



Mastering Virtualization from the Datacenter to the Desktop

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/ and www.virtualappliances.net/

Thanks for coming!

- Q & A

Slides available shortly at:

<http://binstock.blogspot.com>

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