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A cut above: Private jet operators rely on mobile connectivity for success

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The true test? Optimizing both customer and employee experiences

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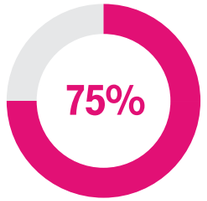
When air travel is restricted due to a global pandemic, private jets offer much needed assistance by:

- Transporting time-sensitive supplies
- Serving as air ambulances
- Ensuring people have access to the destinations they need to reach[1]

Businesspeople in particular benefit greatly from the support of private jet operators to ensure they can do their part to keep the economy running.

Despite advances in web and video conferencing technologies, there will always be a need for site visits and in-person meetings. Nearly every industry has been disrupted in the wake of COVID-19, including commercial air travel.



US-based airlines plan to cut flight capacity by as much as 75 percent internationally and 30 percent domestically.[2]

But for companies leading essential economic efforts, safe and reliable air travel is needed more than ever. Private jet operators offer that lifeline.

While many private jet operators saw significant increases in demand at the onset of the COVID-19 crisis,[3] there is no definite consensus from industry analysts around long-term impacts on passenger demand.[4] Regardless of whether the COVID-19 pandemic will ultimately result in further strains on capacity, familiar operational challenges will persist.

Until recently, competition with commercial airlines—especially among private jet operators—contributed to an industry-wide shortage of flight attendants,[5] pilots,[6] and ground personnel.[7]

Today, a pool of talent from struggling commercial airlines may become increasingly available to operators of private aircrafts. These new hires must be properly equipped to deliver the exceptional travel experiences expected when flying with a private carrier. The need to attract and retain experienced crews while they are in the job market is imperative. Naturally, customers book with operators who ensure a quality experience, and employees work where they are empowered to complete their jobs efficiently and effectively. The bottom line: seamless connectivity is key to providing operational efficiency and satisfying passengers and employees alike, whether in the air or on the ground.

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2. https://www.latimes.com/business/story/2020-03-16/coronavirus-flight-cuts-could-last-til-summer-airlines-warn
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4. https://www.forbes.com/sites/douggollan/2020/03/25/private-jet-companies-innovate-as-covid-19-coronavirus-disrupts-the-worldwide-travel-industry/#538ebd9745f5
5. https://www.cnbc.com/2018/07/16/help-wanted-delta-seeks-8000-pilots-flight-attendants-may-apply.html
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7. https://www.avm-mag.com/the-state-of-the-shortage/

The good news? Innovative mobile wireless solutions are providing new ways to improve the aviation environment. Mobile networks can power a more seamless experience for both passengers and flight crews alike, adding new layers of connectivity without requiring a full “rip and replace” of legacy systems.

Access to reliable network connectivity means your employees can focus on delivering a better travel experience for your passengers.

Flight crews can be more efficient in their delivery of services and execution of protocols.

Ground ops teams can address maintenance challenges more quickly and proactively.

In the near future, many of your processes, platforms, and services may come to rely on mobile networks, and your mobile solutions partnerships will become critical to success.

freemove
Mobility globally

Exclusive FreeMove partnership

Your business doesn’t stop at the border, and neither do we. T-Mobile is the only US-based mobile network provider in the FreeMove alliance, and our exclusive partnership brings Brazil, Europe, and the US a little closer together.

T-Mobile’s FreeMove partners include Orange, Telecom Italia, Deutsche Telekom, and Telia Company—the market leaders in the U.K., Germany, France, Italy, Spain, the Nordics, Turkey, Eurasia, and the Baltic region.

- **Prioritized connectivity** on high-performing, premium mobile networks in most European countries and Brazil with faster data transmissions, greater capacity, and lower latency
- **Dedicated customer support resources** across the member’s operational areas
- **A Global Account Manager** to ensure coordinated delivery of products and services
- **The ability to centralize procurement** and management of mobile fleets based in multiple geographies

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Staying connected at airports of all sizes

Staying connected at airports of all sizes

To stay competitive, private jet operators must be ready to fly to major airports in large cities, small airports in rural areas, and everything in between. Private aviation reaches 10 times as many US airports as commercial airlines do—totaling over 5,000 public-use facilities—but most of these are secondary airports or airports with infrequent or no scheduled airline service.[8] Many of these airports do not have Wi-Fi everywhere crews may need it. Maintaining network connectivity regardless of operating locations is a significant challenge that is crucial for success.

Mobile devices are only as good as the speed, breadth, and reliability of their network. A lack of Wi-Fi or notoriously spotty Wi-Fi coverage, in the airport and on the apron, poses a significant challenge for staff operating at rural airports or heavily congested urban destinations.

Extended Range LTE operating on low-band spectrum (600/700MHz) becomes key to this equation, offering the farthest-reaching signal from towers and the most reliable in-building coverage.[9] Looking forward, you must have a strategic wireless plan in place to connect your teams and provide excellent coverage. T-Mobile is working towards offering nationwide 5G solutions for mobile connectivity in the broad range of locations you operate in.

Typical LTE

T-Mobile Extended Range LTE travels 2X further and provides 4X better coverage

8. https://nbaa.org/wp-content/uploads/2018/01/business-aviation-fact-book.pdf

9. https://www.t-mobile.com/news/600-mhz-update-puerto-rico

T-Mobile has a unique partnership with Gogo, the leading provider of in-flight Wi-Fi.

Gogo partners exclusively with T-Mobile to equip its on-aircraft modems with SIMs, helping private jet operators ensure diagnostic and performance data continues to flow when aircrafts are parked on the ground or taxiing.

Aircraft operators looking to evolve their Wi-Fi service can take advantage of T-Mobile's partnership with Gogo to explore innovative new solutions with two industry leaders in connectivity.

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Connecting pilots: Electronic Flight Bags

Connecting pilots: Electronic Flight Bags

Today's pilots need reliable connectivity to deliver their best. With mobile technology, their jobs are made easier—whether safely navigating travelers from point A to point B, coordinating closely with ground crews and control towers, or managing the needs of passengers.

Electronic Flight Bag (EFB) devices have greatly reduced aviation fuel costs—the US Air Force alone estimates their savings to be $3.8 million per year across the US aviation industry as a whole.[10] However, in the years since their development, EFBs have taken on a bigger purpose. More than a lightweight, simplified replacement for an 80-pound duffle bag of aircraft and safety information, a pilot's EFB now performs critical flight operation functionalities. These include emergency locator transmissions, navigation info, flight data, and data-informed navigation recommendations that account for fluctuating variables like the weather.

Over time, EFB software was developed specifically for the aircraft models most commonly used by private jet companies. Simultaneously, these devices became smaller and more powerful—from bulky laptops to right-sized tablets.

Thanks largely to mobile connectivity, EFBs are now widely used by private jet operators. While commercial airlines sometimes bypass enabling EFBs with a mobile connection to depend entirely on Wi-Fi connectivity, private jet operators need to think twice because their planes often land in destinations with limited Wi-Fi access. Mobile networks, on the other hand, can help to provide connectivity regardless of where a plane touches down.

10. www.afcea.org/content/Blog-us-air-force-saves-millions-data-toting-bags

Electronic Flight Bags

Private jet operators maintain mobile connectivity using EFBs in order to:

- **Enable flight ops functionalities**
- **Get data-informed navigation**
- **Reduce fuel costs**

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Connectivity for cabin crews: Personal electronic devices

Connectivity for cabin crews: Personal electronic devices

Like pilots, flight attendants may also travel with tablets loaded with safety manuals and other required information on personal electronic devices (PEDs). However, flight attendant devices have additional functionalities to better serve passengers in-flight, facilitating a more comfortable, stress-free journey.

Increasingly, flight crews are also bringing PEDs with them off the aircraft and into their homes and hotels. There, they are used for basic connectivity needs—streaming video, connecting with family and friends, and staying up to date with work schedules. This newfound usage carries a risk for jet operators. As data use soars, so can data overage charges with many mobile network providers. However, savvy operators are turning this into an employee perk by adding unlimited data and texting to these devices, leading to increased employee satisfaction and better managed costs.

Of course, your crews still need to communicate with family, HR, and scheduling teams even when traveling. Today's IT managers are working towards ensuring that PEDs stay connected to a reliable wireless network, when and virtually wherever flight crews touch down. Anything less could jeopardize both the customer and employee experience.

Personal electronic devices

Jet operators ensure a seamless experience using PEDs both on and off the aircraft in order to:

Process payments

Access passenger data

Enhance connectivity

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Groundbreaking ground ops

Groundbreaking ground ops

Aircraft turnaround time is a quiet driver of customer satisfaction. It also makes a material impact on operating costs. Anyone familiar with the process knows that deplaning, refueling, cleaning and restocking the cabin, and many other tasks require significant on-the-ground orchestration. Teams rapidly coordinate every detail of a flight's departure, double- and triple-checking to ensure the aircraft is safe for flight. Despite the complex nature of these tasks, today's ground crews may not always be equipped with the tools and applications needed to ensure efficiency. Emerging technologies that use mobile networks and cloud computing to improve cellular coverage include:

- Artificial intelligence (AI)
- Automated nose-cone data transfers
- Ground support equipment (GSE) fleet management solutions

These technologies can eventually help eliminate human error and create efficiencies by automating simple activities and supporting more complex tasks.

Updated communications and sensor technologies can also allow ground ops personnel to use their resources more effectively.

Ground support equipment

Artificial intelligence **Mobile devices** **Machine learning**

Maintenance, repair, and overhaul teams can one day use emerging technologies like AI and machine learning to focus their limited labor resources on the tasks that truly need attention. Today, a binary alert status only indicates that something is wrong, whereas tomorrow's alerts can provide teams with many more actionable insights. When an alert is triggered, an automated machine learning analysis of hundreds of data sources can compile a contextual picture of the issue. What would have been a simple low tire pressure alert in the past, for example, can eventually be bolstered to consider air pressure changes, rate of pressure decline, and certain vehicle vibration rates to estimate the likelihood of a ruptured tire versus environmental changes. When the alert goes off, it can go to the right people, with the right skills, at the right time.

Ready, set, "Go Kit"

When things don't go as planned, maintenance and ground ops teams must respond quickly. Go Kits, filled with tablets and mobile devices connected and pre-loaded with maintenance software, ensure ground teams are equipped and ready to respond at a moment's notice. However, because these bags can (hopefully) go unused for extended periods, private jet operators may only need to pay for the minutes and data they actually use. To effectively deploy Go Kits, it is important to work with mobile network providers to separate the cost of the devices from the service, minimizing recurring monthly charges without impacting the utility of the phones and tablets.

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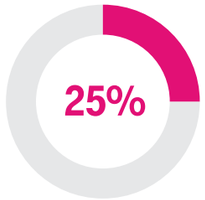
A data deluge from the aircraft: How to tackle the terabyte

A data deluge from the aircraft: How to tackle the terabyte

Any modern jet captures a wealth of information during each and every flight. When a plane lands, it carries flight data on everything from airspeed indicators to tiny movements of the yokes. Whether that data is used to optimize fuel efficiency, monitor conditions, or proactively manage maintenance, timely and reliable access to the information is imperative. The potential to harvest and use this data has increased exponentially over the last few years.



Up to 25 percent of all that data is lost due to limitations in data transmission.[11]

Because data is transmitted in bursts, it is heavily summarized, sacrificing volumes of more detailed flight data and limiting visibility to minute-by-minute information.[12]

Getting your data off the aircraft is increasingly mission-critical, and a reliable mobile network is one of the keys to that mission. Today, the most common methods for getting data from the plane are manual transfers hours after the flight and transfers over Wi-Fi on the apron, which has notoriously unreliable coverage.[13] Innovative mobile coverage solutions like outdoor distributed antenna systems (oDAS) and Extended Range LTE can help provide the bandwidth, speed, and reliability needed to get the data into your hands quickly.

11. https://www.sitaonair.aero/product-dataCapture.html

12. https://www.sitaonair.aero/product-dataCapture.html

13. https://www.theatlantic.com/technology/archive/2019/12/why-cell-reception-so-bad-after-boarding-plane/602812/

14. https://www.thefoa.org/tech/ref/appln/DAS.html

15. https://howmobileworks.com

Improving nose-cone data transfers with oDAS

T-Mobile for Business has rolled out oDAS architecture to a number of airports across the US, enabling coverage that can't be provided with traditional macro towers. The oDAS architecture achieves this by distributing signals across many smaller antennas with a shared fiber backhaul. This distributed signal provides less interference due to lower power output and low radiation centers from each site.[14] It also improves data throughput with better signal strength and proximity to transmission points.[15] Our deployments at airports—like JFK International, for example—help improve reliability and speed and reduce concern about issues like inconsistent data transmission on the apron.

Traditional macro towers

Outdoor distributed antenna systems

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GSE fleet management

GSE fleet management

GSE vehicles (the “other fleet”) are essential to every aspect of safe and timely operations. And not every piece of GSE is made the same. While tugs are in use regularly, seasonal equipment like deicers often go months without use. Manual management of hundreds of GSE vehicles with different maintenance needs is inefficient. Every flat tire, faulty ignition switch, or engine alert poses a threat to timeliness in an industry where every second counts.

There’s a better way. Connected fleet management systems communicate actionable data via a wireless network. This equips your ground ops managers to make informed decisions about fuel consumption, maintenance, and the deployment and utility of your vehicles while significantly reducing the challenge of unexpected maintenance on your crucial ground support equipment.

The best fleet management solutions for GSE offer a range of plug-and-play devices equipped with software to monitor:

This allows for scalability and optimization of equipment management. Input/output expander (IOX) solutions offer even greater flexibility to measure what you need to measure: tire pressure, onboard sensors, warning lights, and more.

These easy-to-use, customizable devices are transforming how operations teams collaborate as their responsibilities evolve alongside fleet management capabilities.

16. https://www.sherpareport.com/aircraft/crowded-commercial.html

17. https://www.pwc.com/us/en/industries/transportation-logistics/airlines-airports/predictive-maintenance.html

18. https://airportimprovement.com/article/american-eagle-uses-wireless-technology-manage-dfw-ground-fleet

The cost of unplanned maintenance

Unplanned maintenance can lead to significant costs for maintenance and potentially for traveler compensation. Avoiding delays is one of the primary reasons travelers elect to fly with private jet operators.[16] This is why predictive tools using mobile connections are increasing in popularity.[17] One regional commercial airline is using GPS and RFID across a secure wireless network to lower predictive maintenance costs by 50 percent and labor costs for flight maintenance by 10 to 20 percent.[18] Operators of private jets should also consider deploying technology to enhance visibility into both aircraft and ground service equipment. When doing so, the need for reliable, high-security network connections only increases.

GPS and RFID cut predictive maintenance costs in half.

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Elevate operations with seamless connectivity

In-flight Wi-Fi

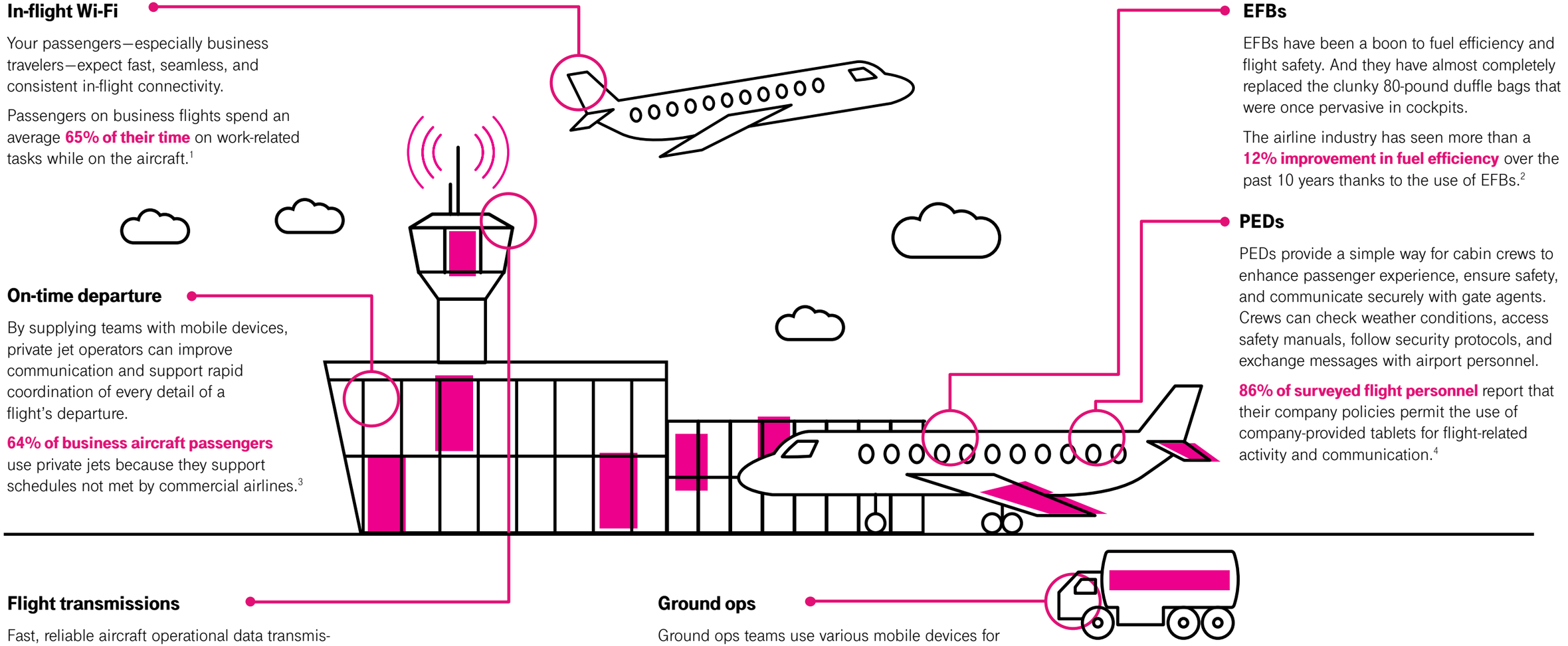
Your passengers—especially business travelers—expect fast, seamless, and consistent in-flight connectivity.

Passengers on business flights spend an average **65% of their time** on work-related tasks while on the aircraft.[1]

On-time departure

By supplying teams with mobile devices, private jet operators can improve communication and support rapid coordination of every detail of a flight's departure.

64% of business aircraft passengers use private jets because they support schedules not met by commercial airlines.[3]



EFBs

EFBs have been a boon to fuel efficiency and flight safety. And they have almost completely replaced the clunky 80-pound duffle bags that were once pervasive in cockpits.

The airline industry has seen more than a **12% improvement in fuel efficiency** over the past 10 years thanks to the use of EFBs.[2]

PEDs

PEDs provide a simple way for cabin crews to enhance passenger experience, ensure safety, and communicate securely with gate agents. Crews can check weather conditions, access safety manuals, follow security protocols, and exchange messages with airport personnel.

86% of surveyed flight personnel report that their company policies permit the use of company-provided tablets for flight-related activity and communication.[4]

Flight transmissions

Fast, reliable aircraft operational data transmission is increasingly important for efficient ground operations, making cellular the preferred method over Wi-Fi and manual retrieval.

More than 40% of destinations serviced by private operators are airports with infrequent or no scheduled airline service.[5]

Ground ops

Ground ops teams use various mobile devices for aircraft maintenance and turnaround, allowing them to devote their time to more strategic tasks. This ensures safety and efficiency and builds cost savings into every step of the pre-flight process.

Aircraft maintenance can account for as much as **35% of annual operating budgets** for business aircrafts.[6]

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4. https://www.ainonline.com/aviation-news/business-aviation/2019-10-16/distractions-deck-peds-double-edge-sword

5. https://nbaa.org/wp-content/uploads/2018/01/real-world-of-business-aviation-harrispoll-2015.pdf

6. https://www.bizavadvisor.com/hourly-cost-maintenance-programs/

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We’re more than a carrier—we’re your foundation for what’s next

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We're more than a carrier—we're your foundation for what's next

From EFBs to fleet management sensors, connected solutions are becoming essential to the delivery of a seamless experience for passengers and flight crews alike. The benefits of mobile innovations are clear. Travel can be safer and more efficient. Your teams can address maintenance challenges with more accuracy and speed than ever before. For private jet operators looking to evolve their connectivity, there is no better partner than T-Mobile for Business.

T-Mobile 5G by the numbers:

1 million square miles of coverage added in the last three years

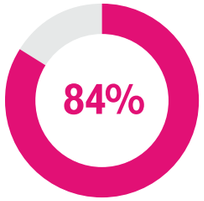
25,000 new cell towers and cell sites built

600MHz signals that go 2X further and work 4X better in buildings than mid-band signals

$30 billion invested to enhance the T-Mobile network

$7.99 billion invested in Extended Range LTE spectrum at 600MHz

With Extended Range LTE, T-Mobile is working to provide broader coverage than ever before in rural areas, hard-to-reach places, and deep inside buildings. We also prioritized the expansion of our network coverage within airports.



42 of the top 50 US airports are covered with dedicated in-building solutions.

All 50 locations have good to excellent coverage on the tarmac. These network improvements and our focus on airport coverage are supporting the seven major commercial airlines operating in the US that rely on T-Mobile.

Evolving 5G technology will only improve connectivity.

T-Mobile has the only nationwide 5G network* and is leading the charge to bring true mobility to businesses across the country. The 5G era will deliver a multitude of possibilities for operators of private jets, including:

Real-time data sharing from aircraft sensors

Automated luggage tracking

Mechanical diagnostics

Aircraft turnaround optimizing technologies

Whether you are focused on streamlining operations, delivering a world-class customer experience, or taking inventory of the possibilities of next-gen wireless, T-Mobile for Business has aviation experts at the ready to help you advance your strategy. We are ready to work with you to develop and design a solution that works for your specific needs.

*5G capable device req'd; coverage not available in some areas. Downlink only. Some uses may require certain plan or feature; see T-Mobile.com.

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International travel benefits from T-Mobile

We make managing international connectivity easy and affordable. T-Mobile for Business customers can benefit from:

- **Unlimited talk and text**
- **Up to 5GB of data per month** at 4G LTE speeds while traveling to Mexico and Canada at no extra cost
- **Unlimited texting and data** available in 210+ countries and destinations*

*Calling costs $0.25 per minute with most T-Mobile for Business plans.

International data typically runs at 2G speeds unless you purchase additional features. Qualifying credit, account, and service required. See a representative for more details.

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BUSINESS IS CHANGING.
ARE YOU WITH US?