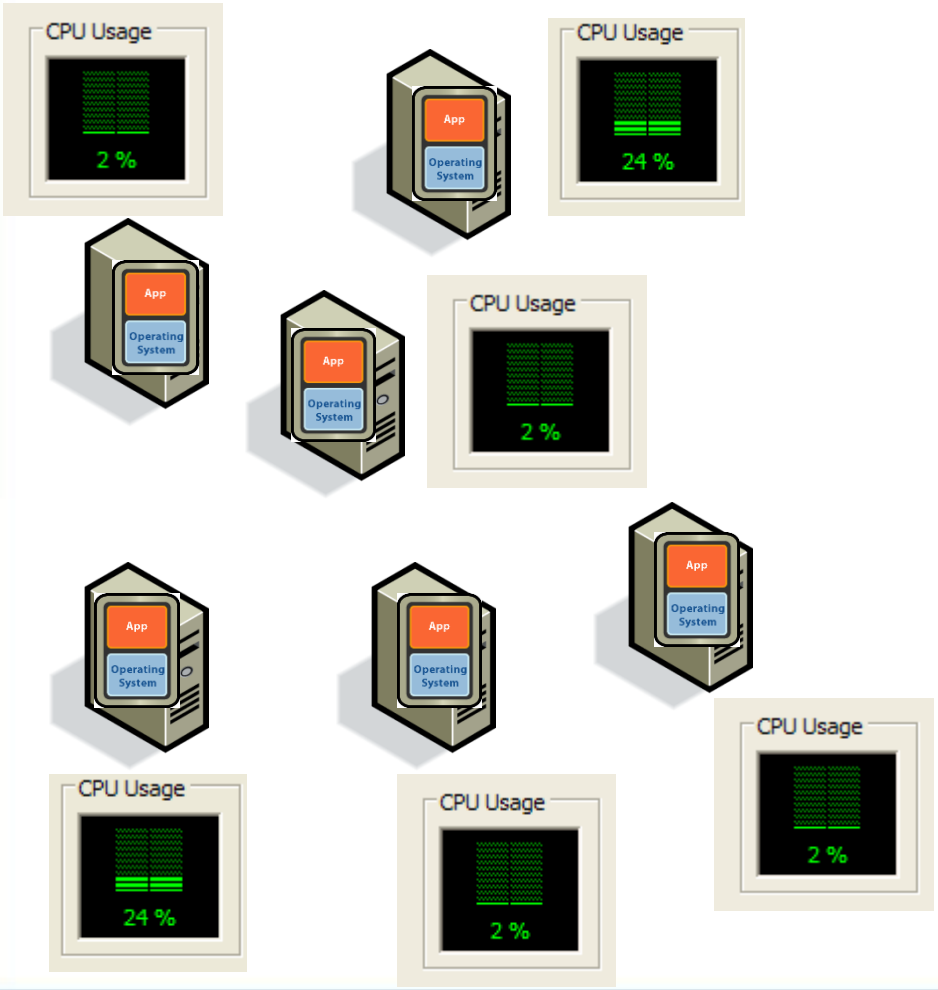
VMware Overview
VMware ESX and ESXi 3.5

Agenda

VMware – what a story!

VMware ESX and ESXi

Without VMware

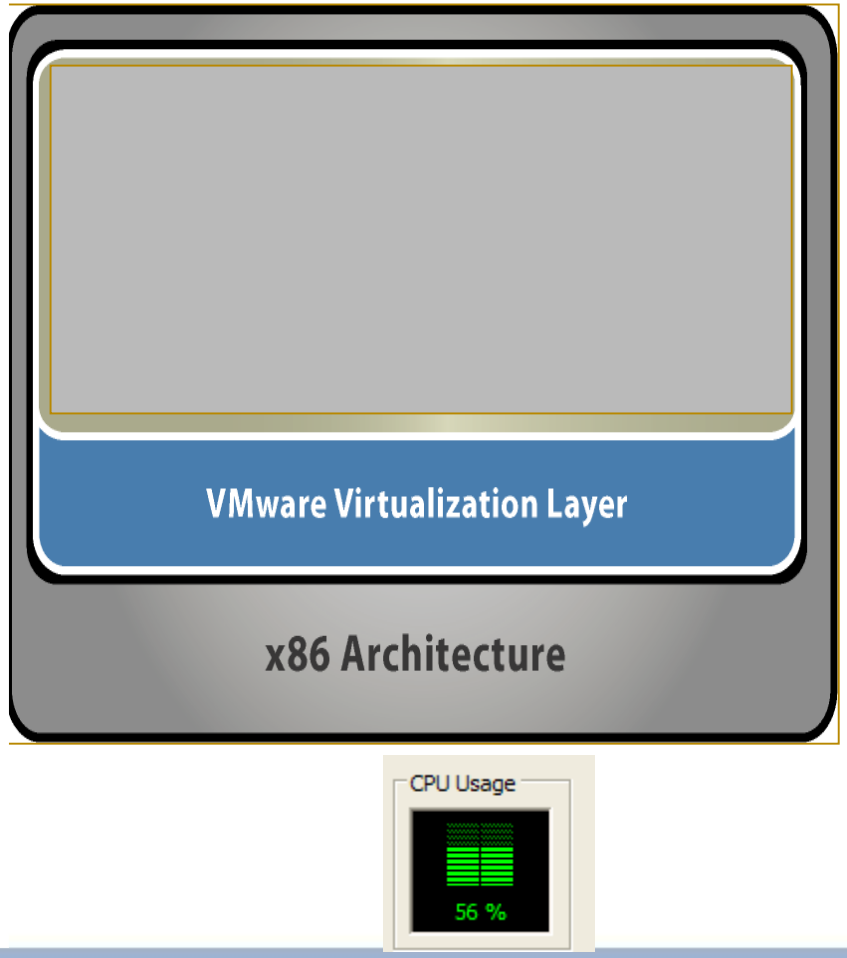


- All require same power
- All emit same heat
- All require physical space
- Setup, (re-)configuration
- Maintenance, support…

With VMware

- Flexibility
- Rapid provisioning
- Disaster Recovery
- High Availability

- Automation
- Systems Management integration
- Adaptive Datacenter



Key features of VMware virtualization

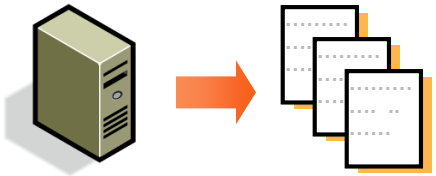
Partitioning

Run multiple virtual machines simultaneously on a single physical server

Isolation

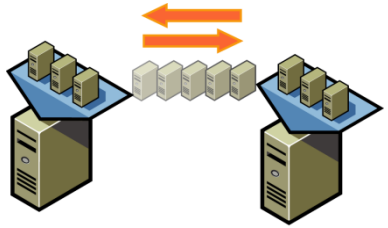
Each virtual machine is isolated from other virtual machines on the same server

Encapsulation



Virtual machines encapsulate entire systems (hardware configuration, operating system, apps) in files

Hardware Independence



Run a virtual machine on any server without modification

VMware: Who We Are

World's leading provider
of virtualization solutions

- Founded 1998, IPO August 2007
- 100,000+ customers worldwide
  - All sizes and industries; 100% of Fortune 100
- Vision: transform computing through virtualization
- Products: reliable, award-winning, most-deployed
- Headquarters in Palo Alto, CA, with 40+ offices worldwide

VMware = Reliability and Innovation

Most Reliable: VMware ESX

(#2: IBM Mainframe)

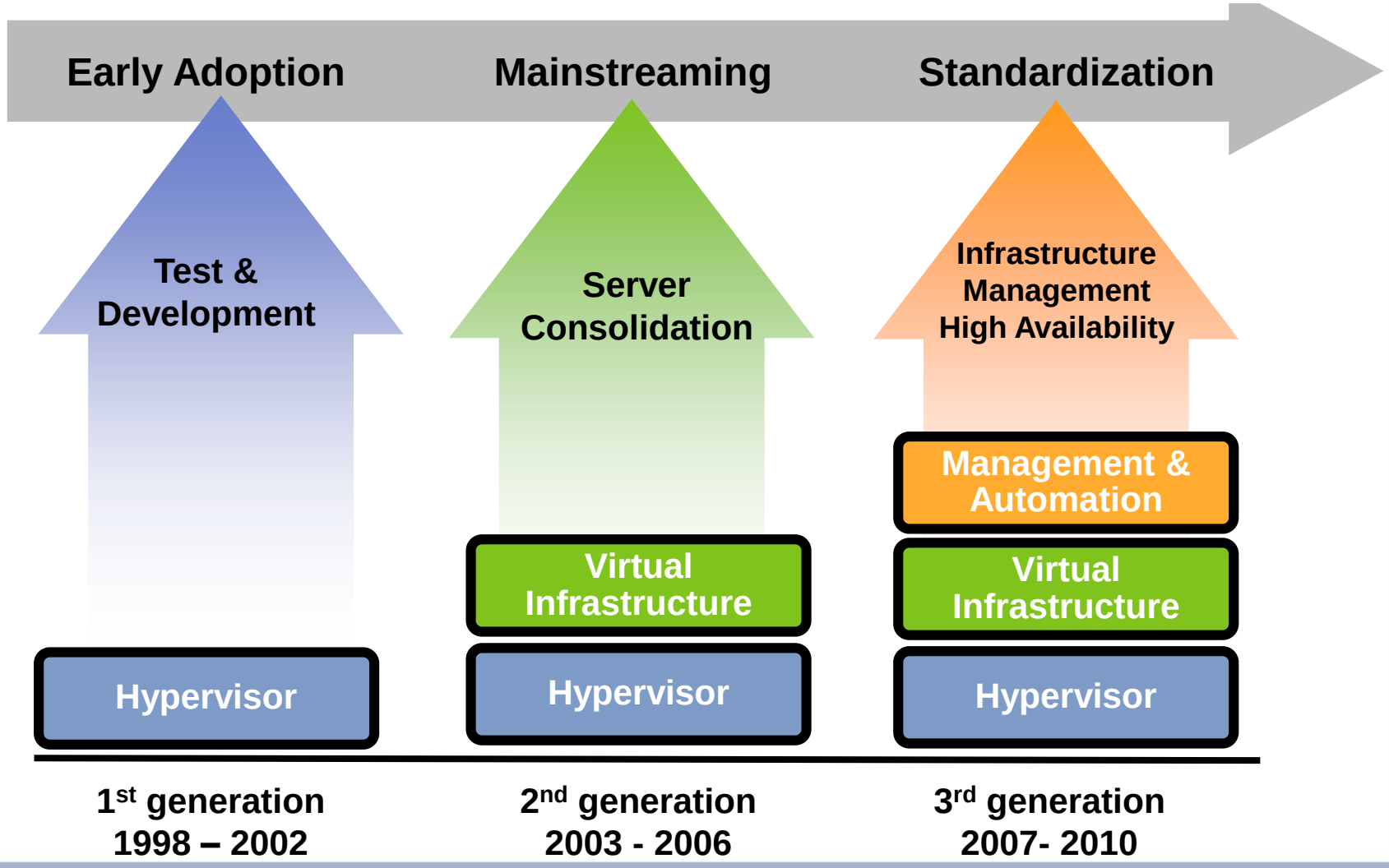
Best Breakout Technology: VMware

Easiest to Use/Manage: VMware Workstation

Biggest "Wow" in an IT Product: VMware Fusion

VMware Won Over 30 Awards in 2007 & Released 14 New Products

Virtualization: Industry-Standard Way of Computing



The Current VMware Infrastructure Stack

> Automate end-to-end IT processes from the desktop to the datacenter

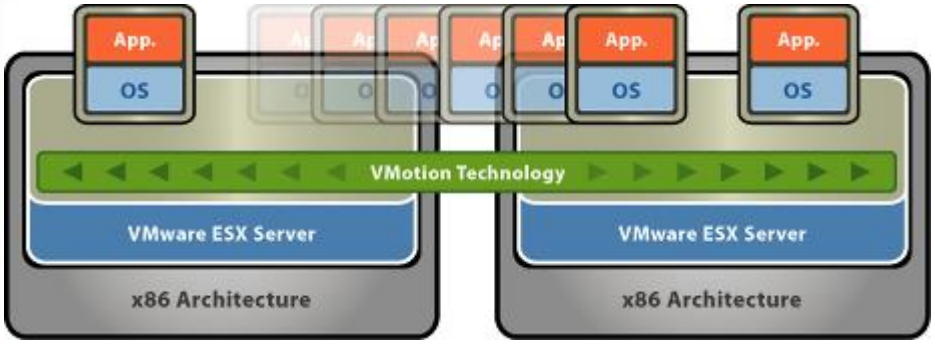
> Aggregate entire farms of systems, storage and network into a shared resource pools

> Partition a single server reliably and securely into multiple virtual machines

Agenda

- VMware – what a story!
- VMware ESX and ESXi

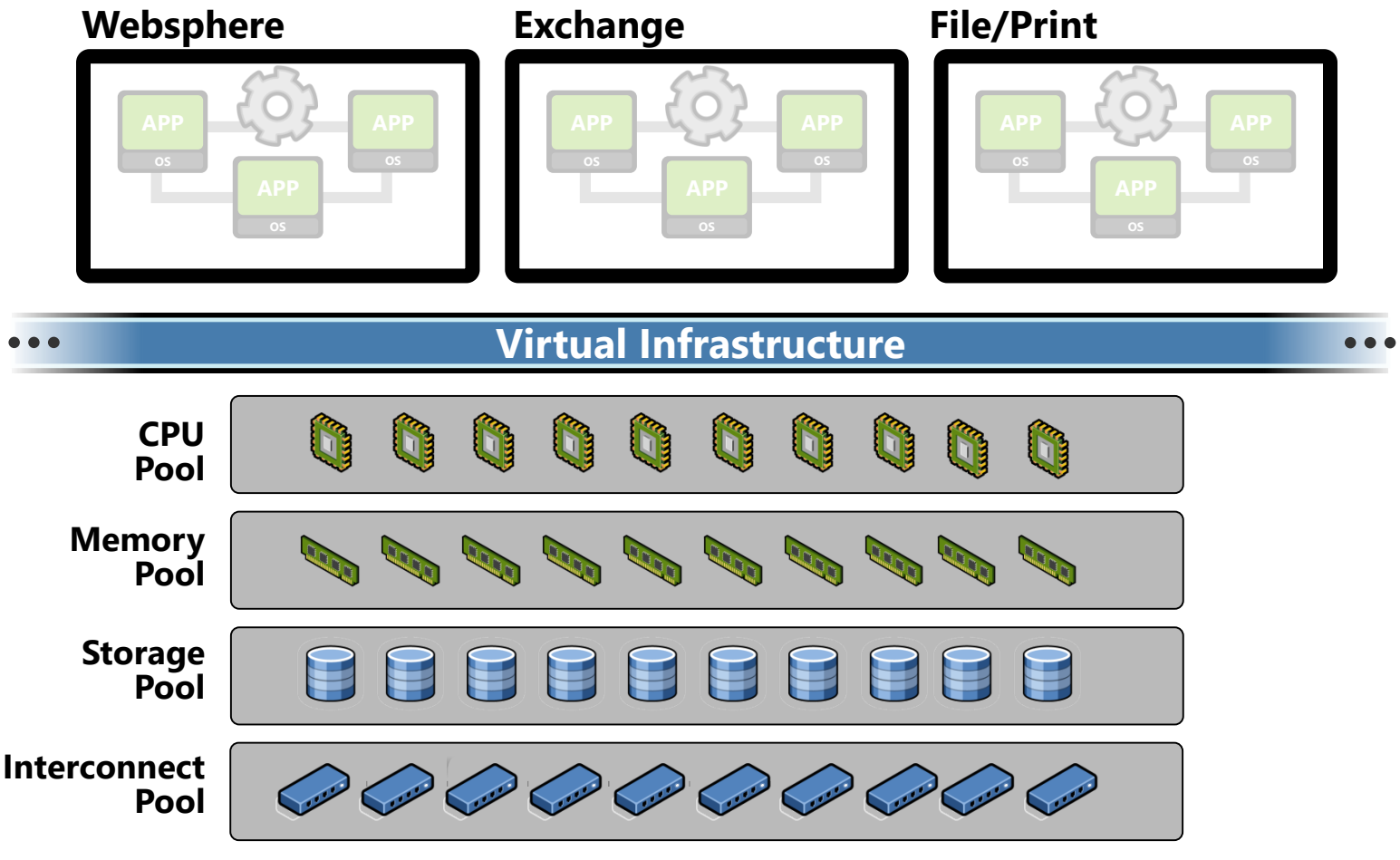
Live Migration Of Virtual Machines with VMotion



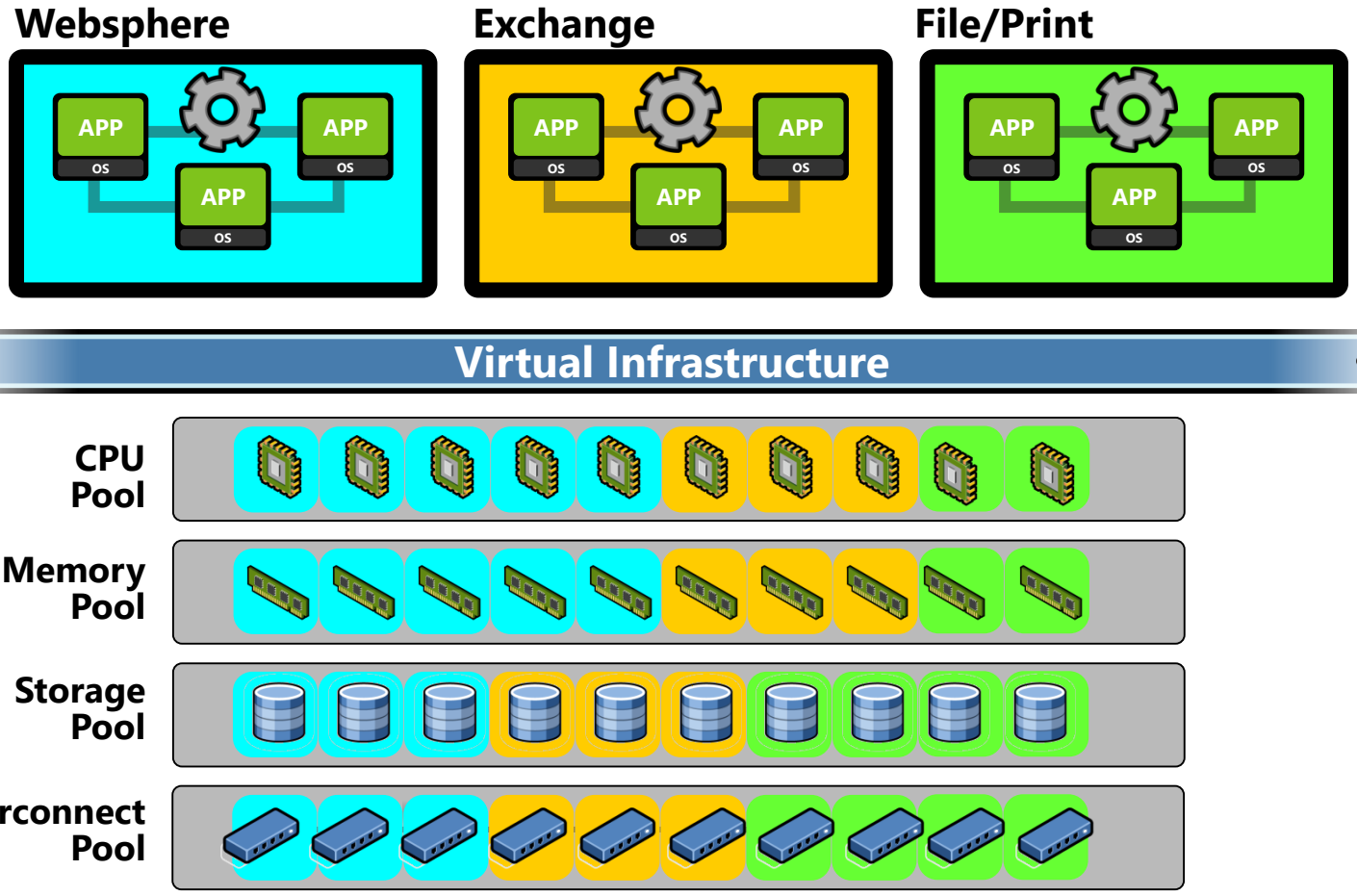
Customer Impact

- Zero downtime
- Continuous service availability
- Complete transaction integrity
- Supported on Fibre Channel and iSCSI SAN and NAS

Business Unit Resources on Demand



Highly Available



The Current VMware Infrastructure Stack

3 Management & Automation

Capacity Optimization

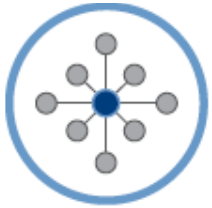
Business Continuity

IT Service Delivery

Desktop Management

2 Virtual Infrastructure

Resource Mgt



Availability

Mobility

Security

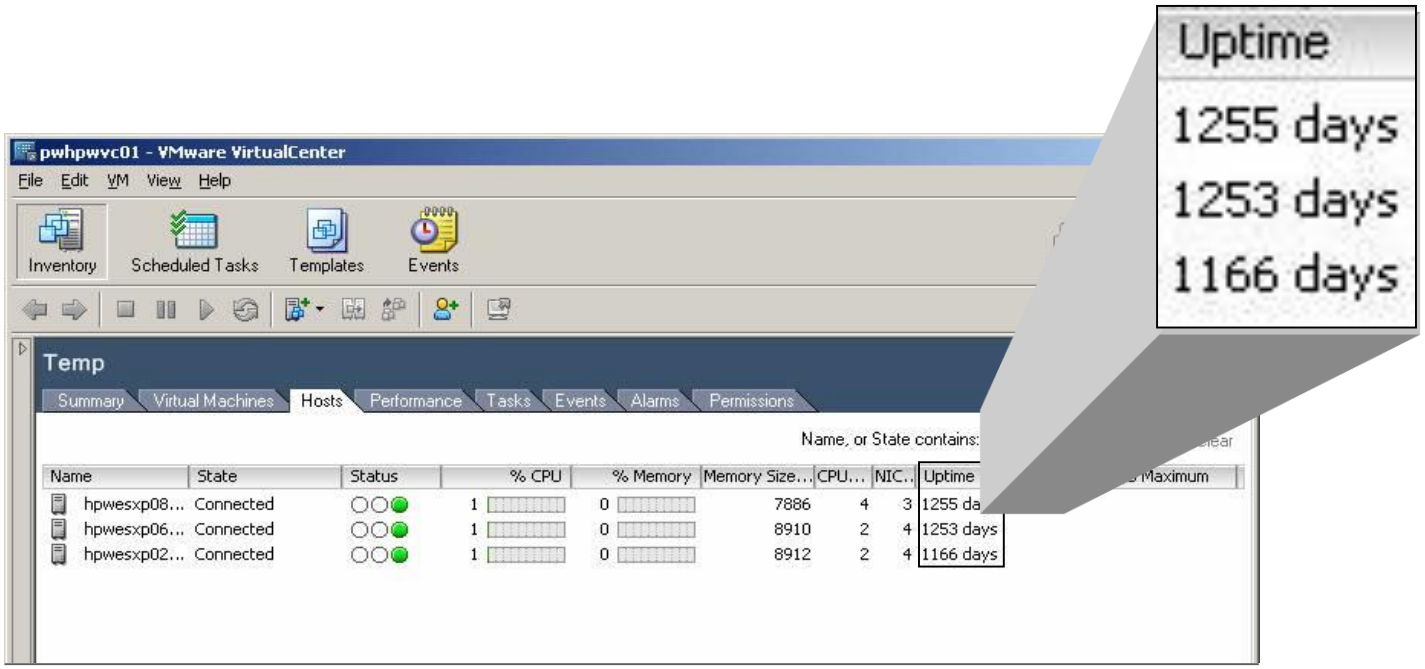
1 Virtualization Platforms

VMware ESXi 3.5

VMware ESX 3.5

VMFS, vSMP

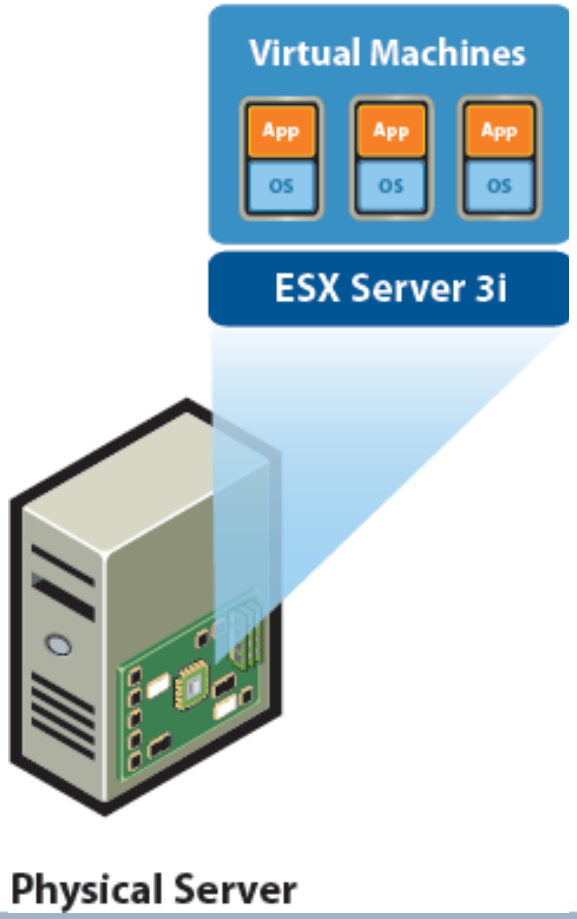
ESX: The Only Production Proven Hypervisor



Large financial services customer: ***1255 days*** continuous uptime and counting

What is VMware ESXi?

Next generation, thin hypervisor integrated in server systems



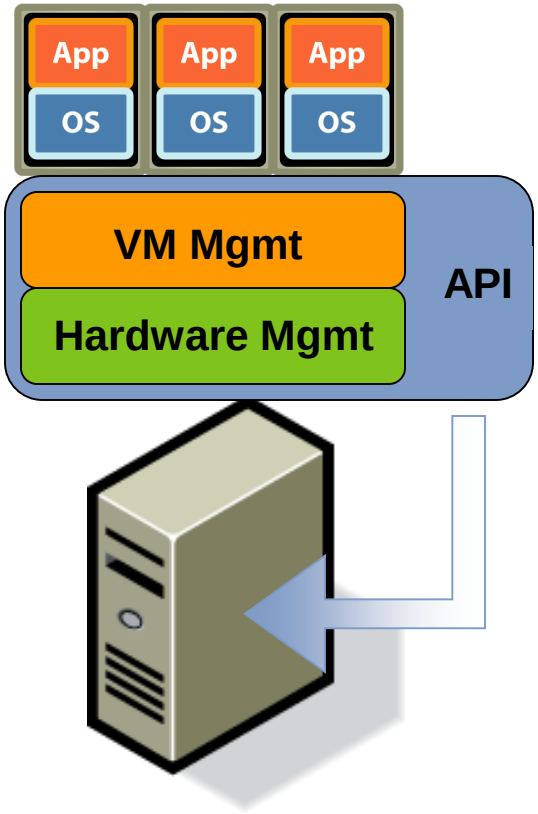
Thin architecture

- Unparalleled security and reliability
  - Compact 32MB footprint
  - Only OS-independent design focused on virtualization

Integrated in server systems

- Easiest way to deploy and manage virtualization
  - Hardware is certified and ready-to-run
  - Intuitive start up experience that dramatically reduces deployment time
  - Optimized for central management

Requirements for Hardware Integration

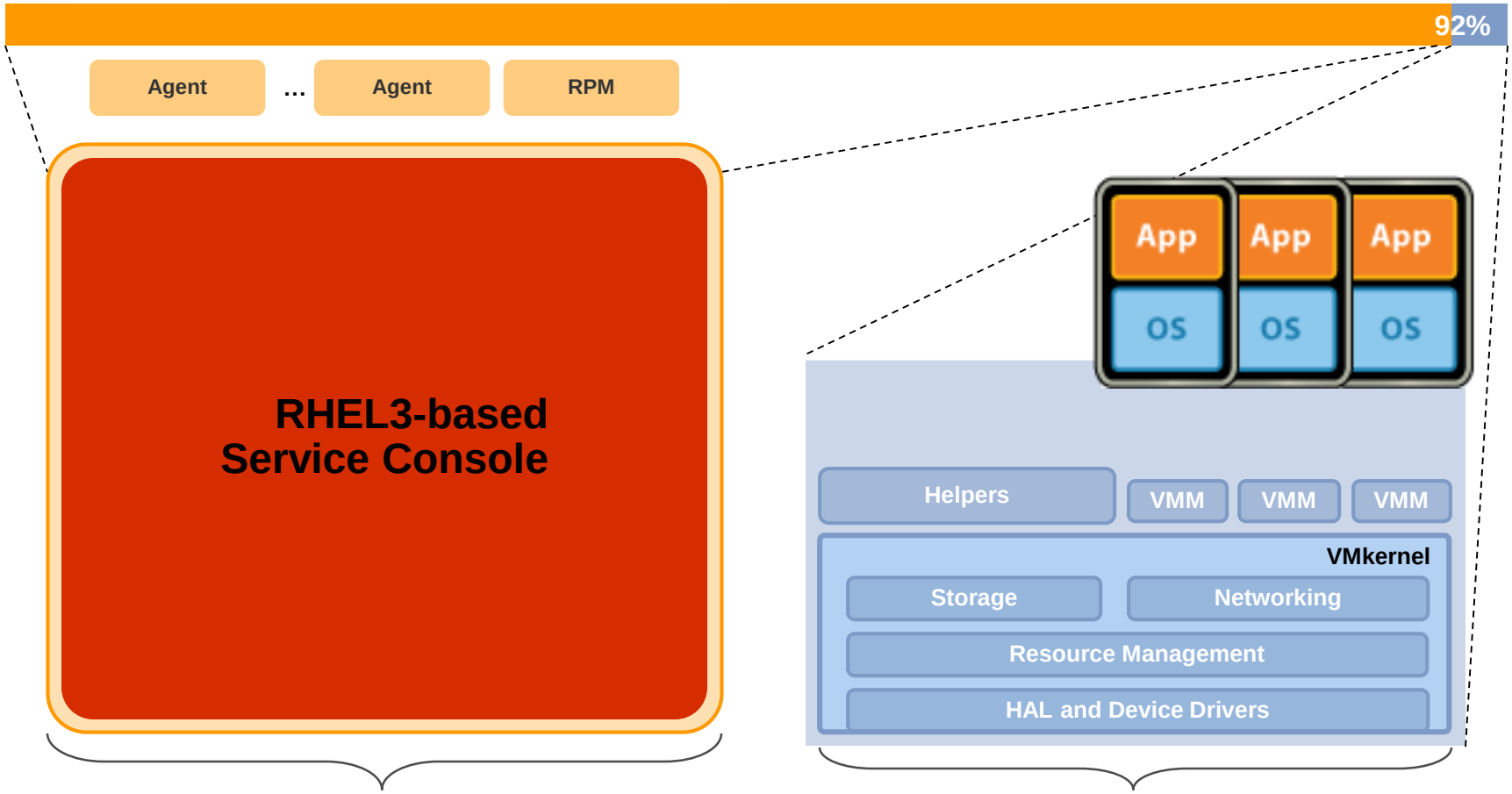


- Hardware-like security, reliability (MTBF), and manageability
- Infrequent reconfiguration and little state information
- Small footprint and minimal interfaces
- Standards-based protocols for central management

Industry is Designing for Virtualization

- VMware ESXi built into server hardware
- Virtualization optimized server designs:
  - Multi-core
  - Large memory configurations
  - Multiple NICs
  - Diskless servers
- Virtualization support in processors and chipset
  - VT, AMD-V
  - NPT, EPT

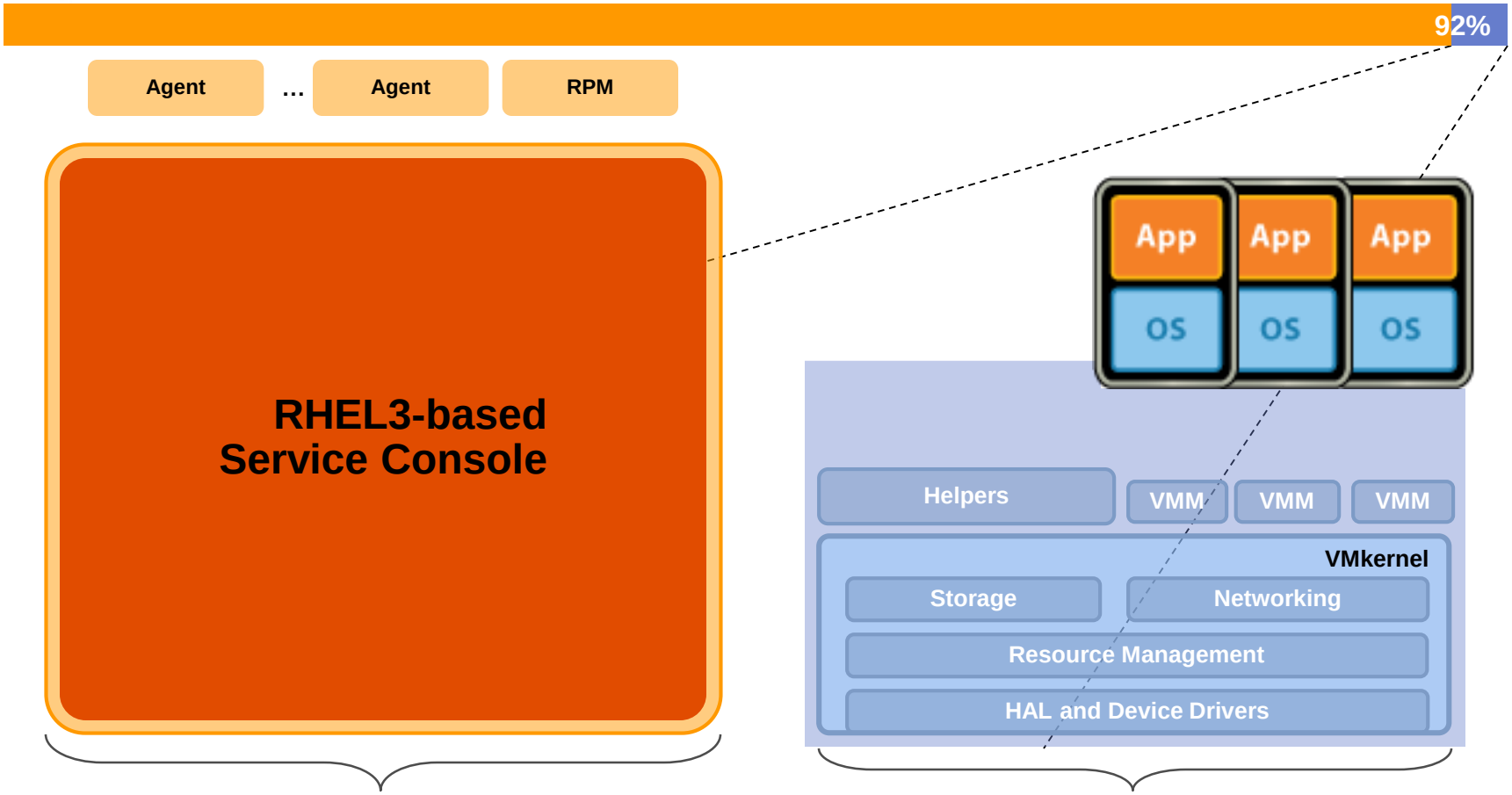
Traditional ESX Server



Disk Footprint: 2 GB
Percent of Patches >50%

Disk Footprint: 32 MB

ESX Server 3i: Thin Virtualization!



Disk Footprint: 2 GB
Percent of Patches >50%

Disk Footprint: 32 MB

Architectural Benefits

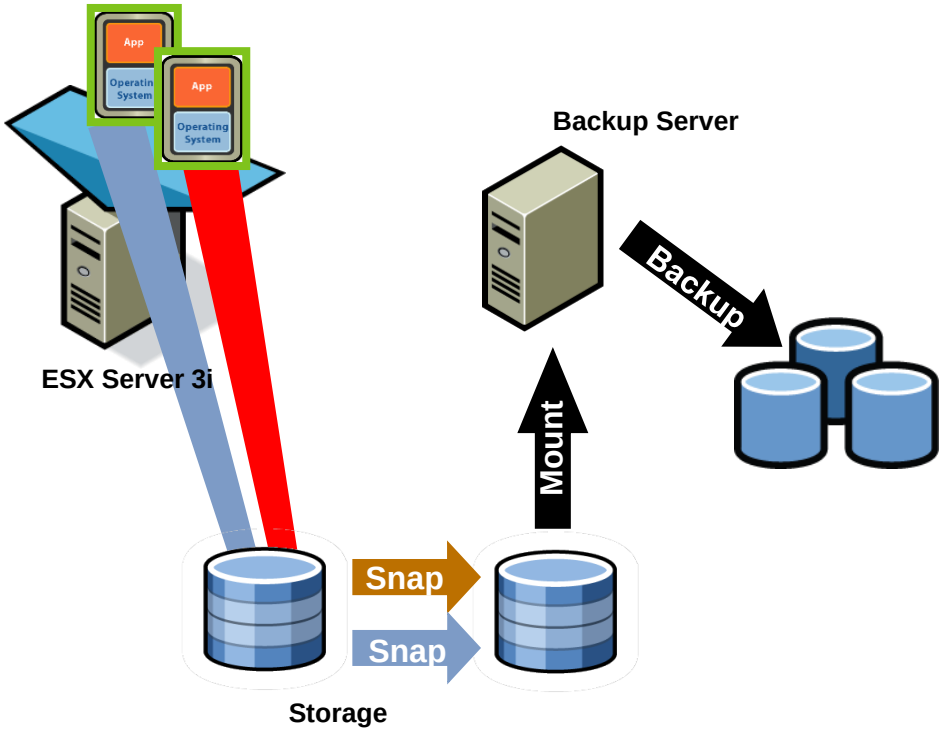
- **Unmatched security and reliability**
  - OS independence means minimal interfaces and a small attack profile
  - Locked down, menu-driven interface prevents users from running arbitrary code
- **Simplified management**
  - No special operating system knowledge required (e.g. Linux)
  - No user accounts or passwords to create and maintain
  - No OS security hardening, antivirus, or backup effort required
  - Integrated, standards-based CIM providers for hardware management
- **Fully featured and high performing**
  - VMware ESXi supports all the functionality of VMware Infrastructure 3

Management without the Service Console

VMware ESXi continues trend of migrating management functionality from the Service Console to remote management tools

VMware ESX users today use the Service Console for…	VMware ESXi users will use…
Command line management or executing custom scripts (e.g. for new server deployment or patches)	Remote Command Line Interface (Remote CLI)
Running hardware agents for performance and health monitoring	Industry standard monitoring protocols; e.g., agent-less management via CIM
Running other 3rd party agents	ISV solutions that leverage standard interfaces, the VI API, and VMware Consolidated Backup

VCB and Backup



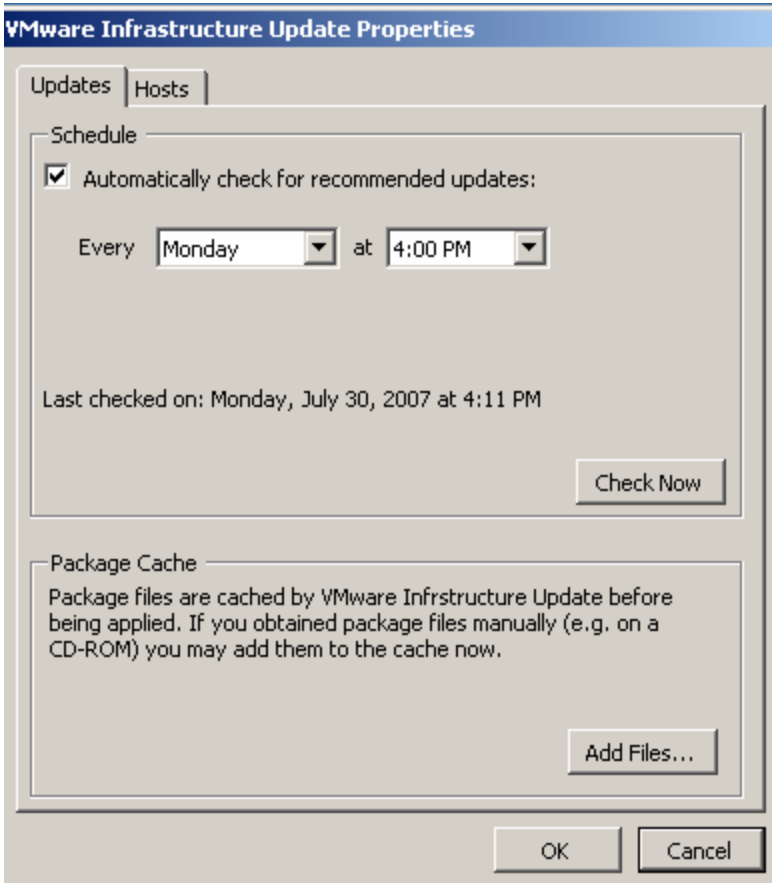
- VMware Consolidated Backup (VCB) interface
- Move backup out of the virtual machine
- Eliminate backup traffic on the local area network
- Integrated with major 3rd-party backup products

symantec.
ca
EMC²
where information lives
vizioncore, inc.
commvault

Deployment of VMware ESXi

- Many users today use Service Console scripts for installation and configuration of ESX Server hosts
- With VMware ESXi
  - No installation required – hardware integrated, ready-to-run
  - Configuration automation – detection, discovery, and good defaults
  - Remote CLI for additional configuration / customization

Patching and Upgrading of VMware ESXi



Patching Today with VMware ESX

- Patches are fine-grained
- Users employ ‘esx-update’ to install ESX Server patches

With VMware ESXi

- Patch consists of whole image replacement
- Patch can applied via Remote CLI or through Update Utility
- Back out of patches with a “dual bank” approach

VMware ESXi – Exec Summary

What is it?	Next generation, thin hypervisor integrated in server hardware
What does it do?	Partitions servers to create the most robust foundation for a dynamic, automated data center
What is unique?	> Next generation, thin architecture provides improved security, reliability, and simplified management > Server integration provides rapid installation, configuration, and deployment
Who can use it?	> All the sophistication of VMware ESX and VI3 for the virtual infrastructure power user > Simple and intuitive start-up experience for the new virtualization user
How do you use it?	Supports all the VMware Infrastructure 3 features and benefits

The Current VMware Infrastructure Stack

Capacity Optimization

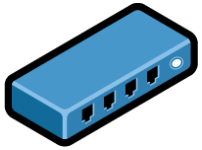
Business Continuity

IT Service Delivery

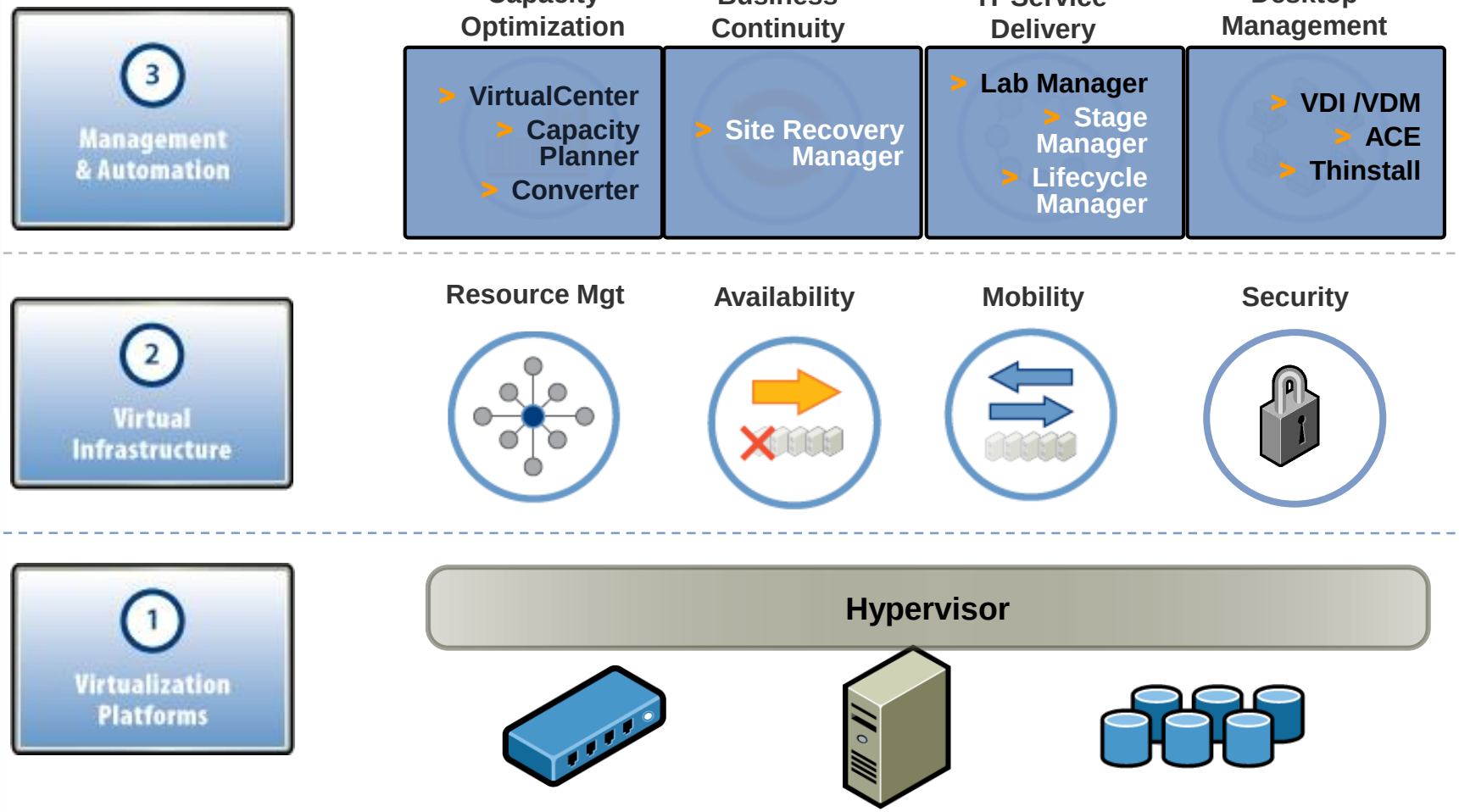
Desktop Management

Resource Mgt	Availability	Mobility	Security
> DRS	> HA > VCB	> Storage VMotion > VMotion	> VMSafe > Update Manager

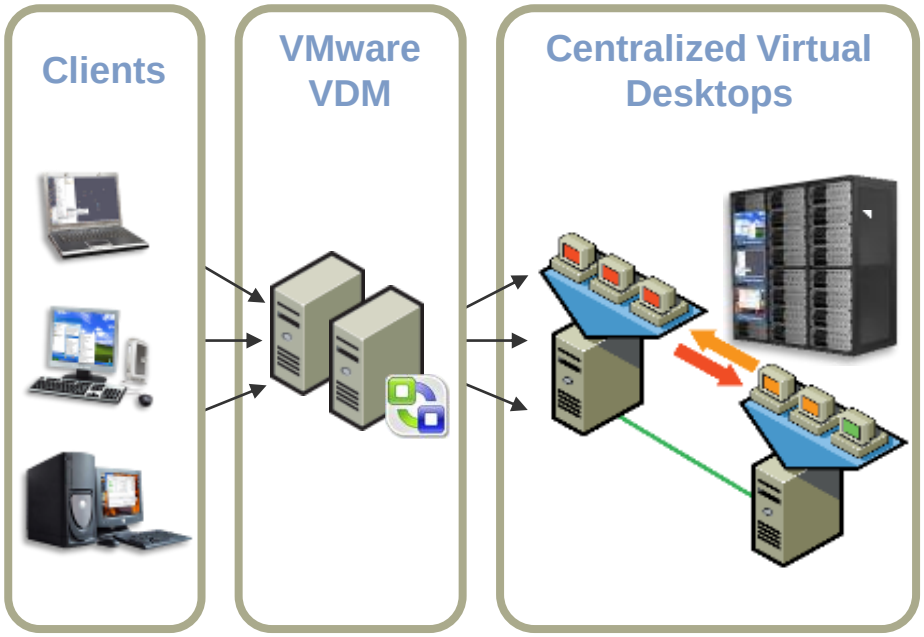
Hypervisor



The Current VMware Infrastructure Stack



VDI – Virtual Desktop Manager (VDM)

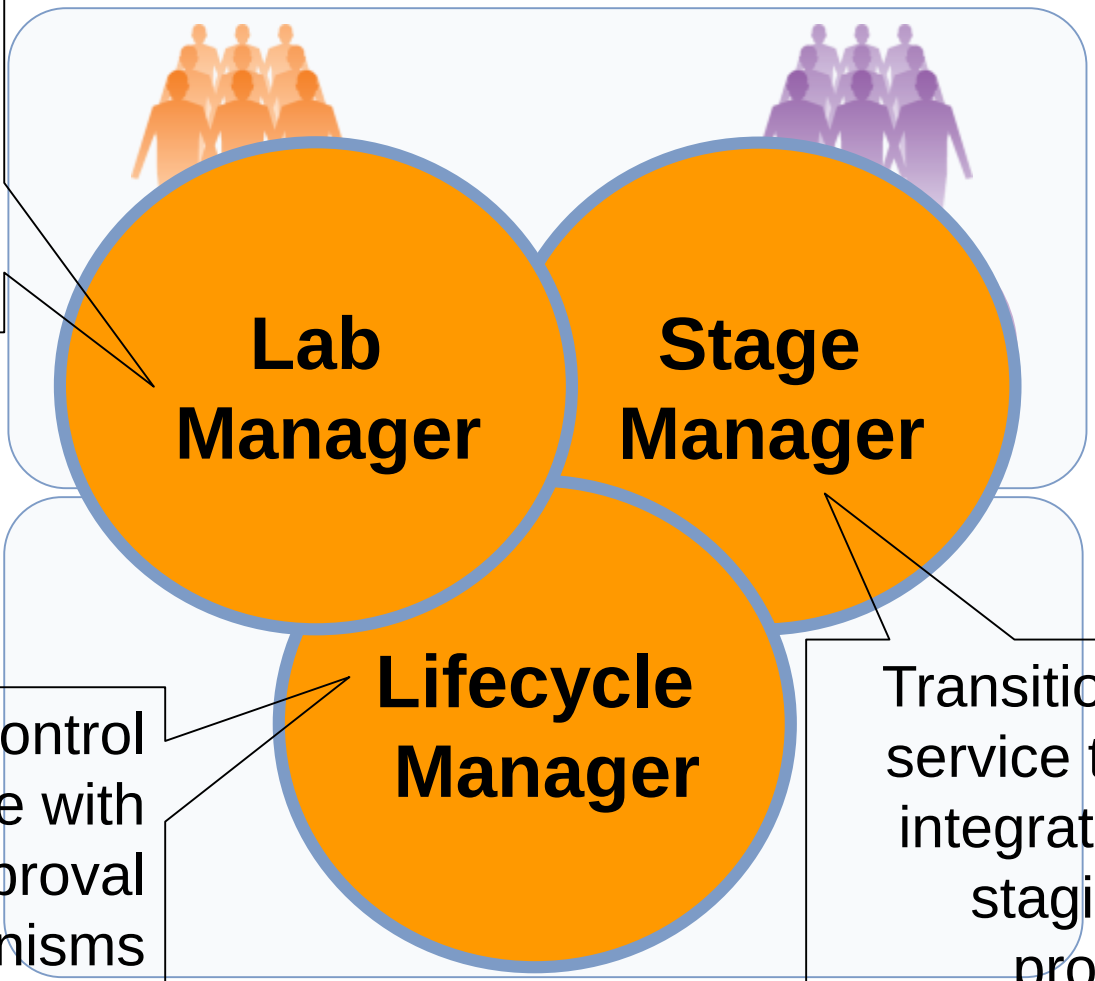


- Enterprise-class, scalable connection broker
  - Central administration and policy enforcement
  - Automatic desktop provisioning with optional “smart pooling”
  - Desktop persistence and secure tunneling options
  - Microsoft AD integration and optional 2-factor authentication via RSA SecurID®

- End-to-end enterprise-class desktop control and manageability
  - Familiar end user experience
  - Tightly integrated with VMware’s proven virtualization platform (VI3)
  - Scalability, security and availability suitable for organizations of all sizes

IT Service Delivery – VMware Solutions

Rapid provisioning of multi-tier transient user environments



Tracking and control VM lifecycle with consistent approval mechanisms

Transition an IT service through integration and staging in to production