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Subject: The Sunday Brief: Data Rations For You!
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Greetings from Kansas City, where today is Boy Scout camp visitation day so the SB is going out a bit early (and our "Five You May Have Missed" might omit the latest news).

Thanks for all of the e-mail (and website) referrals – our website hits were up about 25% this week from the year-to-date average, and I think the [RCR Wireless article](#) ran pretty hot on Tuesday (this article solely focuses on the Google social election point from last week's article). Lots of new requests to be on this email, and we're adding them as quickly as we can.

This week's article deals with a hot topic – **bandwidth buckets**, or, as Craig Moffett from Sanford Bernstein terms, "data rationing." The concept of rationing is very hard to stomach in today's telecom world because it's viewed as a step back, a "takeaway" from the days of unlimited data, but "bucket of minutes" pricing has been around since the early days of wireless. Minutes, however, in a traditional circuit switched environment are subject to the design of telephony switches: because there is limited capacity to connect any two end points, market prices keep usage to a minimum during peak hours. Anytime minute pricing (e.g., 900 anytime minutes for \$59.99) is a form of rationing – go over the limit, and you'll pay an extra fee.

This capacity restriction does not exist with data, however, in the same manner. Our ability to connect to Pandora should be limited only by spectrum capacity, and, should there be an excessive surge of traffic, we might experience a slow-down at a very busy spot (e.g., a sporting venue). After we get past the wireless tower, the engineering is exactly the same as it would be from a large enterprise or small data center. Finding the most efficient way to connect to large content providers is no easy task, but, as AT&T's announcement with Zynga last week showed, it could become a differentiator.

The economics of wireless data traffic are as follows:

- a) Spectrum
- b) Electronics
- c) Tower (allocated)
- d) Backhaul and Access (allocated)
- e) IP Routing costs (allocated)

As bandwidth increases from any particular tower, the cost per MB/ GB plummets. Fiber economics tend to be better for each carrier once bandwidth levels justify a second high speed circuit. Combine the effects of several carriers from a particular tower, and you can see why cable, telco, and independent fiber companies are smiling. Also, upgrading to fiber at a particular tower dramatically increases the quality of the circuit (vs. older copper), reducing maintenance expenses and increasing customer satisfaction.

AT&T, Sprint, and Verizon all operate Tier 1 IP backbones, meaning that their connection costs are lower (sometimes only slightly) than the Tier 2 providers. T-Mobile routes through a couple of well-known Tier 1 backbone providers, and, given their scale, their IP costs aren't significantly higher than the Tier 1 group. But, as we have seen with cable company gross margins, the IP routing costs are low so long as the IP network has optimized their ingress and egress points.

With that as a backdrop, let's look at the current Yield and Cost picture in a data rationed world:

The Sunday Brief									
Data Rationing Analysis									
	MEGABYTES				GIGABYTES				
Carrier/ Type of Phone	75	100	200	300	1GB	2GB	4GB	5GB	10GB
Feature Phones - VZ	\$10								
Smartphones - VZ						\$30		\$50	\$80
Smartphones - AT&T			\$15			\$25	\$45	\$55	\$105
<i>NOTE: AT&T Feature Phones (e.g., Pantech Breeze II) can purchase unlimited data for \$15</i>									
MB per GB	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024	1,024
Total MB	75	100	200	300	1,024	2,048	4,096	5,120	10,240
Yield per MB - VZ	\$ 0.133					\$ 0.015		\$ 0.010	\$ 0.008
Yield per MB - AT&T			\$ 0.075			\$ 0.012	\$ 0.011	\$ 0.011	\$ 0.010
Yield per GB - VZ	\$136.53					\$ 15.00		\$ 10.00	\$ 8.00
Yield per GB - AT&T			\$ 76.80			\$ 12.50	\$ 11.25	\$ 11.00	\$ 10.50
Cost per GB - VZ, AT&T	\$ 6.00		\$ 6.00			\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00
Gross margin % - VZ	96%					60%		40%	25%
Gross Margin % - AT&T			92%			52%	47%	45%	43%

As we discussed when Verizon introduced the mandatory \$10 data rate on all but their most basic feature phones last year, the comparable yield per gigabyte on these plans is significantly higher than the Tablet product (and, outside of the minor difference in electronics cost structures between 3G and 2G data, the “from the tower” IP costs are exactly the same). Better yet, name me one person who is going to frequently browse from one these devices (at least for long). The result: a median yield on the 75MB plan is likely 5x higher than that shown above (a 100% utilized yield), somewhere in the neighborhood of 60-70 cents per MB (!). To use an old telco term, this is the equivalent to the “casual call” product in the old telephone world, and a source of disproportionate profit growth over the past 18 months for those customers who didn’t make the switch to smartphones.

AT&T has a similarly yielding product, offering 200MB of data usage for \$15. Nice price point, but the customer service transition over the past year has been very difficult as AT&T has seen an increase in customer service calls. Interestingly, in my last store experience, they completely skipped the \$15 offer after a few questions. “Do you have a lot of applications?” the store clerk asked me, thumbing through the 35 or so we have on our Mobile Symmetry test device. “Sure do,” I replied. “Do you spend a lot of time within a wi-fi zone?” “Not really, I use this around town a lot,” I replied. She paused, and, with a serious look, replied “Because one applications upgrade can blow your entire data limit.”

Frankly, the thought of using AT&T’s network didn’t even occur to me because I use wi-fi as much as possible with the iPhone. Not because I want to, but because so many applications require me to be in a wi-fi zone (FaceTime and Skype video being the most prevalent wi-fi only products). Apple has trained me to think about my network and its tie to applications availability – that’s not good for the carriers. But they (**who??**) economically benefit from it.

At the high end, Verizon makes another bet, this time on a telecom term called “breakage.” At \$80 for 10GB per month, you have to have a lot of video and streaming music usage to even get close. Even with a tethered product (or a Hotspot, which carries an extra charge), the carriers bet that you won’t use exactly 10 gigabytes of usage. To use 10GB, you would need to have about 1 hour of streaming video each day as well as 8 hours or so of Pandora – not impossible with a long commute, but definitely not the norm.

So Verizon bets that you’ll use 8 gigabytes some months (which yields a 50% gross margin), and others you’ll use even less. The problem is that as applications become optimized for 4G devices, they will likely attempt to use as much bandwidth as possible to ensure the highest quality experience for the application. Give Skype and Facebook time, and that LG Revolution, HTC Thunderbolt, or HTC Charge will display the quality that a 12-15 Mbps download can deliver. Think of it like YouTube, but always on the 480p (or higher) setting.

Enough about the profit margins – unlimited *had* to end, because more than a few customers were challenging the profit thresholds of the two largest carriers. Or did it have to end this way – a rationed world? I posed this question to several of

you in preparation for this article, and was surprised to see how many of you said “no.” As one Sunday Brief regular who works for a wireless carrier so briefly said, “It’s a few applications driving the larger volumes. Charge the applications providers for using the wireless data.”

Would a surcharge per application be a better solution? Specifically, would a surcharge on Micro-Skype-Qik -Facebook, Netflix, Google or others be able to stand both a regulatory and a market test? Isn’t rationing easier than a “guzzler tax?” While the billing infrastructure is in place, I cannot imagine the customer service nightmare this would present for the carriers. My Netflix bill went from \$8/ month to \$80 because of bandwidth charges – who’s neck to I choke?

While a “data access” charge sounds good, anyone who has been through the nuances of switched access charges knows that the disputes and settlements are very complex. It would likely lead to more costs for carriers and providers like Netflix, not less.

So we are left with rations, a byproduct of a regulatory system that would not allow the carriers to think about a “premium lane” for “premium apps.” It’s time to re-think net neutrality. It’s time to re-think voice plans as a smaller percentage of wireless users approach their 450 or 900 minute anytime plans. It’s time to re-think texting vs. in-application messaging. It’s time to re-think separate Hot Spot and smartphone data plans (as AT&T did with the iPhone). And it’s really time to re-think the effects of an increasingly wi-fi dependent society on the carriers’ brands. Until then, it’s a capped world with limited possibilities.



Now for 5 you may have missed:

1. To see how bad on campus (wired) rationing has become, read [this quip from the University of Texas](#). Weekly rations – no kidding!
2. Providing you with more of an international perspective, have a look at [India’s monthly wireless growth](#) – 13.4 million users. 10-15x the growth rate in the US.
3. Will the real Lady Gaga please (virtually) stand up? [Google + creates celebrity identification issues](#).
4. The latest report on how few phone lines will exist in 2018 can be found in this dsreports.com article [here](#). Our government hard at work.
5. A setback for the AT&T/ T-Mobile approval timetable? [The FCC’s Anti-trust chief resigns](#). Story from Fierce Wireless.

And one: Mark Cuban narrates his wild and crazy college days and inadvertently leaks to the masses because he didn’t know how to use the Google + settings (caution – these were really wild and crazy days). [The story courtesy of Google + and Deadspin](#). (Glad we didn’t have this when a certain NY Rep was in office...)

Have a terrific week, and don’t forget to invite a friend to [try](#) Mobile Symmetry!

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