

# The outlook for aeronautical communications services

---

In October 2006, our report on “The Market for In-flight Passenger Communications: Lessons from Connexion” highlighted the difficulties that had been experienced by previous attempts to provide in-flight communications to passengers, whether for voice (Verizon Airfone) or data (Connexion-by-Boeing). We cautioned that the market growth would likely be slower than expected and that installation of communications equipment would be unlikely to provide a direct financial upside for airlines, but instead would be best suited to airlines who could benefit from the differentiation (and potential market share gains) that such services would provide to high value business travelers. Most importantly, we predicted that it would be very difficult to resurrect the Connexion service, without a very large financial commitment from Lufthansa or other large airlines, with minimum costs of at least \$80M per year required to operate the service and provide near-global coverage.

Over the last eighteen months, many of these predictions have been born out. Despite considerable efforts by a number of parties, including Viasat, Panasonic and SES, no replacement Connexion-like service has materialized (although Boeing continues to provide service to US government aircraft including Air Force One and it remains a possibility that service will be reintroduced on a limited number of routes such as the North Atlantic). Delays in approval of in-flight cellular and the decision of many airlines to wait for the launch of Swift Broadband in late 2007 has meant that in-flight cellular has not yet progressed beyond trials, although Ryanair expects to equip 50 aircraft during 2008, and trials are being conducted with Air France, Qantas and other airlines. However, there appears to be less confidence in the success of revenue-seeking low cost airlines such as Ryanair than in business-focused long haul airlines such as Qantas and Emirates. Indeed many of these airlines have explicitly refrained from revenue-maximizing strategies, opting to focus mainly on SMS and Blackberry data services to avoid upsetting travelers with loud voice conversations.

In the US, the FCC has declined to reconsider the current ban on in-flight cellphone use, due to an outcry from passenger groups, prompting airlines to focus on Internet access services for laptops. Aircell has made steady progress with installation of the base stations for its terrestrial-based service, and has announced agreements with two airlines (Virgin America and American). Virgin America will fit the technology fleetwide (its fleet is planned to expand to 34 planes), while American will install the system initially on its 767-200 fleet of 15 aircraft operating mainly on transcontinental



routes between New York/Miami and San Francisco/Los Angeles. Aircell's initial pricing for the service on American Airlines is \$9.95 for flights of up to 3 hours and \$12.95 for longer flights. More surprisingly, Row 44, which uses HNS technology, has secured deals with Alaska Airlines and Southwest to trial its technology, while Viasat has not announced any airline customers for its offering (although we understood an agreement has been signed with one airline which we assume is US Airways, since that airline has announced it will trial in-flight Internet access but has not confirmed the vendor). Alaska Airlines will test the service on one plane in Spring 2008 and then decide whether to move to fleetwide installation across its 114 aircraft, while Southwest will conduct a trial on four aircraft in summer 2008. JetBlue's LiveTV unit, which won a smaller 1MHz segment of air-to-ground spectrum, started offering a very limited free service on one JetBlue aircraft in December 2007, which gives laptop access to Yahoo Mail and email on certain WiFi-equipped Blackberries<sup>1</sup>. Continental also plans to install the LiveTV email service in the future. It appears that the primary objective of all the airlines who are trialing in-flight connectivity in the US is to achieve differentiation rather than to capture incremental revenues from the service itself. Although it is targeting primarily leisure travelers, Virgin America has been developing a differentiated service (with mood lighting, satellite TV, etc.) and the in-flight connectivity fits with this objective, while American is attempting to defend its base of premium business travelers and Southwest is seeking to expand its share of the business travel market.

While developments in passenger communications have been relatively slow, with the first commercial services only just starting to be launched, both in the US and internationally, the overall satellite revenues from aeronautical communications have surged, with Inmarsat's aero revenues growing by 44% in 2007 (from \$31M to \$44M), due to very strong growth of the Swift 64 service on business jets and government aircraft. In the first half of 2007, \$14.3M of Inmarsat's \$20.8M in aeronautical revenues came from only 1530 Swift 64 terminals (up from 1241 terminals at the end of 2006), equating to a wholesale ARPU of around \$1720 per month (compared to \$1450 in the first half of 2006). There has also been continued growth in the number of classic aero terminals, but revenues have declined from 2006 as some higher usage customers have moved to Swift 64. The vast majority of Inmarsat's aero revenues (and almost all of the Swift 64 revenues) come from government and general aviation (business jets), and Inmarsat indicated in 2006 that only \$2M-\$3M per year of revenue comes from passenger connectivity services. Iridium also provides service to business jets,

---

<sup>1</sup> See [http://www.usatoday.com/money/industries/travel/2007-12-06-jetblue-wifi-service\\_N.htm](http://www.usatoday.com/money/industries/travel/2007-12-06-jetblue-wifi-service_N.htm)

with Aircell providing Iridium service to over 4000 aircraft, and has achieved some success with commercial airlines such as El Al, Continental and Cathay Pacific. We estimate that Iridium generated around \$13M in service revenues from the aeronautical market in 2007 and it claims to have some 15,500 aircraft equipped. In addition, ARINC's VSAT-based SKYLink business jet offering has also achieved some success, with around 80-100 planes equipped in North America.

While the future growth of the business jet market in particular is likely to remain strong, and increased usage in the passenger segment will start to make an impact (particularly on end user revenues), it seems highly implausible that growth will be anything close to the estimates made in NSR's February 2008 report, that total in-service units will reach 27,000 aircraft by 2013 (passenger aircraft and business jets only) and will generate retail revenues of \$1.7B (which may include both service and equipment). Total retail service revenues from the general aviation, government and business jet market (including narrowband cockpit usage on passenger jets) were only around \$120M in 2007 and are likely to expand to at least \$280M by 2013, but it appears unlikely that annual end user revenues from the airline passenger market will exceed \$200M from Internet access (mainly in North America) and a further \$200M from cellular roaming (in international markets) by that time.

The key challenge for the passenger communications market is whether the level of usage (and the resulting revenues) can be high enough to provide an adequate financial return for the airline to break even on the costs of installation. At a cost of about \$250K per aircraft for new build Swift Broadband terminals, we estimate that the annual end user revenue per plane would need to reach about \$160K to cover fuel costs and pay for the terminal within 8 years. This compares to around \$100K of end user revenue per plane realized by Boeing and of order \$10K-\$15K per plane per annum for Inmarsat's traditional \$10/minute seatback phone service on international routes<sup>2</sup>. Trials by Qantas, albeit only of SMS and Blackberry data services (not voice) on domestic Australian flights resulted in usage levels of about 30 texts and 144Kbytes of data per flight, which at about \$0.70 per SMS and \$30/Mbyte would equate to \$25 per flight, or \$45K per aircraft per year (assuming 5 flights per day).

---

<sup>2</sup> Emirates generates much higher levels of usage than other carriers and carries 7000 calls per month across its fleet of 100 aircraft (see <http://www.arabnews.com/?page=6&section=0&article=108092&d=21&m=3&y=2008>), which would equate to \$25K per aircraft per year at \$30 per call

Even if the total revenue was doubled by enabling voice calls and promoting the service more actively, this is still far short of the breakeven levels noted above, and confirms our doubts about whether in-flight communication will be successful on revenue-seeking low cost airlines such as Ryanair (especially since many of its European flights spend only a limited time above 10,000ft, which is the minimum altitude at which the service can be activated). While the situation for Aircell is somewhat better, due to the expectations that the cost of equipment will be lower (\$100K per plane compared to \$250K for Swift Broadband), and that a much lower proportion of revenue will need to be shared with third parties (cellular operators in the case of OnAir/AeroMobile or ISPs in the case of Aircell/Row44), Aircell will still need to recover the cost of its spectrum purchase (\$31M) and network rollout (at least \$100M). VSAT-based providers such as Row44 are likely to be faced with slightly higher equipment costs than SwiftBroadband (likely to be in the range of \$300K-\$350K, although some estimates run considerably higher) and much higher than Aircell, but will avoid the fixed cost of Aircell's spectrum and infrastructure deployment. As a result, if deployment is slow, then Row44 will be much better placed than Aircell to develop a sustainable business.

Analyzing the business case for each of the three principal competing passenger communications technologies, namely OnAir (Inmarsat-based), Aircell (terrestrial-based) and Row44 (VSAT-based), we estimate that OnAir is not likely to achieve profitability unless end user revenues are well above \$150K per year (we note that OnAir has projected revenues of €28K per plane per year with voice or €22K per plane per year without voice<sup>3</sup>, which seems unachievably high). At end user revenues of \$120K per plane per year, Aircell will need to equip at least 1000 planes by 2013 to breakeven, while at end user revenues of \$150K per plane per year, Aircell will need to equip at least 750 planes by 2013. Row44's approach has a relatively limited downside and achieves breakeven most easily of all the three providers in a downside scenario, with 600 planes and end user revenues of \$120K per plane per year.

Given the difficulty of generating a positive return without relatively high levels of end revenues, we expect that many airlines will conduct trials to better understand the likely usage levels before committing to fleet-wide installations. We also expect that low cost airlines such as Ryanair are unlikely to follow through on their commitments for fleetwide rollout if usage levels are relatively low. This would be a particular problem for OnAir, which is much more exposed to the low

---

<sup>3</sup> OnAir analyst briefing, September 27, 2007

cost/short haul airline sector than its (Inmarsat-based) rival AeroMobile, which has focused instead on long haul network carriers who are not expecting to make a direct financial return on the service. We understand that OnAir's contract with Ryanair gives Ryanair the right to require that the equipment be removed at OnAir's expense, and OnAir bears the risk of the equipment cost if this is not recovered from usage of the service.

In terms of the overall market opportunity for passenger communications, it is clear that Internet access services will dominate in North America (and voice services will continue to be banned or heavily restricted), leading to a two-way battle between terrestrial-based services (Aircell and LiveTV) on one hand and VSAT-based services (Row44 and Viasat) on the other. Outside North America it is uncertain whether VSAT-based services will gain traction amongst airlines, since several (such as Lufthansa and Singapore Airlines) have been badly scarred by their experience with Connexion, and it is more challenging to provide the extensive coverage needed for long haul routes at Ku-band. As a result, while it is possible that VSAT-based services may achieve some presence on North Atlantic routes, and perhaps a few routes in Asia, we expect Inmarsat-based solutions for mobile phones and Blackberries to be regarded as "good enough" at least for the next five to eight years. If by then VSAT-based services have achieved significant traction in North America, long haul airlines may revisit their decision and upgrade to VSAT more widely. In total we project Internet access services to generate \$189M in end user revenues from 1400 planes by 2013, and cellular connectivity to generate \$167M from a similar number of planes by that date. While the cellular roaming market is likely to be dominated almost completely by Inmarsat, we expect that the Internet access market will split between terrestrial and VSAT-based solutions. As a result, we estimate that Inmarsat is likely to generate perhaps \$40M of incremental revenues from passenger communications by 2013, while if Aircell and VSAT split the Internet access market fairly evenly, then each will generate roughly \$60M-\$70M per year (net of revenue shares to airlines) by that time.

*Tim Farrar is President of Telecom, Media and Finance Associates, a consulting company based in Menlo Park, CA, which analyzes technical and financial issues in the satellite sector, and specializes particularly in Mobile Satellite Services (MSS) and Ancillary Terrestrial Component (ATC) issues.*

*Contact him by phone on (650) 839 0376 or by email at [tim.farrar@tmfassociates.com](mailto:tim.farrar@tmfassociates.com)*

*This article is extracted from our March 2008 research report on the MSS sector*

*To find out more about our MSS research, visit [www.tmfassociates.com/reports](http://www.tmfassociates.com/reports)*

