

Liquidware Labs Helps City of Tempe Make Smooth Transition to Virtual Desktops

"With Liquidware Labs, managing virtual desktops is like night and day compared to what we did before."

*-Raul Porras
IT Support Consultant
City of Tempe*

Organization:
City of Tempe

Virtual Desktop Users:
300, expanding
to approximately 900


Products:
ProfileUnity FlexApp
Stratusphere FIT
Stratusphere UX

Overview

The City of Tempe, Arizona, has approximately 1,800 PC users across all its departments and replaces their devices about every three years. The schedule slipped because of tight budgets, and the city also needed to migrate all its users from Windows XP because Microsoft was discontinuing support. This combination of factors was the catalyst for the city's IT staff to consider desktop virtualization. The tools and support the city received from Liquidware Labs helped give system planners the confidence to introduce a virtual desktop infrastructure (VDI) that has been a positive experience for users and system administrators alike.

The Challenge

It takes many software applications and substantial computing resources to run a growing city of 161,000 people. The City of Tempe's IT department, including Charles Swanson, Jim Fish and Raul Porras, is responsible for managing it all and must support a municipal workforce that includes police and fire personnel, inspectors, elected officials and hundreds of other professionals who perform all aspects of city operations. While these user groups have a diverse range of computing needs, one need was universal. The city needed to migrate all computer users from Windows XP to Windows 7 before support ended for the legacy operating system. Most users also were overdue, or soon would be, for a computer upgrade as well.



“We postponed our regular PC refreshment cycle during the economic downturn and didn’t go back to doing regular upgrades, so we had some pretty old desktops in service,” said Charles Swanson, Tempe’s senior IT support consultant.

“We also knew we would have to do an operating system upgrade because Windows XP support was being discontinued,” added Jim Fish, senior technical support analyst.

The team was concerned that introducing a new operating system and hardware could strain its staff’s ability to support users, so improving desktop management also became a critical goal for the upgrade project.

“When we looked closely at all we needed to do, it seemed that introducing a virtual desktop infrastructure was the best way to address all our user and support needs,” said Fish. “We had a lot of experience with virtualization and VMware on the server side, so we felt comfortable with the concept and planned a desktop pilot.”

The pilot quickly showed some of the leading benefits and limitations to virtualizing desktops in the VMware environment. During the pilot, virtual desktops performed well, but the system administrators were frustrated by the process for provisioning users and the lack of flexibility they had for customizing virtual machines, creating user pools and assigning applications. And even though the team had extensive server virtualization experience, the City of Tempe IT staff recognized very early that designing the virtual desktop infrastructure and allocating resources efficiently would be a challenge.


During the pilot, the team created 12 pools of virtual desktops that were configured to meet different user needs. They created 12

different master desktop images, because it was not easy to customize individual VMs using the basic tools available in the VMware hypervisor. The provisioning process forced Tempe IT staff to use persistent virtual machines, which was not the most efficient use of resources. Application rights could not be easily assigned to individual users, so apps were bundled into the basic desktop configurations even though some users wouldn’t actually need all of the apps. Virtual desktops were not optimized for individual users, and the city had to buy more software licenses than it needed, which were problems it wanted to correct when the project went from pilot to production.

For help the city turned to IT Partners, a local systems integrator specializing in infrastructure support and virtualization. IT Partners strongly recommended using Liquidware Labs solutions to enhance the basic VMware functionality before going live with a virtual desktop deployment.

The Solution

To get an understanding of which user desktops were good candidates to virtualize and what resources would be required, the City of Tempe conducted an assessment of its physical desktop environment using Stratusphere FIT from Liquidware Labs. A FIT assessment provides data about CPU, RAM, disk, I/O and network bandwidth resource utilization, creates a record of operating systems and applications (including versions) that are in use, identifies individual users and groups, assesses dependencies and collects other metrics. Stratusphere FIT then processes the information and produces scores to help users decide what should be virtualized, and provides guidance on how the architecture should be designed and how resources should be allocated.



“Stratusphere FIT was a great first step for planning the virtual environment,” said Swanson. “We could see the transition from Windows XP to Windows 7 would be a major change. The FIT assessment showed us which application were running and the resources that they were using. We then had to determine if our applications were compatible with Windows 7.”

The IT department was not going convert all users to a new operating system and virtual desktops at the same time, so it knew it would have to support a mixed environment. That challenge was complicated even more when the team learned that VMware’s ThinApps could not virtualize all the applications that virtual desktop users needed to access.

“That’s where Liquidware really saved the day,” said Fish. “Liquidware’s FlexApp could deliver applications that VMware ThinApp couldn’t, especially kernel mode apps.”

FlexApp is an advanced application layering feature of ProfileUnity, Liquidware’s user profile and environment management solution. FlexApp can package complex applications with multiple dependencies, such as iTunes, QuickBooks and Adobe Creative Suite. Administrators can easily assign applications to individual users and pools, and users can be allowed to install their own apps in a controlled manner. ProfileUnity and FlexApp support non-persistent VMs, which helped Tempe reduce its software licensing requirements while also customizing and optimizing desktops for individual users. The upcoming release of Flex-App will support persistent environments as well.

The team took advantage of the desktop customization features to ease the transition to virtual desktops and Windows 7. “When we created the base images, we made the virtual and physical desktops look exactly the same. We even turned off some of the new features in Windows 7 to preserve the look and feel of XP as much as possible,” said Fish. “Our users adapted to virtual desktops really well, they were usually very comfortable with them within an hour.”

“That was big,” said Raul Porras, IT support consultant. “People were concerned about the transition. The word “virtual” scared them. People naturally have a fear of the unknown, so being able to make desktops as familiar as possible was important to our success.”

ProfileUnity is VMware’s recommended solution for user profile and environment management in VMware Horizon environments. ProfileUnity is used in place of roaming profiles and other basic persona management tools. It decouples user profiles, settings, configuration and data from the operating system, and stores these securely to a network share in the data center. As a result, typical login time is reduced to seconds. Because the users’ profiles and all associated settings follow them from device to device and session to session, the desktop experience is consistent and personalized no matter what machine or location the user logs in from. ProfileUnity provides folder redirection, follow-me-printing, and many other convenient, context-aware features. It also offers advanced functionality to help users and administrators manage applications, storage, desktop disaster recovery and more. ProfileUnity loads users settings, customizations and applications when the virtual desktop is powered up, which enables customization without having persistent desktops.

The Results

"ProfileUnity's ability to let us assign applications to individual users has been really helpful," said Porras. "Before, we would pool apps by department, but couldn't do much customization. That's why we created 12 separate pools, which is really too many to manage and drove up our licensing costs."

"The change to non-persistent floating pools was also a big improvement," said Swanson. "We found that saved us a lot of resources by not having so many virtual machines powered up at the same time."

Virtual desktops have been very popular with employees that work outside city offices. Now then they log in from home or another remote location their desktop looks exactly the same as it would in their office, and they have access to all the same files, drives and applications.

"That's been one of our big selling points," said Fish. "You can access your machine from any computer, including tablets and Android smart phones. That's been a big feature for people that work remote, because before they couldn't get all their features."

Desktop users are satisfied and support has been simplified, which has led the City of Tempe to expand its VDI. At its peak Tempe supports approximately 100 simultaneous virtual desktop users. It has virtualized desktops for 300 users, has immediate plans to add 200 more and thinks the environment will quickly grow to 800 or 900 users. It is now using Stratusphere UX to monitor and manage the VDI. Stratusphere UX gathers time-based desktop metrics to support day-to-day monitoring, and more importantly, diagnostics of virtual desktops.

With visibility into desktop performance patterns and resource consumption, the solution is used to also proactively plan for changes to the infrastructure and to optimize performance. It can run independently or integrate with other leading monitoring solutions' dashboards with a specialized set of APIs.

"With Liquidware Labs, managing virtual desktops is like night and day compared to what we did before," said Porras. "We can customize the desktop at a really granular level that you just can't match with the basic profile management ability in VMware."

