

AMD and Nutanix™ Hybrid Cloud Infrastructure Give Businesses an Edge

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The Nutanix-based solution running on AMD EPYC™ processors provides customers with an infrastructure that is more scalable, easier to manage, secure and resilient than traditional SAN-based deployments. All of that combined rivals the simplicity of public cloud deployments, and is more scalable and simpler to manage than other HCI alternatives.

- Why AMD EPYC processors provide even more processing power
- How security-enhancing features in the Nutanix software stack and AMD Infinity Guard help protect from attacks and enable quick recovery from a breach or outage.
- In the event of a failure, Nutanix infrastructure software provides a comprehensive environment to avoid outage and provides resiliency, redundancy and recovery.

We live in an era of unprecedented opportunities for businesses who choose to take advantage of modern technology. Consider this hypothetical tale of two bread merchants:

The legacy bread maker humbly baked a handful of loaves each day. They sold them to neighbors and travelers passing through town, and hopefully made enough to support their family comfortably and keep their operation running. This was largely what a successful business used to look like.

A modern baker might operate the same way... or they might use marketing automation software to serve precisely targeted social media ads featuring mouthwatering bread to customers who haven't visited the store in a month. All a prospect needs to do is hit the "Order Now!" button and AI-assisted routing software will deploy the closest delivery driver to drop off a fresh loaf, paid for with instant, secure, and contactless payment. Business has been so good, the operation is scaling up to include multiple regional storefronts with a commissary kitchen.

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Both purveyors are selling bread. The key difference is that one is employing the best available technology to increase leverage, provide better service and gain a competitive edge. They are using technology to free up time and capital that would have otherwise been wasted and plowing both of these precious resources back into the business to create value.

IT Infrastructure as a Business Catalyst

Whether in Oil & Gas exploration, doing scientific research, providing financial services, running a major league sports operation, or just selling some sourdough,

the success and subsequent profits for today's businesses are largely dependent on how well they capitalize on the technology available.

Every business-critical application requires infrastructure underpinnings like compute, storage, and networking. When it comes to realizing the full potential that any contemporary business has, having the right infrastructure in place can mean the difference between feast and famine. The right infrastructure saves a business time and money, which can be better invested elsewhere to deliver business value.

Consider these three crucial infrastructure qualities:

PERFORMANCE AND SCALABILITY

Time is money. The ability to crunch data and process orders translates directly into dollars and cents for many businesses. Therefore, it follows that being able to perform those key tasks faster will lead to better results. Faster infrastructure equates to faster applications which results in a highly efficient user experience that yields better business outcomes.

Yesterday's 'infrastructure powerhouse' has become today's legacy infrastructure thanks to rigidity in deployment. Extending legacy infrastructure can be difficult and costly. The modern option allows you to bake into your infrastructure flexibility and scalability, allowing you stay fresh, current, and speedy. Build infrastructure capable of supporting the business needs of today as well as those that emerge tomorrow.

FULL-STACK SECURITY

Data is your organization's lifeblood. The safety of business data and that of your customers and users is a dominant concern today, and for good reason. Business of all shapes and sizes are under attack, as front-page headlines confirm on a frequent basis. Business-critical applications—which have their own security considerations—require infrastructure for which security is an inherent ingredient and applies across the environment.

Good security, however, doesn't come at the expense of the user experience or application performance. As you build a recipe for your organization's next infrastructure

strategy, consider ingredients that don't require out-sized tradeoffs in either security or performance. Believe it or not, you can have it all! Ongoing developments in both hardware- and software-based security make this possible.

OPERATIONAL EFFICIENCY

Nothing slowly—and almost imperceptibly—undermines business priorities quite like the insidiousness that is inefficiency. Complexity is a notorious breeding ground for inefficiency and waste. It can lead to an inordinate amount of time spent “keeping the lights on” versus focusing on more productive activities. Infrastructure built to give businesses an edge will need to feature a disarming level of outward-facing simplicity and ease of use. The efficiency that simplicity creates will pay serious operational dividends.

Nutanix™ Hybrid Cloud Software on AMD EPYC CPU-based Servers Delivers All Three Crucial Infrastructure Qualities

Great solutions are built on great alliances. As you seek your next infrastructure evolution, consider the results of the powerful partnership between semiconductor juggernaut AMD and hybrid cloud software leader Nutanix™. The combination has resulted in a carefully designed and fully tested infrastructure solution that allows businesses to surge forward today while enabling a scalable foundation to jump on tomorrow's new advancements without delay.

From the bottom of the silicon silo all the way up the stack to security and orchestration, your AMD & Nutanix solution brings uncompromising security features and reliability to your organization while also delivering the scalability, performance, robustness, and ease of use that define success.

The Nutanix platform leverages hyperconverged infrastructure, or HCI, a technology that has proven transformational for thousands of organizations and that erases the barriers between CPUs, software-defined storage, hypervisors, and much more. This design, as depicted in

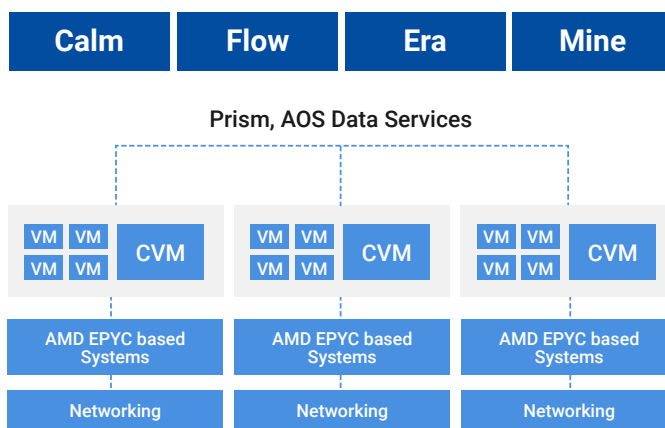


Figure 1: The Nutanix full-stack hybrid cloud infrastructure platform

Figure 1, is a foundational element of Nutanix and AMD solutions because, as you'll see, AMD EPYC processors and HCI are a match made in computing heaven.

AMD EPYC PROCESSOR-BASED SERVERS

AMD EPYC CPUs operate on a philosophy of *choice without restriction*, making them the ideal complement for the Nutanix software layer that does the same. Customers can choose the number of cores and sockets that meet their exact needs without sacrificing key features like memory and I/O. Examples of helpful sizing variations include:

- High core density, single socket systems to help save money when you're using applications with socket-based software licenses
- Right-sized VDI nodes with the ideal core count to memory ratio so you aren't overpaying for CPU cores that just sit idle
- Lower core count data-centric nodes where I/O bandwidth and storage capacity are the stars of the show and CPU cores are not overprovisioned

Choosing AMD EPYC processor-based servers as the companion for Nutanix hyperconvergence allows you to leverage the high core count per socket—up to 64 cores—coupled with an impressive number of I/O channels for native connectivity to storage. Single and dual socket EPYC server options are available from top OEMs like HPE, Dell, and Lenovo. The result: Fewer hardware nodes required!

Software-defined storage is the magic ingredient that gave rise to HCI. To perform well, the underlying hardware must be capable of high-speed I/O, have large memory bandwidth, and significant memory capacity. Conveniently, AMD EPYC System on a Chip (SoC) architecture meets these needs by providing 128 PCIe® Gen 4 lanes, 8 memory channels per socket, and support for up to 4TB of memory per socket.

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It's impossible to overstate the criticality of security in today's information-centric business. With board-room-level scrutiny, all aspects of the IT environment need to consider this important element. To that end, AMD EPYC architecture contains the industry's first dedicated security co-processor embedded in an x86 server CPU SoC. This unique AMD Infinity Guard manages secure boot, meaning that it checks the firmware it's loading against a known-good copy of that firmware to help ensure it hasn't been compromised with malware. The chip also provides a memory encryption feature which requires no changes to applications.

NUTANIX HYBRID CLOUD INFRASTRUCTURE

A critical part of HCI is the software layer that brings a place for business applications to actually run. Nutanix provides the foundational Acropolis™ OS software with its AHV hypervisor. This dynamic duo creates a 100% software-defined hardware + software stack that integrates compute, virtualization, storage, networking, and security to power any application, at scale. Because it uses the same architectural approach as leading cloud companies such as Google, Facebook and Amazon, there is truly no limit on the number of nodes in a cluster – the sky's

the limit. Even better, what you deploy today isn't what you're stuck with tomorrow. The nature of the solution means that you can keep cycling nodes in and out as your replacement cycle dictates. No manual data migration and no forklifts necessary!

Rather than piecemeal assembly of various infrastructure parts by specialists, the Nutanix platform is glued together as a simple and fully integrated solution that can be managed by IT generalists. The management interface—called Prism—intelligently guides users to the most contextually relevant operations at any given time and then presents them with one-click actions for routine tasks like provisioning, upgrading, and scaling various resources.

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Building on the foundation of AHV and AOS, Nutanix supplies a rich suite of software for making infrastructure nearly effortless to manage and fundamentally secure.

- [Nutanix Calm](#) provides application automation and lifecycle management natively integrated into the Nutanix Platform. With Calm, applications are defined via simple blueprints that can be easily created by generalists and control all aspects of the application's lifecycle, such as provisioning, scaling, and cleanup. Once created, a blueprint can be published to end users through the Nutanix Marketplace, instantly transforming a complex provisioning ticket into a simple one-click request.
- [Nutanix Flow](#) delivers advanced network security, providing visibility into the virtual network, application-centric protection from network threats, malware, and ransomware as well as security and compliance monitoring. This protects applications at the VM level. Flow allows organizations to deploy software-defined

virtual network security without the complexity of installing and managing additional products that have separate management and independent software maintenance requirements.

- [Nutanix Era](#) automates and simplifies database administration. By combining the benefits of hyperconverged infrastructure with the flexibility and operational simplicity of database-as-a-service (DBaaS), Nutanix Era delivers the best of both worlds to enable one-click provisioning, patching, and clones/snapshots across multiple popular database engines. And it does so without the restrictions of single-vendor solutions that are database, cloud provider, or location/deployment-specific.
- [Nutanix Mine](#) is a turnkey data protection solution that integrates with popular back-up solutions, including those from Veeam and HYCU.
- [Nutanix Leap](#) frees you from the complexity of managing a full-blown data center for disaster recovery. Rely instead on flexible, cloud-based DR-as-a-Service (DRaaS).

The Nutanix platform is a fully integrated system that is security hardened by default “at the factory.” This hardening model stands in stark contrast to the self-managed approach that DIY infrastructure often requires.

When it comes to security, a fully integrated stack of ingredients baked in brings incredible benefits. Customer-integrated systems from multiple vendors are not often tested together thoroughly, which increases their potential attack surface for intruders and makes them inherently more vulnerable to threats. The Nutanix platform is a fully integrated system that is security hardened by default “at the factory.” This hardening model stands in stark contrast to the self-managed approach that DIY infrastructure often requires. Remember: One key area of attack has been through

unvalidated or poorly validated infrastructure patches. The more discrete vendors and solutions, the higher the likelihood that something undesirable may slip by.

With a thorough understanding of the hardware and software potential, let’s take a look at three real-world examples of where this architecture has delivered out-sized results.

Nutanix™ Hybrid Cloud Infrastructure on AMD EPYC Processor-Based Systems in Practice

With a thorough understanding of the hardware and software potential in the AMD and Nutanix hybrid infrastructure, let’s take a look at three real-world examples of how customers are taking advantage of this architecture.

MULTINATIONAL PHARMACEUTICAL COMPANY

A large multinational pharmaceutical company is adding AMD EPYC processor-based HPE ProLiant DX systems integrated with Nutanix cloud software. The primary interest in these AMD EPYC processor-based systems is the increased core count per socket to optimize database licensing costs. As a result, fewer hardware systems are required due to the higher core count processors. The application licensing costs are also reduced, thus freeing up more budget to be used on other IT projects or taken as a cost savings. These AMD EPYC processor-based HPE ProLiant DX systems have the potential to be rolled out to the company’s more than 350 global locations.

GLOBAL HEALTHCARE COMPANY

A global healthcare company is running numerous custom-built apps to deliver healthcare services for patients worldwide. These apps will be using databases from Microsoft and Oracle running on Microsoft Windows Server and Red Hat Linux. In addition, packaged applications such as OpenText Documentum and SAP are being considered for deployment on the AMD EPYC processor-based infrastructure. The company’s production site

is expanding, and they needed to address capacity constraints to fulfill their business requirements. They were looking for a system that offers “bite-sized” infrastructure consumption, easy scale-out capacity, and a small form factor with more processor cores and non-volatile memory express (NVMe) capabilities. It was provided with the AMD EPYC processor-based systems running Nutanix software.

FAST-GROWTH TECHNOLOGY STARTUP COMPANY

An innovative, fast-growth Silicon Valley startup company in the field of quantum computing is developing a purpose-built computer that relies on quantum mechanics. This will add a new dimension to a variety of industries, eliminating traditional computers and enabling organizations to exponentially increase their productivity.

Prism Pro will enable the customer to understand their capacity runways and manage their environments with greater granularity, helping them scale appropriately for the future.

The company began with a cloud-first strategy and is heavily utilizing a major cloud services provider today. However, they quickly realized that hosting 90% of their infrastructure in the public cloud was not optimal for them—from both a cost and operational perspective. Among the challenges the team faced were overprovisioning and managing the spikes in their cloud spend. There was a huge push at the executive level to move workloads out of the public cloud and stand them up on-premises to reduce future costs. The company began exploring a hybrid strategy and evaluated several solutions before choosing AMD EPYC processor-based infrastructure with Nutanix.

After showcasing the AMD+Nutanix platform, the company recognized that the simplicity and flexibility of the solution fits nicely with their growth and operational goals and enables them to achieve their vision for a hybrid cloud environment. The compact footprint of the solution reduces datacenter space needed for consolidation and allowed them to implement a hybrid strategy with 80% on-premises infrastructure and 20% in the cloud. AHV will be a huge cost savings and reduces multivendor management complexity. Prism Pro will enable the customer to understand their capacity runways and manage their environments with greater granularity, helping them scale appropriately for the future. They will also see a significant reduction in cost for files that were hosted in the cloud by leveraging Nutanix Files. Finally, with Flow, they're now confident that their on-premises production workloads are secure and protected. They also loved the fact that Nutanix Clusters in the public cloud will be available for them to leverage down the road.

► Call to Action

Take a free test drive and see for yourself how simple and easy it is for Nutanix to provision, manage and expand infrastructure to power all your application needs. Just visit www.nutanix.com/AMD to take it for a spin.

AMD Infinity Guard security features on EPYC processors must be enabled by server OEMs and/or cloud service providers to operate. Check with your OEM or provider to confirm support of these features. GD-177 ©2021 ActualTech Media. All rights reserved. AMD, the AMD Arrow logo, EPYC and combinations thereof are trademarks of Advanced Micro Devices, Inc. Other product names used are for identification purposes only and may be trademarks of their respective companies.