虚拟机网络性能测试

工程实践与科技创新III-D 虚拟化与云计算 EI313

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要求

Virtualized and bare metal network performance test.

- Download QEMU 5.2.0 from https://www.qemu.org/download/ and compile.
- Create 2 VMs with TAP mode network (e1000 and virtio-net) by QEMU.
- Connect to your VM through VNC viewer or SSH.
- Compare the network performance of your host machine and VMs.

1 编译 QEMU

使用 QEMU 5.2.0 (Dec 8th 2020)，为了方便后续的版本对比，根据说明文档[1]直接克隆存储库。根据官方的 wiki 说明[2]，需要安装一些额外包。通过下面的脚本进行下载、编译：

Listing 1: INSTALL.sh

```bash
#!/bin/bash

sudo apt-get install git
git clone --recurse-submodules https://git.sjtu.edu.cn/sjtug/qemu.git
cd qemu
git checkout --recurse-submodules v5.2.0
mkdir build
cd build
sudo apt-get install glib2.0-dev libglib2.0-dev libfdt-dev libpixman-1-dev zlib1g-dev
sudo apt-get install git-email
sudo apt-get install libaio-dev libbluetooth-dev libbrlapi-dev libbz2-dev
sudo apt-get install libcap-dev libcap-ng-dev libcurl4-gnutls-dev libgtk-3-dev
sudo apt-get install libibverbs-dev libjpeg8-dev libncurses5-dev libnuma-dev
sudo apt-get install librbd-dev librdmacm-dev
sudo apt-get install libsasl2-dev libsdl1.2-dev libseccomp-dev libsnappy-dev libssh2-1-dev
sudo apt-get install libvde-dev libvdeplug-dev libxen-dev liblzo2-dev
sudo apt-get install valgrind xfslibs-dev
sudo apt-get install libnfs-dev libiscsi-dev
sudo apt-get install ninja-build
sudo apt-get install libsdl1.2-dev
../configure --enable-kvm --enable-debug --enable-vnc --enable-werror --target-list="x86_64-softmmu"
make -j4
```

```
23  make install
```

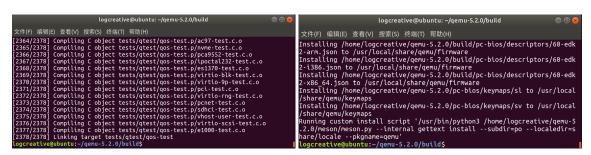其中 `libvte-2.90-dev` 包已经被废弃。编译如图 1 所示成功，安装如图 2 所示成功。

图 1: QEMU 编译

图 2: QEMU 安装

参考文献

[1] QEMU. QEMU readme[M/OL]. 2021. https://gitlab.com/qemu-project/qemu/-/blob/master/README.rst.

[2] QEMU. QEMU on Linux hosts[EB/OL]. 2012. https://wiki.qemu.org/Hosts/Linux#Required_additional_packages.