

the 451 group

*Analyzing the business of enterprise IT innovation*

[www.the451group.com](http://www.the451group.com)

# Managing the virtual revolution

John Abbott  
Chief Analyst

# Today's agenda

- About The 451 Group
- Virtualization: our story so far
- Ten tools for managing virtual infrastructure
- The future of virtualization
- Q&A

# About The 451 Group

- Independent technology industry analyst company
- Focused on the business of enterprise IT innovation

# 451 key stats

- 700+ customers across
  - Vendors
  - Investors (incl. 150 VCs and 80 Investment Banks)
  - Service-providers (SIs, consulting, etc.)
  - End users
- Offices in New York (HQ), Boston, London, SF
  - 80+ total employees w/ 35+ analysts
- Tier 1 Research subsidiary focused on IT services
- Operate 4 major events

# Virtualization - take three

- 100+ interviews
- 50 private company profiles
- 17 public company SWOTs
- Two end-user surveys
- Ongoing coverage of the topic within core 451 Market Insight and M&A reports

# Virtualization: our story so far

# Virtualization: our story so far

- Server virtualization
  - Transforms the datacenter
  - Drives M&A
- Desktops and applications are next
- Management tools market is about to explode



# How did we get here?

- x86 virtualization is solved
- Chip vendors add hardware-assist
- Server virtualization goes into production
- VMware has a partner conundrum
- Open source alternatives commodify the hypervisor
- ...all adding up to a VM management boom

Boom!



# Ten tools for managing virtual machines

# Tools for managing VMs

- Administration
  - Basic VM enablement
- Operations on VMs
  - Backup and HA, capacity planning, monitoring, optimization, security
- Automation and test labs
- Infrastructure virtualization
- Workspace virtualization

# 1) Administration

- High-end package might include:
  - A hypervisor (commodity, thanks to open source)
  - Management console (create, configure, delete)
  - Live migration (the datacenter's killer app?)
  - Resource pools
- 2008: a two-way race with three dark horses
  - VMware versus Citrix
  - Microsoft, SWsoft and Sun Microsystems in the wings

## 2) Operations: backup and HA

- Right now disaster recovery plans are works of hopeful fiction
- Virtualization makes DR feasible, but only with the right backup and HA in place
- Players in backup
  - Acronis and Mendocino
- Players in HA
  - Marathon and SteelEye
- Must be part of sysadmin's daily routine

# 3) Operations: capacity planning

- Without it, throw away half the cost savings of server consolidation
- Akorri and Onaro straddle server and storage tiers
- PlateSpin and Virtugo offer monitoring and billing as well
- CiRBA – best visualization in VM management
- 2008-2010: increasing integration with automated provisioning

# 4) Operations: monitoring

- Hypervisor vendors offer basic features in consoles
- SLM vendors jump on new market opportunity
  - Akorri, Avocent, eG Innovations, Hyperic, Netuitive, Nimsoft, Onaro
- VMware ecosystem vendors can still add considerable value
  - PlateSpin, ToutVirtual, Veeam, Virtugo, Vizioncore
- 2008: consolidation hot spot



# 5) Operations: optimization

- Reallocation of memory from virtual machine guests to floating resource pool
  - InovaWave and Virtugo
- Promise of two- or three-times multiple in server consolidation ratio
- Early lab tests are promising
- 2008: effect is to move VM performance bottleneck somewhere else
  - Typically to SAN I/O, where monitoring and infrastructure virtualization vendors can help

# 6) Operations: security

- 2008: a malicious hypervisor root exploit for ESX Server is no more than twelve months away
  - Single most likely disaster for VMW stock price
  - Hence ESX Server 3i, with no control domain, smaller attack footprint
- Harden hypervisor (VMware-Determina)
- Firewall in virtual appliance running as privileged guest
  - Blue Lane, Catbird, Reflex
  - Invites attack on privileged guest
- Map interdependencies to shut compromised guests down
  - Configuresoft

# 7) Automation

- The WMD for virtual server sprawl
  - A force multiplier for your systems administrators
  - Skilled labor being a critical gating factor
- Essentially a job scheduler for IT scripts
- Some VM-specific, some datacenter-wide
- 2008: powerful frameworks need tailoring for specific jobs
  - Test lab automation first out of the gate

# 8) Test lab automation

- Original and still dominant use case for VMware
  - Hence Akimbi acquisition
- Usefully thought of as special case of automation
  - One happy customer uses VMLogix for automation, infrastructure virtualization, monitoring and workspace virtualization
- CollabNet offers virtual labs as adjunct to distributed source control
- 2008: test lab automation becomes a platform

# 9) Infrastructure virtualization

- Server I/O virtualization
  - Consolidate LAN, SAN cabling through commodity box or simple switch
  - Assign virtual identities
  - Treat datacenter resources as compute nodes
  - 3Leaf, Egenera, Scalent, Xsigo
- Reinvent the application stack
  - Far more efficient provisioning
  - License woes so far confine approach to open source
  - CohesiveFT, FastScale
- 2008-2010: licensing will have to give

# 10) Workspace virtualization

- Twenty times the market opportunity
  - 25 million Windows servers, 500 million Windows desktops
  - From VMware's S1
- 2008: Enterprise desktops become infrastructure
  - Drastically improved TCO
- A consumer play for hosting providers (and BIOS vendors?)
  - WAN latency surprisingly low
  - Big news is instant-on
  - Consider demographics: retiring Boomers

# The future of virtualization



# Near term forecasts

- 2008: welcome to virtual sprawl
  - VM proliferation
  - Intense startup activity (from 28 to 50 private company profiles in under 12 months)
- Incumbent reappraisals
  - Cisco, HP, IBM, Microsoft under unprecedented pressure
  - CTXS-XenSource likely to be first of many such deals



# M&A forecasts

- Likeliest acquirers
  - Microsoft, HP, Avocent, Novell, Quest
- Likeliest sectors
  - Automation
  - Monitoring
  - Administration
  - Infrastructure virtualization
  - Backup and HA

# Virtual datacenters in 2011

- All hardware is virtualized
  - Live migration drives one OS: one chip deployments
- Disaster recovery plans are no longer science fiction
- Application images are 1% of current size
- Test labs and production environments are provisioned and deployed automatically
- The desktop is part of the enterprise infrastructure

# Q&A