

symmetryMX QoS

Wireless Multimedia QoS suite

symmetryMX's advanced Quality of Service (QoS) suite provides users with a wireline-equivalent experience in a WiMAX environment. Operators are able to offer a full range of revenue-generating services in addition to broadband Internet access, including reliable carrier-class voice and video.

Profitable service delivery over WiMAX

Advanced QoS management is fundamental for operators planning to deploy large multimedia networks based on WiMAX access.

symmetry's comprehensive QoS capabilities improve operator profitability by increasing subscriber capacity, enabling differentiated services that drive Average Revenue per User (ARPU) and ensuring customer satisfaction.

High subscriber capacity for VoIP and multimedia applications

To ensure reliable VoIP and multimedia services, the **symmetryMX** QoS system implements per-service flow policy enforcement, as well as extensive packet classification capabilities and hardware-accelerated fast-packet handling. Full support for the UGS service class with admission control (as well as BE, nrtPS and rtPS service classes) ensures maximum efficiency for real-time services like voice and videoconferencing. The result is a QoS system that can support hundreds of voice subscribers per base station, all the while delivering carrier class multimedia service reliability.

Differentiated services create subscriber and operator value

symmetryMX allows operators to create and refine their own subscriber services. By creating services adapted to specific market segments, operators can improve customer satisfaction and target premium pricing. In addition, dynamic service provisioning allows updates to subscribers' service in real-time, so operators can easily tune and upgrade their services to meet changing market requirements. Per-service flow queuing with weighted short-and long-term fairness enforces service quality policies, so that subscribers who select premium services receive the desired service quality.

Wireline-equivalent user experience

The **symmetryMX** QoS incorporates an innovative compensation scheme for wireless Non Line-of-Sight (NLOS) environments that mitigates the impact of varying channel conditions and bandwidth. This ensures a graceful policy-based management of service quality when channel impairment does occur, and shields premium-quality services from degradation. Soft traffic-shaping averages throughput, to allow subscribers to reach their maximum sustainable rate, while transferring bursts at the maximum airlink rate.

symmetryMX QoS enables successful deployments

Where **symmetryMX** shines in its QoS approach is in its ability to create differentiated services, filter out the effects of RF path variations, and efficiently control and allocate limited bandwidth resources.

To ensure that all packets—end-to-end and in both directions—receive the resources and prioritized treatment dictated by their service class, SR Telecom has incorporated in **symmetryMX** full 802.16 classification and VLAN 802.1D(p) support for prioritization. **symmetryMX**'s six-tuple, real-time packet inspection processing and scheduling assign a class to packets in microseconds. Filtering and forwarding rules are also fully supported, giving carriers full control over class Access Control List (ACL) definitions—supporting component ranges and matching criteria wildcards—and enabling them to configure security ACL filters to support specific SLA services.

Two key features position **symmetryMX** as having the best-in-class QoS suite in the WiMAX industry—superior processing capacity and patent-pending QoS scheduler.

The superior processing power provided by the onboard carrier-grade gigabit router enables the **symmetryMX** base station to continuously handle a larger number of packets per second in a great number of service classes; considerably outperforming the existing general purpose processor-based solutions from other vendors. SR Telecom's QoS scheduler is an advanced, flow-based wireless scheduler that provides unprecedented multimedia support in a wireless environment. It enables carriers to more efficiently prioritize and allocate their limited bandwidth on a per service-class basis. The **symmetryMX** QoS scheduler provides "fair access to all" services based on SLA criteria, with per-flow QoS queuing and traffic policing for an unlimited mix of QoS classes on thousands of subscriber connections.

Combined, these features enable carriers to deliver guaranteed individualized services and maximize ROI on their WiMAX investment by serving more subscribers per sector, easily creating and enforcing a larger number of revenue-generating service classes, and improving overall customer satisfaction.

Advanced Features increase revenue and simplify deployment

Advanced voice option

Many operators plan to use WiMAX to deliver voice and broadband service packages.

symmetryMX's Advanced Voice option implements a SIP snooping capability that enables dynamic bandwidth allocation and Call Admission Control for voice services. This delivers maximum voice capacity and best quality. It also provides graceful call blocking during congestion, replicating the behaviour of traditional voice networks, and supports emergency call services. Advanced Voice capability is compatible with almost all subscriber voice gateways since it does not rely on any proprietary protocols.

Service-creation environment

Operators count on increasing revenue by delivering differentiated services over WiMAX. The optional Service-Creation Environment (SCE) allows operators to quickly and easily create new services so **symmetryMX**'s advanced QoS capabilities can really drive successful and profitable broadband deployment.

VLAN management

symmetryMX support for VLAN 802.1D(p) prioritization is flexible and efficient. Operators can segregate traffic according to user or category, as well as classify and apply prioritization levels. A sophisticated and flexible VLAN tag translation scheme, similar to NAT, allows operators to efficiently manage VLAN connections to deliver enterprise VPN services, simplify network integration, and enable multiple ISPs to share a single access network.

