

Qualification Technology & Setup Requirements & Recommendations

Overview

VMware went through the following TestNav qualification process for the VMware products described below based on the following technology and setup requirements and recommendations. This document will describe the process to achieve qualification, testing criteria, and will provide guidance to districts and schools for technical setup if they choose to use qualified VMware products with TestNav.

Qualified Products & Solutions – TestNav 8

Pearson and VMware jointly tested the following solutions for use with TestNav 8.0:

- VMware View versions 5.0.1 - 5.3

Detailed requirements for running VMware View versions can be found here:

https://www.vmware.com/support/pubs/view_pubs.html

Overall Goal

Performance testing has been completed by running all performance tests on a single VM. The VM was built using VMware View 5.0.1 - 5.3 profiles. The numbers below were then extrapolated. The following maximum users defined will have the same experience as a single user.

All TestNav 8 technical requirements need to be followed when using qualified products: www.pearsononlinetesting.com/TN8requirements. The standard Pearson process running SystemCheck should be followed to confirm final concurrent user counts for implementation.

Additional Requirements

In addition the following requirements apply:

- VMware View 5.0.1 - 5.3 can run up to 30 clients (View Desktops) per host for peak load; with Windows 7 as guest OS (requires a minimum processor of 2vCPU and 1GB RAM). The qualified configuration is:
 - 2 x 6 core sockets, Intel model x5650 or later
 - 64 GB RAM
 - 1 physical NICs, 1 GB per second
- VMware View Hardware Requirements:
 - The following link details the requirements:
<http://pubs.vmware.com/view-52/topic/com.vmware.ICbase/PDF/horizon-view-52-installation.pdf>

See sections in the VMware View “System Requirements for Server Components” (Page # 7 of the above link) and “System Requirements for Guest Operating System” (Page # 15) for hardware requirements details.

- VMware View Software Requirements:

VMware View installation guide details the requirement for different software components such as VMware vSphere, View Composer, Database requirements, etc. The following link provides the installation guide:

<http://pubs.vmware.com/view-52/topic/com.vmware.ICbase/PDF/horizon-view-52-installation.pdf>

- VMware View Client Requirements:

A complete list of supported VMware View Client can be found by accessing:

<http://www.vmware.com/resources/compatibility/search.php?deviceCategory=vdm>.

However, **VMware zero clients** are required to be used in concert with the qualified product in order to execute the solution implementation.

- VMware View Desktop Requirements:

- o Create the Win 7 desktops using the following optimization guide:

<http://www.vmware.com/files/pdf/VMware-View-OptimizationGuideWindows7-EN.pdf>

- o Follow the guidance for antivirus best practices for View environment:

<http://www.vmware.com/files/pdf/VMware-View-AntiVirusPractices-TN-EN.pdf>

- o Use View composer linked-clones to create virtual machines (VM) to reduce storage requirements. It is required to place the OS disk of linked cloned VM to be placed in high performance disk and follow the best practices in the link below:

<http://pubs.vmware.com/view-52/index.jsp#com.vmware.view.installation.doc/GUID-97D1E645-0470-4CD2-952E-7FCB879DD77B.html>

The technology and setup requirements must be followed and all workstations used to access TestNav must comply in order for the solution to remain in qualified status.

| Qualification Environment | VMware View |
|---------------------------|------------------------------------|
| TestNav Version | 8.0.x |
| Software Version | VMware View 5.0.1 - 5.3 |
| Minimum Processor | 2 vCPU |
| Minimum Memory | 1 GB RAM |
| Operating System | Windows 7 32-bit, Windows 7 64-bit |
| Minimum Network Speed | 100MbpsNIC |
| Maximum # of Clients | 30 |
| Minimum Encryption | 128bit AES encryption |

Additional Recommendations

In addition, the following specifications are recommended:

- Use Intel Nehalem or later chipsets (Intel model number X5500 or higher) for all server components.
- Run all sockets with Hyper-threading On
- 1 GB NICs or better
- Use External Storage that supports a minimum of 1000 I/Os per second with latency average of less than 20 milliseconds per I/O
- Use ESXi version 4.5 or later
- Use VMware View 5.0 or later
- For Proctor Caching installation, follow the best practices listed in Pearson User Guides. Set firewall and proxy settings as required.
- Primary Student Response File (SRF) should be stored locally in the student home folder as the default. When a student logs in via the zero client a student home folder will be created on the VM. The VM should be retained (not automatically deleted). The VM settings do not provide for automatic delete of session information by default. A secondary SRF path can be a shared folder on the Proctor Caching Server or another designated network share. Use best practices for secondary SRF locations as listed in the Pearson User Guides.

For a complete list of supported vSphere and View Composer software for VMware View versions 5.0.1 - 5.3, please refer the installation guide mentioned above in "Additional Requirements".

Please note: The products described above were tested by VMware and Pearson to work only in the specific environment described in the additional requirements list. Any variation in the described environment may result in performance issues.