

## Capital Products & Review

### Connexion by Boeing<sup>SM</sup> Airborne Mobile Satellite Service

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<http://www.connexionbyboeing.com>

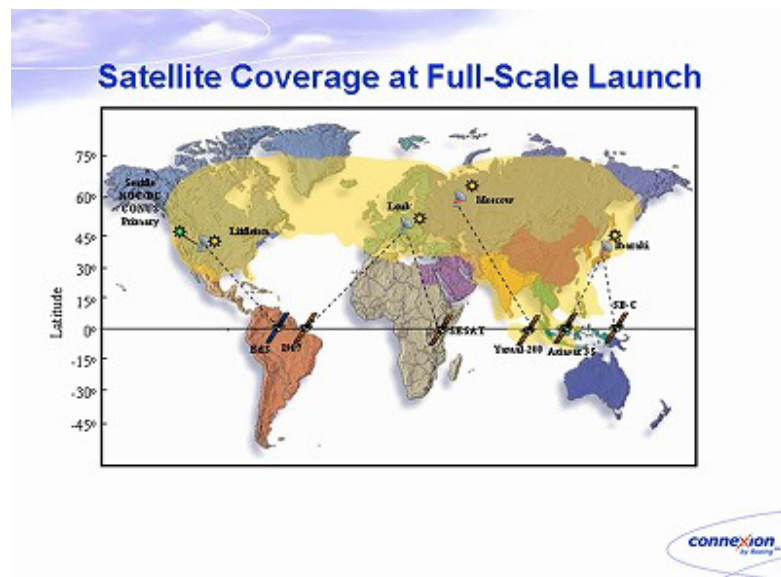
Connexion by Boeing<sup>SM</sup> is a high-speed mobile communications service that made its commercial debut in May 2004. It is authorized by the world's telecommunications agencies to operate as an airborne mobile satellite service (AMSS) using Ku-band satellite transponders in the 14 GHz to 14.5 GHz range of frequencies.

The system links airline passengers with the Internet and virtual private networks (VPNs), enabling them to send personal and business e-mail including attachments, and to view video and photos on the World Wide Web or password-secured corporate intranets. Data speeds are similar to that of a DSL connection at home or in the office.

The system is undergoing continuing tests for the possible future provision of private voice service (PVS) telephony as a customer-care feature of the system.

The first airline to offer the service was Lufthansa German Airlines, which initially allowed passengers to connect on May 17, 2004, during a flight from Munich to Los Angeles. In June, Lufthansa added service on the Munich-Tokyo route, and has been gradually expanding the offering through its FlyNet portal ever since. ANA (All Nippon Airways) and Japan Airlines (JAL) are scheduled to begin offering their own versions of Connexion by Boeing service in the fourth quarter of 2004.

The exact configuration of Connexion by Boeing depends on the preferences of the customer airline, which can provide wired connections using RJ-45 cables or through in-flight entertainment (IFE) systems, but the base system includes wireless fidelity, or wi-fi, capability similar to that of a hot spot located on the ground. A



traveler with a laptop or hand-held device compatible with the 802.11b wi-fi standard is able to log on and be automatically directed to an electronic portal that includes a registration page, subscription page and a link to a customer-care center. The passenger can then select a service package and enter billing information, such as a credit card number or an account number with an associate service provider such as NTT DoCoMo, before connecting to the Internet or a VPN.



The ability to review documents, manage e-mail, and make revised travel arrangements via the World Wide Web have helped establish the value of Connexion by Boeing for the individual airline passenger, particularly the passenger on business travel. The same system also provides enterprise-wide value to airlines by allowing them to use the same bandwidth to

monitor maintenance needs in real time, provide security surveillance of passenger and cargo areas, and quickly transmit passenger manifests and individual medical information. The bandwidth also allows easier transfers of in-flight entertainment content.

Current configuration of the Connexion by Boeing service is oriented to passenger airlines, but expansion plans are in work. In cooperation with Rockwell Collins, a version of the system is being developed for standard-sized business jets, and in the fourth quarter of 2004, transoceanic testing of a maritime version of the service was underway aboard an oil tanker owned by Teekay Shipping.

The technical components of the Connexion by Boeing system include an airborne mechanical-reflector antenna developed by Mitsubishi Electric Corporation (MELCO), and the associated servers, routers and wiring; a ground system featuring a network operations center, enterprise operations center and the associated satellite uplink and downlink equipment; and leased transponders aboard existing satellites, which will be expanded in response to customer need. Full global satellite coverage is expected in 2006 or 2007 depending on such demand.

In addition to the above-mentioned airlines, customers of Connexion by Boeing include several executive jets operated by governments and private customers, and Scandinavian Airlines System (SAS). Airlines that have signed tentative agreements

**for Connexion by Boeing service include Singapore Airlines, Korean Airlines, Asiana and China Airlines.**

**Service fees per passenger depend on the length of a flight. Unlimited flat-fee access on a flight lasting longer than six hours is US\$29.95; three to six hours, \$19.95; and less than three hours, \$14.95. Metered rates are available for US\$7.95-\$9.95 for the first 30 minutes, depending on flight length, with each additional minute priced at 25 cents. Some companies, including Siemens, have signed up for corporate accounts that enable their employees on business travel to use the Connexion by Boeing service at a discount.**

**Customers of associate service providers, however, can pay roaming rates through their existing accounts at rates set by the providers. In the case of NTT DoCoMo, the flat roaming rate for flights of more than six hours is 3,700 yen; three to six hours, 2,500 yen; and less than three hours, 1,900 yen.**