

# Reinventing Data Protection for the Cloud Era

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BUSINESS ASSURANCE PLATFORM

# Reinventing Data Protection for the Cloud Era

INTRODUCTION	2
THE RISE OF OPENSTACK	2
MAKING THE ROI MOVE TO THE CLOUD	4
DATA MANAGEMENT IN THE AGE OF THE CLOUD	4
SUMMARY	5
ABOUT TRILIO DATA	5

## INTRODUCTION

Almost every company has a cloud computing initiative underway – public, private, or hybrid. Benefits include agile application development, IT cost savings, and/or improved business resiliency. OpenStack has also emerged as new cloud architecture, with additional advantages to leverage next generation development tools without being beholden to expensive/static commercially developed standards. The majority of OpenStack initiatives and community-developed solutions have been around application integration, with data resiliency receiving less attention. A market challenge is developing as OpenStack gains more mainstream adoption without adequate data resiliency tools and processes.

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**The term application can mean many things today. You, the reader, may see the term application, and think of application data sets inside of a VM instance. We, however, view an application as being a logical group of VM instances, inclusive of metadata, network, storage, etc.**

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All of the industry leading data protection tools were developed 15 to 30 years ago, long before cloud computing, and especially OpenStack. Furthermore, most data protection tools are fragmented between either backup/recovery, disaster recovery, and business continuity. All three of these classes of data protection solutions have, to varying degrees, migrated to the cloud. The trouble is that rather than using the cloud to fundamentally reimagine data protection altogether to both reduce costs and make IT more responsive, IT organizations have been required by vendors to essentially replicate inefficient existing approaches to protect data in the cloud.

The fact is that IT organizations will continue to incur capital and operational costs that are much higher than needed unless they find a means to re-engineer the entire data protection process from the ground up to allow them to take advantage of the unique attributes of a new cloud computing paradigm.

## THE RISE OF OPENSTACK

As a framework for managing the cloud, the development of OpenStack has proven to be a boon to data protection. Not only does OpenStack provide a repeatable framework for deploying cloud applications, it also includes **Raksha**, a Data-Protection-as-Service

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specification for **OpenStack**. The specification makes it possible for the first time to seamlessly provide a comprehensive approach to data protection using a multi-tenant architecture on top of which IT organizations can execute almost any data protection policy.

At the core of that capability is the ability to capture full or incremental snapshots of a tenant's entire environment: application stack and data inclusive of VM groupings, operating system, network configurations, security groups and policies, and metadata. These snapshots can be housed in a variety of storage environments, including NFS, Swift, or any number of third-party storage arrays.

Now with a single click, an IT organization can set policies that not only improve both Recovery Time Objectives (RTO) and Recovery Point Objectives (RPO), they also make it much simpler to migrate applications and workloads without having to be concerned about any potential loss of data.

**Trilio Data** is fully committed to making Raksha technology simple for IT organizations and service providers to consume in the form of **TrilioVault™**, an offering that leverages the core attributes of the cloud to provide the most agile approach to managing and protecting data ever devised (see below).

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## HOW THE CLOUD TRANSFORMS DATA MANAGEMENT

Not only do IT organizations need a holistic and unified approach; they need to be able to reliably invoke a data protection platform designed from the ground up to exploit specific attributes of the cloud:

- **Multi-tenancy:** Because the cloud was built for self-service, it naturally alleviates central IT from having to manage users. Not everything needs to be backed up. This is a fundamental difference between the cloud and traditional enterprise architectures. Each tenant of the cloud is empowered to create specific policies for business units that align with their needs and compliance regulations. Conversely, because it makes it even easier to backup information, the cloud creates an environment where more data can be consistently backed up.
- **Distributed data and applications:** The world of the cloud consists of not just distributed data, but also distributed applications consisting of multiple types of workloads,

NoSQL databases, and more. These can be distributed across virtual and physical machines. Data management, and subsequently, data protection, needs to be designed from the ground up to exploit the distributed nature of the cloud.

- **Speed of recovery:** The downside of this distributed world is that it can become very difficult and very complex to restore data. That challenge is magnified if you need to restore distributed data and distributed applications to a single point in time. A holistic approach should empower each tenant to recreate that single point in time across a complex distributed environment, ultimately allowing them to recover their own environment as needed.
- **Flexibility and forever scalability:** Data management and data protection needs to be as equally nimble as the cloud. Because TrilioVault is agentless, it allows for rapid deployment and recovery as clouds expand and contract.

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**Put it all together and it becomes clear that the agility enabled by the cloud will for the first time provide IT organizations with a fundamentally new approach to both managing and protecting data on their own terms.**

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## MAKING THE ROI MOVE TO THE CLOUD

The cloud has already proven itself to be a more cost effective approach to storing massive amounts of data. Attempting to store hundreds of terabytes, even petabytes, of data on premise that is rarely accessed is comparatively cost prohibitive.

But the benefits of the unification of data protection go well beyond reducing the cost per MB associated with storing data. Most providers of data protection technologies require IT organizations to acquire separate licenses for backup and recovery, archiving, and various forms of disaster recovery. By opting to rely on TrilioVault data protection software as part of your OpenStack cloud, all those use cases are covered using one software license. The day when vendors gouge customers for the privilege of using the same basic data protection technology are now officially over.

In its place, IT organizations can now manage data protection policies tailored to meet specific requirements and scenarios using a common pool of data at much higher levels of abstraction.

Best of all, it doesn't require a data protection specialist to implement those policies. The average IT generalist can now craft and implement policies. That in turn, frees up precious IT staff resources that can be allocated to any number of other pressing tasks.

Finally, a policy-based approach to protecting data means that most compliance and regulatory issues are inherently addressed. If an IT organization can't demonstrate continuous control over data, they will fail any number of audits, resulting in fines and other levies. Not only is data protected using TrilioVault, an IT organization can also much more easily demonstrate the processes used to protect that data anytime an auditor asks.

Add it all up and it becomes apparent that in terms of both total cost of acquisition (TCA) and total cost of ownership (TCO), existing approaches to data protection have outlived their technical reasons for being.

## DATA MANAGEMENT IN THE AGE OF THE CLOUD

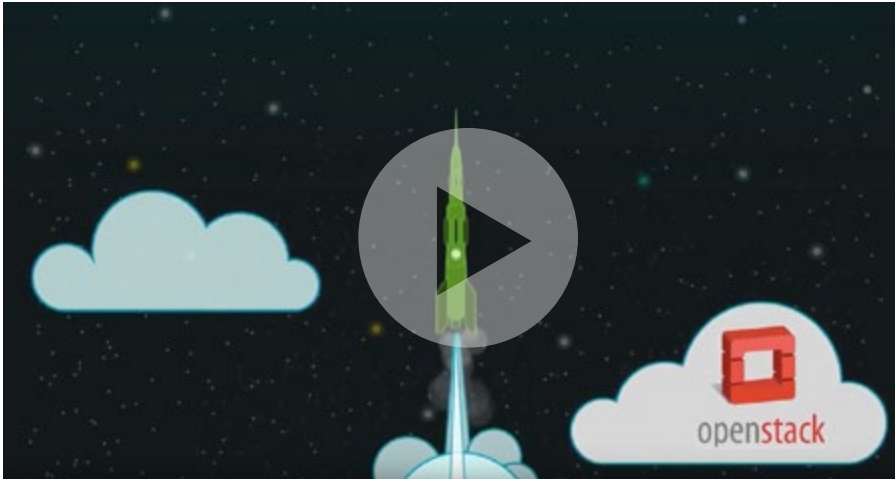
With the rise of the cloud enterprise computing is now more distributed than ever. This fundamental shift requires IT organizations to rethink their approach to data management. Instead of creating silos of data that are managed in isolation, it is now feasible to employ a more holistic approach that unifies the management of data on premise or in the cloud.

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Learn more about TrilioVault. Watch this short explainer video.  
(<https://youtu.be/b0aBde7CIHc>)

In fact, making use of OpenStack running on premise or in the cloud provides a common layer of application programming interfaces (APIs) on which a modern data management framework can more easily be deployed. Downloading and installing TrilioVault into your OpenStack cloud effectively provides a layer of data management technologies that can now be invoked anywhere OpenStack gets deployed.

For many IT organizations, that means the expensive era of trying to manage multiple silos of isolated data using a hodgepodge of products and technologies that all too often only serve to duplicate existing process and functions can finally come to an end.

## REPORT SUMMARY

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**The time has come to take advantage of advances in data protection technologies that greatly simplify the overall process rather than continually making data protection schemes developed for entirely different eras of IT. A modern data protection architecture based on OpenStack makes it uniquely possible to achieve agile application development goals with confidence at a time when IT organizations need to free up more time to address a broad swath of IT issues that have never been more pressing.**

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# TRILIO

**ABOUT TRILIO DATA.** Trilio Data, headquartered in Hopkinton, Mass., is an innovator in OpenStack backup and recovery solutions. The company was founded by technologists who, combined, have more than 45 years of experience at some of the world's largest storage vendors. Trilio Data was founded to meet the needs of an ever-changing, growing, complex, and scalable database environment, where flexible and intelligent backup and recovery solutions are no longer a "nice to have" - instead, they are critical components of a comprehensive IT strategy.

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