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Business aircraft cabins are being transformed into amazingly capable work and entertainment venues, made possible by blasting gazillions of bytes through ever-smaller boxes at ever-faster speeds. Increasingly facile aircraft systems are being installed; new satellite services offer communication capabilities unimagined just a few years ago; vendors are making the challenge of finding the right hardware and services easier than ever while inventing new tools with which to measure their value.

The infrastructure behind all the inflight entertainment and communications (IFEC) razzle-dazzle continues to grow more robust. Inmarsat — the pioneer of satcom connectivity — reports that of some 11,000 satcom terminals providing satellite communication services for government users, commercial airlines and corporate jets, 30% are in business aircraft.

Meanwhile, Inmarsat's SwiftBroadband service is enabling key cockpit and cabin applications through simultaneous voice and broadband data services, and its Swift64 service brings bandwidth for applications such as high-quality voice, e-mail, Internet and intranet access, while its Classic services continue to furnish high-quality voice, low-speed data and safety communications.



Inmarsat's latest I-4 satellites are 60 times more powerful than its I-3 birds, which went to work in 2005. The I-4 series is expected to continue in commercial operation until about 2020. I-5 birds, being developed by Boeing, will be part of a new \$1.2 billion worldwide Ka-band wireless broadband network called Inmarsat Global Xpress, which is planned to enter service by late 2014. In the meantime, Inmarsat has entered into agreement with the European Space Agency (ESA) to become the commercial operator of a new satellite called Alphasat. The satellite is part of an ESA initiative to develop a new spacecraft capable of carrying a large communications payload. Alphasat is scheduled for completion in 2012 and will supplement the existing I-4 satellites over Europe, the Middle East and Africa.

Meanwhile, Matt Desch, CEO of Bethesda, Md.-based Iridium, says his company's constellation of 66 low-Earth-orbiting satellites (LEO) is healthy and doing just fine (despite a 2009 in-space collision with a Russian communication satellite). The company's next-generation LEO constellation is on schedule to begin launching in 2014. And, according to Desch, Iridium is the number one satellite provider in aviation with some 17,000-25,000 Iridium devices installed in aircraft. The company offers flight following and cockpit communications features, an air safety service is in trials, and an aeronautical version of Iridium's OpenPort global high-speed voice and data service for the maritime market is in development.

Carlsbad, Calif.-based ViaSat's Yonder Ku-band mobile broadband service is developing a growing presence in business and general aviation, military, government, emergency response and other sectors

in need of secure, high-bandwidth global communications. Ku-band is a chunk of spectrum allocated by the International Telecommunication Union (ITU) for Fixed Satellite Services (FSS) and is typically used for things like direct-broadcast satellite TV, multi-site business apps, satellite news gathering and military tactical operations. ViaSat pioneered this band for Mobile Satellite Services, and in MSS it's all about bandwidth, because more bandwidth equals higher speeds. ViaSat claims its service operates at 10 times the throughput speed of SwiftBroadband, and will soon accelerate even more.

Roughly 150 Ku-band satellites are in orbit today, which means greater capacity and lower costs. Ku-band providers are generally sending data at up to 10 Mbps today, and a system upgrade set for mid-late 2010 will boost rates up to 20 Mbps. (To attain an "in-home broadband Internet experience" requires only 1.5 Mbps, says ViaSat.)

So far, ViaSat service can be found on more than 200 business and government aircraft, as well as 500 maritime vessels, and high-speed rail systems including France's TGV. The company recently broadened its coverage significantly, and expects to be worldwide by 2011, while at the same time increasing data rates. Also, ViaSat has developed new blockage mitigation features to reduce aircraft and rotor blade signal loss.

Standard ViaSat Yonder service options include month-to-month service for \$7,995/month, one-year contracts for \$6,495/month, two years for \$5,995/month, and custom plans can be developed if standard plans don't fit. ViaSat is currently available through Gulfstream, MROs (Innotech, Standard Aero and Jet Aviation), cabin integrators, Rockwell Collins and Lufthansa Technik.

Conundrums

Passengers whose homes and workplaces have ginormous high-def displays expect the same kinds of hi-res immersive experience while they travel with the laptops, iPad/iPods and similar devices. To meet such expectations, Honeywell's Ovation Select, Rockwell Collins' Venue, Flight Display Systems' Fly HD and others are providing passengers with 1080p HDTV capability already, as well as Blu-ray video disc players, widescreen HDTV displays, advanced audio systems and remotes to control them all.

And while the vendors tell us they're working flat-out to keep up, operators are concerned that the technology is such a moving target that it's difficult to decide when to take the plunge and upgrade a cabin since the technology may be outdated in less than five years. We can't offer any advice in that regard, but herewith is a sampling of recent developments from cabin electronics providers:

Aircell is hot. Its order book is backlogged and its products are fast enough to keep Internet-addicted passengers happy — for now. Aircell's North American broadband network of cell towers, completed in January 2008, operates over Aircell's exclusive FCC spectrum, which it won in a 2006 auction. At launch there were 92 wireless sites, with plans to expand Canadian coverage with 17-20 sites, and Mexican coverage with 20-25 sites. Aircell's vigorous expansion of its network, accomplished by increasing bandwidth sectorization and splitting, ensures it can keep up with burgeoning demand. Aircell's high-speed Internet service is up to seven times faster than SwiftBroadband and up to 56 times faster than Swift64 or a 56 Kbps dial-up connection, assert company reps.

In the cabin, Aircell recently added corded VoIP-capable handsets for its Axxess cabin communication system customers. ("VoIP isn't authorized for use on Axxess, but it works," quipped an Aircell customer we met recently. He recommends a visit to www.webex.com for information on VoIP videoconferencing.) Standard features include full-color graphical menus, support for all PBX

functionality, background noise and acoustic echo reduction, and interfaces to headsets/earbuds and the aircraft's audio control panel.

Meanwhile, Aircell's Iridium service is expandable to four Iridium channels, narrowband data services such as — optionally — ACARS, Airshow, fax, etc. Axxess is expandable to Aircell's high-speed Internet or SwiftBroadband services and is compatible with Inmarsat's Swift64 and Classic services.

The first installation of Aircell's new ATG 5000 high-speed Internet system was made aboard Atlanta-based charter operator FlightWorks' Gulfstream G200 in January. The ATG 5000 furnishes stand-alone Internet capabilities for customers who don't require the integrated voice and narrowband data features of Aircell's Axxess. A complete ATG 5000 package includes a high-speed Internet LRU, two belly mounted blade antennas and an optional cabin router. Wired or Wi-Fi in-cabin connection options are available. ATG 5000s can be installed alongside existing equipment, and its combination of features, light weight and small antennas make it attractive for light business jets and turboprops.

All Aircell ATG 4000 and ATG 5000 high-speed Internet systems now include a built-in wide area network (WAN) feature that automatically manages multiple data networks installed aboard an aircraft, enabling it to automatically switch between Aircell high-speed Internet and SwiftBroadband service according to an operator's pre-set preferences.

In addition to Aircell's high-speed Internet service for the continental United States, the company's L-band satellite-based SwiftBroadband service provides global service. Operating over Inmarsat's network, it allows passengers to use Wi-Fi-enabled devices such as laptops, PCs, smartphones and PDAs for e-mail, light Internet service, Virtual Private Network (VPN) access and more. Using a standard intermediate-gain antenna, the Thrane & Thrane-based system provides connection speeds up to 332 Kbps.

The company's Ultraspeed Standard service costs \$1,995 per month with unlimited data usage. This would be suitable for users needing full Internet capability, e-mail with attachments, large file transfers, etc. Aircell's UltraspeedLite costs \$895 a month, also with unlimited data usage, and is recommended for e-mail and light Web surfing. Similar in speed (200 Kbps) to SwiftBroadband, it's several times faster than dial-up under most conditions, says Aircell.

Aircell's new Aviator 200 pairs the company's lightweight avionics with a small, low-gain satcom antenna. The result is a reduction in overall system size and weight as well as the cost and complexity of aircraft modifications. With the Aviator 200 equipment package and newly launched SwiftBroadband 200 service from Inmarsat, operators can seamlessly use their personal laptops and mobile devices for e-mail and light Internet services at up to 200 Kbps with coverage virtually anywhere in the world. They also can use the system's integrated cabin handsets to make and receive voice calls. Equipment (13 lb) cost is approximately \$55,000, uninstalled. The company's Aviator 300 offers voice service and data



Aircel ATG 5000

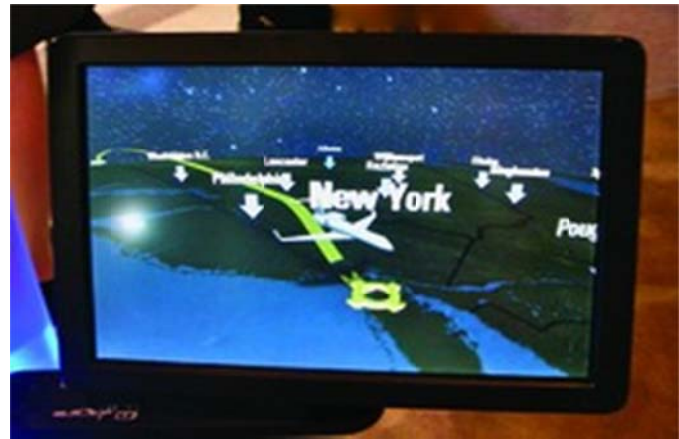
connectivity at up to 332 Kbps on a near-global basis, via an intermediate-gain antenna. Equipment (17 lb) cost is approximately \$88,800, uninstalled. The Aviator 300 received EASA supplemental type certification on the Bombardier Challenger series in October. Completed by British company Avionicare, the STC covers the Challenger CL600, 601, 604 and 605.

Meanwhile, the company recently announced its Gogo Biz Inflight Internet service and SwiftBroadband systems would be available to Gulfstream customers as a factory installation. Gogo Biz service provides an Internet experience similar to that on the ground, with equipment small and light enough to fit on virtually any business aircraft. Aircell offers Gogo Biz in two different equipment packages, the ATG 4000 and ATG 5000, available on the Gulfstream G150, G200, G350, G450, G500 and G550. Several other business aircraft manufacturers are now offering Gogo Biz service from the factory as well.

Before Aircell launched Gogo in mid-2008, an estimated 200 business and airline aircraft worldwide were equipped with high-speed Internet connections. Today, after just over a year in the business aviation market, shipments and orders for Gogo Biz are already approaching 1,000 units, says Aircell. Gogo is now flying on more than 1,000 air carrier aircraft.

With the claim, "Size matters — but so does performance!" Dublin-based Airvod is pitching Crystal 7, its latest portable video-on-demand player. Each unit, which comes with a staggering 20-hr. battery life and can furnish up to 100 movies on demand, weighs just over 1 lb. Up to 160 units can be stored on an aisle trolley. Crystal 7s come with 5-/10-/20-hr. battery options and LED visual indicators for easy checking of battery life. The company has worked closely with air carriers to develop the player. For example, the Crystal 7 has the ability to enable different content packages to be made available to passengers simultaneously (e.g. outbound versus inbound and short-haul versus long-haul content). This will significantly reduce licensing costs while increasing quality and choice to passengers. Airvod also can furnish several semi-imbedded solutions including seat-mounted brackets and seat-arm storage options.

GPS tracking provider Blue Sky Network has developed a lower-cost version of its D1000A flight tracking and two-way messaging transceiver. This little device meets a need many general aviation operators have for a way to track their aircraft without permanently installing a device in an aircraft. The battery-powered D410A, which can be carried on and off an aircraft like a cell phone, removes the barrier of costly installation and an STC requirement. The D410A lets pilots track speed, altitude and GPS location with the touch of a button. While the battery-powered device can be used in conjunction with a PDA to support text messaging, it cannot be upgraded to support voice communication like its D1000 stablemate. Still, the device comes with messaging software via an optional tethered PDA display. When connected to the D410A's serial port, pilots can perform inflight texting and trip submissions via Blue Sky's SkyRouter Web portal. From the portal, aviation managers can also send and



Rockwell Collins Airshow provides real-time status of the aircraft's position and route, groundspeed, altitude, TTD/ETA, as well as news and nearby points of interest, among other features.

receive messages to/from their en route aircraft. The standard SkyRouter provides GPS position reports, but special events are also resident with the D410A. Domestic pricing for the D410A is \$1,595, with data service plans starting at \$75 per month.

Atlanta-based EMS Aviation's newly launched Aspire family of Iridium/Inmarsat voice and data systems is designed to deliver full connectivity to operators of small- to medium-size business aircraft. EMS is introducing the product line in phases and will offer various upgradeable, customized services from voice and/or data to high-speed Internet, while also providing flexible installation and customizable capabilities and bandwidth.

EMS says its first offering, the Aspire 200 LG connectivity system, will be installed on a Cessna Sovereign aircraft. The 200 LG system is an Inmarsat cabin system offering voice and data connectivity through one channel of SwiftBroadband (SB200) service. With a high-gain antenna, the system also supports automatic switching to Swift64 services.

Key to the Aspire family's flexibility is a standard wiring configuration and interfaces that support either Iridium or Inmarsat components, which will enable operators to easily change or upgrade systems without rewiring. For OEMs, it provides the ability to wire an aircraft early in the production process without having to commit to a specific system until much later. Applications such as cabin lighting or entertainment systems can be added later. The system includes a 2 MCU transceiver that weighs just 8 lb, an integrated high-power/low-noise amplifier/diplexer (IPLD) and a blade antenna. Like its sister eNfusion products, the transceiver can be installed outside the aircraft's pressure vessel for added flexibility.

Meanwhile, Inmarsat OK'd EMS Aviation's eNfusion AMT-700 high-gain antenna as a Class 6 multichannel aeronautical antenna. This is Inmarsat's way of saying that the HGA can support multichannel SwiftBroadband, Classic Aero H/H+, and Swift64 services. It's powerful, too. According to EMS, the AMT-700 provides greater than 13.5 dB gain over its coverage region. Company testing indicates that the new tail-mounted, mechanically steered antenna furnishes greater gain compared to competing antennas for Inmarsat-based systems. The antenna meets ARINC 781 specs and could find a home on many midsize business aircraft, but it is also designed to be co-located with a Ku-band antenna on long-range business jets. Weighing in at just over 4 lb, the antenna's relatively small footprint is built to operate with Inmarsat's SwiftBroadband service in a smaller physical package while still offering multichannel functionality.



eNfusion® AMT-700

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And in a move to meet growing demand for fiber-optic-based IFEC hardware, EMS has teamed with

Costa Mesa, Calif.-based Lumexis to design and build optical video/application servers for the Lumexis FTTS (Fiber-to-the-Screen) inflight entertainment system. Lumexis hopes FTTS becomes the lightest weight, most reliable, lowest cost VOD inflight entertainment system. The Lumexis/EMS collaboration has resulted in the SSU, a 4 MCU, multi-processor server integrated with terabytes of solid-state disks. Each SSU delivers personalized audio, VOD and other data to more than 150 passengers.

Meanwhile, owners and pilots of business aircraft who want unfettered access to e-mail via their BlackBerries, iPhones and other handheld devices will want to check out EMS Aviation's Forté AirMail service. The service uses the Iridium network to furnish e-mail access to any Wi-Fi-enabled smartphone or PDA. The addition of e-mail complements EMS's other existing Forté products for voice and text, providing a host of communications applications. An uninstalled Forté AirMail suite is priced at \$25,995, including Wi-Fi interface, Iridium transceiver and antenna.

Alpharetta, Ga.-based Flight Display Systems' new 22-in. widescreen Fly HD flat-panel LCD screen features 1080p resolution and lets passengers enjoy Blu-ray movies and other inflight entertainment. The first installation was done in a Challenger 604 operated by Banyan Air Service. Weighing just 9.75 lb and only 1.6 in. deep, the new model includes HDCP-capable HDMI ports. Standard resolution composite and S-Video inputs are also included to maintain compatibility with legacy video sources. A PC input is also available to display computer graphics such as Flight Display's Moving Map.

The company reports major upgrades to its moving map product, including a new worldwide satellite image database and increased video quality. Graphics from NASA's "Blue Marble" satellite image database are included, giving the maps a rich, color representation of Earth and ocean depths. The images are stored on the new 8 GB solid-state hard drive, which represents a 200% increase in storage space. Three new inflight information screens have also been added. The moving map remains priced at \$6,890 for the RS-232 version and \$8,594 for the ARINC 429 version. The free upgrades are shipping with all new purchases of either model. The company manufactures more than 50 aircraft entertainment products with FAA PMA approval, including LCD monitors from 7-42 in., wireless audio systems, DVD players and flight view cameras.

One of Flight Display Systems' new Select cabin management systems has been installed in a "Flying Theater" configuration to a client's Gulfstream III aircraft. The installation was performed by International Jet Interiors. The new CMS features a high-definition 42-in. widescreen LCD monitor — the largest that has been installed to date in a Gulfstream aircraft. The aircraft owner, a Hollywood movie producer and director, now uses the entertainment system to screen films and review his various productions during flight. Cabin lighting, attendant call functions and electronic window shades in all three zones of the Gulfstream III are controlled by the new Select CMS from Flight Display Systems. The cabin features iPod docking stations, auxiliary input ports for computer video, 20-in. HD and 10.2-in. personal LCD monitors for additional entertainment value.

Flight Display Systems' recently introduced iPad Arm Mount upgrade enables passengers to use their iPads to watch movies, play games and enjoy their iTunes library during flight without draining battery life or experiencing uncomfortable viewing positions. The removable arm mount is a drop-in replacement for hundreds of existing Flight Display Systems products that have been installed on Gulfstream, Falcon, Hawker, Challenger, Pilatus and Citation aircraft.

The company is now delivering an upgrade package for Cessna Citation Mustang and Embraer Phenom owners. The Club CMS gives aircraft owners a complete inflight entertainment package, including Flight Display Moving Map with worldwide satellite imagery; iPod, iPhone, iPad adapter cable; a new

DVD/CD player with SD card; USB media inputs; and six audio channels. The upgrade provides up to 90 hr. of MP3 music, two new 7-in. widescreen LCD monitors, four OLED passenger switching panels and a headphone jack. The complete system cost is \$25,000, uninstalled.

In other news, the finished cabin for Gulfstream's new G650, unveiled at NBAA's Atlanta convention in October features the company's own Gulfstream Cabin Management System with CabinView high-definition audio/video distribution. GCMS provides passengers and crew with fault-redundant control of cabin systems through touch screens, touch switches and passenger control units, and, using an iPod Touch, iPhone or iPad synched to a particular aircraft seat, passengers can control cabin lighting, speakers, multiple HD monitors, Rosen Blu-ray entertainment equipment, CabinView system, window shades and temperature. Passengers also will be able to save their personal preferences. The system works with other personal handheld devices as well — but you can still use your hands to operate the controls.

Honeywell has selected Leominster, Mass.-based Alto Aviation's sound components for its Ovation Select cabin management system. Ovation Select was subsequently chosen by Embraer for its Legacy 450/500 series aircraft. Alto's new digital amplifier was co-developed with Honeywell to integrate with the Ovation Select System. Alto is providing Honeywell with the audio package for the Embraer installation consisting of four mid/high enclosures, two subwoofers and a customized EQ/digital amplifier. Ovation Select integrates digital, high-definition, high-speed connectivity technology throughout the cabin.

Meanwhile, JetMap III is Honeywell's latest moving map upgrade, featuring worldwide 3-D perspective views of terrain, ocean topography, enhanced graphics and polar ice views. JetMap III provides real-time flight data, passenger situational awareness information and data services for news, business, weather and sports. Current JetMap II users can upgrade to JetMap III through the simple replacement of the removable compact flash memory card.

Embraer is equipping its mid-light Legacy 450, super midsize Legacy 500 and ultra-large-cabin Lineage 1000 aircraft with a data link-capable Iridium Communications System from International Communications Group (ICG), of Newport News, Va. With ICG's ICS-220A Iridium Communications System, Embraer Executive Jet owners will have dual full-service Iridium channels, providing both flight deck and cabin voice services, along with a dedicated Short Burst Data (SBD) Data Link Modem in a single LRU. Operators will have the option to choose among the ICG NxtLink series, ICS-220A dual-channel system or the ICS-400 quad channel device. The ICG Iridium-based avionics provide operators with global communications services without hand-off or no-service area complications, including polar regions, the manufacturer reports. In addition, ICG's systems provide communications services for the traditional data link services such as ACARS and AFIS, as well as the FANS 1/A and CPDLC, and ADS-C messaging, which emerging rule changes will likely mandate for required flight deck communications to achieve FANS compliance and to fly FANS routes.

ICG and Cobham Antenna Systems have developed a global connectivity option in the form of global voice and SwiftBroadband (SBB) data capability. Dubbed Sora (Japanese for "sky"), the package combines advanced technology, capacity and versatility to provide voice and data communications through the Inmarsat and Iridium satellite networks.

Sora integrates an ICG NxtLink 220A communication system and its NxtMail Server with a Cobham SBB satcom terminal. Sora enables Wi-Fi devices such as Blackberries, iPhones and personal computers to operate on the high-speed SBB channel, and in-plane handsets furnish the cabin and crew with

worldwide voice. Additionally, the flight crew has a dedicated cockpit data link for AFIS/ACARS messaging, and a priority voice channel for air traffic management and flight operations personnel. ICG's NxtLink 220A is a three-transceiver device that combines dual channels of global voice and dedicated data link service via a Short Burst Data channel. It offers call priority and call preemption features to permit the flight crew to always have access to a channel. NxtMail Over Iridium can operate concurrently with other onboard data services such as Airshow and electronic flight bags, as well. The NxtMail server provides global e-mail service through either an inexpensive ICG ICS Iridium system or via any Inmarsat broadband terminal.

And to round out its office-in-the-sky portfolio, ICG offers a new AeroRouter 800, a compact LRU that uses non-proprietary architecture and is designed to be compatible with virtually any communications system or peripheral business device. The router furnishes connectivity to all common data circuits, including five for connection of typical data devices such as EFBs, PCs, multifunction machines or aircraft systems, and provides three uplink Wide Area Network ports for use with the SwiftBroadband and Very Small Aperture Telecommunications (VSAT) satellite systems, as well as other regional satcom or broadband systems. Its ARINC 429 circuits provide connections to aircraft systems for data acquisition, file storage or transmissions, or if required, monitoring aircraft altitude to automatically turn-off cabin Wi-Fi access below 10,000 ft., as well. But can it brew coffee?



Rokwell Collins cabin control unit.

Following its acquisition of DeCrane's Cabin Management assets in August, Goodrich now offers its aircraft interiors business unit clients a host of cabin electronics including an HD fully digital Ethernet-controlled cabin management system; a line of widescreen HD monitors with 1080p resolution; iPad/iPod Touch integration apps for controlling the CMS; iPod/iPhone/ docking stations with full integration into the CMS using touch-screen graphics; and a new Blu-ray player that offers HDMI, component and SDI output that accommodates longer harness runs, analog systems and serial digital systems.

Lufthansa Technik's inflight entertainment and cabin management system, dubbed "nice," for "networked integrated cabin equipment," is now available for retrofit on Bombardier Global and Challenger business jets. Lufthansa Bombardier Aviation Services has signed an agreement with its major shareholder Lufthansa Technik to offer nice installations to its customers in Europe, the Middle East, Africa and the CIS. Developed at Lufthansa Technik's cabin innovation center in Hamburg, nice is now standard for the Challenger 300 and an option for Global business jets. Lufthansa Technik's nice was also selected by Bombardier as the platform for the new Learjet 85's cabin management system.

The new Global Communications Suite from Panasonic Avionics, Lake Forest, Calif., offers more connectivity and productivity for business fliers through a combination of Panasonic's eXConnect, eXPhone and Airborne Television Network. The suite provides the bandwidth to support virtually any service business passengers require, including simultaneous voice, Internet, VPN, live television and videoconferencing. Panasonic also is in discussions to provide the suite to its customers who operate

Boeing BBJs, B747s and B777s, Airbus Corporate Jets and Embraer 135s.

Panasonic's eXConnect two-way broadband service can furnish high-speed connectivity, supporting data rates up to 50 Mbps. Panasonic's eXPhone, with its service partner, AeroMobile, enables passengers to make and receive calls and SMS text messages with their personal mobile phones and use GPRS-based BlackBerries and similar devices. The eXtraBandwidth service provides a tiered offering of guaranteed, consistent bandwidth for high quality communications, such as dedicated voice, videoconferencing and other bandwidth-critical applications. Panasonic's private Airborne Television Network can furnish real-time broadcast TV programming via a proprietary satellite feed. Panasonic says the network will be the first aviation satellite television product to deliver a consistent viewing experience on a global basis.



Panasonic eXpress portable media player

Panasonic and Lufthansa Technik recently signed a deal to jointly develop, build and sell advanced versions of their IFEC products.

ARINC and Rockwell Collins have outfitted a Bombardier Challenger 604 with inflight broadband capability. The two companies integrated ARINC Direct's SKYLink Ku-band satellite service and Rockwell Collins's eXchange satellite broadband avionics on a customer's Challenger.

The installation was performed at ARINC Direct's aircraft maintenance and integration facility in Colorado Springs using an STC developed under ARINC's ODA (Organization Designation Authorization). This first-of-type STC was completed in April 2009 for an ARINC customer based in Mexico.

The onboard system supports operation of an iPhone, allowing it to perform like a PC on a ground network. It also supports UMA voice calling, access to e-mail and corporate VPN, the Internet, VoIP global telephone service and videoconferencing. In an industry first, the system includes a terminal wireless LAN unit (TWLU) as a wireless bridge from the aircraft cabin LAN to ground-based public and private networks, enabling data transfers when a ground-based 802.11a/b/g network is located for use.



This view of the large 42-in. HD widescreen LCD from Flight Display Systems is shown with a Blu-ray disc on the screen. The installation was performed by International Jet Interiors in Ronkonkoma, N. Y.

In flight, the system features handoffs between SKYLink service and Inmarsat SwiftBroadband service, combining the two services as one. A unique manual option alerts users whenever they are leaving

SKYLink coverage — an important feature for operators who may want to know when usage will be at a more expensive rate. The communications suite also gives voice packets higher priority than data, allowing voice calls to continue smoothly without degradation of service while data are being sent.

ARINC plans to make the Challenger STC available to qualified aircraft maintenance and integration facilities, along with the recently developed STC for the Cessna Citation X and the upcoming STC (in-progress) for the Boeing BBJ.

Rockwell Collins eXchange with Service by SKYLink is a two-way satellite connectivity system providing broadband speeds of up to 3.5 Mbps to the aircraft. Operating on a Ku-band satellite constellation, SKYLink coverage begins when the system is turned on and continuously operates during taxi, takeoff, flight and landing. SKYLink Ku-band service is used on more than 95 corporate, personal and government aircraft around the world.

Notably, in mid-October, ViaSat of Carlsbad, Calif., acquired the SKYLink airborne broadband service from ARINC Inc. and added those business jet customers to the ViaSat Yonder high-speed Internet access network. The combination is intended to provide both Yonder and SKYLink customers with an enhanced service experience. The acquisition adds about 80 business jets to the Yonder network while increasing network capacity. With the help of its service partner, Satcom Direct, ViaSat has been gradually transitioning the new customers to the Yonder network over the past few months. Yonder service will provide former SKYLink customers with the same service, but with an expanded coverage area. The Yonder high-speed inflight Internet service now encircles the globe, with continuous coverage of virtually all major city pairs worldwide.

Since its founding in 1997, Satellite Beach, Fla.-based Satcom Direct has grown to become a major cabin electronics system integrator for the civil, government and military users of satellite communications. The company specializes in enabling aircraft operators to identify, install, operate and troubleshoot appropriate communications hardware and firmware to meet their company's travel and communications operations. This can range from making simple cell phone calls over an Iridium handset to a 24/7 airborne office capable of supporting teleconferencing, data link from the cockpit, inflight entertainment and a host of other emerging satcom-based capabilities.

Satcom Direct's name-brand airborne communication offerings include Inmarsat's Classic Voice, Swift64, and SwiftBroadband; Iridium Aero Services; ViaSat's Yonder Ku-band mobile broadband services, as well as a half-dozen proprietary applications and support services developed to simplify the use and minimize the cost of all of the above. Its engineers track satcom makers' product configurations so they can suggest installation options for an operator's specific aircraft. The company also operates an online satcom store that can furnish space-based communications gadgets for any kind of expedition.

The company has been ramping up the capabilities of its bundled aviation communications service, FlightDeck Freedom (FDF), including flight tracking and compatibility with flight planning systems. The service, which includes compatibility with most aircraft data link avionics, integration with Satcom Direct's new flight tracking offering, and with a growing number of flight planning systems, including Rockwell Collins's Ascend (formerly Air Routing International), FltPlan.com, Jeppesen, and Universal Weather. The company says the new additions also allow Satcom Direct customers to bundle FDF and flight planning from Ascend or Jeppesen in one cost-effective package and make FDF the only data link service compatible with FltPlan.com.

The new features added to FDF further expand the capabilities of the service. For example, FDF now

supports Primus Epic-equipped aircraft, including the Cessna Sovereign; Dassault Falcon 900DX/EX, 2000DX/EX/LX and 7X; Gulfstream G350, G450, G500 and G550; and the Hawker 4000. Additionally, FDF supports flight deck communications via Inmarsat, Iridium and SITA VHF, and transmits flight-critical data to the flight crew, including PDCs, Digital ATIS, oceanic clearances, weather and flight plan routes. Dispatchers and maintenance personnel can monitor the aircraft through automated takeoff and landing reports, e-mail messages to and from the aircraft, and can see aircraft positions at any time with SD Flight Tracker. Flight crews also have direct access to cabin and satellite network monitoring and performance tools while en route. FDF is offered at a fixed annual fee per aircraft.

Remember MagnaStar airborne telephones? They're back. In October, Satcom Direct, LiveTV Airfone LLC, and TrueNorth Avionics announced plans to develop and market a next-generation MagnaStar system that will be the first terrestrial network to encompass voice, data, Wi-Fi, smartphone support, e-mail, text messaging and multichannel VoIP for a complete business solution. Available in 2011, the new MagnaStar system will be based on a hardware concept derived from TrueNorth's open-architecture Simphone (pronounced "symphony") OpenCabin system, and will be available both for new customers and as an upgrade for existing MagnaStar operators. Service will be managed by Satcom Direct and will include Airfone's current voice and data services while adding Iridium satellite communications when the aircraft is out of Airfone range.

TrueNorth and LiveTV will co-develop the new system's hardware by combining a new MagnaStar radio with TrueNorth's Simphone phones. The new system will use LiveTV's exclusive 1-MHz air-to-ground frequency license, which provides a dedicated spectrum allocation for these capabilities. Among the features that won't change are the voice quality and coverage of Airfone's CONUS-wide network. Satcom Direct will be the service provider for billing and customer support, and will also provide customers with access to its other airborne business services, such as Global One Number and Flight Deck Freedom. As the manufacturer of the new hardware platform, Ottawa -based TrueNorth will market the new equipment and provide system integration and implementation.

Meanwhile, TrueNorth Avionics has announced it has developed a software application for its Simphone OpenCabin airborne telecom system that links to the ViaSat's Yonder high-speed mobile Internet service, which offers a typical user experience of 1-2 Mbps to the aircraft, and 125-1024 Kbps from the aircraft. Yonder provides true high-speed Internet access, VoIP and other office-in-the-sky applications. A simple software upload, the new TrueNorth app for Yonder connectivity, unlike upgrades with hardware-centric systems, requires no additional hardware. The app initially was installed aboard a Global Express aircraft by Skyservice of Montreal, a TrueNorth dealer.

Following the successful launch of the Aviator brand earlier this year, Danish satcom OEM Thrane & Thrane has renamed its SwiftBroadband line. For each product in the Thrane & Thrane SwiftBroadband family, the Aviator brand name is followed by a numeric descriptor, reflecting the level of SwiftBroadband service for which the terminal is used and the product variation designated by Thrane & Thrane. Using this convention, Thrane & Thrane's portfolio now comprises the Aviator 300 (previously Aero-SB Lite, with intermediate-gain antenna), Aviator 350 (previously Aero-SB Lite, with high-gain antenna) and Aviator 700 (previously Aero-SB+).

The company is taking orders for its Aviator 200 SwiftBroadband offering, in line with Inmarsat's launch of the new SwiftBroadband 200 service. The Aviator 200 will be the first SB200 terminal on the market, following successful installation and testing of the system onboard a Cessna Citation, which resulted in the company receiving Inmarsat Type Approval.

So to bring all this information back to a widescreen view, according to a 2009 study, "Rise of the Digital C-Suite" (by Forbes Insights and Google, and provided to us by Aircell), airborne passengers with access to the Internet maintain their ground-based usage patterns. Other studies have shown that 53% of C-Suite executives prefer to go online and locate information for themselves rather than delegate the task, and 60% of them conduct more than six work-related searches each workday, while 19% conduct more than 20. With the above profusion of recent cabin-tech advances, there's simply no longer an excuse to not accommodate passengers and flight crews with fingertip access to the information anywhere, anytime. BCA

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