



New networks and services advance onboard experience

by James Wynbrandt

Connectivity is king, and onboard broadband the holy grail as business aviation customers' expectations for airborne Wi-Fi access dominate the focus of the cabin electronics world, stoked by the expansion of satellite and air-to-ground (ATG) networks. Concurrently, new in-flight entertainment (IFE) systems and services offer enhanced passenger experiences, whether connected to the Internet or not. This report highlights defining recent, current, and planned developments in these arenas.

WATCHING THE NETWORKS

Satcom and ATG connectivity offerings are expanding beyond first-to-market providers. In addition to Ka-band, high speed Ku-band, new L-band and S-band services are on the way, as are new ATG networks in the U.S. and Europe, along with hardware to bring connectivity to midsize and even smaller aircraft.

Inmarsat Unveils European ATG/Satcom Network
Mobile satellite network operator Inmarsat, whose Jet Connex

Ka-band service launched bizav's gathering satcom connectivity revolution, celebrated with Honeywell Aerospace the 275th installation and activation of the system in May, 18 months after the service's introduction. Jet Connex operates over Global Xpress, a network of three geostationary Inmarsat I-5 satellites, delivering data at speeds up to 15 Mbps. Honeywell is exclusive manufacturer of the required onboard hardware, JetWave, for the business aviation market.

Gulfstream, Bombardier, Dassault, and Embraer offer Jet Connex/JetWave on their large-cabin aircraft, and it has also seen substantial acceptance as a retrofit for these models, as well as for cabin completions on new Boeing and Airbus bizliners. More than 40 type certificates and supplemental type certificates have been awarded.

The antenna size precludes installation on midsize-cabin and smaller airframes, where the six-figure system and installation costs would also be harder to justify. However, on airplanes that can stay in the air 15 hours and longer, and whose passengers are typically involved in global enterprises, this level of connectivity is indispensable.

Inmarsat introduced in May the European Aviation Network (EAN), providing

in-flight Wi-Fi service for the region's business aviation market, expected to debut in early 2019. EAN is the first onboard service that integrates S-band satellite and an LTE-based ATG network, according to Inmarsat. Featuring low-latency performance over land and water, EAN will support applications including remote desktop computing, streaming high-definition video, and online gaming, comparable to ground-based mobile broadband service. Coverage will include all 28 European Union member states, and Switzerland and Norway. The small, lightweight onboard equipment makes it suitable for a wide range of business aircraft. The ATG network, operated by Deutsche Telekom, offers data speeds of more than 75 Mbps.



Inmarsat's European Aviation Network will bring in-flight Wi-Fi to the region's bizav sector.

ViaSat Brings

Broadband Satcom to Mid-cabins

Vertically integrated Viasat, which operates its own Ka-band and Ku-band satcom networks and manufactures the onboard connectivity hardware, has developed a high-speed Ka-band satcom system that fits on midsize jets, "a first," said James Person, Viasat's director of global business development for business and VVIP aviation. Mechanically steered, the tail-mounted antenna requires no additional RF (radio frequency) box and thus doesn't require a large cabin- or executive airliner-size empennage for installation. The G-12 antenna weighs 26.4 pounds and total system weight is 51.4 pounds.

Providing service over North America and Europe, the system is available on the Embraer Legacy 450 and 500 as a factory option or aftermarket retrofit and can also be installed on any aircraft that can accommodate Viasat's compact 12-inch G-12 antenna, pending approvals, according to the California company.

The Ka-band satcom requires just three LRUs: the antenna; antenna control unit (ACU), which is part of the antenna; and modem. It works with any onboard router and operates with either AC or DC power. Live television is available by subscription with no additional hardware required. Peak data

rates of up to 16 Mbps are available even with the smallest data plans. Four new service plans, which are sold by retail value-added resellers, are available and include the Ultra30, Ultra40, Ultra60, and Ultra100 plans with corresponding numbers of gigabytes, ranging in price from \$6,995 to \$24,995 per month for new users.

Service speeds are set to increase when Viasat launches three ViaSat-3 satellites, with the first, serving the Americas, planned to enter service in 2020. The Ka-band systems installed today and running on ViaSat-1 and soon ViaSat-2 satellites will be able to take advantage of the higher-speed ViaSat-3 service.

The current addressable market for Ka-band and Ku-band satcom services is about 5,000 and 3,000 business aircraft, respectively, Person estimates. Flat-panel phased array antennas now under development will expand the market "to potentially 20,000 aircraft," he said. Viasat has tested and installed Ku- and Ka-band systems on government and special-mission aircraft as small as Beechcraft King Airs, Pilatus PC-12s, and Cessna Caravans, and the company has said it could service that market "if there is a compelling business case."

Iridium's Certus Broadband Touts Small Airframe Compatibility

Iridium's Certus bizav broadband satcom service is on

track to start operations in mid-2019. Hosted by its Next low-earth orbit (LEO) satellite constellation, Iridium can use smaller antennas than Inmarsat's, opening the service to airframes below the current large-cabin threshold. For larger platforms, Iridium offers full coverage over the Polar regions, increasingly important as long-range aircraft traverse these areas. Certus will use Iridium's L-band spectrum with an upgraded infrastructure, delivering higher throughputs and speeds expected to reach 1.4 Mbps. It will provide both cabin and cockpit connectivity, including safety and electronic flight bag services for the latter.

Iridium will offer a variety of antenna options and at least half a dozen service plans, with data speeds supporting applications ranging from aircraft communications addressing and reporting system (ACARS) at the low end (Certus 20 service, 22 Kbps), to high-def video streaming, videoconferencing, and multi-user Internet (Certus 1400 service, 1.4 Mbps).

By year-end Iridium plans to have all 75 Next satellites in place, 66 in the operational network (six polar orbiting planes of 11 each), nine as on-orbit back-ups, and six ground spares.

Current on-orbit testing is focused on Iridium Certus 350, the initial service class, which will deliver Internet and voice services to compact, purpose-built terminals that will be upgradable to Iridium Certus 700 with a firmware update once that service is available.

Iridium has named Gogo a global value added manufacturer (VAM) for Certus aviation terminals, as well as a service provider for the network, making Gogo the first Certus terminal manufacturer and service provider. Other VAMs include

Products, Projects, and Programs

LHT's Nice Touch Chosen for Global 7500

Lufthansa Technik (LHT) introduced its nice Touch cabin management system in May at EBACE, its launch application on Bombardier's Global 7500, with whom LHT collaborated on the system. It delivers 4K, ultra-high-definition content at high speeds. It incorporates both digital and physical interfaces, giving passengers a choice of how to control cabin settings and entertainment options. The Global 7500's living spaces are also outfitted with Suite controllers. Physical interfaces include the Bombardier Touch dial, which recesses into the side ledge when not needed. Both the Touch dial and Suite controllers work in conjunction with the nice Touch mobile application, which is available for iOS and Android devices.

Mecaer Brings I-Feel to Fixed-wing Fleet

Mecaer Aviation Group introduced in October the I-Feel Generation Three system, now available for fixed-wing aircraft, in addition to its traditional helicopter customers. I-Feel (In-flight Entertainment and Enhanced Lounge) brought business jet cabin-style CMS and IFE to executive helicopters. The new version of the smart device-controlled I-Feel provides wireless Wi-Fi connectivity, moving maps, mood and reading light controls, audio/video functions, and electro-chromic window shading control to the rotor cabin, in addition to noise-reducing Speech Interference Level Enhanced Noise System (Silens) technology, and offers a 20 percent weight savings compared with the previous hardware. It "takes everything we have learned over the years, industry feedback and new technology available, and wraps it into a one functional system," said Armondo Sassoli, MAG's co-general manager.



Gogo's Avance system provides 4G air-to-ground service for business aircraft.

Thales USA, Rockwell Collins, L3 Communications, and Cobham, and recently announced service providers include Honeywell Aerospace, Skytrac, Avitek, and Navicom Aviation.

Panasonic Steps Up Bizav Connectivity Presence

Panasonic Avionics, which provides global Ku-band satcom connectivity services for airlines, announced plans in late 2015 to enter the business aviation market, and a year later named Satcom Direct a value added reseller (VAR). Using Astronics Aerosat's tail-mounted FliteStream T-220 antenna, services include VoIP calling with improved call quality; geofencing services with boundary notifications and alerts; simultaneous access to Live TV and Internet; and GlobalVT, which allows customers to make calls and send text

messages using their personal devices from any altitude. Network coverage, provided via leased access from satellite operators, encompasses 99.8 percent of commercial flight routes, according to Panasonic. Three packages are available: 1.5 Mbps allows 25 GB data allowance; 2.5 Mbps data allowance is 35 GB; and 4.5 Mbps data allowance is 55 GB.

In January Panasonic introduced its third-generation communications network, aimed at the airborne market, using high throughput satellites (HTS) and an expanding constellation of Extreme Throughput Satellites (XTS).

The Ku-band service is also available from Idair, the Lufthansa Technik (LHT)-Panasonic Avionics joint venture. Formed in 2011 to offer CMS/IFE and connectivity solutions for the VIP/VVIP completions market, Idair is adding refurbishments and support services to its portfolio. "I think in retrofits, there's more room to unlock potential for customers and bring smart solutions that do not necessarily cost a lot of money," said Wassef Ayadi, Idair CEO. He pointed to products like Idair's

IFE Media Box, a "convenient and light portable solution for wireless entertainment, easy to use by anybody using personal electronic devices."

Last year Hamburg-based Idair completed three major VVIP cabin system installation projects on green Boeing bizliners: a BBJ, a 777, and 787-8. Two additional 787s are undergoing completions in the U.S. with Idair cabin systems, which are now flying on more than 30 aircraft, Ayadi said.

Idair's licensed Media Service, launched last fall and already flying on several VVIP aircraft, provides early window movies and other Hollywood content along with TV and music. Customers choose their content refreshment schedule for the subscription-based service.

Avance Advances, Gogo Reports

Gogo Business Aviation reports quick uptake for its Avance L5, 4G ATG service, and expects some 500 aircraft to be flying with the system, which bowed last year, by year-end. "A software-centric approach," Avance L5 creates "a fully integrated, aviation-grade inflight connectivity and entertainment platform" that doubles

Products, Projects, and Programs

FDS Further Smartens Its Cabin

FDS Avionics, which makes the Smart Cabin CMS and "do" suite of IFE offerings, has introduced two new moving maps developed for the "do" Experience, available in both 2D and 3D. The FDS Smart Cabin provides controls for lights, shades, audio-visual sources, and other cabin systems, and allows controls to be customized, even to fit specific moods, according to the Alpharetta, Georgia company.

The wireless "do" Capsule at the system's core enables control of CMS and IFE functions via iOS, Android, and Windows personal smart devices, and can stream HD video and allow sharing of office productivity files. The backbone Controller Area Network Bus (CAN Bus 2.0B) is easy to install and the architecture provides a reliable network of components without the complexity of running all wires to a central server.

Embraer Phenom Gets a Tech Panel

Embraer introduced in October the Phenom 300E, an updated version of its popular light jet, featuring interior enhancements including all new seats and wider and taller cabin. Cabin electronics have also received a significant upgrade. An upper technology, or "tech" panel along the centerline of the cabin ceiling displays in-flight information and incorporates an upgraded cabin lighting scheme, with a broad range of ambient mood selections. Bluetooth connectivity allows passengers to view inflight information on their personal devices. Audio and video on demand (AVOD) is available as an option via two slender seven-inch displays that swing down from the ceiling panel. Lufthansa Technik's nice HD CMS/IFE system is standard in the 300E.



Panasonic, which operates a mission control center to monitor airlines' in-flight entertainment and communications services, entered the business aviation market in 2015.



as an access pipe to connected aviation technologies, services and applications, according to the company.

Connecting to the Gogo Biz 4G network, Avance L5 supports live streaming video and audio, video conferencing, on-demand movies, personal smartphone use, real-time data for cockpit apps, and remote diagnostics. FAA type certificates and STC approvals for installations on more than 40 airframes are in hand, with approvals for installations on more than 55 business jet models ultimately expected.

Though known in business aviation for its North American ATG offerings, Gogo has been providing high-speed Ku-band connectivity to more than 550 commercial airliners worldwide

compatible with the Gogo Avance open architecture platform.

SmartSky ATG Set For Debut This Year

SmartSky Networks' nationwide 4G LTE ATG network will be commence initial operations in mid-2018, according to the Charlotte, North Carolina-based company. The network uses patented spectrum reuse, advanced beamforming technologies, and 60 MHz of spectrum to boost connectivity, delivering data with speeds comparable to next generation satellite solutions, according to Smart-Sky. It also boasts 20 times the bandwidth of current ATGs, supporting real time bidirectional IFC.

In January the FAA approved the first STC for installation of

and light jets, "the only streaming-capable 4G LTE-based system tailored specifically for aircraft up to 19,000 pounds max takeoff weight," said SmartSky Networks president Ryan Stone.

The system is designed to appeal to pilot owner-operators as well as charter and fractional companies that want fast in-flight Wi-Fi in both cockpit and cabin. SmartSky Lite customers will also be able to access Skytelligence-powered applications designed to optimize fuel management, maximize flight planning efficiencies, monitor weather, or access dynamically optimized re-routing recommendations.

Expected to be available for installation early in 2019, the airborne hardware is projected to cost less than \$50,000. Six onboard devices will be able to access the Internet at the same time. A \$1,000 deposit guarantees access to an "affordable" monthly subscription with pay-as-you-go usage and unlimited data access.

HARDWARE AND SERVICE PROVIDERS

As satellite and ATG networks expand, hardware improvements are making access more efficient, while access providers are creating more value-added services and data plans to take advantage of increased speeds and bandwidth. Recent developments confirm the industry's relentless pace of innovation shows no sign of slowing.

Rockwell Collins Takes On Execliner Completions

Under contracts with completion specialists Comlux America and AMAC Aerospace, Rockwell Collins ArincDirect will provide the full suite of cabin electronics and connectivity solutions for both the first BBJ Max and first ACJ320neo, respectively.

Products, Projects, and Programs

LHT Launches Radome Division

With the BBJ Max beginning deliveries this year, Lufthansa Technik (LHT) is rapidly expanding its portfolio of radome development and manufacturing capabilities. LHT's VIP aircraft radome line is led by its Two-In-One-Solution (TIOS) fuselage and tail-mounted installations, including the TIOS Ka (TIOS+) version created for the 737 Max. LHT developed and set up in-house manufacturing of new Ka-band-suitable versions of its VIP aircraft radome in just six months.

LHT is establishing a dedicated radome development unit "as an extension of our Original Equipment Innovation product portfolio," said Wieland Timm, LHT's head of sales for VIP and special-mission aircraft, citing the success of the Ka-band version of TIOS. "We are now going to set up a unit dedicated to radomes of all kinds."

GDC Technics Installs Live Television

Completion specialist GDC Technics performed the first live television installation aboard a VIP 787, the Texas-based company announced in February. The work included fuselage penetration and component shipside preparation, done in partnership with Boeing, said Mohammad Alzeer, GDC general partner.

The aircraft, one of a pair of Dreamliners the company is completing for an undisclosed client, is also equipped with an Arinc 791 Ka-band antenna (an industry first on a VIP or VVIP B787, according to GDC), Iridium antenna, satcom antenna-R, forward-looking camera, therapeutic O2 discharge port, quad camera, downward zoom camera, tailfin camera, and satellite TV antenna. A soundproofing package will reduce sound interference level (SIL) to 52dB, allowing for a much quieter cabin in flight, while a humidification system will improve cabin comfort.



Technicians install the antenna for a JetWave system on an airliner fuselage.

through its existing leased Ku-band capacity. Last September, Gogo announced expanding the global offering to the business aviation market. Gogo is bringing additional HTS capacity online, with Ku-band service expected to be available in the second half of this year.

"For those who fly internationally in and out of the U.S., Gogo Ku will be the perfect complement to the Gogo Biz 4G air-to-ground network, one comprehensive solution from one provider," said Sergio Aguirre, senior v-p and general manager for Gogo Business Aviation.

The primary system components include a tail-mounted antenna and hardware

the onboard system, on a Cessna Citation Excel, and hardware partners Avidyne and Aero-Antenna have received PMA approvals for the system's radio and antenna, respectively. The STC processes for many popular aircraft are underway and expected to be available in mid-2018, according to SmartSky. Satcom Direct (SD) is exclusive business aviation service provider. Introductory subscription plans are Basic (5 GB, \$2,500 per month); Corporate (15 GB, \$3,800 pm); and Enterprise (25 GB, \$4,500 pm).

In March, SmartSky announced SmartSky Lite, aimed at the lower end of the market, bringing 4G LTE connectivity to turboprops



The BBJ Max cabin project for Comlux follows a recent five-year completions agreement that gives the Iowa company the opportunity to provide solutions for all Comlux completions and retrofit projects, as well as access to its charter fleet to validate design, obtain crew/passenger feedback, and certify new projects. The Max is the first of two current projects under the contract, the second a BBJ retrofit. Engineering work on both is under way. Scott Gunnufson, Rockwell's v-p for commercial systems business development, noted this is the company's first project of this magnitude.

For the world's first Airbus ACJ320neo, for launch customer Acropolis Aviation, Rockwell Collins will provide cabin products including Venue HD CMS/IFE system, its Airshow moving map, and Viu LED interior lighting system, along with its Stage on-demand wireless content streaming solution. Stage has a library of more than 1,100 Hollywood digital rights-management-protected movies and television shows, as well as business news, weather, and sports feeds. The cabin products will also include 4K displays, wireless remote applications, and

energy/weight saving measures. AMAC will begin outfitting the aircraft before year-end, with delivery scheduled in the fourth quarter of 2019.

Citing work previously performed on the company's current ACJ319, Acropolis CEO Jonathan Bousfield said in choosing Rockwell Collins for the work, "We are continuing a successful relationship that began in 2015."

Cobham Satcom Delivers SwiftBroadband Solutions

Cobham Satcom's Aviator 300D and 350D are next-gen Inmarsat SwiftBroadband satcom systems capable of delivering SwiftBroadband-safety (SB-S) services. Both systems combine Inmarsat's SB-S flight deck communications platform with the company's Aviator S series SwiftBroadband satcom.

The Aviator 300D and 350D offer IP connectivity for the cockpit and enhanced communication between airlines, operators, pilots, crew, and air traffic management. The Aviator 300D system includes Cobham's IGA-5001 intermediate-gain antenna. It offers fast connectivity on the Inmarsat

SwiftBroadband network. Meanwhile the 350D system connects to Cobham's HGA-7001 high-gain antennas, which offer additional bandwidth.

"With the first FANS-1/A deadline already in enforcement for routes along the NAT High Level, and further enforcements coming into play at the start of 2020 on FL290 and above, there's a compelling advantage to upgrading communications equipment on board your aircraft," said Andrew Legg, regional sales director Asia-Pacific for Cobham Satcom. "As the only SB-S-approved system currently flying, Cobham, with its Aviator 300D and 350D systems, can help you to meet the requirements of FANS-1/A and avoid the hassle of installation backlogs, supply and demand cost increases, and the inability to fly key routes."

Cobham's range of SB-S Aviator systems features communications services, connectivity for the flight deck, continual positional awareness for flight tracking, flight data streaming, weather, and more. The company also offers a certified application provider program, which certifies third-party commercial

Products, Projects, and Programs

Constant Part of Innov8's Solutions

Under an agreement announced in March, MRO Michigan's Constant Aviation is the launch dealer for Innov8 Cabin Solutions' CabinFlex (CFlex) Command and CFlex Cast cabin control and entertainment controllers. Unveiled at NBAA in Las Vegas last year, Command and Cast offer affordable full cabin management and entertainment upgrade solutions, integrating adaptable designs with state-of-the-art interfaces, controls, and communication technologies.

Ingenio Has Cabins Up in Arms

Montreal's Ingenio Aerospace has added new tablet arm mounts for new and retrofit applications to its line of electro-mechanical Smart Cabin products. Made for both cabin and cockpit, Ingenio's products support different formats of tablets, electronic flight bags, smartphones, and MP3 players. Its USB-based receptacles accept a variety of plug-in smartphone and tablet arms.

Airmont Speeds Up Connectivity

Playing to executive airliner and large-cabin bizjet owners and operators, Airmont introduced in May at EBACE an airborne connectivity accelerator for installed satcom systems and a solution enabling simultaneous access to live television and the Internet. Airmont-KxL, slated to go live later this year, can boost the speed of Inmarsat SwiftBroadband and Iridium's forthcoming Certus Ku-band satcom network service, from current speeds of a few hundred kilobits per second, to up to 3.8 Mbps.



Comlux is working with Rockwell Collins to outfit aircraft with the Venue HD CMS/IFE system, Airshow moving map, and its Stage on-demand wireless content streaming solution.



applications to use its SB-S platform. The platform is available to established application providers and developers.

Honeywell Rolls Out New Router, Connectivity Services

The JetWave juggernaut continues at Honeywell Aerospace, exclusive manufacturer of the airborne hardware for Inmarsat's Jet Connex high-speed broadband service. The company expects to ship some 450 to 500 JetWave units this year, and 36 STCs have been secured in the past 20 months, said Jim MacDougall, product director, cabin satcom at Honeywell.

"We've never done [STCs] that fast before," MacDougall said. Key to the quick work were partnerships with installers including Lufthansa Technik and Jet Aviation and integrators such as Rockwell Collins, Thales, and Zodiac that allowed Honeywell to "attack the aftermarket," he said. Nine of the STCs are for bizliners. The company expects to receive additional STCs in the coming months.

Honeywell is considering an in-house-designed antenna or partnering with manufacturer to bring a system for smaller airframes to market, according to MacDougall, and the company could make an announcement about such plans within a year.

Since rolling out its GoDirect suite of connectivity services in 2016, Honeywell has "received substantial feedback from operators about the size and costs of onboard routers," said John Peterson, senior director of connectivity services for Honeywell Aerospace. "Everything that [has been provided] is too big, too heavy, too hot, and consumes too much power. We realized we

have an opportunity...to bring a completely disruptive product to the aerospace market."

In response, the company announced in March its new GoDirect Router, which will be half the size and weight, consume one third the power, and be one third the cost of current routers, slated "to reach the market in the next few months."

Built-in threat-protection security software will shield the GoDirect Router from laptops and other connected systems brought on board (offered as an upgrade option on legacy Honeywell routers).

Designed for ease of installation on aircraft with older legacy systems, the new router will simply plug into the same location, a swap that should take about 30 minutes, Peterson said.

Honeywell also introduced this spring the Aspire 350 and 400 connectivity products. Aspire 350, scheduled to enter service in next year's first quarter, uses the Iridium Next satellite constellation and will provide cabin connectivity with faster speeds as well as critical voice and data communications in the cockpit.

The Aspire 400, to enter service by mid-2019, will operate through Inmarsat's SwiftBroadband. Weighing about 100 pounds less than comparable units, Aspire 400 provides capabilities for FANS, ACARS, and air traffic control secure voice capability. It consists of a satellite data unit, configuration module, high-power amplifier, and diplexer/low noise amplifier, and has two separate and independent SwiftBroadband channels for fully segregated cockpit and cabin communications.

Upgrading to the Aspire 400 is "quick and easy" when replacing

Honeywell's older satcom systems such as the MCS-7000 or MCS-7200, the company said. An intermediate- and high-gain antenna are available for the first release of the system.

Aspire 400 can be installed alongside an Iridium-based Aspire 350 for a dual-satcom setup "to provide redundancy over multiple networks," according to Honeywell.

Satcom Direct Plays Cyber Sleuth

Satcom Direct is keeping a focus on the cyber security side of connectivity, in May adding a cyber-security threat management module to its SD Pro flight operations dashboard, among other security enhancements. "As business aviation becomes more connected, aircraft become digital platforms for incoming and outgoing data transfer," said Michael Skou Christensen, v-p at the Florida-based company. "Each system will have its own vulnerability, so the need to constantly monitor and proactivity prevent cyber attacks is now imperative."

The satcom services and hardware provider's portfolio includes solutions to shield data via encryption and secure network infrastructure, monitored by the company's certified cybersecurity experts. The new cybersecurity module allows users to see the types of threats that have been identified and view and sort threats by category, including malware, active intrusion, and phishing. Based on the information, flight departments can make better decisions about connectivity issues regarding user behaviors and security policies, and stay ahead of any potential vulnerabilities, according to Satcom Direct.

At EBAGE, where the security

upgrades were announced, the company presented live hack attacks by "white hat," or ethical computer hackers, to demonstrate real-world scenarios involving identity capture, phishing, password cracking, and system compromises, illustrating "just how important it is to be aware of the threat of cyber security, and the need to implement the necessary hardware and software to better protect data," said Skou.

Products, Projects, and Programs

Astronics Introduces Phone/Controller Handset

Astronics PGA introduced in May its new Smart Wireless Handset for VIP in-flight entertainment and connectivity (IFEC) systems. The handset serves as an all-in-one phone and passenger control unit for IFE, lighting, seat control, flight information, and other cabin functions. The handset can make and receive calls anywhere in the world. The wireless system can be used for video conferencing and Internet access as well as voice calls. A docking station powers the handset via wireless Qi technology.

The Smart Wireless Handset is scheduled for availability early next year.

AMAC Active on STC Front

Swiss completion specialist AMAC Aerospace has been active on gaining connectivity STC approvals in the course of its completions and refurbishment projects. In March AMAC received an EASA STC for installation of JetWave Ka-band antennas on A318/A319/A320/A321 bizliners, joining STCs for satcom solutions covering the A330-200 and A340-600 received in the third and fourth quarters last year.



Dassault has partnered with Honeywell GoDirect services to support FalconConnect, which bundles all of the service, billing, and technical support for connectivity into one bill.

HTTPS Web Filtering From AirSatOne

Network access provider AirSatOne in May introduced HTTPS web filtering with the new version of Flightstream SA, its satcom services management tool. The filtering enables aircraft operators to control onboard Internet access by restricting or granting access to not only HTTP-based, but also HTTPS-based web pages and services.

HTTPS is an encrypted website connection whose use, encouraged by Google, has been on the rise in the recent years. The Electronic Frontier Foundation's latest report states that half of the Internet is now protected by HTTPS, but satcom service providers need the latest technology to effectively manage HTTPS, according to AirSatOne.

Features of Flightstream SA include domain/URL blacklist and whitelist, category-based blacklisting, file-type filtering and file-size filtering. Aviation-specific

encrypted web apps such as flight planning and weather services can be whitelisted to ensure connectivity while managing passenger access. It also includes a full set of Internet security and management tools. Flightstream SA is deployed globally, to reduce hops and latency at the edge of the satcom network and the public Internet.

"AirSatOne has been providing network security and cyber security since we opened our doors in 2011. We have never left our customers unprotected and we have a mature product that just keeps getting better," said Jo Kremsreiter, AirSatOne president.

Additionally, web filtering provides passengers with better-managed connectivity. Unwanted Internet connections, including automatic connections, can be eliminated, freeing up bandwidth and enabling a faster Internet experience. The filtering software runs on AirSatOne's ground-based edge router, so no specialized

router or onboard installation is needed. Clients can change service settings at any time through the AirSatOne portal, either for a single aircraft, selected aircraft within a fleet, or an entire fleet, without access to the aircraft.

Dassault Offers Turnkey Connectivity Service

Dassault Aviation introduced in May at EBACE FalconConnect, providing one-stop connectivity services for owners and operators of new and in-service Falcons. FalconConnect bundles all of the service, billing, and technical support into one plan and one bill. Dassault has partnered with Honeywell GoDirect services to support FalconConnect.

"We have to have to keep up to date because people are running their business on it," said Dassault Aviation business development manager Josselin Des Courtis.

With new high-speed Ka-band satcom systems proliferating and allowing video streaming into the

cabin, the cost of connectivity can easily exceed an operator's expectations. "For connectivity, there is still room for improvement," he explained. "Sometimes the bill for connectivity is so high, it's almost compared to the [bill] for fuel. It's a real problem, and sometimes that leads operators to cut off the Wi-Fi during flight. But [the owners] are here to run a business, and it should be a no-brainer to run connectivity."

Included in the package are fleet view, data usage trends, activation of services, consumption management, and billing and payment history.

Services are available for Jet-Wave Ka-band and traditional Ku-band satcom, Iridium and air-to-ground networks, quick-access recorder-based connected services, and FANS and ACARS safety services, among others.

New Falcons will roll off the assembly line in 2019 with FalconConnect already included. Service begins this summer for later-model Falcon 900s and 2000s, as well as the 7X. Dassault is studying which of its older models to add to FalconConnect.

Dassault also announced additional data plans are now available for Jet Connex service on its jets.

Business aviation customers are normally required to have a fully approved Ka-band optimized radome to install Jet-Wave and access Jet Connex, but that requirement has been waived while Dassault finishes development of an approved Ka-band radome, expected next year. Once an approved radome is installed, customers can access the entire Jet Connex data plan catalogue, which currently offers tiered plans up to 15Mbps. In the interim Dassault offers five tiered data plans with speeds up to 11Mbps. ■