

AIRMAX TDMA SYSTEM

- Schedule Time Slots to Eliminate Collisions
- Maximize Airtime Efficiency
- Assign Priority Access for Voice and Video

Optimize Wireless Performance for Outdoor Installations

Ubiquiti Networks™ introduced the airMAX® platform to out-perform traditional, 802.11 Wi-Fi based, Point-to-MultiPoint (PtMP), outdoor networks. The core of the airMAX platform is the Ubiquiti TDMA (Time Division Multiple Access) protocol, which provides high performance, capacity, and scalability for high-speed, carrier-class links. The TDMA protocol dynamically allocates time to active clients and provides greater noise immunity performance when compared to the conventional 802.11 CSMA/CA (Carrier Sense Multiple Access / Collision Avoidance) protocol.

The CSMA/CA protocol was designed for use in indoor applications; wireless devices can sense each other and coordinate wireless access. However, in outdoor environments, wireless devices called stations use highly directional antennas to connect to the AP (Access Point) from distances that can span several kilometers. Because the stations cannot sense each other, they become “hidden nodes” and cannot coordinate access to the wireless channel. Thus the AP experiences frequent collisions from stations transmitting simultaneously. As the network scales, these collisions build up exponentially, increasing latency and lowering throughput.

Schedule Time Slots to Eliminate Collisions

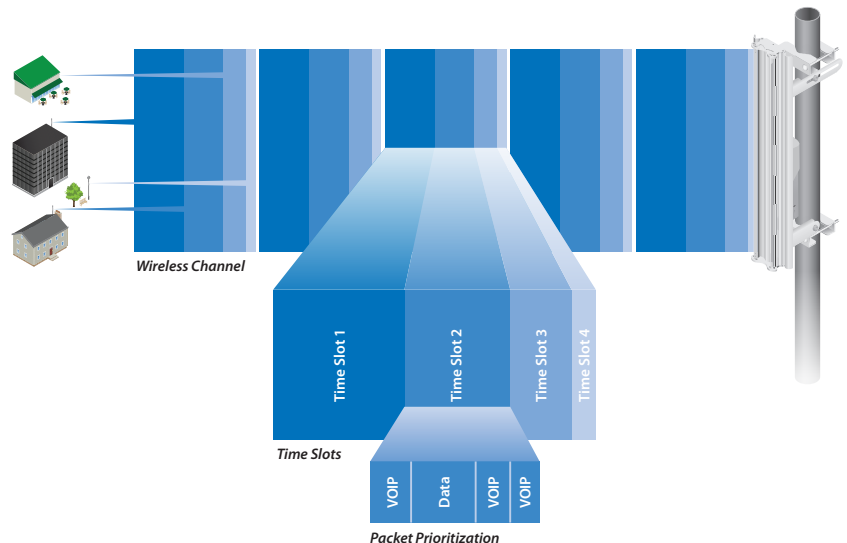
Designed for outdoor applications, the TDMA protocol solves the “hidden-node” problem. The AP divides the wireless channel into time slots and assigns a pre-determined time slot to each connected station. This essentially removes the possibility of stations transmitting at the same time, thus eliminating receive collisions at the AP.

Maximize Airtime Efficiency

The TDMA protocol keeps track of which stations are active and splits up the available airtime to those stations. For example, idle stations may have dedicated time on the AP and not use it; the TDMA protocol redistributes the dedicated time to active stations so that airtime is not wasted.

Assign Priority Access for Voice and Video

The AP can control the scheduling of the time slots so that it can give priority access to stations in a voice or video session. It does this automatically with no configuration necessary on the clients themselves. Intelligent QoS (Quality of Service) priority for voice and video ensures seamless streaming with lower latency.



Up to 100 airMAX stations can be connected to an airMAX Sector; four airMAX stations are shown to illustrate the general concept.

