**STEPS TO SETUP EXPERIMENT**

**KVM:**

# Install QEMU KVM

sudo apt-get install qemu-kvm

**OSv guest**:

# Get OSv Source Code

git clone <https://github.com/cloudius-systems/osv.git>

# Install OSv Build Dependency

cd osv

python scripts/setup.py

git submodule update --init --recursive

# Build OSv Image

make

scripts/build

# Build netperf app

cd apps/netperf

make

# Include netserver in OSv image

cp apps/netperf/netserver.so tools/

# Add `/tools/netserver.so: tools/mkfs/netserver.so` to usr.manifest

scripts/build # Rebuild image

# Start netserver

sudo ./scripts/run.py -e "/tools/netserver.so -D -4 -f" -c 4 --api

**Ubuntu guest:**

# Create image

qemu-img create ubuntu.img 10G

# Download Ubuntu net install

<http://archive.ubuntu.com/ubuntu/dists/trusty-updates/main/installer-amd64/current/images/netboot/mini.iso>

# Start KVM guest with mini.iso as CD-ROM

qemu-system-x86\_64 -hda ubuntu.img -cdrom mini.iso -net nic -net user

# Install Ubuntu as usual

# ...

# Start KVM guest again without CD-ROM

qemu-system-x86\_64 -hda ubuntu.img -net nic -net user

# Install netperf inside guest Ubuntu

sudo apt-get update

sudo apt-get install build-essential

wget ftp://[ftp.netperf.org/netperf/netperf-2.7.0.tar.bz2](http://ftp.netperf.org/netperf/netperf-2.7.0.tar.bz2)

tar xf netperf-2.7.0.tar.bz2

cd netperf-2.7.0

./configure

make

# Start netserver

cd netperf-2.7.0/src

./netserver -4

**Network configuration (Port mapping):**

# Start KVM guest with port mapping

# TCP 12865 is Netperf control channel

# TCP 12866 is used as Netperf TCP data channel, use -P 12866 to specify

# UDP 12866 is used as Netperf UDP data channel, use -P 12866 to specify

qemu-system-x86\_64 -hda ubuntu.img -net nic -net user -redir tcp:12865::12865 -redir tcp:12866::12866 -redir udp:12866::12866

# For OSv, use the same -redir options by changing scripts/run.py

# Inside scripts/run.py change `args += ["-redir", "tcp:8000::8000"]`

# To `args += ["-redir", "tcp:8000::8000", "-redir", "tcp:12865::12865", "-redir", "tcp:12866::12866", "-redir", "udp:12866::12866"]`

sudo ./scripts/run.py -e "/tools/netserver.so -D -4 -f" -c 4 --api

**STEPS TO RUNNING EXPERIMENT**

**Auto Test Running**

Python script.py (as attachment)

// the line “cmd = './netperf -t UDP\_STREAM -H 192.168.0.1 -- -P 12866 -r %s -m 3100' % i “ is subject to change for TCP\_STREAM we use -s instead of -r for our socket size.

**Graph Plot**

We firstly analyze the experiment by python plot but the graph is ugly so that we used excel to plot.