Cable modem/router causes error 10054, "Connection was forcibly reset by remote host"

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We have an application where we control both ends of a TCP connection, with both server and client written in C#. Once sockets are created we expect them to remain alive for hours on end. We have success for all sites except the one that uses a cable modem/router. What happens at this site is quite simple. If there is no activity on the socket for five minutes, the next time our application attempts to communicate over the socket, the socket is discovered by our application to be invalid, and our application then issues the reset exception 10054. We have examined Netmon logs and have found that no resets are issued by our server or anything else visible on the wire. The first sign of the problem in the logs is when our app tries to make contact with our server, which fails after five send retries.

And it happens not only with our server or our application. We found the same to be true with an FTP client accessing an FTP site totally unrelated to our server. After five minutes, the FTP client, like our application client, made five unsuccessful attempts to use its existing connection, then successfully re−initialized a new connection.

The cable connection itself does not die. In other words, the internet access remains uninterrupted. For that reason, attempts to re−establish the connection (by initializing new sockets) always succeed. Our application can always reconnect.

The problem exists only when a router sits between the cable modem and the end user's machine. Without a router involved, that is, when the modem is connected directly to a single computer, the problem does not occur. Replacing the router with a different router, even a different brand of router, such as LinkSys does not help.

Our application does not have this problem with clients using DSL, ISDN, T1, or even dailup, or even when lots of packets are being lost. It's just this one site using a cable ISP where the problem is.

So here are my questions:

1. Does a cable modem know when it is dealing with a router rather than a user's computer and behave differently toward the one than the other?

2. Does the cable company central office router know when one of its modems is dealing with a router (as opposed to a single computer) and behave differently if it is?

3. Have any of you ever experienced this?

This is developing into something ugly between us, the cable company, and our client. The cable company blames us. They insist that their connections never die and that nothing in their system would cause the behavior we are seeing. And they are threatening to bill us for all the time they spent with this client prior to our intensive research and involvement this weekend. What they did not do was run Netmon or NetStat, as did we.

Thanks for any help,

Randy Neall