

## Solution Showcase

# Transform File Storage with Nutanix Files

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**Abstract:** The pace of digital business strains traditional IT infrastructure to the point of unsustainability, where transformation becomes necessary. Hyperconverged infrastructure (HCI) has already transformed data centers, delivering countless benefits to virtual application environments. Nutanix—which released its Nutanix Files technology 18 months ago—has just announced a new capacity licensing model. In this manner, Nutanix is continuing to extend the benefits of HCI to file storage environments, further transforming IT to better serve the needs of modern digital businesses.

### The Rise of IT Complexity in the Modern Business

The digital era of business is upon us. IT teams, and the digital services they provide, play a larger role in determining business outcomes and market competitiveness. According to ESG's recent research on IT spending intentions, 86% of IT decision makers agree with the statement, "If we do not embrace digital transformation, we will be a less competitive and/or effective organization."<sup>1</sup>

Driving this need for transformation is the rise of data. As businesses strive to maximize the effective use of data to become more competitive, data volumes increase, straining IT operations and increasing costs.

Sixty-eight percent of IT decision makers surveyed by ESG reported that their IT environments are either more complex or significantly more complex than they were just two years ago, with 41% of those decision makers citing higher data volumes as a cause.

Few technologies in recent years have done more to transform data centers than hyperconverged infrastructure (HCI). The extreme degree of automation and consolidation delivered by HCI has simplified IT infrastructure while freeing IT personnel to focus on higher-value tasks. HCI addresses IT complexity by delivering a more efficient and cloud-like architecture.

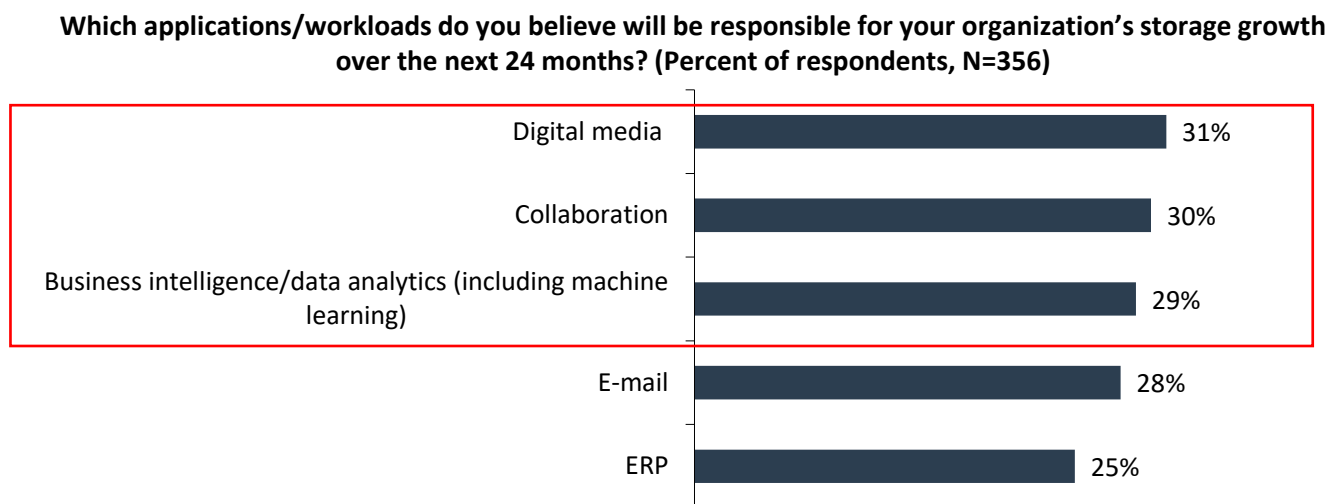
Nutanix Files entered the file storage market 18 months ago when it released Nutanix Files (Formerly Acropolis File Services, or AFS). Nutanix subsequently added new functionality every quarter. In the latest release, Nutanix Files is introducing capacity-based licensing, which makes Nutanix Files a strong candidate for capacity-intensive clusters and dedicated file storage use cases.

<sup>1</sup> Source: ESG Master Survey Results, [2018 IT Spending Intentions Survey](#), December 2017. All ESG research references and charts in this solution showcase have been taken from this set of master survey results unless otherwise noted.

## File Data Is a Valuable Asset for Modern Businesses

As businesses learn to better leverage file-based data—either for greater collaboration, higher productivity, delivering digital services, or analytics—file capacities increase in response. ESG asked IT decision makers who evaluate, purchase, and manage storage technologies to identify the workloads that they believe will be responsible for their storage growth (see Figure 1). The top three workloads—digital media, collaboration, and business intelligence—all comprise file content.<sup>2</sup>

**Figure 1. Top Five Workloads Responsible for Data Growth**



*Source: Enterprise Strategy Group*

Increased data capacities and subsequent increases in IT complexity add unnecessary costs and slow down IT service delivery. As businesses become more digitally driven, slower IT services result in a less competitive business. As IT strives to scale hardware to keep pace, infrastructure design and management responsibilities consume valuable resources.

According to ESG research, one third (33%) of IT organizations identified IT architecture and planning as an area of IT skill shortage, behind only cybersecurity. Traditional file servers and NAS environments were not designed for the complexity of modern file demands. Often limited by capacity, file data is isolated to a silo.

Traditional NAS storage systems often require complex configuration and management by infrastructure domain experts. Given increasing IT demands, allocating IT cycles to focusing on the minutia of infrastructure component management quickly becomes unsustainable.

As a result, technologies that can automate and abstract the infrastructure configuration details and focus on just the necessary capabilities, such as HCI, have experienced a rise in adoption. IT organizations are altering their hiring patterns as well. In ESG’s research into IT hiring, 55% of IT storage decision makers indicated that the majority of expected staff hired would be IT generalists, as opposed to the 39% that indicated that that majority would be domain specialists (such as NAS experts).<sup>3</sup>

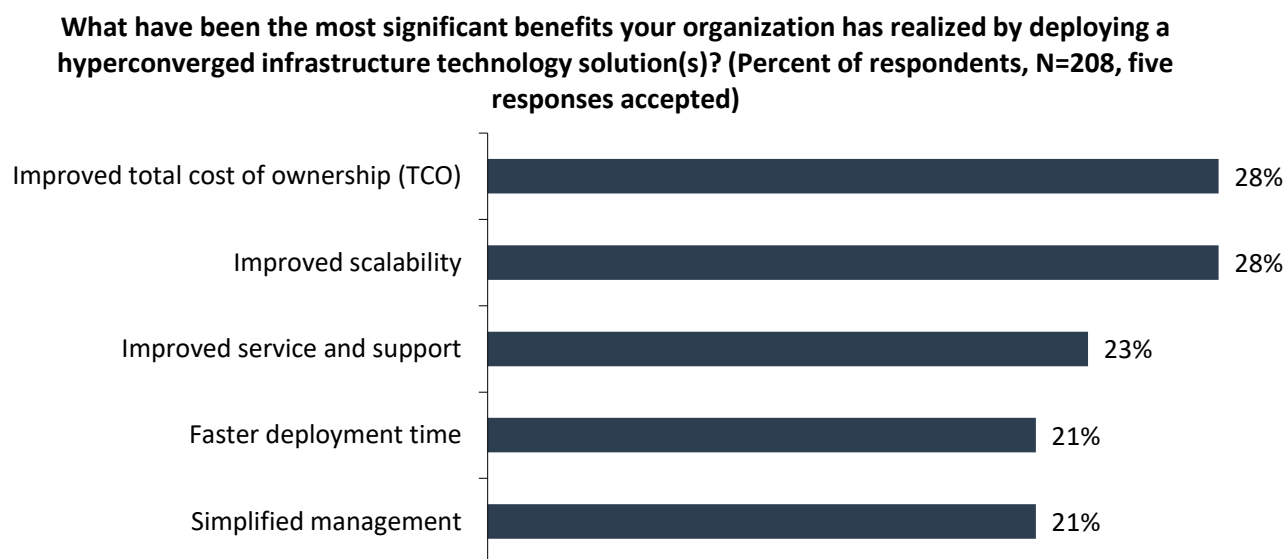
<sup>2</sup> Source: ESG Master Survey Results, [2017 General Storage Trends](#), November 2017.

<sup>3</sup> *ibid.*

## Address File Storage Complexity with HCI

The introduction of HCI into data centers worldwide has reduced the cost of infrastructure ownership, improved scalability, and even delivered improved support and serviceability (see Figure 2).<sup>4</sup> These benefits have allowed businesses to not only keep pace with IT demands but also reduce the cost of ownership.

**Figure 1. Top Five Benefits Realized from HCI Solutions**



*Source: Enterprise Strategy Group*

While organizations benefit from multiple aspects of HCI technology, simply put, HCI reduces the number of components that must be configured, managed, and supported. This consolidation, and the automation that enables it, frees up valuable personnel resources to be dedicated to other, more valuable tasks. HCI delivers a simple and cloud-like IT experience to the data center, and the benefits are substantial.

## Nutanix Files Brings the Benefits of HCI to Modern File Environments

Nutanix Files treats storage as a fully software-based service. File storage requirements vary by organization, based on the workloads and the specific business' needs. To better assist, Nutanix offers the flexibility to deploy Nutanix Files as part of an HCI cluster (including existing clusters) or as a standalone file storage deployment. Nutanix Files presents Server Message Block (SMB)- and/or NFS-based shares to virtual machines on Nutanix clusters as well as external clients. When deployed on the same cluster, the resulting solution delivers incredible infrastructure consolidation. The flexibility to deploy as a standalone file environment offers organizations with larger file storage capacities a dedicated capacity option that can deliver high-capacity density for larger scale environments.

Nutanix Files also offers the essential enterprise-level file storage capabilities, such as Active Directory integration, deduplication, compression, user/share quotas, clones, and replication along with integrated management within Nutanix's Prism interface. While integrating basic file services into an HCI package should be enough to transform IT organizations, Nutanix has added several incredibly valuable innovations, including:

<sup>4</sup> Source: ESG Master Survey Results, [Converged and Hyperconverged Infrastructure Trends](#), October 2017.

- **Cloud-like deployment/provisioning:** The simplicity that Nutanix delivers is most evident in how well Nutanix has integrated its file services into its enterprise cloud ecosystem from Prism, Nutanix's unified management plane. Nutanix Files can be deployed in minutes since the technology is already embedded in the HCI cluster.

Simplifying infrastructure scaling, Nutanix Files offers a single click experience to scale environments. This feature allows an administrator to add NAS functionality with a single click. If one tried to perform that kind of scaling action with traditional NAS, it would require a complex deployment with additional networking configuration, slowing time to provision storage and resulting in a more complex environment.

Of course, although user-interface simplicity is essential, it is likely the more significant savings will come from the integration. Admins will no longer have to suffer the burden of managing multiple separate systems and network configurations just to provision file storage.

Finally, the latest release of Nutanix Files enables cloud-like flexibility of consumption. The latest release offers capacity-based licensing as opposed to the traditional node-based licensing of the Nutanix AOS platform. This new licensing allows organizations to license only the storage services they need while giving them flexible growth for future requirements.

- **Dynamic balancing:** With its disk balancing technology, Nutanix maximizes storage efficiency for the extreme data-growth environments common to file storage. As nodes scale out, Nutanix monitors the consumption of local capacity. As part of a regularly scheduled process or when a specified threshold is met, Nutanix moves cold data from heavily utilized nodes to the other, underutilized systems in the cluster. The movement is transparent to the user and/or the application. This balancing technology is essentially in larger scale file-based environments to ensure that data performance stays optimized as capacity scales.
- **Native disaster recovery:** Nutanix has also changed the way file storage is protected. Its decision not to support NDMP, a more traditional file system backup, is an interesting example of Nutanix's intent to innovate rather than simply follow others. Nutanix's legacy has been delivering transformational benefits through freeing personnel, not by requiring admins to manage the network configuration and bandwidth complexities common to NDMP.

Rather, Nutanix Files optimizes file backup by delivering backup applications an API that automatically delivers a list of changed files, eliminating the intensive and time-consuming process of scanning each share to identify changed files. These scans often become unsustainable in larger file environments, once capacity levels of file counts pass an unknown threshold. The net result of Nutanix's design is that the file storage backup architecture is dramatically simplified while the process of backing up the file data is expediting significantly.

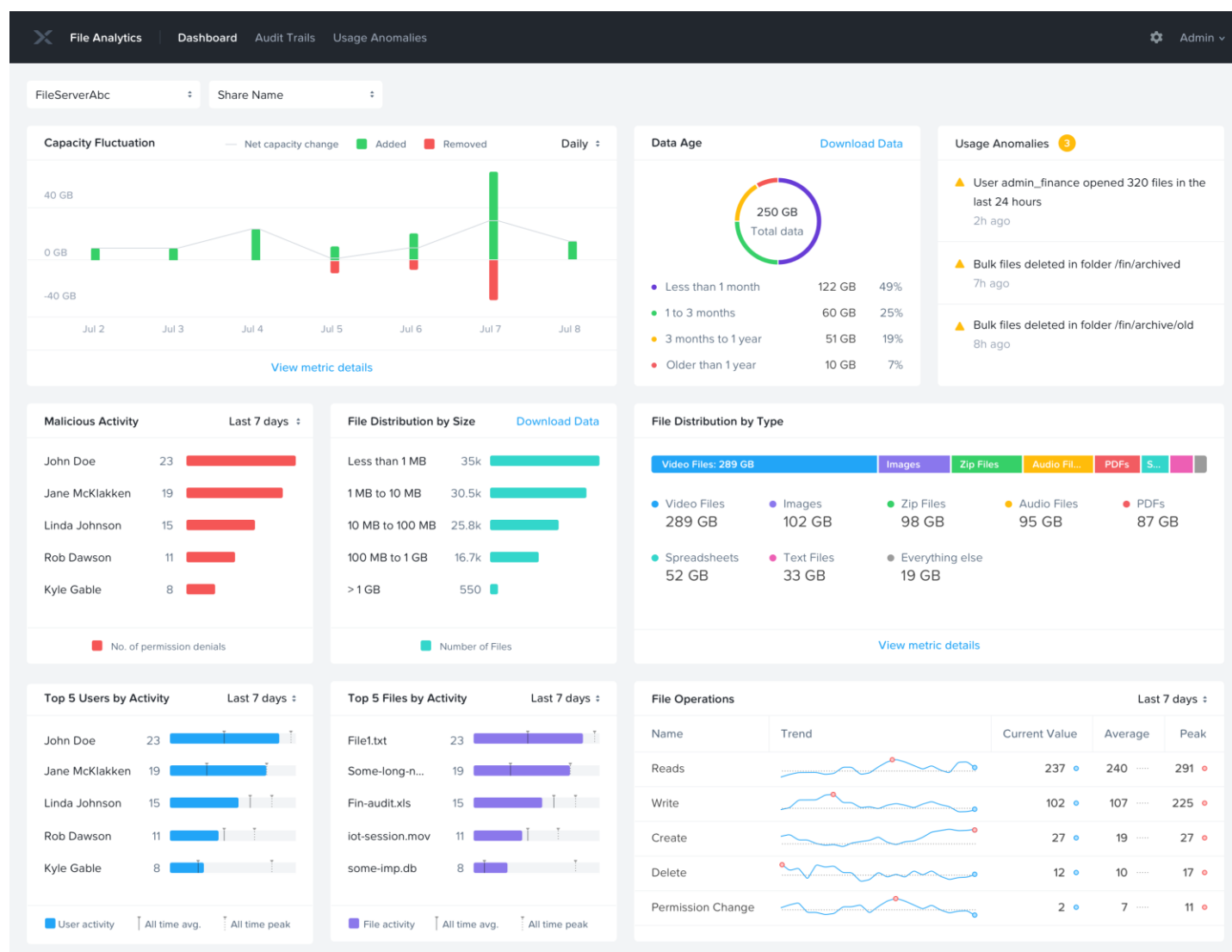
- **Data-driven file insights:** The demands of managing file data can often outweigh those of block-based storage volumes. End-users' file access impacts systems' demands and performance in less predictable ways, while monitoring file system activity is typically vital in maintaining corporate data security. In response, Nutanix Files offers its File Insights interface with detailed analytics on critical file data storage information, such as capacity trending, details on inactive data, user behavior, and file type details.

## Nutanix Files Feature Overview

- SMB and NFS
- Active Directory integration
- Deduplication and compression
- User/share quotas
- Clones/replication
- Integrated management with Prism
- Ability to coexist with an HCI cluster or be deployed standalone
- Internet Content Adaptation Protocol (ICAP)

These insights help identify potential capacity constraints or performance issues, but Nutanix can also automatically highlight potential malicious activity in the form of malware and more specifically ransomware attacks, which would be seen when large sets of data are encrypted without warning. Administrators can establish rule-driven logic, and then Nutanix will automatically highlight outlier users, helping improve data security. Figure 3 shows the solution’s file analytics dashboard.

Figure 3. File Analytics Dashboard—Nutanix Files



Source: Enterprise Strategy Group

Also in the context of its ongoing effort to bring HCI to modern file environments, Nutanix identified what it describes as five specific “Nutanix Files Design Goals for a Modern Data System.” Those five design goals are:

1. Decoupled hardware and software.
2. Availability “always and from anywhere”—with multi-protocol standard interfaces and zero-touch recovery.
3. Secure by default, and multi-tenancy by default.

4. Multi-temperature, with intelligent data movement across tiers.
5. Automated capabilities and programmable capabilities, with zero-touch provisioning.

In general, Nutanix is making sure that with Nutanix Files, organizations can capitalize on a tremendous opportunity to reduce IT complexity in a variety of file storage environments, such as home shares, departmental shares, and even file-based backup. With its integrated design as part of the Nutanix Cluster, this file solution is ideal for VDI environments already leveraging Nutanix infrastructure.

## The Bigger Truth

Nutanix has a well-established history of transforming data centers with its HCI technology. As with most transformational technology stories, leaders continually seek new ways to bring the benefits to a broader variety of environments and use cases. In this fashion, Nutanix brings file storage to HCI. Nearly every business has a need for both a virtualized application environment and a share file storage environment. Nutanix Files resolves this gap.

As a result, organizations do not need to separately find, evaluate, deploy, manage, and support another infrastructure just to get file storage. Nutanix Files extends the benefits of HCI to new data sets, which is an addition the market will welcome.



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