

Re: Help requested with RIPv1 lan issues (UK school)

Source:

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From: andy (*andy_at_login2.net*)

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Date: Sat, 11 Dec 2004 20:09:24 -0000

"Ron Lowe" <ron-msng@{d.e.l.e.t.e.}lowe-family.me.uk> wrote in message news:OxZQZb33EHA.2804@TK2MSFTNGP15.phx.gbl...
> "andy" <andy@login2.net> wrote in message
> news:ehZlphx3EHA.3120@TK2MSFTNGP12.phx.gbl...
> > Hi,
> > I am looking for some guidance and comments on a issue we are seeing on
> > our
> > school network.
> >
> > Scenario: 9 servers, 3 DC's all Server 2003 standard or Enterprise. One
> > ISA
> > 2000 server, Exchange 2003 server, SMS 2003, MOM 2005. Full SP. 650 XP
Pro
> > clients some SP2 others SP1.
> >
> > Clients are grouped together in sets of 15 or 30 depending on room size,
> > each room is connected via a 100MB (cat 5e) switched network to a
gigabit
> > backbone (all fibre). We have two sites linked by Gigabit fibre. Our
core
> > switches are 3Com with DLink switches in the classrooms.
> >
> > We use addresses in the range 192.168.x.y on our network where x =
> > classroom
> > number and y=pc within the classroom, we have a persistent route
> > configured
> > on each client that points to the 192.168.2.0 subnet which is where our
> > servers live.
> >
> > Our servers have static routing entries to all our subnets.
> >
> >
> > We have suffered several network issues over the last three months:-
> >

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> > *AD replication issues, high packet loss, loss of mapped user drives.*
> >
> > *So we replaced our Allied Telesyn switches with new 3Com, replaced our*
> > *site*
> > *to site fibre and have had new links pulled in from the cabs to our*
server
> > *rooms.*
> >
> > *We rebuilt AD and the servers are replicating perfectly, however we*
still
> > *have odd students who fail to have their drive mapped at login or who*
> > *lose*
> > *access to their drive whilst logged in. There appears to be no pattern*
as
> > *this occurs at random. Logging out and logging back in always restores*
the
> > *users access to mapped drives. The event log on the clients indicate*
that
> > *the share is offline.*
> >
> > *So, I have been monitoring our LAN using Ethereal and I am seeing bursts*
> > *of*
> > *RIP v1 request traffic from our clients that cause our normal client to*
> > *server pings to rise from <4ms to around 170ms with the occasional*
> > *'request*
> > *timed out' occurring. Watching the wire it seems that each RIP request*
> > *lasts*
> > *around 3 or 4 seconds. Sometimes in the space of 1/2 hr we may see 4 or*
5
> > *clients making similar broadcasts, sometimes we see several clients*
making
> > *the same broadcast at the same time. We have no idea why some clients*
send
> > *the RIP request traffic and others don't.*
> >
> > *Could this be the cause of students losing their mapped drives by*
hogging
> > *the network? Do we need to setup RRAS on a server to deal with these*
> > *requests? or should we just disable RIP on the clients?*
> >
> > *Is there a easy way to disable RIP where it installed using group policy*
> > *or*
> > *similar without visiting each XP client?*
> >
> > *I did Google for answers and tried Usenet too. Any help is gratefully*
> > *received.*
> >
> > *Andy.*
> >
> >
> >

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> >
>
>
> *Hi, I hope you dont mind me butting in...*
>

That's why I posted!

> *Can we take a few steps back and look at your overall topology here?*
> *Either I don't understand your topology, or you've got an odd topology.*
>
> *Untill the underlying topology is working properly,*
> *we can't really look at higher-level issues.*
>
> *You describe a network where everything is connected together by switches.*
> *Is that correct?*
> *Yet then you go on to discuss RIP, static routes on clients etc.*
>
> *RIP and static routes etc are used in a routed network,*
> *to describe which routers connect to which subnets.*
> *A routed network requires routers to define the seperate subnets, and*
route
> *between them.*
>
> *Is that what you have?*
> *It doesn't sound like it.*
>

We have no routers (except the ISA box that routes to the Internet)

> *It sounds like you just have one large network (or 'broadcast domain'),*
> *hooked together with switches.*
> *You have then assigned IP addresses on different subnets on the same*
> *network.*
> *It sounds like you are trying to route on a non-routed network.*
>
> *It is possible (but not common practice) to have multiple IP subnets on*
> *one network,*
> *but you need to set up routing between them.*

We started out with all our servers & clients on the 192.168.2.0 subnet,
this was fine for about three years when we ran out of IP's

When we ran out of IP's we started using 192.168.roomnumber.clientnumber,
this was very useful for watching internet traffic, we could see immediatley
on screen which room and what computer in that room was browsing what sites.

This arrangement has worked well for a year or so. Recently we have added a
lot of new computer classrooms and we have about 30 subnets on one physical
network.

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- >
- > *How are you currently routing traffic from (say) 192.168.10.x to*
- > *192.168.2.x?*
- > *How is that IP forwarding working?*
- > *Do you have routers to do this?*
- > *You say you have static routes on the clients to the 192.168.2.x subnet.*
- > *And static routes on the server to the classes.*
- > *Can you describe exactly what these routes point to as gateways?*
- >

Ok station 7 in room 43 has a ip of 192.168.43.7 with a mask of 255.255.255.0 A persistent route is configured on the client using:–
route –p add 192.168.2.0 192.168.43.7 mask 255.255.255.0

our servers are on the 192.168.2.0 subnet. Say our File server is on 192.168.2.134 with a mask of 255.255.255.0 this has a route for each of the classrooms configured:–

```
route –p add 192.168.43.0 192.168.2.134 mask 255.255.255.0
route –p add 192.168.42.0 192.168.2.134 mask 255.255.255.0
```

- > *Once we understand the how the existing routing (or not) works (or not)*
- > *, then we can advise on how this ought to be set up.*
- >
- > *I'm probably going to end up telling you that:*
- >
- > *1) To do what you want, you need a router to handle each subnet.*
- > *If you want a seperate subnet per classroom, you need a router per*
- > *classroom.*
- > *(or a multi–ported router that can handle multiple subnets.)*
- >

We would prefer a subnet per classroom but we can't afford the cost of buying 30 odd routers. I guess we could add a second NIC to one machine per room and connect both to the same switch.

- > *2) Routes don't belong on the clients or servers, and you should not be*
- > *running RIP*
- > *on the clients or servers either (unless they are explicitly*
- > *functioning as routers) .*
- > *All routes should be statically (or dynamically) set on the routers.*
- > *The clients should only have one route, and that should be the Default*
- > *Gateway route*
- > *pointing at the router which handles the classroom.*
- >

Our network has evolved, training has only been secured this last year after the new kit went in. There are 4 of us of which 2 are part time to support a school network of 650 clients, 9 servers and a seperate admin server (NT4) and 30 clients. We provide classroom support, teacher support, wiring, tv &

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video, telephone support for over 100 staff and 1600 pupils. It sounds like we have got by with a less than ideal network configuration over the last 4 years or so.

> 3) *If you don't want to buy a bunch of routers, then you should stop trying*
> *to route.*
> *Accept the fact you don't have a routed network.*
> *Just set it up as such...*
>

I thought that since we had clients on different subnets that we had to have routes configured for them to communicate. It also appeared to work!

> *The easiest way would simply be to supernet the whole 192.168.x.x network.*
> *To do that, simply change the subnet mask on all the machines to 255.255.0.0*
> *Remove all static routes, and all RIP.*

We installed RIP when we were looking at moving away from static routes as they were getting unwieldy.

That sounds straightforward. Have we effectively been broadcasting all our network traffic? Our pings have always been very good except when our clients start broadcasting RIP v1 requests.

Wouldn't we have seen absolutely tons of broadcast traffic with ethereal?

> *Now , the machines are all on the 192.168.x.x single subnet.*
> *They will communicate by ARP on the local subnet across the switches.*
> *There is no routing to be done.*
>

I am now off to try this on a few virtual machines. Blimey setting routing entries has been our standard practice for 4 years now. I am embarrassed, a book on tcpip will be essential Christmas reading I think.

>
>
>
> --
> *Best Regards,*
> *Ron Lowe*
> *MS-MVP Windows Networking*
>
>

Thank you Ron. I will post back the results of our change over to supernetting!

Andy.

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