

Multiple Stream Protocols, eBooks, And You.



Don MacVittie, 2012-01-03

EBook readers are an astounding thing, if you really stop and think about it. Prior to their creation, how could you reasonably have hundreds or thousands of books in one place, all the notes you took and highlighting you wanted to do, and your current page in each book all stored together in one easy to use place? We have a room that is a library. It has shelf upon shelf of books. We have other bookshelves throughout our house with more books. And do you think where you last left off in those books is remembered? Sure, some of them will retain bookmarks, but not automatically, you have to take steps to put the bookmark physically into the book and then hope that no one else messes with it. [Lori](#) and I have *very* similar tastes in reading, and we share almost 100% of the books in the house, which means inevitably someone's page or a quote marker or something gets lost. Not with eBooks. We use Kindles, and all the books I read show up in her archive to read, all the books she reads show up in mine. My notes are mine, her notes are hers. All at the same time. No confusion at all.



The revolution in reading that eBook readers have enabled is not on the "uber-fast" pace that I would have expected, just because of the cost of entry. Buy a book to read today for \$8 USD, or scrounge \$100 to \$500 USD to purchase a reader? For lots of people tight on cash, there is no choice there. The big-name publishers themselves haven't helped any either. I'm not going to pay book price for a book I already own, just for the right to put it on my eReader, I'll just pick up the paper copy, thanks. But it's still moving along at a rapid pace because demand for one small tablet device to contain tons of books was unknown until it was real, but now that it's real, demand is growing.

The same is true for stream protocols. That is protocols that bundle streams together into a single connection. From Java to VDI, these protocols are growing because they encapsulate the entire communications thread and can optimize strictly based upon whatever it is they're transporting. In the case of Amazon's SPDY or VDI, they're transporting an awful lot, and often in two-way communications. And yet, like eBook readers, technology has come far enough that they do so pretty darned well. The real difference between these protocols and TCP or HTTP is that they allow multiple message streams within a single connection. Always remembering where each is, detecting lost data and which streams it impacts... Much like an eBook remembering your notes.

One corner of our library



And they're growing in popularity. For Virtual Desktop Infrastructure, shared protocols are standard. For Amazon, SPDY capability is assumed on the server (or SPDY wouldn't be an option), though it won't be used if the client can't support it. For Java, support of the IETF Stream Control Transmission Protocol (SCTP) is completely optional... For the developer. Since these protocols don't impact the end user in any noticeable way, they will continue to gain popularity to multiplex several related functions over a single connection.

And you should be aware of that, because if you do any load balancing or own any tool that uses packet inspection for anything, you'll want to check with your vendor about what they do/intend to support. It's passingly difficult, for example, to load balance SPDY unless the load balancer has special features to do so. The reason is simple, the current world of TCP and HTTP has a source and a target, but under SPDY you have a source and targets. If your device doesn't know how to crack open SPDY and see what it's trying to do, the device can't very well route it to the best server to handle the request.

That is true of all of the multiple stream protocols, and as they gain in popularity, or when you start supporting one on your servers, you'll want to make sure your infrastructure can deal with them intelligently. Much like back seven or so years ago, when content based routing hit the "what about encryption?" snag, you will see similar issues pop up with these protocols. If you're using QoS functionality, for example, what if you limited video bandwidth to make certain your remote backup could complete in a timely manner, but users are streaming video over SPDY? How do you account for that without limiting all of SPDY? Well you don't, unless your device is smart enough to handle the protocol. That doesn't even touch the potential for prioritization that SPDY allows... If your device can parse it.

My Kindle currently holds more books than those shelves.

So pay attention to what's happening in the space – when you have time – and perk up your ears for the impact on your infrastructure if someone wants to bring a product in-house that utilizes one of these protocols. They're very cool, but don't get caught unaware. Of course now that I've equated them to eBook readers, perhaps you'll think of them whenever you read 😊. And just like my kindle holds as many books as we have in our large library (my Kindle is around 500 right now, no idea how many are in the library, but 500 is a big number), those Multiple Stream Protocols could hold more connections than your other servers are seeing.

On the bright side, at least today, IT has to make a positive decision to use a product that requires these protocols, so you'll get a chance to do some homework.

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