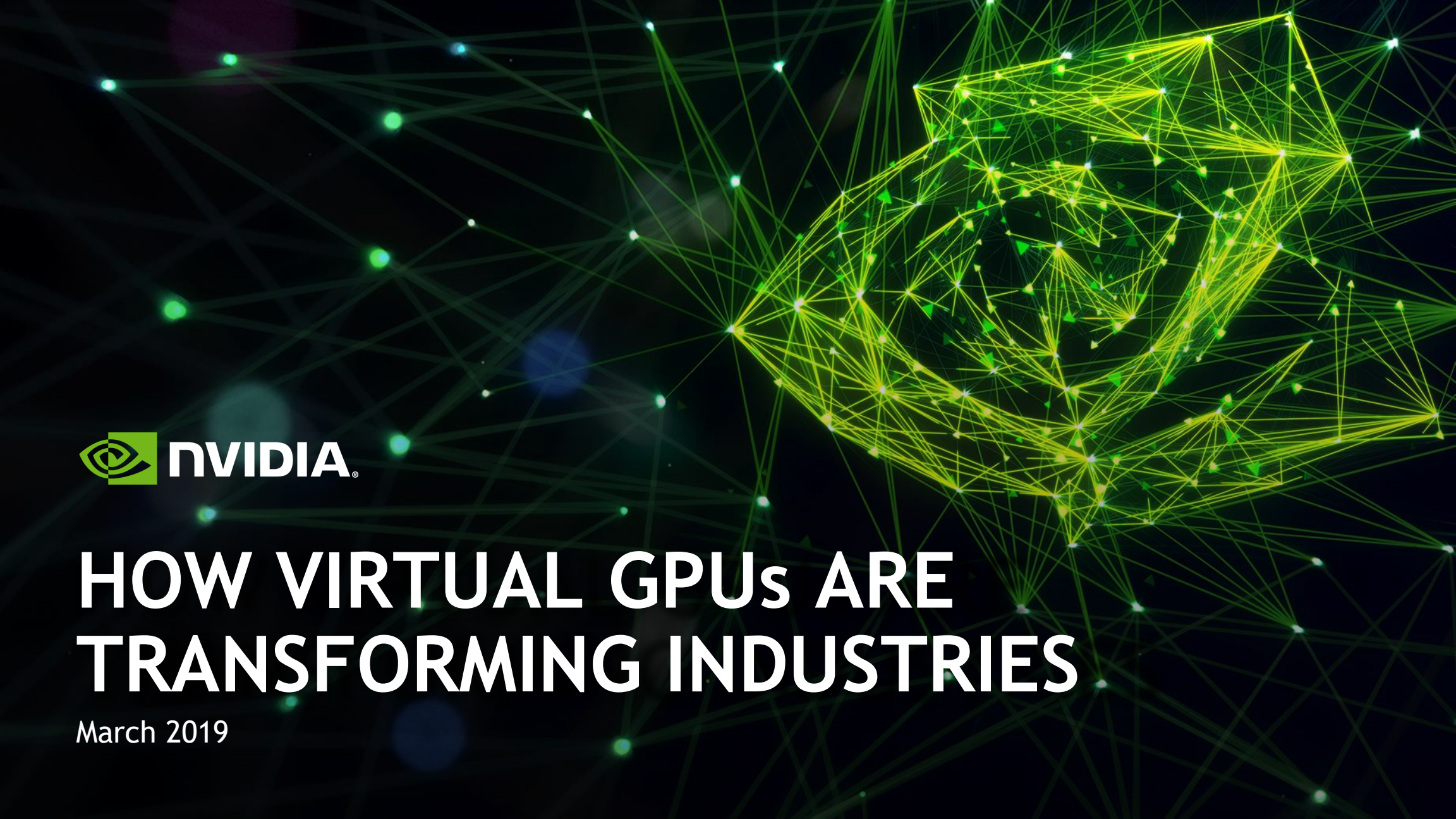

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HOW VIRTUAL GPUs ARE TRANSFORMING INDUSTRIES

March 2019

PANELISTS

Dane Young,
Owner/Chief
Technologist

Sean Massey, Staff Cloud
Solutions Architect

Jared Cowart,
Product Manager

Tony Foster, Sr. Advisor,
Technical Marketing

NVIDIA VIRTUAL GPU COMMUNITY ADVISORS (NGCA)

Bringing together graphics virtualization thought leaders and experts for exclusive access and insight into NVIDIA virtual GPU product strategy and technology.

Help drive the future of graphics virtualization ad cloud technologies.

Product feedback on product strategy.

NGCA

WINDOWS 10 IN THE NEWS

New Windows 10 build is a monster update

First update of the year adds more new features than any previous build.
-COMPUTERWORLD

Massive Windows Insider build finally adds Timeline and Sets, revamps My People and more

This looks like the first massive feature update of the Redstone 4 cycle for Microsoft's Windows 10.
-PCWorld

Windows 10 April 2018 Update biggest problems and complaints

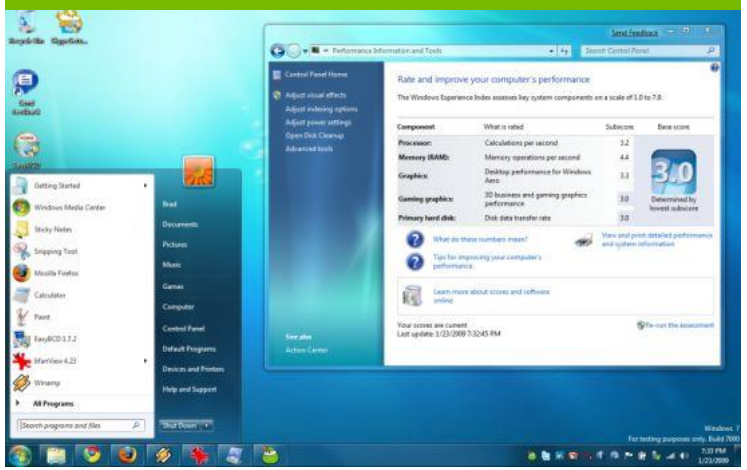
The April 2018 Update is yet another big refresh for Windows 10, but it's causing headaches for some users.
-Windows Central

Massive Windows 10 Upgrade Has A Bigger Omission

-Forbes

WINDOWS 10

Highest Graphics Requirement of any Operating System to Date

WINDOWS XP	WINDOWS 7	WINDOWS 10
		

Windows 10 Requires a 50% Increase in graphics requirements, compared to Windows 7

*Percent of time consuming GPU (DirectX or OpenGL), comparing Windows 7 to Windows 10 builds in 2018 (builds 1803 and 1709)

WINDOWS 10 BUILDS GET MORE MASSIVE

Windows 10 in 2017*

32% increase in graphics requirements from Win7

Windows 10 in 2018*

50% increase in graphics requirements from Win7

- More 3D features (Snipping Tool, Timeline)
- Set customized graphics performance by application
- Fluent design UI including new “acrylic” texturing
- Motion improvements bring super smooth animations to dropdown menus, opening a new tab and more

20% increase in graphics requirements in Windows 10 from 2017 to 2018

3X increase in graphics requirements from Office 2010 to 2016

Lakeside®

**Windows 10 builds in 2017 is based on data from builds 1709, 1703 & 1607. Windows 10 builds in 2018 is based on data from builds 1803 and 1709*

NVIDIA.

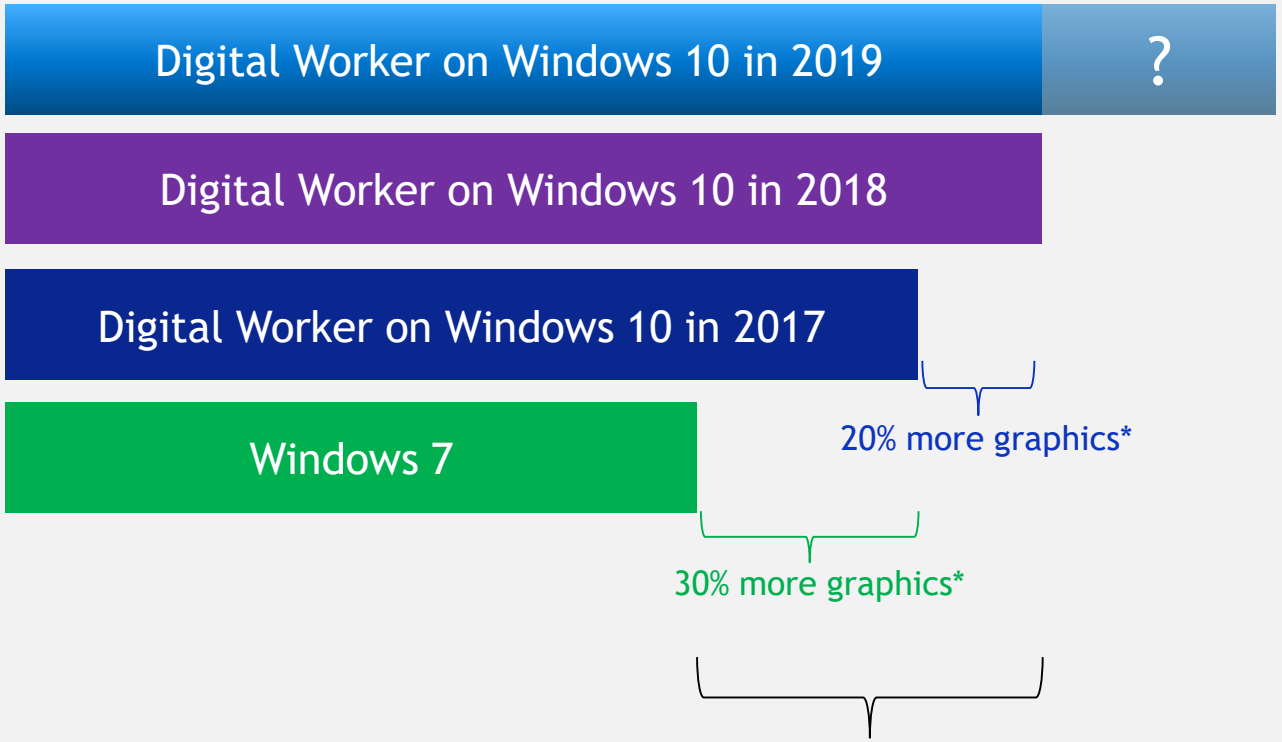
INCREASING DEMAND FOR GRAPHICS

Windows 10 was developed with hardware acceleration in mind and is fully accelerated using a GPU by default

Certain features like Metro/Modern UI cannot be completely disabled

Free Windows 10 upgrades for consumers drive expectations for the same quality of experience at work to be productive

GRAPHICS USAGE OF WINDOWS ENVIRONMENTS

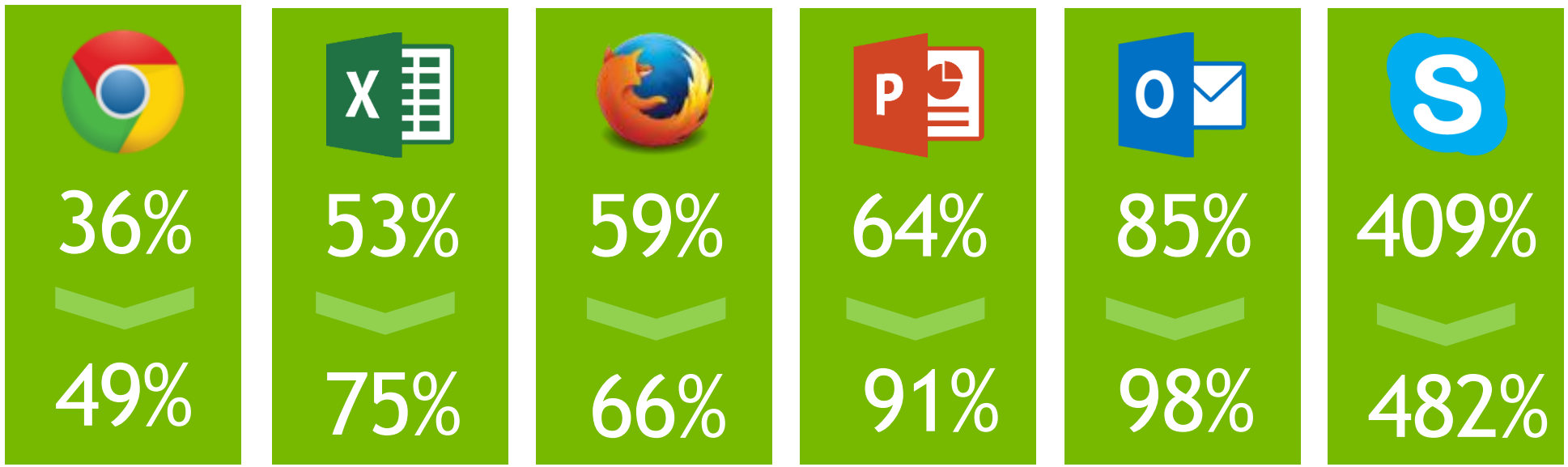


Lakeside®

*Measured by the percent of time consuming GPU (DirectX or OpenGL). Windows 10 builds in 2017 include 1709, 1703 and 1607. Windows 10 builds in 2018 include 1803 and 1709

MODERN APPS IN THE DIGITAL WORKPLACE

Demands More Graphics



Applications that require graphics has doubled since 2012

Over half of enterprise users access at least one graphics accelerated app

Lakeside SysTrack

*Percent of time consuming GPU (DirectX or OpenGL). Windows 10 builds in 2017 is based on data from builds 1709, 1703 & 1607. Windows 10 builds in 2018 is based on data from builds 1803 and 1709

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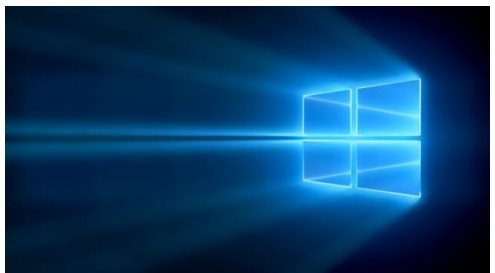
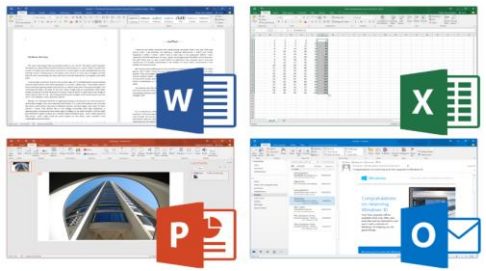
THE NEW DIGITAL WORKER

The Way We Work is Changing



Windows 10

50% increase in GPU requirement over Windows 7[1]



Office 365/Office 2016

50-100% increase in GPU requirements over Windows 7[1]

Web Browsers

Modern browsers are hardware accelerated by default

Latest Web Standards

Flash, HTML5, and WebGL are all very taxing to the CPU

PDF Viewers

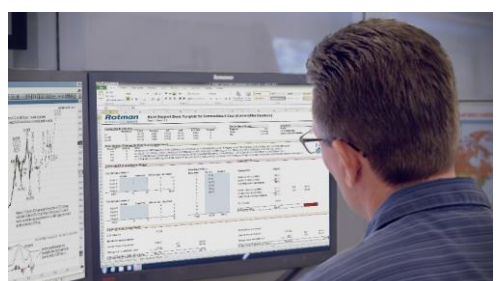
Adobe® Acrobat® and Microsoft Edge are hardware accelerated by default

Collaboration and Video

Skype and YouTube are now prevalent across the enterprise

Digital Imaging & Design

Some features in Adobe® Photoshop® won't work without a GPU[2]



Multi-, High Res Monitors

Multi-monitors is the new normal and 4K is becoming mainstream

1 Percent of time consuming GPU (DirectX or OpenGL), comparing Windows 7 to Windows 10 builds in 2018 (builds 1803 and 1709)
2 Adobe. December 31, 2017. Photoshop Graphics Processor (GPU) Card FAQ.

CHOOSE FROM BUNDLES THAT SUPPORT YOUR NEEDS

Single purpose, lowest cost solution for VDI using NVIDIA M10

Includes 2x NVIDIA M10 GPUs with GRID licenses for 64 users
Or, 3x NVIDIA M10 GPUs with GRID licenses for 96 users

Multi-workload, cost-effective solution for VDI and compute using NVIDIA T4

Includes 4x NVIDIA T4 GPUs with GRID licenses for 64 users
Or 6x NVIDIA T4 GPUs with GRID license for 96 users

A GREAT VDI UX IS MORE AFFORDABLE THAN EVER

For a limited time, NVIDIA is offering discounts on GRID software purchased together with NVIDIA GPUs.

1 Year Free

NVIDIA GRID with 3 Year Support Contract

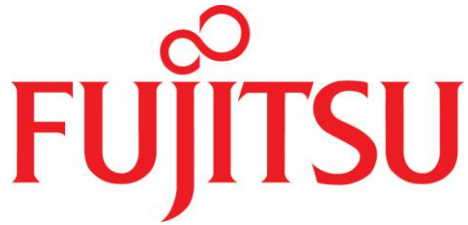
More affordable option with a 3 year server amortization

2 Years Free

NVIDIA GRID with 5 Year Support Contract

Most cost-effective option with a 5 year server amortization

NVIDIA GRID BUNDLES AVAILABLE FROM NVIDIA PARTNERS



DON'T MISS THESE SESSIONS!

GPU Virtualization at GTC

Wednesday, March 19th

4 pm **S9814** How GPU-Accelerated Virtual Workstations Enable Mobility and Collaboration for Autodesk Applications

Thursday, March 20th

9 am **S9886** Deliver Extreme Graphics While Achieving Great TCO with HPE SimpliVity HCI and NVIDIA GPUs

10 am **S9881** Using Industry Standard Benchmark Tools to Size Graphics Accelerated Applications

11 am **S9231** Leveraging NVIDIA, Citrix, and IGEL to Support Unified Communications in VDI

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QUESTIONS

1. Is Windows 10 really consuming more GPU? What about other applications and modern desktop experience – web browsing, multi-monitors, etc.?
2. What kinds of customers are moving to GPU accelerated Windows 10 VDI?
3. We've talked about Windows 10, is there anything else you can do with your GPU resources besides desktop virtualization? (Doing more with less – VDI by day, compute by night)
4. How do you prepare your environment for migration to Windows 10? (testing, POCs)
5. How much more compute and GPU resources does Windows 10 require vs. Windows 7?
6. What are some of the new use cases for virtualized desktops? (RTX, rendering, etc.)
7. Design considerations for Windows 10 VDI? Types of servers? Which GPUs? Which vGPU software? What profile sizes? How do you size your Win 10 VDI environment? Monitors? Applications? Partners/Integrators?
8. How do I get started? Who would I talk to if I want to implement VDI?
9. What hypervisors should I choose? NVIDIA supports all hypervisors.
10. When should we consider moving our VDI to the cloud? Can we do vGPU in the cloud? Point to Windows Virtual Desktop demo on the show floor?