

# New Uses of Virtualization

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# What We Plan to Do

- Examine ways in which virtualization helps IT today. Some well-known, others less so.
- Look at some cutting-edge scenarios:
  - Some in actual deployment
  - Others on the cusp of deployment

What is certain: IT is quickly finding new uses for virtualization.

# We Won't Cover Standard Uses

Standard uses today consist of:

- Developers testing apps and code on multiple operating systems on the desktop (This use case put virtualization on the map.)
- Users running multiple operating systems (such as Windows on Mac OS)
- Server consolidation

So, what's left?

# Security on the Client PC

- Web surfing? Protect yourself from drive-by infections and malware. Surf from a VM. Use a browser appliance.
- Likewise on servers when crawling.
- At home: use VMs instead of separate PC identities, so you don't become the chief technician of children's download goofs or lose your personal data.

# Security on the Business PC

Have consultants working on site? Issue them a laptop with a VM on it. This gives you:

- Software and hardware control
- Data protection (via encryption)
- Policy management
- Ability for quick reload in case of accident

Key tool: VMware ACE

# More-Active Security

- VMs make excellent honeypots. Easy to isolate; easy to throw out.
- The proper forum for forensic analysis.
- Ideal to save for training purposes.

# Desktop Virtualization

- For SMBs or remote offices is like old multiuser solutions.
- For IT, it's moving desktops to the data center. Traditionally done with blades. However, doesn't solve client side issues: still need a PC or thin client on the desktop, which has to be managed and secured.

# Desktop Virtualization

New options are to run the desktop OS on a server VM, for centralized management, but remove the client device completely. Can be done today with Pano Logic, which provides extension cord for user I/O.

Other vendors are likely to come into this market space.

# Software Development

IT regulation of test and deployment platforms by issuing VMs to dev teams

- Makes sure tests are run on correct platform with actual user software complement
- Deployment testing can be done along with regular QA testing

# Software Development

- Improve security in offshore development: developers use a hosted VM with all resources on local systems, rather than at remote sites. This helps protect IP.
- Likewise can provision tools to off-site developers without need for separate license problems

# Software Development

## Software Dev Test/QA Lab Management:

- Deploy VMs in multi-VM configurations
- Snapshot when a bug shows up
- Send the snapshot of whole configuration to QA
- Replay problem simultaneously with current VMs due to virtual network switches
- VMware Lab Manager and Surgient VQMS

# Tech Support

- Support engineers can pull up client OS/software from library in real time, so instructions match customer system
- Support engineers can re-create client's more complex environments in real-time. Ideal for configuration issues, less good for tracking down unique-to-customer bugs.
- Can save environments for follow-up calls

# Software Evaluation For ISVs (sellers) or IT (customers)

- Start from known base profile
- Avoids corruption of the registry
- Easy to capture problems via snapshots of the VM.
- Easy to compare differences between releases

# Software Evaluation For ISVs (sellers) or IT (customers)

- Verify performance on hardware platforms by simply varying configurations: change RAM, number of processors, and see how numbers change.
- Not effective for heavy I/O apps or high-performance graphics. But works for almost everything else.

# Software Evaluation For ISVs (sellers) or IT (customers)

- Multiple VM configurations are trickier: where do you run what?
- Decide freshness of VMs for data servers on each eval. Do you really need a common baseline for every evaluation?
- Have to plan for: license requirements, MAC-specific software, attaching to IP addresses. Lab automation software can help.

# Training

- Virtualization removes configuration issues from trainers and students
- Typical scenario: prepare 20 VM instances, each with own IP address for a class. Students use browser interface to access VMs.

Result: everyone has same settings right away.  
(Surgient VTMS and Hatsize TrueLab)

- Can also be used for study/practice machines

# Demos

- Fresh VM for every demo provides repeatable experience and removes unexpected hiccups.
- Load fresh VMs on laptop; or host demo VM at your site and have prospective clients or customers access via browser.
- Demo Linux-based software demo on Windows laptop

# Load Balancing

- Think of clusters in terms of VMs rather than as hardware nodes. Smaller computational unit, but more agile.
- When one server is busy, migrate one or more VMs to another server.
- VMware VMotion is defining technology.
- Prioritize VMs for specific performance goals
- Note: also effective for planned downtime

# Next Step is Virtual Grid

- Same concept, but scaled up. VMs can be anywhere on the planet.
- Rent-your-grid now, via Amazon:
  - Elastic Compute Cloud (EC2)
  - Simple Storage Service (S3)
  - Simple Queuing Service (SQS)
- Build your own off-site grid with 3Tera AppLogic. Currently targeted at ISPs, SaaS, and large data centers

# Enhancing Java Performance

- Improving performance by running the JVM directly on the VM
- Not really possible until virtualization standardized the underlying platform
- BEA's Liquid VM (part of WebLogic Server Virtual Edition).
- Concept of deployable app server appliance.

# More About Virtual Appliances

- Small self-contained bundle of OS and generally one pre-configured app or package.
- We've seen browser and Java EE appliances.
- Many available, as nano-appliances (<50MB, built on Linux kernel)
- See [www.vmware.com/appliances/](http://www.vmware.com/appliances/) and [www.virtualappliances.net/](http://www.virtualappliances.net/)

# Thanks for coming!

- Q & A

Slides available shortly at:

*<http://binstock.blogspot.com>*

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