

Re: Backup to USB works but to NAS fails

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<http://www.tech-archive.net/Archive/Windows/microsoft.public.windows.server.sbs/2007-10/msg01292.html>

- *From:* "Andrew H" <ajhpms@xxxxxxxxxxxx>
 - *Date:* Tue, 9 Oct 2007 17:08:18 +0200
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You've heard it before, but replace that hub with a switch as soon as possible (I was going to say "as fast as possible", but realised that might be misinterpreted). Hubs are 10Mb/s dumb devices, switches are 100Mb/s intelligent devices. The price differential between hubs and switches has dropped to the point where it doesn't pay to manufacture or buy hubs anymore, only switches. Prices on Gigabit (1000Mb/s) are falling rapidly too.

"Another Brian" <notbrian@xxxxxxxxxxxxxxxx> wrote in message news:OK1sVCcCIHA.972@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

Thank you, David. You are a wealth of knowledge. I'll work through this and play with my network over the next week or so.

Brian Bygland

"David Barnes" <david@bitsolve.com .nospam.ignore.net> wrote in message news:OuO8gsNCIHA.1208@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

Speed is 'autonegotiated' with the hub/switch (usually)
Some earlier hubs/switches had little dip-switches to set the connection.
On windows it's a setting in the network card settings and usually worth setting to what it should be (rather than autonegotiate.)
On a HUB ALL data is transmitted to ALL ports.
This used to be a HUGE concern with broadcast network protocols such as NetBEUI, however this –still– has an impact..add the PC's on the hub must clearly receive the data packet. fortunately most modern network cards are 'parallel tasking' and perform the MAC inspection at the card. (is the packet for me??) however some 'cheap' cards have moved this back into the CPU.. this then means:
if you have a 10mb client ALL data must slow down to that speed.
This is very painful for a 100mb node sending to a 100mb client as the slow down is achieved by using data collisions to force the sending system to back off.
Data throughput on the lan *can* be a factor of the cpu/bus/memory performance on all the connected pc's, even tho they are not in the conversation.
This used to be the BIG factor in LANMAN/WfWg/NT3.51/NT4 networks

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that used the monolithic NetBEUI protocol stack.
no I hope I can remember the figures correct...
I setup a demo rig once with two NT4/SCSI/P200 machines and a dog slow WfWg/MFM/386sx25 on a 10Base2 (thin-wire) lan [same sort of effect as 10/100mb hub with 10mb clients] copying 120MB file between the two big systems took about 8 mins average over several hundred samples (left a batch job going overnight) then turned on the WfWg pc..despite it not touching or talking to the other 2 systems the time went up to 40mins for the same 120mb file!!! Yeah.. 15MBytes/min throughput vs 3MByte/min.. that gives me:
 $15\text{MBytes} * 10 = 150\text{Mbits/min}$ (8bit data + start & stop bit = 10 bits for 1 Byte)
 $150\text{Mbits/min} / 60 = 2.5\text{Mbits/sec}$.. hey 25% throughput.... was good in those days
wheras
 $3\text{MBytes} * 10 = 30\text{Mbits/min}$ (8bit data + start & stop bit = 10 bits for 1 Byte)
 $30\text{Mbits/min} / 60 = 0.5\text{Mbits/sec}$.. Lots slower...
Now I'm not saying things will be that slow but allowing for modern hardware to improve the throughput to 50% (don't forget the other systems on the lan will slow things down) you will achieve 30MBytes/min that's 22 hours for your backup..
 $40\text{GB} * 1024 = 40960\text{MB} / 30\text{MB/m} = 1365\text{mins} / 60 = 22.7$ hours

Getting this up to 100Mb/s lan speed (either back-to-back or upgrade to switch) will improve things..
say we only get 10% throughput, that is 60MBytes/min = 11 hrs
if we get 20% throughput, thats 120MBytes/min = 5.5 hrs

Re the switches..

Which ones were you looking at?

One switch is not the same as the next..

The key two factors that 'rate' a switch are:

-a- the Forwarding rate

-b- the backplane throughput.

My base rule is if the manufacturer doesn't quote the figure, it's not very good.

However I've used the Netgear FS-516 units and they are fairly good.

They show a good throughput and lan improvement over their FS1x and GS1x

range (the FS1x and GS1x ranges have a shared backplane, which is not much

better than using a hub.. ok well its better than a hub, but still poor throughput)

Most cheap unbranded and entry-level units are of the ilk of the FS1x range.

FS516 specs

(<http://www.netgear.com/Products/Switches/UnmanagedSwitches/JFS516.aspx?detail=Specifications>)

I've seen the FS516 for \$80ish..

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(<http://reviews.pricegrabber.com/switches/m/41448/>)

Personally I'd pick up a second hand HP Procurve 2424m off Ebay..

In the short term a \$15 gig network card in the server and x-over cable into the NAS

box is the quickest fix. Make sure you set the server IP to different subnet and to

fixed IP, also turn off autonegotiate on the LAN card and fix it to 1000 duplex.

But then, as I said above, just getting the server running at 100Mb/s could bring

your backup time down to 5.5 hours!!!!

You should also try fixing the speed on the lan card on the server, try 100MB simplex

(duplex is for switches and direct x-over).

Do some throughput tests with a mid-sized file.

Use xcopy at the command prompt and drag-drop in the GUI is unpredictable

```
REM ***** batch start
Net use x \\nas\share
time /t
xcopy my-local-file x:\*. * /Y
time /t
xcopy my-local-file x:\*. * /Y
time /t
xcopy my-local-file x:\*. * /Y
time /t
xcopy my-local-file x:\*. * /Y
time /t
xcopy my-local-file x:\*. * /Y
time /t
net use x /d
pause
REM ***** batch end
```

save the above as a batch file changing the relevant bits..

Use a small enough file for the test to complete inside 15 mins or so

Work out what your average throughput is..

Change something.. see what the new throughput is.

Just a thought.. there probably are some tools out there that can

test throughput for you.. worth a google..

It's always worth while knowing what the throughputs are for various machines on the lan.

sort of the base 'know your network'.. so when you decide to move 180GB

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from
one machine to another, you know roughly how long it will take..
Also you have a baseline to test against when diagnosing issues in the future.

David Barnes

"Another Brian" <notbrian@xxxxxxxxxxxxxxxx> wrote in message
news:%23O%23pQNICIHA.464@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

OOPS. One other discovery. I may have found the source of the problem. In my original post I asked how to learn the speed of my network. I never thought of going to Task Manager and looking at the Networking tab. Low and behold it says that the WAN connection is 100 Mbps. and, ARGH, the LAN is running at 10 Mbps.

Is the LAN speed controlled by the NIC in the server or by the first object, the hub, that connects to the NIC? When I looked at the NIC last night, I thought that it said that it was 10/100 Mbps, but I'll have to look again in the morning.

Brian Bygland

"Another Brian" <notbrian@xxxxxxxxxxxxxxxx> wrote in message
news:egTYE2HCIHA.484@xxxxxxxxxxxxxxxxxxxxxxxxxxxx

Hi David. Here's where we stand ...

I've moved the NAS so that it hangs directly off the hub (yes it is a hub, not a switch) so it is SBS > hub > NAS. The backup started at 10:30 PM PDT last night and is still running as 5:47 PM PDT today, or in other words, it's been running for almost 19 hours. Not good. Judging by the size of the resulting backup file, it should be almost complete.

Changing the hub to a switch might make a bit of difference, but I don't think that much. An 8-port switch runs around \$60, but I'm currently using all 8-ports of the hub and could really use 3 more ports, so I might as well go for a 16 or 24-port switch which start at \$120.

Activating the second 100Mb NIC in the server and hanging the NAS directly off it (I guess I'd need a crossover cable to do that)

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might also help, but I doubt that it would reduce the backup from 19 hours back down to the 5 hours when I backup to the attached USB drive.

That leaves putting in a GIG NIC in the server and hood the NAS directly to that. I can get a GIG NIC for under \$30 and I understand that I can use CAT5e cable instead of the more expensive CAT6.

Any other ideas?

Brian

"David Barnes" <david at bitsolve dot com .nospam.ignore.net> wrote in message [news:%237gJ\\$3BCIHA.4176@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:%237gJ$3BCIHA.4176@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx)

Brian,
How's it panning out?
David

"Another Brian"
<notbrian@xxxxxxxxxxxxxxxxxx>
wrote in message
news:O%23vU4z3BIHA.1408@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx

It's a small white box with 8-ports located on its end behind a bunch of books with not enough slack wire to move it far enough to read any of its labels. Having just read the difference between a switch and a hub and realize that a switch is better. I'm

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heading up
on-site in a
few minutes
and will
take a look
even if I
have to
unplug
everything
to see what
it is
(everyone
should be
out to
lunch). If it
is a hub,
which I
suspect,
after lunch
maybe I'll
head over to
Fry's and
get a switch
with more
ports.

Brian
Bygland