Airline ENTERTAINMENT INTERNATIONAL

THE INTERNATIONAL REVIEW OF IN-FLIGHT ENTERTAINMENT & COMMUNICATIONS

SHOWCASE2010

What's inside?

- Seat/IFE integration
- Connectivity
- Regional IFE

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> A LOT OF PEOPLE ARE HYPING UP HIGH DEFINITION, BUT THEY'RE OFTEN TALKING ABOUT SOLUTIONS THAT ULTIMATELY WON'T DO THE FULL JOB

horsetrading

The pace of change in consumer electronics has always caused concern – as anyone old enough to own a Betamax video player can confirm. The challenge is even more acute for airlines when assessing the fast-moving IFEC sector – choosing which horse to back is made tougher still by protracted installation times and certification procedures, whereby today's must-have gizmo could be consigned to the dustbin by the time it's in service fleetwide.

However as the capabilities expand, the opportunities for airlines to get their money back and even turn a profit proliferate. Ancillary revenue growth continues to be heralded as the saviour of the airline industry, with passengers increasingly nickel and dimed at every turn. This can become a little tiresome – the trick instead is to adopt a more targeted approach that responds to individual passenger preferences – expect to see huge growth in the application of CRM technology in the IFEC sector as we go forward.

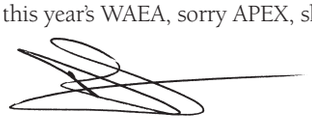
Connectivity will continue to underpin developments – allowing a constant flow of information to and from the aircraft, and enabling real-time credit card transactions. But just like consumer electronics, the connectivity sector is also prone to difficult decisions regarding future technology choices. For someone that finds it hard to decide what to choose from a restaurant menu, I have to admit I struggle to keep up with all this talk of frequencies and bandwidths. Fortunately, *Airline Entertainment International* is able to call upon expert contributor, Brendan Gallagher, who has once again applied his many years of experience in the industry to craft some thoughtful and timely features on the challenges ahead.

Connectivity tops the list, with the debate continuing to rage over the choice between L-, Ku- and Ka-band. Inmarsat revealed its hand recently – it has agreed a contract with Boeing for the delivery of three 702HP Ka-band satellites, which will make up the new Inmarsat-5 (I-5) constellation. The company says this will deliver mobile broadband at speeds of up to 50Mbps.

This thirst for ever greater speed reflects passenger demand for richer and more sophisticated content – for example, HD programming. However HD's introduction in the air is fraught with difficulty: "A lot of people are hyping up HD, but they're often talking about solutions that ultimately won't do the full job," says Lufthansa Technik's Andrew Muirhead on page 8. "I believe some providers haven't done all their homework on the requirements for the distribution of HD – and not just today's requirements but also those likely to emerge over the next couple of years."

Elsewhere, we take a look at the ongoing integration efforts between IFE and seating suppliers – a change long overdue but already gathering pace at a refreshing rate; and we look at the opportunities offered by the rapidly growing single-aisle and regional jet market.

It's not always easy backing a winner, but we hope you find the supplement a useful form guide; and we look forward to meeting you all at this year's WAEA, sorry APEX, show in Long Beach, California!



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Patrick Brannelly has skippered Emirates to a string of awards for IFE excellence. He's also one of the key figures behind the rebranding of the World Airline Entertainment Association to reflect the ever broadening interests of its membership

BRENDAN GALLAGHER, AIRLINE ENTERTAINMENT INTERNATIONAL

"I've been with Emirates since 1992, when it became the first airline in the world to offer in-seat IFE across the fleet – that's a good way to sum me up." British-born, Dubai-based Patrick Brannelly is not one to blow his own trumpet. But the fact is that on his watch Emirates' ICE has been recognised consistently as one of the best IFE offerings in the industry, while a couple of years ago the carrier pioneered mobile phone services for its passengers.

Now responsible for the airline's complete product and corporate communications effort, Brannelly has also somehow found time to be a leading light of the World Airline Entertainment Association (WAEA). In 1997-2000 he served on the board, latterly as president and chairman, before returning two years ago and subsequently starting his second spell in the leadership role.

"My career before joining Emirates was in news journalism and marketing communications," he says. "So I found it very useful to attend my first WAEA events and meet the people who knew the business and could teach me what I needed to know. I came away from my first annual conference and exhibition knowing who was who in the industry – what was vapourware and what was real."

Brannelly's early days at the helm of the not-for-profit trade organisation proved to be excellent preparation for the current transition into its new APEX (Airline Passenger Experience Association) identity. "In a busy couple of years we refocused the way we communicated with the membership, creating newsletters and

> THE MORE WE TALKED AND THE MORE ANALYSIS WE DID, THE MORE OBVIOUS IT WAS THAT CHANGE WAS NEEDED

introducing email and the website," he recalls. "It was fun to be involved and many of the people I met on that board are still very good friends."

Fast-forward – for once the expression is appropriate – to 2008. "When I started my second term on the board the industry was facing a lot of challenges – new areas of activity, a growing range of connectivity options, the widespread introduction of video on demand and its associated very complex interactive systems, live television and handheld IFE. The very future of the association and how it would thrive in years to come were in question."

Fortunately, the WAEA leadership has always worked to a two-yearly rhythm of strategic reviews designed to keep its structure and activities up to the mark. "I arrived just as they were starting a review," says Brannelly. "We looked at the needs of the membership, examined how well we were meeting them and reflected on how we might refocus the association to do better still."

The current board is exceptionally representative, its chairman believes. "It includes the most global span of airlines for many years – from Australia, the Middle East, North America, Europe and South America," he says. "It's also very much a group effort – every two-day meeting is like an intensive, high-quality workshop."

The announcement earlier this year of the new APEX identity followed many months of debate and soul-searching. "During that time we drew up a new five-year strategic plan, part of which was designed to address one of the factors that might limit the association's prospects of future success – its name," says Brannelly. "The more we talked and the more analysis we did, the more obvious it was that a change was needed."

ALL CHANGE The growing power of AVOD systems and their onboard networks was the catalyst. "When the association was first formed, it was all about movies and how to project them on the aircraft. Along with the seatback magazines, that was it," Brannelly recalls. "The association still excels in the entertainment role, of course. But now the systems in the seatbacks are interactive, with the potential to act as nodes on the airline's business network. At the same time, airlines are addressing the total customer journey – booking,

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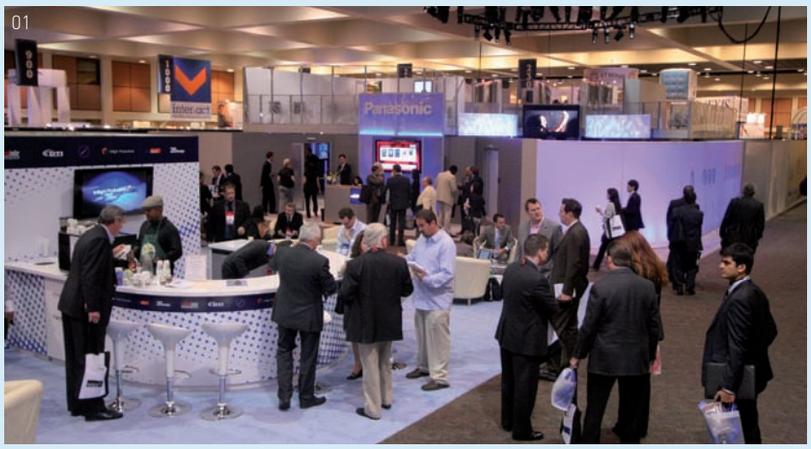


what's in a name?

The WAEA first announced its change of name to APEX in May during a WAEA conference focusing on airline seats and IFE systems in Hamburg, Germany. The decision followed a two-thirds majority vote of its membership in favour of the move. "As our industry evolves, it is the association's obligation to stay ahead of the curve and accurately capture the pulse of our membership," explains Brannelly. "The word 'entertainment' in our name was somewhat limiting the association's ability to define its future, although of course entertainment is very much our heritage, and will remain at the heart of our activities."

getting to the airport, check-in, the lounge, the gate and every aspect of the experience on the aircraft – with a view to giving and receiving maximum value at every stage. Whether the seatback screens are connected to the ground or not, they represent an engagement channel that allows the airline to try to understand the customer experience and maximise customer satisfaction. Our members are doing more and more of that – hence the new name."

As seems to be the case with every other campaign to refresh a venerable brand, the new appellation has attracted widespread comment. "I wouldn't say the name was necessarily my first choice either, but it was close and it met all the requirements," Brannelly comments. "But remember – in the end it's just a name. What we're really doing is setting out the association's stall all over again describing what it is and what it aims to become."

Fittingly, the first physical manifestation of APEX was a revamped website. "The site, www.apex.org, was up and running the minute the change of name was announced," says Brannelly. "Now we're working on a new logo, aiming to reveal it before the end of the year. The design is the subject of an open competition among the membership, and there's some fabulous work among the submissions received so far. The word 'APEX' is also on the association's newsletter, and some members already write 'Dear APEX' rather than 'Dear WAEA' when they communicate with us, so it's clearly gaining some traction."

STEADY HAND As for changes to the way the association goes about its business, Brannelly makes it clear that there will be no sudden upheaval. "When it comes to our activities – the annual conference and exhibition, the single-focus workshops, the publications – it could well be steady as she goes over the next few years. But nothing is sacred – we know where the strengths and weaknesses are in every part of the product, and we're focused on playing to the strengths and tackling the weaknesses. One thing is for sure, however – we'll never do anything that's not in the best interests of the members."

Brannelly is certain that the next big date on the APEX calendar meets that criterion. "We're expecting a record turnout for the annual conference and exhibition at Long Beach in California, and we're very pleased to be co-locating with Aircraft Interiors North America," he says. "Co-location offers a lot of benefits to both sets of organisers and both sets of attendances. It's good for our membership, so we will continue to seize these opportunities as we move forward under the APEX banner." ■

01. The 31st Annual WAEA Conference and Exhibition will take place this September in Long Beach, California

blurredvisions

HD video is hot, with IFE providers queuing up to trumpet new products – but there's a lot more to delivering a true HD experience than meets the eye

BRENDAN GALLAGHER, AIRLINE ENTERTAINMENT INTERNATIONAL

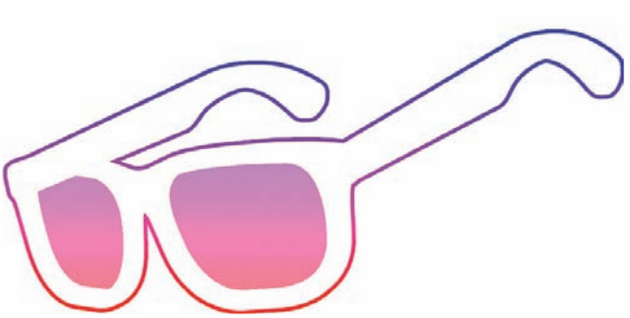
"A lot of people are hyping up High Definition (HD), but they're often talking about solutions that ultimately won't do the full job," says Andrew Muirhead. "I believe some providers haven't done all their homework on the requirements for the distribution of HD – and not just today's requirements but also those likely to emerge over the next couple of years."

As the boss of Hamburg-based Lufthansa Technik's Cabin Innovation Centre, Muirhead is in the thick of a campaign to upgrade the company's successful NICE cabin network to deliver HD end-to-end. "We're focusing on the distribution of HD over our existing Ethernet infrastructure," he says. "The enhanced system will be suitable for both business jets and the larger VIP aircraft, and it will conform with all the standards so that we're fully prepared when digitally stored HD content is widely available."

Lufthansa Technik is developing a pair of Blu-ray players – one aimed at VIP customers, the other for Bombardier's new Learjet 85 bizjet – and readying its media server for the legal delivery of digital HD content. Muirhead's team is also addressing novel sources such as HD-capable external cameras: "We expect someone to hit the streets with that before too long."

Other names at the forefront of the HD gold rush include Rockwell Collins, Britain's Airline Services Group and Panasonic Avionics.

Rockwell Collins has just announced that the latest version of its dPAVES overhead broadcast IFE system will include HD-ready LCD screens. Manchester-




AIRCRAFT
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DO NOT ADJUST YOUR SET

What is HD?

The definition of a video image depends essentially on the number of horizontally scanned lines used to create it. The picture on an ordinary PAL television comprises 480 lines, 'Standard' HD has 720 lines and full HD has 1,080 lines. Three things are needed to deliver an HD image: a Blu-ray player or a media server capable of hosting stored content, a network offering bandwidth of at least 30Mbit/sec for each content stream, and an HD-capable screen.

To prevent theft, HD content must be encrypted at the source before delivery over the network and then decrypted inside the display. This requirement is covered by the HD Media Interface (HDMI) standard incorporated into Blu-ray players, LCD televisions and other consumer electronic products.

based ASG offers standard HD (720-line) screens ranging in size from 5 to 17.5in for overhead applications. And AVOD market leader Panasonic is committed to introducing HD over the next few years, starting with a 1080-line 32in screen for first-class suites that is due to be available by the end of next year.

SUPPLY AND DEMAND Panasonic product marketing director Cedric Rhoads believes that limited availability of content is probably the main brake on the emergence of HD in aviation. "We have the technical ability to provide 1080 resolution but right now the content supply industry is nowhere near making the titles available in the necessary quantities," he says. "Together with a number of other issues, that means there are still no systems on the market today providing HD throughout the airliner cabin."

Rhoads and Muirhead both agree that HD for the ordinary traveller will have to wait until the consumer electronics market has adopted the technology widely enough to make it affordable by the IFE manufacturers: "At present, even if the whole IFE industry got together and agreed to buy the same HD-capable panels and promised to keep buying them, we still wouldn't come close to putting a dent in the production runs the manufacturers want," says the Panasonic man. "What we need is a panel that meets the technical specs, plus some assurance that it will be sold widely in other markets for several years to come. If production ends early, we have to re-engineer for a new panel – it's one of the biggest challenges that we face."

Says Muirhead: "When you're building equipment for aircraft cabins, the quantities are really low compared with those of the consumer market. To get the necessary economies of scale when you introduce new technologies in the cabin you need to use things that are already in wide circulation in the mass market."

Then there's the question of whether HD is worth all the trouble and expense when it's delivered to economy-sized screens – can anyone tell the difference?

"We did some experiments with different sizes of display and found that 720 resolution started to become visible only at 15in and above," says Rhoads. "1080 is different – it's more evident on screens as small as 12in or even 10.5in." Muirhead takes a harder line: "I think that at screen sizes of 15in and smaller you would be hard-pressed to find someone who could tell the difference. Conversely, it begins to emerge at 20in, and you really notice it once you get to 30in."

For Richard Cooke, head of IFE development at Airline Services Group, 17.5in marks the threshold: "Below this the screens will not resolve enough information to make the difference worthwhile. Above it, the HD effect can be seen with ease."

CLASS DIVISION Some people suggest that the screen size/resolution equation could lead to twin-track introduction of HD by the airlines, with the premium classes getting 1080 first while the back

> 66 WHEN YOU INTRODUCE NEW TECHNOLOGIES IN THE CABIN, YOU NEED TO USE THINGS THAT ARE ALREADY IN WIDE CIRCULATION IN THE MASS MARKET 99

ILLUSTRATION BY MAGIC TORCH

of the bus has to make do with standard definition or 720 HD for a few more years. Rhoads agrees: "We're planning products now and I think we will initially see 720 resolution in economy, with its smaller screens."

But Muirhead points to a big stumbling block. "I don't see it happening on a class basis," he insists. "Given the cost of the encoding, why would you have both standard definition and HD versions of the same content on the aircraft? And imagine the logistics of figuring out and supplying the right mix of SD and HD for each aircraft in the fleet. These are powerful reasons for offering HD throughout or not at all."

So when might HD hit the seatbacks across the aircraft? "As far as we are concerned it's going to be in the A350 timeframe, which means from 2013 to 2014," says Rhoads. "We're working towards the original timetable – Airbus has told suppliers that even if it does slip the airframe schedule, it's going to hold the vendors to their agreements. So even if A350 entry into service goes out to four years from now, we plan to be ready before then."

> 66 AS FAR AS WE ARE CONCERNED IT'S GOING TO BE IN THE A350 TIMEFRAME, WHICH MEANS FROM 2013 TO 2014 99

01

01. Screenshot showing Lufthansa Technik's 3D moving map application

Watching brief

If HD isn't likely to be a standard feature of the cabin for a while yet, things are looking up for live inflight television. At present, real-time television programming to the airliner seat is restricted for commercial and cultural reasons to the airspace of a handful of regions, including North America and Australia. Delivered by direct-broadcast satellites (DBS), it's offered by just a handful of carriers.

But now Panasonic is getting ready to offer a worldwide service, using its eXconnect Ku-band satellite system to deliver digital streaming TV to long-haul aircraft. "We're in the process of securing content providers for Panasonic Airborne Television Network (PATN)," says Cedric Rhoads. "We've signed up four so far and plan to secure at least another couple before we start rolling the service out with our launch customer before the end of next year."

While today's services are confined to their regions, the Panasonic offering will be available from the start over a broad swathe of the globe. "Our launch customer will enjoy coverage over Europe, the North Atlantic, Middle East, Southeast Asia and East Asia," says Rhoads.

PATN has two other big strengths besides its near-ubiquity, according to Rhoads. "Once an airline has selected our eXconnect passenger broadband service and the onboard system that goes with it, no extra hardware is needed for television – all they have to do is name it as an option. And because we control the entire distribution chain – from acquisition of content all the way to its delivery to the seatback screen – we will be able to assure a consistently high-quality service worldwide."

INTO THE SUNSET Meantime, Andrew Muirhead cautions, there are a number of things out there that could have a big effect on how HD content is distributed. The one most in need of urgent attention is the looming 'Analogue Sunset'. Driven by digital rights management and piracy concerns, the equipment manufacturers and HD content providers have moved to shut down the use of analogue outputs from Blu-ray players on the grounds that analogue is too easily captured by the unscrupulous.

"This matters not just for our industry but also for anyone who plans to buy a Blu-ray player," says Muirhead. "From 1 January next year, software built into analogue discs will start switching off the HD capability so that the image is permanently reduced to standard definition." As if putting HD into aircraft wasn't complicated enough already... ■

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Turboprops, regional jets and a new generation of narrowbodies are the next frontier for the IFE industry: two companies – Inflight Canada and Vision Systems of France – have developed overhead video installations designed specifically for the smaller cabin

BRENDAN GALLAGHER, AIRLINE ENTERTAINMENT INTERNATIONAL

With their smaller cabins and shorter sector lengths, regional jets and turboprops have until recently not been the most fruitful territory for IFE system builders seeking new markets. But now a commercial and a technological trend have coincided to give operators a reason to buy, and the suppliers the ability to meet their needs.

On the demand side, the carriers have taken note of the wave of new product activity among their long-haul cousins and know that their cabins can't stand still either. Meanwhile suppliers are making the most of the opportunities offered by the wider consumer electronics industry and its relentless drive for lighter, brighter screens and cheaper, more compact processing power.

Leading the drive to engineer overhead broadcast IFE into the tight confines of today's regional cabins – and with an eye firmly fixed on emerging types like Bombardier's CSeries (pictured here), Mitsubishi's MRJ and Sukhoi's Superjet 100 – are Montreal-based Inflight Canada (IFC)

> 66 WE HAVE CREATED A RETRACT ASSEMBLY THAT WILL ACCOMMODATE A THIN LCD MONITOR SIMILAR TO THOSE IN LAPTOPS 99

and Vision Systems, located near Lyon in southern France.

So far they are the only suppliers to have squeezed the quart of an IFE system into the pint pot of a regional cabin. Inflight Canada did it a few years ago for Air Canada Jazz, putting Thales' cut-down TopSeries i-4500 into the carrier's Bombardier CRJ705s, and developing a first-generation overhead design for the Bombardier CRJ200. Meanwhile, Vision Systems was installing a DVD-based overhead system in the ATR72-500 turboprops of India's Kingfisher Airlines. Now they've come up with two new overhead solutions and are looking at a broad range of candidate airframes.

02

01. Inflight Canada's pico projector solution
02. Inflight Canada's Media Player

CANADIAN CONQUEROR Best known for its revolutionary iCACHE underfloor solution for AVOD and in-seat power aboard single-aisle and widebody airliners, Inflight Canada developed its overhead package in response to interest from carriers operating regional jets on sectors up to five hours in length. "To the best of my knowledge, we're the only company ever to have produced both overhead IFE and in-seat AVOD and power for regional jets," says president George Smallhorn. "We're now pursuing this market with new designs for overhead IFE that are simple and light and allow the airline to source the main items of equipment from the manufacturers of its choice."

Inflight Canada's original venture into overhead for RJs combined an adapted Airbus A320-type retractable LCD screen with its own mini-Video System Control Unit (VSCU), developed in-house and designed to feed up to 12 overhead screens.

"We found that improvements could be obtained by introducing new retractable devices and audio/video source equipment," says Smallhorn. "The result is an arrangement that's economical to acquire, easy to install in a sequence of overnight stops, simple to operate and maintain, very light, and based on a selection of LRUs that could be provided by several different suppliers. It's applicable to all current RJ designs and capable of being adapted to any new ones that emerge in the coming years."

The key units are the IFC-designed Media Player; an externally sourced LCD pico-projector combined with an IFC retractable screen; and an IFC retract assembly that will work with third-party LCD or LED screens. The company's proven mini-VSCU acts as the primary head-end.

PLAYER POWER Smallhorn describes the Media Player as an "aircraft-ready super-iPod". Manufactured in-house and running software developed by a contractor, it is designed not to replace tape-players or file-servers but to act as an ultra-simple source for pre-recorded PA announcements, destination information, daily news, short subjects and other basic audio and video content suitable for regional-airline flight durations. It will work not only with the new IFC architecture but also with legacy overhead systems.

In a typical application, says Smallhorn, the airline records the announcements in the digital format of

03

its choice at the base and distributes the file via an FTP site to laptops carried by cabin crew as they go about their duties on the route network. Pre-departure, a flight attendant uses a USB data stick to transfer the file to the Media Player, which converts it from digital to analogue for delivery over the aircraft's PA system.

"This arrangement gives the airline complete control over aspects of its content," Smallhorn explains. "It also eliminates the costs associated with encoding and encrypting content for use on a typical file-server. And it supports the rapid and timely loading of destination-specific advertising."

IFC designed the Media Player in response to requests from US regional carrier Pinnacle Airlines, which wanted the PA announcement function, and Montreal-based scheduled and charter operator Air Transat, seeking an easy way of loading video daily news and advertisements to its aircraft at any time, anywhere in the world, for delivery over the existing overhead system.

The Media Player can also accept SD cards carrying regularly repeated information such as safety briefings. "This eliminates the need for tapes, which are costly and can become worn to the point where they damage the video player," says Smallhorn. "Standing information can be held efficiently on a card, with USB sticks used for fresh content."

DELIVERY CHANNELS IFC has devised two new ways of serving up content from the Media Player and the earlier mini-VSCU: an externally sourced LCD pico-projector casting the image on to an IFC-designed passive retractable screen; and a repackaged third-party thin LCD monitor for which the company has developed a retraction mechanism.

The company has gone initially with a palm-sized pico-projector available off the shelf from Dell. "But we're sure the big IFE system providers will make their own selections, so our design will work with any of the leading brands," says Smallhorn. "This solution is compact, lightweight and capable of delivering an image up to 15in diagonally, so that a good service can be delivered with fewer units per aircraft." The projector and flip-down screen are combined in a single IFC-developed shroud that can be mounted on the underside of any chosen overhead bin. The screen is flexible, conforming neatly to the contours of the overhead bin as it retracts.

03. Vision Systems is currently supplying an IFE system for Kingfisher's ATR-72 fleet

One of the big advantages of the pico-projector solution is the fact that, unlike IFC's earlier A320-type retractable screen, it does not jut into the overhead bin, taking away luggage volume. "But there are areas in a regional jet – close to a bulkhead, for instance – where an even smaller device is desirable," says Smallhorn. "So we have created a retract assembly that will accommodate a thin LCD monitor similar to those used in laptops."

IFC started with a standard Dell LCD monitor measuring about 1.5in front to back and comprising the screen glass on top of a housing for the electronics. "We moved the electronics to our shroud assembly so that only the thin screen is visible in the cabin," says Smallhorn. "We make the shroud and the retraction mechanism – the monitor could come from any leading supplier." Also bin-mounted, the 9in rigid screen retracts by flipping back to a position horizontal with respect to the floor of the aircraft.

In a typical installation a pair of thin LCD units would be located to serve each seat row facing a bulkhead. Further back in the cabin, pico-projectors, with their bigger screens capable of being viewed from either side of the aisle, would be

04

staggered to minimise the number of units needed to serve the whole cabin.

BY ROYAL APPOINTMENT Vision Systems first came to the notice of the IFE world a few years ago with its installation in Kingfisher's ATR 72-500s. It comprises 17 colour LCD drop-down screens mounted along with loudspeakers for audio in the cabin overhead, a head-end unit to handle CDs and DVDs, and a crew control panel. The screens measure 5 x 3.7in and are spaced every two or three seat rows along both sides of the cabin.

The company, which is also active in cabin interiors, video systems and window shades, presented its new-generation VisiMedia architecture for the first time at this year's Aircraft Interiors Expo in Hamburg. At its heart is a digital media centre with storage for up to 128Gb of video and audio. Cabin crew control is performed through the CrewView unit, a touchscreen PC that acts as the user interface for the power and video control unit (PCVU). CrewView also incorporates a DVD drive and a USB port for upload of new content.

The head end feeds video to 18 retractable overhead LCD screens measuring 5.5in wide, with 16:9 format and 800 x 480 resolution. Audio is delivered through the standard cabin speakers or optionally via head-sets. Other options include individual passenger control units (presumably for corporate/VIP installations), moving-map capability, and display of images from up to four external video cameras.

> 66 AT ITS HEART IS A DIGITAL MEDIA CENTRE WITH STORAGE FOR UP TO 128GB VIDEO AND AUDIO 99

04. Inflight Canada's repackaged thin LCD monitor
05. CrewView screenshot from Vision Systems

05

The screens are fully integrated into the overhead, a feat calling for a lot of engineering ingenuity. The solution allows the retracting screen to twist, slant and turn into the limited space available in the rails between the passenger service unit (PSU) panels. In doing so it contrasts with the Inflight Canada approach, which puts everything on the underside of the luggage bins.

RJ and turboprop operators are thinking hard about the potential benefits of IFE in their cabins. Despite a lack of orders at the recent Farnborough Air Show, Bombardier remains confident in the CSeries (90 orders to date), with Qatar Airways currently mulling over a deal. The Superjet 100's tally has passed 200 and the Mitsubishi MRJ's is better than a 100. A major new IFE opportunity is opening up and Vision Systems and Inflight Canada are poised to make the most of it. ▣

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joined-upseating

The current process of procuring IFE hardware and the seats it goes into is a bit like buying a new car and then fitting the dashboard as an afterthought – however a new era of integration is now bearing fruit

BRENDAN GALLAGHER, AIRLINE ENTERTAINMENT INTERNATIONAL

"Our aim was to take at least half the weight and power requirement out of our existing configurations," says Neil James, executive director for sales and product management at Panasonic Avionics. "At the same time we realised that if we could work much more closely with the seat manufacturers we might be able to optimise everything in the seat."

James is talking about Integrated Smart Monitor (ISM), the programme formerly known as Fusion. Launched in public 18 months ago, it's Panasonic's bid to drag IFE/seat design into the 21st century. Unsurprisingly, it has provoked a reaction from prime rival Thales: "Our new Generation 4 screen may not be as snappily named as the Panasonic product," says Ken Brady, chief design engineer for the company's TopSeries system. "But at 12.1in it's the largest ever integrated into an economy seat."

Whatever their differences on branding, the two vendors are of one mind when it comes to the initial target market – economy class in the narrowbodies. "Airlines are taking delivery of new narrowbodies and wondering if they can get an edge by making the big step up from overhead video to in-seat," says James. "We've got a system that will allow them to do that without having to pay too much of a weight or power penalty."

Since the concept was first unveiled at the 2009 Aircraft Interiors Expo in Hamburg, Panasonic's ISM has advanced at a pace that surprised even its creators. "It has such universal appeal that it's picked up momentum faster than we expected – everybody's on board with the benefits," says James. The market seems to


dwell
dwell

01

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Lumexis and Recaro trip the light fantastic

Seat maker Recaro is also playing the integration game with an IFE manufacturer that is challenging the Panasonic/Thales duopoly. The German company is collaborating with Californian supplier Lumexis to integrate the latter's FTTS fibre optic-based system into seats to be supplied to low-fare operator flydubai. An existing Recaro client, the airline is also Lumexis' launch customer. Recaro is adding a new composite backrest to its established BL3510 economy seat. "We have succeeded in integrating the big Lumexis screen into the backrest without sacrificing passenger living space," says chief executive Axel Kahsnitz. "And legroom has been improved by moving the literature pocket from the shin area to above the tray table." The seats will be delivered to flydubai with FTTS already installed. "We've been very impressed with the quality and comfort of the Recaro seats we have received to date," says chief executive Ghaith Al Ghaith. "The new seatback design provides an extra two inches of legroom as well as allowing us to be the first to deploy this revolutionary IFE system."

agree: ISM scooped a coveted Crystal Cabin Award at this year's Expo, and Panasonic says it has committed customers ahead of a planned first flight in the second or third quarters of next year. Delta is the only named customer so far – it plans to install the ISM into Weber Aircraft seating across its economy cabins on its 747 fleet, and on some 767s.

ENLIGHTENED APPROACH Weber's 5751 unit was the model used to first present the concept in Hamburg. Developed in collaboration by Panasonic, Weber and US industrial design specialist Teague, this lean, lightweight economy seat incorporates an innovation-packed screen and user interface. The IFE contribution to total weight is no more than 1.7 lb and the power demand is 7W, compared with values of 3.5 lb and 33W for a typical current configuration.

"At the start of our weight-saving drive we set out to make the entire in-seat system lighter," says James. "We thought about power, not just for the screen but throughout the system. We looked at the latest technology for backlights and processors in the seat. We asked how we might be able consolidate peripherals like the audio jack and passenger control unit."

He continues: "We also went and looked at the seat vendors' production lines, and asked why we needed screen-tilt mechanisms, why harnesses are routed that way, how much does all this stuff weigh?" The seat makers proved receptive, and now Recaro and B/E Aerospace are also aboard.

Completing the line-up is Seattle-based Teague. "We felt that industrial design – focusing on the look and feel of a product as opposed to its function – had been compromised over the years because IFE systems and seats had been designed thousands of miles apart, at different times on different programmes," says James. "We selected Seattle-based Teague and gave them full authority to tell us 'no don't do that, it would look awful'."

Benefits for the airlines, according to James, include the ability to offer economy passengers a premium experience, weight and power savings, increased reliability because there are

01. Recaro seats featuring Lumexis' FTTS for flydubai

> 66 THE IFE CONTRIBUTION TO TOTAL WEIGHT IS NO MORE THAN 1.7 LB AND THE POWER DEMAND IS 7W 99

02-04. Thales' Generation 4

fewer components, and lower overall total cost of ownership because there's less to be installed in the seat, maintained, replaced and carried around.

As well as better entertainment, passengers will enjoy more living space for a given seat pitch. "We've packed both the IFE and the seat tray inside the natural contour of the seat instead of bolting them on to the back," James explains. "At present, when the seat in front is reclined fully at a short pitch the passenger ends up with the screen a few inches from his face. Now we can offer both the perception and the fact of a lot more space."

The 1.5in-deep screen is fitted flush with the matt-black surface of the seatback and unencumbered by a conventional shroud. "We've completely changed the aesthetics," declares James. "The brilliant backlit screen stands out against the non-reflective seatback to provide a cinema-style experience."

The passenger interface is based on highly sensitive capacitive technology, eliminating the need to press hard or even tap on the screen. But it is Panasonic's use of proximity sensors that will have the most transforming effect on

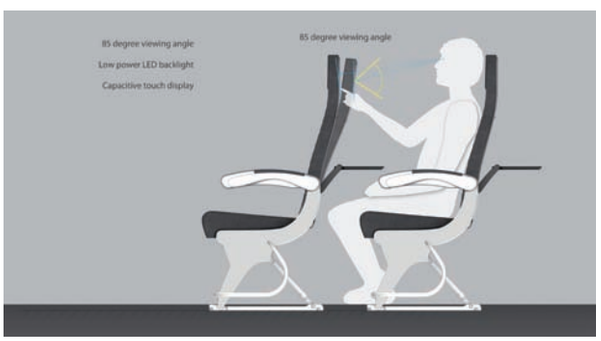
05. Panasonic's ISM features capacitive technology
06. Improved viewing angle means no more tilt mechanism
07. Teague has ensured Panasonic's ISM fits beautifully into Weber's 5751 unit

> THE SCREEN'S EXCEPTIONALLY WIDE VIEWING ANGLES HAVE MADE IT POSSIBLE TO DO AWAY WITH THE TILTING MECHANISM

how passengers interact with IFE and other in-seat facilities. "The sensors allow us to make the screen do useful things and to make the peripherals much easier to work with," says James.

"For instance, if the airline wants to do away with conventional passenger control units, those functions – crew call, lights, volume and the rest – can be transferred to the touchscreen, revealing themselves whenever the passenger's hand approaches."

The screen's exceptionally wide viewing angles have made it possible to do away with the tilting mechanism, the lack of mechanical buttons has eliminated a prime source of equipment unreliability, and its advanced LCD technology drives down parts count.



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GENERATION GAP Like its Panasonic equivalent, Thales' Generation 4 represents a big step towards more elegant integration of IFE into the seat, with the aim of improving usability and serviceability while cutting weight, volume and power consumption. "We worked with the R&D group at B/E Aerospace to develop the prototype," says Ken Brady. "The process was similar to that followed by Panasonic with its partner Weber Aircraft."

Generation 4 has been designed to look as if it is the only IFE component installed in the seat. "The screen unit has local storage, and the passenger control unit and jacks are all incorporated into it," says Brady. "The power unit for the screen and passenger devices can be located under the seat bottom so that no foot space is taken up and there are no vulnerable floor-mounted boxes. Power and data are supplied from aircraft networks via two connections in the seat."

The larger screen meant that Thales had to work even harder at integrating it into the seatback, according to Brady. "The present state of the art is a fixed-size box sliding into a fixed-size recess, leaving gaps and an untidy finish. The Generation 4 screen is made to look as if it really belongs in the seat – the curves flow, there are no gaps, it looks like it's part of the seat, not something stuck on afterwards."

And that's as good a description as any of the new joined-up approach now being adopted by the IFE systems providers and their partners the seat-makers. ■

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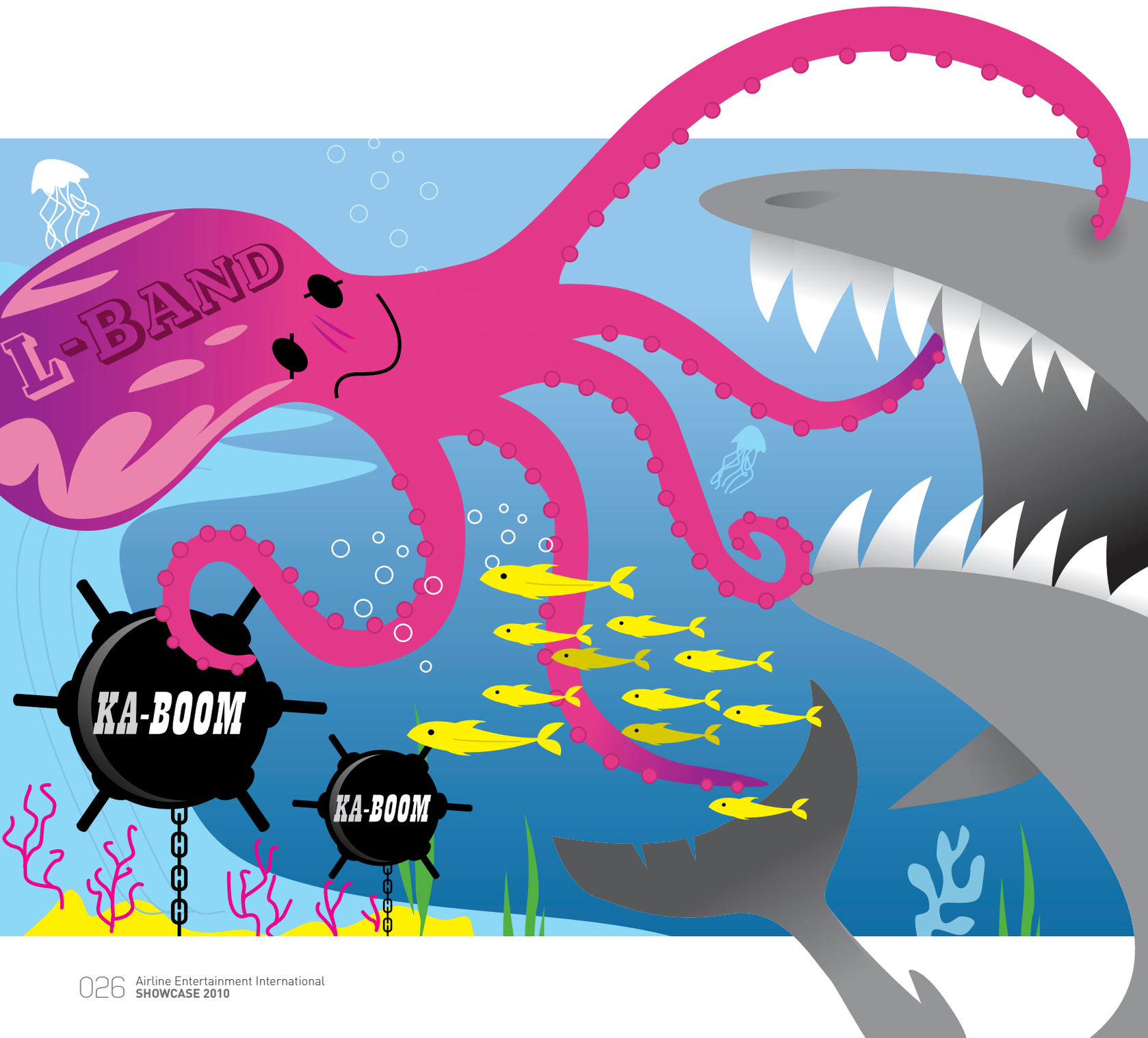
Just as the airlines decide it's safe to dip a toe into the connectivity waters, along comes a new technology to make them think again

BRENDAN GALLAGHER, AIRLINE ENTERTAINMENT INTERNATIONAL



There are some big beasts cruising the depths of passenger connectivity, and they're all hungry for business. Aircell has snapped up the US majors' long-range domestic fleets with its Gogo terrestrial air-to-ground service. Inmarsat's latest L-band satellite capability is luring growing numbers of airlines in the rest of the world on the back of onboard cell phone providers AeroMobile and OnAir. And the Ku-band satellite operations from Panasonic and Row 44 have their teeth into some of the biggest names in air transport.

At the turn of the year the ecosystem seemed to be as stable as it was ever likely to get, with even the most timorous managements taking a serious look at how to plug their cabins into the mobile networks and the internet. But then the Jaws theme began to play as a new species appeared on the scene. Cue a rush for the beach as service providers, avionics manufacturers and airlines try to figure out the technical and commercial implications of Ka-band satellite.

TRIPLE TAKE This August Inmarsat announced that its fifth-generation constellation will comprise three satellites providing round-the-world Ka-band coverage. To be built by Boeing at a total cost of around US$1 billion and launched in 2014, they will probably be operated by a new offshore subsidiary of the London-based mobile satellite group.

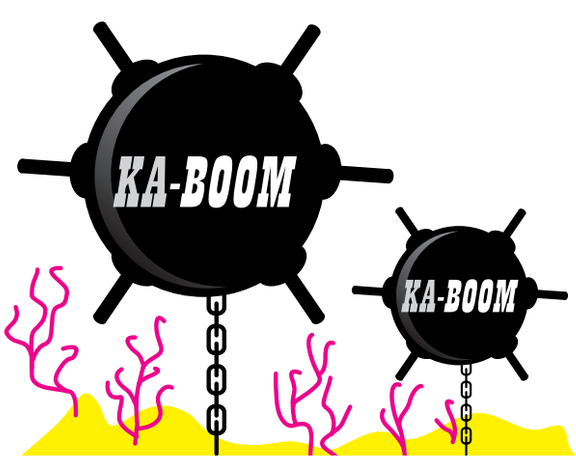
Why Ka-band rather than Ku-band, which Inmarsat took a look at 18 months ago, or a further development of L-band? Because at a stroke it overcomes the various limitations of earlier technologies.

Today's Inmarsat SwiftBroadband service is limited to 432kbit/sec per channel, the Ku-band services to single-figure megabits. Ka-band avionics, operating at the highest frequencies yet contemplated for aeronautical satcoms, will provide more data throughput than either.

Ka-band airborne equipment is also expected to be cheaper – the manufacturers say the technical solution should be comparatively straightforward. By contrast, Ku-band was originally conceived as a medium for VSAT fixed services: repurposing it for aeronautical use has proved costly, with designers striving to meet the stringent antenna pointing accuracy requirements needed to prevent interference with adjacent satellites located as little as 2° away.

"Ka-band was always intended for mobile and it has a natural place there," says Neil Mackay, chief executive of across-the-board aero satcoms equipment supplier EMS Technologies. "It does have its issues. Rain-absorption can cause problems, but that wouldn't bother the airlines, with their aircraft cruising at 36,000ft far above the weather. The technology is probably no more than three to five years away, and there's no reason why a Ka-band solution shouldn't emerge."

> 66 KU-BAND IS CLOSE TO SATURATION, WITH THE NUMBER OF AVAILABLE TRANSPONDERS PEAKING IN 10-15 YEARS TIME 99



Today's aero Ku-band services are based on transponders leased piecemeal from a variety of satellite operators who serve several other, usually much bigger, markets. Dr Manfred Wittig, head of multimedia systems at the European Space Agency's ESTEC technology centre in the Netherlands, has shown that Ku-band capacity is close to saturation, with the number of available transponders peaking in ten to fifteen years' time. This could create a seller's market in which comparatively minor users like the aero community would face soaring prices.

The same analysis of Ka-band reveals a very young market that is unlikely to reach saturation before 2060 at the earliest. "There is tremendous growth potential in Ka-band before saturation is

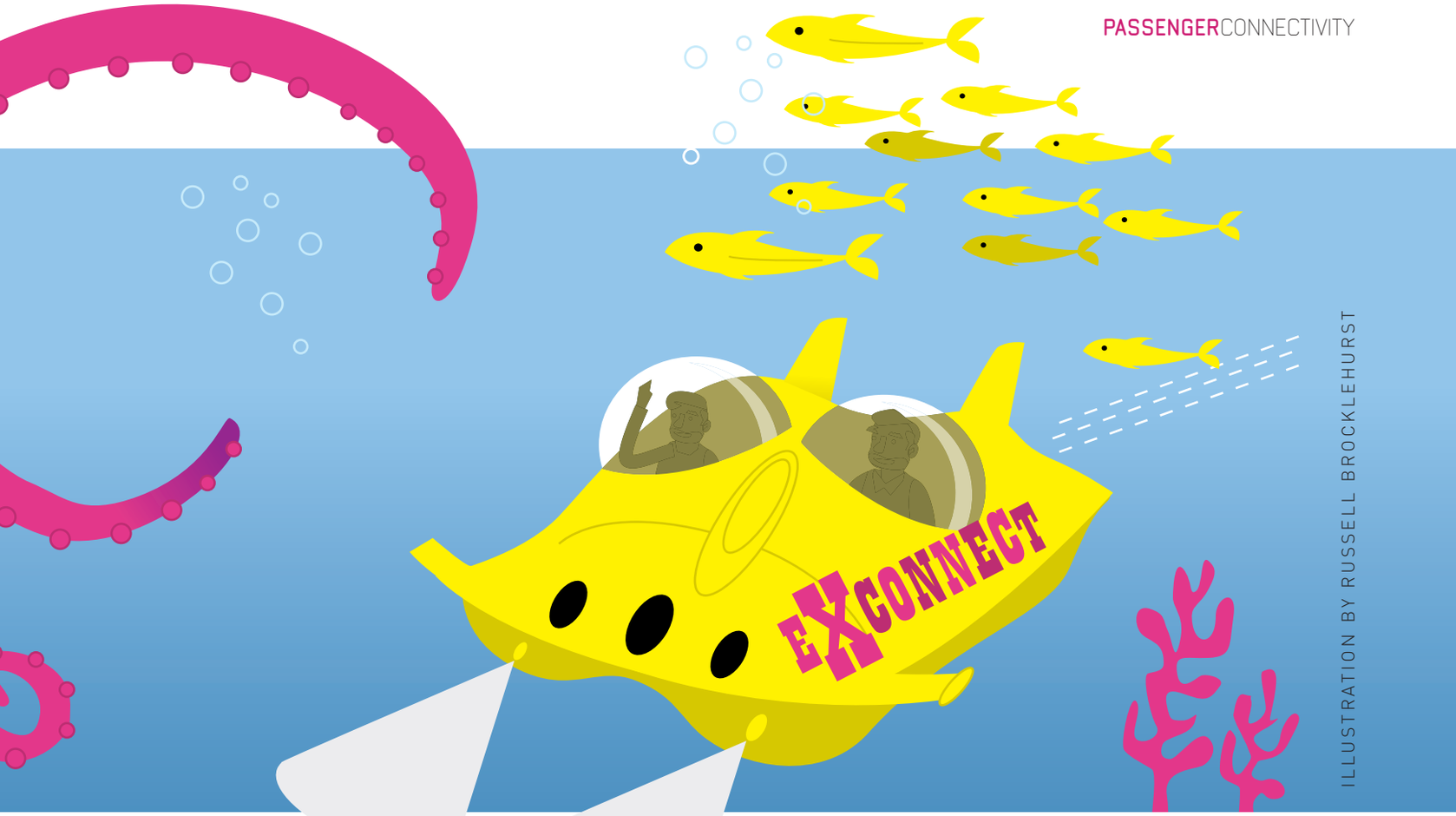


ILLUSTRATION BY RUSSELL BROCKLEHURST

> 66 IF KA-BAND DELIVERS WHAT IT'S SUPPOSED TO, ON SCHEDULE, IT LOOKS LIKE THE RIGHT TECHNOLOGY FOR THE FUTURE 99

reached," says Wittig. "At present there are just a handful of Ka-band satellites serving the USA, plus a couple entering service in Europe."

Another strike against Ku-band is the fact that networking together disparate chunks of capacity entails extra cost – the planned Inmarsat system would be a one-stop shop, offering standardised capacity right round the world.

Finally, the aeronautical Ku-band service providers have to shoulder some significant extra regulatory expenses. They are required to obtain the agreement of all the other operators using satellites within a six-degree arc of their own, and must repeat the process if they decide to switch from one satellite operator to another. They also need a special licence from every single nation in whose airspace they plan to offer service.

ONCE BITTEN, TWICE SHY On the face of it, Ka-band should tick most of the boxes for the airlines. But air transport is a market that has had to lick quite a few connectivity-inflicted wounds over the years, and the airlines will be keen to avoid yet another expensive wild goose chase, as OnAir chief executive Ian Dawkins explains. "If Ka-band delivers what it's supposed to, on schedule, it looks like the right technology for the future," he says. "So we might offer it, but only if it doesn't call for a significant investment from the airlines."

The equipment manufacturers are also waiting and seeing. Thales Avionics has a successful Inmarsat L-band business, supplying its TopConnect SwiftBroadband system to support the OnAir service. "We've just had a top-level strategy meeting to consider next-generation satcoms technologies, including Ka-band," says Guy Baruchel, deputy head of the Thales Group division. "But there are now so many standards that we're not yet sure of the way ahead."

Until recently Ku-band was seen as the standard that would satisfy the bandwidth-hungry. But OnAir's Dawkins has his reservations: "Ku-band is now approaching saturation, so it may not be the best solution for the long term," he cautions. "We don't want to encourage airlines to invest heavily in a technology and then find they have to make a change soon afterwards. That's the question: if the airlines go for Ku, are they limiting themselves in the future?"

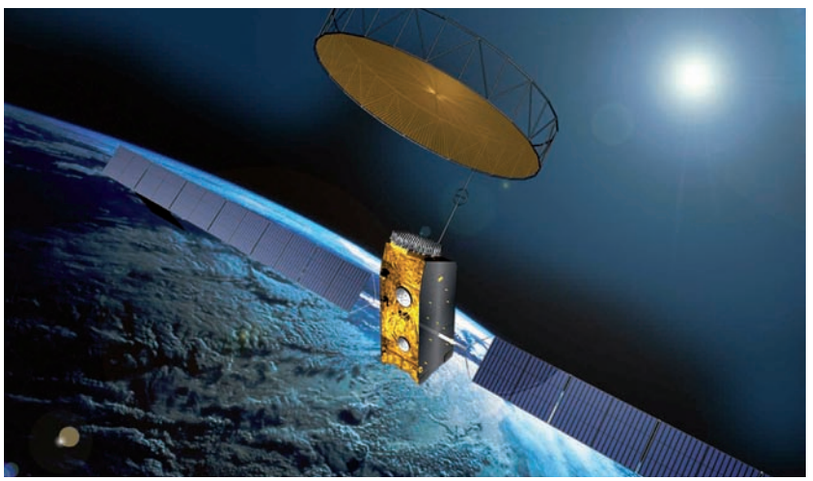
Around ten airlines have gone for Ku-band – a reported seven carriers with Panasonic and its Global Communications Suite (GCS), the rest with Row 44. Panasonic launch customer Lufthansa is currently testing the service on four aircraft with a view to offering it commercially to passengers from the late summer and subsequently introducing it across its long-haul fleet. Other confirmed takers for GCS are Cathay Pacific and Turkish Airlines.

California-based Row 44 has deals with low-fare giant Southwest Airlines in the USA, Europe's Norwegian Air Shuttle, and South African mobile operator WirelessG, service provider to Mango Airlines.

Southwest plans to offer the passenger broadband service on each of its 500+ aircraft as it is equipped. "But they don't intend to do a big press and promotional campaign until the bulk of the fleet is fitted, about two years from now," says Row 44 president Gregg Fialcowitz.

Roll-out on low-fare operator Norwegian Air Shuttle's 40+ Boeing 737s is due to start this quarter, as is the Mango Airlines service.

01. Inmarsat-4 satellite in orbit



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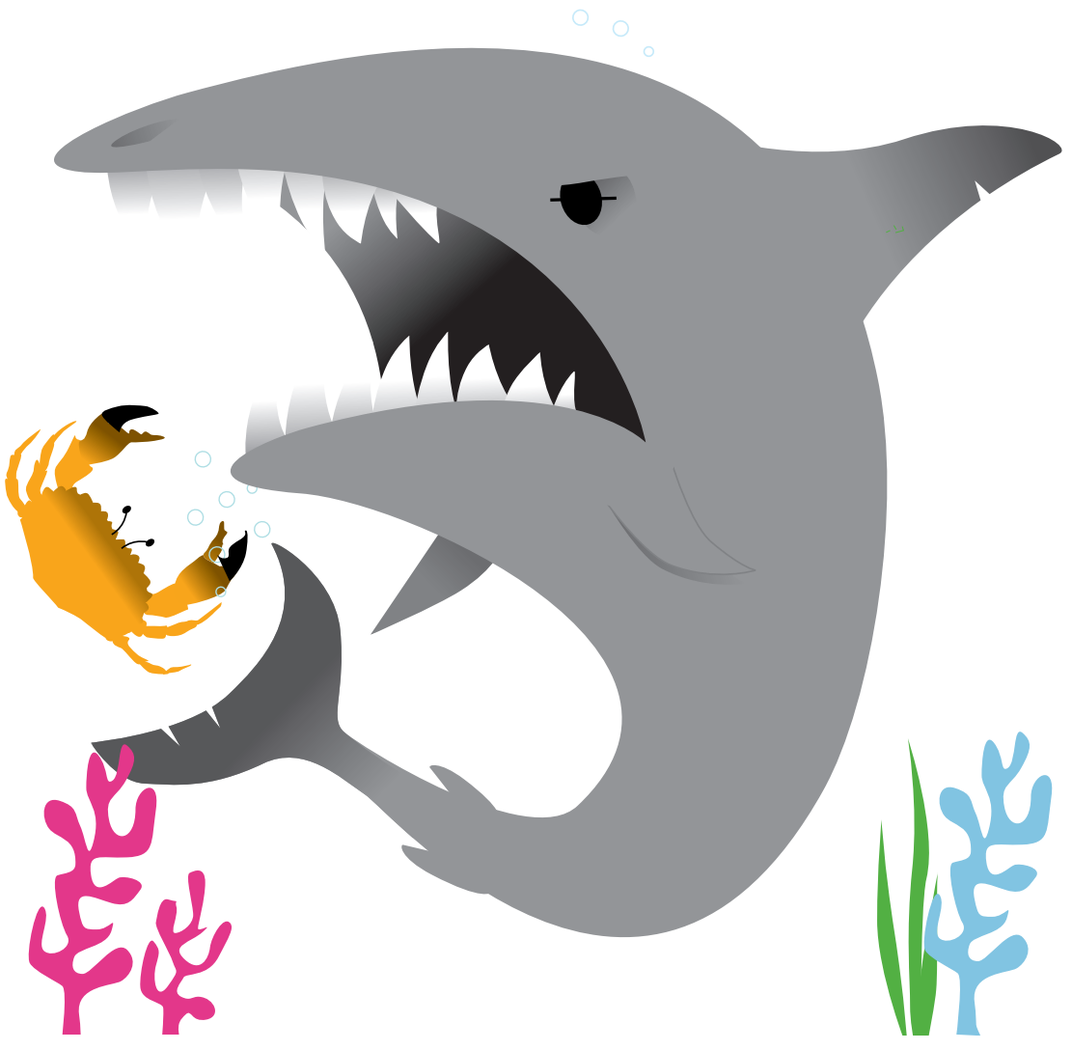
> 66 THE SECOND HALF OF THIS YEAR COULD THEREFORE SEE KU-BAND PUT TO ITS FIRST FULLY COMMERCIAL TEST SINCE THE ABANDONMENT OF CBB 99

SINK OR SWIM? The second half of this year could therefore see Ku-band put to its first fully commercial test since the abandonment of Connexion by Boeing, the first-generation offering that ultimately foundered under the weight of its own implementation and running costs. Panasonic and Row 44 are betting that they have got the model right this time – betting against them are not only Inmarsat but also equipment manufacturer and service provider ViaSat.

Already active as a business aviation service provider with its Yonder Ku-band system, the Californian company plans to launch a Ka-band satellite early next year to provide rural Internet access in North America and says that the spacecraft could also be used to augment Yonder. "We could make that service available through the new satellite," chief executive Mark Dankberg said a few months ago. "The cost advantages would make it a lot more appealing to the airlines."



MUDDY THE WATERS In the 20-year or so history of the airline connectivity business, uncertainty has proved to be the only certainty. Nine months ago an airline looking for service outside North America had a straight choice between L-band and Ku-band satellite. But now, with Ka-band possibly as little as three years away from operational reality, it's back to the drawing board for the airlines and their suppliers. ■

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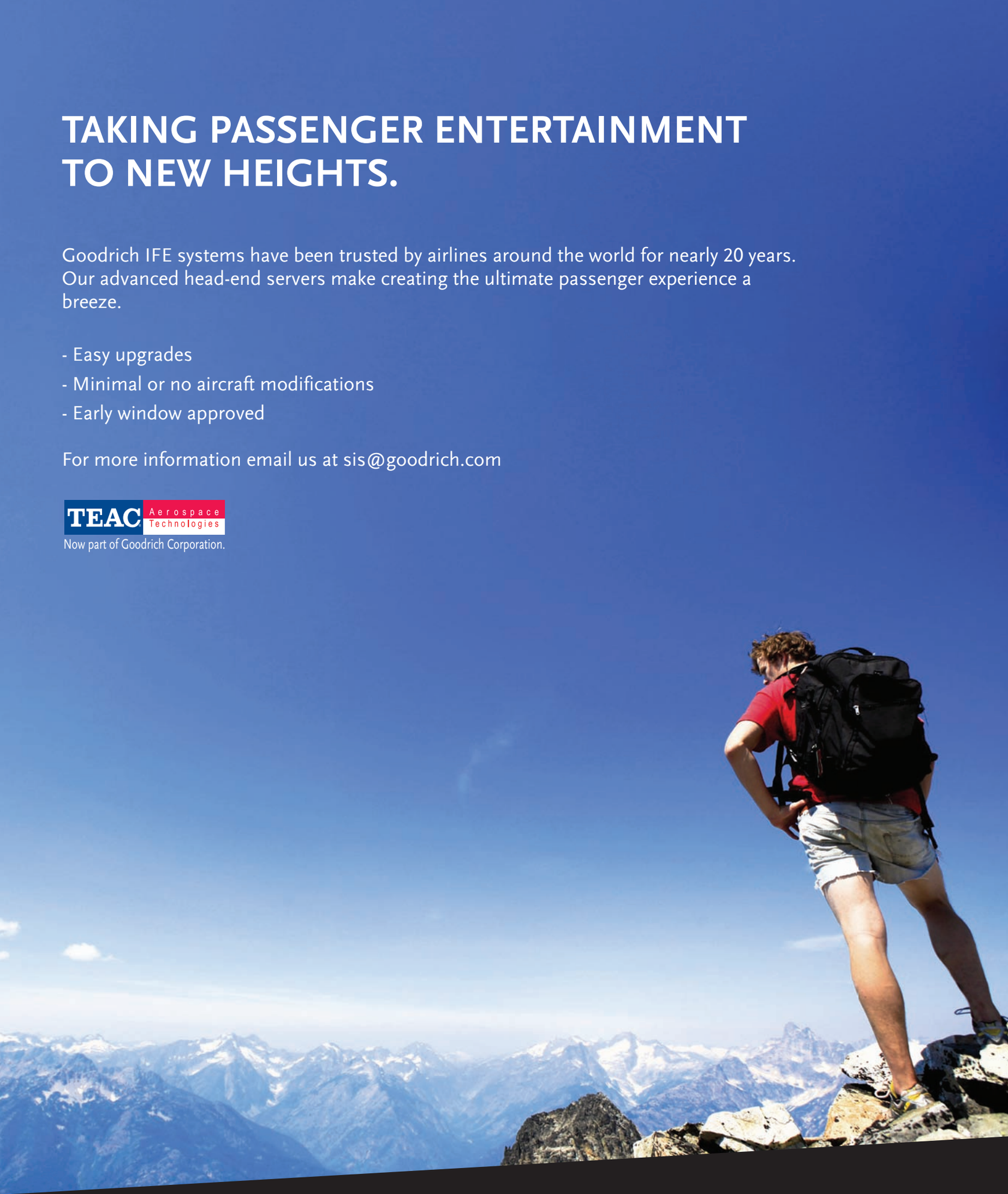

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What passengers have to say about IFE, content, and ancillary revenue

Facing critical decisions about product and services development, portable IFE firm digEcor recently conducted a survey to ascertain the opinions and preferences of passengers. The survey specifically covered three areas – IFE systems, content, and ancillary revenue preferences. "Some of the data supported what we internally have believed and promoted, while other data challenged long-held industry beliefs," says Brad Heckel, president of digEcor.

To find participants, digEcor emailed approximately 35,000 passengers flying with some of its customers, inviting them to participate in the study. Approximately 1,300 clicked through and completed the survey, of which 364 answered airline-specific questions. The majority of participants were based in the USA and Canada, with a small portion coming from Europe.

Each question was designed to address specific hot topics and issues in the IFE market. "We spent hours debating over what to ask, how to ask it, and whether or not each question would provide actionable data. I must have rewritten some of the questions at least two dozen times," says Adam Williams, marketing director at the company.

SYSTEM PREFERENCES

Respondents were asked to choose their system preference from seatback, overhead, portable, or personal carry-on device. Even though 38% responded that they prefer a seatback solution, 40% preferred a handheld or portable solution.

"We believed that the system preference question provided more value in the context of overall airline preference. So we allowed respondents to rank key determinants when selecting an airline to fly. Unsurprisingly, the ticket price and number of stops were at the top of the list, but the type of IFE system onboard ranked third," says Williams.

CONTENT WITH CONTENT?

To provide a desirable mix of content, respondents were asked several questions

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addressing content categories as well as their preferred mix. "Of the 12 categories, the most popular categories, in order, were movies, television shows, live television, and current news. Shopping and casino-style gaming ranked at the bottom. However, the revenue potential per seat for even limited viewership is significant," says Williams.

The company also wanted to understand the interest level in a mix of newer versus older and popular versus less popular movies. "One interesting conclusion from the survey was that passengers are happiest watching popular, pre-DVD release movies. Though, they are just as happy, if not more so, to watch a popular movie that is available on DVD as a less popular movie that is not yet available on DVD," says Jed Thompson, content administrator at digEcor.

ANCILLARY REVENUE

digEcor, a long time proponent of revenue-sponsored entertainment or ancillary revenue services, asked several questions addressing programmes such as shopping and advertising on the IFE system.

"IFE has long been a cost centre for airlines. We firmly believe and assert that unique IFE offerings should not only be a competitive differentiator for our customers, but a revenue pool," says Brent Wood, CEO of digEcor. "For example, we have customers who are able to completely fund their IFE programme offerings through ancillary revenue. It's simply a matter of finding the right price points and mix of programmes that suit your customer base and objectives and branding as an airline."

ADVERSE TO ADVERTISING?

Many of digEcor's airline customers operate rental programmes wherein economy-class passengers can rent a digEplayer for a nominal fee. One large concern has been the impact on rental sales if programmes such as advertising were implemented. Therefore, respondents were asked if they would still rent a digEplayer

01-02. The new digEplayer L series, developed in partnership with Lefeel Media

03

03. The digEplayer XLP

knowing that limited advertisements on the player helped to offset or subsidise the cost of the rental price. Some 77% of respondents said that they 'probably' or 'definitely' would still rent a digEplayer.

"At digEcor we have a mentality of constant trend analysis in order to identify meaningful and profitable opportunities for our airline customers. We have therefore created feedback opportunities for passengers, flight attendants, and IFE programme managers alike to maintain a relevant product and service mix in a changing marketplace," says Williams. "Also, with the proliferation of smartphones, advanced gaming consoles, and social media, consumers' inflight behaviour and preferences are moulding to adapt their habits on the ground. So it becomes ever more paramount that airlines and IFE providers closely monitor and understand the changing trends to build systems and experiences that will offer a lasting impression." ■

New digEplayer contracts in 2010

digEcor secured digEplayer contracts with Sun Country and Hawaiian Airlines in 2010, plus other undisclosed clients. Sun Country began offering the digEplayer XT portable IFE system on flights between Minneapolis/St. Paul (USA) and London – the units are complimentary for first-class travellers and available in economy class for US$10 (£6.58). Each unit is preloaded with a selection of first-run movies, as well as TV shows, music and games. The digEplayer XT features an 8in screen, two independently controlled headphone jacks, and a battery life in excess of 12 hours. The airline also plans to add the player on its Minneapolis/St. Paul – Anchorage, Alaska service and is evaluating the possibility of adding the devices across its entire system.

Meanwhile Hawaiian Airlines signed a new four-year contract extension, planning to eventually replace all its digEplayer 5500s (which it has offered since 2004) with the digEplayer XLP. The agreement also included provisions to implement new revenue-generating programmes such as shopping and advertising. "Our close relationship with the studios allows us to pass content cost-savings to Hawaiian and our other customers," said Thompson.

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For Panasonic, providing an IFEC solution that generates more value for airlines means going well beyond hardware

Neil James, executive director of corporate sales and product management at Panasonic Avionics Corporation, says that providing an IFEC solution is no longer just about having the most innovative, reliable, or cost-effective hardware. Instead, today's solutions need to be driven by what the company terms 'joined-up thinking'. "Airlines are demanding the ideal passenger experience and maximum return on their investment. By delivering a passenger-centric business platform we can positively and tangibly impact key airline metrics such as revenue per available seat mile (RASM), cost per available seat mile (CASM), brand equity and share shift," says James. "Joined-up thinking enables us to design IFEC systems that deliver business solutions, not just hardware. It is about connecting the physical environment to an immersive passenger experience. It is about providing advertisers and merchants with business opportunities, and it is connecting the passengers to the airline and the IFEC systems to the maintenance organisation."

Seat comfort and personal space are big drivers for brand equity and loyalty. In its 2009 Corporate Air Travel Survey, IATA listed seat comfort as the third most important factor in airline selection behind frequent flyer and mileage programmes and the availability of non-stop flights. "Today's passengers are also accustomed to sleek, elegant industrial designs and well thought-out user interfaces from consumer devices, and they expect this type of user experience whether on the ground or in the aircraft. To address this, we must push the envelope in industrial design and collaborate with industry colleagues to develop breakthrough products with superior industrial design," says James.

INTEGRATED SEAT SOLUTIONS

Panasonic is already working with seat vendors and industrial design firms to offer integrated seat solutions. "These solutions help to create an environment that is totally uncompromising in passenger living space and comfort, design, usability, picture quality, weight, power and size," says James. "Our latest collaborative designs deliver unique home theatre-like comfort and atmosphere, drawing the passenger into the experience, creating a canvas upon which airlines can

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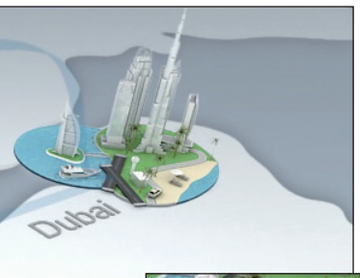

02

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01-03. Panasonic's neXperience concept enables passengers to customise their flights

04. Integrated Smart Monitor

04

deliver their brand, foster passenger loyalty, and attract new travellers."

DRIVING REVENUE

For James, increasing RASM is about both delivering content and applications that help airlines differentiate, and the tools to drive ancillary revenue. "By delivering a business platform centred firmly on the passengers' experience, we help airlines realise their branding goals while providing ancillary revenue opportunities through a wide range of services such as pay per view, pay per access, merchandising, food and beverage service, and more."

Airlines can also use the IFEC system to improve customer relationship management and deliver targeted advertisements. "To drive cost per thousand impressions (CPM) to much more valuable levels, we must combine IFE strategies with broadband connectivity and leverage real-time passenger data to be even more targeted and intelligent, serving content from the ground that is timely and therefore much higher value," says James. "Such services must include highly targeted advertising, concierge services, internet and social networking, phone service, special offers from regional partners such as hotels and rental car agencies, real-time credit card validation for high-value shopping, streaming television, and so on."

James also extols the virtues of cross-functional applications that communicate with one another and enable customers to personalise their flight with scheduled events and notifications. "These cross-functional interactive programmes must be much more than a traditional interactive user interface," he says. "Not only should they help an airline differentiate its brand, advertise and even generate ancillary revenue, they must be supported by a robust set of tools and services that help the airline to manage and optimise its marketing goals and objectives. As a result, we must offer web-based portals that offer an access point for airlines to update and manage advertising campaigns, generate detailed reports on passenger usage statistics, and update the graphic user interface, among other functions."

The idea is that by tracking passengers' purchasing habits, entertainment choices, frequent flyer programme enrolment, and so on, airlines can optimise everything from entertainment licensing programmes to the types of applications offered through the IFEC system, and even the food and beverage supply chain – all in real time.

MINIMISING COSTS

Panasonic believes broadband connectivity can be used to further improve system availability, fostering passenger satisfaction while minimising CASM. "If airlines could use broadband connectivity to monitor and troubleshoot problems in real time through a ground-based real-time monitoring station operated by the airline or the IFEC supplier, and a defective seat could be rebooted remotely, the cabin crew would be free to focus solely on passenger service," says James. "Should a problem occur requiring cabin crew attention they could be contacted and guided through a simple recovery routine or in a worst case scenario, the ground crew could be dispatched to the aircraft upon landing with the correct equipment and exact seat location. The airline benefits from streamlined maintenance, as well as reduced operational costs and maximised uptime."

SUSTAINABILITY

Environmental issues are also contributing to Panasonic's IFEC design. "Our new designs need to be sustainable, compliant with the Reduction of Hazardous Substances initiative, and manufactured with the latest green processes and technologies," says James. "We need to accelerate the adoption of products with higher environmental performance. We must also help to reduce energy usage, reduce waste, and eliminate hazardous materials in our products and business operations, and we must continue to develop products and services that are not only good for our customers, but also help us coexist with our environment."

Early examples of this new approach are highly integrated seats. "Our first designs unveiled in 2009 offer 85% fewer parts than earlier solutions – a dramatic reduction in weight, which may ultimately help improve fuel burn and lower the carbon footprint of an airline," says James. ■

Behind the scenes in Rockwell Collins' all-important research and development lab

01

fastforward

In the highly competitive aircraft cabin systems market segment, IFEC manufacturer Rockwell Collins says it is critical that suppliers demonstrate a high degree of innovation – anticipating needs, monitoring trends, and prototyping new ideas quickly.

"Developing and implementing the latest and greatest technology is a priority at Rockwell Collins," says Dave Vernon, director of airline marketing for the company.

To continue the company's focus on future cabin technologies, Rockwell Collins has its own Innovation Lab, located deep in the heart of cabin development at its cabin systems campus in Tustin, California, USA. The lab was formed as a partnership between the company's advanced product and engineering teams to funnel potential technologies and rank them based on technical maturity, maintainability in an aircraft cabin, and business value.

"Whether it's monitoring emerging consumer technologies or prototyping new solutions, our Innovation Lab is the central point for new thinking for our cabin systems team," says Vernon.

EVOLVING IDEAS

The team uses the lab to brainstorm new projects and then tests its ideas with users and potential customers to get feedback. Based on these inputs, the technology either moves further down the line towards eventual production or is modified for continued evolution in the lab.

"There are no bad ideas in the lab," says Vernon. "We encourage our engineers to dream big and to test the limits of what we believe is possible in the cabin. That's why at any given time there are various advanced concepts and products in work in the lab."

According Vernon, this makes a tour of the Innovation Lab a consistent high point of most customer visits. "Whether it's an executive from one of our aircraft OEMs, a key dealer or airline customer considering our products, or even a director of maintenance for an end

01. dPAVES-HD on the 737 Boeing Sky Interior
02. Venue installed on a CJ4

user, everyone wants to see what's coming next," he says.

One of the most tangible outcomes of this approach is Rockwell Collins' Venue cabin management system for business jets. Introduced in 2007, Venue incorporates some of the most advanced capabilities that can be found in a high-end home theatre or executive suite.

Leveraging the integrated business jet and airline cabin engineering team based at its Tustin campus, the company is monitoring the airline applicability of features from this business jet system closely.

"Working with the aircraft OEMs is crucial, as is having options to utilise innovations from our business jet cabin product portfolio," says Vernon. "By leveraging all these resources, we achieve outstanding reliability and quality." One example Vernon points to is the migration of a Venue cabin control touchscreen panel into an air transport flight attendant IFEC control interface, which he says "significantly reduces workload and drastically reduces size, weight and power requirements".

737 BOEING SKY INTERIOR

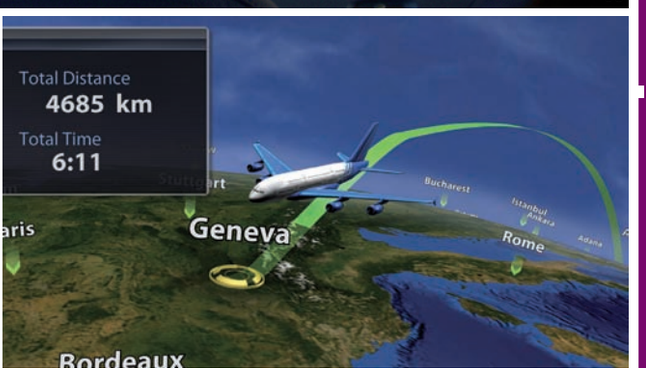
When it's time to take these innovations to market, Rockwell Collins has also been successful persuading OEMs to install this new technology on next-generation aircraft. The company recently announced that its second-generation dPAVES system is offerable as an IFEC solution for the 737 Boeing Sky Interior. This generation adds high-definition (HD) capability to the dPAVES single-aisle cabin offering.

"We see the IFEC market changing and believe this is a great opportunity to address the expectations of passengers," says Vernon. "Our dPAVES system has been successful because it is flexible, reliable and cost-effective. The enhancements we're bringing to the 737 Boeing Sky Interior will add HD video quality for all passengers."

For this Boeing offering, Rockwell Collins has enhanced dPAVES to feature retractable 12in 16:9 LCD HD-ready displays, enhanced touchscreen flight attendant entertainment control panel (ECP), and USB ports located next to the ECP for easier content loading.

03

03. dPAVES is for single-aisle aircraft
04. The Airshow moving map integrates with dPAVES



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At the core of the newly developed dPAVES-HD system is the high-definition media server (HDMS), offering 160Gb of solid-state storage capability for audio and video content, integrated pre-recorded announcements (PRAM) and music functionality with embedded Airshow moving map – all in a single 4 modular component unit (MCU) box.

"The large storage capability of the HDMS allows for multiple play periods of content, and the server automatically selects the new content when the new play period starts," says Vernon. Additionally, non-encrypted content can now be handled by airlines independently of Rockwell Collins' content management system, giving airlines flexibility to respond to commercial opportunities as they arise by replacing local content at a moment's notice, anywhere in the world.

"Rockwell Collins remains committed to ensuring all of our existing systems stay current," says Vernon. "We place special emphasis on aligning with the needs and wants of our airline customers and their passengers, with improvements in efficiency and usability from a logistical perspective."

Vernon is excited about innovations yet to come. "We continue to explore all IFEC product evolution options. This includes distributed and interactive entertainment for various aircraft platforms, as well as different forms of cabin connectivity and passenger applications," he says. "Rockwell Collins remains committed to the IFEC business in a big way." ■

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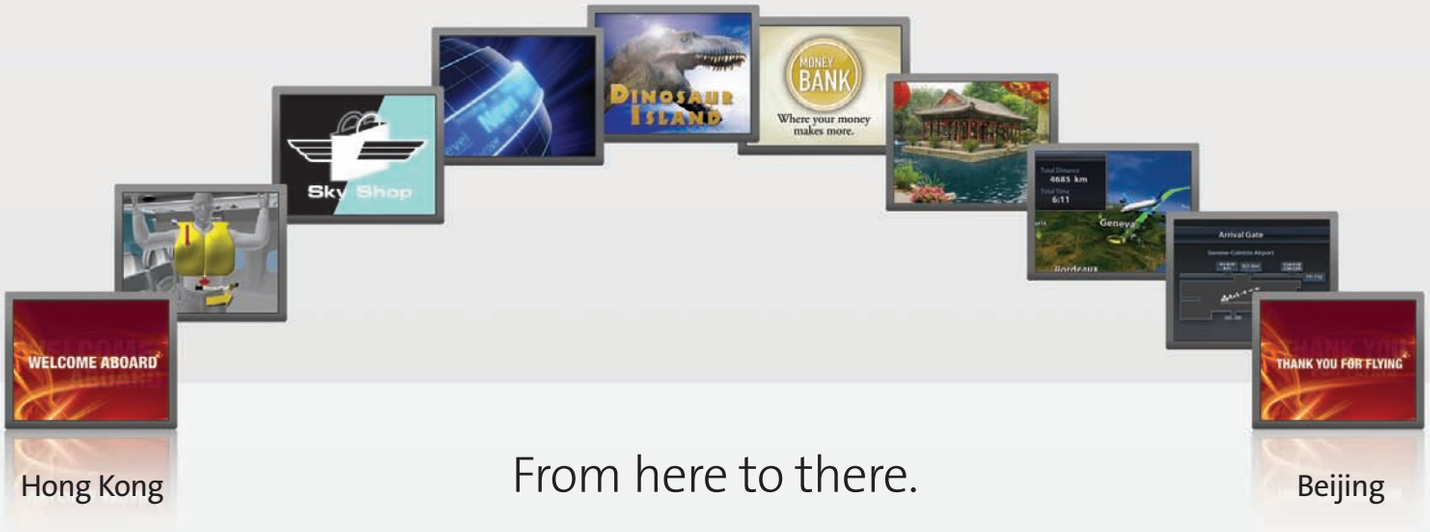

Hong Kong

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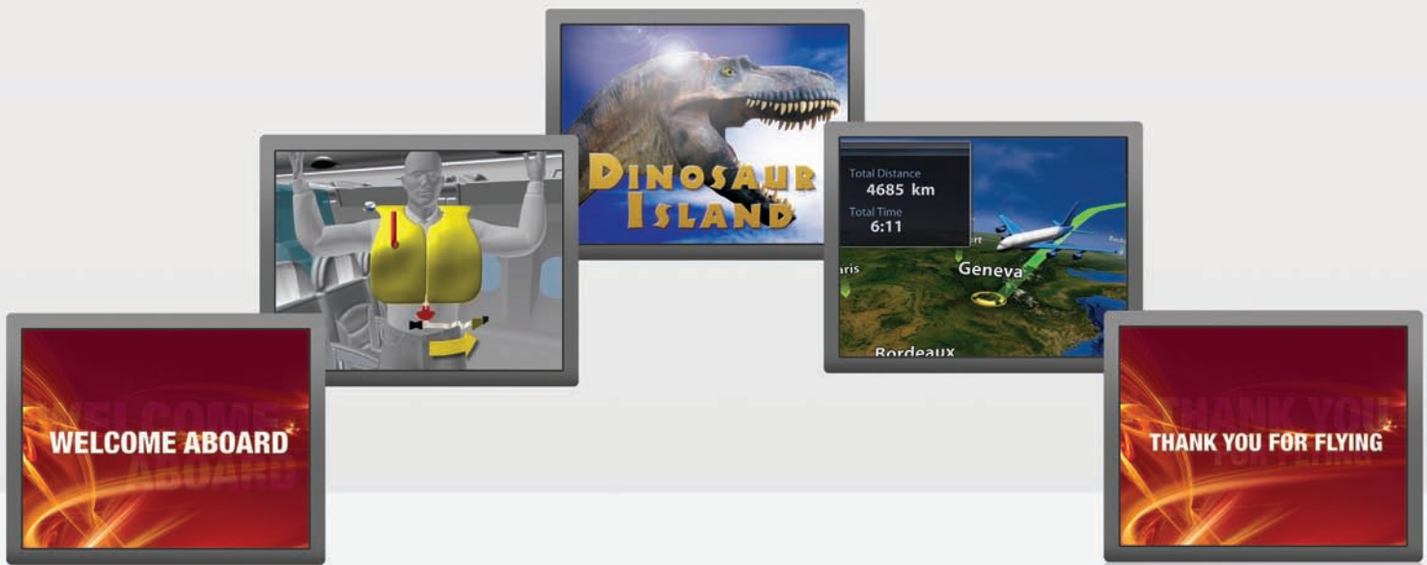
Beijing



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Rockwell Collins dPAVES makes single aisle IFE easier, more efficient and more effective than ever, putting you in control, with just the right content mix, no matter how long the flight. Incorporating advanced digital entertainment capabilities, dPAVES delivers a wide range of functionality with virtually no crew intervention, and with minimal components. And with the recent addition of high definition capabilities, including a 12-inch widescreen monitor, your passengers will enjoy a brighter, sharper picture quality than ever before. To find out more about dPAVES, call +1.319.295.4085 or visit www.rockwellcollins.com.

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01

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value**added**

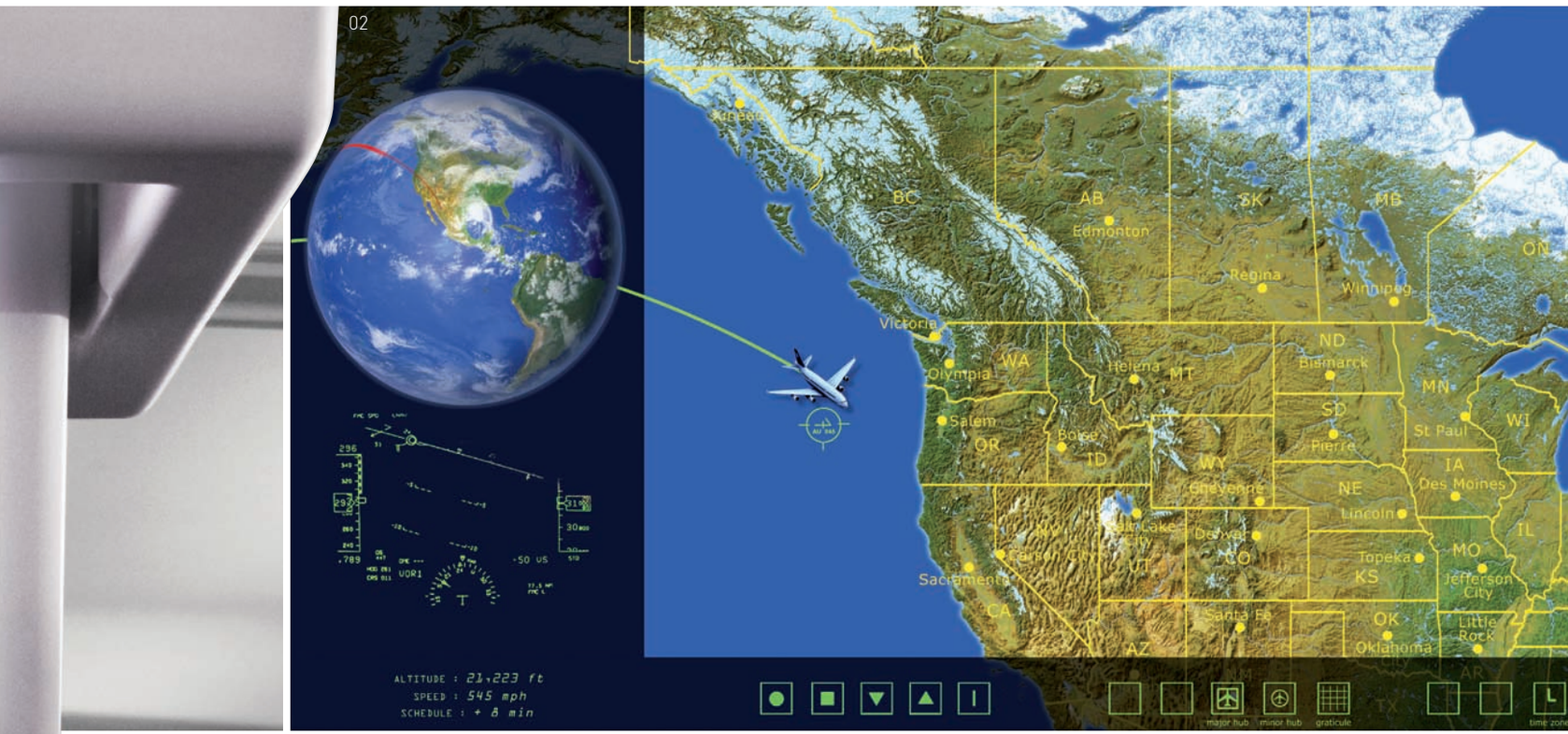
A new player in the IFE industry is targeting the cost-conscious retrofit market

A veteran of the aircraft interior servicing industry, with more than 25 years experience, UK-based Airline Services Limited (ASL) is applying its service-orientated approach in the IFE sector, with a range of new IFE products aimed at the retrofit market.

At the head-end ASL has developed AeroStream, a multichannel video/audio server unit incorporating pre-recorded announcements (PRAMs) and ASL's own moving map application StarStream, which features satellite-enhanced imagery in a range of visual configurations. AeroStream is a compact, solid-state digital device designed as a new-generation replacement for legacy media such as tape and DVD players. The AeroStream unit delivers digital content across six video and 12 audio channels (more units can be added to increase the number of channels) and features a separate touchscreen cabin control interface for use by cabin crew. AeroStream has been designed to deliver the speed, clarity and flexibility of a digital delivery system with improved reliability. The unit will interface with existing equipment as well as ASL's AeroScreens.

The Aeroscreen range of LCD monitors was designed and developed by ASL's in-house engineering team, and includes the ASL 175 AeroScreen, a fully retractable 17.5in LCD HD-ready monitor. First fitted in February 2008 on an Astraeus B757 flying on behalf of bmi, the screens have received a great response from passengers and crew, with no technical faults to date.

ASL says the key attraction of its products lies in "lighter, brighter, faster" technology. The Aero products are designed to offer improved reliability, reduced weight and lower energy consumption all at highly competitive pricing. The AeroScreen boasts a viewing angle in excess of 160° horizontal and 130° vertical. The HD-ready AeroScreens are compatible with all input formats, including PAL, NTSC and SECAM, video inputs from composite to RGB and S-VHS, and conform to the latest D160 standards.



01. The ASL 175 AeroScreen
02. StarStream moving map
03. A cabin crew interface

The 17.5in screen is available for centre aisle installation with an approved automatic retraction mechanism, or as a bulkhead mounted unit, also with an approved mount. Further versions include a 10in retractable overhead bin model, plus seatback and in-arm mounted versions. All ASL products are backed up with a comprehensive warranty and full in-house capabilities for workshop and on-wing maintenance and repair, as well as technical and engineering assistance via ASL's EASA Part 145 and Part 21 approvals.

"Following research carried out by ASL into the IFE market we saw an opportunity to develop a range of IFE products tailored to the demands of modern airlines with particular emphasis on the cost-conscious retrofit market," says Bryan Bodek, CEO of Airline Services Group. "We are using the experience and skills of our engineering team, adapting the latest, proven developments from the world of consumer electronics and combining them with our long-standing experience as a service provider in the aircraft interiors business." In approaching the IFE market, the company identified several key factors that shaped the way it approached its product and service offerings.

"Many airlines are faced with the challenge of operating older aircraft fitted with outdated, legacy IFE systems for longer than they had originally planned," says Bodek. "In many cases they will inevitably have to improve, refresh or upgrade the onboard offering to meet modern passenger expectations, but a lot of airlines are extremely cost conscious, not wanting to spend vast sums of money which simply won't be recovered in the remaining lease or operating period of the aircraft. Our products are aimed squarely at this retrofit market."

Secondly, the company says that the cost of fuel, economic conditions and new factors such as the planned emissions trading scheme have put weight saving high on the agenda again. "Modern LCD monitors and digital servers offer significant weight savings against legacy CRT-driven monitors and multiple tape or DVD player arrangements, strengthening the economic argument to replace them, even in a downturn, as a cost-saving measure," says Bodek.

SERVICE AND SUPPORT

ASL also believes after-sales service is a vital factor for airlines. "Although reliability and in-service support are improving, the increasing complexity in each new generation of IFE systems also increases the risks and consequences of in-service failures," says Bodek. "ASL is a service orientated company, these are the origins and values that have made us successful and these attributes are heavily emphasised in our IFE offerings."

ASL already provides full IFE on-wing support for legacy IFE systems from its facility at London Heathrow and at other locations

04

04-05. ASL's stand at Aircraft Interiors Expo 2010

05

worldwide, and will provide support for existing and future ASL IFE products as they come online. "The experience we have built up by servicing existing IFE systems has been a valuable tool in building robustness, reliability and performance into our own systems and will allow us to hit the ground running as our products enter service," says Simon Sixsmit, director of engineering at the company.

ASL performs engineering, design and workshop activities at its facilities in Manchester – holding EASA Part 145 approval for the repair and overhaul of avionic, galley and IFE equipment, along with EASA Part 21 J Design and G Manufacture approvals. The group also has a soft furnishings division specialising in the design, manufacture, supply, fit and care of seat covers, curtains and other accessories in both high volume and small bespoke quantities; and is one of the UK's largest providers of ramp operations (deicing, interior and exterior cleaning, carpet fitting, cabin presentation and laundry services), with facilities at 11 UK airports.

In summary, the company expects an increase in retrofit activity, but with a strong emphasis on value for money, weight saving and in-service reliability. "We believe the downturn in the airline industry has increased the argument for simpler, more reliable and cost-effective solutions for passenger entertainment in certain areas of the market, and we have positioned our products accordingly," says Bodek. ▣

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Airline Services

01

02

01. Smart Display Unit
02. SiT Interface Box

sitting**pretty**

The SiT IFE system is nearing deployment with its launch customer

In early 2006, Zodiac Aerospace began developing a new AVOD IFE system within its cabin interiors branch. That system, Seat integrated Technology (SiT), is due to begin service with its first customer, Royal Jordanian, in November 2010 – in business and economy class on the airline's A340 fleet.

At the heart of the system is an embedded Smart Display Unit (SDU) in each seat that contains all multimedia files (up to 250Gb). The SDU is an autonomous display designed to increase system capabilities for 3D video games and animated and 3D graphical user interface solutions, but avoid delays in accessing content. Using SDUs negates the need for central servers.

Zodiac Aerospace currently offers the SDU in a 10in touchscreen (16:9) unit compatible with all standard integrations (in-arm, tilt and fixed backshell). New units – a 15.4in, 16:9 version; a 12in, 16:9 version; and an 8in, 16:9 with touchscreen version will be available by mid 2011.

Copper cables remain only for internal seat connections, while the system backbone is now designed with multimode optical fibres. The company says this technology allows 1Gbps Ethernet communications, reduces weight, and makes raceway integration simpler – avoiding segregation between power supply cables and data wiring.

In-seat boxes manage power conversion and network connections for up to four SDUs. These boxes are daisy chained by optical fibres without row number limitations. With this design, no under floor data equipment (ADB, FDB) is necessary. In fact, with SiT, only three line replaceable units are needed – the SDU, the SiT Interface Box (SIB), and the Seat Power Box (SPB)

Seventy-five per cent of all SDU storage devices can fail and still allow all passengers to operate the entire system. The company says that even if several in-seat power boxes are inoperative, the entire optical backbone will remain functional. Content refreshing is performed simultaneously on all SDUs through a centralised access point.

With regards to functionality the SiT system provides on-demand movies and music, 3D and 2D games (single or multiplayer), text news, HTML navigator and power supply connectivity for USB devices. Any type of application can be loaded at the airline's request, without any modification.

The SiT system can be interfaced with digital air maps as well as in-seat power supplies and satellite connectivity to provide internet, email and live TV. SiT's content protection is approved by major US studios such as Walt Disney, Fox and Universal.

The company is currently focused on completing its first retrofit SiT programmes, but is also working to achieve qualification for line-fit aircraft using optimised connectivity within the system backbone. This solution will offer the possibility to remove seat-to-seat data connections, with the aim of reducing installation time. ■

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01

staying**power**

Looking to replace an obsolete part of an early IFE system? TEAC and Goodrich have the answer

Obsolescence in IFE systems is becoming an increasing concern among airlines of all sizes. TEAC Aerospace Technologies (part of the Goodrich Corporation) says that airlines are discovering that replacement equipment for early IFE systems is becoming more and more difficult to find, if it even exists, and maintenance can be costly and time consuming. For example, many OEMs of Hi-8mm video reproducers have left the market, making finding replacement parts for these systems challenging.

As airlines explore different options to upgrade analogue video recorders and bring digital entertainment to passengers, they discover there are many options available. One option is to replace the old system with a new digital system. "This may give airlines an edge in creating the ultimate passenger experience, but it comes at a cost," says Dan Vargas, IFE business development manager at Goodrich Sensors and Integrated Systems. "Rewiring the video control centre and passenger cabin to replace IFE systems in a fleet can be costly, demands lengthy installation time, and requires comprehensive employee training."

Another option is to replace and update portions of existing IFE systems – an area of the market that TEAC specialises in. "This option allows airlines to utilise existing equipment and still provide a digital IFE experience to passengers," says Vargas. "It is generally less expensive and requires less installation time and employee training than an all-new system."

TEAC has been developing, qualifying, and manufacturing airborne system components for commercial aircraft for more than 20 years. Rather than rely on products developed by third parties, the company designs, manufactures and supports its own IFE products, such as Hi-8mm video and CD technology.

JOINING FORCES

In 2008, TEAC was acquired by Goodrich Corporation, a leading global aerospace supplier for commercial and military markets with a strong portfolio of interior products, including lighting, seats and electronic flight deck systems. Goodrich determined that TEAC's electronic technologies, in both commercial aircraft IFE and

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02

01. Audio and video servers
02. Solid-state digital audio reproducer
03. HD digital video reproducer

military mission data systems, would complement Goodrich's interior products and systems nicely.

The acquisition of TEAC's IFE products and expertise in avionics-grade electronic systems has proven complementary to a variety of other Goodrich interior electronic systems, such as electronic flight bags (EFB), video surveillance systems, and external video monitoring systems

The Goodrich cockpit data management system (CDMS) portfolio, which includes EFBs, provides a paperless cockpit solution with design, software integration, data management, and certification. It is designed to enable flight crews, maintenance personnel, and flight operations groups to perform crucial ground and inflight data management tasks electronically, quickly and efficiently. The Goodrich EFB is part of the FAA's NextGen air transportation system's operational trials, and its video surveillance systems are continuously selected by airlines around the world for new and existing fleets.

"The synergies between Goodrich's interior electronic systems and TEAC's IFE technology will help strengthen the already-proven TEAC brand," says Vargas.

In addition, with 24,000 employees across 17 countries, a solid support network, and 140 years of experience in the industry, Goodrich has the capabilities and resources to advance TEAC's IFE technology and provide comprehensive customer support around the world. "As the IFE industry continues to evolve, Goodrich is ready to meet the new demands of the commercial airlines," says Vargas.

03

RETROFIT SOLUTIONS

Goodrich is positioning itself in the retrofit market, with a full line of digital audio and video reproducers. "These are easy to install and offer a reliable, low-cost solution to airlines around the world," says Vargas.

All of the video and audio components and systems are designed, manufactured and tested by Goodrich from the ground up. The company also guarantees full configuration control, immediate spaces and availability, and local technical and logistical support. ■

01. An IFE app translated to smartphones
02. Spafax helped to create an advert for a Mercedes-Benz car, which airs as the aircraft takes off, replicating a test drive

linkedin

How airlines can increase their connection with passengers

Airlines can connect more to passengers by unifying the inflight experience with all other contact points, according to Spafax, which helps airlines to do this through branded content, IFE management, publishing, advertising sales and duplication/encoding services.

"Connecting the customer's experience via consumer media permanently changes the airline's relationship with a customer. Content is no longer just a commodity to be consumed in flight, but becomes part of the customer dialogue, across multiple user channels," says Niall McBain, CEO of Spafax. "Content is the unifying element of the customer experience throughout the journey."

Spafax says airlines are already seeing the potential of tapping into what passengers enjoy in their own time. "It's fascinating to see how airline marketing has changed. No longer just travel and destination oriented, leading airlines are speaking to other sentiments – to their consumers' lifestyles," says McBain. "LAN Airlines recently launched a wine magazine, distributed in flight but targeted at its customers' home lives, and other airlines are sponsoring big sport and entertainment brands and events."

McBain sees this continuing in the future. "Airlines will reposition their brands more towards lifestyle and entertainment to provide the relevance and duration of extended customer contact and the opportunity to build more permanent customer affinity and loyalty," he says.

Digital media can be vital in making these connections. "Whether it's service recovery from a complaint through a social media site, or an additional entertainment opportunity in flight, the web enables airlines to extend the scope of the customer relationship, long before those customers fly and long after they return home," says McBain.

McBain believes IFE will drive ancillary revenue not just through direct advertising, but "by developing a merchandising and transactional model to the entertainment". For example, a film like *Sex in the City 2* could form part of a package of content designed to inspire and capture interest in Abu Dhabi (where it is set), or in a product favoured by one of the stars. "From shopping and hotel promotions, special airline offers and other related content, the editorial arts deliver subtlety in engaging the customer across IFE, website, mobile, print and social media platforms," says McBain. "Creating dialogue means moving from a broadcast, library or search mode to engaging consumers through data-driven content schedules, user-generated content and brand content to target audience segments with appropriate offers and promotions." ▣

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01

02

03

highoffice

Standardisation and a building block approach are being used on aircraft to recreate the benefits of office networks

Network technology is rapidly evolving alongside passengers' ever-expanding appetite for higher data rates, processing speed and data storage. "Ethernet, USB, internet protocol and modular network building blocks form the cornerstones of office networks," says Robert Guidetti, vice president, commercial products at VT Miltope. "Fortunately for the corporate IT world, there are industry standards and common practices from which networks are designed, enabling scalability, upgradeability, and interchangeability. These technologies and proven practices may be applied to an aircraft as well."

VT Miltope is trying to translate network architecture and products to the aircraft by championing the development of aviation standards and using a building block approach to aircraft networks. The goal is to standardise packaging, electrical interfaces, software services and protocols to allow the aviation industry to design and tailor its networks in a way similar to office networks. "This offers airlines and business jet operators greater choice in network solutions (even across mixed airframe types) that are tailored to operational needs as well as the IFEC applications required by passengers," says Guidetti.

By standardising tray wiring and connector index keying, VT Miltope says system integrators and airframe manufacturers can actually define the space needed for network components before operational requirements have been finalised, creating the airborne equivalent of standardised equipment racks used for corporate IT data centres.

To support this strategy, the company has developed a family of airborne network products in standard packaging and tray wiring specifications, such as specified in ARINC 763 and ARINC 600. "When integrated, these products form a network that optimises the combination of interfaces and computing resources to meet the operational, spatial and functional requirements of desired services," says Guidetti.

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04

01. nPrinter
02. Remote Ethernet Switch
03. nMAP 802.11n access point
04. Network Server Unit

To build integrated wired or wireless networks, VT Miltope offers a building block portfolio of network components. Its server products include a Network Server Unit, which integrates other aircraft avionics and can be used to host network management; a Computational Resource Unit, an application server that can also be used to add dedicated processing; and a Telephony Server, a communication management server with CEPT/E1 and DSP.

The company also offers two types of Ethernet switches – the Ethernet Switch Unit, a centralised, managed GigE switch used for network expansion; and a Remote Ethernet Switch, a sealed, managed switch for remote network expansion. Access point products include a Multifunction Access Point, which is available in 802.11a/b/g and 802.11n standards and enables aircraft hotspots; and a Terminal Wireless LAN Unit, which provides a wireless bridge from aircraft LAN to ground-based LAN. Three printers are available – the TP4429, an ARINC 740 printer; the TP4840, an ARINC 744 and 744A thermal printer; and the nPrinter, which offers print management and print server capabilities.

VT Miltope's other network components include a Network Control Panel, a network interface for centralised management and diagnostics; and Network Attached Storage, a high-capacity storage device accessible to multiple network devices.

Both middleware and software applications run on the network's hardware platform, primarily the server, to support a wide array of services. "The messaging structure of a well-conceived network provides for secure communication between applications, data loading, and configuration management with remote network management," says Guidetti. The network can then enable passenger-orientated communication services such as air-to-ground telephony, internet and email; and IFE content provisioning such as gaming, music, IPTV and IFE content updates. It can also be used to support flight crew tasks with electronic flight bag, portable sales terminals, and cabin logbooks. In terms of operations and maintenance support, the network can enable such services as cabin inventory management, electronic aircraft manual, centralised maintenance and remote network management. ■

hearnoevil

Phitek Systems designs and develops advanced noise cancellation and audio enhancement products. One of these products is SmartShuttle, which integrates wired and wireless headphones, video, data and power connectors into a single shuttle device that manages the flow of media and information between passenger and IFE system.

SmartShuttle incorporates surround sound, active noise cancellation and wireless headphone technology. "These capabilities provide airlines with unprecedented flexibility in configuring connector options at the seat, future-proofing their IFE from the uncertainties of the next generation of consumer technology," says Roy Moody, general manager for connectivity at Phitek. "SmartShuttle is a lightweight solution relying on a simplified cabling architecture. Estimated fuel savings yield a payback period of less than two years."

Another innovation from Phitek is its V3D Surround Sound Module, designed to provide authentic sound reproduction for all types of media. It can be retrofitted without requiring changes to IFE hardware or cabling, and enables passengers to customise their audio environment. The module also includes signal processing to emphasise voices in audio content, a feature designed to improve intelligibility at comfortable listening levels for the hearing impaired.

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makingsense

Modern IFE offers the opportunity to reach out to individual customers with tailored products and content – making the flight more personal. And that is where Deutsche Welle steps in. The international broadcaster's IFE programming is currently available in German, English, Spanish and Arabic – some in dual language – offering airlines the opportunity to provide multilingual content to passengers around the world.

Deutsche Welle has spent years creating its IFE portfolio, but this multilingual expertise isn't something that has happened overnight. The company has a storied history in international broadcasting that goes back more than 50 years. The team now delivers radio, television, online and mobile content in 30 languages.

"Something that we pride ourselves on is our multilingual capabilities," says Ulrich Wartmann, head of distribution for Europe at Deutsche Welle. "It allows us to provide quality programming in several languages and make it available in various markets."

The company's IFE content is currently a selection from the entire DW-Transtel catalogue and includes documentaries and magazine formats. "We now also have shorter formats, like five- and 15-minute segments, which will complement our longer 30-minute shows. We expect this to translate well to IFE."

HOW IMPORTANT IS CONNECTIVITY TO AIRBUS? Very. It's an emerging market for which we see a growing wave of airline commitment: five airlines were pioneering or trialling it in 2007, 35 airlines had opted for it by the end of 2009, with 10 additional operators joining them during the first half of 2010. Airbus believes this enthusiasm will continue to grow: an Airline Business/SITA Airline IT Trends Survey published in 2008 found "more than 50% of airlines have plans to introduce connectivity within three years". This forecast appears sound: by July 2010, more than 1,100 aircraft had been equipped worldwide with a connectivity platform. Analysts, including Airbus, commonly forecast that for aircraft with more than 100 seats, one aircraft out of every three will be equipped with a connectivity solution by 2013. Airbus believes connectivity will be as important to the long-haul market as IFE has proven to be, but will also have a greater impact on short- and medium-haul sectors.

HOW ARE YOU RESPONDING TO THIS DEMAND? Airbus has developed in-house platforms for all its aircraft types that deliver the full breadth of new connectivity services. In 2007 Airbus was the first manufacturer to receive certification for an onboard mobile phone system. This platform, called 'GSM onboard', is available on the A320 Family, and entered into service at the end of 2007 using the Inmarsat SwiftBroadBand (SBB) service. In the same year Airbus also received certification for the ALNA V1 (AirLine Network Architecture) internet platform leveraging Inmarsat's Swift 64 worldwide service. ALNA V1 began commercial operation in the first quarter of the same year. At the end of 2009, Airbus received certification for a platform that offers (via SBB) worldwide true broadband connectivity services for both internet and mobile telephony. The service, based on the ALNA V2 platform, is available on all Airbus long-haul types and has been in operation since Spring 2010. These technological breakthroughs were recognised during the Hamburg Aircraft Interior Expo in 2008 when the major ALNA subsystem (UWBS - Universal Wireless Backbone System) won the Crystal Cabin Award.

WHAT ARE THE CAPABILITIES OF THE SOLUTIONS YOU OFFER? Typically (subject to airline customisation) the Airbus connectivity solution ensures 24 simultaneous phone calls, leaving bandwidth available for data services. The off-board (SBB) connectivity segment guarantees a bandwidth of more than 850kbps per aircraft based on two SBB channels. This capability is expected to double by 2012 (when Inmarsat is expected to authorise the use of four SBB channels per aircraft). Beyond ensuring passengers can use their own wireless devices (smart phones, laptops) to make and receive phone calls, send and receive SMS messages, emails (with attachments), or access the Internet, ALNA V2 also serves airline administrative and operational communications needs. The latter includes crew mail, telemedicine, credit card authentication, onboard rescheduling of traveller flight correspondences, Airbus Digital Cabin Logbook real-time transmission, IFE applications such as health monitoring, live text news, and crew wireless devices – with more applications to come.

Q&A

PATRICK CANDELIER

Patrick Candelier, Airbus cabin services marketing, explains the aircraft manufacturer's take on the fast-moving connectivity sector – and why it believes L-band is the best option – at least for now...

WHO ARE YOU WORKING WITH? OnAir, a joint venture established by Airbus and SITA, is the preferred Airbus Service Provider, offering a one-stop shop for the airline to establish service agreements with ground operators, obtain the necessary authorisations from telecommunication regulatory bodies, and provide all possible services. The solution leverages the latest constellation of Inmarsat 4 satellites, which deliver worldwide SBB connectivity to the L-band aircraft satcom spectrum.

Q: WHY L-BAND? We want to deliver the best level of service to the passenger, the lowest total cost of ownership for the airline, and the smartest operational optimisation between 'cockpit' and 'cabin'. Today's communications are largely dominated by L-band satellite systems with more than 8,000 aircraft currently flying with L-band satcom equipment. The first expectation from the user is continuity of service – this directly translates into the need for worldwide coverage, and the only media that approaches this objective is, right now, the Inmarsat L-band solution. Ku-band suffers from coverage restrictions, whereas a Ka-band global system has only just been announced by Inmarsat. Both factors (existing market base and continuity of service) make L-band the natural choice – today. However Airbus acknowledges the industry's growing interest in Ka-band or in dual L-band/Ka-band systems – but this technology is only in its infancy. Airbus has always developed connectivity platforms that are link-agnostic. An ALNA customer willing to change satellite provider will be able to keep up to 90% of the hardware, firmware and software installed on the aircraft. Airbus recommends airlines to equip or upgrade their L-band satcom systems to SBB, and – if there is a need for more bandwidth in the future, with a proven business case – to install an ARINC–compliant antenna and connect ALNA onto this new satcom system. The need for off-aircraft connectivity is global and thus can only be led by the Type Certificate Holder – the airframer – and should not depend on the IFE suppliers. The ALNA platform bears this communication manager function, which is the gateway to the satcom. ■

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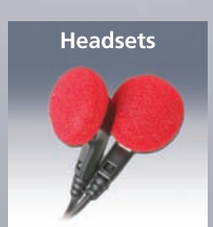

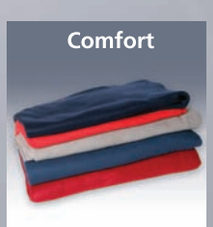

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