



OPEN ARCHITECTURE:

The Key to Future-proofing
Inflight Connectivity



INTELSAT.

Envision. Connect. Transform.

Over the next decade, access to high-speed connectivity will transform nearly everything about air travel – from the passenger experience to crew management to aircraft operations. Inflight connectivity (IFC) is more than a “nice-to-have” passenger feature; it has become a core component of future airline developments.

The ability of airlines to compete and thrive depends on making the right inflight connectivity investments that accommodate bandwidth demands well into the future. Yet, with soaring passenger expectations and the pace of technological change, it’s become increasingly difficult for airlines to effectively evaluate and compare connectivity solutions.

In this eBook we’ll explore:

- The opportunity for connected aircraft
- What a connected aircraft can offer – for passengers and your business
- Where we stand with connectivity today
- Factors influencing today’s IFC technology decisions
- Two opposing views for meeting connectivity demands
- Benefits of an open-architecture approach
- Future-proofing your connectivity decisions

Two-thirds of airlines are expected to operate connected aircraft by 2019.¹



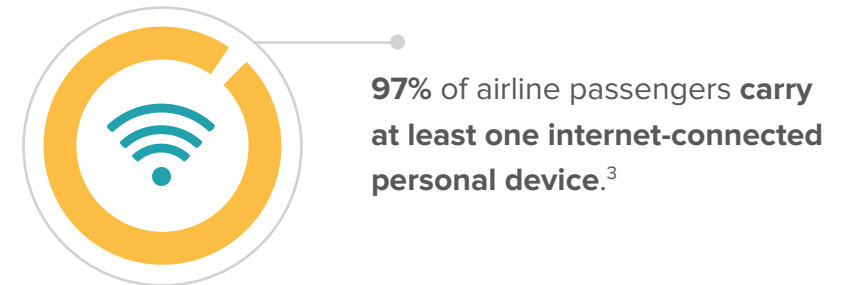
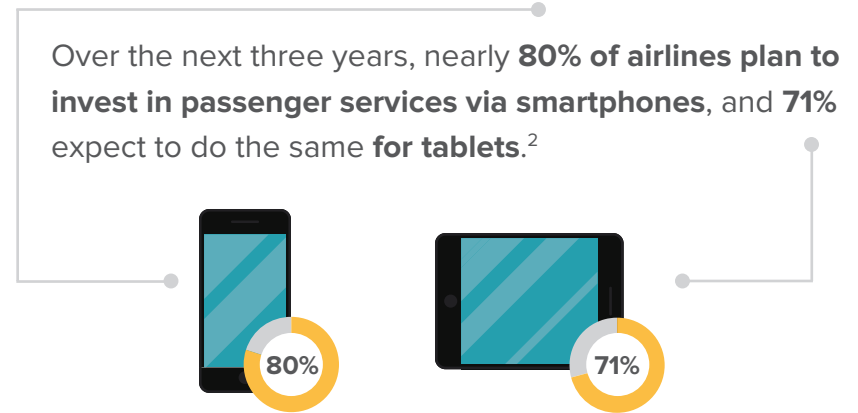
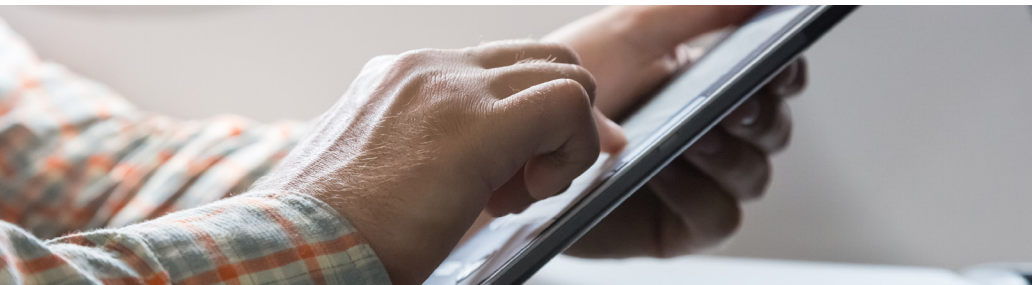
¹ [Airline IT Trends 2016 Survey](#), SITA, June 29, 2016

THE OPPORTUNITY FOR CONNECTED AIRCRAFT

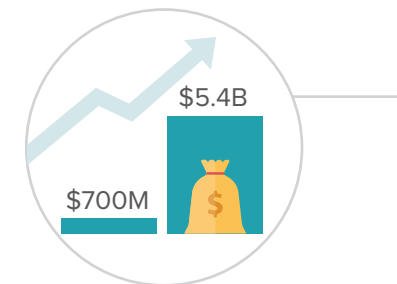
Many airlines offer light internet browsing, text messaging and even cellular service. But demand is growing and passengers expect unrestricted (and increasingly free) access to the same highly interactive applications and content they have on the ground.

Greater access to high-speed connectivity via new, high-performance satellites and antenna technologies will not only make this type of experience possible, it will enable airlines to monetize their investments with new ancillary services, including location-based services, duty-free shopping, baggage tracking and more.

The ability to stream larger volumes of “big data” in real time will also power a new generation of Internet of Things (IoT) applications – enabling airlines to gain real-time insights into flight operations to improve efficiencies, increase plane uptime, minimize delays and ease the overall passenger experience.



Total revenues from passenger connectivity are expected to increase from **\$700 million in 2015** to almost **\$5.4 billion by 2025.**⁴



² [Airline IT Trends 2016 Survey](#), SITA, June 29, 2016

³ [The Future is Personal in Air Travel](#), SITA, Feb. 2015

⁴ [Inflight Entertainment and Connectivity](#), Euroconsult, April 2016

WHAT A CONNECTED AIRCRAFT CAN OFFER

For passengers



CONNECTIVITY

A reliable experience that feels like home or the office



CONSISTENCY

A unified experience on all flights



TRANSPARENCY AND PEACE OF MIND

All the information needed for a stress-free trip – and the confidence that comes with high-quality connectivity that is accessible across the entire journey

For your business



OPERATIONAL EXCELLENCE

Improved performance – including plane uptime and turnaround time – and reduced operating expenses



DIGITAL TRANSFORMATION

The ability to re-engineer processes to reduce paper and become fully digital



INSIGHT AND ACCESS

Real-time data, including:

- Electronic flight bag data with integration of real-time weather information
- Main engines and auxiliary power unit performance data
- Maintenance data
- Manual-entry items such as minimum equipment list (MEL) for maintenance issues (e.g. broken seat recline, inoperable coffee maker)

WHERE WE STAND WITH CONNECTIVITY TODAY

Inflight Wi-Fi is an expectation. Many travelers choose flights based on whether or not they will have access – and they're increasingly frustrated when the service they receive (and pay for) is slow or unreliable.

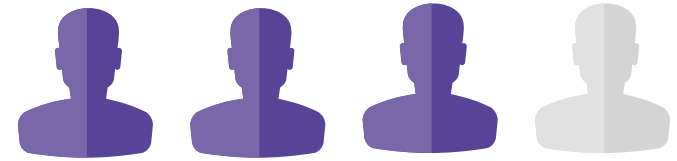
Anyone who has flown on a plane recently has likely experienced some of its performance challenges. Dropped Wi-Fi signals, coverage limitations, slower throughput speeds in congested air routes...it hasn't always been consistent or dependable.

As airlines become increasingly reliant on real-time data to enable a multitude of flight communications and passenger services, connectivity loss is no longer acceptable.

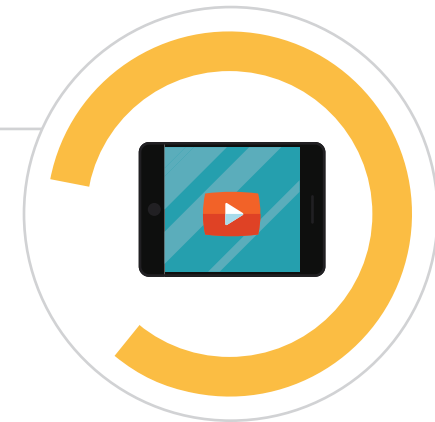
Newer satellite technologies are poised to solve the inconsistencies of the past and deliver enough capacity to accommodate the massive growth in mobile traffic and demand for video – which is projected to account for 70% of mobile traffic by 2021.⁵

So why is making a connectivity decision today fraught with so much uncertainty and confusion?

Nearly **3 of 4 passengers** are **ready to switch airlines** to access a **faster, more reliable Wi-Fi** connection⁶



83% of passengers want a connection that is **fast enough to stream audio or video** from sites like YouTube and Netflix⁷



⁵ [Ericsson Mobility Report](#), Ericsson, June 2016

⁶ [Survey: Airlines Risk Losing Passengers Due to Poor Wi-Fi](#), Honeywell, July 12, 2016

⁷ Ibid.

FACTORS INFLUENCING TODAY'S IFC TECHNOLOGY DECISIONS

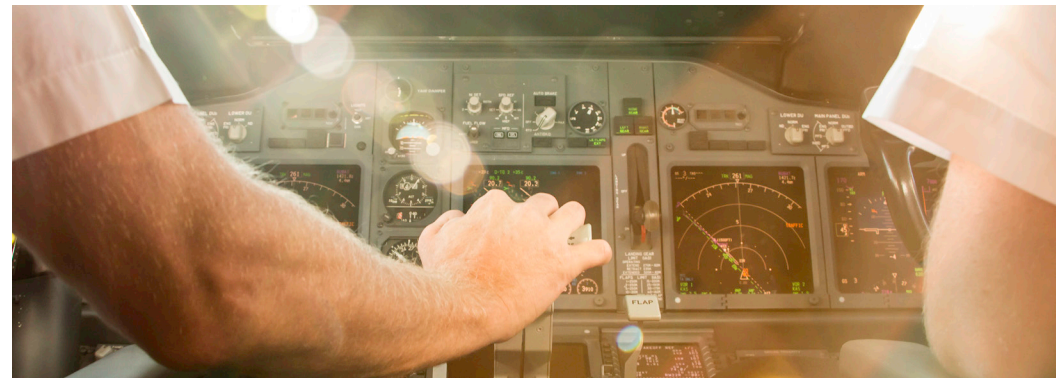
There are several factors playing into an airline's connectivity decisions – and it's not just about speeds and feeds. Airlines need to be assured they'll receive:

- Consistent, reliable service levels for every passenger
- A unified experience across both short- and long-haul flights
- Connectivity that is resilient and offers redundant back-up capabilities
- Cybersecurity for both passenger and crew communications

Additionally, technology innovation cycles are shrinking – but not the high cost of installing IFC technologies on a plane. How can airlines know if they're making the right investments?

The pressure is on, and the market is noisy with conflicting information and claims of “one-size-fits-all” solutions. It seems like newer satellites, air-to-ground solutions and frequency bands are being introduced daily – all promising to solve their connectivity problems.

Airlines find themselves being forced to make **risky bets** on IFC, without knowing whether these technologies will deliver as promised or provide a return on their investment.



OPPOSING VIEWS FOR MEETING CONNECTIVITY DEMANDS

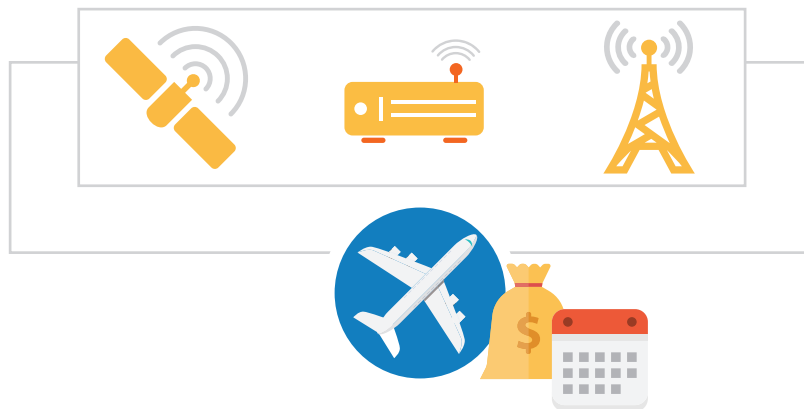
There are many players in the connectivity game, and any number of solutions available. Airlines are being drawn into narrow technical debates over satellite capacity, throughput to the seat and frequency band – and everyone has an opinion. But what's more important than debating the merits of any single technology

is determining the **technology approach** that will best serve your airline over the long term.

Let's take a look at what this means in practical terms. Today, we have two options.

SINGLE-VENDOR APPROACH

These are satellite operators who provide all the satellite, modem and antenna as part of a vertically integrated, closed system. Some of these solutions are breaking new ground – with projected launches of 1Tbps satellites in a few years. However, they are also risky because they require airlines to make a long-term investment in a single technology without any safety net. This approach makes the dangerous assumption that a company will out-innovate the rest of the industry.

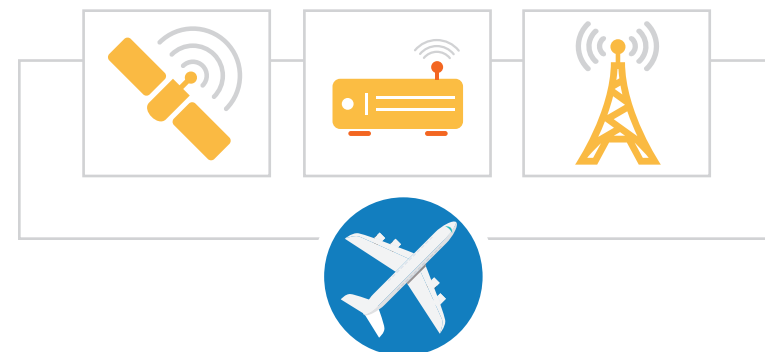


OPEN-CONNECTIVITY ECOSYSTEM

These are aviation service providers who offer technology-agnostic solutions based on an open architecture. They work with an evolving ecosystem of satcom and antenna providers to build and grow their solutions.

In an open-architecture environment, each component of the system (e.g., satellite, modem, antenna) can be upgraded independently. The result is a modular system that can integrate new technologies as they become available on the market, without requiring a complete overhaul of the aircraft. Modularity is critical in environments where:

- Installation costs on the aircraft are high
- Technological evolution is rapid and constant
- The provider needs to be agile and incorporate new innovations



BENEFITS OF AN OPEN-ARCHITECTURE APPROACH

By moving away from the technology hype and focusing more on the business benefits of a well-executed digital strategy, airlines can start asking the critical questions that matter:

- How confident am I in the future promises and plans of a single provider or in the collective capabilities of an open ecosystem?
- How can I ensure my connectivity won't be out for long periods of time in the event of a satellite malfunction?
- Will incorporating new technology require a complete overhaul of my fleet?

Open-architecture service providers aren't constrained by what a single satellite vendor can finance and launch – that's the beauty of working with a best-in-class ecosystem.

The right providers are aviation experts who can help airlines deploy the appropriate combination of technologies from many vendors. They offer a model that is adaptive and scalable, both technologically and operationally. It is purpose-built and focused on aviation applications. Most importantly, it doesn't require airlines to gamble on technology.

Business Approach	Benefits
Innovation	Incorporate the latest innovations in a progressive way, without throwing away existing investments – planes will need to support and manage legacy equipment over the long run.
Multi-layered	New satellites augment capacity to supercharge performance, not replace it – enabling a smoother transition, higher resilience and better cost efficiency.
Multi-orbit	Airlines gain access to tens of next-generation satellites (not just three or four) to ensure seamless multi-orbit coverage, capacity and latency.
Large ecosystem	A large ecosystem allows for risk-free innovation and best-in-class solutions. No need to bet on a single provider that may not deliver in the long term.

WHAT THIS MEANS FOR THE INDUSTRY

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MODULARITY

Scalability:

- Progressive addition of capacity
- Largest rollout plan

Resiliency:

- Widebeams always back up high-throughput satellites (HTS)
- Multi-vendor Ku-band environment

Compatibility:

- Backward and forward compatibility
- Same equipment on aircraft

FUTURE-PROOFING YOUR CONNECTIVITY DECISIONS






By working with service providers who can offer a realistic and progressive path forward, airlines can future-proof their connectivity decisions and free themselves from technology risk.

It will take an ecosystem to unlock the benefits of connected operations. Service providers who have chosen modular connectivity and are not tied to a single vendor's view of the world are uniquely positioned to realize the promise of a connected future.

To learn more about how Intelsat and its ecosystem of aviation partners – including Gogo, Panasonic Avionics and Global Eagle Entertainment – are helping airlines achieve the benefits of connected aviation, visit www.intelsat.com/solutions/mobility/aviation.

The Intelsat Globalized Network

Learn about IntelsatOne® Flex for Enterprise, a managed service that's part of Intelsat's Globalized Network and allows regional and global network service providers to efficiently access and incorporate high-throughput satellite technology into new and existing private networks.

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