NAME
ovs-vlan-bug-workaround – utility for configuring Linux VLAN driver bug workaround

SYNOPSIS
ovs-vlan-bug-workaround netdev on
ovs-vlan-bug-workaround netdev off
ovs-vlan-bug-workaround --help
ovs-vlan-bug-workaround --version

DESCRIPTION
Some Linux network drivers support a feature called “VLAN acceleration”. VLAN acceleration is associated with a data structure called a vlan_group that is, abstractly, a dictionary that maps from a VLAN ID (in the range 0 to 4095) to a VLAN device, that is, a Linux network device associated with a particular VLAN, e.g. eth0.9 for VLAN 9 on eth0.

Some drivers that support VLAN acceleration have bugs that fall roughly into the categories listed below. ovs-vlan-test(8) can test for these driver bugs.
- When NICs use VLAN stripping on receive they must pass a pointer to a vlan_group when reporting the stripped tag to the networking core. If no vlan_group is in use then some drivers just drop the extracted tag. Drivers are supposed to only enable stripping if a vlan_group is registered but not all of them do that.
- On receive, some drivers handle priority tagged packets specially and don’t pass the tag onto the network stack at all, so Open vSwitch never has a chance to see it.
- Some drivers size their receive buffers based on whether a vlan_group is enabled, meaning that a maximum size packet with a VLAN tag will not fit if no vlan_group is configured.
- On transmit, some drivers expect that VLAN acceleration will be used if it is available, which can only be done if a vlan_group is configured. In these cases, the driver may fail to parse the packet and correctly setup checksum offloading or TSO.

The correct long term solution is to fix these driver bugs.

For now, ovs-vlan-bug-workaround can enable a special-purpose workaround for devices with buggy VLAN acceleration. A kernel patch must be applied for this workaround to work.

Use the command ovs-vlan-bug-workaround netdev on to enable the VLAN driver bug workaround for network device netdev. Use the command ovs-vlan-bug-workaround netdev off to disable the VLAN driver bug workaround for network device netdev.

DRIVER DETAILS
The following drivers in Linux version 2.6.32.12-0.7.1.xs1.0.0.311.170586 implement VLAN acceleration and are relevant to Open vSwitch on XenServer. We have not tested any version of most of these drivers, so we do not know whether they have a VLAN problem that needs to be fixed. The drivers are listed by the name that they report in, e.g., ethtool -i output; in a few cases this differs slightly from the name of the module’s .ko file:

8139cp acenic amd8111e atl1c ATL.1E atll
atl2 be2net bna bnx2 bnx2x cnic
cxgb cxgb3 e1000 e1000e enic forcedeth
igb igbvf ixgb ixgbe jme ml4x_core
ns83820 qlge r8169 s2io sky2 starfire
tehuti tg3 typhoon via-velocity vxge

The following drivers use vlan_group but are irrelevant to Open vSwitch on XenServer:

bonding
Not used with Open vSwitch on XenServer.

gianfar
Not shipped with XenServer. A FreeScale CPU-integrated device.
ehea  Cannot be built on x86. IBM Power architecture only.

stmmac
   Cannot be built on x86. SH4 architecture only.

vmxnet3
   Not shipped with XenServer. For use inside VMware VMs only.

OPTIONS
   -h
   --help  Prints a brief help message to the console.

   -V
   --version  Prints version information to the console.

BUGS
   Obviously.

SEE ALSO
   ovs–vlan–test(8).