BP204
Develop Virtually with VMware

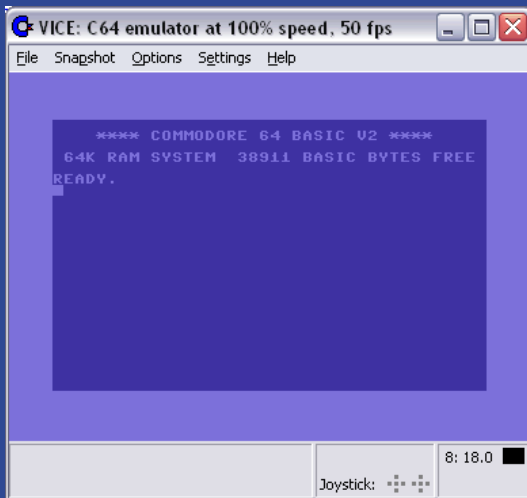*Carl Tyler*
Epilio

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IBM.

Agenda

- What is a Virtual Machine?

- Virtualization Options

- VMware Overview

- Why use a virtual environment?

- Clones and Snapshots

- VMware Teams

- Lotus Software Scenarios with VMware

- Getting Started

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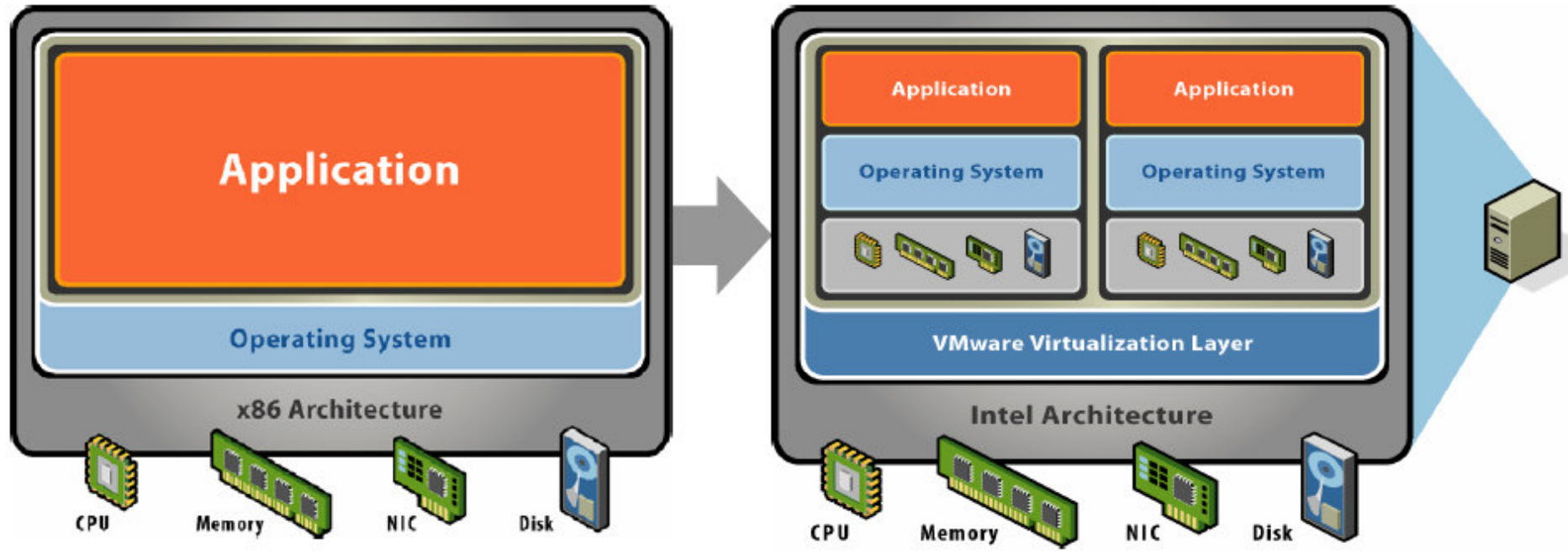# What is a Virtual machine?

- **You may have previous experience...**

Virtualization Options

- Microsoft Virtual PC

- Oracle VM (XEN)

- Parallels

- VMware

- XEN

- Many more

VMware Overview

- Hardware virtualization - a complete x86 platform

- Run multiple OS's on the same physical machine

Key VMware Versions

- **VMware Player - Free**
  - Run virtual machines on Windows or Linux
  - Intel based

- **VMware Fusion - $**
  - Macintosh Version - Primarily intended to run Windows
  - Multiple Snapshots

- **VMware Server – Free**
  - Formerly GSX Server $$
  - Create and run virtual machines on Windows or Linux
  - Intel Based
  - Single Snapshot

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Key VMware Versions

- **VMware Workstation - $**

  ▸ Create and run virtual machines on Windows or Linux

  ▸ Intel Based

  ▸ Multiple Snapshots

  ▸ Multiple Monitors

  ▸ Our focus for this session...

- **VMware Infrastructure - $$$$**

  ▸ The motherload...

  ▸ ESX Server

  ▸ VMotion

  ▸ Plus more...

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# Why use a virtual environment?

- Develop and test multiple Domino/Notes versions on a single PC

- Connect virtual machines to simulate and test multi-tier configurations

- Use multiple snapshots to facilitate testing

- Archive test environments on file servers where they can be easily restored/shared

- Less need to keep buying hardware or format clean machines

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Why use a virtual machine? (Continued)

- Configure virtual machines to "undo" all changes at shutdown

- Demo complex or multi-tier configurations on a single laptop

- Test older Domino Server versions within virtual machines

- Crash a server and not impact other developers

- Test how applications perform with poor network connectivity

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No 1 Reason ?

- It's supported!!!!
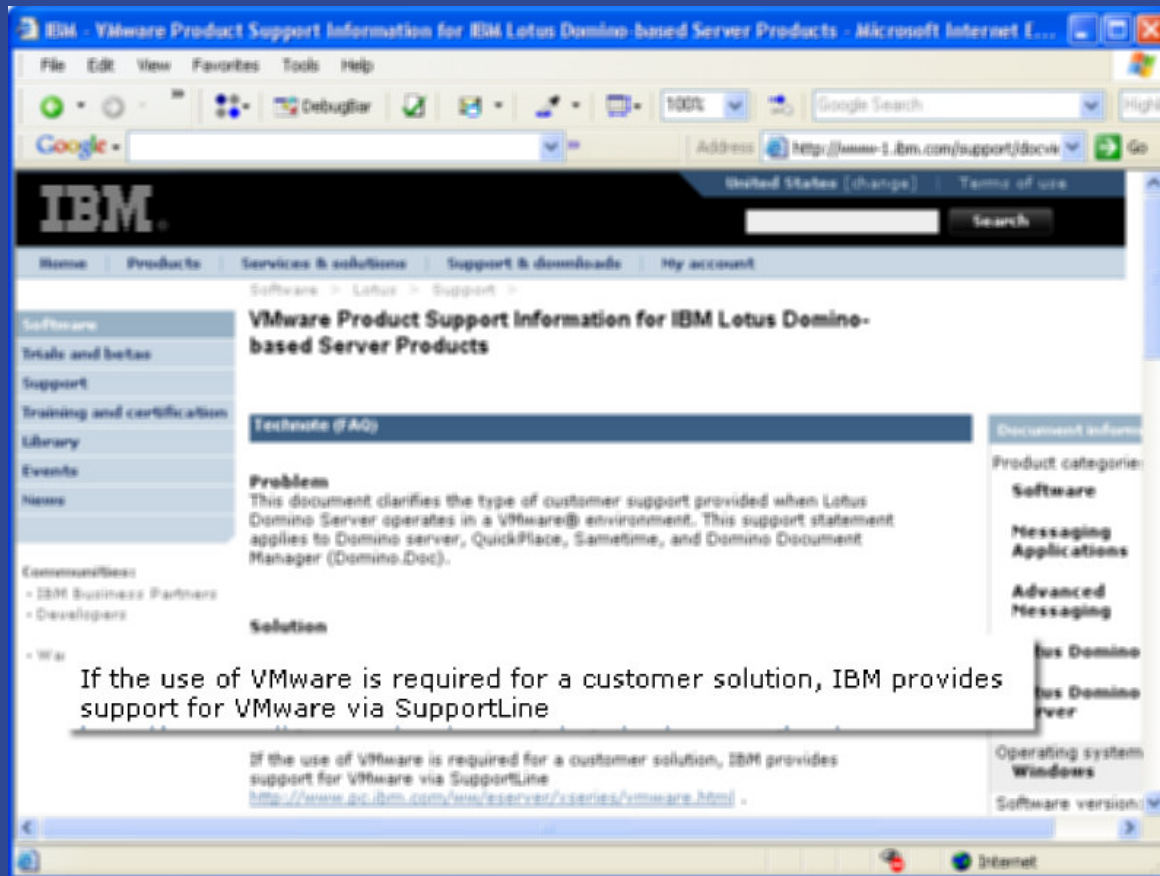
VMware Basics Demonstration

- Starting

- Stopping

- Switching

- Multiple OS's

Performance Tips #1

- Pre-Allocate Disk Space and install on a recently defragmented drive

- Install VM Tools

- Create VMs on a different partition to the Host OS/Swap file.

  ▸ Can make sense to store VM images on fast external USB/Firewire/eSata drives

- Turn off hardware devices that are not required in the VM

  ▸ USB ports, Sound Devices, Floppy Disks, CDs etc.

Clones, Templates and Snapshots

- Clones
  - ▸ Create identical duplicates

- Templates
  - ▸ Protect an image from changes

- Snapshots
  - ▸ Capture and manage point-in-time copies of a running virtual machine state

Meet the CLONE ranger

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Clones

- Clone a VM to easily deploy many copies of a fully configured VM with OS and applications

- You can do anything with a clone that you could with the original VM

- Clones may be linked or full

  - Full Clone - independent copy, shares nothing with the parent after the cloning operation.

  - Linked Clone - a copy of a VM that shares virtual disks with the parent VM in an ongoing manner. Conserves disk space

Clones (Continued)

- The Clone virtual machine Wizard automatically copies all files and settings required

- The Clone virtual machine Wizard automatically creates a new MAC address and other unique identifiers for the duplicate virtual machine
  - To create a "true" clone with same MAC address etc. use OS File copy.

Templates

- Template mode ensures that users will not change the virtual machine

- Virtual machines used in linked clones should NOT be changed. When the virtual machine is in template mode, it cannot be deleted or added to a team, and the virtual machine's snapshots cannot be deleted.

- **Note:** To protect the template, set the file to read only or remove write permissions for the virtual machine's files. This precaution prevents inadvertently deleting a virtual machine through the file system, or from disabling template mode for a virtual machine

Snapshots

- Captures the entire state of the VM:
  - Memory state
  - Settings state
  - Disk state

- Return to it at any time.

- Facilitates repetitive testing and debugging
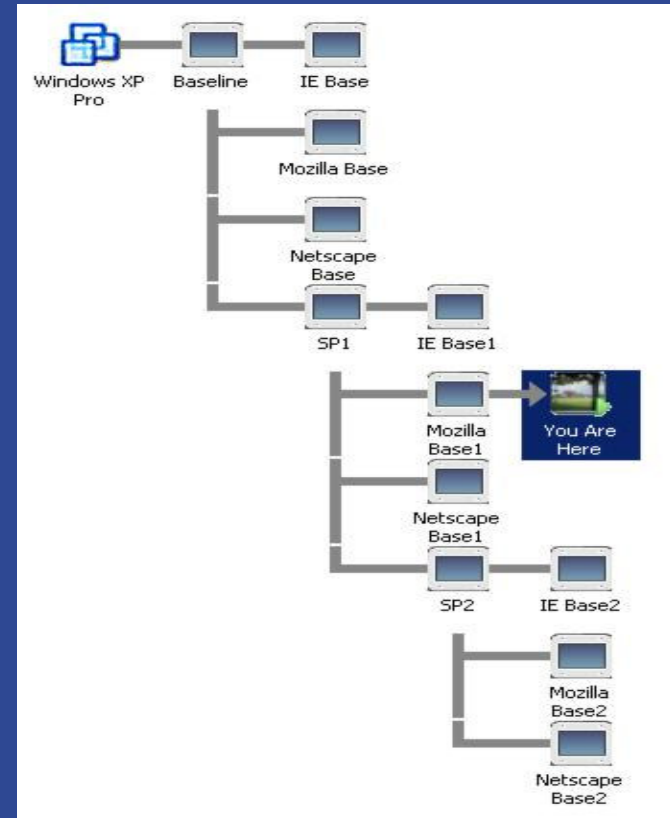
Clones and Snapshot Demonstration

- Creating a clone

- Avoiding conflicts

- Using Snapshots

- Reverting Snapshots

Performance Tips #2

- Defragment drives - inside to out before cloning or making templates

- Try and create snapshots to be a vertical tree as opposed to a horizontal one

- Create new VMs from physical machine backups using VMware Converter.

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Teams

- Manage connected virtual machines

- Create "real world" network connections between virtual machines

- Perform power options across all the virtual machines in a Team

Teams (Continued)

- View all virtual machines on one screen

- Suspend and Resume

- Note: To take snapshots of multiple VMs requires a snapshot of each team member.
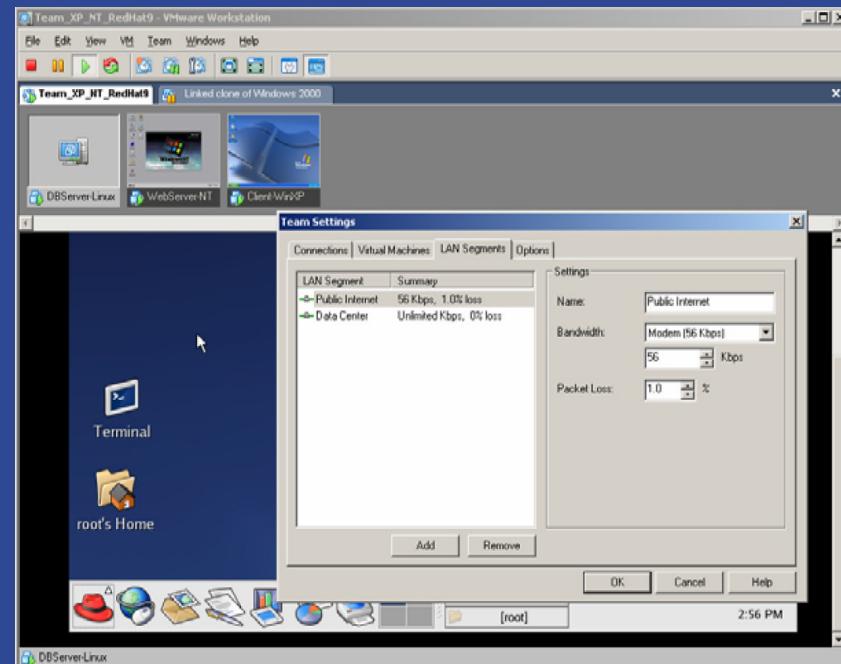
Teams and LAN Segments

- Bandwidth – Modify network bandwidth

- Packet Loss - specify the efficiency of the link

- Note: Settings become active for a given VM only after a power on, reset, or resume.

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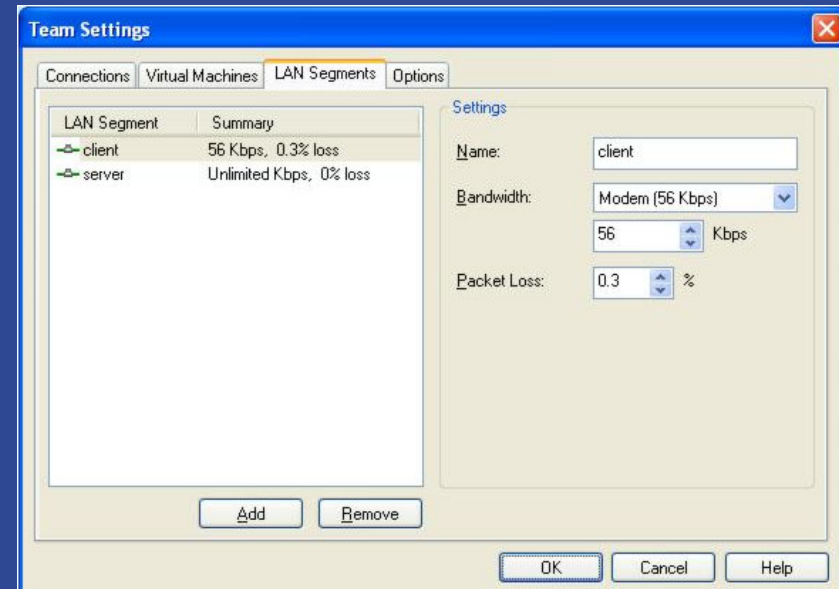
Lotus Software Scenarios with VMware

- Testing different Notes client versions

- Testing Domino apps on different Operating Systems

- Testing slow network connections between clients and servers

- Testing Cluster Failover

Teams Demonstration

- Creating a Team

- Adding VMs

- Starting/Stopping

- Changing Network Settings

Performance Tips #3

- Configure the VM to start with the CD/DVD optical drive disconnected

- Avoid running dual-processor VMs on a single-processor host

- If possible, run all the VMs RAM in real RAM, avoid swapping.

Getting Started

- **VMware Player – Free!**
  - ▸ Cannot build VMs but can use any WMware image and Microsoft Virtual PC and Symantec LiveState Recovery disk formats.

- **VMware Server – Free!**
  - ▸ Build VMs
  - ▸ Supports multiple processors
  - ▸ Supports Running as a service

- **VMware Workstation - $189**

Getting Started (Continued)

- Virtual Appliance Marketplace

    ▸ Certified

    ▸ Production Ready

    ▸ No Install

    ▸ Instant on

- http://vam.vmware.com

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Getting Started (Continued)

- **Useful Resources**
  - IBM Redbooks
    http://www.redbooks.ibm.com

  - VMware Blog
    http://blogs.vmware.com

  - IBM Developer Works
    http://www.ibm.com/developerworks/

  - VMware Virtual Appliance Marketplace
    http://vam.vmware.com

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