Digital Workspaces Deployments:

K-12 to Postsecondary Education Institutions

Whitepaper

Introduction

This whitepaper has been authored by experts at Liquidware in order to provide guidance to adopters of digital workspaces. In this paper, we outline how academic institutions are benefitting from Liquidware solutions in order to create flexible, follow-me workspaces, allowing them to not only meet students, faculty and staff needs better, but also save significantly on capital investments and reduce administrative time spent on supporting desktops and workspaces.

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Overview

Academic institutions around the world, at all levels, are undergoing a major transformation as technology takes on an increasingly important role in delivering education. Computers have become as much a part of today's classroom as textbooks, prompting targets of a 1:1 computer-to-student ratio. Students use computers as an adjunct to classroom-based learning to receive and work on assignments, to take notes, to research and share information, and to socialize. In-home schooling and distance-learning scenarios, entire curricula and adjunct services are delivered online. As a result, educational institutions must support an increasingly diverse spectrum of operating systems and devices used by students. While opening up access to learning resources on their networks, educational institutions are also challenged to keep student records and data secure. The task of procuring, configuring, and supporting student computing both in and out of the classroom — not to mention the cost — can be huge.

Until recently, every educational institution was faced with a yearly decision whether to allot scarce technology budget dollars and staff time, either to expanding the number of student computers or to replacing the oldest machines with newer models. Today, however, virtualization and cloud technologies are helping educational institutions utilize older end-user computing devices and increase their useful life. In addition, workspace virtualization can reduce the capital cost and effort involved in acquiring and managing hardware as well as software licensing. Finally, the technology can expand the number and diversity of students that the institutions can support.

Virtualization and Cloud Are Transforming Learning

Virtualization and cloud technologies provide a way to increase the useful life of older hardware, reduce software expenditures and promote green power practices to help reduce the cost-per-seat of new student computers while expanding student computer-time. These technologies enable "hot-desking" allowing many more students to share the same end-user computing devices. Many more of these classroom devices can be thin clients, which are cheaper and utilize less power than heavier clients. These technologies keep the workspaces available even in a power or network failure, allowing users to re-enter the sessions from another device at another location. Finally, these technologies enable more secure BYOB scenarios, thus allowing users to continue learning experiences at home and at work, on their own personal devices.

Cutting the Capital Costs of Provisioning One-To-One Workspaces

Virtualization and cloud technologies alleviate the decision whether to replace outdated PCs or simply buy more. Educational institutions can provide access to a pool of virtualized or cloud-based workspaces that can support the greatest number of possible students who would use the system at any given time. Because critical workspace components, including the user profiles, applications, policies, and user-authored data, are decoupled from devices, and saved to central storage, institutions can purchase less expensive thin clients, which only require the Windows OS and the workspace client software rather than full desktops.

Older PCs that cannot run current versions of popular operating systems and desktop applications can still have their useful life extended when repurposed as thin clients running modern workspace platform software. Applications only need to be licensed for the greatest number of seats in the virtual workspace pool, not for every student, as they can share software licenses based on who is actually logged in at any given time. Thus, educational institutions can more affordably meet targets of providing every student with the resources they need.

Reducing Administrative Staff Time for Help Desk Support

Classroom time is limited and precious to students and faculty. To spend time logging in or dealing with corrupted computers is not only frustrating, but actually cuts into productive learning time. Administrative staff time too can be consumed with getting individual PCs back up and running, which can take hours if not days, and is not the most productive use of their time.

Virtualization and cloud provide tremendous administrative cost savings in time and effort almost immediately. When workspaces are virtualized, if access on one device should fail, the student's entire workspace is still running and instantly available on any other device on the network, whether on campus or off site. Administrative staff do not need to spend time remediating individual hardware.

Management interfaces to virtual/cloud workspaces are also uniform, which requires less maintenance and lowers costs when upgrading, patching, configuring, backing up and performing other routine tasks. Specialized monitoring software also allows administrators to

have a single pane-of-glass view into all aspects of the shared workspace environment from "machines" to users, to applications, as well as virtual, cloud, storage, and network layers. Issues can be spotted and addressed quickly.

Virtual/cloud workspaces also support application inventory tasks. Unnecessary or underutilized applications can be more easily spotted and removed from images, ultimately reducing admins' workloads. Recovered licenses costs and reduced storage costs can then be redeployed, or the cost simply recouped into the bottom line.

Virtualization delivers a uniform student experience regardless of device used. Compute devices of different ages, with different processors and memory, can still provide a highly consistent workspace image which can be configured with the exact applications needed for students based on where they are in their programs. Educational institutions have to support a growing range of student-owned devices. When virtualized, students' workspaces can literally follow them from classroom to labs to library and to students' homes or even workplaces, supporting 24/7 learning and collaboration. The same Help Desk Support can be delivered by administrators across all locations from on-campus to home schooling.

Virtualization also supports enhanced network security which makes it possible for school networks to allow connection of student-owned devices without risk. Because the virtual/cloud workspace interface is inherently secure, the school network has an additional layer of protection from malicious content. Additional security and data loss prevention (DLP) utilities can be layered in to greatly reduce exposure to malware and to prevent unapproved types of data transfers. Unneeded ports and protocols can be blocked. When user environment management technologies are deployed, students can be made standard users, which prevents hackers from using students' administrative status to enter areas of the environments they should not.

Green Results with Reduced Power Consumption

Virtual/cloud workspaces are inherently greener than traditional PCs. As schools replace older PCs with thin clients, there are substantial savings derived from reduced power consumption. On average, using thin clients over traditional PCs reduces the amount of power needed almost eight-fold, thus significantly reducing the power required by the institution and consequent costs.

Students using virtual/cloud workspaces can connect to the school network from other locations easily, which also supports green initiatives. Allowing students to connect from remote locations has become essential today. This ability also has the added advantage of lowering the need to keep labs and classrooms cool by enabling students to spread out their workloads to other locations. Online access effectively lengthens the school day and increases the network utilization, also contributing to lower TCO, while fostering "green" practices.

Platform-Agnostic Solutions Extend the Value of On-Prem VDI to Cloud

Liquidware solutions support critical stages in life cycle of cloud-hosted virtual workspaces. What this means for educational organizations is that their investments in next generation workspaces are essentially future-proofed. Educational organizations are not locked into a single platform stack; they can move across platforms – virtual to physical to cloud – seamlessly. With Liquidware Essentials, containing ProfileUnity™, Stratusphere™ UX and FlexApp™, complexity is reduced and the time to production on any workspace platform is accelerated. You are ensured that your virtual/cloud workspaces provider is meeting your SLAs and quality of service requirements right from the start.

When you leverage Liquidware Essentials, you smoothly progress through key stages to cloud-hosted desktops as follows:

- Assess your current users to determine prime candidates for virtual/cloud workspaces
- Select the correct workspace platform to support the applications and uses cases of users
- Easily and accurately migrate users to your chosen workspace platform
- Easily layer and manage your applications, reducing desktop image complexity
- Deliver context-aware User Environment Management to secure and enhance user sessions and allow users to move across devices without losing work
- Host user profiles and application layers directly on Cloud object-based storage such as Amazon S3, Microsoft Azure, and Google Cloud
- Manage on-premises physical and virtual workspaces as well as cloud workspaces with one set of solutions
- Adopt a hybrid or multi-cloud strategy for high-availability or easy transitions to new hosting

Education Customers' Experiences with Liquidware Solutions

The following academic institutions have provided an overview of their experiences with Liquidware solutions. In these articles, they have outlined the strategic improvements to their students' and staffs' user experience on virtual/cloud workspaces. They have also described the efficiencies and cost savings accrued as their administrative teams reduced licensing and storage costs, lowered time to remediation for HelpDesk Support teams and accelerated maintenance actions. We welcome you to click on the stories listed below to see how Liquidware solutions can benefit your environment.

Anglia Ruskin University

Barking & Dagenham College

Buffalo Public Schools

Community College of Rhode Island (CCRI)

Florida Atlantic University

Hanze University

Michigan State University

MnSCU

Northeast - Wisconsin Technical College

Orange Coast Community

Phoenix Central School District

The Royal College of Physicians

Trinity College

University Center at Ponca City

Whatcom Community College

Liquidware Solutions Enable Change in Education Technology

Liquidware solutions are used by a growing number of education organizations to transform their current desktop strategy from a one-to-one physically constrained desktop system to an elastic virtual environment.

Liquidware is the leading digital workspace management software provider in the market today. We offer exceptional value with our Essentials bundle, containing industry-leading solutions ProfileUnity, FlexApp and Stratusphere UX. Our workspace virtualization solutions are the most affordable, easiest to deploy and most universally compatible offerings available today. These solutions provide the following key benefits for workspace virtualization environments:

- No "rip & replace" of existing platforms, infrastructure, or software. Instead, you can build on your current environment and automate existing manual or script-based processes. In this way, you reduce costs, make administrators and users more productive, and extract more value from your current IT investments
- Our digital workspace management solutions are fully integrated with each other and with any platform that delivers Windows desktops. You no longer waste money and effort integrating point solutions from different vendors. You receive Support Services from the Liquidware Support Team, who boasts 98% customer satisfaction ratings
- You are not locked into proprietary approaches that force you to build back-end systems specifically for them. You are never stove piped into an approach that may not keep up with your changing needs. Instead, our solutions integrate native Windows formats you already understand and support. And you can quickly adopt new technologies as they emerge

Our solutions are platform-agnostic, which means you only need one vendor to support all of your Windows environments throughout your organization, further lowering costs and maintenance.

We support the following desktop platforms:

- Omnissa Horizon
- Citrix Virtual Apps and Desktops
- Remote Desktop Services
- Microsoft Windows 365 & Azure Virtual Desktop (AVD)
- Cloud-hosted desktops, including Amazon, Google, and Azure
- Physical Windows desktops

Liquidware Essentials Solutions Suite

We offer the following solutions to improve desktop virtualization projects and extend their value to academic organizations.

ProfileUnity User Environment Management

ProfileUnity ends the need for roaming profiles or basic profile tools. The solution supports zero downtime user migrations to Windows 11, and Server 2022, and to DaaS platforms such as Amazon WorkSpaces, Citrix Desktops on Azure, Omnissa Horizon hosted desktops, or Microsoft RDS & RDMI. ProfileUnity speeds overall logon times and streamlines user management, by providing unified User Profiles with Application Rights Management and Context-Aware Policies for granular control of users on any Windows OS, on any desktop delivery platform, including physical, virtual or cloud. ProfileDisk is a special feature in ProfileUnity, that leverages a virtual disk to handle extremely large profiles (including those with MS Outlook Index and Search, and Microsoft Office 365 Caching) to deliver lightning-fast profiles that are fully customizable. Profiles and user data can also be stored on Amazon, Google, and Microsoft clouds, reducing the cost and complexity of delivering Windows. For more details, see the ProfileUnity Advanced Features List.

FlexApp Application Layering

FlexApp instantly delivers applications to any Windows desktop environment, independent of the Windows operating system version. The solution supports VDI and DaaS desktops from Citrix and Omnissa, Microsoft RDSH and Amazon WorkSpaces, as well as physical desktops. FlexApp enables dynamic lab environments, ushering in a new age in sizing, designing and delivering applications in Teaching Labs. These dynamic labs overcome the constraints imposed by traditional models of choosing and provisioning hardware. FlexApp lets you transform static labs into dynamic labs so that the same devices can serve students across curricula by delivering only the applications that they need on demand at login. FlexApp also provides package automation as well as the ability to work offline.

Stratusphere UX Digital Experience Monitoring & Diagnostics

Stratusphere UX is the industry-leading digital experience monitoring and diagnostics solution. An independent and platform-agnostic architecture, the solution provides user-centric visibility that is persistent across platform and workspace delivery. User behavior is unpredictable; and treating every workspace the same will lead to a gap in meeting expectations. The ability to examine user, machine, and application workloads from the user point of view is critically important. Whether casting an Applications Strategy or looking to baseline, optimize or diagnose the Machine Boot & Login Process, Stratusphere UX minimizes unknowns, reduces risk and delivers deep visibility that shows how good or bad the user experience is. Unlike solutions from infrastructure and APM vendors, Stratusphere UX provides visibility before, during and after the transformation process and supports a number of significant uses cases including the following:

- Assessment of Current Desktops for Planning/Design
- Rapid Diagnostics of All Workspace Environment Layers
- Extending Hardware and Devices Lifespans
- License Recovery Costs
- Application Delivery Strategy

25 Free Software Licenses

Academic institutions that would like to try Liquidware Essentials in their environments can obtain 25 free software licenses for extended trial periods. In order to receive these licenses, please contact sales@liquidware.com.

About Liquidware

Liquidware is a leader in digital workspace management solutions for Windows workspaces. The company's products encompass all facets of management to ensure the ultimate user experience across all workspaces – physical, virtual, DaaS or in the cloud. Enterprises across the globe utilize Liquidware solutions to dramatically decrease time spent managing workspaces, while delivering increased security, flexibility, and scalability. Supported platforms include Microsoft physical, Windows 365, Azure Virtual Desktop (AVD), and RDS desktops, Citrix Virtual Apps and Desktops, Omnissa Horizon, and Amazon WorkSpaces. Liquidware products are available through a global network of partners.