

Claim	Connexion by Boeing
	<div> <p>Figure 2.3. Airborne Network Server.</p> </div> <p>Suwanateep at 10, FIG. 2.3.</p> <p>The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers. Suwanateep at 9.</p> <p>In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes. Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology. Suwanateep at 12.</p>

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	<p>The service fees are based on bandwidth usage.</p> <p>The pricing is variable according to the airlines. It is hard to distinguish because the technology and its service are different, though based on the same technology. It is hard to say whether the price is reasonable or not. The service will cost \$4.95 an hour over North America and \$9.95 an hour on international flights; reading or sending email would cost an extra 50 cents a page. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 a minute for Internet access from aircraft vendor terminal: It costs at US \$10 to 20 to upload and download up to 500KB of mail during a day's travel including all connecting flights that offer the service for instance. Passengers, who want to send or receive long e-mails, like video clips or lengthy attachment, would be charged more. Most of the systems are being designed to scan their email headers before they receive them in order that passengers can decide which messages to accept now or later.</p> <p>Suwanateep at 17 (concerning Tenzing).</p> <p>Business users will be billed through pre-established corporate accounts while leisure travelers will be billed through their credit cards.</p> <p>Suwanateep at 17.</p> <p>To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Connexion by Boeing, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo and/or Wu would have only required simple substitution, would not</p>

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	<p>have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div> </div> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; <i>see also</i> https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm.</p> <p>The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not</p>

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	<p>shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 8; <i>id.</i> at 2-3, 7.</p> <p>One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network. Kalavade at [0056]; <i>id.</i> at [0207] ("The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18₁, 18₂, . . . 18_n) wherein the particular</p>

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	<p>wireless client or mobile communications device 18₁ is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p>

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	<div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. See also MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the management</p>

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	<p>server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
<p>[24.d] a web-ready device operatively coupled to the at least one router, the web-ready device having a browser application operating thereon for accessing the Internet;</p>	<p>Connexion by Boeing discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i></p>

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	<div> <h3>Minimum System Requirements</h3> </div> <div> </div> <div> <p>The minimum hardware and software required for laptops or notebook computers to use the service are as follows:</p> </div> <div> <ul style="list-style-type: none"> ▪ Enabled RJ-45 Terminated Ethernet interface or configured and operational 802.11b protocol ▪ Windows 95 or higher ▪ Mac 8.6 or higher ▪ Internet Explorer 5.0 or higher* ▪ Netscape 4.7 or higher* ▪ DHCP capable settings </div> <div> <p>https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2</p> </div>

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	<div> <h3>Log In</h3> </div> <div> </div> <div> <p>1. Open a browser window (Internet Explorer or Netscape).</p> </div> <div> <p>If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing.</p> </div> <div> <p>2. Click on the Connexion by Boeing button.</p> </div> <div> <p>3. Review and accept the User Licensing Agreement.</p> </div> <div> <p>4. Returning Users: Login. First-Time Users: Register and then Login.</p> </div> <div> <p>https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2</p> </div>

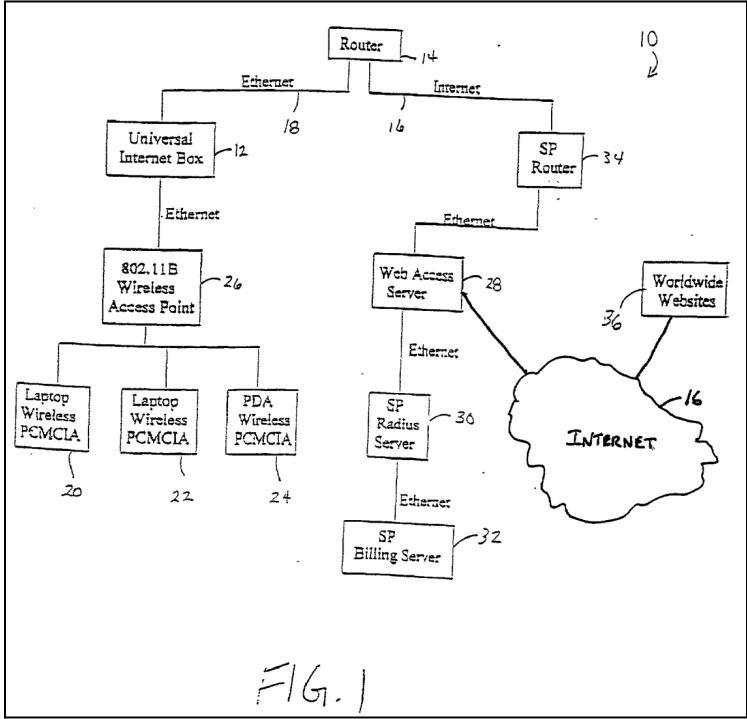
Claim	Connexion by Boeing
	<div><p>Find out about our In-Flight Portal</p><p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p><p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p></div> <p>https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1</p>

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	<div style="border: 1px solid black; padding: 10px;"> <p>Pricing and Payment Information</p> <p>The actual pricing will be listed on flights featuring the Connexion by BoeingSM service. Actual price will be available on flights featuring the Connexion by Boeing service</p> <p>Connexion by Boeing accepts individual credit card payments (VISA, MasterCard, American Express, and Diners Club).</p> <p>We anticipate offering direct debit card payments (checking, savings, or corporate accounts) and prepaid options.</p> </div> <p>https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9.</p> <p>In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes.</p>

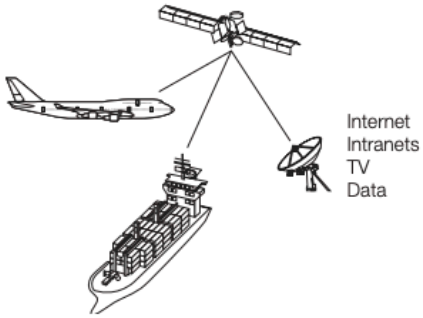
Claim	Connexion by Boeing
	<p>Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology. (See Appendix B)</p> <p>Suwanateep at 12.</p> <p>The access gains by running an application downloaded ahead of time from software kit on the airplane or alternatively by a standard dial-up networking connection with standard POP3 email program.</p> <p>Suwanateep at 16.</p> <p>The pricing is variable according to the airlines. It is hard to distinguish because the technology and its service are different, though based on the same technology. It is hard to say whether the price is reasonable or not. The service will cost \$4.95 an hour over North America and \$9.95 an hour on international flights; reading or sending email would cost an extra 50 cents a page. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 a minute for Internet access from aircraft vendor terminal: It costs at US \$10 to 20 to upload and download up to 500KB of mail during a day's travel including all connecting flights that offer the service for instance. Passengers, who want to send or receive long e-mails, like video clips or lengthy attachment, would be charged more. Most of the systems are being designed to scan their email headers before they receive them in order that passengers can decide which messages to accept now or later.</p> <p>Suwanateep at 17 (concerning Tenzing).</p> <p>Business users will be billed through pre-established corporate accounts while leisure travelers will be billed through their credit cards.</p> <p>Suwanateep at 17.</p> <p>InFlightOnLine claims a hardware platform independent implementation, meaning that the company can deliver Internet services with existing narrowband</p>

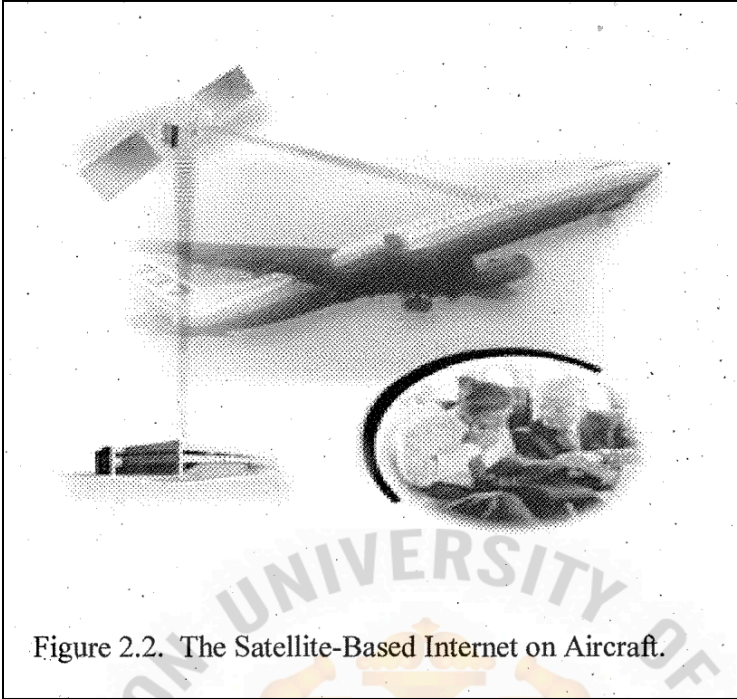
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	<p>infrastructure as well as future broadband capabilities like Connexion. IFOL provides software and on-board servers to implement its services, with lots of content. Suwanateep at 32.</p> <p>IFOL has an agreement with AT&T seatback telephone system to store their 20” pound airborne data servers on board. The airborne servers will be linked to the seatback-telephone handsets that are offered on virtually every domestic U.S. carrier Now. Suwanateep at 32.</p> <p>This software develops a customized inflight portal with the airline’s brand. The inflight portal can also serve as an airline’s customer service access point, extending the many information and assistance services such as the airline information. The high-performance software is a building-block technology that powers e-mail and accelerates content delivery on any on-board server — managing and adjusting to the available communications bandwidth. Suwanateep at 33.</p> <p>To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Bruner, Jahn II, and Wu. Connexion by Boeing, Bruner, Jahn II, and Wu concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Bruner, Jahn II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Bruner, Jahn II, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

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	<p>The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p> <p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p>

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	 <p>FIG. 1</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p> <p>Connexion by Boeing discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p>

Claim	Connexion by Boeing
	<div> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Ellison at 97-104.</p> <div> <p>Review System Description</p> <div>  </div> <p>Connexion by Boeing is a mobile information services provider providing real-time, high speed performance to all onboard users. Each plane equipped with Connexion by Boeing houses a server with an Ethernet Local Area Network (LAN) connecting passengers' laptops to the Internet via a satellite link.</p> <p>The network's broadband speeds are comparable to a modern home or office environment. The Connexion by Boeing system also is designed to be compatible with wireless 802.11b networks, as well as Internet-enabled Personal Digital assistant (PDA)s in the future.</p> <p>Return to Top</p> </div> <p>Ellison at 97-104.</p>

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	<div>  <p> Connexion by Boeing provides high-speed broadband communication services to mobile platforms, including aircraft and maritime vessels. Through the service, connectivity is delivered directly to laptops and personal digital assistants (PDAs) in flight, providing airline passengers and operators of executive aircraft for government and the private sector with personalized and secure real-time access to the Internet, company intranets and television and news content. The Connexion by Boeing broadband approach also permits applications to link aircraft data systems with airline operations, enhancing aircraft operational efficiency on the ground and in the air. </p> </div>

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	<p>The Boeing Company 2003 Annual Report, <i>available at</i> https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf</p> <p>Some 11 corporate customers, who have outfitted their private aircraft with . Boeing equipment, are using the Connexion service. The three airlines, American Airlines, United Airlines and Delta Airlines will equip a total of 1,500 aircrafts with the venture's innovative, high-speed broadband Internet connectivity service.</p> <p>Suwanateep at 14.</p> <div>  <p>Figure 2.2. The Satellite-Based Internet on Aircraft.</p> </div> <p>Suwanateep at 6, FIG. 2.2.</p>

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	<p>The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers. Seats are configured for connectivity. Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line simultaneously.</p> <p>Suwanateep at 9.</p> <p>To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, and Wu. Connexion by Boeing, Agarwal, Bruner, Jahn II, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as X, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Agarwal, Bruner, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Agarwal, Bruner, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p>

Claim	Connexion by Boeing
	<p>Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p>

Claim	Connexion by Boeing
	<div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at FIG. 2, 2-3.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p>

Claim	Connexion by Boeing
	<div> <p>Wireless</p> </div> <div> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> </div> <div> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> </div> <div> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> </div> <div> <p>The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like.</p> </div>

Claim	Connexion by Boeing
	Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].
[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.	<p>Connexion by Boeing discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.,</i></p> <div> <p>Pricing and Payment Information</p> <p>The actual pricing will be listed on flights featuring the Connexion by BoeingSM service. Actual price will be available on flights featuring the Connexion by Boeing service</p> <p>Connexion by Boeing accepts individual credit card payments (VISA, MasterCard, American Express, and Diners Club).</p> <p>We anticipate offering direct debit card payments (checking, savings, or corporate accounts) and prepaid options.</p>  </div> <p>https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4</p>

Claim	Connexion by Boeing
	<div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p> https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2 </p> <p> The system has contracted with the third party content provider to provide customized, destination-based, licensed content, including worldwide, national and local news, sports and features - from more than 3,000 publications in its global digital content network, then filter, deliver and instantaneously integrate it into the system. As a result, airline passengers will be able to choose from a multitude of personalized real-time services including Internet and corporate Intranet access, E-Commerce, live entertainment and information. The system offers multilingual programming. Selections will be based on the specific needs of the customers in different regional markets. This content complements full Internet/company Intranet access and infuses the service with the time-sensitive data but will not initially supply voice service. </p> <p>Suwanateep at 11.</p>

Claim	Connexion by Boeing
	<p>Internet Fee</p> <p>The price has fluctuated and remains open to change. For the onboard service fee, the service will cost passengers about \$20 per hour (likely less than \$8 a minute of inflight phone call). The passengers can watch paid television program, access their corporate Intranet and surf. Up to four live television channels will be offered at either free of charge or paid programs. Those charges are likely to be around \$17.50 per hour but also may include flat-rate options for each leg of a trip. For the payment, passengers will use credit cards to pay charges. They will type the credit card information into the system when they sign on and it will remember the card number so passengers don't have to retype the number the next time they fly.</p> <p>Suwanateep at 12-13.</p> <p>The system above exemplifies the technology of Connexion by Boeing (See Company Profile). In 2000, Connexion (See Company Profile) is the separate business unit to focus this effort, especially developing the broadband inflight Internet technology. Connexion by Boeing is the market-leading initiative to bring commercial broadband data services to commercial and executive aircraft during flight, allowing passengers to have access to Internet, firewall-protected Intranet access, E-Commerce, television, news and entertainment content, and transmit and receipt of data. Aircraft operators also benefit from inflight Internet access to aircraft and crew data. Boeing studies the potential applicability of the Connexion broadband in-flight data services for enhancing aviation security.</p> <p>Suwanateep at 13.</p> <p>To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Connexion by Boeing, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Connexion</p>

Claim	Connexion by Boeing
	<p>by Boeing, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p> <p style="padding-left: 40px;">Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p>

Claim	Connexion by Boeing
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p>

Claim	Connexion by Boeing
	<p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>Connexion by Boeing discloses “wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p> <div> <p>Boeing tested flights with 802.11b access, but the company plans to offer 802.11a as well as 802.11g by the time of rollout, according to Stan Deal, vice president of global network sales for Boeing Connexion. Boeing has offered wired Internet access via jacks inside cabins for some time. But wireless Ethernet access is much easier to deploy in planes because wire does not have to be pulled through the planes, Deal says.</p> </div> <p>Ellison at 97-104.</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin.</p>

Suwanateep at 9.

ANS is an onboard Local Area Network that connects each seatback telephone bay to an onboard proxy server, based on IEEE 802.11b. The connection on behalf of the individual users is routed through the proxy server, hence the term proxy at speed of 11 Mbps. Each laptop wireless LAN card also has a hardware-defined address, which in turn is mapped into the server as the access point. The aircrafts will house both e-mail and Internet servers. The type of LAN varies between airlines. Cathay Pacific has installed USB ports in its seats, while SAS is with an 802.11 b wireless network, for instance.

Suwanateep at 15.

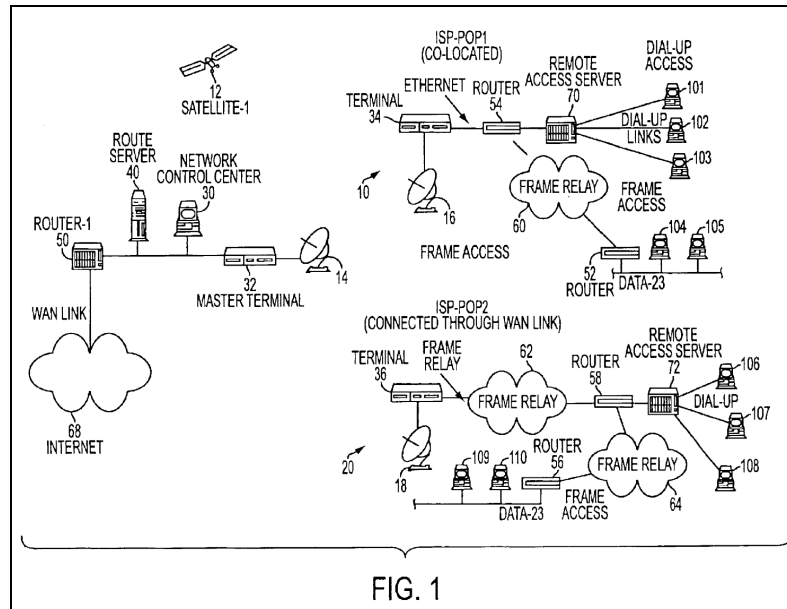
As of the connection establishment, the passengers plug into a Local Area Network on the plane; logging onto global. ISP provides quick access to onboard web content and email delivery service. Once the dial-up is made from the 56k laptop's modem via the seatback telephone, the requests are intercepted by the onboard server at 11 Kbps rate and then the onboard proxy server sends a signal to the ground ISP server at rate up to 64Kbps to retrieve messages. The email transfers from the onboard server to laptop at the 56Kbps speed supported by the onboard LAN. Total download time may be the same.

Suwanateep at 15.

IFOL has an agreement with AT&T seatback telephone system to store their 20-pound airborne data servers on board. The airborne servers will be linked to the seatback- telephone handsets that are offered on virtually every domestic U.S. carrier now. The initial connection will be at 56K, but intends to speed that up in future. Simultaneously, IFOL will use existing satellite systems and ground technologies to update content, depending on timeliness of information. Methods used to update servers include:

Inflight Updates -- via the off-aircraft communications systems, namely. North American Terrestrial System services, and Inmarsat services, on-demand requests are always addressed in real-time assuming off aircraft bandwidth availability.

	<p>Direct Broadcast Satellite Updates -- If the aircraft is equipped with this capability, IFOL can support both inflight and ground based updates using this technology.</p> <p>802.11B Wireless LAN (Gate link) -- Enables high-speed updates of less timely information and content prior to the aircraft departure.</p> <p>Suwanateep at 33.</p> <p>To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Agarwal, Jahn II Nelson, and Wu. Connexion by Boeing, Agarwal, Jahn II, Nelson, and Wu concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Agarwal, Jahn II, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Agarwal, Jahn II, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>
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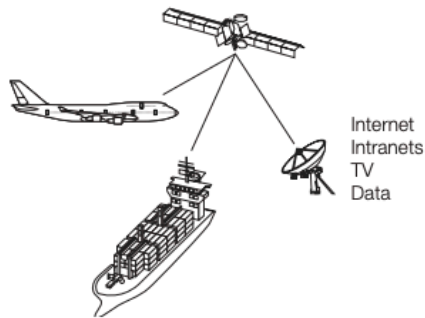
Agarwal at FIG. 1; *see also* Agarwal at 3:18-20; 3:38-63.

Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks.

Jahn II at Abstract; *see also id.* at 3 (“The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.”).

The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182

	<p>providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p> <p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Connexion by Boeing discloses “wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.</i>,</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>All passengers will be able to use the service simultaneously, with data rates of 5Mbps to receive and 1.5Mbps to transmit. Rates should not decrease as more users use the services. The enabling technology is a proprietary solid-state phased array antenna, which allows for two-way data transmission.</p> </div> <p>Shim, Richard, “Boeing aims to connect the friendly skies,” ZDNET NEWS, April 27, 2000, <i>available at</i> https://web.archive.org/web/20010625185126/http://www.zdnet.com/zdnn/stories/news/0,4586,2556871,00.html;</p>



Connexion by Boeing provides high-speed broadband communication services to mobile platforms, including aircraft and maritime vessels. Through the service, connectivity is delivered directly to laptops and personal digital assistants (PDAs) in flight, providing airline passengers and operators of executive aircraft for government and the private sector with personalized and secure real-time access to the Internet, company intranets and television and news content. The Connexion by Boeing broadband approach also permits applications to link aircraft data systems with airline operations, enhancing aircraft operational efficiency on the ground and in the air.

The Boeing Company Annual Report (2003), *available at*
https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.

Ultimately, the service will be available everywhere airplanes can fly. The perceived service will initially be available to commercial airline customers in North America and anticipated in 2002 in Europe. Additional global regions will be added as the service matures.

Suwanateep at 9.

When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD-ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. An optional ARINC 429 PCMCIA interface allows the cabin file server to utilize aircraft data such as position reporting and maintenance information. This airborne computer is very versatile due to its extensive interface capabilities and removable hard drive. It also allows the computer to be updated and tested on the ground without removal from the aircraft.

Suwanateep at 9.

Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line simultaneously.

Suwanateep at 9.

To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Connexion by Boeing, Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access

to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. *See, e.g.,*

INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT		
 <div> Powered By Airpath </div>	Airpath Exclusive ISG-1000 Subscriber Gateway	
	<ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! 	More Details Price/Order

Airpath Wireless Hot Spot at

https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp;

see also Airpath Wireless Hot Spot at

<https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html>; <https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp>;
<https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp>.

It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations.

Bruner at [0008]; *see also* Bruner at [0011], [0021], Bruner at FIG. 1.

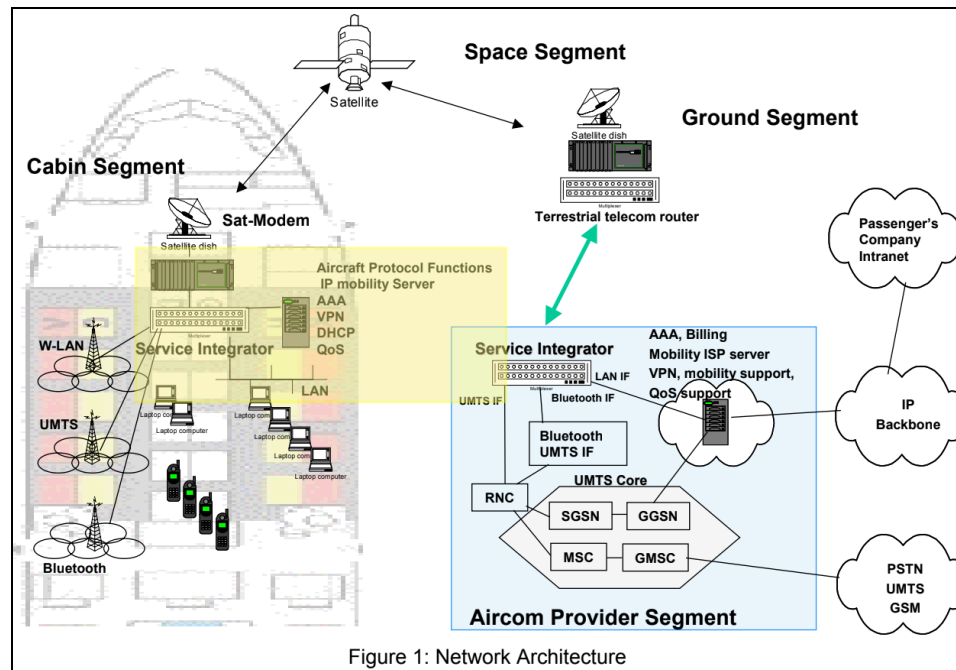


Figure 1: Network Architecture

Jahn II at 2, FIG. 1; *see also* Jahn II at 1-3, FIGs. 3-4.

MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.

MTN Cruise Ship Internet Services at

https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm;

	<p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network.</p> <p>Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034].</p> <p>Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area.</p> <p>Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058].</p>
<p>[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.</p>	<p>Connexion by Boeing discloses “wherein the data connections include wireless data connections.” <i>See, e.g.,</i></p> <p>ANS is an onboard Local Area Network that connects each seatback telephone bay to an onboard proxy server, based on IEEE 802.11b. The connection on behalf of the individual users is routed through the proxy server, hence the term proxy at speed of 11 Mbps. Each laptop wireless LAN card also has a hardware-defined address, which in turn is mapped into the server as the access point. The aircrafts will house both e-mail and Internet servers. The type of LAN varies between airlines. Cathay Pacific has installed USB ports in its seats, while SAS is with an 802.11 b wireless network, for instance.</p> <p>Suwanateep at 15 (emphasis added).</p> <p>IFOL has an agreement with AT&T seatback telephone system to store their 20-pound airborne data servers on board. The airborne servers will be linked to the seatback- telephone handsets that are offered on virtually every domestic U.S. carrier now. The initial connection will be at</p>

56K, but intends to speed that up in future. Simultaneously, IFOL will use existing satellite systems and ground technologies to update content, depending on timeliness of information.

Methods used to update servers include:

Inflight Updates -- via the off-aircraft communications systems, namely. North American Terrestrial System services, and Inmarsat services, on-demand requests are always addressed in real-time assuming off aircraft bandwidth availability.

Direct Broadcast Satellite Updates -- If the aircraft is equipped with this capability, IFOL can support both inflight and ground based updates using this technology.

802.11B Wireless LAN (Gate link) -- Enables high-speed updates of less timely information and content prior to the aircraft departure.

Suwanateep at 33.

Boeing tested flights with 802.11b access, but the company plans to offer 802.11a as well as 802.11g by the time of rollout, according to Stan Deal, vice president of global network sales for Boeing Connexion. Boeing has offered wired Internet access via jacks inside cabins for some time. But wireless Ethernet access is much easier to deploy in planes because wire does not have to be pulled through the planes, Deal says.

Ellison at 97-104.

To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu. Connexion by Boeing, Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and/or Wu would

have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. *See, e.g.,*

 	<table> <tr> <th colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</th></tr> <tr> <td> <ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table>	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! 	More Details Price/Order
Airpath Exclusive ISG-1000 Subscriber Gateway					
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 	<table> <tr> <th colspan="2">Colubris Networks[®] CN-3000 Subscriber Gateway</th></tr> <tr> <td> <ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table>	Colubris Networks [®] CN-3000 Subscriber Gateway		<ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! 	More Details Price/Order
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Airpath Wireless Hot Spot at

https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also*

Airpath Wireless Hot Spot at

<https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html>; <https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp>; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.

When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will

	<p>co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats.</p> <p>Jahn II at 2-3, FIGs. 3-4.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see generally id.</i></p> <p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1.</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>Connexion by Boeing discloses “wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p>

Boeing tested flights with 802.11b access, but the company plans to offer 802.11a as well as 802.11g by the time of rollout, according to Stan Deal, vice president of global network sales for Boeing Connexion. Boeing has offered wired Internet access via jacks inside cabins for some time. But wireless Ethernet access is much easier to deploy in planes because wire does not have to be pulled through the planes, Deal says.

Ellison at 97-104.

ANS is an onboard Local Area Network that connects each seatback telephone bay to an onboard proxy server, based on IEEE 802.11b. The connection on behalf of the individual users is routed through the proxy server, hence the term proxy at speed of 11 Mbps. Each laptop wireless LAN card also has a hardware-defined address, which in turn is mapped into the server as the access point. The aircrafts will house both e-mail and Internet servers. The type of LAN varies between airlines. Cathay Pacific has installed USB ports in its seats, while SAS is with an 802.11 b wireless network, for instance.

Suwanateep at 15.

To the extent Connexion by Boeing does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Connexion by Boeing further renders the limitation obvious in light of other references, such as Clark, Jahn II, Nelson, and Wu. Connexion by Boeing, Clark, Jahn II, Nelson, and Wu concern the similar subject matter as Connexion by Boeing, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Connexion by Boeing with Clark, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Connexion by Boeing with those of Clark, Jahn II, Nelson or Wu, for example, to incorporate this limitation. *See, e.g.,*

In one embodiment, the satellite and terrestrial microwave communication system transfers

	<p>information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web.</p> <p>Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.”</p> <p>Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network.</p> <p>Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs).</p> <p>Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133</p>
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	<p>(“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>
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Exhibit 469-6 to Southwest's Preliminary Invalidity Contentions

Dimensioning of Aeronautical Satellite Services ("Jahn I")

"Dimensioning of Aeronautical Satellite Services" by A. Jahn, M. Holzbock, and M. Werner ("Jahn I") was published by Proceedings. 53th Int. Astronautical Congress, Houston, Texas in October 2002 and further published in 2002 by the American Institute of Aeronautics and Astronautics, Inc., with permission. Jahn I is prior art to the '469 Patent under at least Pre-AIA 35 U.S.C. §§ 102(a) and (g) as to claims 24, 25, 26, 28, and 32 (the "Asserted Claims") of the '469 Patent.

To the extent Plaintiff alleges Jahn I does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Jahn I or combine the teachings of Jahn I with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Jahn I;
- Invalid under 35 U.S.C. § 103 by Jahn I and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;

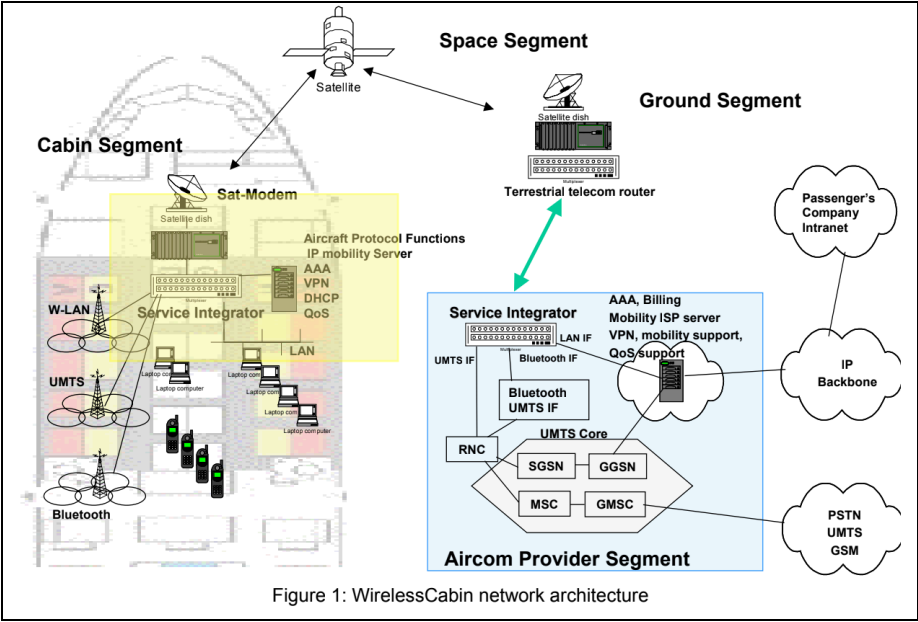
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent Application No. 2004/0109449 to Seo (“Seo”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of U.S. Patent Application No. 2003/0050041 to Wu (“Wu”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn I in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Jahn I in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

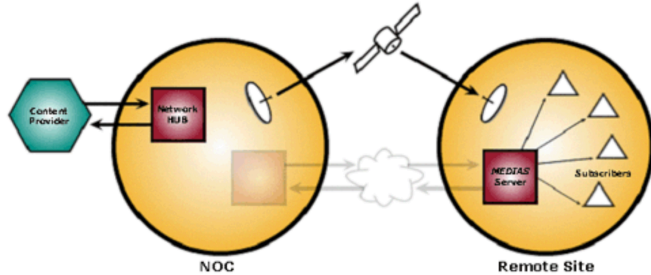
Claim	Jahn I
[24] An Internet Hotspot comprising:	<p>To the extent the preamble is limiting, Jahn I discloses an Internet Hotspot. <i>See, e.g.,</i></p> <p>ABSTRACT—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure.</p> <p>Jahn I at 1.</p> <p>Current trends are towards high data rate communication services, in particular Internet applications. In an aeronautical scenario global coverage is essential for providing continuous service. Therefore satellite communication becomes indispensable, and together with the ever increasing data rate requirements of applications, aeronautical satellite communication meets an expansive market.</p> <p>Jahn I at 1.</p> <p>It is believed that the ease of access to the service can be predominantly achieved by wireless techniques as the passenger is used to from its daily life. So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment).</p> <p>Jahn I at 1.</p> <p>The EC project WirelessCabin (IST-2001-37466) is looking into those radio access technologies to be transported via satellite to terrestrial backbones [2]. The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers.</p> <p>Jahn I at 1.</p>

Claim	Jahn I
	<p>Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn I at 2.</p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. <p>Jahn I at 2.</p>

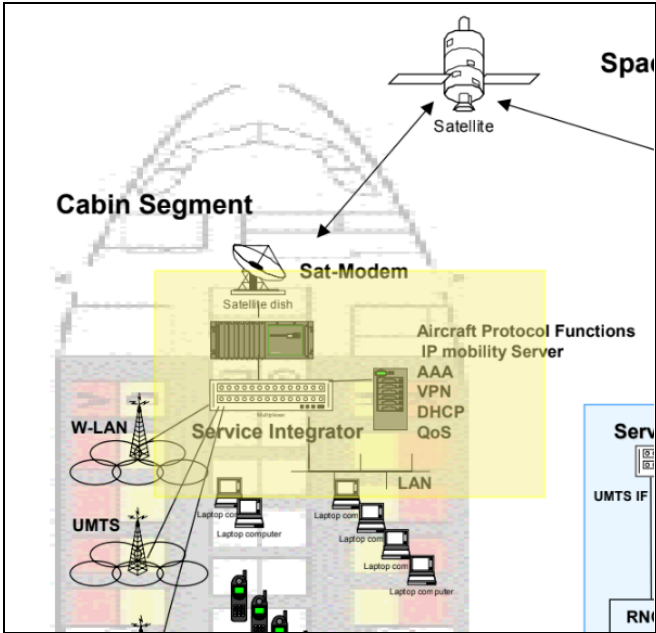
Claim	Jahn I
	 <p>Figure 1: WirelessCabin network architecture</p> <p>Jahn at 2, FIG. 1.</p>
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>Jahn I discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.,</i></p> <p>ABSTRACT—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure.</p> <p>Jahn I at 1.</p>

Claim	Jahn I
	<div> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>Such infrastructure comprises: A satellite segment for interconnection of the cabin with the terrestrial telecom networks. The different cabin services must be integrated and interconnected using a service integrator, that allows the separation and transportation of the services over a single or several satellite bearers. Peculiarities, such as limited bandwidth, asymmetric data rates on satellite up- and down-link, and dynamic traffic demand between the different services and handover between satellite bearers need to be addressed. In order to minimize the cost (satellite resources) for a given QoS efficient interworking between the service integrator and the satellite segment will be required.</p> <p>Jahn I at 2.</p>

Claim	Jahn I
	<p>Currently, few geostationary satellites such as the Inmarsat fleet are available for two-way communications, that cover the land masses and the oceans. Ku- band may be used on a secondary allocation basis for aeronautical mobile satellite services (AMSS) but bandwidth is scarce and coverage is mostly provided over continents. K/Ka-band satellites will be launched in the near future, again here continental coverage is mainly intended.</p> <p>Jahn I at 2; <i>see also</i> Jahn I at 3, FIG 2.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson. Jahn I, Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Jahn I
	<p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>Airpath Wireless Hot Spot at</p> <p>https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/soln/soln2.html; see also Airpath Wireless Hot Spot at</p> <p>https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html;</p> <p>https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html;</p> <p>https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html;</p> <p>https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html;</p> <p>https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/soln/soln0.html.</p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes</p>

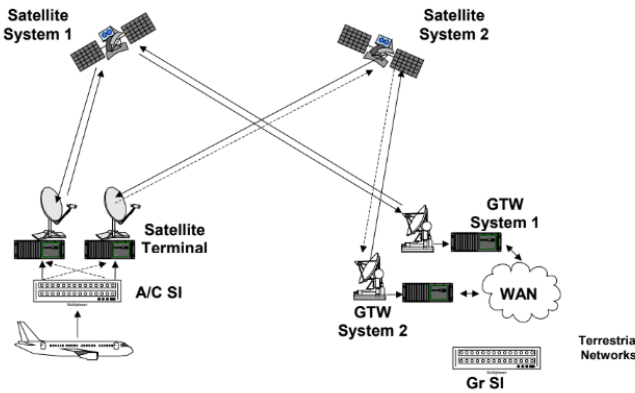
Claim	Jahn I
	<p>14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites.</p> <p>Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p> <div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into four main segments: Cabin Segment, Space Segment, Ground Segment, and Aircom Provider Segment. The Cabin Segment shows a cross-section of an aircraft with various communication systems: W-LAN, UITS, Bluetooth, and a Service Integrator. The Space Segment features a Satellite. The Ground Segment includes a Terrestrial telecom router and a Passenger's Company Internet. The Aircom Provider Segment contains a Service Integrator, UITS Core, RNC, SGSN, GGSN, MSC, and GMSC. Arrows indicate data flow between these components, including connections to external networks like IP Backbone and PSTN/UMTS/GSM.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4.</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service.</p> <p>Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.</p>

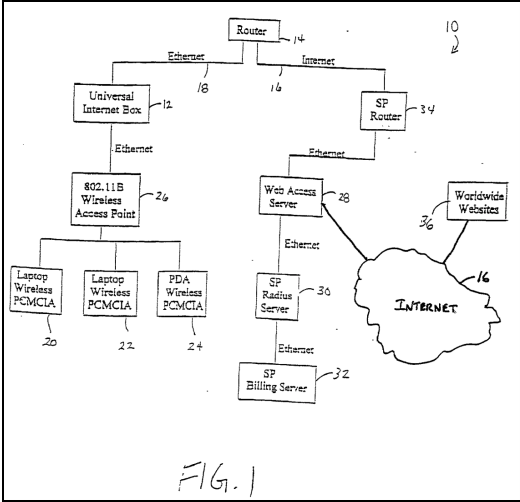
Claim	Jahn I
<p>[24.b] at least one router operatively coupled to the satellite dish;</p>	<p>Jahn I discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.</i>,</p> <p>Such an infrastructure comprises:</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>Jahn I at 3.</p>  <p>The diagram illustrates the WirelessCabin architecture. It shows a cross-section of an aircraft cabin. At the top, a satellite is labeled 'Satellite' and 'Space'. Below it, a 'Sat-Modem' is connected to a 'Satellite dish'. The 'Cabin Segment' contains a 'Service Integrator' which is connected to a 'W-LAN' (Wireless LAN) and a 'UMTS' (Universal Mobile Telecommunications System) network. The 'Service Integrator' also connects to a 'LAN' (Local Area Network) which includes several 'Laptop computer's. To the right, a 'Service Integrator' is connected to a 'UMTS IF' (UMTS Interface) and a 'RN' (Radio Network). The 'Service Integrator' also provides 'Aircraft Protocol Functions' including 'IP mobility Server', 'AAA', 'VPN', 'DHCP', and 'QoS'.</p> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>An aircom service provider segment supporting the integrated cabin services. The aircom provider segment provides the interconnection to the terrestrial personal and data</p>

Claim	Jahn I
	<p>networks as well as the Internet backbone. For the UMTS cabin service, a subset of the UMTS core network must be available.</p> <p>Jahn I at 3.</p> <p>to minimize the cost (satellite resources) for a given QoS efficient interworking between the service integrator and the satellite segment will be required.</p> <p>- An aircom service provider segment supporting the integrated cabin services. The aircom provider segment provides the interconnection to the terrestrial personal and data networks as well as the Internet backbone. For the UMTS cabin service, a subset of the UMTS core network must be available.</p> <p>Jahn I at 3.</p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development of new protocol concepts to support</p> <ul style="list-style-type: none"> the integrated services with dynamic bandwidth sharing among the services and asymmetrical data rate; <p>Jahn I at 3.</p>

Claim	Jahn I
	<div> <p>The diagram illustrates a satellite-based communication system for an aircraft cabin. A central box labeled 'Service Integrator' is connected to three separate 'Cabin Segment' boxes. Each cabin segment contains a laptop computer and a wireless antenna. The 'Service Integrator' is also connected to a satellite in orbit via a 'Forward link' and a 'Return' link. The diagram is labeled 'Figure 2: Sa'.</p> </div> <p>Jahn I at 3, FIG. 2 (excerpt).</p> <p>The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site.</p> <p>Jahn I at 4.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I</p>

Claim	Jahn I
	<p>further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, Seo, and Wu. Jahn I, Agarwal, DeSanctis, Jahn II, Seo, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Agarwal, DeSanctis, Jahn II, Seo, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Agarwal, DeSanctis, Jahn II, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div> </div> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

Claim	Jahn I
	 <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	Jahn I
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the</p>	<p>Jahn I discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile</p>

Claim	Jahn I
Internet; and	<p>network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p> <div> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Jahn I, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices.</p>

Claim	Jahn I
	<p>additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8; <i>id.</i> at 2-3, 7.</p> <p>One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] ("The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021],</p>

Claim	Jahn I
	<p>[0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices ($18_1, 18_2, \dots 18_n$) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p>

Claim	Jahn I
	<div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cf?ReleaseID=94443. See also MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cf?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone</p>

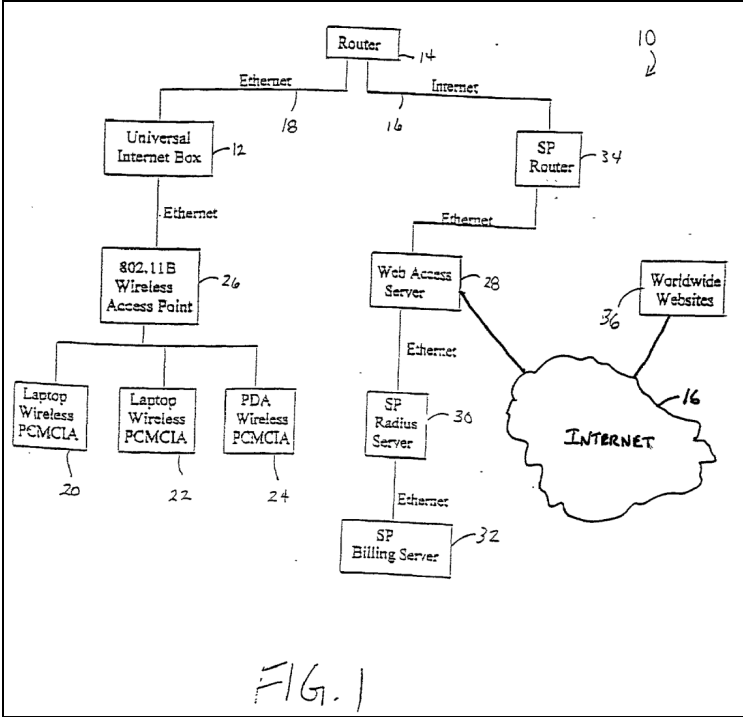
Claim	Jahn I
	<p>network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features.</p> <p>Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
[24.d] a web-ready device operatively coupled to the at least one router, the web-ready device having a browser application operating thereon for accessing the Internet;	Jahn I discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i>

Claim	Jahn I
	<div> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>It is believed that the ease of access to the service can be predominantly achieved by wireless techniques as the passenger is used to from its daily life. So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment). The EC project WirelessCabin (IST-2001-37466) is looking into those radio access technologies to be transported via satellite to terrestrial backbones [2]. The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers.</p> <p>Jann I at 1.</p> <p>The service scenario considers travellers in aircraft on the move. In the future, airlines will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network</p>

Claim	Jahn I
	<p>interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services. Jahn I at 1.</p> <p>The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Jahn I at 2.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu. Jahn I, Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Bruner, Connexion by Boeing, Jahn II, Suwanateep and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Bruner, Connexion by Boeing, Jahn II, Suwanateep or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19. Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based</p>

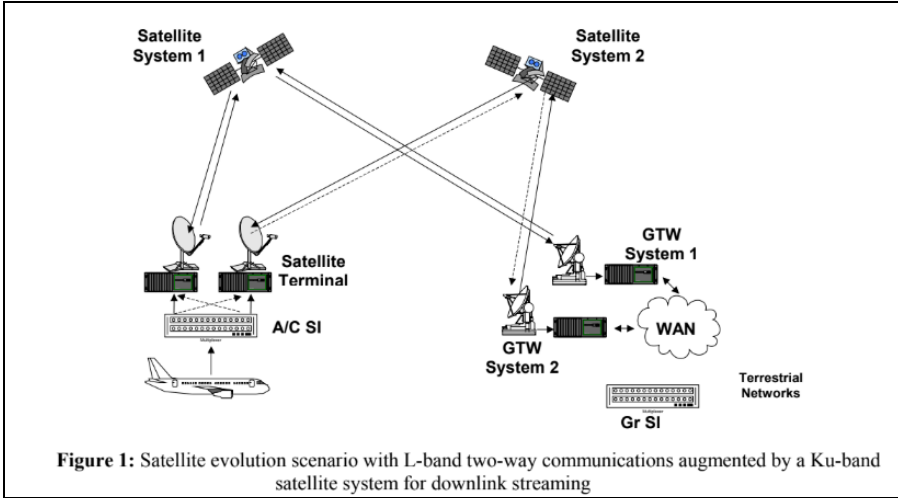
Claim	Jahn I
	<p>commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p> <div> <p>Find out about our In-Flight Portal</p>  <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Ln av=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work</p>

Claim	Jahn I
	<p>(e.g. for mobile data access). Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p> <p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>

Claim	Jahn I
	 <p style="text-align: center;">FIG. 1</p> <p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>Jahn I discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p>

Claim	Jahn I
	<p>ABSTRACT—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure.</p> <p>Jahn I at 1.</p> <p>With small business jets such as Bombardier LearJets, Gulfstream etc., individual equipment certification is already established.</p> <p>Jahn I at 2.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, and Wu. Jahn I, Agarwal, Bruner, Connexion by Boeing, Jahn II, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p>

Claim	Jahn I
	<p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p>Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; <i>see also</i> Connexion by Boeing at</p>

Claim	Jahn I
	<p> https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf. </p> <div>  <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at FIG. 2, 2-3.</p> <p> The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones. </p>

Claim	Jahn I
	<p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>The manner in which the network system can be implemented and positioned</p>

Claim	Jahn I
	<p>inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like.</p> <p>Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].</p>
<p>[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.</p>	<p>Jahn I discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.</i>,</p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p> <p>So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment).</p> <p>Jahn I at 1.</p> <p>Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p>

Claim	Jahn I
	<div> <p>Figure 1: WirelessCabin network architecture</p> </div> <p>Jahn I at 2, FIG. 1.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Jahn I, Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and/or Wu</p>

Claim	Jahn I
	<p>would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Bruner, Jahn II, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p>

Claim	Jahn I
	<div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4; Suwanateep at 9.</p> <p>Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p>

Claim	Jahn I
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p>

Claim	Jahn I
	<p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>Jahn I discloses “The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p> <p>So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment).</p> <p>Jahn I at 1.</p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p>

Claim	Jahn I
	<p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. <p>Jahn I at 2.</p> <p>The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site.</p> <p>Jahn I at 3.</p> <p>The EC project WirelessCabin (IST-2001-37466) is looking into those radio access technologies to be transported via satellite to terrestrial backbones [2]. The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers. With the advent of new services a detailed investigation of the expected traffic is necessary in order to plan the needed capacities to fulfil the QoS demands. This paper will thus describe a methodology for the planning of such systems.</p> <p>Jahn I at 1.</p> <p>The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site.</p> <p>Jahn I at 4.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I</p>

Claim	Jahn I
	<p>IP cable networks.</p> <p>Jahn II at Abstract; <i>see also id.</i> at 3 (“The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.”).</p> <p>The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p> <p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote	<p>Jahn I discloses “The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.,</i></p>

Claim	Jahn I
<p>location by respectively establishing data connections with the router via their web-ready devices.</p>	<p><i>See also</i> Claim 24.b.</p> <p>The service scenario considers travellers in aircraft on the move. In the future, airlines will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn I at 1.</p> <div> <p>The diagram illustrates the WirelessCabin network architecture, divided into three main segments: Cabin Segment, Space Segment, and Ground Segment. The Cabin Segment (left) shows a passenger's perspective with various wireless technologies (W-LAN, UMTS, Bluetooth) connecting to a Sat-Modem and a Service Integrator. The Space Segment (top) features a Satellite. The Ground Segment (right) includes a Terrestrial telecom router. The Aircom Provider Segment (bottom right) details the network infrastructure, including a Service Integrator, UMTS Core, and various network elements (RNC, SGSN, GGSN, MSC, GMSC). External networks like Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM are also shown.</p> <p>Figure 1: WirelessCabin network architecture</p> </div> <p>Jahn I at 2, FIG. 1.</p>

Claim	Jahn I
	<p>The provision of such a heterogeneous access network with collectively mobile users requires the development of new protocol concepts to support Jahn I at 3.</p> <p>The traffic generated and received by a single aircraft is a function of • the distribution of passengers among first, business and economy class, (obviously passengers in first and business class are more keen on using AirCom services)The traffic generated and received by a single aircraft is a function of</p> <ul style="list-style-type: none"> • the distribution of passengers among first, business and economy class, (obviously passengers in first and business class are more keen on using AirCom services) <p>Jahn I at 5.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Jahn I, Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Jahn I
	<div> <div> INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT </div> <div>  <div> <div>Airpath</div> <div>Powered By</div> </div> </div> <div> <div>Airpath Exclusive ISG-1000 Subscriber Gateway</div> <div> <ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! </div> <div> More Details Price/Order </div> </div> </div> <p> Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. </p> <p> It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. </p> <p> Bruner at [0008]; <i>see also</i> Bruner at [0011], [0021], Bruner at FIG. 1. </p>

Claim	Jahn I
	<div> <p>The diagram illustrates a network architecture for a cruise ship. It is divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located on the ship, it includes a Sat-Modem with a Satellite dish, a W-LAN, UMTS, Bluetooth, and several Laptop computers connected via a LAN. Space Segment: Consists of a Satellite in orbit. Ground Segment: Includes a Satellite dish on land and a Terrestrial telecom router. Aircom Provider Segment: A central hub containing a Service Integrator (with AAA, Billing, Mobility ISP server, VPN, mobility support, QoS support), a UMTS Core (with RNC, SGSN, GGSN, MSC, GMSC), and interfaces for Bluetooth and UMTS. <p>External networks are also shown: Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1; <i>see also</i> Jahn II at 1-3, FIGs. 3-4.</p> <div style="border: 1px solid black; padding: 10px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see also</i> MTN Cruise Ship Internet Services at</p>

Claim	Jahn I
	<p> https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003). </p> <p> System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network. </p> <p> Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034]. </p> <p> Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area. Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058]. </p>
<p> [28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections. </p>	<p> Jahn I discloses “The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.” <i>See, e.g.,</i> </p> <p> It is believed that the ease of access to the service can be predominantly achieved by wireless techniques as the passenger is used to from its daily life. So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment). </p> <p> Jahn I at 1. </p>

Claim	Jahn I
	<p>The service scenario considers travellers in aircraft on the move. In the future, airlines will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn I at 1.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. <p>Jahn I at 2.</p> <p>The EC project WirelessCabin (IST-2001-37466) is looking into those radio access technologies to be transported via satellite to terrestrial backbones [2]. The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers. With the advent of new services a detailed investigation of the expected traffic is necessary in order to plan the needed capacities to fulfil the QoS demands. This paper will thus describe a methodology for the planning of such systems.</p> <p>Jahn I at 1.</p> <p>The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site.</p> <p>Jahn I at 4.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been</p>

Claim	Jahn I										
	<p>obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu. Jahn I, Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <table><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table> <table><tr><td rowspan="2"> </td><td colspan="2"> CN-3000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i></p>	 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order	 	 CN-3000 Subscriber Gateway		<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order
 	Airpath Exclusive ISG-1000 Subscriber Gateway										
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order									
 	 CN-3000 Subscriber Gateway										
	<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order									

Claim	Jahn I
	<p>Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats.</p> <p>Jahn II at 2-3, FIGs. 3-4.</p> <div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see generally id.</i></p> <p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and</p>

Claim	Jahn I
	<p>24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1.</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>Jahn I discloses “The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p> <p>The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers.</p> <p>Jahn I at 1.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b.</p> <p>Jahn I at 2.</p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for

Claim	Jahn I
	<p>personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>Jahn I at 2.</p> <p>To the extent Jahn I does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn I further renders the limitation obvious in light of other references, such as Clark, Jahn II, Nelson, and Wu. Jahn I, Clark, Jahn II, Nelson, and Wu concern the similar subject matter as Jahn I, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn I with Clark, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn I with those of Clark, Jahn II, Nelson or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to</p>

Claim	Jahn I
	<p>the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network.</p> <p>Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs).</p> <p>Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>

Exhibit 469-7 to Southwest's Preliminary Invalidity Contentions

Passenger Multimedia Service Concept via Future Satellite Systems ("Jahn II")

"Passenger Multimedia Service Concept via Future Satellite Systems" by Jahn II, A. Holzbock, M. Riera Díaz, N. and Werner M. ("Jahn II") was published in DGLR Jahrbuch 2002, DGLR-JT2002-036. Jahn II is prior art to the '469 Patent under at least Pre-AIA 35 U.S.C. §§ 102(a), (b) and (g) as to claims 24, 25, 26, 28, and 32 (the "Asserted Claims") of the '469 Patent.

To the extent Plaintiff alleges Jahn II does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Jahn II or combine the teachings of Jahn II with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Jahn II;
- Invalid under 35 U.S.C. § 103 by Jahn II and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Jahn II in view of U.S. Patent Application No. 2003/0050041 to Wu (“Wu”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Jahn II in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Jahn II in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

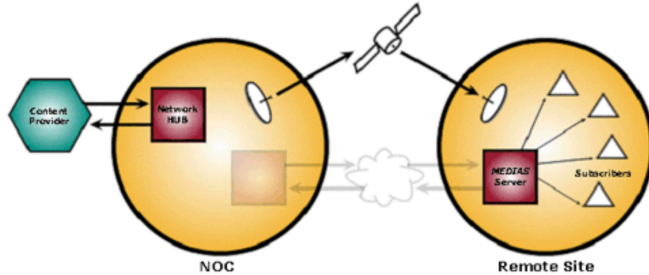
Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

Claim	Jahn II
<p>[24] An Internet Hotspot comprising:</p>	<p>To the extent the preamble is limiting, Jahn II discloses an Internet Hotspot. <i>See, e.g.,</i></p> <p>In this paper, a innovative service concept for aircraft cabins is presented. Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. In this paper also wireless access methods such as W-LAN for data connections to laptops and UMTS for personal telephony are suggested. A concept for service provisioning of dedicated aircraft services and its architecture is described. Different services are multiplexed over a satellite link and forwarded to the service provider domain. Dynamic bandwidth support for the different services is supported and handover between satellites are supported.</p> <p>Jahn II at Abstract.</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1.</p> <p>In what follows in this paper we present an service concept and architecture that enables the use of personal wireless communication devices inside an aircraft cabin.</p> <p>Jahn II at 1.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p>

Claim	Jahn II
	<p>Jahn II at 2.</p> <div> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>id.</i> at 2 (“The architecture and its components are conceptually depicted in Figure 1.”).</p>
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>Jahn II discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.,</i></p>

Claim	Jahn II
	<div> <p>The diagram illustrates a network architecture for an aircraft cabin. It is divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside the aircraft, it includes a Sat-Modem connected to a Satellite dish. Below this, there is a Service Integrator box containing Aircraft Protocol Functions, IP mobility Server, AAA, VPN, DHCP, and QoS. The cabin also features W-LAN, UMTS, and Bluetooth access technologies, with Laptop computers and a LAN connected to the Service Integrator. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router connected to the ground satellite dish. It also features a Passenger's Company Intranet and an IP Backbone. Aircom Provider Segment: This segment contains a Service Integrator box with AAA, Billing, Mobility ISP server, VPN, mobility support, and QoS support. It is connected to the UMTS Core, which includes RNC, SGSN, GGSN, MSC, and GMSC components. The Aircom Provider Segment also interfaces with the IP Backbone and PSTN UMTS GSM networks. <p>Arrows indicate the flow of data and connectivity between these segments, showing a seamless integration of cabin services with terrestrial and satellite networks.</p> </div> <p>Figure 1: Network Architecture</p> <p>Jahn II at FIG. 1.</p> <p>The architecture and its components are conceptually depicted in Figure 1. Such an infrastructure comprises of:</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>A satellite segment for interconnection of the cabin with the terrestrial telecom networks. The different cabin services must be integrated and interconnected using a service integrator, that allows the separation and transportation of the services over a single or</p>

Claim	Jahn II
	<p>several satellite bearers.</p> <p>Jahn II at 3.</p> <p>Connection to telecom networks is considered to be achieved by satellites with large coverage areas [LWJ00], especially over oceanic regions during long-haul flights. The service concept needs to take into account today's peculiarities of satellite communications, thus it must cope with the available or in near future available satellite technology, and interworking must be performed at aircraft interface level with the satellite segment, cf. Fig. 2:</p> <p>Jahn II at 4.</p> <div> <p>Figure 2: Satellite Connection Scenario</p> </div> <p>Jahn II at FIG. 2.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been</p>

Claim	Jahn II
	<p>obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, and Nelson. Jahn II, Airpath Wireless Hot Spot, Agarwal, Bruner, and Nelson concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Airpath Wireless Hot Spot, Agarwal, Bruner, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Airpath Wireless Hot Spot, Agarwal, Bruner, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>The diagram illustrates the MEDIAS Solution architecture. On the left, a green hexagon labeled 'Content Provider' is connected by a double-headed arrow to a red square labeled 'Network HUB' inside a large yellow circle labeled 'NOC'. The 'Network HUB' is also connected by a double-headed arrow to a smaller orange square. A satellite is shown in the center, with arrows pointing to the 'Network HUB' and a red square labeled 'MEDIAS Server' inside a large yellow circle labeled 'Remote Site'. The 'MEDIAS Server' is connected by a double-headed arrow to the 'Network HUB' and by a double-headed arrow to several white triangles labeled 'Subscribers'. A cloud icon is positioned between the 'NOC' and 'Remote Site' circles, with arrows pointing to both.</p> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/ soln/soln2.html; see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/ news/news0.html;</p>

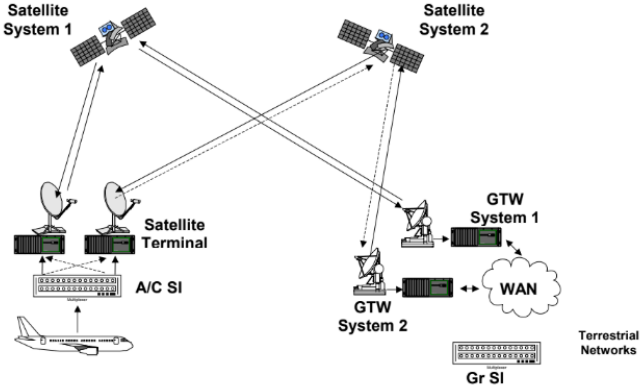
Claim	Jahn II
	<p> https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/soln/soln0.html. </p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites.</p> <p>Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service.</p> <p>Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.</p>
[24.b] at least one router operatively	Jahn II discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.</i> ,

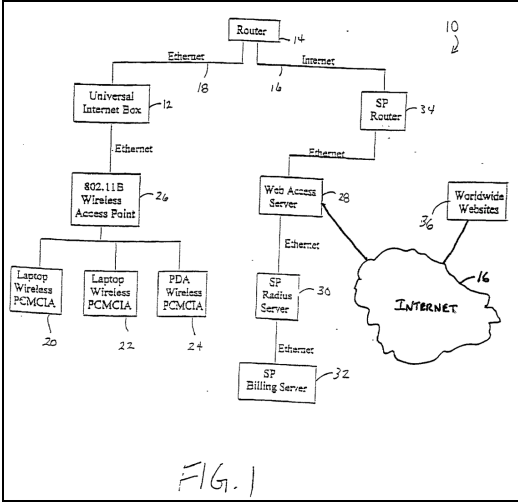
Claim	Jahn II
coupled to the satellite dish;	<div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into four main segments: Cabin Segment, Space Segment, Ground Segment, and Aircom Provider Segment. The Cabin Segment shows a satellite dish connected to a Sat-Modem, which is linked to a Service Integrator. The Service Integrator is connected to various aircraft systems including W-LAN, UMTS, Bluetooth, and LAN. The Space Segment shows a Satellite in orbit. The Ground Segment shows a Terrestrial telecom router connected to a satellite dish. The Aircom Provider Segment shows a Service Integrator connected to a UMTS Core (RNC, SGSN, GGSN, MSC, GMSC) and an IP Backbone. The IP Backbone is connected to a Passenger's Company Intranet and a PSTN UMTS GSM network. The diagram also shows various interfaces like UMTS IF, Bluetooth IF, and LAN IF.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>id.</i> at 3 (“The architecture and its components are conceptually depicted in Figure 1.”).</p> <p>“The different wireless access services of UMTS, W- LAN and Bluetooth require different architectures from a protocol and networking point-of-view, as depicted in Figure 3.”</p> <p>Jahn II at 4.</p>

Claim	Jahn II
	<div> <p>Figure 2: Satellite Connection Scenario</p> </div> <p>Jahn II at 3, FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here.</p> <p>Jahn II at 4-5.</p>

Claim	Jahn II
	<div> <p>a) IP support through fixed cabling or W-LAN</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>The Collectively Mobile Heterogeneous Network (CMHN) (cf. Figure 1) consists of the mobile part aboard the aircraft and of the fixed service provider infrastructure on the ground. Both parts are interconnected by a bearer service between two Service Integrator (SI) nodes. Typically, one or more satellites will provide the bearer system. This SI module will be responsible for switching data among the wireless access standards that will coexist in the aircraft (UMTS, IEEE 802.11b for W- LAN or Bluetooth).</p> <p>Jahn II at 6.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Seo, and Wu. Jahn II, Agarwal, DeSanctis, Seo, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Agarwal, DeSanctis, Seo, and/or Wu would have only required simple substitution, would not have required</p>

Claim	Jahn II
	<p>extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Agarwal, DeSanctis, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div> </div> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

Claim	Jahn II
	 <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers.</p> <p>Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	Jahn II
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the</p>	<p>Jahn II discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p>

Claim	Jahn II
Internet; and	<div> <p>The diagram illustrates a network architecture divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem connected to a Satellite dish. It also features a Service Integrator connected to a W-LAN, UMTS, and Bluetooth networks. Passengers' devices (laptops and mobile phones) are connected to these networks. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router connected to the ground satellite dish and the Aircom Provider Segment. Aircom Provider Segment: This segment contains a Service Integrator and a UMTS Core. The Service Integrator handles Aircraft Protocol Functions, IP mobility Server, AAA, VPN, DHCP, and QoS. It interfaces with the UMTS Core via UMTS IF and Bluetooth IF. The UMTS Core includes components like RNC, SGSN, GGSN, MSC, and GMSC. External networks like Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM are also connected. <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1.</p> <p>authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.”</p> <p>Jahn II at 3.</p>

Claim	Jahn II
	<div> <p style="text-align: center;">Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1; Jahn II at 3 (“The architecture and its components are conceptually depicted in Figure 1.”).</p> <p>The network concept is called mobile since the access network of the subscribers itself is on the move, and the topology with respect to the fixed service provider will change (coverage by different satellites, ground earth stations). The SI is in charge of handling this kind of mobility to provide a seamless transparent connection between cabin and service provider.</p> <p>Jahn II at 7.</p> <p>The concept of the CMHN requires also new approaches for authentication, admission and accounting (AAA), and for mobility and VPN support. The different providers in the</p>

Claim	Jahn II
	<p>network scenario must be considered: the satellite segment providers, the terrestrial network carriers for interconnection between aircom service provider and satellite ground earth station, the terrestrial backbone or PSTN networks, the airline as reseller, and the aircom service provider itself.</p> <p>Jahn II at 7-8.</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Jahn II, Airpath Wireless Hot Spot, Bruner, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Airpath Wireless Hot Spot, Bruner, Mody, MTN Cruise Ship Internet Services, Seo and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Airpath Wireless Hot Spot, Bruner, Mody, MTN Cruise Ship Internet Services, Seo or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

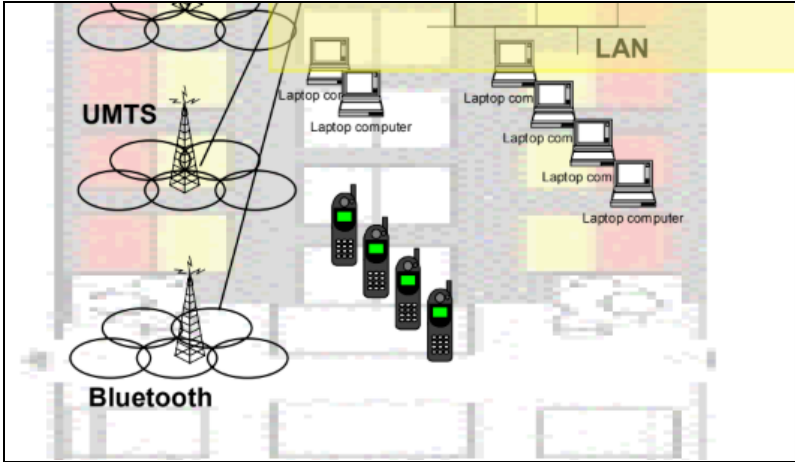
Claim	Jahn II
	<div><div><div><div><div><div>INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</div></div></div><div><div><div><div>Powered By Airpath</div></div><div><div><div>Airpath Exclusive ISG-1000 Subscriber Gateway</div><div><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</div><div><div>More Details</div><div>Price/Order</div></div></div></div></div></div></div><div><p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; <i>see also</i> https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm.</p><p>The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat.</p><p>Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p><p>One or more embodiments of the invention are directed to a Converged</p></div></div></div>

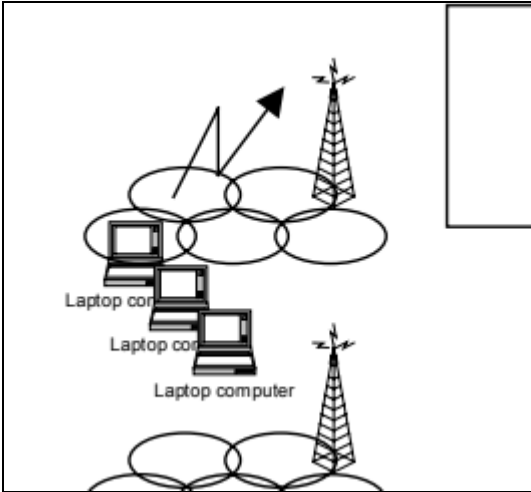
Claim	Jahn II
	<p>Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] (“The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client.”), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices ($18_1, 18_2, \dots 18_n$) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information</p>

Claim	Jahn II
	<p>directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p> <div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. <i>See also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443</p>

Claim	Jahn II
	<p> m?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm. </p> <p> A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d. </p> <p> The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063]. </p> <p> It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and </p>

Claim	Jahn II
	Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).
[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;	<p>Jahn II discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i></p> <p>Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. In this paper also wireless access methods such as W-LAN for data connections to laptops and UMTS for personal telephony are suggested.</p> <p>Jahn II at Abstract.</p> <p>Such developments can be brought about by the use of the latest in communications technologies. Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services</p>

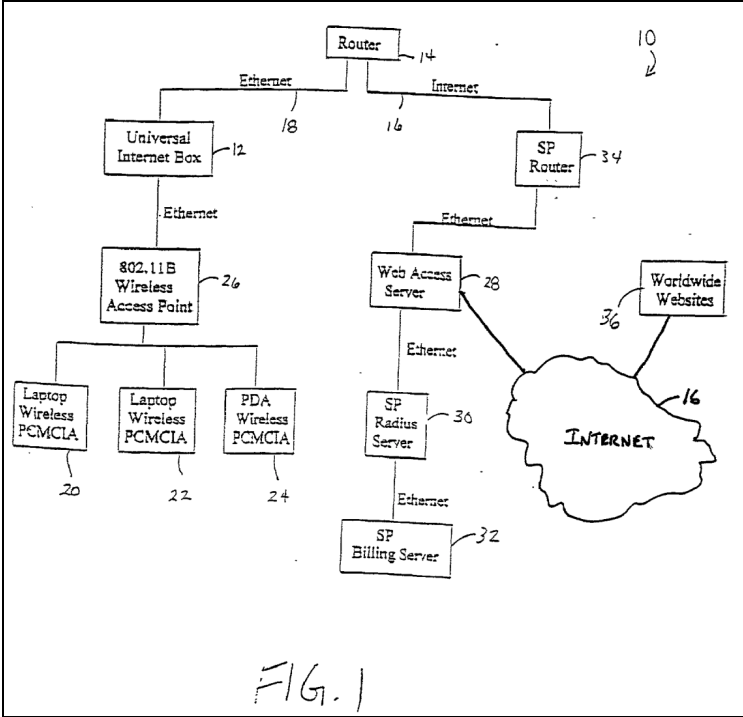
Claim	Jahn II
	<p>will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2.</p>  <p>The diagram illustrates a network architecture within a cabin. On the left, two radio towers are shown with overlapping signal circles. The top tower is labeled 'UMTS' and the bottom one 'Bluetooth'. Lines connect these towers to various devices in the cabin. In the center, there are several mobile phones. To the right, there are several laptop computers, some of which are labeled 'Laptop computer'. A yellow rectangular area at the top right is labeled 'LAN'. The entire scene is set within a cabin environment with rows of seats visible in the background.</p> <p>Jahn II at 2, FIG. 1 (excerpt).</p>

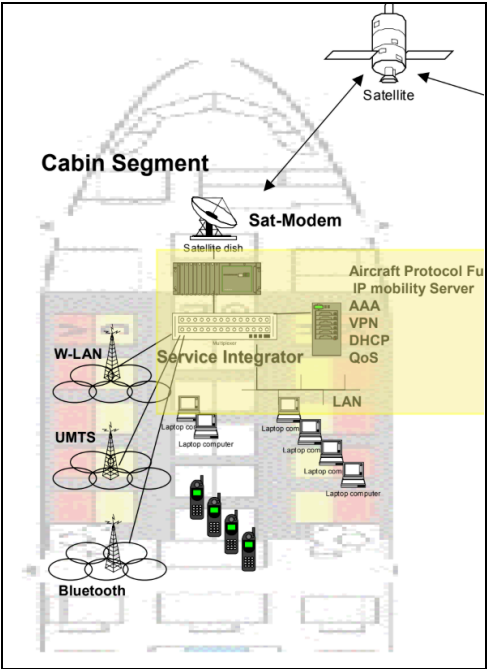
Claim	Jahn II
	 <p>Jahn II at 3, FIG. 2 (excerpt).</p>

Claim	Jahn II
	<div> <p style="text-align: center;">Figure 5: Mobility Concept</p> </div> <p>Jahn II at 6, FIG. 5.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Suwanateep, and Wu. Jahn II, Bruner, Connexion by Boeing, Suwanateep, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Bruner, Connexion by Boeing, Suwanateep and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Bruner, Connexion by Boeing, Suwanateep or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Jahn II
	<p>The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Find out about our In-Flight Portal</p> <div style="float: left; margin-right: 10px;">  </div> <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Ln av=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2;</p>

Claim	Jahn II
	<p>https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4</p> <p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>

Claim	Jahn II
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>Jahn II discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p> <p>The network concept is called mobile since the access network of the subscribers itself is</p>

Claim	Jahn II
	<p>on the move, and the topology with respect to the fixed service provider will change (coverage by different satellites, ground earth stations). The SI is in charge of handling this kind of mobility to provide a seamless transparent connection between cabin and service provider.</p> <p>Jahn II at 7.</p>  <p>Jahn II at 2, FIG. 1 (excerpt).</p>

Claim	Jahn II
	<div> <p>The diagram illustrates a mobility concept for in-flight services. On the left, a 'Cabin Segment' contains two laptops and a mobile phone. The mobile phone is connected to 'IP over UMTS' and 'Integrated Services'. These services are managed by a 'Service Integrator'. This integrator connects via 'Sat / terrest. tunnel' to a 'Service provider' and another 'Service Integrator'. The 'Service provider' is connected to an 'ISP LAN' cloud, which contains an 'ER' (Edge Router), 'Firewall VPN', and 'ISP HA' (ISP Home Agent). A dashed blue line connects a laptop in the cabin to a 'Company HA' (Home Agent) located within a 'Passenger's Company Intranet'. The 'Cabin Segment' also connects via 'Bluetooth UMTS AL' to a 'UMTS Core' network, which includes an 'RNC' (Radio Network Controller), 'SGSN' (Serving GPRS Support Node), 'GGSN' (Gateway GPRS Support Node), 'MSC' (Mobile Switching Center), and 'GMSC' (Gateway MSC). A dashed red line indicates a connection path from the mobile phone through the UMTS Core to the Service Integrator.</p> </div> <p>Figure 5: Mobility Concept</p> <p>Jahn II at 6, FIG. 5.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2.</p>

Claim	Jahn II
	<div> <p>The diagram illustrates a network architecture for an aircraft, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Contains a Sat-Modem (with a satellite dish), W-LAN, UMTS, Bluetooth, and several Laptop computers connected via a LAN. Space Segment: Consists of a Satellite in orbit. Ground Segment: Includes a Satellite dish and a Terrestrial telecom router. Aircom Provider Segment: Features a Service Integrator (yellow box) and a UMTS Core (blue box). The Service Integrator handles Aircraft Protocol Functions, IP mobility Server, AAA, VPN, DHCP, and QoS. It connects to the UMTS Core via UMTS IF and Bluetooth IF. The UMTS Core includes RNC, SGSN, GGSN, MSC, and GMSC. External connections include AAA, Billing, Mobility ISP server, VPN, mobility support, QoS support (cloud), Passenger's Company Intranet (cloud), IP Backbone (cloud), and PSTN UMTS GSM (cloud). <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1.</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II</p>

Claim	Jahn II
	<p>further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, MTN Cruise Ship Internet Services, and Wu. Jahn II, Agarwal, Bruner, Connexion by Boeing, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p style="padding-left: 40px;">Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p style="padding-left: 40px;">FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the</p>

Claim	Jahn II
	<p>system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p>

Claim	Jahn II
	<div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at FIG. 2, 2-3.</p> <div> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at</p>

Claim	Jahn II
	<p> https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003). </p> <p> The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like. </p> <p> Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041]. </p>
<p>[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.</p>	<p> Jahn II discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.</i>, </p> <p> authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.” </p> <p> Jahn II at 3. </p>

Claim	Jahn II
	<div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into three main segments: Space, Cabin Segment, and Aircom. <ul style="list-style-type: none"> Space Segment: Contains a Satellite in orbit, which communicates with a Sat-Modem on the aircraft. Cabin Segment: Contains a Service Integrator, which is connected to a LAN. The Service Integrator also interfaces with W-LAN, UMTS, and Bluetooth networks. It is linked to a yellow-shaded box representing 'Aircraft Protocol Functions' which includes an IP mobility Server, AAA, VPN, DHCP, and QoS modules. Aircom Segment: Contains a UMTS IF (Interface) and an RNC (Radio Network Controller). The UMTS IF connects to the Service Integrator in the Cabin Segment. Various devices are shown within the cabin, including laptop computers and mobile phones, all connected to the network infrastructure.</p> </div> <p>Figure 1: Network A</p> <p>Jahn II at FIG. 1 (excerpt).</p> <p>The concept of the CMHN requires also new approaches for authentication, admission and accounting (AAA), and for mobility and VPN support. The different providers in the network scenario must be considered: the satellite segment providers, the terrestrial network carriers for interconnection between aircom service provider and satellite ground earth station, the terrestrial backbone or PSTN networks, the airline as reseller, and the aircom service provider itself. The latter will act as mobile network provider for UMTS. The airlines as service reseller to the passengers may wish to have different tariffs and pricing scenarios, such as volume-based pricing, time-based pricing, flat rates for business</p>

Claim	Jahn II
	<p>travellers, or even service charge included in the ticket prices, or service dependent pricing (UMTS, W-LAN). Thus, a manifold of accounting methods should be supported. While UMTS offers already most accounting methods inside the UMTS core network, IP based accounting methods must be developed in this project, coping with the CMHN concept. Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8.</p> <div> <p>The diagram illustrates a mobility concept architecture. On the left, a 'Cabin Segment' contains two laptops and a mobile phone. The laptops are connected to an 'IP' block, which is connected to an 'Integrated Services' block. The mobile phone is connected to an 'IP over UMTS' block. Both the 'Integrated Services' and 'IP over UMTS' blocks are connected to a 'Service Integrator' block. The 'Service Integrator' is connected to a 'Service provider' block via a 'Sat / terrestr. tunnel'. The 'Service provider' block is connected to an 'ISP LAN' cloud. The 'ISP LAN' cloud is connected to an 'ISP HA' block, which is connected to an 'ER' block. The 'ER' block is connected to a 'Firewall VPN' block, which is connected to a 'Passenger's Company Intranet' cloud. The 'Passenger's Company Intranet' cloud is connected to a 'Company HA' block. A dashed blue line connects the 'Company HA' block to the 'Cabin Segment'. A dashed green line connects the 'Service Integrator' block to the 'ISP HA' block. A dashed red line connects the 'IP over UMTS' block to the 'RNC' block. The 'RNC' block is connected to the 'UMTS Core' network, which includes 'SGSN', 'GGSN', 'MSC', and 'GMSC' blocks. A 'Bluetooth UMTS AL' block is also connected to the 'RNC' block.</p> <p>Figure 5: Mobility Concept</p> </div> <p>Jahn II at FIG. 5.</p>

Claim	Jahn II
	<p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, and Wu. Jahn II, Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p>

Claim	Jahn II
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 20px;"> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). <p>If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing.</p> <ol style="list-style-type: none"> 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 20px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div>

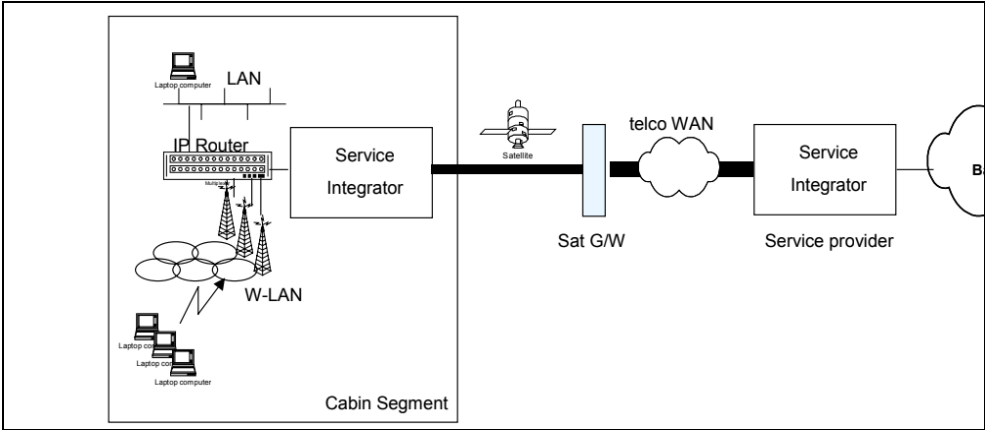
Claim	Jahn II
	<p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance</p>

Claim	Jahn II
	<p>amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>Jahn II discloses “The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn II at 3.</p> <p>Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks.</p> <p>Jahn II at Abstract.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>Jahn II at 3.</p>

Claim	Jahn II
	<div> <p>The diagram, labeled 'a) IP support through fixed cabling or W-LAN', illustrates a network architecture for a 'Cabin Segment'. Inside the cabin segment, there is a 'LAN' with a 'Laptop computer' connected to an 'IP Router'. The 'IP Router' is also connected to a 'W-LAN' which includes three 'Laptop computer' icons. The 'IP Router' is connected to a 'Service Integrator' box. This 'Service Integrator' is connected to a 'Satellite' (represented by a satellite icon) via a 'Sat G/W' (Satellite Gateway). The 'Satellite' is connected to a 'telco WAN' (represented by a cloud icon). The 'telco WAN' is connected to another 'Service Integrator' box, which is labeled 'Service provider'. This second 'Service Integrator' is connected to an 'IP Backbone' (represented by a cloud icon).</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Nelson, and Wu. Jahn II, Agarwal, DeSanctis, Nelson, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Agarwal, DeSanctis, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Agarwal, DeSanctis, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Jahn II
	<div> <p style="text-align: center;">FIG. 1</p> </div> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 3:18-20; 3:38-63.</p> <p>The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p>

Claim	Jahn II
	<p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Jahn II discloses “The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.,</i></p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn II at 2.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service,</p>

Claim	Jahn II
	<p>the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats.</p> <p>Jahn II at 2-3.</p>  <p>The diagram illustrates a network architecture for a 'Cabin Segment'. Inside the Cabin Segment, there is a LAN with a 'Laptop computer' and an 'IP Router'. The IP Router is connected to a 'Service Integrator' box. Below the IP Router, there is a 'W-LAN' section with three overlapping circles representing wireless access points, each connected to a 'Laptop computer'. The 'Service Integrator' box is connected to a 'Sat G/W' (Satellite Gateway) box, which is represented by a satellite icon. This connection is labeled 'telco WAN'. The 'Sat G/W' box is connected to another 'Service Integrator' box, which is labeled 'Service provider'. This second 'Service Integrator' box is connected to a cloud icon labeled 'B'.</p> <p>Jahn II at FIG. 3 (excerpt).</p>

Claim	Jahn II
	<div> <p>Figure 4: Service Integrator: core of the Collectively Mobile Heterogeneous Network</p> </div> <p>Jahn II at FIG. 4.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson, and Wu. Jahn II, Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Jahn II
	<div><div><div><div><div><div>INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</div></div></div><div><div><div>Powered By Airpath</div></div><div><div><div>Airpath Exclusive ISG-1000 Subscriber Gateway</div><div><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</div><div><div>More Details</div><div>Price/Order</div></div></div></div></div></div><div><p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp.</p><p>It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations.</p><p>Bruner at [0008]; <i>see also</i> Bruner at [0011], [0021], Bruner at FIG. 1.</p><div><p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p></div><p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_09</p></div></div></div>

Claim	Jahn II
	<p>1702 NorwegianSun.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network.</p> <p>Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034].</p> <p>Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area.</p> <p>Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058].</p>
<p>[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.</p>	<p>Jahn II discloses “The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.” <i>See, e.g.,</i></p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.”</p> <p>Jahn II at 3.</p>

Claim	Jahn II
	<div> <p>The diagram illustrates a network architecture for an aircraft, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Contains a Sat-Modem connected to a Satellite dish. It also includes W-LAN, UMTS, and Bluetooth networks, along with Laptop computers and a LAN. Space Segment: Features a Satellite in orbit. Ground Segment: Includes a Satellite dish and a Terrestrial telecom router. Aircorn Provider Segment: A central hub containing a Service Integrator and a UMTS Core. The Service Integrator handles Aircraft Protocol Functions, IP mobility Server, AAA, VPN, DHCP, and QoS. It interfaces with UMTS IF, Bluetooth IF, and LAN IF. The UMTS Core includes RNC, SGSN, GGSN, MSC, and GMSC. <p>External connections include a Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM networks.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1.</p>

Claim	Jahn II
	<div> <p>The diagram, labeled 'a) IP support through fixed cabling or W-LAN', illustrates a network architecture for an aircraft cabin. On the left, a box labeled 'Cabin Segment' contains a 'LAN' with a 'Laptop computer' and an 'IP Router'. Below the LAN, a 'W-LAN' section shows multiple 'Laptop computer' icons connected to a central antenna. The 'IP Router' is connected to a 'Service Integrator' box. This 'Service Integrator' is connected to a 'Sat G/W' (Satellite Gateway) represented by a satellite icon. The connection continues through a 'telco WAN' (represented by a cloud) to another 'Service Integrator' box, which is labeled 'Service provider'. Finally, this 'Service provider' is connected to an 'IP Backbone' represented by a cloud.</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>The airlines as service reseller to the passengers may wish to have different tariffs and pricing scenarios, such as volume-based pricing, time-based pricing, flat rates for business travellers, or even service charge included in the ticket prices, or service dependent pricing (UMTS, W-LAN). Thus, a manifold of accounting methods should be supported.</p> <p>Jahn II at 8.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, and Wu. Jahn II, Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II</p>

Claim	Jahn II										
	<p>with those of Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <table><tr><td rowspan="2"></td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr><tr><td rowspan="2"></td><td colspan="2">Colubris Networks® CN-3000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.</p>		Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order		Colubris Networks® CN-3000 Subscriber Gateway		<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order
	Airpath Exclusive ISG-1000 Subscriber Gateway										
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order									
	Colubris Networks® CN-3000 Subscriber Gateway										
	<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order									

Claim	Jahn II
	<div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see generally id.</i></p> <p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1.</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>Jahn II discloses “The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.”</p> <p>Jahn II at 3.</p>

Claim	Jahn II
	<div> <p>The diagram, labeled 'a) IP support through fixed cabling or W-LAN', illustrates a network architecture for an aircraft cabin segment. On the left, a box labeled 'Cabin Segment' contains an 'IP Router' connected to a 'LAN' with a laptop computer and a 'W-LAN' with three laptop computers. The 'IP Router' is connected to a 'Service Integrator' box. This 'Service Integrator' is connected to a 'Sat G/W' (Satellite Gateway) represented by a satellite icon. The 'Sat G/W' is connected to a 'telco WAN' cloud, which is then connected to another 'Service Integrator' box labeled 'Service provider'. Finally, the 'Service provider' is connected to an 'IP Backbone' cloud.</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>This SI module will be responsible for switching data among the wireless access standards that will coexist in the aircraft (UMTS, IEEE 802.11b for W-LAN or Bluetooth).</p> <p>Jahn II at 6.</p> <p>To the extent Jahn II does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Jahn II further renders the limitation obvious in light of other references, such as Clark, Nelson, and Wu. Jahn II, Clark, Nelson, and Wu concern the similar subject matter as Jahn II, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Jahn II with Clark, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Jahn II with those of Clark, Nelson or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Jahn II
	<p>In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would</p>

Claim	Jahn II
	<p>understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>

Exhibit 469-8 to Southwest's Preliminary Invalidity Contentions

U.S. Patent Application No. 2003/0055975 ("Nelson")

U.S. Patent Application No. 2003/0055975 ("Nelson") titled "Aircraft Data Services" was filed by Eric Nelson and Michael O'Meara on June 19, 2001 and published on March 28, 2003. U.S. Patent Application No. 2003/0055975 is prior art to the '469 Patent under at least Pre-AIA 35 U.S.C. §§ 102(a), (e) and (g) as to claims 24, 25, 26, 28, and 32 (the "Asserted Claims") of the '469 Patent.

To the extent Plaintiff alleges Nelson does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Nelson or combine the teachings of Nelson with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Nelson;
- Invalid under 35 U.S.C. § 103 by Nelson and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of U.S. Patent Application No. 2003/0050041 to Wu ("Wu") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Nelson in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Nelson in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Nelson in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

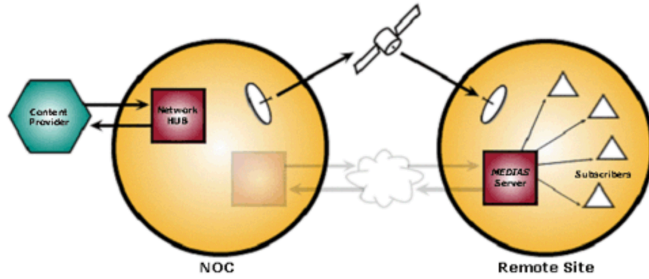
Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

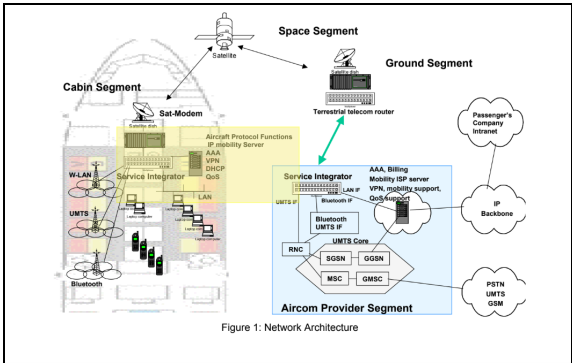
Claim	Nelson
[24] An Internet Hotspot comprising:	<p>To the extent the preamble is limiting, Nelson discloses an Internet Hotspot. <i>See, e.g.,</i></p> <p>The present invention generally relates to wireless data communication services. It particularly relates to air craft data communication Services. Nelson at [0003].</p> <p>Additional features of the present invention include personal data communication services for users and operational data Services for the moving object. Nelson at [0007].</p> <p>The system 100 includes an aircraft data server 110, cabin distribution system (CDS) 150, and bearer services system components 180. The server 110 may be used as the main processor unit that provides programmable control over the routing, scheduling, and use of the system 100. Nelson at [0028].</p> <p>The CDS 150 provides access to the data services provided by the system 100 via the server 110. The CDS may include a plurality of components including a Human Interface Module (HIM) 155, a Passenger Access Server (PAS) or Terminal Server (TS) (not shown), and other components known to those of skill in the art for forming a Cabin Communications System (CCS). Nelson at [0029].</p> <p>Passenger and cabin applications for this broadband satellite service include, but are not limited to, software downloading, flight information updates, Internet browsing, and TV/video delivery. Nelson at [0055].</p>

Claim	Nelson
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>Nelson discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.</i>,</p> <p>An alternative bearer service used by the system can be a satellite communication service. One example can be the INMARSAT DATA 3 services which provides an X.25 service with maximal data throughput (e.g., 10.5 Kbps) and is accessible through the SDU 195. Nelson at [0053].</p> <p>Other alternative bearer services can be used including broadband satellite link services—for example, a DBS system. A suitable digital compression system, for example a Moving Picture Expert Group (MPEG-2) system, can be used to multiplex any digital signals with digitized video signals, including any packet data, on to one, or to a very small number of satellite transponders. Nelson at [0054].</p> <p>The system architecture includes aircraft system 610 having server 615 and CTU 612 for facilitating a communications link to a DBS data center 630, via a DBS Satellite 618, and NATS network 620 interconnected to internet facilities 640 and CPE 650. DBS data center 630 includes router 638, satellite access management system 637, DSS encoder 636, and radio equipment including combiner/uplink 635. The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service. Nelson at [0056].</p> <p>Alternatively, other satellite bearer services can be used to deliver data communication services, for example, LEO/MEO/GEO (low earth orbiting/middle earth orbiting/geosynchronous earth orbiting) satellite systems. Specific commercial examples of suitable LEO/MEO/GEO systems include, but are not limited to Iridium, Globalstar,</p>

Claim	Nelson
	<p>ICO, Odyssey, Millennium, Space, Astrolink, Cyberstar, and Teledesic. Use of these systems enables data service offerings in the exemplary range of 384 Kbps-1.2 Gbps, and allows various data applications including video conferencing, high-quality video, high-speed Internet, and virtual LAN service.</p> <p>Nelson at [0058].</p> <div> <p style="text-align: center;">FIG. 6</p> </div> <p>Nelson at FIG. 6. Nelson at [0015] (“FIG. 6 is a block diagram of an alternative communication system architecture using a satellite network in accordance with an embodiment of the present</p>

Claim	Nelson
	<p>invention.”).</p> <p>FIG. 6 shows a representative example of a data communication system architecture 605 using a LEO/MEO/GEO satellite network. The system architecture 605 includes aircraft 610 having CTU 612 and server 615, with a data communication link to satellite network 685 and ground networks 695 via satellites 680, 690. The ground networks 695 can advantageously include GDG 694, video conference facility 691, VPN (virtual private network) 693, Internet facilities 640, and web server 692. The aircraft 610 acts as one of the ground-based clients receiving and transmitting high speed data via the satellites 680, 690. The system 605 is a two-way system which alleviates the need to use the NATS network for a return path, and allows the server 615 to treat the satellite link as just another two-way bearer service by using the satellite broadband network 685 to interconnect the aircraft 610 and the ground networks 695 via a mobile terminal (MT) (not shown) connecting to the GDG 694.</p> <p>Nelson at [0059].</p> <p>The aircraft 610 includes a satellite transceiver unit capable of transmitting and receiving data using any particular satellite network, and having the capability of handling either ATM or frame relay protocol such that a SVC or PVC can be established between the aircraft transceiver box and ground networks 695.</p> <p>Nelson at [0061].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, and Jahn II. Nelson, Airpath Wireless Hot Spot, Agarwal, Bruner, and Jahn II concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices.</p>

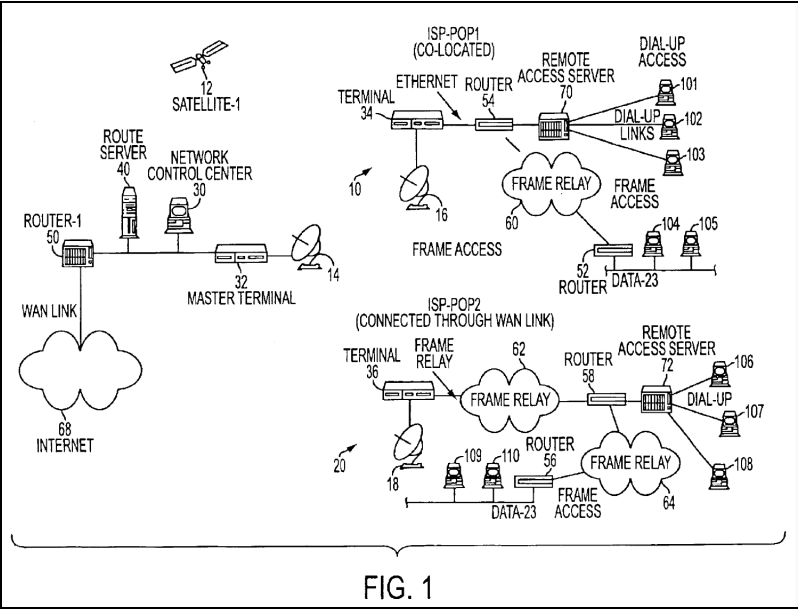
Claim	Nelson
	<p>Modifying Nelson with Airpath Wireless Hot Spot, Agarwal, Bruner, and/or Jahn II would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Airpath Wireless Hot Spot, Agarwal, Bruner, or Jahn II, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/_soln/soln2.html; see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/_abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/_soln/soln0.html;</p>

Claim	Nelson
	<p> https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/soln/soln0.html. </p> <p> Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites. </p> <p> Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63. </p> <p> For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications. </p> <p> Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080]. </p> <div>  <p>The diagram illustrates a network architecture for an aircraft. It is divided into four main segments: Cabin Segment, Space Segment, Ground Segment, and Aircom Provider Segment. The Cabin Segment shows an aircraft with various communication systems: W-LAN, LAN, UMTS, Bluetooth, and a Sat-Modem. The Space Segment shows a satellite. The Ground Segment shows a Terrestrial telecom router. The Aircom Provider Segment shows a Service Integrator, AAA, Billing, Mobility MIP server, VPN, mobility support, QoS support, UMTS Core, RNC, SGSN, GGSN, MSC, and GMSC. The diagram also shows connections to external networks: Passenger's Company network, IP Backbone, and PSTN/UMTS/GSM.</p> <p>Figure 1: Network Architecture</p> </div> <p> Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4. </p>

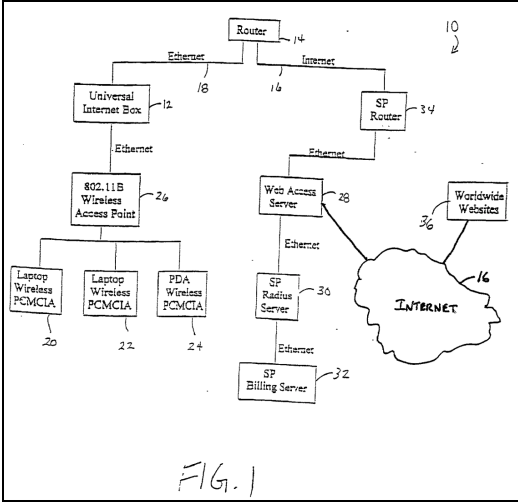
Claim	Nelson
<p>[24.b] at least one router operatively coupled to the satellite dish;</p>	<p>Nelson discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.,</i></p> <div> <p>The diagram, labeled FIG. 6, illustrates a data communication system architecture 605. A central ground station 610, labeled CTU, contains an ADS Data Server with protocols TCP, IP, PPP, and Ethernet, and a ST/CCU interface. The ground station 610 is connected via LEO Satellites 680 and 690 to a Satellite Network 685. The ground station 610 is also connected to a local network 695, which includes a Web Server 698, a VPN 693, and an Internet 640. A satellite dish 694 is shown receiving signals from the LEO Satellites.</p> </div> <p>FIG. 6</p> <p>Nelson at FIG. 6; Nelson at [0015] (“FIG. 6 is a block diagram of an alternative communication system architecture using a satellite network in accordance with an embodiment of the present invention.”).</p> <p>FIG. 6 shows a representative example of a data communication system architecture 605 using a LEO/MEO/GEO satellite network. The system architecture 605 includes aircraft</p>

Claim	Nelson
	<p>610 having CTU 612 and server 615, with a data communication link to satellite network 685 and ground networks 695 via satellites 680, 690. The ground networks 695 can advantageously include GDG 694, video conference facility 691, VPN (virtual private network) 693, Internet facilities 640, and web server 692. The aircraft 610 acts as one of the ground-based clients receiving and transmitting high speed data via the satellites 680, 690. The system 605 is a two-way system which alleviates the need to use the NATS network for a return path, and allows the server 615 to treat the satellite link as just another two-way bearer service by using the satellite broadband network 685 to interconnect the aircraft 610 and the ground networks 695 via a mobile terminal (MT) (not shown) connecting to the GDG 694.</p> <p>Nelson at [0059].</p> <p>The satellite network 685 can perform necessary routing and handoff procedures to establish and maintain connectivity between the aircraft 610 and ground networks 695. Additionally, the satellite network 685 can serve as a network cloud providing connectivity between any pair of clients (e.g., aircraft 610 and ground networks 695) preferably using SVCs or PVCs.</p> <p>Nelson at [0060].</p> <p>The aircraft 610 includes a satellite transceiver unit capable of transmitting and receiving data using any particular satellite network, and having the capability of handling either ATM or frame relay protocol such that a SVC or PVC can be established between the aircraft transceiver box and ground networks 695. Using this setup, IP packets can be encapsulated by these lower layer protocols to enable a transparent conduit for IP packets to travel from the aircraft to the desired ground networks 695.</p> <p>Nelson at [0061].</p> <p>For basic network access services (such as Internet access), the data communication</p>

Claim	Nelson
	<p>server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, Seo, and Wu. Nelson, Agarwal, DeSanctis, Jahn II, Seo, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Agarwal, DeSanctis, Jahn II, Seo, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Agarwal, DeSanctis, Jahn II, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Nelson
	 <p style="text-align: center;">FIG. 1</p> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

Claim	Nelson
	<div> </div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	Nelson
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the</p>	<p>Nelson discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.</i>,</p> <p>The CDS 150 provides access to the data services provided by the system 100 via the server 110. The CDS may include a plurality of components including a Human Interface</p>

Claim	Nelson
Internet; and	<p>Module (HIM) 155, a Passenger Access Server (PAS) or Terminal Server (TS) (not shown), and other components known to those of skill in the art for forming a Cabin Communications System (CCS). Nelson at [0029].</p> <p>The system 148 allows a user (passenger) to access internet service, either via an on-board internet Service or using the Server as a proxy to access the rest of the Internet. At least two types of access are available depending on the configuration of the user's access device (e.g., laptop). For all access Scenarios, the connection to the Server 110 via the TS function will be over a CTU-Switched ISDN B-Channel. Advantageously, the user's access device can be equipped with a PCMCIA V-Series modem allowing connection to an RJ-11 jack on the handset, and the handset can be connected to the CTU 152 via the CDS network. For this configuration, a modem pool, as part of the TS function, can peer with the laptop modem, and the link layer protocol is PPP so that proper authentication (for billing purposes) and dynamic IP address assignment can be achieved. Nelson at [0063].</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p>

Claim	Nelson								
	<p>Nelson at [0107].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Nelson, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div><table><tr><th colspan="3">INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</th></tr><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table></div> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp;</p>	INSTANT HOT SPOT tm /HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT			 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order
INSTANT HOT SPOT tm /HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT									
 	Airpath Exclusive ISG-1000 Subscriber Gateway								
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order							

Claim	Nelson
	<p> https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; <i>see also</i> https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm. </p> <p> The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. </p> <p> Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080]. </p> <p> It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. </p> <p> Jahn II at 8; <i>id.</i> at 2-3, 7. </p> <p> One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these </p>

Claim	Nelson
	<p>two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] (“The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client.”), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices ($18_1, 18_2, \dots 18_n$) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated</p>

Claim	Nelson
	<p>client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. <i>See also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p>

Claim	Nelson
	<p>A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features.</p> <p>Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
[24.d] a web-ready device operatively coupled to the at least one router, the	Nelson discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i>

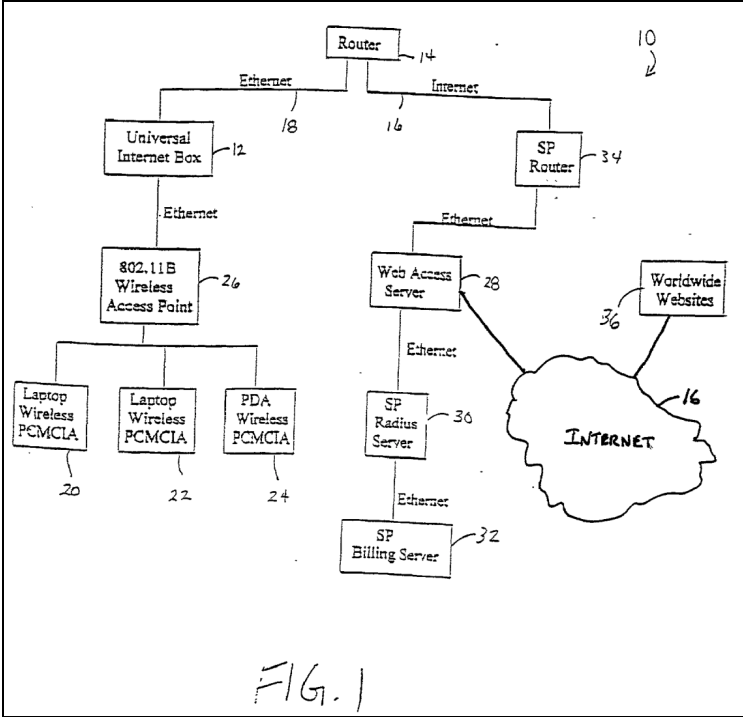
Claim	Nelson
<p>web-read device having a browser application operating thereon for accessing the Internet;</p>	<div> <p>FIG. 1</p> </div> <p>Nelson at FIG. 1.</p> <p>FIG. 1 illustrates a representative data communication system architecture 100 in accordance with embodiments of the present invention. The system 100 includes an aircraft data server 110, cabin distribution system (CDS) 150, and bearer services system components 180. The server 110 may be used as the main processor unit that provides programmable control over the routing, scheduling, and use of the system 100.</p> <p>Nelson at [0028].</p>

Claim	Nelson
	<p>The HIMs 155 may be laptop computers with applications for logging data and interfacing with the server for data transfers. The PAS/TS, which may advantageously be a part of the server 110 or an external device, can provide dial-up connectivity to the passenger seats for data service access.</p> <p>Nelson at [0029].</p> <p>The bearer services system components 180 can provide the server 110 with the data connectivity to a plurality of ground-based servers. The bearer services system components 180 may include a plurality of components including an Airborne Communications Unit (ACU) 205, a Wireless Gate-link system (WGS) 182, a Satellite Data Unit (SDU) 195, and a Terrestrial Flight Telephone system (TFTS) 200. The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Although the present invention is described with reference to the NATS network, the NATS network is solely exemplary and alternative communication networks may be used for providing air-to-ground data communication services.</p> <p>Nelson at [0030].</p> <p>The Human Interface Modules (HIMs) 155 can be laptop PCs, for example, used by crew and operational personnel as the gateway to the system applications via a standard graphical user interface (GUI). HIMs 155 can be housed, for example, in an adapter shell that allows connection to a common docking station, the adapter shell providing the interface between the HIM 155 and the docking station and equipped with an Ethernet interface to connect to the server 110.</p> <p>Nelson at [0043].</p>

Claim	Nelson
	<p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu. Nelson, Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Bruner, Connexion by Boeing, Jahn II, Suwanateep and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Bruner, Connexion by Boeing, Jahn II, Suwanateep or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p>

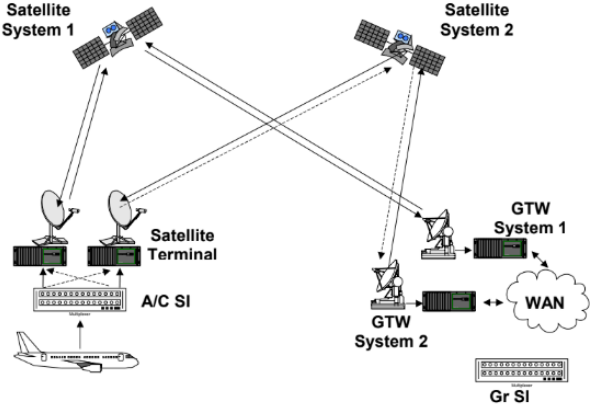
Claim	Nelson
	<div style="border: 1px solid black; padding: 10px;"> <p>Find out about our In-Flight Portal</p> <div>  </div> <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Ln av=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p>

Claim	Nelson
	<p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>

Claim	Nelson
	 <p style="text-align: center;">FIG. 1</p> <p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>Nelson discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p>

Claim	Nelson
	<p>Nelson at [0028].</p> <p>The CDS 150 provides access to the data services provided by the system 100 via the server 110. The CDS may include a plurality of components including a Human Interface Module (HIM) 155, a Passenger Access Server (PAS) or Terminal Server (TS) (not shown), and other components known to those of skill in the art for forming a Cabin Communications System (CCS). The HIMs 155 may be laptop computers with applications for logging data and interfacing with the server for data transfers. The PAS/TS, which may advantageously be a part of the server 110 or an external device, can provide dial-up connectivity to the passenger seats for data service access.</p> <p>Nelson at [0029].</p> <p>As such, the method and apparatus described herein may be equally applied to any bearer service providing data communication services from any moving object.</p> <p>Nelson at [0110].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, and Wu. Nelson, Agarwal, Bruner, Connexion by Boeing, Jahn II, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN</p>

Claim	Nelson
	<p>Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p>Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p>

Claim	Nelson
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; see also Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">  <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; see also DeSanctis at FIG. 2, 2-3.</p>

Claim	Nelson
	<p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p> <div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_09</p>

Claim	Nelson
	<p> 1702 NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003). </p> <p style="padding-left: 40px;"> The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like. </p> <p> Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041]. </p>
[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.	Nelson discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.</i> ,

Claim	Nelson
	<div> <p>The diagram, labeled 1300, illustrates a network security architecture. At the center is a cloud-like shape labeled 'ADS IP Network' with the handwritten number '1315' below it. Surrounding this central network are several access nodes. On the left, there are three 'ADS Dial Access Nodes' (represented by small black dots) connected to the central network. On the right, there are two 'ADS Dial Access Nodes' and one 'ADS Dedicated Access Node' (represented by a small circle). A 'Public Network Access Node' (represented by a small circle) is also connected to the central network. A 'GDG' (represented by a rectangle) is connected to the central network and has a handwritten label '1320' next to it. The entire system is labeled with the handwritten number '1300' at the top.</p> </div> <p>Nelson at FIG. 17.</p> <p>Network security is an important feature of the data communication server. As shown in FIG. 17, the system security architecture 1300 may include a plurality of access nodes 1305 interconnected to a plurality of data communication servers 1310, and a public or private security network 1315. Advantageously, the network may include GDG 1320. An exemplary security configuration can include a perimeter-based security architecture having filtering performed at the borders and more complex filtering performed at internal checkpoints, and including proper address assignment and packet/route filtering.</p> <p>Nelson at [0105].</p> <p>Advantageously, addresses can be separated into two blocks of addresses for subscribers</p>

Claim	Nelson
	<p>(customers) and new users, including a public address block for the customers and a private address block for the new users. Route filtering and packet filtering can be provided to protect the network from bogus entry and address-spoofing.</p> <p>Nelson at [0106].</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, and Wu. Nelson, Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Bruner, Jahn II, Connexion by Boeing, MTN</p>

Claim	Nelson
	<p>Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p>

Claim	Nelson
	<div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9.</p> <p>Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p>

Claim	Nelson
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037],</p>

<p>Claim</p>	<p>Nelson</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>[0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p> <p>Nelson discloses “The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p> <p>FIG. 1</p>
	<p>Nelson at FIG. 1.</p>

Claim	Nelson
	<p>FIG. 1 illustrates a representative data communication system architecture 100 in accordance with embodiments of the present invention. The system 100 includes an aircraft data server 110, cabin distribution system (CDS) 150, and bearer services system components 180. The server 110 may be used as the main processor unit that provides programmable control over the routing, scheduling, and use of the system 100.</p> <p>Nelson at [0028].</p> <p>The server 110 may include a plurality of interface units for interconnecting to various data networks. These interface units may comprise a plurality of discrete I/O boards or a single integrated board. Alternatively, the server 110 may include commercial off-the-shelf (COTS) network cards to provide data communications services for the system 100.</p> <p>Nelson at [0034].</p> <p>The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035].</p> <p>The Human Interface Modules (HIMs) 155 can be laptop PCs, for example, used by crew and operational personnel as the gateway to the system applications via a standard graphical user interface (GUI). HIMs 155 can be housed, for example, in an adapter shell</p>

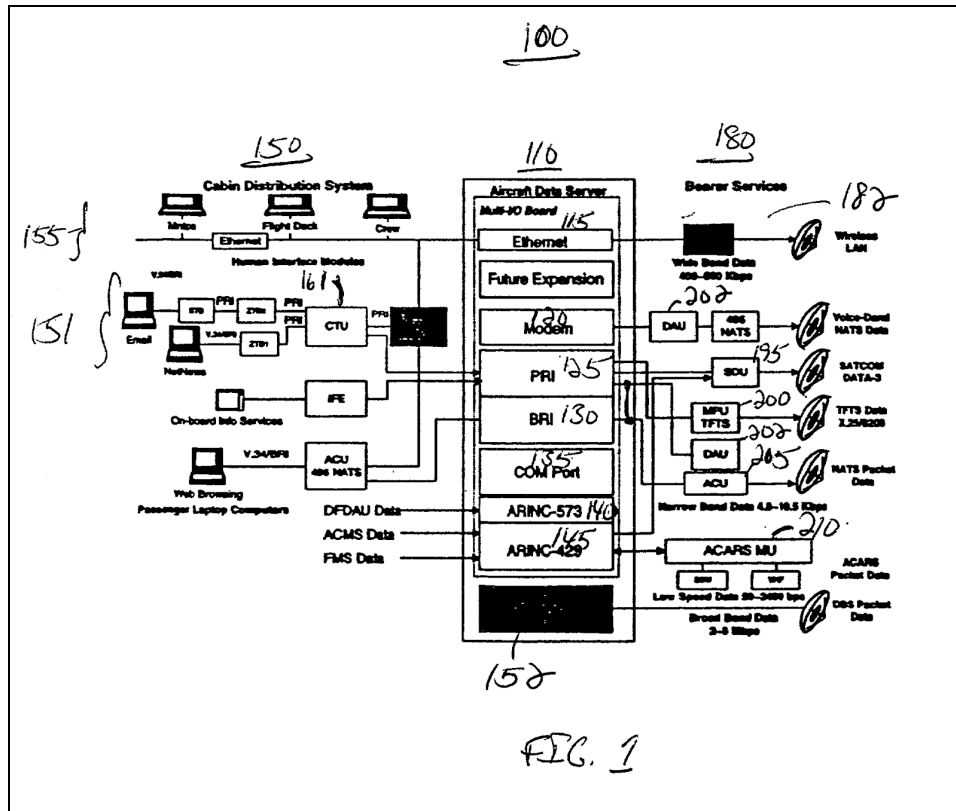
Claim	Nelson
	<p>that allows connection to a common docking station, the adapter shell providing the interface between the HIM 155 and the docking station and equipped with an Ethernet interface to connect to the server 110.</p> <p>Nelson at [0043].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, and Wu. Nelson, Agarwal, DeSanctis, Jahn II, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Agarwal, DeSanctis, Jahn II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Agarwal, DeSanctis, Jahn II, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Nelson
	<p>external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p> <p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Nelson discloses “The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.,</i></p>

Claim	Nelson
	<p>Nelson at [0028].</p> <p>System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network.</p> <p>Nelson at [0032].</p> <p>The server 110 may include a plurality of interface units for interconnecting to various data networks. These interface units may comprise a plurality of discrete I/O boards or a single integrated board. Alternatively, the server 110 may include commercial off-the-shelf (COTS) network cards to provide data communications services for the system 100.</p> <p>Nelson at [0034].</p>
<p>[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.</p>	<p>Nelson discloses “The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.” <i>See, e.g.,</i></p>

Claim

Nelson



Nelson at FIG. 1.

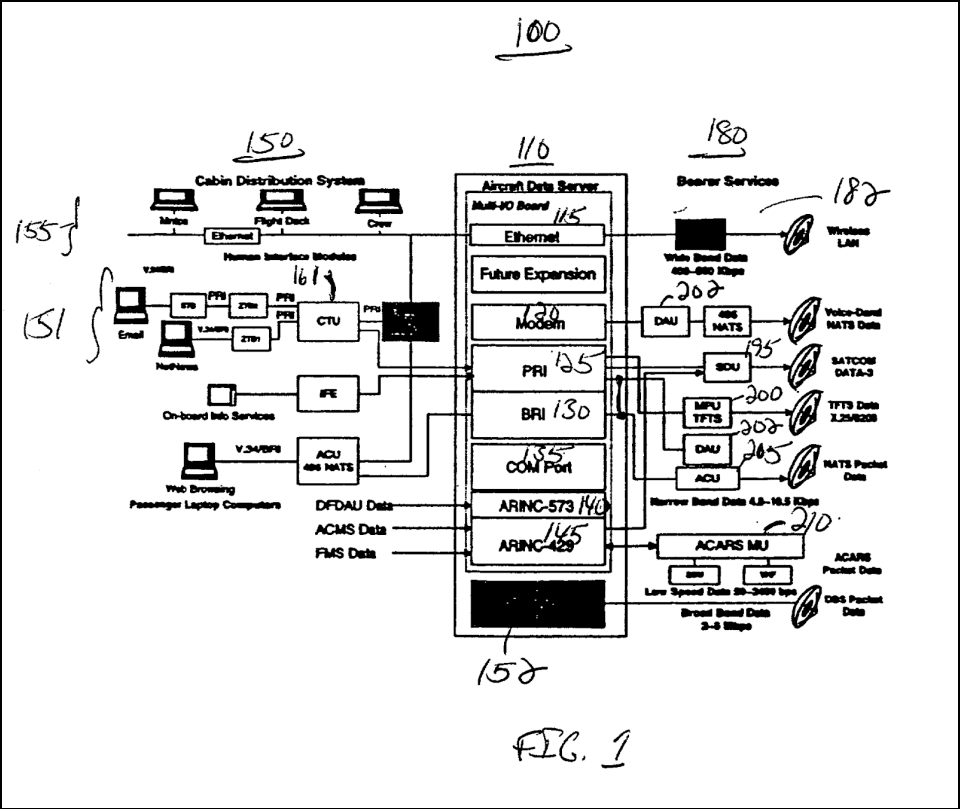
FIG. 1 illustrates a representative data communication system architecture 100 in accordance with embodiments of the present invention. The system 100 includes an aircraft data server 110, cabin distribution system (CDS) 150, and bearer services system components 180. The server 110 may be used as the main processor unit that provides programmable control over the routing, scheduling, and use of the system 100.

Nelson at [0028].

Claim	Nelson
	<div> <p style="text-align: center;">FIG. 6</p> </div> <p>Nelson at FIG. 6. Nelson at [0015] (“FIG. 6 is a block diagram of an alternative communication system architecture using a satellite network in accordance with an embodiment of the present invention.”).</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Airpath Wireless Hot</p>

Claim	Nelson										
	<p>Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu. Nelson, Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <table><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr><tr><td rowspan="2"> </td><td colspan="2"> CN-3000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/ne</p>	 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order	 	 CN-3000 Subscriber Gateway		<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order
 	Airpath Exclusive ISG-1000 Subscriber Gateway										
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order									
 	 CN-3000 Subscriber Gateway										
	<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order									

Claim	Nelson
	<p> ws0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp. </p> <p> When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. </p> <p> Jahn II at 2-3, FIGs. 3-4. </p> <div style="border: 1px solid black; padding: 5px;"> <p> MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun. </p> </div> <p> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see generally id.</i> </p> <p> The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. </p> <p> Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1. </p>

Claim	Nelson
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>Nelson discloses “The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p>  <p>FIG. 1</p> <p>Nelson at FIG. 1.</p> <p>FIG. 1 illustrates a representative data communication system architecture 100 in accordance with embodiments of the present invention. The system 100 includes an aircraft data server 110, cabin distribution system (CDS) 150, and bearer services system</p>

Claim	Nelson
	<p>components 180. The server 110 may be used as the main processor unit that provides programmable control over the routing, scheduling, and use of the system 100. Nelson at [0028].</p> <p>The bearer services system components 180 can provide the server 110 with the data connectivity to a plurality of ground-based servers. The bearer services system components 180 may include a plurality of components including an Airborne Communications Unit (ACU) 205, a Wireless Gate-link system (WGS) 182, a Satellite Data Unit (SDU) 195, and a Terrestrial Flight Telephone system (TFTS) 200. The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Although the present invention is described with reference to the NATS network, the NATS network is solely exemplary and alternative communication networks may be used for providing air-to-ground data communication services. Nelson at [0030].</p> <p>As such, the method and apparatus described herein may be equally applied to any bearer service providing data communication services from any moving object. Nelson at [0110].</p> <p>To the extent Nelson does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Nelson further renders the limitation obvious in light of other references, such as Clark, Jahn II, and Wu. Nelson, Clark, Jahn II, and Wu concern the similar subject matter as Nelson, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Nelson with Clark, Jahn II and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded</p>

Claim	Nelson
	<p>predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Nelson with those of Clark, Jahn II or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p>

Claim	Nelson
	<p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>

Exhibit 469-9 to Southwest's Preliminary Invalidity Contentions

Maritime Telecommunications Network (MTN) Cruise Ship Internet Services

Maritime Telecommunications Network (MTN) Cruise Ship Internet Services was known in this country, used in public, sold or offered for sale no later than June 2003, as demonstrated by at least the materials cited herein or the testimony of knowledgeable witnesses and corroborating documents.¹ Specifically, based on information currently available, MTN Cruise Ship Internet Services was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) in public use or on sale in this country more than one year before the filing date of the patent, or (3) invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim. Thus, MTN Cruise Ship Internet Services anticipates the asserted claims under at least 35 U.S.C. §§ 102(a) and (g).

At least the following documents describe the relevant functionality disclosed by MTN Cruise Ship Internet Services:

- “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003);
- Ellison, Carol, “Unwire Everywhere,” PC MAGAZINE (Special Wireless Issue 2003), *available at* https://books.google.co.jp/books?id=zW2x_V_Ye78C (“Ellison”);
- *Local Area and Storage Area Networks Newsletter*, vol. 20 no. 10, (Oct. 2002), *available at* https://www.google.com/books/edition/Local_Area_Networks/bX5XSeuIHnC?hl=en&gbpv=1&kptab=overview;
- https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm;
- <https://web.archive.org/web/20030411093728/http://www.digitalseas.com/cgi-bin/index.cfm?section=dsi>;
- https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm;
- https://web.archive.org/web/20030424055255/http://www.mtnsat.com/press/2002/pressrelease_102102_geek_cruise.htm;
- https://web.archive.org/web/20030309045241/http://www.mtnsat.com/press/2002/pressrelease_100202_semesteratseaprogram.htm;
- https://web.archive.org/web/20021210104934/http://www.mtnsat.com/cruiseline_industry.htm;
- https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm;

¹ Defendant’s invalidity charts, in some instances, rely at least in part on Plaintiff’s apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant’s understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff’s infringement contentions, or information obtained during discovery as the case proceeds.

- https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm;
- https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm;
- <https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm>;
- https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm;
- <https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805>;
- <https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443>;
- https://web.archive.org/web/20030406144931/http://www.pctel.com/pctel_solution.php; and
- <https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm>.

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in MTN Cruise Ship Internet Services include at least persons involved in the MTN Cruise Ship Internet Services and their testing and commercial use, including at least MTN Satellite Communications (MTN), formerly known as Maritime Telecommunications Network, PCTEL, Inc., Digital Seas International (DSI), Norwegian Cruise Line (NCL), Semester at Sea (SaS), and other cruise line customers of MTN. The conception of MTN Cruise Ship Internet Services occurred at least as early as 2002.

Southwest offers this invalidity chart based on its current understanding of MTN Cruise Ship Internet Services. Southwest's investigation of this system is ongoing. Southwest may rely on materials produced by Plaintiffs or by third parties regarding MTN Cruise Ship Internet Services and related software to demonstrate invalidity of the asserted claims. Southwest has not had an opportunity to review source code for MTN Cruise Ship Internet Services. Southwest may rely on source code, when available, implementing the functionality described herein, or other source code implementing substantially similar functionality, to demonstrate the invalidity of the asserted claims.

To the extent Plaintiff alleges MTN Cruise Ship Internet Services does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify MTN Cruise Ship Internet Services or combine the teachings of MTN Cruise Ship Internet Services with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by MTN Cruise Ship Internet Services;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent No. 6,445,777 to Clark (“Clark”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. (“Kalavade”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent Application No. 2007/0008937 to Mody et al. (“Mody”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. (“Nelson”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent Application No. 2004/0109449 to Seo (“Seo”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of U.S. Patent Application No. 2003/0050041 to Wu (“Wu”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by MTN Cruise Ship Internet Services in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a

work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

Claim	MTN Cruise Ship Internet Services
[24] An Internet Hotspot comprising:	<p>To the extent the preamble is limiting, MTN Cruise Ship Internet Services discloses an Internet Hotspot. <i>See, e.g.,</i></p> <div> <p>Passengers watching the land recede into the distance beyond the ship’s wake can be increasingly confident of staying in touch — using their laptops connected to the ship’s LAN and satellite communications network. The use of C-Band, the growing use of Ku-Band and new shipboard installations of Wi Fi wireless Internet capabilities are steadily improving cruise ships’ communications infrastructure. Supplying the evolving communications infrastructure needs of the cruise industry are two high-tech suppliers. Maritime Telecommunications Network (MTN) is headquartered in Miramar, Florida.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>Wi Fi</p> <p>For the cruise industry, Wi Fi wireless and the associated “hotspots” offer the latest growth potential and technical challenges for expanding passengers’ use of Internet satellite communication to stay in touch with their homes and businesses. As on land, hotspots are rather specific areas on a ship such as a lounge and are connected by hard-wired coaxial cables to the ship’s satellite communications hardware and the antenna for transmission to a satellite. Passengers’ laptops can be made compatible to the hotspot with a wireless notebook card and within the hotspot almost any number of laptops can be connected to the wireless system.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p> <div> <p>Wireless Networks</p> <p>MTN is the leader in integrating wireless applications by creating WiFi “hot spots” throughout a vessel using the 802.11b standard, establishing a true wireless network.</p> </div> <p>https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>LAND AND SEA</p> <p>Satellites aren't servicing only planes; they're also delivering wireless service to trains and cruise ships. This summer, VIA Rail Canada launched a pilot project with Bell Canada, Intel, and PointShot Wireless to provide public wireless access via satellite aboard trains traveling between Montreal and Toronto.</p> <p>At sea, cruise ships have begun offering hot spots using the existing satellite technology of the Maritime Telecommunications Network (MTN), which traditionally provides ship-to-shore voice and data communications. Norwegian Cruise Line (NCL) launched Internet service with Internet cafés aboard its ships in 1999. In 2002, NCL began offering 24-hour Wi-Fi access. Access costs \$10 per day or varying rates per minute.</p> <p>The idea quickly caught on. MTN unwired NCL's entire fleet, as well as that of Carnival Cruise Lines and Holland America. Wireless access is becoming omnipotent as it covers the globe. Now, how about outer space?—CE</p>  </div> <p>Ellison at 99.</p> <div> <p>DSI and MTN</p> <p>Digital Seas International Inc. (DSI) the leading Internet solutions provider for the cruise industry, and Maritime Telecommunications Network (MTN) the leader in voice, fax, video and data satellite communications from ship to shore, have joined forces to bring a turnkey Internet package to the maritime industry. Unveiled at Seatrade '99, the Internet Cafe, unites DSI's unique and exciting Internet product with the latest in high-speed Internet satellite broadcasting communications from MTN. Together DSI and MTN will implement what will be the standard in digital communications on cruise and offshore vessels worldwide.</p> </div> <p>https://web.archive.org/web/20030411093728/http://www.digitalseas.com/cgi-bin/index.cfm?section=dsi</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">Maritime Telecommunications Network to Deliver Remote Wireless Internet Access to Norwegian Sun</p> <p>Miramar, Florida, September 17, 2002 - Maritime Telecommunications Network, the leader in maritime communications, announced today that they will provide totally remote wireless Internet capabilities onboard Norwegian Cruise Line's vessel, Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">Maritime Telecommunications Network to Provide Remote Wireless Internet Access for Geek Cruises' Linux Lunacy</p> <p>Miramar, Florida, October 21, 2002 - Maritime Telecommunications Network (MTN) announced today that they will provide completely remote wireless Internet capabilities onboard the Holland America Line, Inc. vessel, the ms Maasdam, for Geek Cruises' special theme cruise.</p> </div> <p>https://web.archive.org/web/20030424055255/http://www.mtnsat.com/press/2002/pressrelease_102102_geek_cruise.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>Wireless connectivity is a critical service for today's computer conferences. By providing this new level of service, MTN will make it possible for Geek Cruises to offer even more advanced seminars and workshops aboard Holland America. "In the high-tech world, geeks have come to expect wireless Internet connectivity into their laptop," said Geek Cruises' CEO, Neil Bauman. "Now that MTN is providing wireless Internet service on Holland America ships, I am certain that more and more devoted computer users will enjoy cruising with Holland America -- not to mention that Geek Cruises will be able to provide better customer service, and keep the Holland America Geek Cruise guests highly productive while sailing."</p> </div> <p>https://web.archive.org/web/20030424055255/http://www.mtnsat.com/press/2002/pressrelease_102102_geek_cruise.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Maritime Telecommunications Network Joins Institute for Shipboard Education to Deliver Wireless Internet Access and OceanNews to Semester at Sea Program</p> <p>Miramar, Florida, October 2, 2002 - Maritime Telecommunications Network (MTN), the leader in maritime communications, announced today that they will collaborate with the Institute for Shipboard Education (ISE) Mariser Marine, Inc. (MMI) to provide remote wireless Internet capabilities and OceanNews newspaper services to the SS Universe Explorer. The Universe Explorer is the maritime campus and home of the Semester at Sea program, an undergraduate global studies program administered by the ISE and academically sponsored by the University of Pittsburgh and Mariser Marine, Inc is the ship's management company.</p> </div> <p>https://web.archive.org/web/20030309045241/http://www.mtnsat.com/press/2002/pressrelease_100202_semesteratseaprogram.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>MTN, a Verestar company, has worked with ISE and MMI since fall 2001 to offer program participants a variety of Internet capabilities, including Web and email access, as well as the ability to send video mail through the onboard Internet café. With an increasing number of students using these services and the growing need to incorporate Internet access in the academic program, came the greater challenge of accommodating the escalating demand for Internet stations. MTN, in conjunction with PCTEL, ISE, and MMI will enhance the current Internet services by installing completely remote wireless Internet access onboard the SS Universe Explorer. The service will be available starting this semester.</p> <p>The demand for wireless technology continues to grow as it allows people to stay securely connected, regardless of location. Students may bring their personal laptops onboard ship and connect to the Internet. With MTN's wireless remote technology capabilities at sea,</p> </div> <p>https://web.archive.org/web/20030309045241/http://www.mtnsat.com/press/2002/pressrelease_100202_semesteratseaprogram.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>Today's Ship-to-Shore Communications- Beyond Marconi and Morse</p> <p>Communications to and from ships has come a long way since the days of Guglielmo Marconi's wireless and the dot-and-dash code of Samuel F.B. Morse a hundred years ago. Today, passengers and crew on modern cruise ships use phone, fax, email and Internet access just like at home through Maritime Telecommunications Network's advanced technology.</p> </div> <p>https://web.archive.org/web/20021210104934/http://www.mtnsat.com/cruiseline_industry.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>convenience. Since 1981, MTN has used C-Band satellite communications for round-the-clock connectivity between ships and the worldwide land-based telecommunications network and now the Internet. The cruising vacationer is also connected to family, friends and business associates and the World Wide Web through these same modern communications links.</p> </div> <p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p>

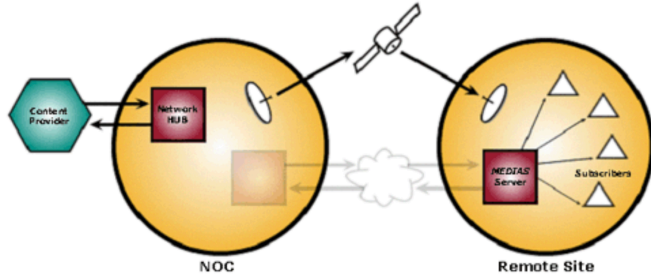
Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p><u>Internet Access</u></p> <p>MTN provides its Cruise Line customers access to the Internet. Guests, officers, and crew, can send and receive e-mail, “surf” the net, and play video game using. MTN's C-Band technology. Our partner <u>Digital Seas</u>, provides a full service Internet Café onboard your vessel, including an onboard Internet Café Manager.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">Xantic Signs Cooperative Agreement with Maritime Telecommunications Network for Worldwide Distribution of Maritime VSAT Solutions</p> <p>The Hague, March 24, 2003 - In a mutually beneficial strategic alliance, Xantic has today announced they have signed a cooperative agreement with Maritime Telecommunications Network (MTN). Purpose of this agreement is to bundle the strengths of both companies in offering VSAT solutions to the maritime industry.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <div style="border: 1px solid black; padding: 10px;"> <p>Xantic's Burum facility will offer Ku-band and C-band capabilities, delivering voice, data, and Internet termination services All services can be terminated via MTN's North American hubs as well. Via the strategic cooperation agreement, Xantic will also be able to offer a wide range of value added services over VSAT such as Internet cafés, Payphones, Newspaper services and Hot Spot (Wifi) Wireless Internet Access.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">NORWEGIAN CRUISE LINE FIRST IN INDUSTRY TO OFFER REMOTE WIRELESS Wi Fi INTERNET ACCESS AT SEA Currently on Norwegian Sun; fleet wide by December 2002</p> <p>MIAMI - In 1999, Norwegian Cruise Line pioneered the industry's first Internet access on the high seas with its Internet Cafe. Now, three years later, NCL becomes the first cruise line to provide remote wireless Internet access (also known as Wi Fi) to its guests. The program is currently on Norwegian Sun and will be expanded to the rest of the fleet by the end of 2002.</p> <p>The line has partnered with Maritime Telecommunications Network and PCTEL to provide totally remote wireless Internet capabilities onboard Norwegian Sun, 24-hours a day, wherever the ship is located. Guests who bring their personal laptops onboard can get a wireless network card and will have the ability to access the Internet and their email in designated locations throughout the ship.</p> </div>

Claim	MTN Cruise Ship Internet Services
	https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>MTN Cruise Ship Internet Services discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.,</i></p> <div> <p>Wi Fi</p> <p>For the cruise industry, Wi Fi wireless and the associated “hotspots” offer the latest growth potential and technical challenges for expanding passengers’ use of Internet satellite communication to stay in touch with their homes and businesses. As on land, hotspots are rather specific areas on a ship such as a lounge and are connected by hard-wired coaxial cables to the ship’s satellite communications hardware and the antenna for transmission to a satellite. Passengers’ laptops can be made compatible to the hotspot with a wireless notebook card and within the hotspot almost any number of laptops can be connected to the wireless system.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p> <div> <p>convenience. Since 1981, MTN has used C-Band satellite communications for round-the-clock connectivity between ships and the worldwide land-based telecommunications network and now the Internet. The cruising vacationer is also connected to family, friends and business associates and the World Wide Web through these same modern communications links.</p> </div> <p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p style="text-align: center;">Intelsat Signs Long-Term Contract with Verestar to Provide High-Speed Services to the Maritime Industry</p> <p>Washington, DC – 12 March 2002 — Intelsat today announced that it has signed a three year contract with Verestar, Inc. and its subsidiary, Maritime Telecommunications Network (MTN), to provide high-speed, mobile voice and data services to cruise ships.</p> </div> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm</p> <div> <p>Specifically, Intelsat's solution will be used to support telephone calls, fax, email, shipboard data operations, video and Internet applications from ships to land, as well as supporting communication between ships. MTN is the largest supplier of C-band capacity to cruise lines, and provides capacity to over 90 ships globally.</p> </div> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm</p> <div> <p style="text-align: center;">Xantic Signs Cooperative Agreement with Maritime Telecommunications Network for Worldwide Distribution of Maritime VSAT Solutions</p> <p>The Hague, March 24, 2003 - In a mutually beneficial strategic alliance, Xantic has today announced they have signed a cooperative agreement with Maritime Telecommunications Network (MTN). Purpose of this agreement is to bundle the strengths of both companies in offering VSAT solutions to the maritime industry.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>Xantic's Burum facility will offer Ku-band and C-band capabilities, delivering voice, data, and Internet termination services All services can be terminated via MTN's North American hubs as well. Via the strategic cooperation agreement, Xantic will also be able to offer a wide range of value added services over VSAT such as Internet cafés, Payphones, Newspaper services and Hot Spot (Wifi) Wireless Internet Access.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson. MTN Cruise Ship Internet Services, Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	MTN Cruise Ship Internet Services
	<p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/soln/soln2.html</p> <p>see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/soln/soln0.html.</p>

Claim	MTN Cruise Ship Internet Services
	<p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites.</p> <p>Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p> <div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into four main segments: Cabin Segment, Space Segment, Ground Segment, and Aircom Provider Segment. The Cabin Segment includes a Sat-Modem, Aircraft Protocol Functions (IP mobility Server, AAA, VPN, QoS), Service Integrator, W-LAN, LAN, and UMTS. The Space Segment shows a satellite in orbit. The Ground Segment includes a Terrestrial telecom router, Passenger's Company Intranet, IP Backbone, and PSTN/UMTS/GSM. The Aircom Provider Segment includes a Service Integrator, AAA/Billing, Mobility ISP server, VPN, QoS support, QoS support, UMTS Core, RNC, SGSN, GGSN, MSC, and GMSC. Arrows indicate the flow of data and connectivity between these segments.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4.</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service.</p> <p>Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.</p>

Claim	MTN Cruise Ship Internet Services
<p>[24.b] at least one router operatively coupled to the satellite dish;</p>	<p>MTN Cruise Ship Internet Services discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.</i>,</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>Wi Fi</p> <p>For the cruise industry, Wi Fi wireless and the associated “hotspots” offer the latest growth potential and technical challenges for expanding passengers’ use of Internet satellite communication to stay in touch with their homes and businesses. As on land, hotspots are rather specific areas on a ship such as a lounge and are connected by hard-wired coaxial cables to the ship’s satellite communications hardware and the antenna for transmission to a satellite. Passengers’ laptops can be made compatible to the hotspot with a wireless notebook card and within the hotspot almost any number of laptops can be connected to the wireless system.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p>

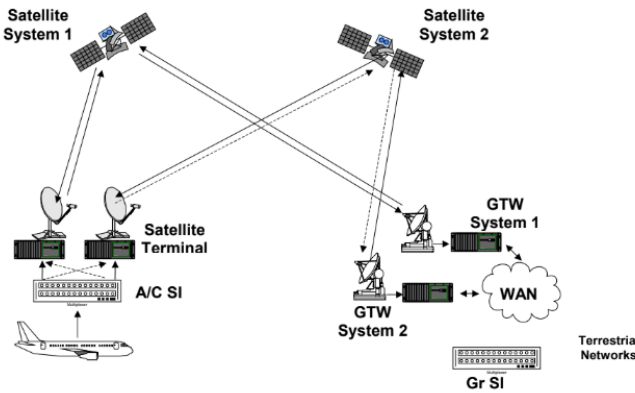
Claim	MTN Cruise Ship Internet Services
	<div> <p>MTN now leads the industry with a number of vessels equipped with Digital Seas Internet Cafes. Installation includes:</p> <ul style="list-style-type: none"> • Hardware and software • Networking and technical support • CruisE-mail, DSI's private E-mail service • Billing options Prepaid cards or folio billing to many Property • Management Systems (PMS) • Security protocol • Remote monitoring capabilities </div> <div> <p>https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm</p> </div> <div> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> </div>

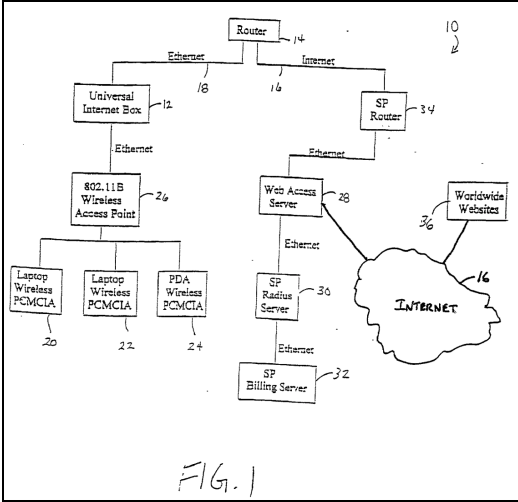
Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p><u>About PCTEL</u> PCTEL, founded in March 1994, is a leading provider of innovative and cost-effective Internet access solutions. PCTEL's products include analog soft modems, DSP-based modems and WLAN hardware and software products, in particular, software that enables 802.11 roaming. The company is built upon a wide-ranging and comprehensive portfolio of more than 80 analog and broadband communications and wireless patents, issued or pending, including the key and essential patents for Host Signal Processing (HSP) modem technology. The company's products are sold to PC manufacturers, PC board and card manufacturers, wireless carriers, wireless ISPs, and system integrators. PCTEL headquarters are located at 8725 West Higgins Road, Suite 400, Chicago, IL 60631. Telephone: 773-243-3000. For more information, please visit our web site at: http://www.pctel.com.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Intelsat Signs Long-Term Contract with Verestar to Provide High-Speed Services to the Maritime Industry</p> <p>Washington, DC – 12 March 2002 — Intelsat today announced that it has signed a three year contract with Verestar, Inc. and its subsidiary, Maritime Telecommunications Network (MTN), to provide high-speed, mobile voice and data services to cruise ships.</p> </div> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>Specifically, Intelsat's solution will be used to support telephone calls, fax, email, shipboard data operations, video and Internet applications from ships to land, as well as supporting communication between ships. MTN is the largest supplier of C-band capacity to cruise lines, and provides capacity to over 90 ships globally.</p> </div> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>PCTEL to Supply 802.11 WLAN Network Equipment and Software to Maritime Telecommunications Network</p> <p>MTN to Deploy PCTEL WLAN Network Equipment and Software on Norwegian Cruise Line Ships</p> <p>CHICAGO, Sept. 25 /PRNewswire-FirstCall/ -- PCTEL, Inc. (Nasdaq: PCTI), a leading provider of Internet access products and wireless mobility software, confirmed today that it is providing its wireless access hardware and software products to the cruise line industry through its commercial agreement with Maritime Telecommunications Network (MTN). MTN Separately announced its successful deployment of the PCTEL Wireless Local Area Network (WLAN) products.</p> </div> <p>https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <ul style="list-style-type: none"> • Ease of use: Transparent user interface for roaming. Users are unaware of the 'automatic detect, select and connect' switching performed from hot spot to hot spot and from WLAN to WWAN (CDMA2000 1X, GPRS, etc.) • Ubiquitous network footprint: Resolves network incompatibilities. The SegueTM Roaming Client software offers a trouble-free user experience, resulting in reduced customer support. • Roaming facilities: Automatic user authentication against all carrier networks. Hassle-free roaming among and between 802.11 networks: Users will no longer be prompted for information at every network handoff. • Manageable Billing: Bill by the minute, offer customers single source billing. All wireless data billing information is routed to your back-office systems according to billing agreements, providing one bill per customer, no matter where they roam. </div> <p> https://web.archive.org/web/20030406144931/http://www.pctel.com/pctel_solution.php </p> <p> To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, Seo, and Wu. MTN Cruise Ship Internet Services, Agarwal, DeSanctis, Jahn II, Seo, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Agarwal, DeSanctis, Jahn II, Seo, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Agarwal, DeSanctis, Jahn II, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i> </p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>The diagram illustrates a network architecture for MTN Cruise Ship Internet Services. On the left, a land-based network includes a ROUTER-1 (50) connected to a WAN LINK (68). This WAN LINK connects to a NETWORK CONTROL CENTER (30) and a ROUTE SERVER (40). A MASTER TERMINAL (32) is also connected to the NETWORK CONTROL CENTER. A SATELLITE-1 (12) is shown in orbit, connected to a TERMINAL (16) on a ship (10). The ship's network includes an ETHERNET ROUTER (54) and a FRAME RELAY (60). This ship is connected to ISP-POP1 (CO-LOCATED) and a REMOTE ACCESS SERVER (70). The REMOTE ACCESS SERVER is connected to DIAL-UP ACCESS (101, 102, 103) and a FRAME ACCESS (104, 105). A second ship (20) is connected to a SATELLITE (18) and a TERMINAL (36). Its network includes a FRAME RELAY (62) and a ROUTER (58). This ship is connected to ISP-POP2 (CONNECTED THROUGH WAN LINK) and a REMOTE ACCESS SERVER (72). The REMOTE ACCESS SERVER is connected to DIAL-UP ACCESS (106, 107, 108) and a FRAME ACCESS (109, 110). A third ship (20) is connected to a SATELLITE (18) and a TERMINAL (36). Its network includes a FRAME RELAY (64) and a ROUTER (56). This ship is connected to ISP-POP2 (CONNECTED THROUGH WAN LINK) and a REMOTE ACCESS SERVER (72). The REMOTE ACCESS SERVER is connected to DIAL-UP ACCESS (106, 107, 108) and a FRAME ACCESS (109, 110).</p> </div> <p style="text-align: center;">FIG. 1</p> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

Claim	MTN Cruise Ship Internet Services
	 <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	MTN Cruise Ship Internet Services
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the</p>	<p>MTN Cruise Ship Internet Services discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p>

Claim	MTN Cruise Ship Internet Services
Internet; and	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">PCTEL to Supply 802.11 WLAN Network Equipment and Software to Maritime Telecommunications Network</p> <p style="text-align: center;">MTN to Deploy PCTEL WLAN Network Equipment and Software on Norwegian Cruise Line Ships</p> <p>CHICAGO, Sept. 25 /PRNewswire-FirstCall/ -- PCTEL, Inc. (Nasdaq: PCTI), a leading provider of Internet access products and wireless mobility software, confirmed today that it is providing its wireless access hardware and software products to the cruise line industry through its commercial agreement with Maritime Telecommunications Network (MTN). MTN Separately announced its successful deployment of the PCTEL Wireless Local Area Network (WLAN) products.</p> </div> <p>https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805</p> <div style="border: 1px solid black; padding: 10px;"> <p>Passengers may now bring their personal laptops onboard the Norwegian Sun and enjoy a wireless connection to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Cafe onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail.</p> <p>The PCTEL WLAN Network Infrastructure provides a turnkey solution that consists of Network Gateways at the edge of the network and Authentication, Authorization and Accounting (AAA) Brokers that aggregate these Gateways. The complete WLAN solution provides authentication facilities, user provisioning, accounting, usage reporting, network management, and full RADIUS compatibility. PCTEL's Install Wizard and Roaming Client software provide passengers with simple automatic installation and configuration of a WLAN card on their personal laptop and direct connection to the ship's 802.11 wireless network. These solutions enable a carrier such as MTN to provide quick and easy wireless Internet access to guests on passenger cruise ships.</p> <p>"Recreational environments such as cruise ships are ideal for the untethered access enabled by PCTEL's 802.11 Gateway and Roaming software," said Marty Singer, PCTEL Chairman and CEO. "The products ensure rapid and easy Internet access to business travelers, students or other passengers. In addition to 'anytime Internet access' for passengers, the system offers revenue opportunities for cruise ship companies and operators."</p> <p>"We looked at a lot of WLAN vendors, and PCTEL was the only one that could provide us with a complete solution," said Robert Marjerison, MTN Director of Business Development. "Instead of cobbling together a solution, we were able to become a complete WLAN service provider- virtually overnight."</p> </div> <p>https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805</p>

Claim	MTN Cruise Ship Internet Services
	<p>m?ReleaseID=90805</p> <div> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div> <p><u>About PCTEL</u> PCTEL, founded in March 1994, is a leading provider of innovative and cost-effective Internet access solutions. PCTEL's products include analog soft modems, DSP-based modems and WLAN hardware and software products, in particular, software that enables 802.11 roaming. The company is built upon a wide-ranging and comprehensive portfolio of more than 80 analog and broadband communications and wireless patents, issued or pending, including the key and essential patents for Host Signal Processing (HSP) modem technology. The company's products are sold to PC manufacturers, PC board and card manufacturers, wireless carriers, wireless ISPs, and system integrators. PCTEL headquarters are located at 8725 West Higgins Road, Suite 400, Chicago, IL 60631. Telephone: 773-243-3000. For more information, please visit our web site at: http://www.pctel.com.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <div> <p>https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443</p> </div>

Claim	MTN Cruise Ship Internet Services
	<div> <p>“Satellite bandwidth is expensive,” added Marjerison. Among the factors affecting passengers’ access to the satellite network was finding the workable method of charging passengers for the actual time they used the ship’s satellite communications. One of the features MTN’s Wireless Solution incorporated was their billing solution for the cruise lines’ passenger usage of the systems. With it passengers can purchase blocks of time in minutes and they do not have to be used at one time but can be carried over to other days of the cruise.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p> <div> <p>Billing</p> <p>Wireless radio card rental charges as well as minutes usage will be sent to the vessel's billing systems or prepaid Internet debit cards can be purchased.</p> <p>More ways to stay connected, wired or wireless!</p> </div> <p>https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm</p> <div> <p>From providing the passenger with the ability to phone home from their cabin and checking email on the Internet to facilitating shipboard operations with real-time data applications, MTN makes it easy for our Cruise Line Customers to offer telecommunications services and profit from attractive onboard amenities.</p> </div>

Claim	MTN Cruise Ship Internet Services
	<p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p> <div> <ul style="list-style-type: none"> • Three-Way Revenue Split <p>Passenger and Ship Personnel Can Have Quick & Easy Internet Access</p> <ul style="list-style-type: none"> • Creates Incremental Revenue Stream </div> <p>https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm</p> <div> <p>LAND AND SEA</p> <p>Satellites aren't servicing only planes; they're also delivering wireless service to trains and cruise ships. This summer, VIA Rail Canada launched a pilot project with Bell Canada, Intel, and PointShot Wireless to provide public wireless access via satellite aboard trains traveling between Montreal and Toronto.</p> <p>At sea, cruise ships have begun offering hot spots using the existing satellite technology of the Maritime Telecommunications Network (MTN), which traditionally provides ship-to-shore voice and data communications. Norwegian Cruise Line (NCL) launched Internet service with Internet cafés aboard its ships in 1999. In 2002, NCL began offering 24-hour Wi-Fi access. Access costs \$10 per day or varying rates per minute.</p> <p>The idea quickly caught on. MTN unwired NCL's entire fleet, as well as that of Carnival Cruise Lines and Holland America. Wireless access is becoming omnipotent as it covers the globe. Now, how about outer space?—CE</p>  </div> <p>Ellison at 99.</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, Seo, and Wu. MTN Cruise Ship Internet Services, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, Seo, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, Seo and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, Seo or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	MTN Cruise Ship Internet Services
	<div><div><div><div><div><div>INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</div></div></div><div><div><div><div>Powered By Airpath</div></div><div><div><div>Airpath Exclusive ISG-1000 Subscriber Gateway</div><div><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</div><div><div>More Details</div><div>Price/Order</div></div></div></div></div></div></div><div><p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; see also https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm.</p><p>The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat.</p><p>Bruner at [0023]; see also Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p><p>It is envisaged that AAA functions must be located in the cabin to monitor for instance,</p></div></div></div>

Claim	MTN Cruise Ship Internet Services
	<p>volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8; <i>id.</i> at 2-3, 7.</p> <p>One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] ("The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18₁, 18₂, . . . 18_n) wherein the particular wireless client or mobile communications device 18₁ is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20</p>

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	<p>configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group.</p> <p>Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features.</p> <p>Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . .</p>

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	<p>checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
<p>[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;</p>	<p>MTN Cruise Ship Internet Services discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i></p> <div> <p>Wi Fi</p> <p>For the cruise industry, Wi Fi wireless and the associated “hotspots” offer the latest growth potential and technical challenges for expanding passengers’ use of Internet satellite communication to stay in touch with their homes and businesses. As on land, hotspots are rather specific areas on a ship such as a lounge and are connected by hard-wired coaxial cables to the ship’s satellite communications hardware and the antenna for transmission to a satellite. Passengers’ laptops can be made compatible to the hotspot with a wireless notebook card and within the hotspot almost any number of laptops can be connected to the wireless system.</p> </div>

Claim	MTN Cruise Ship Internet Services
	<p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p> <div> <p><u>Internet Access</u></p> <p>MTN provides its Cruise Line customers access to the Internet. Guests, officers, and crew, can send and receive e-mail, “surf” the net, and play video game using. MTN's C-Band technology. Our partner <u>Digital Seas</u>, provides a full service Internet Café onboard your vessel, including an onboard Internet Café Manager.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div> <p>Norwegian Sun guests who bring their own laptop will be furnished with a wireless network card that provides access to the Internet and their e-mail in designated locations throughout the ship. The installation of the wireless software is simple, requiring no reconfiguration of the passenger’s computer and will take up no hard drive space once the passenger leaves the ship. Laptops are also available for rent through DSI at the Internet Café.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>MTN, the leader in maritime communications and a Verestar company, has built a long-standing affiliation with Holland America by providing state-of-the-art global satellite communications services to all of its vessels. Internet services are available onboard through the Internet Café, an intimate, comfortable setting allowing both passengers and crew to surf the Web, check e-mail and send pictures and documents around the world.</p> </div> <div> <p>https://web.archive.org/web/20030424055255/http://www.mtnsat.com/press/2002/pressrelease_102102_geek_cruise.htm</p> </div> <div> <p>MTN, a Verestar company, has worked with ISE and MMI since fall 2001 to offer program participants a variety of Internet capabilities, including Web and email access, as well as the ability to send video mail through the onboard Internet café. With an increasing number of students using these services and the growing need to incorporate Internet access in the academic program, came the greater challenge of accommodating the escalating demand for Internet stations. MTN, in conjunction with PCTEL, ISE, and MMI will enhance the current Internet services by installing completely remote wireless Internet access onboard the SS Universe Explorer. The service will be available starting this semester.</p> </div> <div> <p>The demand for wireless technology continues to grow as it allows people to stay securely connected, regardless of location. Students may bring their personal laptops onboard ship and connect to the Internet. With MTN's wireless remote technology capabilities at sea,</p> </div> <div> <p>https://web.archive.org/web/20030309045241/http://www.mtnsat.com/press/2002/pressrelease_100202_semesteratseaprogram.htm</p> </div> <div> <p>Xantic Signs Cooperative Agreement with Maritime Telecommunications Network for Worldwide Distribution of Maritime VSAT Solutions</p> </div> <div> <p>The Hague, March 24, 2003 - In a mutually beneficial strategic alliance, Xantic has today announced they have signed a cooperative agreement with Maritime Telecommunications Network (MTN). Purpose of this agreement is to bundle the strengths of both companies in offering VSAT solutions to the maritime industry.</p> </div> <div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> </div>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>Xantic's Burum facility will offer Ku-band and C-band capabilities, delivering voice, data, and Internet termination services All services can be terminated via MTN's North American hubs as well. Via the strategic cooperation agreement, Xantic will also be able to offer a wide range of value added services over VSAT such as Internet cafés, Payphones, Newspaper services and Hot Spot (Wifi) Wireless Internet Access.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>PCTEL to Supply 802.11 WLAN Network Equipment and Software to Maritime Telecommunications Network</p> <p>PCTEL Inc., a provider of Internet access products and wireless mobility software, confirmed that it is providing its wireless access hardware and software products to the cruise</p> </div>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">SAN/LAN Newsletter October 2002</p> <hr/> <p>line industry through its commercial agreement with Maritime Telecommunications Network (MTN). MTN separately announced its successful deployment of the PCTEL WLAN products.</p> <p>MTN, a provider of maritime communications deployed PCTEL's WLAN Network Gateway, Roaming Client and Installation Wizard software products on the Norwegian Sun, a vessel in the Norwegian Cruise Line. MTN has plans to deploy PCTEL's wireless access solutions on other cruise ships in the near future.</p> <p>Passengers may now bring their personal laptops onboard the Norwegian Sun and enjoy a wireless connection to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Cafe onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail.</p> </div> <p><i>Local Area and Storage Area Networks Newsletter</i>, vol. 20 no. 10, (Oct. 2002), available at https://www.google.com/books/edition/Local_Area_Networks/bX5XSeuIHnC?hl=en&gbpv=1&kptab=overview.</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">PCTEL to Supply 802.11 WLAN Network Equipment and Software to Maritime Telecommunications Network</p> <p style="text-align: center;">MTN to Deploy PCTEL WLAN Network Equipment and Software on Norwegian Cruise Line Ships</p> <p>CHICAGO, Sept. 25 /PRNewswire-FirstCall/ -- PCTEL, Inc. (Nasdaq: PCTI), a leading provider of Internet access products and wireless mobility software, confirmed today that it is providing its wireless access hardware and software products to the cruise line industry through its commercial agreement with Maritime Telecommunications Network (MTN). MTN Separately announced its successful deployment of the PCTEL Wireless Local Area Network (WLAN) products.</p> </div> <p>https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p>Passengers may now bring their personal laptops onboard the Norwegian Sun and enjoy a wireless connection to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Cafe onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail.</p> <p>The PCTEL WLAN Network Infrastructure provides a turnkey solution that consists of Network Gateways at the edge of the network and Authentication, Authorization and Accounting (AAA) Brokers that aggregate these Gateways. The complete WLAN solution provides authentication facilities, user provisioning, accounting, usage reporting, network management, and full RADIUS compatibility. PCTEL's Install Wizard and Roaming Client software provide passengers with simple automatic installation and configuration of a WLAN card on their personal laptop and direct connection to the ship's 802.11 wireless network. These solutions enable a carrier such as MTN to provide quick and easy wireless Internet access to guests on passenger cruise ships.</p> <p>"Recreational environments such as cruise ships are ideal for the untethered access enabled by PCTEL's 802.11 Gateway and Roaming software," said Marty Singer, PCTEL Chairman and CEO. "The products ensure rapid and easy Internet access to business travelers, students or other passengers. In addition to 'anytime Internet access' for passengers, the system offers revenue opportunities for cruise ship companies and operators."</p> <p>"We looked at a lot of WLAN vendors, and PCTEL was the only one that could provide us with a complete solution," said Robert Marjerison, MTN Director of Business Development. "Instead of cobbling together a solution, we were able to become a complete WLAN service provider- virtually overnight."</p> </div> <p>https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu. MTN Cruise Ship Internet Services, Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Bruner, Connexion by Boeing, Jahn II, Suwanateep and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of</p>

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	<p>ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Bruner, Connexion by Boeing, Jahn II, Suwanateep or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Find out about our In-Flight Portal</p> <div style="display: flex; align-items: center;">  <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> </div> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Ln</p>

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	<p>av=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p> <p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a</p>

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	<p>parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p> <div> <p style="text-align: center;">FIG. 1</p> </div> <p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p>

Claim	MTN Cruise Ship Internet Services
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>MTN Cruise Ship Internet Services discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p> <div> <p>Wi Fi</p> <p>For the cruise industry, Wi Fi wireless and the associated “hotspots” offer the latest growth potential and technical challenges for expanding passengers’ use of Internet satellite communication to stay in touch with their homes and businesses. As on land, hotspots are rather specific areas on a ship such as a lounge and are connected by hard-wired coaxial cables to the ship’s satellite communications hardware and the antenna for transmission to a satellite. Passengers’ laptops can be made compatible to the hotspot with a wireless notebook card and within the hotspot almost any number of laptops can be connected to the wireless system.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p>

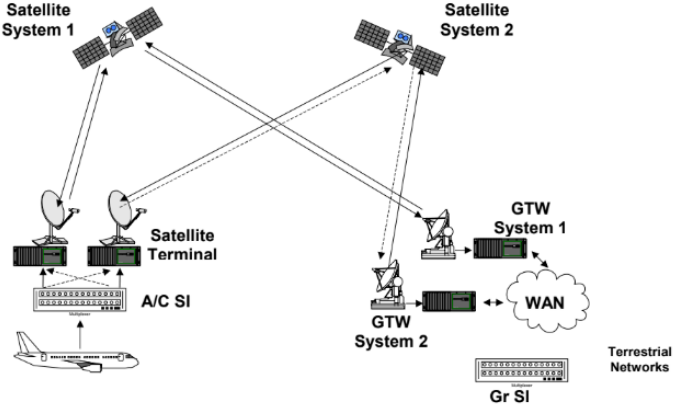
Claim	MTN Cruise Ship Internet Services
	<div> <p>“Satellite bandwidth is expensive,” added Marjerison. Among the factors affecting passengers’ access to the satellite network was finding the workable method of charging passengers for the actual time they used the ship’s satellite communications. One of the features MTN’s Wireless Solution incorporated was their billing solution for the cruise lines’ passenger usage of the systems. With it passengers can purchase blocks of time in minutes and they do not have to be used at one time but can be carried over to other days of the cruise.</p> </div> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) at 25.</p> <div> <p>convenience. Since 1981, MTN has used C-Band satellite communications for round-the-clock connectivity between ships and the worldwide land-based telecommunications network and now the Internet. The cruising vacationer is also connected to family, friends and business associates and the World Wide Web through these same modern communications links.</p> </div> <p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p> <div> <p><u>Internet Access</u></p> <p>MTN provides its Cruise Line customers access to the Internet. Guests, officers, and crew, can send and receive e-mail, “surf” the net, and play video game using. MTN’s C-Band technology. Our partner <u>Digital Seas</u>, provides a full service Internet Café onboard your vessel, including an onboard Internet Café Manager.</p> </div>

Claim	MTN Cruise Ship Internet Services
	<p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 10px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p><u>About PCTEL</u> PCTEL, founded in March 1994, is a leading provider of innovative and cost-effective Internet access solutions. PCTEL's products include analog soft modems, DSP-based modems and WLAN hardware and software products, in particular, software that enables 802.11 roaming. The company is built upon a wide-ranging and comprehensive portfolio of more than 80 analog and broadband communications and wireless patents, issued or pending, including the key and essential patents for Host Signal Processing (HSP) modem technology. The company's products are sold to PC manufacturers, PC board and card manufacturers, wireless carriers, wireless ISPs, and system integrators. PCTEL headquarters are located at 8725 West Higgins Road, Suite 400, Chicago, IL 60631. Telephone: 773-243-3000. For more information, please visit our web site at: http://www.pctel.com .</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div> <p style="text-align: center;">Intelsat Signs Long-Term Contract with Verestar to Provide High-Speed Services to the Maritime Industry</p> <p>Washington, DC – 12 March 2002 — Intelsat today announced that it has signed a three year contract with Verestar, Inc. and its subsidiary, Maritime Telecommunications Network (MTN), to provide high-speed, mobile voice and data services to cruise ships.</p> </div> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm</p> <div> <p>Specifically, Intelsat's solution will be used to support telephone calls, fax, email, shipboard data operations, video and Internet applications from ships to land, as well as supporting communication between ships. MTN is the largest supplier of C-band capacity to cruise lines, and provides capacity to over 90 ships globally.</p> </div> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>Xantic Signs Cooperative Agreement with Maritime Telecommunications Network for Worldwide Distribution of Maritime VSAT Solutions</p> </div> <div> <p>The Hague, March 24, 2003 - In a mutually beneficial strategic alliance, Xantic has today announced they have signed a cooperative agreement with Maritime Telecommunications Network (MTN). Purpose of this agreement is to bundle the strengths of both companies in offering VSAT solutions to the maritime industry.</p> </div> <div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> </div> <div> <p>Xantic's Burum facility will offer Ku-band and C-band capabilities, delivering voice, data, and Internet termination services All services can be terminated via MTN's North American hubs as well. Via the strategic cooperation agreement, Xantic will also be able to offer a wide range of value added services over VSAT such as Internet cafés, Payphones, Newspaper services and Hot Spot (Wifi) Wireless Internet Access.</p> </div> <div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> </div> <div> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, Jahn II, and Wu. MTN Cruise Ship Internet Services, Agarwal, Bruner, Connexion by Boeing, Jahn II, DeSanctis, and Wu concern the similar subject matter as X, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded</p> </div>

Claim	MTN Cruise Ship Internet Services
	<p>predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p>Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; see also Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">  <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; see also DeSanctis at FIG. 2, 2-3.</p>

Claim	MTN Cruise Ship Internet Services
	<p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p> <p>The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like.</p> <p>Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].</p>
[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.	MTN Cruise Ship Internet Services discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.,</i>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 10px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p><u>About PCTEL</u> PCTEL, founded in March 1994, is a leading provider of innovative and cost-effective Internet access solutions. PCTEL's products include analog soft modems, DSP-based modems and WLAN hardware and software products, in particular, software that enables 802.11 roaming. The company is built upon a wide-ranging and comprehensive portfolio of more than 80 analog and broadband communications and wireless patents, issued or pending, including the key and essential patents for Host Signal Processing (HSP) modem technology. The company's products are sold to PC manufacturers, PC board and card manufacturers, wireless carriers, wireless ISPs, and system integrators. PCTEL headquarters are located at 8725 West Higgins Road, Suite 400, Chicago, IL 60631. Telephone: 773-243-3000. For more information, please visit our web site at: http://www.pctel.com.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>From providing the passenger with the ability to phone home from their cabin and checking email on the Internet to facilitating shipboard operations with real-time data applications, MTN makes it easy for our Cruise Line Customers to offer telecommunications services and profit from attractive onboard amenities.</p> </div> <p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p>Passengers may now bring their personal laptops onboard the Norwegian Sun and enjoy a wireless connection to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Cafe onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail.</p> <p>The PCTEL WLAN Network Infrastructure provides a turnkey solution that consists of Network Gateways at the edge of the network and Authentication, Authorization and Accounting (AAA) Brokers that aggregate these Gateways. The complete WLAN solution provides authentication facilities, user provisioning, accounting, usage reporting, network management, and full RADIUS compatibility. PCTEL's Install Wizard and Roaming Client software provide passengers with simple automatic installation and configuration of a WLAN card on their personal laptop and direct connection to the ship's 802.11 wireless network. These solutions enable a carrier such as MTN to provide quick and easy wireless Internet access to guests on passenger cruise ships.</p> <p>"Recreational environments such as cruise ships are ideal for the untethered access enabled by PCTEL's 802.11 Gateway and Roaming software," said Marty Singer, PCTEL Chairman and CEO. "The products ensure rapid and easy Internet access to business travelers, students or other passengers. In addition to 'anytime Internet access' for passengers, the system offers revenue opportunities for cruise ship companies and operators."</p> <p>"We looked at a lot of WLAN vendors, and PCTEL was the only one that could provide us with a complete solution," said Robert Marjerison, MTN Director of Business Development. "Instead of cobbling together a solution, we were able to become a complete WLAN service provider- virtually overnight."</p> </div> <p>https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, Nelson, and Wu. MTN Cruise Ship Internet Services, Bruner, Connexion by Boeing, Jahn II, Nelson, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Bruner, Connexion by Boeing, Jahn II, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill</p>

Claim	MTN Cruise Ship Internet Services
	<p>in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Bruner, Jahn II, Connexion by Boeing, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p>

Claim	MTN Cruise Ship Internet Services
	<div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9.</p> <p>Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can</p>

Claim	MTN Cruise Ship Internet Services
	<p>be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.	MTN Cruise Ship Internet Services discloses “wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>From providing the passenger with the ability to phone home from their cabin and checking email on the Internet to facilitating shipboard operations with real-time data applications, MTN makes it easy for our Cruise Line Customers to offer telecommunications services and profit from attractive onboard amenities.</p> </div> <p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p><u>Internet Access</u></p> <p>MTN provides its Cruise Line customers access to the Internet. Guests, officers, and crew, can send and receive e-mail, “surf” the net, and play video game using. MTN's C-Band technology. Our partner <u>Digital Seas</u>, provides a full service Internet Café onboard your vessel, including an onboard Internet Café Manager.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">Xantic Signs Cooperative Agreement with Maritime Telecommunications Network for Worldwide Distribution of Maritime VSAT Solutions</p> <p>The Hague, March 24, 2003 - In a mutually beneficial strategic alliance, Xantic has today announced they have signed a cooperative agreement with Maritime Telecommunications Network (MTN). Purpose of this agreement is to bundle the strengths of both companies in offering VSAT solutions to the maritime industry.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>Xantic's Burum facility will offer Ku-band and C-band capabilities, delivering voice, data, and Internet termination services All services can be terminated via MTN's North American hubs as well. Via the strategic cooperation agreement, Xantic will also be able to offer a wide range of value added services over VSAT such as Internet cafés, Payphones, Newspaper services and Hot Spot (Wifi) Wireless Internet Access.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II Nelson, and Wu. MTN Cruise Ship Internet Services, Agarwal, DeSanctis, Jahn II, Nelson, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Agarwal, DeSanctis, Jahn II, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Agarwal, DeSanctis, Jahn II, Nelson, or Wu, for example, to incorporate</p>

Claim	MTN Cruise Ship Internet Services
	<p>(Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p> <p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>MTN Cruise Ship Internet Services discloses “wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.,</i></p> <p>mission to a satellite. Passengers’ laptops can be made compatible to the hotspot with a wireless notebook card and within the hotspot almost any number of laptops</p> <p>“At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003) AT 25.</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>convenience. Since 1981, MTN has used C-Band satellite communications for round-the-clock connectivity between ships and the worldwide land-based telecommunications network and now the Internet. The cruising vacationer is also connected to family, friends and business associates and the World Wide Web through these same modern communications links.</p> </div> <p>https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p><u>Internet Access</u></p> <p>MTN provides its Cruise Line customers access to the Internet. Guests, officers, and crew, can send and receive e-mail, “surf” the net, and play video game using. MTN's C-Band technology. Our partner <u>Digital Seas</u>, provides a full service Internet Café onboard your vessel, including an onboard Internet Café Manager.</p> </div> <p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div>

Claim	MTN Cruise Ship Internet Services
	<p>https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Xantic Signs Cooperative Agreement with Maritime Telecommunications Network for Worldwide Distribution of Maritime VSAT Solutions</p> <p>The Hague, March 24, 2003 - In a mutually beneficial strategic alliance, Xantic has today announced they have signed a cooperative agreement with Maritime Telecommunications Network (MTN). Purpose of this agreement is to bundle the strengths of both companies in offering VSAT solutions to the maritime industry.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p>Xantic's Burum facility will offer Ku-band and C-band capabilities, delivering voice, data, and Internet termination services All services can be terminated via MTN's North American hubs as well. Via the strategic cooperation agreement, Xantic will also be able to offer a wide range of value added services over VSAT such as Internet cafés, Payphones, Newspaper services and Hot Spot (Wifi) Wireless Internet Access.</p> </div> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this</p>

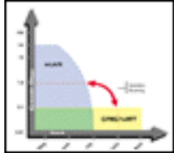
Claim	MTN Cruise Ship Internet Services								
	<p>limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Nelson, and Wu. MTN Cruise Ship Internet Services, Airpath Wireless Hot Spot, Bruner, Jahn II, Nelson, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Airpath Wireless Hot Spot, Bruner, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Airpath Wireless Hot Spot, Bruner, Jahn II, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div><table><tr><th colspan="3">INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</th></tr><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table></div> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp.</p> <p>It is therefore an object of the present invention to provide a method and apparatus to</p>	INSTANT HOT SPOT tm /HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT			 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order
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Claim	MTN Cruise Ship Internet Services
	<p>allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. Bruner at [0008]; <i>see also</i> Bruner at [0011], [0021], Bruner at FIG. 1.</p> <div> <p>The diagram illustrates a network architecture for MTN Cruise Ship Internet Services, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located on an aircraft, it includes a Sat-Modem with a Satellite dish, a W-LAN, UMTS, and Bluetooth interfaces. It also shows Laptop computers connected via a LAN. Space Segment: Consists of a Satellite in orbit. Ground Segment: Includes a Satellite dish and a Terrestrial telecom router on the ground. Aircom Provider Segment: A central hub containing a Service Integrator and an UMTS Core. The Service Integrator handles AAA, Billing, Mobility ISP server, VPN, mobility support, and QoS support. It interfaces with the UMTS Core (comprising RNC, SGSN, GGSN, MSC, and GMSC) and external networks like the IP Backbone, PSTN UMTS GSM, and Passenger's Company Intranet. <p>Arrows indicate data flow: from the Cabin Segment's Sat-Modem to the Satellite (Space Segment), then to the Ground Segment's Satellite dish and Terrestrial telecom router, and finally into the Aircom Provider Segment's Service Integrator. The Service Integrator also connects to the UMTS Core and various external networks.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1; <i>see also</i> Jahn II at 1-3, FIGs. 3-4.</p> <p>System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the</p>

Claim	MTN Cruise Ship Internet Services
	<p>existing NATS data network. Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034].</p> <p>Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area. Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058].</p>
<p>[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.</p>	<p>MTN Cruise Ship Internet Services discloses “wherein the data connections include wireless data connections.” <i>See, e.g.,</i></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><u>About PCTEL</u> PCTEL, founded in March 1994, is a leading provider of innovative and cost-effective Internet access solutions. PCTEL's products include analog soft modems, DSP-based modems and WLAN hardware and software products, in particular, software that enables 802.11 roaming. The company is built upon a wide-ranging and comprehensive portfolio of more than 80 analog and broadband communications and wireless patents, issued or pending, including the key and essential patents for Host Signal Processing (HSP) modem technology. The company's products are sold to PC manufacturers, PC board and card manufacturers, wireless carriers, wireless ISPs, and system integrators. PCTEL headquarters are located at 8725 West Higgins Road, Suite 400, Chicago, IL 60631. Telephone: 773-243-3000. For more information, please visit our web site at: http://www.pctel.com.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn II, and Wu. MTN Cruise Ship Internet Services, Airpath Wireless Hot Spot, Jahn II, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Airpath Wireless Hot Spot, Jahn II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Airpath Wireless Hot Spot, Jahn II, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	MTN Cruise Ship Internet Services												
	<table border="1"> <tr> <td>  <p>Powered By Airpath</p> </td><td> <table> <tr> <th colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</th></tr> <tr> <td> <ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table> </td></tr> <tr> <td>  <p>Powered By Airpath</p> </td><td> <table> <tr> <th colspan="2"> Colubris Networks® CN-3000 Subscriber Gateway </th></tr> <tr> <td> <ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table> </td></tr> </table> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats.</p> <p>Jahn II at 2-3, FIGs. 3-4.</p>	 <p>Powered By Airpath</p>	<table> <tr> <th colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</th></tr> <tr> <td> <ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table>	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! 	More Details Price/Order	 <p>Powered By Airpath</p>	<table> <tr> <th colspan="2"> Colubris Networks® CN-3000 Subscriber Gateway </th></tr> <tr> <td> <ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table>	Colubris Networks® CN-3000 Subscriber Gateway		<ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! 	More Details Price/Order
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Claim	MTN Cruise Ship Internet Services
	<p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1.</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>MTN Cruise Ship Internet Services discloses “wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p> <div> <p>Wi-Fi hot spot networks can provide low-cost, high bandwidth wireless data service to convention centers, airports, hotels, restaurants, enterprises, cruise ships, SOHOs and other areas. And now, hot spot roaming is as easy to deploy as it is to use.</p>  <p>Cellular Complements WLAN</p> <p>PCTEL makes roaming among 802.11 wireless hot spots a transparent experience for users, while operators provide high-speed data service that earns additional revenue. Using your WWAN as a bridge, Segue™-enabled users can even roam between 802.11 networks with no reconfiguration or break in wireless data coverage.</p> </div> <p>https://web.archive.org/web/20030406144931/http://www.pctel.com/pctel_solution.php</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p> <div style="border: 1px solid black; padding: 5px;"> <p><u>About PCTEL</u> PCTEL, founded in March 1994, is a leading provider of innovative and cost-effective Internet access solutions. PCTEL's products include analog soft modems, DSP-based modems and WLAN hardware and software products, in particular, software that enables 802.11 roaming. The company is built upon a wide-ranging and comprehensive portfolio of more than 80 analog and broadband communications and wireless patents, issued or pending, including the key and essential patents for Host Signal Processing (HSP) modem technology. The company's products are sold to PC manufacturers, PC board and card manufacturers, wireless carriers, wireless ISPs, and system integrators. PCTEL headquarters are located at 8725 West Higgins Road, Suite 400, Chicago, IL 60631. Telephone: 773-243-3000. For more information, please visit our web site at: http://www.pctel.com.</p> </div> <p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm</p>

Claim	MTN Cruise Ship Internet Services
	<div style="border: 1px solid black; padding: 10px;"> <p>About WLANs</p> <p>A Wireless Local Area Network (WLAN) supplies high-speed connectivity to a group of computers in close proximity. This allows any person with a WLAN interface card to benefit from high-speed wireless connectivity within a 300-foot radius of the network base. Currently, WLAN service is based on 802.11b technology, known as Wi-Fi, which boasts speeds up to 11 megabits per second. Wi-Fi access has quickly gained popularity on corporate campuses and in heavily trafficked areas -- known as "hot spots," such as airports, hotels, conference centers and coffee shops, where businesspeople often stop to connect to the office.</p> </div> <p>https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443</p> <p>To the extent MTN Cruise Ship Internet Services does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. MTN Cruise Ship Internet Services further renders the limitation obvious in light of other references, such as Clark, Jahn II, Nelson, and Wu. MTN Cruise Ship Internet Services, Clark, Jahn II, Nelson, and Wu concern the similar subject matter as MTN Cruise Ship Internet Services, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying MTN Cruise Ship Internet Services with Clark, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of MTN Cruise Ship Internet Services with those of Clark, Jahn II, Nelson or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>In one embodiment, the satellite and terrestrial microwave communication system</p>

Claim	MTN Cruise Ship Internet Services
	<p>transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or</p>

Claim	MTN Cruise Ship Internet Services
	<p>future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>

Exhibit 469-10 to Southwest's Preliminary Invalidity Contentions

Inflight Internet Connectivity Technology and Its Application on E-Commerce ("Suwanateep")

"Inflight Internet Connectivity Technology and Its Application on E-Commerce," by Manasuda Suwanateep ("Suwanateep") was published with the University of Thailand in July 2002. Suwanateep is prior art to the '469 Patent under at least Pre-AIA 35 U.S.C. §§ 102(a), (b) and (g) as to claims 24, 25, 26, 28, and 32 (the "Asserted Claims") of the '469 Patent.

To the extent Plaintiff alleges Suwanateep does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Suwanateep or combine the teachings of Suwanateep with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Suwanateep;
- Invalid under 35 U.S.C. § 103 by Suwanateep and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Suwanateep in view of U.S. Patent Application No. 2003/0050041 to Wu (“Wu”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Suwanateep in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

Claim	Suwanateep
<p>[24] An Internet Hotspot comprising:</p>	<p>To the extent the preamble is limiting, Suwanateep discloses an Internet Hotspot. <i>See, e.g.,</i></p> <p>Two Inflight Internet architectures are as the real time broadband and cached narrowband. Their services are slightly different, although based on the same market prospectives. The satellites are developed as communication means of the systems. Suwanateep at Abstract.</p> <p>The satellite-based architecture is developed by Boeing Company, the biggest aircraft maker and the best in aviation technology, and with joint ventures to make the Internet most compatible while inflight. The system blends proprietary software, satellite and land networking, and onboard LANs.</p> <p>With satellite enhancement, the first technology uses a full-capacity telecommunication infrastructure to offer a real-time, high speed, truly broadband cable-quality Internet service equivalent to what users have on the ground. The system provides Internet and company Intranet access, unlimited connectivity to airborne environment. Suwanateep at 5.</p> <p>The cabin file server (Figure 2.3) allows the same type of Local Area Network. It is designed for the unique requirements of the aircraft environment. Its small size and minimum cooling requirements allows it to be mounted in any convenient location in the cabin. The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers. Seats are configured for connectivity: Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line Simultaneously.</p>

Claim	Suwanateep
	<p>Suwanateep at 8-9.</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD-ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9.</p> <p>These new wireless networks, standard known as Wi-Fi have no encryption protections, making them vulnerable to even unsophisticated hackers. The company should not be responsible for security on its networks because the Internet carries security risks. For Internet security, users should install personal firewall. Wireless LAN manufacturers readily acknowledge the security problems with the IEEE 802.11B standard and have recently taken steps to strengthen their security.</p> <p>Suwanateep at 25.</p> <p>Connexion One provides a dedicated environment for demonstrating the robustness and inflight operability of the Connexion service. The cabin is equipped with onboard server, router and service-analysis equipment and, also, is outfitted to demonstrate security enhancement capabilities the venture is pursuing for commercial airline customers. Seats are configured for demonstrating connectivity to the Connexion service. On the exterior, the top of the aircraft fuselage is outfitted with phased array antennas to enable real-time, Ku satellite-based data transmission and reception. The aircraft permits the airline</p>

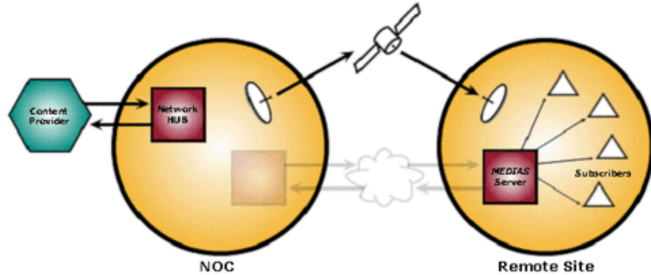
Claim	Suwanateep
	<p>evaluators assessing the enhanced consumer 39,000 feet and operational benefits of real-time broadband services to personally test the service by having it perform multiple, simultaneous high-bandwidth tasks ranging from data transfer and full-featured e-mail to streaming video and global web site access. Airline technical teams have found the service to be as robust or superior to the high-speed connections they enjoy at home or in the office.</p> <p>Suwanateep at 26-27.</p> <p>Participants in the survey, ages 25-65, must have taken at least one trip on an airline during three months and must have access to a laptop or other portable computing device for their travel.</p> <p>Suwanateep at 44.</p> <p>Travelers have a need to use the laptop: For the business traveler, it makes efficient use of that downtime on an airplane.</p> <p>Suwanateep at 44.</p>
[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;	Suwanateep discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.,</i>

Claim	Suwanateep
	<div> </div> <p>Figure 2.2. The Satellite-Based Internet on Aircraft.</p> <p>Suwanateep at 6, FIG. 2.2.</p> <p>In 1986, Boeing has developed a proprietary solid-state phased array, transceiver antenna that is the key enabler for the two-way broadband communications service. The new design will improve system performance and overall capability. Proprietary Boeing technology, in particular a satellite antenna developed originally for military command and control centers, will provide a virtual pipe to the Internet-enabled aircraft.</p> <p>Suwanateep at 7.</p> <p>The flat, two-inch antenna and additional wiring would be attached to each top of aircraft, stretching 55 inches across the top of a plane upper fuselage with which commercial aircraft already in service would need to be retrofitted. The phased array antenna provides enhanced response to directional changes by steering signals electronically vs. mechanically, permitting instantaneous and continuous connections between satellites and customer aircraft. The device adjusts to keep in touch with the</p>

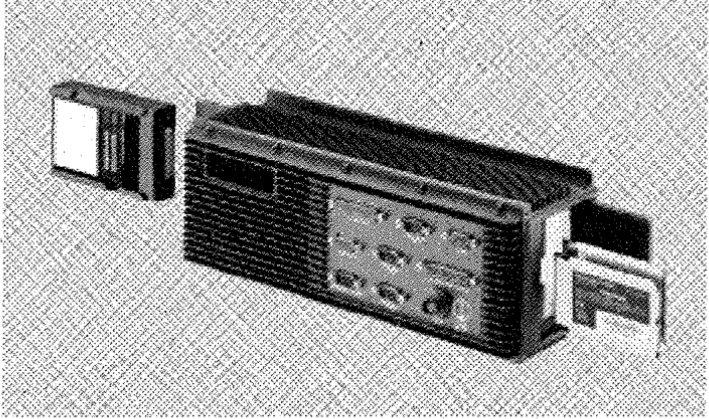
Claim	Suwanateep
	<p>nearest satellite. That helps avoid interruptions. Suwanateep at 7-8.</p> <p>The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers. Seats are configured for connectivity. Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line simultaneously. Suwanateep at 9.</p> <p>Space System is consisted of Satellite Transponders. The service uses Ku-band satellite transponders. Once in orbit, the satellite will be parked in an orbital slot located at 63 degrees West longitude and provide air travelers with the first real-time broadband Internet access over the North Atlantic. Suwanateep at 10.</p> <p>The satellite-based architecture is developed by Boeing Company, the biggest aircraft maker and the best in aviation technology, and with joint ventures to make the Internet most compatible while inflight. The system blends proprietary software, satellite and land networking, and onboard LANs. Suwanateep at 5.</p> <p>With satellite enhancement, the first technology uses a full-capacity telecommunication infrastructure to offer a real-time, high speed, truly broadband cable-quality Internet service equivalent to what users have on the ground. The system provides Internet and company Intranet access, unlimited connectivity to airborne environment. Suwanateep at 5.</p>

Claim	Suwanateep
	<p>In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes. Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology.</p> <p>Suwanateep at 12.</p> <p>Connexion One provides a dedicated environment for demonstrating the robustness and inflight operability of the Connexion service. The cabin is equipped with onboard server, router and service-analysis equipment and, also, is outfitted to demonstrate security enhancement capabilities the venture is pursuing for commercial airline customers. Seats are configured for demonstrating connectivity to the Connexion service. On the exterior, the top of the aircraft fuselage is outfitted with phased array antennas to enable real-time, Ku satellite-based data transmission and reception. The aircraft permits the airline evaluators assessing the enhanced consumer 39,000 feet and operational benefits of real-time broadband services to personally test the service by having it perform multiple, simultaneous high-bandwidth tasks ranging from data transfer and full-featured e-mail to streaming video and global web site access. Airline technical teams have found the service to be as robust or superior to the high-speed connections they enjoy at home or in the office.</p> <p>Suwanateep at 26-27.</p>

Claim	Suwanateep																		
	<p>Table 4.1. Summary of Connexion Technology.</p> <table> <tr> <td>Connexion</td><td>by BOEING</td></tr> <tr> <td>Technology Partner</td><td>Airia, InFlight Network (IFN) by Rockwell, Collins/News Corp./Globalstar, Thomson, CSF Sextant and Astrium, CNN inflight, ESPN, CNBC, Eurosport</td></tr> <tr> <td>Satellite</td><td>Inmarsat, Loral Space and Communications, Mitsubishi Electronic Corporation (MELCO) group, Finmeccanica and Alenia Aerospazio</td></tr> <tr> <td>Feature</td><td>Provide two-way broadband data services to passengers and crew at 5 Mbps to receive communications and 1.5 Mbps for outbound transmissions, company. The service uses Loral Skynet's Ku-band transponders and proprietary phased array antennas. With advancements in new technologies. Connexion speed 128 kilobytes; most of US\$100 million Airborne antennas, Airborne Cabin File Server, Routers and Associated Wiring, Network Operations Center(NOC)</td></tr> <tr> <td>Airborne antennas</td><td>At 5 Mbps and support responses at T1 rates; 55 inches stretch across the top of a plane's upper fuselage. That helps avoid interruptions. The phased array antenna locks on a satellite by steering its signals electronically. There are no moving parts. The antenna remains in constant contact with the satellite.</td></tr> <tr> <td>Airborne Cabin File Server</td><td>Support the interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</td></tr> <tr> <td>Space System</td><td>Satellite transponders of Ku-band Loral Skynet.</td></tr> <tr> <td>Availability</td><td>North American airline customers at first. Late 2003, in Europe, over the Atlantic and Pacific oceans and Asia.</td></tr> <tr> <td>Internet Fee</td><td>The pricing remains open to change. Free of charge or paid TV programme. Approximately \$17.50 per hour For internet access, flat-rate options for each leg of a trip.</td></tr> </table> <p>Suwanateep at Table 4.1.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson. Suwanateep, Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p>	Connexion	by BOEING	Technology Partner	Airia, InFlight Network (IFN) by Rockwell, Collins/News Corp./Globalstar, Thomson, CSF Sextant and Astrium, CNN inflight, ESPN, CNBC, Eurosport	Satellite	Inmarsat, Loral Space and Communications, Mitsubishi Electronic Corporation (MELCO) group, Finmeccanica and Alenia Aerospazio	Feature	Provide two-way broadband data services to passengers and crew at 5 Mbps to receive communications and 1.5 Mbps for outbound transmissions, company. The service uses Loral Skynet's Ku-band transponders and proprietary phased array antennas. With advancements in new technologies. Connexion speed 128 kilobytes; most of US\$100 million Airborne antennas, Airborne Cabin File Server, Routers and Associated Wiring, Network Operations Center(NOC)	Airborne antennas	At 5 Mbps and support responses at T1 rates; 55 inches stretch across the top of a plane's upper fuselage. That helps avoid interruptions. The phased array antenna locks on a satellite by steering its signals electronically. There are no moving parts. The antenna remains in constant contact with the satellite.	Airborne Cabin File Server	Support the interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.	Space System	Satellite transponders of Ku-band Loral Skynet.	Availability	North American airline customers at first. Late 2003, in Europe, over the Atlantic and Pacific oceans and Asia.	Internet Fee	The pricing remains open to change. Free of charge or paid TV programme. Approximately \$17.50 per hour For internet access, flat-rate options for each leg of a trip.
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Claim	Suwanateep
	<p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>Airpath Wireless Hot Spot at</p> <p>https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/ soln/soln2.html; see also Airpath Wireless Hot Spot at</p> <p>https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/ news/news0.html;</p> <p>https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/ soln/soln0.html;</p> <p>https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/ abtm/abtm0.html;</p> <p>https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/ soln/soln0.html;</p> <p>https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/ news/news0.html;</p> <p>https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/ soln/soln0.html.</p>

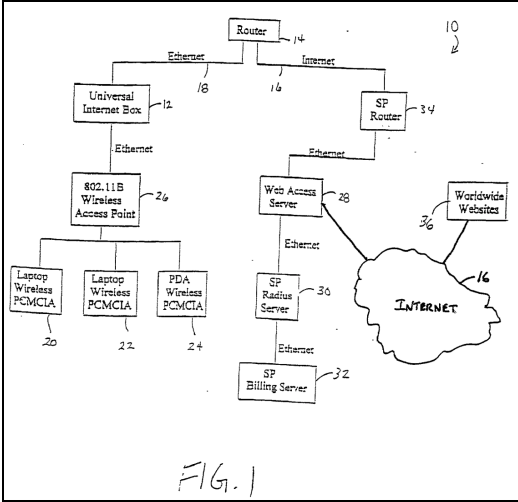
Claim	Suwanateep
	<p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites.</p> <p>Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p> <div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into three main segments: Cabin Segment, Ground Segment, and Aircom Provider Segment. The Cabin Segment includes a Sat-Modem connected to a Satellite in the Space Segment. It also shows an Aircraft Protocol Functions (IP) mobility Server, AAA, VPN, DHCP, and GPRS. The Ground Segment includes a Terrestrial telecom router connected to a Passenger's Company Internet, IP Backbone, and PSTN/UMTS/GSM. The Aircom Provider Segment includes a Service Integrator, AAA, Billing, Mobility IP server, VPN, mobility support, QoS support, UMTS IP, Bluetooth, LAN, and UMTS. The diagram also shows a W-LAN, LAN, and Bluetooth network within the cabin. The caption below the diagram is 'Figure 1: Network Architecture'.</p> </div> <p>Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4.</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service.</p> <p>Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG.</p>

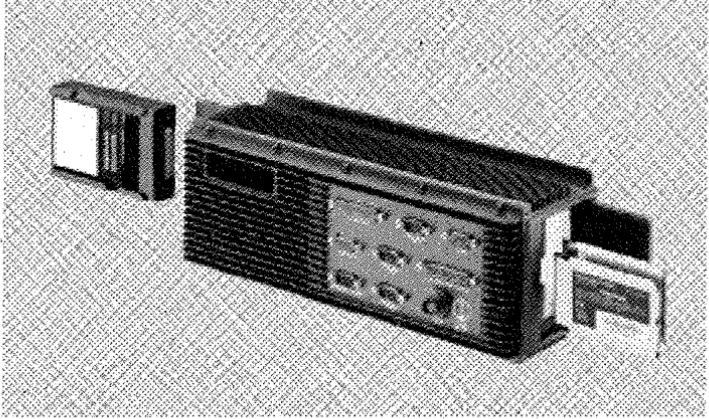
Claim	Suwanateep
	6.
[24.b] at least one router operatively coupled to the satellite dish;	<p>Suwanateep discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.</i>,</p> <div>  <p>Figure 2.3. Airborne Network Server.</p> </div> <p>Suwanateep at 10, FIG. 2.3.</p> <p>The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers.</p> <p>Suwantateep at 9.</p> <p>In addition to the antenna, the system requires a server and router -- powerful machines used to operate computer networks. It will also wire the aircraft to carry the service, potentially building a data port into every seat on the plane.</p>

Claim	Suwanateep
	<p>Suwanateep at 10.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, Seo, and Wu. Suwanateep, Agarwal, DeSanctis, Jahn II, Seo, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Agarwal, DeSanctis, Jahn II, Seo, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Agarwal, DeSanctis, Jahn II, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Suwanateep
	<div> <p>The diagram illustrates a network architecture for a satellite-based Wide Area Network (WAN). A central network (10) is connected to two remote sites (20 and 30) via a WAN link (68). The central network includes a satellite (12), a route server (40), a network control center (30), a master terminal (32), and a router (50). The WAN link (68) connects to two remote sites. Remote site 10 includes a terminal (34), an Ethernet router (54), a frame relay (60), and a remote access server (70). Remote site 20 includes a terminal (36), a frame relay (62), a router (56), and a remote access server (72). Both sites have dial-up access (101-108) and data access (104, 105, 109, 110).</p> </div> <p>FIG. 1</p> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

Claim	Suwanateep
	<div> </div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	Suwanateep
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the</p>	<p>Suwanateep discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p> <p>Internet Fee</p>

Claim	Suwanateep
Internet; and	<p>The price has fluctuated and remains open to change. For the onboard service fee, the service will cost passengers about \$20 per hour (likely less than \$8 a minute of inflight phone call). The passengers can watch paid television program, access their corporate Intranet and surf. Up to four live television channels will be offered at either free of charge or paid programs. Those charges are likely to be around \$17.50 per hour but also may include flat-rate options for each leg of a trip. For the payment, passengers. will use. credit cards to pay charges. They will type the credit card information into the system when they sign on and it will remember the card number so passengers don't have to retype the number the next time they fly.</p> <p>Suwanateep at 12-13.</p> <div>  <p>Figure 2.3. Airborne Network Server.</p> </div> <p>Suwanateep at 10, FIG. 2.3.</p>

Claim	Suwanateep
	<p>The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline customers.</p> <p>Suwanateep at 9.</p> <p>In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes. Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology.</p> <p>Suwanateep at 12.</p> <p>The service fees are based on bandwidth usage.</p> <p>The pricing is variable according to the airlines. It is hard to distinguish because the technology and its service are different, though based on the same technology. It is hard to say whether the price is reasonable or not. The service will cost \$4.95 an hour over North America and \$9.95 an hour on international flights; reading or sending email would cost an extra 50 cents a page. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 a minute for Internet access from aircraft vendor terminal: It costs at US \$10 to 20 to upload and download up to 500KB of mail during a day's travel including all connecting flights that offer the service for instance. Passengers, who want to send or receive long e-mails, like video clips or lengthy attachment, would be charged more. Most of the systems are being designed to scan their email headers before they receive them in order that passengers can decide which messages to accept now or later.</p> <p>Suwanateep at 17 (concerning Tenzing).</p> <p>Business users will be billed through pre-established corporate accounts while leisure travelers will be billed through their credit cards.</p>

Claim	Suwanateep
	<p>Suwanateep at 17.</p> <p>InFlightOnLine claims a hardware platform independent implementation, meaning that the company can deliver Internet services with existing narrowband infrastructure as well as future broadband capabilities like Connexion. IFOL provides software and on-board servers to implement its services, with lots of content.</p> <p>Suwanateep at 32.</p> <p>This software develops a customized inflight portal with the airline's brand. The inflight portal can also serve as an airline's customer service access point, extending the many information and assistance services such as the airline information. The high-performance software is a building-block technology that powers e-mail and accelerates content delivery on any on-board server — managing and adjusting to the available communications bandwidth.</p> <p>Suwanateep at 33.</p> <p>IFOL has an agreement with AT&T seatback telephone system to store their 20-pound airborne data servers on board. The airborne servers will be linked to the seatback-telephone handsets that are offered on virtually every domestic U.S. carrier now. The initial connection will be at 56K, but intends to speed that up in future. Simultaneously, IFOL will use existing satellite systems and ground technologies to update content, depending on timeliness of information. Methods used to update servers include:</p> <p>Suwanateep at 33.</p> <p>The IFOL ground operations center detects changes on the ground sites that need to be synchronized with the aircraft to provide the most up-to-date information. In addition to determining the best method to update the airborne server, the ground center performs the following functions:</p>

Claim	Suwanateep
	<p>(1) Supports routing, tracking and management of traffic and transactions from airborne users.</p> <p>(2) Supplies billing functionality, including real time credit card processing for inflight transactions.</p> <p>(3) Manages and stores user profiles, enabling metrics, personalized web experiences and redundancy.</p> <p>(4) Stores data for all applications and ensures regular synchronization with partner content sites to provide the most up-to-date information.</p> <p>(5) Provides security to verify that only those persons with appropriate rights can see the data.</p> <p>Suwanateep at 34.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Suwanateep, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Suwanateep
	<div><div><div><div><div><div>INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</div></div></div><div><div><div>Powered By Airpath</div></div><div><div><div>Airpath Exclusive ISG-1000 Subscriber Gateway</div><div><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</div><div><div>More Details</div><div>Price/Order</div></div></div></div></div></div></div><div><p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp;</p><p>see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp;</p><p>https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp.</p><p>Airpath Wireless Hot Spot at https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; see also https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp;</p><p>https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm.</p><p>The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat.</p><p>Bruner at [0023]; see also Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p><p>It is envisaged that AAA functions must be located in the cabin to monitor for instance,</p></div></div>

Claim	Suwanateep
	<p>volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8; <i>id.</i> at 2-3, 7.</p> <p>One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] ("The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18₁, 18₂, . . . 18_n) wherein the particular wireless client or mobile communications device 18₁ is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20</p>

Claim	Suwanateep
	<p>configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p>

Claim	Suwanateep
	<div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cf?ReleaseID=94443. See also MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cf?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone</p>

Claim	Suwanateep
	<p>network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features.</p> <p>Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
[24.d] a web-ready device operatively coupled to the at least one router, the web-ready device having a browser application operating thereon for accessing the Internet;	<p>Suwanateep discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i></p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it</p>

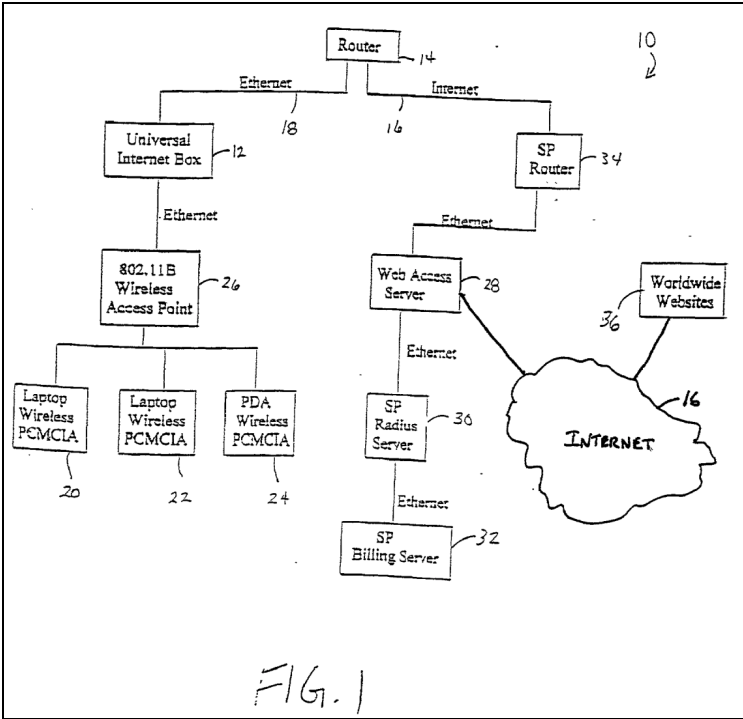
Claim	Suwanateep
	<p>will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9.</p> <p>In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes. Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology. (See Appendix B)</p> <p>Suwanateep at 12.</p> <p>The access gains by runnmg an application downloaded ahead of time from software kit on the airplane or alternatively by a standard dial-up networking connection with standard POP3 email program.</p> <p>Suwanateep at 16.</p> <p>The pricing is variable according to the airlines. It is hard to distinguish because the technology and its service are different, though based on the same technology. It is hard to say whether the price is reasonable or not. The service will cost \$4.95 an hour over North America and \$9.95 an hour on international flights; reading or sending email would cost an extra 50 cents a page. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 a minute for Internet access from aircraft vendor terminal: It costs at US \$10 to 20 to upload and download up to 500KB of mail during a day's travel including all connecting flights that offer the service for instance. Passengers, who want to send or receive long e-mails, like video clips or lengthy attachment, would be charged</p>

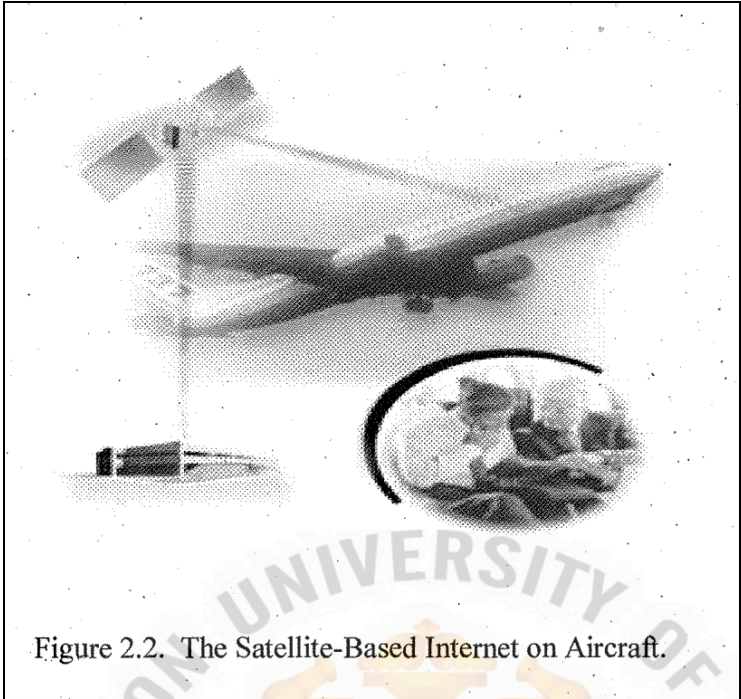
Claim	Suwanateep
	<p>more. Most of the systems are being designed to scan their email headers before they receive them in order that passengers can decide which messages to accept now or later. Suwanateep at 17 (concerning Tenzing).</p> <p>Business users will be billed through pre-established corporate accounts while leisure travelers will be billed through their credit cards. Suwanateep at 17.</p> <p>InFlightOnLine claims a hardware platform independent implementation, meaning that the company can deliver Internet services with existing narrowband infrastructure as well as future broadband capabilities like Connexion. IFOL provides software and on-board servers to implement its services, with lots of content. Suwanateep at 32.</p> <p>IFOL has an agreement with AT&T seatback telephone system to store their 20” pound airborne data servers on board. The airborne servers will be linked to the seatback-telephone handsets that are offered on virtually every domestic U.S. carrier Now. Suwanateep at 32.</p> <p>This software develops a customized inflight portal with the airline’s brand. The inflight portal can also serve as an airline’s customer service access point, extending the many information and assistance services such as the airline information. The high-performance software is a building-block technology that powers e-mail and accelerates content delivery on any on-board server — managing and adjusting to the available communications bandwidth. Suwanateep at 33.</p>

Claim	Suwanateep
	<p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, and Wu. Suwanateep, Bruner, Connexion by Boeing, Jahn II, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Bruner, Connexion by Boeing, Jahn II, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Bruner, Connexion by Boeing, Jahn II, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p>

Claim	Suwanateep
	<div style="border: 1px solid black; padding: 10px;"> <p>Find out about our In-Flight Portal</p> <div>  </div> <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Ln av=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p>

Claim	Suwanateep
	<p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>

Claim	Suwanateep
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>Suwanateep discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p>

Claim	Suwanateep
	<p>Some 11 corporate customers, who have outfitted their private aircraft with . Boeing equipment, are using the Connexion service.· The three airlines, American Airlines, United Airlines and Delta Airlines will equip a total of 1,500 aircrafts with the venture's innovative, high-speed broadband Internet connectivity service.</p> <p>Suwanateep at 14.</p> <div>  <p>Figure 2.2. The Satellite-Based Internet on Aircraft.</p> </div> <p>Suwanateep at 6, FIG. 2.2.</p> <p>The cabin is equipped with onboard server, router and service-analysis equipment and is outfitted for the security enhancement capabilities pursuing for commercial airline</p>

Claim	Suwanateep
	<p>customers. Seats are configured for connectivity. Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line simultaneously.</p> <p>Suwanateep at 9.</p> <p>The IFOL ground operations center detects changes on the ground sites that need to be synchronized with the aircraft to provide the most up-to-date information. In addition to determining the best method to update the airborne server, the ground center performs the following functions:</p> <ul style="list-style-type: none"> (1) Supports routing, tracking and management of traffic and transactions from airborne users. (2) Supplies billing functionality, including real time credit card processing for inflight transactions. (3) Manages and stores user profiles, enabling metrics, personalized web experiences and redundancy. (4) Stores data for all applications and ensures regular synchronization with partner content sites to provide the most up-to-date information. (5) Provides security to verify that only those persons with appropriate rights can see the data. <p>Suwanateep at 34.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, and Wu. Suwanateep, Agarwal, Bruner, Connexion by Boeing, Jahn II, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Suwanateep, namely the provision</p>

Claim	Suwanateep
	<p>of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p style="padding-left: 40px;">Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p style="padding-left: 40px;">FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile</p>

Claim	Suwanateep
	<p>unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station. Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p>

Claim	Suwanateep
	<div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at FIG. 2, 2-3.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p>

Claim	Suwanateep
	<div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation</p>

Claim	Suwanateep
	<p>centers, vehicles, restaurants, libraries, college campuses, and the like. Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].</p>
<p>[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.</p>	<p>Suwanateep discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.,</i></p> <p>The system has contracted with the third party content provider to provide customized, destination-based, licensed content, including worldwide, national and local news, sports and features - from more than 3,000 publications in its global digital content network, then filter, deliver and instantaneously integrate it into the system. As a result, airline passengers will be able to choose from a multitude of personalized real-time services including Internet and corporate Intranet access, E-Commerce, live entertainment and information. The system offers multilingual programming. Selections will be based on the specific needs of the customers in different regional markets. This content complements full Internet/company Intranet access and infuses the service with the time-sensitive data but will not initially supply voice service.</p> <p>Suwanateep at 11.</p> <p>In this Internet environment, it eliminates the complexity and expense of maintaining multiple phonelines and user accounts for each individual connection under conventional schemes. Internet usage may be enabled and monitored on an individual basis. Those services are differentiated by airlines that enable this technology. (See Appendix B)</p> <p>Suwanateep at 12.</p> <p>As of the connection establishment, the passengers plug into a Local Area Network on the plane; logging onto global. ISP provides quick access to onboard web content and email</p>

Claim	Suwanateep
	<p>delivery service. Suwanateep at 15.</p> <p>However, it offers only limited, preloaded web browsing, and disables for corporate, America Online AOL, or web-based email such as Hotmail or Yahoo. E-mail responses and web pages that contain time-sensitive content might cause some delays though. The current system operates at 11 Kbps (compare with ground-based connection 56.6k moderns), while the high-speed connection system will run at 5Mbps, about 500 times faster. The web content is accessible only for the paying email customers. In the future, passengers may be able to call ahead for certain popular sites to be cached before they board particular flights so they can see them in the air. For airlines that enable this technology. (See Appendix B). Suwanateep at 17.</p> <p>Internet Fee</p> <p>The price has fluctuated and remains open to change. For the onboard service fee, the service will cost passengers about \$20 per hour (likely less than \$8 a minute of inflight phone call). The passengers can watch paid television program, access their corporate Intranet and surf. Up to four live television channels will be offered at either free of charge or paid programs. Those charges are likely to be around \$17.50 per hour but also may include flat-rate options for each leg of a trip. For the payment, passengers will use credit cards to pay charges. They will type the credit card information into the system when they sign on and it will remember the card number so passengers don't have to retype the number the next time they fly. Suwanateep at 12-13.</p> <p>The system above exemplifies the technology of Connexion by Boeing (See Company</p>

Claim	Suwanateep
	<p>Profile). In 2000, Connexion (See Company Profile) is the separate business unit to focus this effort, especially developing the broadband inflight Internet technology. Connexion by Boeing is the market-leading initiative to bring commercial broadband data services to commercial and executive aircraft during flight, allowing passengers to have access to Internet, firewall-protected Intranet access, E-Commerce, television, news and entertainment content, and transmit and receipt of data. Aircraft operators also benefit from inflight Internet access to aircraft and crew data. Boeing studies the potential applicability of the Connexion broadband in-flight data services for enhancing aviation security.</p> <p>Suwanateep at 13.</p> <p>According to the new sophisticated technology of the inflight Internet access, any business can exploit from it as a tool of E-Commerce. The proposed system is done as the online onboard duty free service. There are steps to process the online onboard DFS system.</p> <p>Suwanateep at 66-67.</p> <p>(1) Registration: On the technology-enabled airlines, the passengers with the laptops can access the duty free web site after the registration or applying for the membership by referring to their travel document like passport number, flight and date of traveling.</p> <p>Suwanateep at 66-67.</p> <p>(2) Makes a purchase: The passengers can access the DFS web site via Internet. In the cached system, the DFS web site can be loaded in the cabin file proxy server as one of its contents to allow any users to perform the online shopping. The duty free merchandisers negotiate with member airlines flying to its country to provide the CDROM catalog to passengers who wish to buy duty free items. The CDROM duty free service includes the DFS items and the instruction to convey the online purchase process. For the changes in</p>

Claim	Suwanateep
	<p>items or their prices, the CDROM catalogs can be updated before the flight. As the content updates while inflight, all of the orders will be sent to the DFS ground server some time before the arrivals at its destination. In the real time internet system, the airline passengers can access the DFS web site to view the items and process the online purchase. The passengers can ask for the CD ROM of DFS product catalogs instead of the paper brochure to display personally on their laptops to save time downloading the graphics. And passenger with no personal laptop can view the DFS program from the onboard Internet vender terminals, which may be provided in some airlines: After they have chosen the items, they can make a purchase via the inflight. The fee will be responsible by the passengers. Contrarily, the airlines will support the fee of the vender terminal. Actually, with the travel information, the airline passengers can purchase the DFS inflight or even before the trip from home or office.</p> <p>Suwanateep at 67-68.</p> <p>(3) The delivery and the payment: The delivery can be done at the destination only, or there may be home delivery service if the passengers cannot transport it themselves. The payment by credit cards is acceptable with the identical name of the travelers only. Passengers can sign credit card slip at the reception point or pay cash at airport pickup counter. The credit card can be authenticated once they swipe the card. The pre-registration in the DFS web site would assure the authentication of the cardholders. The cash _payment is acceptable at the DFS pick-up counter at the destination airport. The passengers must present the airline ticket or boarding pass and pick up as soon as they arrive at the destination. The home delivery can be arranged for the piggybacking passengers if it exceeded certain amounts purchased and within the airline destinations, perhaps by the later time in the following flights.</p> <p>Suwanateep at 68.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have</p>

Claim	Suwanateep
	<p>been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Suwanateep, Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Bruner, Jahn II, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p>

Claim	Suwanateep
	<div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?LnAv=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?LnAv=4; Suwanateep at 9.</p> <p>Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p>

Claim	Suwanateep
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p>

Claim	Suwanateep
	<p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>Suwanateep discloses “The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin.</p> <p>Suwanateep at 9.</p> <p>ANS is an onboard Local Area Network that connects each seatback telephone bay to an onboard proxy server, based on IEEE 802.11b. The connection on behalf of the individual users is routed through the proxy server, hence the term proxy at speed of 11 Mbps. Each laptop wireless LAN card also has a hardware-defined address, which in turn is mapped into the server as the access point. The aircrafts will house both e-mail and Internet</p>

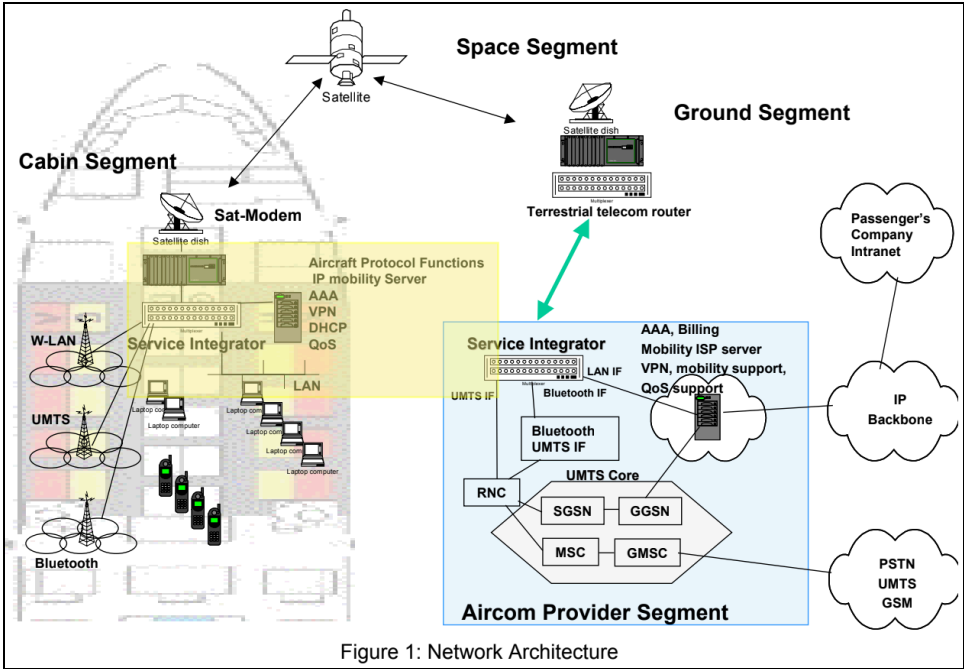
Claim	Suwanateep
	<p>servers. The type of LAN varies between airlines. Cathay Pacific has installed USB ports in its seats, while SAS is with an 802.11 b wireless network, for instance.</p> <p>Suwanateep at 15.</p> <p>As of the connection establishment, the passengers plug into a Local Area Network on the plane; logging onto global. ISP provides quick access to onboard web content and email delivery service. Once the dial-up is made from the 56k laptop's modem via the seatback telephone, the requests are intercepted by the onboard server at 11 Kbps rate and then the onboard proxy server sends a signal to the ground ISP server at rate up to 64Kbps to retrieve messages. The email transfers from the onboard server to laptop at the 56Kbps speed supported by the onboard LAN. Total download time may be the same.</p> <p>Suwanateep at 15.</p> <p>IFOL has an agreement with AT&T seatback telephone system to store their 20-pound airborne data servers on board. The airborne servers will be linked to the seatback-telephone handsets that are offered on virtually every domestic U.S. carrier now. The initial connection will be at 56K, but intends to speed that up in future. Simultaneously, IFOL will use existing satellite systems and ground technologies to update content, depending on timeliness of information. Methods used to update servers include:</p> <p style="padding-left: 40px;">Inflight Updates -- via the off-aircraft communications systems, namely. North American Terrestrial System services, and Inmarsat services, on-demand requests are always addressed in real-time assuming off aircraft bandwidth availability.</p> <p style="padding-left: 40px;">Direct Broadcast Satellite Updates -- If the aircraft is equipped with this capability, IFOL can support both inflight and ground based updates using this technology.</p> <p style="padding-left: 40px;">802.11B Wireless LAN (Gate link) -- Enables high-speed updates of less timely information and content prior to the aircraft departure.</p> <p>Suwanateep at 33.</p>

Claim	Suwanateep
	<p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II Nelson, and Wu. Suwanateep, Agarwal, DeSanctis, Jahn II, Nelson, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Agarwal, DeSanctis, Jahn II, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Agarwal, DeSanctis, Jahn II, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div> <p>FIG. 1</p> </div>

Claim	Suwanateep
	<p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 3:18-20; 3:38-63.</p> <p>Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks.</p> <p>Jahn II at Abstract; <i>see also id.</i> at 3 (“The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.”).</p> <p>The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p> <p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>

Claim	Suwanateep
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Suwanateep discloses “The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.</i>,</p> <p>Ultimately, the service will be available everywhere airplanes can fly. The perceived service will initially be available to commercial airline customers in North America and anticipated in 2002 in Europe. Additional global regions will be added as the service matures.</p> <p>Suwanateep at 9.</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD-ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. An optional ARINC 429 PCMCIA interface allows the cabin file server to utilize aircraft data such as position reporting and maintenance information. This airborne computer is very versatile due to its extensive interface capabilities and removable hard drive. It also allows the computer to be updated and tested on the ground without removal from the aircraft.</p> <p>Suwanateep at 9.</p> <p>Since Internet traffic tends to happen in bursts, the cabin file-server not only allows multiple users to share access to a single physical connection, but also allows them to be on-line simultaneously.</p> <p>Suwanateep at 9.</p>

Claim	Suwanateep
	<p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Suwanateep, Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div> </div> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp.</p>

Claim	Suwanateep
	<p> It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. Bruner at [0008]; <i>see also</i> Bruner at [0011], [0021], Bruner at FIG. 1. </p> <div>  <p>The diagram illustrates a network architecture for in-flight internet access, divided into three main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Contains a Sat-Modem (with a satellite dish) and a Service Integrator. The Service Integrator is connected to various cabin networks: W-LAN, UMTS, and Bluetooth. It also connects to Laptop computers and a LAN. The Service Integrator is associated with Aircraft Protocol Functions, including an IP mobility Server, AAA, VPN, DHCP, and QoS. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the Cabin Segment and a Satellite dish in the Ground Segment. Ground Segment: Includes a Terrestrial telecom router and a Service Integrator. The Service Integrator in the Ground Segment is connected to an AAA, Billing, Mobility ISP server and provides VPN, mobility support, QoS support. It also interfaces with the UMTS IF and Bluetooth IF. <p>The Aircorn Provider Segment is shown at the bottom, containing the UMTS Core with components RNC, SGSN, GGSN, MSC, and GMSC. This segment connects to external networks: Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1; <i>see also</i> Jahn II at 1-3, FIGs. 3-4.</p>

Claim	Suwanateep
	<div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network.</p> <p>Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034].</p> <p>Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area.</p> <p>Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058].</p>
[28] The Internet Hotspot of claim 26,	Suwanateep discloses “The Internet Hotspot of claim 26, wherein the data connections include

Claim	Suwanateep
<p>wherein the data connections include wireless data connections.</p>	<p>wireless data connections.” <i>See, e.g.,</i></p> <p>ANS is an onboard Local Area Network that connects each seatback telephone bay to an onboard proxy server, based on IEEE 802.11b. The connection on behalf of the individual users is routed through the proxy server, hence the term proxy at speed of 11 Mbps. Each laptop wireless LAN card also has a hardware-defined address, which in turn is mapped into the server as the access point. The aircrafts will house both e-mail and Internet servers. The type of LAN varies between airlines. Cathay Pacific has installed USB ports in its seats, while SAS is with an 802.11 b wireless network, for instance.</p> <p>Suwanateep at 15 (emphasis added).</p> <p>IFOL has an agreement with AT&T seatback telephone system to store their 20-pound airborne data servers on board. The airborne servers will be linked to the seatback-telephone handsets that are offered on virtually every domestic U.S. carrier now. The initial connection will be at 56K, but intends to speed that up in future. Simultaneously, IFOL will use existing satellite systems and ground technologies to update content, depending on timeliness of information. Methods used to update servers include:</p> <p style="padding-left: 40px;">Inflight Updates -- via the off-aircraft communications systems, namely. North American Terrestrial System services, and Inmarsat services, on-demand requests are always addressed in real-time assuming off aircraft bandwidth availability.</p> <p style="padding-left: 40px;">Direct Broadcast Satellite Updates -- If the aircraft is equipped with this capability, IFOL can support both inflight and ground based updates using this technology.</p> <p style="padding-left: 40px;">802.11B Wireless LAN (Gate link) -- Enables high-speed updates of less timely information and content prior to the aircraft departure.</p> <p>Suwanateep at 33.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have</p>

Claim	Suwanateep										
	<p>been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu. Suwanateep, Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <table><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr><tr><td rowspan="2"> </td><td colspan="2"> CN-3000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table> <p>Airpath Wireless Hot Spot at</p>	 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order	 	 CN-3000 Subscriber Gateway		<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order
 	Airpath Exclusive ISG-1000 Subscriber Gateway										
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order									
 	 CN-3000 Subscriber Gateway										
	<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order									

Claim	Suwanateep
	<p> https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp. </p> <p> When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. </p> <p> Jahn II at 2-3, FIGs. 3-4. </p> <div style="border: 1px solid black; padding: 5px;"> <p> MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun. </p> </div> <p> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see generally id.</i> </p> <p> The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and </p>

Claim	Suwanateep
	<p>24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1.</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>Suwanateep discloses “The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p> <p>ANS is an onboard Local Area Network that connects each seatback telephone bay to an onboard proxy server, based on IEEE 802.11b. The connection on behalf of the individual users is routed through the proxy server, hence the term proxy at speed of 11 Mbps. Each laptop wireless LAN card also has a hardware-defined address, which in turn is mapped into the server as the access point. The aircrafts will house both e-mail and Internet servers. The type of LAN varies between airlines. Cathay Pacific has installed USB ports in its seats, while SAS is with an 802.11 b wireless network, for instance.</p> <p>Suwanateep at 15.</p> <p>To the extent Suwanateep does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Suwanateep further renders the limitation obvious in light of other references, such as Clark, Jahn II, Nelson, and Wu. Suwanateep, Clark, Jahn II, Nelson, and Wu concern the similar subject matter as Suwanateep, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Suwanateep with Clark, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Suwanateep with those of Clark, Jahn II, Nelson or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Suwanateep
	<p>In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would</p>

Claim	Suwanateep
	<p>understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>

Exhibit 469-11 to Southwest's Preliminary Invalidity Contentions

Tenzing Global

Tenzing Global was known in this country, used in public, sold or offered for sale no later than April 2001, as demonstrated by at least the materials cited herein or the testimony of knowledgeable witnesses and corroborating documents.¹ Specifically, based on information currently available, Tenzing Global was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) in public use or on sale in this country more than one year before the filing date of the patent, or (3) invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim. Thus, Tenzing Global anticipates the asserted claims under at least 35 U.S.C. §§ 102(a), (b) and (g).

At least the following documents describe the relevant functionality disclosed by Tenzing Global:

- Suwanateep, Manasuda, “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” U. OF THAILAND (2002) (“Suwanateep”); and
- <https://web.archive.org/web/20010428030759/http://www.tenzing.com/airlines/airlines.html>.

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in Tenzing Global include at least persons involved in the Tenzing Global and their testing and commercial use, including at least Tenzing Communications, Inc., Tenzing Technologies, LLC, Airbus SE, Telia Company AB, SITA, OnAir Company, Cathay Pacific Airways Ltd., Singapore Airlines Ltd., and Virgin Atlantic Airways Ltd. The conception of Tenzing Global occurred at least as early as April 2001.

Southwest offers this invalidity chart based on its current understanding of Tenzing Global. Southwest's investigation of this system is ongoing. Southwest may rely on materials produced by Plaintiffs or by third parties regarding Tenzing Global and related software to demonstrate invalidity of the asserted claims. Southwest has not had an opportunity to review source code for Tenzing Global. Southwest may rely on source code, when

¹ Defendant's invalidity charts, in some instances, rely at least in part on Plaintiff's apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant's understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff's infringement contentions, or information obtained during discovery as the case proceeds.

available, implementing the functionality described herein, or other source code implementing substantially similar functionality, to demonstrate the invalidity of the asserted claims.

To the extent Plaintiff alleges Tenzing Global does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Tenzing Global or combine the teachings of Tenzing Global with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Tenzing Global;
- Invalid under 35 U.S.C. § 103 by Tenzing Global and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. ("Nelson") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent Application No. 2004/0109449 to Seo ("Seo") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of U.S. Patent Application No. 2003/0050041 to Wu ("Wu") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of Airpath Wireless Hot Spot ("Airpath Wireless Hot Spot") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis, et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art; and
- Invalid under 35 U.S.C. § 103 by Tenzing Global in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

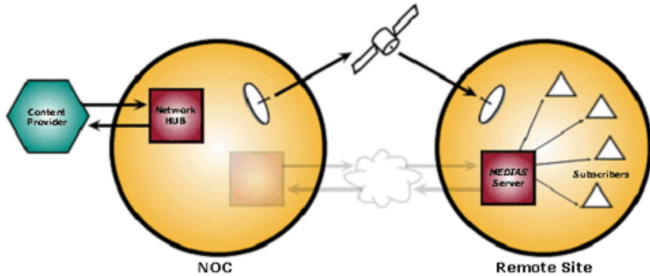
Claim	Tenzing Global
[24.pre] An Internet Hotspot comprising:	To the extent the preamble is limiting, Tenzing Global discloses an Internet Hotspot. <i>See, e.g.,</i>

Claim	Tenzing Global
	<div> <p>Tenzing, partnered with aircraft equipment maker Honeywell, offers the broadband Internet by using end-to-end satellite communication service which enables passengers to choose their connectivity speeds and surf the web in real time, as well as send and receive email from behind corporate firewalls via an onboard virtual private network. Tenzing broadband upgrade path offers airlines a low-risk entry to passenger connectivity. Tenzing has formed a strategic partnership with AIRIA to offer airlines</p> </div> <p>Suwanateep at 20.</p> <div> <p>It remains competitive due to price issues. Tenzing later began to extend the Internet capabilities by include both broadband and optional narrowband. The user experience is similar to that of a remote connection on the ground. Passengers and airlines can choose from live Internet access at a speed of 8 Mbps to 25 Mbps or free access to the selected best of the web content stored on the onboard server. Airlines may upgrade to emerging broadband technology for superior coverage and speed as their connection needs evolved at lower cost. It takes a few hours per aircraft to leverage the existing</p> </div> <p>Suwanateep at 19.</p>

Claim	Tenzing Global
	<div style="border: 1px solid black; padding: 10px;"> <p>Tenzing, partnered with aircraft equipment maker Honeywell, offers the broadband Internet by using end-to-end satellite communication service which enables passengers to choose their connectivity speeds and surf the web in real time, as well as send and receive email from behind corporate firewalls via an onboard virtual private network. Tenzing broadband upgrade path offers airlines a low-risk entry to passenger connectivity. Tenzing has formed a strategic partnership with AIRIA to offer airlines this integrated entertainment and communications solution, an integrated suite of live television, email and web cache services. They integrates satellite communications, terrestrial networks, and global roaming services to deliver seamless, customer-centric connectivity designed specifically for the business traveler across all physical, technical, and conceptual boundaries -- worldwide.</p> </div> <p>Suwanateep at 20.</p>
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>Tenzing Global discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.,</i></p> <div style="border: 1px solid black; padding: 10px;"> <p>A ground-to-air satellite data link uses Inmarsat's Aero-H service. Once connected, the on-ground server will collect and compress e-mail, filtering out large messages or attachments, before sending it back to the onboard proxy server and on to the user. However, the proxy server does not automatically retrieve long messages and</p> </div>

Claim	Tenzing Global
	<p>Suwanateep at 20.</p> <div> <p>television, email and web cache services. They integrates satellite communications, terrestrial networks, and global roaming services to deliver seamless, customer-centric connectivity designed specifically for the business traveler across all physical, technical, and conceptual boundaries -- worldwide.</p> </div> <p>Suwanateep at 20.</p> <div> <p>Tenzing, partnered with aircraft equipment maker Honeywell, offers the broadband Internet by using end-to-end satellite communication service which enables passengers to choose their connectivity speeds and surf the web in real time, as well as send and receive email from behind corporate firewalls via an onboard virtual private network. Tenzing broadband upgrade path offers airlines a low-risk entry to passenger connectivity. Tenzing has formed a strategic partnership with AIRIA to offer airlines this integrated entertainment and communications solution, an integrated suite of live television, email and web cache services. They integrates satellite communications, terrestrial networks, and global roaming services to deliver seamless, customer-centric connectivity designed specifically for the business traveler across all physical, technical, and conceptual boundaries -- worldwide.</p> </div> <p>Suwanateep at 20.</p>

Claim	Tenzing Global																										
	<p>Table 4.2. Summary of Tenzing Technology.</p> <table> <tr> <td>Tenzing</td><td>TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor</td></tr> <tr> <td>Technology Partners</td><td>Cached or Narrowband</td></tr> <tr> <td>Access Partner</td><td>iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.</td></tr> <tr> <td>Web Content Partner</td><td>AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,</td></tr> <tr> <td></td><td>Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com.</td></tr> <tr> <td>Technology Partner</td><td>iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, Verizon Airfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.</td></tr> <tr> <td>Feature</td><td>Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link</td></tr> <tr> <td>Onboard LAN</td><td>USB ports in its seats, an 802.11b wireless network, 56 kbps</td></tr> <tr> <td>Satellite</td><td>Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)</td></tr> <tr> <td>Internet connection fee</td><td>Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)</td></tr> <tr> <td>Technology</td><td>Broadband</td></tr> <tr> <td>Technology Partners</td><td>FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnLine.com,</td></tr> <tr> <td>Availability</td><td>six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways</td></tr> </table> <p>Suwanateep Table 4.2.</p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson. Tenzing Global, Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive</p>	Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor	Technology Partners	Cached or Narrowband	Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.	Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,		Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com.	Technology Partner	iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, Verizon Airfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.	Feature	Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link	Onboard LAN	USB ports in its seats, an 802.11b wireless network, 56 kbps	Satellite	Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)	Internet connection fee	Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)	Technology	Broadband	Technology Partners	FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnLine.com,	Availability	six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways
Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor																										
Technology Partners	Cached or Narrowband																										
Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.																										
Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,																										
	Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com.																										
Technology Partner	iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, Verizon Airfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.																										
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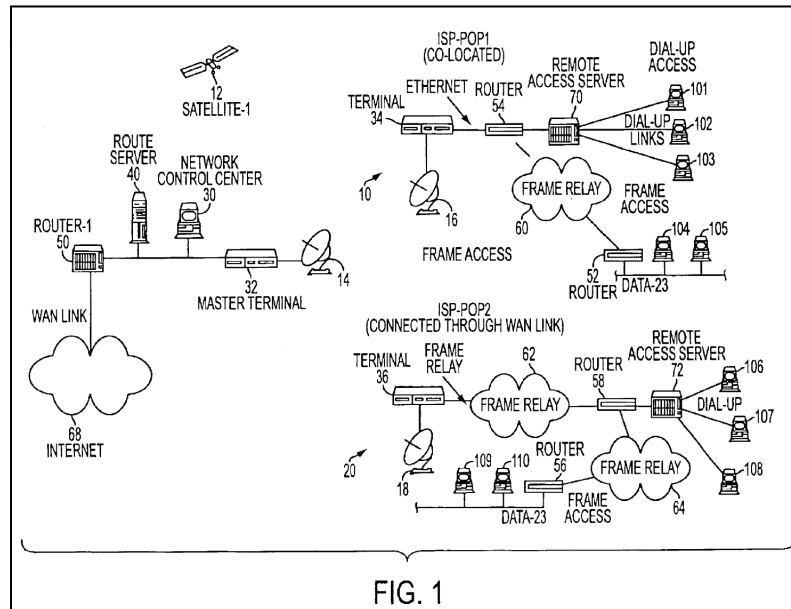
Claim	Tenzing Global
	<p>experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/soln/soln2.html; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html</p>

Claim	Tenzing Global
	<p>https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/_soln/soln0.html;</p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites. Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p> <div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into four main segments: <ul style="list-style-type: none"> Cabin Segment: Located inside the aircraft, it includes a 'Sat-Modem' connected to a 'Satellite' in the Space Segment. It also shows 'Aircraft Protocol Functions' (AAA, DHCP, QoS) and a 'Service Integrator' connected to 'WLAN', 'UMTS', and 'Bluetooth' networks. Space Segment: Contains a 'Satellite' that communicates with the 'Sat-Modem' in the Cabin Segment and a 'Terrestrial telecom router' in the Ground Segment. Ground Segment: Includes a 'Terrestrial telecom router' connected to the 'Satellite' and a 'Passenger's Company Intranet'. Aircom Provider Segment: This segment is connected to the 'Terrestrial telecom router' and includes a 'Service Integrator', 'AAA, Billing, Mobility ISP server', 'VPN, mobility support, QoS support', 'UMTS IP', 'Bluetooth IP', 'RNC', 'UMTS Core', 'GGSN', 'MSC', and 'GMSC'. It also connects to an 'IP Backbone' and 'PSTN UMTS GSM' networks. </p></div> <p>Figure 1: Network Architecture</p> <p>Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4.</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna</p>

Claim	Tenzing Global
	<p>(not shown) to help facilitate the broadband service. Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.</p>
<p>[24.b] at least one router operatively coupled to the satellite dish;</p>	<p>Tenzing Global discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.</i>,</p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, Seo, and Wu. Tenzing Global, Agarwal, DeSanctis, Jahn II, Seo, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Agarwal, DeSanctis, Jahn II, Seo, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Agarwal, DeSanctis, Jahn II, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.</i>,</p>

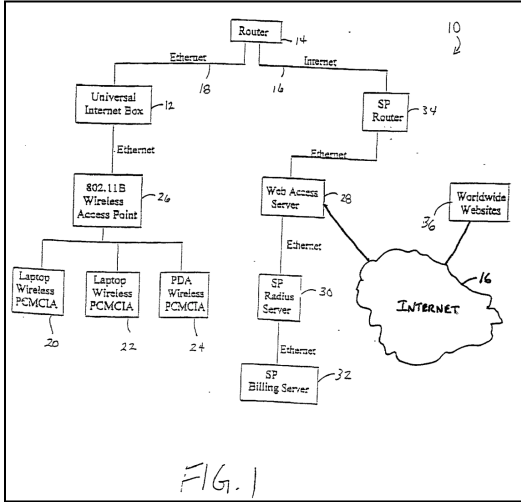
Claim

Tenzing Global



Agarwal at FIG. 1; *see also* Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.

Claim	Tenzing Global
	<div> </div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here.</p> <p>Jahn II at 4-5.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers.</p> <p>Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	Tenzing Global
	 <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user</p>	<p>Tenzing Global discloses “a subscriber access unit operatively coupled between the satellite dish and at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p>

Claim	Tenzing Global																										
access to the Internet; and	<p>Table 4.2. Summary of Tenzing Technology.</p> <table border="1"> <tr> <td>Tenzing</td><td>TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor</td></tr> <tr> <td>Technology Partners</td><td>Cached or Narrowband</td></tr> <tr> <td>Access Partner</td><td>iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.</td></tr> <tr> <td>Web Content Partner</td><td>AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,</td></tr> <tr> <td></td><td>Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com.</td></tr> <tr> <td>Technolgy Partner</td><td>iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, VerizonAirfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.</td></tr> <tr> <td>Feature</td><td>Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link</td></tr> <tr> <td>Onboard LAN</td><td>USB ports in its seats, an 802.11b wireless network, 56 kbps</td></tr> <tr> <td>Satellite</td><td>Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)</td></tr> <tr> <td>Internet connection fee</td><td>Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)</td></tr> <tr> <td>Technology</td><td>Broadband</td></tr> <tr> <td>Technology Partners</td><td>FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnLine.com,</td></tr> <tr> <td>Availability</td><td>six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways</td></tr> </table> <p>Suwanateep Table 4.2.</p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Tenzing Global, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, Seo</p>	Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor	Technology Partners	Cached or Narrowband	Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.	Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,		Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com.	Technolgy Partner	iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, VerizonAirfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.	Feature	Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link	Onboard LAN	USB ports in its seats, an 802.11b wireless network, 56 kbps	Satellite	Inmarsat Holdings Ltd.'s Aero-H service. 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Claim	Tenzing Global
	<p>networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8; <i>id.</i> at 2-3, 7.</p> <p>One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] ("The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client."), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of</p>

Claim	Tenzing Global
	<p>a plurality of mobile communications devices (18₁, 18₂, . . . 18_n) wherein the particular wireless client or mobile communications device 18₁ is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (e.g., a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p>

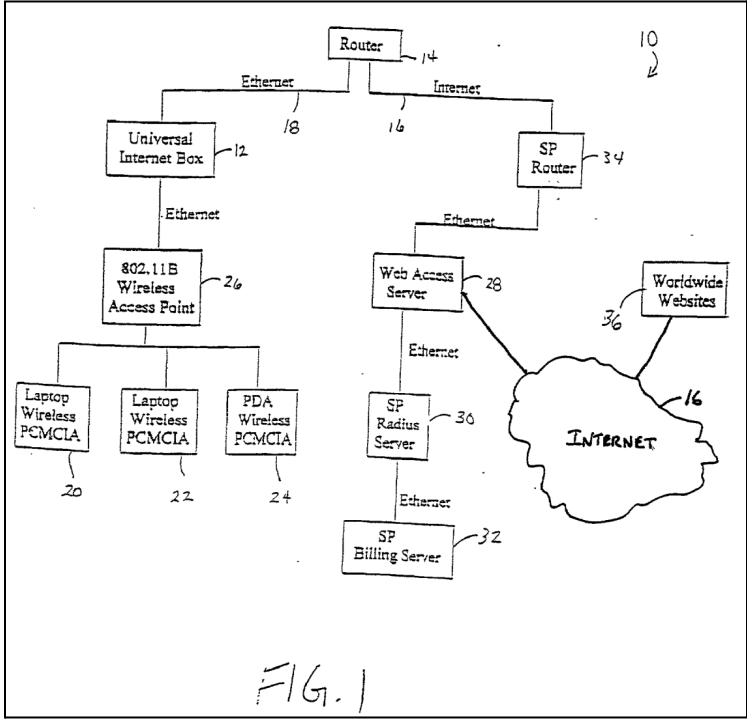
Claim	Tenzing Global
	<div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. See also MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the management</p>

Claim	Tenzing Global
	<p>server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
<p>[24.d] a web-ready device operatively coupled to the at least one router, the web-ready device having a browser application operating thereon for accessing the Internet;</p>	<p>Tenzing Global discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.</i>,</p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing</p>

Claim	Tenzing Global
	<p>Global further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu. Tenzing Global, Bruner, Connexion by Boeing, Jahn II, Suwanateep, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Bruner, Connexion by Boeing, Jahn II, Suwanateep and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Bruner, Connexion by Boeing, Jahn II, Suwanateep or Wu, for example, to incorporate this limitation. <i>See, e.g.</i>,</p> <p style="padding-left: 40px;">The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p>

Claim	Tenzing Global
	<div> <p>Find out about our In-Flight Portal</p>  <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p> <p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops</p>

Claim	Tenzing Global
	<p>and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>

Claim	Tenzing Global
	 <p>FIG. 1</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively</p>	<p>Tenzing Global discloses “wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p>

Claim	Tenzing Global
high volume of transient traffic;	<p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, and Wu. Tenzing Global, Agarwal, Bruner, Connexion by Boeing, Jahn II, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as X, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p style="padding-left: 40px;">Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p>

Claim	Tenzing Global
	<p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p> <div style="border: 1px solid black; padding: 10px; background-color: #f0f0f0;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p>

Claim	Tenzing Global
	<div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at FIG. 2, 2-3.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p>

Claim	Tenzing Global
	<div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like.</p>

Claim	Tenzing Global																										
	<p>Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].</p>																										
<p>[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.</p>	<p>Tenzing Global discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.,</i></p> <table border="1"> <caption>Table 4.2. Summary of Tenzing Technology.</caption> <tr> <td>Tenzing</td><td>TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor</td></tr> <tr> <td>Technology Partners</td><td>Cached or Narrowband</td></tr> <tr> <td>Access Partner</td><td>iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.</td></tr> <tr> <td>Web Content Partner</td><td>AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,</td></tr> <tr> <td></td><td>Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com</td></tr> <tr> <td>Technology Partner</td><td>iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, VerizonAirfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.</td></tr> <tr> <td>Feature</td><td>Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link</td></tr> <tr> <td>Onboard LAN</td><td>USB ports in its seats, an 802.11b wireless network; 56 kbps</td></tr> <tr> <td>Satellite</td><td>Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)</td></tr> <tr> <td>Internet connection fee</td><td>Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)</td></tr> <tr> <td>Technology</td><td>Broadband</td></tr> <tr> <td>Technology Partners</td><td>FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnLine.com,</td></tr> <tr> <td>Availability</td><td>six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways</td></tr> </table> <p>Suwanateep Table 4.2.</p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have</p>	Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor	Technology Partners	Cached or Narrowband	Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.	Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,		Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com	Technology Partner	iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, VerizonAirfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.	Feature	Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link	Onboard LAN	USB ports in its seats, an 802.11b wireless network; 56 kbps	Satellite	Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)	Internet connection fee	Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)	Technology	Broadband	Technology Partners	FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnLine.com,	Availability	six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways
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Claim	Tenzing Global
	<p>been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Tenzing Global, Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Bruner, Jahn II, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer. Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p>

Claim	Tenzing Global
	<div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9.</p> <p>Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p>

Claim	Tenzing Global
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p>

Claim	Tenzing Global
	<p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>Tenzing Global discloses “wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p>

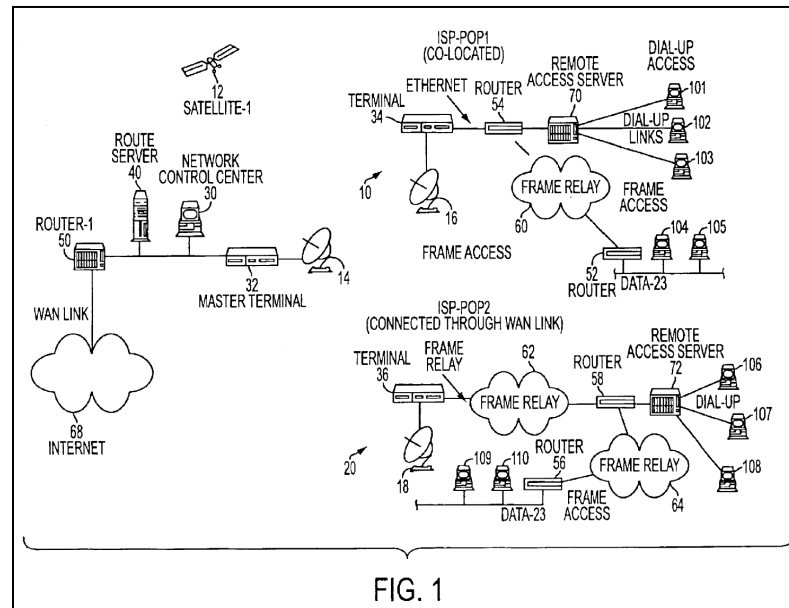
Table 4.2. Summary of Tenzing Technology.

Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor
Technology Partners	Cached or Narrowband
Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.
Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,
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Feature	Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link
Onboard LAN	USB ports in its seats, an 802.11b wireless network; 56 kbps
Satellite	Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)
Internet connection fee	Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)
Technology	Broadband
Technology Partners	FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnline.com,
Availability	six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways

Suwanateep Table 4.2.

To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II Nelson, and Wu. Tenzing Global, Agarwal, DeSanctis, Jahn II, Nelson, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Agarwal, DeSanctis, Jahn II, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Agarwal, DeSanctis, Jahn II, Nelson, or Wu, for example,

to incorporate this limitation. *See, e.g.,*



Agarwal at FIG. 1; *see also* Agarwal at 3:18-20; 3:38-63.

Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks.

Jahn II at Abstract; *see also id.* at 3 (“The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.”).

The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit

	<p>115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p> <p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Tenzing Global discloses “wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.</i>,</p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu. Tenzing Global, Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would</p>

have further understood how to modify the disclosures of Tenzing Global with those of Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. *See, e.g.,*

INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT		
 	Airpath Exclusive ISG-1000 Subscriber Gateway	
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order

Airpath Wireless Hot Spot at

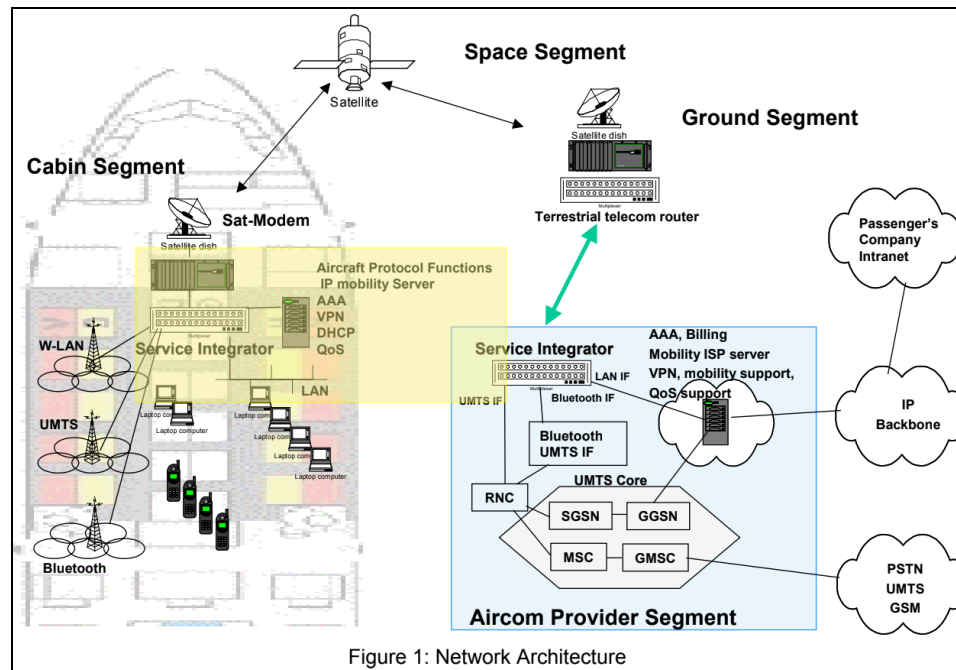
https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp;

see also Airpath Wireless Hot Spot at

<https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html>; <https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp>;
<https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp>.

It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations.

Bruner at [0008]; *see also* Bruner at [0011], [0021], Bruner at FIG. 1.



Jahn II at 2, FIG. 1; *see also* Jahn II at 1-3, FIGs. 3-4.

MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.

MTN Cruise Ship Internet Services at

https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see also* MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm;

	<p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network.</p> <p>Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034].</p> <p>Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area.</p> <p>Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058].</p>
<p>[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.</p>	<p>Connexion by Boeing discloses “wherein the data connections include wireless data connections.” <i>See, e.g.,</i></p> <p>To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu. Tenzing Global, Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Airpath Wireless Hot Spot, Jahn II, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

 	<table border="1"> <tr> <th colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</th></tr> <tr> <td> <ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table>	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! 	More Details Price/Order
Airpath Exclusive ISG-1000 Subscriber Gateway					
<ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! 	More Details Price/Order				
 	<table border="1"> <tr> <th colspan="2">  CN-3000 Subscriber Gateway </th></tr> <tr> <td> <ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! </td><td> More Details Price/Order </td></tr> </table>	 CN-3000 Subscriber Gateway		<ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! 	More Details Price/Order
 CN-3000 Subscriber Gateway					
<ul style="list-style-type: none"> • Contains Airpath Custom Firmware • Perfect for most Hot Spot Venues • Supports 100 Simultaneous Users • Integrated 802.11b Wireless Access Point • Supports wired and wireless Hot Spots • Login/Signup Screens branded to your organization • Setup in less than 30 minutes! 	More Details Price/Order				

Airpath Wireless Hot Spot at

https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; *see also*

Airpath Wireless Hot Spot at

<https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html>; <https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp>;
https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.

When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats.

Jahn II at 2-3, FIGs. 3-4.

MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.

MTN Cruise Ship Internet Services at

https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; *see generally id.*

The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.

Wu at [0037]; *see also* Wu at [0029], [0040], [0049], FIG. 1.

Table 4.2. Summary of Tenzing Technology.

Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor
Technology Partners	Cached or Narrowband
Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.
Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,
	Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com
Technolgy Partner	iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, VerizonAirfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.
Feature	Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link
Onboard LAN	USB ports in its seats, an 802.11b wireless network, 56 kbps
Satellite	Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)
Internet connection fee	Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)
Technology	Broadband
Technology Partners	FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnLine.com,
Availability	six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways

Suwanateep Table 4.2.

[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.

Connexion by Boeing discloses “wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” *See, e.g.,*

Table 4.2. Summary of Tenzing Technology.

Tenzing	TENZING COMMUNICATIONS Inc., the Seattle-based Tenzing wireless technology vendor
Technology Partners	Cached or Narrowband
Access Partner	iPass, Equant, Level3, CompuServe, France Telecom, Pacific Internet, Deutsche Telekom, and many other leading network operators.
Web Content Partner	AcrossFrontiers, Actijob, BizTraveler, Canada Film Board, DoAsia, e-street.com, Execubooks, FT.com, GetAsia,
	Grand Prix Canada, Intowine, Knowledge Anywhere, Lonely Planet, MSNBC, Points.com, Restaurant Row, Time, Time Canada, Travlang, Wall Street Journal, Wines, World Travel, Worldroom, Yahoo, Amazon.com.
Technology Partner	iPass, Telia Homerun, Skynet global, SITA, Nokia, Hughes Global Services, Inmarsat, AIRIA, COMSAT, ARINC, Bell Mobility SkyTel, Verizon Airfone (GTE), Miltope Corporation, General Dynamics, Matsushita Avionics Systems.
Feature	Temporary Solution: with Onboard proxy server. The inflight LAN will carry data at rates up to 11Mbps, Cached or Narrowband. The proxy server in turn will communicate with ground-based networks up to 64Kbps a ground-to-air satellite data link
Onboard LAN	USB ports in its seats, an 802.11b wireless network; 56 kbps
Satellite	Inmarsat Holdings Ltd.'s Aero-H service. Inmarsat 64Kbps, 2 channels (nearly 20 times faster than previously available)
Internet connection fee	Differently on each airline. The flight from Hong Kong to Vancouver, the Cathay Pacific system charges US\$ 5.99 per minute, estimated at US\$10 to 20 to download up to 500KB of mail (and send a similar quantity)
Technology	Broadband
Technology Partners	FlightConnect by Tenzing, with Hughes Global Services Inc., InFlight Mail by Honeywell/Seattle Labs, LiveTV, GTE & ATT, Aircell, AirTV, ICO, InFlightOnline.com,
Availability	six airline customers: Air Canada, Varig airline, Virgin Airlines, Singapore Airlines, Scandinavian Airlines, Cathay Pacific Airways

Suwanateep Table 4.2.

To the extent Tenzing Global does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Tenzing Global further renders the limitation obvious in light of other references, such as Clark, Jahn II, Nelson, and Wu. Tenzing Global, Clark, Jahn II, Nelson, and Wu concern the similar subject matter as Tenzing Global, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Tenzing Global with Clark, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Tenzing Global with those of Clark, Jahn II, Nelson or Wu, for example, to incorporate this limitation. *See, e.g.,*

In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web.

Clark at 3:1-9.

Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.”

Jahn II at 3.

The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network.

Nelson at [0030]; *see also* Nelson at FIG. 1, [0028], [0110].

The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs).

Wu at [0050]; *see also* Wu at FIG. 1, [0052]-[0054].

It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each

	<p>new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>
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Exhibit 469-12 to Southwest's Preliminary Invalidity Contentions

Wireless Cabin

Wireless Cabin was known in this country, used in public, sold or offered for sale no later than February 9, 2003, as demonstrated by at least the materials cited herein or the testimony of knowledgeable witnesses and corroborating documents.¹ Specifically, based on information currently available, Wireless Cabin was (1) known or used in this country before the alleged invention of the claimed subject matter of the asserted claims, (2) in public use or on sale in this country more than one year before the filing date of the patent, or (3) invented by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim. Thus, Wireless Cabin anticipates the asserted claims under at least 35 U.S.C. §§ 102(a) and (g).

At least the following documents describe the relevant functionality disclosed by Wireless Cabin:

- DeSanctis, et al., “Aeronautical Communications for Personal and Multimedia Services via Satellite, AM. INST. OF AERONAUTICAL. AND ASTRONAUTICS (Apr. 2003) (“DeSanctis”);
- DeSanctis, “WirelessCabin - Wireless Access for Multimedia Services in Aircrafts,” INFO SOC’Y TECHS. (July 2, 2003) (“[DeSanctis II](#)”);
- Díaz, et al., “[Aircraft Cabin Propagation For Multimedia Communications](#),” DLR (2002);
- Holzbock, et al., “Land-Mobile Demonstration of Multimedia IP Services in Multi-Segment Access Networks,” AM. INST. OF AERONAUTICAL. AND ASTRONAUTICS (May 2002) (“Holzbock”);
- Holzbock, et al., “Evolution of Aeronautical Communications for Personal and Multimedia Services” IEEE COMMS. MAGAZINE, (July 2003) (“Holzbock II”);
- Jahn, et al., “Dimensioning of Aeronautical Satellite Services,” AM. INST. OF AERONAUTICAL. AND ASTRONAUTICS (Oct. 2002) (“Jahn I”);
- Jahn, et al., “Passenger Multimedia Service Concept via Future Satellite Systems,” DGLR JAHRBUCH (2002) (“Jahn II”);
- Rogoyski, “The Market for Wireless In-Cabin Aeronautical Communications,” INFO SOC’Y TECHS. (2003) (“[Rogoyski](#)”);
- <https://web.archive.org/web/20030209013220/http://www.wirelesscabin.com:80/>;
- <https://web.archive.org/web/20030525103405/http://www.wirelesscabin.com/pub/download/poster.pdf>; and

¹ Defendant’s invalidity charts, in some instances, rely at least in part on Plaintiff’s apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant’s understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff’s infringement contentions, or information obtained during discovery as the case proceeds.

- <https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf>.

Based on information currently available, the persons or entities involved in the conception and diligent reduction to practice of the ideas in Wireless Cabin include at least persons involved in the Wireless Cabin and their testing and commercial use, including at least Inmarsat Global Ltd., Telefonaktiebolaget LM Ericsson, Siemens AG, Kid-Systeme GmbH, ESYS Consulting Ltd., Airbus SE and University of Bradford. The conception of Wireless Cabin occurred at least as early as February 2003.

Southwest offers this invalidity chart based on its current understanding of Wireless Cabin. Southwest's investigation of this system is ongoing. Southwest may rely on materials produced by Plaintiffs or by third parties regarding Wireless Cabin and related software to demonstrate invalidity of the asserted claims. Southwest has not had an opportunity to review source code for Wireless Cabin. Southwest may rely on source code, when available, implementing the functionality described herein, or other source code implementing substantially similar functionality, to demonstrate the invalidity of the asserted claims.

To the extent Plaintiff alleges Wireless Cabin does not disclose any particular limitation of the Asserted Claims of the '469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the '469 Patent to modify Wireless Cabin or combine the teachings of Wireless Cabin with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Wireless Cabin;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent No. 6,894,990 to Agarwal et al. ("Agarwal") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. ("Bruner") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent No. 6,445,777 to Clark ("Clark") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. ("Kalavade") and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent Application No. 2007/0008937 to Mody et al. ("Mody") and the knowledge of a person of ordinary skill in the art;

- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. (“Nelson”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent Application No. 2004/0109449 to Seo (“Seo”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of U.S. Patent Application No. 2003/0050041 to Wu (“Wu”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art; and/or
- Invalid under 35 U.S.C. § 103 by Wireless Cabin in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

Claim	Wireless Cabin
<p>[24] An Internet Hotspot comprising:</p>	<p>To the extent the preamble is limiting, Wireless Cabin discloses an Internet Hotspot. <i>See, e.g.,</i></p> <p>The EC project WirelessCabin (IST-2001-37466) is looking into those radio access technologies to be transported via satellite to terrestrial backbones [2]. The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers. With the advent of new services a detailed investigation of the expected traffic is necessary in order to plan the needed capacities to fulfil the QoS demands. This paper will thus describe a methodology for the planning of such systems.</p> <p>Jahn I at 1.</p> <div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h3>Wireless Cabin: The Motivation</h3> <hr/> <p><i>Broadband satellite services for aircraft become reality</i></p> <p>Demand for Internet access and telephony during flight</p> <p>Airline passengers want to use their normal communications equipment and personal profile</p> <p>Typical equipment:</p> <ul style="list-style-type: none"> ♦ mobile phone (GSM, UMTS) ♦ laptop (modem, RJ-45, WLAN) ♦ PDA </div>  <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	<div style="border: 1px solid black; padding: 10px;"> <p>The architecture consists of (i) several wireless access segments in the aircraft cabin, (ii) a satellite segment for interconnection of the cabin with the terrestrial telecom networks, and (iii) an aircom service provider segment supporting the integrated cabin services.</p> <p>The CMHN concept will be elaborated and the required protocols will be analyzed and designed. A concept for providing different quality of service with variable bandwidth for each of the access standards will be developed and a handover strategy among several available satellite segments with eventual asymmetric bandwidth in up- and down-link will be defined.</p> <p>For the wireless access, the propagation channel in the aircraft will be determined by a channel measurement campaign, and channel statistics and a model will be derived. This will yield to an interference analysis to determine the cell topology, but also the impact on avionics equipment in flight deck and bay.</p> <p>On the protocol side the project will investigate the effect of the propagation delay on UMTS protocols and an encapsulation of UMTS services over Bluetooth will be developed.</p> <p>Furthermore, a market survey will perform passenger and airline interviews, and a business relation model between service providers, airlines, and satellite providers will be established.</p> </div> <p>https://web.archive.org/web/20030209013220/http://www.wirelesscabin.com:80/</p>

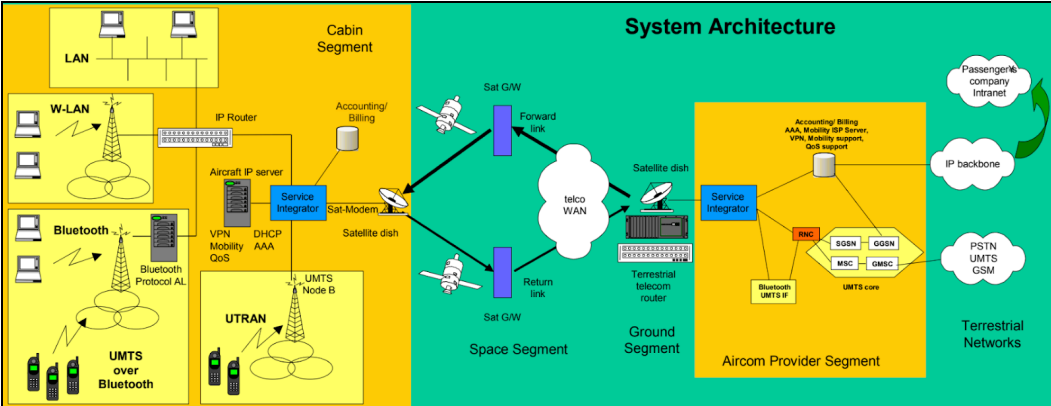
Claim	Wireless Cabin												
	<p style="text-align: center;">TABLE I. CATEGORIZED AIRCOM SERVICES</p> <table> <tr> <th>Category</th><th>Services</th></tr> <tr> <td>Infotainment</td><td>www, email, live TV, gambling, phone, intelligent travel information</td></tr> <tr> <td>Office</td><td>email, www, phone, fax, video-conferencing, file transfer</td></tr> <tr> <td>Telemedicine</td><td>video conferencing, vital data trans-mission</td></tr> <tr> <td>Flight security</td><td>cabin & cockpit survey, flight recorder data transmission</td></tr> <tr> <td>Logistics & maintenance</td><td>video and audio server upload, aircraft maintenance data</td></tr> </table> <p>Jahn I at Table I.</p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for 	Category	Services	Infotainment	www, email, live TV, gambling, phone, intelligent travel information	Office	email, www, phone, fax, video-conferencing, file transfer	Telemedicine	video conferencing, vital data trans-mission	Flight security	cabin & cockpit survey, flight recorder data transmission	Logistics & maintenance	video and audio server upload, aircraft maintenance data
Category	Services												
Infotainment	www, email, live TV, gambling, phone, intelligent travel information												
Office	email, www, phone, fax, video-conferencing, file transfer												
Telemedicine	video conferencing, vital data trans-mission												
Flight security	cabin & cockpit survey, flight recorder data transmission												
Logistics & maintenance	video and audio server upload, aircraft maintenance data												

Claim	Wireless Cabin
	<p>personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>Jahn I at 2.</p> <div> <p>Figure 1: WirelessCabin network architecture</p> </div> <p>Jahn I at 2, FIG. 1.</p> <p>In this paper, a innovative service concept for aircraft cabins is presented. Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. In this paper also wireless access methods such as W-LAN for data connections to laptops and UMTS for personal telephony are suggested. A concept for service provisioning of dedicated aircraft services and its architecture is described. Different services are multiplexed over a satellite link and forwarded to the service provider</p>

Claim	Wireless Cabin
	<p>domain. Dynamic bandwidth support for the different services is supported and handover between satellites are supported. Jahn II at Abstract.</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). Jahn II at 1.</p> <p>In what follows in this paper we present an service concept and architecture that enables the use of personal wireless communication devices inside an aircraft cabin. Jahn II at 1.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. Jahn II at 2.</p>

Claim	Wireless Cabin
	<div> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>id.</i> at 2 (“The architecture and its components are conceptually depicted in Figure 1.”).</p> <p>4. PROJECT WIRELESS CABIN</p> <p>The goal of the WirelessCabin project is to develop technologies that enable the use of personal wireless communication devices inside an aircraft cabin. For this goal, several access technologies in the cabin are envisaged for passenger service, of which the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. The aircraft cabin represents then a collectively mobile heterogeneous network, supporting several radio access networks towards users collectively on the move.</p> <p>Holzbock at 5.</p>

Claim	Wireless Cabin
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>Wireless Cabin discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.</i>,</p> <div> <p>The diagram, titled "UMTS Aircraft-Satellite-Earth Interface" and labeled "WirelessCabin, EC Project IST-2001-37466", illustrates the communication system. At the top left, a satellite is shown in orbit. A vertical double-headed arrow labeled "Ku or K/Ka or L/Ku-band" connects the satellite to a "Ground station" on the Earth's surface. The ground station is connected to a "UMTS core network" cloud. To the right, an "Aircraft" is shown with a satellite dish. Inside the aircraft, a "Service integrator / modem" is connected to a "Node B / RNC". The "Node B / RNC" is connected to a cloud labeled "UMTS terminals", which contains an illustration of a mobile phone. A bracket below the "Node B / RNC" and "UMTS terminals" cloud is labeled "UTRAN network". A small logo in the top right corner shows a stylized aircraft with the text "WIRELESSCabin".</p> </div> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

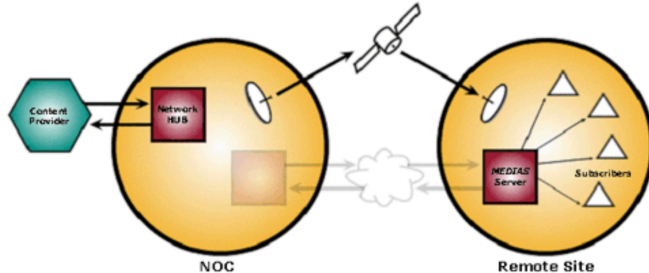
Claim	Wireless Cabin
	 <p>The diagram illustrates the System Architecture of a Wireless Cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Includes LAN, W-LAN, Bluetooth, and UMTS over Bluetooth. It connects to an IP Router and an Aircraft IP server. Space Segment: Includes Sat G/W and a Satellite dish. Ground Segment: Includes a Terrestrial telecom router and a Satellite dish. Aircom Provider Segment: Includes a Service Integrator, Accounting/Billing, and various network elements like RNC, SGSN, GGSN, MSC, and GMSC. <p>The diagram also shows connections to Terrestrial Networks (PSTN, UMTS, GSM) and a Passenger's company Intranet.</p> <p>https://web.archive.org/web/20030525103405/http://www.wirelesscabin.com/pub/download/poster.pdf</p>

Claim	Wireless Cabin
	<div> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>Such infrastructure comprises: A satellite segment for interconnection of the cabin with the terrestrial telecom networks. The different cabin services must be integrated and interconnected using a service integrator, that allows the separation and transportation of the services over a single or several satellite bearers. Peculiarities, such as limited bandwidth, asymmetric data rates on satellite up- and down-link, and dynamic traffic demand between the different services and handover between satellite bearers need to be addressed. In order to minimize the cost (satellite resources) for a given QoS efficient interworking between the service integrator and the satellite segment will be required.</p> <p>Jahn I at 2.</p>

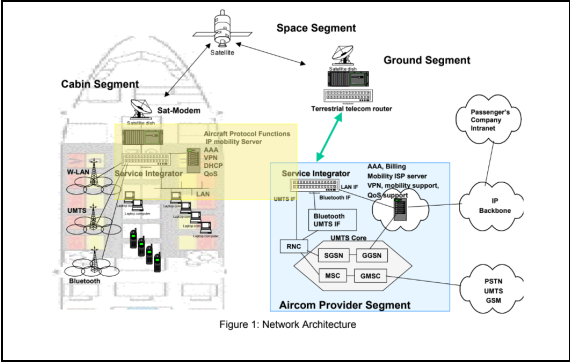
Claim	Wireless Cabin
	<p>Currently, few geostationary satellites such as the Inmarsat fleet are available for two-way communications, that cover the land masses and the oceans. Ku- band may be used on a secondary allocation basis for aeronautical mobile satellite services (AMSS) but bandwidth is scarce and coverage is mostly provided over continents. K/Ka-band satellites will be launched in the near future, again here continental coverage is mainly intended.</p> <p>Jahn I at 2; <i>see also</i> Jahn I at 3, FIG 2.</p> <div> <p>The diagram illustrates a network architecture for a wireless cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem connected to a Satellite dish. It also features a Service Integrator connected to W-LAN, UMTS, and Bluetooth networks. Various Laptop computers are shown connected to these networks. Space Segment: Consists of a Satellite in orbit, which communicates with the Satellite dish in the Cabin Segment and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router that connects the ground-based satellite dish to the Aircom Provider Segment. Aircom Provider Segment: This segment contains a Service Integrator and a UMTS Core. The Service Integrator handles AAA, Billing, Mobility, ISP server, VPN, mobility support, QoS/support. The UMTS Core includes RNC, SGSN, GGSN, MSC, and GMSC components. It also interfaces with Bluetooth UITS IF and UMTS IF. <p>External networks are also shown, including the Passenger's Company Intranet, IP Backbone, and PSTN UITS GSM.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1.</p> <p>The architecture and its components are conceptually depicted in Figure 1. Such an infrastructure comprises of:</p>

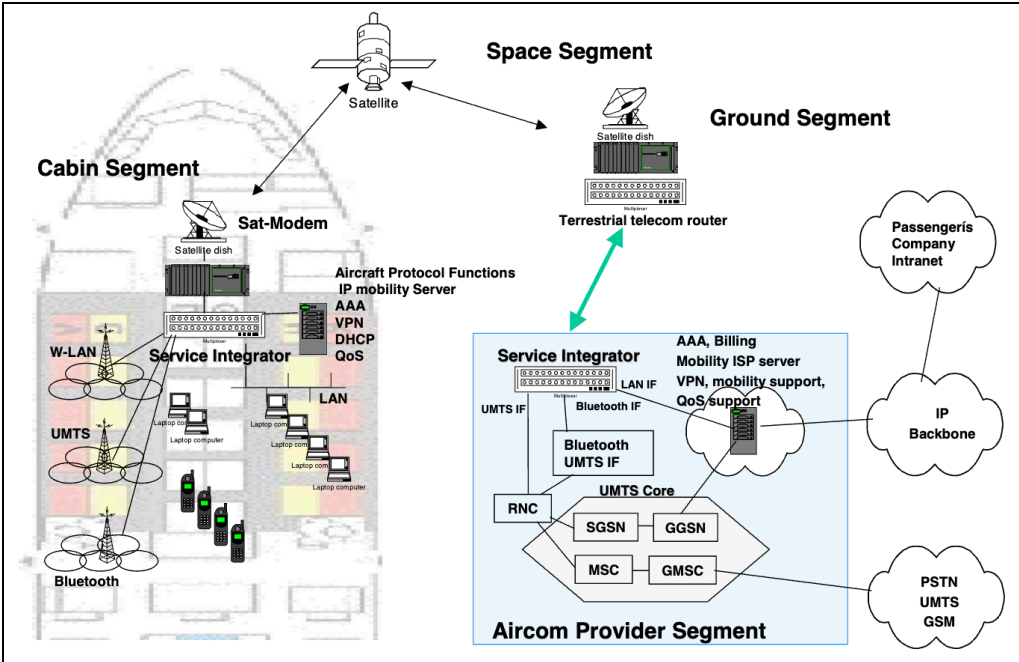
Claim	Wireless Cabin
	<p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>A satellite segment for interconnection of the cabin with the terrestrial telecom networks. The different cabin services must be integrated and interconnected using a service integrator, that allows the separation and transportation of the services over a single or several satellite bearers.</p> <p>Jahn II at 3.</p> <p>Connection to telecom networks is considered to be achieved by satellites with large coverage areas [LWJ00], especially over oceanic regions during long-haul flights. The service concept needs to take into account today's peculiarities of satellite communications, thus it must cope with the available or in near future available satellite technology, and interworking must be performed at aircraft interface level with the satellite segment, cf. Fig. 2:</p> <p>Jahn II at 4.</p>

Claim	Wireless Cabin
	<div> <p style="text-align: center;">Figure 2: Satellite Connection Scenario</p> </div> <p>Jahn II at FIG. 2.</p> <p>A satellite segment for interconnection of the cabin with the terrestrial telecom networks. The different cabin services must be integrated and interconnected using a service integrator, that allows the separation and transportation of the services over a single or several satellite bearers. Peculiarities, such as limited bandwidth, asymmetric data rates on satellite up- and down- link, and dynamic traffic demand between the different services and handover between satellite bearers need to be addressed. In order to minimize the cost (satellite resources) for a given QoS efficient interworking between the service integrator and the satellite segment will be required.</p> <p>Holzbock at 5.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art.</p>

Claim	Wireless Cabin
	<p>Wireless Cabin further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, and Nelson. Wireless Cabin, Airpath Wireless Hot Spot, Agarwal, Bruner, and Nelson concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Airpath Wireless Hot Spot, Agarwal, Bruner, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Airpath Wireless Hot Spot, Agarwal, Bruner, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>The diagram illustrates the MEDIAS Solution architecture. On the left, a green hexagon labeled 'Content Provider' is connected by a double-headed arrow to a red square labeled 'Network HUB'. The 'Network HUB' is located within a large yellow circle labeled 'NOC' (Network Operations Center). A satellite is shown in the upper center, with arrows pointing to it from both the 'Network HUB' and a red square labeled 'MEDIAS Server' located within a large yellow circle labeled 'Remote Site'. The 'MEDIAS Server' is connected by a double-headed arrow to several white triangles labeled 'Subscribers' within the 'Remote Site' circle. A cloud-like shape connects the 'NOC' and 'Remote Site' circles, indicating network connectivity.</p> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/ soln/soln2.html; see also Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/ news/news0.html;</p>

Claim	Wireless Cabin
	<p> https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html; https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/soln/soln0.html. </p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites.</p> <p>Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p>

Claim	Wireless Cabin
	 <p>Figure 1: Network Architecture</p> <p>The diagram illustrates a network architecture for a wireless cabin system, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located on the aircraft, it includes a Sat-Modem, Aircraft Protocol Functions, IP mobility Server, AAA, VPN, QoS, and a Service Integrator. It also shows W-LAN, UMTS, and Bluetooth connections to passenger devices. Space Segment: Consists of a satellite in orbit that communicates with the Sat-Modem on the aircraft and a Terrestrial telecom router on the ground. Ground Segment: Includes the Terrestrial telecom router, which connects to the Aircom Provider Segment and the Passenger's Company network. Aircom Provider Segment: This segment includes a Service Integrator, AAA Billing, Mobility IP server, VPN, mobility support, QoS, and a UMTS Core. It also shows connections to RNC, SGSN, GSN, MSC, and GMSC. <p>Additional components shown include the Passenger's Company network, IP Backbone, and PSTN UMTS GSM connections.</p> <p>Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4.</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service.</p> <p>Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.</p>
[24.b] at least one router operatively coupled to the satellite dish;	Wireless Cabin discloses “at least one router operatively coupled to the satellite dish.” <i>See, e.g.,</i>

Claim	Wireless Cabin
	 <p>The diagram illustrates the architecture of a Wireless Cabin system, divided into three main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside the aircraft, it includes a Sat-Modem connected to a Satellite dish. The cabin network consists of a W-LAN, UMTS, and Bluetooth interfaces, all connected to a central Service Integrator. The Service Integrator also manages Aircraft Protocol Functions such as IP mobility Server, AAA, VPN, DHCP, and QoS. Various Laptop computers are shown connected to the network. Space Segment: Consists of a Satellite in orbit that communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router and an Aircom Provider Segment. The Aircom Provider Segment contains a Service Integrator with interfaces for UMTS IF, Bluetooth IF, and UMTS IF. It also includes a UMTS Core with components like RNC, SGSN, GGSN, MSC, and GMSC. The Service Integrator in the ground segment handles AAA, Billing, Mobility ISP server, VPN, mobility support, and QoS/support. It connects to an IP Backbone and PSTN UMTS GSM networks. A Passenger's Company Intranet is also shown connected to the IP Backbone. <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h3>UMTS Aircraft-Satellite-Earth Interface</h3> <p>The diagram illustrates the UMTS Aircraft-Satellite-Earth Interface. It shows a satellite in the top left, an aircraft in the top right, a ground station in the bottom left, and a UMTS core network in the bottom right. The aircraft is connected to the satellite via Ku or K/Ka or L/Ku-band. The aircraft is also connected to a service integrator/modem, which is connected to a Node B/RNC, which is connected to UMTS terminals. The ground station is connected to the UMTS core network. The UMTS core network is connected to the UTRAN network.</p> </div> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p> <div> <p>The architecture consists of (i) several wireless access segments in the aircraft cabin, (ii) a satellite segment for interconnection of the cabin with the terrestrial telecom networks, and (iii) an aircom service provider segment supporting the integrated cabin services.</p> <p>The CMHN concept will be elaborated and the required protocols will be analyzed and designed. A concept for providing different quality of service with variable bandwidth for each of the access standards will be developed and a handover strategy among several available satellite segments with eventual asymmetric bandwidth in up- and down-link will be defined.</p> </div> <p>https://web.archive.org/web/20030209013220/http://www.wirelesscabin.com:80/</p>

Claim	Wireless Cabin
	<div> </div> <p> https://web.archive.org/web/20030525103405/http://www.wirelesscabin.com/pub/download/poster.pdf </p> <p> Such an infrastructure comprises: Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. </p> <p> Jahn I at 3. </p>

Claim	Wireless Cabin
	<div> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>An aircom service provider segment supporting the integrated cabin services. The aircom provider segment provides the interconnection to the terrestrial personal and data networks as well as the Internet backbone. For the UMTS cabin service, a subset of the UMTS core network must be available.</p> <p>Jahn I at 3.</p> <p>Peculiarities, such as limited bandwidth, asymmetric data rates on satellite up- and down-link, and dynamic traffic demand between the different services and handover</p>

Claim	Wireless Cabin
	<p>between satellite bearers need to be addressed. In order o minimize the cost (satellite resources) for a given QoS efficient interworking between the service integrator and the satellite segment will be required.</p> <p>Jahn I at 2-3.</p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development of new protocol concepts to support</p> <ul style="list-style-type: none"> the integrated services with dynamic bandwidth sharing among the services and asymmetrical data rate; <p>Jahn I at 3.</p>

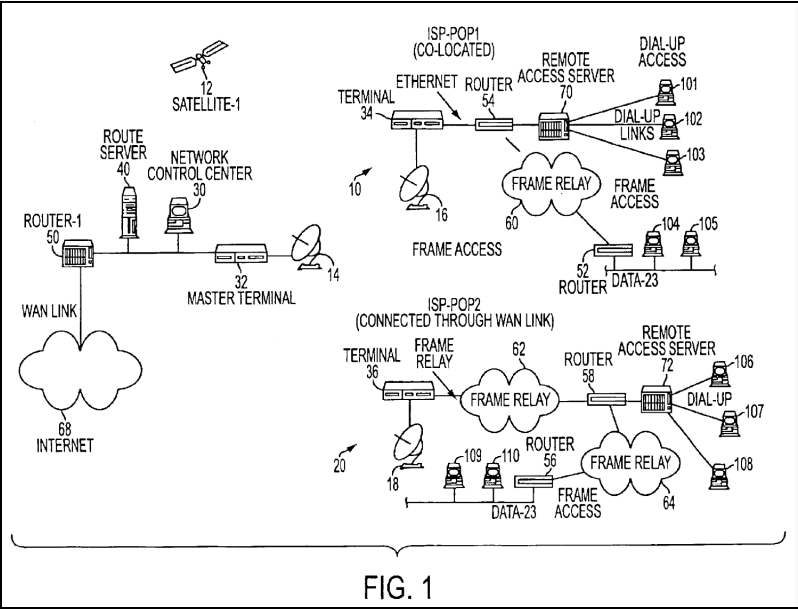
Claim	Wireless Cabin
	<div> <p>The diagram illustrates a 'Wireless Cabin' system. A central 'Service Integrator' box is connected to three 'Cabin Segment' boxes. Each segment contains a network of laptops and a tower. The segments are connected to a 'Satellite' via a 'Forward link' and a 'Return' link. The diagram is labeled 'Figure 2: Sa'.</p> </div> <p>Jahn I at 3, FIG. 2 (excerpt).</p> <p>The different wireless access services of UMTS, W-LAN and Bluetooth require an integration of the services over the satellite. The central part of the service portfolio provisioning is the service integrator (SI), cf. Figure 3. The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site.</p> <p>Jahn I at 4.</p>

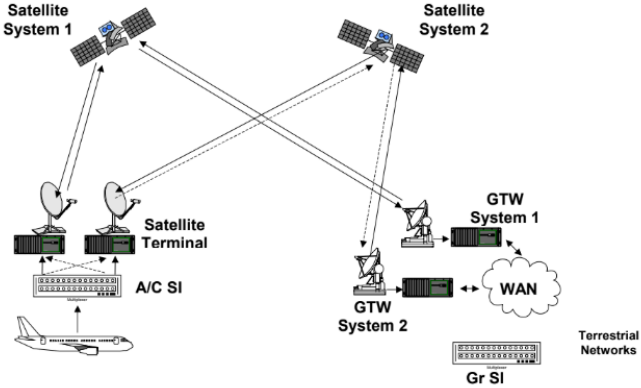
Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem connected to a Satellite dish. It also features W-LAN, UMTS, and Bluetooth access technologies. A Service Integrator is shown connecting these access technologies to the Aircom Provider Segment. The Service Integrator also manages Aircraft Protocol Functions including IP mobility Server, AAA, VPN, DHCP, and QoS. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the Cabin Segment and a Satellite dish in the Ground Segment. Ground Segment: Includes a Terrestrial telecom router that connects the Satellite dish to the Aircom Provider Segment. Aircom Provider Segment: This segment contains the Service Integrator and the UMTS Core. The Service Integrator also handles AAA, Billing, Mobility ISP server, VPN, mobility support, and QoS support. The UMTS Core includes components like RNC, SGSN, GGSN, MSC, and GMSC. It connects to external networks: Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM. <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>id.</i> at 3 (“The architecture and its components are conceptually depicted in Figure 1.”).</p> <p>“The different wireless access services of UMTS, W- LAN and Bluetooth require different architectures from a protocol and networking point-of-view, as depicted in Figure 3.”</p> <p>Jahn II at 4.</p>

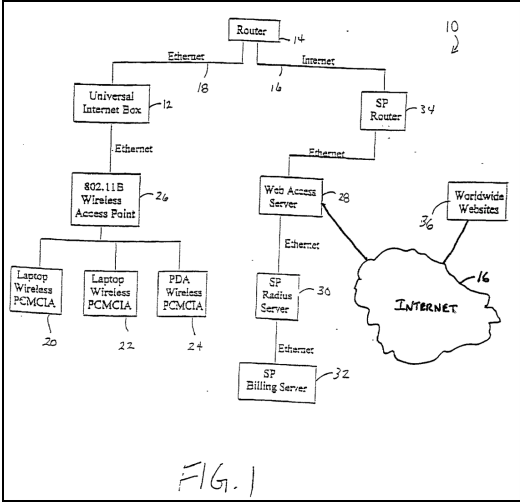
Claim	Wireless Cabin
	<div> <p>Figure 2: Satellite Connection Scenario</p> </div> <p>Jahn II at 3, FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here.</p> <p>Jahn II at 4-5.</p>

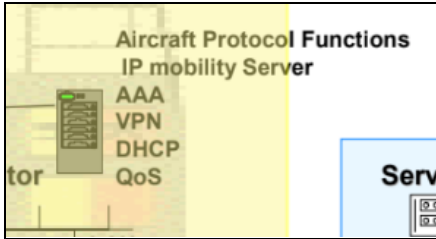
Claim	Wireless Cabin
	<div> <p>a) IP support through fixed cabling or W-LAN</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>The Collectively Mobile Heterogeneous Network (CMHN) (cf. Figure 1) consists of the mobile part aboard the aircraft and of the fixed service provider infrastructure on the ground. Both parts are interconnected by a bearer service between two Service Integrator (SI) nodes. Typically, one or more satellites will provide the bearer system. This SI module will be responsible for switching data among the wireless access standards that will coexist in the aircraft (UMTS, IEEE 802.11b for W- LAN or Bluetooth).</p> <p>Jahn II at 6.</p> <p>4. PROJECT WIRELESS CABIN</p> <p>The goal of the WirelessCabin project is to develop technologies that enable the use of personal wireless communication devices inside an aircraft cabin. For this goal, several access technologies in the cabin are envisaged for passenger service, of which the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. The aircraft cabin represents then a collectively mobile heterogeneous network, supporting several radio access networks</p>

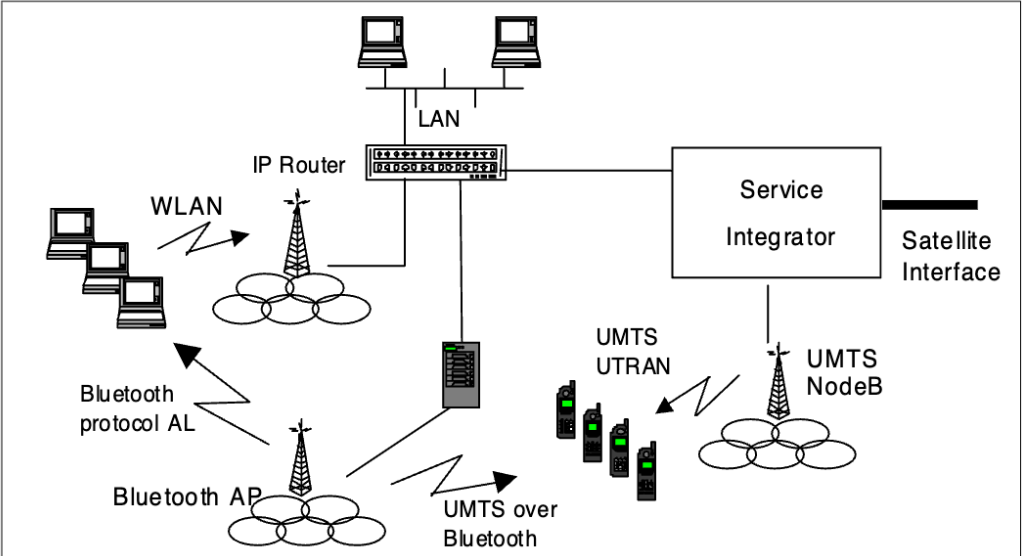
Claim	Wireless Cabin
	<p>towards users collectively on the move. The infrastructure and its components conceptually comprises of:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico- cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. <p>Holzbock at 5.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Seo, and Wu. Wireless Cabin, Agarwal, DeSanctis, Seo, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Agarwal, DeSanctis, Seo, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Agarwal, DeSanctis, Seo, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

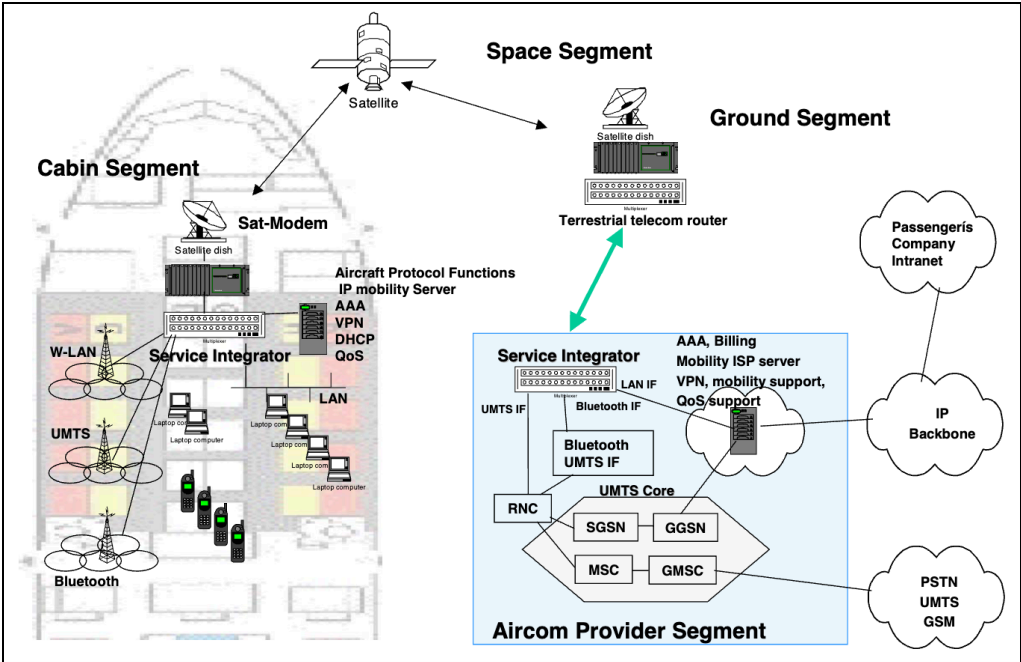
Claim	Wireless Cabin
	 <p style="text-align: center;">FIG. 1</p> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

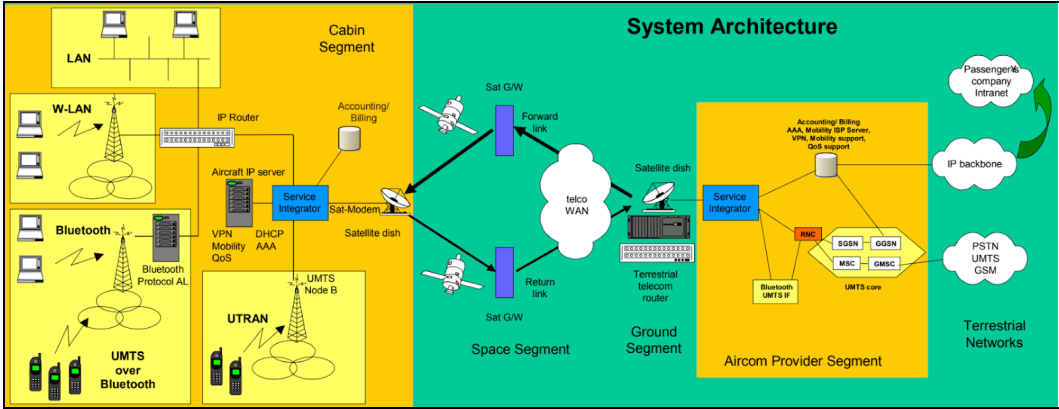
Claim	Wireless Cabin
	 <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers.</p> <p>Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p>

Claim	Wireless Cabin
	 <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”); <i>see also</i> Wu at [0058]-[0059].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the</p>	<p>Wireless Cabin discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p> <p>The provision of such a heterogeneous access network with collectively mobile users</p>

Claim	Wireless Cabin
Internet; and	<p>requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p> <div>  <p>The diagram, titled 'Aircraft Protocol Functions', shows a central yellow box containing the text 'IP mobility Server', 'AAA', 'VPN', 'DHCP', and 'QoS'. To the left of this box is a smaller grey box labeled 'tor'. To the right is a blue box labeled 'Serv'.</p> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> at 2 (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <div> <p>Connection of the cabin cellular network to terrestrial telecom networks</p> <ul style="list-style-type: none"> ◆ service integration, dynamic bandwidth sharing, QoS support ◆ satellite link (limited bandwidth, asymmetric up-/down-link) ◆ network architecture (access nodes in cabin, IP mobility, VPN, AAA) ◆ terrestrial infrastructure for service provisioning ◆ protocol aspects (effect of propagation delay on signaling) </div> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	 <p>The diagram illustrates a network architecture for a 'Wireless Cabin'. At the top, two desktop computers are connected to a central 'IP Router' via a 'LAN'. The 'IP Router' is also connected to a 'Service Integrator' box. To the left of the router, a 'WLAN' (represented by a tower icon) is connected to the router. Below the WLAN, a 'Bluetooth AP' (represented by a tower icon) is connected to the router. A 'Bluetooth protocol AL' (represented by a laptop icon) is connected to the Bluetooth AP. To the right of the router, a 'UMTS over Bluetooth' connection is shown, linking the Bluetooth AP to a 'UMTS UTRAN' (represented by a tower icon). The 'UMTS UTRAN' is connected to a 'UMTS NodeB' (represented by a tower icon). The 'Service Integrator' box is also connected to a 'Satellite Interface' (represented by a thick line). The entire diagram is enclosed in a rectangular frame.</p> <p>https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF</p>

Claim	Wireless Cabin
	 <p>The diagram illustrates the architecture of a Wireless Cabin system, showing the integration of various communication technologies and network segments.</p> <p>Segments and Components:</p> <ul style="list-style-type: none"> Cabin Segment: Includes W-LAN, UMTS, Bluetooth, and a Sat-Modem (Satellite dish) connected to the aircraft's internal network. Space Segment: Features a Satellite in orbit, connected to the Cabin Segment and the Ground Segment. Ground Segment: Includes a Terrestrial telecom router and a Satellite dish, connected to the Space Segment and the Aircom Provider Segment. Aircom Provider Segment: A central hub containing a Service Integrator, AAA/Billing/Mobility/ISP server, VPN/mobility support/QoS support, and a UMTS Core (comprising RNC, SGSN, GGSN, MSC, and GMSC). External Networks: Includes Passenger's Company Intranet, IP Backbone, and PSTN/UMTS/GSM. <p>Connections:</p> <ul style="list-style-type: none"> The Cabin Segment connects to the Space Segment via the Sat-Modem. The Space Segment connects to the Ground Segment via the Satellite. The Ground Segment connects to the Aircom Provider Segment via the Terrestrial telecom router. The Aircom Provider Segment connects to the external networks (Intranet, IP Backbone, PSTN/UMTS/GSM). <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	 <p>The diagram illustrates the System Architecture of a Wireless Cabin, divided into four main segments: Cabin Segment, Space Segment, Ground Segment, and Aircom Provider Segment.</p> <ul style="list-style-type: none"> Cabin Segment: Contains LAN, W-LAN, Bluetooth, UMTS over Bluetooth, and UTRAN. It includes an IP Router, Accounting/Billing, Aircraft IP server, Service Integrator, Sat-Modem, and a Satellite dish. Space Segment: Features Sat G/W (Satellite Gateway) and Forward/Return links connecting to the Cabin Segment and the Ground Segment. Ground Segment: Includes a Satellite dish, Terrestrial telecom router, and a telco WAN. Aircom Provider Segment: Contains a Service Integrator, Accounting/Billing, AAA, Mobility, QoS, VPN, and QoS support. It also includes a Bluetooth UMTS IF, UMTS core, and UTRAN. Terrestrial Networks: Includes Passenger's company Intranet, IP backbone, and PSTN UMTS GSM. <p>https://web.archive.org/web/20030525103405/http://www.wirelesscabin.com/pub/download/poster.pdf</p>

Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h2>WirelessCabin Architecture</h2> <p>Convergence is realized through a common set of protocols</p> <p>RADIUS for authentication and accounting</p> <p>SIP for session establishment</p> <p>RSVP for resource reservation</p>  </div> <p>DeSanctis II at 14.</p>

Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h3>Demonstrator Show Cases</h3> <ol style="list-style-type: none"> 1) GSM voice communications in the cabin (3 phases with different implementation stages) 2) Crew communications using VoIP (PDAs with BT headset for voice communications and data (cabin logbook function)) 3) Bluetooth access in the cabin 4) Passenger authentication 5) Cabin service control (QoS support) 6) L/Ku band satellite handover 7) In/Outbound Streaming 8) VPN and mobility support 9) GSM power control  </div> <p>DeSanctis II at 21.</p> <p>At some point the customer will have to pay for the new services. Charging can be based on several arrangements: a flat rate (all inclusive), a capped rate, up to a certain amount with charges for excess traffic, or a rate related to traffic. Since Quality of Service issues are likely to arise (QoS) they would also need to be taken into account in the billing system, making it considerably more complex to implement. It is also likely that part of</p>

Claim	Wireless Cabin
	<p>the communications costs may be taken by a company willing to advertise to the passengers (including the airlines themselves). Rogoyski at 5.</p> <p>Real-time billing, requires a billing system onboard the aircraft, and in the case of payment made with credit cards, also a connection to the credit card institution for authentication. This might have the benefit of reducing fraud with credit cards in the air used for duty free purchases, currently a major problem for credit card companies. Rogoyski at 5.</p> <p>authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers. Jahn I at 3.</p>

Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem connected to a Satellite dish. It also features a Service Integrator connected to a W-LAN and UMTS networks. Passengers' devices (laptops, mobile phones) are connected via Bluetooth and LAN. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router connected to the ground satellite dish and the Aircom Provider Segment. Aircom Provider Segment: This segment contains a Service Integrator and a UMTS Core. The Service Integrator handles AAA, Billing, Mobility ISP server, VPN, mobility support, QoS support. The UMTS Core includes components like RNC, SGSN, GGSN, MSC, and GMSC. It also interfaces with external networks like Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM. <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1.</p> <p>“authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.”</p> <p>Jahn II at 3.</p>

Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin. It is divided into four main segments: Cabin Segment, Space Segment, Ground Segment, and Aircom Provider Segment. The Cabin Segment shows a cross-section of an aircraft with various communication technologies: W-LAN, UMTS, Bluetooth, and a Sat-Modem. The Space Segment features a Satellite. The Ground Segment includes a Terrestrial telecom router. The Aircom Provider Segment contains a Service Integrator, a UMTS Core (with RNC, SGSN, GGSN, MSC, and GMSC), and various interfaces (UMTS IF, Bluetooth IF, LAN IF). A yellow box highlights 'Aircraft Protocol Functions' including IP mobility Server, AAA, VPN, DHCP, and QoS. External networks like Passenger's Company Intranet, IP Backbone, and PSTN/UMTS/GSM are connected to the Aircom Provider Segment. Arrows indicate the flow of data and connectivity between these components.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at 2, FIG. 1; Jahn II at 3 (“The architecture and its components are conceptually depicted in Figure 1.”).</p> <p>The network concept is called mobile since the access network of the subscribers itself is on the move, and the topology with respect to the fixed service provider will change (coverage by different satellites, ground earth stations). The SI is in charge of handling this kind of mobility to provide a seamless transparent connection between cabin and service provider.</p> <p>Jahn II at 7.</p> <p>The concept of the CMHN requires also new approaches for authentication, admission and accounting (AAA), and for mobility and VPN support. The different providers in the</p>

Claim	Wireless Cabin
	<p>network scenario must be considered: the satellite segment providers, the terrestrial network carriers for interconnection between aircom service provider and satellite ground earth station, the terrestrial backbone or PSTN networks, the airline as reseller, and the aircom service provider itself.</p> <p>Jahn II at 7-8.</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8.</p> <p>BUSINESS RELATIONSHIPS AND BILLING</p> <p>The generally accepted model for the business relationship is <i>interconnect</i>, with revenue sharing between parties. Billing for services can be done according to a number of parameters: content and transport, the latter further subdivided into airtime, satellite connection time, volume, and so on [6]. Clearly, the customer will have to pay for services. Charging can be of three possible types: flat rate (all included), flat rate up to a certain amount plus excess traffic, or only traffic. Since quality of service (QoS) issues are likely to arise in this complex scenario, they should be correctly taken into account in the billing system. It is also likely that part of the communications costs may be absorbed by companies wishing to advertise to flying passengers (e.g., offering low-rate rented cars or hotels at passenger destinations). Incoming calls on UMTS may be charged</p> <p>Holzbock II at 40.</p>

Claim	Wireless Cabin
	<p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Bruner, Mody, MTN Cruise Ship Internet Services, Seo, and Wu. Wireless Cabin, Bruner, Mody, MTN Cruise Ship Internet Services, Seo, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Bruner, Mody, MTN Cruise Ship Internet Services, Seo and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Bruner, Mody, MTN Cruise Ship Internet Services, Seo or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080].</p> <p style="padding-left: 40px;">One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator’s backend systems typically interface with a home location register (HLR) database, while</p>

Claim	Wireless Cabin
	<p>the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] (“The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client.”), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices ($18_1, 18_2, \dots 18_n$) wherein the particular wireless client or mobile communications device 18_1 is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the</p>

Claim	Wireless Cabin
	<p>authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p> <div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cf?ReleaseID=94443. <i>See also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cf?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm;</p>

Claim	Wireless Cabin
	<p>https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043]; <i>see also</i> Wu at [0010]-[0019] (“querying the customer for authentication information . . . authenticating the authentication information provided by the customer . . . checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.”), [0009], [0014], [0021], [0029], [0031], [0037], [0041], [0043], [0048], [0058]-[0063].</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>

Claim	Wireless Cabin
<p>[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;</p>	<p>Wireless Cabin discloses “a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet.” <i>See, e.g.,</i></p> <div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h3>Wireless Cabin: The Motivation</h3> <hr/> <p><i>Broadband satellite services for aircraft become reality</i></p> <p>Demand for Internet access and telephony during flight</p> <p>Airline passengers want to use their normal communications equipment and personal profile</p> <p>Typical equipment:</p> <ul style="list-style-type: none"> ♦ mobile phone (GSM, UMTS) ♦ laptop (modem, RJ-45, WLAN) ♦ PDA </div>  <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	<div> <p>The diagram illustrates a Wireless Cabin system architecture. At the top, a LAN connects two laptops to an IP Router. The IP Router is connected to a Service Integrator, which in turn connects to a Satellite Interface. The IP Router also connects to a WLAN (Wireless LAN) and a Bluetooth AP (Access Point). The WLAN connects to several laptops. The Bluetooth AP connects to a Bluetooth protocol AL (Access Layer) and a UMTS over Bluetooth connection. The UMTS over Bluetooth connection connects to a UMTS UTRAN (Universal Terrestrial Radio Access Network) and a UMTS NodeB. The UTRAN connects to the Service Integrator.</p> </div> <p>https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF</p> <div> <p>The diagram shows a detailed System Architecture divided into four segments: Cabin Segment, Space Segment, Ground Segment, and Terrestrial Networks. The Cabin Segment includes LAN, W-LAN, Bluetooth, UMTS over Bluetooth, UTRAN, and a Service Integrator. The Space Segment includes Sat G/W (Satellite Gateway) and a Satellite dish. The Ground Segment includes a Terrestrial telecom router and a Service Integrator. The Terrestrial Networks include a Passenger company Intranet, IP backbone, and PSTN UMTS GSM. The diagram shows connections between these segments, including Forward and Return links between the Space and Ground segments, and connections to the Terrestrial Networks.</p> </div> <p>https://web.archive.org/web/20030525103405/http://www.wirelesscabin.com/pub/download/poster.pdf</p>

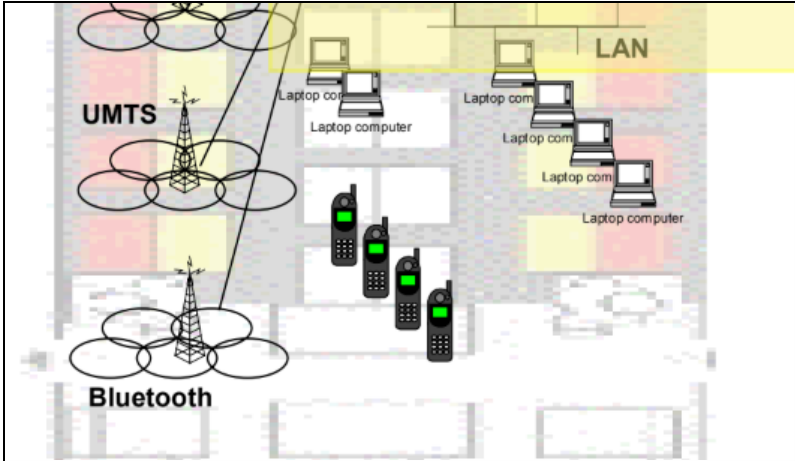
Claim	Wireless Cabin
	<p>Benefits of the use of personal devices</p> <p>Going even further and taking into account both, travellers' requirements and comfort and airlines' benefits, it would be desirable to provide the usage of personal devices (like mobile telephones, laptops or PDA), instead of in-built terminals on the aircraft seats. From the users' point of view, their service acceptance will be increased by the following facts: they can be reached under their usual telephone number, they may have available telephone numbers or other data stored in their cell phones or PDAs, their laptops have the software they are used to, the documents they need and with their personalised configuration (starting web site, bookmarks, address book). In addition, since users in an aircraft are people on the move, the electronic devices they carry with them are wireless, so the cabin area has to be designed as a radio network, instead of installing plugs in the seats. From the airlines' point of view there is a huge saving of the investment related to the installation of terminals (screens, stations, wired telephones), together with software licenses (in case of PCs) and further investments due to hardware updating to offer always latest technology to their customers.</p> <p>https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF</p>

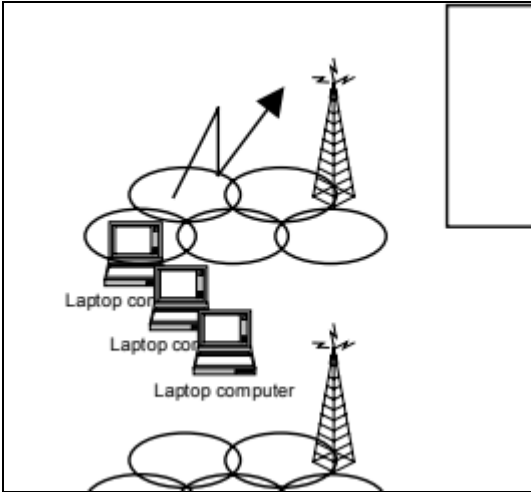
Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37468</p> <h3>Demonstrator Architecture</h3> <p>The diagram illustrates the Demonstrator Architecture, organized into three main segments:</p> <ul style="list-style-type: none"> Cabin Segment: <ul style="list-style-type: none"> User equipment (UE): Includes STA (Software Terminal Adapter) and Telemedicine Equipment. Local Access Domain: Features WLAN AP (Wireless LAN Access Point) and BT AP (Bluetooth Access Point). Service Integration Domain: Contains the Cabin router, Video Server / Cache, Logbook Server, and Cabin Control Interface. Other components: BSC (Base Station Controller), MSC (Mobile Switching Center), AAA (Authentication, Authorization, and Accounting), and Noise Generator. Transport: <ul style="list-style-type: none"> SAT 1 IM GAN: Integrated Mobile GAN (Global Area Network). SAT 2 DVB-RCS: Digital Video Broadcast - Return Channel via Satellite. Ground Segment: <ul style="list-style-type: none"> Service Provider Domain: Includes Home Agent, Airline Data Server, Video Server / Cache, and Internet Provider router. Public network: Features H.323 GK (Gateway), VoIP GW (Voice over IP Gateway), AAA GW, and SS7 GW. Home Domain: Includes HLR (Home Location Register), MSC (Mobile Switching Center), Home PLMN (Public Land Mobile Network), Home ISP (Internet Service Provider), AAA Server, and Firewall. <p>A red box highlights the Cabin router in the Cabin Segment and the Internet Provider router in the Ground Segment, indicating their connection to the Transport segment.</p> <p>Logos at the bottom include: ist, IST-2001-37468, SIEMENS, KID, inmarsat, ERICSSON, AIRBUS, and DLR.</p> <p>41</p> </div>

DeSanctis II at 21.

Claim	Wireless Cabin
	<div> <p>The diagram illustrates the WirelessCabin architecture. On the left, three communication technologies are shown: W-LAN (represented by a tower and overlapping circles), UMTS (represented by a tower and overlapping circles), and Bluetooth (represented by a tower and overlapping circles). These are connected to a central 'Service Integrator' block. To the right of the Service Integrator is a 'LAN' block, which is further connected to a 'DHCP QoS' block. Several 'Laptop computer' icons are shown, some connected to the W-LAN, UMTS, or Bluetooth networks, and others connected to the LAN. The entire system is depicted within a stylized aircraft cabin environment.</p> </div> <p>Jahn I at 2, FIG. 1 (excerpt); <i>id.</i> (“The WirelessCabin architecture and its components are conceptually depicted in Figure 1.”).</p> <p>It is anticipated that any early-to-market entry will take an evolutionary approach extending existing systems and services, or leasing currently available (mainly GEO) transponder capacity. A key issue for the success of such systems is the passenger acceptance. It is believed that the ease of access to the service can be predominantly achieved by wireless techniques as the passenger is used to from its daily life. So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment). The</p> <p>Jann I at 1.</p> <p>The service scenario considers travellers in aircraft on the move. In the future, airlines will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network</p>

Claim	Wireless Cabin
	<p>interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn I at 1.</p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p> <p>Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. In this paper also wireless access methods such as W-LAN for data connections to laptops and UMTS for personal telephony are suggested.</p> <p>Jahn II at Abstract.</p> <p>Such developments can be brought about by the use of the latest in communications technologies. Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to</p>

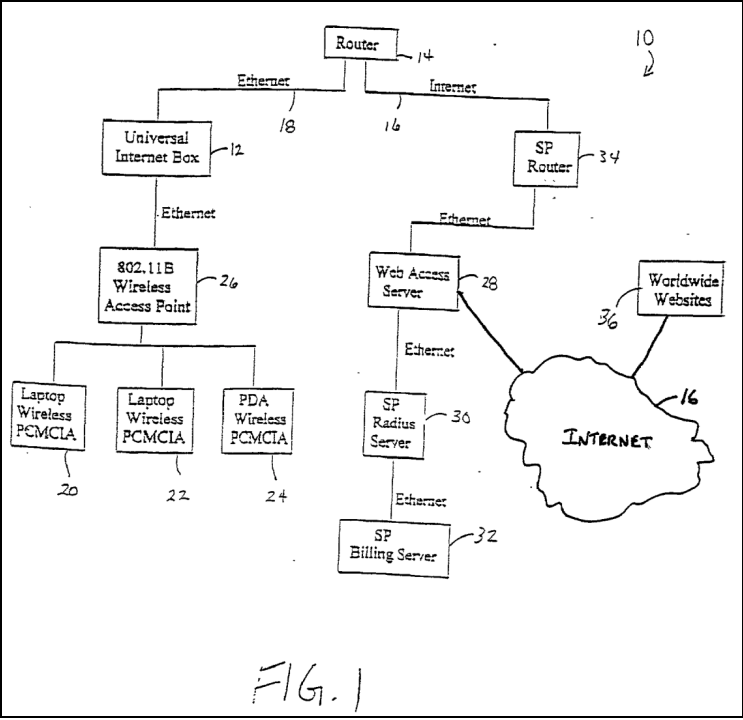
Claim	Wireless Cabin
	<p>make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2.</p>  <p>The diagram illustrates a multi-tier wireless network within a cabin. On the left, two UMTS towers are shown with overlapping coverage circles. In the center, several mobile phones are depicted, with lines indicating their connection to the UMTS network. On the right, a LAN network is shown with multiple laptop computers connected to each other and to a central hub. The entire system is designed to provide seamless connectivity for passengers throughout the cabin.</p> <p>Jahn II at 2, FIG. 1 (excerpt).</p>

Claim	Wireless Cabin
	 <p>Jahn II at 3, FIG. 2 (excerpt).</p>

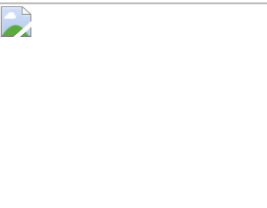
Claim	Wireless Cabin
	<div> <p>The diagram illustrates a mobility concept for a wireless cabin. On the left, a 'Cabin Segment' contains two laptops and a mobile phone. The mobile phone is connected to an 'IP over UMTS' block, which in turn connects to an 'Integrated Services' block. This block is linked to a 'Service Integrator' block. The 'Service Integrator' has two bidirectional connections labeled 'Sat / terrestr. tunnel' leading to a 'Service provider' block. The 'Service provider' is connected to an 'ISP LAN' cloud, which contains an 'ISP HA' (Internet Service Provider Home Agent) and an 'ER' (Edge Router). The 'ISP LAN' is also connected to a 'Firewall VPN' block, which is linked to a 'Passenger's Company Intranet' cloud. This intranet is connected to a 'Company HA' (Company Home Agent). A dashed blue line connects the 'Company HA' to one of the laptops in the cabin. A dashed green line connects the 'ISP HA' to the 'Service Integrator'. A dashed red line connects the 'Service Integrator' to the 'IP over UMTS' block. Below the 'Service Integrator' is a 'Bluetooth UMTS AL' block, which is connected to a 'RNC' (Radio Network Controller). The 'RNC' is connected to a 'UMTS Core' block, which contains 'SGSN' (Serving GPRS Support Node), 'GGSN' (Gateway GPRS Support Node), 'MSC' (Mobile Switching Center), and 'GMSC' (Gateway Mobile Switching Center). A red arrow points from the 'IP over UMTS' block to the 'GGSN' in the 'UMTS Core'.</p> <p style="text-align: center;">Figure 5: Mobility Concept</p> </div> <p>Jahn II at 6, FIG. 5.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Suwanateep, and Wu. Wireless Cabin, Bruner, Connexion by Boeing, Suwanateep, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Bruner, Connexion by Boeing, Suwanateep and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Bruner, Connexion by Boeing, Suwanateep or Wu, for example, to incorporate this limitation.</p>

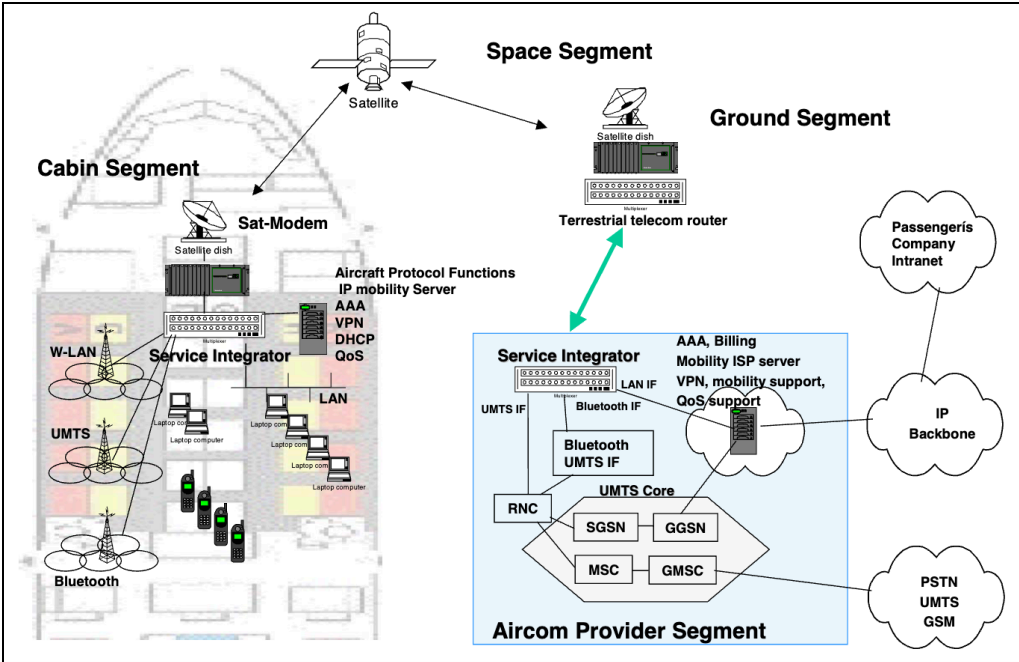
Claim	Wireless Cabin
	<p><i>See, e.g.,</i></p> <p>The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Find out about our In-Flight Portal</p> <div style="display: flex; align-items: center;">  <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> </div> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?LnAv=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?LnAv=1</p>

Claim	Wireless Cabin
	<p> av=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4 </p> <p> Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). </p> <p> Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2. </p> <p> In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface. </p> <p> Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”). </p> <p> When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of </p>

Claim	Wireless Cabin
	<p>interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots. Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>  <p>FIG. 1</p> <p>Wu at FIG. 1. Wu at [0038] (“The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.”); <i>see also</i> Wu at [0008], [0023]-[0024], [0037]-[0038], [0040], [0043], [0048], [0058], [0063].</p>
[24.e] wherein the satellite dish, at least one	Wireless Cabin discloses “wherein the satellite dish, at least one router and the subscriber access

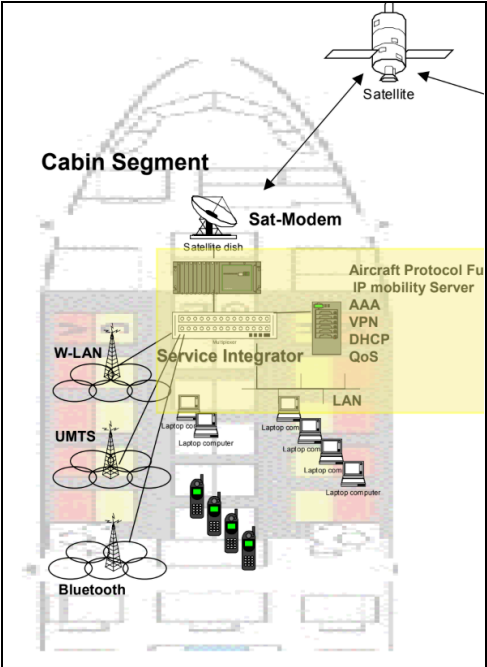
Claim	Wireless Cabin
<p>router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>unit are located in a remote location a experiencing a relatively high volume of transient traffic.” <i>See, e.g.,</i></p> <div> <p><i>Development and integration of key components</i></p> <p><i>Implementation of a demonstrator (in-flight)</i></p> <ul style="list-style-type: none"> ♦ A380 cabin for measurements ♦ A340 (Airbus #1) for in-flight demo (sat equipment from ESA Aboard) ♦ Second campaign with smaller aircraft <p><i>Market analysis, passenger acceptance interview, service demand estimates</i></p> <div>  </div> </div> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	<div> <p>Welcome to</p> <h2>WirelessCabin</h2> </div> <div> <p>This site will be updated regularly, so please stay tuned for any changes.</p> </div> <div> <p>Image you fly in an aircraft - your secretary calls you on your mobile to tell you that your PowerPoint presentation was changed by your boss. You switch on your laptop, connect wireless to your company intranet, and download the file. An illusion? Not in two years time... Explore on this site how it will work.</p> </div> <div> <p>This project will develop wireless radio access for passengers in aircraft cabins for UMTS mobile phones, W-LAN and Bluetooth interface.</p> </div> <div> <p>The technology will be demonstrated in an airbus long-haul A340-600 aircraft.</p> </div> <div>  </div> <div>  </div> <div> <p>https://web.archive.org/web/20030209013220/http://www.wirelesscabin.com:80/</p> </div>

Claim	Wireless Cabin
	 <p>The diagram illustrates the architecture of a Wireless Cabin system, divided into three main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside the aircraft, it includes a Sat-Modem connected to a Satellite dish. The cabin also features various communication technologies: W-LAN, UMTS, and Bluetooth. Passengers' devices (laptops and mobile phones) are connected to these networks. A Service Integrator manages the cabin's network, providing Aircraft Protocol Functions such as IP mobility Server, AAA, VPN, DHCP, and QoS. Space Segment: Consists of a Satellite in orbit that communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router that connects the satellite dish to the Aircom Provider Segment. The Aircom Provider Segment contains a Service Integrator with interfaces for UMTS IF, Bluetooth IF, and UMTS IF. It also includes a UMTS Core with components like RNC, SGSN, GGSN, MSC, and GMSC. The segment is connected to external networks: Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM. <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p>

Claim	Wireless Cabin
	<div style="border: 1px solid black; padding: 10px;"> <p>Project Goal</p> <p>The WirelessCabin project is developing wireless access technologies for a aircraft cabins. Several access technologies in the cabin are envisaged for passengers: UMTS for personal telephony and packet data, Bluetooth and W-LAN for IP access. The Bluetooth interface will also be used for transport of UMTS services.</p> <p>The project will define a system architecture for wireless access (UMTS, W-LAN and Bluetooth) in an aircraft cabin. The passenger will have the possibility to use its own personal equipment (mobile phone, laptop). For this, the project will develop a service integrator that maps the cabin services on a satellite bearer to be connected to the terrestrial infrastructure.</p> <p>The concept of the wireless cabin access will be demonstrated in flight via satellite using an Airbus long-haul aircraft. The cabin services will provide mobility, VPNs and AAA functions which need to be developed for the mobile users.</p> </div> <p>https://web.archive.org/web/20030209013220/http://www.wirelesscabin.com:80/</p> <p>Benefits of the use of personal devices</p> <p>Going even further and taking into account both, travellers' requirements and comfort and airlines' benefits, it would be desirable to provide the usage of personal devices (like mobile telephones, laptops or PDA), instead of in-built terminals on the aircraft seats. From the users' point of view, their service acceptance will be increased by the following facts: they can be reached under their usual telephone number, they may have available telephone numbers or other data stored in their cell phones or PDAs, their laptops have the software they are used to, the documents they need and with their personalised configuration (starting web site, bookmarks, address book). In addition, since users in an aircraft are people on the move, the electronic devices they carry with them are wireless, so the cabin area has to be designed as a radio network, instead of installing plugs in the seats. From the airlines' point of view there is a huge saving of the investment related to the installation of terminals (screens, stations, wired telephones), together with software licenses (in case of PCs) and further investments due to hardware updating to offer always</p>

Claim	Wireless Cabin
	<p>latest technology to their customers.</p> <p>https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF</p> <p>ABSTRACT.—This paper addresses the traffic dimensioning for aeronautical services. Specifically, it focuses on wireless services such as UMTS and W-LAN in aircraft cabins that connect the passenger via satellite to terrestrial infrastructure. A multi-service model is presented with specific bit rate and traffic characteristics for manifold services. Furthermore it is discussed how different satellite systems can serve the traffic demand arising from the long-haul traffic over oceans and land masses.</p> <p>Jahn I at 1.</p> <p>With the advent of spread spectrum systems such as UMTS and W-LAN, and low power pico-cell access such as Bluetooth, this situation is likely to change, especially if new aircraft avionics technologies are considered, or if the communications technologies are inline with aircraft development as today for the new Airbus long-haul A380 aircraft. With small business jets such as Bombardier LearJets, Gulfstream etc., individual equipment certification is already established.</p> <p>Jahn I at 2.</p> <p>The network concept is called mobile since the access network of the subscribers itself is on the move, and the topology with respect to the fixed service provider will change (coverage by different satellites, ground earth stations). The SI is in charge of handling this kind of mobility to provide a seamless transparent connection between cabin and service provider.</p> <p>Jahn II at 7.</p>

Claim	Wireless Cabin
	 <p>The diagram illustrates a 'Wireless Cabin' system architecture. At the top, a 'Satellite' is shown in orbit, connected to a 'Sat-Modem' on the 'Cabin Segment'. The 'Cabin Segment' is represented by a stylized aircraft fuselage. Inside the cabin, a 'Service Integrator' is shown, which connects to various onboard networks and devices. These include 'W-LAN' (Wireless Local Area Network), 'UMTS' (Universal Mobile Telecommunications System), and 'Bluetooth'. The 'Service Integrator' also connects to a 'Satellite dish' and a 'Sat-Modem'. The 'Service Integrator' is further connected to a 'LAN' (Local Area Network) and a 'Service Integrator' block. The 'Service Integrator' block lists several protocols and services: 'Aircraft Protocol Fu', 'IP mobility Server', 'AAA', 'VPN', 'DHCP', and 'QoS'. The 'Service Integrator' is also connected to several 'Laptop computer' icons. The 'Service Integrator' is connected to a 'Sat-Modem' which is connected to a 'Satellite dish' which is connected to a 'Satellite'.</p> <p>Jahn II at 2, FIG. 1 (excerpt).</p>

Claim	Wireless Cabin
	<div> <p style="text-align: center;">Figure 5: Mobility Concept</p> </div> <p>Jahn II at 6, FIG. 5.</p> <p> The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones. </p> <p>Jahn II at 2.</p>

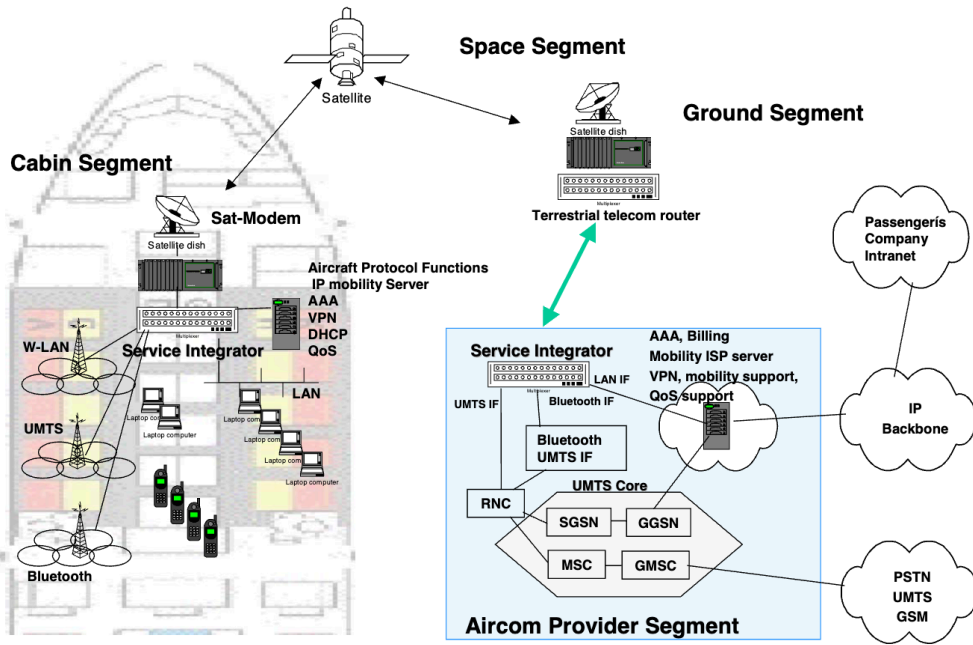
Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Contains a Sat-Modem (with a satellite dish) and a Service Integrator. The Service Integrator is connected to Aircraft Protocol Functions (IP mobility Server, AAA, VPN, DHCP, QoS) and a LAN with multiple Laptop computers. It also interfaces with W-LAN, UMTS, and Bluetooth technologies. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router connected to the Satellite dish and the Aircom Provider Segment. Aircom Provider Segment: Features a Service Integrator connected to an AAA, Billing, Mobility ISP server (providing VPN, mobility support, and QoS support). This segment also includes a UMTS Core with components like RNC, SGSN, GGSN, MSC, and GMSC. It interfaces with the Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM networks. <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1.</p> <p>It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 8.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art.</p>

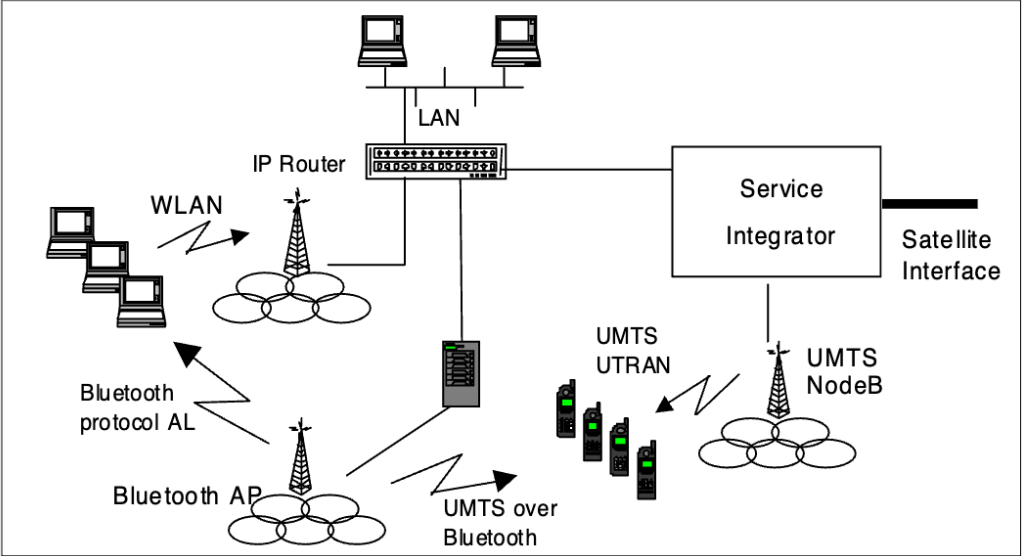
Claim	Wireless Cabin
	<p>Wireless Cabin further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, MTN Cruise Ship Internet Services, and Wu. Wireless Cabin, Agarwal, Bruner, Connexion by Boeing, DeSanctis, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as X, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, MTN Cruise Ship Internet Services and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p style="padding-left: 40px;">Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p>

Claim	Wireless Cabin
	<p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p> <div style="border: 1px solid black; padding: 5px;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p>

Claim	Wireless Cabin
	<div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at FIG. 2, 2-3.</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p>

Claim	Wireless Cabin
	<div style="border: 1px solid black; padding: 10px;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p> <p>The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation</p>

Claim	Wireless Cabin
	<p>centers, vehicles, restaurants, libraries, college campuses, and the like. Wu at [0006]; <i>see also</i> Wu at Abstract, [0001], [0006]-[0019], [0022], [0023], [0030], [0037], [0040], [0041].</p>
<p>[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.</p>	<p>Wireless Cabin discloses “wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.” <i>See, e.g.,</i></p>  <p>The diagram illustrates the Wireless Cabin system architecture, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem connected to a Satellite dish. Below the modem is a Service Integrator which manages Aircraft Protocol Functions (IP mobility, AAA, VPN, DHCP, QoS). The cabin also features W-LAN, UMTS, and Bluetooth networks connecting various Laptop computers and Mobile phones via a LAN. Space Segment: Consists of a Satellite in orbit that communicates with the Satellite dish in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router that connects the ground satellite dish to the Aircom Provider Segment. Aircom Provider Segment: This segment contains a Service Integrator with interfaces for UMTS IF, Bluetooth IF, and UMTS IF. It also includes an AAA, Billing, Mobility ISP server and VPN, mobility support, QoS/support functions. The core of this segment is the UMTS Core, which includes RNC, SGSN, GGSN, MSC, and GMSC components. <p>External networks are also shown, including the Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM networks, all connected to the Aircom Provider Segment.</p> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p> <p>As seen in the picture below, the wireless access solution is an added service for passengers, not replacing IP services through fixed terminals installed in the cabin seats.</p>

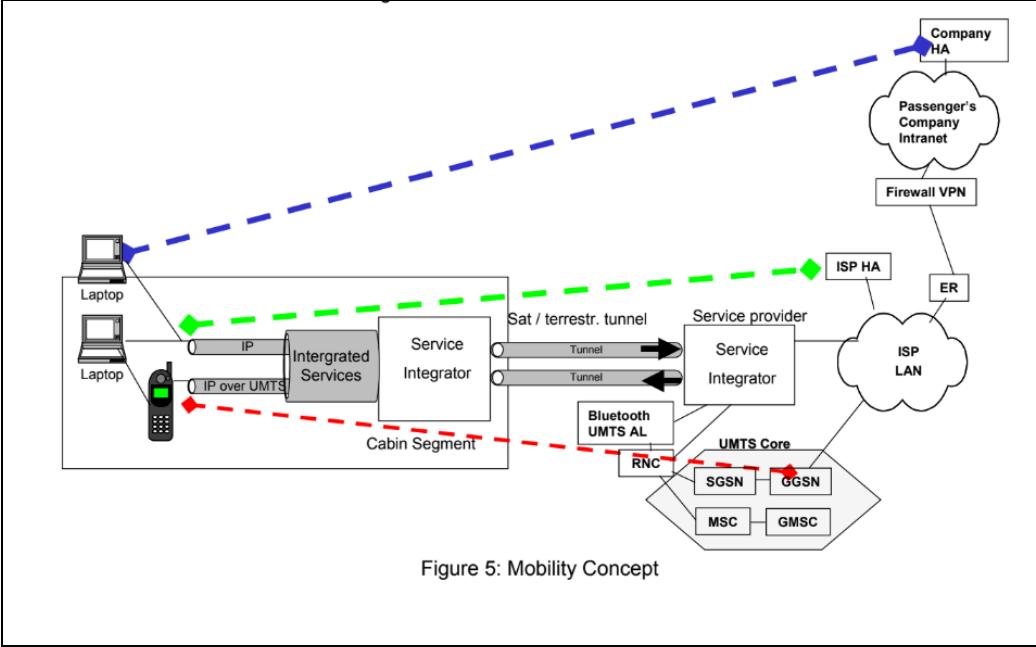
Claim	Wireless Cabin
	<p> https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF </p>  <p> https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF </p>

Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h2>WirelessCabin Architecture</h2> <p>Convergence is realized through a common set of protocols</p> <ul style="list-style-type: none"> RADIUS for authentication and accounting SIP for session establishment RSVP for resource reservation <p>Logos: ist, SIEMENS, KIP, inmarsat, ERICSSON, AIRBUS, DLR</p> </div> <p>DeSanctis II at 14.</p>

Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37468</p> <h3>Demonstrator Show Cases</h3> <ol style="list-style-type: none"> 1) GSM voice communications in the cabin (3 phases with different implementation stages) 2) Crew communications using VoIP (PDAs with BT headset for voice communications and data (cabin logbook function) 3) Bluetooth access in the cabin 4) Passenger authentication 5) Cabin service control (QoS support) 6) L/Ku band satellite handover 7) In/Outbound Streaming 8) VPN and mobility support 9) GSM power control  </div> <p>DeSanctis II at 21.</p> <p>The provision of such a heterogeneous access network with collectively mobile users requires the development authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.</p> <p>Jahn I at 3.</p>

Claim	Wireless Cabin
	<p>So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment).</p> <p>Jahn I at 1.</p> <p>Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p> <p>authentication, admission and accounting (AAA) in the mobile network, especially taking into account the necessity to support different pricing concepts for each passenger in the mobile network and the interaction of airline, satellite provider, aircom service provider and terrestrial service providers.”</p> <p>Jahn II at 3.</p>

Claim	Wireless Cabin
	<div> </div> <p>Jahn II at FIG. 1 (excerpt).</p> <p>The concept of the CMHN requires also new approaches for authentication, admission and accounting (AAA), and for mobility and VPN support. The different providers in the network scenario must be considered: the satellite segment providers, the terrestrial network carriers for interconnection between aircom service provider and satellite ground earth station, the terrestrial backbone or PSTN networks, the airline as reseller, and the aircom service provider itself. The latter will act as mobile network provider for UMTS. The airlines as service reseller to the passengers may wish to have different tariffs and</p>

Claim	Wireless Cabin
	<p>pricing scenarios, such as volume-based pricing, time-based pricing, flat rates for business travellers, or even service charge included in the ticket prices, or service dependent pricing (UMTS, W-LAN). Thus, a manifold of accounting methods should be supported. While UMTS offers already most accounting methods inside the UMTS core network, IP based accounting methods must be developed in this project, coping with the CMHN concept. Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8.</p>  <p>The diagram illustrates a mobility concept architecture. On the left, a 'Cabin Segment' contains two laptops and a mobile phone. The laptops are connected to an 'IP' block, which is connected to an 'Integrated Services' block. The mobile phone is connected to an 'IP over UMTS' block. Both the 'Integrated Services' and 'IP over UMTS' blocks are connected to a 'Service Integrator' block. The 'Service Integrator' is connected to a 'Service provider' block via a 'Sat / terrestr. tunnel'. The 'Service provider' block is connected to an 'ISP LAN' cloud. The 'ISP LAN' cloud contains an 'ISP HA' (Home Agent) and an 'ER' (Edge Router). The 'ISP HA' is connected to a 'Company HA' (Home Agent) and a 'Passenger's Company Intranet' cloud. The 'ER' is connected to a 'Firewall VPN' block. The 'Service Integrator' is also connected to a 'Bluetooth UMTS AL' (Access Layer) block, which is connected to a 'RNC' (Radio Network Controller) block. The 'RNC' is connected to a 'UMTS Core' block, which contains 'SGSN' (Serving GPRS Support Node), 'GGSN' (Gateway GPRS Support Node), 'MSC' (Mobile Switching Center), and 'GMSC' (Gateway MSC) blocks. A dashed blue line connects the 'Company HA' to the 'Cabin Segment'. A dashed green line connects the 'ISP HA' to the 'Cabin Segment'. A dashed red line connects the 'Bluetooth UMTS AL' to the 'Cabin Segment'.</p> <p>Figure 5: Mobility Concept</p>

Claim	Wireless Cabin
	<p>Jahn II at FIG. 5.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, and Wu. Wireless Cabin, Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Bruner, Connexion by Boeing, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon</p>

Claim	Wireless Cabin
	<p>accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p> <div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Lnav=2; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Lnav=4; Suwanateep at 9.</p> <p>Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen.</p> <p>Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5.</p>

Claim	Wireless Cabin
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard.</p> <p>The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p>

Claim	Wireless Cabin
	<p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client.”</p> <p>Wu at [0009]; <i>see also</i> Wu at [0006], [0014]-[0019], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063], FIG. 1.</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>Wireless Cabin discloses “The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.” <i>See, e.g.,</i></p> <div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h3>Wireless Cabin: The Motivation</h3> <hr/> <p><i>Broadband satellite services for aircraft become reality</i></p> <p>Demand for Internet access and telephony during flight</p> <p>Airline passengers want to use their normal communications equipment and personal profile</p> <p>Typical equipment:</p> <ul style="list-style-type: none"> ♦ mobile phone (GSM, UMTS) ♦ laptop (modem, RJ-45, WLAN) ♦ PDA  </div>

Claim	Wireless Cabin
	<p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p> <p>So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment).</p> <p>Jahn I at 1.</p> <p>Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. <p>Jahn I at 2.</p>

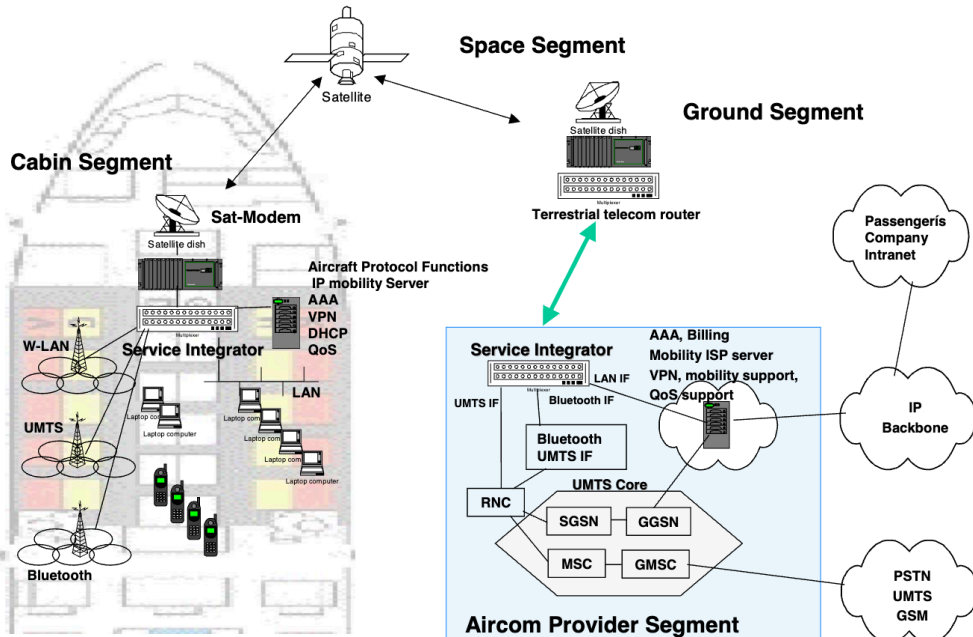
Claim	Wireless Cabin
	<p>The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site. Jahn I at 3.</p> <p>The service integrator will provide the interfaces for the wireless and wired service access points in the cabin, as well as the interface to the terrestrial networks at aircom provider site. Jahn I at 4.</p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers. Jahn II at 3.</p> <p>Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks. Jahn II at Abstract.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. Jahn II at 3.</p>

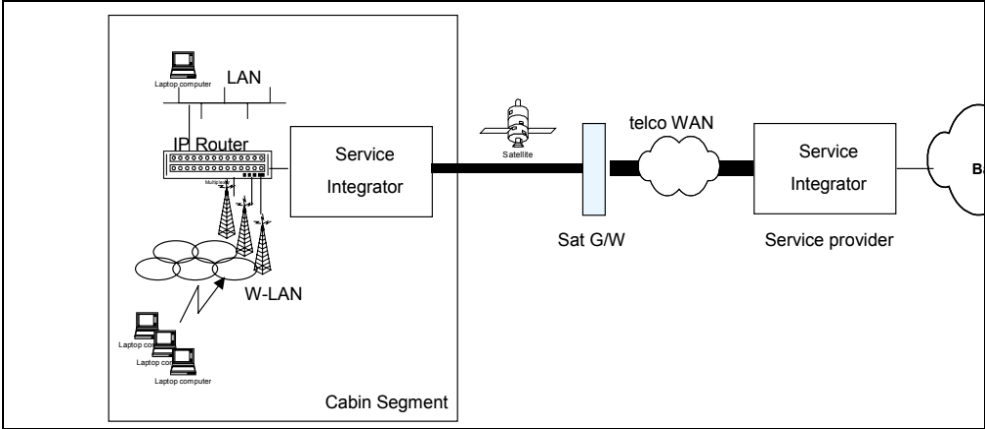
Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin. On the left, a box labeled 'Cabin Segment' contains an 'IP Router' connected to a 'LAN' with a laptop computer and a 'W-LAN' with three laptop computers. The 'IP Router' is also connected to a 'Service Integrator' box. This 'Service Integrator' is connected to a 'Sat G/W' (Satellite Gateway) represented by a satellite icon. The 'Sat G/W' is connected to a 'telco WAN' (telecommunications Wide Area Network) represented by a cloud icon. The 'telco WAN' is connected to another 'Service Integrator' box, which is labeled 'Service provider'. Finally, this 'Service Integrator' is connected to an 'IP Backbone' represented by a cloud icon.</p> <p>a) IP support through fixed cabling or W-LAN</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Nelson, and Wu. Wireless Cabin, Agarwal, DeSanctis, Nelson, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Agarwal, DeSanctis, Nelson, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Agarwal, DeSanctis, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Wireless Cabin
	<div> </div> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 3:18-20; 3:38-63.</p> <p>The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p>

Claim	Wireless Cabin
	<p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023]; <i>see also</i> Wu at [0007]-[0008], [0029], [0031]-[0032], [0036]-[0037], [0041], [0044], [0048], [0058]-[0059], [0061]-[0063].</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Wireless Cabin discloses “The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.” <i>See, e.g.,</i></p> <p>Benefits of the use of personal devices</p> <p>Going even further and taking into account both, travellers’ requirements and comfort and airlines’ benefits, it would be desirable to provide the usage of personal devices (like mobile telephones, laptops or PDA), instead of in-built terminals on the aircraft seats. From the users’ point of view, their service acceptance will be increased by the following facts: they can be reached under their usual telephone number, they may have available telephone numbers or other data stored in their cell phones or PDAs, their laptops have the software they are used to, the documents they need and with their personalised configuration (starting web site, bookmarks, address book). In addition, since users in an aircraft are people on the move, the electronic devices they carry with them are wireless, so the cabin area has to be designed as a radio network, instead of installing plugs in the seats. From the airlines’ point of view there is a huge saving of the investment related to the installation of terminals (screens, stations, wired telephones), together with software licenses (in case of PCs) and further investments due to hardware updating to offer always</p>

Claim	Wireless Cabin
	<p>latest technology to their customers.</p> <p>https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/WirelessCabin_flyer.PDF</p> <p>The service scenario considers travellers in aircraft on the move. In the future, airlines will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn I at 1.</p> <p>The traffic generated and received by a single aircraft is a function of</p> <ul style="list-style-type: none"> the distribution of passengers among first, business and economy class, (obviously passengers in first and business class are more keen on using AirCom services). <p>Jahn I at 5.</p>

Claim	Wireless Cabin
	 <p>The diagram illustrates the architecture of a Wireless Cabin system, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside the aircraft, it includes a Sat-Modem connected to a Satellite dish. It also features a Service Integrator and Aircraft Protocol Functions (IP mobility Server, AAA, VPN, DHCP, QoS). Various passenger devices are shown, including W-LAN, UMTS, Bluetooth, and Laptop computers. Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the Cabin Segment and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router that connects the ground-based satellite dish to the Aircom Provider Segment. Aircom Provider Segment: This segment contains the Service Integrator and AAA, Billing, Mobility ISP server. It also includes a UMTS Core with components like RNC, SGSN, GGSN, MSC, and GMSC. The segment is connected to external networks such as the Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM. <p>Arrows indicate the flow of data and communication between these segments, showing a seamless integration of cabin services with ground and space-based infrastructure.</p> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p> <p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite</p>

Claim	Wireless Cabin
	<p>phones. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p> <p>Jahn II at 2.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b. Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats.</p> <p>Jahn II at 2-3.</p>  <p>The diagram illustrates a network architecture for a wireless cabin. On the left, a box labeled 'Cabin Segment' contains a 'LAN' with a 'Laptop computer' and an 'IP Router'. Below the LAN, there is a 'W-LAN' section with three 'Laptop computer' icons and a wireless access point. The 'IP Router' is connected to a 'Service Integrator' box. This 'Service Integrator' is connected to a 'Sat G/W' (Satellite Gateway) box, which is in turn connected to a 'telco WAN' (telecommunications Wide Area Network) cloud. The 'telco WAN' is connected to another 'Service Integrator' box, which is finally connected to a 'Service provider' cloud. A satellite icon is shown above the 'Sat G/W' box, indicating the use of satellite communication for the WAN link.</p> <p>Jahn II at FIG. 3 (excerpt).</p>

Claim	Wireless Cabin
	<div> <p>Figure 4: Service Integrator: core of the Collectively Mobile Heterogeneous Network</p> </div> <p>Jahn II at FIG. 4.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson, and Wu. Wireless Cabin, Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Airpath Wireless Hot Spot, Bruner, MTN Cruise Ship Internet Services, Nelson, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Wireless Cabin
	<div> <div> INSTANT HOT SPOT_{tm}/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT </div> <div>  <div> Powered By Airpath </div> </div> <div> Airpath Exclusive ISG-1000 Subscriber Gateway </div> <div> <ul style="list-style-type: none"> • Perfect for larger Hot Spot Venues • Supports 1000 Simultaneous Users • Great for wired or wireless Hot Spots/Zones • Affordable for all venues • Customizable End-User Login Screens • Setup in less than 30 minutes! </div> <div> More Details Price/Order </div> </div> <p> Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. </p> <p> It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations. </p> <p> Bruner at [0008]; <i>see also</i> Bruner at [0011], [0021], Bruner at FIG. 1. </p>

Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem with a Satellite dish, a W-LAN, UMTS, and Bluetooth interfaces. Passengers' Laptop computers are connected to the LAN. Space Segment: Consists of a Satellite in orbit that communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router that connects the ground satellite dish to the Aircom Provider Segment. Aircom Provider Segment: This segment contains a Service Integrator and an UMTS Core. The Service Integrator handles Aircraft Protocol Functions, IP mobility Server, AAA, VPN, DHCP, and QoS. It interfaces with the UMTS Core via UMTS IF, Bluetooth IF, and LAN IF. The UMTS Core includes RNC, SGSN, GGSN, MSC, and GMSC components. External networks like the Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM are also connected to the UMTS Core. </div> <p>Figure 1: Network Architecture</p> <p>Jahn II at 2, FIG. 1; <i>see also</i> Jahn II at 1-3, FIGs. 3-4.</p> <div> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see also</i> MTN Cruise Ship Internet Services at</p>

Claim	Wireless Cabin
	<p> https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003). </p> <p> System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network. </p> <p> Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034]. </p> <p> Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area. Wu at [0005]; <i>see also</i> Wu at FIG. 1, [0006], [0037], [0044], [0048], [0058]. </p>
<p>[28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.</p>	<p>Wireless Cabin discloses “The Internet Hotspot of claim 26, wherein the data connections include wireless data connections.” <i>See, e.g.,</i></p>

Claim	Wireless Cabin
	<div> <p>WirelessCabin, EC Project IST-2001-37466</p> <h2>Wireless Cabin: The Motivation</h2> <hr/> <p>Broadband satellite services for aircraft become reality</p> <p>Demand for Internet access and telephony during flight</p> <p>Airline passengers want to use their normal communications equipment and personal profile</p> <p>Typical equipment:</p> <ul style="list-style-type: none"> ♦ mobile phone (GSM, UMTS) ♦ laptop (modem, RJ-45, WLAN) ♦ PDA  </div> <p>https://web.archive.org/web/20040722115733/http://www.wirelesscabin.com/pub/download/WirelessCabin.Pres.short.pdf</p> <p>It is believed that the ease of access to the service can be predominantly achieved by wireless techniques as the passenger is used to from its daily life. So mobile telephony and Internet access with laptops, either wired or wireless is mandatory rather than fixed cabin installations (e.g., flat screens in backseats which are more appropriate for in-flight entertainment).</p> <p>Jahn I at 1.</p> <p>The service scenario considers travellers in aircraft on the move. In the future, airlines will provide a variety of entertainment and communications equipment to the passenger. Since people are becoming more and more used to their own communications equipment, such as mobile phones and laptops with Internet connection, either through a network interface card or dial-in access through modems, business travellers will soon be demanding wireless access to communication services.</p>

Claim	Wireless Cabin
	<p>Jahn I at 1.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN. <p>Jahn I at 2.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.”</p> <p>Jahn II at 3.</p>

Claim	Wireless Cabin
	<div> <p>The diagram illustrates a network architecture for a wireless cabin, divided into four main segments:</p> <ul style="list-style-type: none"> Cabin Segment: Located inside an aircraft, it includes a Sat-Modem connected to a Satellite dish. It also features a Service Integrator (yellow box) and various passenger devices: W-LAN, UMTS, Bluetooth, and LAN (with Laptop computer icons). Space Segment: Consists of a Satellite in orbit, which communicates with the Sat-Modem in the cabin and a Satellite dish on the ground. Ground Segment: Includes a Terrestrial telecom router connected to the ground satellite dish. It also features a Service Integrator (blue box) and external networks: Passenger's Company Intranet, IP Backbone, and PSTN UMTS GSM. Aircom Provider Segment: A detailed view of the ground-based network core, showing a Service Integrator with interfaces for UMTS IF, Bluetooth IF, and UMTS IF. It includes a UMTS Core with components like RNC, SGSN, GGSN, MSC, and GMSC. <p>Arrows indicate data flow between these segments, showing connectivity from the cabin through the satellite to the ground and then to various external networks.</p> <p>Figure 1: Network Architecture</p> </div>

Jahn II at FIG. 1.

Claim	Wireless Cabin
	<div> <p>a) IP support through fixed cabling or W-LAN</p> </div> <p>Jahn II at FIG. 3-a.</p> <p>The airlines as service reseller to the passengers may wish to have different tariffs and pricing scenarios, such as volume-based pricing, time-based pricing, flat rates for business travellers, or even service charge included in the ticket prices, or service dependent pricing (UMTS, W-LAN). Thus, a manifold of accounting methods should be supported.</p> <p>Jahn II at 8.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, and Wu. Wireless Cabin, Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood</p>

Claim	Wireless Cabin										
	<p>how to modify the disclosures of Wireless Cabin with those of Airpath Wireless Hot Spot, MTN Cruise Ship Internet Services, or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <table><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr><tr><td rowspan="2"> </td><td colspan="2"> CN-3000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp.</p>	 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order	 	 CN-3000 Subscriber Gateway		<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order
 	Airpath Exclusive ISG-1000 Subscriber Gateway										
	<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order									
 	 CN-3000 Subscriber Gateway										
	<ul style="list-style-type: none">• Contains Airpath Custom Firmware• Perfect for most Hot Spot Venues• Supports 100 Simultaneous Users• Integrated 802.11b Wireless Access Point• Supports wired and wireless Hot Spots• Login/Signup Screens branded to your organization• Setup in less than 30 minutes!	More Details Price/Order									

Claim	Wireless Cabin
	<div style="border: 1px solid black; padding: 5px;"> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see generally id.</i></p> <p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037]; <i>see also</i> Wu at [0029], [0040], [0049], FIG. 1.</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>Wireless Cabin discloses “The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.” <i>See, e.g.,</i></p> <p>The wireless access standards chosen for the cellular on-board network (depicted in the picture below) are UMTS, IEEE 802.11b (Wireless LAN) and Bluetooth: UMTS for personal telephony and packet data, Bluetooth and WLAN for IP access. Furthermore the final network architecture will be open to any other emerging standard.</p> <p>https://web.archive.org/web/20030812055409/http://www.wirelesscabin.com/pub/download/Wirel</p>

Claim	Wireless Cabin
	<p>essCabin flyer.PDF</p> <div> <p>WirelessCabin Objectives</p> <ul style="list-style-type: none"> <li>• Propose an architecture that enables Passengers the use of their existing cellular phones, Laptops and other wireless devices without modifications (GSM, UMTS, W-LAN, Bluetooth, CDMA,...) </div> <p>DeSanctis II at 3.</p> <p>The above mentioned reasons are the motivation for the WirelessCabin project. The wireless access standards chosen are UMTS, IEEE 802.11b for WLAN and Bluetooth, as far as they are considered as the most accepted protocols by travellers in the next few years: UMTS for personal telephony and packet data, Bluetooth and WLAN for IP access. The Bluetooth interface will also be used for transport of UMTS services.</p> <p>Díaz, et al., “Aircraft Cabin Propagation For Multimedia Communications,” DLR (2002).</p> <p>Currently, the project WirelessCabin (www.wirelesscabin.com) aims at providing aircraft passengers and crew members with heterogeneous wireless access solutions for in-flight entertainment, Internet access and mobile/personal communications. It is expected from these initiatives that aircraft passengers will be offered the same wireless services for personal and multimedia communications as they are on ground, consisting of different overlaying cellular access networks, e.g., UMTS, IEEE 802.11x W-LAN and Bluetooth.</p> <p>DeSanctis at 2.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: GSM, UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11x.</p>

Claim	Wireless Cabin
	<p>DeSanctis at 2.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico- cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.</p> <p>DeSanctis at 3.</p> <p>The project will provide UMTS services, W-LAN IEEE 802.11b and Bluetooth to the cabin passengers.</p> <p>Jahn I at 1.</p> <p>When wireless access technologies in aircraft cabins are envisaged for passenger service, the most important standards for future use are considered to be: UMTS with UTRAN air interface, Bluetooth, and W-LAN IEEE 802.11b.</p> <p>Jahn I at 2.</p> <p>Of course, these access technologies will co-exist with each other, beside conventional IP fixed wired networks. The wireless access solution is compatible with other kinds of IFE, such as live TV on board or provision of Internet access with dedicated installed hardware in the cabin seats. Hence, it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.</p> <p>Jahn I at 2.</p> <p>Such an infrastructure comprises:</p> <ul style="list-style-type: none"> - Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.

Claim	Wireless Cabin
	<p>Jahn I at 2.</p> <p>To the extent Wireless Cabin does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wireless Cabin further renders the limitation obvious in light of other references, such as Clark, Jahn II, Nelson, and Wu. Wireless Cabin, Clark, Jahn II, Nelson, and Wu concern the similar subject matter as Wireless Cabin, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wireless Cabin with Clark, Jahn II, Nelson and/or Wu would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wireless Cabin with those of Clark, Jahn II, Nelson or Wu, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p style="padding-left: 40px;">Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p style="padding-left: 40px;">The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU</p>

Claim	Wireless Cabin
	<p>may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs). Wu at [0050]; <i>see also</i> Wu at FIG. 1, [0052]-[0054].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>

Exhibit 469-13 to Southwest's Preliminary Invalidity Contentions

U.S. Patent Application No. 2003/0050041 (“Wu”)

U.S. Patent Application No. 2003/0050041 (“Wu”) titled “Network system for providing prepaid wireless remote access service” was filed by Robert Wu on September 7, 2001 and published on March 13, 2003.¹ Wu is prior art to the ‘469 Patent under at least Pre-AIA 35 U.S.C. §§ 102 (a), (e) and (g) as to claims 24, 25, 26, 28, and 32 (the “Asserted Claims”) of the ‘469 Patent.

To the extent Plaintiff alleges Wu does not disclose any particular limitation of the Asserted Claims of the ‘469 Patent, either expressly or inherently, any purported differences are such that the claimed subject matter as a whole would have been obvious in view of the knowledge of one skilled in the art. It would have further been obvious to a person of ordinary skill in the art as of the priority date of the ‘469 Patent to modify Wu or combine the teachings of Wu with other prior art in a manner that would have rendered the Asserted Claims invalid as obvious, including but not limited to:

- Invalid under 35 U.S.C. § 102 by Wu;
- Invalid under 35 U.S.C. § 103 by Wu and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent No. 6,894,990 to Agarwal et al. (“Agarwal”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent Application No. 2002/0138625 to Bruner et al. (“Bruner”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent No. 6,445,777 to Clark (“Clark”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent Application No. 2003/0051041 to Kalavade et al. (“Kalavade”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent Application No. 2007/0008937 to Mody et al. (“Mody”) and the knowledge of a person of ordinary skill in the art;

¹ Defendant’s invalidity charts, in some instances, rely at least in part on Plaintiff’s apparent positions regarding the scope of its claims for purposes of asserting infringement. Nothing in these claim charts should be understood as an admission relating to infringement, either literally or under the doctrine of equivalents, or as an admission relating to Defendant’s understanding of the proper interpretation or scope of the Asserted Claims. Defendant reserves the right to rely on additional citations or sources of evidence that may also be applicable, or that may become applicable in light of any Court Order on claim construction, changes in Plaintiff’s infringement contentions, or information obtained during discovery as the case proceeds.

- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent Application No. 2003/0055975 to Nelson et al. (“Nelson”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of U.S. Patent Application No. 2004/0109449 to Seo (“Seo”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of Airpath Wireless Hot Spot (“Airpath Wireless Hot Spot”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of Connexion by Boeing (“Connexion by Boeing”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of MTN Cruise Ship Internet Services (“MTN Cruise Ship Internet Services”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of Tenzing Global (“Tenzing Global”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of Wireless Cabin (“Wireless Cabin”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of “Aeronautical Communications for Personal and Multimedia Services via Satellite” by M. DeSanctis et al. (“DeSanctis”) and the knowledge of a person of ordinary skill in the art;
- Invalid under 35 U.S.C. § 103 by Wu in view of “Passenger Multimedia Service Concept via Future Satellite Systems” by A. Jahn, M. Holzbock, M. Riera, N. Díaz, and M. Werner (“Jahn II”) and the knowledge of a person of ordinary skill in the art; and
- Invalid under 35 U.S.C. § 103 by Wu in view of “Inflight Internet Connectivity Technology and Its Application on E-Commerce,” by Manasuda Suwanateep (“Suwanateep”) and the knowledge of a person of ordinary skill in the art.

As the United States Supreme Court held in *KSR Int’l Co. v. Teleflex, Inc.*, “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” 550 U.S. 398, 416 (2007). The Supreme Court further held: “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.” *Id.* at 417. The Supreme Court further held: “[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” *Id.* at 421.

Defendant reserves the right to amend or supplement this claim chart at a later date as more fully set forth in the Invalidity Contentions.

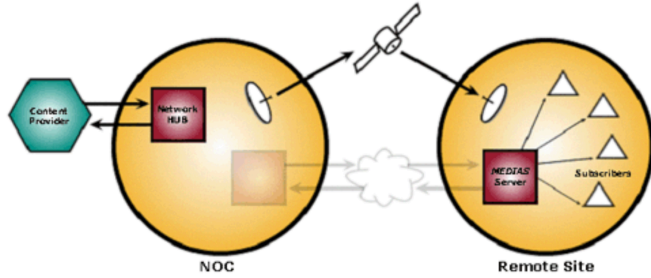
Claim	Wu
[24] An Internet Hotspot comprising:	<p>To the extent the preamble is limiting, Wu discloses an Internet Hotspot. <i>See, e.g.,</i></p> <p>When away from home or office, people often take their portable electronic devices with them. The main problem faced by users of such portable electronic devices is the limited availability of communications network access in public places such as airports, convention centers, bus terminals, shopping centers, restaurants, arenas, and the like.</p> <p>Wu at [0003].</p> <p>Accordingly, there is a need for a network system to provide customers in public areas with prepaid wireless access to communications networks. The prepaid wireless access allows the customers to maintain connection at any location within a wireless coverage area.</p> <p>Wu at [0005].</p> <p>The network system requires minimal space for executing operations, is discretely located, and can operate over a large public area without the physical constraints and limitations of hardwiring, connecting ports, and user interface equipment. The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like.</p> <p>Wu at [0006].</p> <p>The base station is responsible for all the wireless stations within a particular wireless coverage area. The base station is further connected to wired networks for facilitating communication traffic beyond the wireless coverage area including, but not limited to,</p>

Claim	Wu
	<p>publically accessible networks including the global communications network (i.e., the Internet).</p> <p>Wu at [0007].</p> <p>a base station including a wireless access point for communicating through a wireless medium with a wireless station operated by a customer</p> <p>Wu at [0011].</p> <p>In the present invention, there is generally provided a base station in communication with one or more wireless stations comprising, for example, portable electronic devices. The base station is responsible for all the wireless stations within a certain wireless coverage area. The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like.</p> <p>Wu at [0023].</p> <p>The base station 12 provides broadband service network for high speed access to the global communications network 16 (i.e., the Internet). . . The base station 12 may be implemented in a variety of environments where multiple customers may obtain high speed access to the global communications network 16 (i.e., the Internet) over a range of IP configurations (e.g. fixed IP, DHCP client, or private IP) on the wireless stations 20, 22, and 24.</p> <p>Wu at [0039].</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which</p>

Claim	Wu
	<p>is capable of providing the above-described functional features. Wu at [0043].</p>
<p>[24.a] a satellite dish communicating with the Internet via one or more data links with a satellite;</p>	<p>Wu discloses “a satellite dish communicating with the Internet via one or more data links with a satellite.” <i>See, e.g.,</i></p> <div> <p style="text-align: center;">FIG. 1</p> </div> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the</p>

Claim	Wu
	<p>present invention”).</p> <p>The base station is responsible for all the wireless stations within a particular wireless coverage area. The base station is further connected to wired networks for facilitating communication traffic beyond the wireless coverage area including, but not limited to, publically accessible networks including the global communications network (i.e., the Internet).</p> <p>Wu at [0007].</p> <p>The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.</p> <p>Wu at [0038].</p> <p>The base station 12 provides broadband service network for high speed access to the global communications network 16 (i.e., the Internet). . . The base station 12 may be implemented in a variety of environments where multiple customers may obtain high speed access to the global communications network 16 (i.e., the Internet) over a range of IP configurations (e.g. fixed IP, DHCP client, or private IP) on the wireless stations 20, 22, and 24.</p> <p>Wu at [0039].</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features.</p> <p>Wu at [0043].</p>

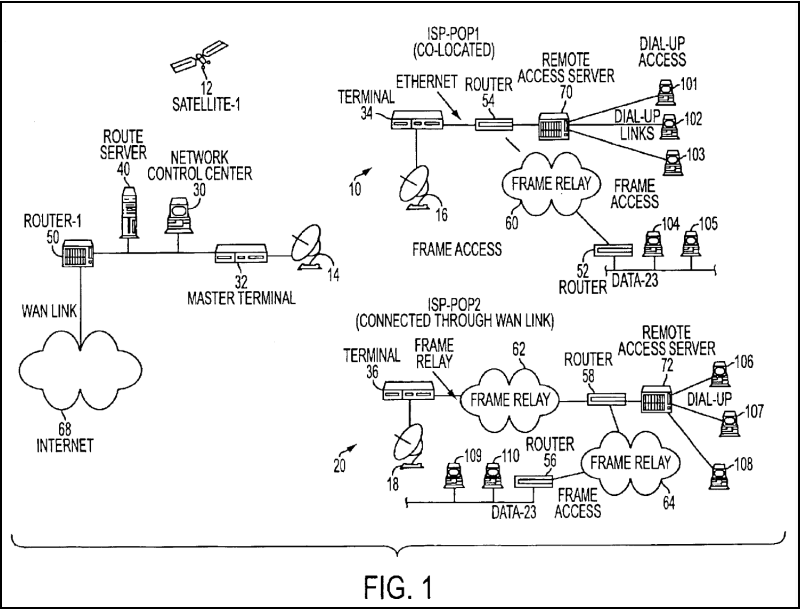
Claim	Wu
	<p>The connection between the wireless access point 26 and the base station 12 may include any high bandwidth communication channels such as ethernet networks, frame relay networks, synchronous optical network (SONET), asynchronous transfer mode (ATM) networks, digital subscriber loop (xDSL) networks, cable networks, satellite links, T1/T3/E1 trunk lines, integrated services digital network (ISDN), satellite feed lines, digital cable feed lines, and the like for data transfer through a global communications network (i.e., the Internet).</p> <p>Wu at [0048].</p> <p>With reference again to FIG. 1, the base station 12 is connected to the global communications networks 16 (i.e., the Internet) through a router 14.</p> <p>Wu at [0058].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson. Wu, Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and Nelson concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Airpath Wireless Hot Spot, Agarwal, Bruner, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Wu
	<p>The MEDIAS Solution</p> <p>MEDIAS SAT is the satellite data broadcast component of Mainstream Data's MEDIAS family of communications solutions. MEDIAS technologies combine MEDIAS SAT together with Mainstream's streaming Internet technology, MEDIAS NET, to provide spectacular quality, low cost, and powerful customization for the world's largest information companies.</p>  <p>Airpath Wireless Hot Spot at</p> <p>https://web.archive.org/web/20030819121544/http://www.mainstreamdata.com/content/soln/soln2.html; see also Airpath Wireless Hot Spot at</p> <p>https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html;</p> <p>https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html;</p> <p>https://web.archive.org/web/20040215133233/http://mainstreamdata.com:80/content/abtm/abtm0.html; https://web.archive.org/web/20040415005309/http://www.mainstreamdata.com/content/soln/soln0.html;</p> <p>https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html;</p> <p>https://web.archive.org/web/20030808001821/http://www.mainstreamdata.com/content/soln/soln0.html.</p> <p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes</p>

Claim	Wu
	<p>14, 16, 18 to Internet Service Providers, <i>e.g.</i>, 10 or 20, and can also be used to connect corporate sites.</p> <p>Agarwal at 3:38-41; <i>see also</i> Agarwal at FIG. 1, 3:18-20, 3:38-63.</p> <p>For airlines operating a mixed fleet of systems, the present invention integrates seamlessly on any platform. This allows for rapid deployment of services fleetwide and continuity of service as they adopt new hardware systems or equip the aircraft with wideband satellite technology for off-aircraft communications.</p> <p>Bruner at [0080], [0035] (“Most preferably, this relatively low bandwidth in-flight link is complemented by a high bandwidth (600 kbps) one way satellite up link to the aircraft.”); <i>see also</i> Bruner at [0015], [0018], [0021], [0035], [0080].</p> <div> <p>The diagram illustrates a network architecture for an aircraft. It is divided into four main segments: <ul style="list-style-type: none"> Cabin Segment: Contains a 'Sat-Modem' connected to a 'Satellite' in the Space Segment. It also includes a 'Service Integrator' and an 'Aircraft Protocol Functions' block (containing AAA, VPN, DHCP, and GPRS). The cabin is further divided into 'W-LAN', 'UMTS', and 'Bluetooth' zones. Space Segment: Consists of a 'Satellite' in orbit. Ground Segment: Includes a 'Terrestrial telecom router' and a 'Passenger's Company Internet' cloud. Aircom Provider Segment: Features a 'Service Integrator' connected to a 'UMTS Core' (containing RNC, SGSN, and GGSN) and a 'UMTS Core' (containing MSC and GMSC). It also connects to a 'PSTN UMTS GSM' cloud and an 'IP Backbone' cloud. Arrows indicate data flow between these segments, including a direct link from the satellite to the ground segment router.</p> <p>Figure 1: Network Architecture</p> </div> <p>Jahn II at FIG. 1; <i>see also</i> Jahn II at 2-4.</p> <p>The system architecture 600 further includes on the aircraft a DSS receiver/decoder and antenna (not shown) to help facilitate the broadband service.</p> <p>Nelson at [0056]; <i>see also</i> Nelson at [0015], [0053]-[0054], [0056], [0058]-[0059], [0061], FIG. 6.</p>

Claim	Wu
<p>[24.b] at least one router operatively coupled to the satellite dish;</p>	<div> <p style="text-align: center;">FIG. 1</p> </div> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”).</p> <p>With reference again to FIG. 1, the base station 12 is connected to the global communications networks 16 (i.e., the Internet) through a router 14. The router 14 operates to direct the communications traffic from the base station 12 through the global communications network 16 to a service provider router 34 connected at the other end</p>

Claim	Wu
	<p>thereof. The router 14 may be part of the base station 12 or as a separate unit as shown in FIG. 1. Wu at [0058].</p> <p>The service provider router 34 receives the communications traffic originating from the base station 12 through the global communications network 16 and transmits it to the web access server 28. Wu at [0059].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II, and Seo. Wu, Agarwal, DeSanctis, Jahn II, and Seo concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Agarwal, DeSanctis, Jahn II, and/or Seo would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Agarwal, DeSanctis, Jahn II, or Seo for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Wu
	 <p>FIG. 1</p> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 2:29-36, 3:18-20, 3:38-63, 4:56-65.</p>

Claim	Wu
	<div> </div> <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> <p>DeSanctis at FIG. 1; <i>see also</i> DeSanctis at 3-4, <i>see also</i> DeSanctis at FIG. 2.</p> <p>In the simple case of native IP, a router can connect the wired LAN segment and the wireless IEEE 802.11b access points. Furthermore, other protocol entities needed for IP services in the cabin (such as DHCP, mobility and AAA server) are linked here. Jahn II at 4-5.</p> <p>The internet network node 610 comprises a router 206 connected to the backbone network 200, a plurality of switches 612 and 618, and routers 614 and 616 connected to subscribers. Seo at [0051]; <i>see also</i> Seo at [0033], [0026]-[0027], [0049]-[0051].</p> <p>It would have been further obvious to a person of ordinary skill in the art that routers were a routine and commercially available component of multi-user wireless Internet architecture. <i>See, e.g.</i> “Going WiFi” at 140 (“since a router can be configured, its functions can be customized to meet a network’s demands, including a roaming user-base”).</p>

Claim	Wu
<p>[24.c] a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet; and</p>	<p>Wu discloses “a subscriber access unit operatively coupled between the satellite dish and the at least one router, the subscriber access unit being capable of authenticating a subscription account associated with a user prior to allowing the user access to the Internet.” <i>See, e.g.,</i></p> <div> <p style="text-align: center;">FIG. 1</p> </div> <p>Wu at FIG. 1. Wu at [0021] (“FIG. 1 is a schematic diagram of a wireless access network for providing a customer with a prepaid wireless remote access service for one embodiment of the present invention”).</p>

Claim	Wu
	<p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client. The authentication client implements the execution of the services and monitors the usage time and the charge rates for the services. Upon termination of the session, the accrued charges are tallied by the authentication client and transmitted to the authentication server whereupon the authorization is canceled. The authorization server subsequently updates the prepaid account information.</p> <p>Wu at [0009].</p> <p>In another aspect of the present invention there is provided a method for providing a customer with a prepaid wireless remote access service, where the method comprises:</p> <ul style="list-style-type: none"> connecting a base station to a wireless station operated by the customer through a wireless communication medium; querying the customer for authentication information; authenticating the authentication information provided by the customer; checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance

Claim	Wu
	<p>amount check. Wu at [0014]-[0019].</p> <p>The remote central access server searches the prepaid card database residing thereon to determine the balance amount on the prepaid card. Wu at [0029].</p> <p>The customer-selected security code is transmitted and securely stored in association with the PIN of the prepaid card on the central database in the remote central access server maintained by the prepaid service provider. . Thus, to access services offered by the prepaid service provider (i.e., wireless remote access service), the customer is prompted to supply both the PIN and the customer selected security code, before providing the wireless remote access. Wu at [0031].</p> <p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037].</p> <p>The base station 12 supports RADIUS client applications for enabling the wireless service provider to maintain the central database of customers and their PINS. RADIUS is an authentication, authorization and accounting system used by remote access service providers for controlling and maintaining access by authorized parties. The RADIUS</p>

Claim	Wu
	<p>client operates in conjunction with a RADIUS server to implement the above aims as will be described hereinafter. The base station 12 may be optionally configured to include an authentication server which is programmed to administer the customer's login name and security code (e.g. password). The service provider may further configure the base station 12 to display advertisements through the wireless stations 20, 22, and 24 to the customer. Wu at [0041].</p> <p>Further functions executed by the <u>base station 12</u> include DNS redirection which provides a local DNS server when the customer's DNS server is operating behind a firewall or located on a private intranet; email redirection service; home page redirection for redirecting customers to portal web site to generate advertising revenues and the like; DHCP function for supplying dynamic IP addresses, automating the transmission control protocol/Internet protocol (TCP/IP) client configuration process and maintaining records of the IP addresses to be assigned to the wireless stations; and internal customer management for storing and maintaining a customer account database and prompting the customer to input the PIN and the associated security code.</p> <p>The base station 12 may be integrated into the wireless access network 10 through the implementation of a commercially available device such as the ISS-2000 Internet Subscriber Server manufactured by Handlink Technology, Inc. of Hsinchu, Taiwan, which is capable of providing the above-described functional features. Wu at [0043].</p> <p>The portable wireless devices 20, 22, and 24 are connected to the base station 12 through a wireless access point 26 also referred to as a wireless local bridge. . . With reference again to FIG. 1, the base station 12 is connected to the global communications networks 16 (i.e., the Internet) through a router 14. The router 14 operates to direct the communications traffic from the base station 12 through the global communications</p>

Claim	Wu
	<p>network 16 to a service provider router 34 connected at the other end thereof. The router 14 may be part of the base station 12 or as a separate unit as shown in FIG. 1. The router 14 and the base station 16 are connected via a communications channel 18 such as an ethernet network, for example.</p> <p>Wu at [0048] and [0058].</p> <p>The service provider router 34 receives the communications traffic originating from the base station 12 through the global communications network 16 and transmits it to the web access server 28. The web access server 28 operates as a central gateway to the global communications network 16 with a plurality of WWW destination web servers 36 connected thereto. The web access server 28 is also connected to a Remote Authentication Dial-In User Service (Radius) server 30 and a central billing server 32 maintained by the wireless service provider, via a broadband channel such as an ethernet network, for example. The RADIUS server 30 is an authentication server that is connected to the central billing server 32 via a broadband channel such as an ethernet network, for example. The central billing server 32 includes a PIN database for storing information including account data, customer profiles, customer-selected security codes, prepaid card usage history, schedule of charge rates for the services for the wireless remote access service.</p> <p>Wu at [0059].</p> <p>The RADIUS server 30 is a client/server-based authentication software system that is used by service providers for implementing remote access applications and maintaining customer profiles in the PIN database residing on the central billing server 32. The RADIUS server 30 can be shared by base stations 12. The RADIUS server 30 is programmed to execute authentication, authorization, and accounting procedures for checking and validating information provided by the customer desiring to access the services.</p>

Claim	Wu
	<p>Wu at [0060].</p> <p>The RADIUS client is configured to provides the customer access to the global communications network only upon authorization from the RADIUS server 30. The RADIUS server 30 reviews the information provided by the customer and checks it with the central billing server 32 prior to issuing the authorization. Once access is permitted, the service charges incurred by the customer is monitored and tracked by the RADIUS server 30 through the assigned RADIUS client (i.e. the base station 12 or the web access server 28).</p> <p>Wu at [0062].</p> <p>Once the PIN and the security code (e.g. password) is furnished by the customer, the base station 12 connects to the web access server 28 maintained by the wireless service provider. The RADIUS server 30 receives an access request from the RADIUS client (i.e., the base station 12 or the web access server 28) for authentication and authorization for access. The access requests contains the PIN and security code of the customer's prepaid card. The RADIUS server 30 carries out the authentication and accounting procedures to ensure that the customer's PIN and security code are correct and valid. The information is authenticated and validated by the RADIUS server 30 through the PIN database residing on the central billing server 32. The RADIUS server 30 then reviews the balance amount on the prepaid card through the PIN database. Upon verification and review of the PIN/security code, and balance amount, the RADIUS server 30 retrieves the corresponding charge rate from the billing schedule stored on the PIN database. The RADIUS server 30 transmits an authorization message including the account information, balance amount, and charge rate to the RADIUS client (i.e. the base station 12 or the web access server 28).</p> <p>Wu at [0063].</p>

Claim	Wu
	<p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, and Seo. Wu, Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, and Seo concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services and/or Seo would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Airpath Wireless Hot Spot, Bruner, Jahn II, Mody, MTN Cruise Ship Internet Services, or Seo, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div> </div> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp. Airpath Wireless Hot Spot at</p>

Claim	Wu
	<p> https://web.archive.org/web/20030201104447/http://airpath.com/hsbs.asp; <i>see also</i> https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/news/news0.html; https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; https://web.archive.org/web/20030720022617/http://airpath.com/Services/instanthsp_details.htm. </p> <p> The ADS is the inflight remote server 19 that preferably serves content to inflight users of the system and also acts as a gateway to the ground based servers (16, 34, 37, 40) for additional content. From a laptop computer for example, an inflight passenger 13 initiates a dial-up networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. </p> <p> Bruner at [0023]; <i>see also</i> Bruner at FIGs. 2-3, [0021]-[0032], [0080]. </p> <p> It is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. </p> <p> Jahn II at 8; <i>id.</i> at 2-3, 7. </p> <p> One or more embodiments of the invention are directed to a Converged Billing/Authorization Gateway (CBG) that enables a wireless WAN operator to provide LAN access service to its existing WAN subscribers with a single bill and account. The CBG can integrate the authentication and billing systems of wireless operators with authentication and billing mechanisms used in LAN networks. The WAN operator's backend systems typically interface with a home location register (HLR) database, while the LAN mechanisms typically use protocols like RADIUS. The CBG integrates these two systems such that a WAN subscriber can access LAN services using the subscriber's WAN identity, thus avoiding the need for a separate bill for LAN usage. Further, the </p>

Claim	Wu
	<p>WAN operator can offer value-added services while leveraging its existing billing and authentication infrastructure. The CBG can be a server component that is preferably deployed close to the carrier's network and links into the carrier's network.</p> <p>Kalavade at [0056]; <i>id.</i> at [0207] (“The access server at the hotspot, such as, <i>e.g.</i>, a Cisco Router or a Nokia Access controller intercepts the session and sends a pre-defined web page to the user. This typically queries the user for a login and a password . . . Once authenticated, the RADIUS server responds with an Access Response to the RADIUS client.”), [0012], [0016], [0021], [0022], [0023], [0063], [0071], FIGs. 1-3.</p> <p>When activated, the access control software 14 receives an access request from a user of one of a plurality of mobile communications devices (18₁, 18₂, . . . 18_n) wherein the particular wireless client or mobile communications device 18₁ is attempting to contact the access point 12 to establish access to the communications network 16, such as a WLAN. The AP 12 forwards the request to a corresponding authentication server 20 configured to authenticate the user based on credit information, such as account balance, pre-paid credit charges, and the like. It should be noted that there may be additional networks between wireless network 16 and the authentication server 20 including, for example, wired, wireless and satellite networks. A data base 24 associated with the authentication server stores and maintains the user-based credit balance information. In one configuration, the authentication server 20 may access the account information directly. Optionally, server 20 may operate as a proxy for another accounting/ authentication server 28, 29 over a network 26 (such as a private data network or PDN) wherein servers 28, 29 operate as a final authentication server having access to the user credit records (<i>e.g.</i>, a server controlled by the credit card based Issuing agency or pre-paid data card issuer). When an access accept response message is received by AP 12 from the authentication server 20 authenticating the user, AP 12 enables access of the associated client device 18 to the WLAN</p> <p>Mody at [0019]; <i>see also id.</i> at [0002], [0004], [0010], [0011], [0018]-[0024], FIG. 1.</p>

Claim	Wu
	<div style="border: 1px solid black; padding: 10px;"> <p>The PCTEL RADIUS-compatible Segue(TM) Network Gateway performs several critical functions for both the mobile subscriber and the service provider. At the most basic level it serves as a router. In its routing capacity, the Segue(TM) Network Gateway aggregates all of the traffic from a Wireless Local Area Network (WLAN). Among other important functions, the Gateway and the Controller (1) attempt to verify that users are authorized to be on the network; (2) ensures that authorized users have valid IP addresses; and (3) connects to a system that maintains subscriber information and that can perform billing operations. Such systems are generically referred to as AAA Brokers because they perform Authorization, Authentication, and Accounting. The PCTEL Segue(TM) Network Controller serves as a centralized location, responsible for serving customized subscriber and location sensitive contents to users of the network.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021219113817/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=94443. <i>See also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cfm?ReleaseID=90805; https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; https://web.archive.org/web/20030810191006/http://www.mtnsat.com:80/enhanced_internet.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030424090006/http://www.mtnsat.com/internet.htm.</p> <p>A subscriber authenticated as a predetermined multicast group connects with the</p>

Claim	Wu
	<p>management server 102 of the CP 100 a via the wide area network 610 and the backbone network 200 through path B of FIG. 5b in order to request IGMP (Internet Group Management Protocol). When the subscriber is proved to be legitimate, the management server 102 of the CP 100 a performs authentication, and authorizes the multicast group. Seo at [0078]; <i>see also</i> Seo at [0027], [0033], [0039], [0078], FIGs. 3, 5b, 5d.</p> <p>It would have been further obvious to a person of ordinary skill in the art that subscription authentication was a routine and commercially available component of any paid wireless Internet architecture. <i>See</i> “Going WiFi” Glossary (“AAA (Authentication, Authorization, and Accounting). A term for a framework that enables intelligent access control to computer resources by enforcing policies, auditing usage, and providing the information necessary to bill for services.”).</p>
<p>[24.d] a web-ready device operatively coupled to the at least one router, the web-read device having a browser application operating thereon for accessing the Internet;</p>	<p>The wireless stations are adapted to provide the customers with remote communications access to the wired networks typically in the form of a global communications network such as the Internet on a prepaid basis. Preferably, the customers may use their own portable electronic devices as wireless stations to access the system of the present invention.</p> <p>Wu at [0008].</p> <p>In the present invention, there is generally provided a base station in communication with one or more wireless stations comprising, for example, portable electronic devices. The base station is responsible for all the wireless stations within a certain wireless coverage area. The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like.</p> <p>Wu at [0023].</p>

Claim	Wu
	<p>Customers with the wireless stations are provided with remote communications access to the wired networks typically in the form of a global communications network such as the Internet on a prepaid basis. Preferably, the customers may use their own portable electronic devices as wireless stations to access the system of the present invention.</p> <p>Wu at [0024].</p> <div> <p>FIG. 1</p> </div>

Claim	Wu
	<p>Wu at FIG. 1.</p> <p>Referring to FIG. 1, a schematic diagram of one embodiment of a prepaid wireless Internet access network 10 is shown. The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037].</p> <p>The wireless stations 20,22, and 24 may include any wireless-enabled electronic device that can be used to connect to the base station 12 to remotely access the global communications network such as the Internet including the World Wide Web (WWW) for web browsing and the like.</p> <p>Wu at [0038].</p> <p>Preferably, the customers have access to a browser software program such as Netscape Navigator from Netscape or Internet Explorer from Microsoft installed on the wireless stations. The base station 12 redirects the customer's browser to a proprietary WWW page.</p> <p>Wu at [0040].</p> <p>Further functions executed by the base station 12 include DNS redirection which provides a local DNS server when the customer's DNS server is operating behind a firewall or located on a private intranet; email redirection service; home page redirection for redirecting customers to portal web site to generate advertising revenues and the like;</p>

Claim	Wu
	<p>DHCP function for supplying dynamic IP addresses, automating the transmission control protocol/Internet protocol (TCP/IP) client configuration process and maintaining records of the IP addresses to be assigned to the wireless stations; and internal customer management for storing and maintaining a customer account database and prompting the customer to input the PIN and the associated security code.</p> <p>Wu at [0043].</p> <p>The portable wireless devices 20, 22, and 24 are connected to the base station 12 through a wireless access point 26 also referred to as a wireless local bridge. . . With reference again to FIG. 1, the base station 12 is connected to the global communications networks 16 (i.e., the Internet) through a router 14. The router 14 operates to direct the communications traffic from the base station 12 through the global communications network 16 to a service provider router 34 connected at the other end thereof. The router 14 may be part of the base station 12 or as a separate unit as shown in FIG. 1. The router 14 and the base station 16 are connected via a communications channel 18 such as an ethernet network, for example.</p> <p>Wu at [0048] and [0058].</p> <p>Once the PIN and the security code (e.g. password) is furnished by the customer, the base station 12 connects to the web access server 28 maintained by the wireless service provider. The RADIUS server 30 receives an access request from the RADIUS client (i.e., the base station 12 or the web access server 28) for authentication and authorization for access.</p> <p>Wu at [0063].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing,</p>

Claim	Wu
	<p>Jahn II, and Suwanateep. Wu, Bruner, Connexion by Boeing, Jahn II, and Suwanateep concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Bruner, Connexion by Boeing, Jahn II, and/or Suwanateep would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Bruner, Connexion by Boeing, Jahn II, or Suwanateep, for example, to incorporate this limitation. <i>See, e.g.</i>,</p> <p style="padding-left: 40px;">The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p>

Claim	Wu
	<div style="border: 1px solid black; padding: 10px;"> <p>Find out about our In-Flight Portal</p> <div>  </div> <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Ln av=1; <i>see also</i> Connexion by Boeing at https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4</p> <p>Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access).</p> <p>Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2.</p>

Claim	Wu
	<p>In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface.</p> <p>Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”).</p> <p>When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, and Suwanateep. Wu, Bruner, Connexion by Boeing, Jahn II, and Suwanateep concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Bruner, Connexion by Boeing, Jahn II, and/or Suwanateep would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to</p>

Claim	Wu
	<p>modify the disclosures of Wu with those of Bruner, Connexion by Boeing, Jahn II, or Suwanateep, for example, to incorporate this limitation. <i>See, e.g.</i>,</p> <p>The airborne users 13 are connected to the system via the aircraft based user terminals which are connected to an airline-based remote server computer 19.</p> <p>Bruner at [0021] <i>see also</i> Bruner at FIGs. 1-2, [0018], [0019], [0021]-[0024], [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password. The username and password can be provided when the user first accesses the system and provides necessary registration information to be able to use all the functions of the airborne based internet service of the present invention. Such a registration system is well known to those skilled in the art in providing internet based commerce systems.”), [0029]-[0030] [0070], [0076], [0078], [0079].</p> <div> <p>Find out about our In-Flight Portal</p>  <p>Before you access the Internet through the Connexion by Boeing service, you will have the option to select a variety of free services and content through our In-Flight Portal.</p> <p>The In-Flight Portal's selection of top news and entertainment headlines will help keep you up to date, even at 39,000 feet. You can also use the In-Flight Portal to register for the service, view Frequently Asked Questions (FAQs), and contact customer care.</p> </div> <p>Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1; <i>see also</i> Connexion by Boeing at</p>

Claim	Wu
	<p> https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; <a href="https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln
av=4">https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4 </p> <p> Moreover, people are becoming more and more used to personalised equipment, such as mobile phones, laptops or PDAs, all accommodated with their own personal environment. Thus, thinking of future mobile communication from a user acceptance point of view, there is a clear demand for a wireless access solution for multimedia and personal communication services through users own equipment. Besides, a wireless network might also support the airline personnel (cabin crew, maintenance crew) during their daily work (e.g. for mobile data access). </p> <p> Jahn II at 1; <i>see also</i> Jahn II at FIGs. 1-2, 5, Abstract, 1-2. </p> <p> In accordance with various embodiments of the invention, users can access the LAN/WAN from a variety of terminals with different features. By way of example, terminals can include laptops and PDAs (personal digital assistants) and other mobile computing devices. These terminals can have a PCMCIA slot that can be used to attach an 802.11 NIC. Also, many devices sold now have an integrated 802.11 network interface. </p> <p> Kalavade at [0071], [0072] (“A user comes to a hotspot and starts accessing the Internet through his laptop.”). </p> <p> When a laptop computer and a network interface card is plugged in to the airplane seat, it will identify what kind of computer and operating system of the laptops and ask for the appropriate software. Passenger laptops interface to the cabin file server through Ethernet cabling installed throughout the cabin. Interfaces include three RS232 serial ports, a parallel printer port, connections for keyboard, mouse, floppy drive and CD- ROM, digital </p>

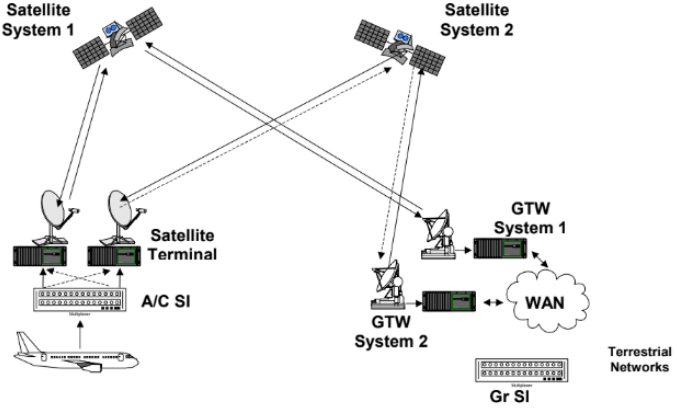
Claim	Wu
	<p>and analog video output and a USB port. There is also the ability to support a variety of interfaces such as Ethernet, modem and others through two Type-II PCMCIA slots.</p> <p>Suwanateep at 9; <i>see also</i> Suwanateep at 12, 16-17, 32-33.</p>
<p>[24.e] wherein the satellite dish, at least one router and the subscriber access unit are located in a remote location a experiencing a relatively high volume of transient traffic;</p>	<p>A network system for providing a customer with a prepaid wireless remote access service where the system comprises a base station including a wireless access point for communicating through a wireless medium with a wireless station operated by a customer, a global communications network including a plurality of remote computer servers, the global communications network being connected to the base station, and a central access server in communication with the base station through the global communications network for providing the customer with the wireless prepaid remote access service from the wireless station to the plurality of remote computer servers.</p> <p>Wu at Abstract.</p> <p>The present invention relates generally to telecommunications systems, and more particularly, to a network system capable of providing prepaid wireless remote access service.</p> <p>Wu at [0001].</p> <p>The present invention is generally directed to a network system capable of providing prepaid wireless remote access services. . . The manner in which the network system can be implemented and positioned inconspicuously makes the system especially suited for use in public places with limited space and high traffic throughput such as airports, hotels, cafes, public transportation centers, vehicles, restaurants, libraries, college campuses, and the like.</p> <p>Wu at [0006].</p> <p>A central network access server maintained by a wireless service provider is linked</p>

Claim	Wu
	<p>between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations. Wu at [0007].</p> <p>In another aspect of the present invention there is provided a method for providing a customer with a prepaid wireless remote access service, where the method comprises:</p> <p>connecting a base station to a wireless station operated by the customer through a wireless communication medium;</p> <p>querying the customer for authentication information;</p> <p>authenticating the authentication information provided by the customer;</p> <p>checking a prepaid balance amount associated with the authentication information; and</p> <p>enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check. Wu at [0010]-[0019].</p> <p>The present invention is generally directed to a wireless access network system capable of providing prepaid wireless remote access services and method of using the same. Wu at [0022].</p> <p>In the present invention, there is generally provided a base station in communication with one or more wireless stations comprising, for example, portable electronic devices. The base station is responsible for all the wireless stations within a certain wireless coverage area. The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and</p>

Claim	Wu
	<p>the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations. Wu at [0023].</p> <p>If a sufficient balance amount is present, the prepaid customer is permitted to proceed with the wireless remote access service whereupon the cost for such service is deducted from the balance amount. Wu at [0030].</p> <p>The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037].</p> <p>The base station 12 automatically re-configures the network configuration settings for wireless remote access to the global communications network. Thus, the base station 12 enables the customer to simply connect the wireless station 20, 22, or 24 in a “plug and play” mode of operation for ease of service. Wu at [0040].</p> <p>The base station 12 supports RADIUS client applications for enabling the wireless service provider to maintain the central database of customers and their PINS. RADIUS is an authentication, authorization and accounting system used by remote access service providers for controlling and maintaining access by authorized parties. Wu at [0041].</p> <p>The schedule of charge rates is periodically updated by the service provider. The RADIUS server 30 is a client/server-based authentication software system that is used by</p>

Claim	Wu
	<p>service providers for implementing remote access applications and maintaining customer profiles in the PIN database residing on the central billing server 32. Wu at [0060].</p> <p>The central billing server 32, the RADIUS server 30 and an assigned RADIUS client which may be selected from the base station 12, or the web access server 28, in combination perform the accounting, monitoring and maintenance of the wireless remote access services provided to the customer. Wu at [0061].</p> <p>Once connected for the remote access service, the customer may access any server on the global communications network 16 for downloading or transmitting data, software, and the like from or to the server 36. Wu at [0064].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Agarwal, Bruner, Connexion by Boeing, Clark, DeSanctis, Jahn II, and MTN Cruise Ship Internet Services. Wu, Agarwal, Bruner, Connexion by Boeing, Jahn II, DeSanctis, and MTN Cruise Ship Internet Services concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, and/or MTN Cruise Ship Internet Services would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Agarwal, Bruner, Clark, Connexion by Boeing, DeSanctis, Jahn II, or MTN Cruise Ship Internet Services, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Wu
	<p>Such a network can be used to provide connectivity via satellite-1 12 and satellite dishes 14, 16, 18 to Internet Service Providers, e.g., 10 or 20, and can also be used to connect corporate sites. Routers 52, 54, 56 and 58 connect the terminals 34 and 36, possibly via frame relays 60, 62, 64 (or via an ethernet connection), to remote access servers 70, 72, and/or to various dial-up access units 101-110.</p> <p>Agarwal at 3:38-44; <i>see also</i> Agarwal at 3:18-20, 3:45-63, FIG. 1.</p> <p>Referring now to the drawings in detail, there is shown in FIG. 1 a schematic diagram of the hardware for operating the remote internet system 10 of the present invention to allow remote users 13, such as airline passengers, to conduct electronic commerce (“e-commerce”) from a remote location 14, such as during the course of an airline flight. . The remote system preferably includes remote communication equipment 28 operably connected with the communication network 22.</p> <p>Bruner at [0021]; <i>see also</i> Bruner at FIG. 1, [0002], [0011], [0013]-[0014], [0021].</p> <p>FIG. 1 illustrates the network system of the present invention. Referring to FIG. 1, the system 100 of the present invention comprises a satellite communications subsystem that communicates with one or more mobile units, such as mobile unit 103, and one or more wireless local area network (LAN) 104. Note that in one embodiment, there is a mobile unit supporting every wireless LAN. The mobile unit may be a mobile vehicle. In the following description, a vehicle unit is referred to as a mobile hub station.</p> <p>Clark at 3:66-4:7; <i>see also</i> Clark at 3:49-59, 4:8-17, 4:18-30, 6:45-49, 8:29-37.</p>

Claim	Wu
	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p>HOW IT WORKS</p> <p>Inside the cabin, Boeing Connexion (developers of the technology) service is similar to that of any other wireless LAN, with access points connected to a server that is connected to a high-speed modem. But that's where the similarities end. The modem on an airplane connects to a phased-array antenna that is mounted externally atop a plane's fuselage, setting up a two-way connection with satellites positioned around the world. In turn, the satellites pass along this traffic and receive signals from wired ground stations.</p> </div> <p>Connexion by Boeing at Carol Ellison, <i>Unwire Everywhere</i>, PC MAGAZINE, Special Wireless Issue 2003, at 97-104; see also Connexion by Boeing at https://web.archive.org/web/20030201115424/http://www.connexionbyboeing.com/index.cfm?Lnav=1#e5; The Boeing Company, 2003 Annual Report, https://www.annualreports.co.uk/HostedData/AnnualReportArchive/b/NYSE_BA_2003.pdf.</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;">  <p>Figure 1: Satellite evolution scenario with L-band two-way communications augmented by a Ku-band satellite system for downlink streaming</p> </div> <p>DeSanctis at FIG. 1; see also DeSanctis at FIG. 2, 2-3.</p>

Claim	Wu
	<p>The service scenario considers travellers in aircraft on the move. Future airliners will provide a variety of entertainment and communications equipment to the passenger to make the journey more pleasant through in-flight entertainment, more productive through business communication facilities, and more secure through tele-medicine and surveillance facilities on board. A variety of services is needed, each having a different bandwidth demand and different types of communication protocols. Many of the services will be available to the passenger by means of cabin-installed equipment, such as TV screens, a rescue compartment with tele-medicine equipment, or fixed installed satellite phones.</p> <p>Jahn II at 2; <i>see also</i> Jahn II at 3, 7, 6, 8, FIGs. 1, 5.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Wireless</p> <p>Check E-Mail, surf the web or play gamesfrom anywhere on the ship!</p> <p>Maritime Telecommunications Network, the source for innovative offshore communications solutions for nearly a decade, is introducing their newest offering, Wireless Internet Access.</p> <p>A first for the maritime industry, a true Wireless network can be installed onboard just about any vessel. Access Points are installed throughout the vessel and terminated at our server onboard.</p> </div> <p>MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm;</p>

Claim	Wu
	<p>https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm;</p> <p>https://web.archive.org/web/20030105020053/http://www.mtnsat.com/press/2002/pressrelease_031202.htm;</p> <p>https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003).</p>
<p>[24.f] wherein the user may authenticate the subscription account and access the Internet at the remote location by establishing a data connection between the web-ready device and the router.</p>	<p>The present invention is generally directed to a network system capable of providing prepaid wireless remote access services. The network system is configured for implementing relatively high bandwidth communications links to customers through a wireless medium at any location within a wireless coverage area. The network system requires minimal space for executing operations, is discretely located, and can operate over a large public area without the physical constraints and limitations of hardwiring, connecting ports, and user interface equipment.</p> <p>Wu at [0006].</p> <p>The present invention further provides a wireless access network which obtains customer-inputted identification information related to the prepaid account. The information is transmitted to an authentication server through the global communications network for authenticating information to thereby provide authorization to the system. The authentication server reviews the information through a central database containing the prepaid account information of the prepaid card including the prepaid balance amount. Upon authentication, the authentication server provides the customer with authorization for access to and the corresponding charge rates of the remote access services through an authentication client. The authentication client implements the execution of the services and monitors the usage time and the charge rates for the services. Upon termination of the session, the accrued charges are tallied by the</p>

Claim	Wu
	<p>authentication client and transmitted to the authentication server whereupon the authorization is canceled. The authorization server subsequently updates the prepaid account information.</p> <p>Wu at [0009].</p> <p>In another aspect of the present invention there is provided a method for providing a customer with a prepaid wireless remote access service, where the method comprises: connecting a base station to a wireless station operated by the customer through a wireless communication medium; querying the customer for authentication information; authenticating the authentication information provided by the customer; checking a prepaid balance amount associated with the authentication information; and enabling wireless remote access service to the customer through the wireless station to a global communication network, upon affirmative authentication and prepaid balance amount check.</p> <p>Wu at [0014]-[0019].</p> <p>The remote central access server searches the prepaid card database residing thereon to determine the balance amount on the prepaid card.</p> <p>Wu at [0029].</p> <p>The customer-selected security code is transmitted and securely stored in association with the PIN of the prepaid card on the central database in the remote central access server maintained by the prepaid service provider. . Thus, to access services offered by the prepaid service provider (i.e., wireless remote access service), the customer is prompted to supply both the PIN and the customer selected security code, before providing the wireless remote access.</p> <p>Wu at [0031].</p>

Claim	Wu
	<p>The prepaid wireless service provider may verify the prepaid customer's identity such as through conventional verification methods such as by requesting personal information known only to the rightful customer. Upon proper verification, the prepaid customer is provided a new security code for immediate use.</p> <p>Wu at [0032].</p> <p>Under this prepayment system, the prepaid card customer is permitted access to the multimedia access terminal upon appropriate authorization and clearance from the remote central billing server as will be described hereinafter.</p> <p>Wu at [0036].</p> <p>The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network 16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services.</p> <p>Wu at [0037].</p> <p>The base station 12 supports RADIUS client applications for enabling the wireless service provider to maintain the central database of customers and their PINS. RADIUS is an authentication, authorization and accounting system used by remote access service providers for controlling and maintaining access by authorized parties. The RADIUS client operates in conjunction with a RADIUS server to implement the above aims as will be described hereinafter. The base station 12 may be optionally configured to include an authentication server which is programmed to administer the customer's login name and</p>

Claim	Wu
	<p>security code (e.g. password). The service provider may further configure the base station 12 to display advertisements through the wireless stations 20, 22, and 24 to the customer. Wu at [0041].</p> <div> <p style="text-align: center;">FIG. 1</p> </div> <p>Wu at FIG. 1.</p> <p>The portable wireless devices 20, 22, and 24 are connected to the base station 12 through</p>

Claim	Wu
	<p>a wireless access point 26 also referred to as a wireless local bridge. . . With reference again to FIG. 1, the base station 12 is connected to the global communications networks 16 (i.e., the Internet) through a router 14. The router 14 operates to direct the communications traffic from the base station 12 through the global communications network 16 to a service provider router 34 connected at the other end thereof. The router 14 may be part of the base station 12 or as a separate unit as shown in FIG. 1. The router 14 and the base station 16 are connected via a communications channel 18 such as an ethernet network, for example.</p> <p>Wu at [0048] and [0058].</p> <p>In the present invention, the customers are equipped with wireless-enabled electronic devices which are preferably portable for mobile connection to the wireless access network 10 which encompasses the global communications network 16.</p> <p>Wu at [0044].</p> <p>The service provider router 34 receives the communications traffic originating from the base station 12 through the global communications network 16 and transmits it to the web access server 28. The web access server 28 operates as a central gateway to the global communications network 16 with a plurality of WWW destination web servers 36 connected thereto. The web access server 28 is also connected to a Remote Authentication Dial-In User Service (Radius) server 30 and a central billing server 32 maintained by the wireless service provider, via a broadband channel such as an ethernet network, for example. The RADIUS server 30 is an authentication server that is connected to the central billing server 32 via a broadband channel such as an ethernet network, for example. The central billing server 32 includes a PIN database for storing information including account data, customer profiles, customer-selected security codes, prepaid card usage history, schedule of charge rates for the services for the wireless remote access service.</p>

Claim	Wu
	<p>Wu at [0059].</p> <p>The RADIUS server 30 is a client/server-based authentication software system that is used by service providers for implementing remote access applications and maintaining customer profiles in the PIN database residing on the central billing server 32. The RADIUS server 30 can be shared by base stations 12. The RADIUS server 30 is programmed to execute authentication, authorization, and accounting procedures for checking and validating information provided by the customer desiring to access the services.</p> <p>Wu at [0060]</p> <p>The RADIUS client is configured to provides the customer access to the global communications network only upon authorization from the RADIUS server 30. The RADIUS server 30 reviews the information provided by the customer and checks it with the central billing server 32 prior to issuing the authorization. Once access is permitted, the service charges incurred by the customer is monitored and tracked by the RADIUS server 30 through the assigned RADIUS client (i.e. the base station 12 or the web access server 28).</p> <p>Wu at [0061].</p> <p>Upon connection, the base station 12 prompts the portable wireless station 20, 22 or 24 to provide a valid PIN number and security code (e.g. password) corresponding to a prepaid card.</p> <p>Wu at [0062].</p> <p>Once the PIN and the security code (e.g. password) is furnished by the customer, the base station 12 connects to the web access server 28 maintained by the wireless service provider. The RADIUS server 30 receives an access request from the RADIUS client (i.e.,</p>

Claim	Wu
	<p>the base station 12 or the web access server 28) for authentication and authorization for access. The access requests contains the PIN and security code of the customer's prepaid card. The RADIUS server 30 carries out the authentication and accounting procedures to ensure that the customer's PIN and security code are correct and valid. The information is authenticated and validated by the RADIUS server 30 through the PIN database residing on the central billing server 32. The RADIUS server 30 then reviews the balance amount on the prepaid card through the PIN database. Upon verification and review of the PIN/security code, and balance amount, the RADIUS server 30 retrieves the corresponding charge rate from the billing schedule stored on the PIN database. The RADIUS server 30 transmits an authorization message including the account information, balance amount, and charge rate to the RADIUS client (i.e. the base station 12 or the web access server 28).</p> <p>Wu at [0063].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, and Nelson. Wu, Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services and Nelson concern the similar subject matter as Wu, namely the provision of Internet access to users "in transit" or "while traveling" ('469 patent Background) away from their homes or offices. Modifying Wu with Bruner, Connexion by Boeing, Jahn II, MTN Cruise Ship Internet Services, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Bruner, Jahn II, Connexion by Boeing, MTN Cruise Ship Internet Services, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p>From a laptop computer for example, an inflight passenger 13 initiates a dial-up</p>

Claim	Wu
	<p>networking PPP connection to the ADS server 19 via the inflight telephone connection (not shown) located adjacent the passenger 13, such as in the seatback or in the armrest of the airline passengers seat. The ADS server 19 operates a host of software components including an HTTP server, DHP server, DNS server, database server, mail server and preferably chat and streaming servers. After the PPP connection is established, the ADS server 19 will provide an IP address, DNS server address and any default gateway information to the user 13. From this point, the user utilizes his or her internet browser software running on the laptop to access a variety of content. In an alternative embodiment, a screen and keyboard can be provided at the passengers seat for the user 13 connection, eliminating the need for the user to have his or her laptop computer.</p> <p>Bruner at [0023]; <i>see also</i> Bruner at [0028] (“Preferably, as shown in FIG. 2, the user 10 upon accessing the system of the present invention via a home page 55 logs in 58 by providing a user name and password.”), [0021], [0029], [0078], [0079].</p> <div> <p>Log In</p>  <ol style="list-style-type: none"> 1. Open a browser window (Internet Explorer or Netscape). If the browser window does not display properly, your laptop may not be configured for DHCP and you will need to change your settings. If you change your settings, please remember to write them down <u>prior to</u> changing. 2. Click on the Connexion by Boeing button. 3. Review and accept the User Licensing Agreement. 4. Returning Users: Login. First-Time Users: Register and then Login. </div> <p>Connexion by Boeing at</p>

Claim	Wu
	<p> https://web.archive.org/web/20030208001122/http://www.connexionbyboeing.com/index.cfm?Ln av=2; <i>see also</i> Connexion by Boeing at <a href="https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln
av=4">https://web.archive.org/web/20030208001128/http://www.connexionbyboeing.com/index.cfm?Ln av=4; Suwanateep at 9. </p> <p> Since IP traffic at IP connection level can be monitored only before the IS stream multiplexing, it is envisaged that AAA functions must be located in the cabin to monitor for instance, volume-based accounting. Counterparts of the AAA function must be located at the service provider site, and appropriate signaling functions between both entities must be foreseen. Jahn II at 7-8; <i>see also id.</i> at 3, FIGs. 1, 5. </p> <div style="border: 1px solid black; padding: 10px;"> <p> On Norwegian Sun, NCL guests can now surf the Internet by the pool, in the meeting rooms, in and around the Internet Cafe and the reception (atrium) area. The installation of the Wi Fi software is simple, requiring no reconfiguration of the guest's computer and will take up no hard drive space once the guest leaves the ship. Laptops are also available for rent at the Internet Café onboard. </p> <p> The Wi Fi network card costs \$10 per day and passengers are charged either by the minute or can purchase 33-, 100- or 250-minute packages for as low as 40 cents per minute. </p> </div> <p> MTN Cruise Ship Internet Services at https://web.archive.org/web/20030701164753/http://ncl.com/news/pr102302.htm; <i>see also</i> MTN Cruise Ship Internet Services at https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; <a href="https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_09
1702_NorwegianSun.htm">https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_09 1702_NorwegianSun.htm; https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20030302133410/http://www.shareholder.com/pctel/ReleaseDetail.cf </p>

Claim	Wu
	<p>m?ReleaseID=90805.</p> <p>For basic network access services (such as Internet access), the data communication server can perform dial-up authentication when the user connects to the server. PPP can be advantageously used to provide a plurality of in-protocol authentication methods. Preferably, a remote access dial-up user service (RADIUS) may be used to perform the dial-up authentication, allowing exchange of login information and user resource information between a client and a RADIUS server, the server containing a database. During an authentication session, the login information is sent to the RADIUS server, the user is authenticated, and the server returns the user data record provisioned in the database; such information may include the IP address assignment, the source and destination filter IDs, allowed access time, and other information.</p> <p>Nelson at [0107]; <i>see also</i> Nelson at FIG. 17, [0105]-[0106].</p>
<p>[25] The Internet Hotspot of claim 24, wherein the data connection is one of a wired data connection and a wireless data connection.</p>	<p>The base station is further connected to wired networks for facilitating communication traffic beyond the wireless coverage area including, but not limited to, publically accessible networks including the global communications network (i.e., the Internet). A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0007].</p> <p>The wireless stations are adapted to provide the customers with remote communications access to the wired networks typically in the form of a global communications network such as the Internet on a prepaid basis.</p> <p>Wu at [0008].</p>

Claim	Wu
	<p>The base station is typically connected to additional wired networks for communications beyond the wireless coverage area including, but not limited to, publically accessible networks, a global communications network (i.e., the Internet), and the like. A central network access server maintained by a wireless service provider is linked between the base station and the wired networks for implementing and maintaining prepaid remote access services to customers operating the wireless stations.</p> <p>Wu at [0023].</p> <p>Customers with the wireless stations are provided with remote communications access to the wired networks typically in the form of a global communications network such as the internet on a prepaid basis.</p> <p>Wu at [0024].</p> <p>The prepaid customer can obtain remote access service through the wireless network system operated by the prepaid service provider by inputting the ID code or PIN of the prepaid card into the wireless station.</p> <p>Wu at [0029].</p> <p>The base station 12 is configured to immediately recognize new customers accessing the wireless network 10 as well as repeat customers.</p> <p>Wu at [0040].</p> <p>Generally, the portable wireless devices 20, 22, and 24 are connected to the wired portion of the wireless access network 10 through a suitable wireless communications medium such as radio frequency signal, infrared or laser beams, or the like.</p> <p>Wu at [0045].</p>

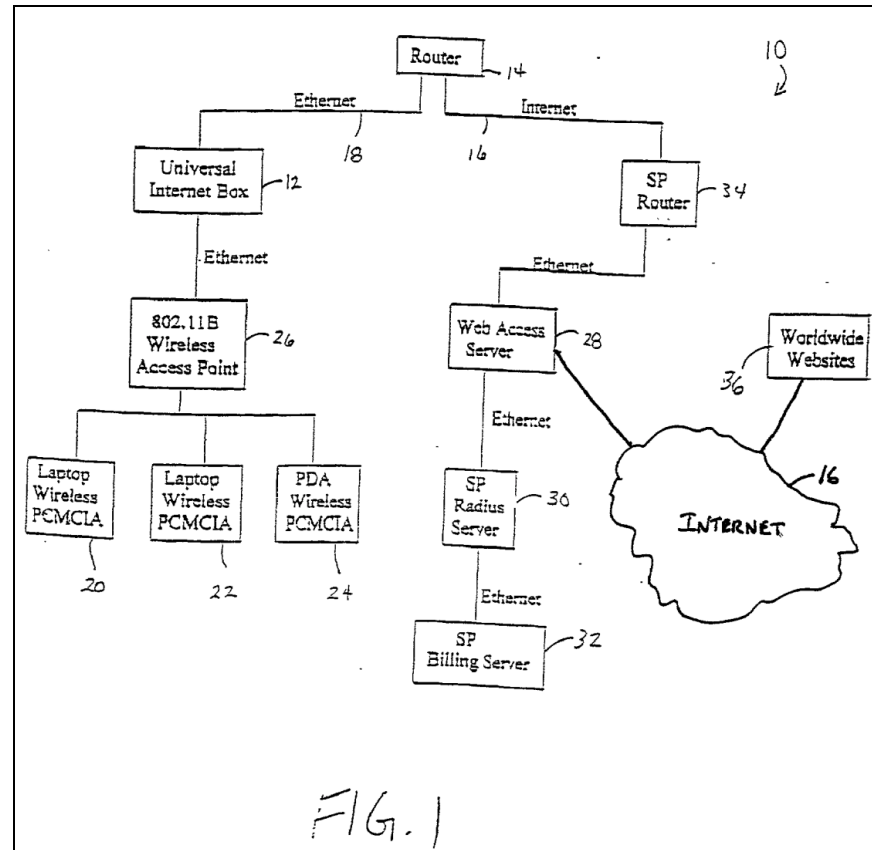
Claim	Wu
	<p>The access point 26 is a hardware device, or software used in conjunction with a computer, that serves as a communications hub for wireless clients or stations, and provides a connection to a wired network (e.g., LAN, WAN). Wu at [0048].</p> <p>The wireless access point 26 provides an interface between the wireless network interface of the wireless portable device 20, 22, or 24, and the wired portion of the wireless access network 10. In this manner, the wireless network interface forms a data link between the portable wireless device 20, 22 or 24 and the wireless network, and the access point 26 interfaces the wireless network with the wired portion of the wireless access network 10. Wu at [0049].</p> <p>The protocols specified by IEEE 802.11 are compatible with standard Ethernet protocols, thus making wireless and wired nodes on an enterprise local area network (LAN) virtually indistinguishable. Wu at [0051].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Agarwal, DeSanctis, Jahn II and Nelson. Wu, Agarwal, DeSanctis, Jahn II, and Nelson, concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Agarwal, DeSanctis, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Agarwal, DeSanctis, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p>

Claim	Wu
	<div> </div> <p>FIG. 1</p> <p>Agarwal at FIG. 1; <i>see also</i> Agarwal at 3:18-20; 3:38-63.</p> <p>Aircraft multimedia services will be offered to passengers soon via back-seat screens and IP cable networks.</p> <p>Jahn II at Abstract; <i>see also id.</i> at 3 (“The wireless access solution is compatible with other kinds of IFE . . . it should not be seen as an alternative to wired architecture in an aircraft, but as a complementary service for the passengers.”).</p> <p>The plurality of interface (I/O) units may include an Ethernet interface unit 115, modem 120, communications (COM) port 135, Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) port 130, Primary Rate Interface (PRI) port 125, ARINC-429 (Aeronautical Radio, Inc.) bus interface unit 145, and ARINC-573 bus interface unit 140. The Ethernet unit 115 may include ports for interconnection to the HIMs 155 and to the</p>

Claim	Wu
	<p>external terminal station (TS), and may be used to connect to the wireless local area network (LAN) transceiver 182 providing a high-speed data path to ground terminals while the aircraft (moving object) is on the ground. Alternatively, a COTS Ethernet card attaching to an external hub (not shown) may be used.</p> <p>Nelson at [0035]; <i>see also</i> Nelson at [0028], [0034], [0043], FIG. 1.</p>
<p>[26] The Internet Hotspot of claim 24, wherein a plurality of users may access the Internet simultaneously at the remote location by respectively establishing data connections with the router via their web-ready devices.</p>	<p>Since the number of connections are not limited by physical connecting ports, a large number of customers can easily be accommodated within the wireless coverage area.</p> <p>Wu at [0005].</p> <p>The present invention is generally directed to a network system capable of providing prepaid wireless remote access services. The network system is configured for implementing relatively high bandwidth communications links to customers through a wireless medium at any location within a wireless coverage area. The network system requires minimal space for executing operations, is discretely located, and can operate over a large public area without the physical constraints and limitations of hardwiring, connecting ports, and user interface equipment.</p> <p>Wu at [0006].</p>

Claim

Wu



Wu at FIG. 1.

Referring to FIG. 1, a schematic diagram of one embodiment of a prepaid wireless Internet access network 10 is shown. The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network

Claim	Wu
	<p>16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037].</p> <p>The number of portable wireless devices accessible to the wireless access network 10 is unlimited, and may include more than the three devices specifically shown in FIG. 1, depending on the access capacity of the wireless access network 10, particularly the base station 12. Wu at [0044].</p> <p>The portable wireless devices 20, 22, and 24 are connected to the base station 12 through a wireless access point 26 also referred to as a wireless local bridge. . . With reference again to FIG. 1, the base station 12 is connected to the global communications networks 16 (i.e., the Internet) through a router 14. The router 14 operates to direct the communications traffic from the base station 12 through the global communications network 16 to a service provider router 34 connected at the other end thereof. The router 14 may be part of the base station 12 or as a separate unit as shown in FIG. 1. The router 14 and the base station 16 are connected via a communications channel 18 such as an ethernet network, for example. Wu at [0048] and [0058].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, and Nelson. Wu, Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, and Nelson, concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling”</p>

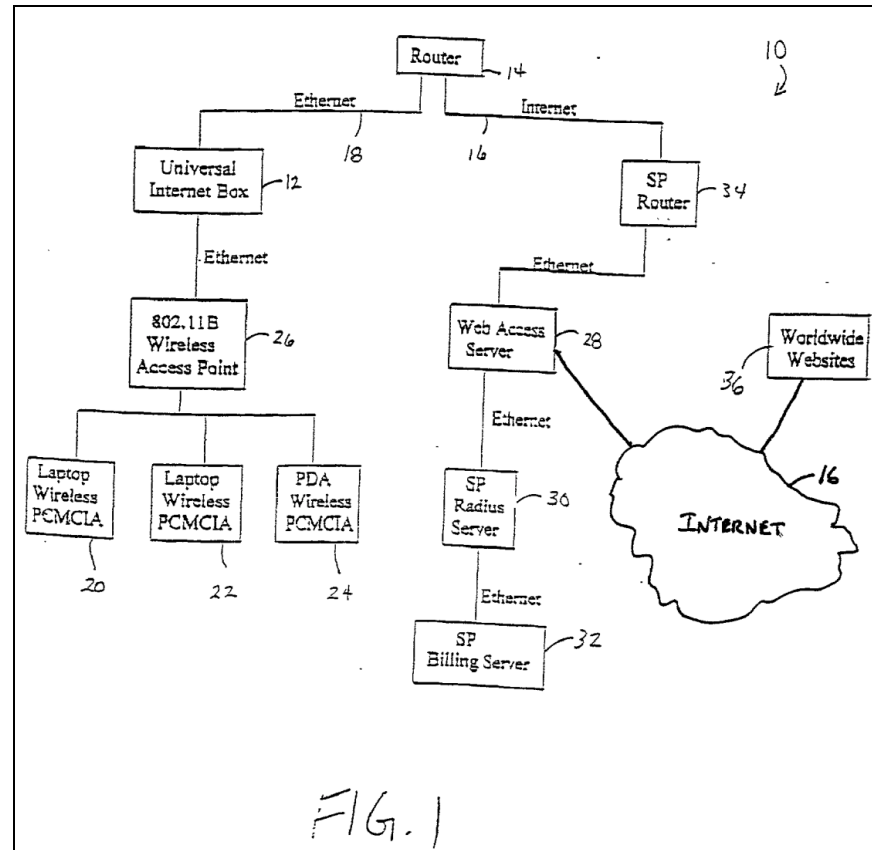
Claim	Wu								
	<p>(‘469 patent Background) away from their homes or offices. Modifying Wu with Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Airpath Wireless Hot Spot, Bruner, Jahn II, MTN Cruise Ship Internet Services, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <div><table><tr><th colspan="3">INSTANT HOT SPOTtm/HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT</th></tr><tr><td rowspan="2"> </td><td colspan="2">Airpath Exclusive ISG-1000 Subscriber Gateway</td></tr><tr><td><ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!</td><td>More Details Price/Order</td></tr></table></div> <p>Airpath Wireless Hot Spot at https://web.archive.org/web/20021005225943/http://airpath.com/airpath_approved.asp; <i>see also</i> Airpath Wireless Hot Spot at https://web.archive.org/web/20040415004242/http://www.mainstreamdata.com/content/_news/news0.html; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp; https://web.archive.org/web/20021003224740/http://airpath.com/instant.asp.</p> <p>It is therefore an object of the present invention to provide a method and apparatus to allow airline passengers or other remotely located users, to access the Internet during the course of an airline flight, or from remote land-based locations.</p> <p>Bruner at [0008]; <i>see also</i> Bruner at [0011], [0021], Bruner at FIG. 1.</p>	INSTANT HOT SPOT tm /HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT			 	Airpath Exclusive ISG-1000 Subscriber Gateway		<ul style="list-style-type: none">• Perfect for larger Hot Spot Venues• Supports 1000 Simultaneous Users• Great for wired or wireless Hot Spots/Zones• Affordable for all venues• Customizable End-User Login Screens• Setup in less than 30 minutes!	More Details Price/Order
INSTANT HOT SPOT tm /HOT ZONE SUBSCRIBER GATEWAY EQUIPMENT									
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Claim	Wu
	<div> </div> <p>Figure 1: Network Architecture</p> <p>Jahn II at 2, FIG. 1; <i>see also</i> Jahn II at 1-3, FIGs. 3-4.</p> <div> <p>MTN has formed a strategic alliance with PCTEL to provide wireless access to the cruise industry. Passengers may now bring their personal laptops onboard the Norwegian Sun and connect to the Internet. Digital Seas International (DSI), a subsidiary of MTN and a Verestar company, currently provides Internet services through the Internet Café onboard the vessel, where the passengers and crew can surf the Web, check e-mail and send video mail. Now, constituting an industry first, DSI is providing completely remote wireless Internet access onboard the Norwegian Sun.</p> </div> <p>MTN Cruise Ship Internet Services at</p> <p> https://web.archive.org/web/20030105023007/http://www.mtnsat.com/press/2002/pressrelease_091702_NorwegianSun.htm; <i>see also</i> MTN Cruise Ship Internet Services at </p>

Claim	Wu
	<p> https://web.archive.org/web/20030401215618/http://www.mtnsat.com/cruiseline_industry.htm; https://web.archive.org/web/20021014130443/http://www.mtnsat.com/enhanced_services.htm; https://web.archive.org/web/20030424055806/http://www.mtnsat.com/press/2003/pressrelease_032503_Xantic.htm; “At Sea But Never Out Of Touch,” CRUISE INDUSTRY QUARTERLY (Summer 2003). </p> <p> System 100 may include a plurality of components to provide higher data bandwidth and passenger access technology for facilitating data applications, examples being Internet Web browsing and email retrieval. These components include Direct Broadcast Service (DBS) satellite decoder 152, passenger cabin dial-up access system 151, and the WGS 182. Other components of system 100 can help facilitate data communications over the existing NATS data network. </p> <p> Nelson at [0032]; <i>see also</i> Nelson at [0028], [0034]. </p>
<p> [28] The Internet Hotspot of claim 26, wherein the data connections include wireless data connections. </p>	<p> The prepaid customer can obtain remote access service through the wireless network system operated by the prepaid service provider by inputting the ID code or PIN of the prepaid card into the wireless station. </p> <p> Wu at [0029]. </p>

Claim

Wu



Wu at FIG. 1.

Referring to FIG. 1, a schematic diagram of one embodiment of a prepaid wireless Internet access network 10 is shown. The wireless access network 10 generally includes a base station server or base station 12, a wireless access point 26 for connecting with one or more wireless stations 20, 22 and 24 through a wireless medium such as radio frequency signal, infrared light, laser, and the like, the global communications network

Claim	Wu
	<p>16, and a central billing server 32 with a remote authentication dial-in user service (RADIUS) server 30. The wireless stations 20, 22, and 24 are used by customers to connect to the base station 12 for obtaining prepaid wireless remote access services. Wu at [0037].</p> <p>The base station 12 is configured to immediately recognize new customers accessing the wireless network 10 as well as repeat customers. Wu at [0040].</p> <p>In this manner, the wireless network interface forms a data link between the portable wireless device 20, 22 or 24 and the wireless network, and the access point 26 interfaces the wireless network with the wired portion of the wireless access network 10. Wu at [0049].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further renders the limitation obvious in light of other references, such as Airpath Wireless Hot Spot, Jahn II, and MTN Cruise Ship Internet Services. Wu, Airpath Wireless Hot Spot, Jahn II, and MTN Cruise Ship Internet Services concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Airpath Wireless Hot Spot, Jahn II, and/or MTN Cruise Ship Internet Services would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Airpath Wireless Hot Spot, Jahn II, or MTN Cruise Ship Internet Services, for example, to incorporate this limitation. <i>See, e.g.</i>,</p> <p>In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via</p>

Claim	Wu
	<p>an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p>Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p>The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p> <p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117</p>

Claim	Wu
	<p>(“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>
<p>[32] The Internet Hotspot of claim 25, wherein the wireless connection is one of an 802.11a wireless area network, an 802.11b wireless area network, an 802.11g wireless area network, and an 802.11n wireless area network.</p>	<p>In the preferred embodiment of the wireless access network 10, the portable wireless devices 20, 22, and 24 and the wireless access point 26 communicates through radio wave transmissions. The wireless network interface and the wireless access point 26 conforms with the Institute of Electrical and Electronics Engineers (IEEE) standard 802.11 and extensions thereof such as IEEE 802.11a and 802.11b for standardizing wireless local area networks (wireless LANs).</p> <p>Wu at [0050].</p> <p>In one form of the present invention, the wireless access point 26 and the wireless interface card (not shown) of the wireless stations 20, 22, and 24 may be based on the 802.11b also known as WI-FI.</p> <p>Wu at [0052].</p> <p>In another form of the present invention, the wireless access point 26 and the wireless interface card (not shown) of the wireless stations 20, 22, and 24 may be based on the 802.11a standard.</p> <p>Wu at [0053].</p> <p>In another form of the present invention, the wireless access point 26 and the wireless interface card (not shown) of the wireless stations 20, 22, and 24 may be based on the 802.11g standard which offer data rates at about 54 Mbps in the 2.4 GHz range.</p> <p>Wu at [0054].</p> <p>To the extent Wu does not expressly or inherently disclose this limitation, it would have been obvious in view of the background knowledge of a person of ordinary skill in the art. Wu further</p>

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	<p>renders the limitation obvious in light of other references, such as Clark, Jahn II, and Nelson. Wu, Clark, Jahn II, and Nelson concern the similar subject matter as Wu, namely the provision of Internet access to users “in transit” or “while traveling” (‘469 patent Background) away from their homes or offices. Modifying Wu with Clark, Jahn II, and/or Nelson would have only required simple substitution, would not have required extensive experimentation, and would have yielded predictable results. A person of ordinary skill in the art would have further understood how to modify the disclosures of Wu with those of Clark, Jahn II, or Nelson, for example, to incorporate this limitation. <i>See, e.g.,</i></p> <p style="padding-left: 40px;">In one embodiment, the satellite and terrestrial microwave communication system transfers information using a satellite transponder or fixed terrestrial microwave radio via an ethernet packet switching protocol such as, for example, the IEEE 802 series of protocols or any proprietary protocols the TCP/IP protocol used on the World Wide Web. Clark at 3:1-9.</p> <p style="padding-left: 40px;">Several wireless access segments in the aircraft cabin, namely a wireless LAN according to IEEE 802.11b standard for IP services, an UMTS pico-cell for personal and data communications, and Bluetooth 1.1, as well as a standard wired IP LAN.” Jahn II at 3.</p> <p style="padding-left: 40px;">The WGS 182 may be, for example, a wireless LAN transceiver (as shown in FIG. 1) based on the IEEE 802.11 specifications which can allow transfer of high-speed data to the server 110 in the airport when the aircraft (moving object) is on the ground. The ACU may act as the gateway to a ground-based data center via the North American Terrestrial System (NATS) network. Nelson at [0030]; <i>see also</i> Nelson at FIG. 1, [0028], [0110].</p>

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	<p>It would have been obvious to a person of ordinary skill in the art that any member of the 802.11 standard family could be employed to permit interoperability of standard Wi-Fi components. The ‘469 patent specification itself acknowledges that a person of ordinary skill in the art would understand that the “wireless access point 40 can employ a security protocol of a type that is known to persons skilled in the art, such as the 802.11b security protocol, or any subsequent or future versions of the 802.11 standard. Such security protocols may be generally designated as 802.11X, where X can be any version or implementation of the 802.11 standard.” ‘469 patent at 5:19-25. It was well understood that “each new ‘flavor’ of the technology results in a new suffix to 802.11.” “Going WiFi” at 82; <i>see also id.</i> at 133 (“The fundamental components of a WLAN are clear-cut. And it’s relatively easy to describe the 802.11 suite in basic networking terms.”). As set forth in the accompanying contentions, the 802.11n standard had furthermore not been drafted by the time of the alleged priority date, rendering claim 32 invalid. <i>See also</i> “Going Wifi” at 116-117 (“The 802.11n Task Group is <i>working on a high-speed variant</i> of the existing 802.11 standards . . . However, don’t expect to see these newer, faster standards for a number of years.”).</p>