



## ARUBAOS SECURE ENTERPRISE MESH MODULE

Aruba's Secure Enterprise Mesh allows outdoor and indoor enterprise environments to be networked without any wires – and with the security and reliability of wired LAN. In sharp contrast to existing wireless mesh technologies (used primarily for metro deployments), Aruba's Secure Enterprise Mesh meets enterprise requirements including bullet-proof security, reliability, easy installation and simplified management. Aruba's Secure Enterprise Mesh solution allows access points (APs) to be placed wherever needed. No fiber runs or Ethernet cabling are required, easing installation, reducing deployment costs and lowering the number of Ethernet ports required.



Any Aruba access point can be provisioned for Secure Enterprise Mesh operation. This feature allows an access point to be repurposed as needed, reducing inventory costs and logistics management.

### FLEXIBLE DEPLOYMENT OPTIONS

- Wire-free design; no fiber or cable runs required
- Indoor and outdoor use
- Any Aruba access point can be a mesh access point

### BROAD APPLICATION SUPPORT

- Secure enterprise mesh supports Wi-Fi access, concurrent wireless intrusion protection, wireless backhaul, LAN bridging, and point-to-multipoint connectivity
- Well-suited for connectivity, security and industrial applications
- Efficiently supports converged voice, video and data applications

### COOPERATIVE CONTROL TECHNOLOGY

- Intelligent RF link management determines optimal performance path
- Allows the network to self-organize
- Resilient self-healing mesh overcomes a block path or AP failure

### MESH CLUSTERING

- Provides for auto-redundancy and high availability
- Allows a large mesh to be segmented into highly available clusters
- Contains interference-driven issues to a single part of the network

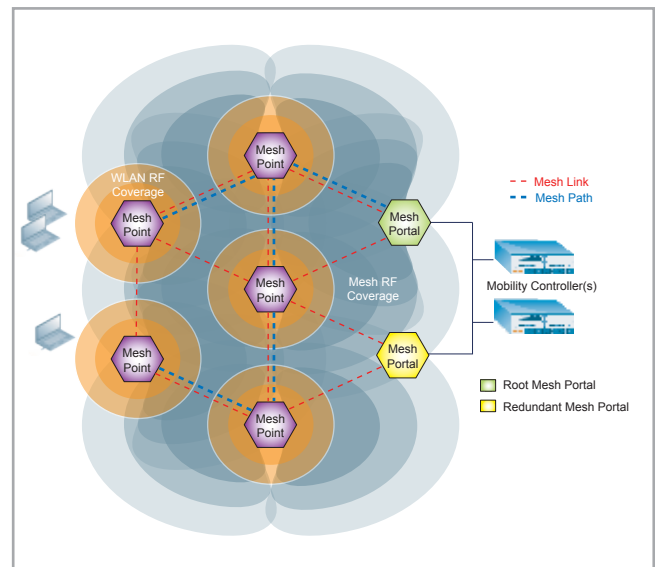
### CENTRALIZED CRYPTO

- Data encrypted end-to-end, from client to core
- Network protected even if a mesh access point is stolen
- Security policies centrally managed from Aruba Mobility Controllers and Multi-Service Mobility Controllers

### DETAILED NETWORK MANAGEMENT AND TOPOLOGY MAPPING

- Graphical topology planning tools including coverage heat maps and automatic link budgets
- Full network visualization including floorplans and maps with network topology

- Management and troubleshooting tools via command line interface, Web user interface and Aruba Mobility Management System
- Indoor and outdoor real-time mesh topology views shows network topology and health
- Advanced mesh network instrumentation shows link health, network load, performance metrics at a glance
- Integration with Google Earth allows mesh networks to be viewed over satellite based maps and hybrid views



Aruba Secure Enterprise Mesh with cooperative control for path and link optimization

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## FLEXIBLE DEPLOYMENT OPTIONS

Aruba's Secure Enterprise Mesh solution provides a flexible, wire-free design allowing access points and Air Monitors to be placed wherever they are needed – indoors and outdoors. The absence of fiber or cable runs significantly reduces network installation costs and requires fewer Ethernet ports. The solution fully integrates with the Aruba user-centric Architecture, enabling a single, enterprise-wide network. Aruba's Secure Enterprise Mesh is based on programmable software and does not require specialized hardware; virtually any Aruba indoor or ruggedized outdoor access can function as a mesh access point.

## BROAD APPLICATION SUPPORT

The Aruba Secure Enterprise Mesh can support all enterprise wireless needs including Wi-Fi access, concurrent Wireless Intrusion Protection, wireless backhaul, LAN bridging, and point-to-multipoint connectivity, all with a single common infrastructure. Aruba's Quality of Service capabilities provide effective converged support for data, voice and video. Aruba's Secure Enterprise Mesh is an excellent solution for connectivity applications, including inter-building connectivity, outdoor campus mobility, wire-free offices, and wireline back-up; security applications, such as video and audio monitoring, alarms and duress signals, and industrial applications and sensor networks.



Detailed mesh visualization provides floorplans and maps with network topology overlay

## COOPERATIVE CONTROL TECHNOLOGY

The Aruba Secure Enterprise Mesh features cooperative control technology uses an intelligent link management algorithm to optimize traffic paths and links. Mesh access points communicate with their neighbors and advertise a number of RF and link attributes (e.g., link cost, path cost, node cost, loading) that allow them to make intelligent selection of the best path to take for the application. Mesh paths and links automatically adjust in the event of high-loads or interference.

Further, application tags for voice and video traffic are shared to ensure latency sensitive traffic is prioritized over data. The cooperative control technology also provides self-healing functionality for the mesh network in the event of a blocked path or AP failure.

## MESH CLUSTERING

Aruba Secure Enterprise Mesh networks can be segmented into highly-available clusters allowing failures and interference-driven problems to be contained to a single cluster rather than rippling through the entire network. Clusters can support multiple mesh portals for load balancing and redundancy. Additionally, Mesh access points can support multiple mesh profiles, defining which cluster they join and switching preferences for alternate clusters in the event of a problem.

Mesh access points support a recovery profile, unique to the customer's network and automatically configured upon provisioning. If a mesh access point cannot associate to a mesh cluster, it will cycle through its profiles until it can. If unsuccessful, it will associate to its recovery profile to be recovered and reprovisioned by the controller. No need to climb towers or the plenum if you lose a mesh access point.

## CENTRALIZED CRYPTO

Aruba's Secure Enterprise Mesh solution handles all encryption and decryption centrally in the controller. With this architecture, data are encrypted end-to-end, all the way from client to the core, and at no point are encryption keys stored in the Mesh access points. Following best practices originally specified for military communication systems, this architecture affords the greatest protection for network data, even in the event that a mesh access point is stolen.

Additionally, security policies are centrally managed from Aruba controllers, which offer ultra-high bandwidth, capacity, and availability. This field-proven architecture allows tight policy control and enforcement, significantly simplifies overall network management, scales to support the largest of enterprises, and provides fault tolerance when used with redundant controller features unavailable on even the most sophisticated access point-centric schemes. For low security threat, peer-to-peer latency sensitive applications, the Aruba Secure Enterprise Mesh can also support a distributed crypto model.

## NETWORK MANAGEMENT AND TOPOLOGY MAPPING

Aruba's Secure Enterprise Mesh solution provides a variety of tools and capabilities for network planning and management. Graphical planning tools provide coverage heat maps, topology planning for indoor and outdoor coverage, and automatic link budgets (distance/throughput calculators). Additionally, the network can be fully visualized, including outdoor floorplans and maps with network topology overlay, and real-time mesh status, including advanced neighbor statistics. Management and troubleshooting functions for the Secure Enterprise Mesh solution are available via a command line interface, a Web-based graphical user interface, and the Aruba Mobility Management System.

## SPECIFICATIONS

### SECURITY

Encryption	WPA2-AES-PSK
Centralized Security	Yes
Distributed Security	Yes
Client-to-Core Network Security	Yes

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## RF MANAGEMENT

Intelligent RF Link Manager	Yes
Configurable Mesh Link Thresholds	Yes
2.4 GHz / 5 GHz Mesh	Yes / Yes
Adaptive Radio Management (ARM)	Yes

## MESH NETWORK OPTIMIZATION

Mesh Profiles	Yes
Mesh Clustering	Yes
Mesh Cluster Load Balancing	Yes
Traffic Shaping	Yes
Localized Interference Containment	Yes
Maximum Mesh Hops	16
Configurable Maximum Hops	Yes
Auto Self-Healing	Yes
QoS	Priority Queuing, IEEE 802.11e Wireless Multi-Media (WMM)
Link Metric Propagation	Yes
Selectable Mesh Link Modes (Signal Strength / Load-based)	Yes
Configurable Mesh link selection logic	Yes

## SUPPORTED DEPLOYMENT MODES

Indoor / Outdoor Mesh	Yes / Yes
Wireless Backhaul	Yes
Mesh Single-hop	Yes
Mesh Multi-hop	Yes
Point-to-Point / Multi-point	Yes
High Availability	Yes
Secure LAN Bridging	Yes

## MANAGEMENT AND TROUBLE SHOOTING

Centralized Management	Yes
Mesh Topology View CLI / Web UI	Yes / Yes
Indoor Mesh Topology Visualization	Yes
Outdoor Mesh Topology Visualization	Yes
Recovery Profile Support	Yes
Latitude / Longitude Mesh IDs	Yes
Mesh Link Statistics Monitoring	Yes

## HARDWARE SUPPORT

Access Points	AP-60/61, AP-65, AP-70, AP-80M, AP-85
Mobility Controllers and Multi-Service Mobility Controllers	MC-200, MC-800, MC-2400, MMC-3200, MMC-3400, MMC-3600, MMC-6000
Mesh supported on all Aruba Access Points	Yes, no Mesh-specific SKU required

*Note: Mesh access point licenses may be applied to any Aruba Mobility Controller or Multi-Service Mobility Controller to any Aruba wireless access point.*



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