

Version 4.0

BreezeACCESS® VL & BreezeACCESS® 4900



Breakthrough VoIP & video performance, sets new benchmark for wireless broadband

Introducing Multimedia Application Prioritization (MAP) for Advanced Quality of Service (QoS)

Alvarion brings to the world of wireless broadband its new Version 4.0 for BreezeACCESS VL in the entire 5GHz band and for BreezeACCESS 4900. With new end-to-end quality of service (QoS) algorithms and other enhancements, operators are now able to offer scaled toll-quality voice and video. Version 4.0 also introduces new security features required for homeland security applications, private networks, and businesses.

Version 4.0 enables Multimedia Application Prioritization (MAP) for high performance voice and video through the implementation of a unique wireless link prioritization (WLP) protocol. Available only through Alvarion, MAP revolutionizes the business model by increasing, for example, the number of simultaneous VoIP calls per sector by as much as 500%.

Toll Quality Voice Over IP

- Supports hundreds of simultaneous toll-quality VoIP calls through boosted performance in small packet capacity, now a market leading 40,000 packets per second per sector with 64 bytes packets
- Integrates Multimedia Application Prioritization, a wireless link prioritization (WLP) for end-to-end QoS, prioritizing time sensitive applications like VoIP
- Featuring classification tools, including IP TOS, VLAN, DiffServ and UDP/TCP port range
- Employs Dynamic Resource Allocation Protocol (DRAP) giving voice gateways automatic detection and call admission control, operator configurable maximum calls per sector, ensuring constant high quality voice, while maintaining residual capacity for best effort data services

Codec	VoIP Frame Duration	Calls per CPE	Concurrent Calls per Sector
G.711	20ms	1	40
G.729	30ms	1	50
G.711	20ms	24	120
G.729	30ms	24	240

Figure 1: Max call capacity examples with Mean Opinion Score greater than 4.0



BreezeACCESS VL Family

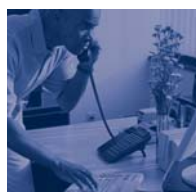
Business Case Improvements with Version 4.0

Assumptions

- Commercial Play
- Operator service package: 8 concurrent voice lines and 6 Mbps data
- Sector oversubscription ratio 5:1
- Revenue per subscriber: \$200/month

BreezeACCESS VL v4.0		Previous BreezeACCESS VL	
Maximum Users	20	Maximum Users	12
Maximum Number of Calls	160	Maximum Number of Calls	40
Voice Quality (MOS)	4.0	Voice Quality (MOS)	3.7
Annual Revenue per Sector	\$48,000	Annual Revenue per Sector	\$28,000

Figure 2: Sample business case improvement per sector with v.4.0 and MAP



BreezeACCESS VL Version 4.0 - VoIP and High Speed Services

Enhanced performances and new network features

- Triple play services of voice, video and data with small packet performance reaching 40,000 packets per second per sector with 64 bytes packets
- Highly efficient air utilization by having acknowledgement command (ACK) timeout based on CPE distance, automatically updated for moving CPEs
- Reduced overheads due to efficient burst mechanism and packet concatenation
- Addressing the growing needs for user bandwidth with SU-3 and SU-6 now supporting 3Mbps and 6Mbps downstream respectively. Upstream direction remains the same - 2Mbps and 4Mbps, respectively
- Automatic sub-channel scanning for best AU mode for simpler and faster installation
- High service availability with enhanced AU TX control

BreezeACCESS VL Benefits

• VoIP, triple play, and high throughput services

- High capacity, end-to-end QoS mechanisms, built-in encryption and an enhanced access suite of features enabling the delivery of VoIP, gaming, hotspot feeding, secured VPNs, video surveillance, xDSL replacement, government/military applications and more
- Investment protection – best broadband services for today and tomorrow

• Low cost installation

- Built-in signal to noise ratio (SNR) indicator bar on outdoor unit enables fast antenna alignment
- Always-on adaptive modulation and automatic transmit power control (ATPC) optimizes link performances during installation and operation
- Automatic clear channel selection (ACCS) for automatic selection of least interfered channel

Entry level now even more cost effective

- Increased capacity of AUs supporting 8 SUs
- AUS support SU-3 and / or SU-6 units and can be upgradeable by software license to full Access Unit

New security features

- Secured transport of users' VLAN traffic within operator VLANs using QinQ 802.3ad
- Ability to block/authorize user access by subscriber unit
- FIPS-197 encryption certified mode using software licensing key

New certification

- EN 301 893 v1.3.1

• Reduced infrastructure

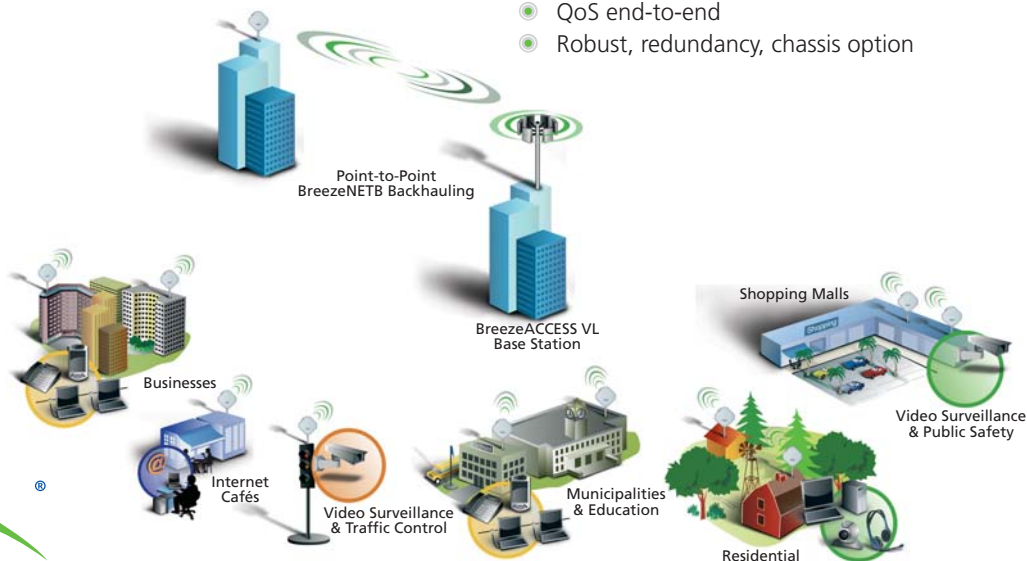
- Fewer sites required as a result of high capacity, long reach and non line-of-sight (NLOS)
- Support for multiple subscriber profiles within the same sector and network
- Modular and flexible for pay-as-you-grow, AC/DC, variety of antennas, variety of CPEs with the option to upgrade CPE rates over-the-air

• Lower operating expenses

- Minimal infrastructure requirements reduce the number of sites to support
- Higher capacities per sector reduces antenna attachment costs and site leases per cell
- AlvariSTAR carrier grade solution for remote management, firmware updates and configuration downloads/uploads

• Field proven, mature solution in 5GHz

- OFDM NLOS
- Superb performances of radio and capacity in all packet sizes
- QoS end-to-end
- Robust, redundancy, chassis option



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