

# Server Virtualization with VMware Products

Presented By  
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# What is Server Virtualization?

“Virtualization is an abstraction layer that allows multiple virtual machines, with heterogeneous operating systems to run in isolation, side-by-side on the same physical machine.”

Source: “[http://info.vmware.com/content/GLP\\_BizVirt](http://info.vmware.com/content/GLP_BizVirt)”

# Why Virtualize?

- Ease testing and a deployment
- Ease development
- Ease hardware upgrades and migrations
- Enable failover of system images
- Increase server utilization
  - 5-10% average utilization according to some sources.
  - Ancillary effect of lowered power consumption

# Many Virtualization Technologies

Some of the more popular technologies include:

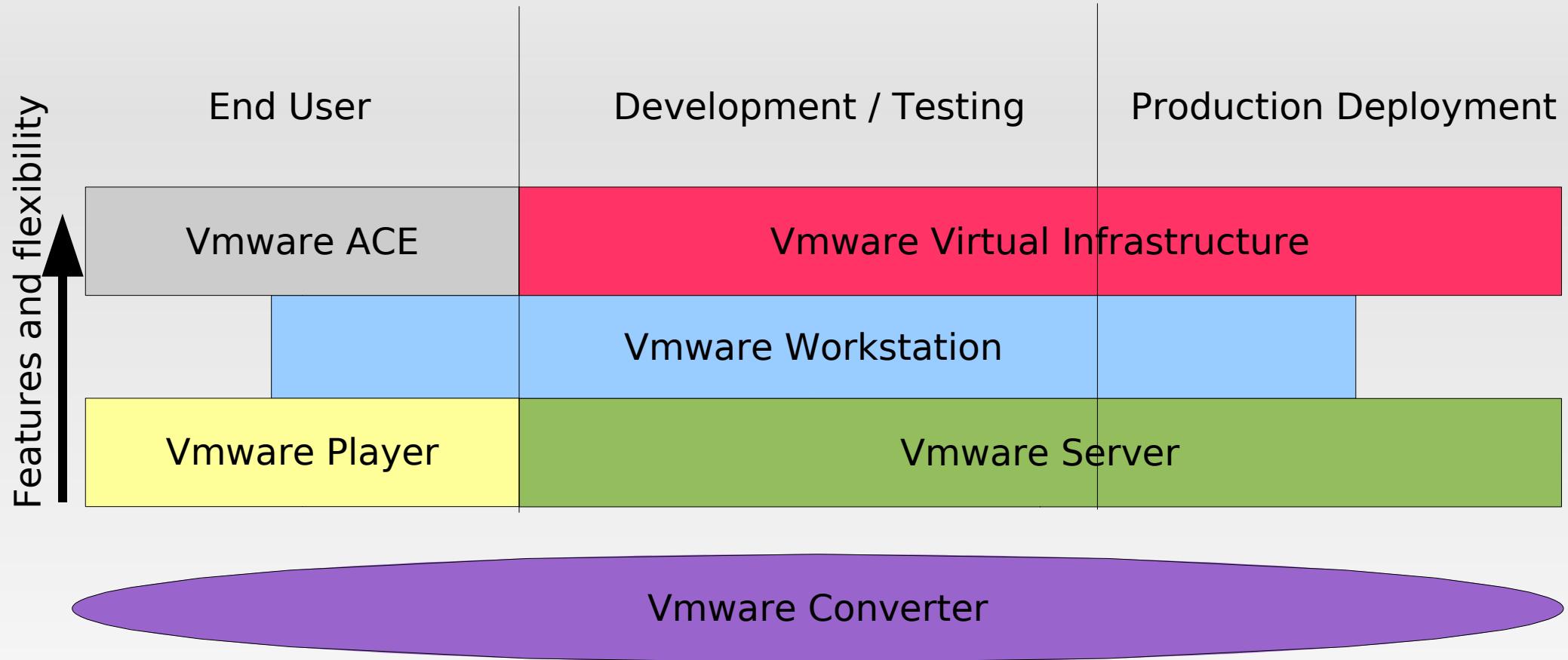
- Vmware
- Virtual PC
- User Mode Linux
- Xen
- QEMU

# Why VMware?

- Cross platform
- Can run (almost) any x86 OS without modification, even 64-bit
- Robust management tools are available\*
  - Exposed scripting APIs for perl and COM
- Low barrier to entry
- Scalable
- Commercial support available

\*For XEN and UML system management see MLN:  
<http://mln.sourceforge.net>

# Vmware's Product Line



# Player and ACE

- Player can only run pre-made virtual machines. Often used for evaluation.
- Player can be used to run “Virtual Appliances”, but Server is often a better choice for that.
- ACE (Assured Computing Environment) adds enterprise management and “lockdown” features that Player lacks.

# Player in Practice

Player was used briefly at InsightsNow to encapsulate end user Windows environments. Benefits included:

- Improved remote management.
- Faster update cycles due to super-quick reboots.
- Allowed users to “take their Windows with them” when they got a new machine.
- Host OS (Ubuntu) would allow users to continue working if Windows became unusable.



# Player in Practice

Most of those benefits were theoretical, and were never realized in practice! The shortcomings, however, were very real:

- Multimedia support was spotty enough to annoy users.
- Initial boot took longer, and “was confusing”
- Didn't work well with some LCD resolutions (1440x900)
- Noticeable (but small) performance hit
- Complicated initial deployment

# Player in Practice

In the end, using Player on end user desktops proved to be more trouble than it was worth. We might explore ACE more if a business case for it can be built.

An organization with a large number of highly mobile and/or remote users would be a good fit for ACE. It makes management and “securification” of remote work environments much more manageable.

# Workstation

- Most well-known product
- Makes a great development environment
- Makes a great IT testing environment
- Lets Linux geeks have their cake, and run Windows when they have to.
- Stable enough for “production” service deployment, but introduces some unnecessary overhead.

# Workstation

- Lots of virtual networking options (bridged, NAT, Host-only)
- Multiple snapshots

# Workstation in Practice

- Workstation has been used at InsightsNow to reliably host production server images for about 2 years.
- Workstation allowed me to replicate our production environment in a virtual sandbox to test patches and upgrades, and development database management tools.
- Allows developers to run independent “servers” on their desktops while working, making standalone dev and staging boxes mostly unnecessary.

# Server

- Like Workstation, but optimized for running headless as a service.
  - Only one snapshot at a time
  - Fewer networking options
  - Interactive console performance not as good as Workstation or Player
  - Minimal multimedia capabilities
- Lots of management options

# Server in Practice

- Stable
- Low performance impact, though I/O bound applications will suffer
- Powerful command-line tools included ease automation, exposed APIs for getting even more creative
- No longer necessary to manually start server images, as it was when they hosted by Workstation

# Virtual Infrastructure

- Installs directly to bare metal, no host OS
- Not cheap!
- Lots of cool HA and management features.



# Converter

- Converts physical machines to virtual machines.
- Free version can only do “hot” conversions
- Free version can only do one conversion at a time.

# Converter in Practice

- Make sure VMware Tools are on the machine *before* converting.
- Make sure the disks are not badly fragmented *before* converting
- Turn MS SQL off *before* converting
- Gb is a good thing!

# End results of using VMware

- Able to decommission (rather than replace) 4 physical machines thanks to Converter and Server.
- Our total number of server system images has gone up, while the number of physical servers has gone down.
- IT and Development staff is more nimble and as a result more productive.

# Questions?

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<http://itproforum.org>

<http://www.vmware.com>