TFTC 453

**Marty:** [00:00:00] All right, take two. We had to do two takes. Drew, did your, did you get caught in that New York flood the other

**Drew:** week? Uh, fortunately I did not. Uh, though the New York, uh, city infrastructure seems to be crumbling around our feet, it's yet to negatively impact me in any way, but I was looking forward to a swim, so I was, I was hoping that I would have got some of the, uh, the flash flooding my way.

**Marty:** It's pretty disgusting. What's going on? It's pretty disgusting. Is it climate change or was it the fact that the, the drains have not been? Properly maintained for years You know, it's a miracle New York City

**Drew:** still functions at all so I would guess the would guess the latter also, I mean the Many folk on Twitter love to dunk on New York City as being the most Fucked up place in the world and in many ways it is Um, New York, I do wonder if it is just so Lindy and if the staying power of New York is so [00:01:00] strong that it may even survive the, uh, uh, the fall of the West in one way or another.

**Marty:** Is the West, the West is falling?

**Drew:** This is, I think, the, one of the great questions of our time. Can we save it? But if the West does fall, something tells me New York will, uh, will reemerge again.

**AJ:** There's a long line of American cities that are in much worse shape than New York City. New York City at least has, you know, many redeeming qualities.

I think that's more than you can say for, uh, a great many blue cities in the United States.

**Marty:** I was actually at, uh, an event two weeks ago, Chatham House Rules, I'm not allowed to talk too much about specifics, but one of the topics was around the scene in New York and apparently there is a bubbling, uh, conservative scene.

It's really trying to bring back good aesthetics and good conversations in the middle of New York City, which I don't want to denigrate, [00:02:00] denigrate. Logan's been, uh, been, uh, making fun of my denigrate pronunciation for sometimes. In Philadelphia we say denigrate, but don't want to denigrate New York too much.

Now I'm thinking too much. But yeah, apparently there's a bubbling scene. There's a lot of bitcoiners in the middle of it. Apparently, uh, around Alphabet City.

**Drew:** There's, uh, You know, I think what, It's funny because a couple years ago I moved out of New York because I was just really tired of the, uh, the culture.

Um, it was a very frustrating kind of monoculture where people were just kind of regurgitating like New Yorker, New York Times talking lines. I think there is actually, uh, I think maybe it's always been there, but it's certainly gained, uh, some momentum recently. Um, there are some more subversive scenes in New York, and I think there is now a really interesting, uh, uh, discourse happening there.

I think, yeah, Dimes Square is like a weird manifestation of, uh, one [00:03:00] of these, uh, these physical areas that is basically within a city that's associated with a whole kind of intellectual movement right now, which I think is really fascinating. So, yeah, I mean, I think, you know, I do wonder if, uh, in called like the last two years, New York has now made become one of the more interesting intellectual places to live, you know, obviously it's not the Bitcoin capital world like, um, Austin or, you know, Nashville's branding itself now a sovereign Valley.

I'm hearing rumors that SF is so back, but I think New York always just has this mix of like, You know, uh, culture, finance, and especially now with like some of the more, um, call it like new wave dissident online right, like Red Scare adjacent, uh, sort of pockets of discourse. Uh, you know, I think New York is now a very interesting place to live once more.

At the very least,

**Marty:** that's all we could hope for. Just better discourse. Better discourse. Ideas competing.

**AJ:** From my, um, very remote [00:04:00] perch in, you know, at this undisclosed location in the Mountain West. It certainly seems like the cool kids, uh, in New York and other cities are sort of gravitating towards this, uh, you know, like online, uh, very online, right wing vitalism, if you could call it that, so.

**Drew:** Which is interesting because New York is sort of, in many ways, uh, it's very difficult to live a truly vital lifestyle in New York when you're basically, uh, slammed into these concrete boxes, uh, incredible density, not that much sunlight, um, you know, you're pretty far from, like, the land, uh, certainly far from, uh, swimmable beaches and swimmable oceans.

But um, yeah, it's I think just New York because it's such like a natural shelling point You're gonna attract the diversity of folks regardless and it's nice that you know Some pockets that aren't just like web 3 bullshit are getting some more some more traction in New York right now But of course, I like I think also [00:05:00] one of the other interesting things is some of the discourse now, this is pretty I'd say pretty new, saying that basically SF is actually coming back as well.

So it'll be, it'll be interesting to see how, uh, how, how these next few years plays out. Cause like the, the, the staying power of a place with really strong network effects is just a hard thing to overcome and a hard thing to really, really die. Um, I mean, what's it like in Austin right now? Is it still, uh, as called the post COVID.

Uh, wave of like SF tech bros, is that sort of subsiding or is it still in full force? Traffic

**Marty:** would say that it's still in full force. I'm just gonna use the traffic heuristic. If you try to get in the office by 9am, it's a pretty, pretty hectic commute. But no, the scene down here, obviously we have the comedy scene blowing up right down the street here.

From the commons with Rogan's mothership. So yeah, a bit of the arts and culture, historically. Music's been the center here and still a prominent theme in the city But [00:06:00] you have these other types of artists comedians particularly coming in and then that keeps the tech bros entertained You know, they have things to do with their their girlfriends and their wives on the weekend So yeah, I think it's still still bubbling.

The the Bitcoin energy is certainly very strong in this city.

**Drew:** No for sure. That's great

**Marty:** Yeah, are we doomers? How are we feeling right now in the the spectrum of optimism to doomer ism?

**AJ:** Uh, I guess it depends on what exactly you mean by doomerism. Like, uh, mandibles

**Marty:** is

**AJ:** all of Rome. Probably. Yes. Uh, are we all going to make it?

Probably. Yes. Uh, certainly Bitcoin gives me a tremendous amount of, of hope, at least, um, for, for people like us who appreciate its value and are working towards, uh, bringing

**Drew:** it to more people. Yeah. You know, I found myself, uh, As many [00:07:00] Bitcoiners do, you know, when you're talking to your normie friends and to your family, you naturally kind of point out some of the things that you think are deeply wrong in the world, and it's easy to just kind of fall back on the system is broken, which I think it is.

Um, and you know, many, many folks don't really want to think that way. But if I were to just describe to you a, uh, let's just at least talk about like, you know, maybe government is a microcosm. Uh, if you were to, if I were to describe a government. Where, uh, laws that are many thousands of pages, uh, are passed after being introduced less than a day before, uh, and the people who voted on these laws have not read them, uh, and it's unclear who's written them, this would sound like, uh, to me at least, a broken system, um, so I think in many, in many respects like that, you know, I, I do think there's some major, some major headwinds and as, as AJ mentioned, you know, if, if you told me that we're witnessing the decline of, uh, Of the United States Empire, I probably would agree with that.

But yeah, there are many causes of, many causes of hope. I would say I'm, [00:08:00] I'm typically, uh, quite optimistic, almost, uh, permeable by heart. Uh, you know, I, and I like this term, uh, I've seen on, on parts of Twitter, Foundationalism, or Foundationalist. You know, where there, there are, uh, there's a great opportunity here to kind of restate some, um, really important institutions and some important spaces with really important values that, that can't be forgotten.

Um, and so I think, I think there's, there's much exciting stuff happening, even though, uh, you know, so much of this, this current system remains broken. And, you know, it really is not just the money. Sure. Much of it may be downstream of money. Obviously money is tremendously important, um, but there's also like a deep cultural issue as well that, you know, whether or not that's downstream of money, I don't know.

I think that's, it's a harder case to make that all that's wrong with the culture or all that's wrong with the government is downstream of the money. But, I mean, I think we both certainly still believe that, uh, sound money and, you know, abundant energy as the cathedral motto [00:09:00] goes. Uh, are both keys to human flourishing.

Without that, you can't have human flourishing. But there might be much wrong beyond that.

**Marty:** Agreed. I think fixing the money, bringing the foundation of society. Our, our economy, more broadly. By fixing the money. And then, yes, the things that are downstream or may not be downstream. Uh, you can, once you fix the money, you can begin focusing on them.

More intently. With more intent. It's funny, I open up with this type of conversation because I agree with what you said, AJ, Bitcoin does provide me a lot of optimism. I do think it's a very potent tool in this cultural generational battle that we're having as we transition further into the digital age.

28, 000. [00:10:00] You guys are running Cathedra, a Bitcoin mining company. We're almost 15 years into Bitcoin's existence. The whitepaper anniversary is three and a half weeks away. Holy crap,

**AJ:** 15 years? That happened quick, I feel like last year was

**Marty:** 10. Yeah, 15, a decade and a half. A decade and a half and three and a half weeks since the whitepaper was launched.

And I think we all agree that Bitcoin is this very important tool. But only 15 years in, even though it seems like a long time in the grand scheme of things, it's very short amount of time. We're learning a lot of, uh, lessons. There's a lot of trial and error that has happened over these 15 years within the Bitcoin space, whether it be, how do you update the protocol?

How do you scale the protocol? How do you build a, a mining operation efficiently? How do you pitch Bitcoin to people? And so we're going to focus on the mining aspect of it in this [00:11:00] conversation. I think a lot of lessons have been learned in the mining industry over the last two years. The last time we talked was had to be 2022 early.

We were still outside at my house drinking some Coors lights, drinking some Coors lights. Um, so what have we learned since then? About a year and a half ago, since we last talked near coming off. The all time highs, uh, at the end of 2021, what lessons has the mining industry learned since the top of the last bull market?

**Drew:** Yeah, you know, it's, it's a great question. And I think, you know, as we, as we think about what it was like to sit on your couch and to talk through, um, the way we looked at the world at the time, though, I mean, the world was just such a different place. Um, we're in the middle of a, of a global energy crisis.

Um, we're just about to start the most aggressive period of interest rate hikes, uh, in many [00:12:00] decades. And, you know, I, I think, uh, as we've many of the themes that have been going on since before then have certainly seemed to continue, but I think, you know, being on now, like the other side of say, like a regional banking crisis.

Um, and you know, these crazy, basically, uh, government sanctions that freeze another government's, uh, financial assets to the tune of hundreds of billions of dollars. I think we basically just seen the, the importance in the use case of Bitcoin only increase. But um, yeah, it's, I mean, uh, it feels like another lifetime ago when we were sitting in Marty's couch.

It really does.

**AJ:** So that was, that would have been pre. Uh, Russia, Ukraine war as well, probably

**Marty:** had to be right before it happened.

**AJ:** Yeah. Um, yeah, I mean the world, the world very much to your point, Drew looks and feels like a very different place. What does the mining industry learn specifically? Um, I would say one of the most obvious takeaways is a highly [00:13:00] volatile balance sheet assets and debt do not mix well.

Um, there have obviously been a number of very high profile bankruptcies in. In the Bitcoin mining space, but also in the broader crypto ecosystem, if you want to call it that. Um, I think, uh, people are much more focused today on making their operations more efficient and, um, preparing for the halving, which I'm sure we'll talk about.

It's coming up in... Probably less than six months at this point, but then they are, or then, then they were concerned with things like growth and, um, getting their hash rate numbers as big as possible when we last met. And I think that holds true for us to some extent as well. Like the way we were approaching the business in Q1, 2022, when it was still not clear that we were entering a different market regime characterized by aggressive interest rate hikes.

And, uh, you know, a sell off in basically all risk assets. We were thinking about things very [00:14:00] differently than, than we started to call it summer of 2022 when we went a little bit risk off and started to focus more on plugging in machines, even if they weren't, uh, if, even if it wasn't in the most ideal situation, just to get revenue online, shoring up our balance sheet and focusing more on efficiency and making sure our operations were dialed in.

Would

**Drew:** you agree with that? Yeah, totally. I mean, like again, rewinding, going back in time, sitting on your couch, Marty, um, you know, AJ and I had joined. Uh, Cathedral, then Fortress, now Cathedral. Uh, and it was Cathedral at that time. We joined in end of September 2021. Um, you know, at that time, you were still in the middle of these, uh, large mining SPACs, many of whom had zero deployed hashrate.

Uh, you were seeing everyone go public, everyone raising a ton of money. Uh, and the reality is that mining is a scale game. And so we were definitely thinking, you know, we're definitely focused on that. And. We were, at the time, very focused on the off [00:15:00] grid opportunity, um, and we were going, uh, we were manufacturing our boxes, looking to go take advantage of flared and stranded gas wherever possible just because there's so much white space, and there still is so much white space there for Bitcoin mining, um, but, you know, as, uh, as executives and, uh, running a company, really your job is to surf the waves as they come in, and the reality is that, uh, by the time, say, we were ready to do our first off grid deployments, um, In, uh, in early 2022, actually not that far after we talked, the global energy crisis had really changed the, uh, the landscape for off grid Bitcoin mining.

Uh, you went from being in a, an environment where you could buy gas for maybe half a penny per kilowatt hour, uh, and lease a gen, uh, lease generators for three, three and a half cents per kilowatt hour, to an environment where, you know, oil is ripping, natural gas is ripping, you know, to the, to the, to such an extreme that some countries like Pakistan had to exit the LNG market altogether because, [00:16:00] uh, gas was just so expensive because of the European energy crisis, it became a global energy crisis.

And so that caught three, three cents for leasing a generator and half a cent for, uh, buying, uh, say flared gas ballooned out to one to two cents for maybe buying the gas and then seven, eight cents for leasing a generator. So at that point you're paying more than retail hosting rates. Um, uh, and you're still responsible for all the CapEx and all the operational issues.

So to AJ's point, at that point, the, the only logical move was to then just go get these, uh, machines deployed elsewhere using third party infrastructure that was, uh, you know, we're able to get some, some good deals on, uh, and you know, we of course still had an eye towards. Um, working, um, you know, to, to get off grid, uh, which we are now, the reality is that as a, as a, a CEO and, you know, president of a Bitcoin mining company, you're a portfolio manager of Hashrate, uh, or you're managing a portfolio of Hashrate [00:17:00] rather.

And so, um, really your job is to just produce the best returns possible, given the current environment that you're in. Uh, and I mean, I guess we, we, I can keep going through some of the other things that sort of changed since then, because I think the, the genesis of sort of how we got to where we currently are certainly, uh, uh, you know, I think there's been many interesting lessons learned over the last, uh, over those last few years.

**Marty:** Agreed. And before we jump into the individual strategy that you guys have. Employed at Cathedral. I do think it's important to talk and touch on some broader themes too, because I mean, you, what you just described is global energy crisis that sort of popped up in the wake of the Russia, Ukraine war, uh, and the interest rate regime that, that came alongside that.

Um, I think it's also important to like back up six to eight months as well. Cause here in America, particularly we have this, the China ban [00:18:00] in the summer of 2021 and then that great migration. And so like the, the price was ripping. Everybody here in the United States saw this massive opportunity to take a large share of the hash rate and plug it in on us soil.

And so like the bullish tenor of the market, that particular point in time was palpable. The energy was pun intended very high and it's just the whole industry sort of ran into this buzzsaw of macroeconomic headwinds at the same time when it was viewed as this incredible opportunity, which certainly was in their people took great advantage of that opportunity.

But there was just these conflicting sort of themes going on where there's this opportunity to take ashtray from China and then you run into the global macro buzzsaw at the same time.

**Drew:** Yeah, totally. And to your exact point around that China ban. So you have the China ban happen in summer of 2021. Uh, bull market's still [00:19:00] very much going.

Obviously we did down to 30k. Um, but it was still very much bull market vibes. Um, and so around that summer and into that fall, when you have everyone in the U. S. chasing that, that opportunity, um, many of them built very, very large data centers. Takes a long time to build a large data center. Many of those data centers were only coming online.

In Q2, Q3 of 2022, uh, and as a result, you basically have these massive, uh, these massive data centers being built by companies often with leverage, uh, that took a long time to, they started being built in the bull market. They aren't really, uh, finished until the bull markets coming to an end. We're entering a bear market and.

Because of the energy crisis at that time, it was so expensive to put on a hedge, uh, for your power prices that many of these like large companies, many of whom are now bankrupt. Basically had data centers coming online in Q2, Q3 2022 as the bull markets coming to an end as energy prices are [00:20:00] still quite high.

So they don't have the capital markets are closed. They can't, they don't really have the money to, uh, to put on the hedge. Uh, and as a result, they basically ended up upside down selling fixed and buying floating. Uh, and I think that's why we saw many of these. Uh, bankruptcies, uh, like Compute North and Core Scientific, of course, the fact that they were, uh, had a lot of leverage just didn't help either.

Um, but I think, yeah, it was basically the perfect storm for that kind of buzzsaw. And of course, I mean, then there's the whole BlockFi and, uh, and Luna, uh, 3AC, Celsius collapse as well. Uh, I mean, definitely, it was sort of the perfect confluence of events to just cause max pain for, for many

**Marty:** people. Yeah, it's a miracle any of us are alive after all when you when you sort of articulate everything in order like China ban All right, we're gonna get all this hash rate price ripping new way six being deployed By the manufacturers high [00:21:00] efficiency.

Yeah high hash rate. Everybody's like let's go and then boom you run into this buzzsaw and I think that's why I'm particularly excited about this conversation today is because I think you guys, uh, are an incredible example of a management team, uh, disclosure. I'm a director at Cathedral. So, um, obviously some bias here, but I, I do think the way in which you guys reacted to these headwinds as they were unfolding in 2022 is a great.

Example of being proactive and sort of not hitching your wagon to two ideas, uh, during a different market environment in late 2021. So I guess let's fast forward to late spring, early summer, 2022. What were some of the moves that you guys made seeing all this stuff unfolding that have allowed you to survive to today, late 2023.[00:22:00]

**AJ:** Yeah. So it was around the time of the. The Luna collapse that it became pretty clear to us that, you know, our thesis about, uh, a hash price super cycle or like a bull market that was going to continue through 2022, uh, was plainly wrong. And so call it May, June of 2022, we took a number of steps to make sure that basically we were on sides from an operation standpoint, but also from a balance sheet perspective.

So one of the first things we did was. Uh, we went out and sold all of the Bitcoin that we had on Balance Sheet at a price of around 30k, which for, you know, two Bitcoin maximalists like us was extremely painful. I think Drew probably still has, uh, PTSD from that, that weekend conversation that we had.

Yeah, no.

**Drew:** Basically, I'm, uh, I'm up in New Hampshire. At the time, I'm basically, like, subletting some random room over this, uh, you know, in some, like, woman's house, uh, because I, you know, I'd moved up there to oversee the manufacturing operation. And I remember, uh, [00:23:00] sitting outside, uh, looking at the, the Androscoggin River up there, and, uh, just, you know, talking to AJ, at the time I felt a lot of resistance, uh, because I, you know, I never really sold Bitcoin in my life, uh, and then, uh, just, you know, sitting there smoking a cigarette and just like, fuck, okay, I guess we're I guess we do have to do this.

And I mean, looking back, I think that that decision, uh, was really important one for, uh, for making sure we withstood the storm because yeah, I mean, it only got worse from there. Yeah.

**AJ:** And we use the proceeds from that to basically pay off a bunch of debt that we had taken out, you know, in hindsight at the very top of the market.

Um, and then in conjunction with that, we went out and did a small equity round. We raised about 6 million. Um, to, to further fortify the balance sheet, we sold some of the latest generation machines that we had coming in in the next few months. I think it ended up being like 400 of the S19XPs that we had coming in, we sold for cash.

Uh, that ended up being a really good trade. I think we sold them in the, you know, above 40 bucks a terahash, [00:24:00] which at the time, again, was very painful because we, you know, it felt like the machine prices had already declined a lot. And in hindsight, it ended up being a very good trade. Um, so that gave us kind of a, the, gave us what we needed from a balance sheet perspective to last through the worst of it.

And then from an operation standpoint, we basically just started plugging in machines, um, on grid at third party hosted locations and facilities that we had leased instead of pursuing the initial plan that we had to basically go down this, this path of building a vertically integrated off grid mine and where we own everything from, you know, these modular containers that we build ourselves in house to the ASICs inside them, and then potentially even down to the energy asset.

**Drew:** Yeah, and just to touch I think you bring up like there's a couple interesting Marty's your first question about some of the lessons That you know, I think we've all learned in the through the spare market and I think everyone learned these lessons in particular one to the point around selling the machines We all learned just that the ASIC market is really not that [00:25:00] liquid and you know back back when AJ and I were at Galaxy We uh, you know, I spent a lot of time working on the ASIC back lending product that we had Where we basically provided ASICs to miners and we'd finance them over time And the idea was always, you know, worst case scenario the miner doesn't pay and then we foreclose on the ASICs And then we just sell the ASICs Um, but I think as we learned, um, the, the market really was not that liquid in the end.

And so as, as these miners who had these ASIC backed loans, we're watching their margins get crushed. Uh, the value of the collateral and the loans was also getting crushed. And so many, many in ASIC was seized, but you know, as a microcosm of this, the XPs, uh, at the time when we, when we sold them, I think we sold them for like 49 a terash or something like that.

Um, and the current prevailing market. Indexes and if you went on telegram chats and we're looking at quotes, uh, the quotes were all in, you know, 60s dollars per tera hash, something like that. And so you're seeing this one, uh, price on the, on the ticker, uh, but when you actually need to go close the [00:26:00] transaction, you were seeing a very, very different price.

And so I think there's a, there, there's a, a really general lesson there for just. Selling assets during times of stress anyway, and even just the fact that markets are often not as liquid as you think that they are. Yeah, the

**AJ:** ask in a telegram channel is a much different price than where the deal gets done, basically.

**Drew:** Yeah, exactly. And then also I think in terms of, uh, in terms of selling the Bitcoin, you know, as Bitcoin maxis, we all believe that this is going to, you know, a million dollars and, you know, at some point in the near future, right? However, whether that's like five years or twenty, I'm not really sure, but we're all really, really bullish long term.

Um, but the, but the reality is that, you know, uh, now coming out of this experience, I think our risk management attitudes have totally changed where we are, we are that bullish. Um, you know, you, you can, you can't let yourself get in a position where you need to, uh, where you're jeopardizing the business surviving.

Uh, you know, basically if the business [00:27:00] dies before we see a million dollar Bitcoin, then we've lost anyway. So the number one name of the game basically as executives, as fiduciaries is just to make sure that the company stays alive and to look out for shareholders, even if it sort of pains us to, to sell what at the time wasn't really, what certainly wasn't the bottom.

Um, but it was certainly still painful to sell after seeing, you know, a 50 percent drawdown.

**Marty:** I mean, there was almost another 50 percent drawdown. It was definitely 40 to 35 to 40 percent after that. So yeah. And we're still below that point right now.

**Drew:** One

**AJ:** of the other lessons I think is just. It was a stark lesson about the nature of the Bitcoin mining business and like what business it is that we're in.

Um, it's not really like, you know, most of the time, hash price and, and therefore your profitability is declining. And it's only these very, very brief periods that last for 9 to 18 months where hash price is actually going up and you earn, you know, 90 [00:28:00] percent of the returns that make this a worthwhile business.

And if you're not staying in the game to benefit from those very brief periods, Then you're in, you're in the wrong business. So, um, yes, as Drew said, surviving at any cost is really the name of the game. And at this point it looks like we're hopefully in the early stages of the next bull market. We're, we're just excited to, uh, to be around to benefit from it.

Yeah, totally.

**Drew:** And then I think part of the, uh, it definitely was easier to, uh, I think looking back on all those decisions, I think we absolutely made the right choices and I feel very good about those decisions we made. Certainly also it was interesting to, or it felt good to, uh, see many of the other miners end up having to sell, uh, substantially all their Bitcoin as well at much lower prices.

Um, but you know, I think AJ, like to your point, you, you basically just need to stay in the game. You need to stay alive. And to that end, when it came to deploying our machines at third party data centers, um, you know, is it, is it as sexy as like flare gas mining? No, [00:29:00] it, uh, from like a capital machine allocation standpoint, it was absolutely the decision that maximized ASICs.

Um, and that, that really is like your job at the end of the day. It's just how can I get as many stats in the door as possible? Uh, how, how can we maximize returns?

**Marty:** Yeah, and another part of that too, which I think you guys have really spearheaded, been vocal about, and is being recognized by the market, is being efficient with that fleet as well.

So, trying to gauge. What your cost of electricity is, where the difficulty is, where the hash rate is, where the hash price is, and really optimizing the fleet to ensure that you're getting the best profit margin possible, maybe not the highest hash rate. And I think this is a really important theme to really dig into is historically, particularly with us publicly traded miners, the name of the game is just.

Get that hash rate number up as high as [00:30:00] possible and you'll be rewarded by the public markets for doing that. But I think what you guys have proven and what you would argue is that is not the most efficient way to run a mining business or the most profitable way at the end of the day. And so let's, let's get an underclocking and maintaining the efficiency of your fleet of hashrate.

**Drew:** Yeah. So I guess maybe you're picking up a story where where Jay kind of, uh, where we left off. So, you know, over the summer, we're just trying to get machines plugged in. Um, fortunately, because, uh, there was some idle infrastructure with some other folks falling down, we were able to get some pretty good, uh, hosting deals there.

Um, then, of course, in the fall, you know, things kept getting, uh, worse from a hash rate, hash price perspective, from a, um, Bitcoin price perspective. Obviously, we saw FTX collapse in, in epic fashion. Um, and, you know, I think, I think there's, I'm, I'm personally tired of seeing the SBF FTX articles on Twitter.

So, So, I think, uh, we don't need to get too much into that, but, [00:31:00] um, It doesn't have enough Adderall. Michael Lewis would like a word with you, Drew. Yeah. If only we had more effective altruists who were, you know, ripped out on, uh, amphetamines and, uh, you know, engaging in some very interesting lifestyle practices.

Uh, you know, maybe, maybe, uh, there would be hope again. But anyway, the, um, come like the November, December, sort of like real depths of the bear market. Uh, we once again had, uh, had these, you know, we had some machines that needed to be plugged in. Um, as we looked around, really the returns for plugging these machines in anywhere were really not very good.

Uh, and I think this is really where Isaac and Reet, uh, deserve a ton of credit. Um, Isaac RC FOMO and Reet are CTO who they, they, uh, I think they did an excellent job walking, walking through some of the details of this on their podcast they did with you back in February or March, uh, Marty. But they basically were, Isaac had this wacky idea.

Well, what if we just. Jam a bunch of machines into our [00:32:00] legacy Washington site and put 50 percent of the power drawn to them to me That just sounded insane. Like well, I've never heard of anyone doing this. This is just a ridiculous idea but as we walked through it and as as he Tested it and showed that we could get 23 joules per tera hash with an s19j Pro using aftermarket firmware and underclocking It all of a sudden became a no brainer because our cost of that site remained unchanged and we basically just doubled our hash rate at that site And so it was pretty It was, I think that, uh, the, the constraints of the bear market really led to some amazing ingenuity.

And now that underclocking is really a, a core part of our strategy where, you know, each month we'll, uh, look at the different sites that we have, uh, and we'll basically say, is this the most efficient clock given the cost of power and given the hash price? Or should we change this? Should we underclock?

Should we, should we, uh, move the clock back up closer to stock settings? And that has really unlocked a whole new, uh, um, sort of area for us to optimize [00:33:00] operations. Just each month, what can we do to maximize cashflow coming through the door? And then, you know, I think Isaac and Reid have been, have really pushed that idea to the extreme in a way that I haven't really seen many other folks doing in this industry.

Yeah.

**AJ:** Just to give you a sense of the, like the magnitude of the effect that this has on our, sort of our hash rate numbers. So I think if we were running all of our machines at stock today, we'd probably be between. 450 and 500 peta hash per second and like headline hash rate. And I think the, the number that we disclosed this week to the market that we're actually realizing is about 355 peta hash per second.

Um, and then the difference there is again, like that's the difference between us running them at stock and using this firmware to reduce the power draw and reduce the hash rate, but also, you know, maximize the amount of actual net cashflow that we're taking in each month. Um, I think the way most other large, like most of the large publicly traded miners are doing it is, as you said, Marty, optimizing for the hash rate number, being able to announce like, [00:34:00] Oh, we reached, you know, five and a half, six, seven eggs a hash, um, without regard for like, whether they're maximizing the amount of cashflow that they can be taking in each month

**Drew:** through underclocking.

Yeah,

**Marty:** and do you think, uh, I'm trying to think of like how to tactfully approach this question, but let's just jump into it. Like moving forward, like, do you think there's going to be, obviously there's bias involved in this, but I'm pretty convinced that the public markets investors are going to get smarter and begin to.

Appropriately price these businesses and just not fall for the, Hey, we got six and a half, seven X a hash and really dig into the numbers like, all right, what is your actual profit margin with this fleet of hashrate? Like, do you think we're going to see a sea change in how these companies are viewed and, uh, put, put plainly our equity analysts going to get [00:35:00] smarter and understand mining businesses better?

**AJ:** I definitely think so. I think, um. What it will take to see the, the, like tier one and tier two public miners adopt some of these practices is basically one of them just doing it. Like as soon as Riot or Marathon announces that they're using aftermarket firmware to underclock, it's going to be sort of a race from all the others to, to follow suit.

And I think, yeah, you know, the metrics that the, that investors and equity analysts use to, to evaluate these companies will continue to be standardized and, and refined, I think, you know, probably this time last year, if you had mentioned the word or the phrase hash price to an equity analyst, they probably would have had no idea what you're talking about.

And that has sort of become an industry standard in many senses. And I think, uh, not to pat ourselves on the back too much, but in our. Most recent MDNAs that we put out each quarter, we've tried to do a good job of like disclosing some of these, these metrics and, and [00:36:00] how we are performing, um, on that basis.

So for example, each quarter we put out a breakeven hash price number that says, all right, if, if hash price falls to such a level, when will we stop generating positive cashflow, um, at each individual site and things like that. So I think, yeah, the industry has a long way to go, but it's going to continue.

**Drew:** And I think that's probably true, but I'll take sort of the bearish, uh, view that I don't think they're going to be adopting it anytime soon, because I think for a lot of these like large guys, look, they're sticking with the recipe that they've seen work. Um, they're able to unlock potentially some very, very large compensation packages for themselves, uh, in doing so.

And like, you know, they basically, they've grown, uh, you know, Uh, they've raised equity to buy hashrate and they've had, they've communicated growth targets to the market and they want to hit those growth targets. Um, and I think many of [00:37:00] them are probably just going to keep on doing that until they're basically forced not to.

And I mean, underclocking does also really complicate the way you communicate information about your business. Cause metrics like uptime don't really make sense anymore. Uh, hash rate becomes this variable thing as opposed to, uh, something that an equity, uh, research analyst can just plug into a model. So, you know, I definitely, I think it, it makes it maybe a little harder to, for people, unless they really understand mining, to really understand the business and what we're doing.

But, I mean, really what we're, what we're doing this for is, uh, trying to produce the most value for the company as possible and for shareholders as possible. You know, AJ and I are both substantial shareholders ourselves. And so we want the company to succeed. Uh, and you know, we really, we care about actually producing returns and to, you know, to the extent we can versus, um, you know, basically just, uh, chasing growth for the sake of growth.

So we'll, we'll see, but you know, I think. To this end, it's, uh, we've only seen the beginning of firmware and underclocking, I think, in [00:38:00] particular in this industry.

**AJ:** Yeah, that's probably right. I'd say there's probably another full, like, bull market, bear market cycle to go before equity investors really start to punish, uh, some of the companies that have been, number one, um, not very, not very prudent with, uh, with dilution and also with sort of these games they play with the, the metrics they're disclosing just to sort of like, Again, raise capital and line the pockets of the executives.

**Marty:** Yeah. And there's another aspect here too, which is the ability with particular firmware to underclock and eke out these profit margins or increased profit margins, uh, exists, but you also have the educational piece on the side of the power companies when you're, when you're setting up these deals, say, Hey, This is our strategy for mining to optimize our profitability at any given point in time.

We need some flexibility [00:39:00] within our contract to be able to oscillate our energy, our energy pool, excuse me, um, at different points in the market. And so how do you guys see that evolving these conversations between the power providers and the miners that want to employ these type of strategies?

**Drew:** No, it's, it's a really great piece because I mean, really, I already disagree.

I should say everyone cares about flexibility, right? If you're a power company. You might want a 90, uh, PPA with 90 percent uptime. So that way, in the extreme circumstances where, um, you know, maybe the cost of power elsewhere on the grid is really skyrocketing, you want the ability to take advantage of that and to sell that.

We as miners obviously want the flexibility to not be committed to a certain amount of power. And whether you have a fixed PPA or maybe like a rate schedule from a vertically integrated utility, um, it, it, this is all, all very, very different. So it's definitely something we care about a lot where... Uh, in all of our like key hosting contracts, uh, and certainly in the sites that we control, we reserve the ability to adjust the clocks.

So that [00:40:00] way we can maximize the, uh, basically operating margin that we're getting from, um, and I think moving forward, uh, really what, you know, to your point, how, how is mining going to look differently? I think you're going to see a lot more, uh, diversity and biodiversity within Bitcoin mining. So it's not just going to be big box data centers.

Where folks are plugging in, you know, new machines, running them until they're not profitable, then swapping them out for new machines. Um, I think you'll start to see low uptime, low cost of power sites, you know, maybe a site where it's only up 30 percent of the time, but the cost of power is so cheap you can afford to run S9s or M20Ss and still make a really, uh, an interesting return there.

Um, you know, we think about what it will look like when, uh, transaction fees make an even larger portion of minor revenue. You're even going to see folks, um, switching online only to take advantage of these brief moments of really high transaction fees that elevate hash price. And so I think the whole mining industry is going to become much more dynamic, uh, and I [00:41:00] think much in the same way where miners are going to seek really interesting power strategies that potentially have low uptime and, um, low cost of power.

You're also going to see this saturation of aftermarket firmware so that miners can always be optimizing clocks depending on what they're seeing on the grid. You know, if you're mining in Texas and the cost of power goes negative, You want to suck as much power as you possibly can from the spot market.

And so you, you maybe even want to overclock all of your machines to the extent you can. Now it will require having overbuilt infrastructure to give you that flexibility to do so. Um, but the whole game is about to become much more dynamic. I think to date, mining has been a very simple game of get newest machine, get low cost power, plug in.

And it's, it's now about to get much more, uh, complex. It's about to turn into 4D chess if it isn't already.

**AJ:** I think it's also, uh, it'll also lead to the something we talked about in the past morning, but like the increased integration of mining at the actual site of power generation by the companies that are [00:42:00] generating the power themselves.

So it's not going to be, I think it'll be less pure play miners partnering with power providers and more, um, companies that look like a mix of the two that are perhaps using mining, not as their primary revenue source, but as an ancillary source of revenue to support. The sale of electricity or something like that.

And in that, in that situation, mining becomes much less important. The uptime in any given day becomes less important, um, because the two sort of support each other.

**Marty:** Yeah. No. And I think this underclocking aspect of it and this aftermarket firmware is probably like the first domino to fall, which provides.

Mining companies or energy companies with the tools necessary to go after these types of strategies.

**Drew:** Yeah, I would definitely agree with that. And I think, um, you know, of course there's been this question where like, when is one of the first energy companies really going to be like acquiring Bitcoin [00:43:00] mining businesses and stuff like that?

And, you know, clearly we're not there yet. Uh, we've, we've, I think we, Marty, you and I and AJ, maybe you probably would agree. I think we probably would have thought we would have been there by now if you asked us in 2020. Um, but you know, I think it is, it is definitely coming and basically it just, the, the idea of a ASIC as a load bank, it just is going to give, uh, energy companies a lot more flexibility and, but to your point around underclocking, especially this aftermarket firmware.

I think by the time this podcast comes out, we will have, uh, released our own firmware or cathedra, uh, firmware where, uh, and maybe it might just make sense to talk about this a little bit, you know, I think there's many firmware, uh, products out there, many aftermarket firmwares, and you have brains OS plus you have many others, um, and, uh, you I think they, they all have called it different puts and takes, but it's all very like scary business at the end of the day because you're basically jailbreaking your machine.

And you know that if you jailbreak your machine and you break it forever, it's broken and you're not, you're not getting any, [00:44:00] uh, not going to honor

**AJ:** your warranty.

**Drew:** requests. Yeah, exactly. So it's definitely like Wild West out there with firmware and we have done a ton of work on testing different firmware, trying to find the best.

And when I say we, I mean, I especially shout out to Isaac and Reet who have really done an amazing job. They really grok ASICs and thinking through, you know, as they told you on the podcast, thinking through ASICs from first principles, what are the effects of voltage and frequency? How does this change in different temperature environments?

Yeah, absolutely. Yeah. What are the different, um, nuances or ants that can get you if you, um, you know, if you start playing this game, because a change in temperature, if you have assigned an ASIC to a static voltage and frequency, a change in temperature can totally change the efficacy of that clock. And so these are some of the really important considerations to have.

And so what we basically are doing now with our firmware is we're basically sharing the best tools that we found. Uh, [00:45:00] sharing, you know, if you download our firmware, you can join a private telegram group. Where we're going to kind of help you and provide you with some of the clocks that have been most useful to us.

Uh, share some of the most useful strategies and most important lessons that we've learned in doing so. And so our, our hope is that we can really help, um, get more people into this underclocking game. It's a weird scenario where it's actually kind of a win win where if, you know, if multiple miners were to underclock, we're not really hurting each other, we're all just improving our own profit margins.

And, uh, network cache rate even like marginally comes down now, of course, we don't think the whole world's going to use our firmware, but, uh, many people have asked us, you know, how, how did you get these results? How did you get the S19J Pro down to 23 joules of tera hash? And our intent in making this firmware, um, publicly available and sharing with everyone is basically just to, to share this knowledge that we've had.

Um, and to, to basically help more people use these tools that we found incredibly helpful because it's not really zero sum, like mining is a brutally competitive. Uh, business, but in [00:46:00] this context, it's certainly not a zero sum game where if we help other people breathe more life into their machines, it actually benefits all of us.

**AJ:** I think you forgot to mention, Drew, that we'll also be taking a small, a small development fee off of any cash rate that uses our, uh, our framework. Yeah, I mean, it's not purely altruistic.

**Drew:** It's not like purely, yeah, we're not doing this as a charity, uh, but like it, it does actually, it does benefit

**AJ:** folks for sure.

Yeah, no, that's absolutely right. And I think like we're, the intent is to do it very much in the spirit of the way things are done in Bitcoin, where it's, You know, it's not like quite open source, but anyone can download the firmware and join the Telegram group. Um, if you begin using the firmware, that's when we get paid.

And I think it's like 1 percent of the hash rate goes to us. And so from our perspective, it's a really interesting way to potentially expand our hash rate exposure without investing another dollar in machines or infrastructure. So I'm not sure like how material it will be to the bottom line on day one, but I could see it being a pretty appreciable product over the course of.

You know, years [00:47:00] to come, um,

**Marty:** completely agree. And that's, I mean, one thing we've learned in the mining industry, I'll just speak personally, like being in it for five, six years now, almost is trying to reduce the pure ASIC exposure risk and diversify, like how do you accumulate hash rate without buying an ASIC?

And this is a great way to do that in my mind.

**Drew:** Totally. No, I think if you

**AJ:** understand that ASICs are really a shit coin,

**Drew:** I mean that

**AJ:** seriously, that's one thing that we've seen with, like, with this announcement from Bitmain in the last couple weeks that I think has been shocking to many people. Just the, the scale of their manufacturing abilities and like how many machines they can really put onto the market in a very short amount of time.

I think, um, yeah, it's, it's a little bit, it's a little bit shocking to people and people are gonna be much more conscious of, uh, entering into these futures orders when you have no idea how much hash rate is coming online [00:48:00]

**Drew:** and what, yeah.

**Marty:** So let's educate any of the listeners who may be ignorant to what Bitmain has announced.

They've announced their S21 series, uh, both air cooled and hydro cooled. They'll be coming in at what, 16 and a half joules per terahash? They'll be selling them for 14 a terahash,

**Drew:** is that correct? Yeah, so there's some nuance there on whether it's the S21 or the S21 hydro. Uh, and I think, I think the pricing is also subject to, to fluctuate as well, but yeah, they definitely came in with a bargain basement price for what is by far the most efficient miner on the market.

And how much hash rate

**Marty:** are they going to be producing

**Drew:** again? Uh, I, again, I think it depends whether it's the S21 or the S21, um, hydro, but we're, we're talking like, uh, you know, close to 200, call it roughly 200 tear hash. Um, and I mean, I think that what's really crazy about this too, is that if you think about the price that they're coming in at, they're basically undercutting what the current market rate for XPs [00:49:00] is.

So, I, I think, um, if one wanted to put some tinfoil on their, on their head. They might question whether, uh... Marty does not want to do that.

**AJ:** You can just stop

**Drew:** right there. Of course not, sorry. I forgot, uh... Marty Karustik, who's CNN takes. But the, uh, anyway, the, uh... I think they might be trying to bleed dry some of their competitors because, as we know, in addition to mining being a ruthlessly competitive business, so is ASIC manufacturing.

And, you know, I think if they, if they can stick with this really low pricing at 14 a tera hash, I think it's reasonable to assume that they have a lower cost of production than both micro BT and Canon and these other new ASIC manufacturers, just because they're so scaled, they've been doing it for so long, uh, and they probably have the largest amount of capacity, um, with TSMC of any of these manufacturers.

And so it's, things could get really interesting if, if all of these ASIC manufacturers keep putting the pedal to the metal. Um, it will, it will get really interesting in terms of, uh, thinking through what mining will look like in [00:50:00] the next bull run. Potentially ASICs, yeah, ASICs not really being the bottleneck anymore, potentially being

**AJ:** infrastructure.

Yeah, that's another trend we've been thinking a lot about is the shift from the bottleneck being ASICs to power and data center infrastructure for mining. I think when we joined, part of the reason that one of the first things we did when we joined Cathedral was to enter into these futures contracts with Bitmain was, You know, we had come of age in Bitcoin mining where ASICs were sort of the scarce commodity and it was really hard to, to get the latest generation of ASICs from China.

Um, and I think in the last, yeah, certainly the last year, that's sort of flip flopped where now it's much harder to get cheap power, uh, in a, in a cost effective way, um, than it is to, to get the latest generation of ASICs. And I think that will probably continue to be the case. Like, there's all sorts of the, of like, uh, powerful narratives that are aligned.

To bring on more, uh, semiconductor manufacturing capacity, I think. Things like bringing more [00:51:00] manufacturing over to the west from, from the east. Um, you know, the whole, the whole AI craze that's going on right now. And I think conversely, when it comes to power, uh, despite Marty's best efforts, the, the ESG, uh, thing still has some steam left in it.

And there, there does seem to be like narratives that are aligned against bringing on. Really cheap and reliable power. So

**Drew:** yeah, we're gonna kill

**Marty:** the ESG narrative. It's just gonna take a while.

**Drew:** I mean, it's dying. It feels like it's dying for sure. It definitely feels like it's dying. I mean, I think the hierarchy of needs reassert itself quickly, but, uh, I think to your point, AJ, about this infrastructure bottleneck.

I, I had a tweet thread about this last year, but earlier this year I think. But, um, the, if we just think about in a post having world, if Bitcoin were to 10 x in price, Uh, for, for network hash price, I'm sorry, for a hash price to remain flat, uh, at around like this 60 per peta hash level that we're at now, that would mean that the, um, Bitcoin network would need to [00:52:00] consume something like 50 gigawatts, uh, more power, uh, which is really an insane amount of power.

That's, you know, Texas is, uh, it's basically half of Texas, if not a little bit more in terms of power capacity. And it just takes a long time to build that type of energy infrastructure. And even with the white space of, um, safe off grid flare gas mining or methane mining, uh, you know, you really have some, some other bottlenecks that start to appear like the generators, how can I turn that methane into electricity?

Uh, and so really that, that is the, I think really the bull case for, for Bitcoin mining, especially in the call it. It's near to midterm is that, uh, there's just so it's going to take so much for that much hash rate to, or for so much infrastructure to bring that hash rate online, uh, that once again, I think there'll be a really interesting window for miners to really capitalize on, you know, bullish move in Bitcoin price.

And one of the first lessons I think AJ and I learned in Bitcoin mining was back in, uh, [00:53:00] really back in like 2020 almost, you're either hashing or you're not. There's nothing more important than just having hash rate on the ground, staying in the game, so that when that, uh, when that bullish price action comes, you're there to take advantage of it.

'cause it will take network hash rate a while to catch up. It always does.

**Marty:** Yeah. And I, aj I mean, you touched on it, but I think it's a very important theme to explore too, is AI and the energy demand that it brings to the market. And AI hottest check on the block right now. Uh, but more importantly like.

Some of the most respected backers. We got Microsoft, Google, Facebook, OpenAI. These guys have a lot of capital and if we're being honest with ourselves, they'll probably get priority in a lot of these Energy deals. That's another thing. You have this competition for energy, which is already scarce. It's gonna heat up not only between Bitcoin miners, but between miners and AI companies [00:54:00] with their GPUs.

And again, if we're being honest with ourselves, like I wouldn't be surprised if the AI companies get preferential treatment, which in a roundabout way actually makes Bitcoin mining more bullish in that scenario where there's a lot of demand for

**AJ:** people who already have hash rate for sure. Yeah, yeah. And if something tells me despite the best efforts of some of our friends in DC, the collective lobbying power of the AI industry probably dwarfs the good work that.

Um, many of our pro Bitcoin lobbyists are doing.

**Drew:** Yeah. I mean, I think also with, uh, when it comes to AI, it's funny because this AI high performance compute market, right? Like, it's been around for a long time. I remember AJ and I looking at HPC and pitch decks of Bitcoin miners back in Galaxy in like 2019.

And it never really left those pitch decks. Like, it was still there, even though the market never really developed. But obviously the last year, um, With ChadGBT and with StableDiffusion and [00:55:00] MidJourney, like it now seems like we finally hit this This, uh, escape velocity where it's here, it seems like it's going to be here to stay.

I do think there's some nuance that maybe gets lost in some of the discourse where everyone's incentivized to change their name to XAI at this point, right? And to start, uh, basically start trying to raise money on that. But in many ways, it seems like this AI high performance compute business is going to be pretty similar to Bitcoin mining, where, you know, currently right now, the hardware, the computers, the GPUs, they're the scarce resource, they're the bottleneck.

And much like ASICs, they seem to basically be getting priced based on the current margins associated with, uh, with using them, uh, for, training LLMs. And so you basically have this interesting thing where the capex is always going to scale with the margin at that point in time, which makes for really interesting, really easy to just get, get wrecked if, uh, if demand falls off.

Um, weirdly though, people are already comfortable with like GPU back debt, uh, and, and I just had a tweet this morning. You know, I [00:56:00] do, I do wonder whether we're going to end up in a similar environment where like the HPC market is going to suffer many of the same pitfalls as Bitcoin mining, including this like GPU debt, GPU back that market that basically is, uh, susceptible to the same reflexivity on the way down that ASIC back that was back in 2022, but it definitely seems like it is.

It is, uh, here, here to stay, um, but you know, I think it's probably true that 98 percent of the AI startups that you read about are not for real, like they're not going to make it and they're, I'm not going to say that they're scams, but I think it's possible that 98 percent of it's noise and it's still here to stay much in the same way that, you know, with like crypto or whatever, uh, there's real signal in Bitcoin, but there's most of what you hear about in the industry is just noise.

**Marty:** I completely agree with that and I, all things like the cycles of the hardware, the hype cycle that exists, [00:57:00] it is going to be fascinating to see. And again, like anchoring back to the power brokers within the AI industry, like, and they're well capitalized from other lines of business that they have, whether it's Microsoft, Facebook.

Open AI is pure AI, but They're pretty well established at this point. Oh, yeah, and then And that's the other thing too with the GPUs I do think they'll have an ASIC like cycle But it may be less pronounced due to the fact that they're not a special purpose as a Bitcoin mining.

**AJ:** Yeah I was gonna say it'll definitely be volatile I would be surprised if it's quite as volatile as Bitcoin and ASICs and Just thinking through, maybe because, uh, demand for something like Bitcoin and, of course, Bitcoin supply is, uh, is perfectly, yeah, Bitcoin supply is perfectly inelastic.

Supply for GPUs and compute is, is not so. Um, and also I think the [00:58:00] demand for Bitcoin probably fluctuates a lot more secularly with, uh, with, you know, changes in monetary policy and macro backdrop. But I think you guys are absolutely right. They're probably going to relearn some of the hard... Lessons that ASIC back lenders and minors have learned in the last couple of years.

Um, so yeah, it'll be fun to watch play

**Drew:** out.

**Marty:** Yeah. And even though I did mention that there's going to be this competition for the energy, I think in the short to medium term, AI may get preferential treatment. And I'm interested to battle test this idea with you guys, because I think in the long run, like they're going to be co located, particularly if you're training models.

And you want the cheapest power, you're going, one of the best ways to get cheap power, particularly on grid, is to be able to participate in demand response. And we know if you're training models, downtime is not an option. So if you want to participate in demand response programs, you're going to have to have ASICs co located with your GPUs [00:59:00] that have that interrupt, interruptible load aspect that can actually respond to demand response that allows you to lock in that lower, that lower price.

**AJ:** Yeah, another great example of, you know, Bitcoin mining being used as like a supplemental or ancillary revenue stream in support of a primary revenue stream. Um, I could totally see that happening.

**Drew:** But one point also that I, you know, as a disclaimer, I'm not like HPC, GPU, AI, LLM training expert. But I do wonder if there would actually be a market for, call it like value HPC, where, you know, Google, um, You know, Microsoft, these companies often like their data centers have like, you know, five, nine stipulations where it's very, very high up time.

They care a lot about redundancy. I do wonder if they'll basically be a market for, uh, call it more like budget HPC, where maybe the work, uh, maybe there's a way to interrupt that work. Maybe it's, it takes longer. Uh, to do it, it's over, you [01:00:00] know, instead of being done kind of like on an ASAP basis, maybe it's a lower priority, lower priority.

As a result, uh, it would allow those operators to participate in an HPC type, uh, oh, sorry, in a demand response type program so that they can secure the lowest cost power. And yet it won't get you, you know, it's not the same redundancy or the same resilience or the same uptime, but, uh, you basically benefit from that in the cost side of things.

**Marty:** Yeah, and I can certainly see that happening, like all the big AI companies are competing for very similar models, but you can imagine a scenario in the future where somebody has a very specific model idea that nobody's really thought of, and they have the luxury for that, for that interruption and the training.

**Drew:** Totally. And like, I mean, at the end of the day, that I think that is at least how, that's how Bitcoin Miner thinks about it. Because once again, you know, we're cockroaches. We want to figure out what are the ways that we can save money. We're happy to do scrappy things. Um, I mean, much of the, the Bitcoin mining data center design business, what makes it so interesting, [01:01:00] uh, relative to say, uh, traditional data centers with, you know, high uptime requirements is that Bitcoin miners, uh, the, the quality of the data center design isn't just, does it work and is the uptime high, but it's also, you know, is the uptime attractive for the cost that went in, right?

Like if you could double your cost for another 5 percent of uptime, it oftentimes isn't worth it. And so I think the, uh, this whole like cockroach engineering mindset where it's just, you know, you're basically building your Bitcoin mining data centers so that you can run your ASICs effectively. And so you can earn the most money possible and you, you don't necessarily get, you know, brownie points just for having a spotless wax floors in your data center.

**Marty:** And I want to pivot a little bit to just get your guys ideas. Um, the broader theme in the Bitcoin mining industry, which is this geographic dispersion of hash rate. It seems that there's a lot of activity happening in the Middle East and Latin America. Uh, Nordic [01:02:00] countries, seems like China may be coming back online to a certain extent.

What, how does that affect your view on the market overall as America's been the big theme in the mining industry for the last three years? I think that will continue, but there is competition from other parts of the world where people are waking up to like, Hey, this can actually be a profitable business.

It can help our energy assets. Like that's another variable that's beginning to materialize and become a pronounced trend moving forward.

**AJ:** Yeah, I think, I'm not sure how much it affects our business specifically in that we are quite conservative in the areas that we're willing to go. And just as fiduciaries and executives, you know, there's many states even within the U.

S. that we don't feel comfortable deploying Hashrate in. Um, and yeah, I guess you could say that many states within the U. S. do have sort of a third world feel when it comes to it. because [01:03:00] you don't know if the rug is going to get pulled out from under you, uh, without any advanced warning. So I think there will be lots of like adventurous entrepreneurs who go out into Russia or China or parts of Latin America and the Middle East.

Um, we probably, probably not on our roadmap anytime soon. I think there's a lot of wood to chop here in the U S uh, and I think a country outside of the U S would have to have a very long track record of.

**Drew:** Yeah, no, I mean, I think we've, we've long thought that there will be, uh, opportunities for people willing to go further out in the geopolitical risk curve, uh, to get low cost power and really attractive operations. You know, I, I wonder if there are basically some like, uh, uh, called like a black market Bitcoin mining consultants who like go and, you know, like arms dealers are basically making deals with, uh, random warlords who somehow have access to like cheap Hydra or something like that to basically get them some hashrate online.[01:04:00]

But I think. Yeah, Bitcoin mining, like my, my attitude is basically network hash rates probably going to, network hash rates going to go up. It's not a question of, uh, it like, is it going to go up? It's just, where is it going to go up? Um, and I think the dispersion is natural. It makes sense. Uh, especially with say the, uh, publicly traded, uh, miners or the capital markets in, in the U.

S. have definitely, uh, not been as receptive for Bitcoin miners. It's only natural that that's going to, you know, the hash rates going to flow elsewhere, whether that's, um, you know, uh, maybe a nation state or some sort of, uh, quasi nation state entity that is, uh, has found the way to get themselves cheap power, whether that's by stealing it from the private sector, uh, or just causing their citizens to subsidize it, uh, or maybe the energy is just abundant, who knows?

I think this is going to continue to happen, and I think it's good, like, we don't want all the, the majority of the network hash rate to be controlled by publicly traded Bitcoin miners [01:05:00] in North America. That would be a really terrible outcome. So I think it's nice that there is sort of this natural, uh, um, self regulating mechanism here, which is just, uh, there's only so much hash rate in the world.

Um,

**AJ:** Hash rate flows like water to where it is treated best. There's

**Marty:** only so much cheap energy in the world. So much rack space. It has

**AJ:** been really, really surprising though. I mean, it feels like, uh, from a concentration standpoint, the percentage of hash rate in the U S peaked sometime in 2022 and the estimates that I'm seeing have more hash rate coming online and places like you mentioned, Marty, the middle East, China, um, parts of Latin America in the last year.

And it's been crazy to see how quickly that has. Sort of returned after the, um, the, you know, the, the wave that we saw into the U. S. after the China ban.

**Marty:** It's such a fascinating industry. It's very masochistic in a [01:06:00] way, but it's incredibly... We're definitely a

**AJ:** real button for, for pain to want to participate in this

**Marty:** industry.

Yeah, but it's tantalizing, isn't it?

**Drew:** No, of course. I, I, I still, um, uh, I still find it to be like cosmically and intellectually so beautiful. And it's such... Like proof of work is such a beautiful mechanism, uh, and I mean, energy is still, uh, such a cosmic, such an interesting, it's like endless rabbit hole, uh, just as a concept.

Um, but yeah, it's sort of like simultaneously still kind of retaining that, uh, appreciation and the love for Bitcoin, uh, the, an appreciation for the beauty of energy and for the importance of like building physical things in the real world, you know, uh, atoms, not bits, um. Paired with the fact that it is a ruthless business that it can be incredibly brutal and as we all well know Bitcoin tends to solve for the path of max pain But in the long run, you know, it, uh, inshallah will, uh, will still benefit us all.[01:07:00]

**Marty:** Agreed. It's a fun journey. The wives don't like it all the time, though.

**Drew:** Can't blame

**AJ:** them. I do feel like I aged maybe about a decade and during 2022, but

**Drew:** yeah, I definitely have some more gray hairs. I definitely, uh, you know, I definitely smoked maybe a couple of cigarettes more than I should have, but, uh, you know, I, I maintain that cigarettes are actually healthy for you and not the, uh, a nice organic vape.

Um, but the, I think in general, it's definitely like looking over the last two years. Uh, it, it, it is, it is really fun just in terms of how much growth comes from working in a, uh, in a business, in an industry that is just so, uh, so intense. 24 7. Uh, and really all you can do is just keep trying to make the best decisions you can each, each way, uh, you know, uh, along the path.

Uh, so definitely the, it's been insane learning lesson over the last few years and I'm definitely feel pretty excited moving forward.

**Marty:** Yeah. And as we can see here on the block clock, we've got [01:08:00] 27, 9 50 oscillating above and below 28,000. This week we've got the fed holding rates higher. For longer at least that seems to be the consensus if you look at Treasury markets and a lot of the macroeconomic Think boys out there.

They're they're convinced and I guess shifting this over to Just Bitcoin the asset and what it's going to do over the next year as we approach the halving Before we get into how that will affect The mining industry, that's really this very interesting time in Bitcoin. Again, it's about to turn 15, at least the white paper is in a few weeks here.

And this is really the first time in Bitcoin's existence over the last year and a half, that's it, that it's existed in an environment where, where rates are, are rising. And I think that's the big question looming in everybody's mind right now is if the fed [01:09:00] does hold. Higher for longer does Bitcoin disconnect from the markets despite that, because I think a lot of people would make the argument that M2 money supply is a big driver of the Bitcoin price.

When, when they're printing more money, a lot of that's going to flow to Bitcoin. And when they're pulling it out. Bitcoin is going to suffer as a result, but I'm not so convinced that that adage will hold true over the next year, especially if this wave of institutional adoption that everybody's talking about by way of an ETF or, or similar products, I do think the incremental is real.

Demand that that market access could provide could outweigh anything that's happening with mto.

**AJ:** Yeah. I totally agree with that regardless of what happens with the fed funds rate or the macro backdrop, if big daddy think comes through with [01:10:00] an ETF, a spot ETF, the price of Bitcoin is going to go nuts.

Yeah,

**Drew:** and also thinking, uh, in talking with both Alex Thorn and, uh, uh, of Galaxy and James, uh, Seyfert, who is the ETF analyst at Bloomberg, we had some, uh, some meetups with them at PubKey, uh, in New York. Um, in the last couple of months and they, they basically have certainly sold me on the fact that so many different, um, RIAs or family, you know, wealth managers, things like that.

So many of them would basically just be at the ready to allocate 1 percent of, uh, of their client's portfolio of their portfolio as soon as there's an ETF that's ready. I think it would just be like a massive capital inflow, uh, you know, overnight. And. I mean, I, like, I, so I think ETF will be very important, be very bullish, but I also think I'm not sure how much longer this current sort of tightening cycle can go on for, you know, famously, I've been, you know, for the last, like, year and [01:11:00] a half, thinking that, uh, I

**Marty:** didn't think they were going to go over two and a half percent.

And here we are at five and a half. I remember we

**AJ:** were talking at the very beginning of the hiking cycle. You didn't think they could raise, uh, interest rates 25 bips. Yeah. You didn't think they would get there. And you know what? It didn't sound crazy at the time. I was like more inclined to agree with you than the view that we were going to be at 5 percent

**Drew:** within 18 months or wherever we are.

No, totally. And, and like, I think, you know, as, uh, having read the Enders game, you're basically like, all right, something's going to break at some point and then that's going to cause the Fed to have to reverse. Now. Something did break the regional banks, um, but the Fed was able to paper over with BTFP, you know I think if they continue to to try to hike and try to stay higher for longer There's certainly I don't know what the next catalyst would be.

Maybe whether that's you know, corporates having to refinance or You know something else breaking But I was talking with Larry Lippard about this earlier this week because we were [01:12:00] both in in LA for the mining event at Pacific Bitcoin and Uh, Larry Larry's view is that, you know, something in the bond market's probably gonna get sufficiently disorderly that the Fed will have to step in.

Uh, and he thinks that that could happen very soon. Now it's already whether or not already,

**Marty:** it's already sufficiently disorderly, like for, it's pretty disorderly right now, but TLTs down like 20% this year, which is unheard of.

**Drew:** Yeah, so I mean, like, I don't know, like it's. I've been thinking since, uh, you know, I was, uh, inhaling the hopium that Arthur Hayes was peddling in, uh, Q2, Q3, 2020, uh, 2022.

Um, I've thought that, you know, something's going to break and the Fed's probably not going to be able to keep hiking, but I've been wrong this whole time. So, who knows? Yeah,

**AJ:** at least for me personally, I find that a great way to just stress myself out, uh, and waste a bunch of time is to worry about what the price of Bitcoin is going to do in the next 6 to 12 months.

When I'm, when I'm like feeling a little bit, uh, either concerned or [01:13:00] like worried, I like to just zoom out and remind myself of the macro, like the very, very macro picture, which is, you know, we're clearly at the, in the late stages of a massive credit bubble. Um, you know, whether you look at sovereigns or the private sector and, you know, the U.

S. debt continues to go up at an absurdly fast rate. And whether it's this cycle or another cycle in another couple of years. It's not sustainable and like over the longterm, we're going to be right here. If it's not in 12 months, that'll be fine. We'll, we'll, uh, we'll live to fight another day. I do think though, like a lot of people are underestimating or maybe it's not underestimating, but it's become popular in sort of hardcore Bitcoin maxi circles to sort of poo poo the idea of being excited about the spot ETF.

Um, just because obviously like BlackRock and others like them. are, you know, large, you could argue they're an extension of, of the government and are large, um, highly regulated [01:14:00] entities that, you know, may not have the best interest of Bitcoin and Bitcoiners at heart. But I think, uh, it would truly be one of a very small handful of the most important things to happen in the history of Bitcoin to get, to get a spot ETF.

I think like, contrary to the narratives of, this is something Drew and I talk about a lot, we call it like, The elite theory of Bitcoin adoption, contrary to the sort of banking, the unbanked narrative that we should be working in third world countries to help people who don't have access to financial services, use Bitcoin, all of which is fine.

Like I think that's, that's a great noble mission. That's not going to cause the price of Bitcoin to a hundred X. There's probably fewer than a thousand individuals and organizations in the world that have that power. And I think BlackRock and some of the other asset managers that are filing for ETFs are among them.

And we really want Bitcoin to be successful. I think number go up is definitely a prerequisite.

**Marty:** I completely agree with that. Um, the Global South meme and [01:15:00] trying to service that market, like you said, AJ, extremely noble, but I think we could easily make the argument that getting people with the most amount of wealth in as well as possible.

Actually aids that noble goal, because if the price number goes up, it helps the global South and everybody using Bitcoin in that part of the world. And to make number go up, you need people to put their, their wealth in it. And a lot of the wealth is at the institutions that you just mentioned. Don't think that there'll be securing Bitcoin the right way, or that that is how most people should get exposure to Bitcoin, but whether we like it or not, Bitcoin's permanent permissionless system at some point.

It is likely that one of these products is going to get approved and there's nothing you can do to stop others from buying Bitcoin. It's just ensuring that everything, uh, outside of that is done correctly and right. It's done in a way that respects the [01:16:00] fundamentals that make Bitcoin valuable in the first place.

**Drew:** Totally.

**AJ:** Yeah. And I'm not, I'm not saying we shouldn't be, you know, like pressuring. Folks like BlackRock to abide by, you know, consensus rules and like, you know, be good stewards of Bitcoin and stuff like that. Of course we should be doing that. But in terms of just overall impact to the project of Bitcoin, something like a BlackRock ETF would be so enormous.

Um, I think even with the amount of hype that's been generated, it's still underappreciated. And that is really, the U S dollar doesn't get pegged to Bitcoin by. You know, marginal countries in Africa and Latin America adopting Bitcoin. The U. S. pegs it all to Bitcoin because Larry Fink, we basically seduce Larry Fink into joining our ranks and becoming a complete shill and uh, advocating for his own financial interests by pushing Bitcoin on everyone.

**Drew:** Yeah, and as we think at least like, personally, and of course we [01:17:00] only have like one narrow experience for, you know, coming to Bitcoin, but at least for me it was number go up at first. You know, and so I think numbers stood up, number go up is often the thing that seduces you into really starting to like grok what Bitcoin is and some of the, uh, really important ideology behind it.

Um, I mean, it kind of in a way will also, if you have a bunch of the billionaires that have already adopted, uh, I think Bitcoin have also provided some cover for, from a regulatory attack as well. Um, you think about like Mike Novogratz owning, uh, you know, how much Bitcoin he owns, and he's such like a large donor of the Democratic Party.

You know, if someone, if a Democrat gets too negative on Bitcoin, Novo is probably going to give them a call if he hasn't already. And so not saying that that's like perfect and that's like great. You know, I think ideally we end up like living in a world where maybe people are, um, people are living a little bit, uh, in a more like localized way.

Uh, maybe there aren't these massive, uh, government institutions who are, you know, wielding [01:18:00] this like insane amount of power. You know, I think Bitcoin is a mind virus, and I think the more people that we can affect, infect with the mind virus, the better. And I think an ETF, JJ's point really helps with that.

And

**AJ:** by the way, that's why, that's why BlackRock and all these other asset managers are interested in launching an ETF product. It's not because they are part of an evil cabal. They might be part of an evil cabal, but I don't think. It's a conspiracy to co opt Bitcoin or, or change it in some way. Um, I certainly don't think they're doing it to be altruistic.

And, you know, for the reasons some of us work on Bitcoin, um, they're doing it because they want to get rich cause they see there's a massive market opportunity, they're getting an incredible amount of interest from their clients and a bunch of really, really rich people who have their wealth with BlackRock.

And that's, that's why they want to get into the market. And that's good. Same reason we got in number of technology.

**Drew:** You have to

**Marty:** imagine there's been another conversations like, Hey, if you don't find me a way to get access to Bitcoin, I'm gonna have to take my money somewhere else and get that [01:19:00] access.

And at that point it's like, all right, we'll go get it for you. We want to keep those fees within black rock.

**Drew:** Exactly. And if, if they end up kind of following the path of a lot of these gold ETFs and they allow for physical withdrawals, all the better. Yeah, we'll see.

**Marty:** We'll see. I'm optimistic. Very bullish right now.

**Drew:** Yeah, I think there's a lot, as always, uh, there's much to be, there are many black pills, many white pills. But I think there's much to be bullish about right now in particular. Like we've already, we kind of went through a pretty massive, uh, uh, chaotic bear market, uh, over the last 12 months. Well, that's the thing

**Marty:** too, like the deleveraging that's happened in the Bitcoin market.

Like how, how many marginal sellers are there on the edges and how much Bitcoin do they have to actually sell at this point? Yeah, totally. Even in this high interest rate environment. [01:20:00]

**Drew:** Um. Totally. Even, even outside of Bitcoin, I feel like there's, there definitely, uh, there's signs of optimism, always, always, uh, many things to motivate you to keep on pushing to, to get to the, the quote promised land.

**Marty:** All right. Let's wrap this up on some having talk. Are we optimistic about the having, it's definitely gonna happen at block height, 840,000. What's it gonna do for the mining industry? What's it gonna do term to feed the mining industry?

**AJ:** Yeah, I mean, you never wanna bet on the, the direction of the Bitcoin price in the short term.

Um, so we're, you know, as a company, we're not betting there's going to be the typical full four year bull market where the halving happens and then subsequent to the halving, you start to see the price of Bitcoin going up. But, you know, it does seem like that, that is the most likely scenario at this point, if, uh, you know, Thinking about some of the macro, [01:21:00] uh, macro topics that we've already touched on here, potentially like interest rates coming down around the same time, um, things like that.

So, you know, we're, we're optimistic. As I said, we're mostly focused on dialing in the efficiency of our, our operations, getting our breakeven hash price as low as possible in the months leading up. So that if we're wrong and you know, the price of Bitcoin doesn't see meaningful appreciation afterwards, we're still able to, to continue generating positive cash

**Drew:** flow.

Yeah, I think that's right. And I think if you look in last year, it actually wasn't, um, I don't think hash price perfectly fell in half last year. I think hash price Last, last cycle. Oh yeah, last cycle. Last cycle, I want to say hash price fell somewhere like 35%. Um, and I think this is again why hash price is a useful metric.

Uh, is that if, if, you know, when the block subsidy gets cut in half, many miners are no longer going to be profitable, that's going to cause them to switch off. So it's not like a perfect 50 percent reduction in mining revenue. Um, I thought you had a good,

**AJ:** uh, good phrase the other day on one of our calls.

You just have to [01:22:00] be, you don't have to be faster than the

**Drew:** bear. Yeah. Just, just the guy next to you, just the, the compass miner with eight and a half cent hosting for an M30x. Um, but I think, I think, I think it's like, you know, but obviously, you know, there are going to be many folks who switch off, obviously there are many miners who have, uh, incentives that aren't necessarily economic in nature, whether it's maybe trying to get money out of certain, uh, certain regimes or, um, you know, maybe, maybe they just want KYC free stats.

Like, you know, I think there's a many. The reasons why someone might mind, uh, at a loss on paper, but I think it really comes down to just battening down the hatches, knowing that they're there, you were the storm, you know, whether or not there is a, the having is what caused the bull market. I feel like we're about to re answer that, uh, that sort of discourse all over again about the efficient market.

It's so tiresome, but like maybe, maybe the base take this whole time and the correct take this whole time was. Uh, Fed's gonna hit the softest landing and, uh, uh, Bitcoin for your cycles like who [01:23:00] the fuck knows. But, you know, I think, I think we all agree that there's enough. The writing is on the wall that at some point in the next year or two, we are going to see a bull market just because, you know, again, uh, Bitcoin just makes so much sense.

Uh, and of course, sometimes it can make too much sense and it can cause you to make some bad short term decisions. But it makes so much sense that it feels inevitable that we're going to see another bull run, just a point, just a question of when. So in the, in the meantime, having going to be bad, going to be painful, um, can it cause many to have to shut down, but we're doing everything we can to make sure we stay hashing them out.

**Marty:** No, I think the base case for Bitcoin, not the base case, the bull case, I mean, particularly anchoring back to current conditions and treasury markets, even if. Something does break the Fed reverses. There's still going to be that psychological seed that's been planted in people's minds that like, Oh, I think, are we going to stay at zero forever?[01:24:00]

What does that mean for the value of the currency? And if we don't, and the Fed does this again, like the treasuries are shit coins, like they're not, they're not valuable risk free assets that they've been marketed for, for decades. Like we need an alternative. And I wrote this in the newsletter last night, like Bitcoin is the perfect.

Uh, alternative, like if you, and it's the epiphany I had earlier this week, which is really just building on, okay, let's get back to first principles. What is the treasury? What is a government bond? You're lending the government money to get your principal plus some yield back on the back end. And all right.

It's a lending agreement. And who's your counterparty? In this lending agreement. And how do they act? And you look at the U S government right now, we have a president who can't speak informed, coherent sentences. We have a house of representatives that can't even pick a speaker right now. We have healthcare costs that are on the rise and we're [01:25:00] subsidizing.

That industry, we have a pretty adept education system here at the current, at this current point in time, we're dumping a bunch of this money into unreliable energy infrastructure. So if you're just looking at it as a lender and you're looking at the U S government as a borrower, it's like, holy shit, this is persons of degenerate, they're already 33 and a half trillion dollars in debt.

Like how, how much longer can they borrow from individual investors, institutional investors, sovereign nations, banks. Before people wake up and say, Hey, this is not the option. Like Bitcoin is probably a better liquid asset to save my long term story, my long term savings in. Uh, and then when you think about it too, like if many people make that decision, the game theory plays out where people assume that others are going to make that decision.

You increase number, go up, you increase the purchasing power of everybody holding Bitcoin. And then you get this [01:26:00] distributed wealth base that can then go out and actually invest productively. Cause there's actual opportunity cost involved in their decisions that the government doesn't have or hasn't had for a while, maybe reentering the conversation due to people waking up to this fact right now.

And it's just a much better option compared to treasuries. And so I think long winded way of saying like, I think people are going to wake up to this thesis and really begin to grok this like, Oh, this bear instrument is much better than this dead instrument. And we'll see material, um, winding out of treasuries and into Bitcoin.

**Drew:** No, totally. And like, if you really want to store your own wealth and you want to do so in a way where there's no counterparty risk, um, and you do so in a self sovereign way and in a way that's flexible, where if you needed to leave some location, you could and take all your wealth with you. Um, you know, Bitcoin remains the best way to do that in the [01:27:00] world.

And I think. Yeah, I was surprised there wasn't, uh, more of a bullish response after, like, the, uh, the U. S. froze, uh, Russia's FX reserves, like, regardless of what you think about the conflict. Um, like I think every, every government in the world knows now that the treasuries that you hold sort of can be taken away from you.

Um, and, you know, Arthur wrote about this a lot in 2022, where, you know, even if, even if sovereigns and nation states start moving, you know, uh, with current sovereigns or nation states with current account surpluses, even if they start rolling, you know, a small percent of that into other commodities, whether it's gold or oil or Bitcoin.

Um, like that, that just seems like sort of a prudent risk management strategy at this point. Um, and so I think, you know, the, the mind virus is going to continue to spread. As AJ and I once talked about, uh, in Prospect Park many years ago. Uh, you know, Satoshi, in a way, you, you could dumb it down to just, he put this little thing on, uh, on a table.

The only rule is that [01:28:00] you can't make more of it. And naturally, as time goes on, everyone's just going to want to carve up a piece of themselves. Everyone's just going to want to get at least some of it. Just, I mean, you can't make more of it. You might as well get some of it just in case it catches on. Uh, and so it's only natural that like, as time goes on, as, as people sort of, uh, find the concept of Bitcoin less risky just because they're more familiar with it.

Uh, I think you're just going to see more and more folks just waking up to the obvious incentive, which is, I should have some fucking Bitcoin. Like, I mean, I don't know, I don't need to put all my money into Bitcoin, but I need to have at least some. And so I think this is just going to continue to play out.

Um, and the fact that, you know, the, the current quote, like foremost, uh, uh, global reserve asset, the treasury is basically just showing more and more problems because of the, the government that's issuing it. Um, it's just feels inevitable. Yeah.

**Marty:** And to your point about. The lack of reaction around Russia's, uh, the freezing of Russia's treasury assets.

I do think it's driven by greed where people [01:29:00] recognize that and said, particularly BRICS countries and said, all right, this is not going to work. You should diversify away from treasuries. I think greed is driving. We're like, all right, we're going to create the solution to this. And we're sort of in this intimate intermediary period where they're trying to solve that with their BRICS plus whatever basket of.

Hard assets or yuan back, gold back, oil back, whatever it may be. They're trying to figure that out, make that work when Bitcoin's there. And they recognize, because all these countries had to recognize, like once the ape into Bitcoin, like the The field is level set and there's no going back and there's still that geopolitical dick measuring contest where they don't want the field to be level.

They want to sort of dominate the settlement currency of the world. And it's just going to take them time to realize like, Hey, that's not the way things are going to work moving forward. It'll take them time to realize that.

**AJ:** Certainly. [01:30:00] Yeah, I think that's right.

**Drew:** Gentlemen,

**Marty:** it's been a pleasure, which we wrap

**Drew:** up with.

**AJ:** It really always is. What should we wrap up with? Um, I don't know. A lot of cause for optimism. Just got to keep grinding, keep pushing.

**Drew:** Yeah. Many, many, uh, I think hopefully there will always be pockets of, of, um, human flourishing or folks that really care about human flourishing. Uh, that's sort of an end in and of itself.

And, you know, I think, uh, it basically just comes down to motivating yourself and keep pushing yourself and keep like trying to find those, those pockets so that you can, uh, You know, create a, I forget how the way you typically describe it, but create a better world someday. And I think in general, I think there's still some, uh, tremendously bullish things in addition to Bitcoin.

You know, there are many, many promising aspects for abundant energy. Many, [01:31:00] many other promising aspects for folks who do care about human flourishing and are really making that a priority. Uh, whether that's on the local level, uh, near you or, or somewhere further away. So I think it's very promising.

**Marty:** You heard it here first freaks.

Things are very promising. We're going to win. It's going to take time, but if anybody's going to lead us to victory, uh, I think it's people that have been through the Bitcoin mining cycles. Yeah, we've, we've been through a lot. We've been dragged through the mud. I thought you

**AJ:** were going to say Larry. It's Larry Fink.

**Marty:** Larry can help get on board, Larry. I think he's. I think part of the reason is he wants to put Bitcoin in an ESG fund and, uh, increase the CAGR of those funds so they can actually make money for the first time ever. That's a that's a tinfoil hat theory that that we can touch on off off the record

Gentlemen thank you for [01:32:00] coming back on the show. I'll see you in person next week, which I'm very excited for and We got to do this more. We can't wait 18 months between episodes. Let's do this again.

**AJ:** Yeah, man, whenever you want We'll be back and very much looking forward to hanging in person.

**Drew:** All right,

**Marty:** that's all we got That's all we got today freaks.

Peace and love