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## HP Remote Graphics Software

Take the power of your HP Workstation anywhere.

By Robert Green, *Cadalyst* Contributing Expert



What do you get when you combine remote offices connected with slow WANs (wide area networks) trying to work on massive CAD databases? If you answered slow performance, corrupted files, and angry users, you've likely experienced the problem in person. Anyone who has been in this situation has likely asked: "How can we work with CAD applications and their huge data files between multiple locations with decent performance?"

The simplest answer: [HP Remote Graphics Software or RGS](#) for short.

### What is RGS?

HP Remote Graphics Software (RGS) is the remote desktop solution for serious workstation users and their most demanding 2D, 3D, and data-intensive applications. This advanced tool lets users access and share the desktop of a remote Intel® Xeon®-based workstation over a standard network. All applications run natively on the remote workstation and take full advantage of the compute and graphics resources of the remote system.

With RGS, your application software (such as CAD and rendering software) actually runs on a remote machine that then sends the application's graphics output back to your computer's screen. In addition to sending the graphics back to you, the remote machine also receives keyboard and mouse input from you to achieve a truly remote control environment where you run the application software as if you were sitting at the remote machine.

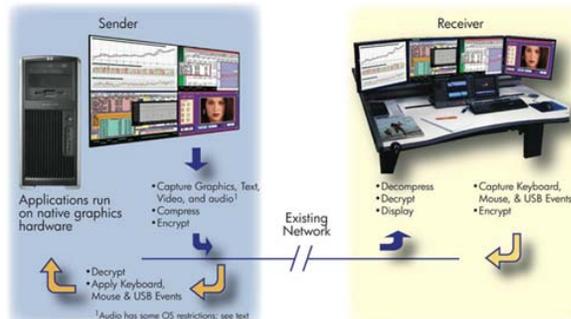


Figure 1. HP RGS uses a send/receive software architecture to link your machine to the remote application machine.

As you can see, both the sender and receiver use compression and decompression technology so the amount of data moving over the network is as compact as possible, thus increasing responsiveness of the remote control environment.

### RGS Compression and Encryption

You can perform a similar operations using Microsoft's Remote Desktop Connection, but HP Remote Graphics Software achieves much higher throughput via its patented HP2 Coder-Decoder (CODEC) algorithm.

The HP2 CODEC applies different compression ratios for different objects (such as lines,

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text, and graphics) to achieve the best possible visual experience for the remote user while using the least possible network bandwidth to transfer the graphic screen contents. HP2 was designed for use in low-resource systems and has actually been used by NASA for high transfer-rate graphic transmissions.

A quick glance at figure 2 shows that all processing for the application software happens at the remote workstation. This includes all graphics drivers, GPU (graphical processor unit) rendering, hard drive, and memory utilization. These resulting images are compressed and sent to your machine via the HP2 CODEC, and then uncompressed and viewed on your screen. This means your machine doesn't have to have a specialized graphics processor or driver because HP2 handles all the graphics functions.

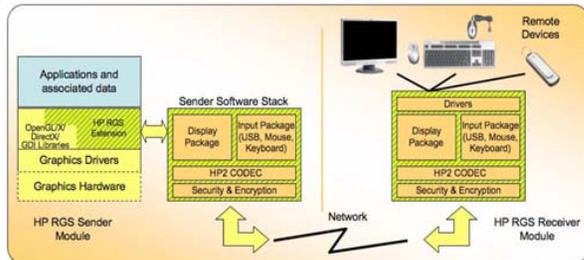


Figure 2. The HP2 CODEC runs just prior to transmission of data from the sender module and just after receipt of data on the receiver module.

The bottom line? Think of HP2 like a highly advanced PKZIP-type program that runs on the fly to allow for the fastest remote control experience possible.

### RGS Use and Justifications

RGS technology can be applied almost anywhere that remote workstation manipulation is needed, such as in IT, banking, and health care fields, but what about CAD environments? Where would RGS best be applied to make life easier for CAD users, their managers, and the companies that employ them? Let me give you an overview of potential uses within the CAD space:

To work around bandwidth problems. If you have to share large CAD files in a WAN (wide area network), you've experienced how slow the process can be. As we saw in figure 2, RGS only transmits compressed graphics and mouse movements over the network so you can work much faster than if you were moving multiple megabyte CAD files back and forth.

So, while CAD users will like RGS for the speed, network administrators will like RGS because it frees up valuable network resources for other uses.

To support traveling staff. If you have mobile workers who need access to applications and key files, you'll eventually have problems with getting them the latest file, without accidentally duplicating files or losing revision control. Plus, if these traveling workers don't have powerful enough notebook computers to run resource hungry CAD or rendering applications, they won't be able to work while they're out of the office anyway.

Using RGS solves all these problems because the master files and required software applications remain at a single, secure location. Of course this approach does assume that the remote user has Internet access, but as you know, almost any hotel or Starbucks location has one.

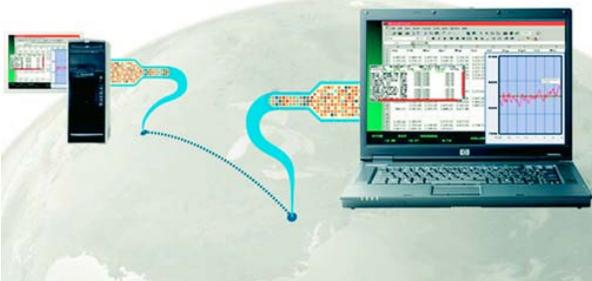


Figure 3. Traveling workers can access key applications and files via RGS anywhere they can find an Internet hot spot.

To secure data. If you would like to allow remote users to access data but not copy it to their own computer, then RGS can actually serve as a security firewall to secure your data. With RGS, the key files remain on your central workstation where they can be easily backed up and unauthorized copying can be prevented. With RGS, only the information related to screen pixels are sent to the user's computer so your corporate data remains secure.



To host collaborative meetings. If you wanted to host a meeting where a number of participants need to see your screen, then RGS can be used to send your screen to any number of receivers. Using RGS in this manner is very much like an Internet meeting experience you'd have via WebEx or GoToMeeting.

For training. Much like the collaborative meeting scenario, you could conduct training sessions for users at any number of remote locations.

To expand high-end function and stretch budgets. Let's say most of your CAD users need a basic workstation 90% of the time, but occasionally need to run analysis or rendering applications that need more horsepower. Why not use RGS to run those applications on a remote machine?

#### Resource Table

- [Contact an RGS expert](#)
- [Support](#)
- [HP RGS User Guide](#)
- [HP RGS Licensing Guide](#)

Given that the alternative is to let your CAD users wait while their lower end workstations grind to a halt every time they need to run rendering or analyses, RGS provides application speed for your users. RGS also lets you spend your workstation budget on truly high-end workstations that power through rendering and analysis tasks while knowing they'll be fully used by a large group of users. More speed, better hardware, and lower hardware cost can all be achieved via RGS.

To build your own private cloud. With RGS software, you can store project information and application software at a single location and coordinate a project with work teams in any number of locations or time zones without having to lease space from an external "cloud provider" or deal with the security implications it would entail. RGS allows your cloud to truly be your own cloud located at your office using your security and your IT support and security yet reap the benefits of cloud computing as you do so.

### RGS Saves Money

If you think about all the problems you can solve and all high performance hardware you can share between users with RGS, you start to see the cost-saving potential of the technology.

Given that RGS Sender modules are included with all HP Workstations and Receiver modules are free to download for anyone, it literally costs you nothing to use RGS if you're an HP Workstation customer.

### Wrapping Up

With increasingly powerful CAD application software, bigger file sizes, and team members located at any number of branch or remote locations, you simply can't manage your computing resources the same way you used to. Via clever use of Remote Graphics Software, you can give users the speed they want while solving a variety of bandwidth, cost, and security problems as you do so.

With the cost of RGS inexpensive (included with your purchase comes a trial license, \$35 for VDI license, \$199 standard), there's simply no reason not to explore your options. You may be surprised to find that RGS can solve a host of problems almost immediately.

### About the Author

Robert Green

Robert provides CAD implementation, consulting, and programming services for a variety of companies throughout the United States and Canada. He holds a degree in mechanical engineering from the Georgia Institute of Technology and is the author of *Expert CAD Management: The Complete Guide*. Reach him via his web site at [www.cad-manager.com](http://www.cad-manager.com).

#### Disclosures

This system may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See <http://www.microsoft.com/windows/windows-7/> for details.

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