



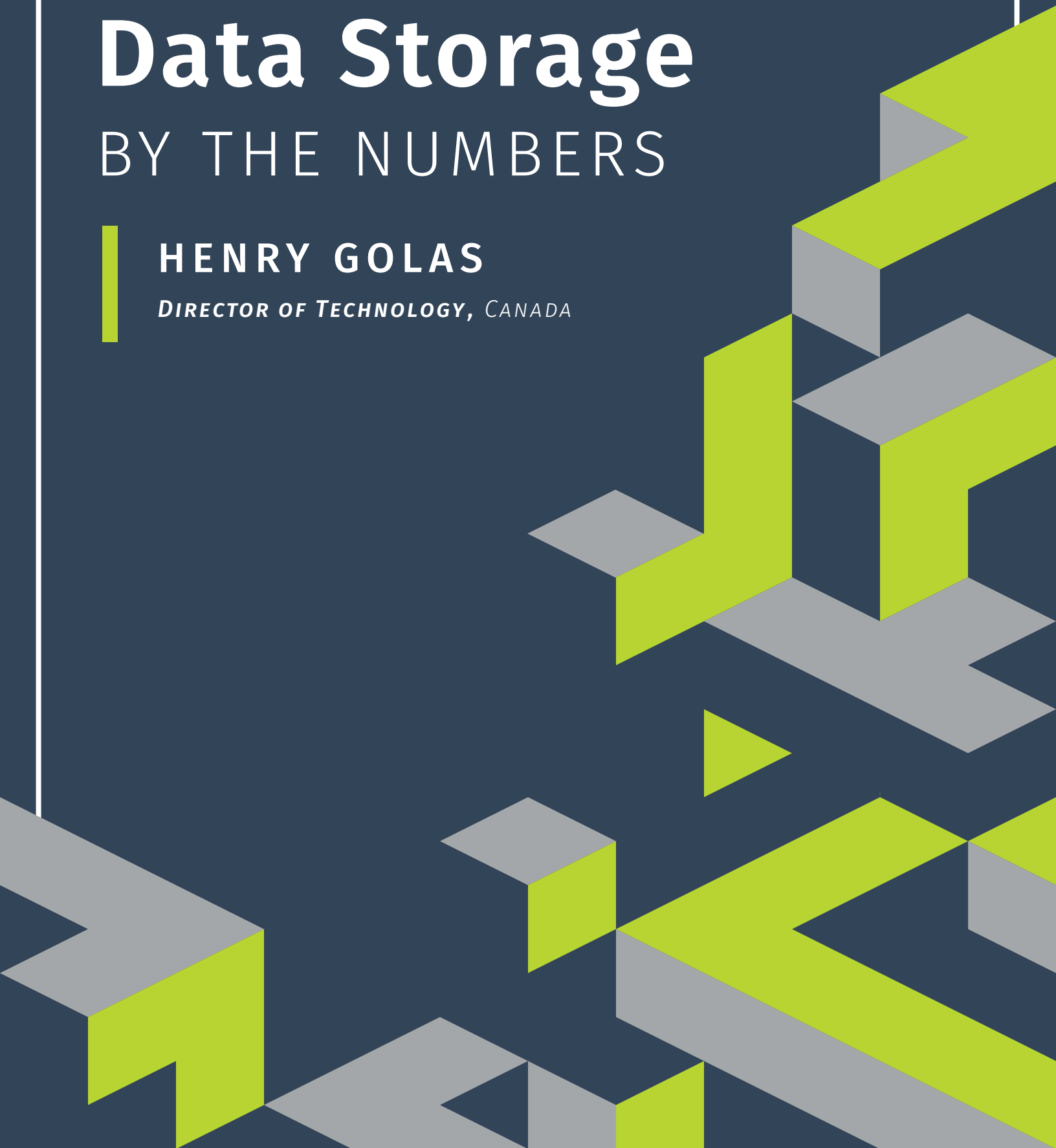
Whitepaper Publication

Data Storage

BY THE NUMBERS

HENRY GOLAS

DIRECTOR OF TECHNOLOGY, CANADA

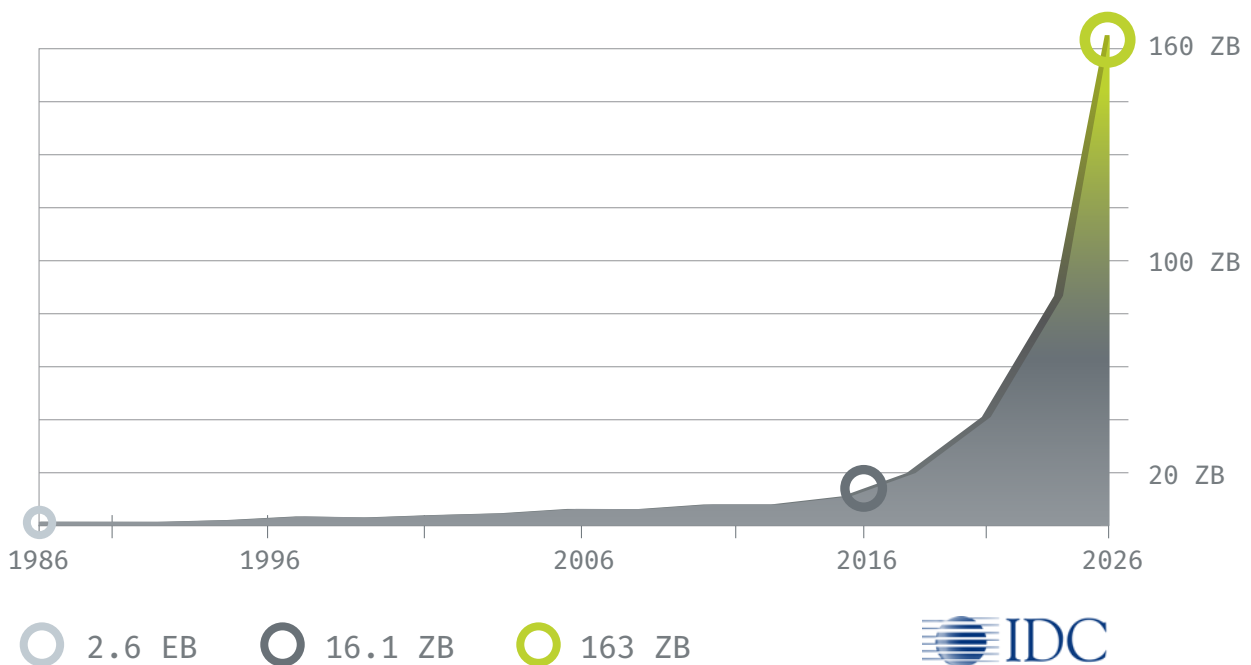


Introduction

A casual glance at the world today and one might notice that businesses are connected by an ever-increasing system of audio, video and data points. Almost all aspects of business life have a data point associated to them: everything from stock evaluations to purchase decisions, relies on data.

In 2016, 16 zettabytes (ZB) of data was generated worldwide (1 ZB = 1,000 EB = 1,000,000 PB). By 2025 the amount of data is projected to increase to 163 ZB or more, with the latest estimates suggesting 175 ZB, according to market research firm IDC¹.

IDC predicts the total amount of data generated worldwide will skyrocket to more than 163 zettabytes by 2025



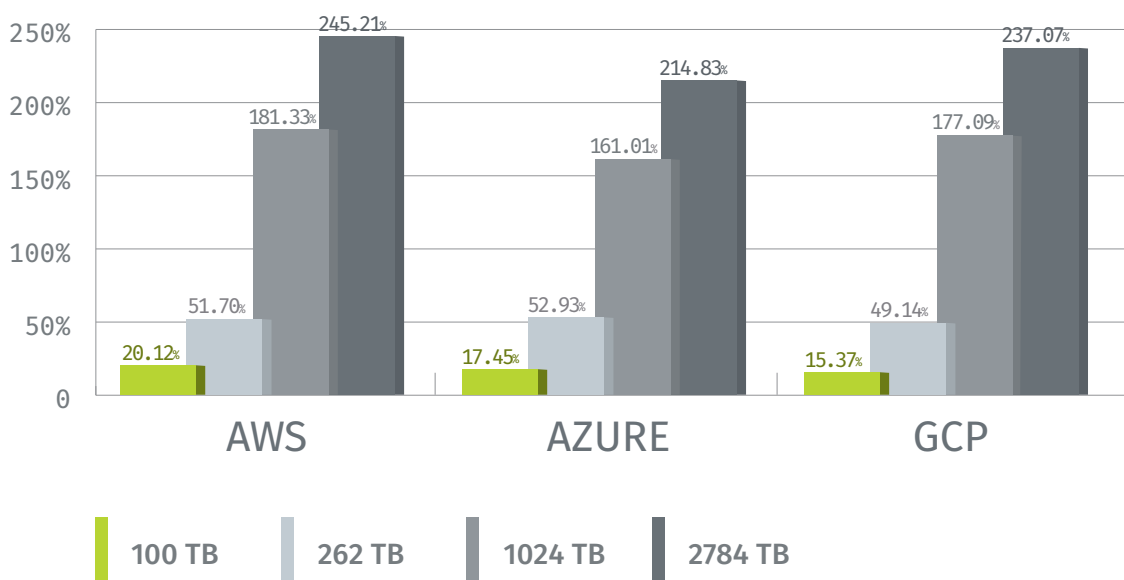
¹ Patrizio, Andy. "IDC: Expect 175 zettabytes of data worldwide by 2025." Article on [www.networkworld.com](https://www.networkworld.com/article/3325397/idc-expect-175-zettabytes-of-data-worldwide-by-2025.html), December 3, 2018. Accessed March 14, 2019: <https://www.networkworld.com/article/3325397/idc-expect-175-zettabytes-of-data-worldwide-by-2025.html>

The challenge with data is that all digital information must be stored on a magnetic platter (disk drive) or in a transistor (solid state drive). Regardless of where data is stored -- on premises, public cloud or managed service provider (MSP) -- there are costs associated.

One of the many challenges for organizations is determining the correct inflection point at which to leverage on premises object storage rather than cloud based object storage.

Based on the comparison table below, an organization that is looking to store 100TB or more of unstructured data should consider on premises object storage. At a buy in of 262TB~, Clouidian HyperStore is ~50% more cost effective than public cloud object storage. **At a Petabyte (1024TB) scale, organizations will spend ~175% more for cloud based object storage than they would by leveraging Clouidian HyperStore on premises.**

% COST INCREASE OF PUBLIC CLOUD STORAGE VS CLOUDIAN

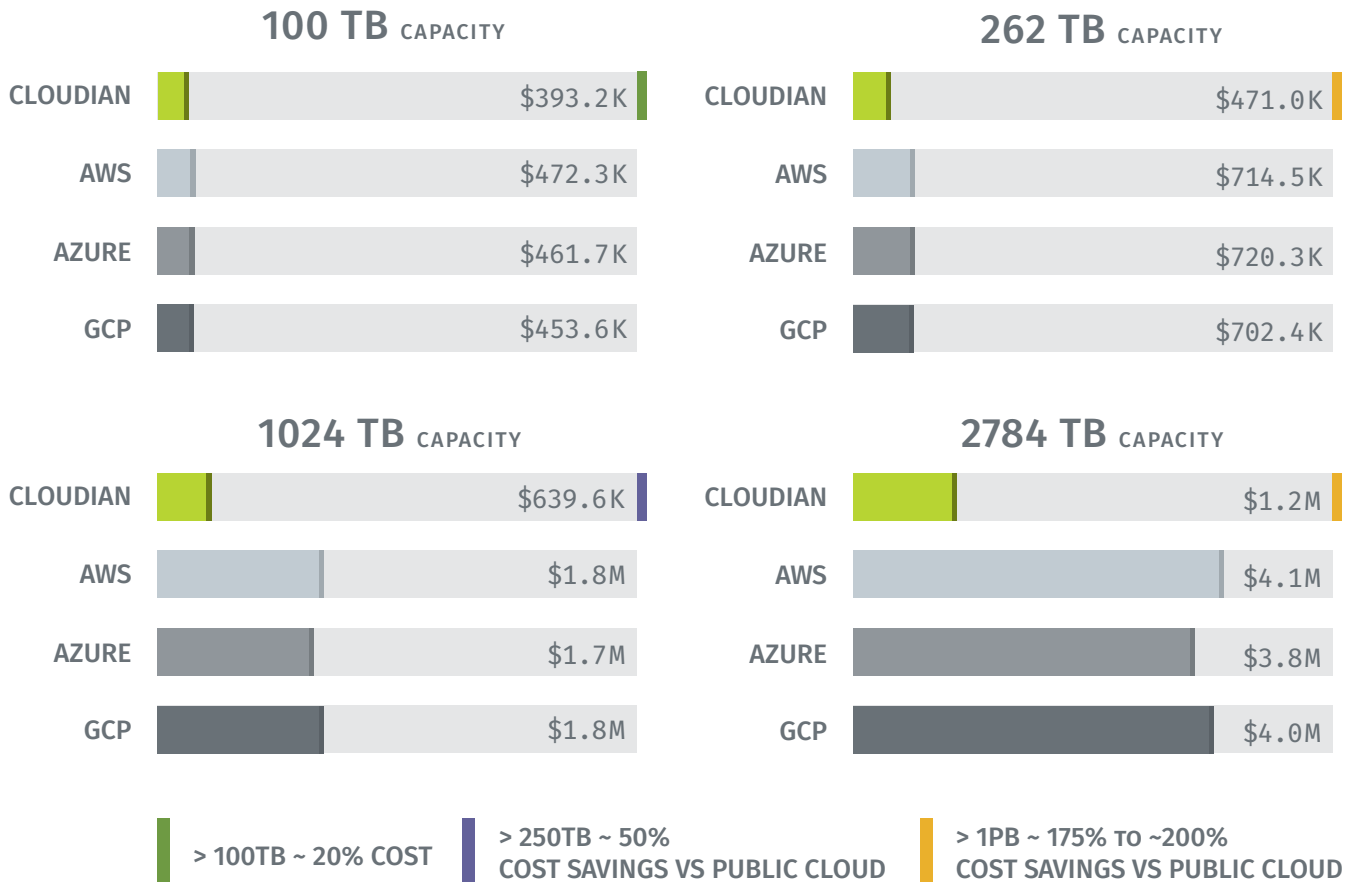


These significant storage cost savings can be applied to a variety of use cases including:

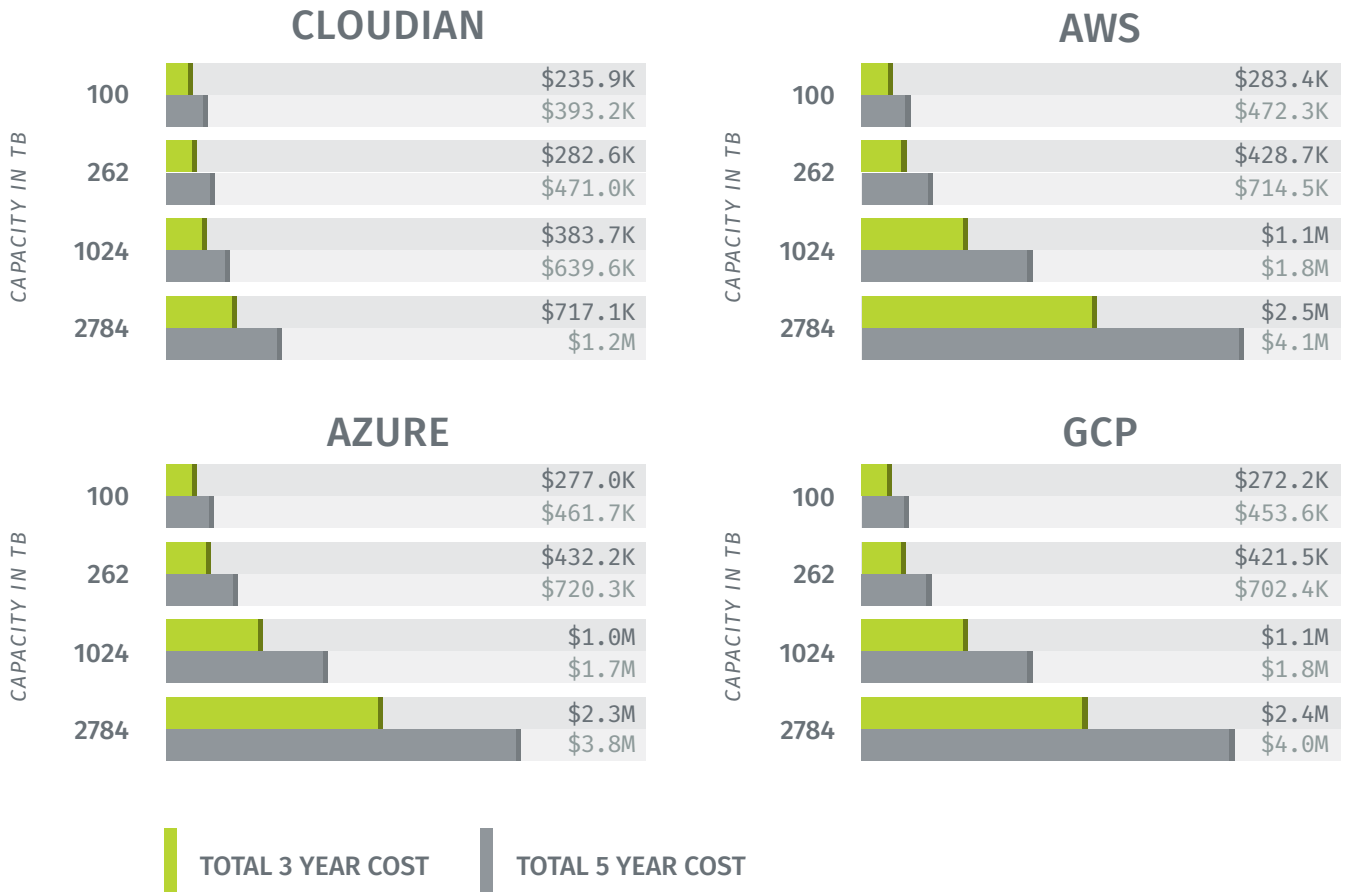
- Data Protection** (Commvault/Veeam/NetBackup/etc),
- Data Tiering of NAS Solutions** (NetApp/Isilon/etc),
- Big Data** (Splunk/Hadoop/etc) and many others.

For organizations with greater than 100TB of data, on premises object storage with Cloudian is significantly more cost effective than public cloud object storage. As organizations generate and require more data, associated storage costs will increase dramatically. By leveraging Cloudian HyperStore customers can provide a cost effective and scalable object storage platform that meets their current and future needs.

> 100TB OF CLOUDIAN VS CLOUD PROVIDERS (TOTAL 5 YEAR COST)



CLOUDIAN VS PUBLIC CLOUD STORAGE **COST COMPARISON** (USD)



VENDOR	CAPACITY (TB)	MONTHLY COST / GB	COST PER MONTH @ 15% DISCOUNT	STORAGE COST PER YEAR @ 15% DISCOUNT	STORAGE COST 3YS @ 15% DISCOUNT	STORAGE COST 5YS @ 15% DISCOUNT	EGRESS / MONTH 6-10% OF TOTAL DATA	BANDWIDTH COSTS	TOTAL 3 YEAR COST	TOTAL 5 YEAR COST	% COST INCREASE VS CLOUDIAN
AWS	100	\$0.023	\$2,154.24	\$25,850.88	\$77,552.64	\$129,254.40	\$716.80	\$5,000.00	\$283,357.44	\$472,262.40	20.12%
AWS	262	\$0.023	\$5,566.57	\$66,798.78	\$200,396.34	\$333,993.90	\$1,341.44	\$5,000.00	\$428,688.18	\$714,480.30	51.70%
AWS	1024	\$0.022	\$20,794.52	\$249,534.23	\$748,602.68	\$1,247,671.14	\$4,194.30	\$5,000.00	\$1,079,597.63	\$1,799,329.38	181.33%
AWS	2784	\$0.021	\$55,216.40	\$662,596.79	\$1,987,790.38	\$3,312,983.97	\$8,552.45	\$5,000.00	\$2,475,678.51	\$4,126,130.85	245.21%
GCP	100	\$0.023	\$1,740.80	\$20,889.60	\$62,668.80	\$104,448.00	\$819.20	\$5,000.00	\$272,160.00	\$453,600.00	15.37%
GCP	262	\$0.023	\$4,560.90	\$54,730.75	\$164,192.26	\$273,653.76	\$2,146.30	\$5,000.00	\$421,459.20	\$702,432.00	49.14%
GCP	1024	\$0.023	\$17,825.79	\$213,909.50	\$641,728.51	\$1,069,547.52	\$6,710.89	\$5,000.00	\$1,063,320.42	\$1,772,200.70	177.09%
GCP	2784	\$0.023	\$48,463.87	\$581,566.46	\$1,744,699.39	\$2,907,832.32	\$13,683.92	\$5,000.00	\$2,417,320.40	\$4,028,867.33	237.07%
AZURE	100	\$0.023	\$1,774.22	\$21,290.66	\$63,871.99	\$106,453.32	\$921.60	\$5,000.00	\$277,049.59	\$461,749.32	17.45%
AZURE	262	\$0.023	\$4,589.80	\$55,077.65	\$165,232.96	\$275,388.27	\$2,414.59	\$5,000.00	\$432,158.27	\$720,263.79	52.93%
AZURE	1024	\$0.022	\$17,454.01	\$209,448.13	\$628,344.38	\$1,047,240.63	\$5,368.71	\$5,000.00	\$1,001,617.91	\$1,669,363.18	161.01%
AZURE	2784	\$0.021	\$46,768.53	\$561,222.36	\$1,683,667.08	\$2,806,111.80	\$10,947.13	\$5,000.00	\$2,257,763.88	\$3,762,939.81	214.83%
			COST PER MONTH	STORAGE COST PER YEAR	STORAGE COST 3YS	STORAGE COST 5YS	Power & Cooling + Rackspace / Mo	Storage Admin @ .5 FTE / Mo	Total 3 Year Cost	Total 5 Year Cost	
CLOUDIAN	100	\$0.015	\$1,536.00	\$18,432.00	\$55,296.00	\$92,160.00	\$850.00	\$4,166.67	\$235,896.00	\$393,160.00	
CLOUDIAN	262	\$0.010	\$2,682.88	\$32,194.56	\$96,583.68	\$160,972.80	\$1,000.00	\$4,166.67	\$282,583.68	\$470,972.80	
CLOUDIAN	1024	\$0.005	\$5,242.88	\$62,914.56	\$188,743.68	\$314,572.80	\$1,250.00	\$4,166.67	\$383,743.68	\$639,572.80	
CLOUDIAN	2784	\$0.005	\$14,254.08	\$171,048.96	\$513,146.88	\$855,244.80	\$1,500.00	\$4,166.67	\$717,146.88	\$1,195,244.80	

Costs presented in the above table reflect publicly listed AWS/GCP/Azure pricing for object storage in the equivalent Region leveraging appropriate calculators as Dec 2019. A 15% EA/MSP discount has been applied for cloud based services.

Values not captured above are transactional charges for cloud based services ie PUT/LIST/SELECT etc

On premises storage administrator calculated at ½ a resource per year, datacenter (Power/Cooling/Rack Space) based on estimated power/cooling values.

<https://cloud.google.com/products/calculator/>

<https://azure.microsoft.com/en-ca/pricing/calculator/>

<https://calculator.aws/>