

THE SUN ZFS STORAGE APPLIANCE AND ORACLE VIRTUAL DESKTOP INFRASTRUCTURE

A COST EFFECTIVE VIRTUAL DESKTOP INFRASTRUCTURE STORAGE SOLUTION THAT REDUCES INFRASTRUCTURE COSTS, IMPROVES PRODUCTIVITY AND SIMPLIFIES DATA CENTER MANAGEMENT.

KEY FEATURES

- Sun ZFS Storage Appliance Rapid iSCSI Provisioning available only with Oracle VDI
- Storage Analytics provides observability into business critical desktop storage workloads
- Engineered Integration with Oracle VDI and additional options with VMWare and Microsoft Hyper-V
- Data Protection features such as snapshots, clones and replication
- Storage Efficiency features such as De-Duplication, Thin Provisioning, Compression and Clones

KEY BENEFITS

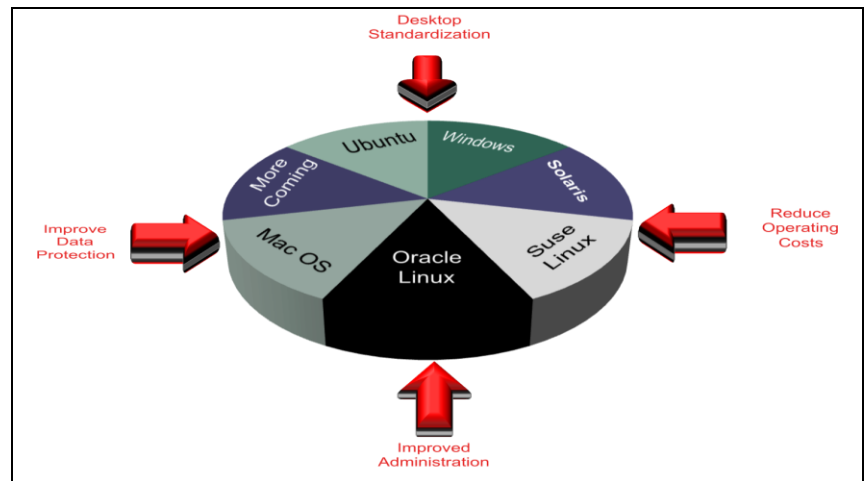
- Increases productivity and eases implementation through rapid provisioning and deployment of virtual desktops
- Improves overall VDI reliability and availability through rapid response enabled by Storage Analytics
- Solid support and sustainability for Oracle VDI in the Oracle VM VirtualBox environment as well as VMWare and Microsoft Hyper-V
- Improve data availability and user productivity through instantaneous backup and restore using snapshots and clones as well as Microsoft Volume Shadow copies.
- Extend the functional life of your storage through ZFS Sun Storage Appliance storage efficiency features

The Sun ZFS Storage Appliance when combined with Oracle Virtual Desktop (VDI) Infrastructure enables organizations to simplify administration, reduce operating costs, improve data protection, and boost operational efficiency.

As data center managers consider a VDI approach to sustaining a desktop productivity environment the benefits of a centralized desktop computing approach give way to the many advantages of moving desktop user data to a unified storage system such as the Sun ZFS Storage Appliance. In particular, the Sun ZFS Storage Appliance when deployed with Oracle VDI is a powerful solution enabling the deployment of large numbers of virtual desktops through rapid iSCSI storage provisioning while providing close in, in depth management of virtual desktop storage workloads through Storage Analytics both of which are only available with the Sun ZFS Storage Appliance and Oracle VDI.

The Value of Virtual Desktop Infrastructure and the Sun ZFS Storage Appliance

What many data center managers have discovered is the difficulty associated with managing a distributed desktop environment, especially with respect to the business critical data that is often stored throughout the architecture. The task of implementing a data protection strategy for these kinds of data is labor intensive, expensive and fraught with risk that must be dealt with on a daily basis..



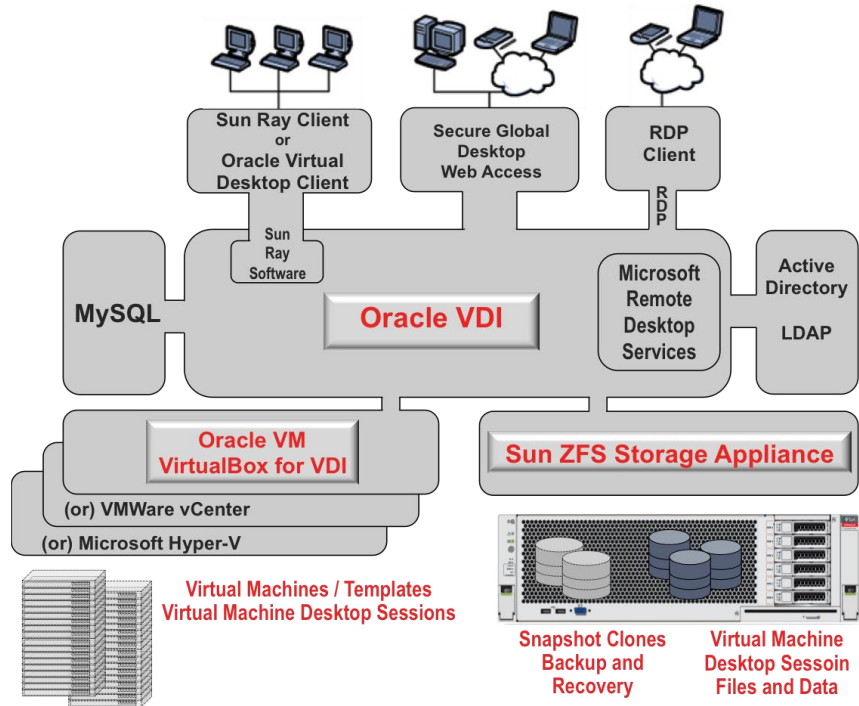
1. Why VDI and the diverse desktops that Oracle VDI Supports.

It is in this environment that many data center managers implement a virtual desktop architecture. In doing so they are seeking to address the following:

- Improve Operational Efficiency
- Establish a Reliable Data Protection Strategy
- Reduce Capital and Operational Expenditures
- Centralize and Standardize the Desktop Architecture

Desktop Standardization

An Oracle VDI deployment empowers the data center manager to standardize the desktop environment and optionally, support multiple desktop environments. As illustrated, Oracle VDI supports multiple desktop environments that include Microsoft Windows including XP, 2000, Vista and Windows 7 as well as MacOS, Solaris including the Sun Ray environment, Oracle Linux, Suse Linux and Ubuntu with more on the way. Multiple Virtual Machine templates representing each environment are easily configured in the Virtualization platform, Oracle VirtualBox. With these pre-configured, hundreds if not thousands of Virtual Desktops can be created and provisioned rapidly due to seamless integration and interoperability of Oracle VDI Core with the Sun ZFS Storage Appliance.



2. An Oracle VDI Implementation with the Sun ZFS Storage Appliance

Storage Efficiency

During any VDI implementation when considering the business critical data that is stored throughout the desktop architecture, the most critical task to accomplish is storage consolidation followed by safely migrating data to centralized storage. It is during this task where the primary storage efficiency features of the Sun ZFS Storage Appliance so successfully and efficiently provisions large amounts of desktop instances and associated data. Key features such as thin provisioning, compression and de-duplication work in concert with Oracle VDI rapid iSCSI provisioning on the Sun ZFS Storage Appliance. These features increase storage efficiency by eliminating duplicate data blocks, compressing data and allocating storage as it is consumed by virtual desktop applications. In fact, these empowering features were found to be superior to the competition during a head to head comparison conducted by the Edison group where the Sun ZFS Storage Appliance took 36% less time to manage, 45% less time to configure while being 38% less complex to provision. All of these data services features come together on the Sun ZFS Storage Appliance to provide storage efficiencies that eliminate unused allocated storage capacity which can in turn, significantly reduce storage related capital costs.

Improving Operational Efficiency

Prior to the deployment of a VDI initiative the day-to-day tasks associated with sustaining desktop availability were labor intensive, complex and difficult. These critical tasks are dramatically simplified with the Sun ZFS Storage Appliance with an easy-to-use management interface that removes the guesswork out of sustaining a reliable virtual desktop environment deployed with Oracle VDI.

Operational efficiencies improve with the profound insight offered by DTrace Storage Analytics, which provides key insight into virtual desktop storage workloads keeping the virtual desktop environment reliable and available while improving overall business productivity. Virtual desktop storage workload activity can be observed instantly and a drill down feature can be used to see exactly where issues might be hindering virtual desktop storage performance such as over taxed disks and files, an offending data base client, real time disk capacity and CPU utilization along with numerous other metrics. DTrace Storage Analytics software provides the industry's only comprehensive and intuitive analytics environment where System and Storage Administrators can quickly and intuitively identify and diagnose system performance issues, obtain observability into business critical virtual desktop workloads and discover key performance indicators that contribute to longer term capacity planning. When comparing Storage Analytic to the competition in a head to head test with the competition, the Edison Group found that it took 44% less time to diagnose storage workload issues and 44% less with respect to the number of steps it took to achieve that analysis. Its easy to use and understandable browser user interface(aka BUI or GUI) enables rapid familiarity due to the simplicity it offers in managing data, applications and day-to-day data center tasks.



3. DTrace Storage Analytics & VMware.

Reliable Data Protection

With the Sun ZFS Storage Appliance, critical data services such as snapshots and clones provide instant and optionally, unattended backups that can be used in the short term for virtual desktop file recovery by the system administrator or by virtual desktop users. Numerous third party backup-recovery solutions that are already integrated with the Sun ZFS Storage Appliance provide an all important long term backup and recovery solution for the Oracle VDI architecture. These key data services are integrated into block-based storage such as iSCSI and FC as well as file based services such as CIFS/SMB and NFS.

Disaster Recovery is all the more important within the virtual desktop environment and built in Replication services enable a rock solid solution in case of a catastrophic event. The replication features include, fail over and fail back strategies for the system administration staff to use in case of an event that would otherwise disrupt the Oracle VDI architecture with respect to reliability or availability.

Flexibility, Speed and Performance

Performance is important to the extreme in the



VDI infrastructure as virtual desktop users are comfortable with onboard storage and expect comparable performance in a VDI environment. Storage performance with the ZFS Sun Storage Appliance is enhanced by a breakthrough technology known as the Hybrid Storage Pool enabled by Flash SSD and the ZFS File System. Sophisticated file system algorithms enhance desktop client read performance by pre-staging data into in-memory cache (DRAM) as well as Flash based Read-SSD which can further improve IOP performance. Since all VDI Write operations are necessarily synchronous, desktop Write I/O performance automatically benefits from Write Flash SSD improving virtual desktop application throughput, which in turn, improves overall business performance and productivity.

A Cost Effective VDI Storage Solution

The ZFS Storage appliance delivers superior performance and simplicity with built-in, no extra charge software features. Key data services that enhance your ability to manage and protect data in a VDI environment such as snapshots, compression, thin provisioning, Shadow Migration and more, are included with no additional license fees. What all this means is that when Oracle VDI is deployed in your datacenter, additional cost reductions can be realized with the Sun ZFS Storage Appliance because of features included with no license fees, end to end solution reliability with Oracle VDI and benefits such as improved data protection and operational efficiency, enhanced system administration productivity and overall improvements in desktop productivity that can quickly go to your bottom line.

For More Information visit the following:

For more information regarding Sun ZFS Unified Storage visit:

<http://www.oracle.com/us/products/servers-storage/storage/unified-storage/index.html>

For more information regarding the Sun ZFS Unified Storage Simulator visit:

<http://www.oracle.com/us/products/servers-storage/storage/unified-storage/index.html>

Under Downloads, click, "Download Oracle's Sun Unified Storage Simulator" and follow the directions.

For more information regarding Oracle VDI visit:

<http://www.oracle.com/us/technologies/virtualization/061153.html>

For more information regarding Oracle VirtualBox visit:

<http://www.oracle.com/us/technologies/virtualization/061976.html>

Contact Us

For more information about Sun ZFS Unified Storage, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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