VMware Infrastructure

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VMware Infrastructure

*VMware Infrastructure is the most widely deployed software suite for **optimizing** and **managing** IT environments through virtualization – from the desktop to the data center*

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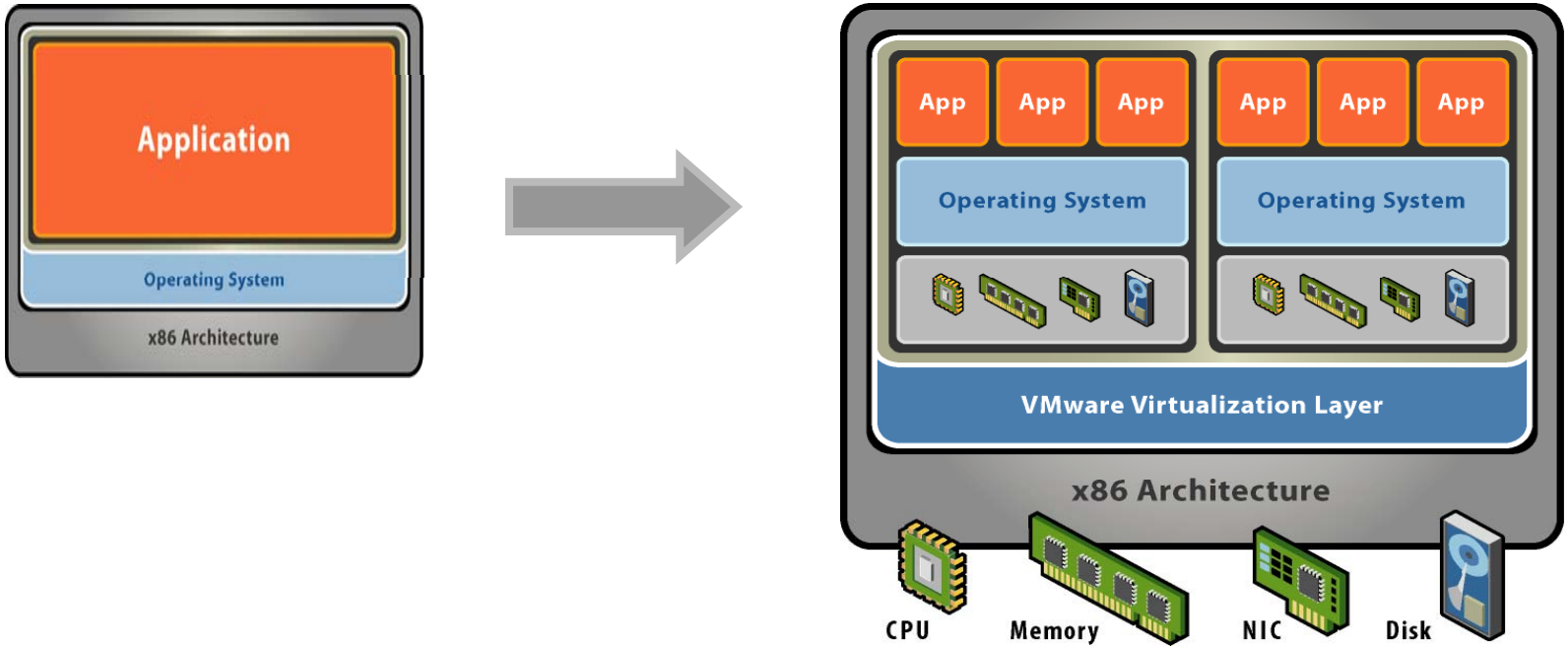
VMware Mission

Transform industry standard server and desktop computing through virtualization.



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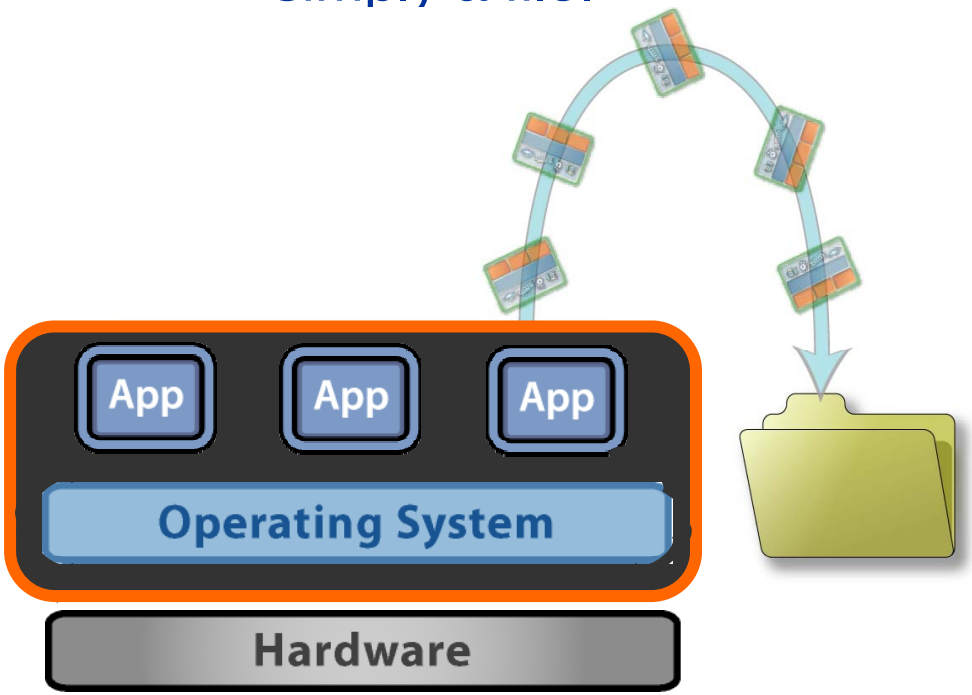
Encapsulation

Entire server – OS, apps, data, devices, and state – is now simply a file.



- Server provisioning is similar to copying a file
- Server migration is now similar to data migration
- Data management techniques can be used for server management
  - Server cloning/copying
  - Versioning
  - Server archival
  - Remote mirroring

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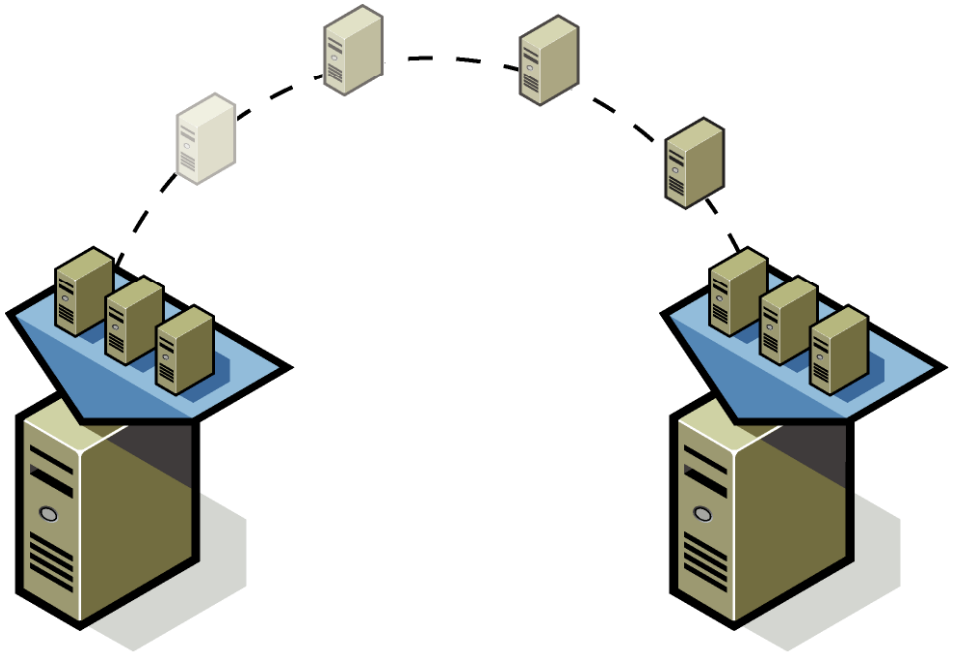
Hardware Independent

A Virtual Machines always sees the same set of hardware, independent of the physical hardware.



- Can be moved to different hardware, without any change.
- From Laptop to desktop to high-end Server
- Easy for:
  - Provisioning new machines
  - Disaster Recovery
  - Scaling

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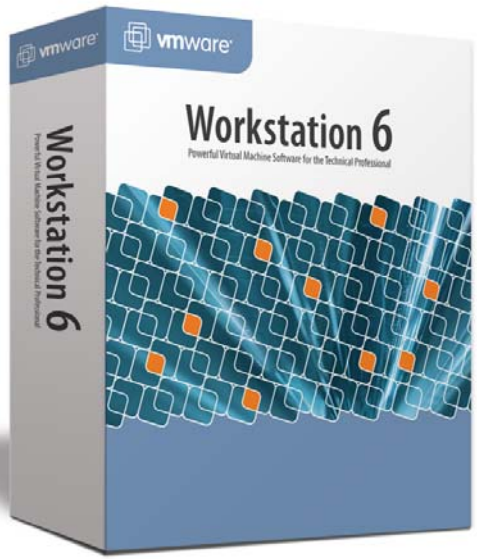
Desktop Virtualization

VMware Workstation 6

- Broadest Host & Guest Operating System Support
- Best-in-class Virtual Machine Architecture
- Advanced Network Support
- Richest Desktop Experience
- Powerful Development and Test Features
- Security and Mobility



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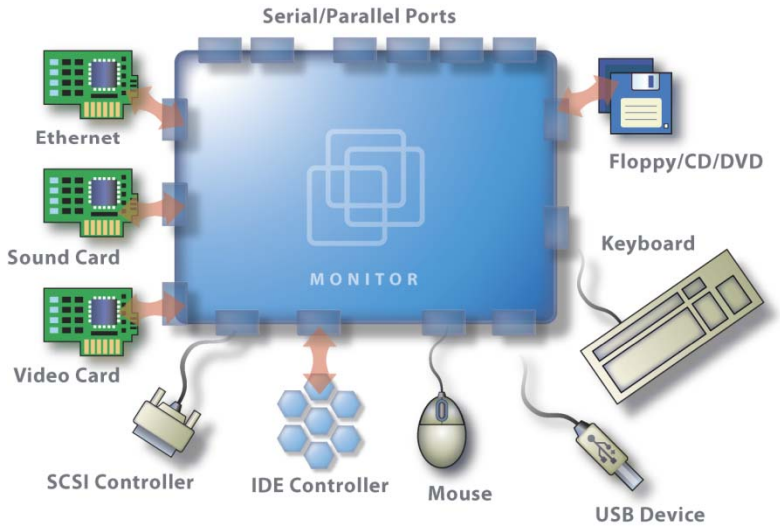
Advanced Configuration Options

Hardware Support

- 8GB RAM per VM / unlimited RAM across VMs
- IDE or SCSI disk support with configurable size
- Support for USB 2.0, DVD, CD-ROM devices

Guest Interaction

- HGFS 2.0 (Shared Folders)
- Cross-Platform Drag-N-Drop
- VMware Tools Auto-Upgrade
- Up to 10 Virtual PCI Slots



Best Virtual Desktop Experience

Multiple monitor display

- You can stretch a virtual machine to span multiple monitors, or multiple virtual machines to each display on separate monitors
- Up to **10** display monitors!

Support for USB 2.0 devices

- You can now use peripherals that require high-speed performance in your virtual machines, such as iPods and fast storage devices
- Up to **6** devices!

"Works with Windows Vista" certification

Works with Windows Vista™

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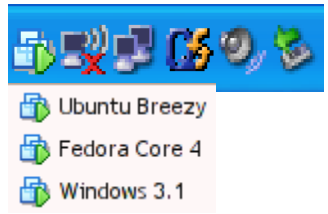
Advanced Test/Dev Features

Headless mode

- Run virtual machines in the background without using the Workstation user interface

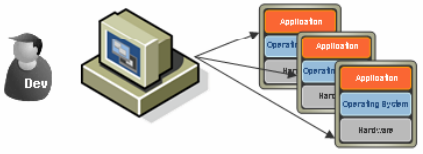


Remote Access

- Optionally turn on for any VM running in Workstation
- No need to install VNC or RDP server

Integrated Virtual Debugger

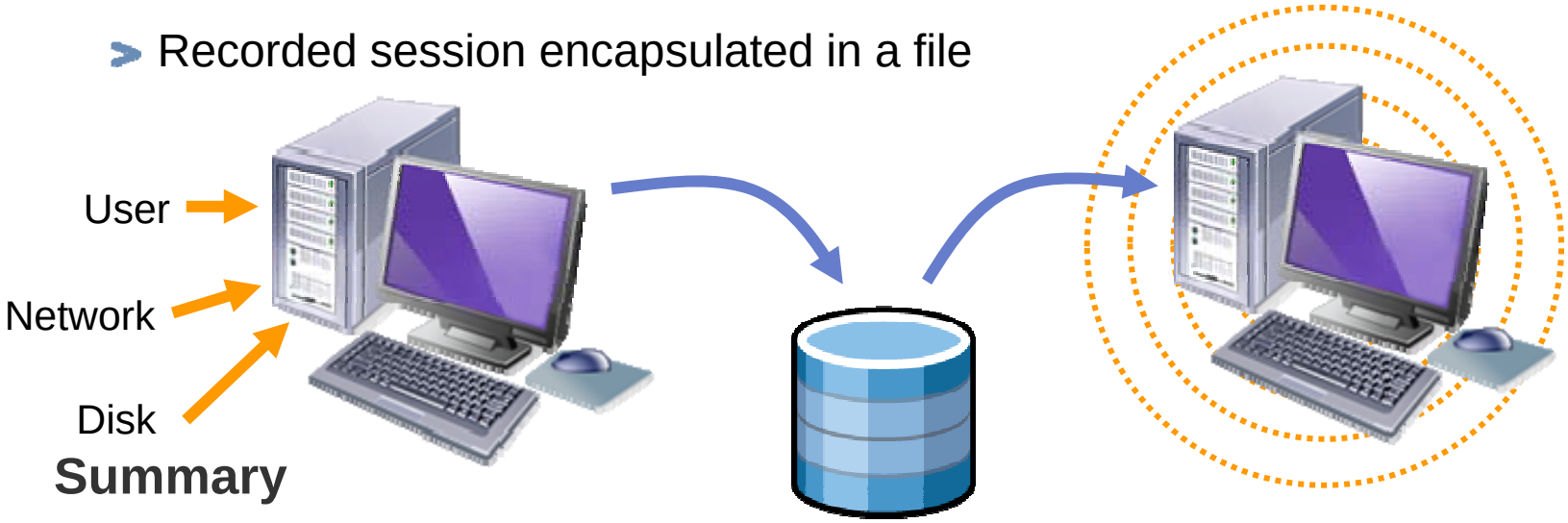
- Deploy, run, and debug in a VM from your IDE
- Integrates with Visual Studio and Eclipse



Record/Replay Overview

Technology overview

- Record and replay whole VM execution
  I.e., all threads, all processes, and operating system
- Instruction exact
- Recorded session encapsulated in a file



Summary

- Snapshot **:** static state as recording **:** dynamic state
- Perfect deterministic reproduction of VM execution

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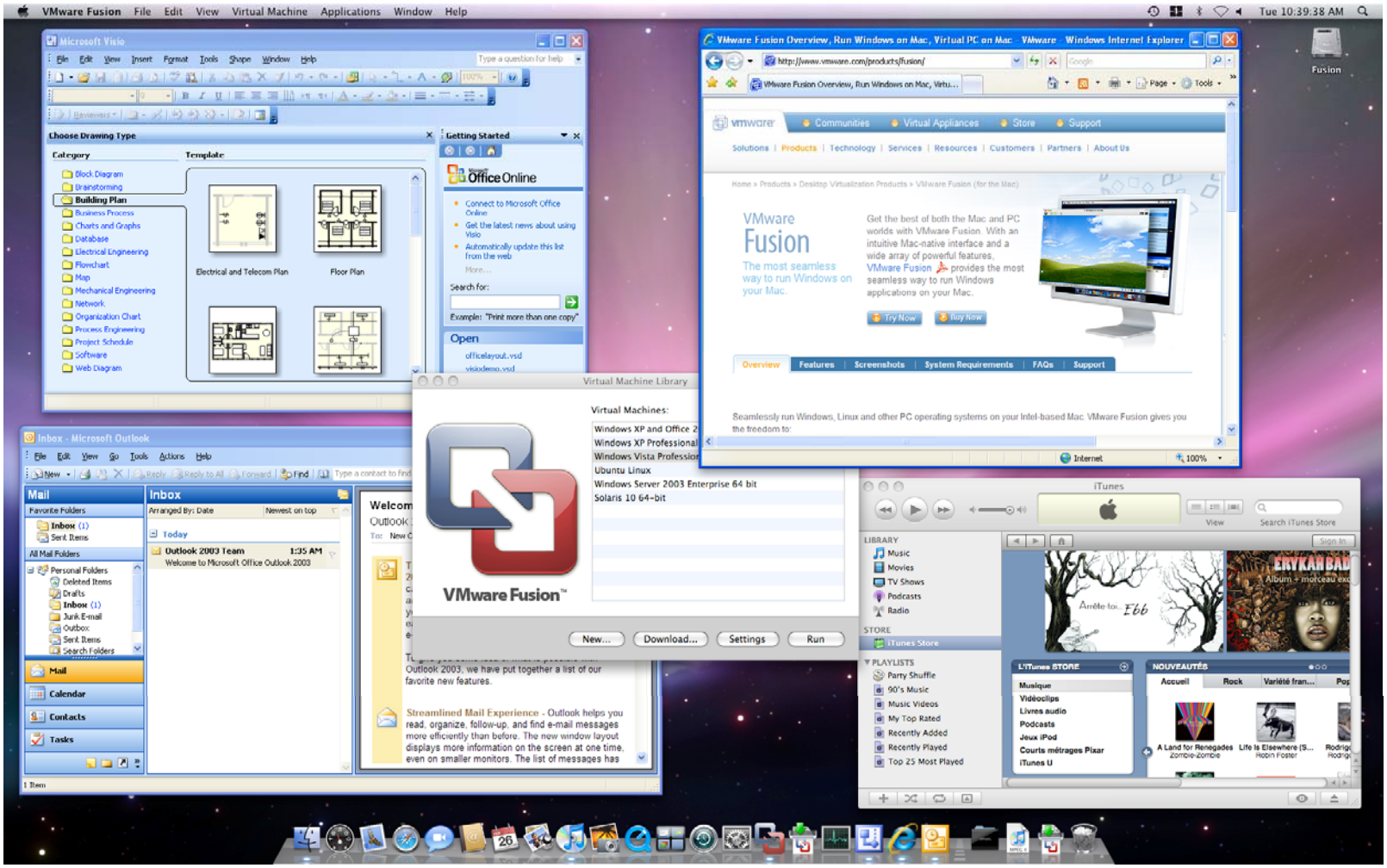
VMware Fusion



VMware Fusion

- User experience built from the ground up for the Mac
- Run Windows applications like Mac applications with Unity
- Freedom to run over sixty 32 and 64-bit supported operating systems
- Powerful multi-core virtual machines
- Drag and drop files - Share files - Copy and paste
- Use your favorite USB 2.0 devices
- Boot Camp friendly
- Seamless networking
- Snapshots

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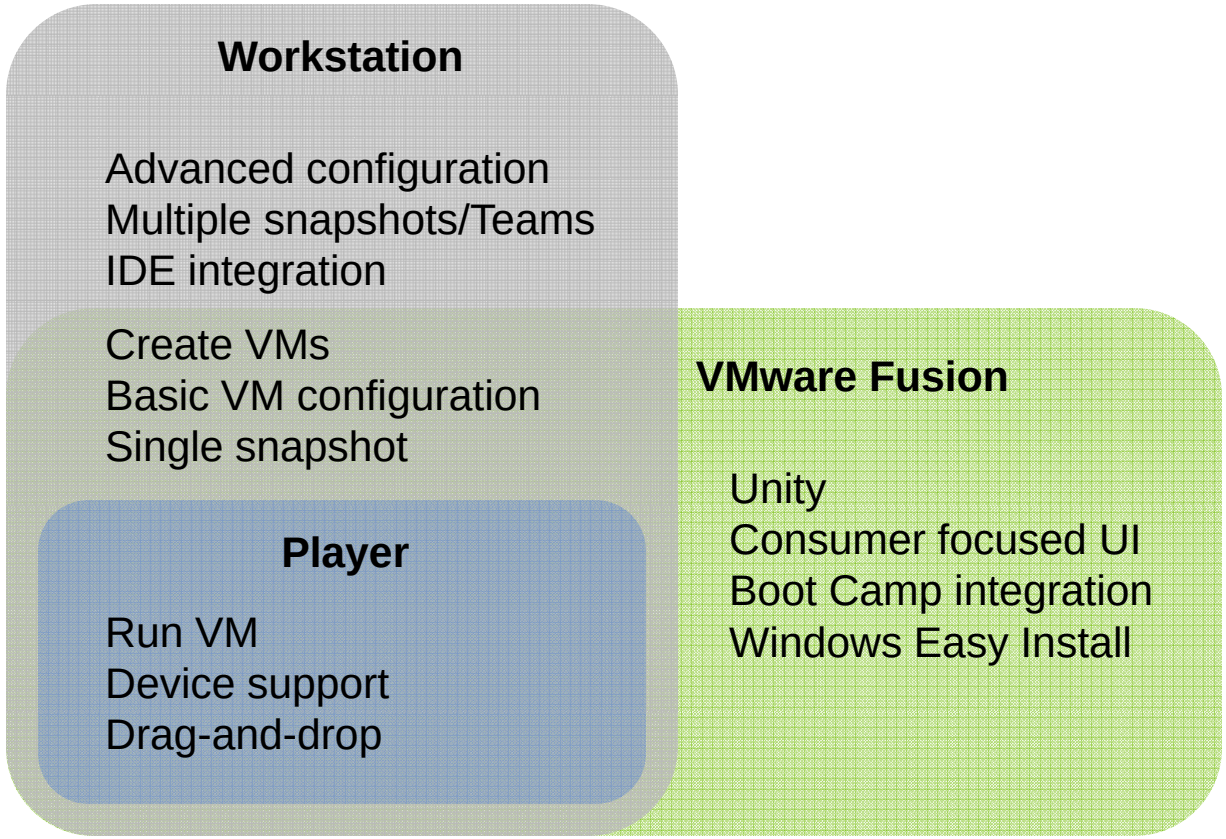
Where VMware Fusion Fits in Product Line



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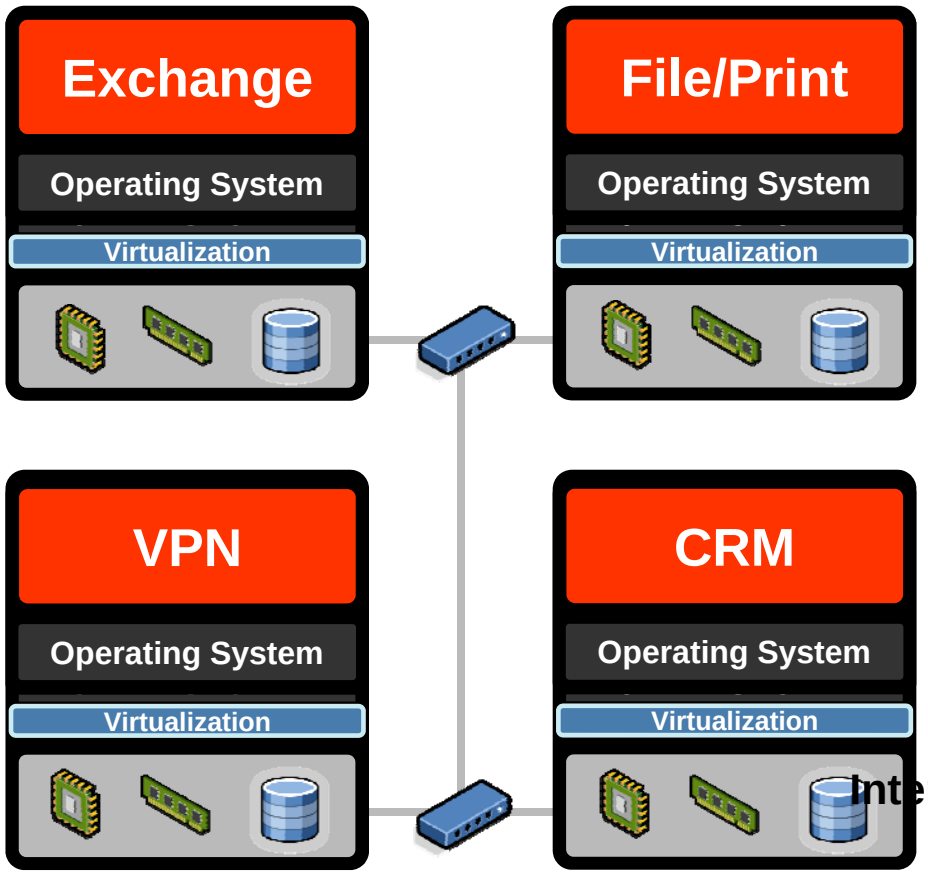
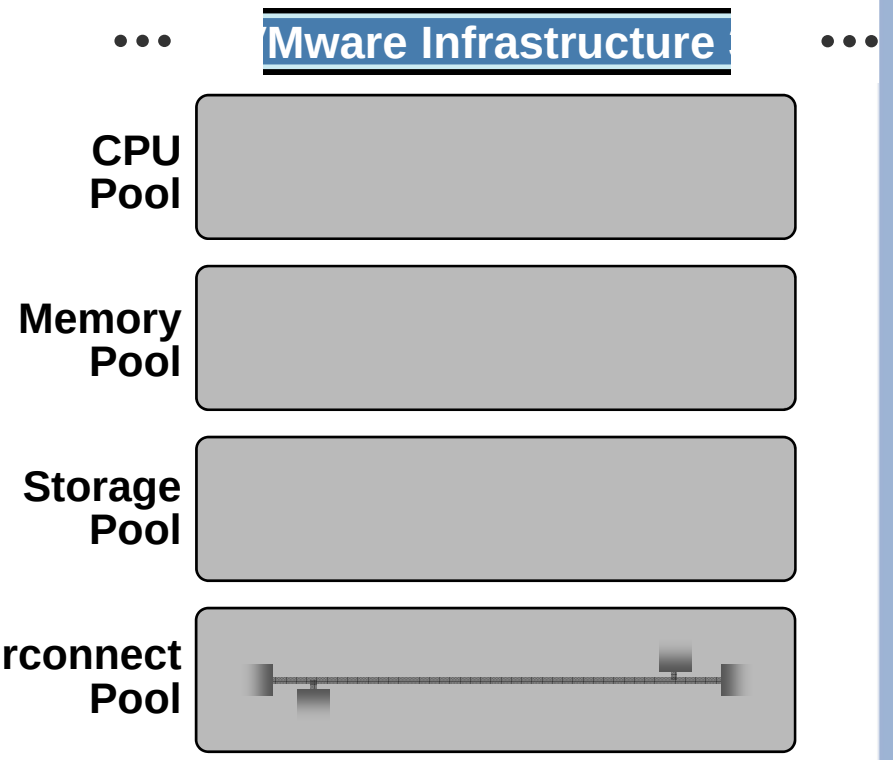
Virtualization as an Infrastructure

Traditional View

VMware Infrastructure





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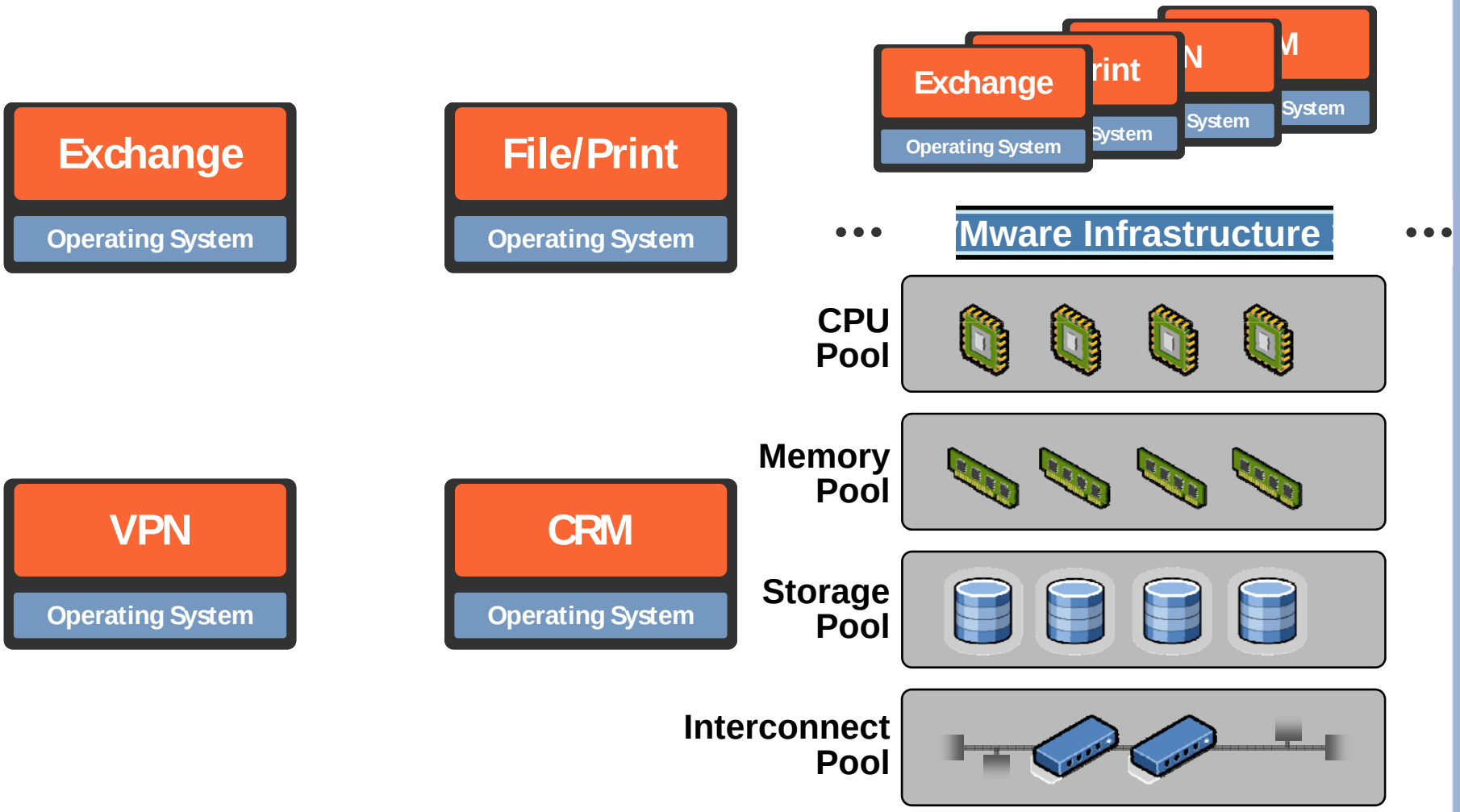
The New Datacenter



Virtual Computing Stack

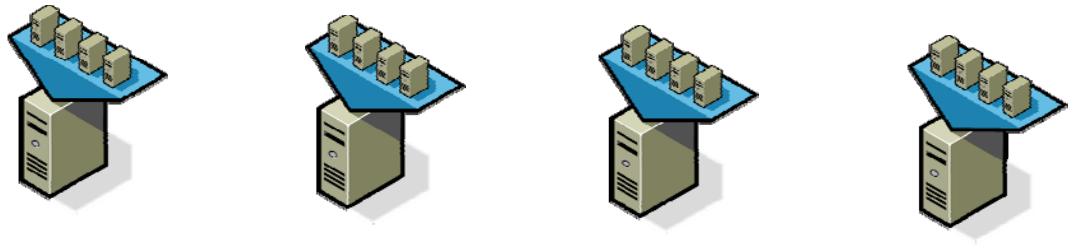
3 Virtual Infrastructure Management

- Infrastructure Optimization
- Business Continuity
- Desktop Management
- Software Lifecycle

2 Virtual Infrastructure

- Resource Management
- Availability
- Mobility
- Security

1 Hypervisor



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Resource Mapping

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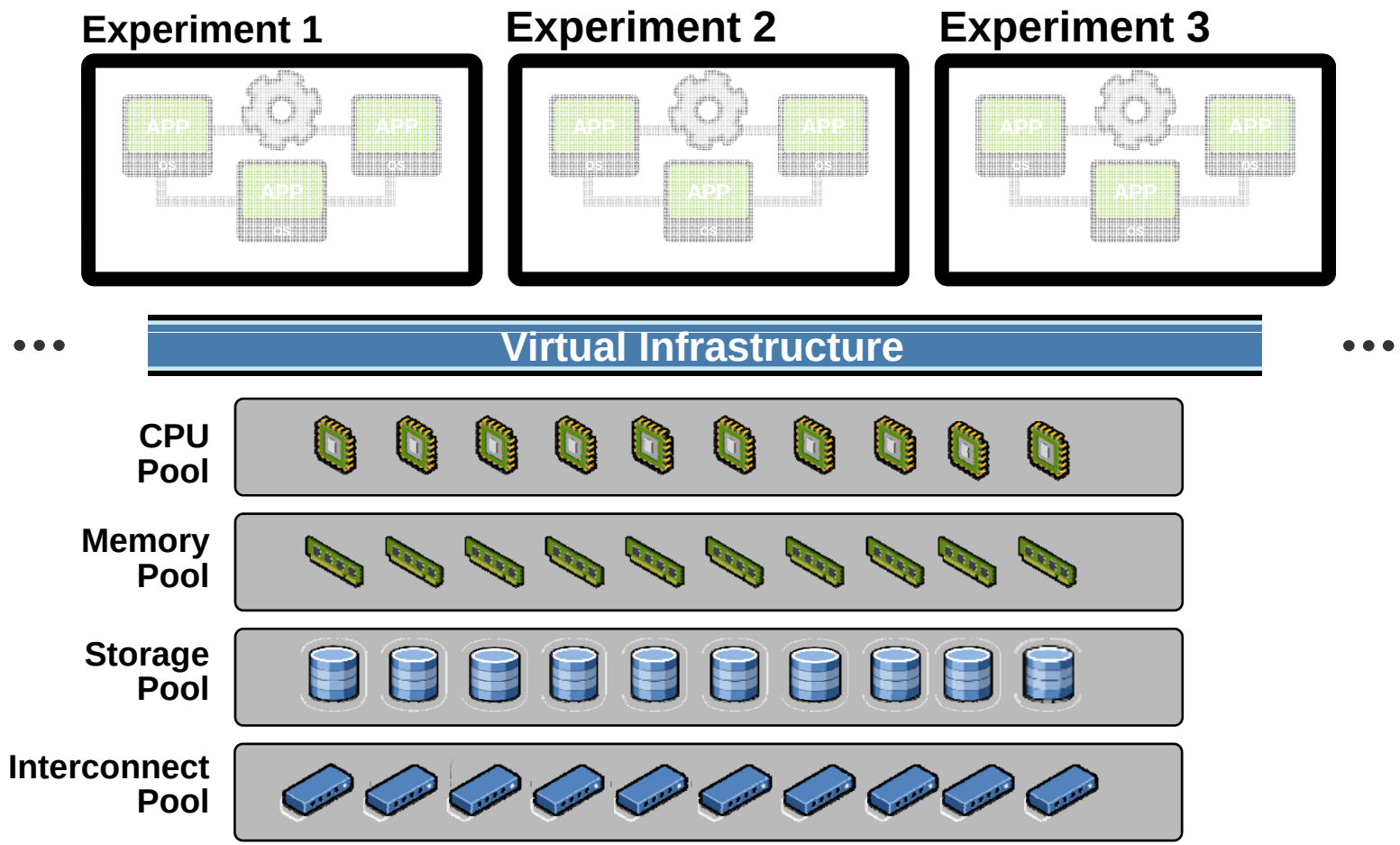
Distributed Resource Scheduler



VMotion allows VMs to be moved while running

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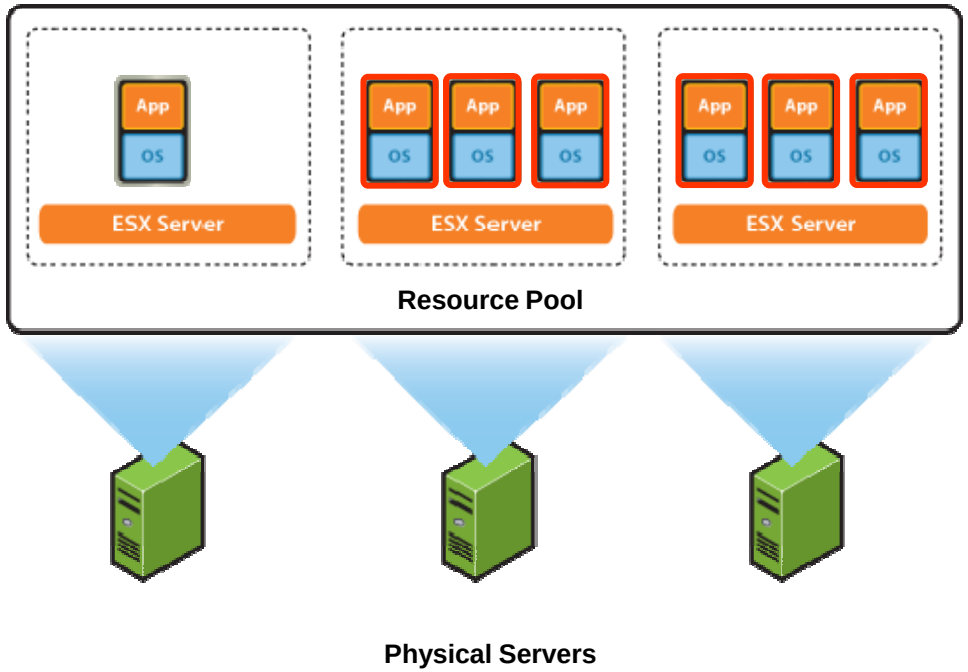
Distributed Power Management (experimental)



Consolidates workloads onto fewer servers when the cluster needs fewer resources

Places unneeded servers in standby mode

Brings servers back online as workload needs increase

- Minimizes power consumption while guaranteeing service levels
- No disruption or downtime to virtual machines

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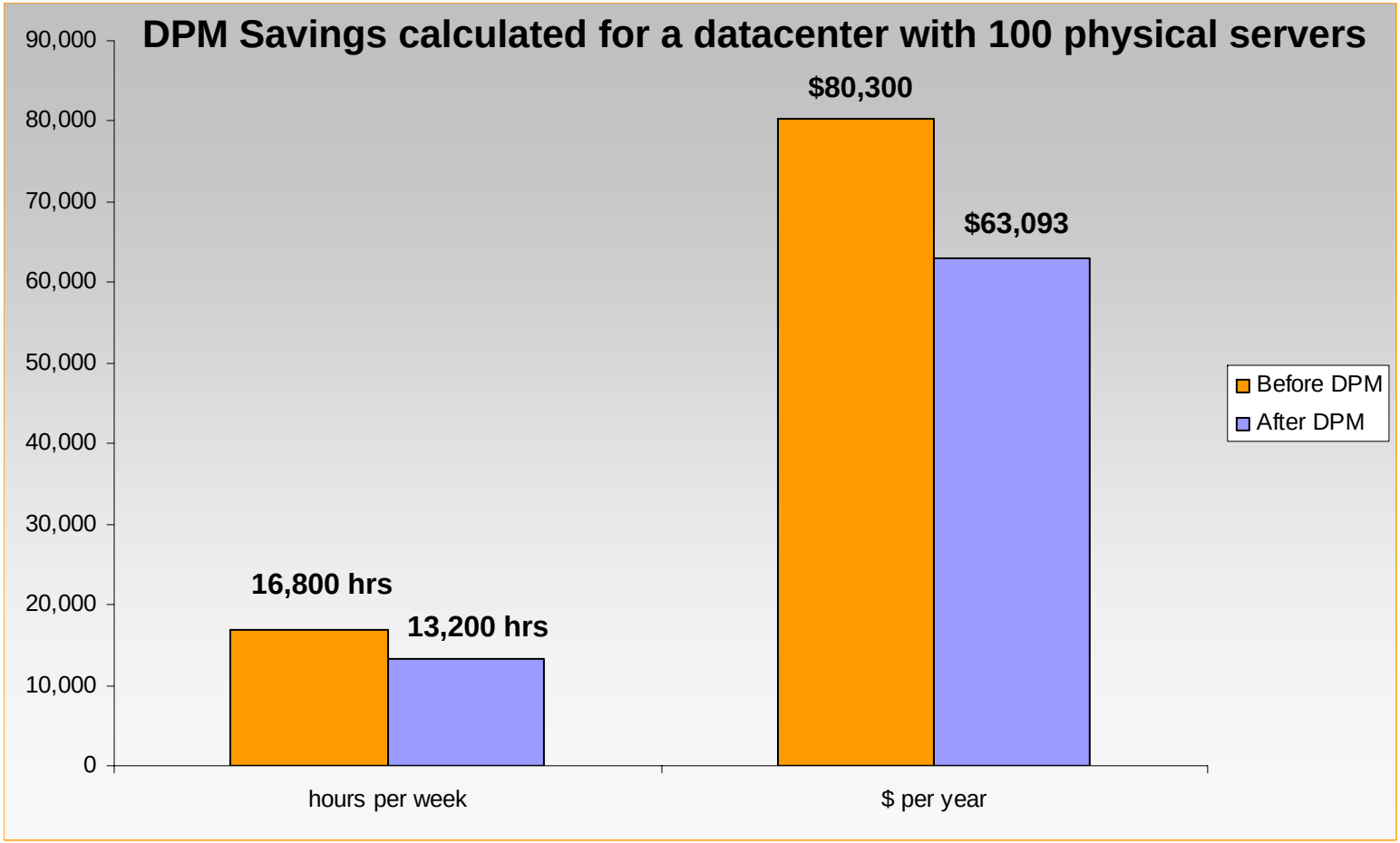
Distributed Power Management TCO Savings



Assumptions: 50 out of 100 servers can be powered down for 8 hrs/day on weekdays and 16 hrs/day on weekends.
Total power consumption per server (operating power + cooling power) = 1130.625 watts/hr
Cost of energy = $ 0.0813 per kWH (source: Energy Information Administration)

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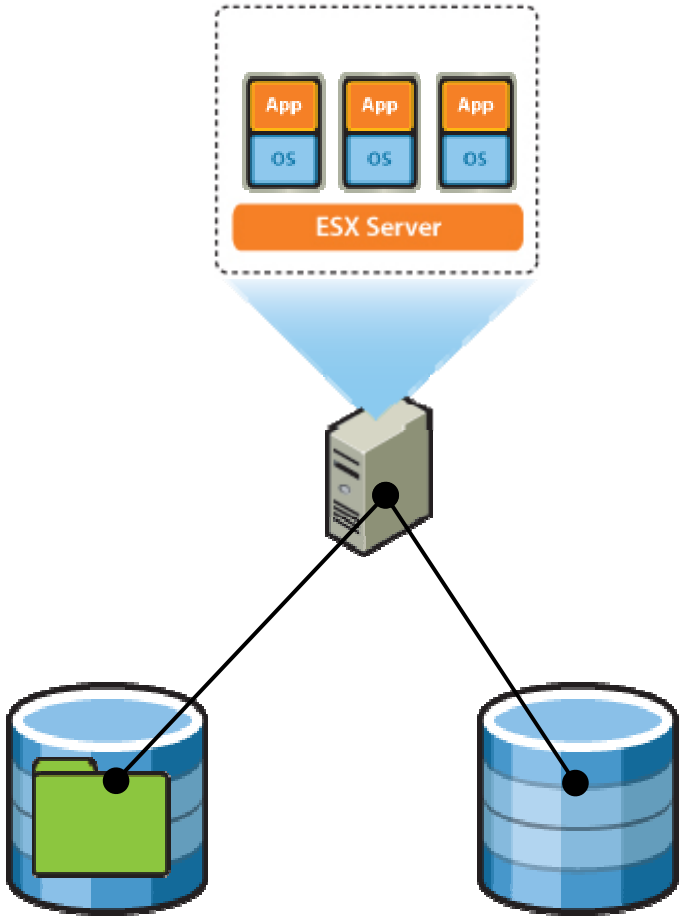
Storage VMotion



Storage independent migration of virtual machine disks

- **Zero downtime to virtual machines**
- **LUN independent**
- **Supported for Fibre Channel SANs**

- **Minimizes planned downtime due to storage**
- **Complete planned downtime management solution across servers and storage with VMotion and Storage VMotion**

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High Availability

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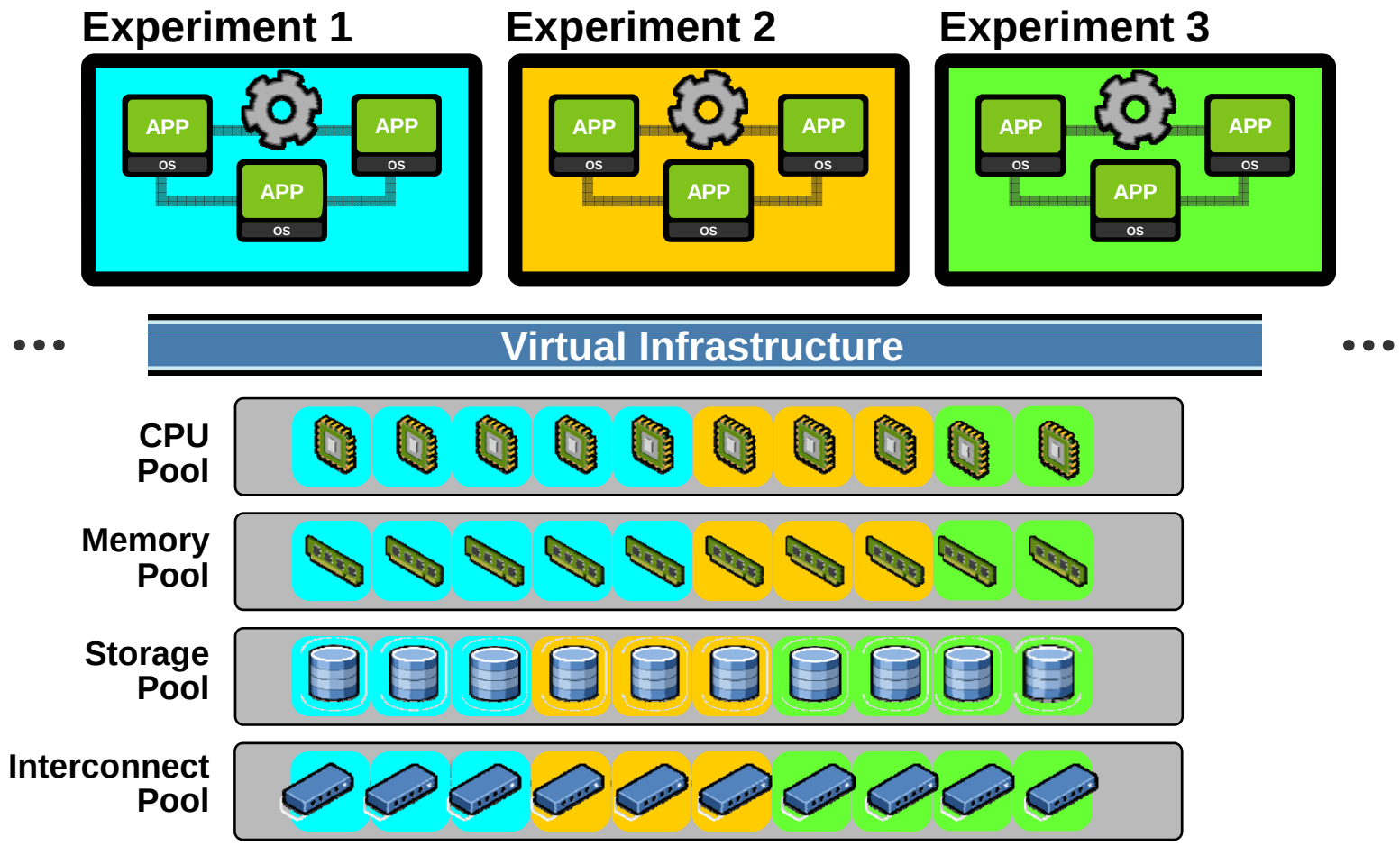
VMware High Availability



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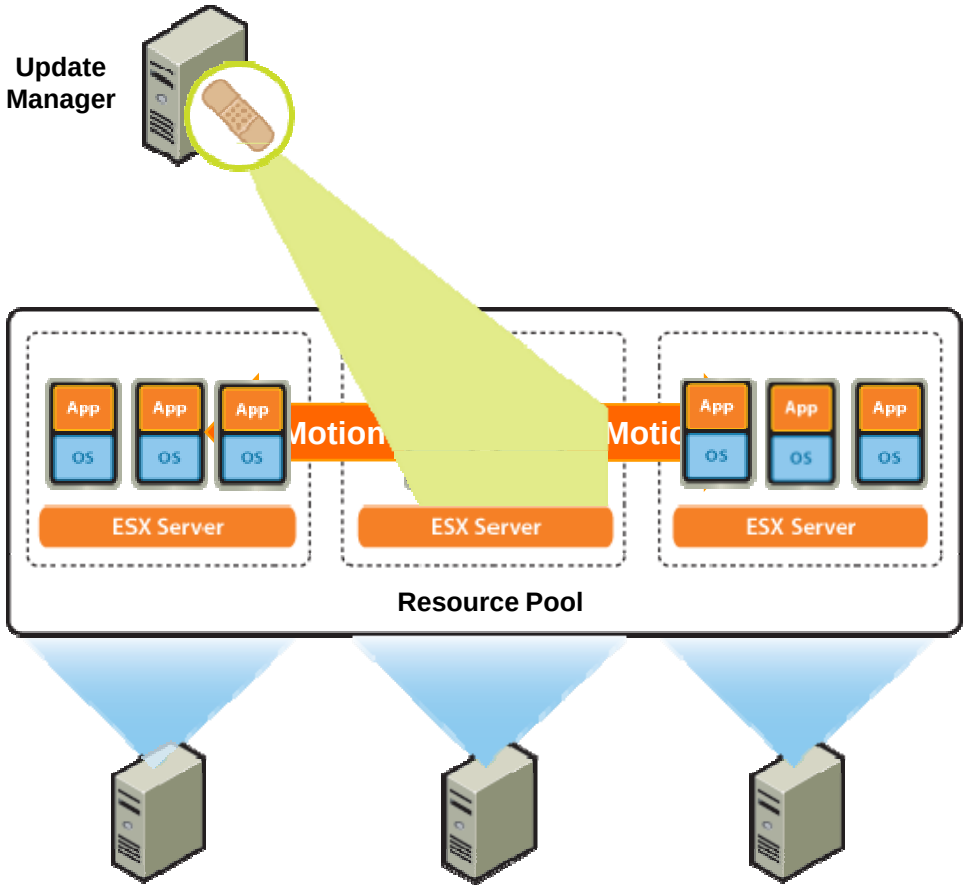
Non-disruptive ESX Server Patching with Update Manager and DRS



- Update Manager patches entire DRS clusters
  - Each host in the cluster enters DRS maintenance mode, one at a time
  - VMs are migrated off, host is patched & rebooted if required
  - VMs are migrated back on
  - Next host is selected

- Automates patching of large number of hosts with zero downtime to virtual machines

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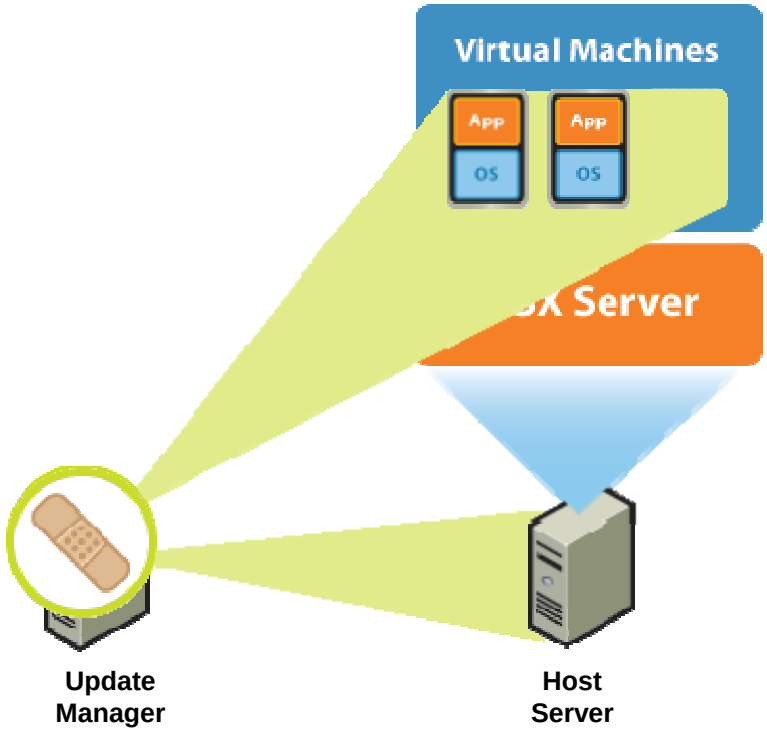
VMware Update Manager



Automates patch management for ESX Server hosts and select Microsoft and RHEL virtual machines

- Scans and remedies online as well as offline virtual machines* and online ESX Server hosts
- Snapshots virtual machines prior to patching and allows rollback to snapshot

- **Eliminates manual tracking of patch levels of ESX Server hosts and virtual machines**
- **Automates enforcement of patch standards**
- **Reduces risk through snapshots and offline virtual machine patching**

* Note: RHEL guests can only be scanned, not remediated

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Introducing Site Recovery Manager (SRM)

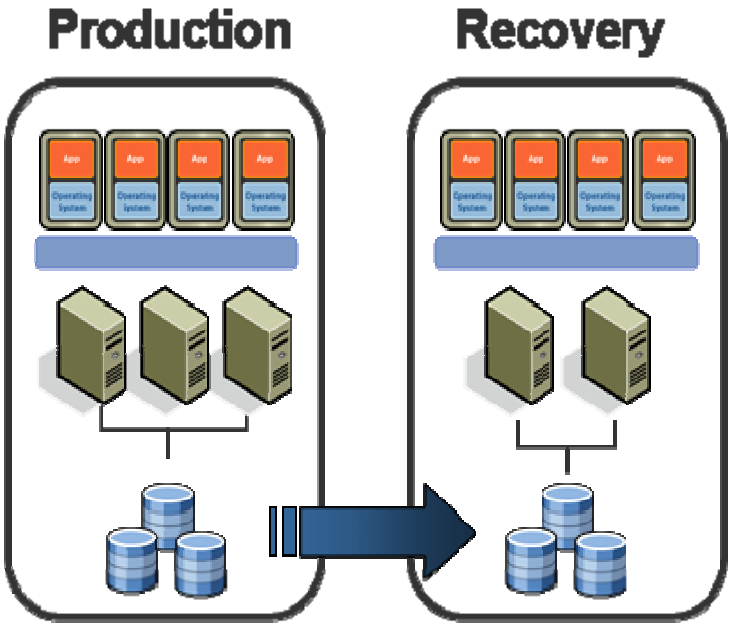
Site Recovery Manager leverages VMware Infrastructure to transform disaster recovery

What it is:

- Site Recovery Manager is a new VMware product for disaster recovery

What it does:

- **Simplifies and automates disaster recovery processes**
  - Setup
  - Testing
  - Failover
  - Failback



Site Recovery Manager works with VMware Infrastructure to enable faster, more reliable, affordable disaster recovery

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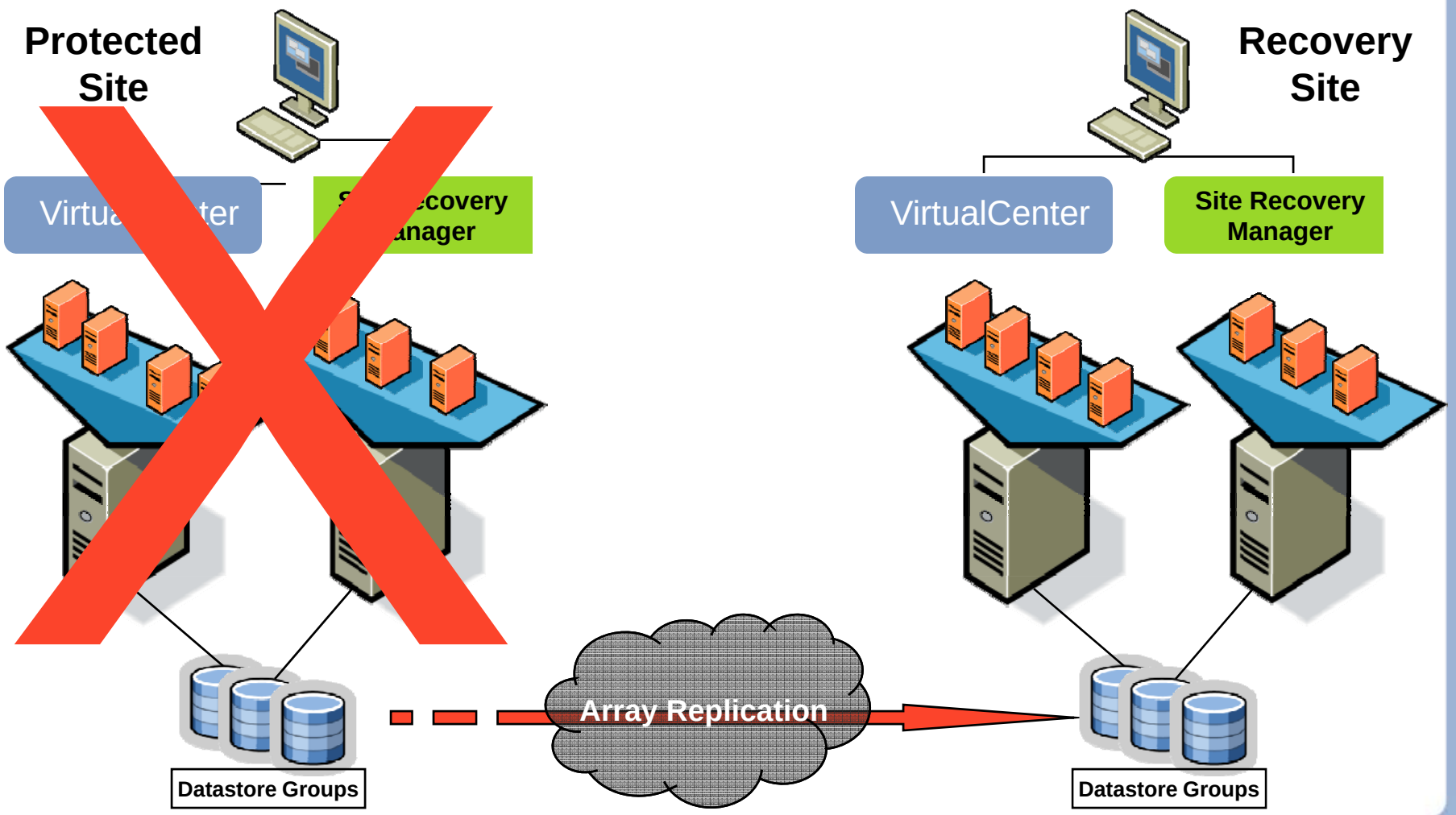
VMware Site Recovery Manager



Lab Management

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VMware Lab Manager

Consolidate and Share Lab Resources

- Reduce costs (power, cooling, space, equipment)
- Increase system utilization
- Provide lab access and hosted desktops to more users

Rapid System Provisioning

- Self-service portal with IT-controlled quotas and policy limits
- Accelerate time to market/production
- Use IT resources more strategically

Capture and Share Configurations in-state

- Quickly reproduce and troubleshoot faulty configurations
- Eliminate “works fine on my machine” from the dev/test lexicon

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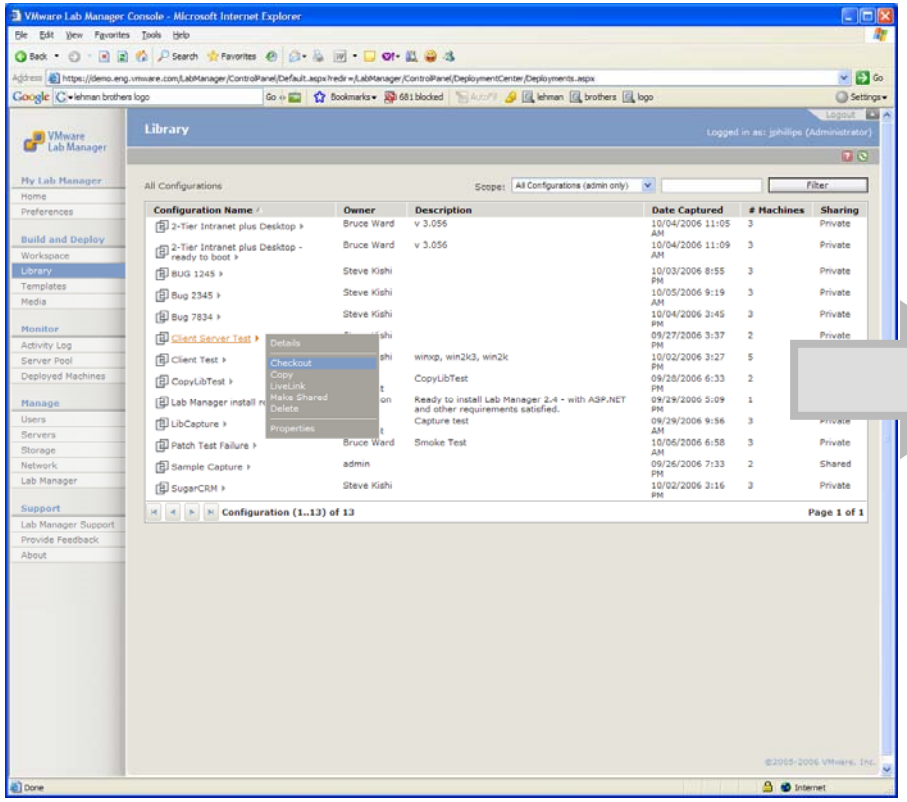
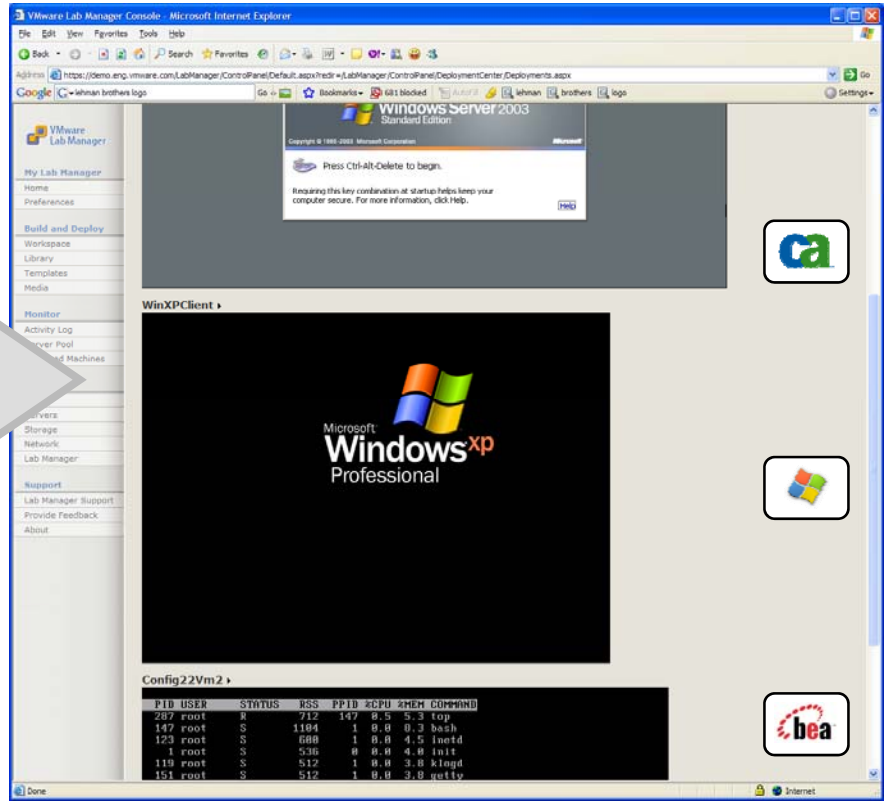
VMware Lab Manager – Fast and Easy





Self Service Provisioning
Multi-Tier Complete Application Environment (multi-VM)
Easy for non-IT users – Point and click library entry
IT in Control of Policy and Quotas

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Linked Clones, Saved State, and Fencing

Feature	Benefits
Linked Clones	**Speed.** Copy a VM in seconds. **Space.** A whole VM in 16 MB (initially). **Consistency.** Exact copies.
Saved State	**Startup Time.** Never wait for a VM to boot. **Setup Time.** Only set up a test once. **Bug Capture.** Record bug situations.
Fencing	**Concurrency.** Allow multiple users to use benefits of Linked Clones and Saved State simultaneously.

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Physical Lab Infrastructure

Actual Lab Manager Customer
"Before" Lab Manager

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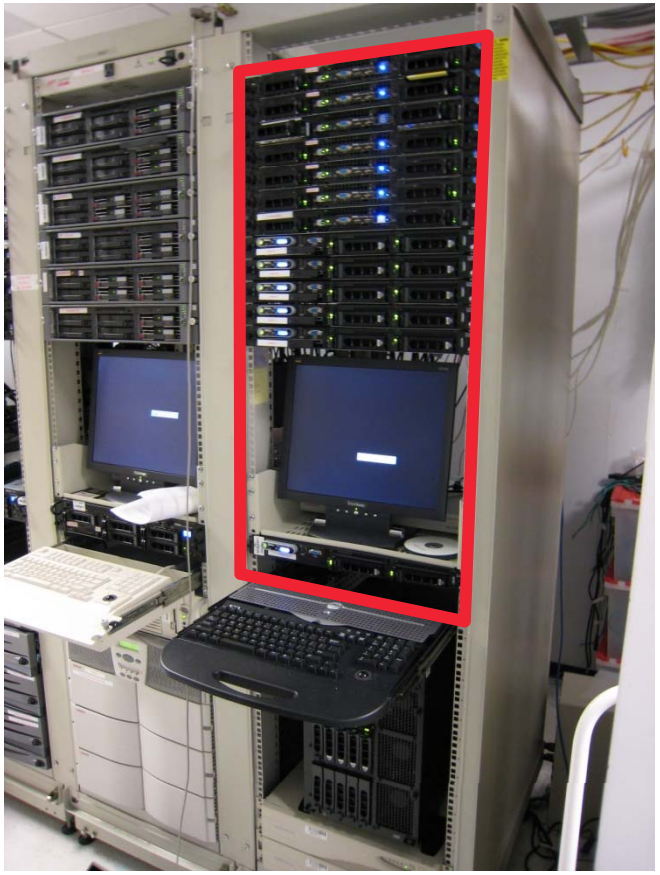
Virtual Lab Infrastructure



Actual Lab Manager Customer
"After" Lab Manager

- **VMware Lab Manager Benefits**
  - Supports 120 concurrent lab users in multiple locations
  - Increased lab capacity by an additional 200 virtual machines
  - Improved IT response time from days to minutes
  - Power savings of $1,300/month
  - Fewer machines and dramatically reduced hardware replacement cost

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VMware Infrastructure 3

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