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An emerging new business model for wireless service – "Bring Your Own Device"

Back in the 1980s when cellular was in its infancy, when cell phone weights were stated in pounds rather than ounces and when most came with automobiles attached to them, the full retail price of these early handsets ran upwards of \$1,000; even more for what passed for "portable" units that needed to be hauled around in a small suitcase.

To make matters worse, just a few years earlier in its so-called *Computer Inquiry II* ruling, the FCC prohibited carriers from bundling customer premises equipment (CPE) with telephone service, so that the only means by which the carriers could place cellphones in the hands of potential customers was to "sell" the phones to them. But as the newly minted wireless carriers quickly discovered, at \$1,000 to \$2,000 a pop, the price of a cellphone presented a formidable – seemingly insurmountable – barrier to widespread consumer acceptance of this new technology. The carriers' solution was to offer these expensive devices for sale to their customers at prices that were set well below the carriers' costs. The cost of these "handset subsidies" would then be recovered by setting monthly cellular access and per-minute airtime usage rates well in excess of the carriers' costs for fulfilling these functions.

This approach to pricing was hardly a novel concept – Polaroid had used it, pricing cameras below their cost and making up the shortfall through the sale of film; Gillette had used this approach for razors and blades, and more recently, inkjet printer manufacturers like HP and Epson have adopted a pricing model whereby they lose money on the selling price of their printers but make it up by setting highly profitable prices for ink. The economic theory underlying this so-called "platform pricing" strategy is fairly straightforward: The consumer must purchase the "platform" product – the Polaroid camera, the razor, the inkjet printer, the cellphone – as a threshold to purchasing the dependent product or service – the film, the razorblade, the ink cartridge, or wireless usage. Since the purchases of the platform product and the dependent product are necessarily sequential, one needs to get the platform product into the hands of consumers as a precondition for creating any derived demand for the dependent product.

This type of pricing strategy, however, does have several serious pitfalls. First, the provider needs to be reasonably assured that profits generated from sales of the dependent product will be sufficient to permit it to recover the subsidy of the platform product, at least in the aggregate if not from each and every individual customer. Which in turn requires that the provider of the platform product be in a position

to exert sufficient control over the market for the dependent product so as to prevent the customer from acquiring that dependent product from another source, one that would not need to set its price so as to recover the initial platform subsidy. In many cases, this control is acquired via patent – Polaroid cameras would only work with Polaroid film – or by some other device to foreclose "leakage" – the purchase of the dependent product from another source at a lower price, one that does not include the recovery of the initial platform subsidy.

Platform-type pricing requires only that, in aggregate, the platform subsidy be recovered through profits derived from sales of the dependent product. As long as enough customers purchase enough ink cartridges, the printer manufacturer can recover the shortfall in printer prices, even though some customers individually may not ever buy enough ink to recover the manufacturer's loss resulting from that particular customer's printer purchase. Initially, wireless carriers had adopted a similar approach – i.e., looking only to the profitability of their pricing model in aggregate, not with respect to each individual customer.

But around a dozen years ago, the major wireless carriers modified their pricing model by adopting measures aimed both at limiting their customers' ability to take the (subsidized) handset to a competing wireless carrier for service – a capability that the FCC had affirmatively sought to facilitate when, in 2003 and after years of wrangling over the details, it finally required that wireless telephone numbers be made "portable" so that customers could change their service provider without being forced also to change their wireless phone number. The first of these two measures was accomplished through a software "lock" that was programmed into the operating system of the handset itself. The "lock" prevented the customer from activating wireless service on a carrier network other than the one from which the handset had been purchased (the handset could still be used for roaming on another carriers' networks). The second approach was to require that customers enter into a contract, whose effect was to force the customer to retain service for a specified period of time – typically two years – or be subject to an early termination fee (ETF) if the service is discontinued prior to the completion of the contract term.

Handset locking and term contracts with early termination fees are, to be sure, something of a "belt and suspenders" strategy, and have not been without controversy – particularly when, by the mid-2000s, the wholesale prices of many wireless handsets had dropped to the \$50 to \$100 range. From the standpoint of an individual purchaser of wireless service, the dollar value of the handset "subsidy" was often overwhelmed by the huge markup on the

monthly recurring access charges and the various voice, text and data usage rates to which the customer was subject long after the “subsidy” had been fully recovered by the carrier. This point was compellingly demonstrated in testimony by ETI’s President Dr. Lee Selwyn at an FCC *en banc* hearing held in June of 2008 on the subject of wireless early termination fees.

Dr. Selwyn provided the FCC with evidence adduced at trial in a class action lawsuit against Sprint that had been presented to the jury a few days before the FCC hearing. That evidence indicated that Sprint bases its revenue forecasts on the assumption that customers will remain on the Sprint network for an average of 60 months. This is an average customer life – some will terminate early, others will remain on the network for well beyond the 60 month average. Based upon this 60-month customer life and using Sprint cost and revenue data for 1999-2005, Dr. Selwyn provided the following analysis of the costs, resulting gross revenues, and gross profit margin being realized as a result of Sprint’s platform pricing model:

Weighted monthly Average Revenue per Unit (ARPU) over the period 1999-2005	\$ 61.09
Average customer length of service (Sprint assumption)	60 months
Revenue per customer over 60-month average life	\$3,665.61
Weighted Average Cost per Gross Addition (CPGA) including marketing and handset subsidies (2000-2005)	\$357.40
Gross profit per customer net of CPGA	\$3,308.21
CPGA as % of Lifetime Revenue per Customer	9.75%

Several key conclusions can be drawn from this analysis, all of which lead to the inevitable conclusion that customers are paying many multiples of the “handset subsidy” they receive (if indeed there is any subsidy at all) over the life of their relationship with the wireless service provider:

- While the recurring and usage rate levels may be designed to permit recovery of the handset subsidy, having established the customer’s willingness-to-pay at that price point, the subsidy-recovering rates remain in effect even after the full amount of the subsidy has been recovered by the carrier which, in Sprint’s case, was after only about seven months..
- When viewed in terms of the *lifetime cost* of the wireless service, customers are forced to pay far more for their handsets than they would if handsets were fully unbundled from wireless service.
- From the carriers’ perspective, the practice of subsidizing handsets and overpricing access, usage, and overage fees is highly profitable in aggregate, and does not require either handset locking or contracts with early termination fees.

Unbundling handsets from wireless service

Several months ago (VIEWS AND NEWS, August 2012) we reported that certain smaller wireless service providers – which had not cut a

deal with Apple to market the iPhone – were offering unsubsidized or “bring your own” iPhone pricing plans at substantially lower recurring monthly rates when compared with the bundled iPhone and service plans being offered by AT&T and Verizon. At identical (subsidized) iPhone prices of \$199 and recurring service prices of \$110 per month with a two-year contract, the total price for an iPhone 4S plus two years of service from each of the “big 2” carriers was \$2,839. At the other extreme, Virgin Mobile, which resells Sprint wireless service under an MVNO (“Mobile Virtual Network Operator”) arrangement, is offering the iPhone 4S at its full and unsubsidized \$649 retail price, but is charging only \$35 per month for service (and is requiring no contract). Over a two-year period, a Virgin customer would have paid only \$1,489, a savings of more than \$1,300 over the AT&T or Verizon price points. Put differently, the AT&T or Verizon customer will have paid roughly *triple* the \$649 full retail price for an iPhone 4S in exchange for the \$450 up-front subsidy that the “big 2” carriers offer. If one thinks of the handset subsidy (\$450) as the principal to be financed through an instalment purchase and the additional monthly charge (\$75) as the monthly payment, that works out to an effective simple annual interest rate of roughly 195%! Obviously, unless one is sorely strapped for cash, this deal is perhaps one of the most costly consumer finance charge arrangements that exists anywhere, one that would put Slick Louie the loanshark to shame.

Are handset subsidies still necessary?

The major wireless carriers maintain their platform pricing and subsidized handset pricing strategies because they are highly profitable, not necessarily because the subsidies are still needed to attract customers. Indeed, there is compelling evidence that such subsidies are *no longer required* in what has become a highly-mature wireless market.

Wireless phones are as ubiquitous today as wireline phones were a decade or more ago, and in fact there are nearly three times as many wireless phones as wireline phones now in use in the US. Consumers have demonstrated a willingness to pay full price for communications devices capable of accessing the Internet – from desktop computers and laptops of the past decade to the hottest new tablets. Indeed, while both AT&T and Verizon offer wireless data service specifically for iPads and even sell iPads in their retail stores, neither company subsidizes the iPad purchase or requires a contract for iPad wireless data service. Apple recently reported having sold more than 100-million iPads.

Smaller wireless MVNOs have already rolled out BYOD trials. Ting, an MVNO reselling Sprint service, will activate customer-owned Sprint-compatible devices on its network for just \$6/month without an activation fee or term contract. Users pay only for the usage they actually generate, and are moved up and down the Ting usage tiers without penalty. If a customer activates more than one device on the same account, each device shares the pool of minutes, texts, and data. Such plans result in substantially lower monthly costs for wireless users when compared to AT&T and Verizon.

Will the larger carriers be pressured by competitors like Ting, Cricket and Virgin to offer unbundled BYOD pricing? That depends upon how successful the smaller providers are in convincing customers that they need to look to lifetime price rather than just up-front payment. But as the smartphone and tablet markets converge – smartphones are getting larger while tablets are getting smaller –

the carriers may confront pressure from their own treatment of tablets to adopt BYOD pricing options across all of their services.

BYOD creates an exciting new approach for enterprise customers to negotiate bulk purchases of wireless service

The movement away from wireless pricing in which handsets and services are bundled to unbundled, service-only, “bring your own handset” pricing brings with it exciting new opportunities for larger business/government/institutional customers to revise their strategies for negotiating large volume purchases of wireless service. As it stands today, even the largest businesses typically purchase wireless service in much the same way that individual consumers do, where each phone has its own plan, contract, and bucket of minutes, text messages, and data. Despite the fact that a major corporate or government customer might be using tens or hundreds of thousands of wireless devices, their wireless services are often managed and maintained as individual or relatively small departmental accounts. This arrangement means that such large organizations have effectively dissipated much of their potential market clout, and thus are not in a position to engage in substantive negotiations to secure favorable wholesale-level pricing directly from handset manufacturers or wireless carriers for discounted bulk minutes or data. These institutional buyers often even suffer the indignity of paying one-off early termination fees on individual handsets if they close the account of a departing employee.

Until recently, large businesses had little choice – these single accounts were their only option. Now, the concept of BYOD – bring your own device – (although typically used to describe an individual consumer bringing her own device, see accompanying article) presents an opportunity to revolutionize the way enterprise and government entities negotiate and purchase wireless service. Instead of buying numerous individual plans, these customers would negotiate directly with Samsung, Apple, and Motorola for handsets, and then negotiate with wireless carriers just for service. Much like an MVNO that contracts to buy and resell bulk service from a carrier, large enterprise customers can similarly formulate purchasing models whereby they purchase minutes and megabytes by the millions to be used by all employees, without the hassle—and markups—of individual accounts – much as these same companies have been doing for years when purchasing *wireline* telecommunications services.

Although administrating such an in-house program may present its own challenges, it is not at all clear that the administration of thousands of

individual accounts would actually involve any less effort. And the cost savings and technological benefits would be enormous.

Buying handsets directly from manufactures would allow businesses, rather than the carriers, to be involved in the specification of those devices. Businesses could order equipment that comes pre-loaded with company software, anti-theft technology, security measures including various access and use policies, and be configured to work on the company intranet and wi-fi networks right out of the box. Enterprise customers would have more control over the devices they purchase, and would not have to deal with contractual obligations that tie the purchase of handsets to wireless service. Additionally, by eliminating the problem of overlapping contract terms when individual handsets are purchased and activated at various points in time, the enterprise customer will be in a far stronger position to shop for and negotiate the most favorable deal when the bulk purchase contract term and spend have been satisfied.

How an MVNO/wholesale deal might work

MVNO signs a multi-year, volume based commitment with one of the four nationwide wireless carriers:

- \$60-million commitment over 4 years
- Spend can be spread across voice, SMS, and data
- Typical blended voice rate ~\$0.02/minute
- Typical SMS rate ~\$0.015
- MVNO and/or its customers to provide handsets
- May require a small charge per active wireless handset of around \$1 to \$2 per month
- No per-handset termination fees or penalties
- No overage charges or per-handset limitations

Under this illustrative – but nonetheless representative – deal, \$60-million buys 3-billion voice minutes, 4-billion text message, or a blend of usage that fits each individual user without having to select from a carrier created package.

In a deal like this where service is resold by the MVNO, roughly 25% of the MVNO’s revenue is spent on wholesale wireless services – this leaves a huge margin for savings over retail prices.

\$60-million – i.e., \$15-million per year – is roughly what an enterprise customer with 15,000 handsets would spend on wireless services. The bucket of minutes, SMS messages and data that can be purchased in this type of MVNO deal can support many times that number of individual handsets.

Smaller volume commitments would likely require higher unit prices, but for an enterprise customer that “brings its own handsets,” the potential savings from negotiating a bulk wholesale purchase may be quite substantial.

Applying the wireline purchase strategy to wireless

On the carrier side, large users will be able to make term and volume commitments to obtain favorable pricing—just as they already do for wireline voice and data services. Such commitments should be no more onerous than the current regime where, for all intents and purposes, rolling contracts leave a company tied to a wireless provider indefinitely. Large companies and government entities will be better able to leverage their scale to drive prices down substantially. Individual contracts mean that voice minutes and data usage are “left on the table” each month as many low-volume users do not fully utilize their plan’s calling allowance, or require that some individual users be subject to high overage fees while others leave a portion of their monthly allotments unused. A single bulk-purchased pool of minutes and megabytes will necessarily be used far more efficiently, allowing businesses to tailor their purchases of minutes and data bandwidth to a more stable and predictable company-wide amount.

The MVNO model can be applied to large enterprise buys

The wireless carriers are already set up to offer such large scale BYOD solutions. MVNOs purchase bulk minutes and data directly, and resell the service to customers with network-ready devices. Each individual user’s use counts against the bulk purchase commitment made by the MVNO. Similarly, telematics companies that provide specialty devices to facilitate emergency assistance and related wireless communications services in vehicles, make bulk purchases from the major wireless carriers and resell them to all of the end users of the service – there are no individual contracts between the underlying facilities-based carrier and the individual customer of the resold telematics or other such services.

ETI has extensive experience with wireless services, contracts, and with MVNO and bulk purchase deals in particular. We are in a unique position to help our large corporate and government clients leverage their considerable scale to demand and to structure such BYOD plans from carriers. Please contact us if you would like to explore the possibility of pursuing this approach to purchasing wireless services.

AT&T announces “\$14-billion” capital investment plan

As part of its third quarter earnings reporting, AT&T has announced that it will invest \$14-billion over the next three years “to significantly expand and enhance its wireless and wireline IP broadband networks to support growing customer demand for high-speed Internet access and new mobile, app and cloud services.” Randall Stephenson, AT&T chairman and chief executive officer, commented that “[t]his is a major commitment to invest in 21st Century communications infrastructure for the United States and bring high-speed Internet connectivity – 4G LTE mobile and wireline IP broadband – to millions more Americans.”

Many news outlets, including the *New York Times*, portrayed this announcement as if AT&T had committed to spending an *additional* \$14-billion *above and beyond existing planned capital expenditures*. This is exactly the mis-impression AT&T must have been hoping to create. On the very same day, the company filed a petition with the

Federal Communications Commission concerning AT&T’s transition from TDM to IP network technology. Specifically, AT&T would like the FCC to eliminate what remains of telecommunications regulation. AT&T’s concurrent \$14-billion announcement was no coincidence – it is a regulatory carrot and stick.

In reality, AT&T is not investing \$14-billion *extra* in its network. AT&T is simply enumerating how it is planning to spend a portion of its *pre-existing* capital budget. An additional \$14-billion over three years would represent a nearly 25% increase in AT&T’s current capital spending. However, in the same announcement, AT&T detailed its expected total capital expenditures for the next year: \$22-billion, representing just \$1.3-billion over its existing, growth-adjusted annual rate of capital investment.

Companywide, AT&T has added just \$8-billion in net property plant and equipment over the last four years, or an average of just \$2-billion annually. All of this increase is attributable to AT&T’s wireless business. AT&T – and its ILEC counterpart Verizon – have been *disinvesting* in their wireline networks for years.

AT&T’s wireline broadband expansion plans involve minor network upgrades, including increasing penetration of the company’s fiber-to-the-neighborhood (FTTN) *U-verse* offering. *U-verse*, based upon aging DSL technology, provides significantly slower data speeds than cable competitors and Verizon’s *FiOS* product. AT&T claims it can increase speeds using Digital Subscriber Line Access Multiplexers (DSLAMs) to bind multiple DSL channels together. AT&T is spending less on this technology than its annual depreciation expenses on wireline property, plant and equipment.

On the wireless side, AT&T’s capital plans focus on the deployment of 4G LTE equipment. AT&T hopes to cover 300-million people with LTE service by the end of its three-year capital cycle. However, AT&T’s wireless network *already covers* this service territory. As discussed in VIEWS AND NEWS, March 2012, LTE is simply an incremental upgrade to most modern 3G network gear, involving mostly software upgrades rather than entirely new hardware. AT&T’s investment plans in this area are simply routine network upgrades, neither cutting-edge new technology nor out of the ordinary for the industry.

AT&T could certainly afford to increase its capital expenditures. In the very same press release, the company announced an increase in its cash payout to investors. The company will now pay out more than \$10-billion in cash dividends annually to stockholders. “Given our confidence in our industry and in our future, today we increased our quarterly dividend for the 29th straight year. I’m confident we can continue to deliver for our owners as we invest to position AT&T for stronger growth in the years ahead,” Stephenson said. Increased confidence indeed. AT&T must be counting on greater regulatory success than it saw with its proposed takeover of T-Mobile.

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