SURFING IN THE AIR

News / Airlines

Chinese airlines are rolling out services to allow passengers to access the Internet, but concerns remain over pricing and network speeds.

Are you bored with long flight without access to the Internet? This may soon be history as Chinese airlines take steps to boost their inflight Wi-Fi networks.

Now passengers on some Chinese airlines' flights can send e-mail, book hotels, watch online videos, and even make purchases online and get the packages as soon as they land at their destination.

Chinese airlines, including Air China, China Southern Airlines and China Eastern Airlines, have been working on their in-flight Wi-Fi networks over the past five years and have begun rolling out the services.

Air China currently leads the industry. Its in-flight Wi-Fi lets passengers on some flights use their

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iPads or laptops to browse online shopping websites like JD.com, video websites like iqiyi.com, read news provided by Xinhua News Agency and tweet on Chinese Twitter-like website Sina weibo.

"After every flight with Wi-Fi, Sina at Air China has to maintain its background system to keep it running well," says Geng Jinsong, a director at the In-Flight Network Project Office of Air China, adding that passengers like tweeting the most.

"Tons of posts pour out when the planes take off, sometimes causing a system crash," says Geng, indicating how popular in-flight tweeting is among Air China passengers.

Besides the listed websites, in-flight live broadcasting is also growing.

On Sep. 3, passengers on CA1369, a flight from Beijing to Sanya, watched a live telecast of the military parade to mark the 70th anniversary of the end of World War II.

"Passengers were surprised and excited when they were told they wouldn't miss the parade," says Geng, adding that he's proud of the latest achievement of live telecast via radio and television satellite signals.

Backstage Supporter Server

Since 2010, Air China has been working on in-flight Wi-Fi. Now, six passenger planes can provide passengers with Internet access through Air China's backstage supporter server.

Geng says the in-flight network can reach a speed of 30Mbps, which is close to the speed of a regular 4G mobile network.

For an Airbus aircraft like A330-300, six signal projectors are set around the cabin, each of which guarantees 60 devices connectivity to the Internet. This means more than 300 people onboard can be connected to the Internet

The in-flight Wi-Fi of Air China though isn't the same as regular 4G signals of China Mobile, China Unicom, or China Telecom, the three biggest mobile network operators in China.

Passengers are redirected to websites from the homepage of the Air China in-flight network, which is different from the ordinary way of inputting the website addresses. Websites on Air China's homepage, provide both news content and services like online shopping.

How Is In-Flight Internet Realized?

As of now, Air China has refitted 22 planes, equipping them with an in-flight Wi-Fi network. While 16 aircraft are connected to the local area network (LAN) in the plane, the other six are able to connect to the Internet by means of L-Band, Air-To-Ground (ATG), and KU-Band signal channels, respectively.

LAN in a plane is the basis of connection to the Internet.

A plane needs to be equipped with LAN before it's connected to the Internet.

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Giving details of the three signal channels, Yang Huiting, a director at Electronic Network Department at Air Media Group, said the L-Band and the KU-Band were both satellite-based communication channels, while ATG was a ground-based communication channel.

L-Band is the 1 to 2 GHz range of the radio spectrum, which is traditionally used for aircraft cockpit communication with the ground, while the KU-Band ranges from 12 to 18 GHz.

ATG sends signals to planes from on-ground signal towers instead of from satellites directly as L-Band and KU-Band does.

'So, to achieve ATG communication, airlines have to build towers every 300 kilometers on the ground for all the flight paths which is impossible," says Yang.

What Chinese airlines mainly work on is to connect the in-flight network to the Internet via KU-Band signals, which is a method accepted worldwide.

Yang says that while airlines around the world have put great efforts in the ATG channel space in the past few years, Chinese airlines have focused more on the KU-Band .

"Foreign airlines started work much earlier. However, domestic airlines started from a higher level though the process was delayed by nearly 10 years," said Yang.

Sharing Yang's view on the difficulties with ATG communication, Wang Zibo, an engineer of satellite communication technology in Beijing Marine Communication & Navigation Co, says that onboard Wi-Fi supported by ATG is limited to a great extent.

"Just imagine building signal towers all over the world? Even though it is possible, when will it end?"

Wang cannot see any point in developing ATG communication for onboard Wi-Fi, as the KU-band is already available and permitted by the authorities.

"The three types of onboard Wi-Fi all have deficiencies," says Wang, adding that the narrow bandwidth of L-Band led to slow speed Internet access, which did not satisfy passengers' needs.

As for KU-Band, Wang says that he is afraid that high fees may scare passengers away.

"During the trial period, airlines provide Wi-Fi for free, but this cannot be the case forever," says Wang.

Websites May Pay the Fee

Jiao Yuwei, an aviation major at Huahang Aviation A School located in Langfang, Hebei province, says that although he studies aviation, in-flight Wi-Fi is still quite new to him.

"I'm taking a wait-and-see attitude to this. My major concern is the high price but low network speed, " says Jiao. He hopes to get a chance to try in-flight Wi-Fi but he is not willing to pay for it.

Similarly, others also see the price of onboard Wi-Fi as their biggest concern.

Jiao adds that the Chinese travellers might not be willing to pay for Wi-Fi, as free Wi-Fi is almost everywhere on the ground, so it may take a while to get people used to the payment policy.

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Chinese airlines haven't fixed a price for in-flight Wi-Fi services, or a method to calculate the fees.

Geng says that for Air China, pricing according to connection duration and net flow are both possible. They will refer to foreign airlines' pricing, which ranges from several dollars per hour to several dollars a minute.

"But we are also talking to partners who have stationed themselves on our website, discussing a method in which they can cover the high Internet fees. I believe that will be the best 'pricing' for passengers," says Geng.

To make his point about pricing, Geng tells the story of a woman who took a flight and sent an e-mail with a 50Mb attachment via the in-flight network.

"She fell asleep, and when she awoke, a bill of US$1,200 was waiting for her," says Geng. "It sounds ridiculous but it highlights the problem for us, which we will try to solve."

When Will It Be Available?

Besides Air China, Chinese airlines such as China Southern Airlines and China Eastern Airlines are also working on their in-flight Wi-Fi networks.

China Southern Airlines has been doing trial flights with an Internet connection supported by KU-Band on the Beijing-Gungzhou and Beijing-Shanghai routes and China Eastern Airlines is also conducting similar trials.

Geng says that it took them 15 days to equip the first Air China plane with in-flight Wi-Fi. But as they got more experience they now need just three days to refit a plane

However, this does not mean that Air China can finish refitting all its nearly 500 planes soon.

Geng says that several government departments are involved in-flight Wi-Fi, such as the Ministry of Industry and Information Technology, the Civil Aviation Administration, and even the State Administration of Radio, Film and Television.

"We need to get permissions... which can take a really a long time," Geng, adding that the process of promoting in-flight Wi-Fi will to a big extent depend on the departments' permissions.

Geng stresses that safety is always the most important thing for flights. As inflight Wi-Fi has not been undergoing trials for a long time, Chinese airlines need more data to ensure the safety of planes and passengers.

"The process will probably take a year," says Geng. "But what I can promise is that the service that Air China provides to passengers ia 100 percent safe."

Though onboard Wi-Fi is still a novelty for Chinese passengers, most travelers showed a strong interest when told that Wi-F is available onboard.

But while tweeting, checking e-mail and shopping online in the plane sounds attractive to them, some passengers have concerns.

Speaking of onboard Wi-Fi, Huang Jie, an employee with China Aerospace Science and Industry Corporation, who flies frequently, says: "Some of the planes I flew on were equipped with Wi-Fi connected to the LAN, but its functions were limited and I'm not used to it. I would rather watch a

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film downloaded to a memory device and get some rest like before."

Considering the stresses of business trips, Huang says she cares more about whether she can rest well while flying, worrying that once in-flight Wi-Fi is widely used she will have to work even while flying.

China's In-Flight Network Milestones

Nov. 15, 2011: An Air China flight provided a local-area network to passengers for the first time. It exceeded the country's network-restriction zone at 300 meters in the air.

July 3, 2013: The first Chinese flight connected to the Internet via an L-band communication satellite completed a successful trial. The Civil Aviation Administration of China's chief, Li Jiaxiang, greeted Chinese micro-blog users with a mid-flight post.

April 16, 2014: The first Chinese flight equipped with air-to-ground communication technology successfully supported an in-flight, long-distance video conference.

March 10, 2015: A Xinhua News Agency reporter aboard flight CA1303 gave a live telecast on China's National People's Congress and the National Committee of the Chinese People's Political Consultation Conference sessions. This was supported by KU-band satellite communication technology.

Sep. 3, 2015: Passengers on CA1369 from Beijing to Hainan's coastal city, Sanya, watched a live telecast of the military parade. It was the first in-flight Internet trial supported by broadcast satellite.

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