



## I D C   A N A L Y S T   C O N N E C T I O N



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# Gaining Full Value from Virtual Client Computing

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*As organizations continue to seek ways to enable an increasingly mobile and global workforce, savvy IT leaders are looking for comprehensive virtual client computing (VCC) software solutions to optimize end-user experiences across varying device types and to help mitigate the unnecessary costs and efforts associated with IT systems management.*

The following questions were posed by VCE to Robert Young, research director of IDC's IT Service Management and Client Virtualization Software service, on behalf of VCE's customers.

In this paper, the terms "client virtualization," "virtual client computing (VCC)," "virtual desktop infrastructure (VDI)," and "desktop virtualization" are used to generally refer to software solutions that virtualize both full desktops and applications.

**Q.      What trends are taking place in end-user computing that IT organizations should be aware of and/or plan for?**

A.      Historically, IT organizations had great control over the choice of operating systems and software installed on corporate-owned devices. Thus they supported a relatively homogeneous environment. However, with the advent of the bring-your-own (BYO) trend in smart devices — tablets, mobile PCs, smartphones, etc. — mobility has greatly accelerated the growth of telecommuting and a more mobile, global workforce. As a result, an overwhelming number of untrusted devices, multiple operating systems, and consumer-oriented applications are entering the workplace. This onslaught is leading to potential security holes and causing IT governance nightmares inside most enterprise organizations.

In fact, IDC predicts that by 2018, approximately 40 billion devices and about 3.8 billion mobile users together will produce about 6.75 terabytes of data *per person per day*. That's a staggering amount of data. What's more, business users will increasingly want access to this data from anywhere, at any time, on any device.

Therefore, IT organizations are increasingly finding themselves caught between a rock and a hard place as they try to keep up with the speed of business and provide access to this data across all these devices while providing the right amount of governance to keep the data secure and safe. Meanwhile, IT must also curb inefficiencies and security vulnerabilities arising from rogue IT movements inside the enterprise, such as business units adopting their own cloud applications.

In short, IT departments need to remain relevant to the business. They must make sure they're delivering services that business users want while making it compelling for these users to go to IT rather than seek outside solutions.

**Q. Our IT department has evaluated VCC software in the past. What has changed?**

A. We often hear that virtual client computing has been around a long time. So what's making it suddenly hot again? Part of the answer involves the trends I just described. Myriad mobile use cases are driving the need to have data secured in the back-end datacenter while still allowing users the freedom and flexibility to access that data securely on any device that they need. Client virtualization is providing the solution.

Client virtualization used to be only inside the corporate firewall. Mobility has changed that and has renewed the value of client virtualization as a way to minimize how much endpoint device management IT must do — physical device management. When management of all these devices and/or applications is centralized in the back-end datacenter, then they can be accessed and managed more easily than sending a technician to each endpoint device. Client virtualization also allows IT to better manage access to data and more effectively demonstrate and stay in compliance with industry regulations such as HIPAA, SOX, and PCI. So it's all about the user being able to securely access data from anywhere across any device while the organization's intellectual property remains behind the firewall in the datacenter.

In addition, there have been important technology advancements within the VCC software ecosystem — in particular, the capability to virtualize the graphics processing unit (GPU), which is fostering new use cases across industries such as manufacturing, healthcare, and architecture. Effectively delivering and securing graphic-intensive applications such as AutoCAD, SolidWorks, and Adobe Creative Suite in a virtualized environment has been a long-standing obstacle for IT organizations because of poor performance and rendering degradations. But with the latest GPU technology, those applications can now be virtualized.

**Q. What are common technology challenges that IT should consider when planning and/or designing a virtualized end-user computing environment?**

A. When we talk to IT organizations, they're often still struggling to overcome significant roadblocks with the complexity and cost associated with designing and implementing the underlying infrastructure it takes to run virtualized environments for storage, networking, and computing — that is, what's required to scale and operate a high-availability virtualized client environment.

The inability of IT to optimize performance and effectively support the environment has a direct impact on the end-user experience, adoption, and ultimately the success of the implementation. If the end-user experience is poor, then people will simply go back to their regular local desktop experience. It's not just about saving money or improving efficiency. For VCC to be successful, the end-user experience with the virtual operating system and applications must be as good as, if not better than, it would be if the operating system and apps were running locally.

Similarly, IT staff often needs advanced training to properly manage these environments. It's very different from managing traditional endpoint device environments. It takes a separate skill set, and many IT administrators we talk with are not trained on VCC (which is another cost to factor in).

Also, there is a dynamic commonly referred to as "VDI stall." Once a VDI deployment reaches about 1,000 users in production, there's often network and storage performance degradation because the infrastructure can't scale. This is when the project stalls or falls apart. Unfortunately, by then, a lot of resources and money have already been invested in the project.

**Q. What options are available to efficiently and effectively scale the supporting infrastructure and reduce the total cost of ownership in a VCC implementation?**

A. As the VCC software market matures, many of the leading vendors in that space are starting to expand capabilities in adjacent areas. They have offerings inside their VCC suites that provide desktop management as well as enterprise mobility and application management. These offerings help IT administrators lower implementation and TCO costs. On the back-end, service side of things, we're seeing converged infrastructure-based offerings increasingly becoming a preferred platform for VCC rollouts. These systems allow the supporting infrastructure to be easily tuned to the size appropriate for a given organization, which helps IT avoid VDI stall and actually deliver service to thousands of users across multiple device types and geographies.

That said, it is still important to take into account your entire datacenter architecture when considering converged infrastructure solutions for VDI. For instance, make sure to address your current datacenter design as well as future aspirations to operate a more traditional or software-defined environment, or a hybrid mix of the two. After considering the architecture, evaluate the full range of converged infrastructure systems in the market, including appliance, block, and rack-scale models, to determine which flavor best aligns with your current and long-term scalability and datacenter design requirements.

Additionally, look for ways to streamline and optimize your environment, such as with a storage area network (SAN) that provides fast response times, remains highly responsive under heavy workloads, and scales to enterprisewide levels. Think more around a VDI model where all your desktops are running in a centralized environment as opposed to a highly distributed VDI model where workloads must rely on a wide area network (WAN) infrastructure that can bring down performance.

When properly designed, implemented, and managed, VDI running on converged infrastructure stands to enable the highly secure, reliable, and efficient delivery of business-critical desktops, applications, and data to tens of thousands of users across varying device types — thereby addressing many of IT's key concerns with scaling and optimizing support for today's increasingly mobile and global workforce.

**Q. Once VCC is implemented, how can IT ensure the optimized ongoing performance of the VCC environment and quickly mitigate service degradations, particularly as scaling requirements increase?**

A. First, think about what infrastructure you have and what it was originally built for. If you try to layer VCC on top of an existing infrastructure, then your support costs and the amount of resources you need to implement and scale the deployment will most likely be greater than if you thought it through and bought purpose-built infrastructure for VCC. I believe this is critically important.

Second, it's definitely important to understand that VCC is not a standard client/server endpoint device environment. There's a special skill set required to maintain VCC environments, from the infrastructure all the way down to the endpoint desktops and applications. Staff will need to be trained.

Third, consider partnering with and leveraging vendors that offer professional VCC-related services. These vendors can ensure that infrastructure is properly designed and tuned. Then after it's implemented, they can help mitigate any performance issues or degradations and assist with scaling out the environment as needed.

What's compelling about converged infrastructure offerings with great professional services and support attached to them is that now you have one throat to choke when there's an issue — across the entire solution, from the software to the hardware. A professional services firm can ensure your converged VCC solution is implemented right and support it after the fact if there are issues or when you need to scale it further.

#### ABOUT THIS ANALYST

*Robert Young is the research director for IDC's IT Service Management and Client Virtualization Software service, providing insights and strategic market directions for vendors and IT decision makers responsible for managing the delivery of high-quality IT services to corporate end users on a wide variety of endpoint devices. Research coverage includes software used to optimize end-user experience and application performance across PCs, laptops, virtual desktops, and multidevice end-user workspaces.*

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