

REPORT REPRINT

Reduxio: More than storage, more than backup-free CDM

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Copy data management has been a breakthrough for backup and DR, and its pioneers are enjoying soaring revenue. Unlike those companies, Reduxio is not selling stand-alone CDM, but primary storage with built-in CDM. Has it reached the endgame before anybody else?

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Startup Reduxio is offering an unusual product – a midrange storage system that includes copy data management. CDM has proven to be a breakthrough technology that can heavily reduce the cost and complexity of creating daily backups and ensuring disaster recovery (DR), while making data recovery faster and slashing the number of copies of data kept for a range of purposes. CDM also makes it easier to clone data for activities such as DevTest and analytics. Pioneering CDM vendors have been enjoying soaring sales for the last three to four years – but they generally offer either CDM as an upmarket adjunct to primary storage, or CDM systems intended only for secondary storage. Unlike Reduxio, they have not designed CDM into a general-purpose, midrange device intended to store both primary and secondary data.

Reduxio's product has been on the market for just over two years, and so far, has racked up around 250 customers. However, it was only last summer that its CDM features became extensive. The company's system eliminates the need to maintain snapshots, while also providing greater levels of data protection than snapshots. The vendor says several of its customers have also used its product to eliminate the bigger overhead of using backup hardware and software for data protection and DR. It is working to extend its current CDM-based data mobility to provide full application mobility, and says it will move upmarket with all-flash and scale-out versions of its system at some future date.

THE 451 TAKE

At this stage, attempting to compete with established CDM vendors such as Actifio, Cohesity or Rubrik would be tough. But that's not what Reduxio is doing. Instead, it is using CDM to give what appears to be a very strong competitive edge to its midrange storage system. At present, typical CDM users are large organizations, but backup and DR inflict equal levels of pain on midsized organizations or big enterprises running IT at multiple locations. We're not sure how many other CDM vendors could follow Reduxio's example, and wrap CDM into a primary storage system. In the other direction, we strongly suspect that primary storage vendors would struggle to wrap CDM into their existing products, because they lack the necessary foundations in terms of the right metadata structure. The biggest weakness is that for large customers, Reduxio may offer a less comprehensive CDM overlay for existing infrastructure than other CDM vendors.

STRATEGY

Founded in 2012, Reduxio is headquartered in San Bruno, California, and runs its research and development in Israel. Reduxio stresses that it is taking a very frugal approach to funding, and has raised only \$60m in three VC rounds since it was founded in 2012. The most recent round was announced in March 2017, and led by C5 Capital, with participation from all previous investors, including Intel Capital, Seagate Technology, Jerusalem Venture Partners and Carmel Ventures.

Reduxio's 250-odd customers are spread worldwide, and across multiple sectors that include local and state government, education, technology and defense. Reduxio says deal sizes have been growing, and individual customers have bought multiple devices. One such customer is CPP, creator of the Myers-Briggs diagnostic test, which says it needs CDM built into primary storage to underpin its analytic and business intelligence. CPP is standardizing on Reduxio V3 globally.

Despite being on the market for a short while, Reduxio's sales and operations are spread well beyond North America. The company has offices in Belgium, France, Holland, Sweden, the UK and other European countries. Perhaps not surprisingly, given its Israeli development operations, it has about 30 customers in Israel.

Service providers are among Reduxio's customers. The storage startup has launched an opex-style pricing initiative, and has named service provider customers in the US, UK and Israel, where customers have cited the performance of Reduxio's storage and its data protection mechanism as reasons for implementing it.

PRODUCT

Reduxio's HX550 is a hybrid disk-and-flash, dual-controller iSCSI system. It currently provides 38TB raw capacity, typically resulting in over 120TB effective capacity after data reduction. Purpose-designed to combine disk with flash – rather than being a disk array retrofitted with flash – the HX550 includes inline, global data de-duplication and compression completed in DRAM, and fine-grained, real-time data movements between disk and flash. The company has also built a predictive analytics support platform.

There are three major CDM features in the HX550, and they support both virtualized and non-virtualized servers. The first is called BackDating, and was part of the system when it was launched in 2015. BackDating is an alternative to taking snapshots for data protection – one that is certainly far more granular in terms of frequency, and is also likely to be simpler to manage, and simpler to use when recovering data.

As described in our previous report, unlike the creation of snapshots, BackDating requires no management, because it is built into Reduxio's data structure. Although some IT organization now rely entirely on snapshots for backup, there are frequent criticisms that managing large numbers of snapshots is very difficult. Also, Reduxio's BackDating reduces the exposure to data loss – or recovery point object (RPO) – to far lower levels than snapshots. Snapshot frequencies vary according to environment, but hourly snapshots are common, and the practical limit is around one snapshot every 15 minutes.

In contrast, BackDating allows customers to roll back data to any point in time, in one-second intervals. The function is based on metadata that tracks logical references to de-duped and compressed data blocks, in terms of time and data volume location. This metadata structure also underpins Reduxio's two other CDM features. (Reduxio says its system is not object-based, but instead involves data blobs addressed by key values.)

The other two major CDM features were introduced in June 2017, and are called NoRestore and NoMigrate. NoRestore aims to allow data and applications to be recovered quickly, meeting very short recovery time objectives, or RTOs. NoRestore is the ability of Reduxio's system to continually maintain replicated copies of de-duped and compressed data on another Reduxio device, or any other third-party iSCSI storage, or Amazon's AWS service. That eliminates the need to maintain dedicated backup appliances or secondary storage systems as repositories for backups or DR copies of data.

When using conventional backup systems to recover data after loss or corruption, an entire dataset must be restored before an application can be restarted. That process can take hours. In contrast, NoRestore allows restarted applications to access data volumes as soon as the metadata describing those volumes has been recovered. That small amount of metadata takes seconds or minutes to recover, even if the data volumes themselves are very large, according to Reduxio.

When the application is restarted, writes are directed to the new, local data volume, and data is downloaded in background to fully recover the volume or dataset. If an application requests access to data that has not yet been downloaded, that data is immediately retrieved from the DR copy. Reduxio says that even with the additional IO latency of retrieval, the total IO latency can be as low as 15-20ms. That is about the same, or less latency, as systems with nearline disks. NoMigrate is tied closely to NoRestore. NoMigrate has the ability to migrate data instantaneously to Reduxio from any other iSCSI block storage.

COMPETITION

The market for enterprise and non-hyperscale service provider storage is dominated by large suppliers – Dell EMC, NetApp, Hewlett Packard Enterprise, IBM and Hitachi. Although smaller suppliers are in the mix, those five suppliers account for well over half the total market revenue, and they are the rivals that Reduxio will encounter most often.

The midrange primary storage products that they sell increasingly include hyper-converged storage systems, as well as systems sharing the same conventional, stand-alone architecture as Reduxio's product. To our knowledge, none are offering storage systems that incorporate the same breadth of CDM features as Reduxio's product.

As stated before, we do not consider CDM players such as Actifio, Catalogic, Cohesity, Komprise and Rubrik as direct competitors to Reduxio, because they are not providing general-purpose primary storage. However, some customers may consider using their products to augment existing primary storage. There is also a growing number of object storage and traditional backup vendors that are using the single-instance potential of object storage to offer CDM.

SWOT ANALYSIS

STRENGTHS

Reduxio has developed an unusual primary storage system that uses CDM to address the complexity and problems involved in data backup and disaster recovery.

WEAKNESSES

Although Reduxio can use third-party storage or the cloud as a data repository, it may offer a less comprehensive CDM overlay for existing infrastructures than other CDM providers.

OPPORTUNITIES

The collective storage spending by enterprises and non-hyperscale service providers on primary storage systems has been relatively flat for some years. However, it still represents a multibillion-dollar market, into which Reduxio is pitching a competitive product.

THREATS

Existing CDM players may expand their portfolios to include CDM-enabled primary storage, which would present strong competition for Reduxio. The rate at which the use of public clouds for IT infrastructure is increasing could accelerate, reducing Reduxio's addressable market.