

Re: Udp sending performance in Gbit Ethernet

Source:

<http://www.tech-archive.net/Archive/Development/microsoft.public.development.device.drivers/2006-01/msg00635.html>

- *From:* JTL <JTL@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Tue, 17 Jan 2006 04:38:01 -0800
-

"Stephan Wolf [MVP]" wrote:

- > So I am **not** actually suprised by the behaviour you describe. We often
- > saw a sudden drop of perfomance for certain packet (frame) sizes. And
- > there can be just so many reasons like interrupts and DMA.
- >
- > If the number of interrupts increases by a factor of 3 as you describe,
- > then there is probably some limit reached in the driver or in the card
- > such as the maximum DMA block size or alike, which forces the driver to
- > split frames into several DMA transfers. Since some cards generate an
- > interrupt at the end of each DMA transfer, this would be an
- > explanation.

I do not know the internals of the Windows driver model, so I really cannot make any comments. Your comments seem reasonable, but they still leave the following open points:

- Why is it faster to send 3 UDP packets of size 1024 bytes than 1 of size 1025?
- Why is it twice as fast to send one fragmented UDP packet, where both fragments are of size 1400+ bytes than two un-fragmented packets of size 1400 bytes?
- Why there is no such phenomenon with TCP? It sends large packets also. (And achieves the same speeds than UDP with 1024 byte datagrams)
- Why increasing the number of applications (sockets) increase the throughput?
- Why increasing the number of threads with one socket increase the throughput?

As I said, I don't know the internals of the windows networking, but the points above in my opinion belong to the TCP/IP stack implementation, not driver implementation.

Furthermore:

- I have tested this with at least 4 different cards (see below), each of them has the same problem.
- This problem does not exist in Linux, when run on exactly the same hardware.

See also:

<http://www.chch.demon.co.uk/wintest/wintest.html>

Re: Udp sending performance in Gbit Ethernet

> 1. Try different versions of the driver for the card (even older ones).

This I have not tried.

> 2. Try some other card (different chipset) along with its driver.

This I have tried.

> 3. Holler at the card vendor's support (don't expect too much).

This I have not tried.

> BTW, which chipset does your GigE card use (Marvell, Broadcom, Intel,
> etc.)?

I had the list in one of the previous posts, but at least:

- 3Com 3c2000
- Intel PRO/1000 GT
- Compaq Server NIC
- NVIDIA NForce chipset (motherboard) NIC

I would be suprised, if each of the manufacturers above would make the same mistake in their drivers...

Greetings

Juha

.

• *Follow-Ups:*

- ◆ **Re: Udp sending performance in Gbit Ethernet**
◇ From: m
- ◆ **Re: Udp sending performance in Gbit Ethernet**
◇ From: Stephan Wolf [MVP]

• *References:*

- ◆ **Re: Udp sending performance in Gbit Ethernet**
◇ From: Stephan Wolf [MVP]
- ◆ **Re: Udp sending performance in Gbit Ethernet**
◇ From: JTL
- ◆ **Re: Udp sending performance in Gbit Ethernet**
◇ From: Stephan Wolf [MVP]

- Prev by Date: **Re: Lookaside list or ExAllocatePool/ExFreePool**
- Next by Date: **Re: MCE BDA Driver works incorrect.**

Re: Udp sending performance in Gbit Ethernet

- Previous by thread: ***Re: Udp sending performance in Gbit Ethernet***
- Next by thread: ***Re: Udp sending performance in Gbit Ethernet***
- Index(es):
 - ◆ ***Date***
 - ◆ ***Thread***