Cisco Education Day

Leveraging the next set of capabilities for improved Quality of Education

Virtualization: Enabling the Education Cloud

Agenda

- The Journey – into Private Cloud
- Key Challenges in academic world
- Tackling the next set of challenges:
  - Lab
  - Desktop
- Q & A

Why Cloud?

Cloud Defined – New Style of Computing

Cloud computing is the efficient pooling of on-demand, self-managed virtual infrastructure, consumed as a service

Business Benefits:

Maximum Efficiency

Optimized resource utilization and automation, leading to increasingly low-cost delivery.

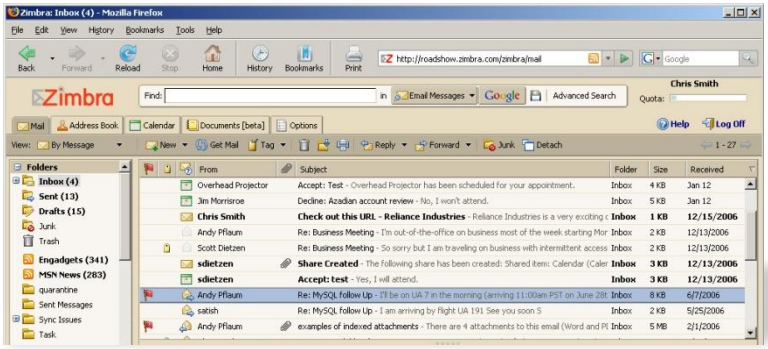
Increased Agility

On-demand nature in a self-service environment dramatically increases responsiveness to business demands.

User-centric

An approach that empowers end-users through managed IT service delivery, defined by business-level policies, putting the business back in charge of its destiny.

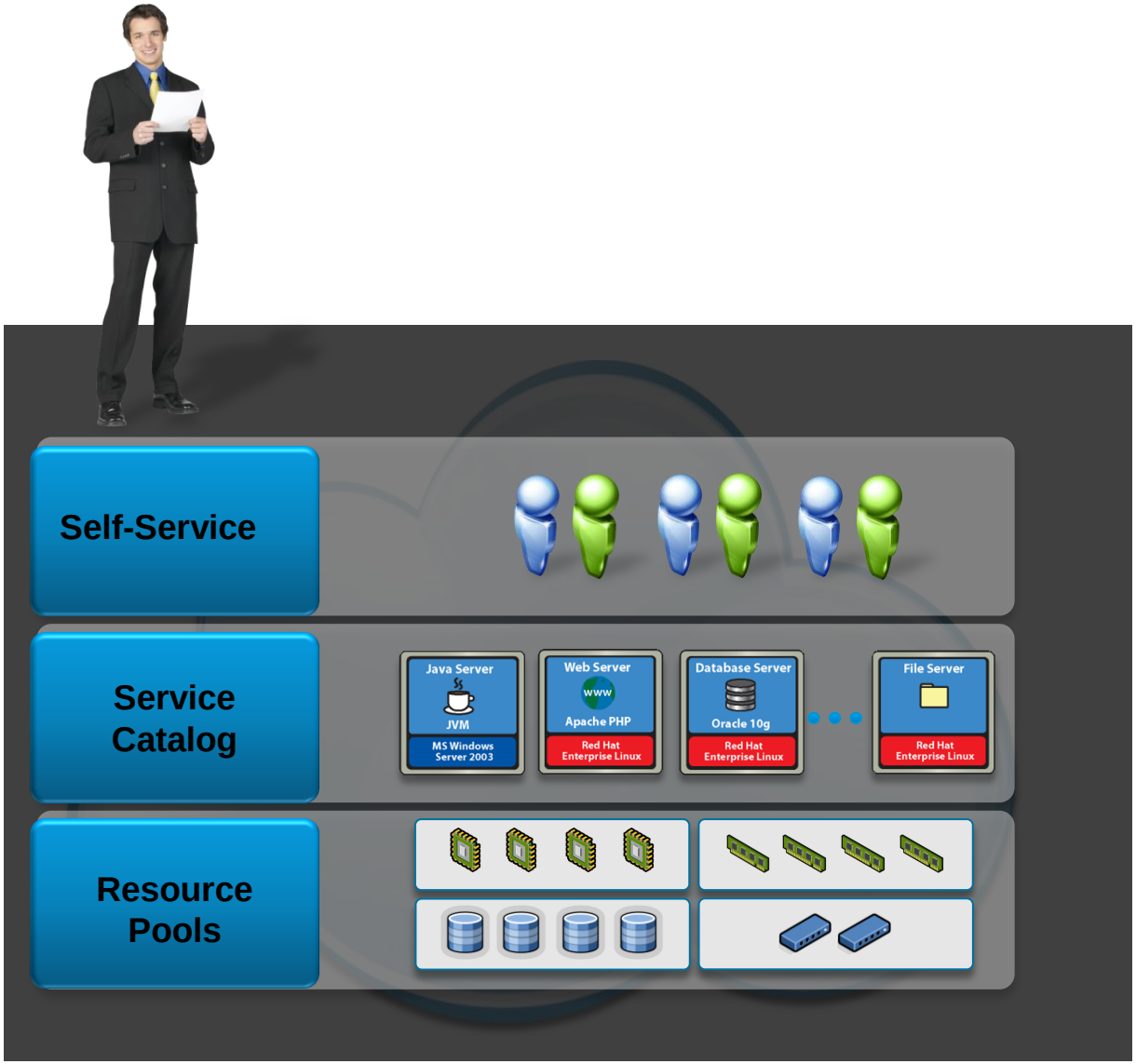
Cloud Architecture + Self-Service = Agile Service Delivery



Web =
Self-Service, Instant Access

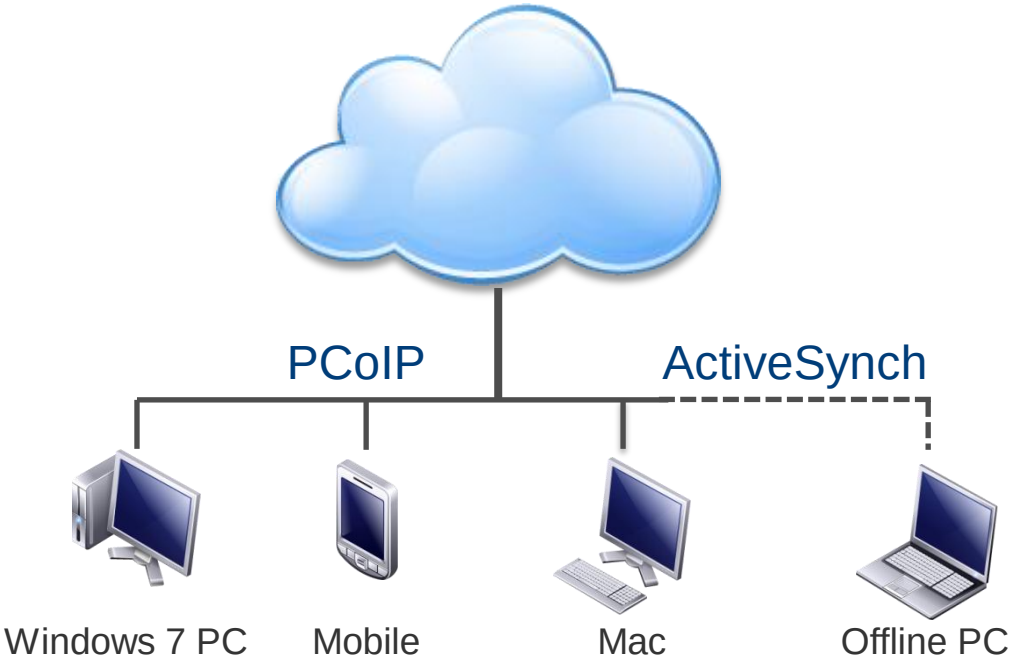
Business IT =
Delayed Delivery

Cloud Architecture + Self-Service = Agile Service Delivery



Datacenter to Desktop – All Part of the Cloud Strategy

Deliver Desktops as a Managed Service



IT Management/Control

- Desktops and data are secure in datacenter
- Simplified central management
- Reduced costs
- Improved levels of service and availability

End-User Freedom

- Desktops tied to end user identity, not devices
- Applications and data available 24/7
- Rich desktop experience
- Access without boundaries

Key Challenges

Key Challenges - sample

Lab & E-learning challenges

- Takes a long time to setup labs / maintain labs
- Difficult to share lab materials between students/lecturers/classes etc
- .....

Desktop challenges

- Too many frequent patches and application upgrades
- Lack of control of desktops
- Desktop refresh fatigue!
- .....

Application migration & support challenges

- Legacy application supportibility (ie Windows 7)
- Need application to run in kiosks
- Long and expensive application migration cycles
- .....

Lab Challenges

Service Provisioning for IT Trainings

Task: You are IT Administrator for a Provider of IT Training

- Setup a Classroom for MS Exchange Training
- 10 Students, each seat with it own, isolated environment
- One seat alone exists out of 4 Machines: Desktop, Domain Controller, Exchange Server, Database Server

Challenge: How to provision 40 Machines most effectively?

How to Provision 40 Machines Most Effectively?

- Non-Virtualized:
  - grab 40 PCs
  - Provision Operating System via Imaging Software (automated)
  - Provision Software (automated?)
  - Customize every Setup, make sure they are all isolated from each other (Windows SID, duplicate IP, duplicate Domains?), verify Remote Access is working, ...
  - Reset Equipment after Course

= IT Trainings without Virtualization are painfull, time consuming and error prone

How to Provision 40 Machines Most Effectively?

- Virtualized:
  - ~~grab 40 PCs Create~~ 40 VMs using vCenter and Templates
  - ~~Provision Operating System via Imaging Software (automated)~~
  - Provision Software (automated?)
  - Customize every Setup, make sure they are all isolated from each other (Windows SID, duplicate IP, duplicate Domains?), verify Remote Access is working, ...
  - ~~Reset Equipment after Course~~ delete VMs with vCenter

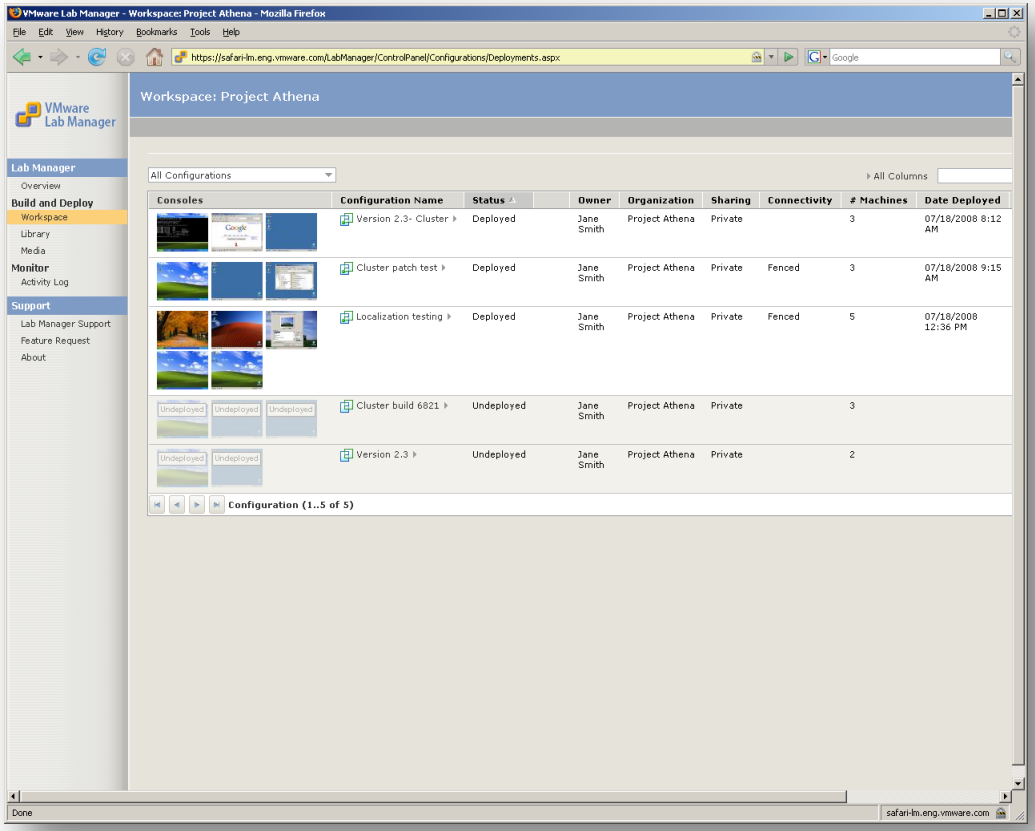
= IT Trainings with Virtualization decrease provisioning time but most tasks remain painfull

How to Provision 40 Machines Most Effectively?

- Using vCenter Lab Manager:
  - ~~grab 40 PCs Create 40 VMs using vCenter~~ and Template
    Deploy 4 VMs in less than one Minute
  - ~~Provision Operating System via Imaging Software (automated)~~
  - Provision Software once!
  - ~~Customize every Setup, make sure they are all isolated from each other (Windows SID, duplicate IP, duplicate Domains?), verify Remote Access is working, ...~~
    Verify Setup once, reuse as many times as you want with as many seats as you need. No configuration, no issues.
  - ~~Reset Equipment after Course delete VMs with vCenter~~
    Let Lab Manager do the work for you.

Solution- VMware vCenter Lab Manager

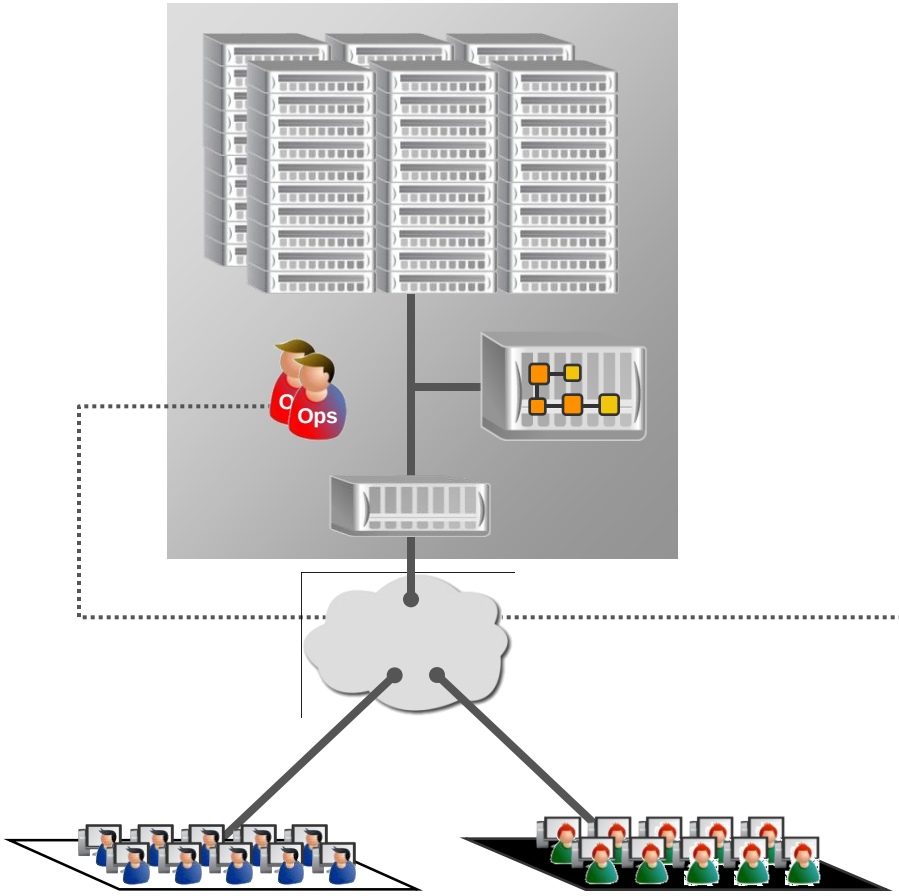
Complete Application Lifecycle Management



vCenter Lab Manager

- **Self-service portal** for non-IT users to provision VM configurations in seconds, while ensuring IT control
- **Image Library** to reduce storage footprint, improve asset sharing and team collaboration
- **Allocate resource** containers to users groups and enforce policy-based
- **One click promotion** of multi-tier apps from one stage to another

VMware Lab Manager System Overview



vSphere 4
Standard, Advanced, Enterprise, or Enterprise Plus Editions

Lab Manager Storage Library
NFS or VMFS Datastores

vCenter Lab Manager 4 Server Software

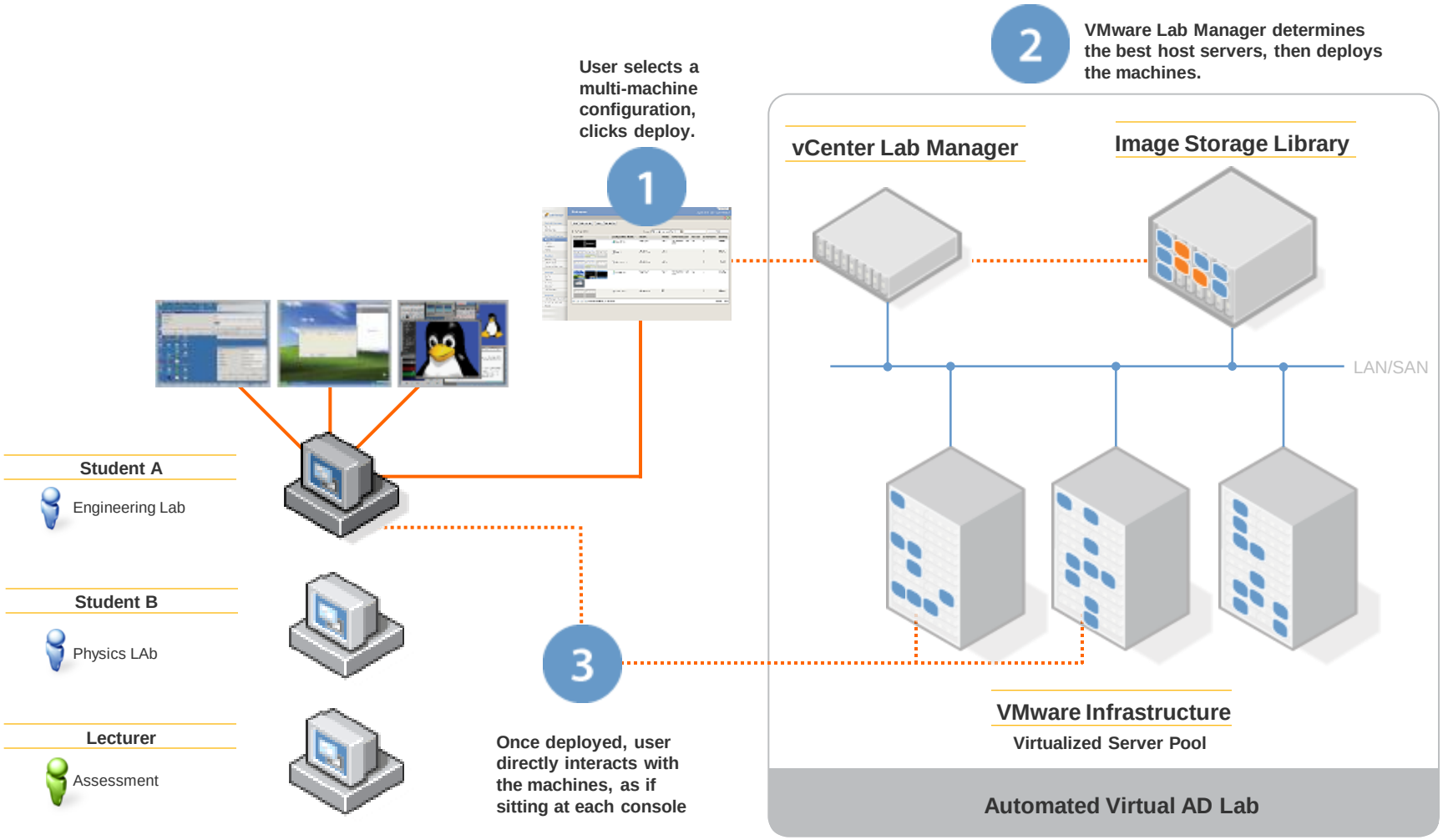
Lab Manager Administrators
IT Operations or *Lab Manager*

Lab Manager Users
Local or distributed software teams
Release management
Application administrators

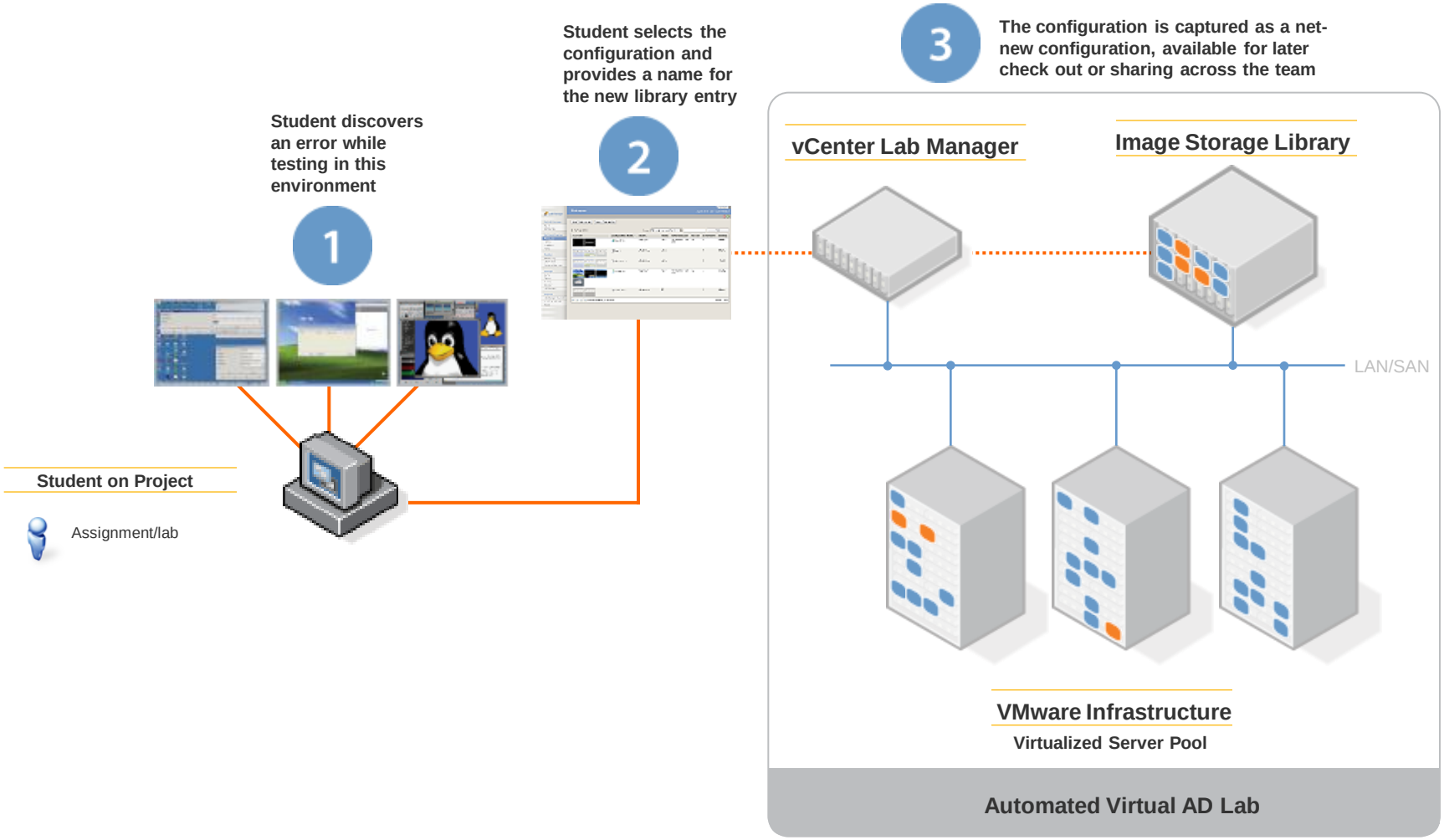
Core Technologies

- **Linked Clones**
  - Copy multiple machines on the order of seconds rather than hours
  - Reduced storage requirements
- **Fencing**
  - Allows simultaneous use of copies without changing their properties
- **Saved State**
  - Never again wait for a VM to boot
  - Capture bug state
- **Leverage VMware vSphere capabilities**

How VMware Lab Manager Works



Capturing configurations to the library

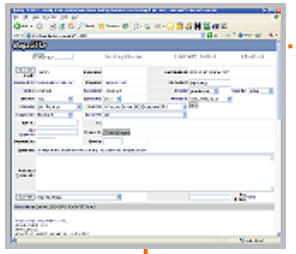


Sharing configurations across a distributed team

Lecturer opens the test report and reads description of the problem. Sounds like an issue with the database configuration. Lecturer clicks the LiveLink to deploy and troubleshoot the problem.

1

Assessment Report



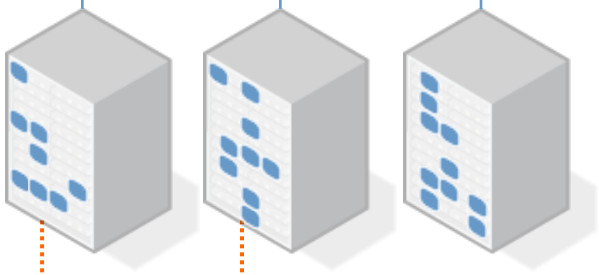
2

When the lecturer clicks the LiveLink, Lab Manager deploys the configuration giving the lecturer access to the entire test configuration exactly as it existed when the test failure occurred.

vCenter Lab Manager

Image Storage Library

LAN/SAN

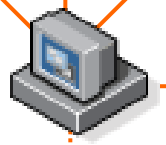


VMware Infrastructure

Virtualized Server Pool

3

With the configuration deployed, the lecturer can now interact with the machines directly, including using a debugger or any other troubleshooting aid.



Lecturer

Test center

Automated Virtual AD Lab

vmware

Benefits from using LM for Training

Fencing : Every Configuration/Student Setup is absolute identical

All Trainings are preconfigured and stored in a central Library

Milestones of the training can pre predefined and stored in the central Library (Service Catalog)

Only resources are needed for present students. If only 8 appear - I use 8 not 10

Ability for teacher to show students desktop without complex VGA cabeling

User sees all systems together. No need for RDP and Window switching

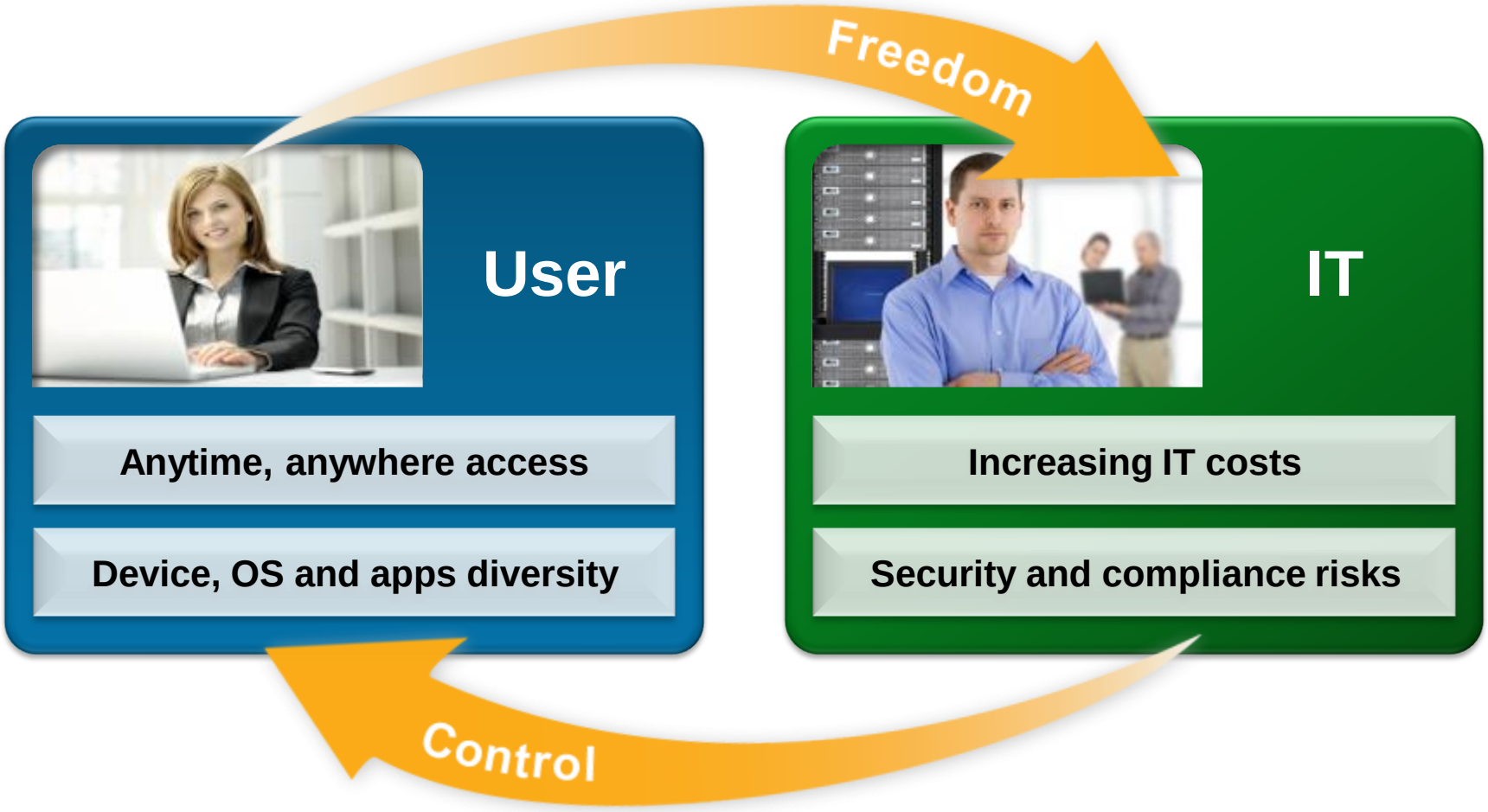
Linked Clones: Much faster and less storage

Clones: If a student misses milestones configuration can be cloned or checked out from library

Desktop Challenges

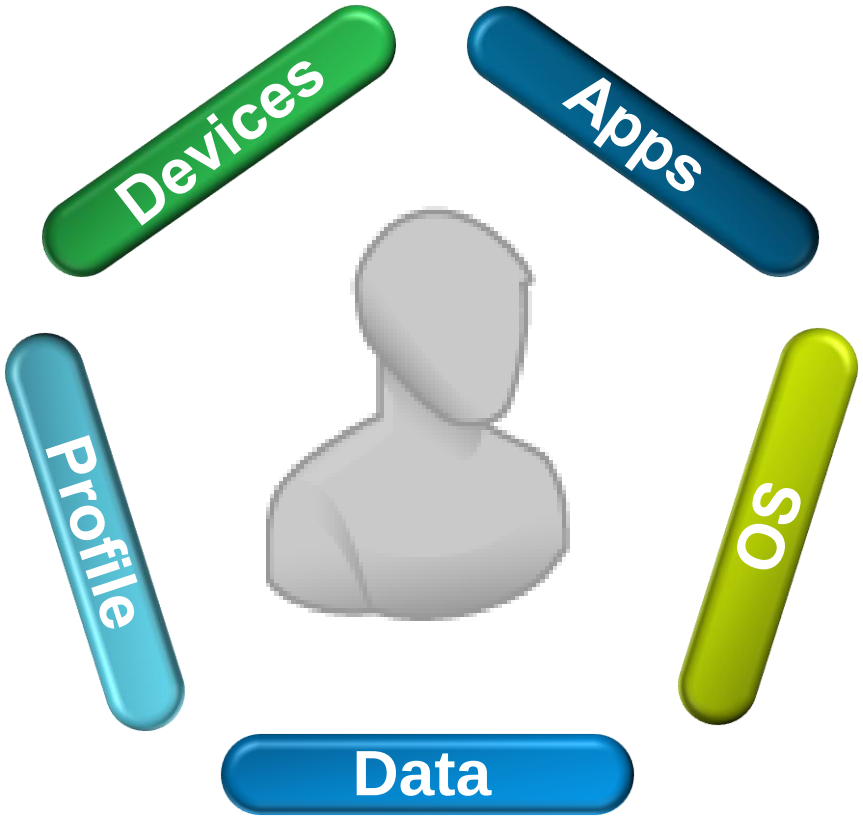
The Solution - VMware View

The desktop dilemma: User Freedom vs IT control



Virtualization unlocks components

Freedom for users, efficiency and control for IT



Benefits of delivering desktops as a managed service

IT Control

- Desktops and data are secure in datacenter
- Manage from a central location

End-User Freedom

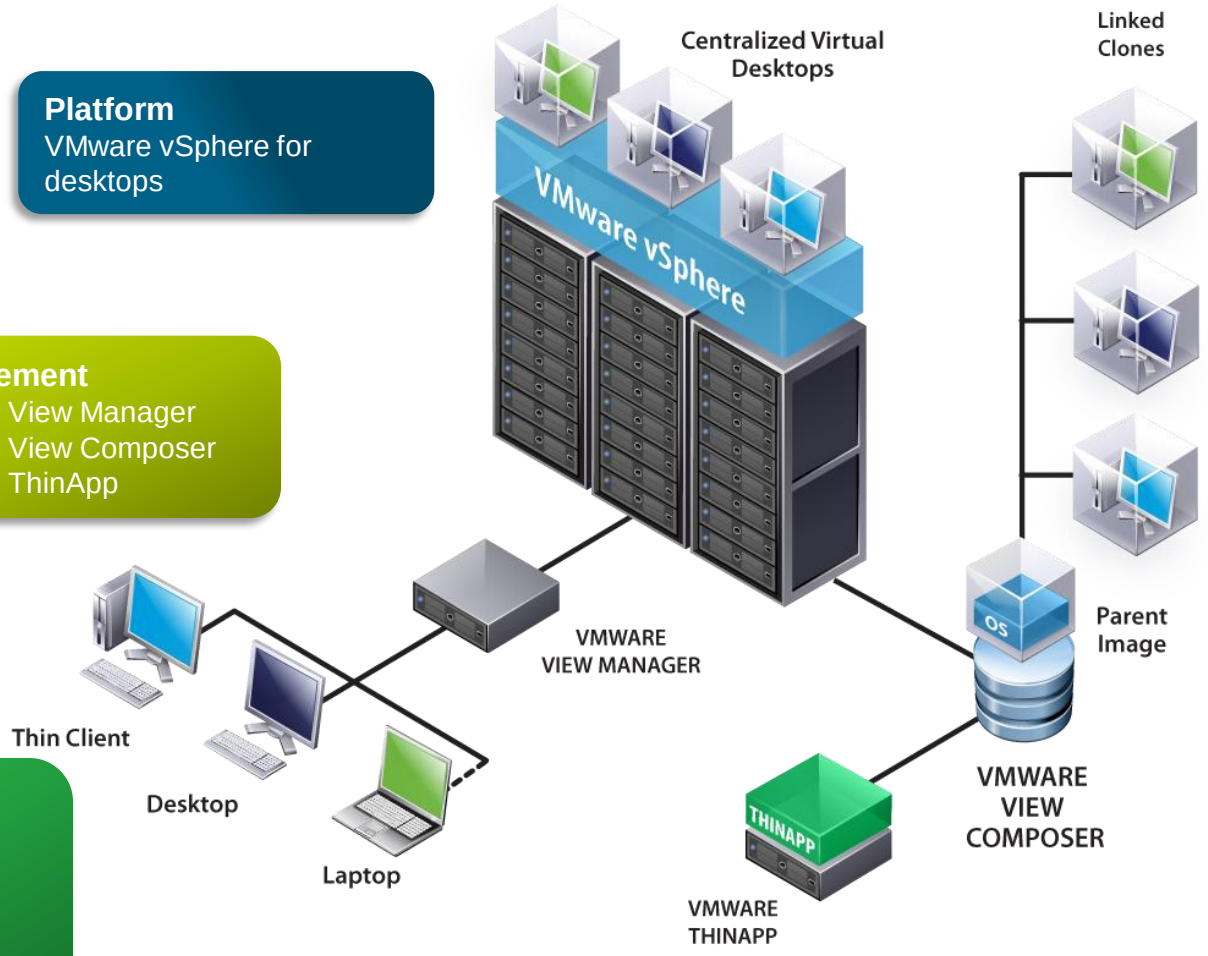
- Desktops tied to end user identity not devices
- Applications and data available 24/7
- Rich desktop experience

VMware View 4 – Built to deliver desktops as a managed service

Platform
VMware vSphere for desktops

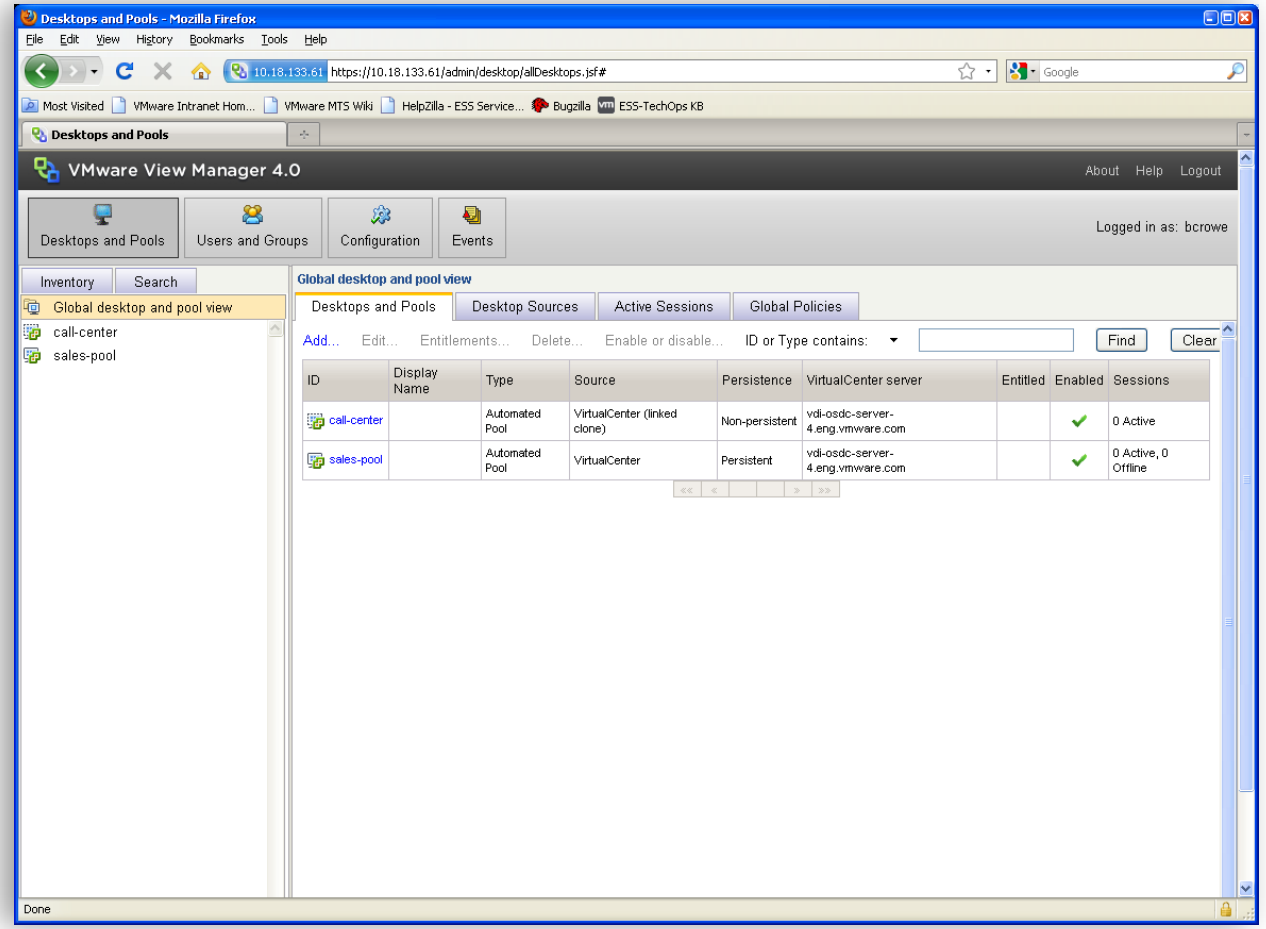
Management
VMware View Manager
Vmware View Composer
VMware ThinApp

User Experience
PCoIP
Print
Multi-monitor display
Multimedia
USB redirection



Single administrative interface

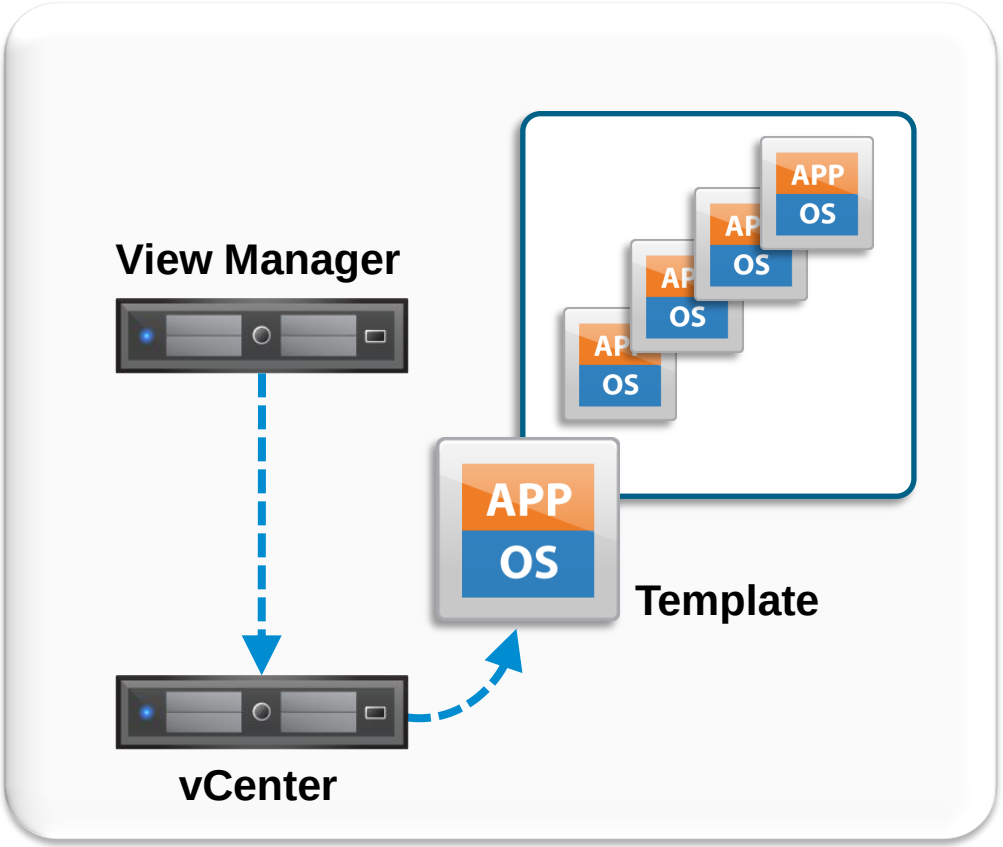
View Manager – simple web based interface to create desktops, entitle users, set policies and more



Provision desktops in minutes

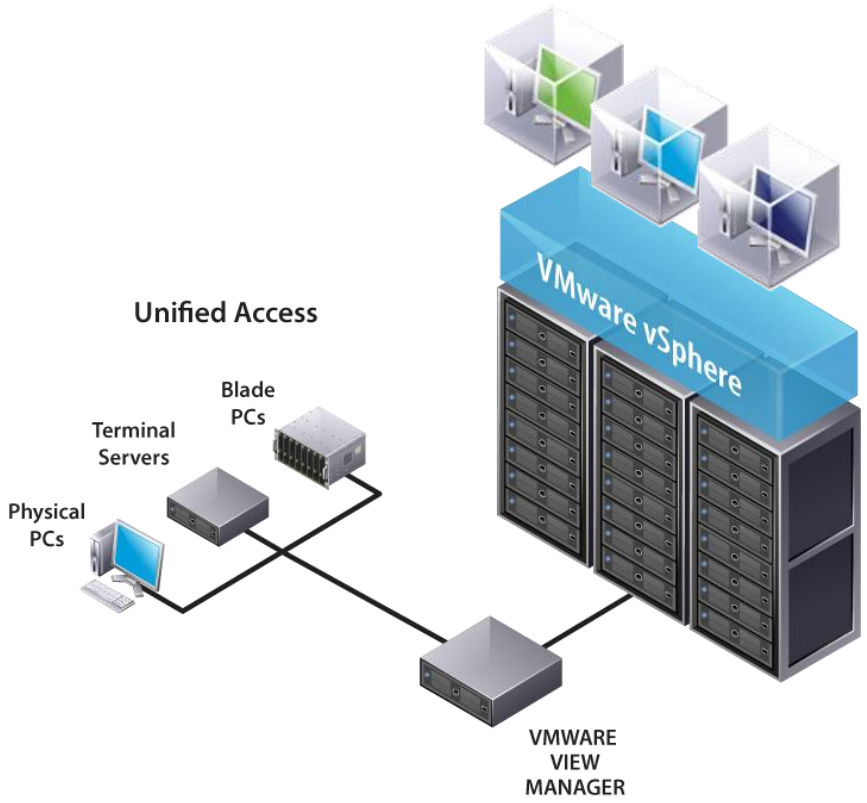
- Automate provisioning from a template
- On-demand provisioning
- Multiple types of desktops
  - Persistent, Non-persistent, Individual
- Apply group policies

Banner Health was able to provision 2600 users in under 10 days.

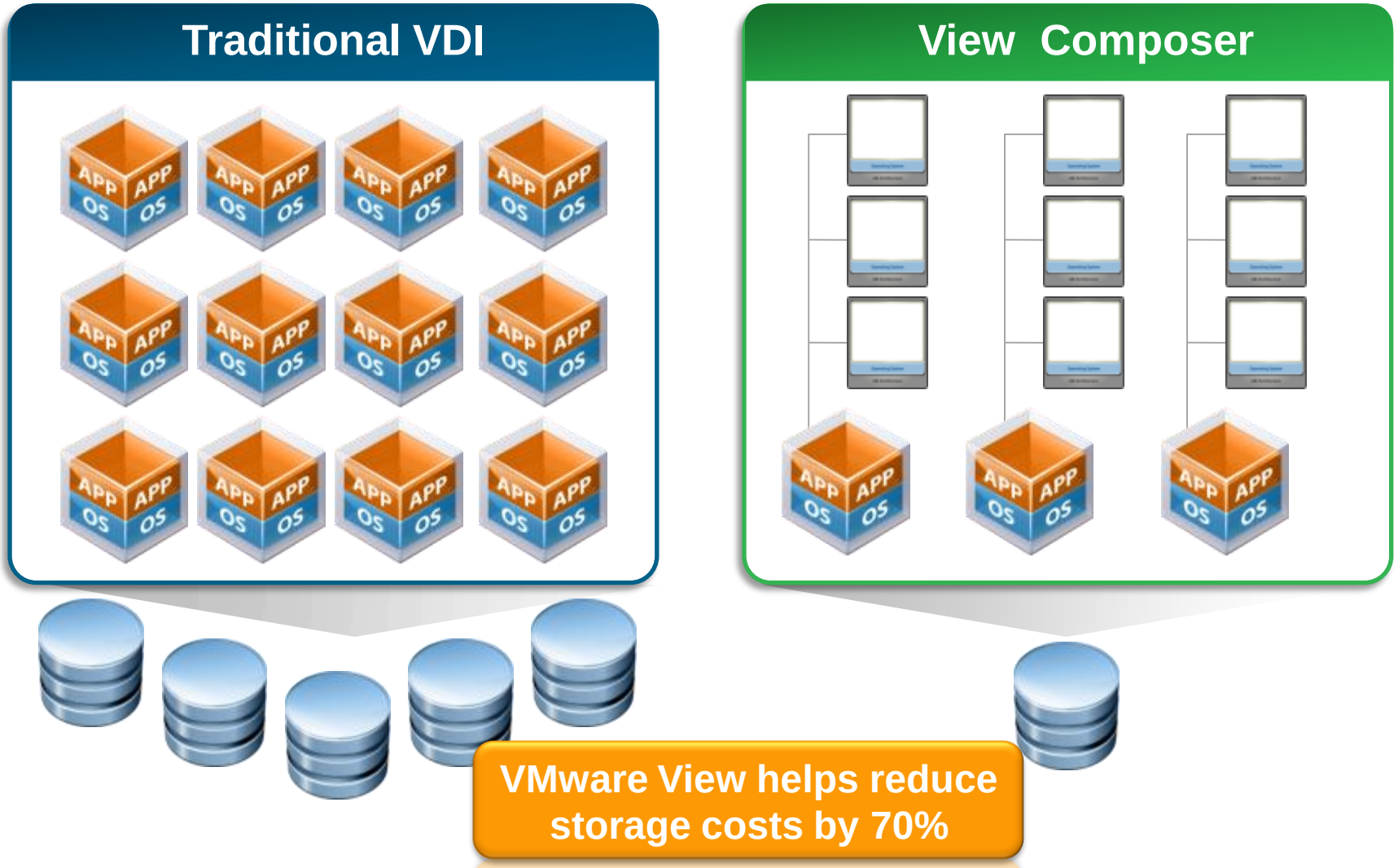


Secure brokering and management extended to other platforms

- Broker secure connections to other platforms
  - Terminal servers
  - Blade PCs
  - Physical PCs
- Balance loads of multiple terminal servers
- Monitor and audit within View Manager

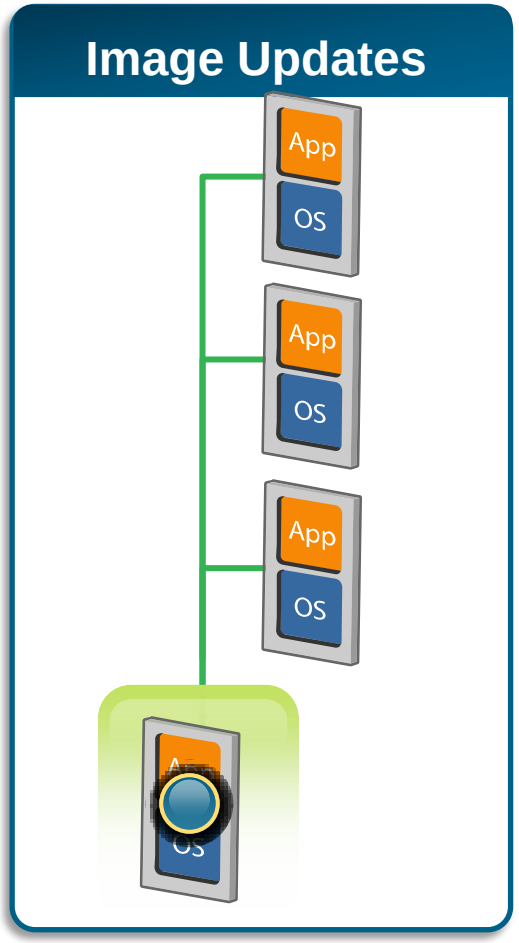


Optimize storage with View Composer



Simplify desktop image management

- Manage thousands of desktops
- Streamline desktop management with View Composer
  - Quick provisioning
  - Simplify update, patch, and upgrade activities while retaining user settings
  - Guarantee updates are applied to every desktop



Flexible access to desktops from multiple devices

Traditional PC/Laptop

Windows or repurposed PCs

Browser Access

Browser access on Windows, Linux and Mac

Thin Client Support

Broad industry support

vmware

Provide a superior experience from LAN to WAN using PCoIP

- Built for desktops
- Designed for the LAN and WAN
- Uses end-to-end software implementation
- Superior desktop experience from task worker to power user
- Flexibility to address the widest variety of use cases

PCoIP

vmware

Provide a seamless desktop experience

Rich media and graphics

Multimedia redirection

Progressive build of graphics

Productivity applications

True multi-monitor

USB redirection

VMware View & ThinApp – *Desktops as a Managed Service*

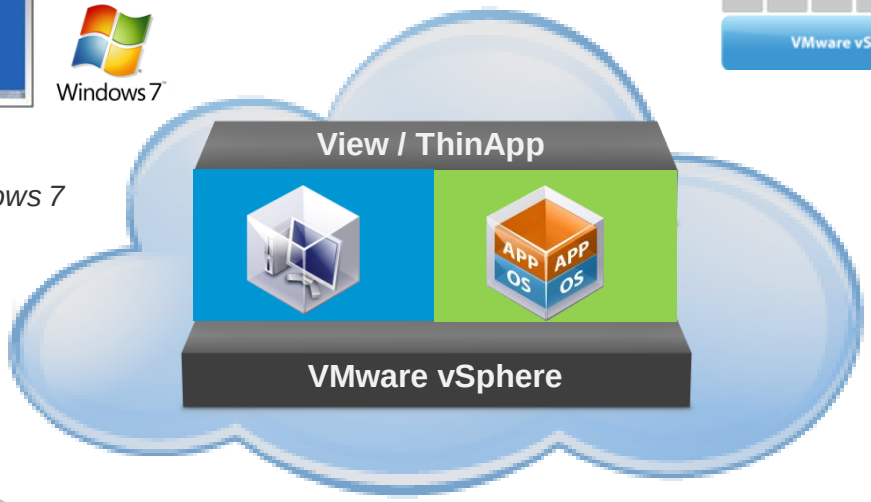
Business Continuity / Disaster Recovery

High availability at low cost, recover quickly, meet SLAs

Windows 7

Migration

Seamless move to Windows 7



Cloud: Flexible, efficient, scalable

Mobility

Follow me desktop

Corporate | Call Center | Remote

Application Virtualization

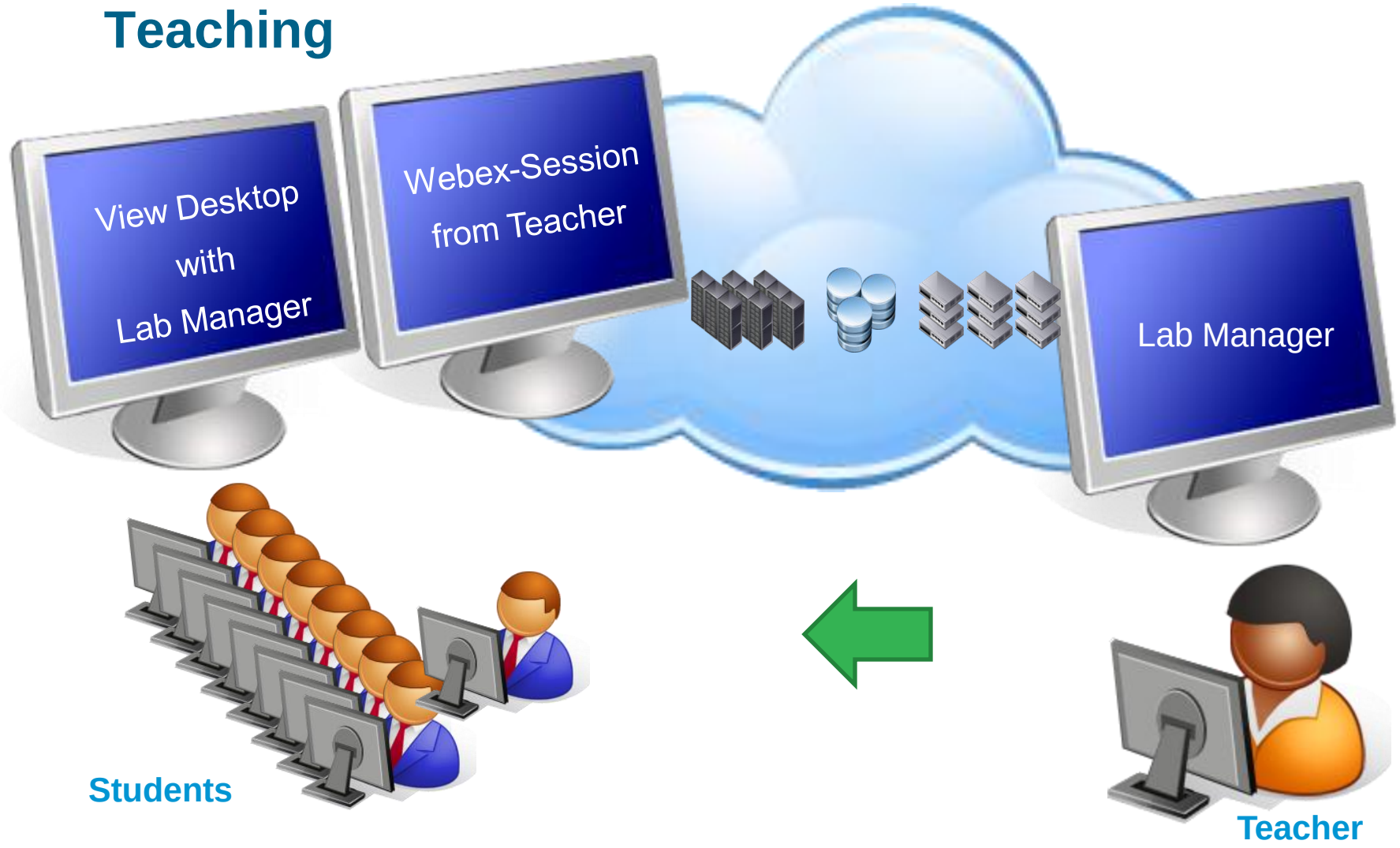
Virtualize, centralize, and stream applications

End user experience

Best experience with PCoIP display protocol

vmware

Remote Teaching



Backup

VMware Product Lines

VMware vCloud

Creating a bridge from private to public clouds

- Extend
- Supplement
- Choose

SpringSource by VMware

Programming Model for the Cloud

- Build
- Run
- Manage

VMware vCenter

Centrally Manage and Automate

- Manage
- Control
- Automate

VMware View

Desktop Independence

- Liberate
- Centralize
- Secure

VMware vSphere

Market Leading Virtualization Platform

- Consolidate
- Simplify
- Fortify

vmware