



The In-flight Connectivity Revolution

Data Consumption – Lessons from the ground

In-flight connectivity is fast becoming a catalyst for change in day-to-day airline operations. Just as connectivity is revolutionising our everyday lives at work and home, the connected aircraft will redefine the way airlines operate.

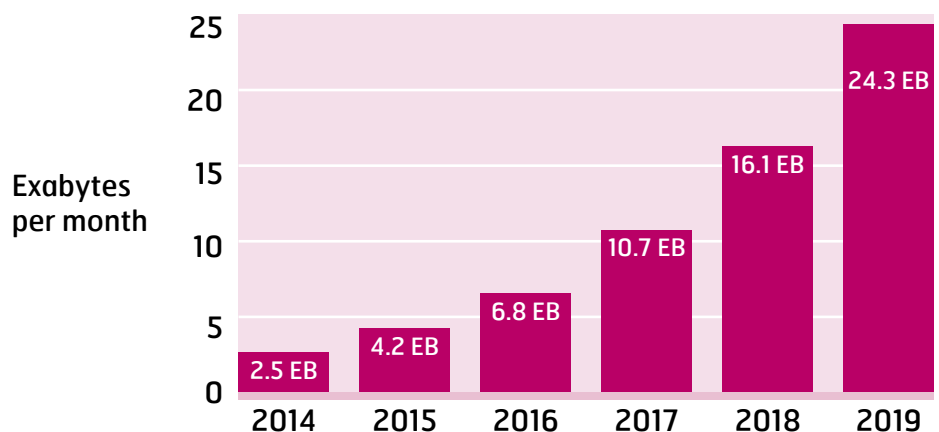


It will add value to their passengers' experience - and ultimately, to their bottom line. The question for airlines is not if, or even when, but how much?

Mobile data consumption¹ has increased significantly and rapidly over the past decade, with its compound annual growth rate exceeding 100% between 2010 and 2014². Cisco estimates that, by 2019, global data consumption³ will reach approximately 25 exabytes per month - a tenfold increase over 2014⁴.

A key driver of such large-scale uptake is the correlation between data usage and connection type. In 2014, 4G devices represented just 6% of all connected devices, yet accounted for over 40% of all mobile data traffic⁵. In line with this trend, 4G users consumed, on average, twice the data of users with 3G devices⁶.

Rising data speeds and new technologies continue to impact the traditional communications and media landscapes. For the first time, in 2015, more people will watch streamed on-demand video at least twice a week than will watch broadcast TV⁷. This trend is forecast to continue, and it is expected that more than half of all data traffic will be driven by video streaming by 2020⁸. These facts illustrate how changing media consumption habits are causing digital data usage to soar, a trend that is likely to be reflected in demand for a quality broadband experience in the sky.



1 Mobile data consumption refers to cellular data and excludes Wi-Fi

2 Ericsson Mobility Report, 2015 WRC Edition

3 Global data consumption refers to data consumed over all network types (cellular and Wi-Fi)

4 Cisco CNI: 2014-2019 Forecast

5 Cisco CNI: 2014-2019 Forecast

6 Mobidia Smartphone and Tablet Usage Trends & Insights, 2014

7 Ericsson Mobility Report, 2015 WRC Edition

8 Citrix Mobile Analytics Report, 2015

9 Honeywell 2013 In-Flight connectivity survey

What does this mean for aviation, and how can airlines harness the connectivity revolution?

Passenger surveys show growing demand for connectivity in the cabin. IATA's 2014 global passenger survey reveals that 80% of the passengers would use Wi-Fi if offered on board a flight. According to the 2014 APEX passenger experience study, 1 in 3 passengers indicated that in-flight connectivity is the single most needed area of improvement by airlines while 90% of passengers would give up other amenities to have a better in-flight internet experience⁹.

This trend is likely to grow as media consumption habits continue to evolve in the digital age and passengers have access to a higher quality broadband experience. While consumers increasingly seek flights with connectivity, airlines seeking to meet this need are faced with a landscape of competing network technologies. Today, in-flight connectivity is offered through Air-To-Ground (ATG) and satellite networks.

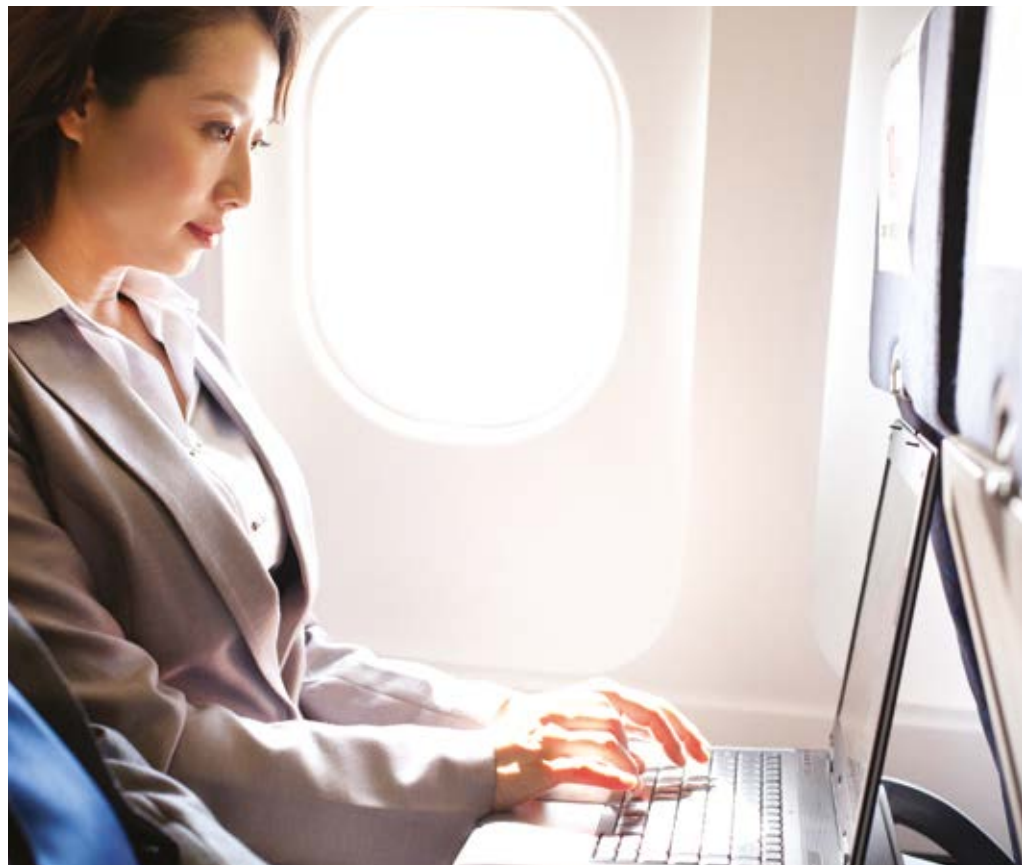
In the satellite environment, operators are investing in new generation High Throughput Satellite (HTS) technology to meet growing demand not only in aviation but on the ground and in the maritime industry. The majority of these new satellites are designed to replace existing satellites serving traditional Fixed Satellite Service (FSS) markets such as direct-to-home and broadcast TV and are not designed or dedicated for mobility. Moreover, unless the service is provided by a single network operator, global availability will remain fragmented between different technologies, operators and resellers, leading to a patchy, interrupted service for the end users. ATG connectivity is currently only available in the United States.

This service has established a baseline for the in-flight connectivity market and created demand amongst US and international travellers; however, the current ATG network capacity is limited, forcing the network provider to constrain services and reducing the ability of airlines to realise the true potential of the passenger connectivity opportunity.

Passengers will judge an airline's connectivity offering based on its performance relative to their experience on the ground. Airlines therefore require a connectivity partner with a network that can grow and adapt to their requirements, cover their global routes,

meet demand over dense traffic areas, and, most importantly, offer passengers a seamless and reliable broadband experience wherever they fly.

Airlines will need to look beyond a short-term answer to aircraft connectivity to find a partner who can meet their long-term needs, in what is an incredibly fast-moving world. We do not know what tomorrow's connectivity technology will look like, but we do know that it is likely to be exponentially different from today's. This requires a connectivity partner who can keep up with that level of transformation.







Airlines need a good partner

For airlines, in-flight connectivity provides a prime opportunity to grow customer loyalty and satisfaction, and ultimately revenues - with the right partner.

Airlines should look for a partner with the ability to meet the needs of its passengers today and in the future. This requires a network provider with the commitment and ability to invest, one for whom connectivity is at the heart of everything they do, and one committed to realising the potential of the connectivity opportunity.

A good partner will have a future-focused roadmap for investing in technology and infrastructure innovation and development, and will be willing to commit to ensure technology improvements are shared with its customers.

A good connectivity provider will offer an ecosystem of partners that is flexible enough to meet the specific needs of each airline, while working with its partners to remove cost in the value chain. Minimising total cost of ownership should be the aim.

In-flight connectivity is a growth opportunity. Airlines should seek partners for whom mobile communications is a core business, who provide reliable networks, and who focus on growing the businesses of all members of its value chain. At the core must be a commitment to deliver a true broadband experience, matching what passengers are used to on the ground, and to support airlines in strengthening customer loyalty and increasing market share.

With the right partner, connectivity can transform the in-flight experience.

The Inmarsat proposition

Inmarsat's vision is simple: we aim to work with our partners and support airlines to build sustainable connectivity businesses based on satisfied, repeat customers.

As the most experienced satcom provider in the market, Inmarsat brings together a network of skilled partners to deliver a solution tailored to the individual needs of each airline. Operating as the backbone of this value chain, Inmarsat holds itself accountable for delivery of the highest quality service to the airline and to the end-user and for the Inmarsat product family, while encouraging creativity and flexibility in its partners. By leveraging our strong financial position, we will continue to invest in innovation across our value chain and multiple technical platforms to enhance capability, improve efficiency, and deliver the best broadband service now and in the future.

Inmarsat owns and operates its own networks, so we are accountable for delivering the highest quality service to the end user. This gives us the flexibility to create the most cost-effective proposition to our customers. We own and resell our own capacity so do not need to pay a margin for capacity from satellite wholesalers. We work closely with our partners to reduce the total cost of ownership by removing barriers to investment and working alongside airlines and service partners to generate demand and uptake amongst passengers. This end-to-end proposition is what matters—in both cost and quality.

Inmarsat's integrated aviation networks

We have invested billions in wholly-owned and operated global satellite networks, and have a strategy of further investment. We recently invested over \$2B USD in a global Ka-band satellite network, called Global Xpress (GX), and the upcoming EU Aviation Network—an integrated S-band satellite and complementary ATG network in Europe. These investments, which include a fourth GX satellite scheduled for completion in 2016, are designed to deliver greater capacity more efficiently, reducing network service costs. As a single owner-operator, running a single integrated network, we can deliver a guaranteed quality of service unmatched by other connectivity providers.

The Global Xpress satellite network

Inmarsat owns and operates the global Ka-band satellite network designed expressly for mobility services. With three satellite constellation providing global coverage, and a fourth which will provide additional capacity if and where required, GX employs state-of-the-art technology that allows dynamic capacity allocation, providing aircraft access to connectivity where and when it is needed. To the passenger, this means a consistently reliable, high quality broadband experience anywhere in the world. GX is the only truly global satellite network, and the only satellite network that incorporates dynamic steerable beams to address hotspots which inevitably occur in mobile network operations. GX also features two-receiver terminal technology that allows aircraft to be seamlessly "handed off" from one beam to the next.

EU Aviation network

While the GX network provides seamless global coverage, Inmarsat recognises that a properly provisioned ATG solution with sufficient spectrum to meet demand is sometimes the best choice to meet market requirements in certain regions, such as Europe's very busy skies. For that reason, Inmarsat has invested in an S-band satellite and complementary ground network over Europe that will outperform other aviation connectivity networks in terms of speed, capacity and economics. ATG networks can supply high capacity at lower cost, and can be quickly and relatively inexpensively added in order to augment capacity, where and when required by the market. This ensures that we can provide our customers with a solution tailored to their individual routes, wherever those are.

Inmarsat reliability

Unlike other service providers with cabin connectivity products, Inmarsat is the only network operator who also offers certified safety services. We have provided proven and trusted communications to the cockpit for over 20 years, delivering a reliable, always on broadband service and we are now leveraging this experience to deliver the same quality of service to the cabin. Our robust safety services enable us to provide a full range of fit-for-purpose solutions to the airline, catering to both the cabin and the flight deck.

Moreover, this long track record in cockpit connectivity is reflected in the quality and reliability of our cabin service. Our cabin connectivity is rooted in a technology on which lives depend every day.

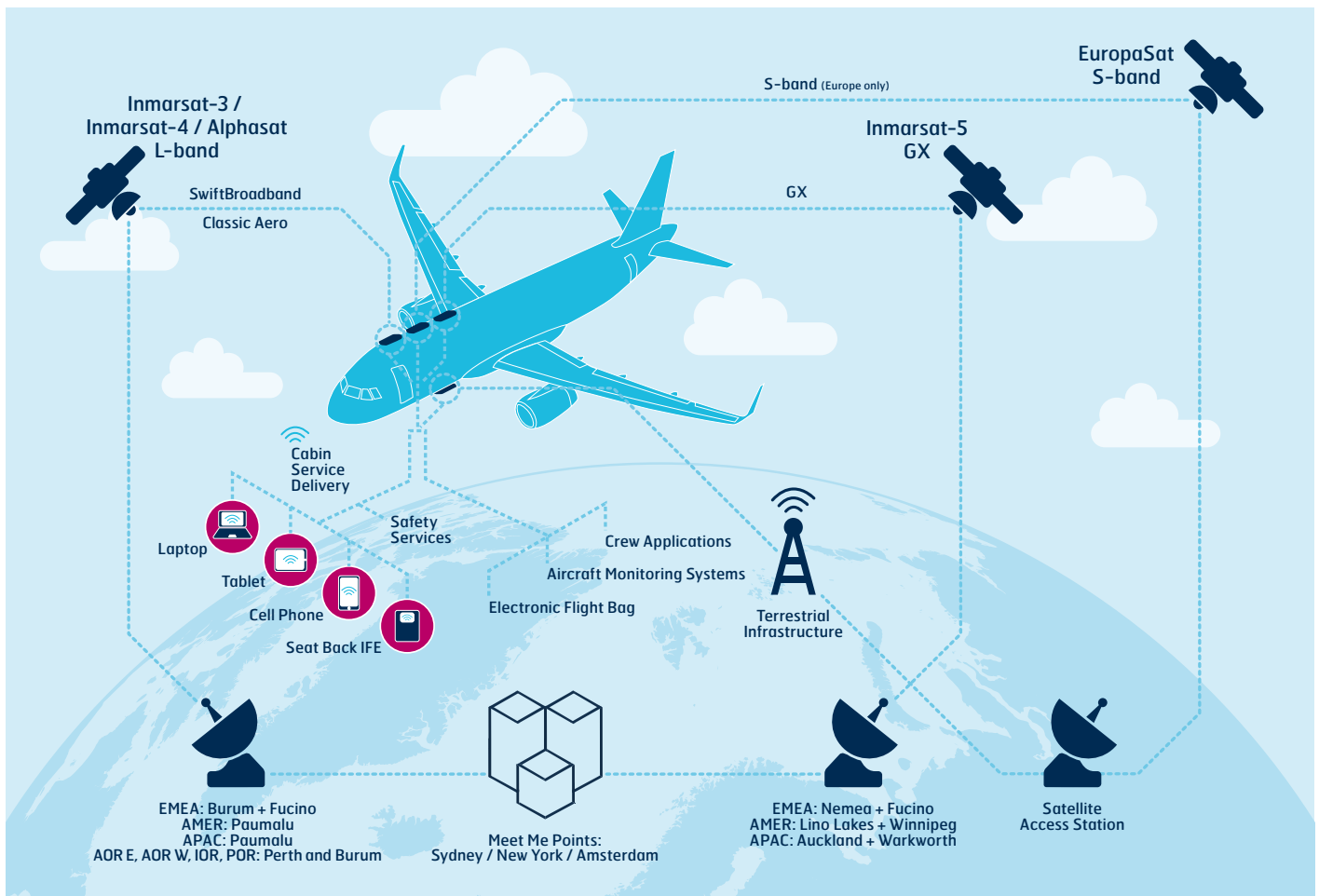
We are different

Inmarsat is the leading provider of mobile satellite services: aviation connectivity is core to our business, not secondary to in-flight entertainment or the terrestrial broadband market.

We are committed to investing in infrastructure and technology to meet the needs of airlines and their passengers now, and in the future.

The Inmarsat Aviation ecosystem, including our own networks and supported by our wealth of top avionics and aerospace partners, is being streamlined to minimise cost to airlines, while driving innovation in the Inmarsat product family and providing superior options and flexibility.

With two decades as leaders in aviation satellite communications, and the investment power to make our vision a reality, we see in-flight connectivity partnerships as a prime opportunity for airlines and the aviation industry.



Contact us

Are you ready for the in-flight connectivity revolution? For further information, please visit our website or get in touch with our team.

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