



# Managing the Virtualization Complexity

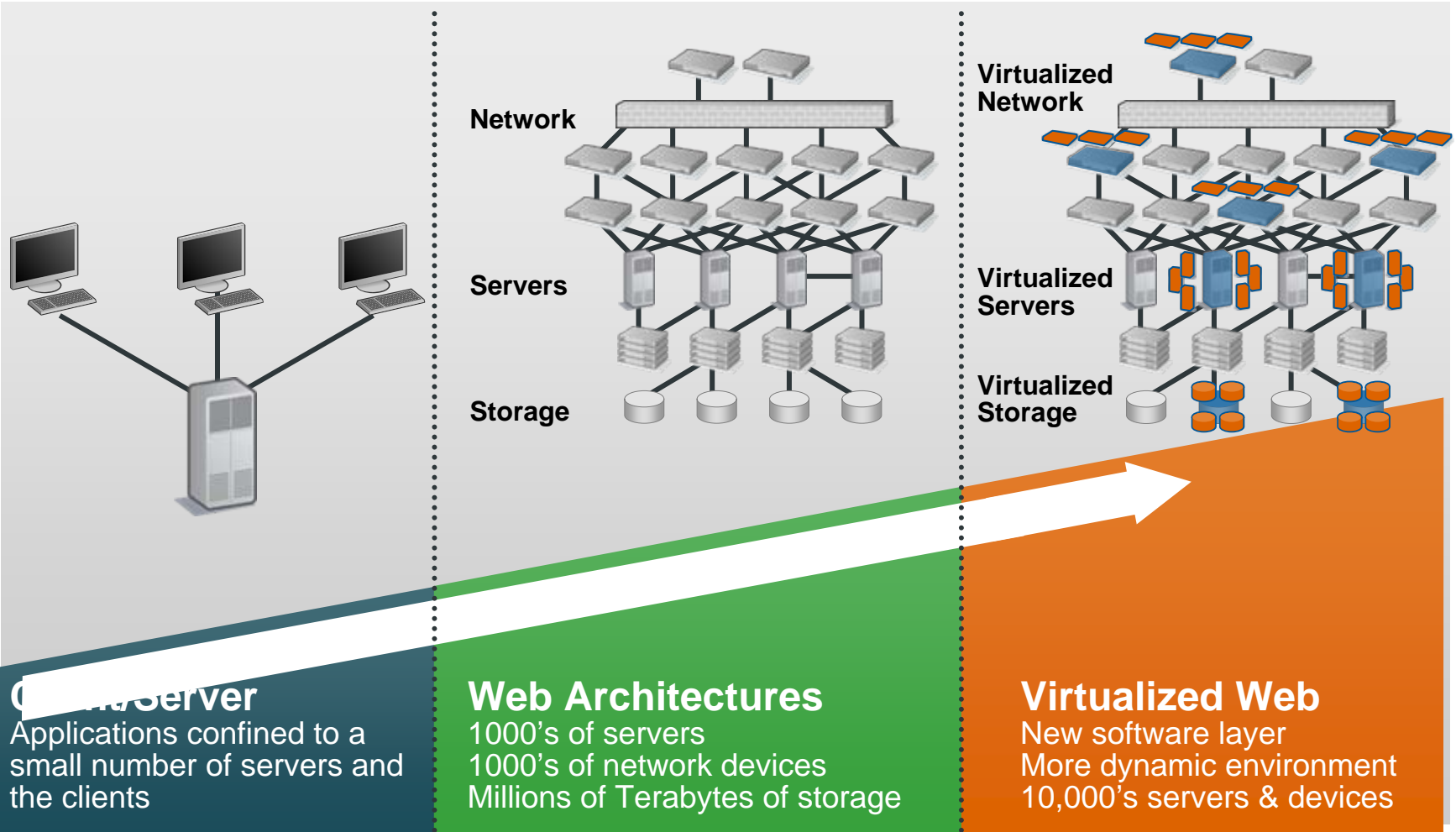
**Eric Vishria**  
VP Marketing

**September 19, 2006**

NOTE:

**Any futures discussed in this document are pre-release and are subject to change without notice. The purpose of this document is to provide a statement of the current direction of Opware Inc.'s vision and product strategy. Please note that this document is intended neither to bind Opware Inc. to any particular course of product development nor to constitute a part of the license agreement or any contractual agreement with Opware Inc. or its subsidiaries or affiliates.**

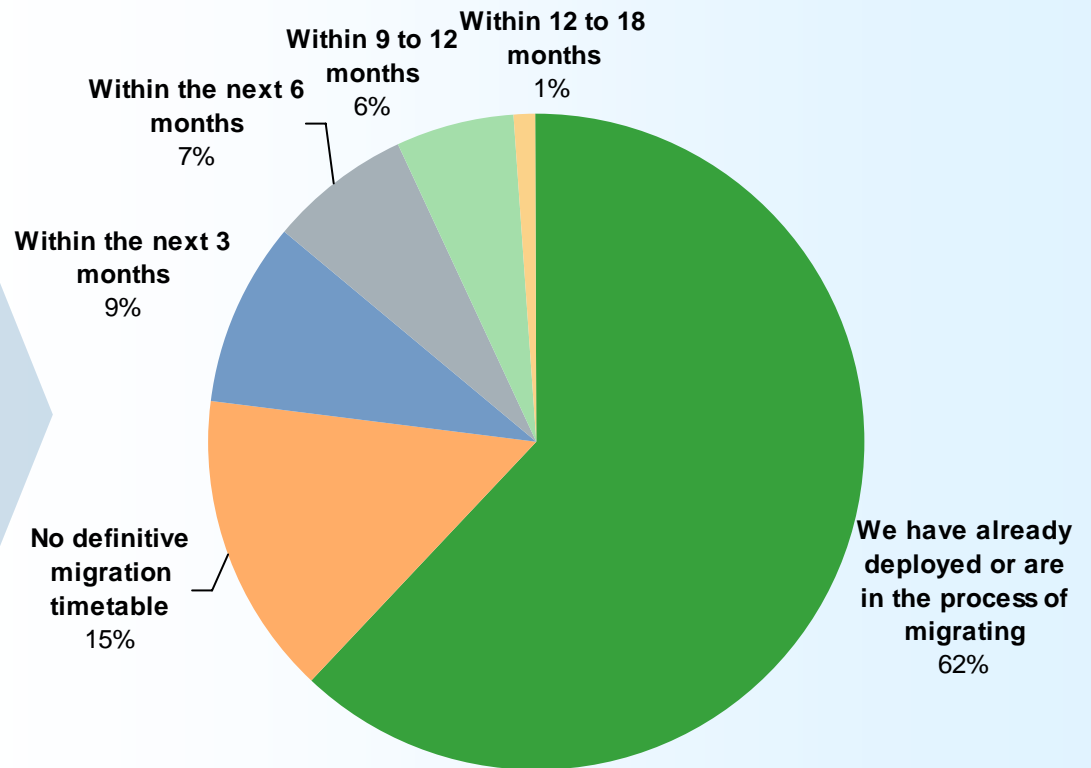
# Virtualization is the next generation of web architecture



# The great news

## Most companies are looking at virtualization

**62% of those surveyed have already begun moving to virtualization**



Source: Yankee Group 2006 Global Server Virtualization Survey

# The virtualization surprise

“One surprise in all of this, however, is that I haven't really saved that much time over having to manage a collection of individual systems. Sure I've saved money on capital investment and energy costs, but **all of the virtual systems still have to be configured and managed to the same extent as real systems, so my operational expense has not changed very much.**”

- Eric Hall, *InformationWeek*, July 21, 2006

After converting his lab environment to a virtualized environment

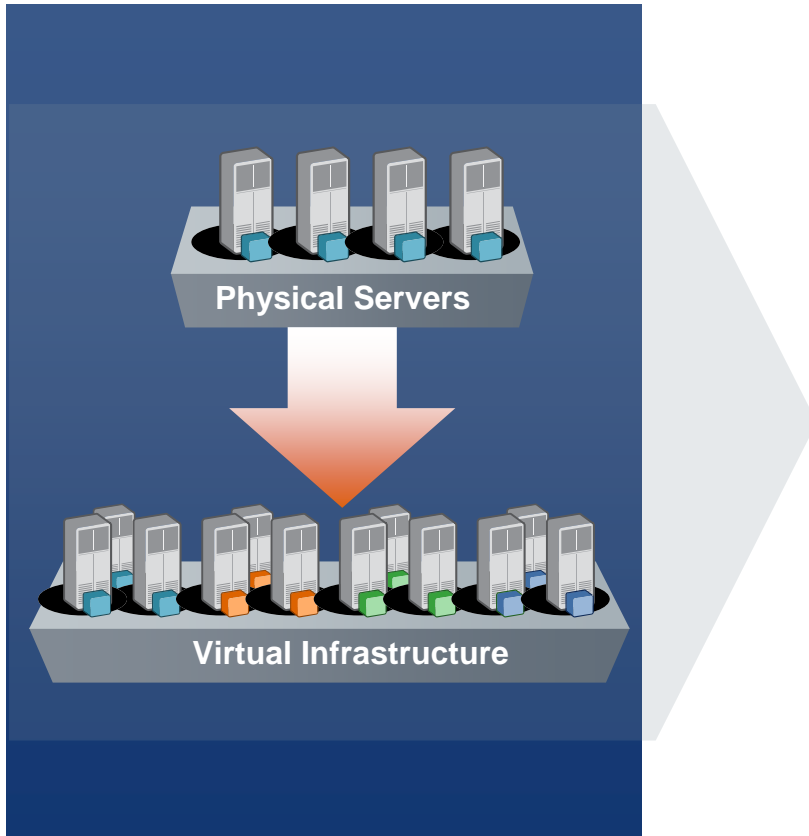
The complexity comes from a new software layer and more servers

Creates **4 more servers** for every one physical server



Source: IDC

# Virtualization creates new management challenges



- ① **Hard to control and manage VM sprawl**
- ② **No common, integrated view of the guest and host relationships**
- ③ **Can't manage across multiple virtualization platforms**
- ④ **Multiple management tools without centralized authentication or auditing**
- ⑤ **No seamless management across physical and virtual environments**

# What you need to manage a virtualized environment

## Understand Virtualization

Understand new relationships, integrate with underlying technologies

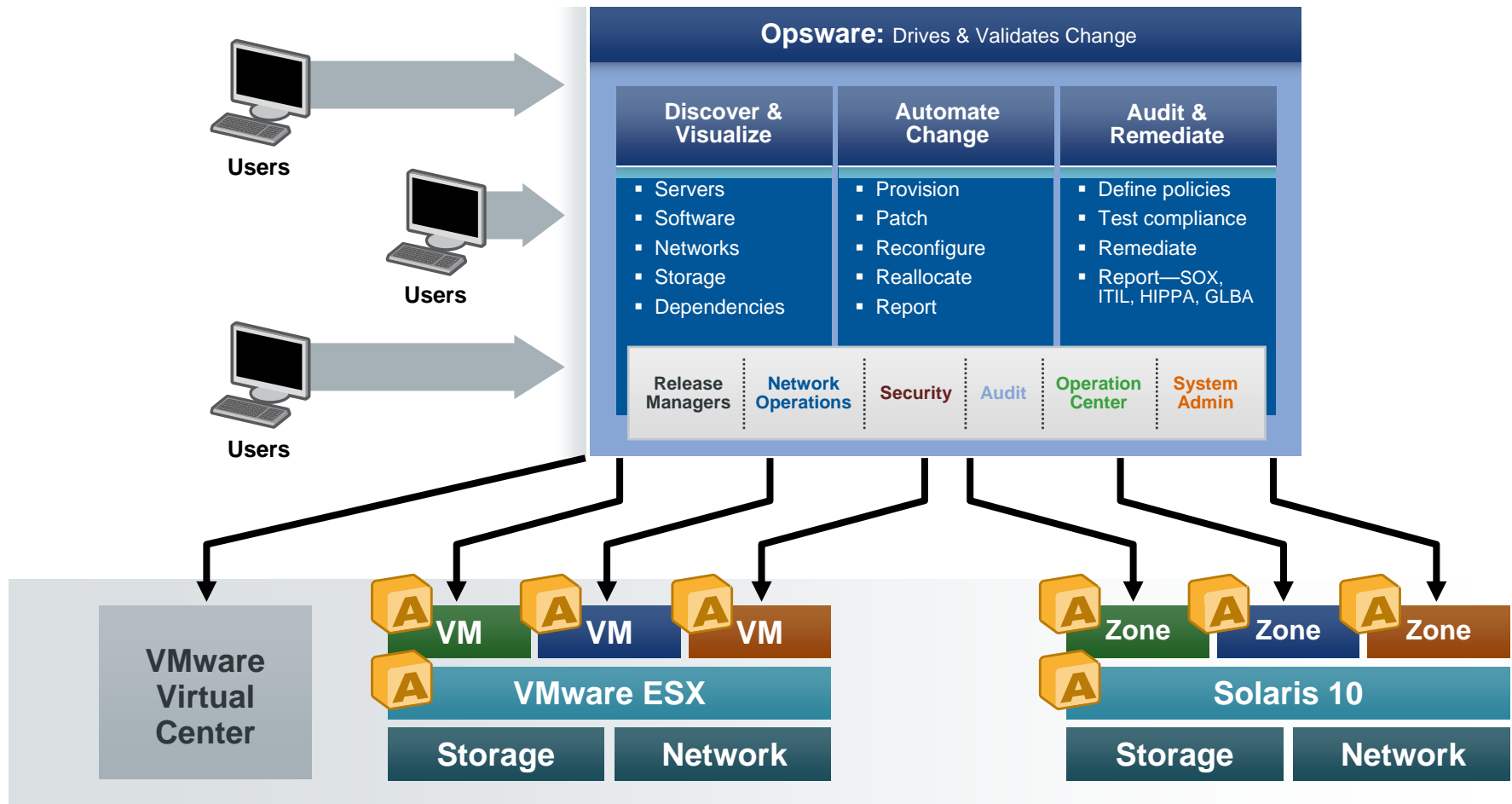
## Heterogeneous

Consistent user experience across a broad range of virtualization technologies

## Seamless

Manage consistently across your physical and virtual environments...

# Opsware: Lifecycle management of heterogeneous virtual environments



# 1. Discover and map virtual environment

## Discovers virtual servers created by vendor's native tools

### The Challenge

- It is difficult to keep track of virtual servers created by vendors native tools in an increasingly dynamic environment

### Opsware's Solution

- Opsware agents monitor the virtual environment in real time and detect any newly created/deleted virtual server
- Newly created virtual server are easily brought under Opsware management through automated agent deployment

The screenshot displays the Opsware Server Automation System interface. The main window is titled "Opsware Server Automation System" and contains a menu bar (File, Edit, View, Tools, Actions, Window, Help) and a toolbar. The interface is divided into several panes:

- Search:** A search box with "Object Type" set to "Server" and a "Saved Searches" dropdown.
- Devices:** A tree view showing "Device Groups" including "Public", "All Unix: Servers", "All Windows: Servers", "y12", "ggood's SunOS boxes", and "Viv cust attr group". Below this are "All Managed Servers", "Unmanaged Servers", "Unprovisioned Servers", and "Virtual Servers".
- All Managed Servers:** A table listing servers with columns for Name, Type, IP Address, OS, and Manufacturer. The table is filtered by "Virtualization" and "by Server".
- m167.qa.opsware.com:** A detailed view of a specific server, showing its name, IP address, and a list of virtual machines hosted on it.

Name	Type	IP Address	OS	Manufacturer
localhost.localadmin	Server	192.168.8.97	Red Hat Enterprise Li...	Dell Computer Corp.
m120.dev.opsware.com	Server	192.168.196.168	ESX	Dell Computer Corp.
m171.dev.opsware.com	VM	192.168.197.244	Windows XP Proffe...	Dell Computer Corp.
m167.dev.opsware.com	VM	192.168.160.167	Windows XP Proffe...	Dell Computer Corp.
m200.qa.opsware.com	VM	192.168.197.200	Windows XP Proffe...	Dell Computer Corp.
m080.dev.opsware.com	VM	192.168.197.252	Windows XP Proffe...	Dell Computer Corp.
m083.dev.opsware.com	Server	192.168.197.253	ESX	VMware, Inc.

The detailed view for m167.qa.opsware.com shows the following information:

- Server: m171.dev.opsware.com (192.168.197.244)
- Hosted By: m120.dev.opsware.com (192.168.196.168)
- Virtual Machine:**
  - Guest OS: Windows XP Professional Edition
  - Memory Size: 320 MB
  - Number of CPUs: 1
  - Description: Web Server 1138, Lab T, Rack H, Slot X
  - Long Name: Virtual Machine 1138
  - URL: http://something/somewhere/m171
  - Virtual Machine Status: Powered On
- Network Configuration:**

# 2. Virtual server life cycle management

## Create provision, patch, activate, suspend remove

### The Challenge

- Can't manage virtualized environment end to end using the console used to manage traditional servers

### Opsware's Solution

- Create virtual servers, allocate resources
- Provision, patch, maintain compliance
- Control: Start, stop, suspend, remove

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**m167.qa.opsware.com**

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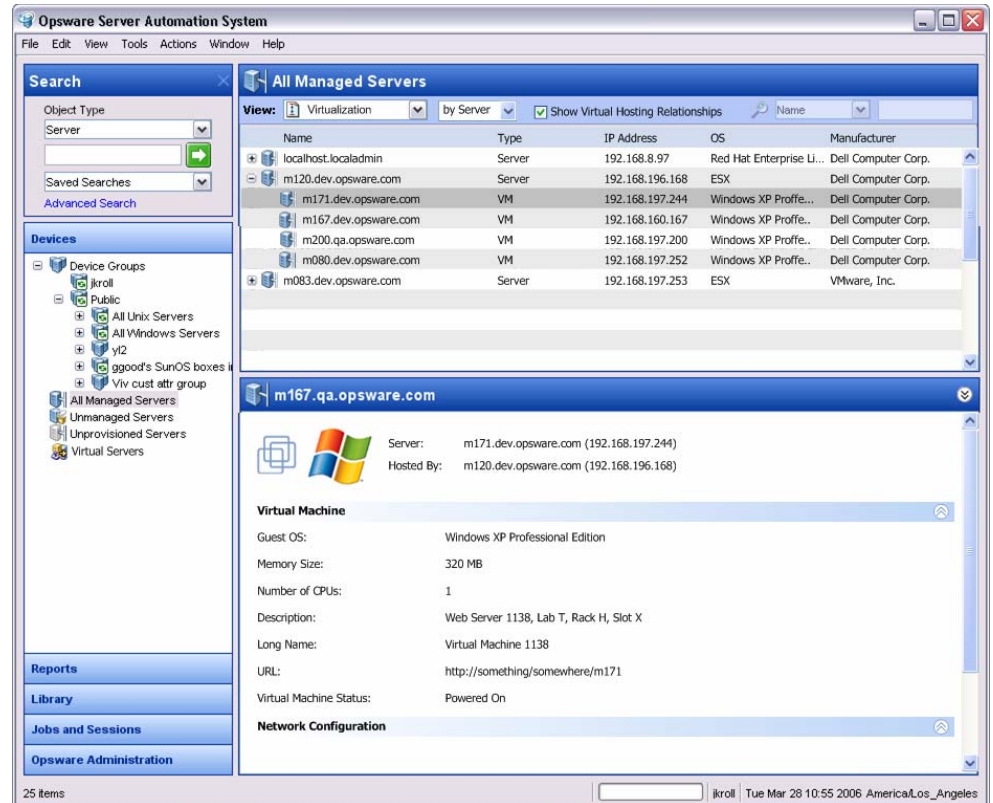
# 3. Unified user experience across virtualization platforms

## The Challenge

- System administrators rely on different tools to manage various virtualization platforms

## Opsware's Solution

- Operate across virtualization platforms
- Common management operations minimize platform specific training
- Users can rely on a single tool



# 4. Track physical/virtual relationships

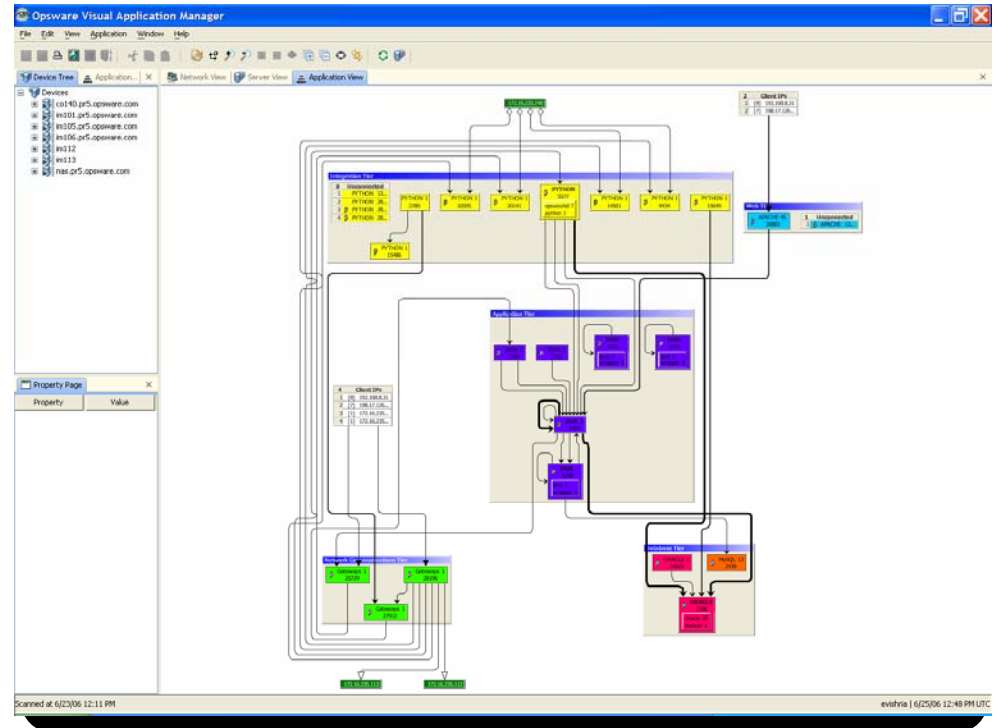
## Graphical representation of dependencies

### The Challenge

- There is no common integrated view of what's running on a server
- VM dependencies are not being tracked

### Opsware's Solution

- View dependencies between physical and virtual servers
- Automatically track when virtual servers are moved across physical servers
- Use host/guest relationships to construct dynamic groups



# Summary: Opsware virtualization management

**Manage virtualization platforms**

Provision, configure and manage heterogeneous virtualization platforms (VMware ESX, Solaris 10...)

**Lifecycle manage VMs/Containers**

Create/start/stop/delete virtual machines and containers

**Track Relationships**

Track relationships between VMs and their hosts

**Manage across physical & virtual environment**

Use the same policies and best practices to manage your physical and virtual environments

# Opsware Inc.: The right IT automation partner

# Opsware Inc. today

## Fastest growing and largest independent Data Center Automation company

### The Technology Leader

- Selected by Cisco, Nortel and Juniper as the best network management solution
- First and only company to:
  - Integrate server & network automation
  - Integrate application mapping & change
  - Integrate storage, server and network

### Strongest DCA Company

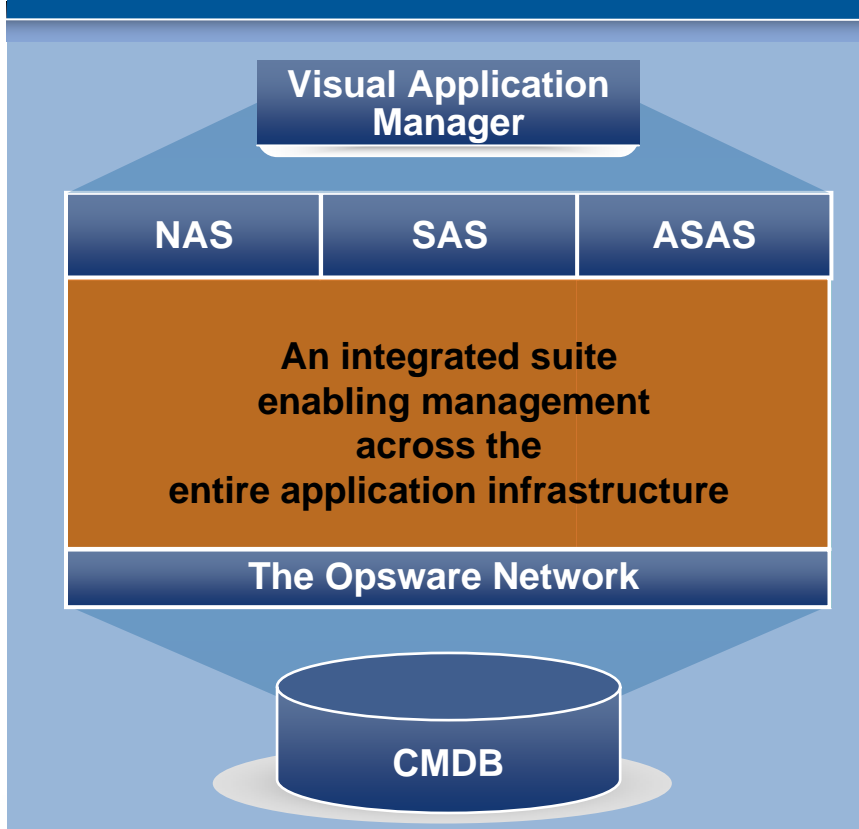
- Highest year-over-year revenue growth
- 30% of employees in R&D
- Experienced Services organization to ensure success of enterprise deployments
- Most responsive support organization

### Fastest Growing DCA Company

- Fastest growing Data Center Automation company—ranked by IDC
- Fastest growing enterprise software company on NASDAQ—ranked by financial analysts
- #1 product—ranked by Forrester Research
- Winner of every comparative product review conducted in the last 4 years
- Leading every major vertical (350+ customers)

# The technology leader in DCA

## First and Only Truly Integrated Product Suite



## Validated as the Best Automation Solution



- Multi-million dollar, multi-year commitment to Opware
- Chose Opware after extensive evaluation of automation market
- Extending Opware to integrate with Cisco solutions and provide deepest support for Cisco devices

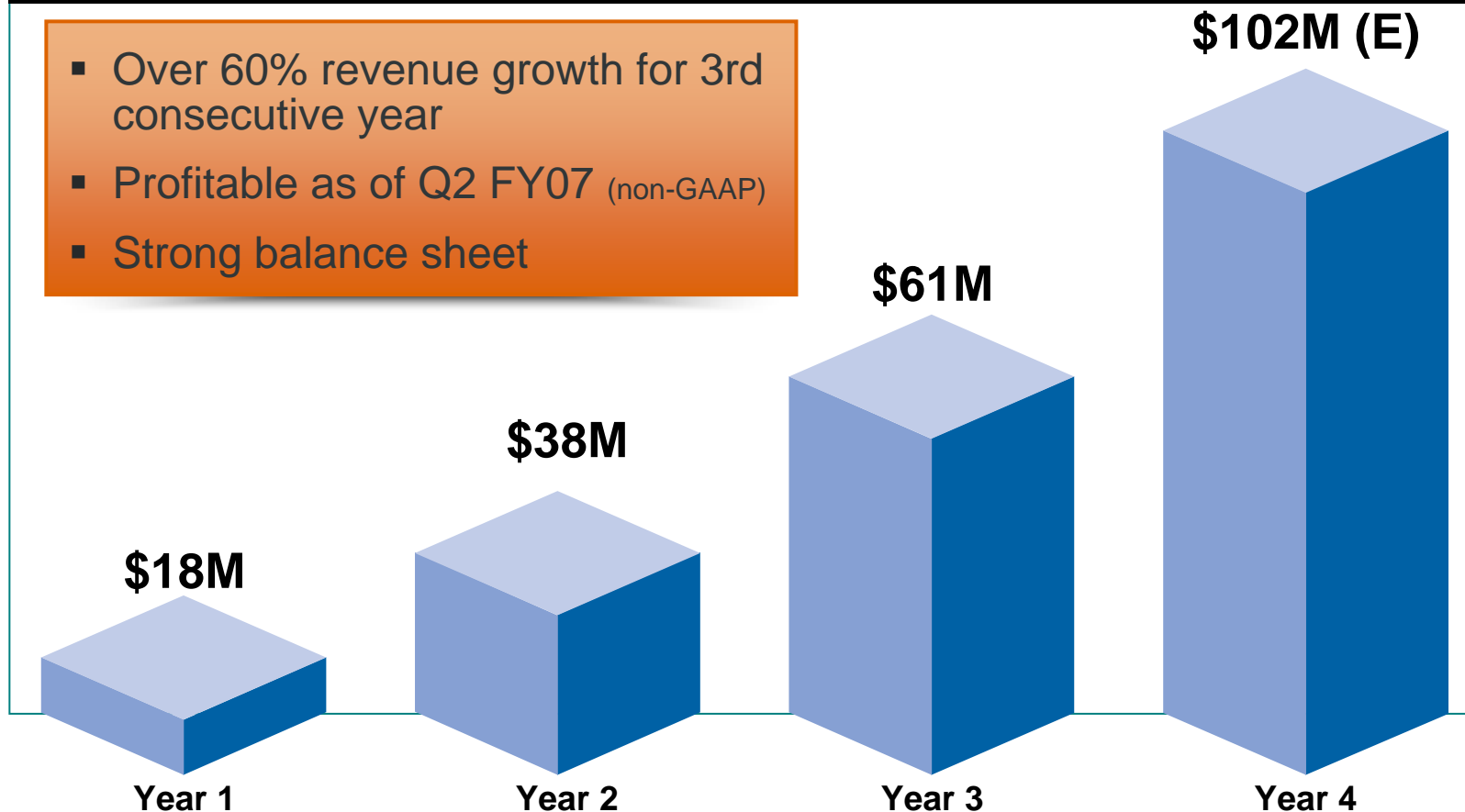
# Leading customer base in each major vertical

<b>Banking</b>	 <b>UBS</b>	 <b>RBS</b> <small>The Royal Bank of Scotland Group</small>	 <b>WELLS FARGO</b>	 <b>JPMorganChase</b>	 <b>WACHOVIA</b>	<b>LEHMAN BROTHERS</b>
<b>Retail</b>	 <b>THE HOME DEPOT</b>			<b>BED BATH &amp; BEYOND</b>		
<b>Telco/Cable</b>	 <b>BT</b>	 <b>comcast</b>	 <b>NTT</b>	 <b>TIME WARNER CABLE</b>	 <b>Lucent Technologies</b> <small>bell labs innovations</small>	<b>T-Mobile</b>
<b>Service Providers</b>	 <b>EDS</b>	<b>SUNGARD</b>	 <b>Atos Origin</b>	 <b>logicaCMG</b>	 <b>SAMSUNG SDS</b>	
<b>Government</b>		 <b>INTERLINK</b>		 <b>LOCKHEED MARTIN</b>		
<b>Internet &amp; Other</b>	 <b>msn</b>	 <b>EarthLink</b>		 <b>drugstore.com</b> <small>the convenience drugstore</small>		<b>FedEx</b>

# NASDAQ's fastest growing enterprise software company

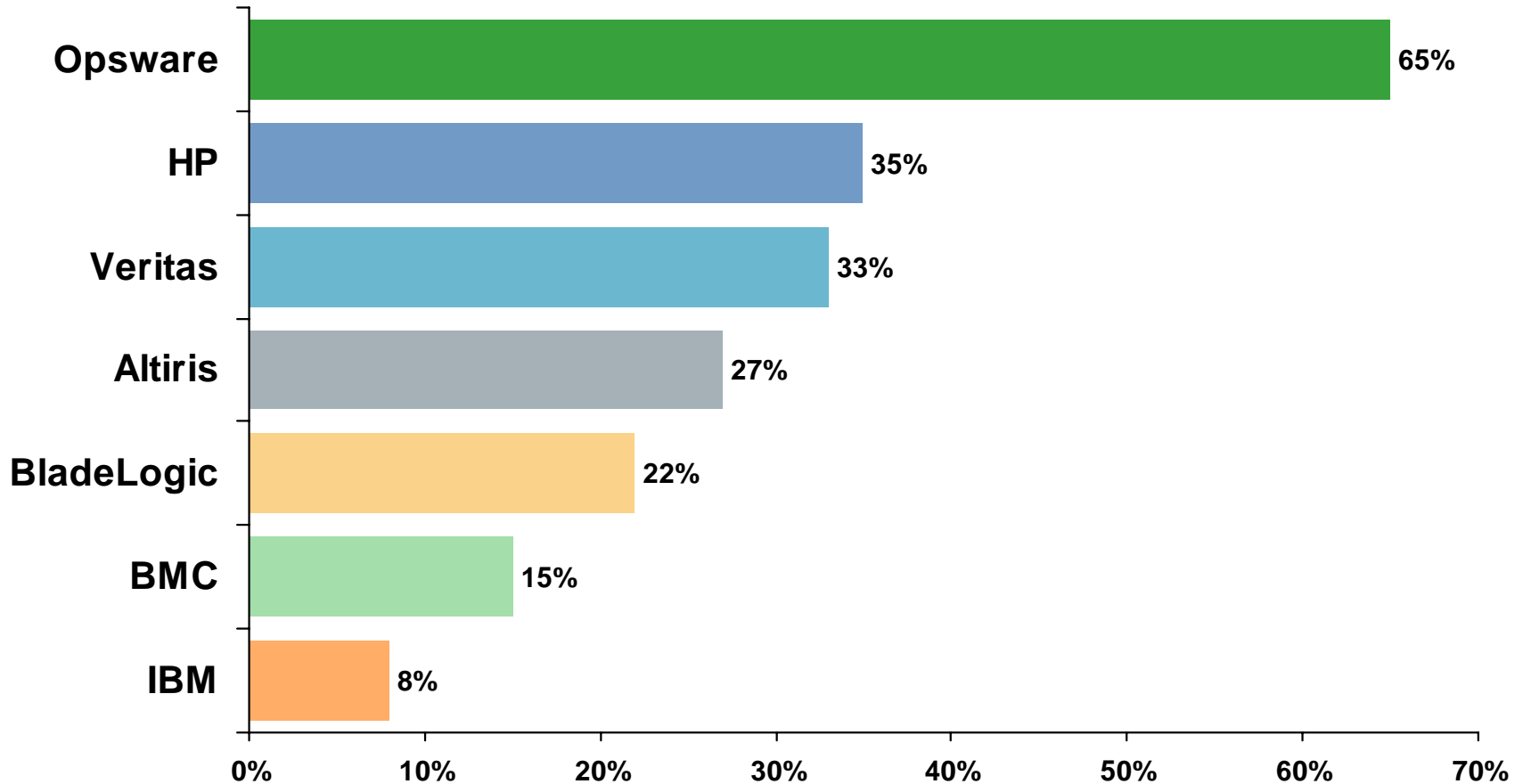
## Revenue

- Over 60% revenue growth for 3rd consecutive year
- Profitable as of Q2 FY07 (non-GAAP)
- Strong balance sheet



# Opsware #1 growth company in Data Center Automation

## Vendor Growth Rates



Source: IDC "Worldwide Server Provisioning Software 2006-2010 Forecast and 2005 Vendor Share," August 2006



**OPSWARE INC**

Automating IT™