SkyPilot™ NETWORKS

Application Note

Mobility

Benefits of the SkyPilot Synchronous Mesh Network Solution:

- **Integrated single or dual access points (2.4 and/or 4.9 GHz) support mobility for both public access and public safety needs**
- **Sophisticated spectral and traffic management features together enable fast handoffs between access points at speeds up to 60 MPH (100 KPH)**
- **The extended range and non-line-of-sight capabilities combine to lower the cost of deploying metropolitan area HotZone**
- **Built-in security provisions protect the privacy and integrity of all traffic while roaming the Wi-Fi mesh network**
- **Meshwide traffic coordination via directional antennas provides industry-leading performance and scalability**

In today's fast-paced world, people are constantly on the move—commuting daily, traveling frequently, and working out in the field serving customers and the community.Wireless communications has helped sever the tether, enabling people to access the public Internet and private intranets via the growing number of Wi-Fi HotSpots and wireless municipal networks. The cellular phone network even supports full mobility where people enjoy continuous communications as they roam from place to place.

Ideally, users could get the best of both wireless worlds: the broadband data rates, reliability and affordability of Wi-Fi mesh combined with the seamless roaming of the cellular phone network. And now they can with technologies that enable Wi-Fi mobility.

Wi-Fi mobility adds high-speed roaming to public Internet access services in public transportation systems, such as commuter trains, subways and buses. It also provides public safety officials and public works crews with powerful mobile multimedia communications while they protect and serve the community—out in the community.

Accessing a Mesh on the Move

Wi-Fi mobility involves the ability to connect seamlessly to the nearest HotSpot while traveling at a high rate of speed through a HotZone, which is essentially a network of multiple HotSpots that extends throughout an area, such as a railway, a major thoroughfare or harbor, or an entire metropolitan region.

The potential to roam among Wi-Fi HotSpots became possible only after large-scale Wi-Fi HotZones were made practical and affordable with the advent of wireless mesh networking. The wireless mesh is a self-forming, self-healing network that installs quickly and easily, and requires minimal ongoing management. The mesh topology utilizes multiple wireless paths, which allow the network to overcome obstacles, expand readily into new territory and deliver mission-critical reliability.

With ubiquitous and contiguous Wi-Fi coverage, wireless mobility routers are able to roam automatically from HotSpot to HotSpot in the HotZone mesh network. The result is constant connectivity that is secure and seamless enough to accommodate voice over Wi-Fi (or VoFi) using dual-mode phones that also support traditional cellular services. The ruggedized mobility router can be mounted in virtually any moving vehicle—from a squad car or ambulance to a bus or train. The mobility router can even serve as a multi-user gateway for a "vehicle area network" or VAN that creates a mobile HotSpot in and around the vehicle—in each passenger car of a train, for example—allowing all occupants to enjoy full roaming without the need for special mobility software.

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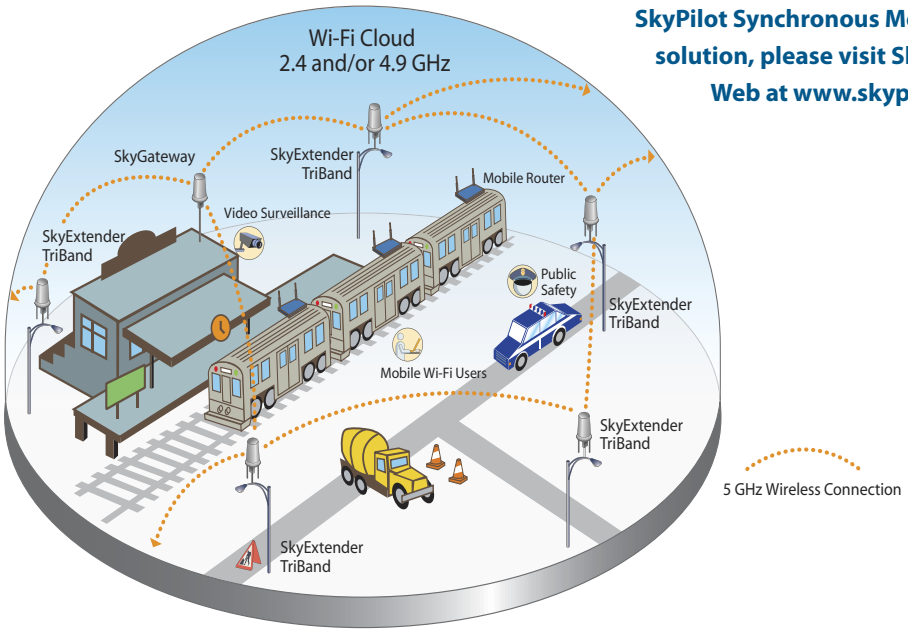
Third-generation Mesh Networking from SkyPilot

SkyPilot's third-generation Synchronous Mesh Network solution has advanced the state-of-the-art in mesh technology on two major fronts with an 8-way directional antenna array and meshwide traffic synchronization. This innovative SyncMesh™ architecture has made SkyPilot the industry leader in both performance and scalability.

By synchronizing directional antennas, nodes throughout the mesh topology are able to transmit or receive traffic simultaneously. This dramatically improves overall throughput and makes the mesh deterministic; that is, the bandwidth, latency and jitter can all be controlled. Such deterministic quality of service (QoS) is essential to providing mobility for demanding real-time voice over IP (VoIP) and video surveillance needs.

SkyPilot nodes integrate Wi-Fi access and mesh backhaul in a single, rugged unit to simplify the installation and operation of the HotZone. Each node includes one or two access points operating at 2.4 GHz (unlicensed Wi-Fi) and/or 4.9 GHz (licensed in the U.S. for exclusive use in public safety applications). The resulting dual-band HotZone enables mobility for both public access and public safety applications. To eliminate radio frequency (RF) interference with the integral access point(s), mesh backhaul is provided in the unlicensed 5 GHz spectrum.

SkyPilot has formed strategic partnerships with best-in-class vendors specializing in Wi-Fi mobility. These vendors provide the wireless mobility routers, along with the backend application software needed for mobility management and accounting. Multiple partnerships allow the solution to be tailored to the need, such as creating a public access mobile HotSpot in a commuter train or equipping public safety vehicles with broadband mobility. In all cases, the wireless mobility routers are purpose-built for the task with the ability to utilize available power sources and withstand harsh environments.



Specific features of the SkyPilot Synchronous Mesh Network solution help optimize mobile performance. For example, the mesh can be configured to support wireless mobility routers that employ different scanning techniques, authentication methods and persistent IP addressing schemes. All access points can use the same channel and SSID to create a seamless HotZone. And authorization can employ pre-shared keys to accelerate handoffs without compromising security. Together these features enable roaming at speeds up to 60 MPH (100 KPH).

Its robust third-generation architecture has made SkyPilot the fast, flexible, secure and affordable choice for mobility in Wi-Fi mesh deployments.

To learn more about third-generation wireless mesh networking with the SkyPilot Synchronous Mesh Network solution, please visit SkyPilot on the Web at www.skypilot.com.

SkyPilot™ NETWORKS

Leading the Mesh Revolution

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