



American Airlines

Wireless Technologies Applications

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Overview

- Wireless at American
- Wi-Fi in Operations
- Wi-Fi in the Back Office
- The Cellular Option
- Future Steps



Wireless at American

- American has been an early adopter of wireless technologies; e.g.:
 - Utilized CDPD for network connectivity at remote locations such as cruise ship docks
 - Deployed pre 802.11 standard wireless access points for curbside checking, maintenance base parts tracking and cargo warehouse parcel tracking
 - Joined with Delta and United to partner with T-Mobile to offer a common Wi-Fi experience that extended beyond the airport space
- In an industry where over 75% of our employees are mobile (do not have a fixed work environment) and 100% of our customers are mobile, we believe that current and future wireless technologies are critical to our success



Wi-Fi in Operations

- American has deployed Wi-Fi at a significant number of airport locations
- The three most commonly visible applications are the Mobile Curbside Check-in, “Roving Agent” and Admirals Club Internet Access
- However, other behind the scenes applications include:
 - Access to maintenance applications and maintenance work flow
 - Flight crew ready room access
 - Support services such as wheelchair, medicinal oxygen distribution, unaccompanied minors
 - Baggage reconciliation, cabin service warehouse management, cargo parcel tracking



Wi-Fi in Operations (cont.)

- Our Admirals Clubs members use the Clubs as a virtual office, and are demanding Internet connectivity
- A clear preference has been shown for wireless access as the entire Club area can be used as a work area, especially when the work carrels are crowded
- In response, in addition to the domestic US, American has provided Internet access at the South American Clubs
- The remaining international locations will be completed by end of 2006



Wi-Fi in the Back Office

- American has installed Wi-Fi networks within our corporate headquarters as well as within certain other key administrative areas
- As a result of an ongoing device upgrade project, American's internal back-office customers have received notebooks with built-in wireless capabilities
- Just like our external customers, our internal customers have adopted the wireless technology and find productivity gains of being "in touch" in conference rooms, etc.



The Cellular Option

- American has faced challenges getting a Wi-Fi signal where it is needed
 - While attention has focused on disagreements with airport authorities, the need to “wire” for the wireless access points can be cost prohibitive
- To solve this need, American has been using the public cellular networks
 - Ruggedized notebooks with 1xRTT data cards were used to provide access to maintenance manuals at remote pads, gates, etc.
 - The slow data network speed – vis-à-vis Wi-Fi – has been a challenge for certain data-intensive operational users
 - Our mitigation efforts to improve performance have included the use of a cellular carrier network-based VPN and a CITRIX environment



The Cellular Option (cont.)

- The current deployment of higher speed cellular networks – EVDO, Release 0 – is promising
 - Equipment manufacturers have only recently released the appropriate modules for our use; thus, the EVDO trials are only now getting underway
 - As is typical, we are ready now for EVDO, Release A – which will provide for higher upload and download speeds and prioritization of traffic
- We have been exploring and trialing the use of the cellular Push-to-Talk technologies
 - Once airline operational traffic can be prioritized over consumer traffic, we expect our cellular use will increase



Future Steps

- American is closely following WiMax through the standards process
 - WiMax has the potential to deliver seamless internet connectivity over a large area – one which could be leveraged for the “internet of things” vision of RFID
 - A RFID reader that uses WiMax for backhaul connectivity would help spur this vision
- Back to reality – spectrum is a finite resource and we need to improve the dynamics between the interested parties
 - One approach to resolve these issues has been done by the ACI-NI WLAN working group is close to finalizing a code of conduct that can offer a compromise approach





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