



# NVIDIA VIRTUAL GPU

## HOW TO BUY

### OVERVIEW




NVIDIA® virtual GPU (vGPU) software enables powerful GPU performance for workloads ranging from graphics-rich virtual workstation and desktops to data science and AI, enabling IT to leverage the management and security benefits of virtualization as well as the performance of NVIDIA GPUs required for modern workloads. With NVIDIA virtual GPU software, GPU resources can be divided so that GPUs are shared across multiple virtual machines, or multiple GPUs can be allocated to a single virtual machine to power the most demanding, compute-intensive workloads.

The portfolio of NVIDIA virtual GPU software products includes:

- > NVIDIA RTX™ Virtual Workstation (vWS)
- > NVIDIA Virtual PC (vPC)
- > NVIDIA Virtual Applications (vApps)
- > NVIDIA Virtual Compute Server (vCS)

To run these software products, you'll need an NVIDIA GPU and a software license that addresses your specific use case.

### FIND THE BEST VIRTUAL GPU SOFTWARE PRODUCT FOR YOUR USERS.

			
<b>Use Case</b>	Creative and Technical Professional	Knowledge Worker	AI, Deep Learning, and Data Science
<b>Compute Type</b>	Client Computing	Client Computing	Server Workloads
<b>Virtual GPU Software Edition</b>	NVIDIA RTX Virtual Workstation	NVIDIA Virtual PC / Virtual Applications	NVIDIA Virtual Compute Server
<b>GPU Hardware</b>	Recommended: A40	Recommended: A16	Recommended: A100, A30

Now available in CSP marketplaces, NVIDIA RTX Virtual Workstation software brings enterprises pairing cloud-based workstations with on-premise infrastructure even greater flexibility and business agility.

### NVIDIA VIRTUAL GPU SOFTWARE FEATURE LIST

Configuration and Deployment	vWS	vPC	vApps	vCS
Desktop Virtualization	✓	✓		
Server Virtualization				✓
RDSH App Hosting	✓ <sup>2</sup>	✓	✓	
RDSH Desktop Hosting	✓ <sup>2</sup>	✓	✓	
Windows OS Support	✓	✓	✓	
Linux OS Support	✓	✓ <sup>3</sup>		✓
GPU Pass-Through Support <sup>4</sup>	✓		✓	✓
Bare-Metal Support <sup>5</sup>	✓		✓	✓
NVIDIA Graphics Driver	✓ <sup>2</sup>	✓	✓	
NVIDIA RTX Enterprise Driver	✓			
NVIDIA Compute Driver				✓
Guaranteed Quality-of-Service Scheduling <sup>6</sup>	✓	✓	✓	✓
Multi-GPU	✓ <sup>14</sup>			✓

	vWS	vPC	vApps	vCS
NVIDIA NVLink™	✓			✓
ECC Reporting and Handling	✓			✓
Page Retirement	✓			✓
<b>Display</b>				
Maximum Hardware Rendered Display	Four 5K or Two 8K	Four QHD, Two 4K <sup>12</sup> , One 5K	One <sup>7</sup>	One 4K
Maximum Resolution	7680 x 4320 <sup>16</sup>	5120 x 2880	1280 x 1024	4096 x 2160
<b>Support</b>				
NVIDIA Direct Enterprise-Level Technical Support	✓	✓	✓	✓
Maintenance Releases, Defect Resolutions, and Security Patches for up to 3 Years <sup>9</sup>	✓	✓	✓	✓
NGC™ Ready Support				✓

Data Center Management	vWS	vPC	vApps	vCS
Host, Guest, and Application-Level Monitoring <sup>2</sup>	✓	✓	✓	✓
Live Migration <sup>3</sup>	✓	✓	✓	✓
GPU Operator				✓
Advanced Professional Features				
ISV Certifications	✓			
NVIDIA CUDA® / OpenCL™ software.	✓ <sup>0</sup>			✓
Graphics Features and APIs				
NVENC	✓	✓		✓
OpenGL Extensions, Including WebGL	✓	✓	✓	
Insitu Graphics/GL Support				✓
NVIDIA Performance Features and Optimizations	✓			
DirectX	✓	✓	✓	
Vulkan Support	✓			✓
Profiles <sup>11</sup>				
Max Frame Buffer Supported	48GB	2GB <sup>3</sup>	48GB	80GB
Available Profiles	0Q, 1Q, 2Q, 3Q, 4Q, 6Q, 8Q, 12Q, 16Q, 24Q, 32Q <sup>13</sup> , 48Q <sup>14</sup>	0B, 1B, 2B <sup>3</sup>	1A, 2A, 3A, 4A, 6A, 8A, 12A, 16A, 24A	4C, 6C, 8C, 10C, 12C, 16C, 20C, 24C, 32C, 40C, 48C, 80C

## CHOOSE A SOFTWARE LICENSING MODEL

### ANNUAL ENTERPRISE SUBSCRIPTION

Annual subscription includes software license and NVIDIA Support, Update, and Maintenance Subscription (SUMS).

NVIDIA Virtual Applications (vApps)	\$10 per concurrent user subscription
NVIDIA Virtual PC (vPC)	\$50 per concurrent user subscription
NVIDIA RTX Virtual Workstation (vWS)	\$250 per concurrent user subscription
NVIDIA Virtual Compute Server (vCS)	\$450 per GPU subscription

### PERPETUAL ENTERPRISE LICENSE

Perpetual License includes indefinite software license; SUMS is required and is available in four or five-year increments. One-year SUMS available only for renewals

NVIDIA Virtual Applications (vApps)	\$20 perpetual license \$5 SUMS per year
NVIDIA Virtual PC (vPC)	\$100 perpetual license \$25 SUMS per year
NVIDIA RTX Virtual Workstation (vWS)	\$450 perpetual license \$100 SUMS per year
NVIDIA Virtual Compute Server (vCS)	Perpetual license not available

For more details on what's supported in each version of NVIDIA virtual GPU software, see the [NVIDIA Virtual GPU Packaging, Pricing, and Licensing Guide](#).

Licensing for cloud-based workstations with NVIDIA RTX Virtual Workstation software will vary with CSP pricing.

Licensing by service providers reselling or hosting NVIDIA virtual GPU services is provided through the NPN Partner Program for Cloud Service Providers.

For more information, visit [www.pny.com/vGPU](http://www.pny.com/vGPU) or email: [gopny@pny.com](mailto:gopny@pny.com)

## FIND THE BEST NVIDIA DATA CENTER GPU FOR YOUR ENVIRONMENT.

NVIDIA virtual GPU software runs on NVIDIA data center GPUs and is supported in [certified servers](#).

For more information, [learn how to buy the NVIDIA virtual GPU solution in four easy steps](#).

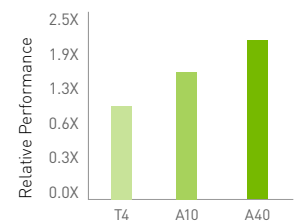
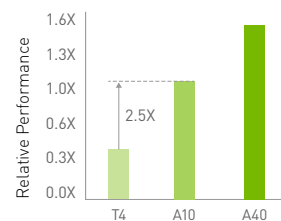
## NVIDIA VIRTUAL GPU SOFTWARE: EXTENDING THE VALUE OF YOUR VIRTUAL GPU DEPLOYMENT

An NVIDIA virtual GPU software license gives you access to continuous innovation for your virtual GPU deployment, in addition to ongoing support and maintenance. This software license model enables NVIDIA to deliver on new feature requests without requiring new hardware.

Over the past several years, innovations in NVIDIA virtual GPU software have provided customers with increased user density and better management and monitoring insights for their virtual GPU deployment. With our latest generation Ampere-architecture GPUs, the world's fastest virtual workstations have become even faster. NVIDIA RTX vWS with Ampere-architecture-based GPUs deliver up to 2.1x better graphics performance, and 1.5x better performance per dollar spent than our previous version.

Render up to 12x faster (laptop)<sup>1</sup>

Up to 2X Better Graphics Performance per Dollar<sup>1</sup>



Server Config: 2x Xeon Gold 6154 3.0GHz (3.7GHz Turbo), VMware vSphere 7.0 U2, host/guest driver 461.33  
<sup>1</sup> NVIDIA RTX vWS 12.2 (A10: 24Q Profile, A40: 48Q Profile) | SPECviewperf 2020 Subtest, HD 3dsmax-07 composite

*"With eVDI, waiting times have been dramatically reduced and working from remote locations has become more efficient. It is a major advantage that engineers can now use CAD, which was previously limited to their desk, in meetings and on business trips. It's like the transition from landline phones to smartphones."*

**NORIYUKI HIRATSUKA**  
 Assistant Manager, Mitsubishi

<sup>1</sup> NVIDIA RTX vWS 12.2 (A10: 24Q Profile, A40: 48Q Profile) | SPECviewperf 2020 Subtest, HD 3dsmax-07 composite.

<sup>2</sup> With packaged vApps license.

<sup>3</sup> Support starting with NVIDIA virtual GPU software Spring 2018 release (version 6.0).

<sup>4</sup> Only supported on 1:1 profiles.

<sup>5</sup> Only NVIDIA M6 hardware supported as primary display device.

<sup>6</sup> Scheduling options include fixed share, equal share, and best effort/time slicing.

<sup>7</sup> vApps supports one 1280 x 1024 display from the GPU card. However, XenApp renders to an offscreen buffer, so it can support multiple software-rendered displays at higher resolutions.

<sup>8</sup> Application-level monitoring only available starting with the NVIDIA virtual GPU August 2017 release (version 5.0).

<sup>9</sup> Available with active Support, Updates, and Maintenance Subscription (SUMS) contract.

<sup>10</sup> Supported on 8 GB 1:1 profile on Maxwell and all profiles on Pascal.

<sup>11</sup> Profiles supported have dependency on GPU selected. For more information, read the [Virtual GPU Software User Guide](#).

<sup>12</sup> Supports up to two 4K displays or four 2560 x 1600 displays on 2B profile. Supports up to four 2560 x 1600 displays on 1B profile. Support for two 4K displays starts with NVIDIA virtual GPU software release 6.0, and support for four 2560 x 1600 displays on 2B profile starts with NVIDIA virtual GPU software release 6.2.

<sup>13</sup> 32Q profile available with V100

<sup>14</sup> Support available Fall 2018 with NVIDIA virtual GPU software release (version 7.0).

<sup>15</sup> 48Q profile available with RTX 8000 and A40.

<sup>16</sup> Support for 8K displays with vWS starts with NVIDIA vGPU software 10.0.