NEAR EARTH LLC

SPECIALISTS IN SATELLITE, MEDIA AND TELECOM INVESTMENT BANKING

March 2008

In-Flight Internet: Are we there yet?

As our world grows ever more connected, and repeated cries arise about "closing the digital divide", one frontier remains shockingly unconnected. This "frontier" is the airline cabin. Despite having an excellent demographic of potential users with essentially no options, to date only one commercial service has arisen to fill the communications void: the ill fated Connexion by Boeing service. Launched in 2004, this service eventually reached an installed base of ~150 airliners, most notably with Lufthansa. Passengers paid a sliding rate depending on the duration of the flight, ranging from $29.95 for a flight greater than six hours to $9.95 for 30 minutes. The Connexion by Boeing service used modems provided by ViaSat, and a proprietary Boeing phased array antenna to provide backhaul over Ku band satellite. WiFi connections were used in the airline cabin. While the service was successful in terms of enthusiasm and popularity with consumers, due to substantial equipment, maintenance and bandwidth costs Boeing chose to shut it down in 2006. Following the collapse of Boeing's Connexion service, airline travelers have been bereft of broadband connectivity in the air.

Connexion proved that consumers, particularly on long haul flights, are willing to pay to stay connected in the air.

Its financial troubles notwithstanding, Connexion proved that consumers, particularly on long haul flights, are willing to pay to stay connected in the air. With the continued proliferation of portable consumer devices such as laptops and iPhones and WiFi connectivity, the potential market for such a service is even larger today. On the equipment side, new technological approaches have evolved that permit smaller, lighter equipment that allow faster installations (i.e. less downtime for aircraft). And thus, with improvements on both the demand side and the cost side, new players have emerged to fill the void. And, it looks like the ice is starting to break…

…three new players have announced deals with a total of four airlines – a trend we expect to spread rapidly…

To date, three new players have announced deals with a total of four airlines – a trend we expect to spread rapidly going forward as airlines use the availability of connectivity as a differentiator, much as Jet Blue successfully used in-flight television when they launched their airline.

Aircell is backed principally by Ripplewood Holdings and uses a terrestrial technology similar to a scaled up cellular network. Using

3 mHz of spectrum purchased (for $32 million) in a FCC auction and hardware based on a variant of Qualcomm's EV-DO (rev A) standard, Aircell's network of 500 "cells" provides nationwide coverage in the U.S. Each cell has a radius of approximately 350 miles. The company has announced recent deals for rollouts with Virgin America fleet wide, and for certain routes in the American Airlines system. Both deals are expected to enter service in the first half of 2008.

Row 44 is privately held and uses a satellite technology that relies on Ku band capacity much like Boeing's Connexion service did. Unlike Connexion, Row 44 uses Hughes Network Systems' technology and a simpler antenna. As a consequence, Row 44's system weighs considerably less (~150 lbs) and costs much, much less than Connexion (~$200k vs ~$1 million), allowing the firm to offer services at a more competitive price point. Row 44's service is currently undergoing a four plane trial with Alaska Airlines, and has announced a trial with Southwest Airlines as well.

Given the conservative culture at most airlines, we expect that a strong early/first mover advantage will accrue to firms that successfully deploy their technology in actual airline fleets.

LiveTv, a subsidiary of JetBlue Airways, launched an email and Instant Messaging application on JetBlue beginning in December 2007. While hardly broadband, LiveTv has indicated that it intends to expand the service to offer in-flight internet connectivity using the 1 MHz of domestic spectrum it won (for $7 million) at auction in 2006. Given this limited amount of spectrum, we expect that "broadband" services based on this system will be somewhat impaired compared to the previously mentioned services.

From a capacity perspective we note that Aircell's 500 towers, assuming full frequency reuse, have the same bandwidth as about 20 nationwide satellite transponders. Unlike Aircell, satellite based operators like Row 44 have the luxury of adding capacity (by leasing additional transponders) as needed rather than all at once. On the other hand, the latency inherent in satellite based solutions makes VOIP services less practical and affects gaming and other applications that require rapid response. Given the immediate thirst for broadband in the cabin, we expect that initially this will be acceptable to consumers, but note that over time they may become more sensitive.

Other potential providers include OnAir, which offers a L band satellite based solution (using capacity from Inmarsat) that has a higher cost per bit than the previously mentioned solutions. The U.S. MSS/ATC firms (i.e. Globalstar, ICO, MSV and Terrestar) are also planning on launching a great deal of additional L band and S band capacity that may be used for in flight broadband. While practical for narrowband voice applications, we believe that these potential systems may not be competitive for broadband applications unless the satellite providers are extremely aggressive in pricing their space segment.

Going forward, we expect additional airline deals with these players, and potentially new entrants (e.g. CloudLink) as well. Given the conservative culture at most airlines, we expect that a strong early/first mover advantage will accrue to firms that successfully deploy their technology in actual airline fleets.

By John Stone
Near Earth LLC

IMPORTANT DISCLOSURES AND INFORMATION ABOUT THE USE OF THIS DOCUMENT:

Near Earth, LLC ("Near Earth") has published this report solely for informational purposes. The report is aimed at institutional investors and investment professionals, and satellite, media and telecom industry professionals. This report is not to be construed as a recommendation or solicitation to buy or sell securities. The report was written without regard for the investment objectives, financial situation, or particular needs of any specific recipient, and it should not be regarded by recipients as a substitute for the exercise of their own judgment. The content contained herein is based on information obtained from sources believed to be reliable, but is not guaranteed as being accurate, nor is it a complete statement or summary of any of the markets or developments mentioned.

The authors of this report are employees of Near Earth, LLC, which is a member of FINRA. The opinions expressed in this report accurately reflect the personal views of the authors but do not necessarily reflect the opinions of New Earth itself or its other officers, directors, or employees.

The portions of this report produced by non-Near Earth employees are provided simply as an accommodation to readers. Near Earth is under no obligation to confirm the accuracy of statements written by others and reproduced within this report.

Near Earth and/or its directors, officers and employees may have, or have had, interests in the securities or other investment opportunities related to the companies or industries discussed herein. Employees and/or directors of Near Earth may serve or have served as officers or directors of companies mentioned in the report. Near Earth does, and seeks to do, business with companies mentioned in this report. As a result, Near Earth may have conflicts of interest that could affect the objectivity of this report.

This report is subject to change without notice and Near Earth assumes no responsibility to update or keep current the information contained herein.

Near Earth accepts no liability whatsoever for any loss or damage of any kind arising out of the use of all or any part of this report.