

# AT&T and the Future of the Cell Phone Industry

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## **Introduction**

The telecommunications industry is becoming increasingly focused on broadband communications service with a particular emphasis on wireless Internet access. All the major carriers have adequate voice networks, so that has ceased to be an element of differentiation. The current trend in innovation is in faster wireless data exchange (1). All the carriers offer comprehensive data plans, though most of them are financially infeasible for the everyday customer and more heavily marketed toward businesses (2, 3). Moreover, these data plans are comparatively slow, and most do not use Wi-Fi support. Wi-Fi enabled phones require separate Wi-Fi packages and operate only in hot spots, which is inconvenient for many users (4). Cell phone carrier able to price data packages (particularly with fast, ubiquitous wireless support) for the everyday customer will have a significant competitive edge in the telecommunications industry.

In the United States, the major cell phone companies are AT&T, Verizon, and Sprint. Currently, there is some differentiation between the three companies with respect to their customer base. AT&T markets to the mass consumer, Verizon to big businesses, and Sprint to small businesses. This customer differentiation has allowed for some specialization in product, but cell phone companies generally struggle to find ways to distinguish themselves. AT&T is the largest carrier based on customer totals, with Verizon in second. If AT&T can dip into Verizon's customers (i.e. businesses), without compromising its mass consumer base, in a way that cannot easily be replicated, AT&T can claim a stranglehold on the entire market.

## **Data Market**

Not too long ago, cell phones were solely used for making phone calls, but now many have become more like PDAs than phones. Models like the Blackberry and iPhone clearly demonstrate this latest industry trend in packing as many extra features, such as email, web-browsing, Internet faxing, etc. into a phone as possible. As cell phones become more advanced and begin to resemble mini-laptops, the demand for faster wireless data exchange will become the driving force behind the mobile phone industry.

With the advent of Skype and similar software that allows users to make calls over the Internet nearly for free, expansion or improvement of voice networks has become impractical and unnecessary (5). Most carriers already offer sufficient voice networks and once access to the Internet improves, cell phone integration with software like Skype will negate the need for separate voice networks almost entirely. Because of this, the future of the industry lies not with phone calls, but in data plans. Any company that invests heavily in data plan technology will have a large future advantage.

Even though most mass consumers are not concerned about the wireless data packages offered on phones, small and large businesses alike rely heavily on them. It's extremely useful

for workers to be able to stay connected remotely during trips, so businesses often buy group data plans and supply all of their employees with phones. In addition, if data plans become more pervasive and can be marketed cheaply, the mass consumer could be interested in purchasing them as well.

However, wireless data access is considerably slower than Internet access in most homes and offices (6). For as long as that's the case, the average consumer will find data plans on cell phones to be inconvenient and not worth the investment. Another problem with the data plans is geographic holes in Internet coverage. It causes a problem if a constantly moving person needs wireless access, but can only find it in some areas. Traveling employees are often pressed for time, and even the mass consumer would have no need for these data plans if they worked solely in the home or the office. This defeats the entire purpose of having Internet on a cell phone.

Of the currently available wireless Internet technology, Wi-Fi and 3G are the two most pervasive ones. 3G technology is much slower than Wi-Fi (sometimes over ten times slower), but Wi-Fi is much more limited in range (3G offers access to the Internet in significantly more locations) (6). Clearly, huge opportunities for research and development exist in wireless Internet technology that a telecommunication company may capitalize on for future advantage. Therefore, AT&T should invest heavily in wireless technology and network that can offer high speed Internet access in a large number of locations.

## **National Wireless Internet Coverage**

### **Focus of Telecommunications**

Since data is the primary focus of the telecommunications industry, AT&T's goal should be the provision of national wireless Internet coverage. This network, combined with the previously mentioned Internet phone software would eventually render the current voice network obsolete. At present, effectiveness of cell phones data plans are limited by slow speeds and lack of flexibility in the existing wireless technology. Even the most sophisticated plans can only offer low data limits, low speeds and high costs. The future of the telecommunications industry, therefore, lies in upgrading the current ineffective data networks into expansive national wireless Internet networks with broadband speeds.

As a result, AT&T will be able to provide a line of phones that operate by combining broadband speed Internet connections and cheap Voice over Internet Protocol (VoIP) calling. These could also be packaged with wireless Internet cards for laptops, making the plan extremely attractive for business customers with large data needs. Since Verizon is currently the exclusive provider for many businesses, this provides a golden opportunity for AT&T to draw away their customers. This plan would also appeal to younger generations who put high value on Internet applications/websites such as AIM, Facebook and YouTube.

The technology for a web-based VoIP phone is already available but requires users to be in a local Wi-Fi hotspot or have access to their own wireless network. This is impractical for a full functioning cell phone as service becomes problematic outside of the home or workplace. In order to make the VoIP phone successful, AT&T needs to establish their own national wireless network instead of just offering phones that can access local wireless networks (e.g. the current iPhone).

Currently, both AT&T and Verizon provide wireless Internet plans for cell phones and laptops (using PC cards), but the prices of these packages are only practical for high-end business customers. In addition, they have limits on how much data can be accessed per month, low speed, and low connectivity. Furthermore, they are only available in major cities. Because of these limitations, current wireless networks are clearly inadequate for AT&T's future goals. Thus, they should abandon the current technology and invest in more advanced wireless technology, like the newly developed WiMax technology. AT&T should focus on the future rather than on competing with Verizon using the same inferior wireless Internet networks.

Since all wireless Internet networks currently in use have significant problems, a wireless technology that solves these problems will attract many customers. Any telecommunications company that can build a nationwide wireless network using such technology will have a large first mover's advantage over their competitors.

AT&T is in the best position to be this telecommunications company. They currently are the cell phone provider of choice for the average mass consumer, so they have a strong base to work from as they attempt to advance in the business arena. Their current exclusive rights to Apple's iPhone and potential future contracts between the two businesses ensures that average consumers will continue to stay with AT&T, since AT&T can offer the latest in cell phone technology as a complementary good to their service plans. Also, AT&T has the resources and capabilities to get a network up and running very quickly, giving them a huge first mover advantage that is not easily taken away. Businesses will sign with AT&T rather than Verizon if AT&T offers better coverage and faster speeds, and multi-year contracts keeps Verizon from taking their customers back easily.

### **Problems Faced**

Previous attempts to establish fully functional wide-range wireless Internet coverage have been unsuccessful. Both Earthlink and Sprint encountered financial problems because of the large fixed costs and low marginal costs of these networks. They also ran into issues signing up enough customers. However, AT&T has the resources and technology to succeed where the others have not. AT&T already has a large existing customer base that they can convert to make their networks profitable within a reasonable time frame. Moreover, they face lower fixed costs because they can mount the network on their current infrastructure.

Providing continuous coverage is another problem that hinders attempts at creating wireless networks. VoIP phone service from an Internet connection is useless if moving around town will sever the connection. Wi-Fi access points have very limited range (typically only hundreds of meters), and data speeds drops significantly when a user is farther away. 3G improves on the coverage, but loses on Internet speed. Only WiMax, the newest innovation in wireless technology, adequately solves this problem. The range of WiMax access points are significantly larger, going up to a maximum of ten kilometers with greater connection speeds. WiMax improves upon the best parts of the existing 3G and Wi-Fi technologies. It makes it possible to profitably provide wireless Internet access with broadband speed across major cities and even smaller towns.

Most current wireless technologies rely on public frequency ranges, resulting in interference and limited coverage. WiMax, on other hand, requires a dedicated frequency band and provides better service. This could be a problem, but AT&T recently got approval from the FCC to purchase a 700MHz range, which would be perfect for a WiMax network. AT&T's expanded broadcasting range makes them uniquely qualified to create citywide wireless networks using WiMax technology. The CEO of AT&T has stated that he believes the purchased spectrum "will provide a terrific foundation for new wireless and integrated services" (7).

Another possible problem with providing wireless Internet lies with government regulations. Currently the FCC hasn't imposed many major regulations on the industry. Some states do have barriers against establishing a wireless Internet network. However, the majority of them already have at least one city with a wireless network of some sort. Also, court rulings have consistently sided with providers and overturned legislature that blocked attempts at building a wireless network (8). The only three states in which state legislations may be actually problematic are Nebraska, Nevada and Pennsylvania. The Nebraska and Nevada ban citywide wireless networks outright, and Verizon has the right to veto Pennsylvania networks in any city except Philadelphia (9). Regardless, regulations should not be a major problem: once AT&T has developed successful networks in several states, the few with regulations would likely lift them to keep up with the other states.

### **Costs and Implementation**

Considering AT&T already has towers covering most of the United States, the upcoming WiMax technology should be easy to install and fairly cost effective. WiMax access points could be mounted on existing towers. Since WiMax covers a much larger range per tower, new towers would be unnecessary. Covering major urban centers (100 million customers) will cost approximately two billion dollars (10). After that's complete, covering the rest of the country, including rural and suburban areas, will cost an additional three billion dollars.

With a extremely conservative estimated price of \$50 a month for an unlimited voice plan that operates through WiMax, or \$75 a month for an unlimited voice and data plan, two-year

contracts for both have a discounted value of over \$1000 (11). That means it will require less than five million new customers to more than cover the installation costs. This is less than 10 percent of Verizon's current customer base (12). Considering that WiMax technology is vastly superior to Verizon's current 3G technology, AT&T could easily pick up 20 percent of Verizon's customers, which would be more than \$10 billion in added revenue. Moreover, this calculation does not include AT&T's customers who will upgrade to the new wireless data plans, or laptop users who will use AT&T's data plan as an ISP (see Appendix A for more info).

It is advisable to rollout WiMax in three stages. The first will be a small-scale test in selected urban areas to evaluate the quality of the networks under saturation. This experiment will evaluate customer demand, test the quality of the new network, especially under conditions of saturation, and gather customer inputs. If the trial stage is successful, then the second stage will be to simultaneously setup networks in every metropolitan area. Assuming large-scale success in urban areas, AT&T will increase coverage to suburban and rural areas.

The test stage should be 6 months to a year in length - long enough ensure the network's successful without sacrificing AT&T's first mover advantage. Verizon is currently banking on the 4G network. However, it is unlikely that 4G will be commercially available before 2012. Therefore, it would be advisable to have WiMax available in metropolitan areas by 2010.

### **Apple and iPhone Benefits**

One of AT&T's most important assets is their exclusive rights to Apple, for several reasons. The first is that the iPhone has brought AT&T several million more customers and increased revenue. The second is that having a phone prepared to take full advantage of a good national wireless network will allow AT&T to promote the network successfully. The last, and potentially most important, is that it helps safeguard AT&T customers while AT&T focuses on stealing away Verizon's main customers.

The iPhone's release brought AT&T 1.3 million more subscribers in the first quarter alone, and 18% increased wireless revenue compared to the previous year (13). While the increased customers is small relative to their 70 million subscriber base, the average monthly revenues per subscriber is much higher for those using the iPhone; iPhone customers on average buy more expensive packages than the average AT&T user so they can take full advantage of the features on their phone.

Another benefit to AT&T's partnership with Apple is that they will remain at the forefront of cell phone technology, so they will have phones ready to take advantage of whatever wireless technology they develop. Currently, one of the iPhone's problems is that if the user is not in a wireless hotspot, the AT&T EDGE data network is slow. Since the iPhone is Wi-Fi enabled, integrating it with WiMax in the future is very feasible. Having a next generation iPhone that could take full advantage of AT&T's planned WiMax would be a big promotional plus.

Since AT&T has exclusive rights to Apple for the next five years, during which time Apple cannot develop products for any other cell phone company, they maintain an edge on their competition. Younger generations enamored of the trendy new phone will flock to AT&T, so AT&T will maintain their position as the leading cell phone company for the mass consumer. In comparison, Verizon has little to offer to average users over AT&T. They will find it difficult to draw away AT&T's customer base while AT&T attempts to take over Verizon's business customers.

### **AT&T's Strategy and Competitors' Responses**

AT&T's main strength lies in the ability to establish wireless networks before any of their competitors. The first mover's advantage in the cell phone industry is uniquely significant since plans come with two-year contracts. Customers that AT&T gains by having the first available network will be locked into AT&T for at least two years and after that most users will only switch carriers if a competitor gives them a feature worth switching for. The short-term advantages of being the first mover can, if drastic enough, gain AT&T customers that will stick around for the long term. This makes getting networks up quickly the key to success.

Verizon is currently investing much of its resources in wiring more cities with FIOS (its fiber optic Internet service) so they are unlikely to be able to introduce WiMax wireless Internet networks at the same rate AT&T could. These FIOS networks are non-mobile so they do not directly compete with WiMax. Furthermore, while their 3G networks will become less congested as customers leave for AT&T, the technology is so inferior that WiMax will still be faster and more reliable.

Eventually Verizon will match AT&T's WiMax network with their own 4G network. Although the 4G technology is superior, WiMax will have already been available for several years and the customers who have switched to AT&T will be on long term contracts. 4G has greater available bandwidth than WiMax, but from a consumer standpoint, the utility of the increase from 3G to WiMax is far greater than the utility from upgrading from WiMax to 4G. This is because the current 3G technology is painfully slow, while both WiMax and 4G are broadband speed and in most applications more than sufficient. The WiMax network should show almost immediate returns. Therefore, when the time comes, AT&T will not only have the resources to build a 4G network to match Verizon's network, but will also be able to undercut Verizon's pricing.

Verizon might try to compete for AT&T's current customer base, but, given AT&T's position with Apple and their wireless expansion, this is not much of a threat. The iPhone combined with a superior wireless Internet network will be a hard product to beat. Among mass consumers, Apple has a well-established brand name, and dominates their niche. While LG has released the Voyager, an iPhone imitation, the general opinion has been that it is a second-rate product in comparison.

Sprint is currently having trouble with the quality of its voice and data service. Sprint is investing most of its resources in WiMax technology to try to get ahead for the future. However, AT&T can easily outrace Sprint in this battle because it has a larger customer base and more resources. Sprint is running up against technical problems with WiMax, which leaves a large window of opportunity for AT&T to exploit. AT&T can dominate the market before Sprint gets established.

## **Conclusion**

It is clear that future profits in the cell phone industry lie in the provision of inexpensive, high speed data plans with few or no volume limitations and anywhere, anytime wireless Internet. Wireless technology currently in use (i.e. 3G and Wi-Fi) makes implementing this data plan problematic. Thus, in order to get ahead in the data market, AT&T must develop the new superior WiMax technology, and build citywide wireless networks across the United States. AT&T with its vast capital resources and large customer base is uniquely qualified to do so first and to do so successfully. In doing so, AT&T will have two major competitive advantages.

The first of these advantages is AT&T's exclusive partnership with Apple. Apple phones are perfect complements to AT&T's planned national wireless network. The combination will be difficult for any other company to imitate. In addition, Apple allows AT&T to seal its current customer base while focusing on taking customers away from its rivals. The second advantage lies in AT&T's position as the first mover. The first mover advantage gives AT&T the opportunity to seal in customers early on, creating long-term profitability. Moreover, AT&T will be able to maneuver into a strong market position from which to deal with competitors and imitators. AT&T has the resources to implement a wireless network before any competitor. They should take advantage of this unique opportunity to cut into their competitor's business. Doing so will keep them at the forefront of the market for years to come.

## Appendix A

### Cost Analysis

- A byproduct of this strategy is that WiMax can be used as an Internet service provider
  - AT&T can separately charge customers who do not want data phone plans
  - Increases profits
- Currently, average monthly cell phone bill is
  - Over \$60 for personal use
  - Nearly \$80 for business use
  - Comcast charges at least \$20 for internet
    - Could easily charge \$75-100 for cell phone data plans
    - Has added benefit of ubiquitous internet access which will justify upgrade for customers
- At \$75-100 monthly cell phone plan is more than \$1500 discounted for two years
  - 3.3 million new customers to cover startup costs, which is less than 5% of Verizon's current customer base
  - If AT&T adds 10 million of Verizon customers, they will gain \$15 billion in additional revenue which is triple the startup costs
  - These calculations do not even include AT&T's current customers who will upgrade to the more expensive plans
    - Could add billions (possibly more than ten billion) more dollars in revenue as well
- Conclusion is that WiMax build-out is extremely cheap and startup costs can be easily covered in a short time frame

## Appendix B

### Handsets and Apple's Importance to AT&T

- As cell phone and laptop industries converge, Apple is the only company with experience prepared to take full advantage of the new market
  - Cell phones are becoming much more like ultra-mobile mini-laptops
    - Laptop industry trend is for smaller memory chips that can contain more information
    - Future cell phones will likely have 120GB plus memory and be easily integrated with monitors located at home or in the office
  - Apple is not currently product of choice for businesses, but could change in the future
    - Trends in academia could move to industry
    - Perceptions of Microsoft are worsening, and businesses may decide to make the switch to MacOS or Linux
  - Apple's iPhone has not yet been successfully copied by competitors, and their laptops constantly lead the market in innovation
    - They are already moving in the direction of convergence, so will be willing to invest R&D into this area
    - Apple's reputation can attract customers to their future releases
  - Wireless Internet will make it possible for people to connect to the Internet anywhere, and cell phones will have the technology to make it worth it
    - Mass consumers will purchase these for everyday use
    - Businesses will subsidize to promote efficiency of employees
- iPhone will play a large role in the future, and will help secure AT&T's position at the forefront of the data market
  - With wireless internet everywhere, businesses will require phones that can keep up with the technology needs
    - Favored PDA is currently Blackberry
    - As features improve, iPhone may become more pervasive in business
  - AT&T is subsidizing \$200 off the price of the next generation iPhone for any customer that signs a two-year contract (14)
    - Estimated it will double the sales of the iPhone and generate many new customers (15)
    - AT&T's strategy is to attract customers to the iPhone at an initial loss, which will ultimately result in increased revenue through data plans
  - It benefits both AT&T and Apple to promote the iPhone and its successors to both businesses and mass consumers, and the first mover advantage will likely bring the companies to the forefront of the market

## Appendix C

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