



Next-Generation Virtualization Management: From the Datacenter to the Cloud

Stéphane Broquère

Senior Product Marketing Manager

Today's Agenda

The Promise of Efficient Datacenter Management

Virtualization Fundamentally Changes the Equation

VMware Vision for Management

- VMware Virtualization Management Offerings
- Including what's new in 2009

End-to-End Management

What It Means For You

The Promise of Efficient Datacenter Management

Cost Savings



 **Operational
Expense**

Business Agility



 **Service
Levels**

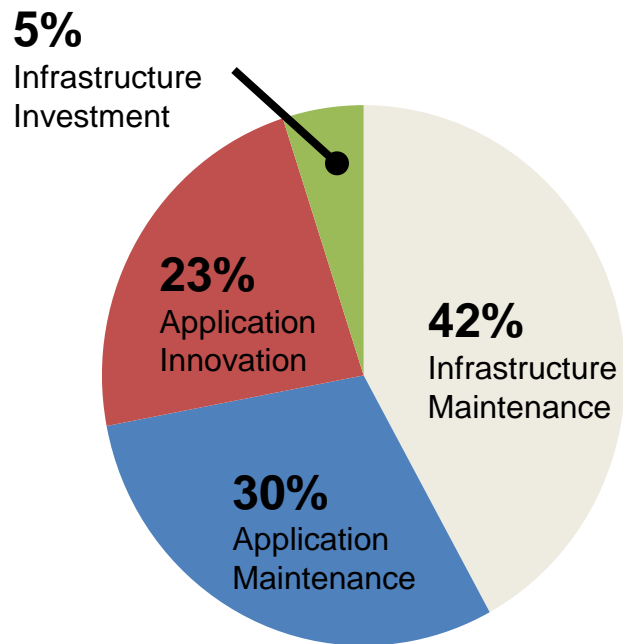
Innovation



 **Competitive
Advantage**

The Problem

Where the IT Budget Goes



>70% of IT budgets just to keep the lights on.

It is helped by

- Server Sprawl
- Power & Cooling issues
- Under utilization
- Space Crunch

<30% of IT budgets goes to innovation and competitive advantage in an environment that is

- more mobile
- more sensitive to outages
- fast changing

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Virtualization Fundamentally Changes the Game

New Considerations

- New items and relationships not present in physical environment
 - New entities to manage: VMs, templates, clones, etc.
 - New attributes and relationships: snapshots, lineage, mappings
 - New associated actions: VMotion, clone, record/replay
- Dynamic and fast growing environment
 - Workload location changes
 - Quick entry/exit of VMs
 - Temporal state of VMs (e.g., suspend, delete)
 - Lower barriers to change

Virtualization Fundamentally Changes the Game

New Opportunities

- Enables more automation
 - VMs are standardized software containers
 - Software files that can easily be move, copied, managed
 - New types of automation operations are available (clone, VMotion, snapshot)
- Properties can be leveraged to solve IT management problems in a new way
 - Linked clone provisioning, capacity over-subscription
 - Ease of introspection
 - Ability to control any VI action via policies
 - Auto-remediation to meet performance, availability, security SLAs

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Virtualization Fundamentally Changes the Equation

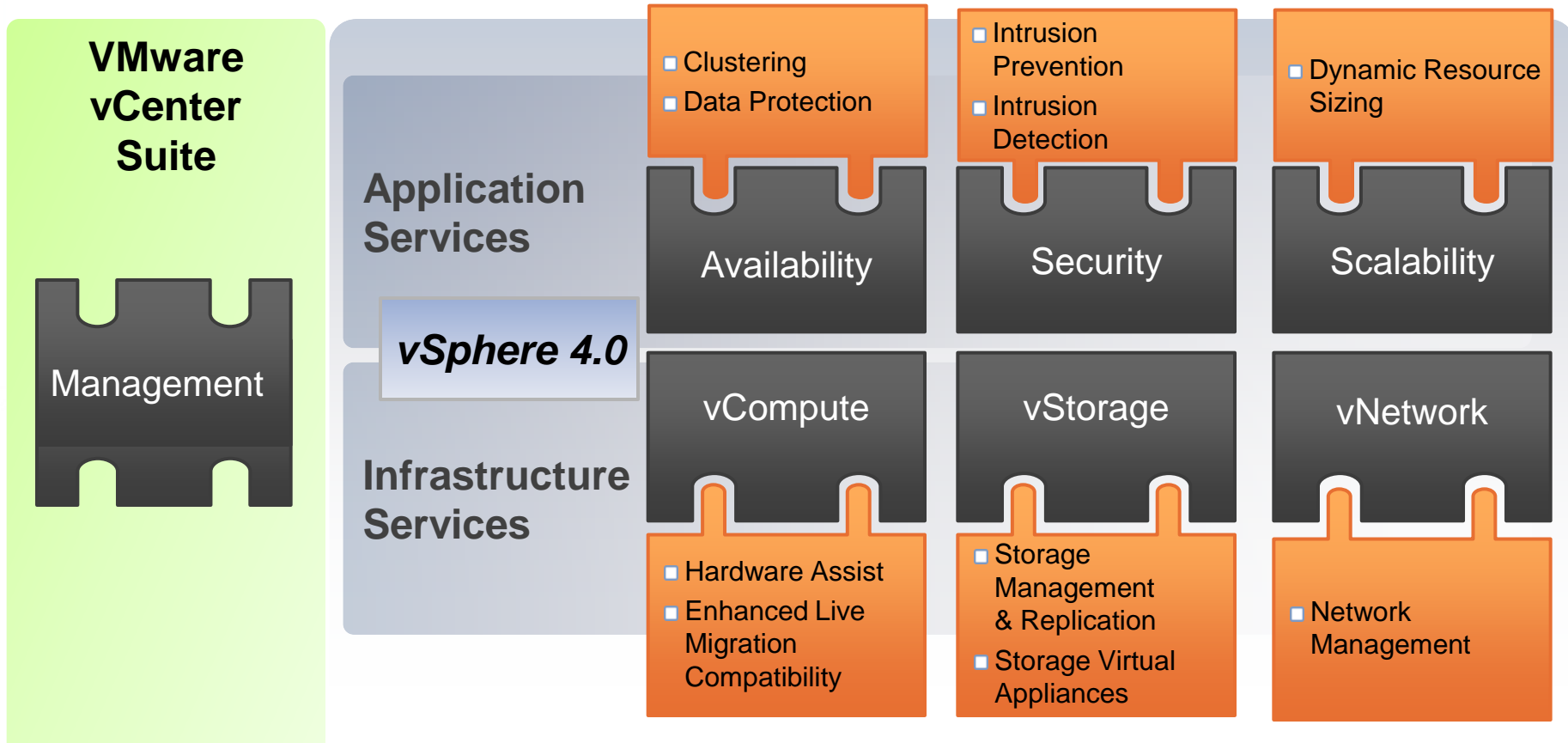
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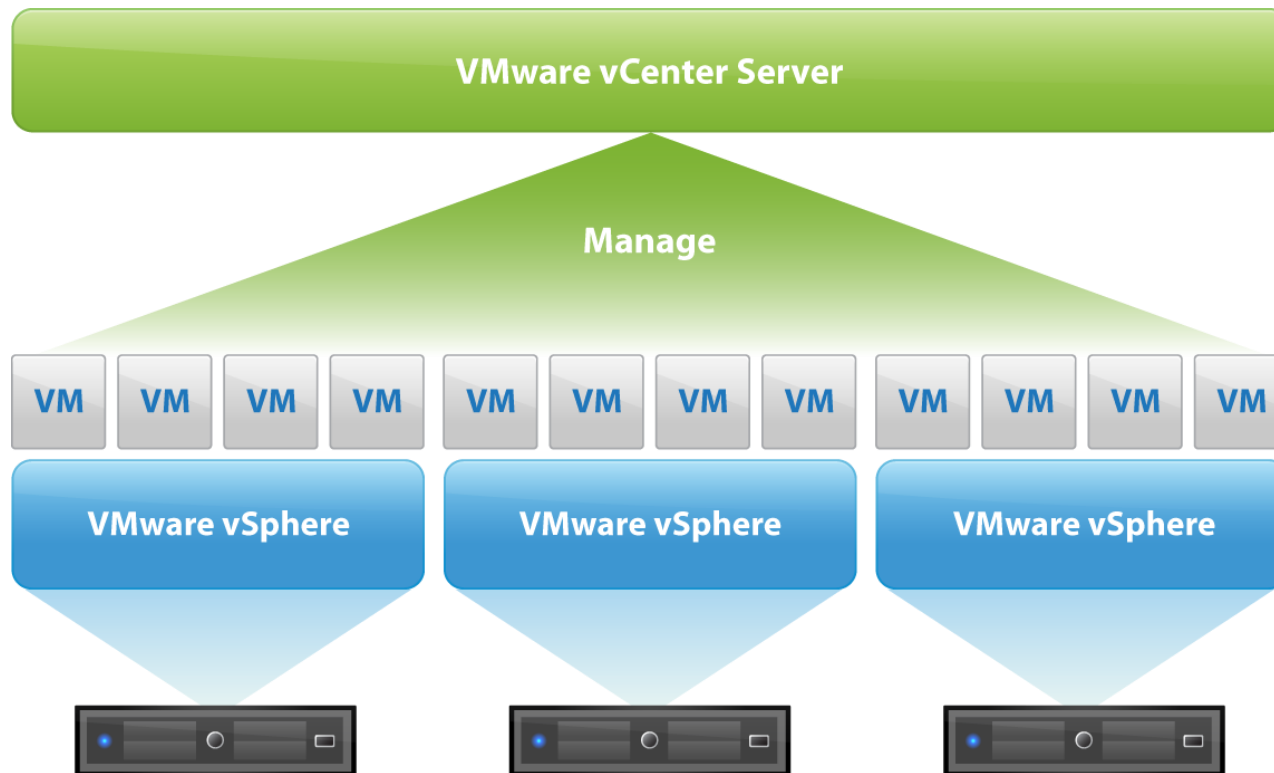
End-to-End Management

What It Means For You

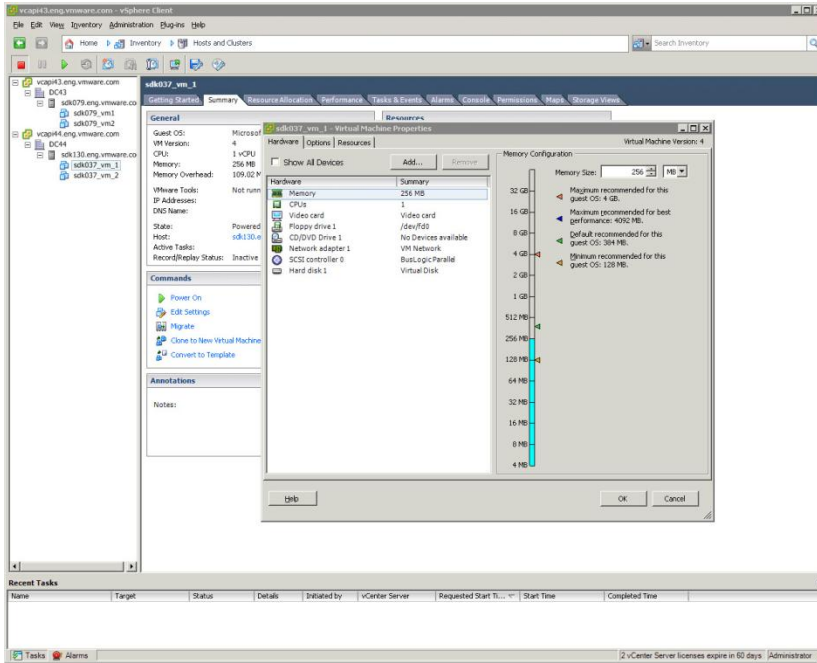
VMware vSphere™ – The Industry's First Cloud Operating System



What is VMware vCenter Server?



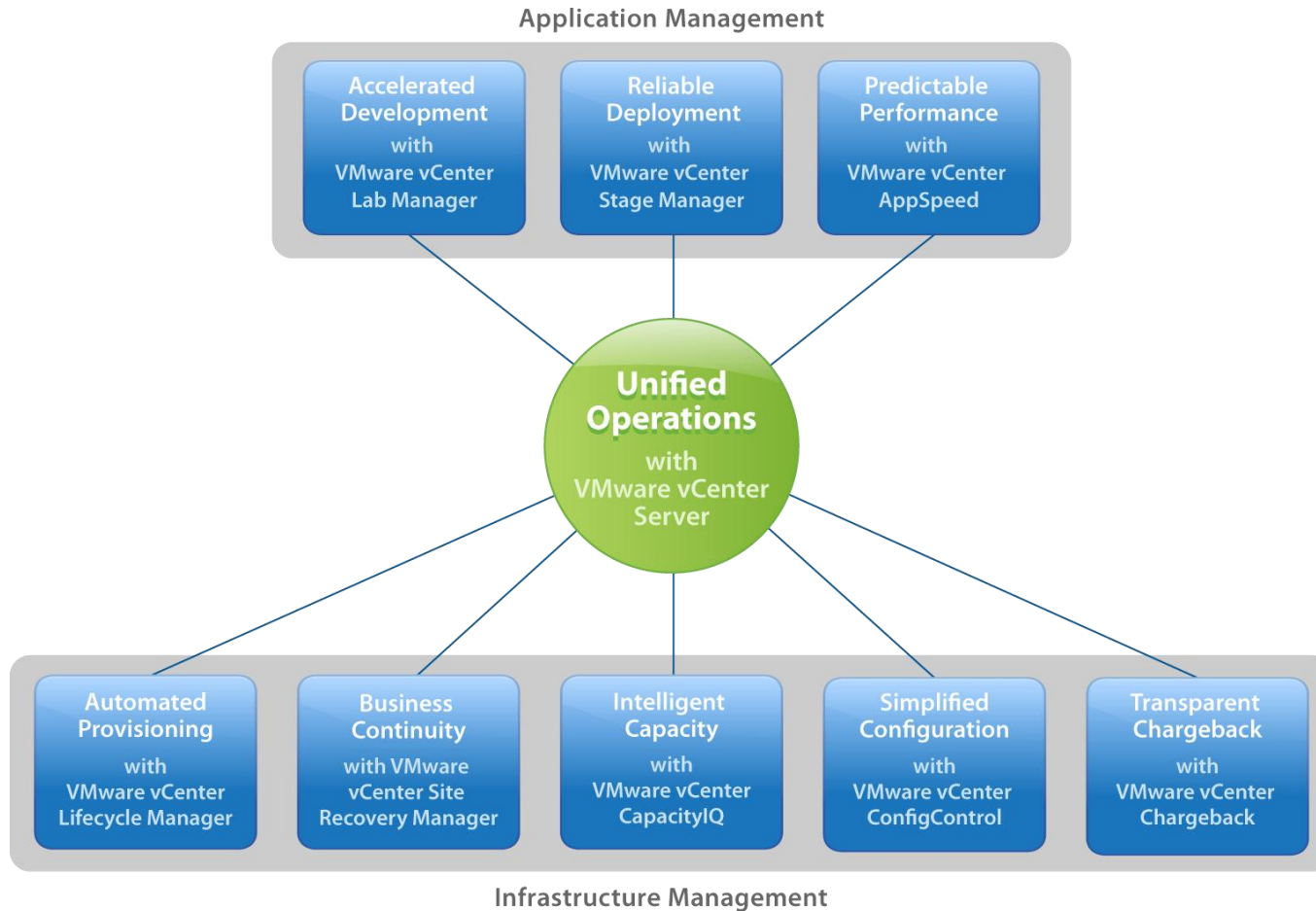
vCenter Server: Unified, centralized management for the dynamic Cloud OS



- Consolidated and simplified management of infrastructure, including servers, storage, networking
- Centralized management of VC instances, ESX hosts, VMs
- Performance and health monitoring
- Extensible platform

The Universal Hub for Virtualization Management

Virtualization Management with VMware vCenter



Extensible Management Suite

VMware
vCenter
Suite

Self Service Management

Self Service Portal

Service Catalogue

Billing/Chargeback

SLA Driven
Management
Model

Availability



99.99%

Security



High

Performance



.2
Milliseconds

Provisioning

Configuration

Capacity

Operations

Performance

Availability

Infrastructure Management

vSphere

Hardware

vApp – Self Describing Applications Enable Automated SLA Management

- Clustering
- Data Protection

Availability

- Firewall
- Anti-virus
- Intrusion Detection
- Intrusion Prevention

Security

- Dynamic Resource Sizing

Scalability



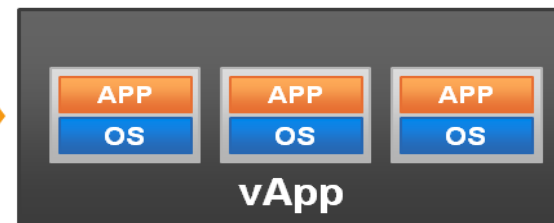
Availability



Security



Scalability



vApps

SaaS

.Net

Windows

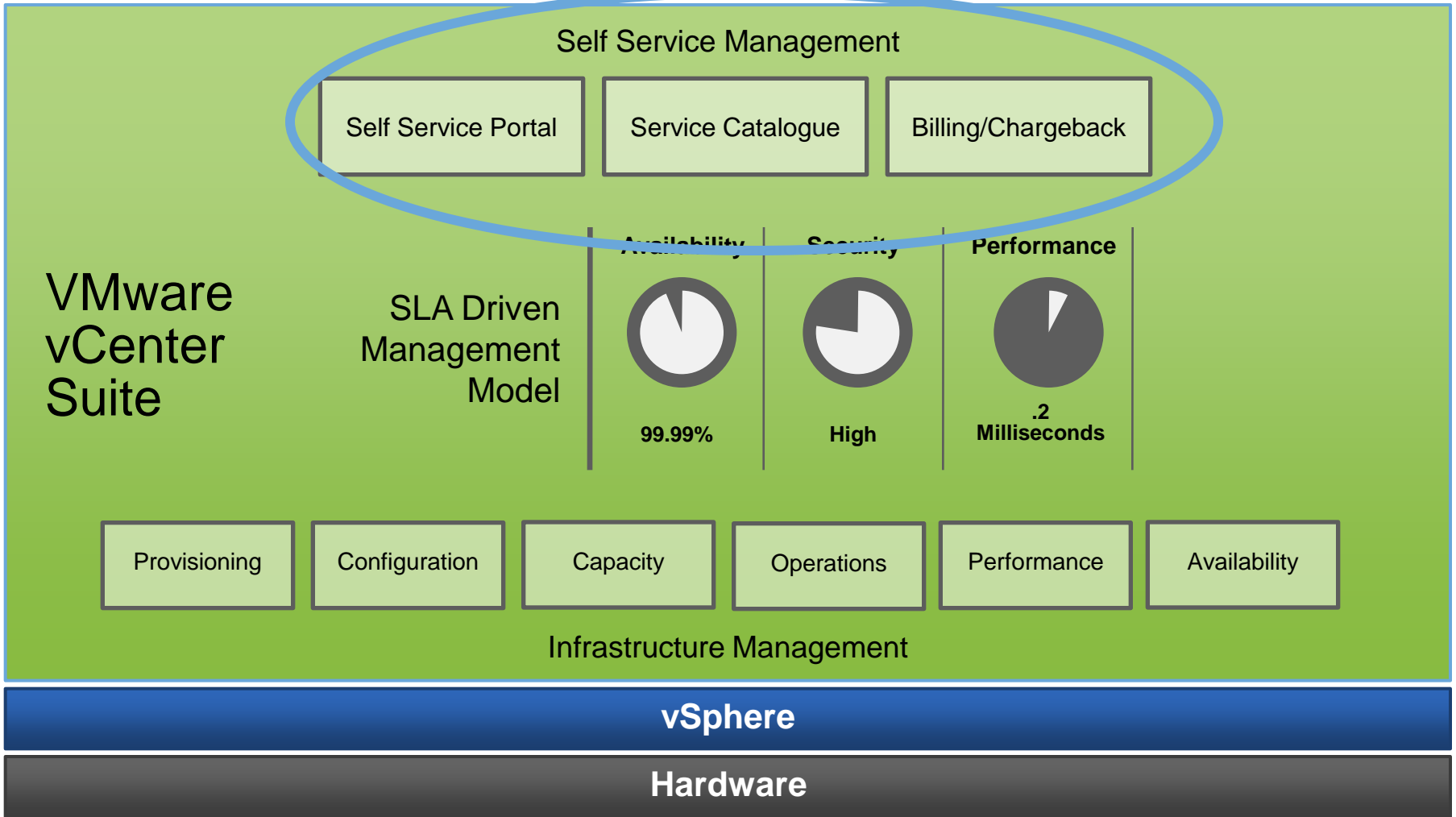
Linux

J2EE

Grid

Web 2.0

Extensible Management Suite



VMware's Vision for Self-Service Access

Self-Service Portal



VM Users
app owners, test/dev,
trainers, etc.



Zone 1 Locked Down for Production



Self-Service Policy
*Read only.
VI Admin approval required
for all actions*

Access Control

LDAP Group

Resources



Templates



Zone 2 Hybrid for Pre-Production



Self-Service Policy
*Leases > 30 days require
approval*

Access Control

LDAP Group

Resources



Templates



Zone 3 Internal Cloud for dev/test/demo



Self-Service Policy
*Full self-service with
chargeback*

Access Control

LDAP Group

Resources



Templates

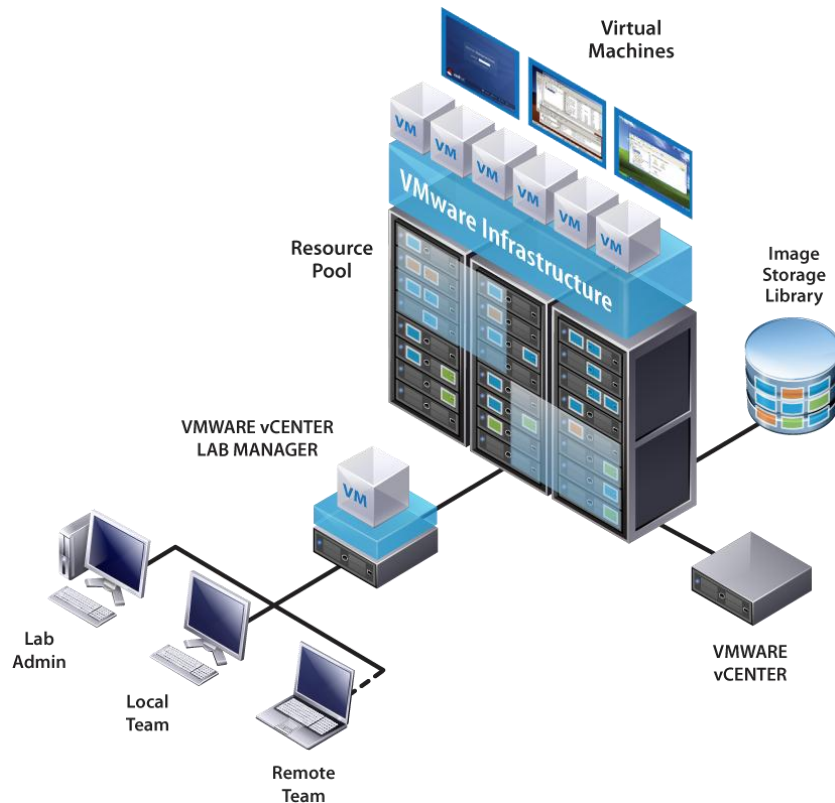


vSphere Admin

- Segments infrastructure into zones with people, resources and self-service provisioning policies that match use cases
- Achieves maximum efficiency, predictability and control

VM Users

- Access to VMs and monitoring data (performance, chargeback) via unified interface
- Self-service provisioning and sandboxing enhances productivity across application lifecycle

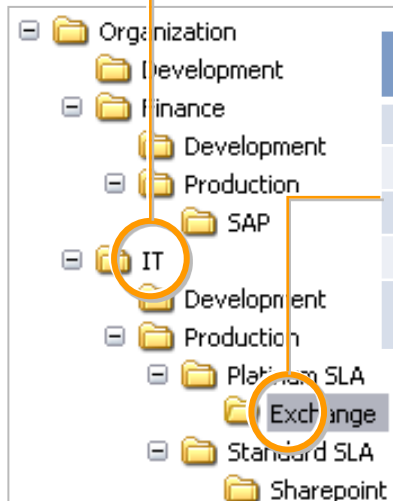


- **Rapid Provisioning Portal**
 - Set up multi-tier system configurations in seconds
 - Easy to use for non-IT users
 - **Shared Image Library**
 - Central location for system configurations
 - Reduce storage footprint
 - Improve asset sharing and team collaboration
 - **IT Control**
 - Policy driven access for teams, projects, sites
 - Automated reclamation of unused resources
-
- Improved IT response time from days to minutes
 - Fewer machines and dramatically reduced power, cooling and hardware replacement cost
 - Increase lab capacity and number of supported users

vCenter Chargeback

Drive accountability and costing into VM deployments

Fixed Cost per VM
Real Estate = \$20
HA Enabled = \$10
Software = \$200
Power = \$3
Custom Fixed Costs

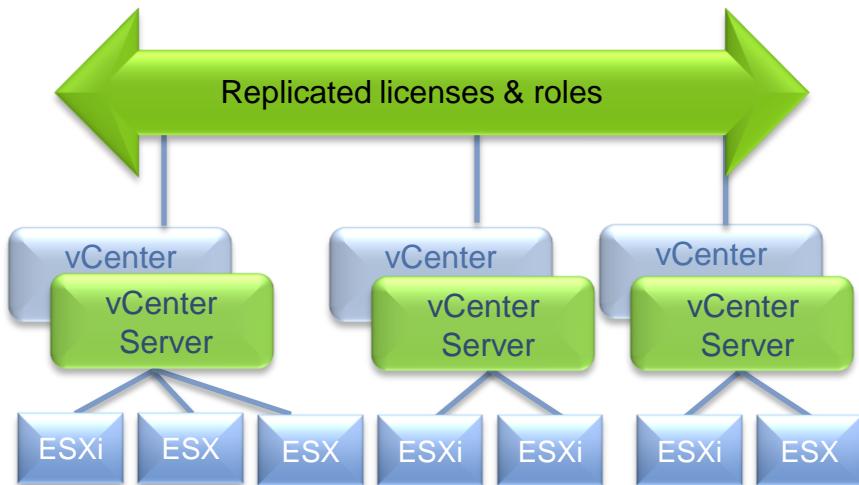


Metering Element	Multiple Rate
CPU – GHz Used	1.5
Memory – GB Used	1.8
Disk – GB Used	2.0
Disk I/O – GB used	1.4
Network I/O – GB used	0

- Understand costs of VMs
 - Associate VM deployments to appropriate business units
 - Report on usage costs
-
- Targeted at vSphere Administrators with tight integration to vCenter
 - Flexible costing model with built in APIs
 - Supports costing based on allocation, utilization or a mix of both
 - Add fixed costs & multiple rates at any level, including VM level
 - Automatically propagate costs down the organization structure
 - Build custom organization model or use vCenter (VC) Inventory

Scalable vCenter Platform

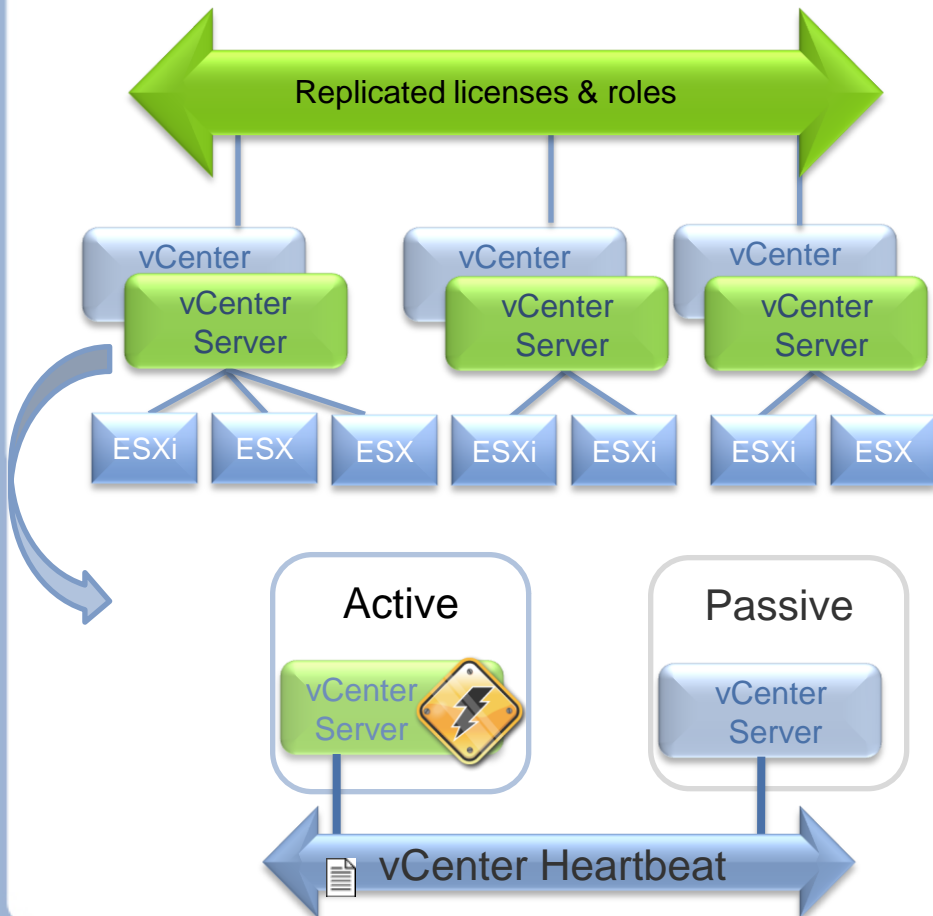
vCenter Linked Mode



- Role and license data available globally via LDAP backbone
- Standard VI Client can access inventory across entire environment
- Search and action based interface allows VI Client to manage across multiple vCenter Servers
- Enables scale out of managed infrastructure

Scalable vCenter Platform

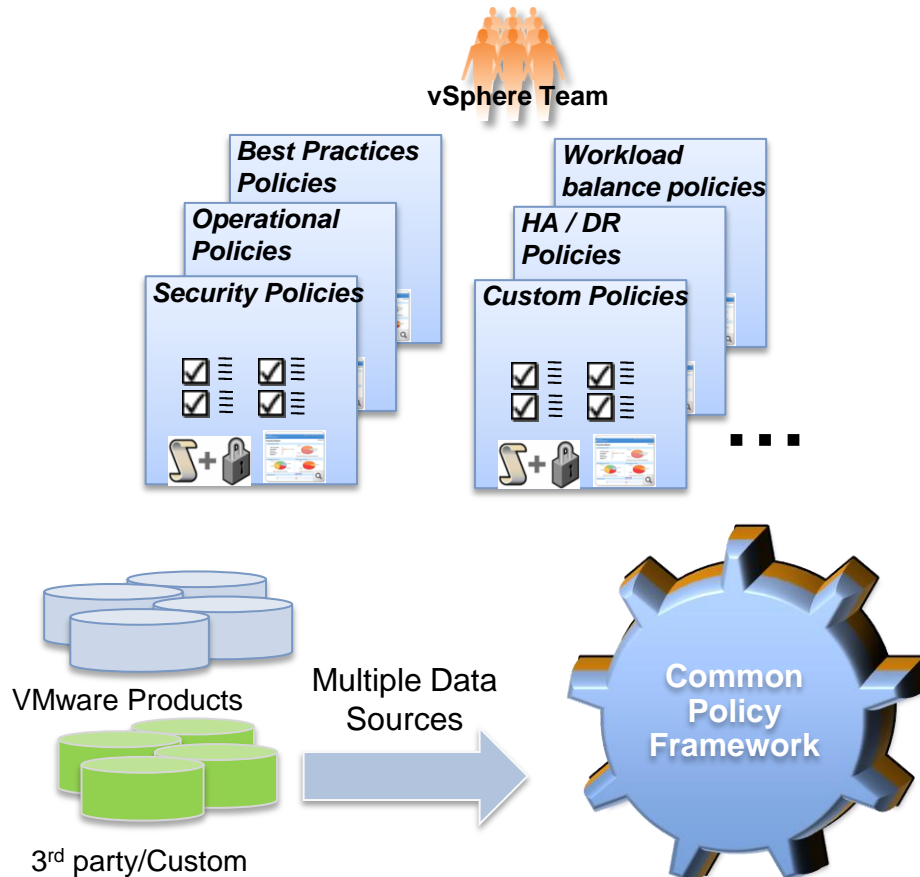
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- High Availability solution for vCenter Server
 - Protect against hardware, operating system, application, database failures
 - Lower complexity
- Provides vCenter specific monitoring capabilities (license server)
 - Flexible deployment scenarios (physical/virtual/WAN combinations)
- Uses host based replication to keep the application state consistent

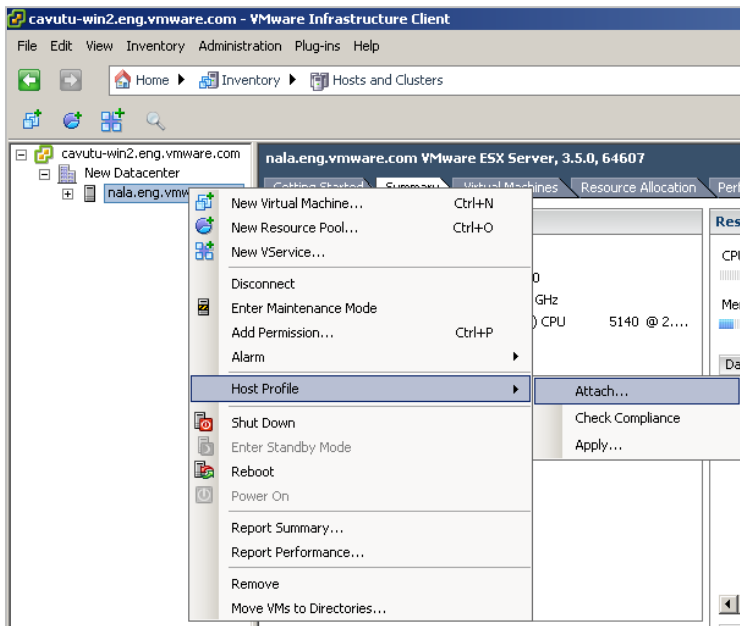
vCenter Orchestrator Unified Real-time Policy Framework



- Enables high degree of automation via codifying decision making and mass action
 - Enables closed loop infrastructure management across different tools
 - Helps reduce OpEx via improved resource utilization, enhanced SLAs, improved management efficiency & IT responsiveness
-
- Common, unified underlying infrastructure service for policy management and policy execution
 - Real-time, light-weight & high performance
 - Extensible: data source, evaluator, action context, authoring

vCenter Host Profiles

Policy-based one-click mass configuration automation



- Quick mass automation or complex configuration automation across vSphere for large number of ESX hosts/clusters
- Automate replicating a golden profile from a host to other hosts via baselines
- Remediate out of policy compliance violations
- View drift from golden baselines

Extensible Management Suite

Self Service Management

Self Service Portal

Service Catalogue

Billing/Chargeback

VMware
vCenter
Suite

SLA Driven
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Performance

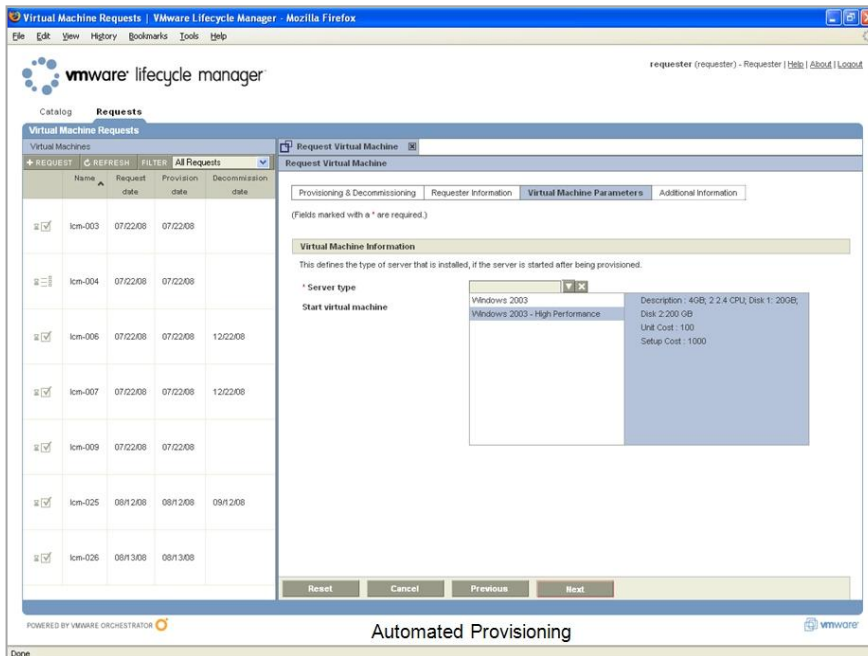
Availability

Infrastructure Management

vSphere

Hardware

*Automated provisioning and decommissioning
increase service levels and control.*

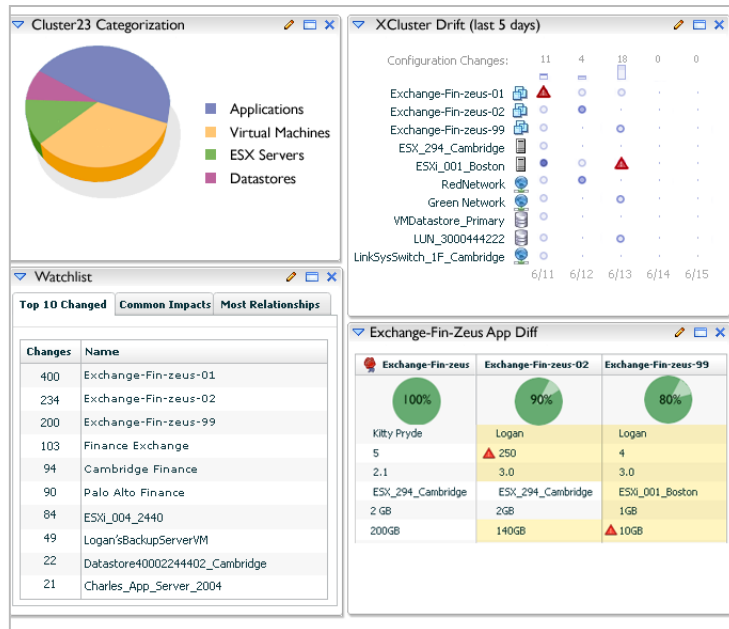


- Auto-provision and deploy VMs based on pre-defined standards
- Utilized proper resources based on VM type and purpose
- Track VM owners and purpose; implement changes as needed
- Decommission to reclaim resources

- Eliminate manual, repetitive admin tasks
- Set up end-to-end provisioning once and manage by exception
- Admins only select from existing and known template configurations owned by IT
- VMs always use the correct resources (datastores, networks, templates, etc.)
- Decommissioning tracked and implemented based on designated lifespan

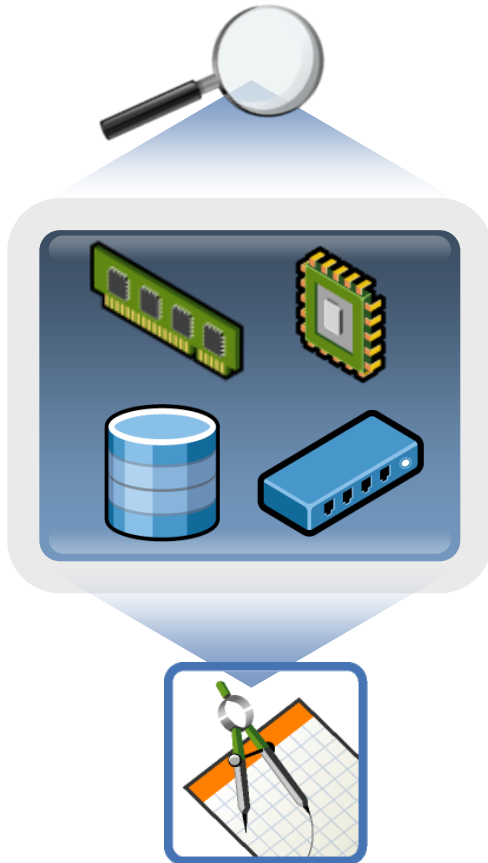
vCenter ConfigControl

*Richer configuration data –
and a better way to get it.*



- Tracking of configuration items that are part of a virtual infrastructure
 - Automated discovery of accurate config, dependency and historical data
 - Application/IT visibility via rich modeling capabilities, dynamic search and reports
-
- Discover, track, model, search, analyze (impact and drift), report
 - Standards based, extensible, comprehensive, continuous, multi-source capture of CIs
 - Applications, inside guests, virtual entities, associated hw, custom tags
 - Rollup impact reporting by business unit, organization unit, etc

vCenter CapacityIQ



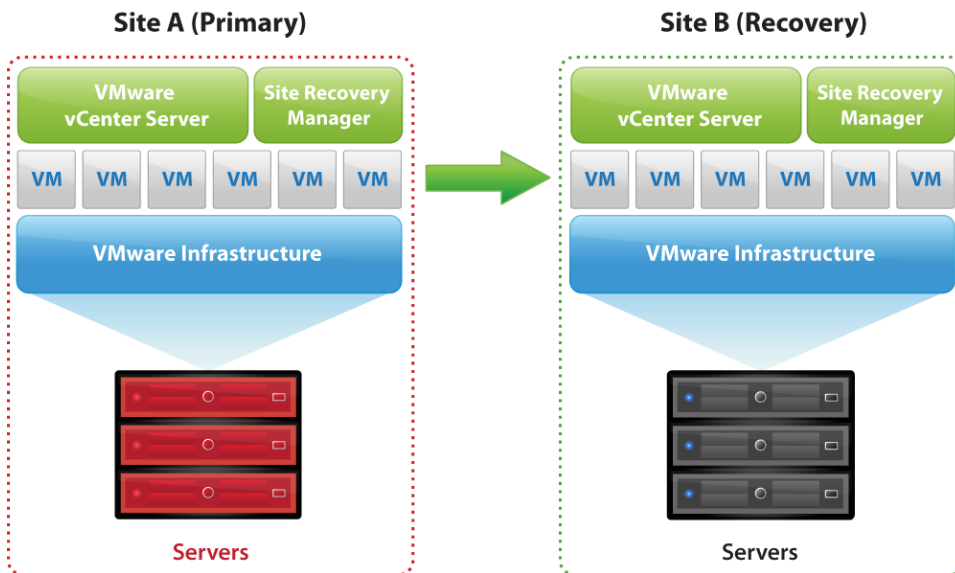
Capacity intelligence for the virtual datacenter

- Deliver the right capacity at the right time
 - Make informed planning, purchasing, and provisioning decisions
 - Enable capacity to be utilized most efficiently and cost-effectively
-
- Perform “What-If” impact analysis to model effect of capacity changes
 - Identify and reclaim unused capacity
 - Forecast timing of capacity shortfalls and needs

vCenter Site Recovery Manager

Availability

*Makes disaster recovery
rapid, reliable, manageable, affordable*



- Simplifies and automates disaster recovery workflows:
 - Setup, testing, failover, failback
- Turns manual recovery runbooks into automated recovery plans
- Provides central management of recovery plans from vCenter Server
- Easy integration with leading vendors' storage replication systems



vCenter AppSpeed

Policies (SLA)

- ✓ 99.9% Uptime
- ✓ Fault Protection
- ✓ Encryption Enabled

75
Users

4
Servers

1
Database

Quality of Service



- Monitor application performance from end-user perspective
 - Collect and correlate across tiers and in vSphere
 - Automated SLA management
-
- Enables proactive detection of end user performance issues
 - Integration with vSphere enables root cause and remediation

vCenter AppSpeed Use Scenarios

1 Allows IT to guarantee application service level

Discover and
Map



Monitor
performance



Analyze Root
Causes



Remediate
Problems

2 Migrate applications from physical to virtual

Develop pre-virtualization
end-user application
baseline



Measure post virtualization
performance

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End-to-End Management

What It Means For You

End-to-End Integrated Management



Enterprise System Management



vCenter Extensibility

APIs and UI plug-in architecture
to enable 3rdparty integration

vCenter

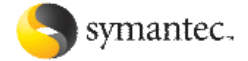
Non-Virtual
Management
Tools

Physical-Only
Environments/
Non-x86/Non-VMware

Non-Virtualized



Rich Ecosystem of VMware Partners



Solutions:

- Remedy ITSM
- Atrium Orchestrator (RBA)

Solutions:

- CA Advanced Systems Management
- CA Data Center Automation

Solutions:

- HP Operations Manager
- HP Server Automation

Solutions:

- IBM Tivoli Monitoring
- IBM Tivoli Usage and Accounting Manager

Solutions:

- Altiris Deployment Solution
- Server Management Suite



300+ SOLUTIONS



Solutions:

- EMC Application Discovery Manager
- IT Compliance Analyzer

Solutions:

- NetIQ AppManager
- NetIQ Aegis

Solutions:

- MP for Systems Center Operations Manager
- SPI for HP Operations

Solutions:

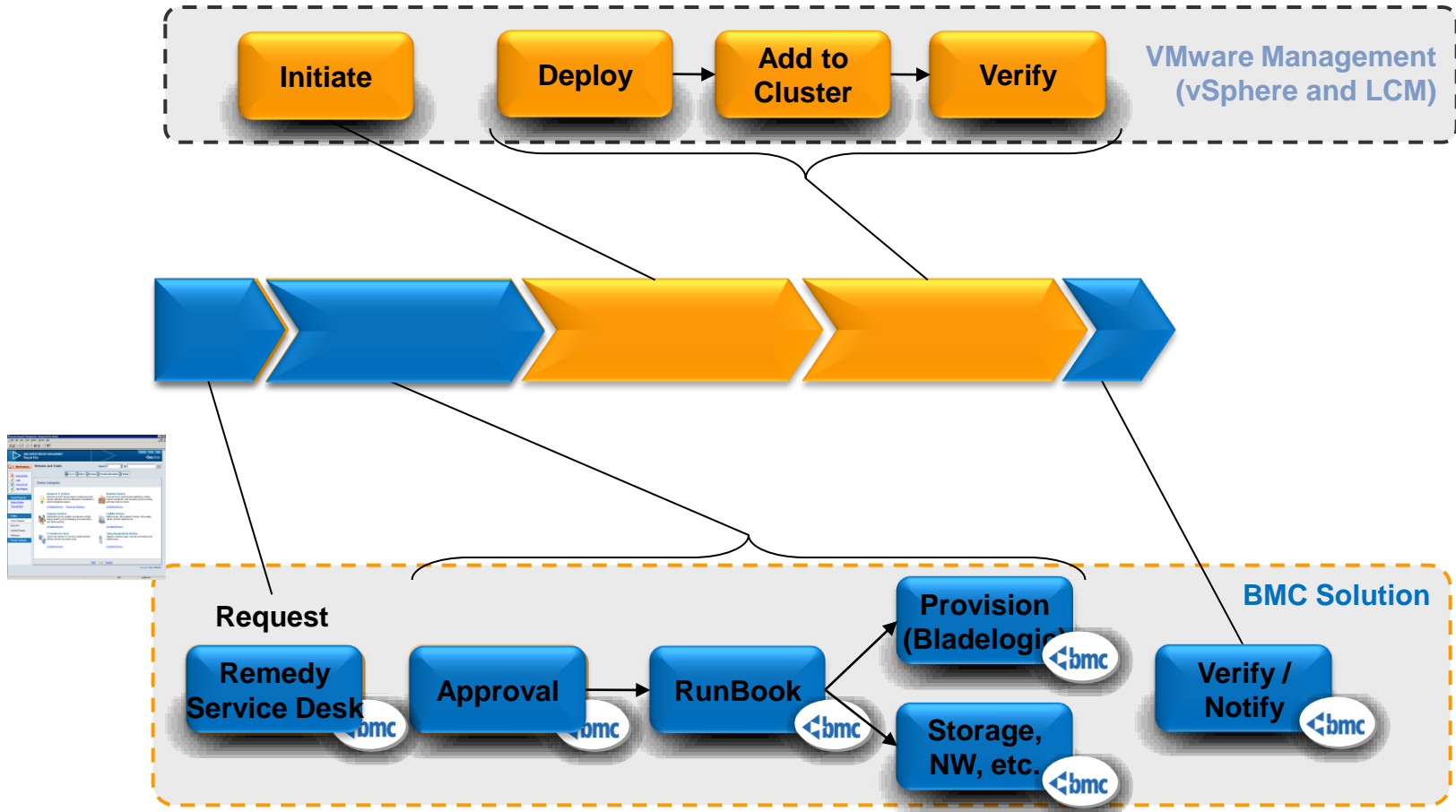
- Quest vFoglight
- Quest vConverter

Solutions:

- Tripwire Enterprise
- Tripwire ConfigCheck



Integrated Automated Provisioning with BMC



Computer Associates OEMs Stage Manager

Automate and manage the application release process from cradle to grave across IT infrastructures and teams

VMware Stage Manager

VMware Stage Manager Console - Mozilla Firefox

Services

Service Management

Services

Service	Stages	Lifecycle Configurations (Deployed/Total)	Archived Configurations	Service Administrators
Accounts Receivable	4	3 / 5	0	Eddie Dinel, Josh Donelson
Demo Service	4	0 / 0	0	Micah Jaffe
ERP	5	1 / 3	0	Jason Campbell, Micah Jaffe
Intranet	2	1 / 1	0	Seth Daniel, Sumeet Pannu
Oracle E-Business	4	0 / 0	0	Administrator Account
Order Management	4	4 / 4	5	Eddie Dinel, Josh Donelson
Peoplesoft	4	2 / 3	0	Joe Yandle, Ryk Field
Web	4	0 / 2	0	Administrator Account
Wiki	2	0 / 1	0	Administrator Account

Services (1..9 of 9) Page 1 of 1

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CA Data Center Automation Manager

Dynamic Provisioning Manager - Microsoft Internet Explorer provided by CA

Dynamic Provisioning Manager

Dashboard | Change Management | Provisioning | Policy | Automation | Reporting | Administration

Managed Resource

SQL Server SG

Summary | Resources | Server Group | Rules | Install

Chart: SQL Server SG Utilization

Range: 30m 1h 6h 12h 1d 1 week 2 weeks 1 month

Current Utilization: 45%

Time	Utilization
6:09:42	42%
6:14:42	44%
6:19:42	44%
6:24:42	44%
6:29:42	44%
6:34:42	45%
6:39:42	45%
6:44:42	47%
6:49:42	45%

Filter

Date/Time	Description	Show Events	Entity
2007/04/06 03:55:29 AM	CE: usil474b4-vm4 is being monitored		Collection Engine

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The Promise of Efficient Datacenter Management

The Management Conundrum

Virtualization Fundamentally Changes the Equation

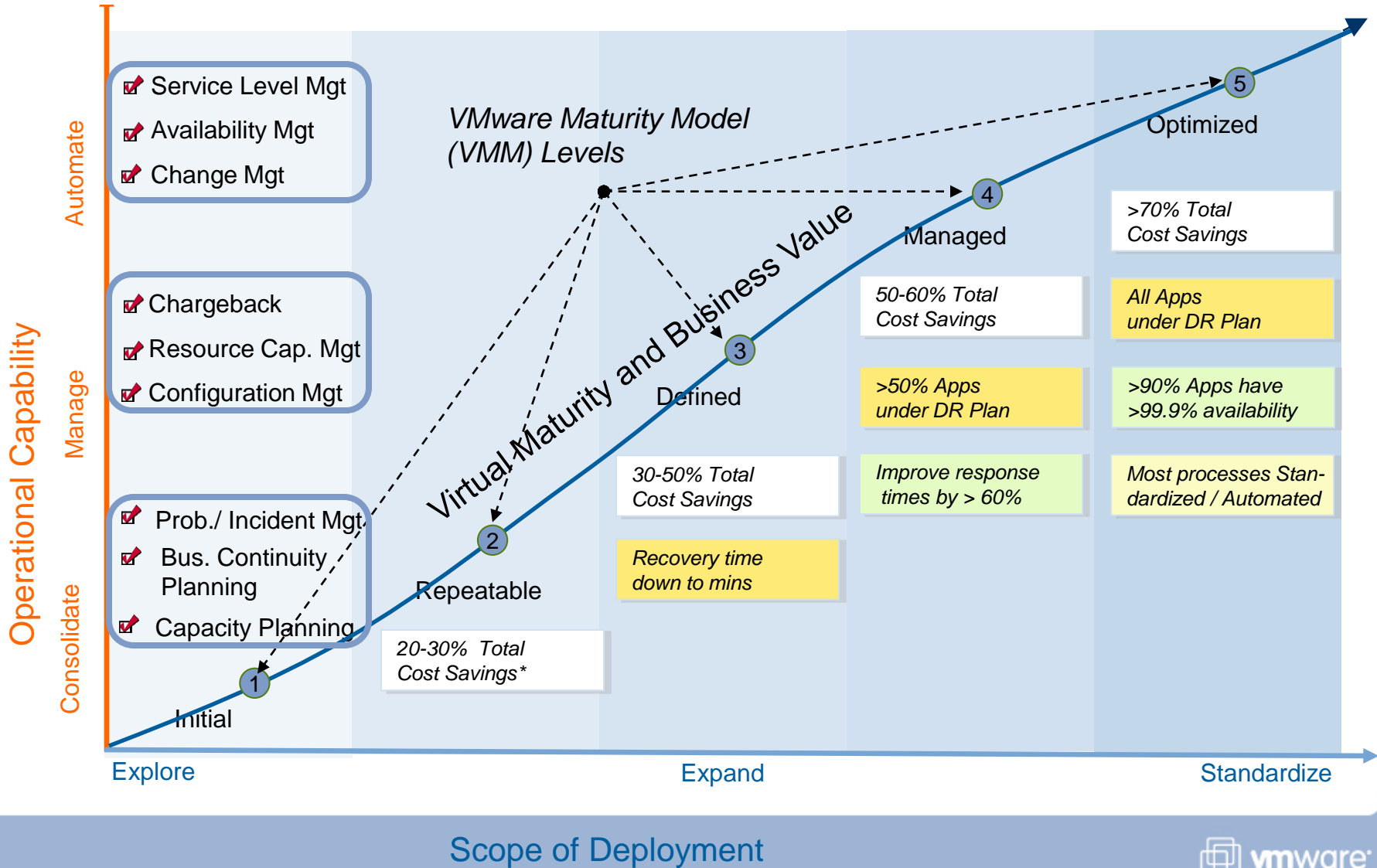
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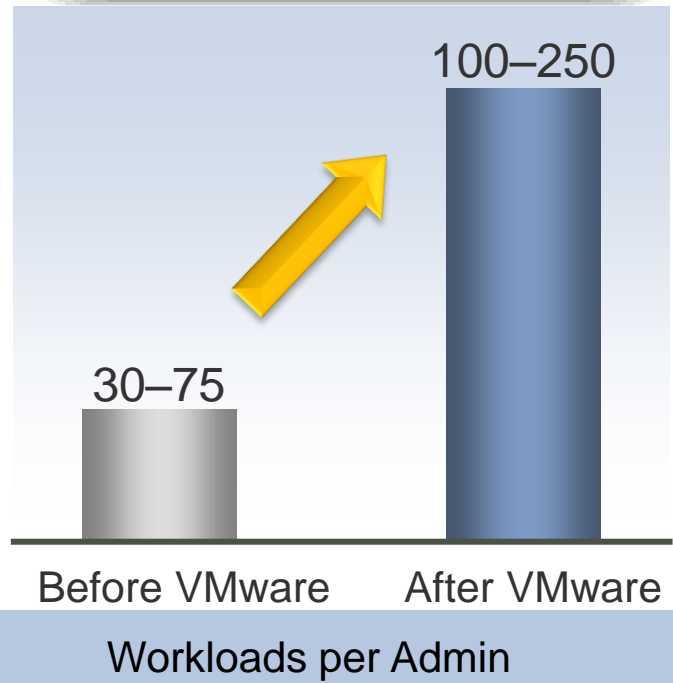
What It Means For You

Operational Transformation



The VMware Effect: Customer Breakthroughs

2–3x Gain in Productivity



Reduce Capital Expenses

- Optimize infrastructure resource utilization through better capacity management
- Enabling chargeback

Reduce Operational Expenses

- Process orchestration for task automation and management of tasks “en masse”
- Improve compliance with IT/business policy

Increased Service Levels

- Enable IT to improve and guarantee application service levels through self-managing capabilities
- Proactively detect, diagnose and remediate problems at various levels – application, configuration, host, and so on

vmworld sessions references:

- > DC06: Virtualization Management: Managing the Next-Generation Datacenter vCenter Server
- > DC01: An Introduction to VMware vCenter Orchestrator
- > TA13: Virtual Infrastructure Orchestration at SAP's Demo Business
- > DC04: vCenter Lifecycle Manager Technical Overview
- > DC20: Reduce the Cost of Administering and Managing Your Virtual Environment with VMware vCenter Life Cycle Manager
- > DC22: Real-World Success with VMware Lab Manager and Stage Manager
- > DC23: Automated IT Service Delivery (with vCenter Lab, Stage and Lifecycle Manager)
- > DC12: How does VMware fit in with your management infrastructure? VMware Integration with Big 4 plus Microsoft
- > DC18: Introduction to VMware vCenter ConfigControl
- > AP12: Managing Application Performance with vCenter AppSpeed
- > TA03: An Introduction to VMware vCenter Chargeback
- > TA15 Protecting your vCenter Server with Server Heartbeat
- > TA17. End-to-End Disaster Recovery Approach with Automated SRM Failback
- > TA22: Technology Preview: vCenter CapacityIQ



Thank you.

