



# Virtualization and Your Oracle Landscape

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VMware

November 13, 2007

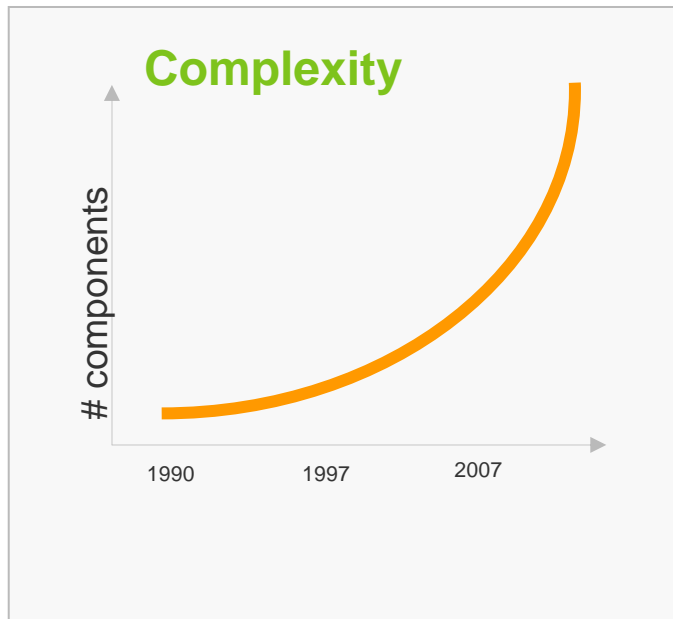
# Virtualization Drivers

# Trends and Challenges Facing IT



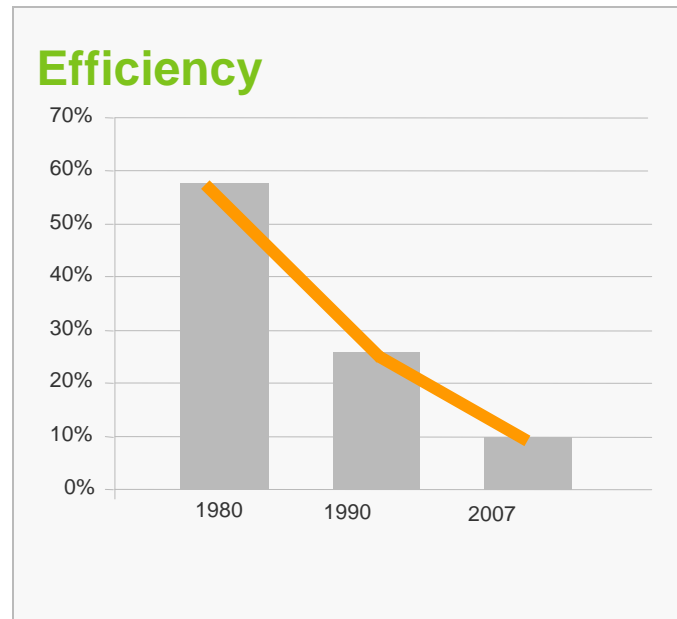
# Virtualization Drivers: Supply and Demand

## What's Increasing



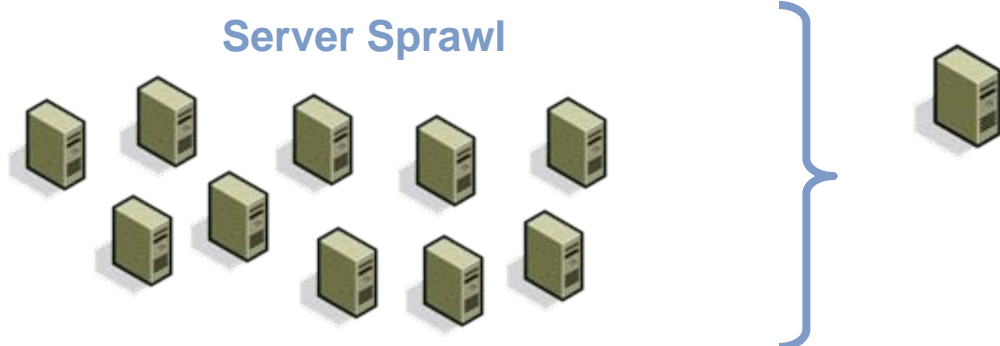
Number of components to be procured, provisioned, managed, secured, etc.

## What's Decreasing



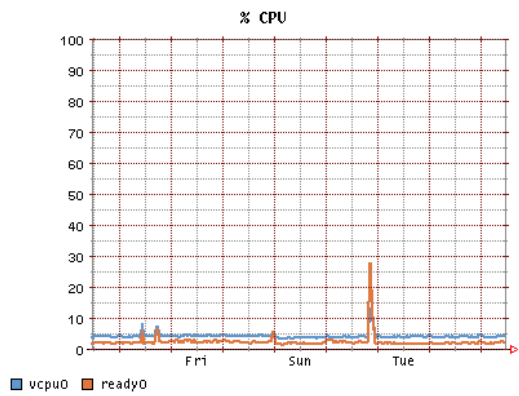
Server utilization rates\*

# Challenge: Server Proliferation



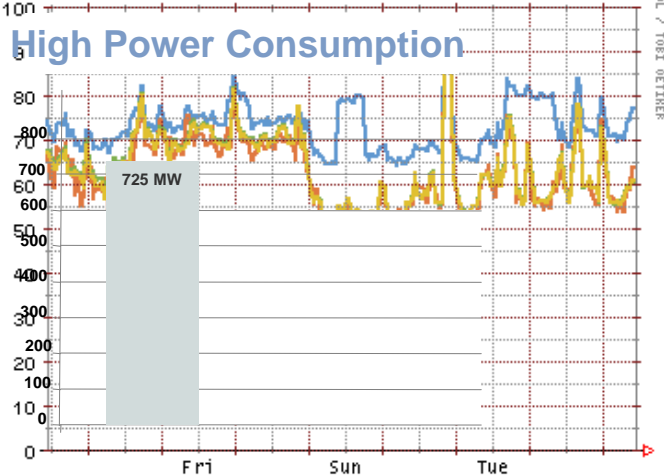
Consolidate  
Increase utilization  
Reduce hardware

## Low Utilization

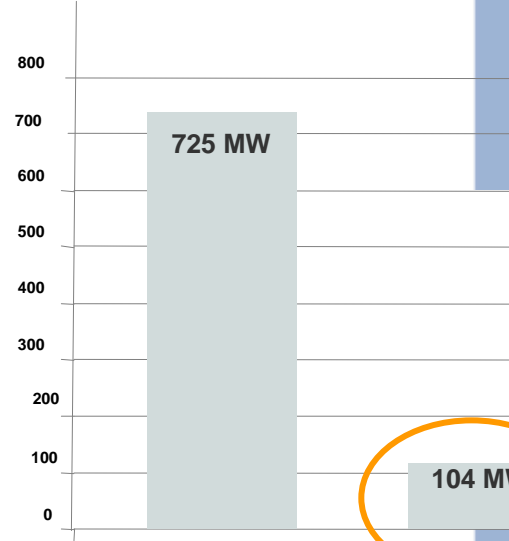


Avg. utilization rate/server

## % CPU Busy (8 LCPVs w/HT)



MegaWatts consumed:  
100 servers per year

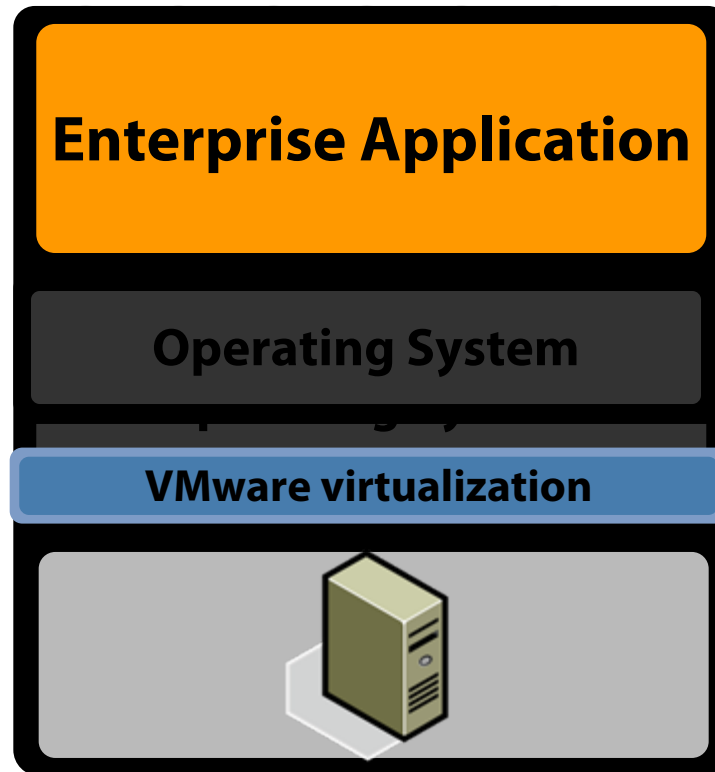


Lower Power Consumption

# VMware® Infrastructure Today

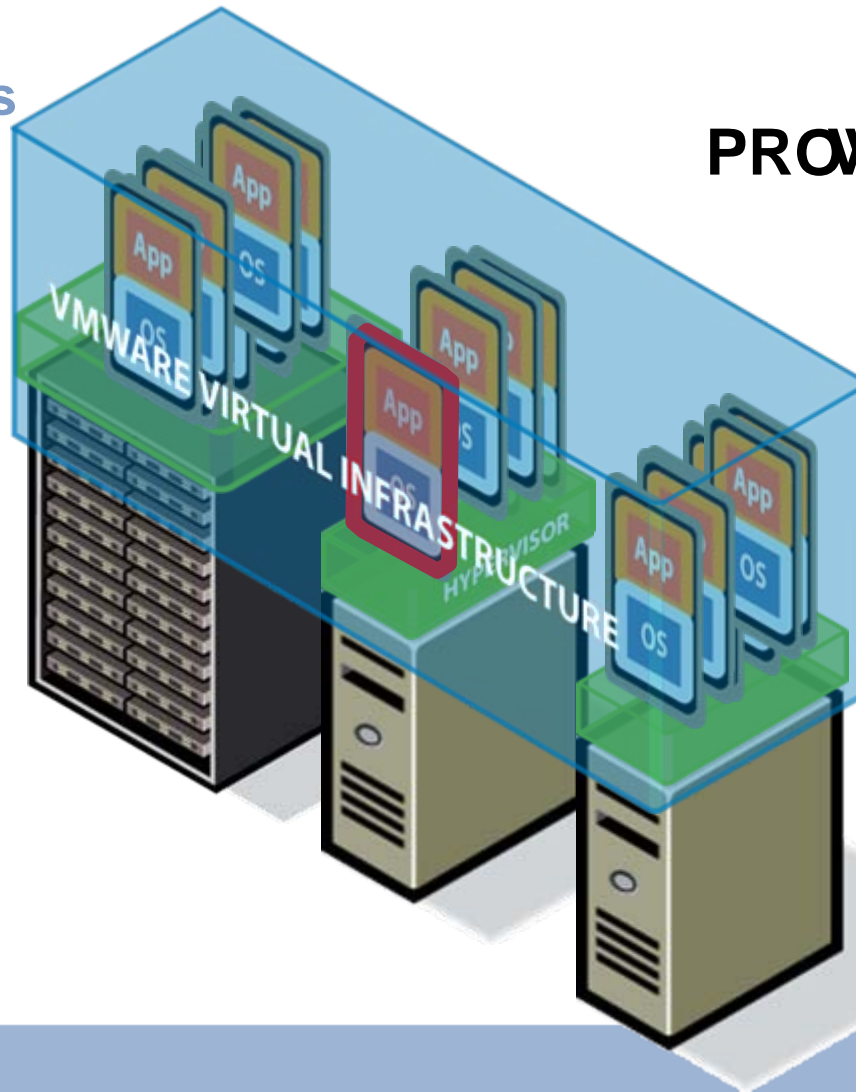
# First Things First: Virtualization

VMware technology decouples software from hardware



# Virtual Infrastructure: Fundamentally Better

Create shared pools of resources to optimize your infrastructure



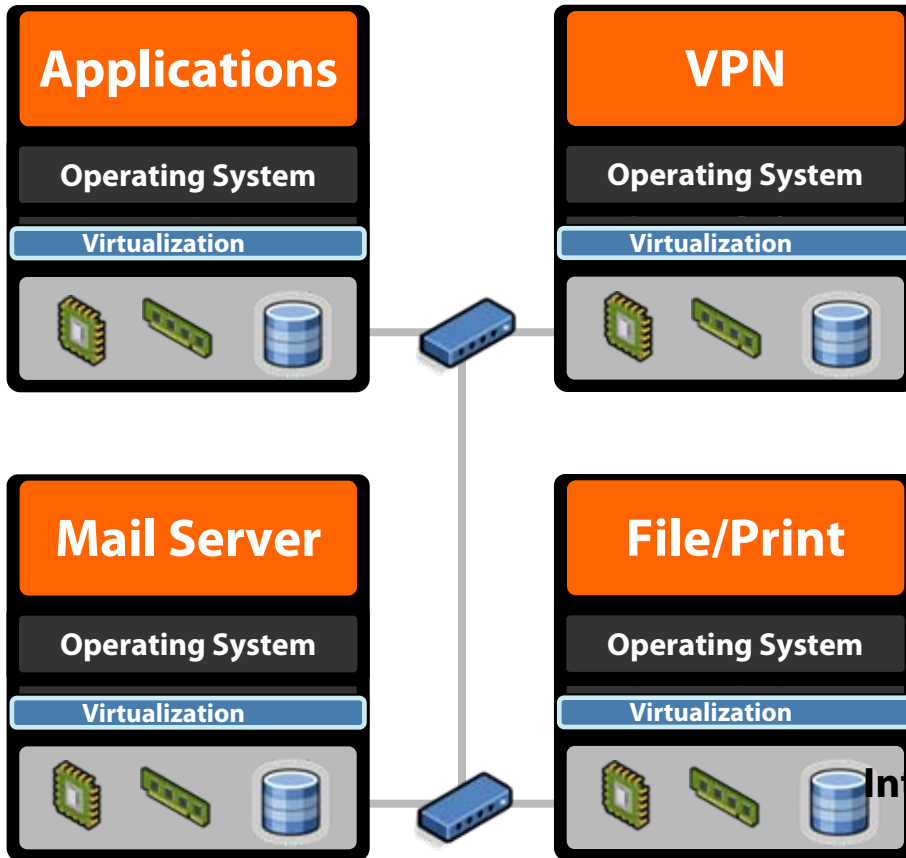
**PROVIDING MOBILITY  
WITH  
VMware®  
VMotion™**



# Workload Pooling

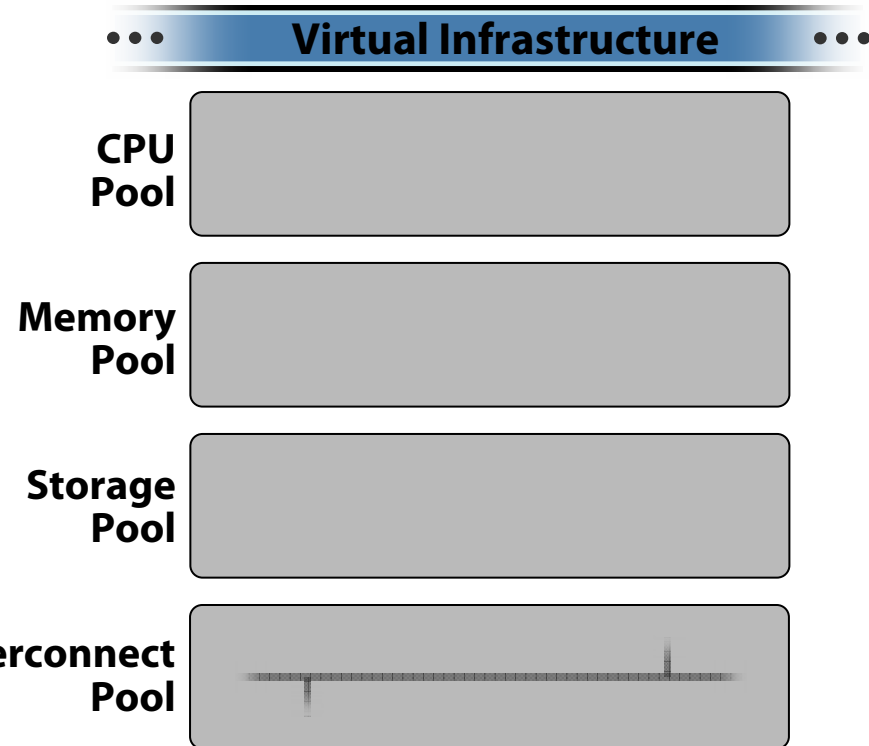
Workloads:

Typical Multi-Server Configuration



Workloads:

Pooled with Virtual Infrastructure



# The Virtualized x86 Datacenter

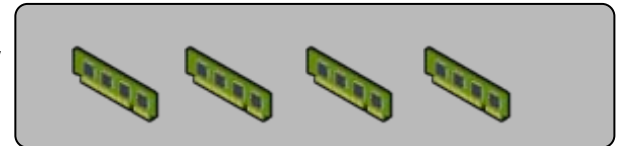


## Virtual Infrastructure

CPU Pool



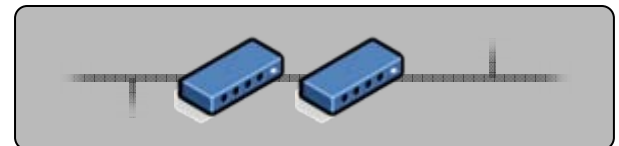
Memory Pool



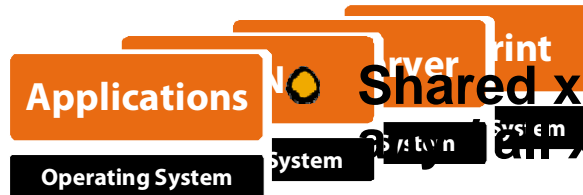
Storage Pool



Interconnect Pool

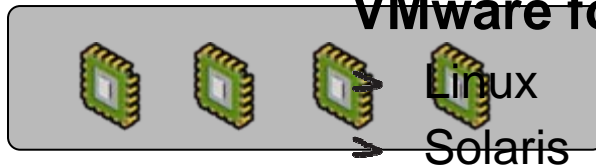


# The Virtualized x86 Datacenter



... Virtual Infrastructure OS “guests” certified by VMware for use with VI3

CPU Pool



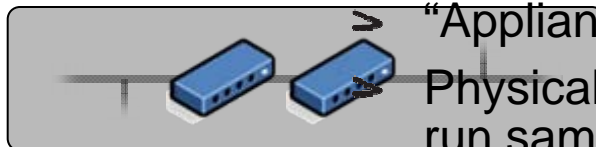
Memory Pool



Storage Pool



Interconnect Pool



# Virtual Infrastructure Stack 2008

3  
Management & Automation



Infrastructure Optimization



Business Continuity



Desktop Management



Software Lifecycle

2  
Virtual Infrastructure



Resource Mgt



Availability



Mobility



Security

1  
Virtualization Platforms

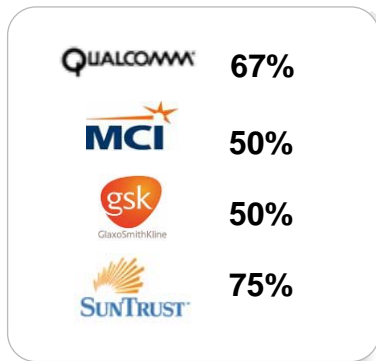
Virtualization Platforms



# Standardized Architecture from Datacenter to Desktop

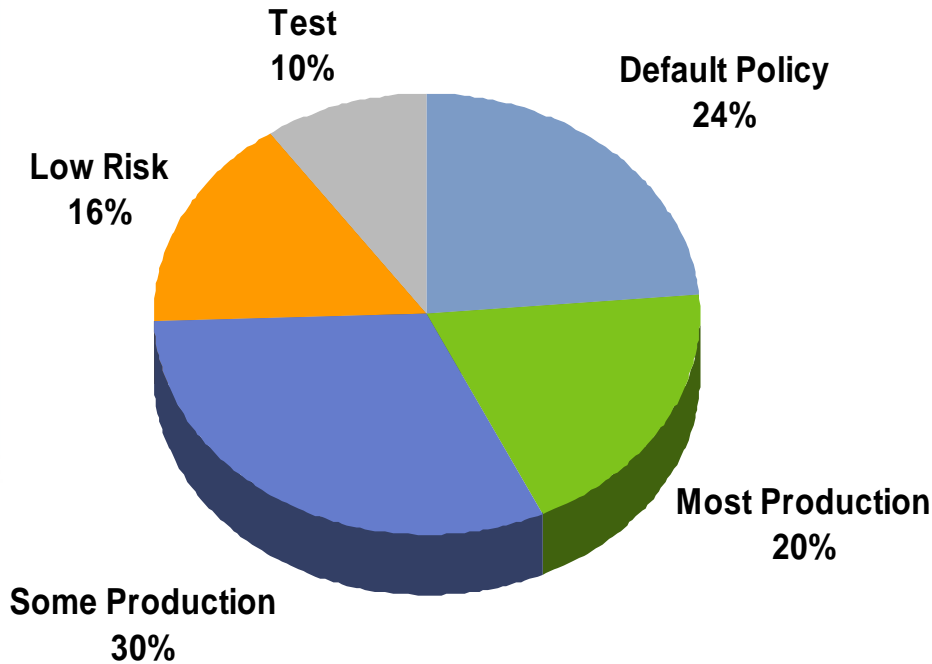
## Driving the benefits of virtualization across IT

### % of x86 Infrastructure Virtualized



	<u>Users</u>	<u>Sites</u>
BOBST	Hundreds	4
attachmate	Hundreds	4
CH2MHILL	Dozens	15

# Mainstream Adoption & Standardization

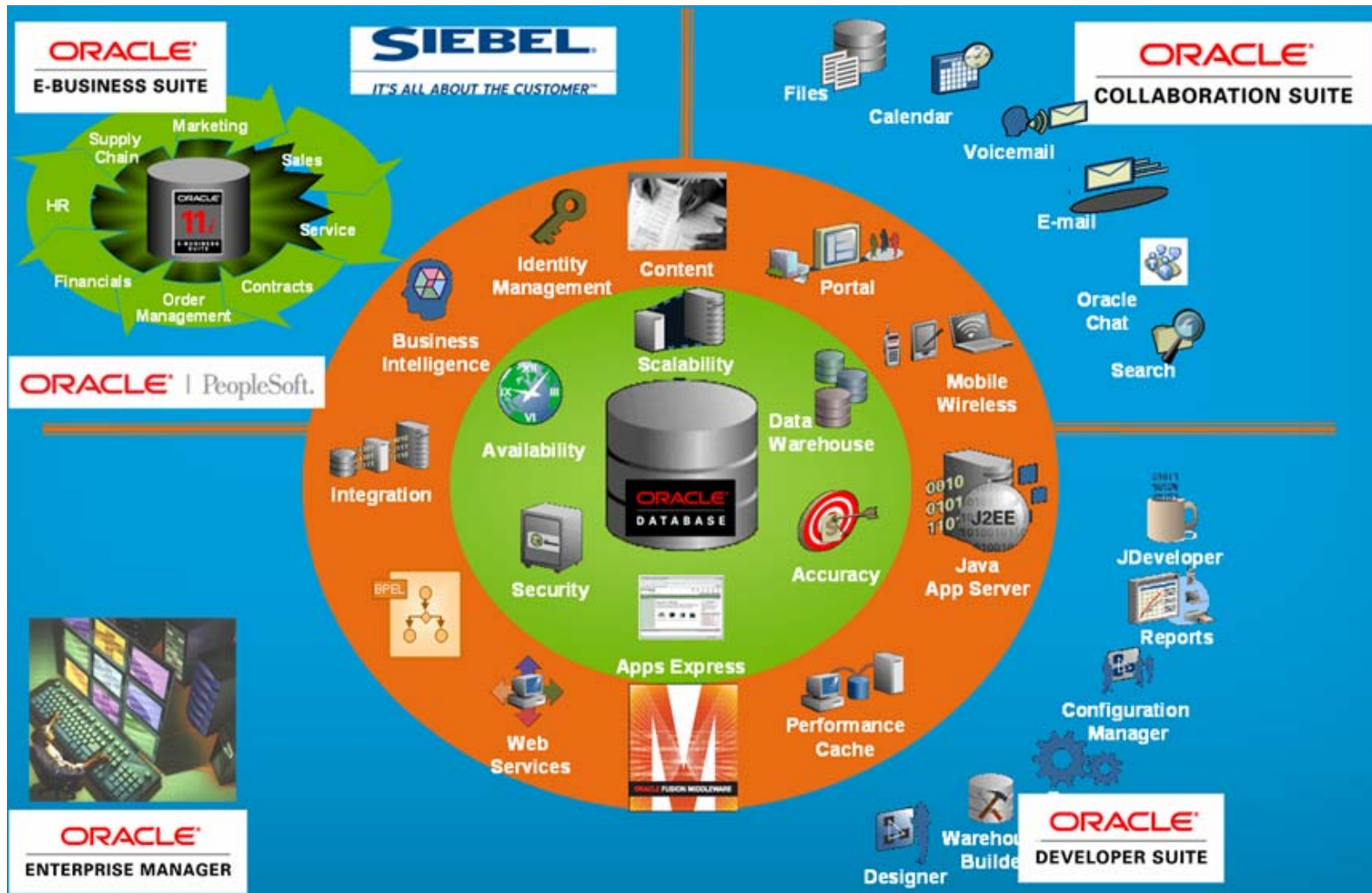


- > 42% virtualized > 25% of Servers
- > 23% virtualized > 50% of Servers
- > 9% virtualized > 75% of Servers
- > **44% standardized on VMware**

Source: Third-party research study on VMware Adoption, July-Aug 2007; sample size of 1154 VMware customers

# Virtual Infrastructure for Oracle Environments

# Oracle Footprint



# Oracle Footprint: Virtualized and Managed



“Oracle Enterprise Manager’s System Monitoring *Plug-In for VMware ESX Server* brings Enterprise Manager’s rich and comprehensive set of **system management features for Monitoring, Configuration Management, and Administration** to VMware environments resulting in better manageability and lower cost”

# Oracle Support for VMware: Metalink 249212.1

## Start with Development/Test/Pre-Production opportunity

### Purpose

Explain to customers how Oracle supports our products when running on VMware

### Scope & Application

For Customers running Oracle products on VMware virtualized environments.  
No limitation on use or distribution.

### Support Status for VMware Virtualized Environments

Oracle has not certified any of its products on VMware virtualized environments. Oracle Support will provide support for Oracle products when running on VMware in the following manner: Oracle will only provide support for issues that either are known to occur on the native OS, or can be demonstrated not to be as a result of running on VMware.

If a problem is a known Oracle issue, Oracle support will recommend the appropriate solution on the native OS. If that solution does not work in the VMware virtualized environment, the customer will be referred to VMware for support. When the customer can demonstrate that the Oracle solution does not work when running on the native OS, Oracle will resume support, including logging a bug with Oracle Development for investigation if required.

If the problem is determined not to be a known Oracle issue, we will refer the customer to VMware for support. When the customer can demonstrate that the issue occurs when running on the native OS, Oracle will resume support, including logging a bug with Oracle Development for investigation if required.

NOTE: Oracle has not certified any of its products on VMware, but use of Oracle products in the RAC environment is specifically not supported. This is noted because some Oracle product demonstrations have been conducted in a RAC environment using VMware. These are demonstrations only and not certified for use by customers.

## Certification

- Oracle has not certified its products on VMware virtualized environments

## Support

- Oracle will provide support for issues that either are known to occur on the native OS, or demonstrated not to be a result of running on VMware

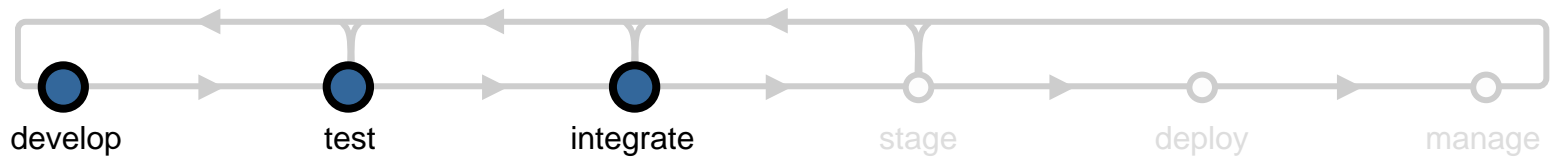
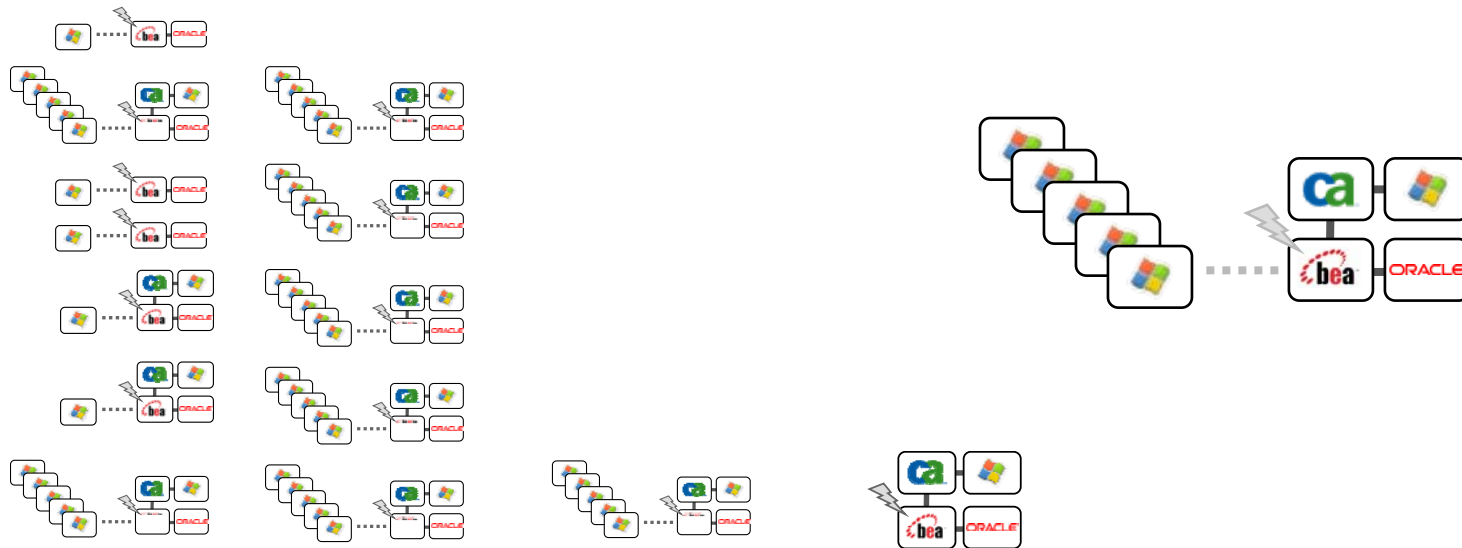
## RAC

- Oracle DBMS in RAC configuration is specifically not supported

# Substantial environment multiplication in pre-production

## Application Development

## Production



PEOPLE INVOLVED

34

10-15  
shared

3

2  
shared

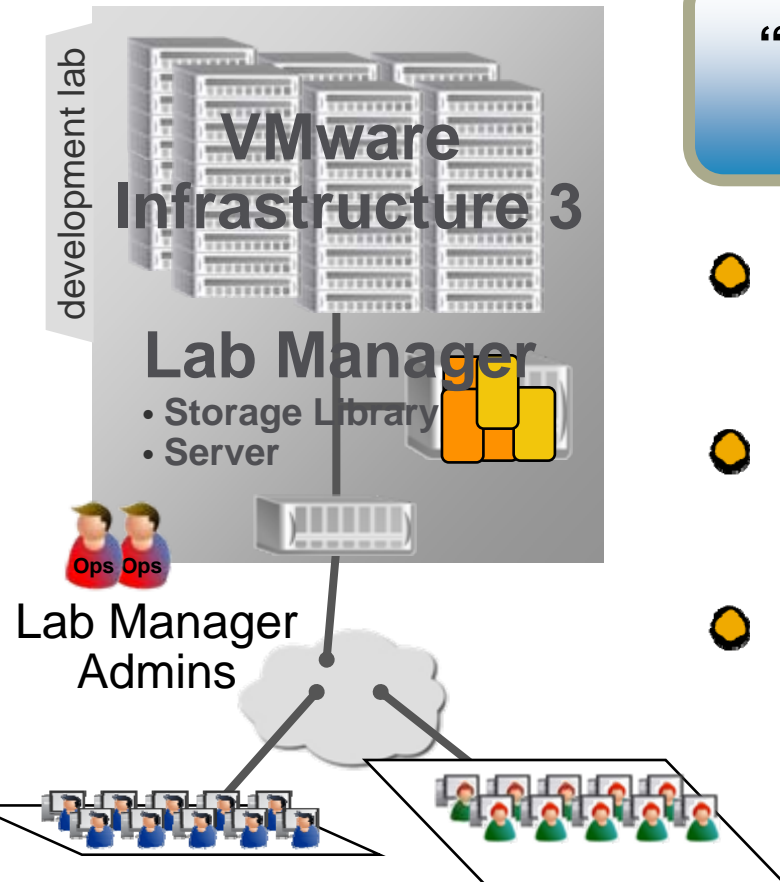
2  
shared

5  
shared

# VMware® Lab Manager: Pre-Production “Virtual Lab” Automation System

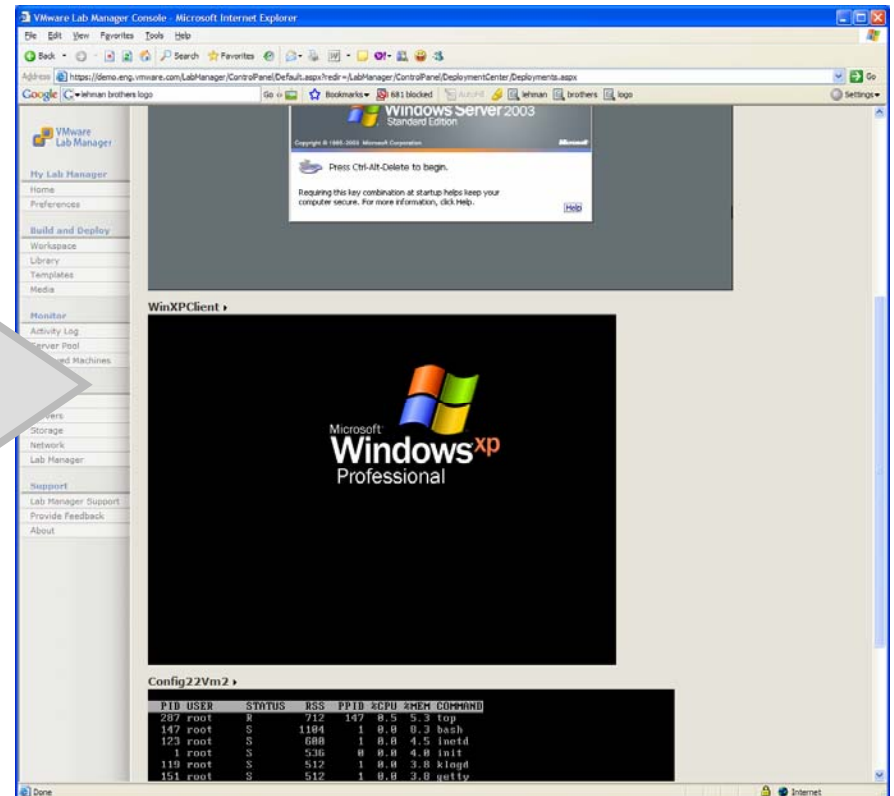
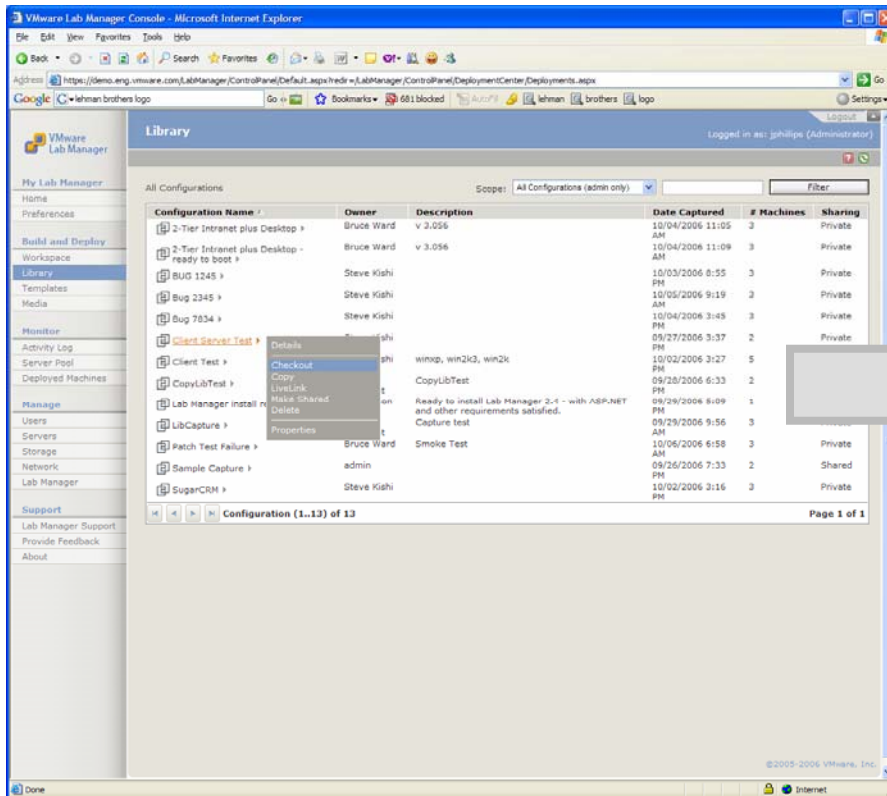
**“Virtual Private Datacenter”  
for every developer**

- Shared library of multi-machine configs for collaboration
- Self-service provisioning, rapid set-up and teardown
- Suspend and capture “live” multi-machine state



*Local or distributed developers and testers*

# VMware® Lab Manager – Fast and Easy



Self-Service Provisioning  
Multi-Tier Complete Application Environment (multi-VM)  
Easy for Point-and-Click Library Entry  
IT in Control of Resource Policy and Quotas

### Hardware savings

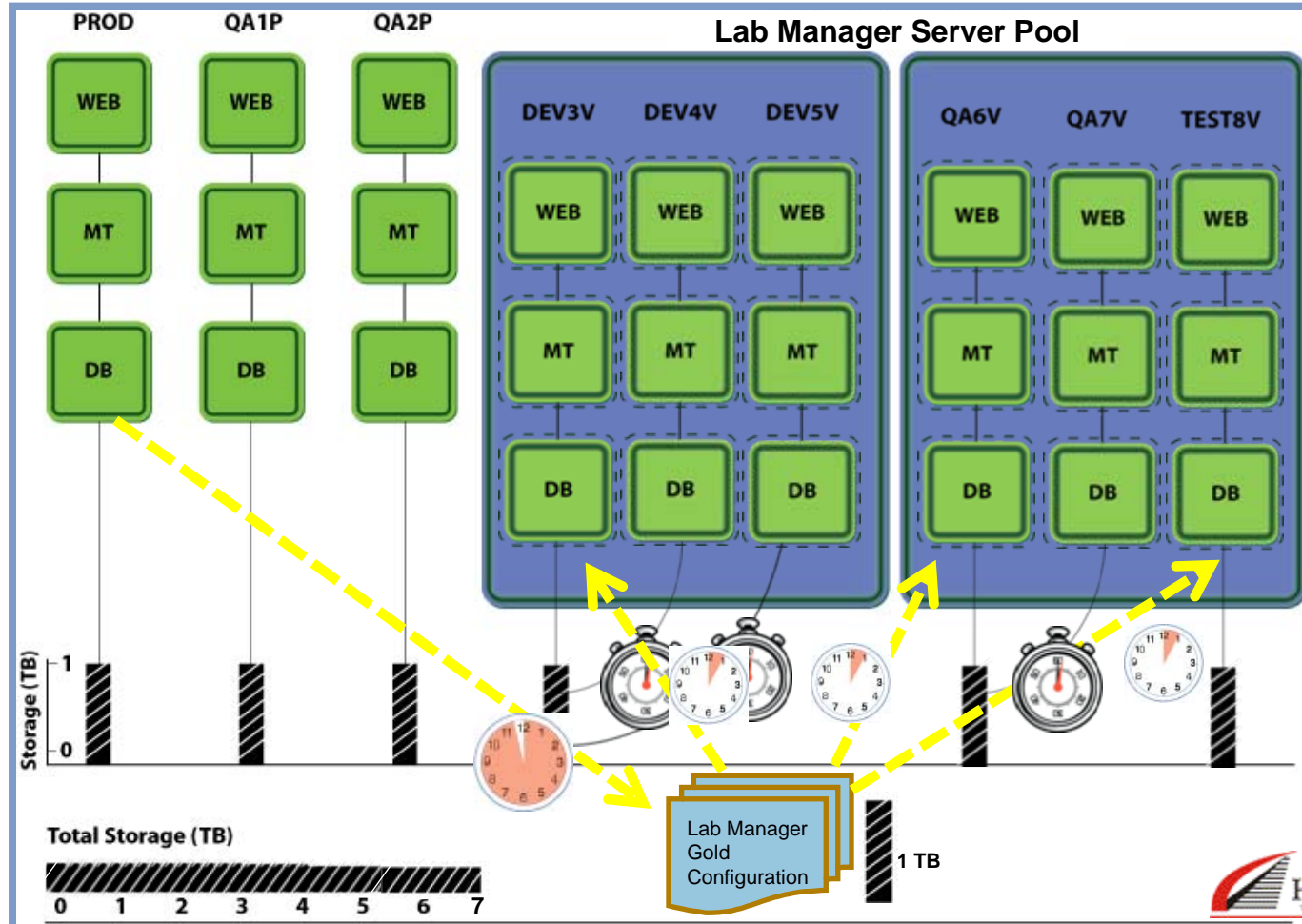
- > Do more faster

### Lifecycle Productivity

- > Shrink system config time from 50% to 5% of development cycle time
- > Accelerate software lifecycle by > 20%
- > Offloads provisioning and change requests from IT/eng services

### Software Quality

# Oracle 11i E-Business Suite & Lab Manager: Financial Services Customer



## Oracle 11i E-Business Suite on VMware Infrastructure®

**Very large national food services company**

**Oracle E-Business Suite 11.5.10.2 with customizations**

**Installed Q4 '05 on modest ESX Server 2.5 hosts**

- > HP 2-way 3.6GHz servers for initial deployment
- > No Oracle Service Requests

**Live since Q1 '06**

- > Have since migrated to ESX 3 without issue
- > Two years with no VMware-related Oracle SRs

**Planning Q2 '08 upgrade to R12 on ESX Server 3.5**

## VMware Customers Using Oracle Products

**Abitibi Bowater**

**Avaya**

**Bobst SA**

**Cisco Systems**

**Electronics for Imaging**

**First American Corp.**

**Health First**

**International Data Group**

**Natixis Capital Markets**

**Princeton Softech**

**Qualcomm**

**US Marine Corps**

**Welch's**

**Young America**

## #1: Instant, Self-provisioned Sandboxes



Application Developer

### DBA & App Developer

I need my own development environment,  
and I need it NOW!

### Solution

- > IT provides shared, virtualized pools of server resources
  - Discrete VMs provides isolated environments
- > Automated Lab Manager:
  - Automated provisioning and management of complex, multi-machine environments
  - Self-service provisioning
  - Many instant “sandboxes” per user

## #2: Accelerate Projects with Limited Budget



IT Administrator

### IT

I want to help, but I don't have budget to deploy more pre-production systems

### Solution

- > Use virtual infrastructure farms to maximize utilization and optimize capacity
- > Support multiple projects without requiring dedicated hardware

## #3: Simplified Change Management



### Application Administrator

I need to oversee change management & provisioning in a multi-OS/multi-version application environment...

### Solution

- > **Virtualization + Storage allows clones of a production system to be delivered to test/remediation environment in minutes**
- > **Library of configurations in templates can be provisioned in minutes**
- > **Stable images are restored in minutes with a click, to resolve patch/upgrade problems**

**Application Administrator**

## #4: Optimized Prod/DR/Stage/Test/Dev Blueprint



CTO

### CTO

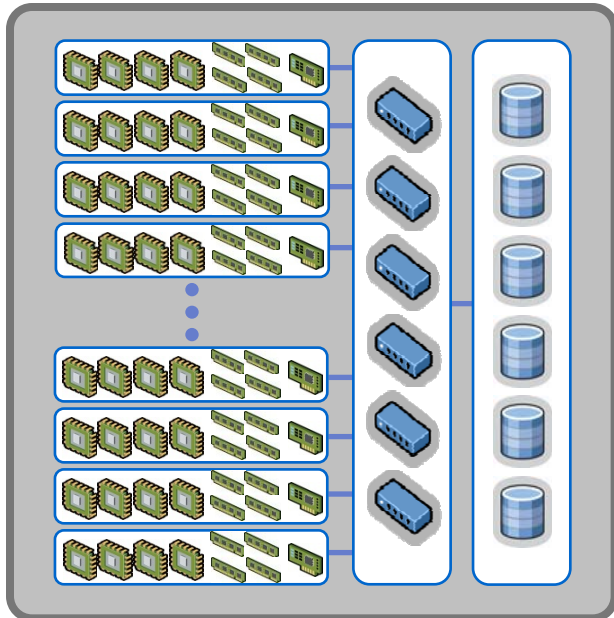
Reduce TCO envelope for complete app dev/deployment infrastructure

### Solution

- Cost effectively multiplex DR/Staging/Test/Dev
  - Without costly 1:1 duplication of primary application datacenter environment
  - Built-in resilience for all that complements Oracle availability technologies

# **Virtualization: Looking Ahead**

# Virtualization Becomes Pervasive in Hardware



## Massive compute supply mandates virtualization

- > High core count
- > Large memory
- > High speed converged I/O fabric

+

## x86 continues upstream

- > 70-80% business compute needs

+

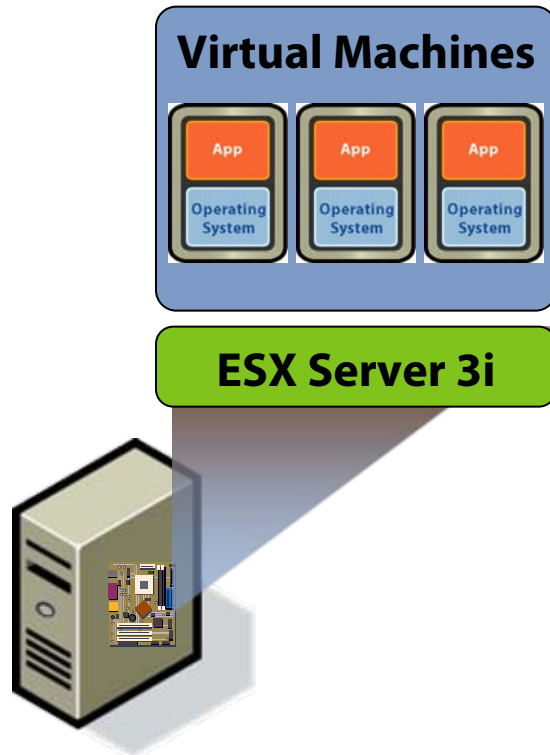
## Minimal virtualization overhead

- > 3rd generation hardware assist
- > Virtualization-aware ecosystem

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**Virtualization becomes a default server feature**

# VMware® ESX Server 3i: Hardware-Integrated Virtualization



## Thin architecture, full functionality

- > Unparalleled security, reliability, and manageability
- > Compact 32MB firmware footprint

## Hardware integrated, ready-to-run

- > Server boot to running virtual machines in minutes

## Simplified management, standards-based

DELL

FUJITSU

FUJITSU  
COMPUTERS  
SIEMENS

hp

IBM

NEC

## Industry Standards, Interop Directions

**80-90+% virtualization workload eligibility today**

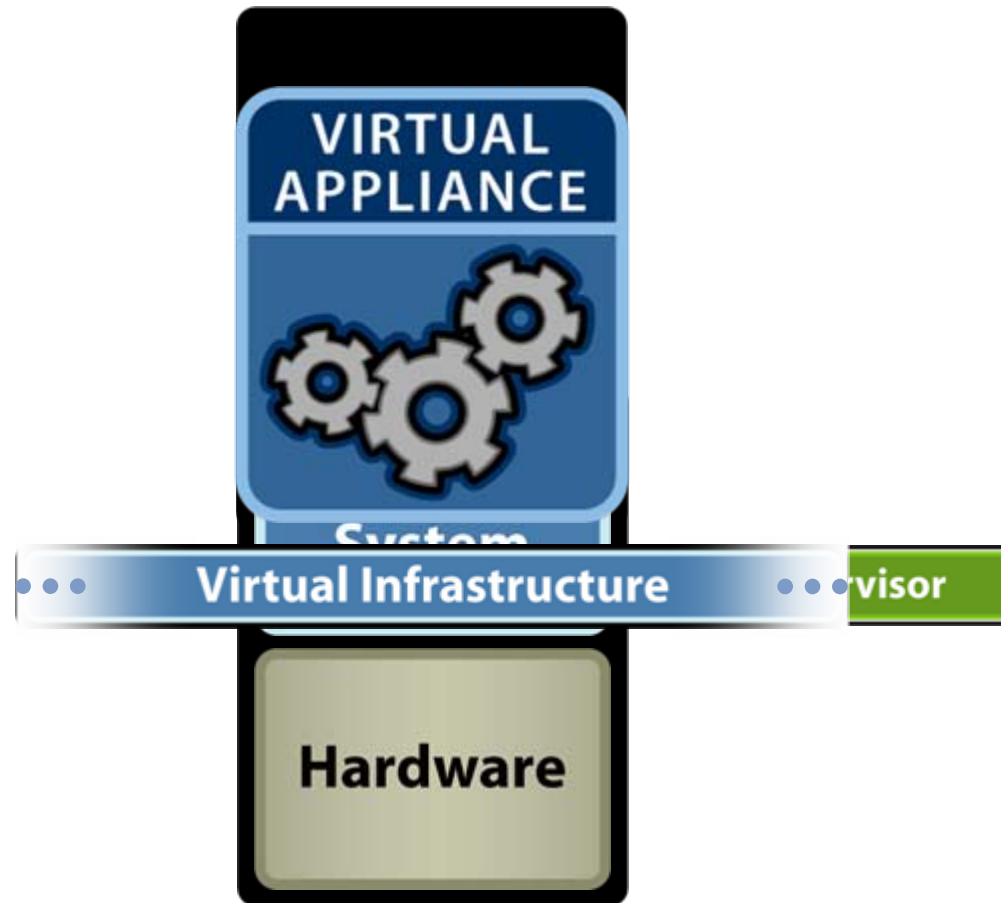
**Forthcoming optimizations from industry and VMware**

- > 3<sup>rd</sup> Gen CPU and Memory assists, I/O emerging
- > OS-level optimizations (“para-virtualization”)

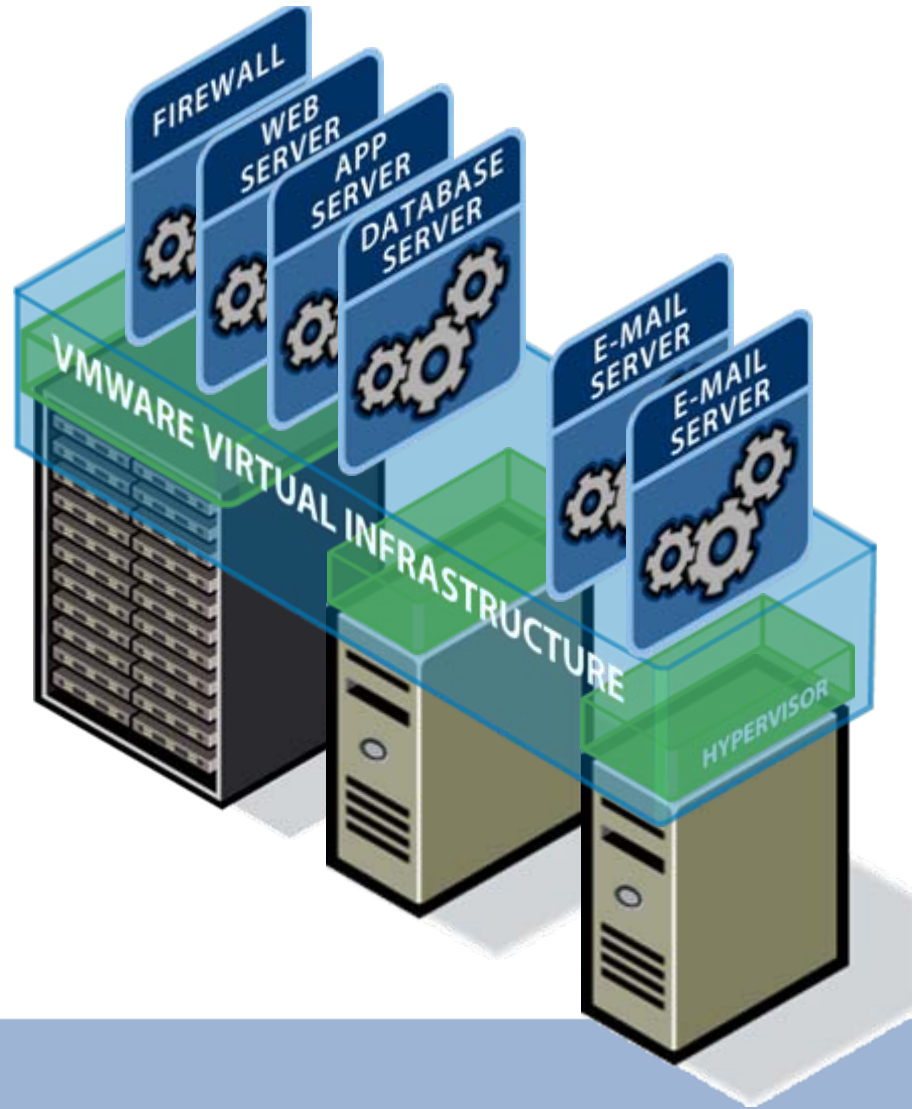
**Converging interoperability and standards**

- > Virtual HW should run any OS/app optimized
- > VMware and others (Linux, Microsoft et al) driving to “open” standards
  - Paravirtualization, OVF ...
- > Great industry progress, avoids vendor lock in!

# Virtualized Applications Change the Role of the OS



# Virtualization Enables Management of SW as “Appliances”



# Commercial Virtual Appliances

*VMworld 2007 Highlights (from 600+ appliances)*

## SECURITY



**Secure Internet Gateway**  
**VMtrial Evaluation**  
Currently Available



**Proventia Network Mail**  
**Security System Virtual Appliance**  
Currently Available

## STORAGE



**Avamar Virtual Edition**  
Shipping November 2007

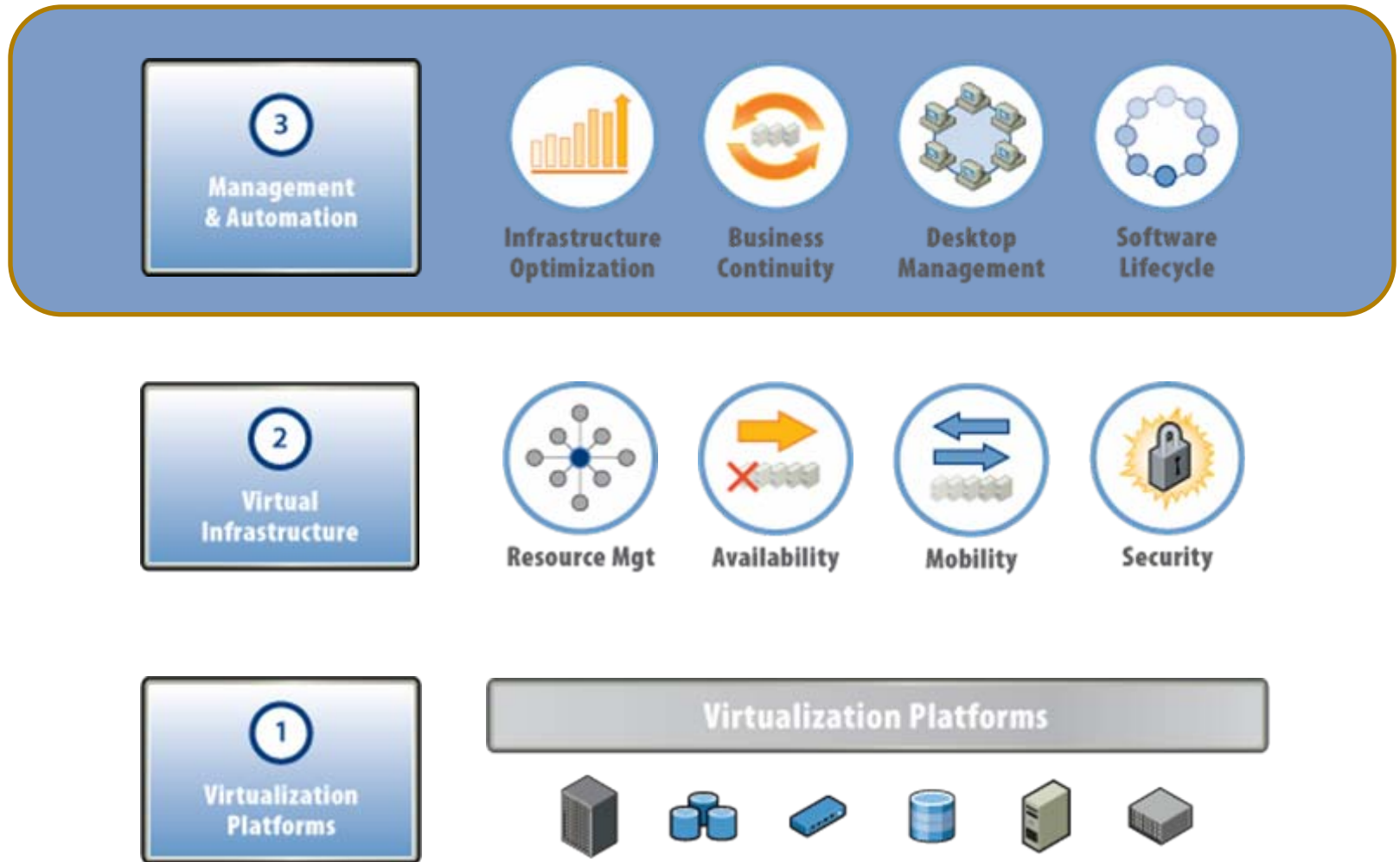


**Virtual SAN Appliance**  
Shipping November 2007  
(Demo at VMworld)

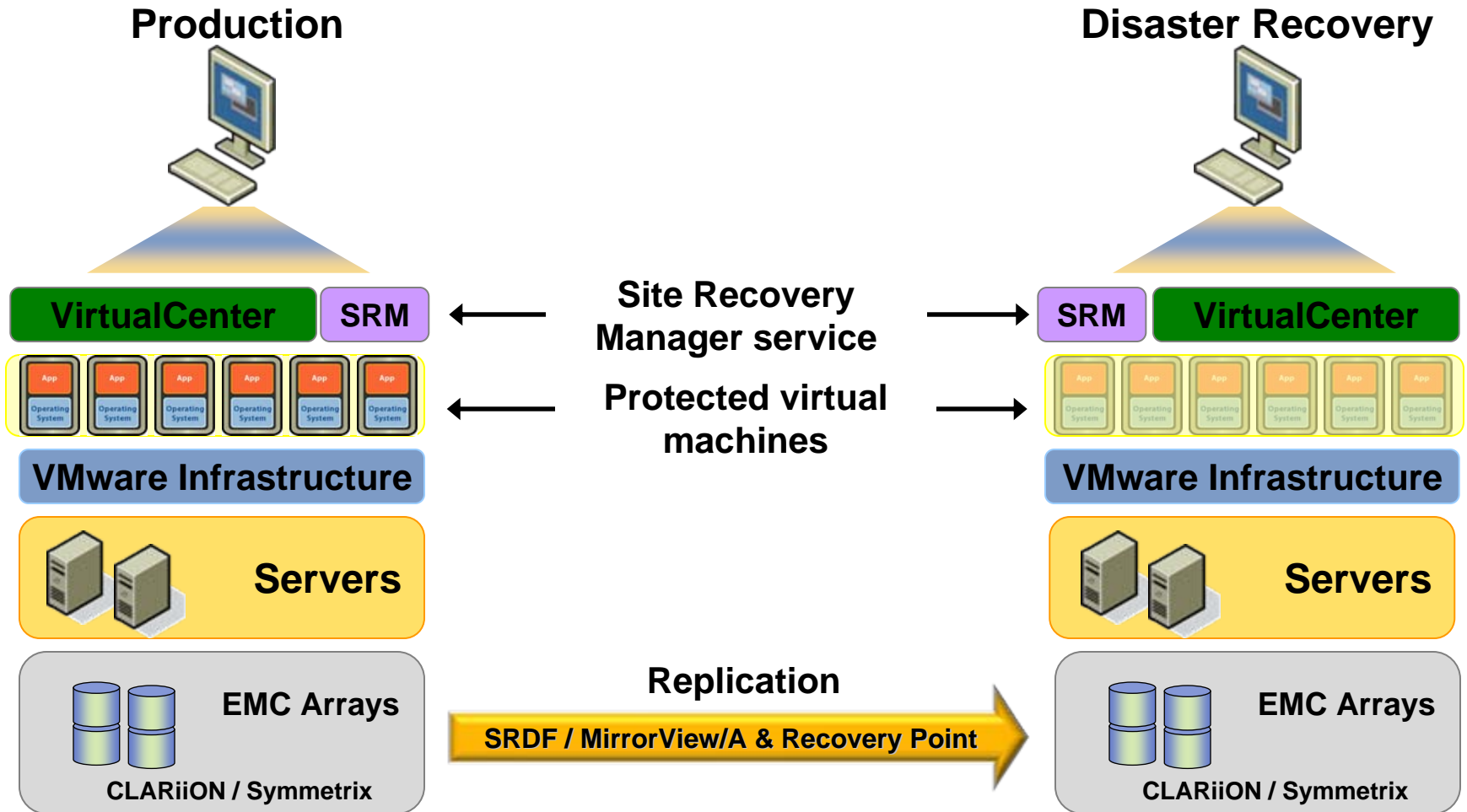


## APPLICATIONS & MIDDLEWARE

# Virtual Infrastructure Stack 2008



# VMware Site Recovery Manager w/ EMC Networked Storage



*These features are representative of feature areas under development. Feature commitments must not be included in contracts, purchase orders, or sales agreements of any kind. Technical feasibility and market demand will affect final delivery.*

# Summary

## Summary

### Virtual Infrastructure standardization

- > Dynamic server, storage, network capacity - any app and OS
- > Rapid and broad adoption across dev to production
- > Capacity optimization, DR, SW lifecycle, desktop

### Virtualization for Oracle

- > Optimize hardware envelope, accelerate development
- > Get started with lab automation and software lifecycle
  - Oracle has not certified products on VMware
- > Oracle at VMware: [www.vmware.com/oracle](http://www.vmware.com/oracle)

### Futures

- > Core virtualization as part of the hardware
- > HW-like interoperability, OS & app optimization



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