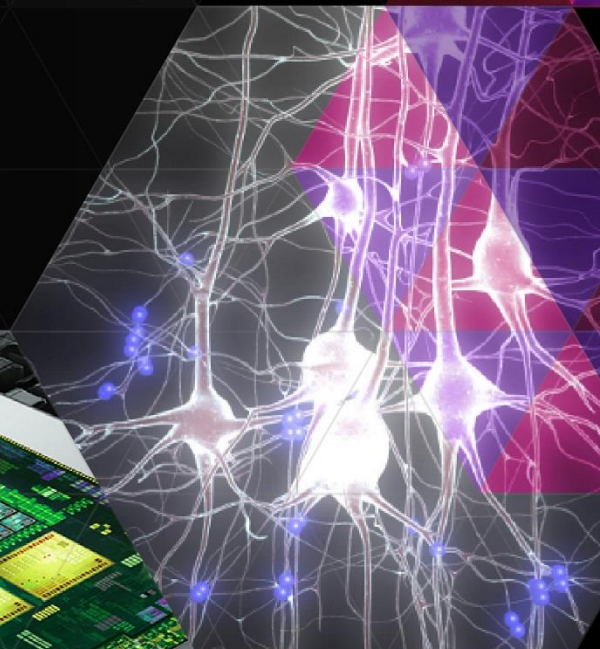
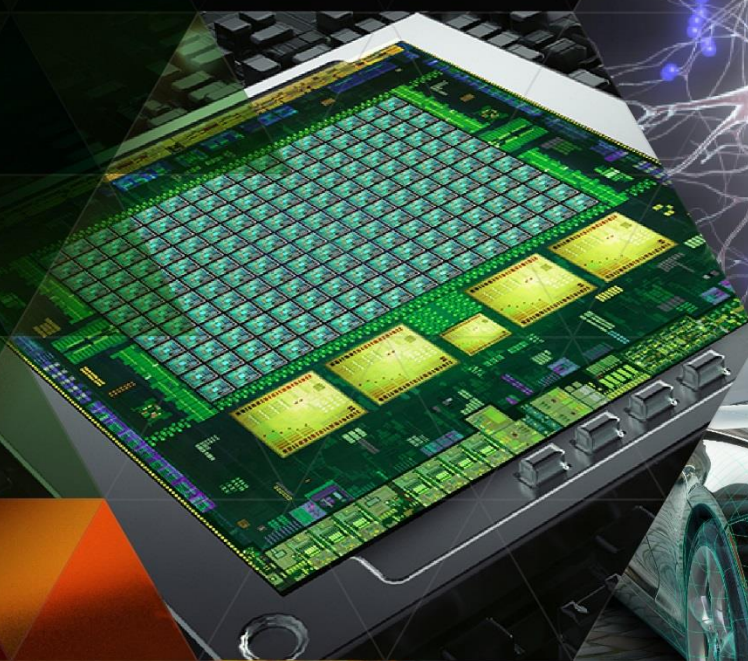




NVIDIA GRID

Jared Cowart, Sr. Solution Architect



AGENDA

- 1 Importance of GPUs in VDI
- 2 Desktop Virtualization
- 3 VDI with NVIDIA GRID GPUs

WORLD LEADER IN VISUAL COMPUTING



DESIGN and
VISUALIZATION



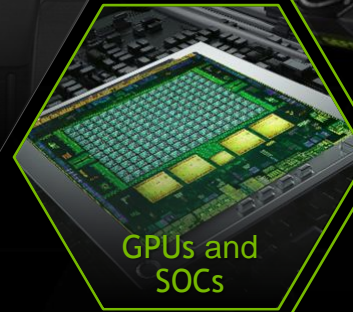
HPC and
DATA CENTERS



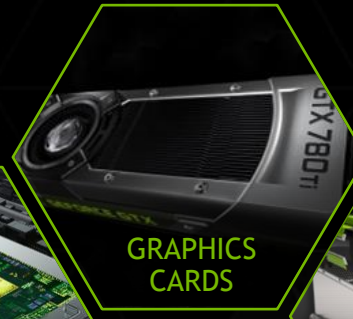
GAMING



AUTO



GPUs and
SOCs



GRAPHICS
CARDS



IP



SYSTEMS

FROM SUPER PHONES TO SUPER CARS



GPUs deliver a better visual experience by offloading work that the CPU is not efficient at processing

(Direct X, OpenGL, Video)



ALL USERS EXPECT A GREAT VISUAL EXPERIENCE!

Every Notebook, Tablet And
Smartphone Has A GPU

- ▶ GPUs delivers a better visual experience by offloading work that the CPU is not efficient at processing
- ▶ (Direct X, OpenGL, Video)



RICH GRAPHICS ANYWHERE, ANY DEVICE

With NVIDIA GRID technologies, large enterprises can deliver amazing graphics to their mobile workforces on any device. And creative professionals in smaller shops can access graphics-intensive apps with uncompromised performance.

BENEFITS OF DESKTOP VIRTUALIZATION

FLEXIBILITY

- ▶ Work isn't a place, it's something you do from anywhere

ACCESS

- ▶ Virtual desktop works independently of location, endpoint and network. Use the Virtual Desktop from any client endpoint; Work Anywhere, with Any Device in LAN, WiFi and WAN scenarios. Support work from home, global product development teams, contractors and BYO scenarios

SECURITY AND CONTROL

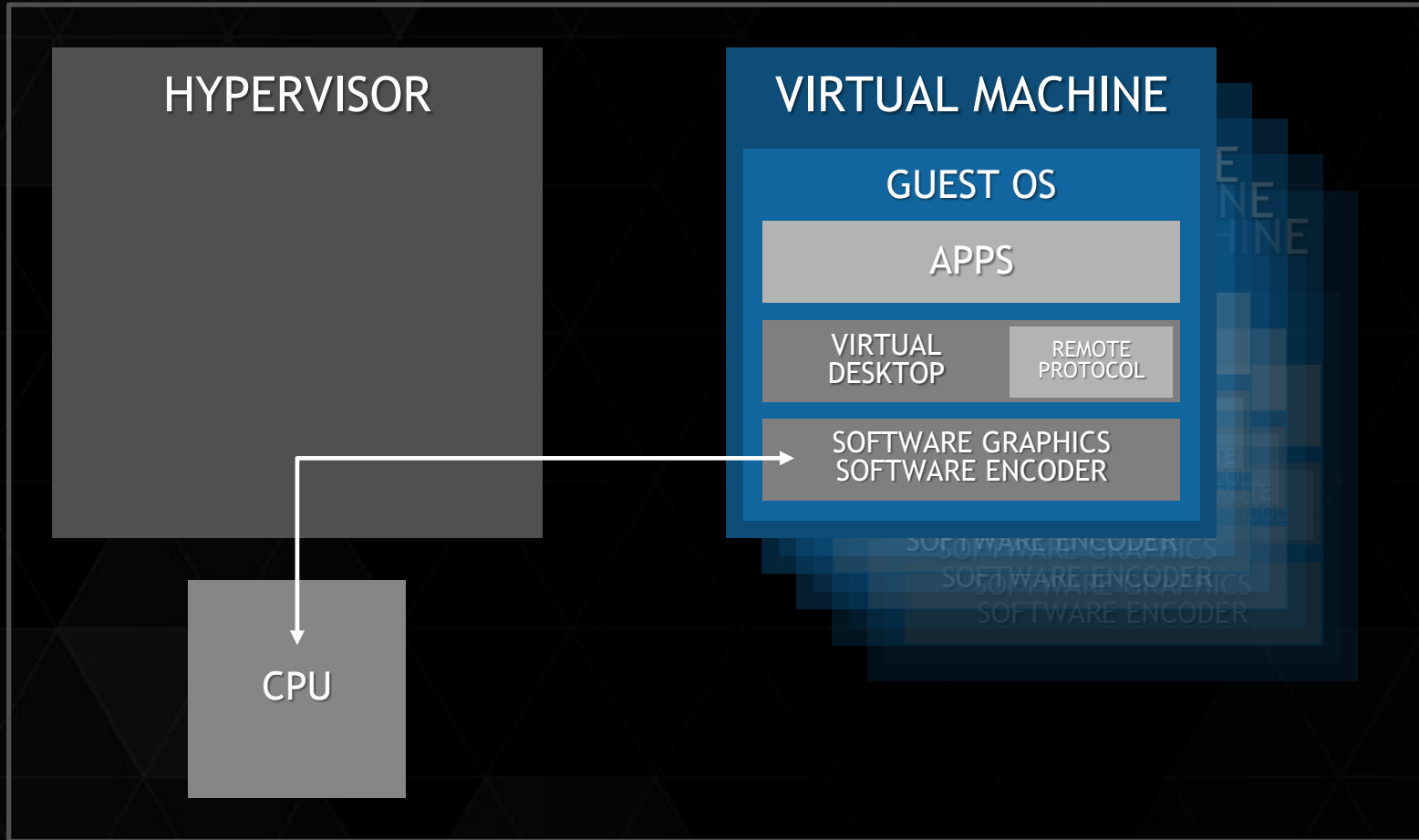
- ▶ Information systems and data stays in the datacenter center; Protect Intellectual Property (IP)

BYO

- ▶ Enables delivery of applications and desktops for Bring Your Own Device

CLASSIC VDI

CPU Rendered Graphics

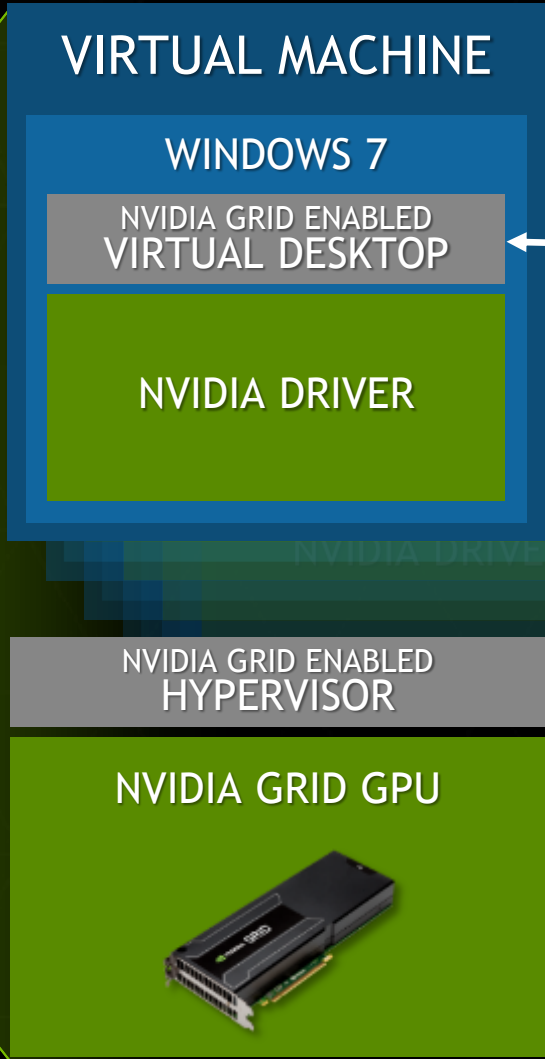


LIMITED ADOPTION
Due To Poor Application
Performance

**LIMITED DENSITY
WITH CPUS**
Inefficiently Rendering
Graphics

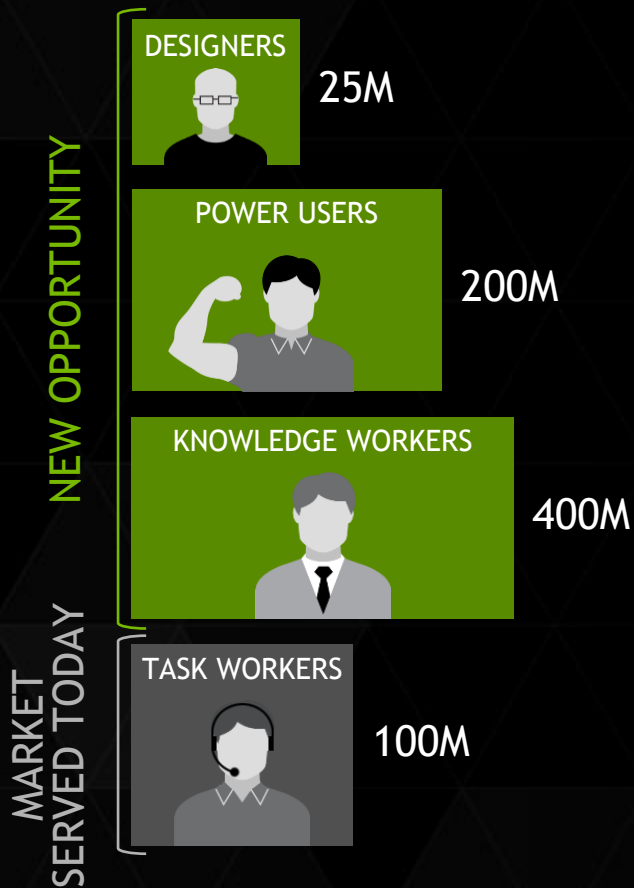


POWERED BY
NVIDIA GRID™



IMPORTANCE OF A GPU

COMMERCIAL MARKETS



MUST HAVE

3D Engineering & Design Apps



PLM & Volume Design



Media Rich Web

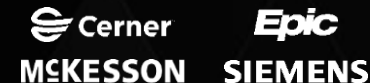


INCREASINGLY NICE TO HAVE

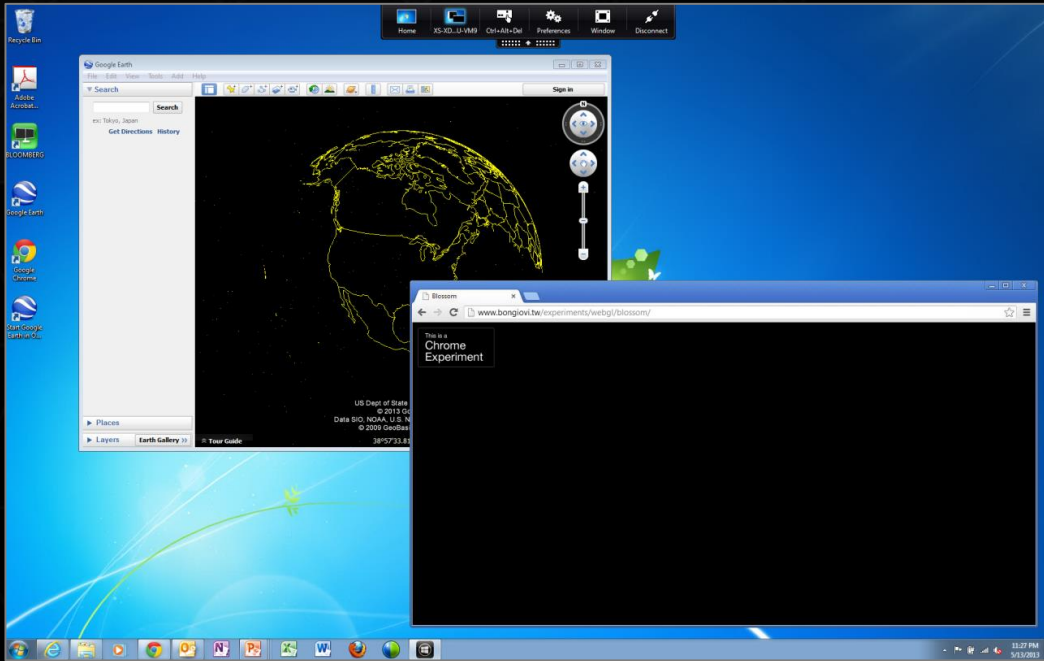
Office Productivity



Medical Records



WINDOWS AERO



NO GPU

*Windows Aero Not Supported



GPU ENABLED VDI

Forbes[®]

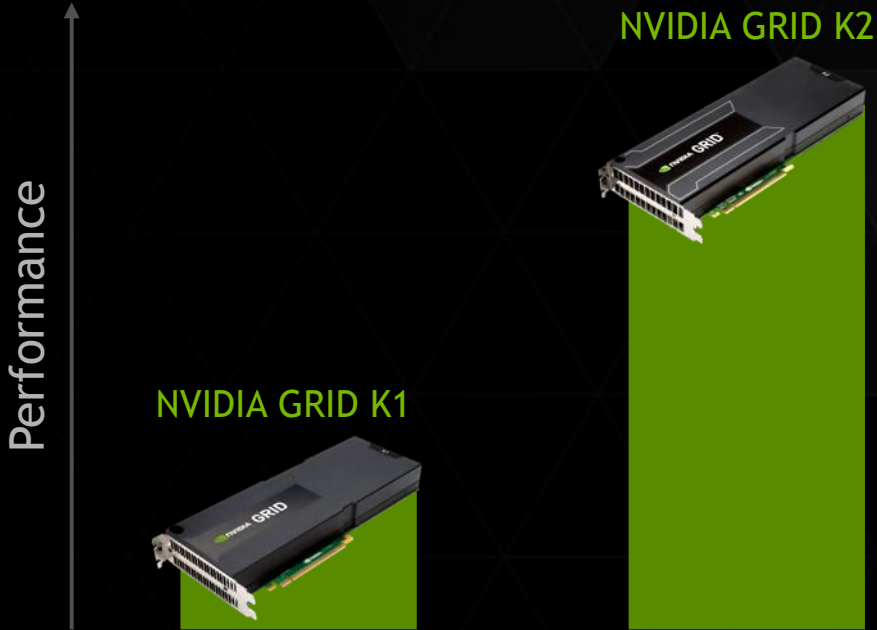
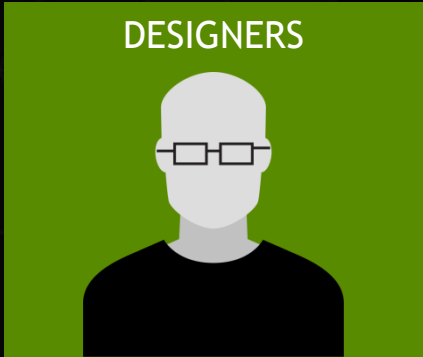
“...these new Nvidia GRID capabilities quite frankly pull hundreds of millions more workers into the potential fold of remote desktop...Net-net, Nvidia helped create and now has access to an addressable market 6X the size of the current one.”

—Pat Moorhead, Forbes

CIO

“Just like it took a few decades for tablets to reach the iPad stage, when they were accepted with the right technology, backing and execution, the idea of the thin client was actually a good one. We were just waiting for the right offering. Well, it just emerged, driven by VMware and Nvidia. It blends PC and server architectures with some new technologies to create something amazing.”

—Rob Enderle, CIO

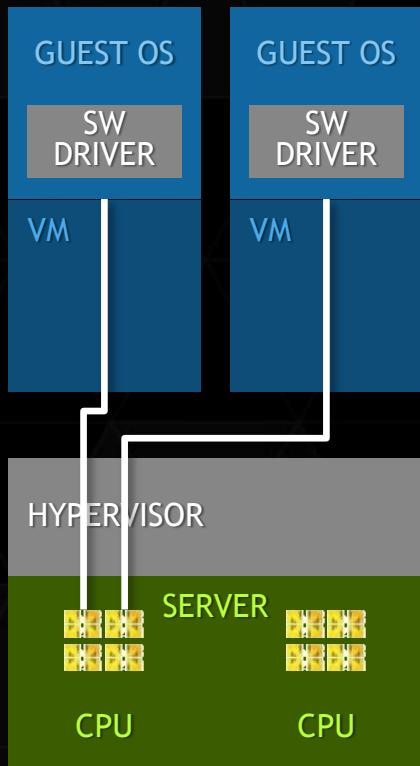


GPU	4 Kepler GPUs	2 High End Kepler GPUs
CUDA Cores	768 (192/GPU)	3072 (1536/GPU)
Memory Size	16GB DDR3 (4GB/GPU)	8GB GDDR5 (4GB/GPU)
Max Power	130 W	225 W
Number of Users	Up to 32	Up to 16

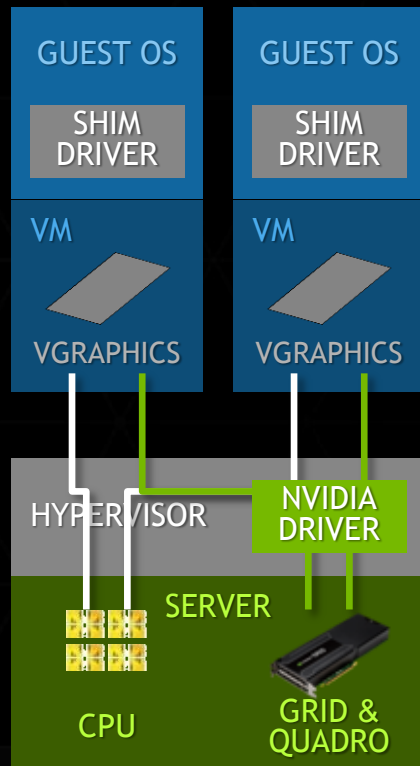
¹ Number of users depends on software solution, workload, and screen resolution

GRAPHICS OPTIONS IN VIRTUALIZATION

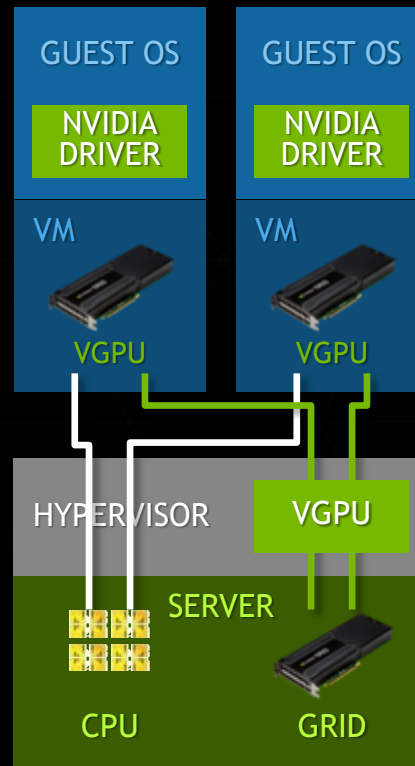
CPU EMULATED



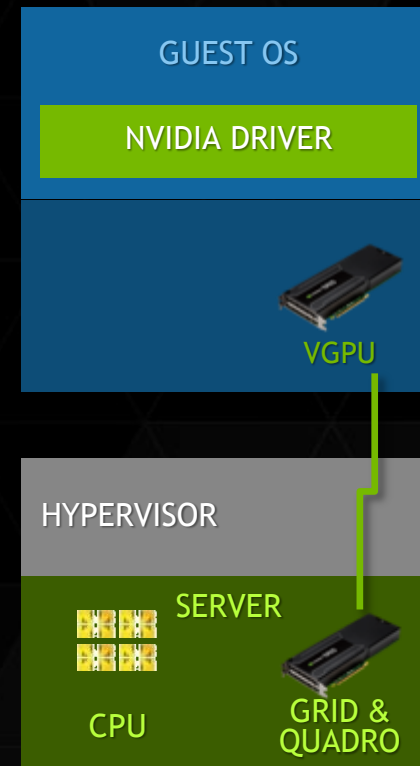
SHARED



NVIDIA GRID™ VGPU™



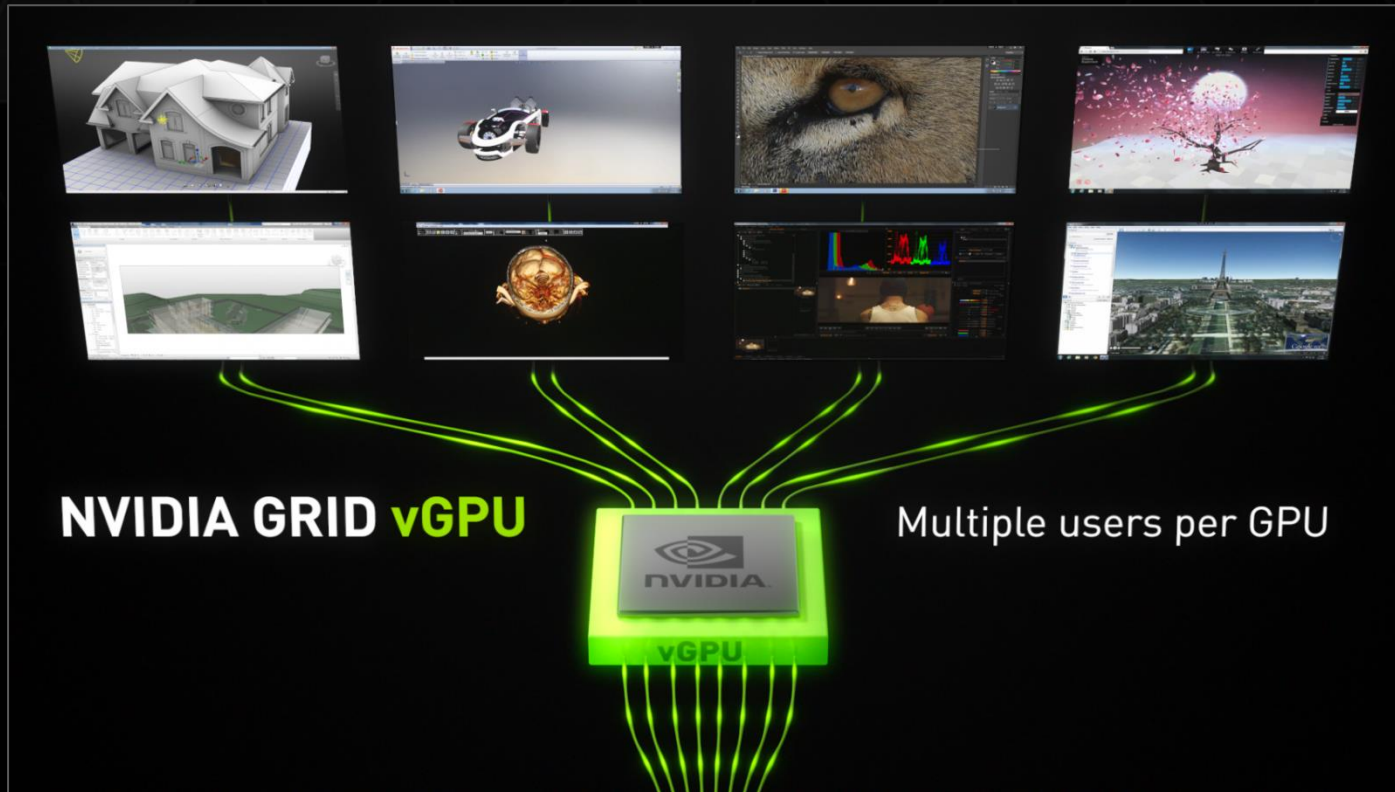
NVIDIA GRID PASS-THROUGH





**DELIVERING RICH
GRAPHICS EXPERIENCES
FROM ANY CLOUD -
PUBLIC OR PRIVATE**

NVIDIA GRID vGPU INNOVATION WIDENS ADOPTION OF RICH USER EXPERIENCES

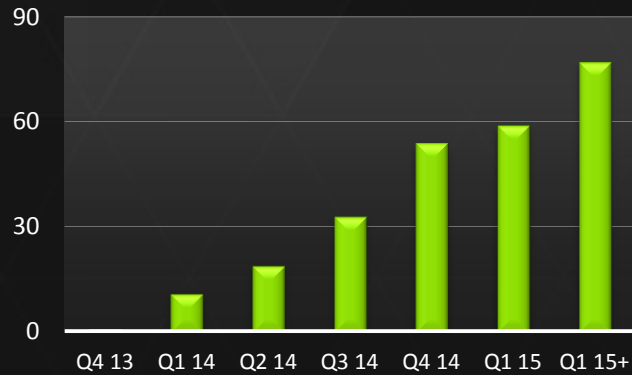


vmware®

Tech Preview
Late 2014

WIDESPREAD ECOSYSTEM ADOPTION

GRID-ENABLED SERVERS

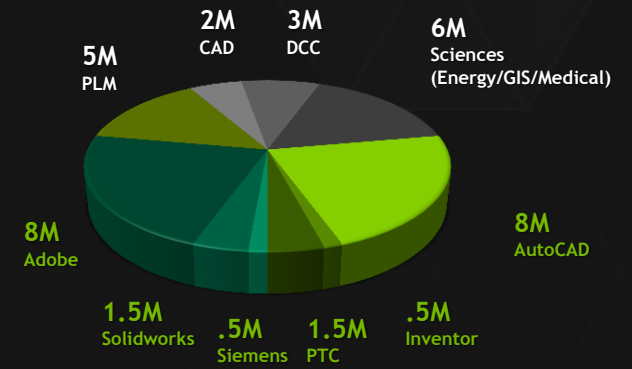


EXPANDING ECOSYSTEM

OEM | Virtualization | Services



GRID-CERTIFIED APPS



“NVIDIA and VMware Bring Graphics-Rich Virtual Desktops and Applications to Public Clouds” – *VMWare, NVIDIA Release, 3/25/2014*

TARGET MARKETS



ARCHITECTURE,
ENGINEERING &
CONSTRUCTION



EDUCATION



GOVERNMENT



HEALTHCARE



MANUFACTURING



OIL & GAS



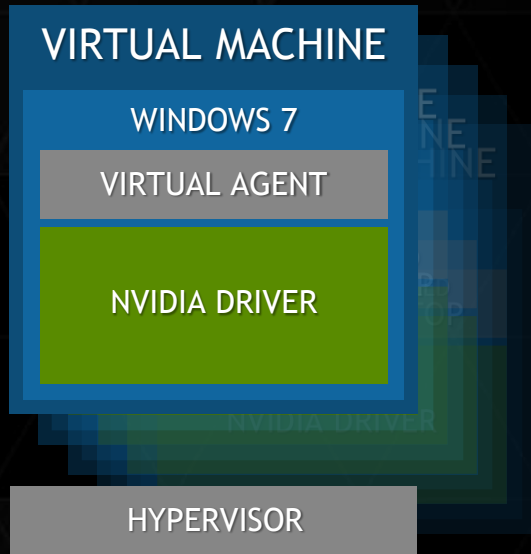
“With GPUs we can reduce our simulation times by a factor of 2X. Reducing simulation time means faster time to market. An engineering laptop is heavy & cumbersome. With NVIDIA GRID we can get access the same compute power from anywhere - whether on a workstation, laptop or tablet. We’ve had a great response for NVIDIA GRID and personally that’s all I use.”

—Patrick Godwin, Manager, Engineering Systems at SpaceX

CUSTOMERS SHARE SUCCESSES WITH MORE GRAPHICS SESSIONS THAN EVER INCLUDING

Citrix XenDesktop & NVIDIA GRID Enable SpaceX To Colonize Other Planets

PROOF ON CONCEPTS REQUIRE INVESTMENT



INSTALL RECEIVER ON ENDPOINTS



INSTALL APPLICATIONS



INSTALL OS IMAGE



INSTALL HYPERVISOR



PROCURE SERVER

4 WEEKS
\$20-35K

INSTANT ACCESS TO GRAPHICS-ACCELERATED VIRTUAL DESKTOPS IN THE CLOUD


The image shows a screenshot of a cloud-hosted virtual desktop environment. At the top, a browser window displays the URL "GRID Workspace j_boitano@yahoo.com" with a ping of 40ms, 28fps, and 665Kbps. The main application window is titled "FaceWorks: Real-time Performance Capture" and features a 3D-rendered human head. Below the head, it says "USC Institute for Creative Technologies" and "POWERED BY NVIDIA GRID".

To the right of the application window is a desktop area with a green geometric pattern. It contains the following text and icons:

- EXPERIENCE NVIDIA GRID**
NVIDIA GRID delivers the industry's best user experience for cloud hosted desktops and applications, enabling any user to benefit from anywhere, anytime access to their desktop and applications.
To try some of the most commonly used graphics applications, simply click an icon below.
- Rich Web Experience**
 - HTML5 Water
 - HTML5 Ferrari
 - HTML5 Bookcase
 - YouTube Katy Perry
- Office Productivity**
 - Powerpoint Transitions
 - Medical Study
 - Google Earth
 - Media Player Video
- Design and Engineering**
 - eDrawings Racecar
 - Teamcenter Bicycle
 - AutoCAD Stadium
- Ultimate 3D Graphics**
 - Digital Ira
 - A New Dawn

The taskbar at the bottom shows icons for Windows Explorer, Google Chrome, Microsoft PowerPoint, Microsoft Word, Microsoft Excel, and a virtual desktop icon. The system tray in the bottom right corner shows the time as 9:26 AM on 5/14/2014.

INSTANT ACCESS TO FREE GRID TEST DRIVE



NVIDIA GRID

NVIDIA Home > Products > NVIDIA GRID > Virtual Desktop and Apps > Try GRID Subscribe

**NVIDIA GRID™
TRUE GRAPHICS.
CLOUD DELIVERED.**
Take the test drive >


Take the free GRID test drive and experience virtualized graphics acceleration delivered from the cloud.

You will see how NVIDIA GRID:

- ✓ Delivers a better experience for remote desktops and applications
- ✓ Can run graphics-rich applications in a virtualized environment
- ✓ Handles complex graphics files and images

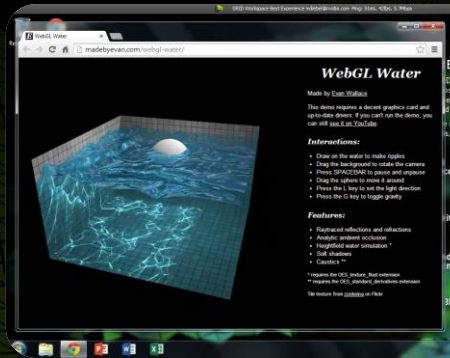
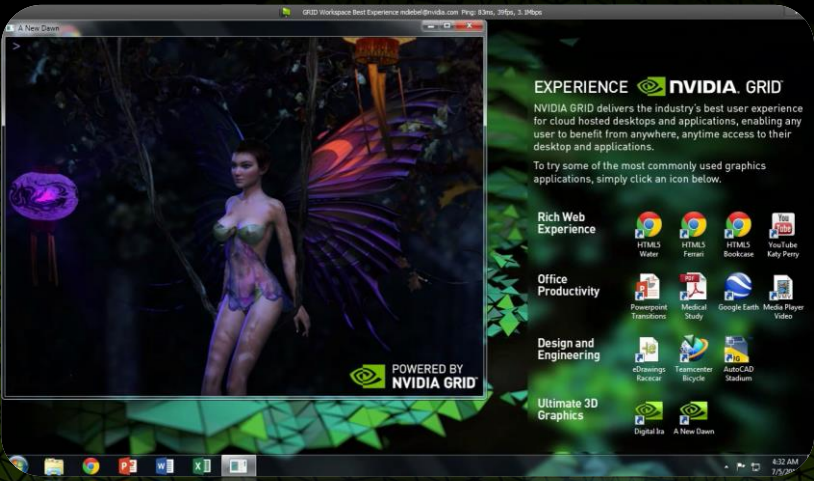
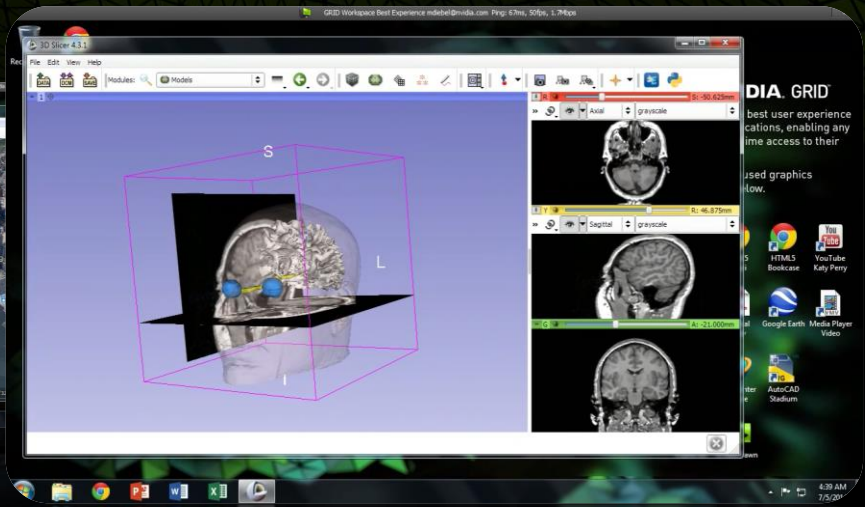
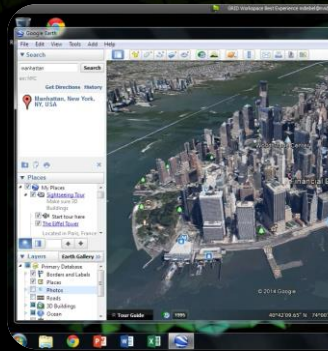
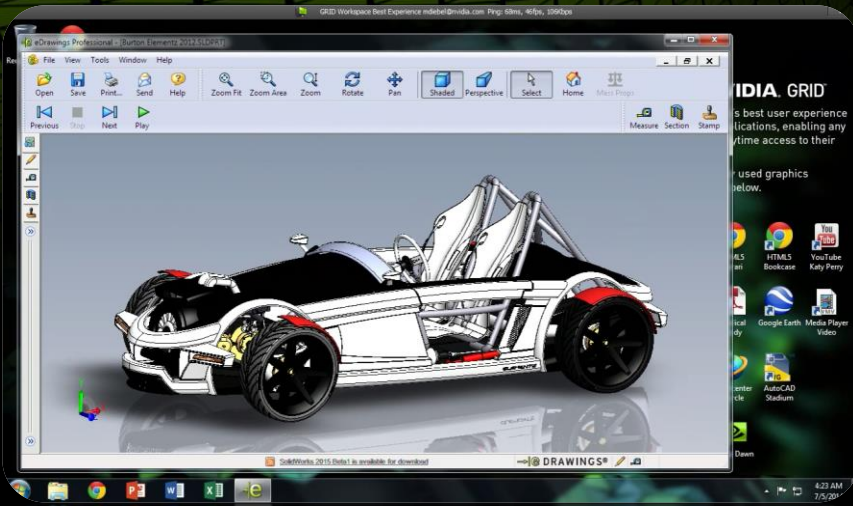
TAKE THE TEST DRIVE

“NVIDIA sets the standard for VDI graphics performance.”

 Brian Madden, VDI Expert
Blog post on BrianMadden.com, March 21, 2013

LEARN MORE ABOUT NVIDIA GRID
NVIDIA GRID: Graphics Accelerated VDI with

www.nvidia.com.tw/trygrid



NVIDIA GRID RESOURCES



GRID WEBSITE
www.nvidia.com/vdi



SIGN UP FOR THE MONTHLY
GRID VDI NEWSLETTER
<http://tinyurl.com/gridinfo>



GRID YOUTUBE CHANNEL
<http://tinyurl.com/gridvideos>



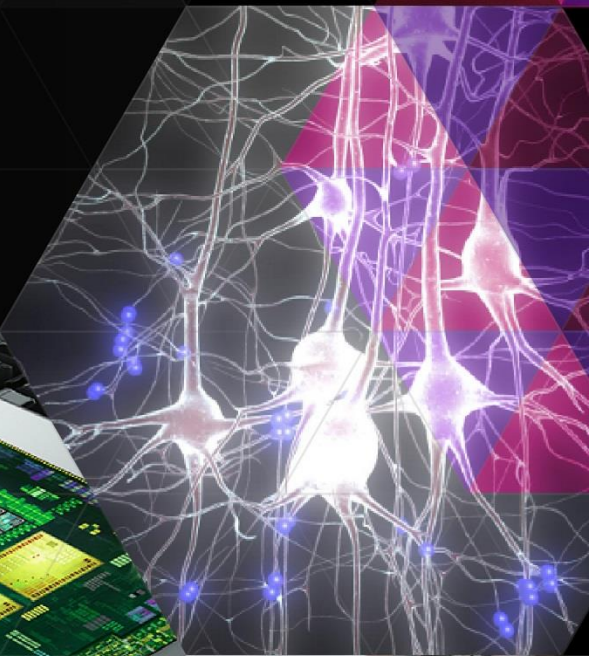
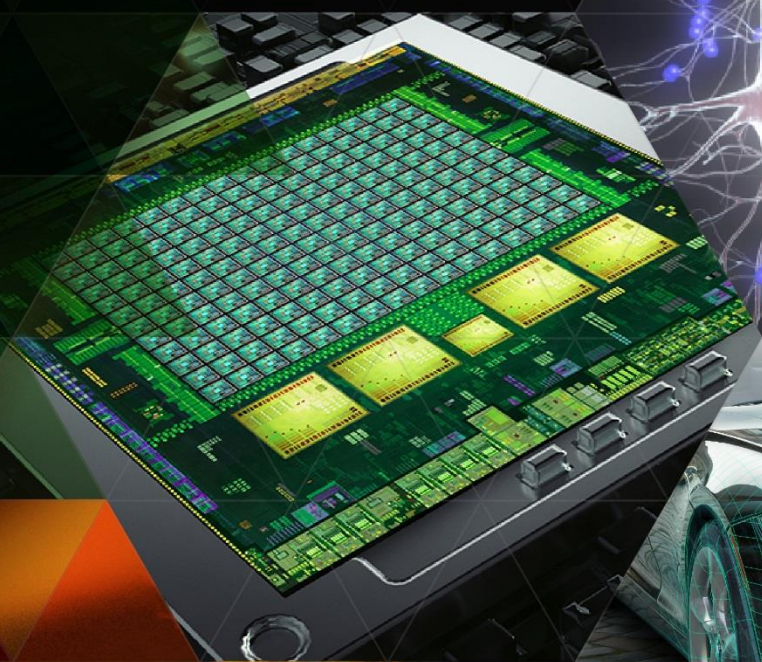
QUESTIONS? ASK ON OUR FORUMS
<https://gridforums.nvidia.com>



NVIDIA GRID ON LINKEDIN
<http://linkd.in/QG4A6u>



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