



How vGPU Upgrades Help One AECO Firm Put Customers First



A Commitment to Client-Led Innovation Keeps HFA on Virtualization’s Leading Edge

When HFA was founded in 1990, one person—Harrison French—ran the whole show from a small studio in Bentonville, Arkansas. Today, the full-service AEC firm employs about 400 people in Bentonville, Boston, Fort Worth, and Mexico City, with virtual remote employees in more than 30 states across the U.S.

With clients as diverse as Target, Chick-fil-A, and Ferrari of New England, HFA has helped hundreds of national and regional brands design and scale people-friendly spaces. With a strong emphasis on the value of collaboration, the firm brings project teams into the conversation early on to help clients reach their goals faster.

The company’s steady growth over the past 30 years has occurred, in large part, because of the firm’s commitment to innovation in service to its clients. Brittany Pylant, HFA’s Director of BIM, says that company leadership has created a culture of empowerment that embraces technology and its long-term benefits. “When I started at HFA five years ago, the company employed about 120 people,” she remembers. “There was already an IT team in place and most AEC firms don’t have one until they’re much bigger than that.



Image courtesy of HFA

- > HFA is a full-service AEC firm with four offices across the U.S. and in Mexico City
- > A culture of innovation led to the early adoption of graphics accelerated virtualization
- > The firm currently uses NVIDIA’s state-of-the-art A40 GPUs with NVIDIA RTX™ Virtual Workstation software for nearly 100% of its architects and engineers
- > With every GPU upgrade for its architects and engineers, HFA recycles its older GPUs so other users can experience faster performance

Customer profile



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|----------------------|------------------------------|-----------------------|----------------|--|
| Organization: | Industry: | Location: | Formed: | Website: |
| HFA | Architecture and Engineering | Bentonville, Arkansas | 1990 | hfa-ae.com |

Challenge: Work Smarter and Faster to Surprise and Delight Customers

HFA has always challenged itself to provide greater value for customers and create friction-free working conditions for its architects and engineers.

John Raines, Director of IT Systems at HFA, started working at the firm in 2007 when people were using desktops with a mix of discreet graphics cards from NVIDIA and ATI. “We regularly conducted ‘Pepsi Challenge’ style testing to see which graphics cards performed best,” he recalls. “NVIDIA gaming cards did certain things—such as rendering—extremely well and NVIDIA’s Quadro workstation cards worked best for our drafters.” As a result of this testing, HFA had become an exclusive NVIDIA shop by 2011.

Just a few years later, in 2014, John set up the company’s first test bench for graphics-accelerated virtual GPUs, using NVIDIA’s first-generation K1 GRID cards with NVIDIA Virtual GPU (vGPU) technology. “Being able to pull up a 3D Revit model on my iPhone ignited the spark with our leadership team,” John says. “The lightbulb went off that we could do client presentations without lugging around a giant, loud laptop.”

Solution: Regular Upgrades Increase Performance

With the success of the K1 with NVIDIA vGPU implementation, HFA’s IT team began its virtualization journey, learning along the way and eagerly deploying each new vGPU advancement from NVIDIA.

Today, most of the firm’s architects and engineers use state-of-the-art A40 Data Center GPUs, combined with NVIDIA RTX Virtual Workstation (vWS), for high-performance design and drafting software, such as Enscape and SketchUp. NVIDIA P40 and T4 GPUs are also in use for applications like AutoCAD and Revit.

“The A40 GPUs have accelerated our ability to use Enscape, for example, which is the platform we like to use as a design tool for construction drawings,” Brittany says. “We didn’t really have that option with previous graphics cards, whereas now we can have Revit and Enscape open at the same time.”

Before COVID-19 forced 100% virtualization at HFA, the company was already about 50% virtualized. “When we saw how easy it was and how well everyone collaborated remotely, we stuck with the virtualized model after the pandemic,” John says. “Because we’ve been doing virtualization for so long, we’ve been able to figure out a lot of the nuances and the best configurations. We’re way ahead of a lot of other firms that are considering virtualization or just getting started with it.”

To reduce e-waste and maintain sustainability, HFA upcycles and reuses whatever it can. Every time they upgrade their systems for designers and architects, for example, they repurpose their older vGPUs to accelerate productivity apps using NVIDIA Virtual PC (vPC).

“We get a lot more life out of the cards this way,” John says. “A single server with seven T4 cards can support up to 56 users.”

“Companies that use the traditional laptop-to-VPN-to-workstation model are spending at least double what we spend on the laptops that they’re giving to people, and it’s probably closer to triple with the kind of file types we work with.”

John Raines, Director of IT Systems , HFA



Results: Greater Performance Enables More Detailed Deliverables

With the success of the K1 with NVIDIA vGPU implementation, HFA's IT team began its virtualization journey, learning along the way. With virtualization firmly in place, HFA has delivered drawings, walkthroughs, and other assets that give clients a better sense of what their buildings will look like and how people will move through them. For example, the company offers an innovative concept design approach called Matchstick, which puts patron behavior front and center to design more effective retail spaces, restaurants, and entertainment venues.

"Our clients enable us to embrace new software and hardware because they want deliverables that are more and more detailed," Brittany says. "We have clients that want to dabble with more advanced applications—including the Unity Real-Time Development Platform and Unreal Engine's 3D creation tool—so we're already thinking about the next vGPU we'll need after the A40s."

Based on experience, Brittany and John agree that after one client asks for something, it's a safe bet that everyone else will want it sooner or later. As the company looks ahead in a three-to-five-year time horizon, scalability is always top of mind.

Internally, the commitment to virtualization has created incredible efficiency in HFA's IT department, where 15 people—nine on the systems team and six on the BIM/Visualization team—serve 400 employees across the U.S. and in Mexico.

"Virtualization allows us to run a lot leaner than most traditional technology groups because we can administer things from a central platform and schedule maintenance without interrupting workflow," John says.

As graphics accelerated virtualization evolves, John and his team will strive to find the optimal balance between density and performance. "We're always working on ways we can create additional shared resources and on-demand bursts," John says. "On-demand resource allocation is the next big thing, and the ultimate goal is to create a pool of vGPUs we can draw from at any time. We're looking forward to working with NVIDIA on future innovations and continuous improvement."



Image courtesy of HFA

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Brittany Pylant, Director
of BIM, HFA

Ready to Get Started?

To learn more about NVIDIA Virtual GPU technology, visit:
nvidia.com/vgpu

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