

# UNITED DATA TECHNOLOGIES



## Case Study: The District School Board of Collier County Virtualized Desktop Project

### County Demographics:

- 127th largest school district in the United States
- 44,000 + students
- 3,000 + teachers
- 6,000 + staff members
- 36 staff technicians
- 44 schools
- Largest land area county in Florida – 2,305 square miles
- 200+ mile fiber optic network that offers 20Gbps of dedicated bandwidth to the district's high schools from the administration building where the main datacenter is located. Elementary and middle schools surrounding high school in an area are connected to the local high school via a dedicated 4Gbps connection.

Every year the district replaces one third of its 20,500 desktop computers. This year the district wanted to try something new and cutting edge that would take advantage of their new high speed fiber optic network while still delivering the best computer experience possible for students, teachers, and administrators.

In 2004 while attending the FETC trade show, HP presented the Consolidated Computing Infrastructure to Collier County district representatives. This solution provided for a thin client device at the end user and having all processing done centrally. At that time, the customer did not have a fiber optic network and did not feel that the solution presented to them would be of much benefit. Since then, a new high speed fiber network has been put in place and the District re-evaluated the HP's solution to increase reliability, availability, and overall uptime for workstations at each remote location. The main benefit to the customer was to be able to eliminate the need to replace the end user device in three years. In addition, benefits such as reduced on site support as well as increased reliability due to no moving parts in the desktop were also desirable.

After evaluating HP's CCI product, and the Clearcube blade PC product, the District came to the conclusion that although even though both HP's CCI and Clearcube's product delivered the aforementioned benefits of reduced on site support, as well as eliminated the need to replace the desktop every three years, it still left them with a ratio of one user to computer. This would translate into an enormous data center that would support the power, cooling and space for over 20,000 blade PC's in almost 500 racks! In addition, this solution did not completely address the reliability issue since a single point of failure existed for the end user should the centrally assigned system hosted in the data center fail.

To answer these problems, an alternative solution that significantly departs from the traditional thin client was chosen. It provides for a virtualized desktop solution that utilizes VMware ESX server software running on top of HP BL35P Blade servers to provision Windows XP Desktops for remote user access. The solution was engineered to host 12 Virtualized Desktops per ESX server (a 12:1 ratio vs. 1:1). For reliability, the Virtualized Desktops will dynamically failover to a backup system using a product

from Vmotion Technology thus eliminating the single point of failure for the end user.

The 500 HP BL35P servers that are running ESX are set up as a Boot from SAN solution. The enterprise class storage array which supports the LUNs for the 500 Blade Servers, houses the 6,000 Virtualized Desktop operating system images. The current capacity of the storage system is 90TB RAW and 65TB formatted after RAID-6.

After a thorough analysis of Microsoft's RDP and Citrix's ICA protocols, it was determined that a new solution needed to be developed to overcome video streaming limitations in these protocols. HP's Remote Graphics Software (RGS) was able to deliver that solution. This solution represents the first time that the protocol has been used in a virtualized environment and is the largest implementation of the protocol in any environment in the world. RGS is the only remote protocol that met the District's needs for graphics intensive application delivery, including streaming video, surpassing the capabilities of RDP and ICA. The implementation also included the Softricity SoftGrid Application Virtualization Environment, which made the entire Virtualized Desktop environment completely portable by allowing users anytime, anywhere within the district access to their system and applications.

HP Ultra-Slim desktops were chosen to be used as thin clients for the solution due to their ability to support the intense graphics requirements. This solution also provides for a migration from traditional desktop PC's.

In summary, through a unique combination of technologies that have not been implemented together in any other environment in the world, Collier County Public Schools has designed the largest virtualized desktop environment in that provides reliability, reduced support costs, as well as flexibility. By utilizing this type of environment, the District proves that Virtualized Desktops are absolutely ready for the most demanding, mission-critical production environments in the world.

For additional information on UDT, their leading edge technology, or any of the beneficial products and services UDT offers, please contact Paula Euse, Marketing Manager at 305-882-0435. Or contact Ms. Euse via email at [peuse@udtonline.com](mailto:peuse@udtonline.com)

Since 1995, UDT has provided customers with the power of technology by offering innovative systems, superior guidance and education, and effective long-term strategies and ideas. With more than 50 employees and a history of community involvement, UDT continues to grow and offer their customers the ability to "accomplish more."

