TINTRI

Reexamining Conventional VDI Wisdom

An Architecture for Deploying Thousands of
Virtual Desktops with Tintri VMstore

Summary

Tintri and VMware recently tested 1,000 virtual desktops on a single Tintri VMstore T540 storage node in VMware's Palo Alto labs. All infrastructure components required to support a completely redundant, highly available virtual desktop deployment were contained in a half rack of server-room hardware, a single datastore, and a single pool of 1,000 linked-clone desktops.

VDI projects are traditionally viewed as complex and difficult to implement successfully. The testing showed that it's possible to "break the rules" and radically simplify VDI, with a total 3-year infrastructure hardware cost of under $200 per desktop.

Breaking the VDI Rules

Tintri has proven that with VMware View and Tintri VMstore technology:

* You don't need to deploy and "grow into" an extremely complex and costly solution designed for the worst case anticipated needs of thousands and thousands of users.
* It's possible to provide an "ultrabook" level of desktop performance to VDI users, and performance doesn't have to degrade as the deployment grows.
* You can mix virtual desktops and virtual servers on the same storage.
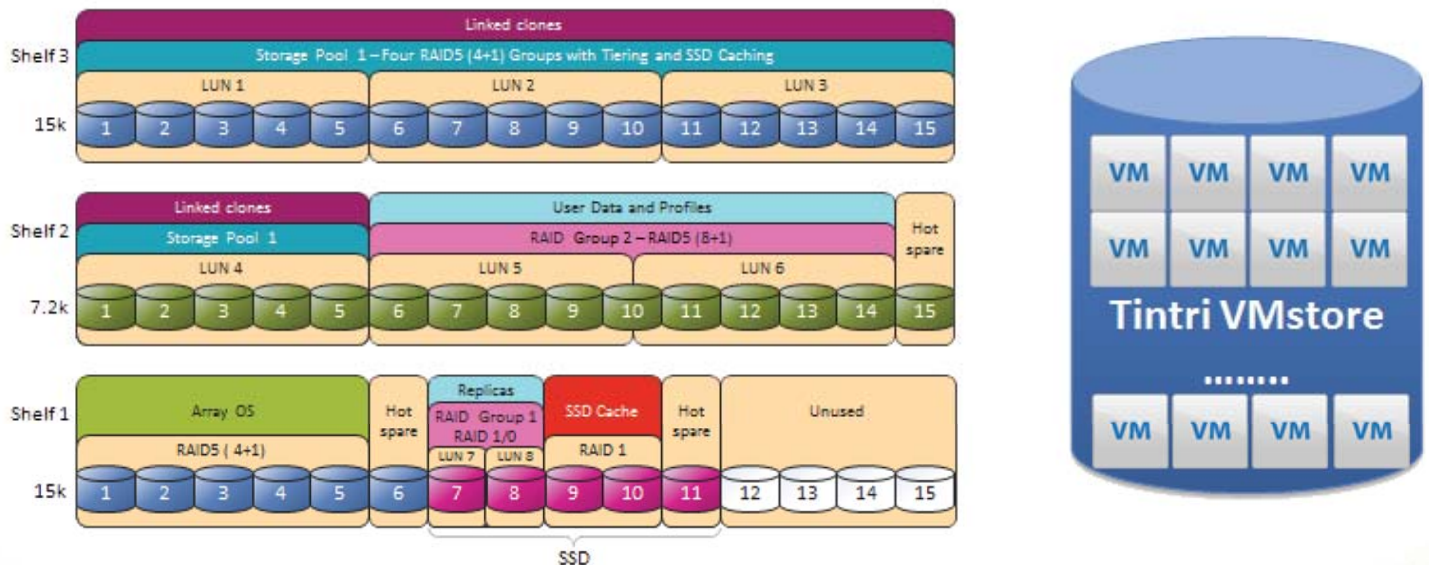

Figure 1. Comparison of a traditional LUN and volume-based storage to Tintri VM-aware storage.

Test Environment

Testing was performed using VMware View Planner v2.1. VMware View Planner is a product of VMware, Inc.

View Planner simulates application workloads for various user types (task workers, knowledge workers, and power users) by running applications typically used in a Windows desktop environment. During the execution of a workload, applications are randomly called to perform common desktop user operations, including open, save, close, minimize and maximize windows; view an HTML page, insert text, insert words and numbers, conduct a slideshow, view a video, send and receive email, and compress files.

The View Planner methodology gives a quality of service score based on operational latency experienced by users. A passing score is when the 95th% of operational latencies from "group A operations" fall under a threshold of 1.5 seconds which indicates an acceptable level of user experience at scale.
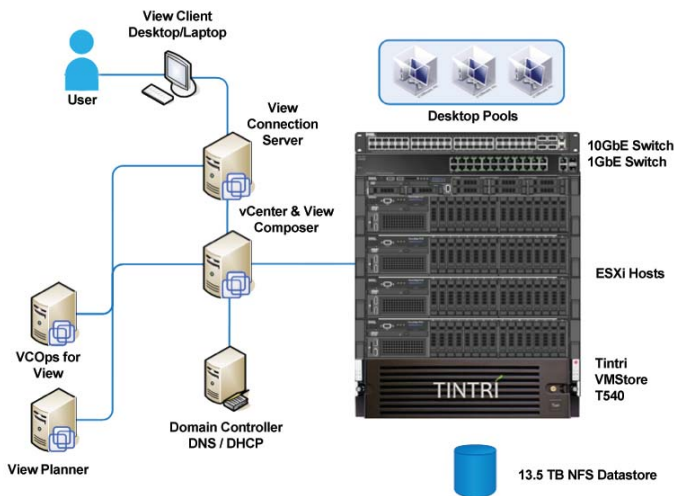

Figure 2. VDI test environment included VMware View 5.1 on VMware vSphere 5, VMware View Planner v 2.1, Windows 7 64-bit desktop images, vCenter Operations 5 for performance metrics collection, Dell R610 ESXi host for management/infrastructure server VMs, and 4 Dell R720 ESXi hosts for virtual desktops. Each R720 included 2 x Intel Xeon E5-2690 CPUs (2.9GHz), 256GB RAM, 2 x 1GbE Ethernet Adapters and 2 x 10GbE Ethernet Adapters.
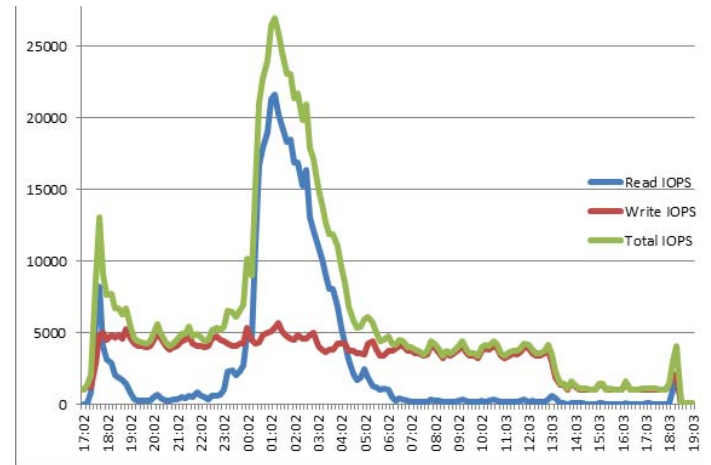

Test Results

Figure 3. Tintri datastore I/O during testing shows a significant burst of read activity as each desktop launches various applications for the first time.

.79 Seconds — View Planner score

8.0 Minutes — Storage configuration to first VM deployed

2.5 Hours — 1000 linked clones fully deployed

Figure 4. Results of testing.

Tintri has proven that a single T540 suffices for 1,000 desktops with modest cost, very little complexity, and a more than acceptable experience for the users. All this in a half-full equipment rack; less than 20 U of rackspace for all hardware and just 3 U for storage. Tintri can keep both virtual servers and virtual desktops on the same storage, while comfortably handling even the most demanding operational loads—even deploying more desktops—without affecting the user experience for existing desktops. For more, download our VDI white paper at http://info.tintri.com/vdi-whitepaper/