



Staying Connected

High-speed data has arrived, but are you prepared?

by Brian Wilson

Almost all corporate aviation departments are faced with the daunting task of transitioning from standard voice communications systems currently on their aircraft to the new market of airborne data connectivity that now appears ready to offer numerous viable solutions to corporate operators.

Every week, I receive phone calls from Pilots, Maintenance Directors, and other department personnel requesting information and guidance of how to plan, budget and educate themselves for this endeavor. What I found common among these conversations is that there is a lot of confusion in the industry, because what might be a perfect fit for one corporate operator is inapplicable

for another due to the existing configuration of their aircraft.

The first piece of the puzzle is to understand how your aircraft is currently configured and what the limiting factors associated with these legacy products are. A large majority of corporate aircraft flying today are outfitted with a Magnastar phone, or a first generation Iridium phone system. The Magnastar can be installed as a stand-alone system or coupled to an Inmarsat Satellite Communication system.

Once there is an understanding of how the aircraft is configured, it must be determined where the aircraft flies, and what percentage of time the aircraft flies domestically or internationally. Maybe the aircraft flew primarily within the continental United

States, and now an expansion of the corporation requires travel abroad, along with a greater need for e-mail to send and receive documents that are critical to the company mission.

It is also essential for an aircraft operator to have a thorough understanding of the expectations of the "people in the back" - the passengers. Do they require the same business applications they have in their office? Do they require access to their email via their Blackberries? Possibly they travel with their children who enjoy, and can stay occupied, surfing the web.

Once we know how the aircraft is configured, and we understand what the customer's expectations are, then we are prepared to offer some exciting, emerging



THE EMS HSD-440 UNIT

technologies and products.

Before we get started though, it's important to understand the popularity and expansion of WI-FI in all peripheral equipment from PDA's to laptops. The industry anticipates triple expansion rates for WI-FI capable devices with the new Blackberrys delivered by RIM already WI-FI compatible.

If you've ever logged on to a wireless hot spot at a coffee shop, hotel or airport, your laptop will work fine with the options mentioned in this article, or at most a simple configuration page will need to be programmed onto your computer. WI-FI enabled handsets will allow passengers to roam freely throughout the aircraft and eliminate problematic pull cords.

AIRCRAFT CONFIGURATIONS

Let's start with the standard corporate aircraft that is outfitted with a stand-alone Magnastar or legacy Iridium system. The stand-alone Magnastar is limited to domestic voice and fax coverage in the United States. Although the Iridium phone expands your voice and fax coverage internationally, neither provides a usable data rate. The expansion for these types of aircraft configuration is very limited to aircraft that fly primarily or exclusively within the United States.

Starting in late 2008 or early 2009, Aircell will provide a domestic broadband service called Axxess that can be installed for around \$125,000 - although Aircell has not yet delivered the final cost of its Broadband transceiver. There are two limiting factors you must remember, the Axxess system only has

domestic coverage in the United States and it will not work below 10,000ft, due to its line-of-sight technology.

The two channel voice transceiver is augmented with a wireless router that AirCell says will work with any WI-FI capable device. To provide international coverage the cost jumps substantially as now an Inmarsat compatible system like the EMS HSD-400 high-speed data terminal with voice channels must be installed with a High-Gain Aero H antenna. Pricing starts around \$350,000 and ranges up to more than \$400,000.

For the aircraft outfitted with a Rockwell/Collins, Honeywell, Thrane and Thrane or other Aero H, H+ SatCom, simply replacing one of the existing Satcom units and/or adding another component with a Broadband High Speed Data unit, and installing a WI-FI capable router will provide either dual channel 64K or one to two channels of Swift Broadband data (432K per channel) to the aircraft. The price for this upgrade will cost around \$200,000, and you should budget another \$50,000-\$75,000 for the WI-FI router.

All existing antennas must be analyzed to see if they meet the requirements set forth by Inmarsat to be compatible with its fourth generation I-4 Satellites. Experience shows that at least 50% of the antennas need to be changed, and pricing for this ranges between \$75,000-\$150,000. The good news is that this can be done in stages to offset costs, because even if your antenna needs to be changed for Swift Broadband, almost all are compatible for multiple channels of Swift 64.

The aircraft will now receive International voice and data coverage via the I-4 constellation of Satellites from Inmarsat. As mentioned earlier, most configurations have the Magnastar coupled to the SatCom and this, too, provides a few alternatives. One alternative is to leave the Magnastar alone at this time to save money, and wait until it becomes obsolete. Another option would be to replace it immediately with an Iridium system from True North Avionics, ICG Communications, Thrane and Thrane or another suitable replacement.

AIRCELL DOMESTIC BROADBAND

Colorado-based Aircell has recently equipped several Boeing 757s belonging to American Airlines and Virgin America to test its domestic air-to-ground broadband service, and anticipates delivery to the corporate business traveler by late 2008 or early 2009.

Although Aircell will not divulge exact data rates, it does say it will deliver DSL-like experiences for the end users. Aircell's infrastructure consists of 90-100 ground towers located strategically across America that will deliver data to the aircraft flying above 10,000 feet. The Aircell system provides two shared channels of Iridium voice which are usable anywhere in the world, where the data coverage is limited to the continental United States.

The really attractive feature is the WI-FI access point which provides 802.11g wireless access throughout the cabin in which any compatible WI-FI device can deliver email, enable users to surf the Internet and provide access to your corporate VPN.

INMARSAT WORLDWIDE SWIFT BROADBAND

London-based Inmarsat has launched two of three planned new generation I-4 Satellites that will deliver 432K of data per channel, with coverage anywhere in the world except over the Polar Regions. Inmarsat has limited the system to two channels to reduce congestion problems experienced by customers with its Swift 64 service.

Inmarsat Swift Broadband launched in the fourth quarter of 2007, and covers over two-thirds of the earth with only the Pacific Rim without current coverage - and Inmarsat hopes to resolve that with the launch of its third and final I-4 satellite later this year. Inmarsat Broadband has an added benefit in that it works as well on the ground as in the air - so don't fret if your aircraft is delayed for departure, you still have your service to help pass the time.

Ottawa-based EMS Satcom was the first company to get approval for its HSD-400 High Speed Data unit which underwent many hours of testing on the ground and in

the air on-board two corporate Boeing Business Jets.

Proven and tested, Swift Broadband delivers in many applications including laptops and Blackberries to send and receive emails via your private or corporate email accounts. Additionally, latest news and information can be obtained from Internet access, and files can be transferred to and from your corporate network using the Inmarsat satellite data line networks. Finally, users have the ability to conduct a live video conference while flying anywhere Inmarsat provides service.

MAKING SENSE OF IT ALL...

No doubt the content of this article has triggered many other questions, and it is difficult to cover all subjects in great detail without becoming confusing or boring. You should, however, have enough information to prepare your planning, understanding how your aircraft is configured and what the expectations of the guy in the back paying the bills are.

Consultation with a reputable avionics shop (like Banyan Air Service) that specializes in High Speed Data installations and

upgrades is recommended to establish an upgrade path that is appropriate based on your particular aircraft configuration. Although some of the equipment and services covered in this article will only be available later in 2008 or early 2009, this allows ample time to plan, budget and execute the right solution for the client and passengers riding in the back.

For those of you that fit the upgrade path, or have the funds to install a new Inmarsat compatible system like the EMS HSD-400/440, Swift Broadband is available now and is already providing valued services and applications to business and private corporate aircraft. Try not to get caught up, however, in company literature stating they provide faster speeds, while throwing out catchy data rates when a single channel of Swift Broadband combined with acceleration components and services are suitable to the standard two or three passengers in the back that just want to view their email and favorite websites.

Remember to educate the users that are accustomed to accessing the Internet over DSL connections or a T1 line that the experience will not be the same, but that the value

of staying in touch and the flexibility to stay connected in my experience has led to a satisfied customer. After all, your business doesn't stop after take-off, and now you don't have to either!

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His avionics career started 30 years ago, when he joined the U.S. Navy as an Avionics Technician. Wilson has also worked at Midcoast Aviation, Raytheon, Bombardier/Learjet and most recently at Jet Aviation in West Palm Beach where he headed the Avionics, Engineering and Interior departments. He also serves on the Rockwell Collins Dealer Board. Brian can be reached at 954-232-3606 or email bwilson@banyanair.com ■