. They were the first ISP in Britain to gain Carbon Neutral accreditation back in 2006 and continue to innovate in this field. Investors in CipherMine can be assured that the environmental impacts of mining are being mitigated through a) a focus on maximum efficiency and b) carbon offsetting.

### **5.1.11 Operations staffing**

In the near-term we do not expect to need a dedicated operations team, but we have allowed for the maintenance of the mining estate by giving an equity stake to two of Memset's operations staff. Both are competent, experienced systems administrators.

Further, Kate has developed a suite of rudimentary software tools which CipherMine is using to manage their existing infrastructure. The tools are highly scalable, and combined with the use of Memset's monitoring and power management systems we anticipate that the maintenance overhead will be minimal.

Regardless, we have made a small allowance in the cost of each rig for operations staff. Once we achieve significant scale this will be enough to pay for someone full time.

## 5.2 Research and development

### 5.2.1 Improved cryptocurrency mining

In the medium-term (3+ months) we intend to start research and development efforts investigating LTC-hashing specific FPGA hardware, with our sights on developing an ASIC script solution. We will most likely do this in partnership with established custom electronics vendors in the UK. Giles has connections with such a firm.

We also intend to explore research and development opportunities in the field of hardware optimised for BTC mining. At present the prices charged by Avalon for their chips are actually very high (circa \$10 each). If we were to go direct to a manufacturer we could likely secure a much better deal, and downstream we will be purchasing chips in quantities to warrant that.

For these activities we intend to recruit an appropriately-skilled hardware developer. Our hope is that we will be able to employ him or her full time from October this year. Their wages are factored into the plan and deducted from the profits.

### 5.2.2 Diversification R&D

A key part of CipherMine's future is undoubtedly diversification into other markets. The most obvious of these would be real-world commercial application-specific high-performance computing (ASHPC). We intend to accumulate ASHPC Intellectual Property (IP) and in-house expertise along the way as we develop improved cryptocurrency mining equipment. We also intend to explore more general HPC opportunities. We will have a substantial GPU and FPGA estate which is repurposable for many computationally intensive activities such as big data analytics (a field Kate is expert in), sonic seismic oil exploration, protein modelling, etc.

In the near term, once he has finished setting up our shared mining pools, Jan will be building an e-commerce site at industrial-computing.com (a domain we own) from which intend to offer some or all of the following services (the profits from which shall go through CipherMine with the usual rules applied re. dividends):

- Self-managed virtual machines (re-sold Memset Miniserver VMs) in exchange for LTC and BTC.
  - BitVPS, the competition, is very comparatively expensive.
- Rental of our GPU and FPGA rigs for LTC, BTC or cash for commercial use (PayPal)
  - We shall be offering this at more than we would gain by using the kit for mining.
- ASIC mining hardware
  - We are not committed to this, but it has occurred to us that often the real way to make money in a "gold rush" is to be the people selling the shovels rather than the prospectors themselves. Once we have built our first hundred or so ASIC mining rigs we will explore this possibility.
- GPU/FPGA "mini supercomputers"
  - We have recently in-effect been building small supercomputers by integrating GPUs and FPGAs with computers and providing a convenient front-end for their management. As well as renting these out we intend to explore the business case for selling them as complete devices.

We also have expertise in darknets (I2P and Tor hidden services) and another possible avenue for CipherMine's diversification is into darknet services. For example, exchanges are repeatedly targets for distributed denial of service attacks (DDoS). Exchanges remain the one significant weakness of P2P cryptocurrencies since they present a centralised point in the otherwise decentralised system. While peer-to-peer exchanges are being discussed we feel that exchanges do, unfortunately, really need to be centralised. So, we feel that the right solution is a darknet hosted exchange. While not impervious to DDoS it would make them much harder. A standard botnet operating on compromised PCs would not have the facility to launch an attack via the darknet. A geographically hidden exchange could have other advantages too.

Another diversification idea is to build a better cryptocurrency payment service that e-commerce sites can more easily integrate than alternatives; we strongly believe that there is a gap in the market here despite there being some available. Within the team we have significant experience in e-commerce development, and through Kate's connection with Memset a potential source of customers (a significant proportion of Memset ~3,000 customers are e-commerce businesses).

We have a number of other well-developed ideas but we think they might be so good that we don't want to release them into the public domain just yet! Also, we wish to focus on the projects which are most synergistic with our current core business activity of cryptocurrency mining, specifically the HPC services.

At present the model does not make any assumptions about these additional projects, so if they are successful they will add to our bottom line and boost dividends. Since Jan, and soon Richard, like the rest of the team is being compensated through shareholdings there are no costs at this stage.

### **5.3 Hardware end of life**

It is our expectation that after a time all our mining hardware will have become unprofitable to operate in terms of the yield per unit power. At such a time we shall endeavour to recover any remaining value from the hardware. In the case of GPU rigs the process will be to:

- 1) Sell the rigs, whole, to Memset Ltd for use in their GPU compute cloud. For such transactions the value will be determined by a straight-line three year depreciation (33.3%/year), with the hardware being deemed to have zero value after three years. Memset Ltd are not obliged to purchase the hardware, but it will almost certainly be in the interests of both companies (Memset Ltd and CipherMine).
- 2) Should Memset be unwilling to purchase the GPU hardware at that time it will be placed for sale on eBay or similar.

If possible we shall also endeavour to sell the ASIC hardware though given the application-specific nature we do not anticipate that this will be practical.

Unless our hardware is no longer cost-effective to run (ie. it is generating more value than the electricity cost) then we shall not sell it. We do not intend to offer a hardware mining product for sale. Any funds released by the sale of hardware shall under normal operation be re-invested in new, more efficient hardware.

Should such a time arise that it is no longer possible to cost-effectively mine cryptocurrencies then CryptoMine shall either liquidate, selling all hardware (see below), or attempt to diversify into new areas where the hardware estate can be profitably employed. Should we sell hardware as part of a liquidation the proceeds would be distributed to the shareholders less outstanding costs.

## 6 Initial Public Offering (IPO) and shareholder contract

We have listed all CipherMine shares on the LTC global virtual stock exchange game.

**Note:** Both rounds of the IPO have been completed. We raised 15,667 LTC, the entire amount of which has been converted into BTC for either direct investment in ASICs or transfer to Bitstamp.net (our preferred BTC exchange) for conversion into fiat and investment into FPGAs and GPUs.

As a result of wonderful speed with which the IPO was taken up we are now well-ahead of schedule in terms of ASIC purchases. We have already ordered and paid for our fifth next batch of Avalon ASICs, 2,500 in total, with Steamboat, and we expect delivery mid-August. He has publicly confirm our orders (in batches 3-5) on his thread [here](#).

### 6.1 Why LTC Global?

First, LTC had the potential to have a rapid value rise similar to that seen with BTC in the early part of 2013. Second, LTC also has the potential to become a very widely-traded commodity, like BTC. Thirdly, LTC's exchanges such as LTC Global also have the potential to become increasingly "main stream" and, like BTC-TC, the potential to attract ever-increasing numbers of investors. All these scenarios are tightly linked and together I shall refer to them as "LTC mainstreaming".

Should LTC mainstreaming arise then the value of CipherMine's shares would also increase in real terms. The liquidity and demand for our shares would also likely increase. Further, we fully expect (though cannot of course guarantee) that our post-IPO LTC/share value will also be increasing swiftly. These three effects would therefore compound, giving a potentially very large yield on investment.

We believe that by creating a solid company in CipherMine, with known, visible, reputable backers and a clearly articulated plan of action, that we can further improve the likelihood of the desired LTC mainstreaming scenario. Many other events are also in motion which should dramatically increase LTC's value, including the confirmed plan by MtGox to offer LTC on their exchange ([ref](#)) and the much-anticipated release of LCTPP (a LTC payments processing service, [ref](#)).

There is also a dearth of mining companies listed on LTC global at this time, or companies with what we would consider to be particularly solid business plans. We suspect that we would likely attract investment on that exchange purely by being a well-presented, solid business - especially with our comparable competitors on BTC-TC doing so well. The fact that LTC Global itself (ie. the exchanges own stock, ticker LTC-GLOBAL) is currently at ~L200 and a market capitalisation of ~L3,200,000 (approx EUR €6.4m) suggests that there is plenty of cash looking for a good home on that exchange. The speed with which the IPO was taken up also supports this.

This strategy is of course not without risk. There is a very real possibility that the opposite will occur; that LTC will collapse and BTC will dominate, becoming the only cryptocurrency in common usage. Equally, all cryptocurrencies could become worthless. However, the founders believe that there is room for an alternate cryptocurrency and that LTC is that alternate. We believe that its difference to BTC (the fact that it is designed to be less GPU-intensive to compute) is its strength. We have also planned for these scenarios (see "Failure scenarios").

Thus far the signs are promising. At time of writing (early July), BTC's value has been falling sharply. But, for the first time in its history, LTC's fiat value is moving independently of BTC (historically alt coins have tracked BTC's value, proportionally, to a large extent), even gaining a little despite the recent BTC drop.

### 6.2 Post-IPO assets

For pre-IPO assets see versions 1.xx of this business plan. Post-IPO CipherMine's assets consist of:

| Asset                             | Value (approx) | Quantity       | Total          |
|-----------------------------------|----------------|----------------|----------------|
| Quintuple-AMD 7950 mining rigs    | €1,650.00      | 3 + 3 on order | €9,900         |
| SHA256 Avalon ASICs               | €6.50          | 3,250 on order | €21,125        |
| Reserve for K16 ASIC board builds | €75.00         | 200            | €15,000        |
| SHA256 FPGAs (Ztex equivs)        | €73.00         | 108            | €7,900         |
| <b>Total in EUR</b>               |                |                | <b>€53,925</b> |
| <b>Total in LTC @ €2.00 / LTC</b> |                |                | <b>L26,962</b> |

The total value of equipment pre-IPO is shown in the table above. Note that in the above table and all calculations herein we are using the LTC and BTC values at time of purchase of the equipment. Going forwards we are using €2.00 / LTC and €60 / BTC (our models assume that this is static).

We now wish to raise additional capital in order to fund the purchase the latest BitFury 55nm ASIC SHA256 mining hardware (see mining plans, above). To that end we are offering an additional 7,000 shares on LTC Global at a price of 4.00 ŁTC / share. This will allow us to purchase 5-6 400 GH/s BitFury miners, adding 2,000+ GH/s to our estate in October.

All shares (including founders') shall be listed on and managed via LTC Global. No share certificates or other instruments of proof of ownership shall be issued. Evidence of ownership and related voting rights shall be exclusively provided by the exchange.

### 6.3 Revenue generation capacity and potential equity valuations

Our business model currently predicts first year (1st July '13 - 1st July '14) profits of €828,000, including the aforementioned BitFury equipment which will dominate our cryptocurrency generation after October. A price of ŁTC 4.00 per share, or roughly €8.00 per share, represents a total market capitalisation including unissued shares (those in reserve for team members) of ŁTC 440,000 (~€880,000). Half of that amount will be issued as dividends, so this represents a pay-earnings ratio (P/E ratio) of 2, and based on ASICminer's current P/E ratio of over 3 we feel this is reasonable - especially given our move into vastly superior hardware (BitFury ASICs are 4 times as powerful as Avalons for the same costs in hardware and power).

This valuation is additionally supported by current trades which have executed at that value or higher. We now believe that we significantly undervalued the company at IPO. Further, the new plan to acquire BitFury equipment gives a much greater yield than the old Avalon ASIC focussed plan.

### 6.4 IPO plan and share structure

In order to maximise the accessibility of our shares we have divided the value of CryptoCoin into 100,000 shares. The large number of shares is to exploit the fact that at present the minimum investment in a mining company on BTC-TC is circa \$60; well beyond what many people might want to gamble. We hope to attract the "long tail" of speculators, and Kate intends to use her journalistic and social media connections to encourage such investors.

For this round of additional investment we have created a further 10,000. During the IPO period we shall create a total of 100,000 shares on the exchange divided as follows:

| Who / What   | Shares         | Percentage    |
|--|----------------|---------------|
| Kate   | 64,000         | 58.2%         |
| Giles  | 3,000          | 2.7%          |
| Jan  | 500            | 0.5%          |
| Simon  | 2,000          | 1.8%          |
| Ross   | 2,000          | 1.8%          |
| CipherMine: Team reserve                           | 11,500         | 10.5%         |
| Public: funding reserve - SOLD @ 0.90 ŁTC/share    | 10,000         | 9.1%          |
| Public: IPO - SOLD @ 0.667 ŁTC/share               | 10,000         | 9.1%          |
| BitFury fund round public offering @ 4.0 ŁTC/share | 7,000          | 6.4%          |
| <b>Total</b>                                       | <b>110,000</b> | <b>100.0%</b> |

"CipherMine: Team' reserve" refers to shares which shall remain held in CipherMine's account. Most of these (8,000) are reserved for Giles, to be released to him in stages once he has proved himself (we have not previously done significant business).

Having now had three rounds of funding we believe we should stop and consolidate. We do not therefore intend to make any additional share offerings until the current orders of equipment, including the planned BitFury hardware, has been delivered and is in operation. Further, we will not issue additional shares without a vote from the existing shareholders to approve it (see "Voting" below), and following discontent from some shareholders Kate will waive her right to vote in favour of motions which will result in dilution in future.

The focus in the near-term shall be on buying BitFury ASICs since there is a relatively narrow window of opportunity for SHA256 hardware. However, script mining is increasingly profitable so as per an earlier motion we shall put 15% of the hardware-reinvestment funds towards GPU mining. Once script FPGAs become available (Enterpoint, a British supplier, recently announced they are working on a memory add-on to Spartan chips for this purpose) we intend to switch to 45% SHA256 ASICS / 45% script-FPGAs / 10% GPUs. The GPUs will depend on script difficulty and success with renting them out for HPC, however.

## **6.5 Dividends**

Dividends shall be calculated as the 50% of the mining revenue after costs (hardware depreciation, power, etc). We shall pay dividends at least once per month, though in the early stages we intend to pay dividends weekly. Dividends shall all be paid in LTC via the mechanism provided by the LTC global virtual stock exchange.

The founder(s) will also be being paid via this same mechanism, giving investors surety in their returns. The team is not taking any wages or other remuneration from CipherMine other than the dividends on their shares and the potential share value growth.

Shares held by CipherMine itself (see above; those not yet sold) shall be exempt from receiving dividends until such a time as their ownership passes to another person or business entity. For the purpose of calculating dividends, the dividend payments will be distributed in proportion to the shares currently held by others than CipherMine itself.

## **6.6 Voting**

All shares listed on LTC Global shall have one vote and we shall use the mechanisms it provides to poll our shareholders. Any shares listed on BTC Trading Co via a pass-thru shall also get one vote per share. Motions may be called by and shareholder or group of shareholders with more than 25% of the total share capital (>25,000 shares). A motion shall be considered approved on a majority of more than 50% of the shares (50,000 shares).

In the near-term this does mean that Kate has absolute control of CipherMine. However, this is in the investors' interests since she will be less likely to sell much of her 64% stake for fear of losing that control. Further, this should assure investors that she is unlikely to pass a motion resulting in significant dilution for the same reason. In practice Kate will heed the wishes of her investors unless there is good reason not to. If a motion achieves a narrow majority (less than 60%) the matter will be discussed with the CipherMine team before action is taken, and further input may be requested from the shareholders.

The exception to the above is that from now until the end of this year (2013), Kate will refrain from voting "yes" to any motion which would result in dilution of existing share capital. This comes in response to a negative reception to her using her vote in favour of the latest funding round. She believes this was in the shareholders best interest, but regardless it clearly demonstrated a rather undemocratic process. Should we believe that further funding through share issue and dilution is appropriate then we will make the case in a motion, but if not upheld by the shareholders other than Kate it will not be carried. However, should a motion be raised which will have the effect of dilution by 25% or more of the shareholders Kate may vote "no" if she wishes (just not "yes").

## **6.7 Changes to the business plan or shareholder contract**

Minor changes may be made to the business plan without consultation of shareholders. This includes but is not limited to: adjusting the ratio of ASIC vs. FPGA vs. GPU investment in order to maximise and/or sustain profitability. However, if making significant changes to that ratio the shareholders will be consulted.

Substantive changes to the business plan, such as major diversifications away from core activities, or substantive changes to the shareholder contract, such as a new share issue resulting in existing shareholder dilution or amendments to how dividends are paid, shall be decided based on a vote.

## **7 Failure scenarios and our mitigation plans**

Any prospective investor must be aware that CipherMine is an extremely high-risk investment. It is entirely possible that you will lose your entire investment, though obviously that is something we will strive to avoid. There are some scenarios for which we can plan, addressed below. However, *do not invest more than you can afford to lose*.

### **7.1 LTC collapse**

Should LTC collapse then we will do the following:

1. If GPU mining is no longer cost effective we shall end of life our GPU mining rigs (sell them)
2. Work with LTC global to migrate CipherMine's shares across to its sister exchange, BTC Trading Co.
  1. In this scenario it is our hope that all shareholdings can be reconstituted; we keep backups of the shareholder reports we get from LTC Global which will assist with this.

### **7.2 BTC collapse (or general cryptocurrency failure)**

If BTC alone collapses then in the short term we would move our focus to LTC mining. However, such an event would almost certainly trigger a collapse across all cryptocurrencies. If that disaster scenario came about then, depending on how far developed our R&D plans are, we would do one of two things:

1. If still at an early stage we would wind up CipherMine, sell all assets and distribute the remaining capital to shareholders in proportion to their shares.
2. If we have already started down the R&D path and there is a good business case for diversifying into one of our chosen fields (see "Research and development" section) then we would do so.

We shall involve the shareholders in such a decision.

### **7.3 Mining becoming unprofitable**

A disaster scenario like the above notwithstanding, it is likely that at some point cryptocurrencies will become unprofitable to mine. There are, after all, a limited number of BTC and LTC, and there is also likely to be a limit to the size of the cryptocurrency economies in the near-term (this latter point being the more pertinent).

We expect that we will have plenty of warning of this scenario, and thus time to react. Further, we already have a diversification plan away from cryptocurrency mining (see "Research and development" section).

### **7.4 A principal's untimely demise**

If something were to happen to Giles it will be relatively straight forwards to find a alternative builder.

If something were to happen to Kate her shareholding, which is within Wood Technology LLP, would pass with Wood Technology to its other partner, Nick Craig-Wood. Nick is Kate's brother and business partner in Memset Ltd. Kate has full documentation on CipherMine in her personal files and as part of Memset's plans she already has a mechanism in place so that Nick can access her encrypted filestores in the event of her death and carry on any important activities.