

# Virtual Desktops: Dumber is Better

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By Ned Smith

The traditional desktop PC computing model is an endangered species, at least in the corporate world. Desktops are expensive — Gartner estimates that the annual cost of a typical desktop installation runs from \$4,000 to \$6,000 a year. Maintenance is a chore and security is a constant nag. And, by most measures, the user experience is another pain point, although that's not a part of the trinity of time, cost and security that goes into the IT department's calculus. Still, it's enough to make IT managers look back fondly on the days of mainframes and dumb clients and try to recreate that simpler, more centrally controlled environment.



For many organizations, the solution to this cost-time-security-user conundrum is Virtual Desktop Infrastructure (VDI), also known as hosted desktop virtualization. Much like the model in the mainframe days of yore, VDI relocates the desktop to the data center, which becomes home for user applications and data. Users have a monitor, keyboard and pointing device and connect to their desktops over a network, usually through a terminal service protocol such as Remote Desktop Protocol (RDP) or Independent Computing Architecture (ICA), using a device called a thin client, essentially a stripped-down PC without moving parts such as hard drive and fans.

The solution works well for most user-case scenarios. It addresses IT concerns about time, security and cost and provides users with their familiar desktop environment, albeit accessed from afar. “From the user perspective, the experience looks no different,” says Jennifer Mazzanti, president of eMazzanti Technologies, a computer network solution provider based in Hoboken, N.J. “You log into the network the same way. Your session comes up and it looks like any desktop you’ve ever had. Once you’ve installed terminal services, you can access your network from any machine anywhere.”

Unlike dumb terminals, which historically only had the capability to handle text, today's thin clients have graphics capabilities and can be customized to add computer-like functionality. “Thin clients do more than a dumb terminal,” Mazzanti says. “You can put custom applications on a thin client. The thin clients we sell probably have 512 megs to 2 gigs of flash ROM. It's just enough to put Skype or the Adobe plug-ins or a browser on the local machine.”

“Thin client is any operating system that runs at the server level versus the desktop level,” says Bob Venero, president and CEO of [Future Tech Enterprise](#), a \$100 million end-to-end IT solutions provider based in Holbrook, N.Y. “Does that mean the client itself has to be a thin-client box? No, not necessarily. There are a lot of organizations that are very invested in their PC architecture. What you can do is take that PC and turn it into a thin client. You don’t get the complete ROI, but you get to utilize the asset.” Future Tech’s clients include JetBlue, the NY Stock Exchange and Barnes & Noble.

The primary drivers for the adoption of the thin client model are cost, ease of maintenance and security. Gartner estimates that 49 million desktops in North America alone will be virtualized by 2010. “How much money am I going to save?” is the first question he has to field from clients, Venero says.

Because everything is centralized, he adds, patch management, software upgrades and virus control are easier. “If you look at the amount of support touch points necessary in the desktop, it’s just tremendous,” Venero says. “When you go with a VDI initiative it really takes a lot of those touch points away to the point where you can have one individual supporting thousands of users.”

“The thin client has a lot of appeal to IT,” says Eric Croswhite, worldwide marketing manager for HP’s Thin Client Portfolio, an extensive line of mobile and desktop thin clients. “The bulk of the CPU horsepower is on the server. Because of that we can get by with much smaller form factors, much less compute requirements, less storage, less fans. Because there are no mechanical features in a thin client they tend to be more reliable, they cost less to maintain, cost less to support and last longer. Because the thin client model hosts all the data locally and centrally on the server, it’s much easier to manage, it’s much easier to back up, it’s much easier to secure. You can more quickly deploy new users.”

“If someone gets a virus, I can delete the desktop and spit out a new one within 10 minutes,” says Dave Nadler, assistant director, Information Systems, for Henry County Hospital in New Castles, Ind., which has deployed 104 thin clients. He estimates the cost savings per thin client compared with a PC as \$300 to \$400.

Unlike PCs, thin clients don’t require constant expensive upgrades. “In a decade of selling thin clients,” Mazzanti says, “I could probably count on one hand the number of people who decided to upgrade the thin client.” The primary driver for upgrades, she adds, is the graphics card, as widescreen displays become more common in the workplace.

In addition to data security, thin clients offer property security as well. They’re pretty much worthless if someone steals them. “You don’t have the same loss-prevention problems with computer equipment when you use dumb terminals,” Mazzanti says. “If someone steals it and brings it home, it’s totally unusable. It’s like a fancy coaster; there’s nothing you can do with it.”

Maritta Horne is the CIO/director of the Pike County School System, which serves a population of more than 10,000 K-12 students in the eastern tip of Kentucky. One quarter of the students comes from families that fall below the poverty line. Rolling out thin clients throughout the

system has enabled the school system to realize actual cost savings of nearly \$1 million a year. But more importantly, she says, it has enabled the system to do more with less.

“We have little to no funds, making it very difficult to acquire new work stations and new technology at the rate we need to,” Horne says. “For the last five years I’ve been working with IBM to find a solution that will help us develop an environment for our students that they’ll see when they go out into the world or when they go back home. When you’re testing every child online, it’s very difficult to give everyone access. For us, the cloud was the answer to providing equity.”

That solution involved repurposing the district’s old Windows 95 PCs as thin clients. “A lot of the machines are so old they don’t have a hard drive,” she says. “We use CD-ROMs or USBs to boot them to the cloud.”

The school now has 1,500 repurposed PCs serving the students and plans to roll out another 500 this year. “Before they had four machines for an entire class,” Horne says. “Now they’ve more than doubled that. More students have access in a class period. They’re able to do more work online.”

The VDI has also improved the working environment for the teachers. “It’s alleviated a lot of teachers’ work grading papers to assess performance,” Horne says. “You can put students on the different programs and it actually tracks their performance. That’s what the cloud helps us do. It doesn’t matter where the students are. No matter what school they go to — we have some transient students who move around a lot — they still have their files saved into their home directory. All their information is still available to the new teacher.”

But thin clients are not for everyone or for every operation, particularly graphics-intensive use cases. “The types of users typically targeted for pure thin-client-based computing tend to be more task users, not the power users who have huge spreadsheets or CAD applications,” HP’s Croswhite says.

And while thin clients can be customized to accommodate personal preferences in applications, browsers and add-ons, customization is dependent on a company’s IT policies. “The IT administrator can give control to the user to download add-ons and applications and choose their own browser,” Croswhite adds. “More often than not, though, what we see in thin clients is that IT is working to control and manage the client desktop. They’ll do as much as they can to lock down the environment and minimize the things users can change.”

Like many areas in IT, thin clients can also be tantalizing targets for the addition of features and functionality. HP, for example, makes some high-end thin clients equipped with USB ports, local storage and browsers. “A lot of our customers are using thin clients for an Internet access device,” Croswhite says. “We have customers who are using the thin client not in terminal services or a traditional server-based computing mode. They buy it because it’s small, it’s low-power, low-heat and relatively inexpensive. It comes with a browser, hook it up to a network and, voila, I can get Google, I can get to any Internet-based applications out there.”

Pano Logic takes issue with that approach. Based in Menlo Park, Calif., Pano has developed a zero-client VDI solution that completely eliminates the processor on the client. Its product was commercially launched in 2008 and has already won 200 customers, including the Henry County Hospital, and has another 300 in pilot. “The thin clients are increasingly becoming chubbier,” says Parmeet Chaddha, Pano’s executive vice president.” The whole promise of the thin client wasn’t just that you removed the hard disk. The whole promise of the thin client really is that you have no processing or close to no processing at the end point, thereby minimizing the amount of management burden IT has to contend with at the end point. Thin clients have clearly taken a view lately that they need to show high-end graphics, high-end rich media, and video streaming and so on. In the process they’re continuing to abandon the whole motivation for thin clients by sticking more processing into the end point. That’s where the departure comes in terms of what Pano is doing.

“We’re actually proud to say our end point is dumb as it gets. But, this is a dumb terminal that will give you a full, rich Windows experience,” Chaddha says.

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