Guide for IO Visor Environment

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Type S/C/O (현재 설정 상황)

Type	IP address	OS/Kernel Version
Type S	116.89.190.193	OA 4.2 (Ubuntu 14.04. based) Linux Kernel 4.8.0
Type C	210.114.90.170	Ubuntu 16.04 Linux Kernel 4.8.0
Type O	210.114.90.169	Ubuntu 16.04 Linux Kernel 4.8.0

Upgrade to Linux Kernel 4.5.1 to 4.8.0 (On Type S, Znyx B1's OA4)

- wget http://kernel.ubuntu.com/~kernel-ppa/mainline/v4.8/linux-headers-4.8.0-040800_4.8.0-040800.201610022031_all.deb
- wget http://kernel.ubuntu.com/~kernel-ppa/mainline/v4.8/linux-headers-4.8.0-040800-generic_4.8.0-040800.201610022031_amd64.deb
- wget http://kernel.ubuntu.com/~kernel-ppa/mainline/v4.8/linux-image-4.8.0-040800-generic_4.8.0-040800.201610022031_amd64.deb
- sudo dpkg -i linux-*.deb

Type S 10G Driver Problem (KMJ helped)

- 커널 업그레이드가 진행되며 Parameter 관련 오류 발생

- -> /etc/modprobe.d/ixgbe.conf 의 Parameter 수정해서 해결
- (sudo insmod ixgbe.ko max_vfs=32)

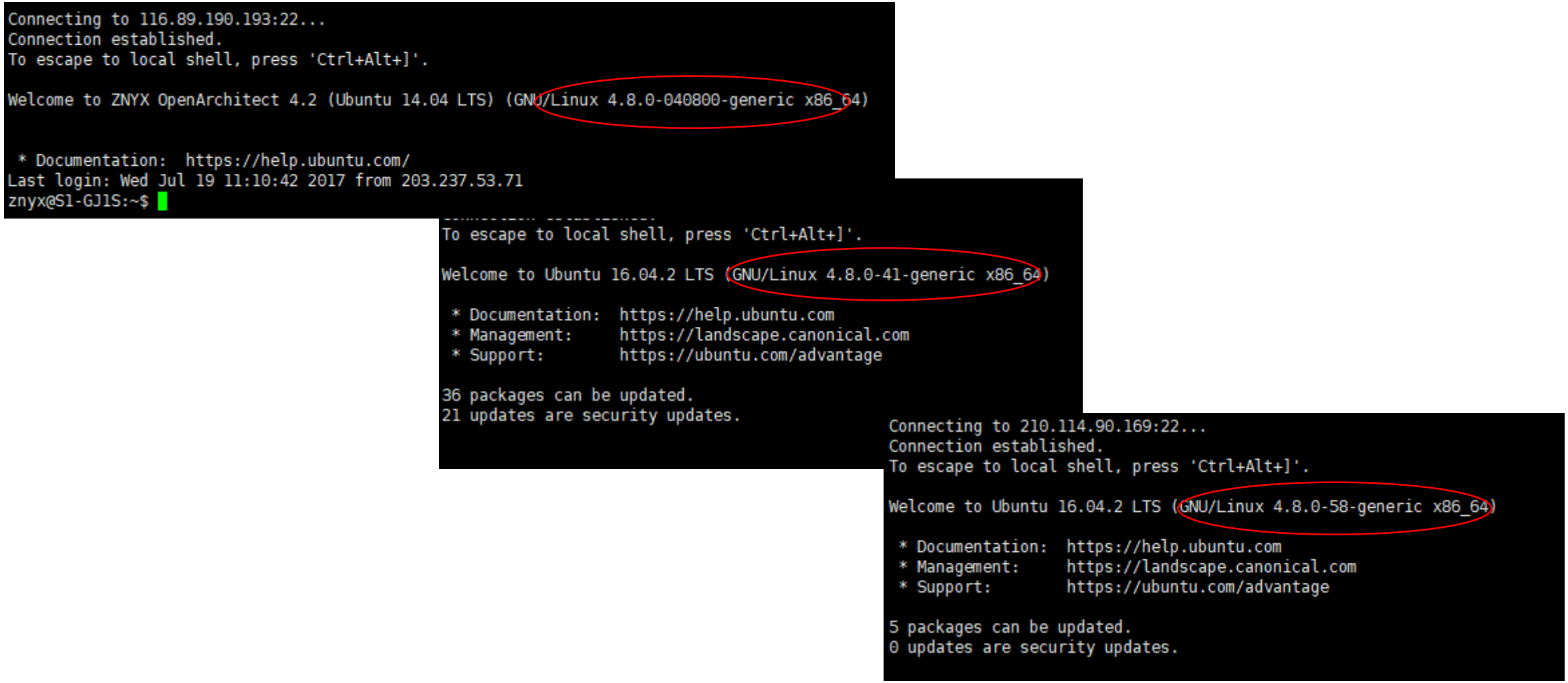
```
10.865198] ixgbe: Intel(R) 10 Gigabit PCI Express Network Driver - version 4.4.0-k
10.865200] ixgbe: Copyright (c) 1999-2016 Intel Corporation.
10.865452] ixgbe 0000:01:00.0: Enabling SR-IOV VFs using the max_vfs module parameter is deprecate
11.056711] ixgbe 0000:01:00.0 0000:01:00.0 (uninitialized): SR-IOV enabled with 32 VFs
11.080541] ixgbe 0000:01:00.0: Multiqueue Enabled: Rx Queue count = 2, Tx Queue count = 2
11.080669] ixgbe 0000:01:00.0: PCI Express bandwidth of 32GT/s available
11.080670] ixgbe 0000:01:00.0: (Speed:5.0GT/s, Width: x8, Encoding Loss:20%)
11.080751] ixgbe 0000:01:00.0: MAC: 2, PHY: 1, PBA No: FFFFFF-0FF
11.080753] ixgbe 0000:01:00.0: e8:8d:f5:10:33:c4
11.182483] ixgbe 0000:01:00.0 eth2: IOV is enabled with 32 VFs
11.182525] ixgbe 0000:01:00.0: Intel(R) 10 Gigabit Network Connection
11.182909] ixgbe 0000:01:00.1: Enabling SR-IOV VFs using the max_vfs module parameter is deprecate
11.368847] ixgbe 0000:01:00.1 0000:01:00.1 (uninitialized): SR-IOV enabled with 32 VFs
11.392675] ixgbe 0000:01:00.1: Multiqueue Enabled: Rx Queue count = 2, Tx Queue count = 2
11.392803] ixgbe 0000:01:00.1: PCI Express bandwidth of 32GT/s available
11.392805] ixgbe 0000:01:00.1: (Speed:5.0GT/s, Width: x8, Encoding Loss:20%)
11.392886] ixgbe 0000:01:00.1: MAC: 2, PHY: 1, PBA No: FFFFFF-0FF
11.392887] ixgbe 0000:01:00.1: e8:8d:f5:10:33:c5
11.426816] ixgbe 0000:01:00.1 eth3: IOV is enabled with 32 VFs
```

Upgrade to Linux Kernel 4.4.0 to 4.8.0 (On Type C, General machines)

- Sudo apt-get -y install linux-image-4.8.0-41-generic linux-image-extra-4.8.0-41-generic
- sudo apt-get install linux-headers-$(uname -r)

- CONFIG_BPF=y
- CONFIG_BPF_SYSCALL=y
- # [optional, for tc filters]
- CONFIG_NET_CLS_BPF=m
- # [optional, for tc actions]
- CONFIG_NET_ACT_BPF=m
- CONFIG_BPF_JIT=y
- CONFIG_HAVE_BPF_JIT=y
- # [optional, for kprobes]
- CONFIG_BPF_EVENTS=y

Type S/C/O kernel Version 4.8.0



Install IO Visor – Build Dependencies

- # Trusty and older
- VER=trusty
- echo "deb http://llvm.org/apt/$VER/ llvm-toolchain-$VER-3.7 main
- deb-src http://llvm.org/apt/$VER/ llvm-toolchain-$VER-3.7 main" | ₩ sudo tee /etc/apt/sources.list.d/llvm.list
- wget -O - http://llvm.org/apt/llvm-snapshot.gpg.key | sudo apt-key add -
- sudo apt-get update

- # All versions
- sudo apt-get -y install bison build-essential cmake flex git libedit-dev libllvm3.7 llvm-3.7-dev libclang-3.7-dev python zlib1g-dev libelf-dev

Install IO Visor – Install and compile BCC

- git clone https://github.com/iovisor/bcc.git
- mkdir bcc/build; cd bcc/build
- cmake .. -DCMAKE_INSTALL_PREFIX=/usr
- make
- sudo make install

Packet tracing

- $sudo python packet_tracing.py
- Working on Type S/C/O