

Lunch and Learn @ VOLTA: Virtualization - Introduction for Developers

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PLEASE NOTE:

These slides were prepared by Tim Chipman. (*)

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Thanks!

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Heads up (topics)

- Benefits of virtualization
 - Old school – before virtualization
 - Use cases:
 - Quick testing – Virtualbox on your laptop
 - Formal testing – TestVM on your VM Server
 - Formal Dev – DevVM on your VM Server
 - What is a /bad/ use case ?
- Some interactive demos for above cases
- Questions, Discussion

Expectation

- After this seminar, you should be able to actually do something with Virtualization, if you want.
- Please ask questions about what interests you / if I haven't mentioned it.
- This works better with lots of questions, discussion
- Schedule has plenty of time for discussion :-)

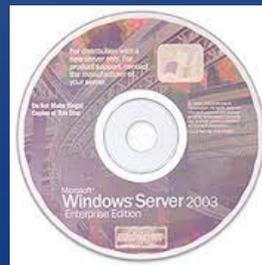
Shameless Plug



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Old World: Before Virtualization

- Installation of a server is a non-trivial task (typically)
- Installation to bare metal – hardware / drivers are quite important, and complicate things
- Need a new server?
 - Buy some hardware; base config and prep,
 - get OS installer media
 - Install OS, configure, install apps, setup data, configure, etc.



New School: After Virtualization

- Installation of a server is a fairly trivial task (typically)
- Installation to standardized VM platform – hardware / drivers are not important
- Need a new server?
 - Adequate resources for new VM (CPU:Disk:Ram)
 - “Clean” VM install from ISO - but even easier,
 - Clone existing VM; deploy new copy; change IP, MAC, Hostname, bingo.



Use Cases: (1) Quick Testing

- Speed is of the essence (minutes, not hours timeline)
- Perfectly reasonable to spin up a VM, do a test, spin it down
- Easy to do on 'decent' workstation:laptop
- Typical solutions include:
 - VirtualBox (Free);
 - VMWare Player (Free for non-commercial use),
 - Parallels (non-free)



Use Cases: (2) Formal Testing/ Dev

- Longer timeline, likely (semi?) formal scope
- Setup Dev:Test VM, maybe leave online for weeks:months (longer)
- Longer timeframe usually means less suitable to run on 'desktop/laptop'; → use 'VM Server'
- Typical solutions include:



PROXMOX

- Proxmox VE, KVM, OpenVZ
- XenServer, Xen, OracleVM, OpenStack



- VMWare ESX Free/Crippled (non-free / non-crippled)
- MS Hyper-V



vmware

Good:Bad Use Cases?

- Good:
 - No physical hardware constraints
 - TCP:Network based services delivery
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- Bad:
 - Specific physical hardware requirements
(Interface cards, etc) (FAX Modem server, Security Server with serial:USB interface connectivity, etc)
 - Legacy platform support (I.e., very inflexible hardware support)

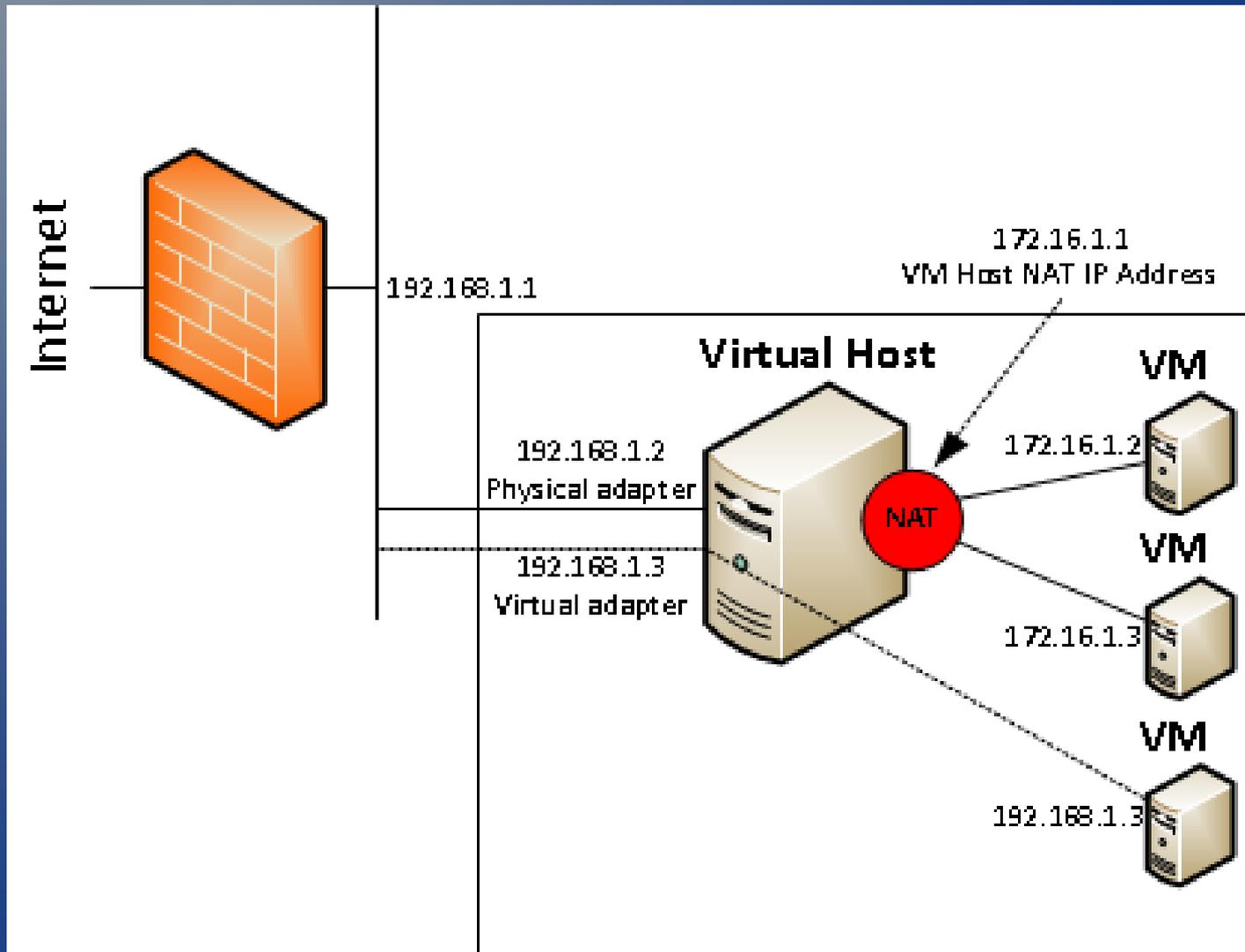


Questions?

- If not – onwards to some hands-on demos.
- Quick:Easy: VirtualBox on Laptop
 - Most common confusion point: network model for VM.
- Dedicated VM server: Proxmox VE
 - Bit more effort to setup, but quite easy once you are used to it..

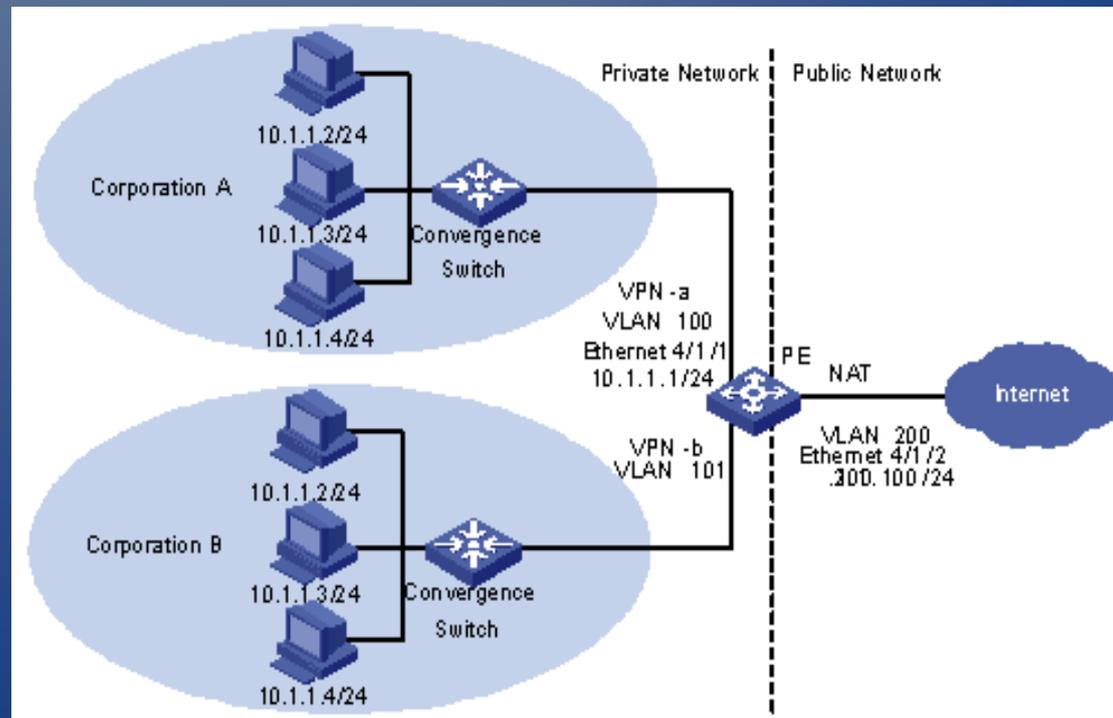
Network Model:

- NAT vs Bridge (Laptop? Bridge Wifi vs Bridge NIC?)



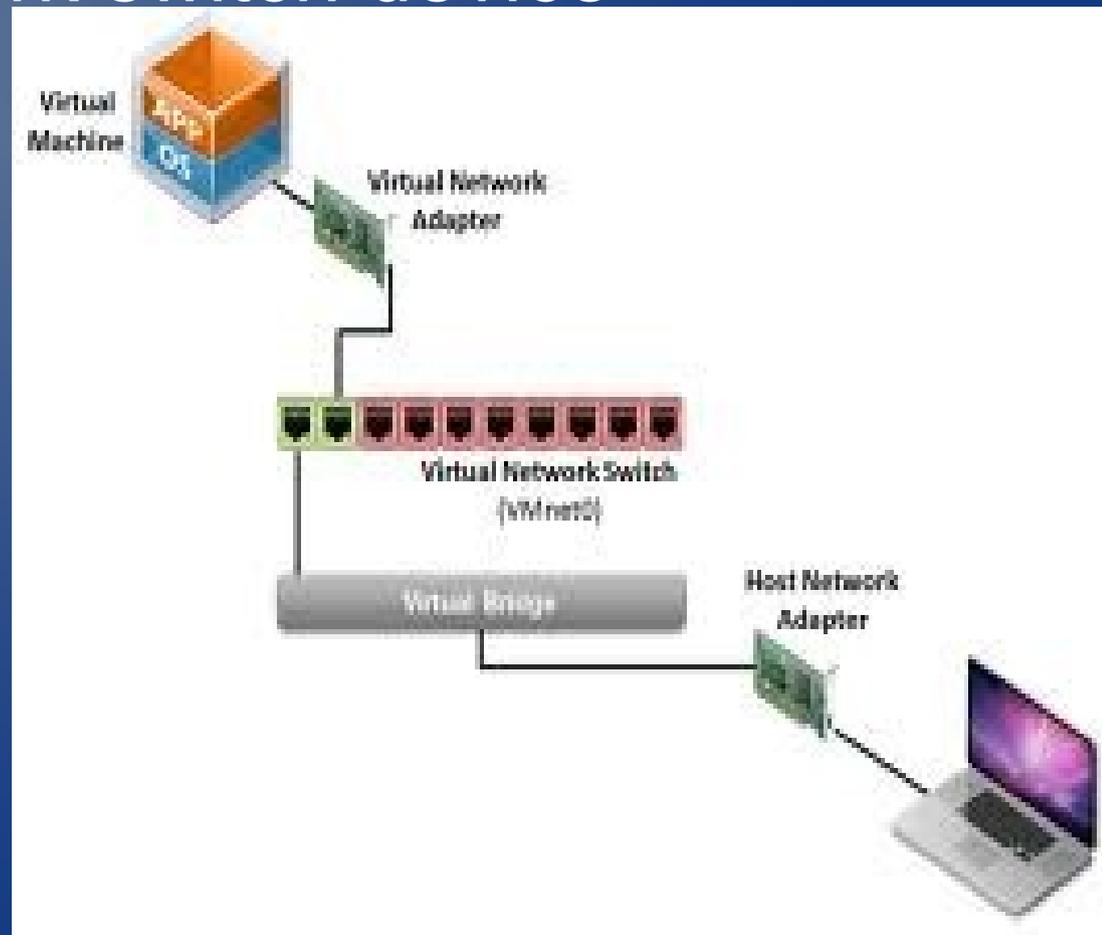
Network Model:

- NAT: VM has private internal IP block, your PC acts as a NAT firewall.
- VM has outbound access to internet, LAN, etc
- LAN, etc has no inbound access to VM.



Network Model:

- Bridge: your local NW Device (Wifi, NIC) can be considered the 'external facing' interface of an internal 'virtual network switch device'
- VM is 'cabled into the switch' with a virtual NIC
- So it can have its own MAC address, IP address in your LAN
- 'equal partner' on LAN in terms of inbound:outbound access – when compared to your host PC



Thanks for your attention!

Quick Links / Reminders:

Proxmox VE: <http://pve.proxmox.com/> (Server Dev/Prod VMs)

(Lots of great built-in templates)

VirtualBox: <http://www.virtualbox.org> (Desktop QuickTestVMs)

VirtualBoxes: <http://virtualboxes.org/> (pre-cooked VM images)

Slides: available from URL, <http://sandbox.fortechitsolutions.ca/>

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