Experience is the Best Teacher: ProfileUnity Helps Phoenix Central School District Overcome Early VDI Challenges

"ProfileUnity is infinitely configurable. It is not a product that gives you only one way of doing things."

- Ted Love, Director of Technology Phoenix Central School District

Organization:

Phoenix (New York) Central School District

Virtual Desktop Users:

400 terminals shared by approximately 1,400 students and 220 faculty/staff; up to 130 concurrent users

Products:

ProfileUnity™

Overview

The Phoenix (New York) Central School District (PCSD) made a strategic decision to roll out thin client hardware in the computer labs and classrooms at its middle school and high school. The 400 thin clients are shared by approximately 1,400 students, and 220 faculty and staff. While the thin clients provided immediate benefits of supporting more students and offered easier management, other issues surfaced that needed to be addressed before the PCSD IT team was satisfied with the performance. By utilizing Liquidware ProfileUnity, the IT team not only gained immediate improvements, it also set the stage for more scalability and manageability going forward.

The Challenge

Phoenix Central School District had the opportunity to update the computer labs and network infrastructure at its middle school and high school as part of a capital improvement program. Together, the two schools have 400 HP t5730 thin client workstations in addition to 550 computer workstations that together serve approximately 1,400 students and 220 faculty and staff. It is common to have up to 130 concurrent users on the thin clients, most of whom try to log in at the same time at the beginning of class periods. In 2009, the thin clients were set up to connect to Microsoft Remote Desktop Services (RDS), formerly Terminal Services.

The new RDS environment brought new challenges, the most difficult being managing profiles for 1,400 users, maintaining acceptable log-in times when multiple classes of students tried to log in simultaneously, providing convenient printer access and addressing unforeseen policy management issues. Because Remote Desktop Services is comprised of multiple user sessions on a 64-bit Windows Server OS, there was little the district's IT staff could do about the application compatibility and user experience issues it encountered with the architecture it had.

"The education environment is different from most corporate environments. We were running into what we would call 'I/O storms' when 90 students tried to log in at the same time. We had to do something about it," said Ted Love, Director of Technology for Phoenix Central School District. "Classroom time is essential for teachers. It was not acceptable to lose significant class time while waiting for students to be able to log in and begin working."

Once students were logged in, printing became another challenge. When students hit a list of all the printers in the school appeared. Students were required to scroll through a long list in order find the printers close-at-hand in their labs or classrooms – which was a source of constant confusion.

"I assumed we could use the Microsoft tools to manage the virtual desktops the same way we managed our physical PCs. That was a lesson we learned the hard way," said Love. "The Microsoft tools did not allow us to set virtual desktop access to specific printers based on the lab the student was working in. Also, the Group Policy tools were too blunt of an instrument for what we wanted to do." Love was also dissatisfied with Microsoft's user profile management capabilities in Roaming Profiles because in the past, they were the source of long login times for students and were subject to profile corruption.

So, PCSD's first foray into virtualized desktops with RDS produced many lessons learned, along with dissatisfied users and a stressed support staff.

The Solution
The district sought to create a more responsive and flexible environment. Working with TERACAI, an IT solutions provider and Liquidware partner with deep expertise in desktop virtualization, PCSD identified hardware and software solutions to the problems.

One key move to address the limitations was that PCSD IT staff selected VMware View as its VDI platform for its next-generation desktop environment after many proof-of-concept trials. The IT staff created a single golden desktop image and does not customize desktops for each student. Using VMware's non-persistent linked-clone technology meant that the IT staff could provide a consistent user experience while minimizing the resources, particularly storage, needed to power the virtual desktops in the data center.

The district also decided to upgrade its management abilities by installing the ProfileUnity user virtualization solution from Liquidware, and also invested in SSD-based storage area network (SAN) arrays for the linked-clone replica images. ProfileUnity now manages profiles for both the traditional, nonvirtualized Windows PCs and the virtual desktops. PCSD staff and students now have an identical experience regardless of the type of machine at which they are sitting.

Because of the flexibility and power of ProfileUnity, the user environment can be customized to meet the needs of staff and students because user profiles are completely decoupled from the physical desktop or the VDI golden image. Phoenix Central School District has a list of ProfileUnity policies, permissions and filters, many of which run more than 10 pages long. The result is thousands of possible desktop configurations. With so many users and a dynamic environment, policy management had been very challenging, but is very effective in the new environment.

"The beauty of ProfileUnity is that it allows us not just to virtualize the OS and applications but also to virtualize the user profile and make it ubiquitous across the enterprise," said Love. "No matter where a user logs in they get the same experience. With ProfileUnity we can effectively and efficiently inject the profile during the login."

The district also used ProfileUnity to get control over printer management. Now, based on ProfileUnity's context-aware filter settings, the default printer for each computer lab or teacher desktop is loaded dynamically into the virtual desktop image, and only three or four practical closely located options are displayed. Students and staff no longer have to scroll through a long list of printers just to find the one or two that are in their vicinity.

The Benefits

Quicker logins and convenient printing have led to happier users, while simplified profile and policy management has been a big time saver for the IT team. We've gotten our overall login times to under 30 seconds, which is a huge improvement," said Love. "That makes a real difference because classroom time is so valuable."

There is one IT person at each school responsible for supporting the computer labs and staff. The IT team used to spend a lot of time helping staff and students with slow computer performance and printing problems, and on creating and updating profiles. These tasks were time consuming with the limited toolset that came with the hypervisor, but have become much easier since ProfileUnity was installed.

"ProfileUnity is infinitely configurable. It is not a product that gives you only one way of doing things," said Love. "That gave us a lot to think about at first. But we got great tech support from both TERACAI and Liquidware, and now ProfileUnity is saving us a lot of time."

Love estimates the amount of time that the IT staff needs to spend on desktop support has been cut in half. "That has allowed us to be much more proactive in the things we're doing. Now we're building new solutions instead of fixing problems. That is good for our district and for our IT staff.

The Future

The district next plans to trial zero clients in its continuing effort to improve and expand its virtual desktop infrastructure, reduce costs in energy and desktop replacement, while at the same time increase student access to computing. Whatever direction the district takes, it will take ProfileUnity with it.

"ProfileUnity has become an essential part of our ecosystem," said Love. "Now that we've invested the time and effort in the initial configuration to fit our Enterprise – it just works. It is a part of our computing environment that we never have to worry about."