

Virtualization in DC3 Development

By the way, is anybody in LSST currently using VMs?
What virtualization platform are you using?

Why would it be useful?

- To support development on many real platforms (Mac, Windows, Linux) more easily and uniformly
- Supporting secondary platforms (multiple Linuxes, Mac OS) has been hard

What would we *really* be supporting?

- The OS that is being virtualized
- Not a particular virtualization tool (although we may standardize for periods of time)

Virtualization Frameworks

VMware

- Windows/Linux
 - Free: Player, Server
 - Paid: Workstation (\$120 acad), VI (\$\$\$)
- Mac: Fusion (\$80)

Linux alternatives

- Xen, KVM
- various semi-virtualization solutions

Other

- Parallels (Mac)
- Windows Server virtualization

Recommendation: VMware

- Mature; free versions are actually pretty good

Features & Capabilities (VMware)

Computation

- Up to 2 CPUs in desktop environments
- 64-bit and 32-bit both available (free on Linux/Windows)

Graphics

- VM in a window or full-screen
- Mac: "remote" X option

Network

- NAT, "Bridged", or local internal network

RAM

- Allocate as much as you want

Disk

- Pre-"allocated", but expand as needed
- Can easily add, reuse virtual disks

Limitations & Problems

Performance Penalty (rough estimates from my experience)

- CPU 5-20% penalty; max 2 cores utilized
- IO 20-60% penalty
- Graphics slower

Value of supporting other platforms

- Mac native
 - PowerPC doesn't run VMware
- Various Linux distros + Other Unixes
 - Insurance against future changes
 - Could Linux become unavailable? Just our favorite distro?

Development in a Virtual Machine

Desktop environment options:

- Direct: Work directly in the VM graphical environment, window or full-screen
- Remote: SSH; disk access via Fuse (sshfs)

Questions

- When you do development, do you run computationally intensive things?
- Big data vs. Toy data? Both?

Personal Alternatives to Virtualization

- Option to install on narrow range of OSes (a particular Linux Distro?)

Distributing VM Images

Steps

1. Download VM image (2 to 5 GB)
 - choose between 32 and 64 bit
1. Unpack & Start
2. Grab ownership of SVN checkout (svn switch)
 - could be automated
1. Update & build

Questions

- How often do we update the standard VM image?
- Who is the audience? Just developers?