

The True Cost of Ownership in a Legacy Infrastructure

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Introduction

Modern technology and exciting performance or manageability improvements are a natural reason to upgrade data center systems. And for many businesses, this is the driving factor in looking at hyperconvergence as the model for their next platform.

They have high performing applications that regularly demand more from the infrastructure, and upgrades must provide substantially increased performance for the growing workload.

There is, however, an increasingly prevalent tertiary reason for data center upgrades being set in motion: money.

In the case of a looming data center upgrade, money is often a motivator because the individual or committee holding the checkbook has looked at the cost of maintaining the organization's existing solutions, and they are *shocked*.

CAPEX AND OPEX

Any substantial purchase in the data center likely comes with at least two components: capital expenses (CapEx) and operational expenses (OpEx). CapEx are the initial capital purchases (hardware, software, professional services), while ongoing costs like support from the vendor or man hours for staff maintaining the equipment are OpEx.

In some cases, customers find that it costs them as much or more to maintain their current solution (OpEx) than it does to just buy a brand new one!

In this paper, you'll learn about some of the factors influence the operational cost of maintaining a legacy infrastructure. You'll learn that maintaining a legacy infrastructure can, in fact, be prohibitively expensive. You'll then learn about some of the ways that a hyperconverged infrastructure (HCI) paradigm can reduce the operational cost of maintaining an IT infrastructure.

Infrastructure Costs

Alongside the initial cost of purchasing data center infrastructure, there are an assortment of costs associated with maintaining gear and services for the long term. These costs include things such as subscription-based fees to the vendor for ongoing support, the time it takes IT staff to maintain and upgrade equipment, and lost revenue due to outages for which old equipment or disruptive upgrades are to blame. This section will look at each of these costs in more depth.

SUPPORT RENEWALS

The astronomical cost of some support agreements leaves some organizations with no choice but to retire old systems and purchase new ones. This is no accident, of course. Some simple business logic can explain why a vendor would build in a pricing structure that necessitates a hardware refresh every few years. If it didn't become expensive to keep old hardware, the vendor would lose money by: having to constantly replace failing hardware, burning time troubleshooting outdated models, and not progressing technically because legacy systems have to be accounted for.

A New Model

While this plan may have worked in the past when the industry giants basically monopolized the data center space, it's starting to become quite risky. The problem with this model is that every few years, when the forced refresh comes, the customer has the opportunity to replace aging systems with another vendor's product.

With myriad choices to suit any need, the incumbent is often left out in the cold after having been replaced with a more impressive solution from a newer, more agile company for less than the cost of the maintenance renewal on the old vendor's system. At the end of the day, business is about the bottom line, and who wouldn't want a faster, bigger system for less money?

CARE AND FEEDING

An expensive component of the total cost of ownership (TCO) of any system is day-to-day upkeep. Many enterprises employ multiple IT practitioners to focus solely on their storage systems, for example. Storage has historically been a quite specialized discipline, so from a salary perspective, this may be a very expensive team of administrators. In light of recent developments in the storage and hyperconvergence markets, there are a few ways by which legacy systems end up being too expensive to keep.

Non-Trivial Maintenance

From an implementation perspective, legacy systems are often non-trivial to expand or upgrade. This means that one or more of the highly paid administrators on that team will have to burn hours upon hours on implementation before the system (or upgrade) is even usable. In a modern data center, this level of effort is unacceptable.

The agility available from newer systems allows for changes on the fly, often within a few mouse clicks. It's not an exaggeration to say that some legacy systems can take a couple of hours at the command line to upgrade, versus a few clicks in the graphical user interface (GUI) of a newer system. Remember: every hour adds to the TCO of the system.

Endless Troubleshooting

Many hours are also burned troubleshooting issues in a data center. To some degree, this is unavoidable due to the nature of technology. But some of the time spent troubleshooting can certainly be due to unnecessary complexity brought about by having a legacy system in a modern data center.

Complexity increases troubleshooting difficulty. Therefore, decreasing complexity is likely to lead to less hours spent troubleshooting. Simplicity rules the modern data center, and many legacy systems just don't fit the bill.

LOST REVENUE

A final, potentially overlooked cost that chips away at the economy of legacy systems is lost revenue due to outages. This isn't likely to be seen when looking at the budgetary numbers for a given system or project, but it's a sure thing that an unavailable production system costs the business money.

Be careful when looking at this cost though, because revenue lost when a system is down due to human error or organizational deficiencies doesn't necessarily impact the TCO. This is because the problem may have existed regardless of the technology in place. However, if the system is inherently unreliable due to architecture, code, or hardware, outages caused by these components will directly increase TCO. Can your organization afford *not* to replace a legacy system, if three outages a year costs the same amount as an upgrade would cost, and last year there were 5 outages?

How Hyperconvergence Impacts Operational Expense

The good news, for those feeling the pain of just how hard it is to efficiently manage legacy infrastructure, is that by adopting a slightly different approach, a lot of those challenges can be addressed.

But what is hyperconvergence and why does it change the cost model?

Hyperconvergence as a Concept

Hyperconvergence is the idea that a variety of disparate data center systems can be combined into a single platform that is easily managed, easily upgraded and scaled, and totally interoperable.

When systems like compute, storage, networking, data services, and data protection are unified as a part of a single platform, the way it is managed and the way day-to-day operations are carried out change. The following are a few ways by which hyperconvergence lowers the operation cost of maintaining IT infrastructure.

SIMPLICITY

First of all, maintaining a complex infrastructure can be one of the costliest aspects of an IT architecture. Every hour spent learning how to use the solution, learning how to troubleshoot the solution, or spent trying to quantify metrics about the solution impacts the cost of ownership.

Very Low Learning Curve

In a hyperconverged world, these challenges are almost non-existent. The learning curve to using the system is particularly low to administrators who have already worked with virtualization. Hyperconverged infrastructure makes storage constructs and data protection configuration relevant and easily understandable to a virtualization administrator.

Inherent Interoperability

Because hyperconverged solutions combine many services under one platform, many of the interoperability issues that can be found in a more traditional data center architecture are missing from the solution. Because a single vendor has produced all the components involved, the interoperability is not only guaranteed from the beginning, but it's already baked into the product and doesn't require additional configuration.

PAINLESS SCALING AND UPGRADES

While scaling a legacy infrastructure can be a serious challenge, scaling a hyperconverged infrastructure is a matter of racking the new hardware, clicking a few buttons, and going out to lunch. Upgrades follow the same method with the same level of difficulty.

Scale Out with Ease

Because hyperconverged infrastructure is built with scaling out in mind, increasing the size of a deployment is one of the simplest things to do when using the platform. Scaling capability is in the DNA over every hyperconverged solution.

Most hyperconvergence platforms are able to dynamically add new nodes to the cluster as soon as they're detected. This means that most of the hassle with safely adding resources to a legacy infrastructure is averted, leading to substantially less time to plan, less time to execute, and no outage during the expansion. In terms of dollars and cents, this is a much cheaper expansion than one in a legacy environment.

Perform Upgrades Online

The same rules apply to upgrades. Because the system is distributed in nature as a necessity for the scale-out architecture, upgrades are non-disruptive. Nodes can be removed from service for the upgrade, validated, and brought back online without any maintenance window. This is, again, a much cheaper upgrade in terms of lost revenue and the investment in planning and executing the upgrade.

COMBINE IT RESOURCES

One more way that hyperconvergence reduces IT spend over the life of the solution is that it takes fewer personnel to manage the solution. By reallocating personnel to other tasks and responsibilities, IT as a department can become more proactive and be seen as an enabler to the organization.

Converge Silo-Bound Teams

Managing hyperconverged infrastructure is different than managing a legacy infrastructure due to the fact that all the disparate systems are now combined and managed from a single point. This allows teams that would have previously been in their own silo (for instance, storage, virtualization, and networking) to work together.

Putting these valuable resources on a single team to manage the infrastructure not only allows them to work better together and be more efficient, but it also allows them to be free to handle other business objectives. Using personnel more efficiently saves the IT organization money overall.

SUMMARY

Although many organizations continue to maintain legacy infrastructure, the time where this will be economically feasible is running short. When faced with the operational efficiencies that hyperconvergence can offer, many IT decision makers will soon choose to move their infrastructure to this more effective model of constructing data centers.

To learn more about hyperconvergence and the ways that hyperconvergence can empower and catalyze change in your organization, take a look at the other resources available on www.hyperconverged.org.