



**MobiKEY<sup>™</sup> with TruOFFICE<sup>®</sup>**

**Virtual Desktop Infrastructure (VDI) SOLUTION**

February 8, 2011

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## Why Virtualization?

Today's computer hardware was designed to run a single operating system and a single application, leaving most machines vastly underutilized. Virtualization lets you run multiple virtual machines on a single physical machine, with each virtual machine sharing the resources of that one physical computer across multiple environments.

## How Route1 Uses Virtualization

Route1's TruOFFICE Virtual Desktop Infrastructure (TruOFFICE VDI) application software uses virtualization to break the bonds between the desktop and operating systems, applications and peripheral hardware. By encapsulating the operating system, user applications and data into isolated layers, the TruOFFICE VDI application software enables IT administrators to change, update and deploy each component independently for greater business agility and improved response time. The result is a more flexible access model that improves security, lowers operating costs and simplifies desktop administration and management. In short, the TruOFFICE VDI application software is a secure remote access service that extends an organization's server consolidation strategy to the desktop and ensures "peace of mind".

The virtual machine concept allows users to share the resources of a single computer across multiple users for maximum efficiency. Route1 has expanded this capability to enable a virtual infrastructure, which allows multiple users to virtually share their resources (programs, applications, processes and data) across the entire network.

## TruOFFICE VDI

The TruOFFICE VDI application software is an integral part of the MobiNET platform and requires the deployment of the EnterpriseLIVE virtualization orchestrator (EnterpriseLIVE VO) appliance on the corporate network. TruOFFICE VDI uses the VMware ESX based virtual infrastructure.

## EnterpriseLIVE virtualization orchestrator (EnterpriseLIVE VO)

The EnterpriseLIVE VO appliance is responsible for managing virtual machine pools and the allocation of available virtual machine resources for new session requests by TruOFFICE VDI application software users. The EnterpriseLIVE VO appliance interacts with a VMware ESX Server and vCenter (both of which are located within the customer datacenter) to handle the creation and availability of virtual machines on demand. It also interacts with the Connection Arbitrator, which runs within the MobiNET platform environment. This unique and powerful appliance provides end-users with a familiar desktop experience, while enabling administrators to seamlessly integrate a

unified secure desktop consolidation strategy within their corporate datacenters and maximize the utilization of system resources, to more effectively monitor and manage centralized virtualized desktops, all while providing a low total cost of ownership by minimizing e-waste and hardware overhead.

EnterpriseLIVE VO application requires only basic network configuration. It does not require exposure to the internet (incoming connections from outside of the enterprise are not required). It requires the following network accessibility:

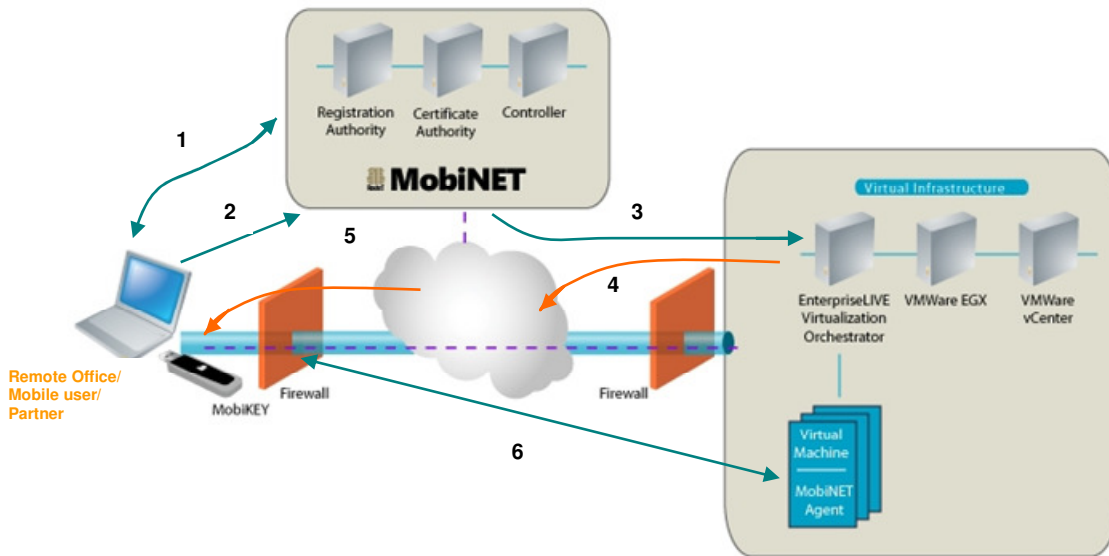
- outgoing connection to the MobiNET platform
- incoming connection on port 443 accessible from inside the corporate network

### **Integration with VMware ESX server and vCenter**

The VMware ESX Server and vCenter application combine to host and manage the virtual desktops and application resources that end-users will connect to with their MobiKEY devices. Once VMware ESX Server and the vCenter application are installed and properly configured, the administrator will create a Virtual Machine template which will contain a Windows-based operating system and the applications required by the users of a given resource pool. Each time a new virtual desktop session is initiated, the user will connect with a cloned version of this virtual machine template. This template also contains a configured MobiNET Agent software with the IP address of the corresponding EnterpriseLIVE VO appliance so that each time a new Virtual Machine is created, the MobiNET Agent software will contact the EnterpriseLIVE VO appliance to download the proper pool configuration.

Most virtual machine monitors in the market today rely on a built-in operating system to perform core virtualization tasks such as allocating hardware resources to the various virtual machines that run on top. This means that your virtual machines are only as reliable as the built-in operating system. VMware ESX is based on the VMware ESX architecture, which installs directly on the physical server and has no reliance on a general purpose operating system. VMware ESXi has an ultra thin design with no reliance on a general purpose operating system. **This architecture avoids the requirements for security hardening, user access control, anti-virus tasks and patching associated with typical operating systems. Its ultra thin code base installs directly on the server hardware for the ultimate reliability.**

Figure 1: TruOFFICE Virtual Infrastructure



**TruOFFICE Workflow:**

1. The MobiKEY device connects to the MobiNET platform and the MobiNET platform returns a list of available pools.
2. The MobiKEY device user selects a pool and sends the request to the MobiNET platform.
3. The MobiNET platform forwards the request to the EnterpriseLIVE VO appliance.
4. The EnterpriseLIVE VO appliance allocates a virtual machine and returns the virtual machine ID to the MobiNET platform.
5. The MobiNET platform forwards the virtual machine ID information back to the MobiKEY device.
6. Session request and mutually authenticated TLS established, secure computing session created.

**Virtual Desktop Pool Management**

The TruOFFICE VDI application software includes integrated virtual desktop management capabilities that leverage the EnterpriseLIVE VO appliance which provisions and manages allocation of available virtual desktop pools and resources.

The EnterpriseLIVE VO appliance supports three types of virtual desktops.

**Persistent Desktop Pool**

This is a pool of virtual desktops that permanently assigns a virtual desktop to a user once that desktop has been created. When a session is finished, the resources used by the virtual desktop are released and made available for other users. However, the virtual desktop is persisted. Each user will connect to their virtual desktop each time. The user is able to customize their desktop as these customizations will be persisted.

### **Non-Persistent Desktop Pool**

This is a pool of virtual desktops that are similar to persistent desktops, except in the fact that these virtual desktops are not permanently assigned to users. When a session is finished, the virtual desktop is returned to the pool and made available for other users.

By recycling the virtual desktops after each session, this type of pool ensures that each user receives a newly provisioned virtual desktop each time a connection to the pool is made. This pool configuration should be employed when a clean virtual machine is required for each user session or in highly controlled environments where there is no requirement for customization on virtual desktop instances.

### **Individual Desktops**

These are existing virtual desktops that are available through the EnterpriseLIVE VO appliance. The EnterpriseLIVE VO appliance pool manager controls the power state of these virtual desktop instances.

TruOFFICE VDI application software also supports roaming user profiles. Roaming user profiles allow a user with a computer joined to a Windows Server domain to log onto any computer on the same network and access their documents and have a consistent desktop experience, such as applications remembering toolbar positions and preferences, or the desktop appearance staying the same.

### **TruOFFICE VDI Benefits**

1. Physical desktops consolidated into a centralized virtual infrastructure.
2. Remote access provided by software residing on the MobiKEY device.
3. Relies on mature hypervisor technology that runs in tens of thousands of customer environments.
4. TruOFFICE VDI application software provides total cost of ownership savings by consolidating physical desktops into virtual desktops in a centralized data center, which results in:
  - Reduces helpdesk support.
  - Centralized management.
  - Fits into any disaster recovery strategy.
  - Provides an easy way to rollout extra “temporary” user seats.
  - Increased access control to sensitive corporate information (no copy, paste, printing, or removable media) as the VDI pool is locked in corporate datacenter.
5. Can be used as a strategy for digital rights management and business continuity.