

Charting The Course To Cloud

LESSONS FROM AN ENTERPRISE IMPLEMENTATION

Introduction

Partly as a result of cost-cutting necessities, but also to demonstrate how Nutanix software can anchor a global hybrid cloud, **Wendy M. Pfeiffer, CIO at Nutanix**, led her team on a transformative journey. The goal was to make IT easier, better automated, and more readily accessible to the user community, so employees could focus on their work and not be held back by inscrutable procedures and frustrating delays.

“Ultimately, corporate IT services should be as easy as your smart phone: you simply choose the apps that you want to use and the technology adapts to your preferences,” Pfeiffer explains. “Thus hybrid cloud starts with the notion that there is a right way, an optimal way, to run IT services. IT should become a partner to the business, and the technology we provide should make most computing activities invisible.”

The lessons shared here are apropos: Nearly every organization is making headway with cloud computing, and yet many of them struggle to mix different types of IT services in a way that effortlessly meets user needs. “Progressive organizations have always required a mix of technologies and capabilities,” Pfeiffer adds. **“However, if IT only supports a single cloud or a single type of technology, then it can’t carry out its mission of helping everybody be productive. Ultimately, the technology must slip into the background, so it doesn’t matter what kind of hardware you use, or what kind of cloud.”**

A Recipe for Success:

People, Process, and Technology

Successful business transformation initiatives are not just about deploying new technology. There must also be a focus on people, both employees and customers, along with a dedication to reinforcing the right processes and making those processes easier and more intuitive. Ideally, technology should power new capabilities while preserving existing investments in applications and skillsets. It's best not to "rip and replace," but rather to leverage technology that augments existing investments while repositioning the business for innovation.

Nutanix already had a highly skilled, well trained IT team. Pfeiffer set out to build on the staff's core skillsets, since "re-skilling" by bringing in new personnel would be far more disruptive than working with existing talent. She wanted to institute processes that automate repetitive tasks, streamline day-to-day business activities, and minimize technical complexity. And she wanted to forge relationships with the user community, to gain their trust by helping them succeed.

Here is a record of this ambitious journey: from starting point to destination in ten steps.



“ By reducing complexity we are gradually making **IT invisible** to the user community. ”

— Wendy M. Pfeiffer, CIO, Nutanix

STEP 1

Define **New Infrastructure Standards**

Nutanix already had some applications running in public clouds, along with robust on-premises systems based on Nutanix's unique hyperconverged infrastructure (HCI). The IT team envisioned a hybrid cloud that would take these IT assets to the next level, based on a single code base that could span both public and private data centers.

The new platform would allow Nutanix to move workloads interchangeably among different types of clouds without requiring administrators to learn new management practices or master different tools including application development, QA, training systems, and customer insights/support. They would be able to easily move virtual machines (VMs) and applications without a rewrite or translation of the underlying code.

Nutanix had begun using virtualization technology to create logical partitions within its physical infrastructure. Initially, however, much of this virtualization workload ran in VMware, which was getting more and more expensive to own and operate.

The IT team used the Data Mover feature of Nutanix AHV hypervisor to migrate the company's critical workloads off of VMware ESXi, which took about four months—a decision that yielded substantial dividends. Now Nutanix simply pays a small support fee for its VMware licenses. This has avoided millions of dollars in licensing fees that would have resulted from a VMware ESXi hypervisor upgrade.

Standardizing on Nutanix HCI **eliminated millions of dollars** in virtualization costs.

STEP 2

Create a **Flexible Foundation**

An effective hybrid cloud upholds the principle of portability: applications and workloads should be portable across any vendor's hardware, and across any vendor's cloud. To realize this vision, the team standardized on Nutanix Acropolis Operating System (AOS) for all internal workloads, and Nutanix AHV hypervisor to create virtual machines that take full advantage of this operating systems' exceptional use of hardware infrastructure.

"It's a hyper converged infrastructure that can run anywhere," Pfeiffer explains. "The business community can interact with workloads running in our data centers or in the cloud. Either way, we use the same software to call that infrastructure."

This type of software-driven architecture reduces capital expenses since there is no longer a need to purchase high-end proprietary hardware systems—and no need to "rip and replace" existing ones. This strategy preserves existing investments and also opens up the opportunity to make use of low cost commodity hardware. For example, previously Nutanix relied on Cisco switches and routers to run its data center networks. Now they run a software-defined network running certified on commodity hardware, running AOS and AHV. This has reduced network equipment purchases (CapEx) by 90 percent.

Nutanix's hybrid cloud is built on a common operating system, a common hypervisor, and a common management layer that can be **deployed interchangeably on virtually any vendor's hardware**, and in **most public clouds**.

STEP 3

Establish an Infrastructure that has been **Purpose-Built for the Cloud**

Being able to interact with cloud hardware remotely via a universal software utility is a critical enabler of IT efficiency. It is also the lynchpin of Nutanix's hybrid cloud architecture since it allows the IT team to easily move on-premises workloads to a public cloud and manage Nutanix data centers from virtually anywhere.

"Most applications and workloads were built around the notion of having physical access to infrastructure," Pfeiffer explains. "Everything changes once your applications reside in a public cloud vendor's data center, for the simple reason that you can't send in your operations personnel to add memory, reconfigure servers, and all the other adjustments that they are accustomed to with their own infrastructure. Instead, you need to be able to interact with cloud systems programmatically, via code."

This type of architecture reduces operating expenses by simplifying monitoring and maintenance tasks. A relatively small team of IT experts now manages Nutanix's hybrid cloud environment. Because it all runs on the same foundation of AOS, AHV and Prism, Nutanix has been able to minimize IT costs even as the company grows and its information systems scale.

"We don't need so many people configuring physical networks in our data centers," Pfeiffer adds. "In previous IT departments I had a team of storage engineers and a team of network engineers and a team of backup engineers just to keep the infrastructure up and running. But Nutanix Prism helps us automate. It is intelligently aware of how the operating system uses resources and can proactively help with capacity planning, including moving workloads as needed."

Finally, this architecture improves flexibility for the IT team: the staff can work remotely, yet interact with workloads running in several different data centers, and several different clouds. The data center operations team is incredibly lean, with just six IT pros responsible for worldwide infrastructure operations in six data centers, which supply technology and services to more than 125 locations.

6

IT personnel

6

data centers

125

**Delivering services to
125 Nutanix locations**

STEP 4

Focus on the **User Experience**

Eliminating silos in the data center has a ripple effect that makes everything easier, from deploying new apps to provisioning cloud databases. This allows Nutanix's IT team to turn its attention from tedious administration, so the team can focus on delivering great experiences through technology. It is now easier to deploy business-critical applications in the cloud as well as to establish high performing data warehouses, data lakes, and data science workloads that are easy to expand and contract as needs dictate. Employees can access all their favorite applications, deploy new databases, and collaborate via secure online business processes.

Many internal software development workloads have moved to the cloud to take advantage of unlimited data capacity in conjunction with cloud-native tools and utilities, accelerating the delivery of new services. Development and operations personnel find it easier to collaborate across cloud and on-premises resources.

Meanwhile, virtual desktops allow employees to work from anywhere, anytime, using any device—a capability that has become especially important during the forced isolation of the COVID-19 coronavirus pandemic. By delivering a virtual desktop experience, backed by ubiquitous cloud services, the entire Nutanix organization can work efficiently from home. Meanwhile, the IT team can centralize desktop management tasks and create shorter upgrade cycles for critical new features and fixes.

Nutanix's virtual desktop environment enables the staff to work from anywhere using their choice of devices, a capability that has become especially important during the forced isolation of the COVID-19 coronavirus pandemic.

STEP 5

Institute **Autonomous IT**

Before beginning this hybrid cloud transformation, Nutanix was spending 6 to 7 percent of its annual operating budget on IT. That number was on the high side, even for a technology company. According to Alinean Inc., which publishes IT spending statistics, midsize technology companies such as Nutanix typically spend 4.1 percent of their budgets on IT.

Today, after completing the hybrid cloud employment, IT spending at Nutanix hovers at around 1.9 percent. Pfeiffer explains why. “The Nutanix Platform makes incredibly efficient use of compute and storage capacity wherever it runs. Our IT team can address the hardware via the operating system using software code. And we can address it in a scale-out way—the same way that we address the hardware that’s in a public cloud, all from the desktop. Administrators can maximize the use of cloud resources without having to visit the data center.”

In addition, the IT operations staff is more efficient due to a growing number of autonomous processes. For example, during Q3 of 2019, a small team of 17 Help Desk workers closed 18,022 tickets, a 47 percent increase over the same quarter in the previous year.

Nutanix no longer needs a large team of software engineers and storage engineers and network engineers, or a dedicated operations team working on availability and response time. It has a **small group of experts who interact with the infrastructure via automated software and processes.**

PROOF IN NUMBERS

47%

Nutanix grows 47% year-over-year but its IT team has grown only 21% total in the last 3 years.

1.9%

IT spending as a percentage of budget is 1.9%, versus 4% to 5% at similar companies.

300%

69 IT professionals support 7,500 workers, a ratio of 1:683. (The industry average is 1:72.)

STEP 6

Augment IT skillsets with AI and ML

Automating problematic issues and “taking them off of IT’s plate” ultimately helps to elevate IT skills. The first stage of enabling employees to be more productive is to “fix all the broken stuff.” When the IT team determines that it cannot effectively deliver a service manually, then that service is a prime candidate for automation—for machine learning.

However, while automation may gradually eliminate routine operational tasks, it is important to never lose the “deep skills” that have been cultivated by the engineering team. That’s why Nutanix’s IT professionals are intent on translating their expertise into code by using low-code tools and no-code tools to capture operational expertise.

Nutanix also has procedures in place to fix problems, all with an eye towards continuous improvement. Every quarter, the team prioritizes worst-ranked services and automates them through machine learning. Over time, IT resolves issues through automation. Currently about 35% of IT services are handled autonomously.

Nutanix also instituted X Bars, similar to Apple Genius Bars, where employees can consult with IT professionals on any topic. “Many employees now see the team as a consultative body,” Pfeiffer says. “This confluence of operational expertise, technical expertise, and people skills is the IT magic that companies need to be productive.”

Nutanix helped its technology experts figure out how to **translate their operational expertise into code**. And it **employed machine learning technology** to enhance and automate critical processes.

STEP 7

Measure Success by Delighting Users

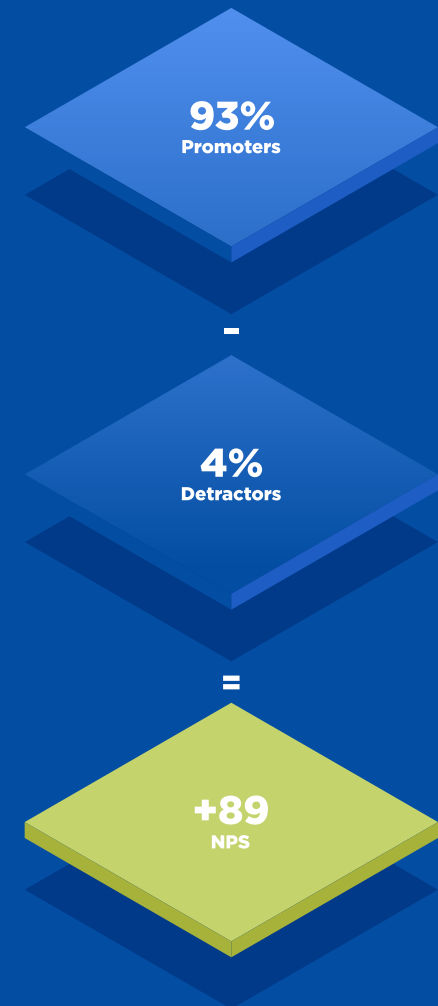
As Nutanix's hybrid cloud deployment continues to expand, and more and more routine tasks are automated, measurements of availability and response times are no longer the best gauge of IT performance. Instead, Nutanix uses a quantitative measurement called first time right (FTR) and a qualitative measurement called Net Promoter Score (NPS) to gauge how well the IT department is doing.

FTR, which originates from Six Sigma, ensures that any procedure is performed in the right manner the first time and every time thereafter, minimizing re-work. It is a valuable measurement since it indicates flaws in the design and execution of processes. Nutanix uses this metric to define the optimal workflow and the optimal interaction design for each IT service, whether it is something as simple as Wi-Fi or as complex as an accounting close process. These measurements have revealed some marked improvements, including a 100% FTR score on download requests and an 89% FTR for all X Bot interactions.

CIO Pulse, which monitors Net Promoter Scores (NPS) across thousands of organizations, pegs Nutanix's overall NPS at between 89 and 90—placing the company in the top one half of one percent of all organizations that they measure.

Nutanix supports a multi-cloud infrastructure in which workloads and applications can **run interchangeably** in several different clouds. A single code set spans all of the popular public clouds as well as six on-premises data centers.

NET PROMOTER SCORE

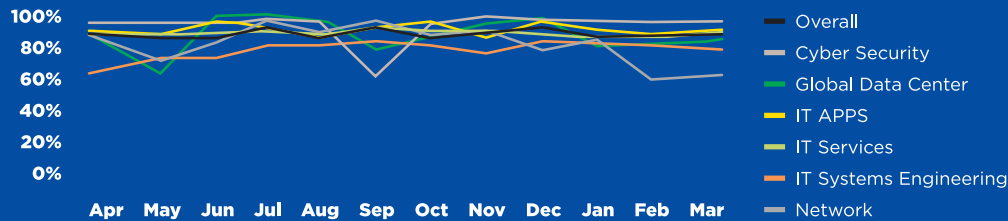


STEP 8

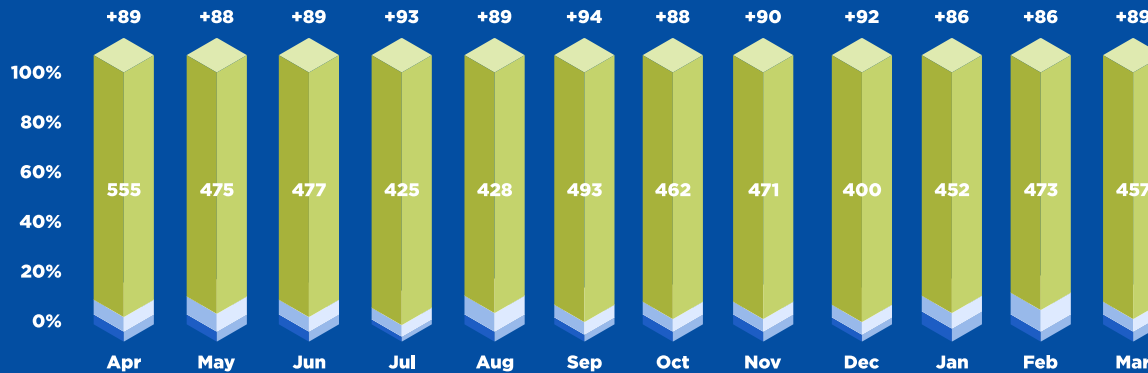
Monitor Customer Satisfaction Results

Continuously monitor success metrics. Focus on the real outcome: **keeping customers satisfied.**

CUSTOMERS SATISFACTION TREND



PROMOTERS & DETRACTORS



BENCHMARK



STEP 9

Validate the Business Case with a **Demonstrable ROI**

From automating IT operations to consolidating data, Nutanix's journey to cloud has improved efficiency and reduced costs. IT staff members spend less time deploying, managing, and securing the IT environment. Fewer unplanned outages improve business continuity. And having a leaner IT infrastructure minimizes costs related to licensing, power, and facilities management.

FINANCIAL IMPACT AND EFFICIENCY GAINS

- Project ROI greater than 200%
- High-density rack deployment: 68% savings
- Rent savings: 60%
- Power savings: 46%
- Saved millions of dollars by moving from VMware ESXi to Nutanix AHV for all workloads across multiple clouds
- Saved millions of dollars in network CapEx by establishing a software defined network with Big Switch
- Obtained a 10 to 18 percent performance improvement by migrating from NFS to Nutanix Files for all file services



STEP 10

Adopt an Attitude of Continuous Improvement

Nutanix has established new systems and processes that bridge the gap between on-premises information systems and the new world of cloud. Disconnected silos are a thing of the past. The IT team can deploy new cloud technology instantly and manage the entire infrastructure from a single console—all with a few clicks. The infrastructure is better integrated, many IT processes have been automated, and the entire business community is more productive.

The same architecture that Nutanix developed for internal use is now available to Nutanix customers: the Nutanix cloud infrastructure platform. It is based on a portable and consistent software platform that can support any workload, on your choice of hardware and hypervisor, and your choice of cloud.

“Our hybrid cloud becomes more robust every year, as we continually strive to delight our customers with responsive, cost-effective, and user-friendly IT services,” Pfeiffer concludes. “Each layer is purpose-built to enable unlimited portability, scalability, and performance, without adding complexity to IT management.”

Ready to **Start Your Journey?**

Trust in a partner with first-hand experience going through the journey to cloud. We're dedicated to helping businesses successfully transform in the same way. Start with a technology platform, engineered from the ground up, that delivers the flexibility, choice, and true cost efficiency of cloud to enable faster innovation.

Learn More