VMware View 5.1 Desktop Deployment Solutions

vForum 2012 – Sydney – Tech Talk

By Joshua Odgers
VMware Certified Design Expert (VCDX) #90
Blog: www.joshodgers.com | Twitter: @josh_odgers

VMware View Overview
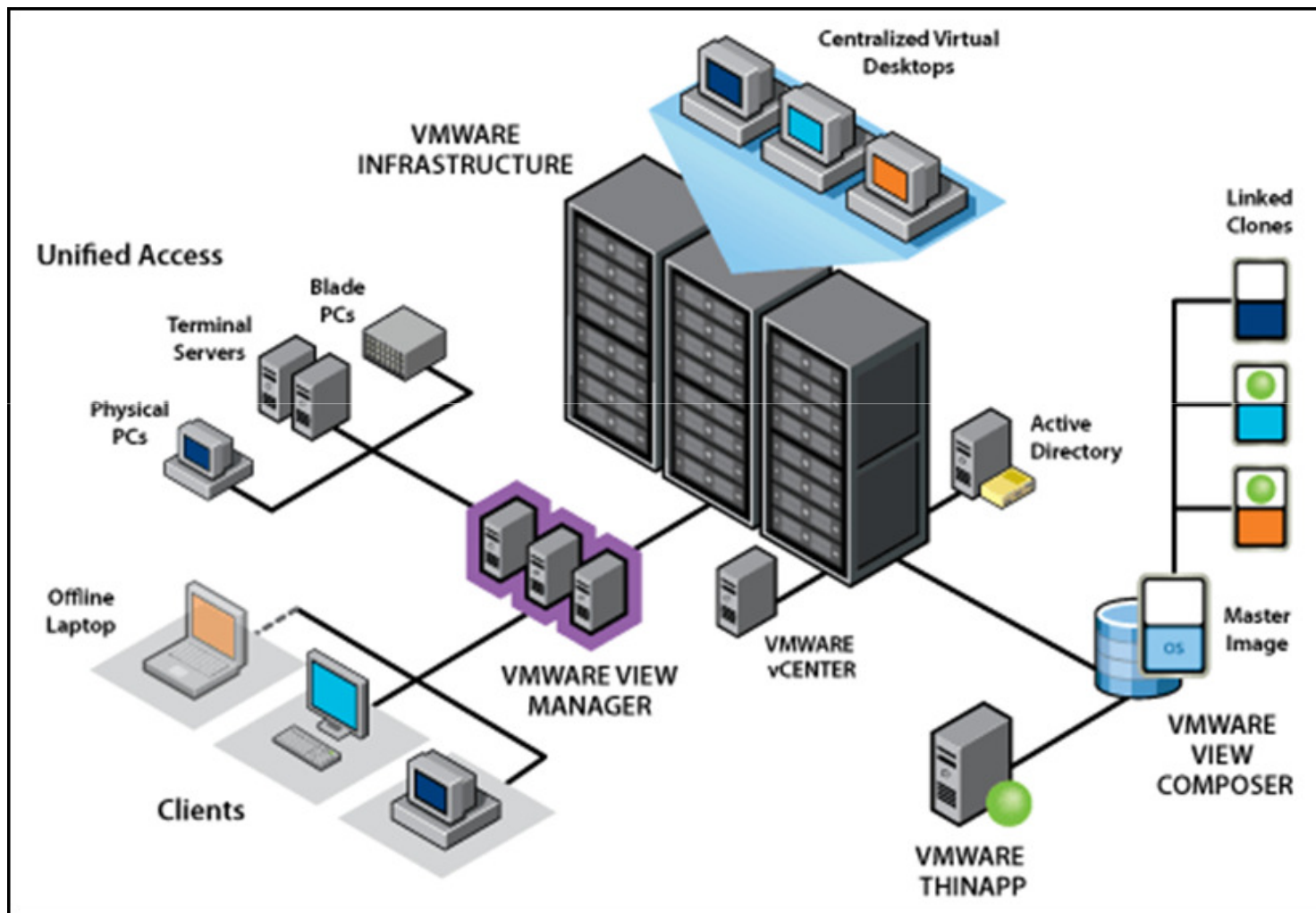
Note: Diagram courtesy of VMware

Full Clones (Traditional VDI)

- A full clone is an independent virtual machine, with no need to access or maintain an ongoing connection to the parent virtual machine. Because a full clone does not share virtual disks with the parent virtual machine, full clones generally perform better than linked clones. However, full clones take longer to create than linked clones. Creating a full clone can take several minutes if the files involved are large.

Linked Clones (View Composer)

- A linked clone is a copy of a virtual machine that shares virtual disks with the parent virtual machine in an ongoing manner. This conserves disk space, and allows multiple virtual machines to use the same software installation.
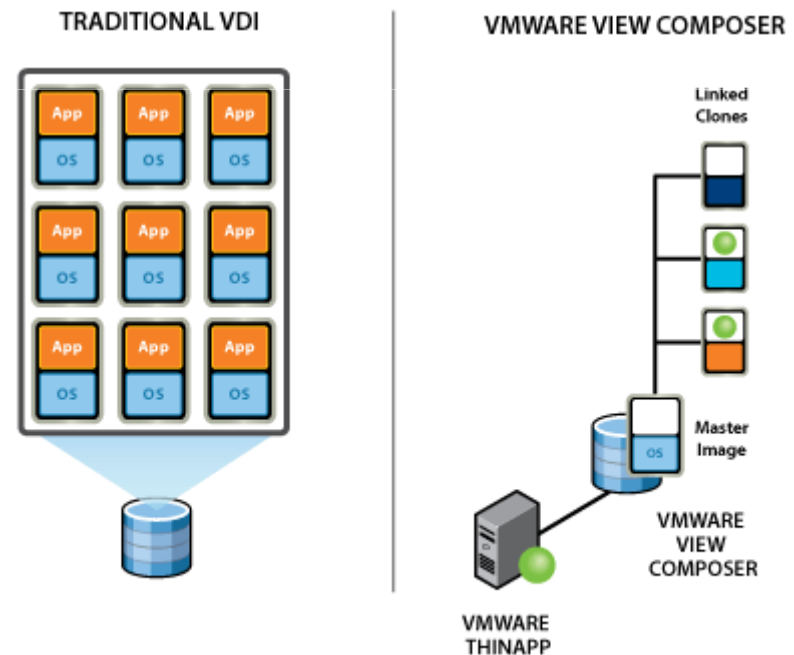
Note: Diagram courtesy of VMware

Some VMware View Deployment Challenges

- **High I/O Requirement for Deployments**
  – Impacts storage performance

- **Compute Impact during deployment / boot storms**
  – Impacts the vSphere cluster performance

- **Disk Space (Capacity)**
  – Full clones require significant disk space
  – vSwap storage
  – Expensive

- **Shared Storage**
  – Expensive
  – FC SAN or converged network for FCoE / NAS etc

Recommended VMware View Deployment Options

- **Netapp / IBM N-Series**
  - Rapid Clone Utility (RDU)
    - For Manual Pools
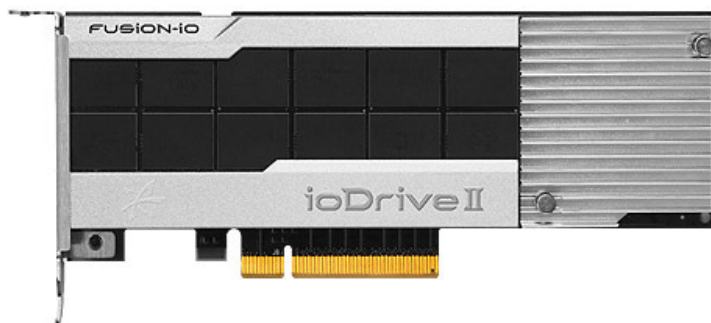 - Native NFS Snapshot offload (VAAI)
    - For View Linked Clones

- **Fusion-io**
  - ioDrive2
    - For Manual Pools OR
    - Linked Clones (Recommended for HA)

Netapp / IBM N-Series Solutions

Rapid Clone Utility (RCU)

- Used for rapid creation of Manual pools
- Clones a registers cloned VMs with VMware View Connection Broker
- Ability to Clone large numbers of VMs very quickly

References

- Josh Odgers Blog "CloudXC"
  - Rapid Cloning Utility
    - http://joshodgers.com/virtual-desktop-vdi/netapp-edge-vsa-rapid-cloning-utility-rcu/

- Netapp Technical Report TR-3705
  - Netapp and VMware View Solution Guide
    - http://media.netapp.com/documents/tr-3705.pdf

- Netapp Technical Report WP-7108
  - 50,000 Seat VMware View Deployment
    http://media.netapp.com/documents/wp-7108.pdf

Netapp / IBM N-Series Solutions

VAAI Native NFS Snapshot Offload

- Allows use of Linked Clones (View Composer)
- Offloads creation of clones to storage controller
- Use "Host Caching" on ESXi host/s for maximum performance (Max 2Gb)
- Note: Requires the installation of Netapp NFS VAAI Plugin
- Creation on linked clones in seconds with no compute overhead on the ESXi hosts
  - Example below shows linked clone complete in 7 seconds

References
- Josh Odgers Blog "CloudXC"
  - Native NFS Snapshot offload
  - http://joshodgers.com/virtual-desktop-vdi/native-nfs-snapshots-vaai-w-vmware-view-composer-view-5-1/

- Netapp Technical Report TR-3705
  - Netapp and VMware View Solution Guide
    - http://media.netapp.com/documents/tr-3705.pdf

Netapp / IBM N-Series Solutions (Cont)

VAAI Native NFS Snapshot Offload – How to Enable
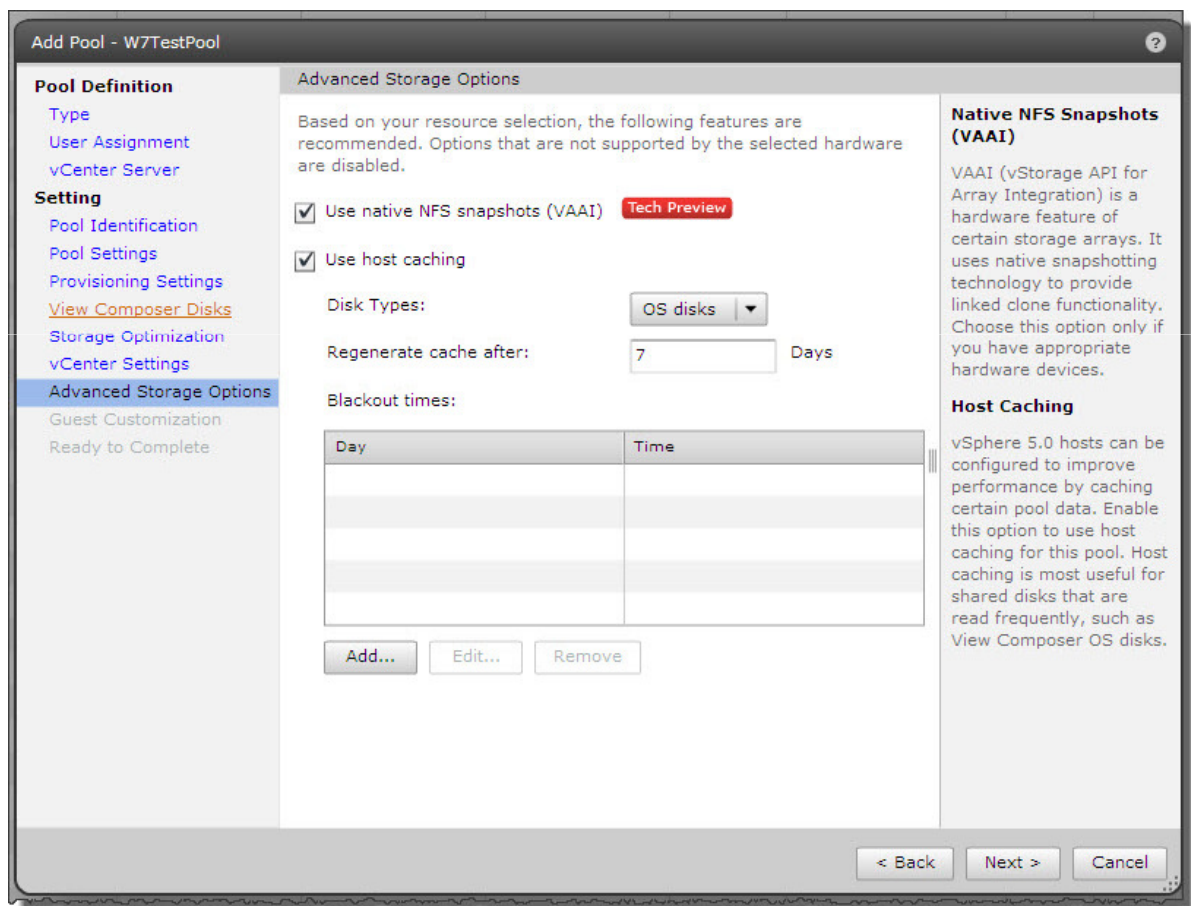
Netapp / IBM N-Series Read Write Cache

Flash Cache – 256/512/1TB deduplication aware read cache
- Provides read cache for maximum read performance of View Golden Images
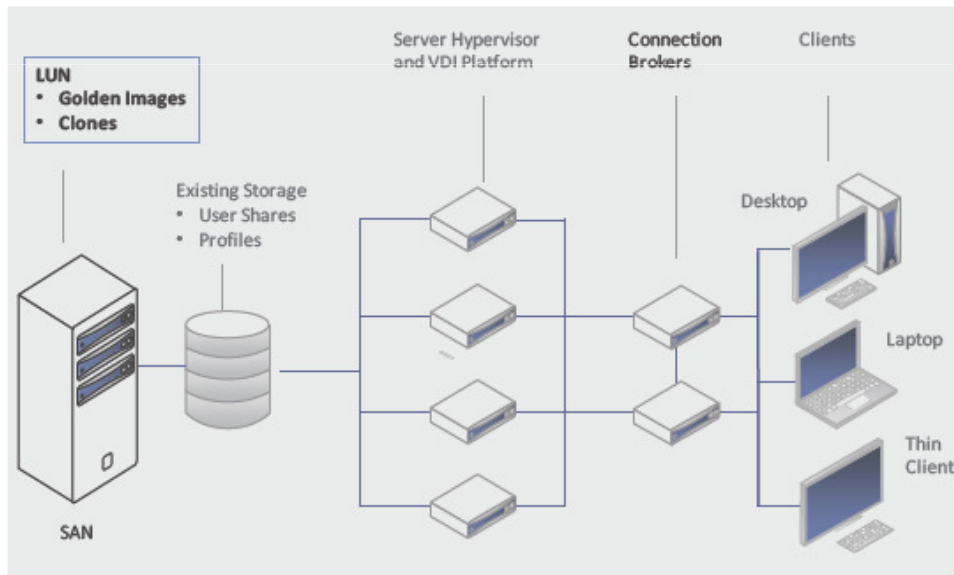
Flash Pools
- Provides both Read/Write cache which can be used for
    - Profile Data
    - User File Shares
    - VMware View Persistent Disks
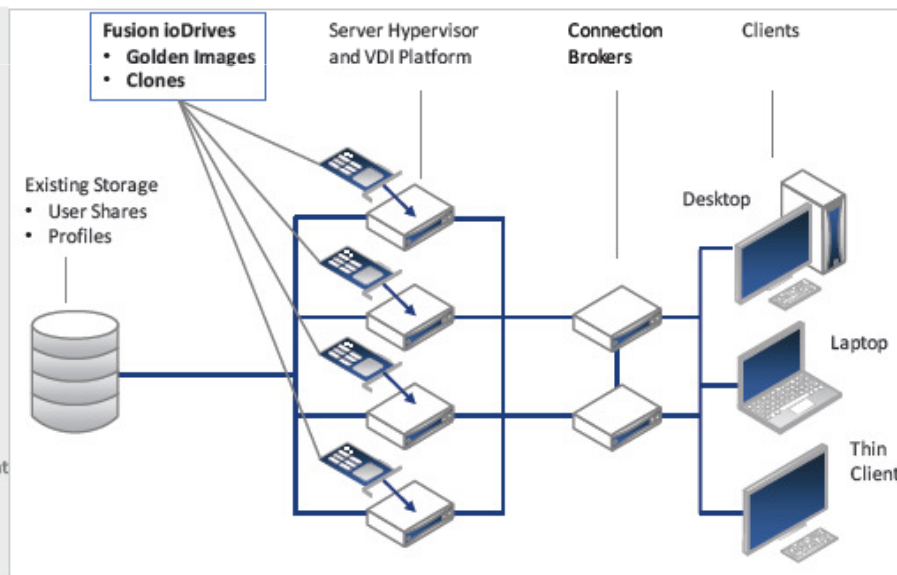
Fusion-io vs Standard VDI Deployment

Overview

- Golden Images and Clones stored on Fusion-io local datastores
- User Profiles / File Shares hosted centrally on Shared Storage (SAN or NAS)
  - Eg: CIFS shares on Netapp / IBM N-Series
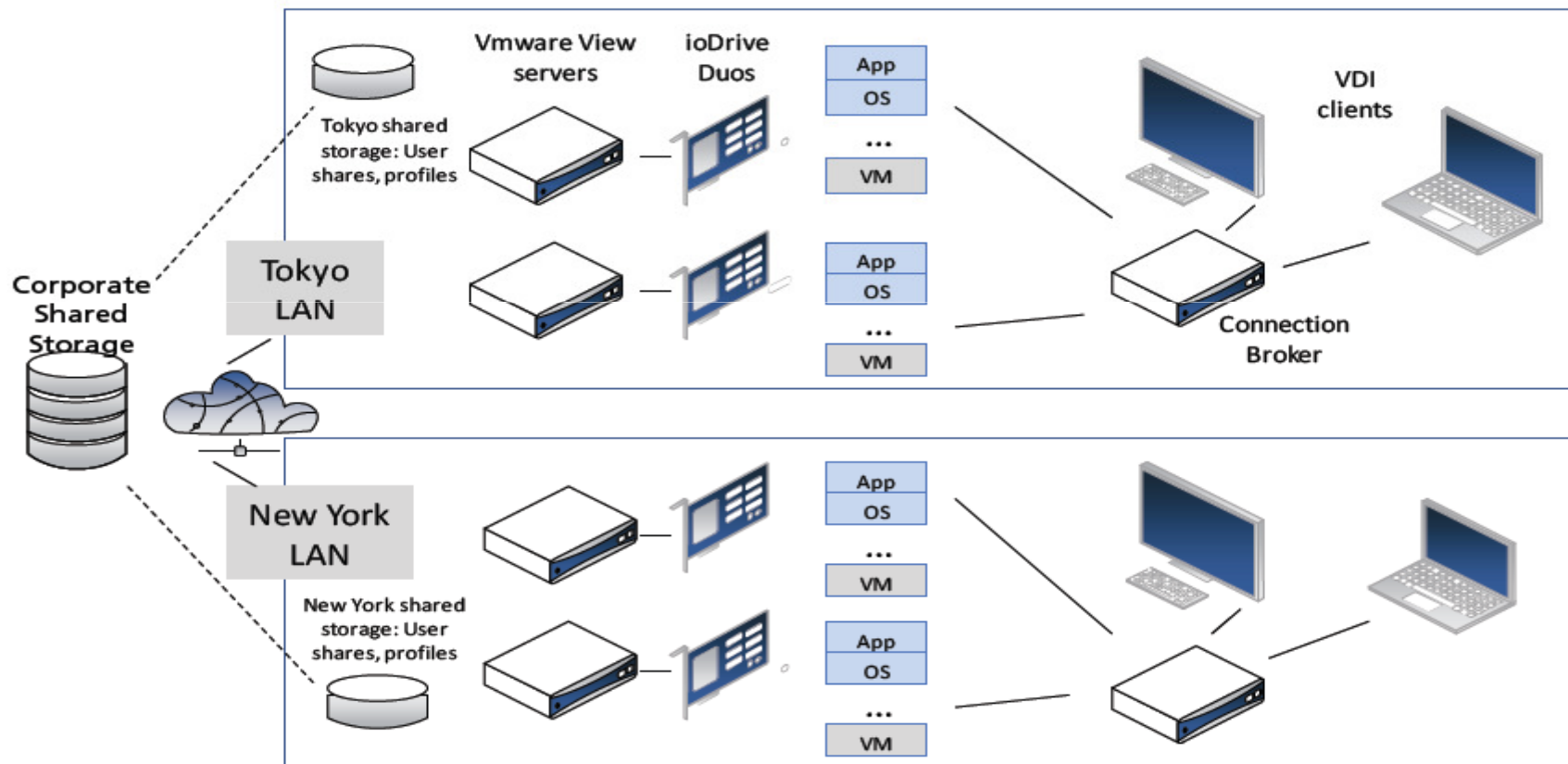

Note: Diagram courtesy of Fusion-io

Fusion-io Distributed Deployment

Note: Diagram courtesy of Fusion-io

Fusion-io Solution – Best Practices

Best Practices

- Use folder redirection and profile solutions such as View Persona Management
- Store user data on CIFS shares (or File Servers)
- Storage Golden Master on Fusion-io
- To calculate storage capacity use this formula
  - VM * (Delta Footprint + Log + User Data Disk) + Replica + Master Replica + Overhead
- Use a maximum of
  - 50 concurrent provisioning operations
  - 50 concurrent power operations

Conclusion

- Netapp / IBM N-Series and Fusion-io provide two difference yet equally impressive and cost effective storage solutions for VMware View Virtual Desktop solutions

- Netapp provides solutions using intelligent cloning techniques / VMware VAAI integration and Flash Cache / Flash Pools for maximum performance using read/write cache

- Fusion-io provides extremely high I/O performance in a compact PCI-e form without the need for expensive shared storage

- Fusion-io & Netapp have solutions which provide exceptional performance during boot storms

- Both Solutions save money on expensive Shared storage disk, Fusion-io by using local flash based storage, and Netapp / IBM N-Series by intelligent cloning techniques