NVIDIA® NVS™
Professional Business Graphics

December 2010

History of NVIDIA® Business Graphics

2001 – 2003

2003 – 2006

2006 – 2009

2010 -

Quadro NVS Launched

- *Designed & Built in collaboration with the financial community*
- *nView desktop manager launched*
- *TTM: AGP & PCI Solutions*
- *Enterprise Support Launched - 2002*

- *TTM: Win XP & Linux drivers*
- *1'st PCIE based Quadro NVS*
- *1st Quadro NVS in Blades*

- *TTM: Vista Drivers*
- *Extended Taskbar support (VISTA) for Financials*
- *TTM : Win7 Divers*

NVIDIA NVS Brand launched

- *Stand-alone brand for Professional Business Graphics*
- *NVS ~50% of NVIDIA Professional Business*
- *Continued investment in NVS & supporting Tools*

Brand Transition
Introducing NVIDIA NVS

NVIDIA Quadro FX

NVIDIA Quadro NVS

Quadro =
Professional Visualization Graphics

NVS =
Professional Business Graphics

NVIDIA® NVS™

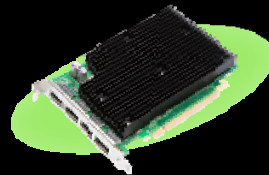## *The Standard for Business Graphics*

Enterprise Sales & Support

Mosaic Technology	nVIEW Desktop Management	Installer 2.0	nvEnterprise 2.0	UDA Drivers

NVS Graphics Boards

NVIDIA NVS – The Solution for Business Graphics

- **Quality**
  - Designed and supported by NVIDIA to the highest standards

- **Productivity**
  - Low Acoustics, Energy Star, MTBF and Duty Cycle Testing for Maximum Uptime and highest Reliability

- **Long Life Cycle**
  - 24 - 36 months life cycles; driver performance and feature INCREASES over time

- **Continuous Investment**
  - NVIDIA is committed to the Business Graphics & SMB Markets and is making ongoing investments in Hardware, Software, Systems, and Industry Solutions

- **Usability**
  - Optimized Application and Usability Performance for Windows based systems

Enterprise Support

General Overview

- **Dedicated team at NVIDIA for *Enterprise Customers* in Core Software Engineering Group**
  - Help customers quickly resolve problems
  - High priority response rate (*sub-10 minute average*)
  - Help drive customer requests through engineering processes
    - ESupport tailored for personal service with immediate access to engineering resources
  - Facilitate Major Rollouts
  - Support IT specific tools such as NVManagement
  - Available (7:00 am to 5:00 pm PST and 9:00 am to 5:00 pm Central Europe)

- **Basic services offered**
  - Issue escalation
  - Case and bug submission
  - Enterprise Customer extranet sites
  - Driver drops
  - Release notes, tech docs and videos
  - Early adopter hardware/software programs

Growing Markets

TRADITIONAL MARKETS

- Finance
- Trading Floors
- Corporate Desktops
- Insurance
- Call Centers

NEW MARKETS

Traditional Markets Plus:

- Digital Signage
- Banking Centers
- Education
- Hospitals
- Emergency Response
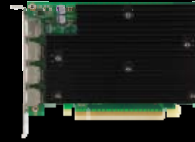- Government Agencies
- Process Control

NVIDIA® NVS™
The Right Business Solution

	Target Segments	Enterprise Sales	Enterprise Support	NVIEW Support	Productivity Apps Testing	Multi Display Technology	Prof 3D Apps ISV Cert	Product Lifecycle	OEM Fulfillment	NVIDIA Warranty
NVIDIA Quadro	Workstation Professional	Yes	Yes	Yes	Yes	Mosaic	Yes	36 months	Direct	3-yr
NVIDIA NVS	Business Professional & Commercial	Yes	Yes	Yes	Yes	Mosaic	No	36 months	Direct	3-yr
NVIDIA GeForce	Consumer	No	No	No	No	Surround	No	9-12 months	Virtual	1-yr

NVIDIA Business Graphics Line-up - 2011

**NVIDIA Quadro
NVS 450
(ATX profile PCIe x16)**

Quad DisplayPort
Quad DVI-D (Single/Dual-Link)
Quad VGA

**NVIDIA Quadro
NVS 420
(Low Profile PCIe x16 & x1)**

Quad DisplayPort
Quad DVI-D (Single-Link)

New!

**NVIDIA
NVS 300
Low Profile (PCIe x16 and x1)**

Dual DVI-I(Single Link)
Dual VGA
Dual Display Port

**NVIDIA Quadro
NVS 295
Low Profile (PCIe x16 and x1)**

Dual DisplayPort
Dual DVI-D (Single/Dual Link)
Dual VGA

**NVIDIA Quadro
NVS 290
Low Profile (PCIe x16 and x1)**

Dual DVI-I(Single Link)
Dual VGA

NVIDIA® NVS™ 300
The Standard for Business Graphics

- Best in Class Display Connectivity Options
- Intelligent Power Management   25% less power*
- Enhanced Productivity and Flexibility in multi-display environments
- Robust Enterprise Management Tools
- Flexible Form Factor
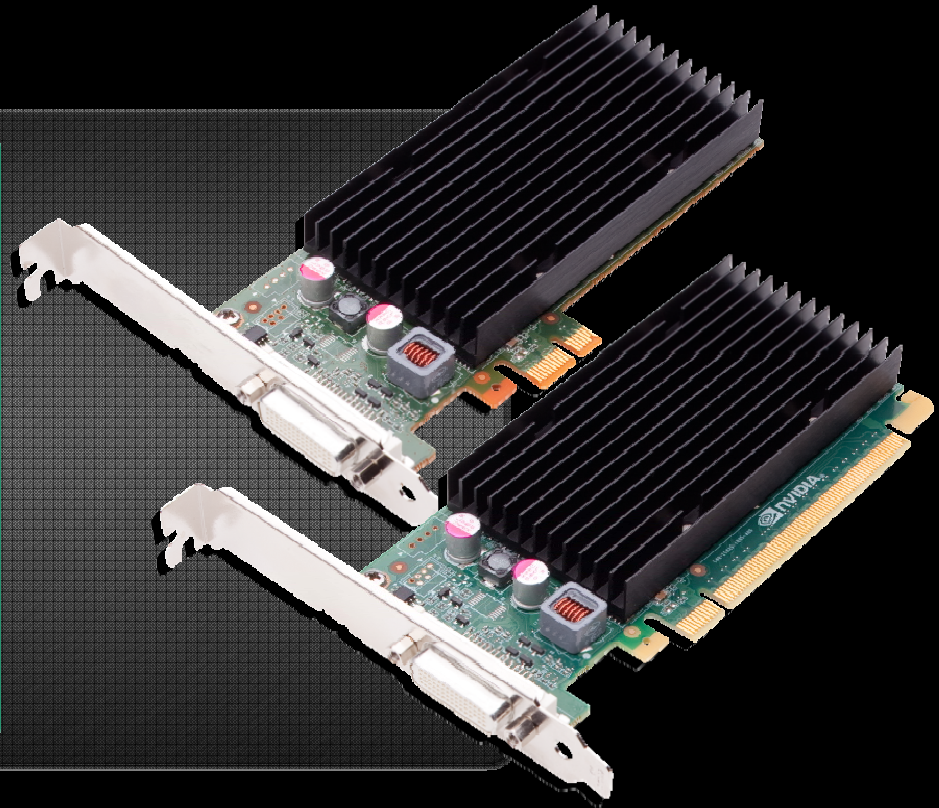- Improved Compatibility with Quadro Professional Graphics

* Max Power of NVS 300 is approx. 25% less than the prev gen NVS 295

NVIDIA NVS 300
Technical Specifications

Model	NVS 300
CUDA Cores	16
Memory Size	512 MB DDR3
Memory Bandwidth	12.6 GB/s (64-bit)
Power	17.5 W
Form Factor	2.731" x 5.7" PCIE Gen2 Available in x16 or x1 PCIE
Display IO	DMS-59 (1)
Supported Displays	VGA, SL-DVI-I, DisplayPort, HDMI
Thermal	Passive (Fanless) Heatsink
Energy Star	Yes

- **Drives a wide selection of display connectors**
- **Intelligent Power Management**

- **Flexible form factor**
  - Installs into small form factors and full height systems
  - x1 and x16 Solutions

Connect to Wide Range of Displays Using Variety of DMS-59 Cables

- DMS59 to VGA
- DMS59 to DVI
- DMS59 to Display Port **New!**
- **Seamless Upgrade for NVS 290 Based Installations**

NVIDIA NVS 300 DMS59 Connector

NVIDIA Quadro NVS 295 (PCIe x16 & x1)

- 8-core CUDA Parallel Computing Processor

- **Form Factor:**
  - Low profile; 2.731 (H)" x 6.600 (L)"
  - Single Slot – PCIe Gen 2

- **Frame Buffer:**
  - 256MB (16Mx32 GDDR3)

- **Connectors:**
  - DisplayPort + DisplayPort
  - HDMI, DVI, VGA over DisplayPort

- **Power & Cooling:**
  - 23W
  - Passive heatsink

NVIDIA Quadro NVS 290 (PCIe x16 & x1)

- 16-core CUDA Parallel Computing Processor

- **Form Factor:**
  - Low profile; 2.731 (H)" x 6.600 (L)"
  - Single Slot – PCIe Gen 2

- **Frame Buffer:**
  - 256MB (32Mx16 DDR2)

- **Connectors:**
  - DMS-59
  - Dual DVI-I & Dual VGA via DMS-59 dongles

- **Power & Cooling**
  - 21W
  - Passive heatsink

Dual NVS Generation Comparison

Product Features	NVS 290	NVS 295	NVS 300
PCIE Generation	Gen 1	Gen 2	Gen 2
Memory Size & Type	256MB DDR2	256MB GDDR3	512 MB DDR3
Memory Bandwidth	6.4 GB/s	11.2 GB/s	12.6 GB/s
Power	21 Watts	23 Watts	17.5 Watts
Supported Displays (Native)	SL-DVI-I VGA	Display Port	SL-DVI-I VGA Display Port (with audio)
Max Digital Display Resolution	1920x1200	2560x1600	2560x1600
HDMI Support	No	Yes	Yes
Audio Support	No	Yes (HDMI thru SPDIF only)	Yes (DP & HDMI over PCIE)

NVIDIA Quadro NVS 450 (PCIe x16)

- 2x 8-core CUDA Parallel Computing Processors

Form Factor:
- Full ATX; 4.376 (H)" x 6.600 (L)"
- Single Slot – PCIe Gen 2

Frame Buffer:
- 512MB (4pcs 32Mx32 GDDR3)

Connectors:
- 4x DisplayPort

Max Power:
- 35W

Cooling:
- Passive heatsink

Availability: Now

NVIDIA Quadro NVS 420 (PCIe x16 & x1)

- 2x 8-core CUDA Parallel Computing Processors

- **Form Factor:**
- Low profile; 2.731 (H)" x 6.600 (L)"
- Single Slot - PCIe Gen 2
- **Frame Buffer:**
- 512MB (4pcs 32Mx32 GDDR3)
- **Connectors:**
- Single VHDCI with additional dongle options
  - Single VHDCI to Quad DisplayPort
  - Single VHDCI to Quad DVI-SL (digital)
- **Max Power:**
- 40W
- **Cooling:**
- Active fansink (4-pin control)

- **Availability: Now**

Quad NVS Generation Comparison

Product Features	NVS 450	NVS 420
Form Factor	Full Height ATX Graphics card with Passive Heat sink	Low Profile Graphics Card with Active Fan sink
PCIE Generation	Gen 2	Gen 2
Memory Size & Type	512MB GDDR3	512MB GDDR3
Memory Bandwidth	11.2 GB/s	11.2 GB/s
Power	35 Watts	40 Watts
Supported Displays	DisplayPort (4) SL/DL DVI-D (4) VGA (4)	Display Port (4) SL-DVI-D (4)
Max Digital Display Resolution	2560x1600	2560x1600

Client & Enterprise Solutions
for NVS Business Graphics

NVIDIA.

Client and Enterprise Solutions

- **Client Solutions**
  - **NVIEW Desktop Manager**
  - **NVIDIA Mosaic Technology**

- **Enterprise Management Solutions**
  - **Installer 2.0**
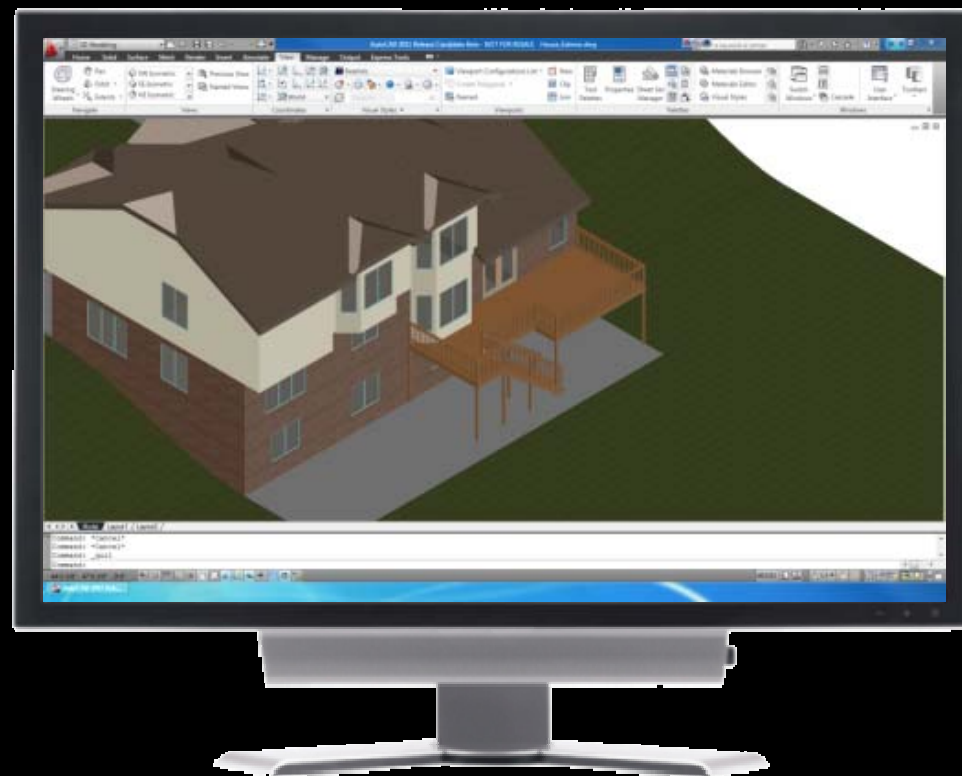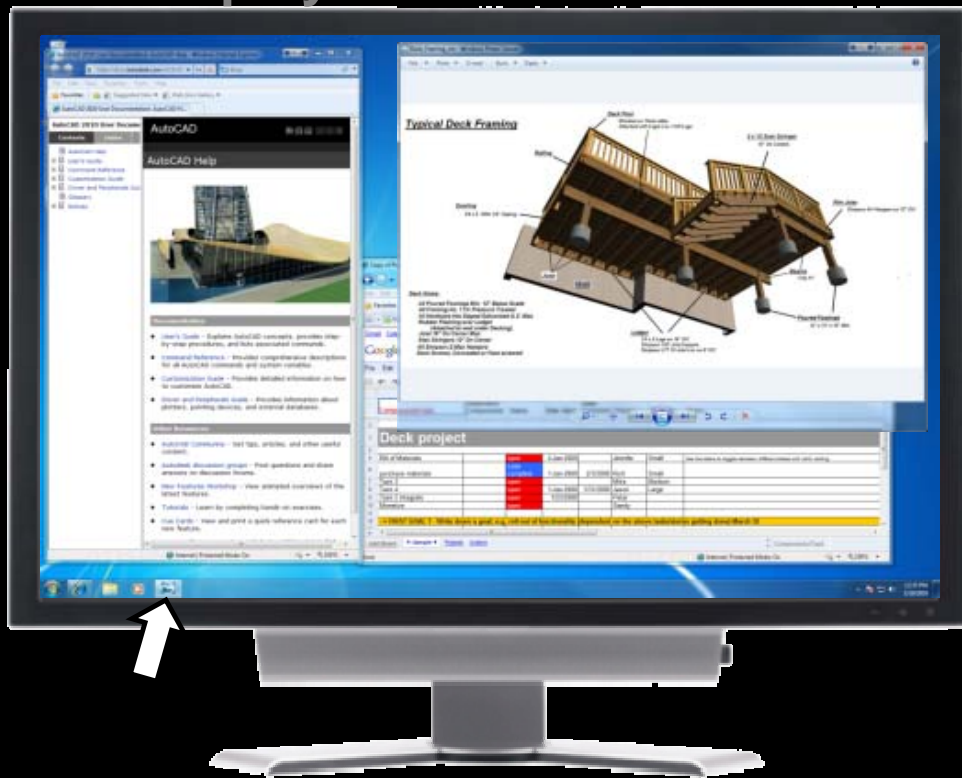 - **nvEnterprise 2.0 using WMI***

NVIEW Desktop Manager

- Taskbar spanning across multiple displays
- Application/Window/Dialog Box Repositioning
- Virtual Desktops
- Display Gridlines
- nView Profiles
- and many more…

**A User-friendly Way To Manage Your
High-resolution Desktop For Increased Productivity**

Better Way to Work: NVIDIA® nView™

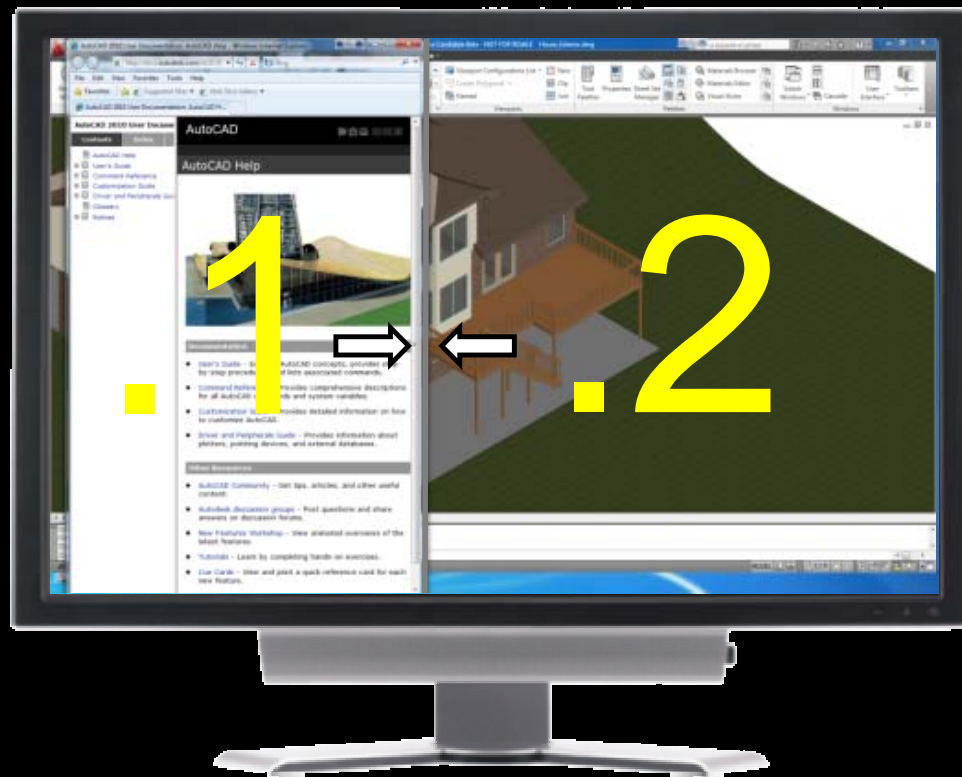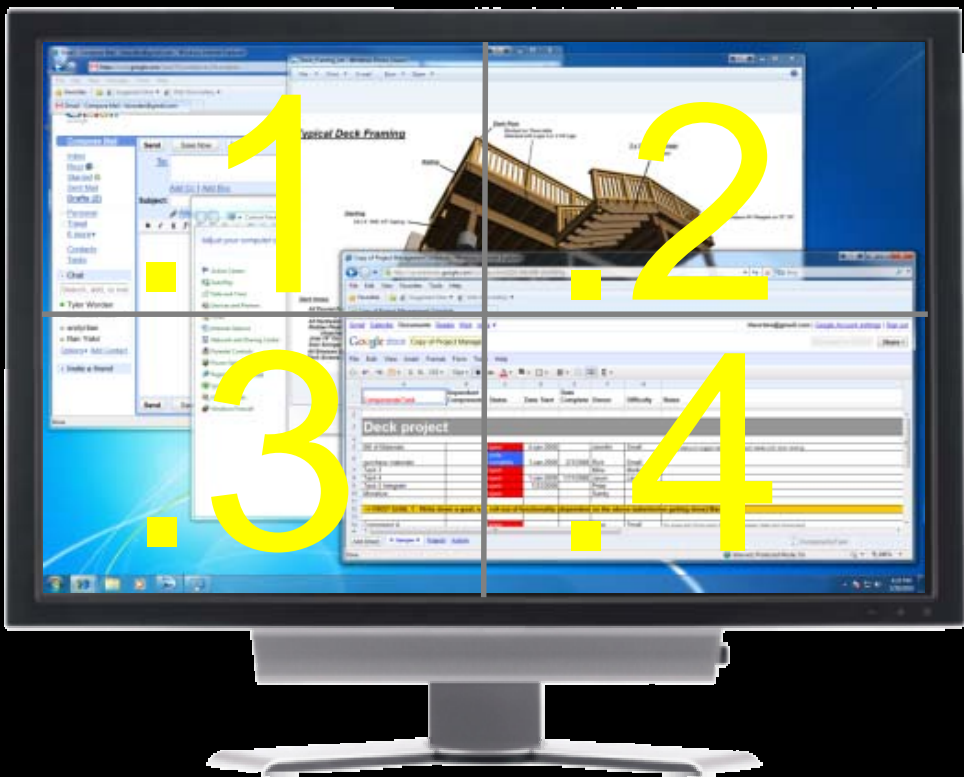**Eliminate clutter by extending the taskbar across multiple displays**
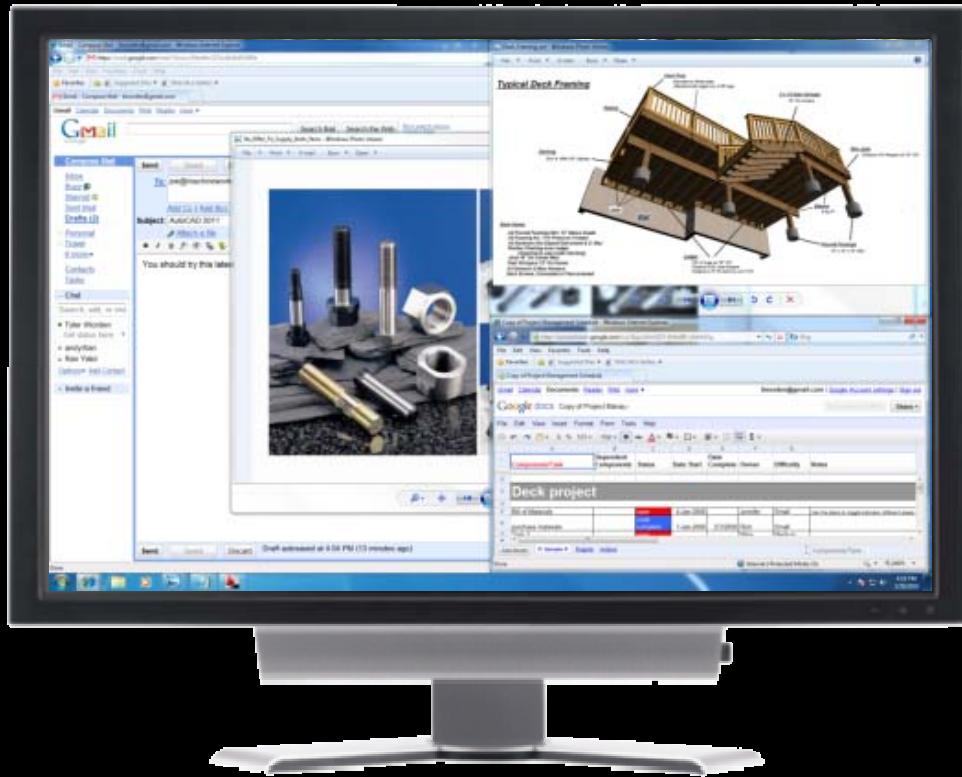

EXTENDED TASKBAR

Better Way to Work: NVIDIA® nView™

Gridlines: Divide monitors into sub-screen for efficient use of screen real estate
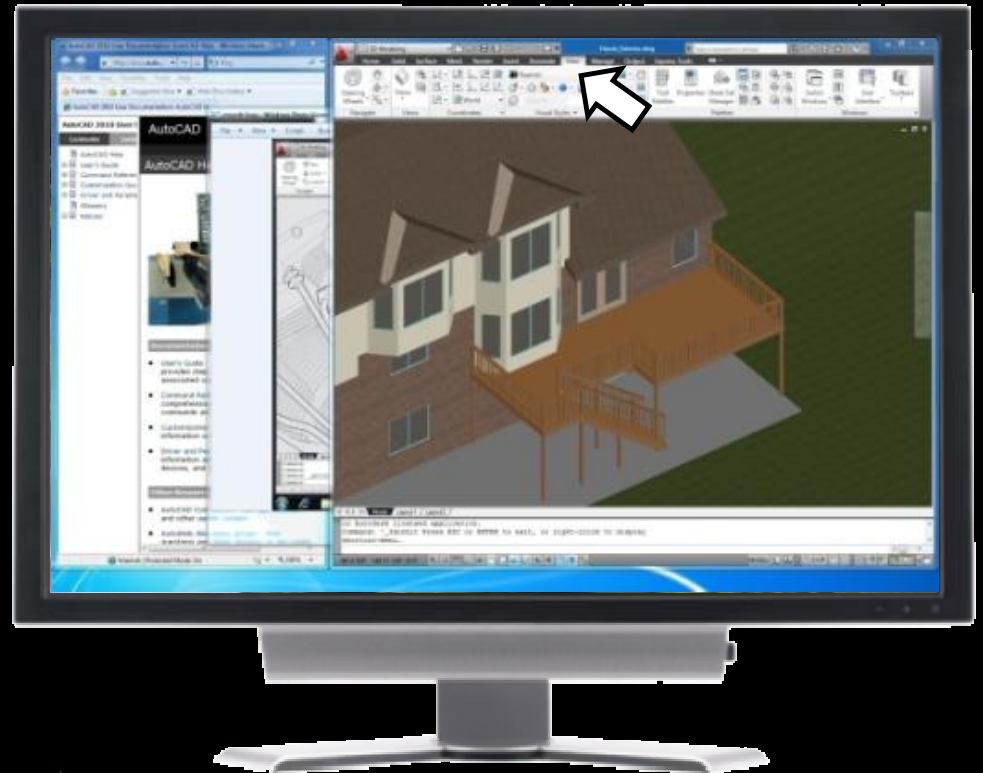
Better Way to Work: NVIDIA® nView™
Create, customize, and switch between different desktops

1 CLUTTERED DESKTOP   **Multiple VIRTUAL DESKTOPS**

NVIDIA® Mosaic™ Multi-Display Technology

- **Unified desktop**
- **Seamless Image**
- **Up to 8 displays or projectors**
- **Professional Performance and Features**

Multi-Display Financial Trader Desktop
Viewing more data drives better decisions

Multi Display Desktop
See everything… in context

Image courtesy of Barco

Mosaic Technology
Single Unified Desktop

❌ **Without Mosaic:** 4 Independent Displays

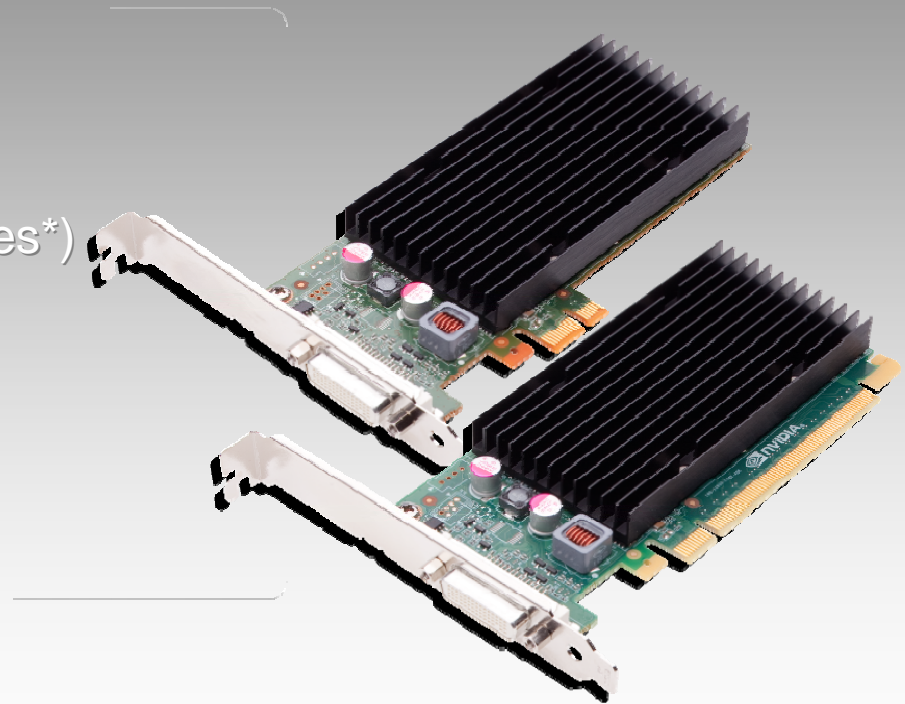✔ **With Mosaic:** Single Unified Desktop & Taskbar

Mosaic Features
Scale with Quadro and NVS Solutions

Key Features

- Easy Configuration
- Unified Desktop (up to 8 display devices*)
- Application Spanning
- Taskbar Spanning
- Bezel Correction
- Windows 7 Support

* All displays require matching timings and resolution

Enterprise Management Tools

Installer 2.0

- Improved perfomance with minimal reboots
- Failure Logging
- Less Disruptive - Silent install

nvEnterprise 2.0*

- Configure graphics system (WMI)
- Save/Restore a configuration
- Graphics System Monitoring
- Display topology (modes, layout, ...)

* nvEnterprise 2.0 will be available in Q1 2012

A More Reliable Way to Work

Maximize System Uptime: NVS ® Built By NVIDIA

**Engineered, Built,
and Tested by NVIDIA**

**Optimized GPU
architecture and Drivers**

High Reliability & Productivity

Extended Product Life Cycle

Thank You…

NVIDIA.