CONSUMER PROTECTION ASSOCIATION
HIMMATNAGAR
DIST. : SABARKANTHA
GUJARAT

Consultation Paper
on
In Flight Connectivity (IFC)

Introduction :

For years, in flight entertainment systems have been helping to break the tedium of air travel for passengers on long flights. In recent years, the proliferation of mobile devices such as smart phones, tablets, and laptops has led to a new trend of in flight connectivity: offering WiFi connections to passenger that allows them to access in flight and other entertainment content on their personal devices. This is a positive for both airlines and their customers; however, it does present some issues.

Many security concerns arise from passengers being able to connect their devices to aircraft systems. Furthermore, reliability continues to be an issue for these satellite based connections. Addressing these challenges will be a continuing challenge for the industry over the next few years.

Most of the questions in the consultation paper are either technical or Administrative. As far as consumer is concern following issues are important :

1.   Security

2.   Good service with affordable price

3.   Connectivity and speed

Cyber Security In Flight :

One of the most significant issues for new IFC systems is ensuring that passenger data is discrete from operational data. This breaks down into two core areas of concern. The first is simply ensuring that flight data is being handled by a robust system and that it will not be affected by any fault in the passengers' connection. The second, and arguably more serious, concern is that someone connected to the passengers' in flight Wi Fi may be able to maliciously access the plane's operational systems.

Cyber security firm IOActive recently reported that it has found a number of flaws in the most common in flight WiFi systems. In fact one of its consultants has apparently managed to access a plane's satellite communication systems through the IFC system. This further raises concerns that these progressive entertainment options may be opening serious security vulnerabilities. Among the issues cited in the firm's report are hard-coded credentials that are accessible through firmware vulnerabilities, insecure and undocumented protocols, backdoors, and other high-risk vulnerabilities. These types of security issues are not uncommon, in fact hard-coded credentials exist to facilitate maintenance and

servicing; however, they highlight the necessity for aircraft systems to be held to a higher than typical standard of security.

Some security experts have even hypothesized that the ill-fated Malysian Airlines flight MH370 may have fallen victim to an individual maliciously accessing the aircraft's systems. (Ref. http://resources.infosecinstitute.com/cyber-threats-aviation-industry/) The general consensus is that this was not the case; however, whether the cause of this crash was a cyber-attack, the possibility does underscore the importance of addressing these potential issues with urgency. Even Boeing, whose 777 aircraft have been highlighted for a potential security fault, have spoken up that the aerospace industry must be proactive in ensuring the safe and secure setup and usage of IFC systems.

In the US, Turkey, Spain, Sweden and recently in Poland, aircraft infected with malware or security breaches have provoked delays, loss of information and a wave of growing concern among public authorities, regulators and the industry.

The fear is that one day terrorists, clicking on a laptop, will be able to crash planes or make them disappear from radar screens.

There should be a Aviation Computer Emergency Response Team which will help and understand the nature of the threats, collect evidence of previous cyber attacks, identify security flaws and vulnerabilities, analyze and develop responses to cyber incidents or vulnerabilities – whether workarounds, recommendations, or technical solutions.

Connectivity and speed :

There is a continuous demand for in-flight Wi-Fi across the globe, as consumer seek to address connectivity. A large majority across the country believes Wi – Fi should be available on all domestic and international flights and **that it should be consistent and reliable.** It is also fact in globe that 9 in 10 had experienced problem and frustrations using In – flight Wi – Fi.

And apparently these challenges to connecting are significant enough for travelers to sacrifice certain comforts in favor of reliable in – flight internet as per the study. Here is the breakdown of accepted sacrifices :

1.   Willing to give up their favorite seat.

2.   Ability to recline seat.

3.   Give up 6 inches of leg room.

4.   Give up in flight snakes

5.   Give up beverage service

6.   Gove up ….. access to bathroom   etc…. etc…

This results definitely highlight how reliant the travelling population has become on their devices and how airlines must step up to these increased expectations with more consistent reliable in flight connectivity.

Consumers expect in-flight Wi-Fi to offer the same browsing experience in the air as they have at home or at their favorite hotel. Like in the hospitality industry, airlines see the connectivity experience as a differentiator that customers care about and that can help increase ancillary revenues from added services and purchases.

While the growth of in-flight Wi-Fi reflects consumers' preferences to connect with their own devices rather than seat-back systems, at least for entertainment, these preferences tend to vary by market segment.

Charges :

* For most major airlines internet is a revenue generation. They built its business on the idea that business travelers will pay almost any price to work above the clouds, because ultimately they are not footing the bill – their employers are. They figured out that " You make more revenue by charging as much money as possible to a very small number of people."

* Paying a lot of money doesn't guarantee a good wi-fi connection in the skies.

* 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 airlines.

Connectivity Supports Revenue Opportunities :

In addition to enhancing customer satisfaction, airlines are using in-flight connectivity to increase revenue from food and beverage purchases. For example, Frontier Airlines relies on mobile devices to support point-of-sale (POS) services

for 1,300 flight attendants, who were issued 8-inch tablets using a custom POS solution for in-flight sales. The responsive app and familiar Android OS interface help flight attendants bundle and up sell services and food and beverage options for passengers. The flight attendants can also access company apps and HR manuals, and can take home the tablets for personal use as well.

For secure use in carrier-supplied devices, Samsung's Knox Customization solution can create a custom interface for the tablets. The custom configuration offers a locked-down user interface with trouble-free access to the desired interfaces while preventing passengers from launching other apps. In-flight users can select entertainment, access travel partners, order food and beverages, and engage ground transportation and other airport services.

ISSUES FOR CONSULTATION :

Q.1 Which of the following IFC services be permitted in India? a. Internet services b. Mobile Communication services (MCA service) c. Both, Internet and MCA

Comments :

Internet Service and if security and other concerns are not hampered Mobile communication services.

Q.2   Should the global standards of AES/ESIM, shown in Table 2.1, be mandated for the provision of AMSS in Indian airspace?

Comments :

Yes.

Most of the airlines has adopted the global standards.

Q.3   If MCA services are permitted in Indian airspace, what measures should be adopted to prevent an airborne mobile phone from interfering with terrestrial cellular mobile network? Should it be made technology and frequency neutral or restricted to GSM services in the 1800 MHz frequency band, UMTS in the 2100 MHz band and LTE in the 1800 MHz band in line with EU regulations?

Comments :

Technical Question.

Q.4   Do you foresee any challenges, if the internet services be made available 'gate to gate' i.e. from the boarding gate of the departure airport until the disembarking gate at the arrival airport?

Comments :

1.   High cost for the consumers.

2.   Security Concern.

Q.5   Whether the Unified Licensee having authorization for Access Service/Internet Service (Cat-A) be permitted to provide IFC services in Indian airspace in airlines registered in India?

Comments :

Yes.

The server should be located in Indian Geographical areas.

Q.6   Whether a separate category of IFC Service Provider be created to permit IFC services in Indian airspace in airlines registered in India?

Comments :

Yes.

*   Separate license should be issued .

*   License should be issued according to the variation to their existing spectrum licenses.

*   Mutual recognition can be given to Indian registered air craft which adhere to the Indian technical and authorization standards.

*   Mobile phone from the licensing requirement should be exempted. Airline passengers should be made enable to use mobile devices with 2G, 3G and 4G Technologies on board aircraft.

*   Certain standards and requirements should be met.

*   Operators should comply with new technical and operational requirements.

Q.7   Whether an IFC service provider be permitted to provide IFC services, after entering into an agreement with Unified Licensee having appropriate authorization, in Indian airspace in airlines registered in India?

Comments :

Yes

Q.8   If response to Q.7 is YES, is there any need for separate permission to be taken by IFC service providers from DoT to offer IFC service in Indian airspace in Indian registered airlines? Should they be required to register with DoT? In such a scenario, what should be the broad requirements for the fulfillment of registration process?

Comments :

Mentioned above.

Q.9   If an IFC service provider be permitted to provide IFC services in agreement with Unified Licensee having appropriate authorization in airlines registered in India, which authorization holder can be permitted to tie up with an IFC service provider to offer IFC service in Indian airspace?

Comments :

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Q.10   What other restrictions/regulations should be in place for the provision of IFC in the airlines registered in India.

Comments :

*   The responsibilities of the authority is to make a decision as to the technical   issues involved not the behavioral issues. The technical question before the   authority may be, whether mobile devices would cause interference to   terrestrial networks. Beyond this interference concern, it is the authorities   goal to put the decision of what kinds of wireless data services airline   passengers enjoy in flight in the hands of the airlines.

*   Satellites are expensive to maintain and upgrade so that technology is legging behind , ultimately the cost will passed on the consumers.

*   Satellites are in geostationary orbit which leads uninterrupted service while in via ground based mobile towers, when the plane will pass over large bodies of water or particularly remote terrain connectivity can be an issue.

Q.11   What restrictions/regulations should be in place for the provision of IFC in the foreign airlines? Should the regulatory requirements be any different for an IFC service provider to offer IFC services in Indian airspace in airlines registered outside India vis-à-vis those if IFC services are provided in Indian registered airlines?

Comments :

The authority should ensure that the operation of flight connectivity in Indian Airspace should comply with the technical and operational requirements in the laws as prescribe.

Q.12 Do you agree that the permission for the provision of IFC services can be given by making rules under Section 4 of Indian Telegraph Act, 1885?

Comments :

Yes.

Indian Telegraph Act 1885 is out dated in this fast developing scenario.

Q.13 Which of the options discussed in Para 3.19 to 3.22 should be mandated to ensure control over the usage on IFC when the aircraft is in Indian airspace?

Comments :

IFC operations in the domestic flights should be permitted only through Indian satellite systems, while international airlines flying over multiple jurisdictions may be asked to use either Indian Satellite System or foreign satellite leased through DOS while it is in Indian airspace.

Q.14 Should the IFC operations in the domestic flights be permitted only through INSAT system (including foreign satellite system leased through DOS)?

Comments :

As above.

Q.15 Should the IFC operations in international flights (both Indian registered as well as foreign airlines) flying over multiple jurisdictions be permitted to use either INSAT System or foreign satellite system in Indian airspace?

Comments :

As above.

Q.16 Please suggest how the IFC service providers be charged in the following cases? (a) Foreign registered airlines. (b) Indian registered airlines.

Comments :

As per the law.

Q.17 Should satellite frequency spectrum bands be specified for the provisioning of the IFC services or spectrum neutral approach be adopted?

Comments :

Technical question.

Q.18 If stakeholders are of the view that IFC services be permitted only in specified satellite frequency bands, which frequency spectrum bands should be specified for this purpose?

Comments :

Technical question.

Thanks.

(Dr. Kashyapnath)