DIGITAL DIALOGUE

INTELLIGENT MANAGEMENT OF YOUR HIGHER ED CLOUD – PUBLIC AND PRIVATE

Every college and university wants to simplify its IT infrastructure while lowering TCO. For many institutions, the best approach involves developing a hybrid cloud narrative that incorporates solid ROI.

YOU MAY BE FEELING A GREAT DEAL OF momentum right now in higher education to shift IT infrastructure to the public cloud. The top three leading public cloud providers – Amazon, Microsoft and Google – have seen sales across all sectors quintuple since 2015; and Amazon Web Services, which **claims** to own about 45 percent of the cloud infrastructure market, did $40 billion in business in 2020, a 25 percent leap from the year before.

Yet, when it comes to a "public-cloud-first policy," the smart money is adding the words, "for workloads where it makes the most sense." As Steven Kaplan, longtime

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expert on virtualization, co-author of numerous books on VMware and Citrix technologies and, currently, vice president of customer success for **Nutanix**, recently pointed out during a **Campus Technology webcast briefing**, "Public cloud is expensive, at least for predictable workloads – which just happen to make up the majority of workloads for most organizations."

Research by IDG in 2020 found that almost seven in 10 organizations "experienced higher-than-expected cloud costs," for several reasons, including lack of planning in their cloud strategy and not optimizing workloads before they were moved to the cloud. A **study** by IT management software company Flexera discovered that 82 percent of operations struggled with managing cloud spending over budget by nearly a quarter (23 percent). McKinsey recently **noted** that four in five enterprises in the Flexera study "consider managing cloud spend a challenge"; and although seven in 10 said optimizing cloud spend was a major goal, "realizing value [remained] elusive."

The challenges of cloud first aren't limited to overspend, Kaplan added. Overdependence on public cloud can lead to performance and resiliency problems, complexity concerns and cloud provider lock-in.

Taking a "Cloud Smart" Strategy

What's really needed, Kaplan suggested, is a "cloud smart" strategy – one that embraces "both private and multiple public clouds." When advising colleges and universities that are considering a cloud-first approach, he proposes that they address four questions:

- Have you done the financial analysis? Does your board know how much money this is going to cost your institution?
- What duration are you looking at for consolidating your data centers into public cloud – three years, five years, seven years?
- Do you think it's possible to move entirely to public cloud?
- Why not hybrid cloud architecture?

A more realistic scenario for legacy apps that don't have ROI to be moved to cloud or predictable workloads, he noted, is to adopt a mix of on-premise and public cloud infrastructure. A recent "**enterprise cloud index**" developed by research firm VansonBourne queried 3,400 IT professionals from around the world. The researchers found that nearly nine in 10 IT professionals (86 percent) considered their ideal to be the hybrid cloud operating model.

Kaplan is convinced that the adoption of hybrid is a first big step in modernizing IT operations.

Shifting Away from Proprietary Storage Hardware with HCI

Take storage as an example. The traditional architecture of storage area networks (SANs) has long consisted of centralized storage, storage network and servers, otherwise known as "three-tier." As Kaplan pointed out in

HCI is a system that combines the elements of the traditional data center – storage, compute, networking and management – into a software-defined system that runs on commodity servers and eliminates a reliance on proprietary hardware.

his newest book, ***The ROI Story: A Guide for IT Leaders***, this legacy approach is not only "complex, it's expensive, scales poorly and is not natively resilient." And anywhere there's complexity, he noted, there's also "lots and lots of costs."

The alternative for legacy SANs is hardly new. Kaplan recounted how Sergey Brin toured the Yahoo datacenter early in the history of Google and found more than a thousand storage appliances, many of which "sat mostly idle due to lack of activity by users in different global time zones." When his own tech team tried to persuade him that storage arrays couldn't accommodate varying sets of user data, he told them to find a way to "make Google's storage agile, scalable and efficient."

It took an outside team of scientists working with Google to persuade the computing world that off-the-shelf servers and software storage could enable the enterprise to dump its SANs. The impact on the world of computing was revolutionary.

Several members of that team went on to found Nutanix, which pioneered a technology that became known as "hyperconverged infrastructure." HCI is a system that combines the elements of the traditional data center – storage, compute, networking and management – into a software-defined system that runs on commodity servers and eliminates a reliance on proprietary hardware. Now, numerous vendors offer their own HCI solutions and Gartner estimated that the segment will reach $8.5 billion in a couple of years. It has become a standard in many data centers as a better way of running storage.

Selling Disruptive Tech

Yet, in spite of the benefits delivered by HCI, it's still considered a disruptive technology, which complicates the buying decision for IT organizations in higher ed. It's hard to persuade an administration to invest in disruption, acknowledged Kaplan. That's why he has advised turning financial analysis into a power tool.

Compare the purchase of a SAN to HCI. In the first case, Kaplan explained, you have to guess at what type of resources will be needed when that SAN reaches end of life, to make sure it can accommodate future requirements without running out of capacity and undergoing an "expensive and complex and time-consuming forklift upgrade." The SAN will need "lots of storage bays and oversized storage controllers," all of which you'll pay for upfront, along with the rack space to house the new SAN and the power to keep it running and cool. "The SAN starts deprecating the day it's put in," he said. "By the time the excess capacity is fully utilized, down the road, it has become really old technology."

HCI turns that model upside-down. IT can grow the infrastructure as quickly or slowly as needed, "one node at a time if you want." As hardware is brought into the environment, because of Moore's law, Kaplan observed, "it just continues to get better and better."

As an example, Kaplan presented a financial summary for a large Eastern university, which found that over a five-year period, the HCI total-cost-of-ownership option was less than half the cost of the existing three-tier solution.

Any financial analysis will also

need to compare the purchase of public cloud to HCI and even HCI to HCI, since there are variations from company to company. In each of those cases, it's important, Kaplan noted, to "incorporate all the costs affecting both scenarios." For instance, in the public cloud-versus-HCI calculations, HCI can't leave out the costs associated with facilities and power, while public cloud needs to include the expense of connectivity. (Kaplan's **latest book** includes a 10-step process to follow when performing a TCO analysis.)

In many cases, Kaplan said, schools will discover that running workloads as Nutanix clusters *within* public clouds can help run cost-intelligent operations, to take control of hybrid cloud spend with automated cost governance policies.

The use of Nutanix eliminates what Kaplan referred to as "micro waste." Public cloud CPUs and memory tend to come in "t-shirt sizes," he said. If your virtual machine (VM) doesn't fit exactly, there will be a little bit of wasted resource left over. "They get lost in just general public cloud, which isn't big deal for a few VMs; but for a lot of VMs, it can add up really quickly. Running those operations using the Nutanix-unified hybrid cloud platform will enable you to fully use your IT investment."

Nutanix's clusters-hibernate function can also help you to spin down VMs that aren't being used in a single click, saving the data to a less expensive medium, such as AWS S3. "Then, when you're ready to use the VM again, it's spun up and rehydrated with data," Kaplan explained.

Telling the ROI Story and Making It Stick

Numbers will only get you so far in disrupting entrenched practices, Kaplan emphasized. What's also important is to tell an ROI story that will hook the audience's attention and elevate the "dry financial results" into something that can"grab emotions."

A well-scripted narrative will address the big pain points that the school is dealing with, set up the financial and performance comparisons among the various options, share the results and testimonials generated from pilot projects, and lay out the positive business outcomes that can be expected when the recommendation is followed: major savings, the ability to reach long-term objectives, the need to better serve students and staff.

Your narrative should also include footnotes – those short stories that can bring the numbers to life for decision-makers. Kaplan offered several examples:

- The **University of California San Diego** used the analytics power of Nutanix Beam to uncover an API on a development environment that didn't need to be running. "Shutting that off saved thousands of dollars," said Kaplan.
- The **University of Reading** reduced physical storage by a factor of 16 – some 700 terabytes, so far – by using Nutanix nodes and their built-in deduplication, erasure coding and compression technologies.
- The **University of Southern California's Marshall School of Business** measured a 50 percent drop in its energy consumption when the school adopted Nutanix technology, helping to meet the institution's green initiatives.

As Kaplan noted, doing story-telling well requires you to figure out what your ultimate objective is before you wrap a story around your financial analysis. When done right, he added, the organization will be persuaded "to move forward with the recommendation" – such as choosing the right cloud, private or public, for the best ROI – making for a happy ending.

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For more insight about lowering your TCO while simplifying your IT, ***register to watch the Campus Technology webcast briefing*** *featuring Nutanix's Steven Kaplan.*

The digital edition of Steven Kaplan's latest book, ***The ROI Story: A Guide for IT Leaders****, is $9.99 on Amazon or free with registration through the Nutanix website.*