



An Oracle White Paper  
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# Oracle's Single Server Solution for VDI

## Introduction

The concept of running corporate desktops in virtual machines hosted on servers is a compelling proposition. In contrast to traditional desktop management strategies, these *virtual* desktops are more easily maintained, upgraded and updated, and the user can access them from a variety of devices and in various locations without sensitive data ever leaving the confines of the data center. This form of server-hosted desktops is known as virtual desktop infrastructure (VDI). But implementing VDI has historically been a complex undertaking usually reserved for large enterprises due to demanding requirements for high end server and storage hardware. And while solutions have served the Enterprise market segment well, small and medium sized businesses have struggled to find a lower cost alternative.

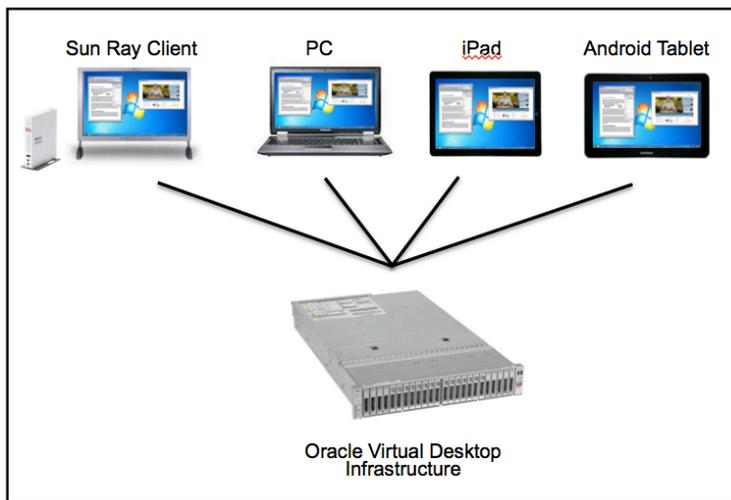


Figure 1. Oracle's single server solution for VDI

Oracle is challenging this status quo. By engineering hardware and software to work together, Oracle provides a VDI solution that runs on a single, inexpensive server. Combining Oracle Virtual Desktop Infrastructure, Oracle Solaris or Oracle Linux and Oracle's Sun Server X3-2L, small and medium businesses can now enjoy a high performance VDI solution at a fraction of the typical cost and complexity. In doing so, organizations can also shorten the deployment time, contain the IT cost structure, and drive efficiencies that reduce TCO across the board.

## Objective

The purpose of this whitepaper is to provide a high-level architectural view of a single server VDI solution and its constituent components. The solution is both high performance and low cost, ideal for deployments in small to medium business or as VDI pilots.

A working knowledge of the management tools and concepts of Oracle Virtual Desktop Infrastructure is helpful for the discussion. For detailed configuration and step-by-step instructions please consult the Oracle Virtual Desktop Infrastructure Getting Started Guide:

[http://docs.oracle.com/cd/E36500\\_01/E36502/E36502.pdf](http://docs.oracle.com/cd/E36500_01/E36502/E36502.pdf)

## Single Server Architectural Overview

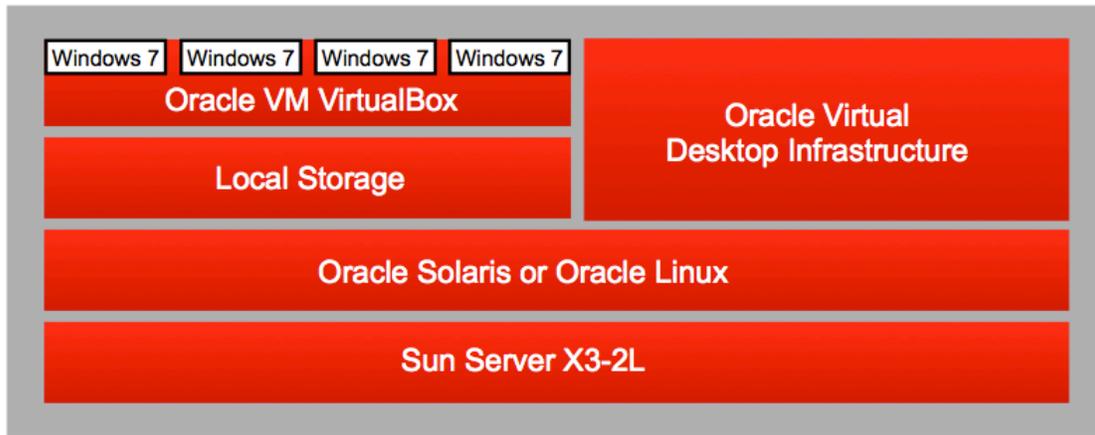


Figure 2. Single server architecture

TABLE 1. SINGLE SERVER ARCHITECTURE COMPONENTS

COMPONENT
Oracle's Sun Server X3-2L
Oracle Solaris or Oracle Linux Operating System
Oracle VM VirtualBox 4.2.10
Oracle Virtual Desktop Infrastructure 3.5
Windows 7 desktop template

## Software Configuration

### Oracle Solaris or Oracle Linux

Oracle Solaris or Oracle Linux can be factory-installed on Oracle Servers or may be installed by customers themselves.

### Oracle VM VirtualBox

Oracle VM VirtualBox is installed on the base operating system. Use the *vb-install* script, which is delivered with Oracle Virtual Desktop Infrastructure to install and configure the Oracle VM VirtualBox webservice which is used to orchestrate virtual machine operations.

### Oracle Virtual Desktop Infrastructure

Oracle Virtual Desktop Infrastructure is installed on the base operating system. Once installed, it should be configured to point to the required user directory (typically Active Directory) and a VirtualBox Desktop Provider should be configured to use Local Storage. This Local Storage is simply a filesystem location with ample storage capacity to hold the virtual disks of the virtual desktop population.

A new desktop pool that is configured to offer a pool of flexible desktops should be created and the Windows desktop template should be imported as the master template for this pool.

### Windows Desktop

The Windows desktop is a virtual machine image that is configured as required by the customer. After it is imported into Oracle Virtual Desktop Infrastructure, it serves as the master template for subsequent clones. These clones are the virtual desktops that end users ultimately run and interact with.

## Hardware Configurations

Two configurations are recommended for a single server VDI solution, as described in Table 2 below. The base and performance configurations are identical except the base configuration has less RAM and fewer disks, resulting in lower user density.

**TABLE 2. BASE AND PERFORMANCE CONFIGURATION SPECIFICATIONS**

BASE CONFIGURATION	PERFORMANCE CONFIGURATION
<ul style="list-style-type: none"> <li>• Sun Server X3-2L based on Intel Xeon E5 2660 processors</li> <li>• 128 GB 1600 MHz RAM (expandable to 512 GB)</li> <li>• 16 x 600G SAS-2 10K RPM disks</li> <li>• Based on a customized "Large" configuration on the Oracle store</li> <li>• Targeted at 90-95 users per system</li> </ul>	<ul style="list-style-type: none"> <li>• Sun Server X3-2L based on Intel Xeon E5 2690 processors</li> <li>• 256 GB 1600 MHz RAM (expandable to 512 GB)</li> <li>• 26 x 600G SAS-2 10K RPM disks</li> <li>• Offered as "Large" configuration on the Oracle store</li> <li>• Targeted at 180-190 users per system</li> </ul>

For the latest hardware information and configurations visit [oracle.com](http://oracle.com).

## Capacity Planning

Oracle recommends customers run VDI pilot deployments to collect actual capacity information using the customer's own corporate standard desktop environment. A typical configuration for virtual machines in a VDI deployment is:

- Microsoft Windows 7 populated with Microsoft Office, Adobe Reader, Internet Explorer
- 1 GB RAM
- 1 vCPU

## Scaling Up

One of the compelling attributes of Oracle Virtual Desktop Infrastructure is the ability to grow the deployment on demand by simply adding additional servers or storage hardware. It is not necessary to perform a “rip and replace” or move to a different product to support more users.

### Adding additional server nodes

As more and more users join the system, the initial single server deployment may need to be extended by the addition of more server hardware. Additional servers are installed in a similar way to the initial Primary server with the difference being that they are configured as Secondary VDI servers. By doing this the initial configuration information held on the Primary is made known to the Secondaries quickly and easily.

Other configuration options are also possible. For example, new servers can be designated Desktop Provider-only, running the Virtual Desktops, but not the VDI infrastructure software itself. See the Administration Guide for details.

### Adding Shared Storage

The single server deployment described so far uses locally installed storage provided by the filesystem of the operating system. As deployments grow, it may be that shared network storage may be preferred. To move to this model, an administrator would simply create a new Desktop Provider in the Oracle Virtual Desktop Infrastructure Administration Console or command-line interface. This new Desktop Provider, which can run alongside the existing Local Storage provider, would be configured to point to the Shared Storage on the network, and new Pools.

## Conclusion

It is now possible to build a single server VDI deployment that can accommodate the needs of small to medium businesses, company departments, or simply as the first step of an enterprise deployment. This single server solution requires no additional external storage because it utilizes the local storage on the server itself.

This architecture enables a scale-on-demand model that is realized simply by the addition of incremental server and storage hardware. Oracle Virtual Desktop Infrastructure provides the management toolset that scales from a single server and simple management console to a full enterprise-wide virtual desktop landscape integrating with Oracle Enterprise Manager 12c.

Only Oracle has the hardware and software product portfolio to offer a single vendor VDI solution. This enables rapid and efficient initial deployment; simplified supplier relationships, and an efficient support and maintenance model maximizing uptime and protecting investment.



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