Economic Insight Report

Economic Impacts of the New Acquisition Alternatives

A TCO comparison of NetApp Keystone Programs

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Evaluator Group

Enabling you to make the best technology decisions

Executive Summary

Last year's onset of the COVID-19 pandemic stimulated rapid responses from IT organizations and IT vendors alike. From a financial perspective, enterprise CFOs moved to conserve cash, a move that caused their IT groups to reassess budgets and project spending priorities[1]. In turn, IT vendors responded with acquisition alternatives that were aimed at giving users the infrastructure they really needed at the time to support a stay-at-home workforce, while adhering to a CFO's need to conserve cash. This resulted in the establishment of creative acquisition alternatives such as deferred payments and phased deployments for work-from-home infrastructure.

The pandemic also stimulated IT buyers to look more closely at a rising infrastructure acquisition alternative – variously known as pay-as-you-go, pay-for-consumption, utility, and subscription. This alternative allowed customers to put needed infrastructure on the floor of the data center quickly and pay for it as they would pay for off-premises cloud computing resources - with the added bonus that the vendor could apply its management services to the infrastructure as well.

In this Evaluator Group Economic Insight Report, we review the current slate of acquisition alternatives – from purchase to subscription – now available to enterprise IT buyers. To aid in the evaluation of these alternatives, we present a modeling tool that compares the relative cost of each of three alternatives – purchase, lease, and subscription. We take the additional step of evaluating and applying this model to the NetApp Keystone programs for storage platform acquisition alternatives.

Purchase? Lease? Subscription? – Acquisition Alternatives in the Cloud Era

Purchase vs. Modern Leasing

Customers have traditionally been able to acquire IT infrastructure via capital purchase or lease. In a lease, monthly payments are made over the course of a lease contract term that can be from 1 to 7 years. Also, with a lease, ownership of the infrastructure is transferred to a third party (lessor) for the term of the lease. Leasing makes a fundamental statement: The customer (lessee) does not have to own infrastructure to derive value from it. Public clouds also make this statement.

IT infrastructure leasing has evolved from rigid and inflexible structures to one in which customers can now take advantage of creative financing alternatives within the context of a very competitive market as well as take ownership of the infrastructure at the end of the lease. Examples of this evolution can be seen in the creative financing options IT vendors now offer – ones that were featured during the onset of last year's COVID crisis. As 2021 progresses we believe that enterprise CFOs will look to maintain

[1] See Evaluator Group Research study entitled "Enterprise IT Responds to COVID-19."

financial flexibility by taking continued advantage of creative financing from vendors who offer it, such as:

Structured Lease Payments and Deferred Payments – monthly payments structured so that they are lower at lease inception and rise later on during the lease term. This allows budget-constrained customers to acquire the infrastructure they needed immediately at more affordable monthly payments, while paying for the bulk of the remainder later-on in the contract. Customers could also take advantage of up to a 180-day deferral of the first lease payment.

Cash Generation from IT Assets – buy-backs of older generation technology that is no longer needed. Cash from these transactions can be paid up front or used as a credit toward future payments on a lease of replacement infrastructure. Existing infrastructure owned by the customer could also be purchased and leased-back, again as a means of up-front cash generation.

Upgrades and Phased Deployments – allow customers to upgrade leased infrastructure for performance and capacity during the term of the lease with corresponding increases in monthly payments. Phased deployments give customers the ability to configure, test and stand-up systems prior to deployment in a production environment before the start of the payment schedule.

Conditional Sale Leases – allow customers to acquire infrastructure now that they will eventually own while paying for it over the term of the lease. Title passes to the customer when the last payment is made.

"as-a-Service" - Adding a Services Component

A third acquisition alternative that is gaining popularity is the "as-a-Service" or Pay-as-you-go" option that gives customers the ability to acquire infrastructure in a way that conforms to the public cloud services consumption model. Public clouds are now seen as a model worth emulating. They are business user-friendly, agile, and their services are easy to consume and pay for. Furthermore, they are stimulating a shift in buying patterns that moves IT budget money away from capital expenditures (CAPEX) in favor of operating expenses (OPEX).

Pay-as-you-go infrastructure services can be divided into two main categories:

Infrastructure delivered on-premises as-a-service (IaaS on premises) – where a customer acquires infrastructure that is delivered, installed, integrated, tested, and supported – all by the vendor and paid for on a pay-as-you-go, consumption-oriented basis. In this case, the customer operates infrastructure that is maintained and supported by the vendor.

Infrastructure delivered as a managed service – where a customer acquires infrastructure management services on top of the on-premises IaaS model. The managed services vendor provides all of the services included in IaaS on-premises category as well as managing and in some cases, operating the infrastructure on behalf of the customer. This includes storage delivered as-a-services (STaaS)

When Pay-as-you-go Makes Sense

Customer demand for pay-as-you-go infrastructure services delivered on premises is increasing. This is particularly true of compute and storage infrastructure services delivered on premises where security, predictable performance and suitability for business-critical applications are primary concerns. As a result, Storage-as-a-Service (STaaS)—a complete storage environment implemented, managed, and supported by a single vendor and paid for on a monthly basis is now being adopted for targeted use cases that include:

- New business initiatives where time to value is critical
- Responding to a need to immediately deliver storage to user's groups
- Critical business applications (SAP, Oracle RAC, etc.) requiring high performance/high availability
- Server/data center consolidation and virtualization
- Time-sensitive application workload expansion
- Management of uncontrolled file share growth
- New compliance requirements and regulated environments including GDPR
- Increased need for OPEX-oriented acquisition alternatives
- Single tenant access with enhanced security

STaaS offerings vary according to the degree to which the customer or the vendor operate the storage in the environment. Customers can off-load repetitive, time-consuming, and non-productive tasks to the STaaS vendor, who can automate the performance of these tasks. This ability frees IT storage professionals to do more productive work. An additional value proposition is the avoidance of time-consuming, expensive, and error-prone refresh cycles.

What Customers Want from STaaS

IT storage professionals have traditionally wanted to form relationships with their preferred vendors. They want their vendors to understand their business models, their operational procedures, their staff members, and their IT culture. Evaluator Group research[2] shows that the same is absolutely the case when considering a STaaS vendor. A customer's expectation is that a STaaS vendor must demonstrate responsiveness to varying needs as they come up.

[2] "Storage as a Service Comes of Age – A Study of Enterprise User Perceptions and Requirements"

However, how the customer/STaaS vendor relationship is structured will depend on customer requirements for operational management and control of the STaaS environment. Users will need to know the cost structure, billing metrics, and how costs for the service will impact their overall budgets *throughout the length of the contract*. But they will also be keenly interested in structuring relationships that define who has management responsibility and over what, and who is in control. As Evaluator Group pointed out in this report, these concepts can easily be conflated. For example, users typically understand and accept a STaaS vendor's lifecycle *management* of the STaaS environment. *Control* is different because it can imply a delegation of authority and / or responsibility from the user to the STaaS vendor. Storage professionals do not want to outsource their higher-level functions, nor do they want to put the STaaS vendor in the position of managing the relationship with business users or other executives and entities within the enterprise.

In the context of this discussion of flexible infrastructure acquisition alternatives that includes STaaS, we turn to a review of the NetApp Keystone portfolio of financial and infrastructure subscription services. This review includes a graphical comparison of purchase, lease, and subscription programs that includes a long-term TCO analysis.

NetApp Keystone Programs

NetApp Keystone is a portfolio of financing alternatives and services to traditional cash purchase of NetApp's storage infrastructure. These alternatives are categorized under two offering categories, NetApp Keystone Flex Pay that includes creative financing, leasing, and conditional sale options available through NetApp Capital Solutions; and NetApp Keystone Flex Subscription that incorporates NetApp's storage product portfolio into a subscription plus consumption-based services model.

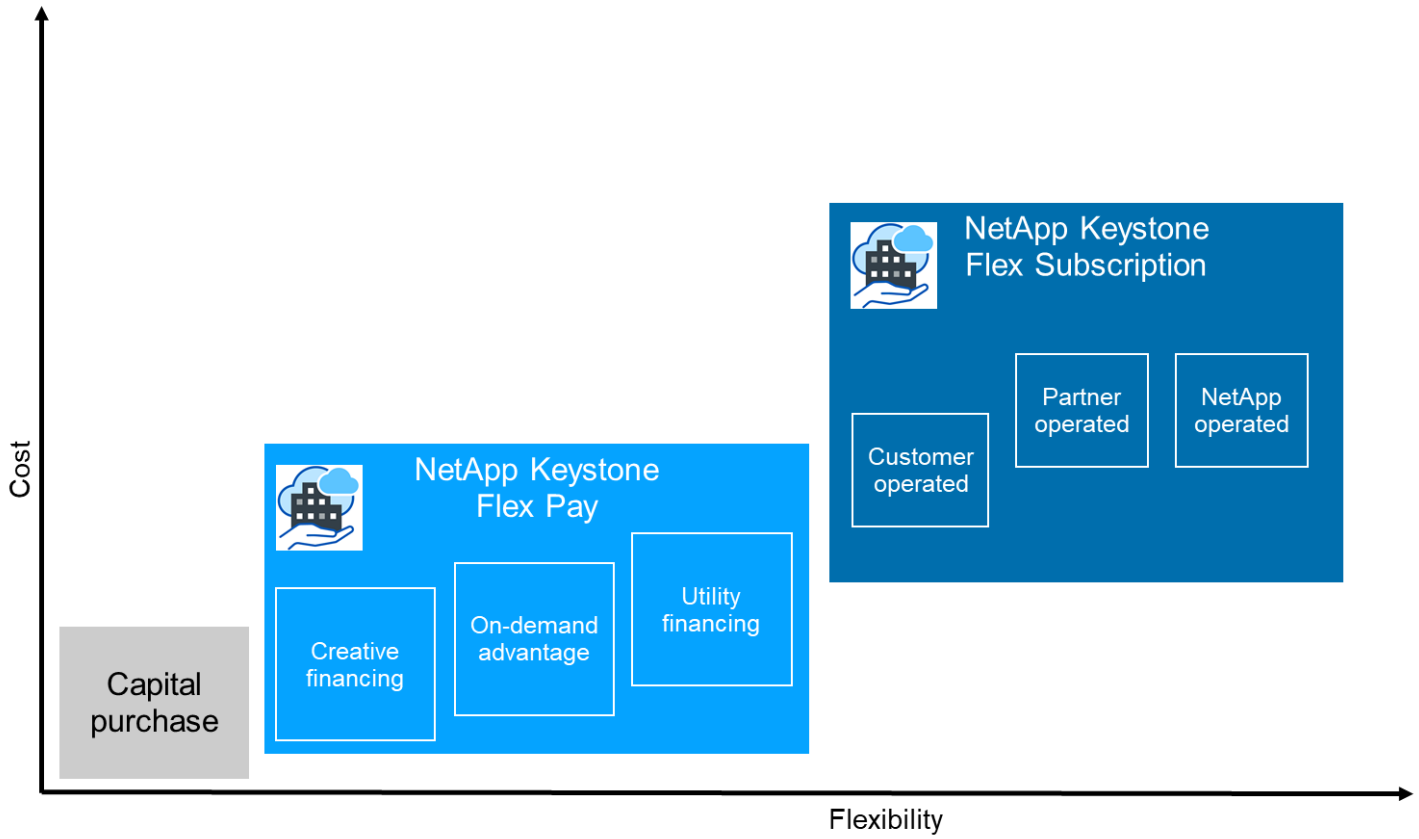

Figure 1. NetApp Keystone acquisition alternatives to capital purchase that presently include Flex Pay and Flex Subscription

NetApp Keystone Flex Pay

NetApp Keystone Flex Pay offers fixed term leasing structures as well a “flex” leasing for NetApp infrastructure including hardware and software. Flex Pay allows customers to add capacity during the term of the lease while paying incrementally more for actual usage. The Flex Pay model also allows customers to extend the lease beyond the initial term or defer payments at the inception of a lease. Flex Pay gives customers the greatest flexibility in terms of infrastructure configuration, allowing customers to tailor the NetApp storage environment to their specific needs. Ownership of the storage assets is retained by NetApp and can remain so at the end of the lease or transferred to the customer at the end of the lease. Creative financing, of the types mentioned earlier, include purchase and lease-back of existing infrastructure to generate cash and variable payment options to conform to budget constraints.

Flex Pay also includes an On-demand Advantage (ODA) program. With On-demand Advantage, customers use and pay for NetApp storage incrementally over a period of three years. ODA starts with NetApp installing a storage capacity that a customer anticipates needing by the end of the three-year program commitment. However, customers are only charged for actual usage of capacity on a per GB basis as time goes on. The unused capacity is available for use at any time, as needed, but only paid for when used. NetApp retains ownership of the storage assets throughout the initial term of the ODA program and any extensions beyond the initial term.

NetApp Keystone Flex Subscription

NetApp Keystone Flex Subscription builds on the ODA concept of paying for actual usage while offering storage services across multiple performance tiers of NetApp's portfolio of products. These services can be instantiated on premises or within an Equinix Data center. Either way, customers can choose from three different operating models; customer-operated; NetApp-operated where customers are given the option to have NetApp fully manage its storage infrastructure on behalf of the customer; or partner-operated where the partner assumes management responsibilities. Separate instances in different physical locations – on and off premises – can be linked for data replication purposes.

Under the Flex Subscription program, NetApp installs an amount of "committed" storage capacity (minimum 100TiB per site) that is paid for as one would for a subscription plus a 20% buffer referred to as "burst" capacity that is paid for on the basis of capacity consumed. Customers use the subscribed capacity plus any capacity consumed above the subscription amount that is needed in a given month. Customers are charged for subscribed capacity installed regardless of whether or not it is used during the life of the contract. Additional capacity is ordered and allocated by the customer through a GUI and/or an API.

Flex Subscription Options

Customers configure their subscription storage environments using a list of options that cover:

- Data services – unified file and block, block only, or object storage
- Performance tiers – Extreme, Premium, Standard, and Value
- Protocol
- ONTAP features for replication, security, etc.
- Operating model – Customer-operated, NetApp-operated, or NetApp partner-operated
- Location – on or off premises (Equinix colocation facility)

Performance Tiers:

Customers choose a performance tier from those available:

- Extreme – up to 12.2K IOPs per TiB – 384MB/s throughput per TiB
- Premium – up to 4K IOPS per TiB – 128MB/s throughput per TiB

- Standard – 512 IOPs per TiB – 16MB/s throughput per TiB
- Value – positioned for backup target use cases

Protocols supported across performance tiers:

- NFS
- SMB
- iSCSI
- FC
- S3

ONTAP features available for the Extreme, Premium and Standard performance tiers:

- FlexVol, FlexGroup, Protocols, Clone, Encryption capabilities by default
- Snapshot – Default: 4 hours, 7 days retention
- SnapMirror for initial ingest included with Premium on the source system

Platform Equinix

Customers can choose to instantiate NetApp Keystone Flex Subscription storage within an Equinix colocation facility on a stand-alone basis or create a hybrid, multi-cloud storage architecture using direct network connections between the locations. Instantiating on an Equinix platform offers the advantage of placing the service "next to" the leading public cloud service providers (AWS, Azure, Google Cloud) as opposed to using cloud-native storage and its associated costs. Data is close enough to cloud services such as compute, database, and analytics to result in low latency when using this architecture. Customers also get the control and governance inherent in NetApp storage operations. The option to have NetApp or a NetApp partner fully manage and operate the service is also available.

Three Operating Models

Customers choose from among three different operational management models – NetApp-operated, Partner-operated, and Customer-operated – as shown in Figure 2 below:

Service lifecycle	NetApp®-operated	Partner-operated	Customer-operated	
	NetApp	Partner	NetApp	Customer
Build, configure, and deploy	✓	✓	✓	
Monitor and administer	✓	✓		✓
Operate and optimize	✓	✓		✓
Support	✓	✓	✓	

Figure 2: Flex Subscription operational management options (source: NetApp)

Customer-operated

Under this model, NetApp is responsible for hardware and software installation and support plus ownership of the storage infrastructure. Customers perform all other storage and data management operations.

NetApp-operated/Partner-operated

Additional NetApp or Partner management services can be applied to the customer management model at additional cost. These include:

- Ongoing services to optimize and manage any applicable service level agreements (SLAs)
- Workload mapping to tiers
- Data management
- Performance/capacity management
- Hardware incident, problem and change management
- Proactive management of service requests
- Upgrades, patching
- Performance/capacity management
- Release management
- Asset and configuration management
- Documentation
- Access management
- Monthly service reporting

Management Portal

Flex Subscription customers have the use of a self-service management portal called NetApp Service Engine (NSE) which allows them to do the following:

- Provision storage and data protection workflows
- View subscribed capacity and usage
- View reports on daily burst capacity usage and performance
- Measure usage and view the reports that are used to generate invoices
- Order additional capacity or new storage services
- Integrate orchestration tools with APIs

Flex Subscription Pricing Metrics

With Flex Subscription, customers pay a fixed amount for a subscribed capacity and all selected services at the performance tier chosen. Payment can be made on a monthly or annual upfront basis. Customers also pay for any use of an overage consumed (burst capacity) during a given month above the subscribed capacity. The total payment covers hardware, core OS software and support, and additional amounts for NetApp and partner fully operated contracts when selected.

Charges for overage usage above the subscribed amount can go up or down depending on capacity demand, but never below the subscribed amount. Charges for the use of burst capacity up to 20% of the subscribed amount will be billed at the same price as that for subscribed capacity on a per TiB basis. Usage above the 20% burst capacity is billed at 1.5x the rate for subscribed capacity. Payment for burst capacity can be made on a monthly or quarterly basis.

Charges are based on a flat rate for capacity used during a given month. The rate is based on what NetApp refers to as Logical Effective Capacity which is defined as the amount of data that is written by a host or application to the storage service before the application of any storage efficiency processes (compression, deduplication, etc.). Each year, a customer has the ability to "true up" capacity usage where the subscribed capacity needed for the following year is increased if necessary[3].

The minimum capacity required at the inception of Flex Subscription services is 100 TiB per site with a minimum term of 12 months. Cancellation prior to normal termination is subject to an early cancellation fee which is equal to the remainder of the unpaid total contract value. Contracts renew automatically at the end of term. At that point, customers can add another 12-month contract or terminate the agreement in which case NetApp will allow the customer to go month to month until data is migrated off the NetApp storage devices. Discounts may be offered for longer-term contracts. NetApp retains ownership to the infrastructure at all times during the life of the contract.

[3] Customers who pay yearly can optionally decrease subscribed capacity at the end of the term.

TCO Analysis

In order to give customers a better sense of the financial impacts and trade-offs for using NetApp's Keystone payment solutions and storage-as-a-service offerings as opposed to traditional CAPEX, Evaluator Group built a financial model that compares the total cost of ownership (TCO) of each alternative. The cumulative TCO calculation used in presenting this model includes:

- Hardware and hardware maintenance
- Software and software maintenance/support
- Deployment
- Administrative costs by IT

Outputs of this model can be customized (examples shown in Figures 3 and 4 below) using the following parameters:

- Capacity required at the start of the Flex Subscription term for each performance tier (Extreme, Premium, Standard, and Value) as well as unified file and block, block only, and object storage. An estimate of annual capacity growth can also be specified.
- Subscription term commitment – from one to five years
- Use of NetApp FabricPool data tiering, if desired, to reduce the amount of data stored on the Extreme and Premium storage services. Turning the Data Tiering option on in the model will reduce the amount of capacity required for active data by 75% on a yearly basis.
- Use of Advanced Data Protection, if desired, to implement NetApp MetroCluster plus the Data Protection Bundle. (Note: costs for replicated capacity are not accounted for in this model.)
- Selection of a customer-operated, NetApp Partner-operated, or NetApp-operated environment as described above under NetApp Keystone Flex Subscription.

Examples of the analysis available to users is shown in figures 3 and 4 below where the cumulative costs (y axis) are represented by the black (CAPEX purchase), Red (Flex Pay) and green (Flex Subscription) plots over time in years (x axis). Figure 3 shows a comparison using the customer-operated option for Flex Subscription. Figure 4 shows the same comparison using Equinix as a colocation facility.

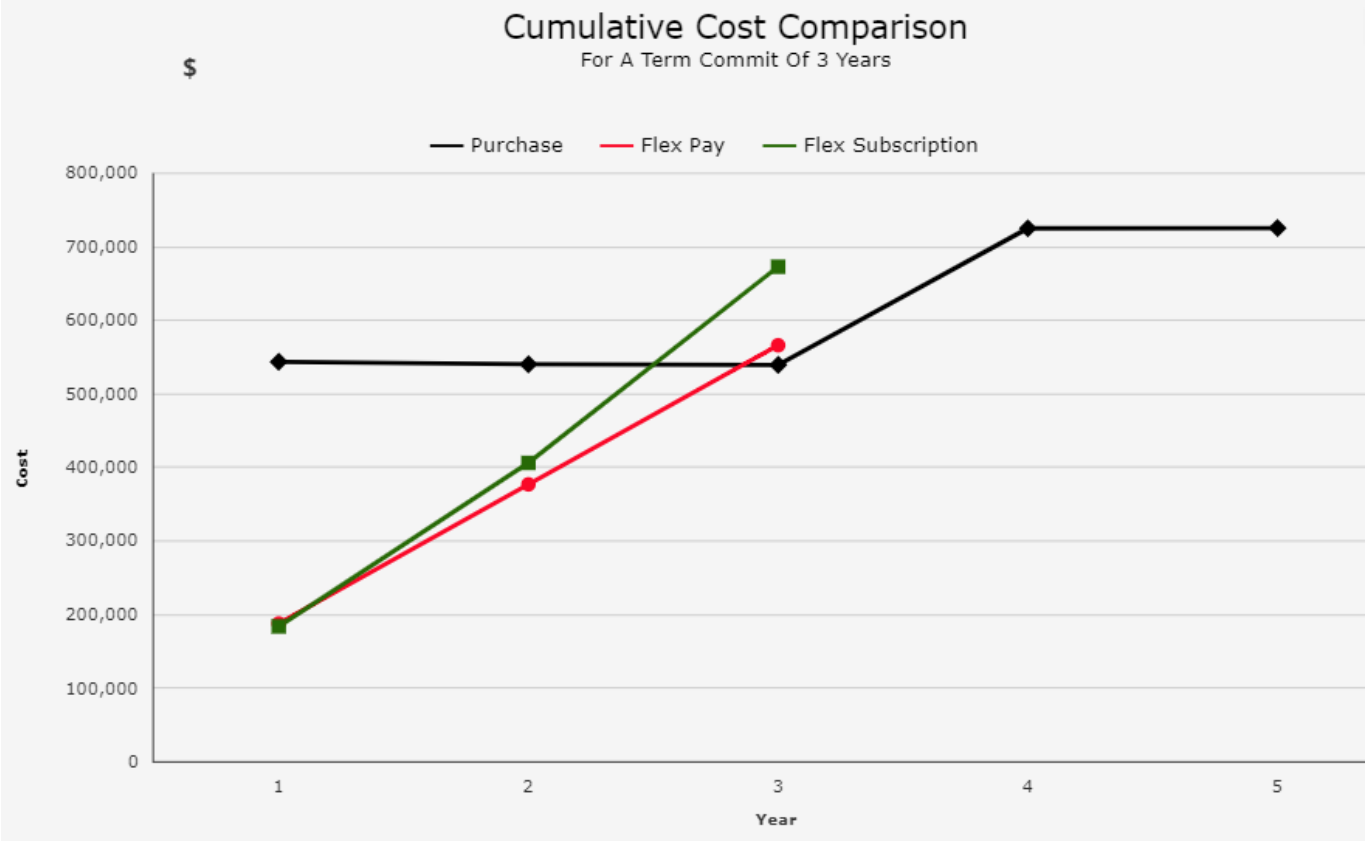

Figure 3. Three-year TCO comparison with the Flex Subscription services being customer-operated (green plot)

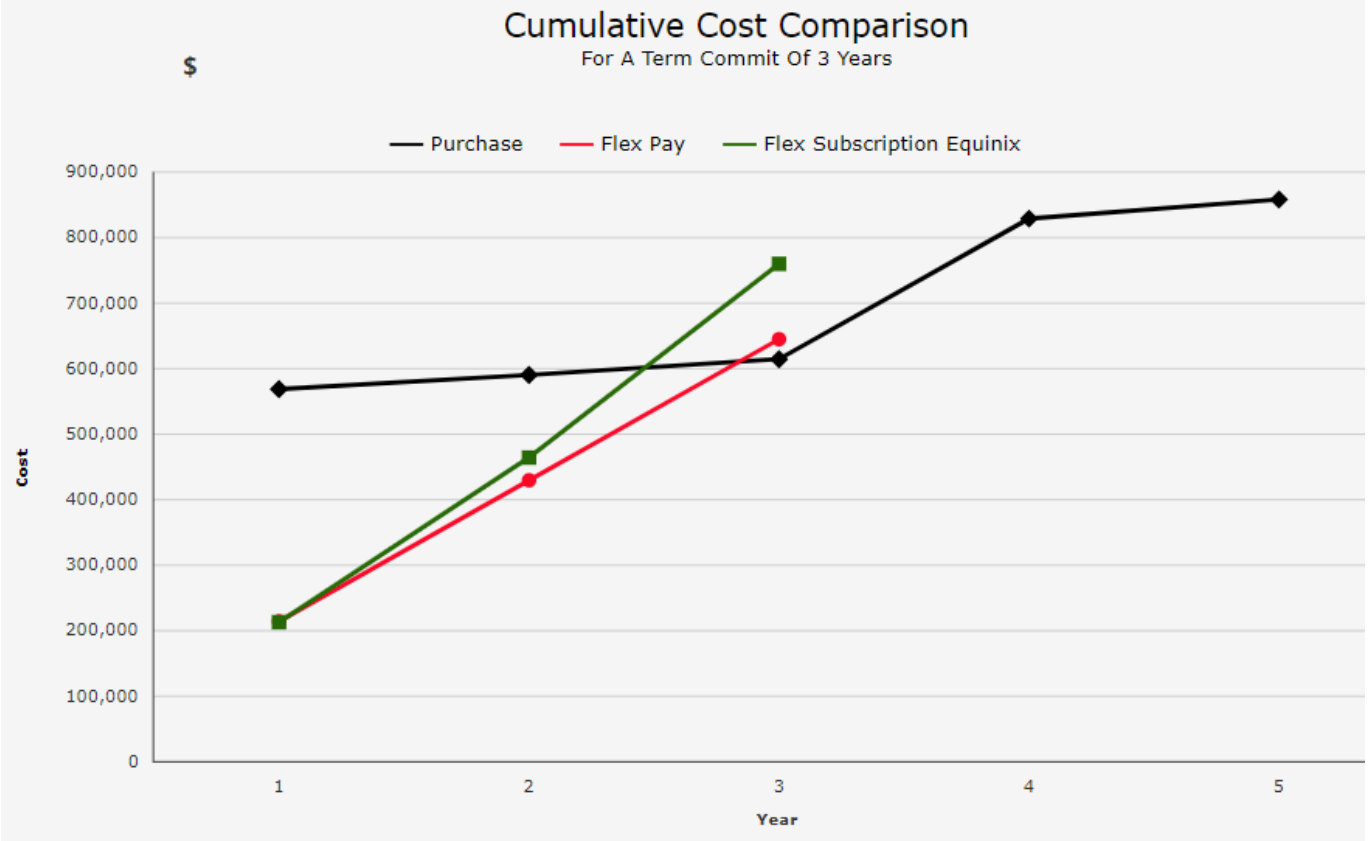

Figure 4. Three-year TCO comparison with the Flex Subscription services being customer-operated within an Equinix colocation facility (green plot)

This above presentation of comparative graphs is based on the following customer-defined parameters that are used in both Figures 3and 4:

- Starting capacities of 100 TiB each for Extreme with data tiering and Premium with data tiering, and 400 TiB Value performance used for backups are used for the Flex Pay and Flex Subscription options. A growth rate of 20% per year is also factored into the models.
- For Purchase, the customer buys 864 TiB total storage capacity (Extreme, Premium, and Value). This equals the capacity at the end of the three-year terms for Flex Pay and Flex Subscription options where the starting capacity is 600 TiB and the growth rate is 20%. A five-year projection is made to cover expected capacity growth during years 4 and 5.
- Software and SupportEdge Advisor support costs are included for Purchase and Flex Pay. For Flex Pay, the model presents a conditional sale lease scenario where a customer owns the same capacity as it would under the purchase scenario at the end of the contract. For Flex Subscription, NetApp owns the infrastructure at all times.
- Data protection software (SnapVault and SnapMirror) costs are added into all consumption models, with 100 TiB each for Extreme and Premium.

- For Figure 4 (Equinix colocation) space, power, and cooling are added into the costs.
- Payments are made monthly for Flex Pay and Flex Subscription.
- The customer-operated option is modeled where the customer is responsible for operation, monitoring, administration, and optimization.

Analysis

The TCO comparison presented in Figure 3 above demonstrates the TCO impact of each of NetApp's Keystone acquisition alternatives to CAPEX purchase of storage infrastructure. Flex Pay gives customers the ability to make monthly payments as opposed to having to budget for a large up-front sum. The customer will still have the capacity needed over a three-year period and retain ownership. Flex Subscription offers a number of additional advantages:

- The transaction can be classified as an operating expense (OPEX) making acquisition easier for those customers who can take advantage of OPEX spending, demonstrating that customers do not have to own infrastructure in order to derive its benefits.
- Customers are paying only for the capacity used. They can start with a minimum required capacity and grow as needed without paying up-front for unused capacity. This is desirable for example when workloads are being moved to public clouds at a rate that is typically unpredictable, or for new projects where approval cycles introduce unwanted friction. Subscribed capacity can be scaled down by up to 25% after the first year if needed.
- Customers have flexible use of performance tiers. Workloads can be moved among performance tiers as needed to balance performance with cost.
- Customers have use of the NetApp Service Engine, the orchestration and management tool that can be used to provision storage and get reports on service usage (see above).
- In addition to installation, configuration and deployment, NetApp provides infrastructure lifecycle support that includes maintenance, updates, upgrades, and technology refreshes.

Figure 4 – NetApp Keystone is based on the same set of inputs to the model as Figure 3, but Flex Subscription services are being deployed to an Equinix colocation facility. While not modeled, this scenario can be used to reduce the cost of moving data into and out of public clouds where data egress charges apply. It also assures more predictable performance for latency-sensitive applications running in the cloud.

In addition, the NetApp-operated option (not modeled but yielding similar results) gives customers the ability to not only pay for capacity on an as-used basis but allows them to off-load other laborious storage management tasks (noted above) such as capacity planning, performance management, software updating and patching, and release management.

Conclusion

Going with NetApp's Keystone acquisition alternatives such as NetApp Keystone Flex Pay and NetApp Keystone Flex Subscription can have multiple impacts on enterprise IT budgets. Flex Pay allows users to acquire storage infrastructure at the inception of a project for example without having to fund the entire CAPEX purchase up front. Flex Subscription operated by the customer combines this payment deferment advantage with the ability to offload updating and upgrading the storage environment to NetApp. And, from a purely financial balance sheet standpoint, Flex Subscription will likely qualify for accounting treatment as an Operational Expense (OPEX). Evaluator Group research shows that somewhere between 20% and 30% of enterprise IT organizations are currently shifting their budgeted spending from capital (CAPEX) to OPEX spending. We expect this trend to continue upwards as OPEX spending for public cloud resources continues to increase. Therefore, Flex Subscription fits with this spending trend.

From an IT strategy standpoint, Flex Subscription gives enterprise storage users easy and immediate access to the latest storage technology without going through what many users consider to be a laborious and time-consuming capital acquisition process. As digital transformation, web-facing and VDI projects progress, the capital acquisition process can often be seen as needlessly cumbersome and time-consuming, creating a debilitating lag between a project's inception and actual implementation

Finally, establishing a cloud-like storage service on premises could significantly change how enterprise IT approaches management of the storage environment. This statement is particularly true when the vendor or one of its partners assumes operational responsibilities as is the case with Flex Subscription with the NetApp-operated option mentioned above. Flex Subscription is a good fit for new business initiatives where time to value is critical and responding to a need to immediately deliver storage to business and developmental user's groups is required. It offloads IT management "toil" to the vendor which frees-up time for IT to do more productive work. And using the Flex Subscription reporting mechanisms could allow IT to more effectively charge-back its storage user groups. This in turn could stimulate more efficient use of storage by these groups and lower the capacity growth curve.

NetApp leads storage vendors in its embrace of the cloud and cloud-related technologies. NetApp now has a set of acquisition alternatives that fit with enterprise cloud buying patterns.

About Evaluator Group

Evaluator Group Inc., an Information management and data storage analyst firm, has been covering systems for over 20 years. Executives and IT Managers rely upon us to help make informed decisions to architect and purchase systems supporting their data management objectives. We surpass the current technology landscape by defining requirements and providing an in-depth knowledge of the products as well as the intricacies that dictate long-term successful strategies.

About Financial Insights Models

Evaluator Group's Financial Insights Models aid in determining the best approaches for architectural and IT purchasing decisions. The FIM represents visually the financial value of architecture options and new technology approaches to a total cost of product offering ownership. The models are custom designed for use by IT End Users and Vendors.