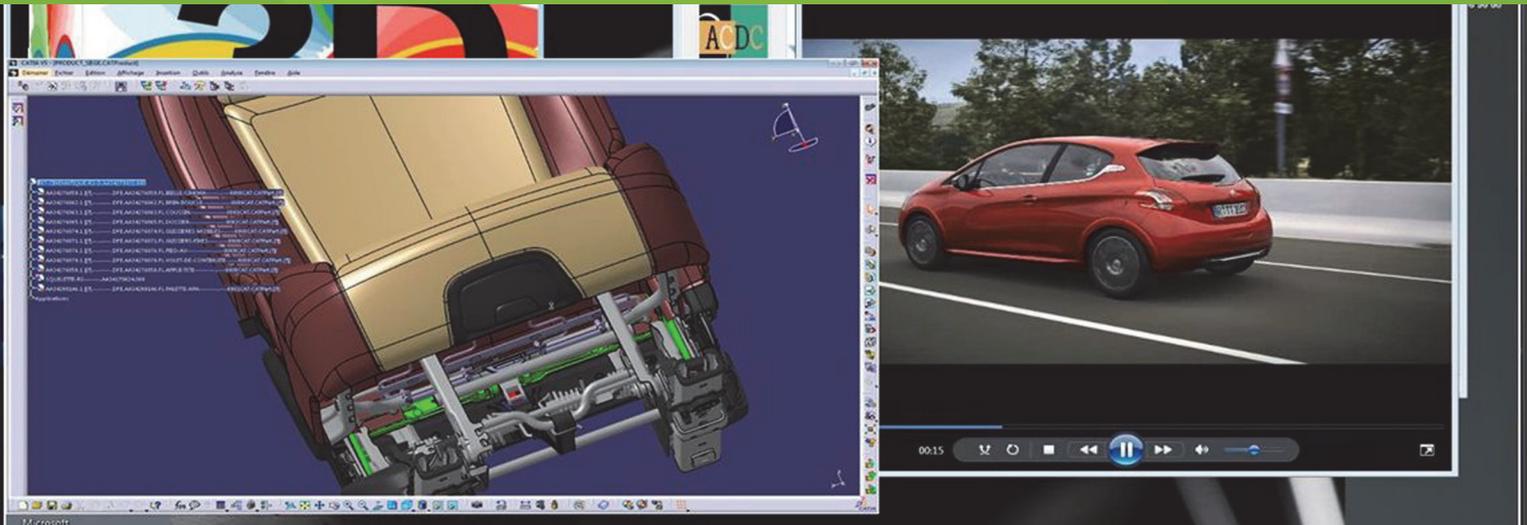


# ACCELERATING AUTOMOTIVE DESIGN WITH NVIDIA GRID™

PSA Peugeot Citroën accelerates design with NVIDIA GRID and virtualized workspaces.



# PSA Peugeot Citroën accelerates design with NVIDIA GRID and virtualized workspaces.

## AT A GLANCE

---

### CUSTOMER PROFILE

**Company:** PSA Peugeot Citroën

**Industry:** Automobile manufacturing

**Regions:** Europe, Asia, South America

**Size:** 195,000 employees

---

### SUMMARY

- > Global automobile manufacturer
  - > Migrated 500 workers from 1:1 virtualized workstations to blade servers running NVIDIA K3100M GPUs
  - > Reduced latency, bandwidth, and CPU processing
  - > Expanding to cover additional users in Europe and overseas
- 

### SOFTWARE

**Key applications:** Dassault Systèmes CATIA

**Desktop & Application Remoting:** Citrix XenDesktop, Parallels Desktop

**Hypervisor:** Citrix XenServer

---

### HARDWARE

**GRID boards:** NVIDIA GRID with K3100M GPUs

**Servers:** HP Blade

**Clients:** Various desktop, mobile, and thin clients

A European car maker with international scope, PSA Peugeot Citroën brings to market three automobile brands with innovative line-ups and clearly differentiated styles: Peugeot, Citroën, and DS. With operations in 160 countries, the group sold 2.8 million vehicles worldwide in 2013. 42.2% of these vehicles were sold outside Europe, and PSA Peugeot Citroën is currently developing production resources near its priority markets, with plants in Latin America, China, and Russia. PSA Peugeot Citroën is the second-largest car maker in Europe with 11.9% of the market; they also lead the European market for light commercial vehicles with 20.7% of that market.

## CHALLENGE

PSA Peugeot Citroën currently uses more than 85,000 computers spread across numerous production sites to run everything from standard office applications to high-end 3D graphics and other demanding applications on a variety of operating systems. Many of these computers are already connected to HP blade servers that provide remote access for 500 users at a 1:1 user-to-server ratio. These connections use HP Remote Graphics Software driven by NVIDIA Quadro™ graphic cards to run software packages like Dassault Systèmes® CATIA®.

Compressing design cycles and reducing unit costs are crucial for maintaining the competitiveness of an automobile manufacturer. Design groups face growing pressure to rapidly deliver vehicle innovations, respond to market demands, and support an ever-growing product range. Meanwhile, remote workers, external suppliers, and partners require faster and better access to data, which poses significant IT challenges for an ever-extending enterprise.

Achieving these objectives began with a thorough evaluation of the existing PSA infrastructure. This evaluation included defining deployment models for 3D applications, improving data security, and designing an open infrastructure. PSA determined that their highly distributed workforce and dynamic environment require a centralized infrastructure of CAD/CAM data storage and processing resources to



---

We had ambitious goals defined for this project. We wanted to have the same quality of designs while reducing costs versus classical workstation usage. We also needed to provide virtual workstation power on demand, improve the security and consolidation of data, reduce maintenance and power consumption, and add mobility to our designers.

Alain Gonzalez  
Expert Workstations Graphics Technologies & 3D Imagery  
PSA Peugeot Citroën

---

#### 5 REASONS FOR GRID

- 1 Employees can work from any location on virtually any device.
- 2 Increased productivity through improved version control and eliminating data duplication.
- 3 Local to near-local performance at distances up to 9,000km from the Paris datacenter.
- 4 Greatly reduced bandwidth and CPU requirements.
- 5 Potential 40% reduction in per-user cost compared to the previous solution.

guarantee quality throughout the entire product life cycle by delivering targeted medium to high-end 3D graphics and processing power without sacrificing performance.

“We had ambitious goals defined for this project.” said Alain Gonzalez, Expert Workstations Graphics Technologies & 3D Imagery at PSA Peugeot Citroën. “We wanted to have the same quality of designs while reducing costs versus classical workstation usage. We also needed to provide virtual workstation power on demand, improve the security and consolidation of data, reduce maintenance and power consumption, and add mobility to our designers.”

#### SOLUTION

PSA Peugeot Citroën kicked off a 3D virtualization project as an early adopter of NVIDIA GRID technology to provide designers with direct access to high-performance virtual workspaces from anywhere in the world that offered power on demand while reducing the costs associated with using 1:1 remote 3D solutions. This project included upgrading existing blade server-based workstations and designing new remote workstations to meet these needs.

The existing rack-mounted infrastructure containing 2-3 enclosures with 16 blades apiece was updated and replaced with extension boxes housing up to six NVIDIA K3100M GPUs per CPU blade. Combining the CPU blades with the GPU extension boxes allows server administrators to provide eight complete workstations and power 48 users per enclosure. This hardware was paired with Citrix® XenServer®, XenApp®, and XenDesktop® to deliver each remote user’s allocated GPU and CPU resources.

---

One of our key objectives was to provide remote workers with direct access to the tools needed for them to be able to do their job effectively. This was achieved using NVIDIA GRID.

Adolfo de la Torre  
Expert CAD/CAM Workstations  
PSA Peugeot Citroën

## RESULTS

NVIDIA GRID technology allows remote workers to run graphics-intensive applications from any location on any device. Latency was reduced to 15-30ms at distances of up to 500 kilometers from the Paris datacenter while running CATIA at 1680x1050 resolution, thus delivering local-device response times to users within that radius. Users in China (9,000 kilometers from Paris) experience an acceptable 210ms latency.

This dramatic performance boost requires less bandwidth than the minimum bandwidth required by the previous solution while also using 33% fewer CPU resources.

Users enjoy increased image quality and frame rates that only individual workstations could deliver before implementing NVIDIA GRID. PSA Peugeot Citroën design engineers can now run graphics-intensive software packages on remote devices with no loss in quality, thereby improving productivity while also receiving all of the security, ease of management, and disaster recovery benefits of a datacenter.

The success of the 3D virtualization project is paving the way for expanding the deployment using NVIDIA GRID technology. Future phases will bring NVIDIA GRID to more users in Europe and overseas locations while also expanding the ways in which PSA leverages the technology. PSA plans to deliver full graphics virtualization to many more users over the medium to long term, with many users per GPU.

“One of our key objectives was to provide remote workers with direct access to the tools needed for them to be able to do their job effectively” said Adolfo de la Torre, Expert CAD/CAM Workstations at PSA Peugeot Citroën. “This was achieved using NVIDIA GRID. The hardware stack is ready to use, the prototype is operational, and user acceptance is positive. We could also reduce the cost per user by 40% using the remote virtualized accelerated graphics solution compared to the 1:1 remote solution used before.”

To learn more about NVIDIA GRID visit  
[www.nvidia.com/vdi](http://www.nvidia.com/vdi)

---

### JOIN US ONLINE

 [blogs.nvidia.com](http://blogs.nvidia.com)

 [@NVIDIAGRID](https://twitter.com/NVIDIAGRID)

 [gridforums.nvidia.com](http://gridforums.nvidia.com)

 [tinyurl.com/gridvideos](http://tinyurl.com/gridvideos)

 [linkedin.com/company/nvidia-grid](http://linkedin.com/company/nvidia-grid)

