Eight Common Pitfalls of VDI and How to Avoid Them
Get on the Path to a Successful VDI Deployment

IDC recently reported that organizations are seeing greater than 300% ROI from virtual desktop infrastructure (VDI) deployments while receiving significant business value.¹ These findings underscore the well-documented benefits of VDI.

For your IT administrators, VDI solutions can reduce desktop administrative and management tasks and enable applications to be easily added, patched, and upgraded. VDI also allows your administrators to manage security and data protection from a central point of control, which can provide the business with a lower total cost of ownership and enhanced data protection.

These are among the many benefits of running desktop operating systems on virtual machines that are hosted on-premises in the data center or off-premises in the cloud and accessed via desktop clients or mobile devices. However, as many IT administrators have learned, there’s a catch: The benefits of VDI don’t come without change. VDI changes the way desktops are delivered to users and is dependent on the success of an IT project path that is lined with potential pitfalls.

These pitfalls can stop you at any stage of a VDI deployment, from initial planning to the rollout of production systems. If you don’t avoid them, you run the risk of disrupting ongoing business operations, losing staff productivity, and creating unhappy end users.

In worse cases, if users can’t perform their jobs because they can’t access their desktops and applications, business operations might come to a halt. And in some industries, an inability to access desktops and applications could be even more damaging. Healthcare professionals, for example, might be impeded in their efforts to make life-and-death decisions and administer quality treatments at the point of care.

Given the high stakes, the message to VDI project planners should be clear: When you launch a VDI initiative, you are going to impact the daily lives of people throughout your organization. You can’t afford to make mistakes. This reality points to the need to avoid the common pitfalls of VDI projects—eight of which are summarized in this paper.

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Pitfall 1: Not Involving Users

From the outset of a VDI project, end-user involvement is essential to properly understand how workers perform their day-to-day jobs. This is one of the keys to ensuring that you have gathered the full range of user and business requirements and have a clear definition of the problem you are solving.

For example, a desktop project that is focused on reducing costs will have very different requirements and priorities than a project that is aimed at enhancing functionality, like increased data security or disaster recovery capabilities. Instead of diving straight into technical requirements, such as determining how many servers are required and sizing the WAN links, begin by exploring user needs, business drivers, and special requirements. These special requirements might include compliance issues, disaster recovery plans, or even the need for the business to rapidly on-board large numbers of new users due to mergers or acquisitions.

User involvement in the design process is also one of the keys to managing expectations and, ultimately, gaining acceptance of the VDI solution. Even the most technically well-executed VDI project can fail if enough users have the perception that it does not meet their needs or expectations.

How to Avoid This Pitfall

Users who have input into the design of the environment are more likely to be supportive of the end result. Users are key stakeholders in a VDI project, and they should be treated as such, as their acceptance and use of VDI will be the ultimate key performance indicator on which the success of the project is judged.

For example, as healthcare clinicians travel within and between facilities with their mobile devices, they need fast, high-volume access to patient and diagnostic data, including high-resolution medical image files from picture archiving and communication systems (PACS). In such a case, it would be critical to gather requirements for response times, medical image views per minute, and other metrics to deliver the right solution.

The message should be clear: Involve the users throughout the life of the project. Interview representatives from the business units to understand their requirements and what they perceive as the current shortcomings of the existing desktop environment. During rollout, provide users with a questionnaire to give them the opportunity to express their opinions of the VDI deployment.

Pitfall 2: Putting Together the Wrong Team

A common mistake of VDI projects is to build a team around virtualization architects rather than desktop administrators. While it may seem logical to begin with the people in your organization who best understand virtualization, the reality is virtual desktops are different from virtualized servers.

How to Avoid This Pitfall

For a successful project, you need the close involvement of the people in your organization who design and manage desktop and application environments. With desktops now hosted in the data center, it is important that the storage systems hosting the desktops and the networks used to access them are properly designed, so you will also need the involvement of storage, server, and network specialists.

Pitfall 3: Defining VDI Use Cases Improperly

VDI use cases are built on types of workers and their job requirements, the applications and devices they use, their requirements for storage and multimedia performance, and their network connectivity restraints.

In defining use cases, it’s important to consider the culture of the organization and its attitudes toward the use of infrastructure. Does the organization allow multimedia streaming? Does it have teleworkers who watch high-definition video? The answers to questions like these should be factored into use cases.

For example, if users had no business requirement to stream video but the practice was allowed in the work environment and frequently done, then taking away this capability with the rollout of VDI could lead the users to have a negative view of the solution, despite fulfilling the needs of their job descriptions. The use case should then assume users will stream video. In designing the VDI solution, you will then want to consider the impact of video streaming. Traditional desktops typically provide an abundance of resources to users and saturation of a resource will not affect other users, but with VDI resources are shared and utilization of resources is designed to be more efficient.

The goal is to ensure that users receive the resources and system performance appropriate for the work they do and the way they currently perform their tasks.
How to Avoid This Pitfall

In developing use cases, take care to not oversimplify, such as lumping lots of workers into a generic category called “office worker.” In practice, different users within the same office setting likely run different applications and have varying performance requirements.

For example, users in accounting may need to use specific accounting applications or large spreadsheets, while users in human resources might use Microsoft® Word and web-based applications. While both are categorized as “office workers,” they use different applications and have different performance requirements. The goal is to create enough use cases to cover the full range of requirements of different types of users without creating a lot of special-needs desktops.

Pitfall 4: Not Conducting a Pre-assessment

The desktop and application pre-assessment helps you gain an understanding of the workloads that will run in the virtualized client environment and their associated technical requirements. The information gathered in this phase of a project is critically important to the design of the VDI solution. Without a pre-assessment, assumptions will be used to design the solution, which adds risk to the project. For example, the selected hardware may not be able to provide the required compute or storage resources, which could lead to additional capital investments that could have been avoided if the solution had been sized properly.

The pre-assessment considers the applications people are using, how long it takes to launch them on a physical desktop, and how they perform on a physical desktop. The pre-assessment can be useful to determine how many users are actually using specific applications, which may impact the way the applications are delivered to the users or the license requirements for the applications. The pre-assessment also considers utilization of CPUs, memory, disk, and network bandwidth in the physical systems—considerations that are crucial in properly sizing the underlying infrastructure.

How to Avoid This Pitfall

A number of vendors provide desktop and application pre-assessment software. These products typically use an agent installed on the local desktop that feeds metrics into a central reporting server. Reports can be generated from the administrative console to provide a detailed analysis of the current desktop environment. The reports generated by the pre-assessment software give you key metrics about the performance of your existing environment, so a VDI environment can be properly designed to meet the performance and latency requirements of your end users.

Pitfall 5: Not Properly Optimizing the Desktop Image

A common pitfall is to not properly optimize the desktop image or Standard Operating Environment (SOE) for VDI. This skipped step might stem from a requirement to manage virtual desktops the same way existing physical desktops are managed. In reality, virtual desktops are quite different from physical desktops, in part because they live in a world of shared resources, and they should be optimized accordingly.

Optimizations include disabling unused Windows® services, streamlining the Windows user experience, and ensuring the optimal virtual hardware is selected. When applied across an environment, optimizations of the desktop image can save precious resources, such as network bandwidth and storage capacity, while enabling a better user experience.

There is also the risk of over-optimization of the desktop image. You can over-optimize to the point of affecting system usability by disabling services that the users or applications may need or expect.
How to Avoid This Pitfall

To avoid this pitfall, you have to work with users by conducting surveys or workshops with business unit representatives to understand the impact of optimizations. For example, while it may reduce bandwidth consumption, how will users react if you disable their desktop themes? And although it may help reduce disk growth, what will happen if you disable the recycling bin in the desktop image? Will users accidentally delete files? You want to understand the answers to such questions before you move down the optimization path.

Pitfall 6: Not Understanding Impacts to the Performance of Other Systems

In a traditional desktop environment, each user had full access to a disk spindle, and poor network bandwidth for WAN sites could often be tolerated. When moving to VDI, it is important to understand the full range of performance impacts stemming from network bandwidth, storage area network (SAN) array processor utilization, and display protocols.

How to Avoid This Pitfall

While VMware® Horizon Planner can provide a synthetic workload for benchmarking performance, ideally the performance impacts should be fully explored through engagement with users. Your users can help you generate realistic proof-of-concept or pilot workloads to validate their requirements for graphic bandwidth, storage, I/O, and more.

Network bandwidth is an especially important consideration on wide area network (WAN) links. If your WAN links cannot provide the bandwidth for a VDI environment or the latency is too high, then you might want to consider local deployments. Also, while your SAN arrays might initially be able to handle the workload of the pilot, particularly if shared with other workloads, they may represent a performance cliff and cause a sudden degradation of performance as the environment scales.

Pitfall 7: Not Developing an Application Deployment Strategy

An organization with several thousand employees might have users on a couple hundred different applications, including specialty products for particular job functions. The organization may have existing application deployment strategies for commonly used applications but specialty applications may have been overlooked because it was easier to simply install these applications for the small number of users who required them.
Pitfall 8: Skipping or Mismanaging the Pilot Project

Organizations that skip the pilot phase, or run a pilot that doesn’t produce a clear outcome, risk failure when an environment goes into production or never moves out of the pilot phase. The pilot should have clearly defined objectives and a specified timeframe. Objectives of the pilot may include validating the performance data used to size the environment and surveying end users. These are critical steps in the development of a VDI solution.

How to Avoid This Pitfall

A properly managed pilot should engage real users from various use cases to pilot the environment and generate meaningful load data. While often the first to want to use the VDI environment, IT administrators are not a good group to base the pilot on, as they are not representative of your entire organization’s user base.

If the goal is to include an executive user in the pilot, ensure the environment has been thoroughly tested and the support processes are in place to provide the service level this user would require. In general, the pilot should also engage the desktop support teams to provide end-user support to prevent the project team from attempting to provide 24x7 support to users.

Avoid the Pitfalls—and Deliver a Desktop-like Experience

A well designed VDI environment can provide users with most of the functionality and performance of desktop operating systems and applications along with higher availability and a lower risk of hardware failure.

To achieve these benefits in your environment, you need to avoid the common pitfalls in VDI projects. Take proactive steps to understand the business drivers for your projects. Identify your technical requirements. Involve users in the requirements gathering, and run a pilot with real users. Then take steps to optimize the design of your VDI environment to deliver a desktop-like experience in your virtualized environment.

Next Steps for your VDI Journey

- Visit our website to explore VMware solutions for VDI deployments.
- Test drive the VMware Horizon™ software suite in our Hands-on Labs.