



VERDE™ 4.0 Suite: Bringing the Desktop to the Cloud

Transforming Desktop TCO, Improving Security & Compliance, Increasing Organizational Agility



Virtual Bridges™



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Table of Contents

Overview	3
VERDE 4.0 Benefits.....	4
VERDE 4.0 Solution Overview.....	5
Simplicity of the VERDE 4.0 solution	8
Advantages of VERDE 4.0.....	8
Summary	10
Legal.....	10

Overview

Virtual Bridges VERDE 4.0 is the industry's most comprehensive Desktop Virtualization Solution that helps organizations deliver Desktop-as-a-managed service. The VERDE solution lets enterprises transform their Desktop TCO by simplifying desktop management, improving security and compliance by centralizing the administration of desktop images and data, and increasing the organizational agility and productivity by quickly providing desktop and application access to end users on any client machine [PC, Mac, Linux, Thin Client, Home computer or on a portable drive] and any time.

Gartner predicts that the Hosted Desktop Virtualization market will reach \$65B by 2013 with more than 40% of the worldwide professional PCs being deployed using some kind of Hosted Desktop Virtualization solution. Virtual Bridges VERDE 4.0 is the most comprehensive, secure, and cost-effective Desktop Virtualization solution available today.

VERDE 4.0 builds on the unique strengths of the VERDE 1.0, 2.0 and 3.0 platforms, such as the industry's first integrated VDI and disconnected use solution, single Gold Master provisioning model, Distributed Connection brokering architecture, flexibility to run Windows and Linux desktops, the ability to run VDI at the branch level at LAN speeds and the ability for a user to carry their desktop with them to any computer on a USB stick. VERDE 4.0 now includes even more installation and configuration ease-of-use with both a graphical user and an Expert-mode command line interface, a choice of protocols for most effectively displaying text and multimedia and the on-premise and hosted solution for VDI.

VERDE 4.0 Benefits

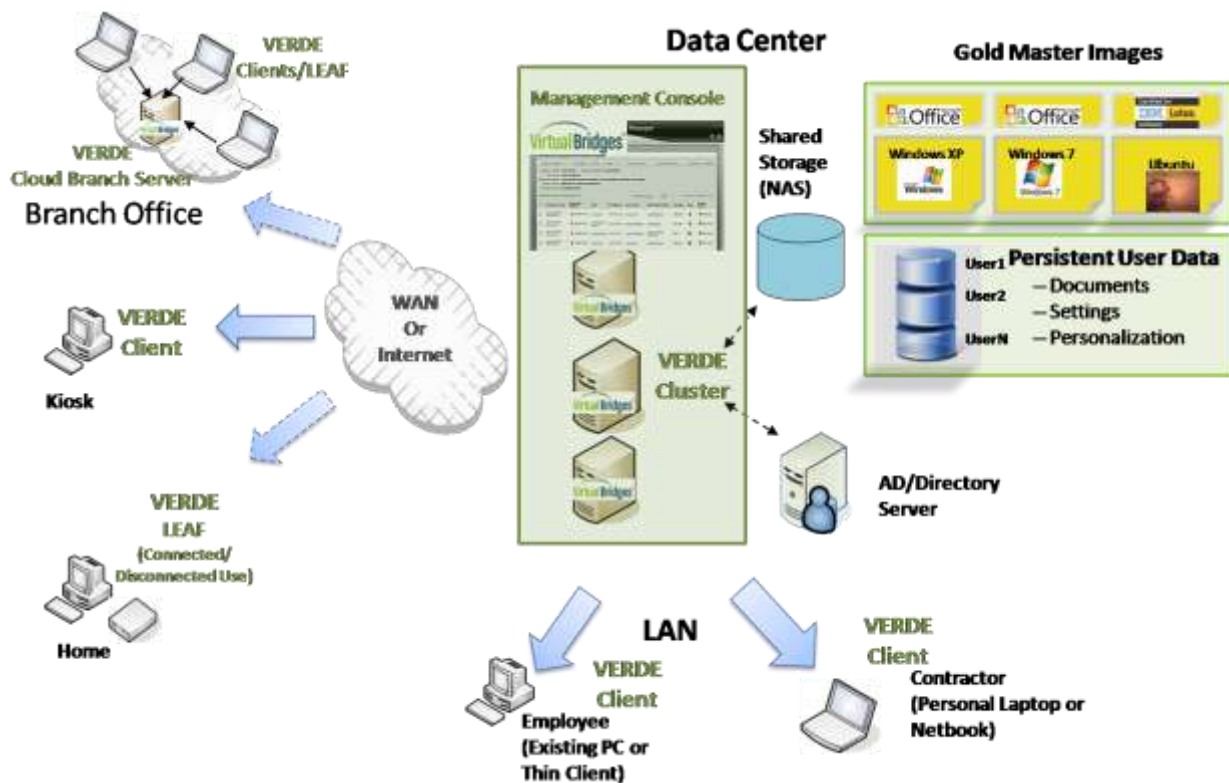
Included below are some of the benefits of using VERDE for VDI and Desktop Management.

- **Transforms Desktop Total Cost of Ownership**
 - Reduces the total number of Desktop images using Gold Master provisioning model
 - Deploys isolated personal and professional workspaces to minimize conflicts and failures
 - Simplifies on-going patch management and HW/OS migrations
 - Deploys both Windows and Linux Desktops using a common platform to reduce costs
 - Allows users to simultaneously access multiple desktop sessions from a single client
 - Reduces Helpdesk costs
- **Improves Security and Compliance**
 - Provides Native Malware Resistance for all virtual desktop sessions by requiring users to run a read-only copy of the Gold Image.
 - Centralizes Desktop Images and Data in the Data Center to provide Data-at-Rest security
 - Provides secure remote access to user desktops and applications with better endpoint security
- **Increases Organizational Agility and Productivity**
 - Quickly provision new users, devices, and applications
 - Quickly provision remote access or guest access
 - Quick migration to new OS/patches
 - Disaster Recovery
 - Provides access to desktops from any client [PC, Mac, Linux, PDA] -- anytime
 - Provisions desktops on portable drives

VERDE 4.0 Solution Overview

The following figure describes a sample VERDE 4.0 customer deployment. This deployment illustrates how VERDE4.0 delivers an optimized, secure, and managed virtual desktop session in each of the following scenarios:

1. An employee uses Corporate Windows XP + Office Gold Master Image from existing Windows PCs or Thin Clients using the VERDE client inside the LAN
2. A contractor uses their personal laptop [MAC or Windows] or Netbook to access Corporate issued Ubuntu + Lotus Symphony Gold Master image using a VERDE client inside the LAN
3. An employee uses their home computer and/or a portable USB drive to access Corporate Windows7 + Office Gold Master Image in a disconnected mode using VERDE LEAF client
4. An employee uses an airport kiosk to access their Windows XP + Office
5. Employees/contractors at a branch office are connected to a local VERDE CloudBranch™ server to access the Windows XP + Office, Windows 7 + Office, Ubuntu + Lotus Symphony Gold Master images that are centrally managed in the Data Center.



Here is the description of the VERDE 4.0 Suite components:

- **VERDE Servers and Cluster** – Each VERDE server is responsible for authenticating and authorizing users to Gold Images based on corporate policy and then running the selected virtual desktop sessions on the servers. Multiple VERDE servers can be part of a VERDE Cluster with a designated Cluster Master for hot stand-by.

VERDE Cluster servers are completely stateless and use a Distributed Connection Brokering™ architecture increasing the scalability of the overall solution.

- **VERDE Monitoring/Management Console** – The VERDE Web-based monitoring console gives real-time visibility to all virtual desktop sessions running on VERDE cluster servers. Administrators can view virtual desktop sessions grouped by user or server or based on type of Gold Image. In addition, the console provides real-time server utilization metrics using an intuitive color coded scheme [green – lightly loaded and can run more VDI sessions, yellow – system load is near the recommended max, red – system is either at MAX or over the PEAK limit].
- **Gold Master Images** – One of the most important features of the VERDE solution is its Gold Master Image provisioning model. With the VERDE Gold Master model, you only need to create a few Desktop Images [referred to as Gold Masters] with the required OS and the applications that different classes of users need. Users always run a read-only copy of the Gold Master Image with all their personal settings, documents written to a separate User Disk.

This Gold Master Image model significantly reduces the number of images requiring management [reducing storage and maintenance costs] while also providing native malware resistance to all desktop sessions. There is no risk of ‘unauthorized applications’ or ‘malware’ corrupting a Gold Master Images. Users always run the latest authorized copy of the Gold Master.

- **VERDE Client** – The VERDE client is a light-weight application that authenticates users and provides access to users’ desktop sessions running on VERDE servers. The VERDE client protocol is optimized to provide the best user experience based on the end user location [LAN, WAN or at a branch location]

The VERDE client can run on Windows, Linux, MAC workstations, Netbooks and PDAs.

A user can launch more than one virtual desktop session simultaneously by running multiple client sessions.

- **VERDE LEAF™** – VERDE Live Environment Access Format (LEAF) provides both connected [access to remote virtual desktop sessions] and disconnected [virtual desktop session is locally cached and executed on the client machine] access. VERDE LEAF is a self-contained local desktop virtualization platform that is fully secure [no need to worry about external endpoint security solutions] and includes integrated VoIP (Skype) applications.

The VERDE LEAF client requires an Intel VT or AMD-V enabled host machines. VERDE LEAF can be installed on a Linux host or as a self-contained package on a bootable portable drive.

One of the main advantages of the VERDE LEAF disconnected use capability is that LEAF uses the same centralized Gold Image model. Therefore, if the user’s Gold Master is updated on the central

server, the same updates are automatically reflected in the user's LEAF environment when they are connected to the central server.

VERDE LEAF essentially provides centralized management, but provides disconnected/local execution that is useful for mobile and offline desktop users.

- **VERDE Cloud Branch Server™** – Organizations that wish to deploy Virtual Desktops to branch offices that are connected over a slower and less reliable WAN connection can use the VERDE Cloud Branch Server in the branch office. The VERDE Cloud Branch Server connects to the central VERDE Cluster and Gold Image repository to make sure that the users at the branch office are running the latest and authorized copies of the desktop sessions. At the same time, the virtual desktop sessions are served locally from the VERDE Cloud Branch Server.

With VERDE Cloud Branch Server, an enterprise get the benefits of higher performance and response times while maintaining centralized control of the desktop images in the data center – and eliminates the need for expensive WAN optimization infrastructures.

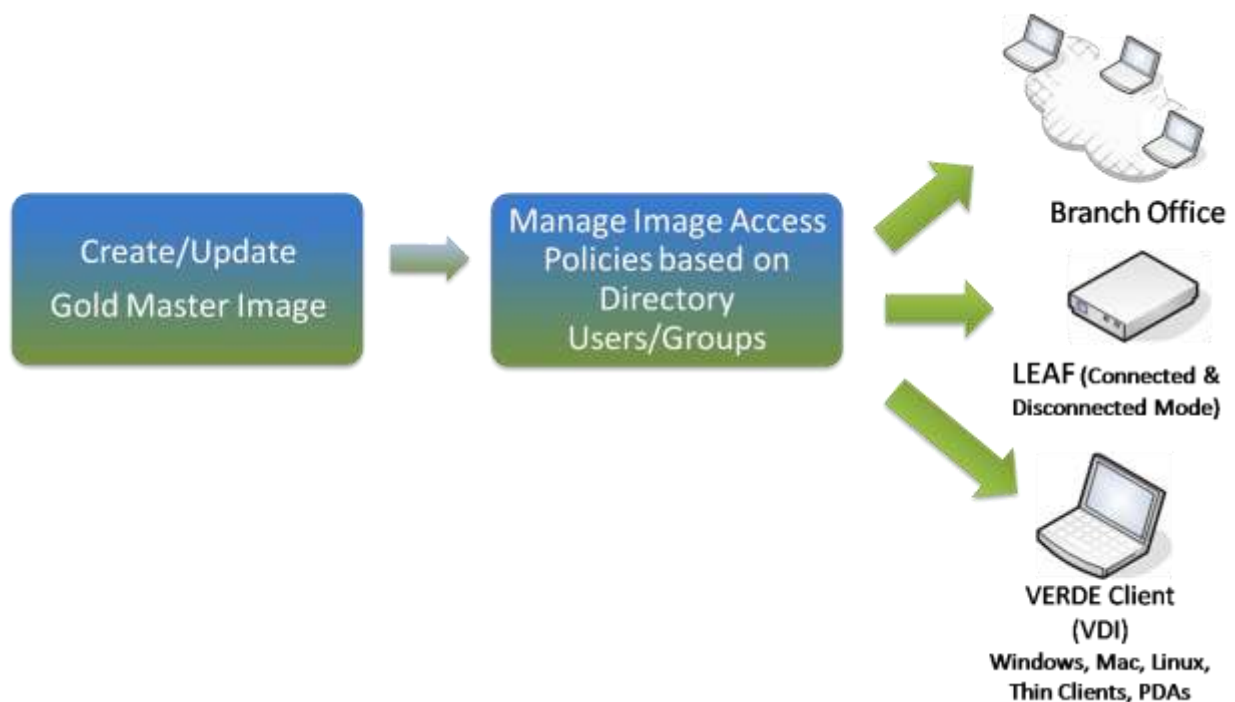
Here are external components with which VERDE 4.0 integrates:

- **AD/Directory Server** – The VERDE 4.0 solution seamlessly integrates Microsoft Active Directory and/or any other Directory server that is deployed in an enterprise. Administrators can assign Gold Master Images to Directory Users or Groups – and when the user logs into the VERDE client or LEAF using the Directory credentials, they will be authorized to use one of the sanctioned Gold Master Desktop sessions.
- **Shared Storage** – The VERDE 4.0 solution plugs into any shared storage [NAS or SAN -- NAS is recommended as it is less expensive]. Shared Storage acts as the repository for VERDE Cluster settings, Gold Master Images and the User's personal data such as Documents and Settings and profiles.

Simplicity of the VERDE 4.0 solution

Most of the VDI solutions that are available today are extremely complex with many different infrastructure components that are costly and difficult to deploy and manage. One of the main benefits of the VERDE 4.0 solution is the *simplicity* and *elegance* of the architecture and the deployment model.

The following figure illustrates the two-step process on how one could create and deploy different virtual desktop sessions to different users on a variety of devices, including PCs, MAC, Linux workstations, Thin Clients and portable devices.



Advantages of VERDE 4.0

Here are some of the unique benefits of the Virtual Bridges VERDE 4.0 solution compared to any other solution available today

- **Comprehensive Desktop Virtualization Solution**
 - Integrated VDI and Disconnected mode solution provides virtual desktops to both connected and offline users
 - Supports both Windows (including Windows 7) & Linux Guests providing the most flexible and cost-effective desktop environments to end users
 - Works on Windows, Linux, Mac, Thin Clients and PDA clients providing virtual desktops anytime and on any device

- Supports multiple display protocols optimized for Windows and Linux desktops and multi-media
- Works with Branch offices on slower WAN connections providing best performance to the end users while maintaining control through the Gold Master Images in the Data Center.
- Can be deployed on bootable portable drives so that users can access their virtual desktops securely and offline on any host machine
- **Highest Performance**
 - Distributed Connection Brokering™ architecture with its stateless server sessions provides unmatched scalability and fault-tolerance
 - Highest density for VDI sessions resulting in significantly reduced number of physical servers to deploy; Some of the metrics show that VERDE achieves up to 3-5X the density performance over competition
- **Security**
 - Gold Master Provisioning (separate System and User Images) provides native malware resistance and protects against unauthorized application usage in the enterprise
 - Integrated AAA and Policy Management allows administrators to assign desktop sessions based on Active Directory [or other directory] users and groups. Seamless integration with any existing directories
 - Centralized Image and Data storage provides for Data-at-rest security and compliance
- **Lowest TCO**
 - VERDE acquisition costs are up to 80% less than competing solutions and the overall TCO is cheaper by up to 40% over 5 years
 - Requires cheaper NAS storage instead of expensive SANs. Gold Master provisioning requires significantly reduced storage resulting lesser CAPEX and OPEX costs
 - VERDE's high-VM density requires fewer number of servers resulting in reduced CAPEX and OPEX
 - For branch offices that are connected over low-bandwidth connections, VERDE provides a native Cloud Branch Server™ solution. There is no need to deploy expensive external WAN optimization solutions
 - VERDE 4.0 solution is simple and easier to deploy and manage
- **Proven & Innovative**
 - Virtual Bridges has partnerships with industry leaders such as IBM, Redhat, Novell, and Ubuntu to deliver industry's best Desktop Virtualization solutions that work for both Windows and Linux desktops
 - Virtual Bridges has partnerships with several MSPs and Cloud providers to deliver "Desktop-as-a-Service (DaaS) solutions to enterprise customers.
 - Available as both On premise and hosted solution powered by Rackspace with guaranteed SLAs.

- Virtual Bridges has several innovations to its credit including being the first to market features such as “Gold Master Provisioning”, “Distributed Connection Brokering”, “Portable Hypervisors”.

Summary

VERDE 4.0 continues the VERDE tradition of delivering best-of-breed “Desktop-as-a-Managed Service” solutions, including unmatched performance, reliability, security, and value to organizations of all sizes. Customers that are looking to transform Desktop TCO, improve security and compliance, and increase organizational agility and productivity can immediately benefit from deploying VERDE 4.0.

With VERDE 4.0, organizations do not have to be burdened by the complexity, cost and manageability of the other desktop virtualization solutions. VERDE 4.0 delivers on the promise of desktop virtualization in transforming the 29-year legacy desktop computing model.

Legal

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