



What Actually Uses Bandwidth In Flight?

Understanding Real Connectivity Needs Beyond Speed

INTRODUCTION

When operators evaluate inflight connectivity solutions, the conversation often centers around speed.

Bigger bandwidth numbers are frequently associated with better onboard connectivity experiences. But in practice, most aircraft cabins do not operate like a ground-based office network or a packed commercial airliner with hundreds of simultaneous users.

The reality is that a typical flight with four or five passengers onboard usually involves a predictable mix of digital activity, email and messaging, cloud-based work, web browsing, video conferencing, streaming entertainment, and multiple connected personal devices. While these activities certainly require a strong connectivity solution, they often consume far less bandwidth than many operators expect.

In fact, many modern inflight connectivity solutions, including Gogo's offerings, already provide substantially more capacity than the average cabin uses during a normal mission. The real challenge is not simply delivering raw speed, but delivering a connection that performs consistently across changing passenger demands and mission profiles.

Passengers rarely judge connectivity based on a speed test. They judge it based on whether they can join a video call without interruption, stream content smoothly, access cloud applications reliably, and stay productive throughout the flight.

That is why factors such as network reliability, latency, coverage, consistency, and intelligent traffic management often have a greater impact on the onboard experience than peak throughput alone.

This paper explores what actually consumes bandwidth inflight, how other performance factors influence the onboard experience more, and what operators should consider when selecting a solution that aligns with real-world passenger behavior.





UNDERSTANDING BANDWIDTH VS. CONNECTIVITY PERFORMANCE

Bandwidth is often the first specification operators look at when comparing connectivity solutions. While available speed is important, it is only one piece of the overall connectivity experience.

A high-quality onboard internet experience depends on **several factors working together, including:**

- Network reliability
- Coverage consistency
- Latency
- Traffic prioritization
- Passenger usage habits
- Number of connected devices onboard

For example, a passenger checking email or editing cloud-based documents uses connectivity very differently than a passenger streaming high-definition video or participating in a live video conference. This is why two cabins with the same number of passengers may experience very different connectivity demands.

Understanding what drives bandwidth consumption is critical to selecting the right solution.

WHAT ACTUALLY USES BANDWIDTH INFLIGHT?

Modern aircraft cabins generate bandwidth demand from a wide variety of activities, many of which occur automatically in the background.

Email and Messaging ●○○

Basic communication tools such as email, messaging apps, calendar syncing, and team collaboration chats consume relatively little bandwidth. These applications form the foundation of inflight productivity and are generally easy to support across most connectivity platforms.

Cloud-Based Productivity Applications ●●○

Today's passengers increasingly rely on cloud-connected workflows rather than locally stored files. Shared document platforms, CRM systems, and web-based productivity suites generate steady bandwidth usage throughout the flight and have become standard expectations for connected travel.

Video Conferencing ●●●

Live video collaboration has become one of the most bandwidth-intensive and performance-sensitive activities inflight. Applications like Zoom, Microsoft Teams, Google Meet, and Webex require not only bandwidth, but also low latency and stable network performance to deliver a smooth experience.





Passengers often notice lag, freezing, or dropped calls more quickly than they notice overall speed limitations, making connection consistency especially important.

Streaming Entertainment ●●●

Streaming media remains one of the largest consumers of onboard bandwidth. As passenger expectations continue to rise, streaming video, live sports, music platforms, and social media content are becoming increasingly common across all operator types, from corporate aircraft to charter and owner-operated cabins.

VPN and Remote Network Access ●●○

Many passengers now work inflight exactly as they would from an office or home environment. Secure remote access tools and VPN connections can create additional network demand while also being more sensitive to latency and network stability.

This is especially true for passengers accessing corporate systems, large cloud-based files, or sensitive operational data.

Background Device Activity ●○○

One of the most overlooked bandwidth consumers onboard is passive background traffic.

Modern passengers often travel with multiple connected devices, and even when those devices are not actively in use, they may still be syncing photos, downloading updates, refreshing applications, backing up files, or communicating with cloud services in the background.

Without proper network management, these activities can quietly consume a significant portion of available bandwidth.

THE MYTH OF “MORE SPEED IS ALWAYS BETTER”

As inflight connectivity technology has advanced, available bandwidth capacity has increased dramatically across the industry. While this growth is important, it has also created a **common misconception: that operators always need the highest possible speeds to deliver a quality onboard experience.**

In reality, most typical flights do not continuously consume massive amounts of bandwidth.

A cabin with four or five passengers engaged in normal inflight activities, such as emailing, messaging, web browsing, cloud collaboration, occasional video conferencing, and moderate streaming, often requires far less bandwidth than the advertised top speeds of connectivity solutions.



That means many modern connectivity solutions, including Gogo's offerings, already provide more than enough capacity to comfortably support the needs of a typical mission.

What passengers ultimately care about is not a headline speed number. They care about whether the connection works consistently, supports their applications reliably, and maintains performance throughout the flight.

This is why overall network quality, reliability, and user experience matter just as much as maximum throughput.

SELECTING THE RIGHT CONNECTIVITY SOLUTION

The right connectivity solution depends on far more than passenger count alone.

Operators should evaluate how passengers actually use connectivity onboard, where the aircraft typically flies, how many devices are usually connected, and what types of applications passengers expect to use during flight.

Some operators may prioritize reliable productivity and collaboration tools, while others may place greater emphasis on streaming performance, global coverage, or future scalability.

As connectivity demands continue to evolve, selecting a solution that can adapt alongside passenger expectations becomes increasingly important.

Why Airspace Congestion Matters for Bandwidth

Not all flights experience the same connectivity environment. When aircraft operate in highly trafficked airspace, such as the Northeast U.S. Corridor, London/Paris airspace, or Southeast Asia, more aircraft are competing for the same network resources at the same time.

This increased demand can affect the amount of bandwidth available to each aircraft, particularly on GEO satellite networks that have a fixed and finite capacity per geographic spot beam. In congested zones, that capacity is divided among all active aircraft. If a single private jet cabin needs 50 Mbps for multi-user streaming, but the local spot beam is saturated by 40 commercial airliners, the available bandwidth per aircraft can drop by 50% to 80%, causing strict data throttling.

On the other hand, LEO satellite connectivity can reduce this lag significantly however their smaller coverage footprints require constant network "handoffs." Over heavily congested urban and trans-oceanic routes, the density of aircraft and frequent satellite switching can occasionally cause dropped signals or diminished bandwidth.

Understanding how airspace congestion affects network performance is another reason to evaluate connectivity solutions based on network capacity, traffic management, additional spectrum resources, and other performance factors than just peak speed.





CONCLUSION

The modern aircraft cabin is more connected than ever before.

But understanding inflight connectivity requirements is not simply about chasing the highest speed numbers. It is about understanding how connectivity is actually used onboard, and delivering a consistent and reliable experience that supports both passengers and operations.

For most aircraft cabins, bandwidth demand is driven by a combination of productivity tools, video collaboration, streaming content, multiple connected devices, and background cloud activity.

And importantly, most modern connectivity solutions already provide more capacity than the average flight typically consumes. The true differentiator is often how consistently that connectivity performs throughout the mission.

Ultimately, the best inflight connectivity experience depends on balancing reliability, coverage, low latency, intelligent bandwidth management, and scalability, to create a seamless connected experience.

Talk to a Gogo connectivity expert today to discuss your mission profile and discover how Gogo solutions are designed to keep passengers productive, connected, and satisfied throughout every flight.

GET CONNECTED

