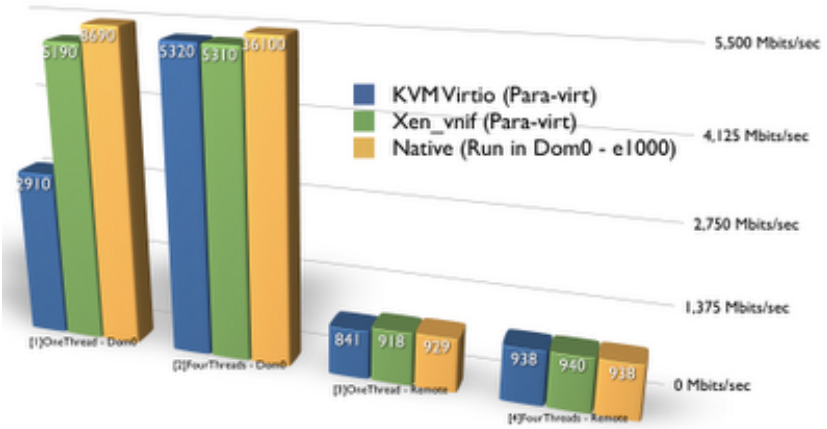
Virtualization Studies

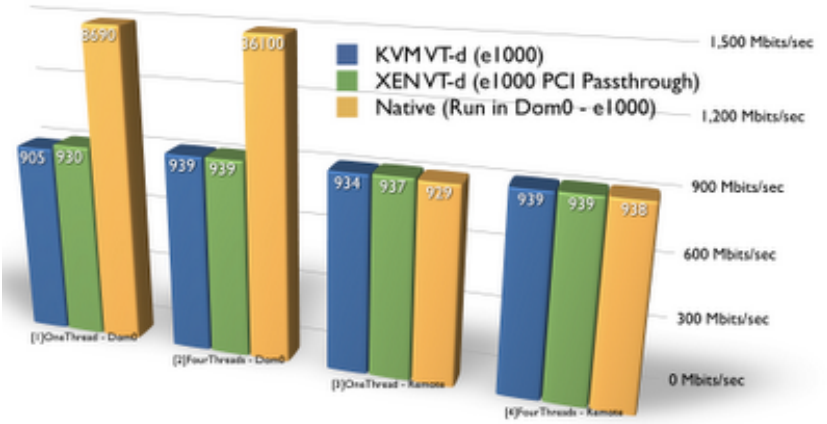
Monday, April 19, 2010

Network Performance Test Xen/Kvm (VT-d and Para-virt drivers)



Para-virtualized Network Driver

Note: In case [1] and [2] the numbers are greater than the speed (1Gbps) of the NIC since the client is communicating with the server via the Para-virt driver (for KVM and Xen) or via loopback link (Native).



Passing a NIC to Guest Via VT-d

Summary of Results:

- One should use Para-virtualized drivers
- KVM and XEN have close network performance for both VT-d and Para-virt.
- The MAX bandwidth of Virtio connecting to a remote is very close to VT-d or Native
- Using Para-virt to connect to Dom0 is much faster than using

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VT-d

Type of Setup:

VT-d (e1000 PCI Passthrough)
Passing a e1000 NIC from host to guest via VT-d. Need to be specified at virt-install "--host-device=pci_8086_3a20" (otherwise you need to handle the complex pci driver loading/unloading), where "pci_8086_3a20" is the name of the NIC. Use lspci -v and virsh nodedev-list to see them.

KVM: Virtio
Using the virtio_net driver, set in libvirt xml file, which produces a "-net nic,macaddr=xxx,vlan=0,model=virtio" in kvm arguements.
Note: to load the virtio_net driver correctly in SLC5 DomU (guest) one need to remake an initrd image like below:
mkinitrd -f --with=virtio --with=virtio_pci --with=virtio_ring --with=virtio_blk --with=virtio_net initrd-2.6.18-164.15.1.el5.virtio.img 2.6.18-164.15.1.el5

XEN: xen_vnif
Using the xen_vnif driver.

Native (Run in Dom0 - e1000)
This is the control setup, in this case all test commands are run within Dom0 (the host computer).

Server Command:

iperf -s -w 65536 -p 12345

Client Command:

[1] Link to dom0
iperf -c dom0 -w 65536 -p 12345 -t 60

[2] Link to dom0 with 4 spontaneous threads
iperf -c dom0 -w 65536 -p 12345 -t 60 -P 4

[3] Link to a remote box on the same switch
iperf -c remote -w 65536 -p 12345 -t 60 -P 4

[4] Link to a remote box on the same switch with 4 spontaneous threads
iperf -cremote -w 65536 -p 12345 -t 60 -P 4

*Posted by **Yushu Yao** at **1:17 PM***

*Labels: **CompareXenKvm**, **kvm**, **network**, **performance**, **virtualization**, **xen***

15 COMMENTS: