Invention Title:	Dynamic allocation of wireless resources based on transportation (e.g. Train) schedule
Invention Summary:	A centralized server interfaces with the scheduling system and ticket scanning system at transportation terminals to dynamically allocate radio resources and enable a better Wi-Fi user experience.
Invention Description:	We are proposing an interface between the wireless network in an airport or bus/ train station and the server that maintains train/bus/plain scheduling data. This interface between the wireless network and transport scheduling system will: 1. Based on the schedules of the arriving and departing flights, buses or trains, AND the number and type of clients in the coverage area of the AP in the ESS, the server makes a decision when to allocate or de-allocate radio resources. For example, the this interface between the server and wireless network can be used to a. Controls when the Wi-Fi AP turns on/ allocates additional radios when a bus/train/flight arrival is expected to arrive soon and de-allocates extra radios once it receives a notification that the bus/train/flight has left. b. Controls when the Wi-Fi AP allocates or de-allocates radio resources depending on the existing traffic patterns- when no client is associated, go to a partial sleep mode only listening on the channel in periodic intervals for any Probe Requests that it could respond to; and when many clients are probing for an AP, allocate additional radio resources. Another case might be that if there are no 5Ghz clients in the coverage area, the server can tell the AP to low-power its 5Ghz radio interfaces. In this mode, the AP would only listen periodically on the 5Ghz interface for Probe Requests from any clients wanting to associate. 2. The server communicates with the ticket scanning machine at the boarding point to automatically initiate a Wi-Fi handoff session from the AP in the terminal to that in the bus/train/flight. This allows for a seamless session transfer for the client. The fast BSS transition protocol or other methods can be used for session continuity. 3. The server communicates with the ticket scanning machine and the scheduling systems at the terminal to determine when the passenger will reach the next stop in the journey to allow for automatic and fast link-set up on reaching the station. Most of passengers move in a predictable direction so by interacting with the ticket scanning machine, it is possible to predict that during the time interval [t1, t2], a subset of clients will be in range of the AP1 at the first station. The MAC addresses of these clients will be known after association. It is also predictable that these clients will be better suited for association with AP2 at the next stop in time interval [t2, t3]. So the centralized server uses this knowledge for a network initiated handover so that AP2 can have enough capacity for the next set of clients who are on their way and can be associated with it during [t2, t3].
Invention Commercial Value/Customers:	This invention allows for more efficient utilization of radio resources. With service providers deploying a large number of APs in an ESS, this can help in a better management of their networks. It also helps customers with a smoother/ automated Wi-Fi session transfer when boarding a bus/train/flight.
Invention Differences:	There is no known system/ server that performs the functions described above.