



## WIRELESS MESH NETWORKS SOLUTION BRIEF

### Public Safety

## Aruba wireless mesh networks enhance public safety and emergency response communications

Resilient outdoor wireless mesh networks can significantly enhance public safety and emergency response communications over vast distances and across challenging geographic terrain.

With a scalable wireless mesh infrastructure providing a reliable, always-on foundation for communications, first-responders gain better situational awareness before arriving at the scene. Mobile command centers can bring strategic and tactical support capabilities to the incident location.

On a broader scale, command-and-control personnel can benefit from improved intra-agency planning and public safety coordination. Flexibility is also vital in wireless mesh networks. Emergency personnel must be able to quickly deploy wireless mesh networks in any location to restore communications for citizens and government agencies in post-disaster scenarios.



### Aruba's dependable wireless mesh networks

Supporting both secure client access and backhaul capabilities, Aruba outdoor wireless mesh networks provide a resilient, dependable communications infrastructure for public safety agencies and emergency response teams.

High-speed roaming gives first-responders seamless mobility at the scene while ensuring consistent, uninterrupted voice, video and data communications. Wireless mesh networks from Aruba overcome many limitations inherent in other outdoor wireless equipment, such as self interference and multi-hop performance degradation.

### High-performance routing for mesh networks

The Aruba outdoor wireless mesh solution includes multi-radio, multi-frequency wireless mesh routers that operate over the 2.4-GHz, 5-GHz and 4.9-GHz public safety band. These high-performance routers support several capabilities that make the Aruba wireless mesh ideal for public safety and emergency response communications.

Aruba's Adaptive Wireless Routing™ (AWR™) capability automatically optimizes traffic routes between multiple Aruba wireless mesh routers. Route selection and packet forwarding are optimized across multiple hops based on link status and quality. Throughput is

### The Aruba Difference

- Multi-radio, multi-frequency wireless mesh routers support secure client communication and backhaul for video, voice and data
- Adaptive mesh infrastructure adjusts dynamically to connection status and quality to ensure high availability and consistent throughput
- Automatic load-balancing and quality of service to ensure consistently high performance, during peak utilization periods
- Traffic is routed around failures, congestion and disruptions to create a self-forming, self-healing and self-managing wireless mesh infrastructure
- Session handoffs in less than 50 milliseconds enable high-speed roaming for first responders and mobile command centers
- Traffic shaping and load balancing across long-range directional links ensure HD-quality video from mobile and fixed surveillance cameras

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improved by regulating data rates and link capacity is automatically increased by binding channels.

Offering superb flexibility, AWR enables a single emergency response network to utilize a flexible range of topologies – including full or partial mesh, point-to-multipoint and hub-and-spoke – to quickly adapt to coverage, capacity, range and resiliency requirements.

### Load balancing and quality of service

Aruba wireless mesh networks also provide automatic load-balancing and quality of service (QoS) to ensure consistently high performance, even during peak utilization periods that can occur after disasters and other public emergencies.

With Aruba, Traffic is automatically routed around failures, congestion and disruptions to create a self-forming, self-healing and self-managing wireless mesh infrastructure. To ensure consistent QoS, Aruba supports DiffServ, IEEE 802.11e and IEEE 802.1Q VLAN tagging to segregate traffic from different groups of users, such as individual agencies or by application.

### High-speed roaming

Aruba's high-speed mobility technology, MobileMatrix™, builds on AWR routing capabilities to provide cross-IP subnet

roaming throughout the wireless mesh network. Completing handoffs in less than 50 milliseconds, MobileMatrix makes high-speed roaming possible for first-responder and mobile command centers that rely on mission-critical applications like voice over IP (VoIP) and live video surveillance.

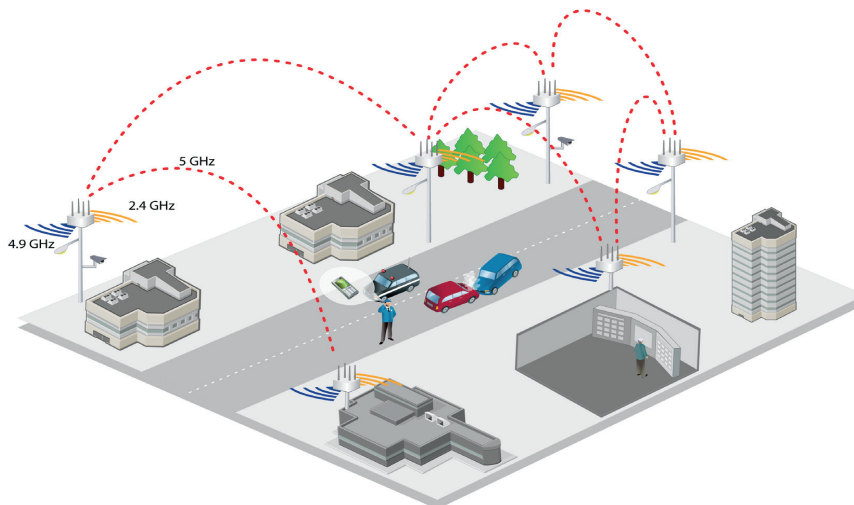
### HD-quality video surveillance

Aruba's innovative Active Video Transport™ (AVT) traffic-shaping technology dramatically improves the effectiveness of video surveillance applications by removing all impairments to video quality.

AVT performs traffic shaping and load balancing across long-range directional links to deliver HD-quality video from mobile and fixed surveillance cameras, monitors and recording systems. With AVT, video traffic traverses multiple hops across the distributed mesh network without introducing latency and with no degradation in image quality.

AVT utilizes deep packet inspection, MAC protocol optimization, an in-network retransmission protocol, and adaptive video jitter removal to deliver enhanced video at up to 30 frames per second across the distributed wireless mesh infrastructure.

*Aruba wireless mesh networks reliably support mission-critical video, voice and data applications, making it an ideal solution for public safety and emergency response communications.*



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