

3 Mbps is perfect... for surfing the web!!!

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As a general rule, we really do not need last-mile Internet access with a bandwidth of 1 gigabit per second (Gbps) or even 100 megabits per second (Mbps), because most digital services (websites) transmit their data at very much lower bandwidths, often just a few Mbps, some at even less. Of course, some services, such as those delivering full-high-definition (FHD) streamed video, often referred to as 1080p, need higher bandwidths, but still only a very modest 6 Mbps. Whilst standard-definition (SD) streamed video, often referred to as 480p, needs much less, only 1.5 Mbps.

So, AT&T's latest pre-paid mobile offering, announced on 11th March 2017, called GoPhone Unlimited, that offers unlimited talk, text, and data, and has a bandwidth of just 3 Mbps, should be more than sufficient for most typical mobile use-cases. Sceptical? Don't just take my word for it, read what AT&T's had to say on the subject in its press-release for the new service, here:

http://about.att.com/story/att_gophone_offers_unlimited_data.html

It is a fairly normal press-release in most respects. It does, however, contain a rather eye-opening statement. One that I would never have expected to see coming from any Internet Service Provider (ISP) or Telecommunications Service Provider (TSP), and which I have highlighted below:

*“AT&T GoPhone Unlimited customers will get unlimited talk, text and data, with a max speed of 3Mbps. **The plan is perfect for surfing the web, keeping up with your friends on social [media] and streaming standard definition (about 480p) video at a max of 1.5Mbps.** Plus, you’ll never incur overage charges. AT&T will temporarily slow data on a line during a plan cycle after 22GB of usage during periods of network congestion.”*
(Source: AT&T)

This is the first time, that I am aware of, certainly in recent history, that a major ISP or TSP has openly admitted that you really only need a bandwidth of a few Mbps in order to have an acceptable (perfect, in their words) Internet access experience. Something that strongly suggests that for most use-cases having a higher bandwidth is really not going to make a big difference. **This is HUGE news!** Why? Because the general public has been told for years that acceptable Internet access can only be achieved with increasingly-high bandwidths, of tens or even hundreds of Mbps. Bandwidths that are often only available at increasingly-high price points, and to the exclusion of what should be far more affordable lower bandwidth offerings. Those of us that actually understand how the Internet works have known for years that very-high bandwidths are not the panacea that ISP and TSP marketing departments would have you believe. AT&T’s press-release finally brings that important fact out into the cold light of day. Perhaps, in years to come, we will look back on this press-release and see it for what it really is, an inflection point. The moment at which we finally stopped focusing on something that we do not really need, increasingly-high bandwidths, and started to focus on something that we really do need, unlimited data.

BTW: There is really no such thing as ‘unlimited data’, as I explained in my essay on Why Our Digital Future Needs Unlimited Data, so, I generally use the phrase ‘effectively unlimited data’ instead.

So, is this new 3 Mbps service from AT&T really ‘perfect’ or does it fall short in some way? Well, the new service is an unlimited (unmetered) service that does not impose a monthly data-download allowance, or data-cap. However, only 22 gigabytes (GB) of data can be downloaded at a ‘guaranteed’ bandwidth of 3 Mbps. AT&T says that any data downloaded beyond 22 GB may be temporarily slowed (by unspecified amounts) if its network (in your locale) is congested. So, you could consider this particular service to have a soft data-cap, after which, dependent on network congestion, surfing the web and keeping up with your friends on social media MIGHT become unpredictably slow.

If a customer was able to continuously download data using this service at a bandwidth of 3 Mbps for a whole 31-day month then that would equate to a very generous total of 1,004 GB of downloaded data. However, if the bandwidth was reduced to, say, 128 kilobits per second (Kbps), due to continuous network congestion, after reaching the 22 GB soft data-cap, then the total amount of data that could be downloaded over this same period would be just 63.9 GB. Of course, this would likely represent a worse-case scenario, as we do not know for sure what the reduced bandwidth would actually be,

and it is highly unlikely that AT&T's network (in your locale) will be continuously congested for the better part of a month. Now, 63.9 GB is quite a lot of data to consume over a mobile Internet connection, and is probably much more than most people would typically consume over a one month period, but it is, of course, much less than the theoretical maximum of 1,004 GB that could be downloaded at a constant bandwidth of 3 Mbps. I suspect that in practice you will be able to download, on average, something in between these extremes, say, 534 GB. Of course, if AT&T's network is never congested in your locale then you might even get the full 1,004 GB.

To actually hit the soft data-cap, by downloading 22 GB of data at a constant bandwidth of 3 Mbps, would take 16.3 hours, which equates to just over 30 minutes of Internet use per day over a 31-day month. If the 22 GB soft data-cap was solely used to watch SD steamed video delivered at a bandwidth of 1.5 Mbps then it would be possible to watch just over 32 hours of such video, which equates to just over 1 hour of video per day over a 31-day month. Now, 30 minutes per day of web surfing at 3 Mbps or 1 hour per day watching SD steamed video at 1.5 Mbps, really does not sound like it would be very much fun. However, going back to the point that I made at the start of this essay, which was that most digital services only send out their data at very low bandwidths, being able to access such services using an Internet link with a bandwidth of no more than 3 Mbps is going to be more than sufficient to achieve a minimally-acceptable user experience for most, if not all, of a month. For example, many web pages are less than one megabyte in size and will appear within a few seconds even when accessed at a bandwidth of just 3 Mbps, and the 22 GB soft data-cap would be sufficient to view more than 22,000 web pages. Many popular instant messaging services consume only a few hundred bytes of data per message, allowing messages to be exchanged almost instantly even when communicated at a bandwidth of just 3 Mbps, and the 22 GB soft data-cap would be sufficient to exchange hundreds of thousands of messages. Many videos will play smoothly even when streamed at a bandwidth of just 3 Mbps, and the 22 GB soft data-cap would be sufficient to watch several hundred short videos.

So, whilst AT&T's new GoPhone Unlimited service is probably very far from being 'perfect', it is definitely a step in the right direction; sensibly trading high bandwidth for 'effectively' unlimited data. If you are a light to moderate Internet user then such a service would appear to be, on the surface at least, very reasonable. Good-enough for many things. It should be noted, however, that some types of digital service might feel exceptionally slow, which is something that some people might find wholly unacceptable, particularly if they use such services regularly. On the whole, the GoPhone Unlimited service offers a bandwidth and soft data-cap that appear to be collectively sufficient to surf the web, keep up with your friends on social media, and to stream SD videos, just as long as you don't do all those things at 3 Mbps for more than 30 minutes per day over a 31-day month. If you are more of a video-junky then this new service can keep you entertained for up to an hour per day over the same period. However, if you exceed the 22 GB soft data-cap then the service MIGHT start to feel somewhat

unpredictable, as the bandwidth of your Internet connection can be slowed (by unspecified amounts) whenever AT&T experiences network congestion in your locale.

As to whether or not AT&T's new service represents good value for money can only be determined by comparing it to the other 'unlimited' mobile service offerings currently available in the market. Many TSPs started to offer competitively priced 'unlimited' mobile services starting in February 2017. All of which were extensively reported in the technology press at that time, so I will not attempt to include a comparison of the features and prices of those services here. What I will say is that some of those services are cheaper than others, some include zero-rated high-definition streamed video, some have higher soft data-caps, some may have higher bandwidths after the soft data-cap limit has been reached, and some have better national coverage than others. None are what I would call 'perfect', and choosing any 'unlimited' Internet service is still very much a game of swings and roundabouts. *Please see my essay on Zero-rating: Short-Term Evil, Long-Term Good? for more information on zero-rated services.*

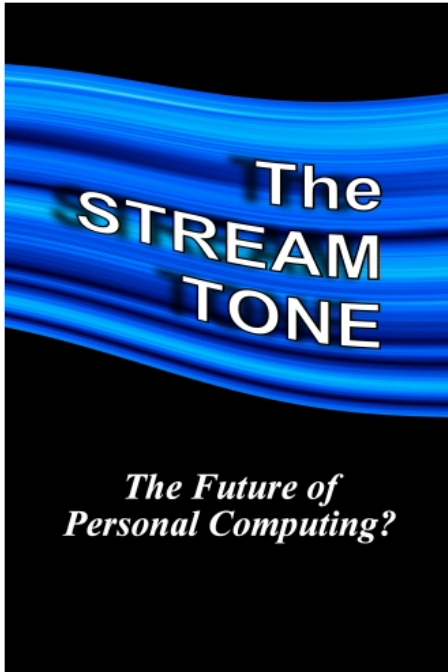
What would definitely make this service more 'perfect' would be if it did not impose a soft data-cap, and allowed you to use its very modest 3 Mbps bandwidth on a wholly unrestricted basis for 24 hours per day, 7 days per week, 31 days per month. We can only hope that such an improvement will arrive in the very near future.

Now, do not get me wrong here, I am definitely not trying to sell you on AT&T's new GoPhone Unlimited service. I am simply using it as a convenient vehicle to discuss the subject of low-bandwidth Internet access. As I previously mentioned, the most noteworthy aspect of AT&T's launch of its GoPhone Unlimited service was not, in my opinion, the service itself, but its eye-opening press-release, which stated, possibly for the first time in recent history, that an Internet access service with a bandwidth of just 3 Mbps "...is perfect for surfing the web, keeping up with your friends on social [media] and streaming standard definition (about 480p) video at a max of 1.5Mbps". In an age when most Internet access services commonly offer bandwidths of hundreds of Mbps, even over mobile (wireless) Internet connections, this simple statement is nothing less than extraordinary. It literally turns our commonly held understanding of what a good Internet access service should offer, whether wired or wireless (mobile), on its head. I really cannot emphasise the importance of their statement more.

The recent trend towards 'effectively' unlimited data (unmetered Internet access) is a very positive development; one that I hope will become a permanent fixture of the ISP and TSP industries moving forward. Next-generation communications, starting with Fifth-Generation Mobile Communications (5G), are expected to be highly affordable, high bandwidth, low latency, highly reliable, and ubiquitously available. Unprecedented capabilities that will, collectively, allow the ISP & TSP industries to more easily offer affordable Internet access with the characteristics that we really need; namely modest bandwidths and 'effectively' unlimited data.

The STREAM TONE: *The Future of Personal Computing?*

Author: T. Gilling | eBook: ISBN 978-1-78462-792-8 | Paperback: ISBN 978-1-78462-081-3 | Hardback: ISBN 978-1-78462-086-8



Imagine... a world where your next personal computing device is the last one that you would ever need to buy. Where you would never need to worry about operating systems, software patches, or viruses. Where you always had enough processing power, memory, storage, and top-of-the-line graphics. Where you could access all of the very best software applications, regardless of their platform. Where you had a constant connection to all your favourite digital services, and your battery lasted for days, perhaps even weeks, of full-on use. Sounds good, doesn't it? Well, this is the world of the Stream Tone. A world that does not exist in some far off future; this could be, figuratively speaking, our world a mere five minutes from now. All that is needed to make it a reality is the creative convergence of certain technologies that are already available and in use today.

The STREAM TONE: *The Future of Personal Computing?*

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Personal computing is changing from an old world of local services, provided by local devices, to a new world of remote Web-based services, provided by cloud computing-based data centres. **The STREAM TONE: *The Future of Personal Computing?*** is a 408-page academically-oriented non-fiction book that explores, in considerable technical detail, what might be required to make a comprehensive move to this exciting new world, and the many benefits that move could bring. This book not only attempts to make a thorough evaluation of the technology ecosystem that will be required to create this future but also considers many of the implications of such a move. Along the way, it also discusses a wide range of currently-available technologies and how they could possibly be used to enable this future.

Supporting materials (errata, hyperlink-extract, etc.) now available

For further information please visit: www.TheStreamTone.com

