How IT Modernization Accelerates Digital Transformation

Exploring how Nutanix, HPE, and AMD drive agility and efficiency

Situation Analysis

Virtually every conversation Moor Insights & Strategy (MI&S) has with CIOs and IT executives includes the topic of digital transformation and its (significant) impact on the IT organization. IT's full support of the needs of the business requires a complete modernization of operations and infrastructure to deliver a cloud operating model.

However, sustainability, now seen as a key performance indicator (KPI) as much as an idealistic goal, is also an increasingly common conversation topic. And on top of that, IT executives are tasked with this digital transformation during economic uncertainty, which is leading to funding cuts.

This brief will explore how IT organizations faced with modernizing operations and infrastructure can achieve this while simultaneously meeting the seemingly contradictory goals of driving down costs and power consumption. It will also look at how Nutanix, HPE, and AMD are the core of this cloud operating model.

The Great Conundrum

The digitally transformed business is about efficiency through intelligent automation, which equips it to respond to the needs of customers and the markets they serve faster and more intelligently. Though research shows that only 7% of businesses are fully digitally transformed, 56% of CEOs surveyed in one study said digital transformation has already improved profits.

Digital transformation can only be successful with good intelligence, which is derived from data collected everywhere. That data is then aggregated, transformed, and analyzed by tools and applications developed by embedded DevOps staff and citizen developers using a low-code methodology.

This scenario is only made possible by deployed technology. Database environments and data repositories across the enterprise that store information that is moved, shared, and stored, ingested by analytics platforms, feeding applications, and services.

Digital transformation ushers in the software-defined business. And the digitally transformed environment is not physically constrained – it spans the core datacenter, connecting the edge, cloud, and the customer.

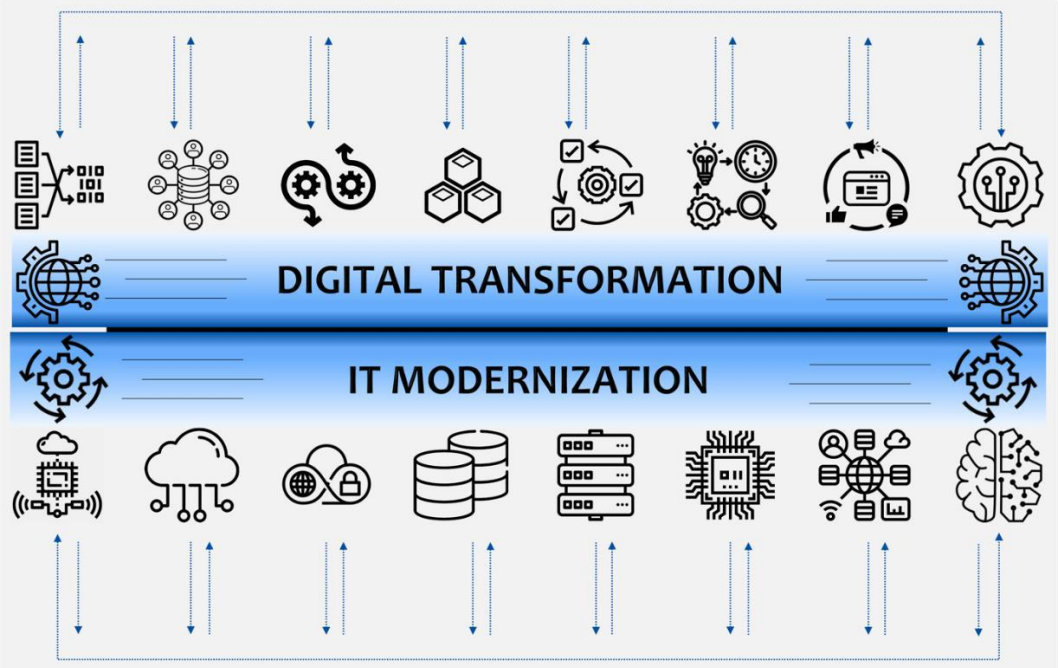
DO MORE WITH LESS

As if in direct contradiction to the presented scenario, IT is being asked – strike that – being told to do more with less. From a cost perspective, IT faces the pressures of flattening or even reducing spending, given the economic uncertainty. The direct impacts are apparent – less funding to kick off modernization efforts and fewer resources hired for the significant additional work to support these environments.

Also, as mentioned previously, sustainability is a trend that has quickly moved from talking point or PowerPoint slide to measured goal. Whereas power costs were baked into the cost of operations, IT departments now must account for this expense.

MI&S speaks with IT executives across different industries and company sizes, and this recurring theme often leads to one question: How, exactly, can my organization take on more while simultaneously reducing our costs and infrastructure footprint?

FIGURE 1: DIGITAL TRANSFORMATION REQUIRES IT MODERNIZATION



Digital transformation is powered by a modernized IT environment

Source: Moor Insights & Strategy

DIGITAL TRANSFORMATION WITHOUT IT MODERNIZATION IS INCOMPLETE

As every IT executive knows, digital transformation in the business requires a corresponding IT transformation to realize its full potential. And while every IT organization is different, there are some universal "must dos" – generally around speed, agility, and security – for modernization efforts to be effective. IT must operate like a cloud service provider (CSP), which can be seen as a complementary offering, an enabler, and a competitor simultaneously.

IT modernization is equal parts process and technology. And while much focus is often on the software stacks, infrastructure – the hardware and tools used to deploy and provision compute resources – is the most fundamental element of the cloud operating model.

IT MODERNIZATION BEGINS WITH INFRASTRUCTURE

While some may think that infrastructure is largely commoditized in this software-defined world, MI&S believes the opposite. We believe the selection of infrastructure has never been more critical.

The cloud operating model should be built on servers and tools designed specifically for the cloud. This starts with a CPU that supports the unique characteristics of scale-out cloud-native architectures but can also support the high compute demand of scale-up business-critical applications that have not undergone refactoring or rearchitecting.

But how do IT organizations choose the right CPU for the right workload? This can be difficult, as defining what constitutes performance and value is often obfuscated. It is vital that enterprise IT organizations carefully map out their needs for the workloads that power the business today and those emerging workloads that will power the company tomorrow.

The cloud operating model continues with server and storage infrastructure designed to take full advantage of and build upon these CPU capabilities. For instance, while a CPU may have security capabilities designed into its architecture, does the server platform extend these capabilities to further increase cyber resilience? From reliability to security to performance, choosing the correct server and storage platforms for the cloud operating model is a critical selection worthy of careful consideration.

Finally, the cloud operating model is wholly dependent on a control plane that can deploy and provision resources on the fly and reallocate resources automatically to account for application usage fluctuations. A control plane can enable real-time infrastructure to be consumed as a service.

The highest-performing server platforms powered by best-in-class CPUs provide little value to an organization if there is no way to fully exploit these capabilities automatically and with elasticity. This ability is the glue that brings the capabilities of computing and storage resources together. When selecting the right toolset to provision and manage infrastructure, IT organizations should consider the environment they support today and the environment they will support tomorrow.

If digital transformation precedes IT modernization, workloads and applications are designed and optimized for antiquated infrastructure. This dynamic will not only lead to suboptimal performance but require application refactoring once infrastructure modernization occurs.

Perhaps, if IT infrastructure can't bring the cloud to the datacenter, IT has fallen short in its modernization efforts.

NUTANIX, HPE & AMD DELIVER THE CLOUD OPERATING MODEL

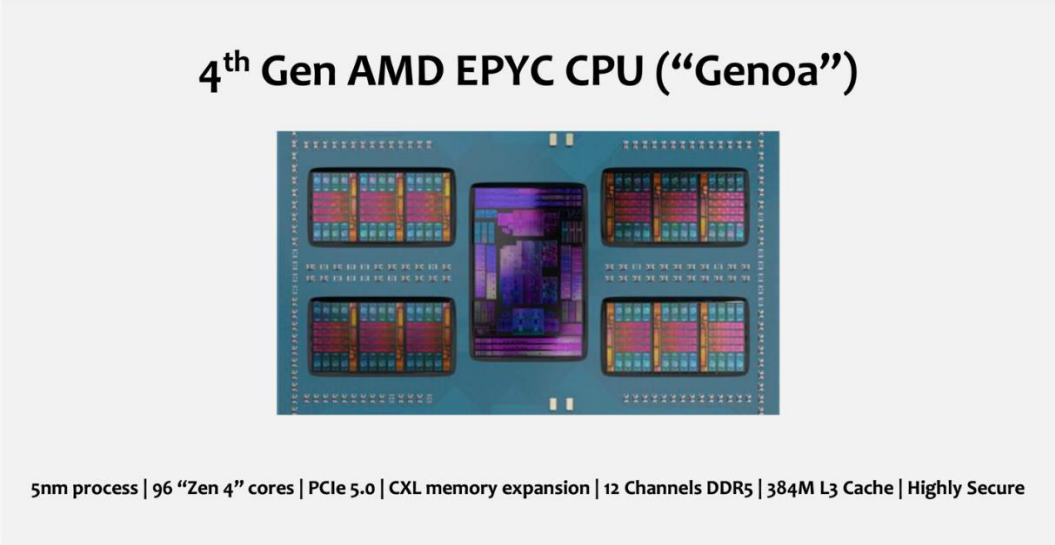
As previously discussed, digital transformation is a disruptive but necessary exercise. As businesses competing in the digital economy see the likes of Amazon, Uber, and Airbnb in their respective markets, the need to transform into a technology company delivering services takes on a new sense of urgency.

Also, as previously discussed, digital transformation without a complementing cloud operating model is a transformation exercise that will fall well short of its aim. And the cloud operating model is equal parts organization, operations, and technology:

- An organization that enables IT resources to embed in and align with the business to understand needs and drive outcomes more closely
- Operations that are highly automated, enabling the business to utilize technology and services with a responsiveness that rivals the public cloud
- And technology that can support any workload at any time with optimal and efficient performance

The cloud operating model delivers speed and agility while maximizing IT efficiencies. And MI&S sees AMD, HPE, and Nutanix as critical components of the cloud operating model.

FIGURE 2: PERFORMANCE STARTS WITH EPYC



The 4th gen EPYC CPU leads the market in every measure
Source: Moor Insights & Strategy

While measuring the performance of a CPU may be more challenging than ever, AMD has found success through many measures. These include raw performance, performance per dollar, performance per watt, and even workload-tailored performance (e.g., high-performance computing). Even in the higher-level "speeds and feeds" measuring that many industry pundits use to assess a CPU's value, AMD's EPYC comes out on top.

The company's 4th Generation EPYC processor (codenamed "Genoa") takes its server CPU leadership position and extends it considerably. These speeds and feeds are not simply a "more is better" view of processors. Instead, they demonstrate the ability of an IT organization to pack more computational resources per rack unit (RU).

Combining these features with the underlying EPYC architecture realizes the support for the "any workload at any time" mantra that IT must embrace. AMD claims EPYC is the one CPU to support them all – from computational heavy to memory-bound to distributed cloud-native – and the evidence supports this claim.

Lastly, it's important to note that EPYC provides these rich capabilities in a highly secure fashion. AMD EPYC Infinity Guard is security rooted in silicon that enables a server to boot and operate securely without a corresponding performance "tax."

However, as we said, a highly performing CPU is nothing if its capabilities can't be fully realized. This requires a thoughtfully designed server platform that can balance the richness of raw core performance with memory, storage, and the I/O that can support workload accelerators and other capabilities. The HPE ProLiant server platform strikes this balance with EPYC.

When researching this brief, MI&S considered the AMD-based traditional rack servers (DL) and HPE GreenLake for Nutanix (DX) platforms in the ProLiant portfolio. Both the DL server and HPE's hybrid cloud platform work with the security capabilities of EPYC, enhancing an already secure platform. HPE's silicon root of trust (a technology it pioneered in the x86 server market) provides the most comprehensive levels of protection against cyberattacks – from pre-boot to end of life.

But security should not come at a considerable expense to performance. And this, again, is where the ProLiant portfolio performs. The HPE team seems to have built the optimal platform to light up the capabilities of EPYC, bringing the right amount of storage, memory, and acceleration to meet the needs of the mix of workloads supporting the modern enterprise – from virtualized infrastructure to VDI to high-performance computing (HPC) and machine learning (ML).

HPE ProLiant DX is the server platform at the heart of HPE GreenLake, the company's cloud services platform and portfolio. Combining the richness of the DX platform with the "as-a-Service" model of HPE GreenLake is critical to the cloud operating model as it can significantly shorten time-to-value for new and emerging workloads and solutions that IT cannot support.

Consider the business looking to employ a machine learning environment to enable predictive analytics in servicing customers. Rather than retraining staff and hiring a team of data scientists to stand up and support this solution, an IT organization can work with the HPE GreenLake team to deploy a fully optimized environment.

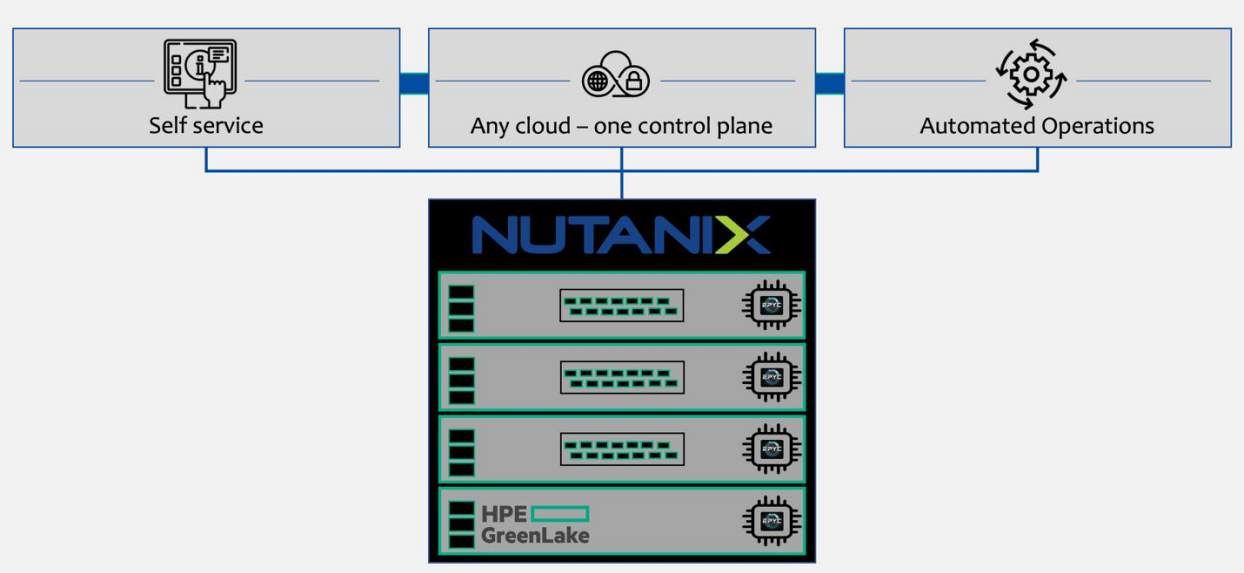
HPE GreenLake also delivers on the economic promise of the public cloud, which is somehow never realized. Virtually every IT organization has deployed to the public cloud to drive down costs and achieve operational agility, only to repatriate workloads as costs soar. With HPE GreenLake, that agility is realized, and costs won't skyrocket

due to that “performance tax” we mentioned earlier associated with data ingress, egress, and consumption.

Powerful platforms delivered as-a-service, preconfigured, and optimized are great for delivering day-zero value. But the fiscal and resource cost of maintaining these environments is a huge burden placed on too few server, storage, networking, and database professionals. While AMD and HPE GreenLake deliver the cloud platform, Nutanix HCI, powered by AOS 6.5, drives the automation and control that makes the cloud complete.

While hyperconverged infrastructure (HCI) was initially designed to drive automation for the consolidation of infrastructure, the value of some HCI solutions far outgrew their original intent. Hypervisor optimizations and critical storage management enhancements have made Nutanix HCI performance rival bare metal performance. This means enterprise IT can support business-critical applications with unique performance and reliability requirements with Nutanix HCI. And this can lead to considerable cost savings – both directly and indirectly.

FIGURE 3: ACHIEVING A CLOUD OPERATING MODEL



Nutanix, HPE, and AMD deliver the cloud operating model to enterprise IT

Source: Moor Insights & Strategy

It's not just Nutanix AOS 6.5-supported HCI that enables the cloud operating model. Nutanix Database Service is an offering that MI&S views as critical to transforming IT

operations. In the data-driven world, data is everything. As a result of the proliferation of data repositories – from traditional SQL to graph and column databases – business units are deploying more databases than ever. This puts an undue strain on database professionals tasked with deploying, optimizing, maintaining, and securing an organization's data management environment. Nutanix Database Service automates database lifecycle management, freeing IT resources to focus on high-value projects and support functions.
A school of thought sees IT automation as a threat to the livelihood of IT professionals. However, in conversations MI&S has with IT executives and practitioners alike, "overwhelmed" is a phrase always mentioned.

Automation is not a threat to IT; automation is IT's secret weapon. And Nutanix, with HPE GreenLake and AMD, can deliver levels of automation around deploying, provisioning, and optimizing operating and application environments that increase an IT organization’s ability to drive speed and agility in the business.

THE COST OF DOING NOTHING

Capital expenditures are often viewed as hard-to-justify costs. And in today's economic environment, these views are amplified as budgets are further constrained. However, there is also a cost to doing nothing and using outdated server technology managed by tools not well suited for standing up cloud operations. This cost can be measured in several ways:

- Hours spent on tasks that could otherwise be optimized
- Expenses related to public cloud consumption for services that enterprise IT could otherwise support
- Lost opportunities businesses face when products and services are late to market

It can also be measured in power consumption. Datacenters – the infrastructure and workloads that drive the business – are significant contributors to an enterprise's overall energy consumption. By maintaining legacy infrastructure, enterprise IT organizations are limiting the larger organization's ability to achieve sustainability goals closely measured by investors and customers.

While difficult to quantify, MI&S believes there are actual cost savings that will be achieved through Nutanix, HPE GreenLake, and AMD – and not just through a reduced total cost of ownership (TCO) or a more significant return on investment (ROI).

When modern application environments are deployed on HPE GreenLake, capital budget is a non-factor as this solution is delivered in a consumable fashion, and organizations are only charged for the resources they use.

Is Your IT Environment Cloudified?

There are many ways to measure the effectiveness of IT operations, objectively and subjectively. But before going deeper into those metrics, consider two simple ways: infrastructure and public cloud use.

From an infrastructure perspective, catalog the age of servers and compute capacity, utilization, and utilization per rack unit. Further, evaluate the current HCI solution deployed.

- Is your IT organization on the most recent version?
- Has this version expanded the utility of HCI?
- Can you run business-critical applications and database environments in your HCI solution?
- Has your HCI solution increased your organization's overall operational agility and speed or is resource management still a challenge?

Concerning the public cloud, there is one question to ask. Has your organization's reliance on the public cloud increased or decreased since undertaking digital transformation? If the answer is "increased," your IT operations have not proven to be of greater value to the business.

MI&S believes IT organizations would be well served to re-evaluate the capabilities of HCI solutions such as Nutanix (powered by AOS 6.5) and assess the performance, scalability, and reliability features – and map these to the workloads that drive the business.

Additionally, IT organizations should perform an objective cloud cost evaluation, accounting for shadow IT and other "opportunistic" cloud deployments in the business units. Measure these costs against a hybrid cloud deployment built on AMD, HPE GreenLake, and Nutanix.

MI&S believes when these factors are considered and measured, the answer to whether a cloud operating model has been achieved will be obvious and apparent as the path to achieving the optimal environment.

SUMMARY

Digital transformation is not a trend. It’s a survival technique for the established business being challenged by digital disruptors. While the success of digital transformation projects may be measured differently, the universal marker is determining how quickly a company can respond to the market's needs in general and its customers in particular.

Digital transformation without a corresponding modernization of IT is incomplete at best. And IT modernization is about employing a cloud operating model to serve the needs of the business. Organization, operations, and technology are the three pillars of a cloud operating model. And without fully addressing each pillar, the cloud operating model never reaches its full potential.

MI&S has found that while much attention has been given to the organization and operational changes required for an effective IT transformation, not enough attention is given to infrastructure modernization. In the software-defined world, ironically, infrastructure has never mattered more – from the CPUs we choose to power new and old workloads to the server platforms that exploit the capabilities of these CPUs to the HCI platforms that automate provisioning and optimize performance.

The cloud operating model begins with cloud-optimized infrastructure. And MI&S sees infrastructure powered by AMD EPYC and HPE GreenLake and controlled by Nutanix HCI as the ideal building block.

For more information, please visit www.nutanix.com/hpe.

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