

Azalea Operating System (AOS)

Intelligent Wireless Mesh Operating System



Wireless Broadband anytime & anywhere



Azalea Advantages

- Optimized for video transmission over wireless networks
- Ideal for outdoor long distance transmission, enabling long range Wi-Fi transmission with high data throughput
- The only system with high speed distributed cross-IP subnet roaming and handoff

Key Markets

- Oil & Gas Exploration and Production
- Mining & Quarrying
- Airports
- Ports & Transportation Logistics
- Campus Settings (Colleges and Business)
- Construction
- Municipalities – Public Safety

Azalea Operating System Ensures Overall Compatibility and Reliability of the Network

Market Challenges

Outdoor applications usually require data transmission using high bandwidth over long distances, but Wi-Fi protocols are designed for limited coverage areas for wireless LANs (radius < 500m or 1,640 feet). When the distance increases, the bandwidth drops dramatically, jeopardizing the integrity of the network.

AOS — An Overview

The Azalea Operating System (AOS) is the intelligent wireless mesh routing system that is the core of our devices. It was developed by Azalea Networks for its router products. The same AOS will optimize routers for a variety of application scenarios and hardware capabilities.

AOS is the leading proprietary Layer-3 routing and switching implementation for wireless mesh networks. Usually, wireless access points simply transmit the IP packet between routers and the client-side while the IP packet routing and handoff is accomplished by routers in the wired network. The Azalea AOS, however, is a comprehensive router system, enabling independent routing and switching.

In a mesh network without routing capacity, information simply flows from child nodes to parent nodes in a typical tree architecture. AOS

allows direct connections between nodes so information flows directly and efficiently, forming a genuine mesh topology. Our mesh architecture enhances reliability and stability of the network and eliminates bottlenecks.

AOS is specifically optimized for the transmission of video streams which is one of the most complex wireless applications. This is accomplished by leveraging our deep experience in video compression and transmission.

The network intelligence eliminates packet loss, packet jitter, out of order delivery and other problems typically found with high resolution video playback.

Using superior technology, Azalea optimizes the physical layer protocol, greatly enhancing Wi-Fi transmission capacity over long distances. Tests show that Azalea delivers multi-channel, high quality transmission of video streams over long distances up to 10 miles.

AOS has enterprise-class security features to fully protect customer data. In addition, AOS fully considers all possible risks and provides authentication of wireless nodes, preventing unauthorized routers from accessing the network.

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To ensure the survivability, usability and reliability of the network, AOS uses interference detection in addition to avoidance and self-networking compatibility. AOS can automatically detect Wi-Fi and other interference, thus ensuring high throughput and reliability. Self-networking compatibility eliminates the need for manual configuration and enables automated, optimized mesh networking. Our field trial tests show that dozens of routers can form a mesh network within a short time, delivering highly efficient performance.

Features and Benefits

- Router intelligence, enabling Layer-3 routing and handoff, means the proactive routing table is always seeking the fastest available pathway
- Genuine mesh topology rather than tree architecture allows for highly efficient routing
- Intelligent, automated self-networking means no manual configuration resulting in constant network optimization
- Automated interference detection and avoidance increases signal reliability
- Uses 802.11i protocol which ensures security and privacy
- End-to-end QoS from access to backhaul with superior signal quality, low latency and high throughput

Technical Specifications

Wireless and Frequency Management

- Automated self-networking
- Interference detection and avoidance
- 4 BSSID, 16 SSID
- Flexible baud rate control
- Maximum user control

Routing and Roaming

- Intelligent and dynamic routing selection optimizes throughput and maximizes the spectral efficiency
- Point-to-multipoint routing table with auto-learn and auto-update
- Automatic neighbor node discovery and node failure detection
- High-speed cross IP subnet roaming
- User pre-authentication

Video Transmission and Multi-media

- Patent-pending AVT™ (Active Video Transport) technology performs deep packet inspection, adaptive jitter removal and corrects transmission packet loss
- Video transmission virtual network technology
- Dynamic baud rate control
- High quality multicast capacity

QoS

- Supports 802.11e and WME
- Delivers WME on both access and backhaul
- User-selectable QoS level for different BSSID

Security

- 802.11i
- Radius authentication
- WEP
- WPA / WPA2
- AES encryption
- SSID broadcast disable
- MAC address filtering
- MAC layer isolation for terminals in the same AP

Client Supplicant Mode

- Allows remote management of connected third party devices
- BSSID (MAC address) filtering
- Intelligent channel scanning and filtering
- Optimized roaming threshold delivering minimum latency and packet loss

Others

- Supports 2 firmware images, one for operating and the other for backup
- DHCP
- NAT
- OSPF
- AWR
- Noise base measurement and reporting
- Web configuration interface, CLI
- SNMP V2 / V3

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