

BelAir I00M Mobile Mesh Node

BelAir Networks wireless mesh products have always been differentiated by their ability to support vehicular speed mobility with standard wireless devices. The BelAir I00M Mobile Mesh Node now extends this capability to address the high-performance mobile connectivity requirements of critical Public Safety and ITS applications in vehicles traveling as fast as 150 mph (240 kph).

The BelAir I00M is based on the industry's highest performance and most flexible dual and tri radio wireless mesh nodes. It provides mobile broadband support for Wi-Fi, WiMAX, 4.9 GHz Public Safety, and 5.9 GHz Intelligent Transportation Services (ITS) bands. Offering true standards-based seamless mobility, the BelAir I00M employs 'make before break' handover ensuring uninterrupted high-performance broadband connectivity for critical applications, including voice and video, as the vehicle moves throughout the wireless mesh network.

Vehicular Mobility

The BelAir I00M, mounted in buses, trains, police cars and other mass transit or public vehicles seamlessly integrates with the deployed BelAir wireless infrastructure to provide full and transparent mobile broadband connectivity for voice, video, and data applications at high vehicular speeds – up to 150 mph or 240 kph. Like the rest of the BelAir Networks wireless mesh product portfolio, the BelAir I00M is managed as a discoverable network element in the BelView Network Management system. The BelAir I00M has full meshing capabilities to trackside/roadside and can connect at multiple frequency bands, offering the full redundancy essential for video monitoring and emergency connectivity applications.

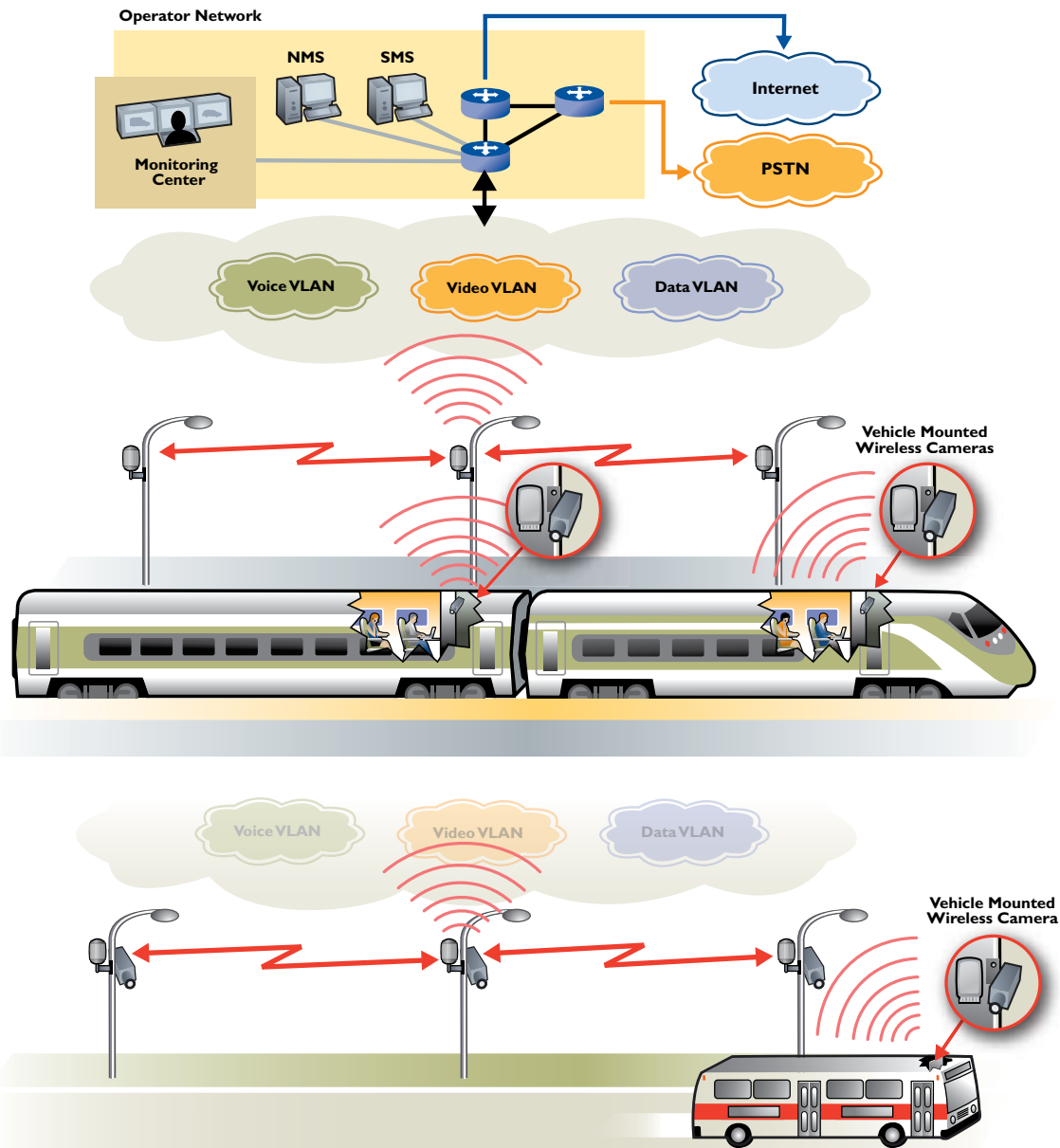


Features

- Highest performance
- Modular dual or tri radio architecture
- Supports Wi-Fi, WiMAX, 4.9GHz Public Safety, and 5.9GHz ITS bands
- Seamless high speed mobility for uninterrupted broadband services
 - Enhanced 'make before break' handover – fastest and most reliable
- Network Management via CLI, Web or BelView NMS
- Electrical and Optical Ethernet interface options

Radio module options

- Access Radio Module (ARM) IEEE 802.11a/b/g, 4.9 GHz Public Safety, 5.9 GHz ITS
- Backhaul Radio Module (BRM) IEEE 802.11a pre-WiMAX, WiMAX, 4.9 GHz Public Safety, 5.9 GHz ITS
- Radio modules available in multiple licensed and unlicensed frequency bands
 - modular architecture enables multi-frequency support on a single node



Application Examples

A BelAir100M node mounted in a train or bus can provide backhaul for video monitoring within the vehicles. It can also be configured to provide local wireless access within the vehicle for private or public use. Voice over IP can be installed for emergency calling or workforce automation.

Tri-radio Architecture

The tri-radio design of the BelAir100M provides support for up to two Backhaul Radio Modules (BRMs) and Access Radio Modules (ARMs) plus one

conventional radio module in the same wireless mesh node. The BelAir100M can be configured with a BRM and ARM for traditional wireless mesh or with dual BRMs for resilient dual band backhaul deployments.

Wireless Radio Modules

The BelAir100M can contain any combination of ARMs and BRMs, providing the ideal flexibility and capacity for mobile mesh networks. The ARMs and BRMs support a broad range of Wi-Fi (IEEE 802.11a/b/g), 4.9 GHz Public Safety and 5.9 GHz ITS applications making it the most versatile solution on the market for providing multi-service capabilities over a wireless mesh network.

Layer 2 Networking Capabilities

The BelAir I00M has an integrated Layer 2 Switch engine that provides extensive QoS, VLAN, Network Security and Traffic Management capabilities that are necessary for transporting mission critical, time-sensitive applications such as voice and video.

The BelAir I00M fully supports the bridging of multiple client access devices (e.g. laptop, iPhone, etc.) to the “backhaul” radio link. Moreover, the BelAir I00M maintains the status (connected/not connected) of the backhaul link, thus enabling its Ethernet port to facilitate inter-working with third-party external multi-radio router solutions (e.g. InMotion).

Network Management

The BelAir I00M can be managed via a Command Line Interface (CLI), Web GUI or with BelAir Networks BelView Network Management System (NMS). Both CLI and Web GUI provide device level support, and BelView NMS provides complete network-wide support for Fault, Configuration and Performance Management. BelView NMS works on either Windows XP or SUN Solaris platforms and can also be integrated into other management systems.

BelAir Networks is the leading provider of mobile broadband mesh networking solutions, delivering the industry’s highest performance and most comprehensive product line. Targeted at the local government, hospitality, defense and industrial markets, BelAir Networks is deployed for public safety networks, municipal networks, port and mass transit installations, hotel and venue networks, defense applications, and plant deployments.

Networking

- 1-port 10/100BASE-TX (Cat. 5 RJ-45)
- 1-port 100BASE-FX (SMF)
- IEEE 802.1D MAC Bridging
- IEEE 802.1Q VLANs
- IEEE 802.1w (RSTP) and IEEE 802.1s (MSTP)
- IEEE 802.1p prioritization with 4 queues
- L2TP Tunneling for seamless mobility
- 16 SSIDs per access radio. MBSSID support for 8 virtual APs per access radio
- Support for SNMP, ICMP, HTTP, ARP, TCP, UDP, Telnet, TFTP and IP traffic
- Support for multi-client bridging
- Signaling of “backhaul” link status to Ethernet port

Management

- Secure local and remote access
- Command line, HTTP and HTTPS Web GUI, SNMPv1/v2/v3 and SSHv2 management interfaces
- MIBs: MIB-II, SNMPv2, 802.11, Ethernet-like, Interface Group
- Multiple user privilege levels with RADIUS authentication
- Firmware upgrade through TFTP with support for automatic rollback
- RADIUS accounting

Transportation Regulatory

- EN51055
- EN50121-3-2
- EN 60950-1 and IEC 60950-1
- IEC 61373
- UL 2043

Security

- Authentication: 802.1x (RADIUS) and EAP methods
- Encryption: WEP 64 and 128 bit, TKIP / MIC per 802.1x, 802.11i AES
- MAC address access control lists
- Rogue AP detection

Approvals

- Radio: FCC part 15 and part 27, EN 300 328, EN 300 440, EN 301 893 and Industry Canada RSS 210 Issue 5
- EMC: FCC 47 CFR part 15, subpart B Class B and EN 301 489-1/-17 Class B
- Safety: ANSI/UL std no.60950-1, CSA-C22.2 std no. 60950-1, CB-60950-1
- Laser safety: Class I laser product complies with 21 CFR 1040 and IEC60825
- RF safety: FCC OET Bulletin 65, Health Canada Safety code 6
- Outdoor use: IP66/NEMA4/NEMA4X for wet and dusty conditions
- CE mark
- Mexico: NOM
- Korea: MIC2003-15
- Russia: GOST-R
- India: ETA-74/2005, ETA-78/2005
- Taiwan: LP00002, ETC094LP0425, ETC094LPD0426, ETC094LPD0426a

Physical and Electrical

- Size: 12 in. (30.5 cm) high x 7.25 in. (18 cm) wide x 6 in. (15.3 cm) deep
- Weight: 10 lbs (4.5 kg)
- Typical power consumption: 23 Watts
- Power supply: 100 to 240 V ac, 47 to 63 Hz or 24 to 110V dc
- Backup 8 V battery
- Battery backup time: 40 minutes typical
- N connectors for connection to external antennas
- Power, radio and Ethernet lamps

Protection Circuits

- IEC 60000-4-5 level 4 surge
- GR1089 - 6 kV (3000 A) surge

Environmental

- Operating temperature: -40°C to +55°C
- Storage temperature: -40°C to +80°C
- Operating humidity: 5 to 95% non-condensing
- Shock and vibration: ETSI300-019-1-4



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