Deliver self-service desktops

HP Client Virtualization for Citrix VDI-in-a-Box – now with Personal vDisk technology

Workers need greater flexibility

Until recently, "going to work" required a long commute to a physical office building. Then, as wireless technology came of age, the commute became considerably shorter—often walking from one room in the home to another, or from home to a client site.

The flexibility of a remote working model was very appealing to employees, enabling them to be online and productive during more hours of the day or night. Enticed by these increased productivity levels, employers were eager to provide notebooks to their new mobile workforce.

Today, however, workers want much more. They want a working model that empowers them to work at any time, from any location, using any device. They need an IT environment that supports mobile workstyles and the most advanced productivity tools available—including their own notebooks, tablets, netbooks, and smartphones.

While every small or midsize business (SMB) can recognize the productivity gains made possible by supporting mobile workstyles, they can also see the potential for increased complexity, rising support costs, and security breaches. HP and Citrix remove those worries by providing a solution that securely and cost-effectively supports the mobile workforce—delivered as a simple, complete reference architecture (RA) for deploying desktop virtualization.

Did you know?

Forrester Research recently reported that inquiries on the virtual desktop outpace questions about the Cloud by two to one—making desktop virtualization one of today's hottest technology trends.

Give workers what they want—and what IT needs

Remaining focused on end-user demands, HP and Citrix worked together to create a client computing platform that securely and reliably supports more than two billion devices—including tablets, mobile phones, thin clients, and PCs. And to also provide what IT needs, HP and Citrix offer a simple way for desktop administrators to deploy and manage virtual desktops using key features like built-in high-availability and scalability—for less than the cost of traditional PCs.

Supporting 50% more users, the HP ProLiant DL380p Gen8 Server and Citrix VDI-in-a-Box includes built-in self-service capabilities. The HP Client Virtualization SMB Reference Architecture for Citrix VDI-in-a-Box (HP CV SMB RA for Citrix VDI-in-a-Box) is an appliance-like configuration that removes the guesswork from deploying a virtualized desktop solution. Citrix VDI-in-a-Box now includes Citrix Personal vDisk technology, which provides a more flexible, personalized application environment for end-users, while minimizing administration complexity and storage cost.

By following the recommended guidelines for this pre-validated solution, you can estimate how many servers and what software licenses you need to support various user workloads. And because the solution follows a building-block approach, it scales on demand with no re-architecture or expensive infrastructure upgrades. We recommend that you assess the exact end-user environment to eliminate over-provisioning either manually in small offices or by leveraging services from HP (details below) or HP Partners.

Additional solution benefits include:

- **Built-in self-service capabilities** – HP CV SMB RA for Citrix VDI-in-a-Box now includes Personal vDisk—advanced technology that enables workers to self-serve. When they need a company-hosted app, they can get it themselves, rather than involve an IT administrator.[1] From the worker perspective, Personal vDisk provides more flexibility, which in turn boosts productivity.

- **Streamlined, low-cost desktop management** – Personal vDisk leverages a single master image to create the desktops, while preserving the personalization of user apps and data. The result is dramatically reduced management overhead and up to 65% less data center storage costs, (as compared to dedicated desktop deployments).[2]

- **Rapid deployment** – In less than two hours you can import the VDI-in-a-Box software to your HP ProLiant DL380p Gen8 Server, power it on, and begin delivering virtual desktops to your workers. Nothing to architect or configure. No additional infrastructure to deploy such as management servers, SQL databases, or storage area networks.

- **Predictable, repeatable cost, and performance** – Whether you use a single stand-alone HP ProLiant DL380p Gen8 Server or a grid that includes multiple servers, the performance capacity per server remains unchanged—and that means predictable, affordable costs and performance.

- **Built-in high availability to protect your users in the event of server failure without requiring shared storage** – Using the N+1 high-availability model, you simply add one more HP ProLiant DL380p Gen8 Server to the grid, and the system automatically balances the load across all servers. In the event of a server failure, all desktops are rebalanced across the remaining servers.

- **Rich high-definition end-user access to applications** – Applications are delivered securely, no matter what access device is used. With Citrix HDX and Receiver, workers experience excellent performance over wide area network (WAN) and local area network (LAN) environments.

- **Assured log-in performance** – Workers can access the information they need, when they need it, even when numerous workers log in at the same time.

- **Integrated solution-level performance** – To reduce the demands on your IT staff, we've validated all the software and hardware components, so everything works correctly, right out of the box.

Personal virtual desktops for any user

You can expand the use cases for virtual desktops to demanding knowledge workers by using Citrix Personal vDisk. This advanced technology supports all the customization, application flexibility, and persistence knowledge workers expect from their desktop—while also achieving the ease of management and storage optimizations IT requires.

Personal vDisk:

- Enables administrators and users to install applications without impacting the master image.
- Boosts IT efficiency by reducing the number of master images administrators need to manage. And with fewer images to store, IT gains the added bonus of using less space on the servers in the grid.
- Includes a user profile manager that unifies and manages user settings across Microsoft® Windows® platforms—and that means easier management for IT.
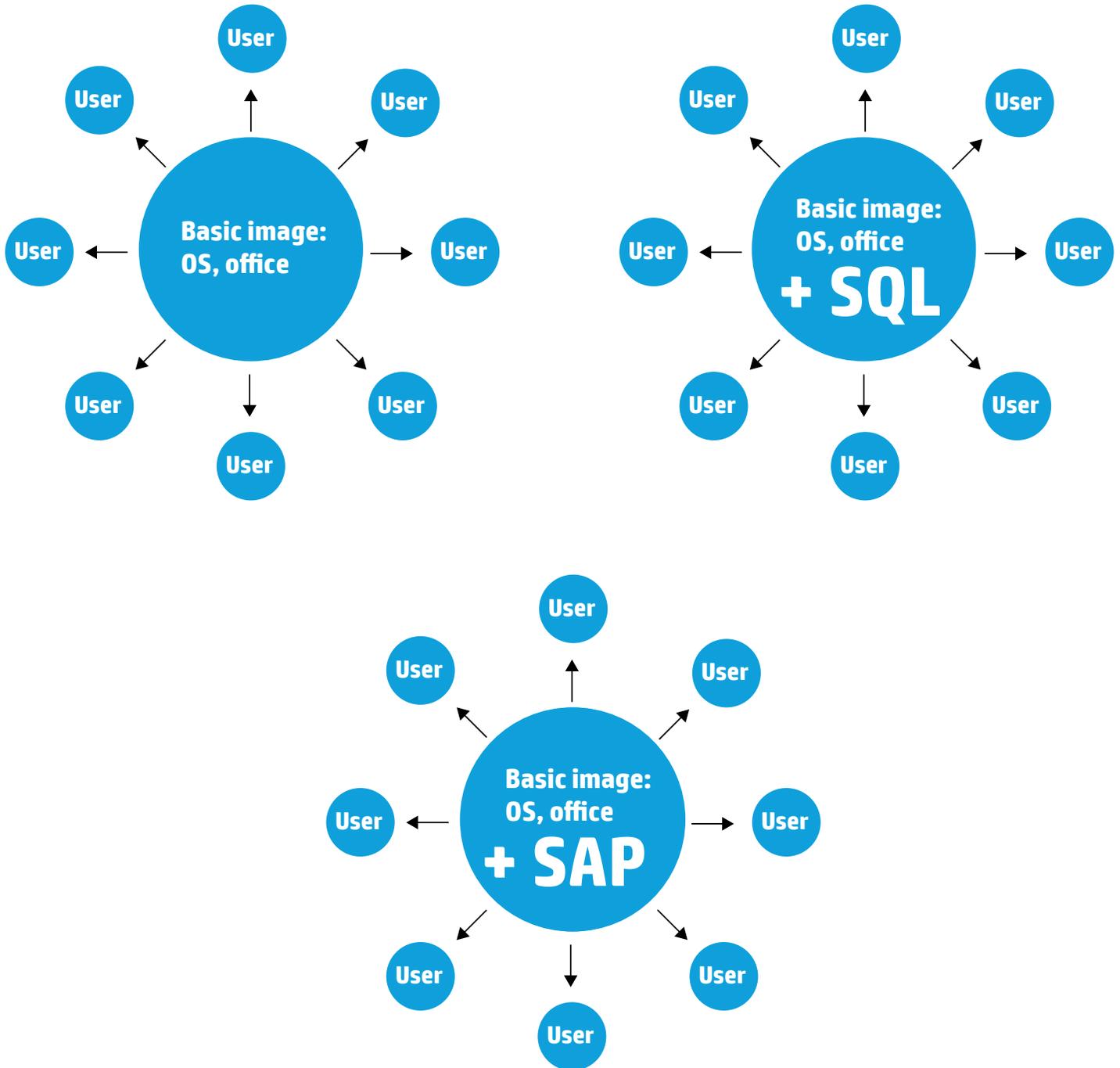
Without Personal vDisk, IT administrators must create numerous images to accommodate all the applications required for various types of user groups. While the base image might contain the operating system and Microsoft Windows Office, custom images must be created to support productivity users who also need Microsoft SQL Server, SAP, and other apps to do their jobs.

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[1] Depending on company policy.

[2] Based on Citrix internal testing.
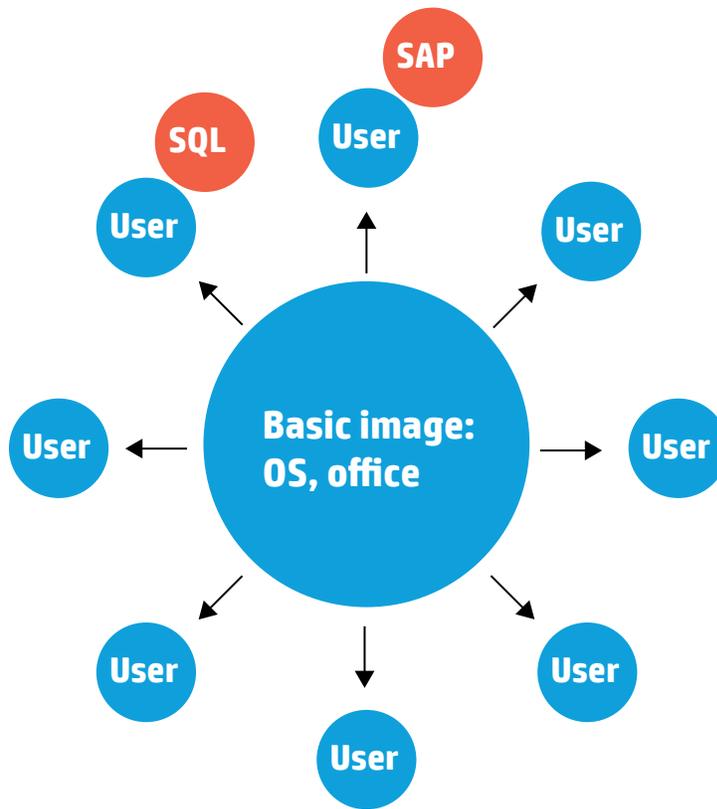
Traditional approach: user groups

Multiple base images for each group of users

Basic image: OS, office — with User nodes surrounding it.

Basic image: OS, office **+ SQL** — with User nodes surrounding it.

Basic image: OS, office **+ SAP** — with User nodes surrounding it.

With Personal vDisk, IT can provide the same base image to a large number of productivity workers, and allow each worker to load the applications and data specific to their jobs—without creating additional images. From the user perspective, Personal vDisk provides the flexibility they need to become more productive.

Citrix VDI-in-a-Box with Personal vDisk user group

Single base image; tailored applications based on user need

User flexibility
IT efficiency

Testing on this refreshed solution has yielded a 50% increase in user count (was 50/server; now 75 per single server, and 150 for 2 servers)

75 users–Single Server Pooled Desktops

- HP ProLiant DL380p Gen8 Server
- 1 Intel Xeon E5-2680 @ 2.70GHz
- 128 GB RAM–8 GB DDR3 DIMMs, 1333 MHz
- 6, 300 GB 6G SAS 10kRPM 2.5in, RAID0+1
- 2, 200 GB Solid State Drives

150 users–Single Server 70% Pooled Desktops with 30% Personal Desktops

- HP ProLiant DL380p Gen8 Server
- 1 Intel Xeon E5-2680 @ 2.70GHz
- 256 GB RAM–8 GB DDR3 DIMMs, 1333 MHz
- 6, 300 GB 6G SAS 10kRPM 2.5in, RAID0+1
1. 2, 200 GB Solid State Drives

150 users–2 servers–Pooled desktops

- 2 HP ProLiant DL380p Gen8 Server
- 2 Intel Xeon E5-2680 @ 2.70GHz
- 192GB RAM–8 GB DDR3 DIMMs, 1333 MHz
- 6, 300 GB 6G SAS 15kRPM 2.5in, RAID0+1
- 2, 200 GB Solid State Drives

Solving IT challenges at remote offices

If your organization has remote or branch offices, you probably face the ongoing challenge of managing desktops that reside in those offices. Keeping systems up-to-date and information protected, is difficult due to:

• Lack of onsite IT expertise

• Lack of standardization

• Limited space and IT budget

The HP CV SMB RA for Citrix VDI-in-a-Box can alleviate remote office IT challenges by outlining a tested solution that is simple, scalable, secure, and sized for a specific number of users. With the HP CV SMB RA for Citrix VDI-in-a-Box, remote installations benefit from:

• Standardized deployment

• Centralized management

• Rapid provisioning

• Server consolidation

• Simplified IT operations

Achieve faster time-to-production

By providing a blueprint for a complete solution that has been fully tested, pre-sized, and optimized, the HP CV SMB RA for Citrix VDI-in-a-Box helps you achieve faster time to production. Rather than spend time validating sizing and performance metrics, you can rapidly deploy one HP ProLiant DL380p Gen8 Server with the integrated storage, management, and Citrix software to support a prescribed number of productivity workers. The HP CV SMB RA for Citrix VDI-in-a-Box is developed on:

• Citrix VDI-in-a-Box software, including Personal vDisk

• HP ProLiant DL380p Gen8 Server

• HP reference architecture white paper

All-in-one VDI software

Citrix VDI-in-a-Box is simple, all-in-one software that enables Microsoft Windows administrators to rapidly deliver centrally managed virtual desktops to any user, anytime, on any device— for less than the cost of traditional PCs. Citrix VDI-in-a-Box:

• **Eliminates** IT dependencies with an intuitive management console that empowers administrators to handle virtualization details so you don't need storage specialists, network administrators, or virtualization experts to manage your client environment.

• **Reduces** desktop costs by consolidating patching and management activities. Reduces ongoing device replacement costs by lengthening the time between refresh cycles.

• **Minimizes** infrastructure investment by scaling incrementally without needing to over-provision for key features, such as high availability.

• **Fine-tunes** performance and access to match the capabilities of each connection and computing device.

• **Reduces** downtime by managing service levels via policies and a central desktop that is always available, even if a worker's access device is not.

The most self-sufficient servers in the world

Supported by the HP ProActive Insight architecture, HP ProLiant Gen8 servers continuously analyze thousands of system parameters to optimize application performance and proactively improve uptime—while providing insight into every aspect of your client infrastructure. Featuring embedded automation and intelligence, HP ProLiant Gen8 servers reduce lifecycle operations tasks, facilities overhead, and downtime costs.

HP ProLiant Gen8 servers enable:

- 3x increased administrator productivity with HP Smart Update
- Up to 80% improved performance with 2x more memory capacity
- Up to 50% more drives per server
- 200% performance boost with new HP Smart Array controllers
- 70% more compute per watt
- 66% faster problem resolution with industry's first comprehensive, Cloud-based management and support portal

Thin clients with superior capabilities

Critical components in any client infrastructure are the access devices. And for the HP CV SMB RA for Citrix VDI-in-a-Box, one line of thin clients stands above the rest—HP's. For task workers or workers accessing top-security data—such as government or financial services—or personal customer data, thin client computing is a proven alternative to traditional PC computing.

Depending on your needs, you can choose from:

- **Smart Zero Clients** – Keeping it quick, simple, and flexible is the goal of HP Smart Zero Clients. No need to worry if the backend software changes. HP Smart Zero Clients operate like a zero client, but they are intelligent enough to reconfigure themselves to Citrix protocols. Simply plug your HP Smart Zero Clients in, turn them on, and they work.
- **Flexible Citrix-Ready Thin Clients** – HP understands that the key to growth is remaining flexible and secure. HP Flexible Thin Clients meet those needs by providing options to grow and expand, combined with the security you need now and in the future. And it's all delivered with PC-like performance. Thin clients are secure by nature, but we made top-level security a priority. In fact, the HP t610 PLUS Flexible Thin Client meets National Institute of Standards and Technology security recommendations.

The services you need, when you need them

Implementing a traditional client virtualization solution is a complex task. You must correctly size numerous workloads to meet the needs of many different kinds of users.

Rather than make these important decisions alone, you can work with the professionals at HP. Together, we can determine the best virtualized client infrastructure for your unique business needs. We can start by completing an assessment of your organization, where we'll discover answers to questions like:

- Which workloads would thrive in a virtualized desktop environment?
- Which workloads might cause problems if included in a virtualized desktop?
- Which user groups can be successfully virtualized?
- Which thin client devices will be most efficient for your environment?

In addition to client infrastructure services, HP also provides support for your HP ProLiant DL380p Gen8 servers. Offering Foundation Care, Proactive Care, and Lifecycle Event Services, HP Support services are:

- **Personalized** – Providing the support you need, when and where you need it.
- **Proactive** – Leveraging products, tools, and technology to avoid problems and optimize performance.
- **Simplified** – Offering straightforward support choices and a single point of contact throughout the support experience.

Let's support mobile workstyles— together

Contact your HP representative today. Arrange for an assessment of your IT environment. Discover how HP CV SMB RA for Citrix VDI-in-a-Box can help you:

- Enhance desktop flexibility
- Boost worker productivity
- Contain costs
- Streamline desktop support
- Mitigate risk
- Improve business agility

For more information, you can also visit: **hp.com/go/clientvirtualization**.

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