The crazy economics of inflight Wi-Fi

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It's summer time, and that means millions of Americans will soon make their way to airports across the country. An amenity featured on more and more flights these days is Internet access delivered directly to your laptop, tablet or smartphone via onboard Wi-Fi hotspot. But, depending on what airline you take your Internet experience could vastly differ.

The inflight Internet market in the U.S. doesn't seem to follow any basic rule of competition. On an American or Delta plane you could wind up paying $10 to $20 to surf for the duration of your flight, and "surf" might be a generous word in this case. If there are a lot of other people using the same network on your plane, speeds might be so slow you'll wind up paddling your way through the web.

At the other end of the spectrum, JetBlue offers complementary Internet access to all of its passengers. Instead of delivering a sluggish Internet experience, its Fly-Fi service is the fastest in the biz delivering speeds over 10 Mbps, and doesn't restrict high-bandwidth applications like Netflix on its networks.

Why is there such a huge discrepancy in pricing and speeds? It's a combination of business model and technology, according to Tim Farrar, satellite telecom analyst for TMF Associates. Different airlines use different types of networks to connect their planes, and some are old and pokey, while others are new and speedy. However, the main reason you might find yourself paying more for less on board some flights has to do with how inflight Internet fits into your airline's overall business plan, he says.

For most major airlines, Internet is a revenue generator. For instance, the biggest player in onboard Wi-Fi, Gogo, has built its business on the idea that business travelers will pay almost any price to work above the clouds, because ultimately they're not footing the bill—their employers are.

"Gogo (GOGO) has figured out that you make more revenue by charging as much money as possible to a very small number of people," says Farrar. Typically, only 7% of passengers opt to pay for Internet on Gogo flights, but that's enough for Gogo to cover its costs and send a big check to its airline partners each month.

On the flip side, smaller airlines look at inflight Internet as a differentiating service, the same way they might treat checked-bag fees. In those cases, revenue flows in the opposite direction. JetBlue cuts a check to its provider ViaSat for all of the bandwidth its passengers consume, Farrar explains, and that's certainly no paltry amount. JetBlue claims that more than 40% of its passengers connect to the free network each flight.

While the airline business model usually determines price, the actual speeds you see are determined by the type of network they connect to. Airplanes get their Internet connections either from above (linking to satellites in orbit) or from below (linking to ground-based cell towers). Depending on the technology used, and the types of antennas in the aircraft, those networks can support connections anywhere from 3 Mbps to 70 Mbps. But, keep in mind that's shared capacity. You're not only splitting that bandwidth with all of the other passengers in the main cabin, but all of the other planes sharing the same airspace. Let's take a look at the different providers and the technologies they use:

Gogo. The biggest ISP in the sky is used by American, Virgin America, Delta, Alaska Airlines and some United coast-to-coast flights. Gogo relies primarily on its air-to-ground network, which is essentially a cellular network pointed at the heavens.

Depending on the equipment in the aircraft, Gogo can support connections of 3.1 Mbps to 9.8 Mbps. Assuming there aren't an inordinate number of users on the network that can translate into about 1-2 Mbps per passenger, Farrar explains.

Gogo has also begun using satellite technology on some flights—which can deliver anywhere from 40 Mbps to 70 Mbps—but unlike the air-to-ground systems, the satellite network spreads that capacity over a very large geographic area. This means aircraft on the same routes have to share it. The company offers a dizzying assortment of pricing plans ranging from $5 for one-hour passes to $60 monthly subscriptions.

http://fortune.com/2015/07/01/flight-wi-fi-travel/

Row44. Owned by Global Eagle Entertainment, Row 44 powers Southwest inflight Internet using Ku-band satellites, which can support up to 40 Mbps connection to a plane. As with other satellite connections, Southwest flights have to share that connection with other aircraft, but passengers can expect service anywhere from 1.5 Mbps to 2 Mbps if the airspace isn't too crowded. Southwest charges a flat rate of $8 a day for Internet access, but it also lets frequent fliers surf for free.

Panasonic. United has several Internet partners, but lately it's been partnering with Panasonic Avionics. Panasonic is mainly in the business of supplying in-flight entertainment connectivity hardware (the seat-back screens you see on long-haul flights) to airlines. Consequently, it subsidizes the cost of satellite connectivity to the airlines it serves. Prices aren't cheap though, ranging from $10 to $20 for a flight's worth of surfing, but it delivers faster speeds than its competitor because it buys more capacity from its satellite partners.

ViaSat. Four years ago ViaSat-1 went into geostationary orbit, putting all other broadband satellites to shame with 140 Gbps of total capacity. This is the Ka-band satellite that JetBlue's fleet connects to, and while the airline has to share that bandwidth with homes across of North America that subscribe to ViaSat's Excede residential broadband service, it faces no shortage of capacity. That's why JetBlue is able to deliver 10-15 Mbps speeds to its passengers. So far, JetBlue is ViaSat's main U.S. customer, though United has started equipping some of its planes with the technology.

Paying a lot of money clearly doesn't guarantee you a good Wi-Fi connection in the skies. But there are some positive trends to look forward to in the near future. Inflight Wi-Fi is gradually getting faster as airlines upgrade their fleets, and Internet is becoming commonplace on more and more routes both international and domestic, Farrar says. More competitive airlines will likely move to free or discounted Internet to make them stand out from their larger competitors.

The bad news is that if you pay one of the major airlines a lot of money for inflight Internet today, then you'll probably wind up paying even more in the future. Gogo, for instance has been gradually raising prices, not lowering them. As long as business flyers with corporate credit cards are out there, then Wi-Fi in the sky is going to be a luxury on the big airlines.

"I've seen prices as high as $35 a flight for a cross country flight," says Farrar. "That pricing isn't widespread yet, but there appears to be no limit to what people are prepared to pay."