



Introduction

Among the different user station profiles integrated into a corporate ecosystem, workstation environments, usually used by engineers and graphic designers, may be distinguished from all other users by the following features:

- More complicated to manage and maintain
- Result in greater use of resources
- Use of a more specific hardware
- Data security is more critical

Virtualizing this type of work station becomes an arduous and complicated task, since it opens a variety of platforms, connection protocols, architecture designs and specific hardware, which one needs to analyze in order to adopt the ideal solution.

While in a standard virtual desktop environment we recommend performing a concept test, for the virtualization of graphic stations or work stations it is practically essential to be able to commission the deployed platform with full guarantees.

This document describes what becomes so specific in these types of user stations, what the different alternatives are to adopting a solution of this type and what UDS Enterprise provides for these types of solutions.

Very specialized user stations

These workstations make up a highly specialized work station dedicated to very specific tasks such as 3D design and the modeling and rendering of objects. In order to perform these types of tasks, high-performance hardware components are used:

- Specialized graphic cards, with several GPU's and dedicated memory that frees up the equipment processors and memory from performing the 3D rendering tasks. These graphic cards are a constant work-in-progress, with drivers made by the hardware manufacturers or even with specific drivers made by the software manufacturers to obtain maximum performance from the hardware with the application that distributes it.

Currently, the manufacturers of this type of hardware provide a more generic use for the graphic card GPU's, using their calculation capacity for more general purposes (scientific calculations, 3D, etc.). The two main manufacturers use different technologies for these types of tasks. Nvidia calls its technology *nVidia Kepler*, while AMD calls its technology *AMD Graphic Core next*

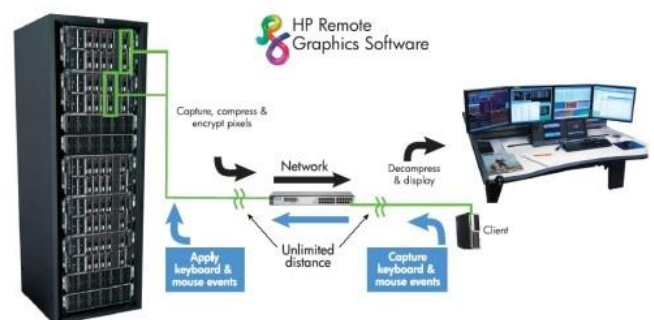
- Equipment supplied with one or several multi-core processors. This might be the only user station that requires this type of processor configuration
- Large amount of RAM memory in order to be able to correctly manage the enormous number of processes and calculations to be performed by the software used

One solution, multiple options

The existence of virtualization solutions for providing service to these types of user stations is relatively recent. Below, we'll try to set forth the different technological trends within this field.

Solutions have emerged on the market from different manufacturers that make an approach from different perspectives:

Remote connections to physical graphic stations. In certain platforms, graphic stations are located in the data center, to which users connect by using optimized remote connection protocols.





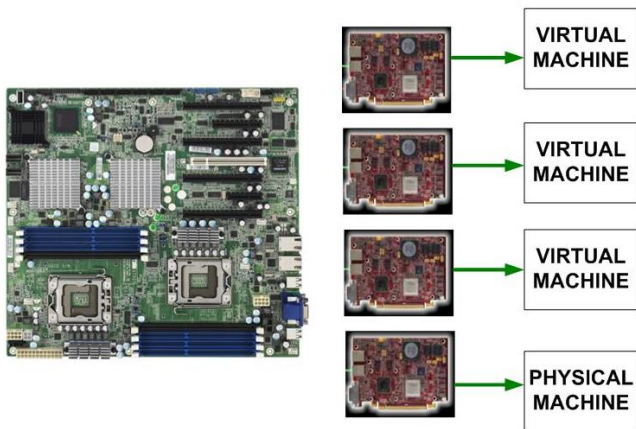
UDS Enterprise

UDS Enterprise in graphic station environments

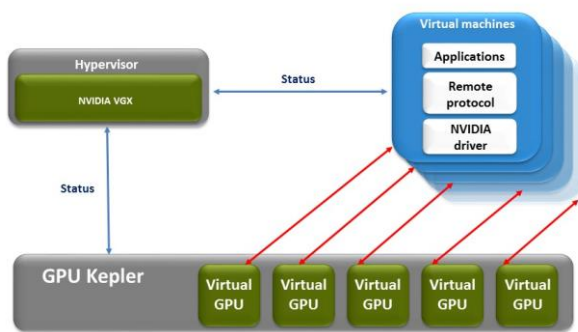
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Direct assignment of graphic card. Some hypervisor platforms such as Xen Server or Parallels Workstation Extreme permit physical resources, among which is the graphic card, to be directly assigned to the virtual graphic stations.

In this case, the number of virtual graphic stations run on a server depends on the quantity of PCIe slots on the server base plate.



Virtualization of GPUS's. Nvidia provides GPU's based on Kepler architecture, which permits virtualization of the GPU hardware. With this technology, it is possible for several virtual desktops to share the same physical GPU. The number of graphic stations per server depends on the virtual GPU's used by each graphic station.



Connection protocols

In these specialized environments, one fundamental piece is the selection of the connection protocol for the virtual graphic stations. There are various protocols on the market that are optimized for these types of tasks:

RemoteFX. Microsoft's proprietary protocol, which permits the sharing of the graphic card located in the physical server among the different virtual work stations.

HP RGS. This is the protocol developed by HP to allow advanced graphics in remote connections.

HDX 3D Pro. This is the approach made by Citrix to connect to remote graphic stations.

PCoIP. This is the protocol used by VMware, fruit of their joint development with Teradici.

SPICE. This is the Open Source remote connection protocol used in KVM platforms.

Conclusions

According to the last two sections, that is, with the existence of different approaches for a single solution, and with the correct selection of the most suitable connection protocol, the possibilities for adopting a solution for work station environments are practically unlimited. It is advisable to try as many options as possible and analyze what the user experience is like, what bandwidth used is, what density of virtual graphic stations is achieved per server, etc.

Facing challenges with UDS Enterprise

Thanks to UDS Enterprise and its differentiating characteristics, it is possible to face all of these challenges in an effective, simple and economic manner:

Multi-hypervisor. UDS Enterprise is capable of managing and deploying from a single console, VDI platforms or IP services on different hypervisors. ⁽¹⁾

⁽¹⁾With this functionality, it is possible to host the virtual graphic stations on a hypervisor platform that is completely separate from the platform on which the other virtual desktop profiles are deployed.

Multi-protocol. UDS Enterprise permits connection to virtual desktops or physical resources by using practically any connection protocol. ⁽²⁾



(2) The multi-protocol will permit adoption of the best remote connection option for the virtual graphic station with the resulting savings in resource usage, obtaining an exceptional user experience, limiting the usage of bandwidth, etc. At the same time, it will make it easier to choose between licensed and non-licensed protocols, with the resulting cost savings.

WAN Security Access SSL. UDS makes secure connections to virtual desktops via a tunneler, without requiring a heavy client, third-party products or product modules with additional costs. ⁽³⁾

User access from any web navigator and OS without requiring client software via connection plugins or using RDP via HTML5 ⁽³⁾

(3) The data, documents and content managed at the graphic stations is generally of high value to the company, which means that it is susceptible to being stolen. Therefore, the loss or deterioration of this data is a big problem. Virtualizing the graphic station and connecting to it remotely allows the data managed at these graphic stations to be hosted on the CPD, a secure environment, isolated and provided with established backup and recovery procedures and policies in the face of disasters. It will also permit the design of virtualized graphic station farms at different locations, even in different countries, so that connection to the graphic stations will be made according to criteria such as connection lag time, available bandwidth, location of the user requesting the connection, etc.

Practically unlimited configuration possibilities. UDS Enterprise incorporates an additional module management system and the definition of configuration variables on two levels:

- Definition of systematic configuration variables ⁽⁴⁾
- Definition of independent module configuration variables ⁽⁴⁾

Possibility of tool personalization for each client via personalized development in a simple, quick and effective manner ⁽⁴⁾

Easy integration with third-party software ⁽⁴⁾

(4) Thanks to these functionalities, with UDS Enterprise you can design virtual graphic station platforms that permit:

- *Deployment at different locations in the world, allowing connection to itinerant users*
- *Integration with different graphic software deployment tools and models in production*
- *Deployment on different virtual platforms according to the connection protocol, resource usage and applications to run*

Support and professional services

VirtualCable sells UDS Enterprise through a subscription model, including product support and updates in segments based on number of users.

Additionally, VirtualCable offers a broad portfolio of professional services to install and configure UDS Enterprise and other virtualization technologies.

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