



# The Top 10 Myths about Virtual Desktop Infrastructure (VDI)

What education decision makers and IT managers should know about virtual teaching and learning platforms

## INTEL® EDUCATION BRIEF

Districts and schools are working hard to find solutions for education IT that are cost-effective, while supporting quality teaching and learning, and streamlined administration and management. One of the solutions that is being widely considered for educational organizations is desktop virtualization or virtual desktop infrastructure (VDI). Though server virtualization has brought many benefits to the data center, the landscape changes when virtualization is universally applied to the PC.

In a VDI infrastructure, PCs are essentially hardware platforms—often called “thin” clients—and applications and operating systems are hosted on centralized servers. These servers host and manage PCs in the data center, while providing a full PC experience to students and teachers.

Top benefits of VDI are centralizing management and security, as well as the ability to customize the OS and application “package” delivered to teachers and students through a familiar PC interface. But there are drawbacks as well. These limitations include restrictions for mobile platforms, costs associated with data center build-out and maintenance, poor support for peripherals frequently used in classrooms, and decreased quality for media content, such as streamed video and graphics-sensitive applications.

When applied to the desktop or “client,” virtualization comes in many forms, from streaming applications and operating systems to localized virtualization to VDI. Though VDI is the most widely discussed type of emerging compute model, it is not necessarily the best suited for education. Because VDI relies on a centralized hosting and serving, it requires schools and districts to move from a distributed or localized compute environment to a server-centric infrastructure. However, distributed computing environments—with their adaptability and performance—have proven to be the best solutions for schools.

VDI solutions can be viable for educational organizations, but it’s important to understand the trade-offs and the alternatives before retooling your infrastructure. Keep in mind that many of the advantages of VDI can be achieved with other client virtualization models as well—without some of the drawbacks. Here we will take a closer look at VDI, examine the myths, and provide perspective to help you make the right decision for your organization.

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### THE MYTHS

#### 1. VDI reduces the cost of PC deployments. **False.**

VDI is often presented as a cost-neutral or lower-cost alternative that reduces the total cost of deployment. But VDI brings its own costs. It requires a virtual software package, adding to the overall software expenditure. Districts and schools often have to upgrade and/or build out their network infrastructure for VDI to ensure it has the capacity to handle the increased traffic of centralized serving. And support needs are not eliminated, but rather shifted to the data center. The specialized server technician replaces the PC technician, and even with centralized serving there is still a need for deskside support. New server infrastructure, such as a data center to house servers, network, storage, power, and cooling all add to capital and ongoing expenses.

#### 2. VDI is more secure and easier to manage than personal computing. **False.**

With VDI, security and management requirements for educational organizations—from Internet access to protecting student privacy and intellectual property—have not changed. They've simply moved from the PC to the data center. For example, if current PCs are using the Windows\* operating system (OS), you will be hosting Windows in the data center, not eliminating current OS issues. In many cases, management complexity increases as it must cover

not only PCs, but the servers and infrastructure required to provide a VDI operating environment.

#### 3. VDI reduces software licensing costs. **False.**

With VDI, software licensing costs are typically moved from the desktop to the data center—not reduced or eliminated. License fee arrangements vary by vendor: some, such as Windows, are pay-per-user; others allow a one-to-many arrangement if not all users are active at the same time. Keep in mind that organizations also incur additional costs for the required VDI license.

#### 4. VDI extends the life of hardware. **False.**

Since VDI uses thin PCs, there is a perception that hardware purchases will last longer and can save educational organizations on replacement costs. But PCs or thin devices still must be replaced as they age, and the failure rate increases after five years (the time when rich PCs are typically replaced). Teaching and learning platforms require a certain level of capability to run education applications, digital media, and content—this capacity is not always available on a thin client. On the server side, equipment can be much more expensive to refresh. Another factor that can impact overall equipment cost is the challenge of configuring a VDI infrastructure for a mix of old and new hardware. Finally, cloud computing is moving some communication protocols from the server to the PC—increasing the investment risk for thin clients for future scalability.

#### 5. VDI has full support for mobility. **False.**

One of the most important VDI decision points for educators is its limitation for mobile platforms. Many schools and districts are moving to notebooks, netbooks, and tablets, providing teachers and students a true mobile experience inside and outside of the school environment. VDI solutions require network connection for application

access; though some offer an “offline” mode for mobile platforms. While rich mobile PCs have the capability to run VDI locally, thin PCs may not be able to support the offline mode. If offline mode is not supported, servers and network infrastructure must be “always available” for access and use of the VDI solution—with the costs associated with 24/7 provision.

### 6. In VDI deployments, the type of client doesn't matter. **False.**

Even thin clients require maintenance—they still have operating systems and BIOS, and will need upgrades and patches administered. Thin clients also may not have the capability required for new protocols in the ever-changing software landscape. Performance at the client becomes more critical as more cloud-based applications become part of the education toolset.

### 7. Printing is simplified with VDI. **False.**

Most classroom and library printers are housed locally within the school network. With VDI, print traffic is pushed to the data center and then back out to the schools. Teachers and students can experience delays as a result—since their print queue is shared with the entire virtual network.

### 8. Streaming video performs on par with student requirements. **False.**

Video is becoming a powerful teaching and learning medium, and more educators are taking advantage of streaming video across the curriculum. With the shift to server CPUs to deliver streaming video to the entire education environment, server bandwidth

requirements increase. Servers are not always able to respond fast enough to stream video to thin clients for classroom or library use. (In fact, shifting from a distributed bandwidth environment to a centralized model impacts overall accessibility and performance of the networking infrastructure.)

### 9. VDI solutions consume less power than traditional computing solutions. **False.**

Though thin PCs are only running their monitors, keyboards, and network adapter, power demands have not been reduced—only shifted to the data center. In most cases, there is no overall power consumption advantage with the VDI infrastructure. The most effective power solution remains a well-managed PC using power-saving features.

### 10. VDI delivers the same features and performance as a standalone PC. **False.**

New applications are rapidly changing the possibilities for education, providing immersive, performance-critical experiences such as virtual gaming as learning tools. Thin clients may not have the performance and graphics capabilities to support these applications. Thin clients can also fall short when it comes to peripherals. Educators are putting all kinds of devices into USB ports—from digital science equipment to cameras and recorders. A thin client, VDI environment is not set up to support peripheral devices.

### TEACHING AND LEARNING PLATFORMS THAT WORK

A traditional PC platform based on Intel® architecture, combined with the latest virtualization technologies, can provide the best performance and scalability for schools, whether they choose a traditional, VDI, or other type of virtualization solution. It offers the local processing power and capabilities teachers, students, and administrators need, along with the flexibility and adaptability for today's and tomorrow's education environments. Look for:

- **Good:** Reliable basic computing based on the Intel® Atom™ or Intel® Core™2 processor.
- **Better:** Smart performance, content creation, and an improved visual experience are supported by the Intel® Atom™ or Intel® Core™ i3 processor.
- **Best:** Smart, high-performance, optimal multitasking, and room for new applications are fully supported by the Intel® Core™ i5 and Core™ i7 processors and 2nd generation Intel® Core™ processors, with the added security and manageability of Intel® vPro™ technology.

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