CLOUDIAN®

New Cloud Services Opportunities
with Cloudian Object Storage for VMware vCloud Director

Leverage the benefits of
Cloudian object storage to enable
new cloud services revenue opportunities

Introduction

The data revolution is upon us. Organizations in every industry generate exponentially more volumes of unstructured data than ever before. They also need to retain, re-use, and learn from that data to a far greater extent. Add to this the need to ensure protection, compliance and security, and it becomes apparent that having limitlessly scalable, intelligent, affordable storage is an increasingly important component of a company's long-term success.

For cloud service providers, this opens the door to new services revenue streams by offering a portfolio of new high value storage-based services for use cases such as data protection, big data, healthcare, media archives, video surveillance, and more. For their tenant customers, this delivers best-in-class object storage services fully integrated and delivered through their preferred cloud management platform.

That's where Cloudian object storage comes in. Cloudian Object Storage for vCloud Director is a storage platform that lets VMware cloud providers and their tenant users deploy, manage and consume S3-compatible storage within their vCD services environment to address these increasingly important needs.

In this paper, we introduce Cloudian Object Storage for vCloud Director and outline storage-based services that can drive more profitable revenue for your organization.

Key Takeaways

- Cloudian Object Storage for vCD enables Storage-as-a-Service and other new revenue-ready "as- a-Services" which are growing in popularity
- VMware Cloud Providers are positioned to benefit from this large market opportunity
- With exceptional economics, Cloudian helps Cloud Providers deliver profitable services on a proven platform.
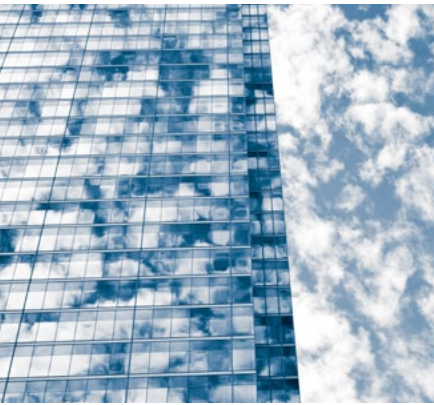
Cloud Storage Services Market

Cloud services is a thriving and expanding market. Organizations of all sizes are streamlining their operations to focus their resources on the work they do best and partnering with service providers for the rest. As a result, the global managed services market is projected to reach $257 billion by 2022[1]. According to IDC, the market for cloud storage services is forecasted to triple in size from $20 billion today to $60 billion in 2023, a 32% CAGR[2].

Storage Services Revenue
WW Cloud Storage Services, IDC

32% Annual Growth
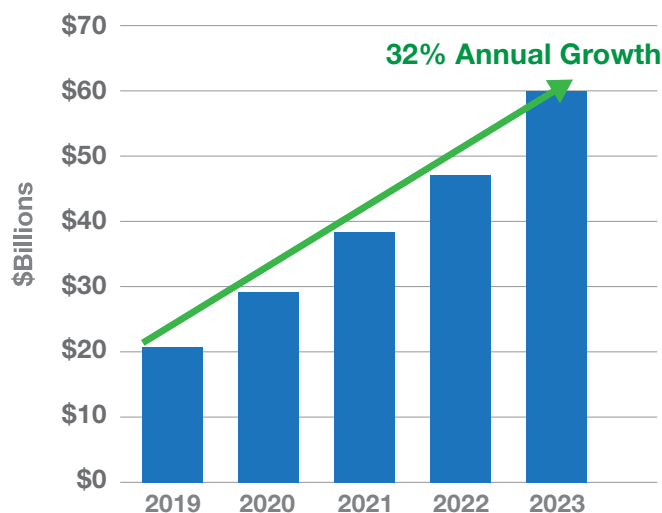
Key market drivers, include:

1. Dramatic growth in data volume driving new storage capacity requirements

2. Technical standardization on S3 API

   - S3 API is the de facto standard for cloud storage
   - Growing S3-compatible software ecosystem
   - Expanding use of S3-compatible applications

3. Growing mandate for a hybrid-cloud / multi-cloud model

   - Cloudian integrates seamlessly with public cloud and on-prem storage to form a single storage pool that spans the cloud and on-prem worlds.

4. Compelling advantages of independent cloud service providers, including vertical specialization, multi-source flexibility, and regional focus

Introducing Cloudian Object Storage

Enterprise organizations require storage solutions that help them contend with the explosive growth in unstructured data. Content creators, broadcasters, researchers, healthcare providers, manufacturers and software developers are now turning to the unique capabilities of object storage to meet these needs. Far from being an incremental improvement over earlier technologies, it is a fundamentally different way of storing and managing data.
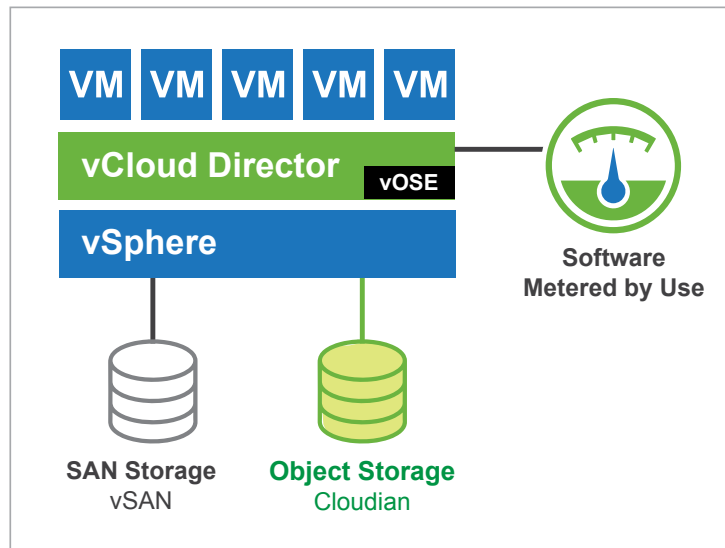
Cloudian HyperStore Software

Cloudian HyperStore software lets VMware users consolidate unstructured data to a single, limitlessly scalable storage pool. HyperStore enterprise object storage provides unlimited capacity scalability, intuitive management tools, and uncompromising data protection. Integration with VMware vCloud Director provides a single point of management to simplify workflows and minimize costs.

Industry's Most Compatible S3-API

Cloudian HyperStore incorporates the industry's most compatible S3 API, with a fully-native implementation that eliminates the gateways or access layers found in other object storage systems. Proven in many hundreds of enterprise deployments, HyperStore's S3 API offers guaranteed compatibility with S3-enabled applications.

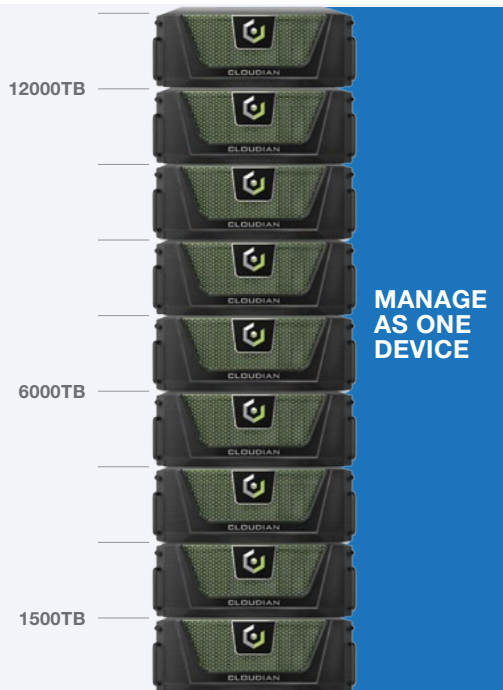# Some of the unique advantages of Cloudian object storage include:

Geo-Distribution

One storage pool that spans the globe

With the advent of IoT, remote sensing technologies, and low-cost 4K cameras, high-capacity data is now created everywhere. This paradigm shift places new demands on networking and storage technologies.

Cloudian object storage addresses this challenge with a distributed system in which storage nodes may be deployed wherever needed. Low-cost, remote storage lets analysis happen where the data is collected, rather than having to load the network with raw information. Whether providing local storage for remote applications or disaster recover (DR) capability across sites, object storage possesses the needed data management capability to perform these tasks simply and economically. Storage management is also accommodated within this geo-distributed architecture with a single, global namespace providing visibility and control of all data across locations.

GLOBAL NAMESPACE

REMOTE OFFICE

CLOUDIAN SOFTWARE

INDUSTRY-STANDARD SERVERS

PRIMARY DATA CENTER

CLOUDIAN APPLIANCES

SECONDARY DATA CENTER

CLOUDIAN SOFTWARE

VM VM VM

VIRTUAL MACHINES

12000TB

6000TB

1500TB

MANAGE AS ONE DEVICE

Exabyte Scalable

Modular design for non-disruptive growth

Traditional storage systems were designed with an upper limit on capacity. Object storage solves the scale problem with an architecture that eliminates this limitation. Cloudian object storage enables cloud service providers to start small and scale to exabytes in one or more locations. Easy to set up and simple to operate and manage, scaling storage is non-disruptive, so you can add capacity as requirements evolve.

The S3 API

The Amazon S3 Application Programming Interface, better known as the S3 API, is the most common way in which data is stored, managed, and retrieved by object stores. Originally created for the Amazon S3 Simple Storage Service, the widely adopted S3 API is now the de facto standard for object storage.

Not All S3 APIs Are Equal

Compared with established file protocols such as NFS, the S3 API is relatively new and rapidly evolving. Among object storage vendors, S3 API compliance varies from below 50% to over 90%. This difference becomes material when an application—or an updated version of that app—fails due to S3 API incompatibility. Cloudian is the only object storage solution to exclusively support the S3 API and is regarded as having the industry's highest level of compliance.

Cloudian Object Storage for vCloud Director

Integrated S3-compatible Storage for Cloud Providers

Cloudian Object Storage for vCloud Director is an integrated storage platform that enables VMware cloud providers to deploy and manage an S3-compliant storage environment. It is fully interoperable with the broad industry ecosystem of S3-compatible applications.

Cloudian object storage natively integrates with VMware vCD with the VMware Object Storage Extension (vOSE) and provides a single point of management for applications and object storage. Administrators can provision, view and manage elastic pools of storage from within the vCloud Director user interface, thus reducing workload and management complexity, and improving operational productivity.

Manage via VMware vCloud Director

All frequently used management tasks are accessible via vCloud Director. Provision storage, create users and groups and set policies without leaving your vCD console. For advanced system management tasks, access the Cloudian UI with a single keystroke.

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vm vCloud Director ☰ Object Storage   acmeadmin
                                                                   Organization Administrator

Buckets

A vCD S3 bucket is a cloud resource available in vCD Object Storage extension. Buckets, which are similar to file folders, store objects, consisting of binary data and user metadata.

+ NEW BUCKET   **🗑 EMPTY**   **✕ DELETE**   **⟳ REFRESH**

		Name			Owner	Object Count	Used Bytes	Region	Last Modified
○	⋮	test			acmeadmin	1	114.45 KB	reg01	Jun 24, 2019, 9:58:20
○	⋮	new			acmeadmin	1	114.45 KB	reg01	Jun 24, 2019, 9:50:53
○	⋮	vcd-vapp-2d44700c-e4d8-40e4-a2da-0936b5b34d... ⓘ			acmeadmin	0	0 Bytes	reg01	Jun 20, 2019, 4:44:15
○	⋮	demobucket1			acmeadmin	1	3.64 KB	reg01	Jun 19, 2019, 6:36:20
○	⋮	pvo-bucket			acmeadmin	1	3.64 KB	reg01	Jun 12, 2019, 8:01:31 A
○	⋮	bucket07			acmeadmin	1	5.3 MB	reg01	Jun 4, 2019, 1:22:56 P
○	⋮	vcd-catalog-catalog02 ⓘ			acmeadmin	0	0 Bytes	reg01	Jun 3, 2019, 6:06:14 P
○	⋮	vcd-catalog-catalog01 ⓘ			acmeadmin	4	447 MB	reg01	Jun 3, 2019, 6:06:02 P
○	⋮	vappbucket01			acmeadmin	1	3.64 KB	reg01	Jun 3, 2019, 5:58:26 P

Sidebar navigation:
- Dashboard
- Buckets
- Security Credentials
- vApps
- Catalogs
- Users
- About

1 - 14 of 14 bucket(s)

Key Features of Cloudian Object Storage for vCloud Director

Multi-Tenant Resource Pooling: Create isolated, secure storage pools within a shared storage platform. Customers have independent role-based authentication and fine-grained access controls.

Geo-Distribution and Cloud Migration: Policy-based tools enable simple, secure storage migration and management across sites for disaster recovery and storage resource optimization, all within a single namespace.

Integrated Management: Manage commonly used storage functions, such as reporting and configuration of users and groups, with access provided through the vCloud Director user interface. For advanced functions, a single sign-on provides seamless access to the Cloudian user interface.

Quality of Service: Manage service level agreements with bandwidth controls to ensure a consistent customer experience.

Billing: Generate client billing information using selected usage parameters.

Modular Scalability: Start small and grow without interruption to an exabyte within a single namespace.

Data Durability up to 14 Nines: Data protection options, including erasure coding and data replication, allow for configurable data durability up to 99.999999999999%.

Granular Storage Management: Manage storage policies, data protection, and security at the bucket level to tailor capabilities for specific users.

Self-service Management: Role-based access controls allow customers to select and provision storage on-demand from a service catalog via a self-service portal.

Opportunities in Storage Services

Cloudian Object Storage for vCloud Director provides a versatile, scalable storage pool for any S3-compatible application. For cloud providers, this enables a portfolio of high-value service offerings, including:

Storage-as-a-Service (STaaS): Provide S3-compatible storage capacity for cloud-native software development or storage for S3-enabled applications.

Backup-as-a-Service (BaaS): Offer a backup target that integrates easily with most popular data protection platforms.

Archive-as-a-Service (AaaS): Provide a long-term data repository for infrequently used data.

Compliance-as-a-Service: Secure WORM storage for compliance, ransomware, GDPR, HIPAA, etc.

Disaster Recovery-as-a-Service (DRaaS): Help customers avoid the risks of business and organizational disruptions resulting from disasters by maintaining a data copy data offsite.

Big Data-as-a-Service (BDaaS): Integrate with popular big data applications to provide a limitlessly scalable data lake.

Containers-as-a-Service (CaaS): Provide persistent storage for new, containerized applications.

Software Development: The fully native S3 API provides a proven platform for S3-compatible application development.

Cloudian Object Storage for vCloud Director also supports storage requirements for vCloud operations such as importing/exporting catalogs.
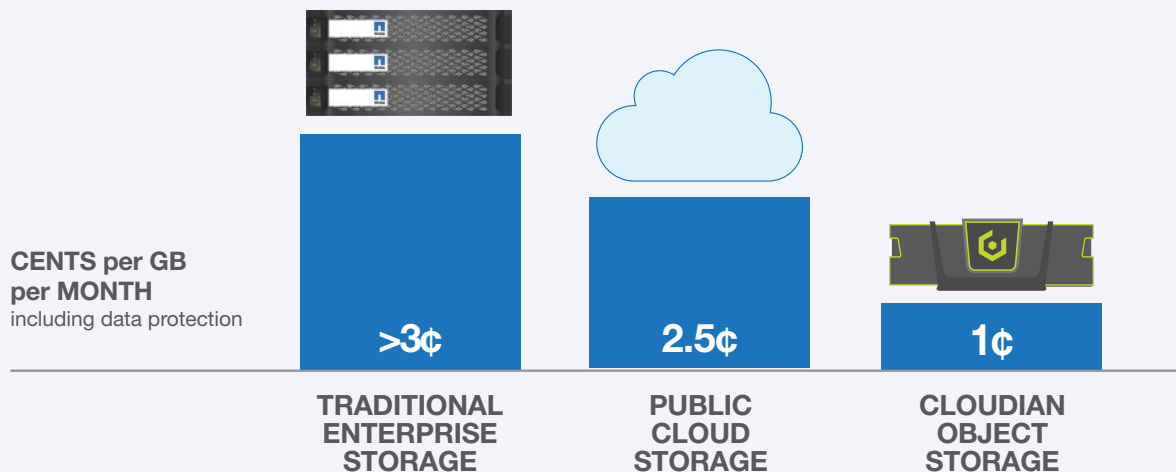
Build solutions revenue with S3 ecosystem

rubrik   splunk>   veeAM   PURESTORAGE

VERITAS   hadoop   DELLEMC   NetApp

COMMVAULT

evertz   Hyland   komprise   Quantum

Superior Economics Ensure Profitable Services

For service providers, profitable service delivery is the goal. Cloudian helps ensure this in three ways:

1. **Low CAPEX:** Cloudian software runs on VMs and can leverage available capacity within an existing cluster. Alternately, employ industry standard high-density servers as the storage platform. Cloudian also offers cost-effective pre-configured hardware options. Multiple options give service providers a path to the industry's lowest cost storage platform.

2. **Software and support billed by usage:** Pay only for the capacity you use. Cloudian software and support are billed monthly using VMware VCPP points. There are no up-front licensing costs or support fees.

3. **Simple management:** A Cloudian cluster is managed as one system, no matter how large it grows. So, management starts simple and stays simple.

CENTS per GB per MONTH
including data protection

>3¢	2.5¢	1¢
TRADITIONAL ENTERPRISE STORAGE	PUBLIC CLOUD STORAGE	CLOUDIAN OBJECT STORAGE

Why Storage Services Make Sense Today

Every organization is faced with the need to contend with increasing volumes of data, so managing and protecting this data is a top priority for every IT executive. Instead of building an expensive storage infrastructure—and hiring the staff to manage it—many organizations are now looking at storage-as-a-service (STaaS), back-up-as-a-service (BUaaS), archive-as-a-service (AaaS) and other as-a-services to meet their evolving needs.

With STaaS, for example, organizations outsource a portion of their storage management by turning over responsibility for storage infrastructure, maintenance, facilities, and operations to cloud service providers. Organizations are similarly outsourcing the protection of their data, obtaining data backup and recovery as a service (BUasS) from cloud service providers.

Some important benefits for as-a-Service customers include:

- Reduced capital expenditures with less spend on hardware, data center space and management
- Lower operational expense tied to actual storage requirements
- Improved service levels and productivity
- Ability to expand storage capacity as needs evolve
- Robust infrastructure, protected against loss due to physical disasters
- Enhanced business continuity and availability

For VMware cloud service providers, the growing demand for these as-a-service offerings creates the opportunity to offer a set of new, high-value services and generate profitable revenue from existing as well as new customers.
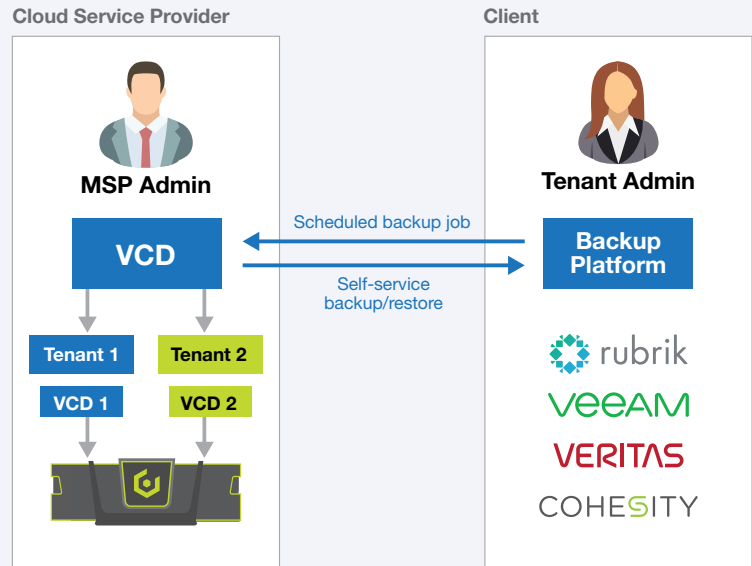
Service Spotlight: Backup-as-a-Service

Making sure critical data is protected is a high priority for business and IT executives alike. But ensuring data is backed up properly is a growing challenge, especially as data volume increases. As a result, many organizations are looking to cloud service providers for backup-as-a-service (BUaaS) options. According to Advance Market Analytics, the BUaaS market is expected to grow at a compound annual growth rate (CAGR) of 26.6% from 2019 to 2024.[3]

A backup-as-a-service offering is comprised of two components:

Enterprise backup solution: Software from Veeam, Rubrik, or others provides the backup management.

Backup target: Cloudian HyperStore provides a scalable backup target. Because it is multi-tenant, a single storage environment may be securely shared among multiple clients, thus keeping your management costs down.

Cloud Service Provider

MSP Admin

VCD

Tenant 1   Tenant 2
VCD 1   VCD 2

Client

Tenant Admin

Scheduled backup job

Backup Platform

Self-service backup/restore

rubrik
veeam
VERITAS
COHESITY

Compelling Economics

Enterprise backup as a service is well-suited for the cloud service provider model for three reasons. First, enterprise customers demand specific capabilities, such as data geo-location, to meet industry requirements. Meeting these specific needs ideally positions a regional provider.

Second, enterprise customers require specific service levels, again a capability that a regional provider is well-suited to meet.

Third, enterprise backup is a premium service that can be well-differentiated to ensure profitable margins.

Cloudian helps cloud service providerss meet their margin objectives with a cost-effective underlying storage layer, a scalable management model that stays simple with growth, and pay-as-you-grow software licensing that helps manage cash flow by aligning revenue and expenses.

SAMPLE FINANCIAL MODEL
Enterprise Server Backup

Revenue (per GB/mo)

Price to end user	20¢

Cost (per GB/mo)

Backup software	10¢
Storage hardware	0.3¢
Cloudian software	0.8¢
Operating costs	0.2¢
TOTAL	**11.3¢**

PROFIT
Margin Potential	8.7¢

Conclusion

VMware cloud providers are in a unique position to benefit from the combination of object storage and VMware vCD integration. Together, these technologies enable new use cases—such as cloud-native application development—and new high-value add services—such as enterprise server backup.

Furthermore, the underlying storage infrastructure can also be leveraged for other use cases, such as big data services or S3-compatible application hosting, again driving greater demand. By using Cloudian HyperStore for your STaaS, BUaaS and other offerings, cloud service providers can deliver competitively priced, high-value services to their customers, grow their business, and generate more profit.

References:

[1] "Managed Services Market by Service Type, Vertical, Organization Size, Deployment Type, and Region – Global Market Outlook to 2023." MarketsandMarkets Research website. Accessed October 24, 2019: https://www.marketsandmarkets.com/Market-Reports/managed-services-market-1141.html

[2] IDC Worldwide Public Cloud Infrastructure as a Service Forecast, 2019-2023, page 4. 2019

[3] "Backup-as-a-service Comprehensive Study by Application (Small Business, Medium-sized Business, Large Business, Others), Deployment Type (On-premise, On-cloud (Public) Players and Region - Global Market Outlook to 2023." Advance Market Analytics website, December 2018. Accessed July 22, 2019. https://www.advancemarketanalytics.com/reports/8811-global-backup-as-a-service-market-1