Why WiFi Works Better on Planes Than Transit

Mobility Trends: #03 | Jan. 2018

You're cruising along at 35,000 feet while swiping away on your smart phone or tablet, using your airplane's for-purchase or complimentary WiFi network and struck by this question: why doesn't WiFi work this well on my daily transit trip? All these vehicles are moving, so why is WiFi less effective on a train or bus?

The simple explanation is the way these vehicles connect to WiFi coverage: satellite versus cell tower. Even though your hand-held device (or laptop) is transmitting information wirelessly, the vehicle you're traveling in still must have a connection point to access the internet, usually called a router.

Many airlines have installed satellite transponders on their aircraft for a number of different operational advantages (such as real-time equipment diagnostics to trouble-shoot mechanical problems in-flight), which also allows their on-board WiFi service a better connection to the internet.

For ground-based vehicles, WiFi connections are most often made using cellular towers along their routes. On-board routers connect to these towers to provide WiFi coverage. The problem arises when the vehicle moves between two towers and coverage drops. It's even harder to achieve in subway tunnels. This is why WiFi will work very well at a train station or bus stop, but fade in and out while traveling.

So why don't transit agencies just upgrade to satellite-based WiFi technology? In a couple words, it's very expensive. Satellite equipment for large vehicles like a bus or railcar can run up to $50,000 per unit, with data service plans adding another $3,000 per month per vehicle. Cell-based equivalents are in the hundreds of dollas. Remember, airlines realize many other benefits from satellite connectivity beyond passengers' WiFi access that justify the expense of installation. Planes also carry more people, lowering the per-person cost. Additionally, transit agency fleets of buses and railcars reach into the hundreds or even thousands, exponentially increasing the installation cost.

As travelers everywhere demand constant access to communications and information platforms, transit providers must find more cost-effective ways to connect their passengers. CTAA is working to foster partnerships between mobility providers and technology companies to deploy reliable and right-sized solutions to ensure those who depend on transit stay productive during their trip.

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