

ArcGIS Pro on the Virtual Desktop

Technology and IT trends are propelling companies and organizations to virtualize their physical desktops, making it easier for employees to work from anywhere and still be able to access all of their organizations' internal websites and applications.

ArcGIS Pro, the newest addition to the ArcGIS for Desktop suite, is a modern, 64-bit, multithreaded application that provides integrated 2D and 3D spatial analysis and visualization in one package. As with ArcMap, ArcGIS Pro is expected to be successfully virtualized by countless companies and organizations.

At Esri, ArcGIS Pro has been heavily tested in all major virtual desktop infrastructure (VDI) platforms. This includes VMware Horizon with View, Citrix XenDesktop, and Microsoft's Hyper-V VDIs. Testing has found that in some cases when ArcGIS Pro is used with 2D data, the user experience is fine without a graphics processing unit (GPU). When ArcGIS Pro is used with complex 2D data and any 3D data, a GPU is needed.

Delivering that user experience on a physical workstation is relatively easy with common hardware such as a GPU integrated with a computer's central processing unit. Getting that same level of user experience—or perhaps even better—is also possible in a virtualized environment. The major virtualized environments employ shareable GPU technology such as the NVIDIA GRID cards to deliver that user experience.

The Next Phase in Cloud-Based VDI—DaaS

Many companies are now considering the next phase of virtualization: cloud-based VDI, where a centralized server hosts desktop operating systems within a number of virtual machines. Desktop-as-a-Service, or DaaS, is a VDI delivered by a cloud computing provider. The provider supplies the hardware, operating system, and management capabilities needed to run the virtual desktops—though operating system licensing does vary across all providers.

Companies can then customize the virtual desktop supplied by the DaaS provider. They can add the business, application, and utility software their end users need, including Microsoft Office, ArcGIS for Desktop, and any necessary data.

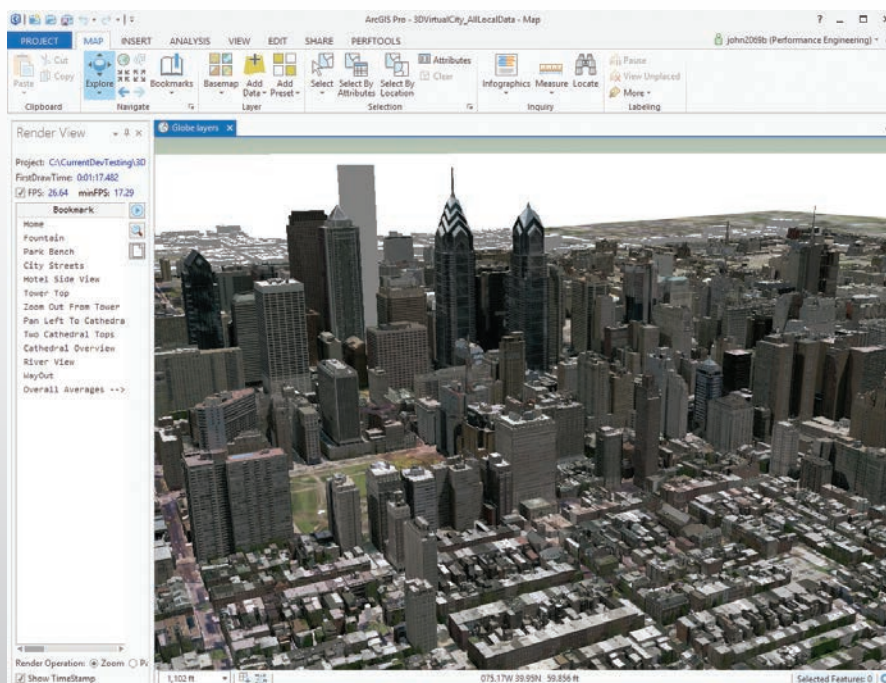
A DaaS can be used when a small business or consulting firm needs a number of temporary employees for a short-term project or when an organization needs to give some permanent employees short-term access to certain programs such as ArcGIS software. For example, if a project requires 10 additional GIS analysts for six months, instead of purchasing desktop workstations and software licenses for the employees and then installing and configuring the

software and maintaining the workstations for such a short period, the company can give its temporary users a DaaS workstation that is ready to go on day one. The virtual desktop is centrally maintained for the duration of the project and then simply removed from the centralized server when the assignment is over.

ArcGIS Pro in DaaS Now

ArcGIS Pro delivers a great interactive experience when working with 2D and 3D data. When users pan and zoom, the smooth animation feels remarkably gamelike. These visualization capabilities are also a way users can measure how well the program works in DaaS.

← Esri has tested ArcGIS Pro in all major VDI platforms. Performance is fine without a GPU when using basic 2D data, but a GPU is needed when using complex 2D data or 3D data.



ArcGIS Pro has been preinstalled in several leading DaaS deployments, including NVIDIA Test Drive (www.nvidia.com/object/vmware-trygrid.html). Served from multiple data centers around the world, NVIDIA GRID Test Drive furnishes an entire Windows desktop with multiple graphics-intensive applications already installed to demonstrate how graphics-intensive applications can be successfully delivered and provide an impressive user experience.

ArcGIS Pro is one of the installed graphics-intensive applications. The rendering engine that drives the fluid, highly animated visualization uses DirectX or OpenGL libraries. These are the same libraries used for gaming software and their capabilities are maximized when used with GPUs.

ArcGIS Pro's user experience in the NVIDIA GRID Test Drive DaaS is enhanced because the virtual desktop provided by the DaaS is supported by a shareable GPU. The NVIDIA Test Drive environment uses NVIDIA GRID cards that are specifically designed for virtualization environments.

Putting ArcGIS Pro in DaaS

To successfully deploy ArcGIS Pro in a DaaS, there are a few important considerations.

Using 2D data that is relatively simple and doesn't have symbology does not typically require a DaaS supported by a GPU. For more complex 2D and 3D data, however, it is necessary to use a shareable

GPU-supported DaaS.

When a shareable GPU is required, the DaaS provider must be able to support the use of a GPU such as a NVIDIA GRID K2 card in its hypervisor. This can have a dramatic impact on the end users' experience. Although many larger DaaS providers do not yet provide shareable GPU support, the ones that do include Europe's Cloudalize and Exponential-E and the United States' NaviSite. Moreover, existing providers are extending their service areas into more geographic regions and new providers are scheduled to come online.

Where to Go from Here

DaaS is a trend that will only continue to grow as more companies migrate from physical desktops to on-premises VDI environments and cloud-based DaaS. Keeping up with this progression will require confronting a myriad of challenges, but the evolution will not stop or be redirected.

ArcGIS Pro can be deployed into a DaaS environment and deliver a great user experience. There are many providers and options available to make that happen now. Esri is working with several DaaS providers to determine the level of user experience they offer through their services so that Esri and these providers can work together to provide best practices, configuration, and guidance to users.

Look for additional information on ArcGIS Pro in DaaS and virtualization environments at blogs.esri.com and pro.arcgis.com.

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