

What is the performance impact of VLAN tagging with the Myri10GE driver?

Model:

ARC Series C Adapters (10G-PCIE2-8C2-2S)

Software:

Myri10GE Drivers

Operating System:

Supported in both Windows and Linux Operating Systems.

Information:

There is a slight performance impact incurred when using VLAN tagging.

There are two issues:

1. On all OSES, there is a shim driver to handle VLAN traffic and configuration. This driver sits between the TCP/IP stack and the hardware driver. On Windows, every hardware vendor must ship their own VLAN shim driver. (Our Windows VLAN driver is included in the Windows Myri10GE software distribution. However, on Linux, the VLAN shim driver is shared by all adapters, regardless of vendor. It is not, to our knowledge, possible to bypass this shim driver.

Prior to Linux 2.6.26, the Linux VLAN driver did not propagate any advanced offload flags from the hardware device to the VLAN shim device. That means, for example, that doing TCP segmentation Offload was not possible on a VLAN device, even though the driver/hardware supports it. This is true for all vendors, not just our hardware.

There are other limitations. For example, prior to 2.6.32, the VLAN driver would xmit all packets through TX queue 0, rather than the correct TX queue. RHEL 5.5 enables TSO on VLAN, but does not enable S/G, which results in a memory copy of most packets, etc.

2. Capabilities of the adapter to handle VLAN packets:

Our adapter handles VLAN traffic where it is required to (emitting TSO frames, for example).

Revision	Date	Change
1	7/6/2016	Initial Draft
2	7/22/2016	Feedback


