



IT MEGATRENDS:

LEVERAGING WORKSPACES TO DELIGHT END USERS,
SAVE COST AND CREATE TANGIBLE CUSTOMER VALUE

AN ASG WHITE PAPER

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ASG Workspaces in a nutshell - constitute the evolution of VDI, with the following core advantages:

- Superior user experience: self-service, native cross-device support, more content, built-in support
- Dramatic cost savings:
 - Hardware CAPEX: storage, network, compute
 - Operations management: support cost, application and service provisioning and upgrading, and user on- and offboarding.
 - Software licensing cost: proactive license optimization, decreased Microsoft license cost, built-in app broker
- Reliable and fast application delivery reduces risk of roll-outs, upgrades and updates

Overview

In Forrester's excellent research paper¹ on the critical success factors for "digital workspaces," the analysts put the spotlight on the importance of finding a balance between pure cost focus and delighting end users. Radical cost focus, without thinking of the end user, has paralyzed Virtual Desktop Infrastructure (VDI) to a degree that both Gartner and Forrester call it a failure. They do not believe that VDI market penetration - currently at under 10 percent - will ever grow beyond 20 percent.

Acknowledging the failure of VDI, we have to look for an alternative, as reverting to the management of physical desktops cannot be the answer. What is needed is a technology that delights end users, while at the same time, saves costs as a by-product.

Delighting end users can only be achieved by offering them more than they can do with a traditional desktop device. End users want fast performance, near-instantaneous app provisioning, consistent user experience from any device, and access to the apps and services that make them the most productive.

Today, there's a new approach in the industry called Dynamic Hybrid Workspaces (DHW), which deliver dramatic CAPEX and OPEX savings in terms of hardware, operations and software licensing.

Shifting Paradigms: Delivering Apps, Services, Content and Files, not OS Images

To free the IT department of the incredible complexity caused by VDI, we need to let go of the idea of computing based on operating systems. Why deliver a whole Windows instance when all that's needed are apps, web services, data and files? Of course, the OS still has to be present, but it no longer has to be delivered remotely. This is where it gets interesting - we are now talking about a paradigm shift away from an OS-based approach and toward a new workspace-driven paradigm of computing. No longer do we need to spin up thousands of Windows instances in the corporate data center. All we need to worry about now is how we manage apps -local, virtual and cloud- through their lifecycle, ensuring performance, compliance and security. Instead of owning all hardware and software infrastructure, the IT department morphs into a broker of hybrid cloud services. By unburdening IT from managing thousands of operating systems, significant OPEX and CAPEX savings will be achieved.

¹Forrester, *Five Ways To Ensure That Your Digital Workspace Initiative Doesn't Fail - Give User Experience And Cost Savings Equal Priority*, David K. Johnson with Christopher Voce, Henry Baltazar, Michelle Mai, Amy Mills, July 23, 2015

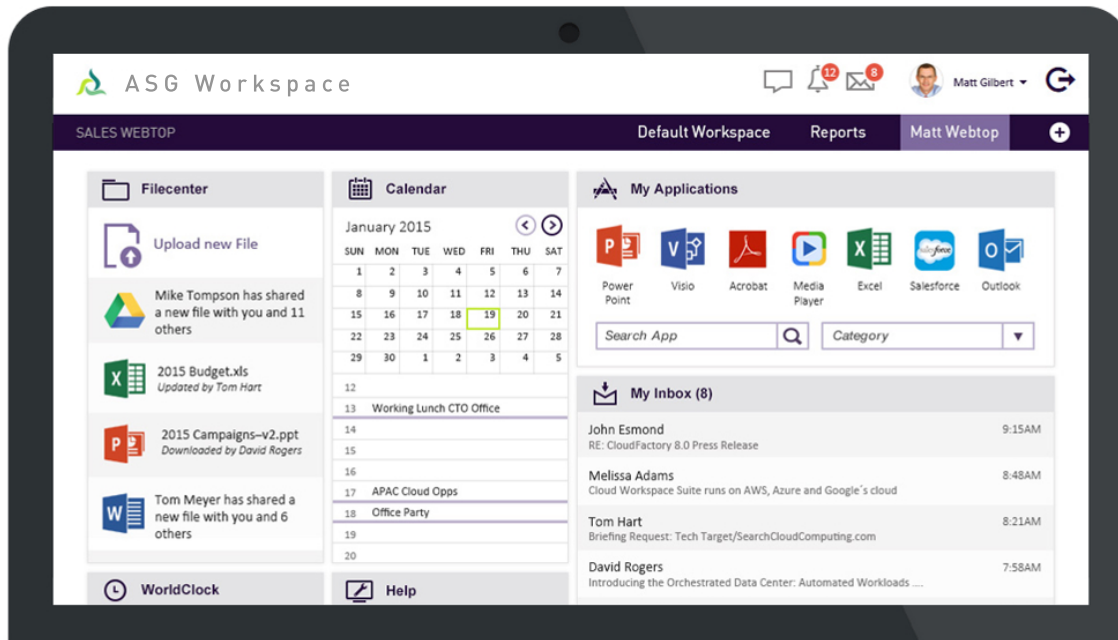
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Workspaces - The Future of End-User Computing

The concept of workspaces is not new (it was introduced by Gartner in 2013) but there is still a common misperception as to what exactly a workspace is, and what its advantages are (review ASG's "IT Megatrends-Parts I and II" white papers for details). In short, both Citrix and VMware are positioning workspaces as a simple dashboard with a collection of app icons and single sign-on integration. These apps are typically delivered via Citrix XenApp, Microsoft RDP, or via online services such as Office365, Salesforce.com, Amazon, or Azure, and all the end user can do is bookmark favorites.

A Workspace Is Much More than an App Launch Pad with Single Sign-On

While VMware and Citrix are merely scratching the surface with their definition of workspace, here's what ASG believes a workspace should really look like.



It is essential to mention that this workspace can be partially or fully based on VMware, Citrix and Microsoft technologies, enabling customers to avoid lock-in with any one of these companies.

Why Does It Delight the End User?

Workspaces are able to deliver apps, services, content and documents through a browser-based interface. They are optimized and secured depending on the end user's device. This means that for the first time, end users are truly device-independent, no matter which device they use. There are many more advantages for the end users of workspaces, compared to the conventional VDI approach:

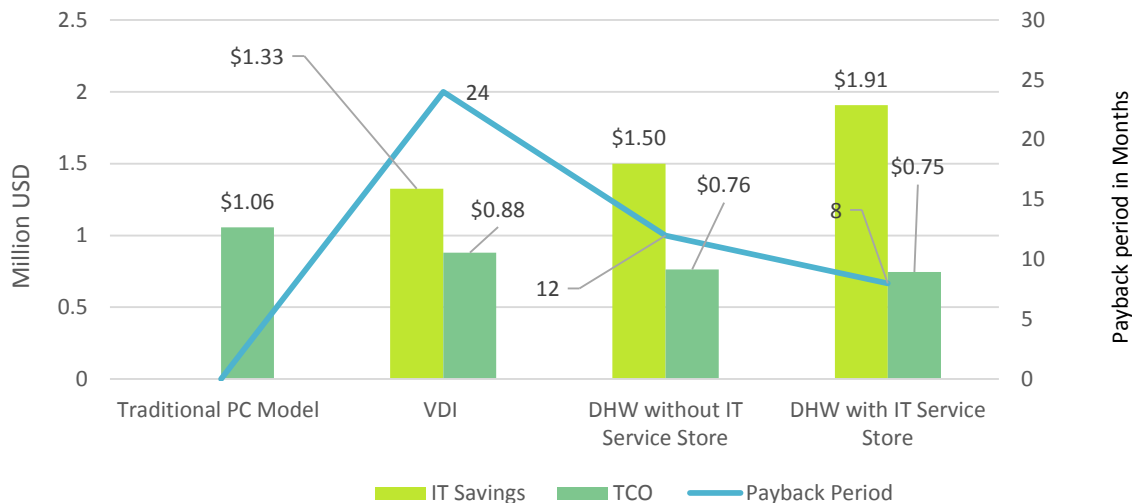
- **Content:** Workspaces offer a dashboard to end users that provides them with all the capabilities they need on a daily basis. This means that to log a new ticket, business users do not have to log into ServiceNow, but simply submit their request through the ServiceNow web part. The same is true for other daily tasks such as checking email, calendar appointments, accessing shared files or changing their passwords.
- **Customizable:** While end users receive a preconfigured workspace based on their role within the organization, they can hit the "edit" button and further customize this workspace. This goes significantly beyond simply defining a set of favorite apps, and enables end users to create their own user experience with all the elements they need for optimal efficiency, such as adding/removing or moving around web parts, or creating purpose-built dashboards
- **Built-in Support:** Tight integration with existing service management and remote control software provides rapid support without end users having to log onto multiple systems or making phone calls.
- **Self-Service:** End users can request the automated near real-time provisioning of applications, services or physical assets such as smartphones, tablets and laptops. In addition, users can trigger business workflows for the automated onboarding and offboarding of staff, as well as for other time consuming and complex business processes.

Delighting the end user is a critical characteristic for the workspaces concept. The higher the end-user adoption of the corporate workspaces, the more the organization will benefit from the CAPEX and OPEX savings these workspaces can bring.

What's the TCO and ROI Compared to VDI?

Making users more productive and happy is only one side of the coin, and typically not sufficient when it comes to making an investment decision. The CFO also has to be happy, which usually requires cost savings and a quick ROI.

3 Year TCO and IT Savings for VDI and DHW for 1000 users



The TCO savings shown in this chart originate from a combination of the following CAPEX and OPEX cost reductions, with focus on basic infrastructure maintenance focused on servers, networks, storage, security, printing, OS and other core components.

IT savings are relative to the traditional PC model, and center around lowering the expense for app maintenance, patches, upgrades, application deployments, user onboarding, license optimization, service desk calls, and cost of application brokerage.

Here are the key cost advantages of the workspaces concept compared to VDI:

Initial hardware investment (CAPEX) - Workspaces require significantly less infrastructure resources in terms of:

- **Servers:** On average, workspaces require about 20 percent less server hardware compared to VDI deployments. This is due to the much more economical characteristics of workspaces, where only the apps, content and data that are really needed are delivered to the user at a specific moment in time. For example, the user sees his email and calendar on the HTML5 workspace without opening Outlook, saving significant backend resources. Since the actual end-user OS does not move to the data center, the processing load of the server is significantly smaller.
- **Storage:** VDI "boot storms" require a significantly oversized storage infrastructure to ensure optimal performance. Layering solutions such as FSLogix, Unidesk or VMware's AppVolumes can help address this issue to some degree, but without addressing the root of the problem. VDI vendors still recommend 250 IOPS per user, while workspaces only require 30-50 IOPS on the SAN.
- **Network & Security:** VDI typically requires an expensive networking appliance, such as Citrix Netscaler or F5 BIG-IP. Workspaces reduce the dependency on these appliances, as authentication and encryption are built-in.
- **Built-in printing solution:** DHW comes with an advanced printing engine, providing end users with enterprise-grade print capabilities that otherwise would have to be added on through the purchase of a product such as ThinPrint.

Cost of operations (OPEX) - In addition to infrastructure resource savings, workspaces bring significant advantages compared to VDI in terms of OPEX:

General IT operations - The concept of DHW focuses on orchestration and automation to enable end-user self-service to dramatically lower IT OPEX:

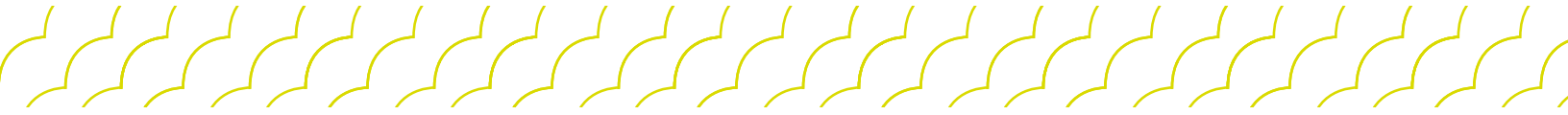
- **Support cost:** The built-in self-service, knowledge base, and remote-control capabilities of DHW can dramatically lower the number of monthly support incidents, while at the same time keeping the workforce productive.
- **Application and service provisioning and upgrades:** DHW enables end users to request new applications directly from within the workspace. The built-in provisioning engine either works alone or integrates with an existing MDM package, such as IBM Tivoli, VMware Airwatch, or Citrix XenMobile, to automatically deliver physical, virtualized or cloud apps directly to the end user.
- **User onboarding and other business workflows:** Manual and error-prone business processes, such as the on- or off- boarding of end users, are automated through the DHW provisioning engine. In addition to saving cost, this type of built-in process automation also ensures security and compliance.
- **Supports Citrix, VMware and Microsoft:** To help customers avoid vendor lock-in, DHW supports Citrix, VMware and Microsoft server and client virtualization technologies, as well as the main mobile device management packages, such as IBM Tivoli, XenMobile or Airwatch.

Software license cost - DHW enables organizations to save on software licensing in three key areas:

- **Proactive license optimization:** Self-service, in combination with hybrid cloud, will involuntarily lead to a more complex challenge for the enterprise to remain compliant, while not overspending on unnecessary licenses. DHW enables end users, based on proactively-enforced licensing rules, to instantaneously try out, reassign, or, if in line with a specific software's licensing regulations, even loan an application for a limited period of time. DHW can integrate with existing software license optimization solutions to enforce complex license agreements and prevent compliance violations before they can occur.
- **Reducing Microsoft license costs:** Almost all of today's solutions rely on delivering Windows-based desktops or applications via Microsoft RDS technology, requiring expensive client access licenses (CALs). However, there are many business users who do not require an expensive Windows backend, as all they are using are browser-based apps or simple apps that could also run on open-source server technologies. Even Microsoft Office could potentially be packaged and delivered through an open-source backend.
- **Low-cost application broker:** DHW offers a built-in application broker that is able to serve many basic use cases without causing additional cost. While Citrix XenApp is still the gold standard for application delivery, there are simpler use cases where a more economical technology is fully sufficient.

In Summary

Workspaces delight end users, save costs and offer quantifiable additional value by providing an orchestration and automation framework to the entire organization. When comparing DHW to a VDI solution, the overall TCO is about 10 -20 percent in favor of DHW. However, the moment this comparison is really swayed in the direction of DHW is when all the additional cost savings offered by the DHW concept are factored in: support, provisioning, user onboarding, license optimization, Microsoft license cost, and the cost of the application broker. Once all of these savings are considered, customers can expect a payback period of 7-12 months, compared to 24 months for a VDI solution.



About ASG

ASG Software Solutions connects sophistication and experience with agility and technological efficiency through its vendor-agnostic cloud, content and systems solutions. ASG helps companies solve today's most pressing business issues including reducing operating costs, enhancing workforce productivity, and ensuring regulatory compliance. More than 70 percent of global Fortune 500 companies trust ASG to optimize their existing IT investments. Founded in 1986, ASG is a global company headquartered in Naples, Florida, USA.

About ASG Software Solutions

ASG Software Solutions helps customers with complex IT environments solve problems across the enterprise. Its solutions empower businesses to enhance workforce productivity, gain an accurate and timely understanding of the information that underpins business decisions and address compliance needs with improved visibility of cross-platform data. ASG can proudly say that more than 70 percent of global Fortune 500 companies trust it to optimize their existing IT investments. ASG is a global provider of mission-critical technology solutions with more than 1,000 people supporting a global customer base across 4,000 midmarket and enterprise customers. For more information, visit www.asg.com.

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