MARKET PERSPECTIVE

Chia Cryptocurrency Farming Is Real and Uses Lots of Storage

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Chia Cryptocurrency Farming Is Real and Uses Lots of Storage

This IDC Market Perspective provides deeper insight into the recently launched Chia cryptocurrency. It also provides IDC's point of view regarding the opportunity for Chia cryptocurrency to compete long term against other cryptocurrencies and its impact on HDD and SSD markets both near term and long term.

Key Takeaways

- Chia Network is the latest to launch a low-power-consuming "proof of space and time" blockchain platform that is different from computationally and power-hungry proof-of-work blockchain algorithms.
- Chia writes plots that are stored on HDDs and scanned to match a challenge from the Chia Network; thus Chia farming is storage intensive rather than computationally intensive.
- The Chia Network netspace has expanded rapidly since its launch in 1Q21, growing to more than 20EB by mid–June 2021. Its rapid growth has led to shortages of high-capacity HDDs in the retail and distribution channels and higher prices for some models, surprising the HDD suppliers.

Recommended Actions

- HDD suppliers should expect and plan for ongoing strong demand for 8TB+ 3.5in. desktop HDDs over the next several quarters as the Chia Network netspace continues to experience a period of fast growth.
- Personal storage device suppliers would be prudent to develop direct-attached, high-capacity HDD-based products designed and branded specifically for Chia farming to capitalize on the opportunity.
- SSD suppliers near term should expect ongoing higher demand for higher DWPD (or higher TBW) SSDs for Chia farming. SSD suppliers may also need to brace and plan for a higher return rate of client SSDs near term that fail before the end of the warranty period because the SSD was used for high-workload Chia plotting.

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NEW MARKET DEVELOPMENTS AND DYNAMICS

Introduction

Chia Network was formed in 2017 and founded by Bram Cohen, the inventor of BitTorrent. Since 2017, the company has been focused on developing a new, more energy-efficient blockchain platform for cryptocurrency. In April 2019, the company released a beta of its blockchain platform that included full wallet functionality, transactions, and "smart coins" on a testnet blockchain. The company released the mainnet for Chia Network's blockchain in March 2021, and Chia farmers could begin receiving rewards. On May 3, 2021, Chia Network made possible smart coin transactions with the release of its digital currency, Chia (XCH).

IDC believes Chia, is very different from the more than 5,000 blockchain-based cryptocurrencies that currently exist in the market. Chia Network has developed a "proof of space and time" ("POST") alternative to proof-of-work algorithms that is designed to take advantage of unused storage space on hard disk drives (HDDs) rather than constantly running computationally intensive algorithms to mine coins. Chia is similar to (yet different from) Filecoin, another proof-of-space blockchain platform developed to also take advantage of unused storage space on HDDs. Filecoin is a decentralized storage platform that pays storage miners to store data for Filecoin customers and pays Filecoin miners with its native Filecoin cryptocurrency. Over time, Chia and Filecoin are expected to consume much less power than proof-of-work blockchain platforms and cryptocurrencies.

How Chia Works

Chia runs on a decentralized blockchain ledger system and uses space on farmers' storage to write a collection of cryptographic numbers called "plots." Users of Chia Network's blockchain write to unused space on HDDs by installing software that generates and stores a collection of cryptographic numbers on disks into plots. To compute a new plot, many Chia farmers have chosen to use solid state drives (SSDs) because it is generally 20–40% faster to create plots using SSDs than using HDDs, although the system's CPU and DRAM capacity can also affect plotting times. The average Chia plot consumes 101.4GB of storage capacity, and typically, plots are migrated from SSDs to HDDs. A completely full 10TB HDD can store 91 standard Chia plots.

About every 18 seconds, or 4,608 times per day, the Chia Network broadcasts a challenge, and Chia farmers scan their plots to see if they have the hash that is closest to the challenge. If a Chia farmer has a plot that is close enough to answer the challenge, the farmer receives two fresh Chia coins. Once the coins are stored on the blockchain, the seed, private keys, and wallet unlock these coins. The chance of solving a Chia block is equal to the proportion of the total Chia Network space (or netspace) that an individual farmer or a pool of farmers contribute to the network.

Chia was designed for HDD storage since storing Chia plots on HDD storage is relatively low cost on a price-per-terabyte basis and provides response times fast enough to respond to challenges from the Chia Network in order to prove the famer "owns" the broadcast challenge plot. The new Chia consensus algorithm and the minimum *K*-value for plots on the network are in place to protect against a variety of attacks. The timelord is an entity on the network that provides the "time" in the proof of space and time, which is one of the key breakthroughs in Chia.

While tape storage is lower cost than HDDs on a price-per-terabyte basis, the latencies inherent to accessing data on tape are too slow to respond to challenges, thus unsuitable for storing Chia plots.

Can Chia Rise Above the Crowded Cryptocurrency Market?

IDC believes the approach taken by Chia Network in developing and using proof of time and space as opposed to proof-of-work algorithms to create Chia coins is unique and will eventually make Chia stand out from the cryptocurrency crowd. The plotting process for Chia is computationally intensive and requires much power. Yet, once the plots are created, they are stored on relatively low-power-consuming HDDs where they can reside for years. Farming in the Chia Network is a lightweight process to check plots on an HDD that resides in a server or PC (or a direct-attached external HDD storage device), so farming in the Chia Network consumes very little power and requires very little bandwidth, although the PC and system must remain on and connected to the network 24 x 7 to be available to prove plot ownership. We expect the lower-energy-consumption feature of Chia will check many of the desirable ESG boxes sought by corporations, institutions, and governments worldwide. For these reasons, IDC believes Chia is introducing a competitive, lower-power-consuming blockchain cryptocurrency platform at an opportune time.

In addition, Chia is designed to be a truly distributed and decentralized network, which is considered one of the advantages for cryptocurrencies, where it is not owned or controlled by a few large entities.

IDC believes Chia Network needs to successfully engage developers early on to create a large development community. This will improve the chance for Chia cryptocurrency to cross the chasm and succeed long term.

Another key factor important to the long-term success of Chia cryptocurrency will be to broaden its inclusion in cryptocurrency exchanges, including large exchanges like Coinbase. Chia Network management does plan to expand the number of cryptocurrency exchanges trading Chia coins (XCH) in the near future.

The Premise and Economics of Chia

Chia was developed on the premise that significant underutilized storage capacity exists on HDDs globally, sometimes referred to as overprovisioned or slack storage. In contrast, proof-of-work cryptocurrencies were developed over a decade ago on the premise that CPU computing cycles were underutilized. While the premise of underutilized CPU computing cycles might have been correct, what happened over time instead was that single-purpose blockchain cryptocurrency hardware was developed and deployed to gain an edge in tackling the computationally intensive proof-of-work algorithms to improve the chance of mining a cryptocurrency coin. Computationally intensive proof-of-work blockchain cryptocurrencies are notoriously inefficient as they consume significant power, drawing criticism from governments, corporations, and institutions. It has been estimated that bitcoin alone, the largest proof-of-work cryptocurrency by market valuation, consumes more power than some countries.

The ROI potential of Chia is based on each Chia farmer's probability of winning a block, which is a function of the percentage of the total space that a farmer has plotted compared with the entire Chia Network netspace. As such, farmers creating plots early in the development of the Chia Network netspace have a better chance of winning a block than later when the Chia Network netspace is much bigger. The block award is set to decrease every 3 years, for the first 12 years, after which the block reward will be static ad infinitum. The economics for farming Chia are expected to deteriorate over time as new entrants who are deploying more storage for plots expand the Chia netspace (denominator), potentially making Chia farming less profitable given a static number of Chia plots stored by a farmer and depending on the value of the Chia coin over time.

The inherent design of the Chia Network has led to a rush by tech-savvy early adopters to create as many plots as quickly as possible. Over the past several weeks, the Chia Network netspace has been growing at a pace of 2EB per week, and currently, it stands at more than 20EB (at the time this document was written).

Because the Chia Network netspace has been expanding rapidly since the launch of the Chia coin on May 3, 2021, the potential profit from farming Chia has been dropping at a rate of approximately 20% per week. A key factor impacting the potential profit from Chia farming is whether Chia farmers are writing Chia plots to existing, underutilized capacity or whether they are procuring storage to expand the capacity available for Chia plots.

If a farmer is using underutilized HDD storage capacity they already own, the potential ROI to be a Chia farmer is quite good, even long term as the cost to plot underutilized HDD storage capacity is quite low. In contrast, at the current pace that the Chia Network is expanding, in roughly six months, Chia farmers who are procuring additional storage capacity to expand the number of plots they own will find the ROI more challenging at the current Chia coin price.

The price of Chia coin in the future is impossible to predict. Clearly, a higher Chia coin price will make Chia farming more attractive to those procuring additional storage capacity as the potential ROI is much greater. A higher Chia coin price might also make pooling more attractive.

It is also difficult to estimate the price elasticity of demand for Chia since the Chia netspace is in an early stage of development and has grown rapidly by tech-savvy early adopters seeking to write plots early and as quickly as possible to improve their chance while the Chia netspace is relatively small. In other words, despite declining Chia coin prices since its launch and declining odds of winning as the Chia netspace expands, the Chia netspace continues to expand rapidly, defying economic principles. IDC expects that, at some point in the near future, perhaps within six months, economics will become a stronger determinant influencing the pace of the Chia netspace expansion.

The Potential Impact of Pooling

While pooling chia plots by Chia farmers is already feasible, Chia Network is planning to launch built-in enhanced Chia pooling protocols in the near future that would provide Chia farmers the ability to pool storage resources and share the proceeds of winning Chia coins more easily. Pooling results in splitting the Chia coin award between participating Chia farmers in the pool based on the proportion of the pool they contribute to the pool. Pooling could also lead to more frequent, yet smaller wins for Chia farmers, as opposed to potentially waiting for months to win two Chia coins.

Pooling is an especially attractive ROI for prospective Chia farmers looking to utilize storage capacity they already have available, as it is an avenue to monetize existing, unused storage capacity without any up-front cost. Pooling also could help expand the distributive and decentralized Chia Network, which is another key premise upon which Chia Network was formed.

How Underutilized Is HDD Storage?

To reiterate, one of the key premises behind the development of Chia Network is that HDD storage capacity is underutilized globally.

IDC's Global StorageSphere research estimates that the installed base of desktop (DT) PCs using HDD storage devices is at an overall utilization rate of about 30%, and the installed base of HDD-based personal storage (PS) devices (aka direct-attached external HDDs) is utilized overall at about 23%. In

short, IDC's Global StorageSphere data confirms Chia Network's premise that there is significant underutilized HDD storage capacity on PCs and personal storage devices available for Chia plots.

IDC assumes organizations owning or leasing IT hardware generally will not allow their installed base of PCs, enterprise-owned PS devices, and servers to be used for Chia farming. Thus IDC considers underutilized HDD storage capacity on enterprise systems is not an opportunity for Chia farming near term. Over time, this could change as some colocators or smaller cloud service providers see farming Chia as a way to generate additional income. Not all servers and storage systems are managed by organizations, as some early adopters of Chia farming have shown they are deploying Chia farms on servers and storage systems and, in some cases, buying systems over the past few months that have been upcycled from IT asset disposition (ITAD) companies or other IT hardware upcycling suppliers. In addition, some upcycled high-capacity HDDs have been procured from these same suppliers to expand the capacity of prosumer-managed servers and storage systems. Upcycled HDDs are a good candidate for Chia farming, given the HDDs are used mainly for write-once, read-many (WORM) workloads, which are relatively light workloads for older HDDs.

IDC believes that consumer-owned DT PCs and PS devices equipped with HDDs do represent a near-term addressable TAM for storing Chia plots. IDC's Global StorageSphere research indicates that, in CY21, approximately 195EB of available storage capacity exists in the installed base of consumer DT PCs, plus roughly 310EB of storage capacity is available in the installed base of HDD-based consumer PS devices.

It is nearly impossible to determine the percentage mix of the about 13EB of Chia Network netspace already plotted that resides on existing desktop PCs, PS devices, or consumer-managed servers and storage systems. Nevertheless, the Chia netspace created thus far has barely increased the utilization of the total available HDD storage capacity globally in the installed base of consumer desktop PCs and PS devices combined.

Industry Dynamics

Chia Is Creating Significant HDD Upside Demand

As discussed previously, the overall underutilized capacity in the installed base of HDD storage capacity in consumer DT PCs and PS devices represents a good opportunity for Chia farming and aligns with the premise for developing the Chia Network. However, the launch of the Chia Network has not played out this way.

Since the launch of the Chia Network, there has been a surge in demand for relatively high-capacity HDDs from distributors and retailers over the past three months akin to a gold rush, mainly by tech-savvy early adopters of Chia farming looking to create as many plots as possible soon after the Chia Network was launched to improve their chance of having their plots farmed.

Recent channel checks indicate there has been about a 10% increase in demand for HDDs through the distribution channel, with the greatest demand concentrated for 10TB+ 3.5in. HDDs. Distribution channel and retail inventory of 3.5in. HDDs, both desktop-class and capacity-optimized HDDs, are mostly depleted, and HDD prices from distributors have been moving higher over the past month, especially for 12–18TB HDD products. The quoted lead times for availability of these HDDs are also extending out in some cases to 13–16 weeks.

IDC estimates that since March, the HDD industry has shipped over 1.0 million HDDs of upside demand for Chia farming, which is a portion of the 10% increase in demand for HDDs through the

distribution channel. We estimate the average capacity per drive for this upside demand is over 11TB per drive, which equates to an additional 12–13EB of capacity, which is a significant portion of the current capacity of plots that exist in the Chia netspace. It is important to note that the plotting process takes time, and it will take anywhere from days to a few weeks to fill a purchased HDD with plots and for that space to then be included in the Chia netspace.

In short, IDC believes the majority of the capacity dedicated to the Chia netspace since its launch has been supplied by new HDDs deployed in PCs and server systems by tech-savvy early adopters of Chia farming.

Will the Pace of Chia Netspace Growth Be Constrained by the HDD Industry?

IDC's analysis indicates the HDD industry is capacity constrained to respond to ongoing upside demand for high-capacity 3.5in. desktop and capacity-optimized HDDs. Higher-capacity HDD products typically are configured with 6–9 disks per drive, hence 12–18 heads per drive. HDD industry capacity for HDD heads and disk media was already operating at a very high manufacturing capacity utilization rate before Chia was launched, and the lead time to increase the production of these components typically can take several quarters. IDC expects the ability for the HDD industry to meet higher demand for high-capacity HDDs will be constrained for at least three to four quarters and possibly longer, given that supplying a higher volume of HDD heads and disks may even require some HDD industry participants to make significant capital investments to expand the production capacity of these components. The HDD suppliers have been very cautious over the past several years in terms of expanding the manufacturing capacity of these critical components, as underutilized head or disk media production capacity can be a significant drag on HDD suppliers' earnings.

IDC expects that the HDD suppliers will do everything possible to optimize their inventory of components, product mix, and manufacturing capacity to meet as much of the upside demand as possible for high-capacity 3.5in. DT drives near term, but the industry is unlikely to do so at the same pace as over the past several weeks. Much of the HDD industry production capacity originally designated for desktop HDDs has been gradually converted to sealed helium production lines, which are designed primarily to produce 3.5in. capacity-optimized HDDs for cloud/hyperscale datacenter customers, meaning that the HDD industry likely does not have material idle desktop HDD capacity available to restart.

Cloud service providers make up the majority of the demand for 3.5in. capacity-optimized HDD products. It is unlikely that HDD suppliers will supply or allocate a significant volume of 3.5in. capacity-optimized HDDs to distributors near term, given there is already strong and growing demand from cloud service providers that are increasingly executing long-term purchase agreements with the HDD suppliers. In addition, IDC expects rising demand near term from long-standing, important OEM customers for these same high-capacity 3.5in. capacity-optimized HDD products they will want to support.

For these reasons, IDC believes the next phase of growth for the Chia netspace will happen less from the procurement of new HDD storage capacity over the next three to four quarters and more from utilizing underutilized capacity that already exists in the installed base.

In the meantime, HDD industry participants will continue to appreciate a sustained period of unexpected strong demand for 3.5in. DT HDDs, and possibly a protracted period of higher HDD prices on certain HDD products through the retail and distribution channels.

Chia Impact on the SSD Market

Many Chia farmers are using SSDs to speed the process of generating Chia plots or the plot file, which requires compute, memory, and temporary storage (approximately 256GB for a *K*-value of 32) to create, sort, and compress the data into a plot file. This subjects the SSD to a heavy workload because of the fact that this process takes approximately 1.3TB of writes to create the plot file. As a result, a higher level of SSD endurance is needed, which is a measure of much data can be written to the SSD before it wears out – typically represented as drive writes per day (DWPD) or total terabytes written (TBW). Most client SSDs simply are not designed to handle the task of computing many Chia plots. Although nothing excludes Chia famers from using readily available, lower-cost, consumer client-class SSDs, these products were not designed for these workloads or level of endurance, and early reports indicate that some Chia farmers have worn out their client SSDs. Chia Network's website now even cautions around the use of client SSDs for Chia farming.

IDC believes that enterprise SSDs and datacenter-class SSDs are best suited for Chia plotting because of the inherent design characteristics around higher performance, sustained bandwidth, and high-endurance rating.

Similar to the recent demand dynamics for HDDs, SSDs are also experiencing a near-term boost in demand to support Chia growth, although it is having a much smaller impact and without any direct impact on pricing as the SSD supply remains tight because of strong demand for client SSDs in the PC market and a rebound in enterprise demand.

However, if Chia continues to gain traction and more farmers look to using SSDs for plotting, it will have a bigger impact on the SSD market than what has occurred over the past three months. Chia has the potential to not only increase the demand for SSD capacity but also alter the mix of SSDs toward more mixed workload design (as opposed to read-intensive SSDs or even client drives).

Today, HDDs are primarily used for storing Chia plots, but there is nothing that excludes the use of SSDs from storing Chia plots. Storage used for Chia farming does not need high performance and is optimized around the cost of storage on a price-per-gigabyte basis, which today favors HDDs. However, energy consumption is also a factor, and the inherent "low power" characteristics of SSD storage can be a factor when considering to use SSD drives to store and farm Chia plots. In addition, over the long term, newer NAND media like QLC (or 4 bits per cell), which provide lower cost-per-gigabyte SSD storage with the trade-off of lower performance and endurance (which are not needed to farm stored Chia plots), may approach economic thresholds to also be a consideration in the future.

IDC'S POINT OF VIEW

Since the inception of cryptocurrencies over a decade ago, it has largely been the domain of individual investors and speculators and purveyors of nefarious activities. The question of whether cryptocurrencies in general are "a store of value" and how cryptocurrency values are derived relative to fiat currency; whether central bank digital currencies will emerge and, if they will, dislocate the cryptocurrency market; or whether they will be heavily regulated in the future is beyond the scope of this document.

That said, financial institutions are beginning to embrace cryptocurrencies and are building financial products and services to support them. Undoubtedly, a "greener" cryptocurrency platform such as Chia

compared with all other proof-of-work cryptocurrency platforms makes Chia compelling and will give it a good chance to compete and succeed long term in a crowded cryptocurrency market.

At the same time, ongoing efforts to improve the energy efficiency of the existing proof-of-work cryptocurrencies will need to be monitored as they could challenge Chia's touted energy efficiency advantages. Further research is required to do a detailed comparison of energy consumption of Chia relative to other proof-of-work cryptocurrencies. IDC's initial assessment is that Chia's energy consumption is significantly better than all other proof-of-work cryptocurrencies that exist today.

IDC expects growth of the Chia Network netspace will likely occur in three phases:

- The first phase is the high-growth phase currently taking place that is fueled by tech-savvy early adopter Chia farmers who are procuring high-capacity HDDs as quickly as possible from retailers, distributors, and ITAD suppliers. We expect the constraints of the HDD industry that are limiting its ability to increase the production of high-capacity 3.5in. DT HDDs significantly in the near term will cause this high-growth phase to taper off soon.
- The second phase will likely to be several sequential quarters of sustained growth of the Chia Network netspace that depends upon leveraging the large amount of underutilized and available storage capacity existing on the installed base of consumer DT PCs and PS devices equipped with HDDs. The pace of this growth in this phase will be determined largely by how successful Chia Network is able to market Chia farming to consumers, especially the concept of Chia pooling. Ease of use will also be a key relevant factor to expand Chia farming to consumers who are less technically savvy than early adopters. The price of a Chia coin over time will also play a role in how quickly the Chia Network netspace expands and becomes more decentralized and distributed in this phase. IDC also expects the demand for new high-capacity 3.5in. DT HDDs is unlikely to subside significantly during this phase, and HDD product availability to support the expansion of the Chia Network netspace during this time period will be determined by how quickly HDD industry participants are able to increase production and shipments of high-capacity 3.5in. HDDs without making significant capital expenditures or impacting HDD supply to other long-standing customers negatively.
- In the third phase, the Chia Network is likely to be expanded by Chia farmers that deploy and operate Chia farms at the lowest cost, which typically favors at-scale IT infrastructures that take advantage of the lowest-cost 3.5in. capacity-optimized HDDs aimed at hyperscale customers. How well Chia (or other competing proof of space and time) cryptocurrencies succeed long term, and whether SSDs using QLC NAND with lower DWPD or TBW specifications will reach competitive price points with 3.5in. capacity-optimized HDDs, will factor into the long-term demand for 3.5in. capacity-optimized HDDs.

Given that storing and farming Chia plots is a write-once, read-many technology, Chia farming is an ideal use case for shingle magnetic recording (SMR) HDDs. SMR technology enables the HDD suppliers to increase the storage capacity per disk and further reduce the price-per-gigabyte of HDDs aimed at Chia farming.

The markets for both HDDs and SSDs are very complex, serving many end markets with a variety of storage requirements. At the same time, the HDD and SSD markets are interconnected, where in some markets, SSDs are cannibalizing HDDs (like the PC market), while in other markets, they are complementary and coexist (like the enterprise datacenter market). While the performance metrics between HDDs and SSDs are very different, the higher price-per-gigabyte for SSDs compared with HDDs is still a key factor in deciding whether to use HDDs or SSDs for storage or deciding the mix of HDD and SSD storage in an enterprise datacenter. In a scenario where there is sustained higher

demand for new storage capacity for Chia farming, HDD and SSD vendors could be in a position to prioritize petabytes for the most profitable segment, and this could have ramifications that extend into more mainstream HDD and SSD markets.

ADVICE FOR THE TECHNOLOGY SUPPLIER

- HDD suppliers should continue to plan for strong demand for 8TB+ 3.5in. HDDs over the next several quarters as the Chia Network netspace continues to expand both in its current high-growth phase and in its next phase of growth.
- PS suppliers (especially the HDD suppliers) would be prudent to develop direct-attached, high-capacity PS products branded specifically for Chia farming and aimed specifically at consumer Chia farmers as the Chia Network netspace enters its second phase of growth. PS suppliers should consider partnering with Chia Network to include features such an easy start-up GUI for consumers (that links to the latest version of the Chia Network), along with intuitive, easy-to-understand get-started and how-to guides to both facilitate and capitalize on this phase of growth. Most consumers are not tech savvy and will shy away from having to use a command line prompt.
- NAS suppliers should consider developing consumer-oriented, ready-to-use Chia farming solutions by removing data protection features and ensuring Chia Network challenges can be verified on Chia plots stored in the NAS solution in less than 30 seconds.
- HDD suppliers should reassess their product road map and consider adding dedicated high-capacity 3.5in. DT SMR HDD products aimed specifically at Chia farming or other InterPlanetary File System (IPFS) protocol platforms like Filecoin that would not require significant mechanical platform modifications. The idea is to add features that would differentiate these HDD products by making relatively low-cost firmware or minor modifications to the specifications of existing desktop HDD product configurations.
- Long term, HDD suppliers will need to monitor the pace of the expansion of the Chia netspace or other IPFS protocol platforms. Developing 3.5in. capacity-optimized HDD products aimed specifically at these WORM workloads is an ideal fit for HDD products using HAMR technology.
- SSD suppliers near term should expect ongoing higher demand for higher DWPD (or higher TBW) SSDs for Chia farming. SSD suppliers may also need to brace and plan for a higher return rate of client SSDs near term that fail before the end of the warranty period because the SSD was used for high-workload Chia plotting.
- PC suppliers need to watch for higher-than-expected DT PC demand from consumers over the next several quarters driven by consumers that might be seeking to become Chia farmers. These buyers will likely be seeking an affordable, dual-drive DT PC system equipped with a high TBW SSD + a high-capacity HDD that meets the minimum system requirements for Chia farming.

LEARN MORE

Related Research

- *Worldwide 1Q21 HDD Shipment Results and Four-Quarter Forecast Update* (IDC #US47667520, May 2021)
- *Worldwide Solid State Storage Quarterly Results, CY 1Q21* (IDC #US46412221, May 2021)

- *Cryptocurrency Goes Legit: Institutional and Corporate Adoption of Cryptocurrency* (IDC #US47579621, April 2021)
- *Worldwide Global StorageSphere Forecast, 2021-2025: To Save or Not to Save Data, That Is the Question* (IDC #US47509621, March 2021)

Synopsis

This IDC Market Perspective provides IDC's point of view regarding the potential for the Chia platform to compete and succeed against other cryptocurrencies and its impact near term and long term on the HDD and SSD markets and on the Global StorageSphere. In 1Q21, Chia Network launched the first storage-intensive "proof of space and time" blockchain platform that is significantly different from all other computationally intensive proof-of-work cryptocurrency platforms. A rush by early adopter Chia farmers to add storage capacity quickly came as a surprise to HDD suppliers as it triggered strong, unexpected demand for high-capacity 3.5in. HDDs in the distribution and retail channels leading to higher prices and longer lead times.

"The Chia Network was developed and launched on the premise that HDD storage capacity is underutilized, and IDC's Global StorageSphere data confirms they are correct," according to John Rydning, research vice president, IDC's Global DataSphere. "Making use of underutilized HDD storage capacity represents a good long-term opportunity to expand the Chia Network netspace. However, in the weeks following its launch, it led to a rush by early adopter Chia farmers to put new storage capacity in place quickly, creating shortages of high-capacity 3.5in. HDDs that is likely to persist through the remainder of CY21."

About IDC

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