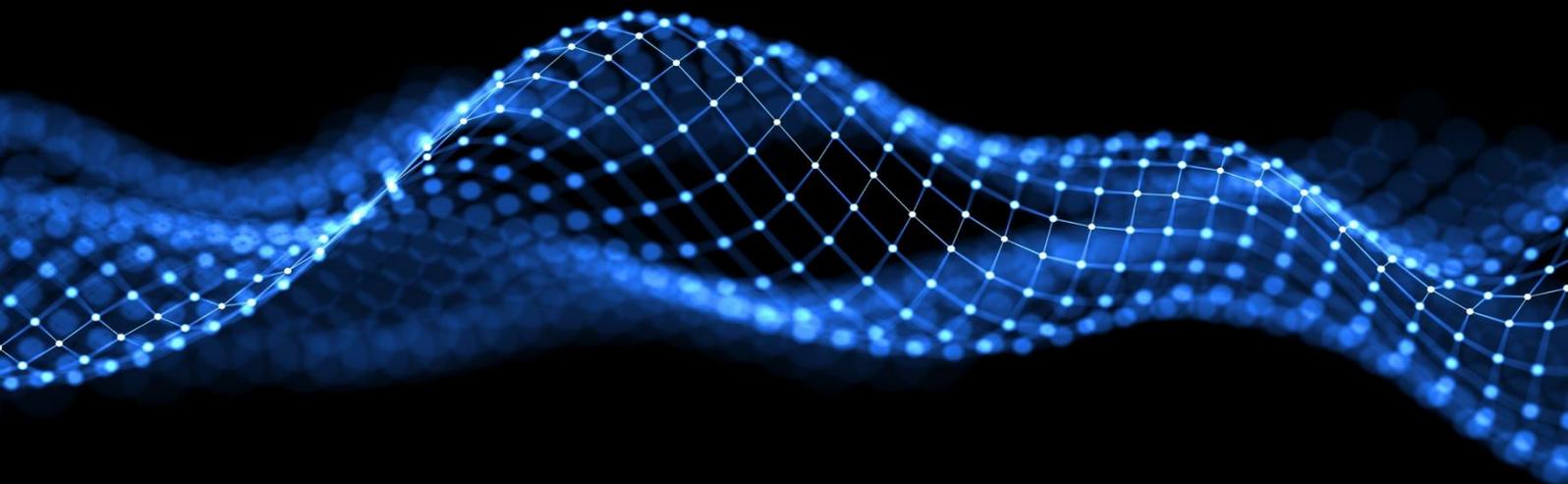


Datrium Automatrix



PRODUCT BRIEF

The Architect's View



Datrium has extended the capabilities of DVX and ControlShift to deliver a fully automated, SaaS-driven application workload mobility solution called Automatrix. The first use-case for the technology is to deliver cost-efficient Disaster Recovery, however we can anticipate seeing Automatrix develop into a general data and application mobility solution.

Background

The ability to successfully adopt public and private cloud technology is moving the industry towards both a hybrid and multi-cloud era. Multiple clouds allow businesses to take advantage of discrete services, where individual requirements can be delivered through one or more (typically isolated) services.

Hybrid and multi-cloud together present an opportunity to combine the capabilities of multiple clouds and take advantage of the features they offer. For example, a public cloud like Google Compute Platform may be a great solution for analytics, whereas Microsoft Azure might offer a better solution for traditional applications. The challenge is in bringing these services together.

Data and application mobility remain the biggest challenge to implementing a hybrid cloud strategy. Moving applications around infrastructure is easier than it has ever been. We can spin up containers in seconds and build virtual machines from definitions set in code.

What about data? Data is the hardest part to mobilise because data itself has inertia. Moving data from one location to another takes time, during which the data may not be accessible or require tracking to keep multiple copies in synchronisation with each other.

Moving data out of public clouds generally incurs a cost, so transfers need to be highly optimised. In making data more accessible, we introduce risk, so features like encryption need to be consistent across the cloud landscape.

Datrium Automatrix

Datrium has been developing the Automatrix platform as a solution to solve the challenges of application and data mobility. Previously the company had already released components of the Automatrix architecture.

DVX provides the foundation to deliver storage to virtualised applications running on the VMware hypervisor or Docker containers. Internally, DVX delivers encryption, de-duplication and hardware resiliency, while providing performance that matches or exceeds traditional all-flash solutions.

The performance of DVX has been achieved by splitting I/O into performance and capacity tiers. Local high-performance storage, such as NAND flash, is deployed at the host, reducing the overhead of storage networking. Long-term persistence is delivered through shared storage appliances that keep a copy of all data. This makes the server components stateless and easily restarted in the event of a failure.

Cloud DVX provides the capability to take backups of virtual machines into the public cloud. Today this is achieved by using AWS S3, an object store. DVX instances can also replicate to each other, using efficient WAN replication that moves only changed, de-duplicated data.

ControlShift

Orchestration of the DR process for failing over applications from one DVX instance to another is managed by ControlShift, previously known as Project CloudShift. ControlShift provides the SaaS-based automation and validation of failover, replacing the work that would previously have been achieved by manual processes like runbooks. ControlShift is effectively the "glue" that brings the other components together.

Five Features

Datrium has identified five features that they believe deliver to the needs of true data mobility. These are:

- Primary Storage
- Backup
- Disaster Recovery
- Encryption
- Mobility

Each of these features is delivered using DVX, Cloud DVX and ControlShift. Together these form Automatrix. Of the three, ControlShift is delivered as a SaaS application. This takes away the need to plan where DR might be instantiated from and also to act as the "witness" in case of failure of networking between the primary and secondary locations.

Customer Business Value

For IT organisations, Automatrix provides the opportunity to implement Disaster Recovery in a highly efficient manner. Today this means moving workloads between DVX running on-premises or in a cloud service provider. In the future, Datrium will support the failover of workloads to VMware Cloud on AWS and Azure VMware Solution.

As both of the public cloud services are instantiated only when needed, IT organisations will not need to stand up a large and mainly redundant secondary site. This can significantly reduce costs. Moving to Automatrix provide the additional benefit of having DR failover certified on a regular basis and in being able to test failover in an isolated test environment.

Market Positioning

Automatrix represents a strong solution for IT organisations looking to implement low-cost DR or simply replace existing processes, procedures and hardware. Disaster Recovery is an obvious first use-case for Automatrix, however the technology can clearly be used for other short and long-term requirements. These could include data centre consolidation, supporting edge deployments and eliminating private cloud altogether.

Caveats

Implementing Automatrix does require planning. The most obvious components to architect for are networking and related services. Depending on the size and complexity of applications, partial failover could have intra-application latency challenges.

Neither VMware, AWS nor Azure are offering any service level guarantees on the availability of VMware solutions in public cloud. Although instantiation of VMware Cloud on AWS could be achieved in a few hours, availability of hardware isn't guaranteed, and this could impact business service level agreements and recovery objectives.

Reference Information

Further details on Datrium Automatrix can be found in the following Architecting IT blog posts:

- [Datrium delivers data mobility with Automatrix](#) (Published 29 May 2019)
- [Modern Storage Architectures: Datrium](#) (Published 28 February 2018)

Further details on Datrium solutions can be found with the following Storage Unpacked podcasts:

- [#101 – Datrium Automatrix with Brian Biles and Tim Page](#) (Published 24 May 2019)
- [#63 – Datrium CloudShift](#) (Published 24 August 2018)
- [#48 – Introduction to Datrium DVX](#) (Published 27 April 2018)

Presentations that deep dive into the Datrium technology can be found on the Tech Field Day website:

- [Datrium Presents at Tech Field Day 14](#) (May 2017)
- [Datrium Presents at Storage Field Day 15](#) (March 2018)
- [Datrium Presents at Cloud Field Day 5](#) (April 2019)

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