WHITE PAPER

Turnkey Appliances: Accelerating Time to Value for VMware Horizon Deployments

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IDC OPINION

Given the constant changes in technology and the competitive environment, IT must find ways to balance short-term demands with long-term needs. VDI, or what IDC refers to as centralized virtual desktops (CVDs), provides IT with the flexibility and agility to rapidly extend the life of existing corporate applications while delivering the customer experience users demand. However, VDI has not been simple to deploy or manage. Traditionally, it has required the expertise of highly skilled consultants to properly implement and scale deployments.

Against this backdrop, the industry has worked diligently over the past few years to simplify the VDI deployment process. One tool the industry has used is a reference architecture (RA), which is a template solution of the software validated against proven implementations that encourages adherence to common standards, specifications, and patterns on validated hardware. A reference architecture helps take the guesswork out of deployments and reduces time to value.

Concurrently, there have been major strides to simplify the deployment, management, and scalability of the hardware. This has come in the form of converged infrastructure (CI). Converged or integrated infrastructures, as IDC refers to them, are pre-integrated, vendor-certified systems containing server hardware, disk storage systems, networking equipment, and basic element/systems management software. Converged infrastructures are differentiated from traditional hardware platforms and architectures in that they are designed to be deployed quickly using a modular building-block approach to rapidly scale up resources and workloads. They are simpler to deploy and maintain while reducing processing and network overhead and latency.

By leveraging these two models, hardware vendors are now able to marry a reference architecture and a converged infrastructure into a new SKU, built and validated for a specific workload like VDI. The resulting VDI appliance is a dedicated server that integrates the hardware with a hypervisor and VDI software into an easily managed composite package optimized for the VDI workload. This enables customers to simply drop the VDI appliance into their existing datacenters or branch offices and be up and running in as little as a day.
VDI appliances streamline deployments of VDI, improve hardware utilization, simplify performance tuning, and reduce management overhead. Other benefits of VDI appliances include:

- Reference architecture validated by both software and hardware vendors
- Tested under different workload scenarios for predictable performance and scalability
- Easily supportable with a single vendor reference
- Linearly scalable by adding a new VDI appliance

**SITUATION OVERVIEW**

Client virtualization stresses every dimension of the IT datacenter that supports the centralized virtual desktop (CVD aka VDI) – servers, storage, network bandwidth, management software, and more. To support this demand, IT managers must develop an infrastructure that enables them to deploy proportional resources of every type (server, network, storage, etc.) quickly. This in turn requires precise standards for infrastructure elements that work together seamlessly and make the environment manageable, maintainable, and scalable. The challenge involves not only planning for the speed and number of server CPUs but also planning for their associated memory capacity, corresponding network I/O capacities backplane, and fast storage. The infrastructure architecture must also keep all of these elements – storage, I/O, memory, compute – close together, reducing any potential latency bottlenecks caused by wire distances or hops. Most IT organizations find these demands challenging, and they spend considerable time tooling with the environment to get it right. IT organizations run the risk of inefficient overbuilding of resources at one end and user dissatisfaction with delays and slowness at the other end. The question then is, How to resolve this?

**VDI Appliances — Fast, Simple, and Scalable**

Reference architectures provide templates to quickly deploy validated solutions on specific hardware. Converged infrastructures are differentiated from traditional hardware platforms and architectures in that they are designed to be deployed quickly using a modular building-block approach to rapidly scale up resources and workloads. Vendors with a focus on streamlining VDI deployments can then take this a step further and integrate a converged infrastructure with a validated reference architecture to create a VDI appliance.

Many customers are wary of the term *appliance* because of previous failures in scaling out these platforms. However, with the advent of converged infrastructure and virtualization, appliances are no longer just for SMBs. Appliances leveraging the converged infrastructure model can be sized differently for different customers or use cases, and they are able to be managed like a cluster, creating a linearly scalable solution.
Benefits

The most obvious benefit is faster time to value as appliances greatly reduce installation and implementation times. Alone, the benefit and reduced costs from the speedier time to value would make VDI appliances attractive, but the benefits are actually far greater. VDI appliances also offer:

- **Improved utilization.** Improved utilization of compute, storage, and networking reduces power and real estate consumption.
- **Integrated storage.** Fast flash or solid state drives that support high IOPS workloads like VDI nearly eliminate legacy VDI issues such as boot storms, scan storms, and laggy experiences.
- **Simplified performance.** Performance tuning is simplified because all the pieces are validated to work together.
- **Reduced management.** Many of these solutions have single management platforms, eliminating silos and reducing the effort required to maintain these systems.

VDI appliances are great for organizations that do not have the existing skill set or bandwidth to become experts in deploying and managing VDI implementations. A university in the United States, which is using a VDI appliance from V3 Systems with VMware's Horizon, explained, "We knew we needed to have something fast and manageable ... and it had to be green," as in requiring zero expertise or knowledge. The university had started down the path of acquiring hardware from a large vendor, but it stumbled upon a V3 Systems presentation and decided it had to react instantly. With the VDI appliance, this university was able to stand up a proof of concept in three days, with the professional services included in the price. The original vendor had quoted two weeks and with additional cost for the hardware.

A mining company that is currently using Pivot3 with VMware's VDI software commented, "Storage was the main issue for us. We didn't want to mix this into our existing datacenter or use our existing SAN, so we were looking at whole new hardware and storage for Horizon. A VDI appliance gave us the density, scale out, and IOPS that we required. The fact that there was a pre-packaged solution meant that we didn't need to spend time on developing the solution."

**VMware Horizon**

VMware Horizon is a family of desktop and application virtualization solutions designed to deliver Windows and online services from any cloud. With Horizon, VMware extends the power of virtualization – from datacenters to devices – to deliver desktop and application virtualization with great user experience, closed-loop manageability, and hybrid-cloud flexibility.

VMware Horizon is available in three editions: View Standard, Advanced, and Enterprise (see Figure 1). All three editions include all components needed for an end-to-end virtual desktop deployment:

- **Horizon View Standard Edition.** Simple powerful VDI with great user experience
- **Horizon Advanced Edition.** Cost-effective delivery of desktops and applications through a unified workspace
- **Horizon Enterprise Edition.** Desktop and application delivery with closed-loop management and automation
VMware Horizon Fast Track Program

VMware started the Horizon Fast Track Program to streamline the process of going from proof of concept to production, accelerating customers’ time to value for Horizon deployments. VDI deployments, even in the proof-of-concept stage, can be complex and difficult to manage. VMware wanted to provide current and potential customers with a list of partners offering Turnkey Appliances that have gone through a rigorous set of standards and procedures to provide a simplified deployment process that can scale with the business. This gives customers the flexibility to start with deployments as small or as large as they choose.

By making the Horizon Fast Track Program available to any vendor that chooses to meet its requirements, VMware increases the chances that customers can choose a vendor, a price point, and a value-add service that they deem most critical for their organization. In addition, Turnkey Appliances give customers the peace of mind that the software and hardware are certified to work together and be supported together, reducing the chances of any irregular incidents. However, if an issue should occur, certification increases the likelihood of resolving the issue quickly.

FUTURE OUTLOOK

IDC forecasts the VDI (aka CVD) market to grow to $1.6 billion by 2017, up from $771 million in 2012, representing a 16% CAGR. For the VDI market to achieve this growth, IDC has assumed that the deployment, management, and support of VDI implementations would become simpler over time. The introduction and adoption of VDI appliances with converged infrastructure and validated reference architectures will account for much of this simplification.
IDC has not started to track VDI appliances; however, from conversations with early adopters, IDC believes that adoption will continue to climb from small businesses to large enterprises. Converged infrastructure, or what IDC refers to as integrated systems, will increase to $14.3 billion in 2017, which includes the revenue for servers, storage, and networking, up from $5.4 billion in 2013. While this represents all deployments, not just those for VDI, VDI is one of the major drivers of converged systems today.

CHALLENGES/OPPORTUNITIES

VDI appliances with converged infrastructure and validated reference architectures can greatly simplify the deployment, management, and support of VDI implementations, but end-user experience is still key to successful deployments. IDC finds that most successful deployments start with an assessment phase that determines the right users and applications for VDI. Once the assessment data has been carefully analyzed and mapped to organizational needs, it is important to put together a full deployment life-cycle plan to ensure success, regardless of what deployment architecture is chosen.

While end-user assessment is not a requirement of VMware’s Horizon Fast Track Program today, it offers vendors and integrators an opportunity to put forward a value-add service that most customers should take advantage of.

CONCLUSION

As stated previously, IDC has found a VDI appliance to be an attractive option because it provides several advantages, including:

- Faster time to value with no compromise
- Improved utilization of compute, storage, and networking, reducing power and real estate consumption
- Simplified performance tuning because all the pieces are validated to work together
- Reduced management because many of these solutions have single management platforms, eliminating silos and reducing the effort required to maintain these systems

In addition, VMware’s Horizon Fast Track Program gives customers a list of trusted partners with validated solutions for VMware Horizon. Even though the deployment of VMware Horizon solutions becomes streamlined, it is still important to have a thoughtful implementation plan where IT understands the value of VDI for its user base and not deploy it to a user who would not benefit from it.

However, thanks to these new Turnkey Appliance solutions and VMware’s commitment to the validation and certification of partners that are willing to join the VMware Horizon Fast Track Program, many of the common complaints associated with VDI, such as boot storms, VDI stall, and moving from proof of concept to production, are things of the past.
Definitions

- **VDI appliances**: Dedicated servers that integrate with networking and storage and are pre-installed with a hypervisor and VDI software into an easily managed composite package.

- **Converged (integrated) infrastructures**: Pre-integrated, vendor-certified systems containing server hardware, disk storage systems, networking equipment, and basic element/systems management software. Converged infrastructures are differentiated from traditional hardware platforms and architectures in that they are designed to be deployed quickly using a modular building-block approach to rapidly scale up resources and workloads. Because these converged systems are pre-integrated and engineered to optimize internal east-west network traffic within the box, they are simpler to deploy and maintain while reducing processing and network overhead and latency. They enable the system to run its basic functions autonomously via programmed algorithms and present rich APIs that can be leveraged by higher-level systems and application management software and directly by end-user self-service portals.

- **Validated reference architecture**: A template solution that provides a common language for the various stakeholders, provides a consistent implementation of technology to solve problems, supports validation of solutions against proven implementations, and encourages adherence to common standards, specifications, and patterns.
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