

# Build Your Business Case for Application and Desktop Virtualization

Virtualizing applications and desktops offers many benefits over legacy infrastructure, from cost savings to IT staff flexibility. Here is an overview of why this class of virtualization makes sense and how you can validate it to decision-makers.

WHITE PAPER

There are two inexorable forces at work today in just about every IT organization. First, capital budgets are under greater pressure than ever, requiring IT leaders to find innovative ways to deliver applications and client computing to users more cost effectively. Second, the increased reliance on information technology for mission-critical applications means that IT organizations need to overhaul how applications and endpoints are deployed—simpler, faster and with fewer management headaches.

That's where application and desktop virtualization comes in. The technology—often simply referred to as VDI for virtual desktop infrastructure but more recently retitled to account for the growing importance of application and desktop virtualization and delivery—is now a mainstream IT strategy. Worldwide revenues for this space are expected to exceed \$4.38 billion in 2019, representing a 5-year compound annual growth rate of 7.7%.<sup>1</sup> Another report notes that global client virtualization software revenues will grow by 46% on a compound annual basis by 2018.<sup>2</sup> These and other growth projections point to the technology's twin advantages of economic benefits and simplified deployment of desktops and associated applications.

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1 "IDC Market Forecast: Worldwide Virtual Client Computing Software Forecast, 2015–2019: Mobile Use Cases Driving Market Growth," IDC, June 2015

2 "Global Client Virtualization Software Market 2014–2018," Research and Markets, May 2014

## Why You Should Adopt Application and Desktop Virtualization

Virtualization, in general, is now widely acknowledged as an important step in helping data centers modernize and become more efficient in many ways. The trend that started more than a decade ago with servers and storage now has expanded to include application and desktop delivery for a number of reasons.

Brian Madden, widely acknowledged as one of the most insightful—and balanced—experts on desktop virtualization, neatly sums up the benefits of desktop and application virtualization: “At the end of the day, no one’s boss storms into their office and says, ‘We need to manage our desktop better’ or ‘We need to improve security by 20%.’” Instead, he points out, they come up with more pragmatic, real-world goals in areas where desktop and application virtualization has proven to help, such as allowing users to work from home or supporting Mac users’ need for access to Windows applications.<sup>3</sup>

Ultimately, there are a number of reasons IT organizations have turned to desktop and application virtualization (keeping in mind, of course, that each organization prioritizes these benefits differently based on their own unique circumstances). These include:

- **Capex savings.** Thanks to substantially better processor performance and core counts and larger memory footprint in servers, IT departments have been able to greatly improve the density of users per systems while reducing physical desktop purchases.
- **Data center Opex savings.** Virtual infrastructure, especially using software-defined hyper-converged compute and storage infrastructure, means lower power and cooling costs, along with the need for less physical real estate.
- **Faster provisioning/onboarding.** This is a big benefit that saves time for organizations that have long had to rely on IT staff to devote valuable time to bringing new users on board and up to speed.
- **Easier management.** Being able to implement processes, applications and services with a single click and simplify the servicing of help desk calls are huge goals for IT.
- **Easier operating system conversions/migrations.** Ask any IT executive what they don’t want to do with their staff’s time, and operating system migrations will not be one of them.
- **Easier security patching.** Again, simple, single-click updates of security patches make life so much easier.
- **Better support for mobility.** Enabling pervasive mobility is nearly every organization’s goal today, and desktop and application virtualization makes that a reality.
- **Better management for diverse endpoints.** No matter if your users are utilizing traditional desktops, thin clients, notebooks, tablets, smartphones or specialized clients such as wearables, virtualization makes the experience seamless across different endpoint types.

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3 “Why Do People Use VDI? One Reason!” BrianMadden.com, May 2015

## Reaping the Economic Benefits Versus Physical Desktops

There are a number of different areas of spending that IT organizations must take into account when determining how to improve the cost efficiency of their users' desktop environments. These include:

- Hardware costs, such as endpoints, servers, storage and network infrastructure
- Software licenses
- Data center operating expenses, such as power, cooling and the cost of physical real estate
- IT overhead, such as time spent patching, onboarding, providing service/support through the help desk, and driving a wide variety of management tasks
- End-user downtime

Many organizations naturally gravitate to lower Capex, in the form of infrastructure spending, as a potentially large benefit to desktop virtualization. However, Capex savings must be viewed holistically: While desktop and application virtualization certainly dramatically reduces the costs of procuring new endpoints, it is not unusual for the process to require some upgrades to back-end infrastructure such as servers, storage and network capacity.

Instead, general Opex is a bigger area of potential financial savings. For instance, one study points out that, compared to traditional PCs, virtual clients reduced electricity consumption by 88% and had twice the expected lifespan of physical desktops, resulting in a per-desktop savings of more than \$330.<sup>4</sup>

When determining the ROI for desktop and application virtualization compared to physical endpoints, there are a number of questions IT leaders should be asking. For instance, SearchVirtualDesktop.com identifies seven key issues necessary to sort out in evaluating ROI benefits.<sup>5</sup> These include:

- Will the use case have local or remote users?
- Will the endpoint devices be purchased or reused?
- Which operating system will be used?
- Does the organization have Microsoft Software Assurance or a Microsoft Enterprise Agreement?
- Are the users power users, typical users or light users?
- Which applications will be used and are they all licensed?
- How large is the current desktop and application support staff?

Calculating the cost of downtime and availability is an extremely important step in determining the economic benefits of desktop and application virtualization compared to physical desktops. Of course, everyone understands that physical endpoints inevitably fail at some point—sometimes it is as innocuous as replacing a graphics card, and sometimes as catastrophic as a hard disk crash. Replacing or simply repairing damaged

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<sup>4</sup> "Physical and Virtual Desktop Cost Comparison," University of Arkansas Office for Sustainability, May 2014

<sup>5</sup> "Guide to Calculating ROI From VDI," SearchVirtualDesktop.com, June 2015

desktops carries a hard-dollar cost, but that cost is often dwarfed by costs resulting from suspended access to data, applications or services, or the reputational costs organizations suffer because customers or suppliers are cut off from company services. Numerous industry studies peg the per-hour cost of downtime, above and beyond hardware repair/replacement, at hundreds or even thousands of dollars, so virtual desktops' dramatic improvement in availability and lower downtime over physical desktops is substantial and vitally important.

Finally, a major benefit many organizations enjoy from adopting desktop and application virtualization is the ability to free up IT staff from routine, low-value activities that often account for anywhere from 60-80% of IT attention and time. By leveraging one-click functions such as enterprise-wide security patches or fast end-user onboarding, the savings can be huge with the right vendor, as quantified below.

## The Nutanix Advantage Over Legacy Infrastructure

Selecting a supplier of integrated solutions for desktop and application virtualization requires IT professionals to do their homework, because there are numerous options to consider. Naturally, suppliers often promote conflicting visions on the best way to implement this new approach to desktop optimization and modernization, but one strategy that clearly resonates with IT organizations is hyper-converged infrastructure (HCI).

With hyper-convergence, infrastructure components such as servers, storage, networking and unified management are deployed in an appliance form factor, which in turn is optimized for workloads such as desktop and application virtualization. HCI offers considerable and quantifiable benefits over traditional, disparate infrastructure stacks, including lower Opex, improved uptime, faster deployment, lower IT support requirements and an economic model based on "pay-as-you-grow" scalability. Independent market analysis highlights the growing importance of HCI and desktop virtualization, with IDC noting "a strong partnership between compute, networking, storage and desktop virtualization vendors helps businesses realize the many benefits of desktop virtualization, including greater flexibility, low management overhead, increased security and lower per-desktop costs."<sup>6</sup>

One supplier that has proven to offer a superior HCI solution for desktop and application virtualization is Nutanix, which has established a strong track record for reliable, innovative and cost-efficient options. The Nutanix solutions are purpose-built for many of the traditional challenges faced by organizations that deploy VDI and application virtualization. Issues such as performance bottlenecks, overprovisioning and higher costs for back-end infrastructure such as storage and servers, availability limitations during high-use timeframes and support for an increasingly heterogeneous hypervisor environment are confronted directly by the Nutanix HCI offerings.

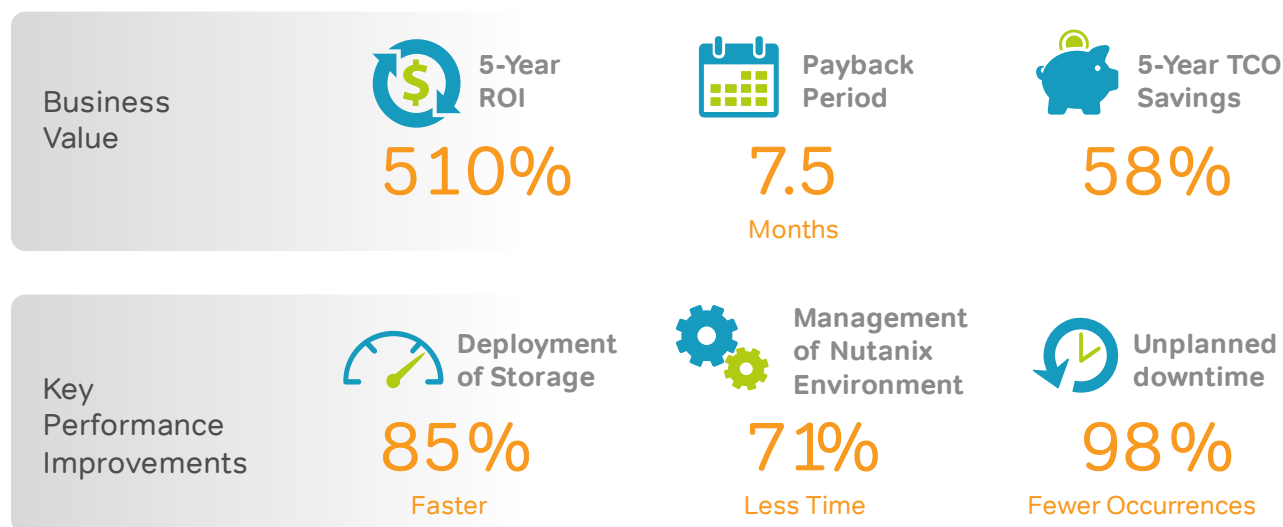
For instance, IDC's calculations indicate that IT time savings and staff productivity improvements alone with a vendor like Nutanix can generate an average of more than \$800,000 over a 5-year period for enterprises interviewed for the IDC study.<sup>7</sup>

6 "Streamlining Deployment and Management of Desktop Virtualization: The Case For Integrated Infrastructure," IDC, July 2014

7 "Quantifying the Business Value of Nutanix Solutions," IDC sponsored by Nutanix, August 2015

A third-party study conducted by IDC demonstrates the strong value Nutanix customers achieve through its reliability and cost efficiency. For instance:

- A survey of 13 customers revealed that Nutanix solutions including desktop and application virtualization reduced management time by on average 71%.
- Storage was deployed on average 85% faster with Nutanix solutions.
- Unplanned downtime occurrences were reduced an average of 98%.
- Surveyed Nutanix customers realized a 5-year ROI of more than 500%.
- The typical payback period of the initial investment was about 7.5 months.<sup>8</sup>



The Nutanix Xtreme Computing Platform (XCP) is optimized for desktop and application virtualization through two important software solutions. The Nutanix Acropolis functionality for storage and compute plus virtualization leverages the economics and efficiency of software-defined storage, and combines it with an integrated virtualization engine for turnkey HCI. Acropolis is based on a distributed storage fabric that helps customers unify different workloads onto a single platform. It also provides an application mobility fabric for VM-based functions, high availability and integrated disaster recovery, and a native, hardened hypervisor based on proven open source technologies for improved performance, security and self-healing functionality. As discussed earlier, for desktop and application virtualization projects this translates to predictable, lower costs, faster deployments and ROI, and the ability to support a wide range of end users and initiatives.

Nutanix, along with its partners, has also created a rich set of reference architectures for Citrix- and VMware-based desktop and application virtualization deployments to serve as blueprints for easy design and deployment.<sup>9</sup> These reference architectures show how organizations can benefit from features such as Shadow Cloning and VM-centric management, resulting in improved user experience including faster boot times (880 users in 6 minutes) and more.<sup>10</sup>

<sup>8</sup> IDC Footnote 6, Ibid

<sup>9</sup> "Reference Architecture," Nutanix, November 2015

<sup>10</sup> "Reference Architecture: VMware Horizon DaaS 6.1," Nutanix, November 2015

The distributed Nutanix web-scale architecture also brings a level of predictability to desktop and application virtualization from pilot to production. This is represented in IT's ability to size their VDI in terms of user needs. Nutanix also offers the industry's only VDI solution to eliminate the risk of incorrect infrastructure sizing for desktop virtualization projects. Under its unique VDI Assurance service, Nutanix ensures that virtual desktops always get the compute (virtual CPU and memory) and storage (performance and capacity) resources they need to meet end user virtual desktop specifications. This program simplifies virtual desktop projects by enabling infrastructure purchases based on their end users' needs, and eliminates the guesswork or risk associated with sizing traditional data center infrastructure and scaling over time.

Nutanix also offers the Prism management solution, designed to help IT administrations manage virtual environments more easily and more cost efficiently. It utilizes a variety of techniques to create insights that improve virtualization performance and management, including helping with troubleshooting desktop performance issues or identifying trends associated with application/golden image changes.

## Conclusion

Desktop and application virtualization not only has the potential to help organizations lower TCO and deliver fast ROI over traditional server-based desktop computing; it is actually delivering those benefits and more to organizations every day. Reducing capital expenditures on desktops and notebooks; cutting operating costs such as power, cooling and real estate; trimming the amount of time internal staff has to devote to routine administrative tasks; and reducing the cost of software licenses are just some of the financial benefits organizations are recognizing.

As noted earlier in this paper, solutions from Nutanix are on the leading edge of helping organizations achieve significant TCO and ROI advantages. With third-party research validating such impressive data points as a 510% five-year ROI, payback period of just seven months and a five-year TCO reduction of 58% compared with traditional desktop infrastructure approaches, Nutanix hyper-converged solutions are removing much of the risk associated with changing philosophies about desktops and their related applications.

Not only is the economic data compelling, but Nutanix solutions also enable numerous benefits that ultimately improve overall efficiency of IT organizations as they modernize their users' desktop environments, including faster deployment, reduced management complexity, dramatically lower downtime and easier scalability.

For more information, go to any of the following links or follow up over email ([info@nutanix.com](mailto:info@nutanix.com)) or through Twitter ([DM @nutanix](https://twitter.com/nutanix)).

- [www.nutanix.com/vdi](http://www.nutanix.com/vdi)
- [www.nutanix.com/resources/reference-architecture](http://www.nutanix.com/resources/reference-architecture)
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