

Fairshare Traffic Management for LTE Networks

Sandvine's Fairshare Traffic Management prevents congestion in LTE networks by protecting subscriber quality of experience (QoE) during times of bandwidth contention, thereby reducing strategic and operational costs while complying with regulatory requirements.

QualityGuard Eliminates Congestion in the LTE Access Network

Fairshare Traffic Management presents a superior alternative to the blind addition of unmanaged capacity in LTE networks, protecting subscriber QoE during times of congestion while meeting regulatory requirements for network neutrality and technical precision. Three capabilities make this possible:

- Automatic calibration of congestion detection thresholds at every edge location in the LTE access network
- Real-time, latency-based subscriber QoE measurement for direct congestion detection
- Precision enforcement that targets the true contributors to congestion

Protect QoE while achieving massive cost-savings

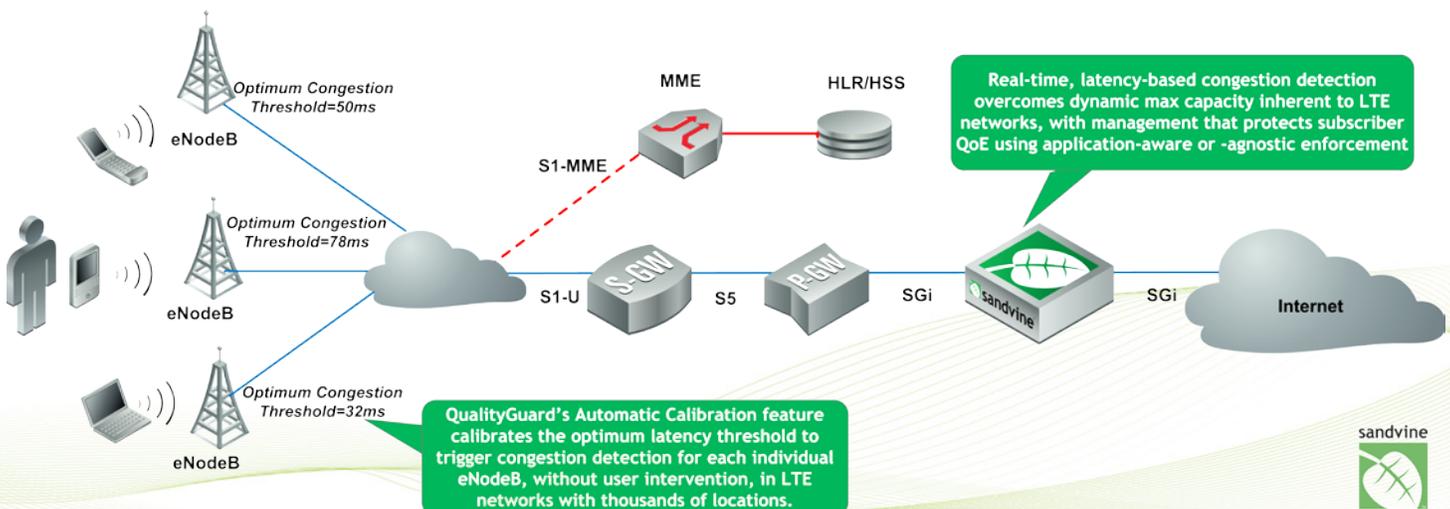
Operators can prioritize traffic with flexible enforcement actions to exactly realize their business and technical goals. Using fair criteria applied proportionally wherever and whenever congestion occurs, QualityGuard works hard to protect subscriber QoE by creating virtual capacity. Fairshare pays for itself in just a few months and generates incredible cost-savings within the first year. Finally, LTE operators can guarantee service quality and efficient network operation while ensuring:

- Congestion is continuously detected and managed for each individual eNodeB based on real-time measurement of subscriber QoE
- The vast majority of subscribers have access to the majority of available bandwidth during congestion events
- Only the true contributors to congestion are affected by a regulatory-compliant policy

Key Benefits

Experience all of these benefits while complying with regulatory requirements:

- Reduced and more predictable capital expenses from extended resource lifetime and optimized resource investment
- Improved insight with business intelligence tools that lets operators monitor policy effectiveness and plan capacity expansions
- Lowered operating costs, resulting from increased subscriber QoE

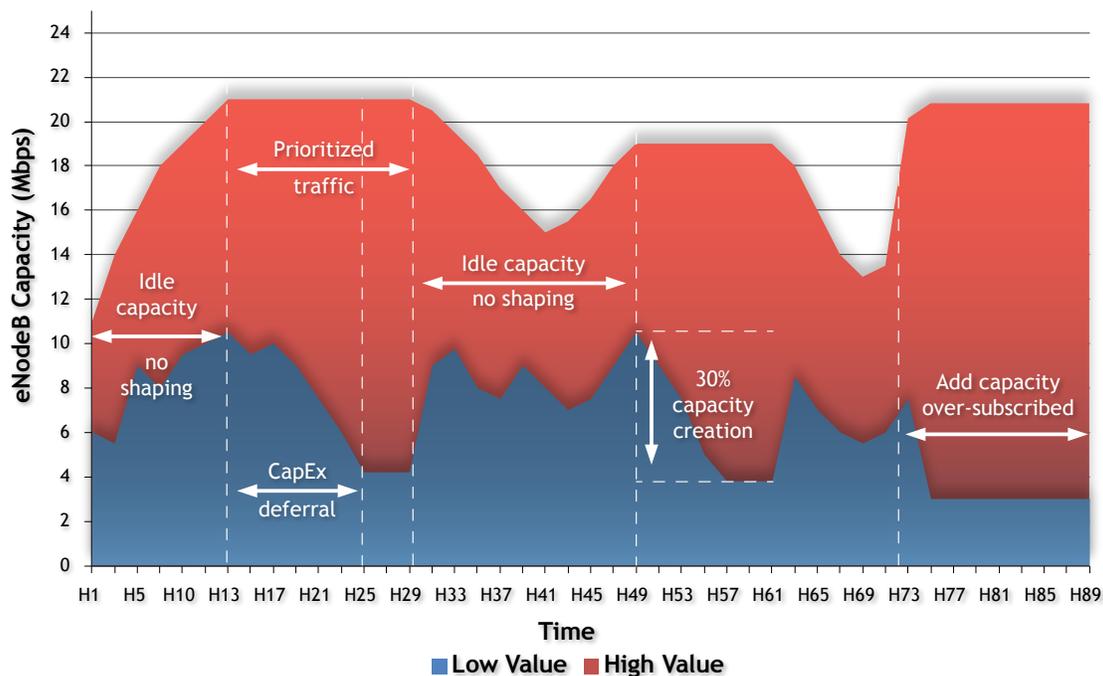


A Case Study: Tier-1 Asian LTE Operator Monitors Thousands of eNodeB Locations

A Tier-1 Asian LTE provider manages an expansive LTE network with over 50,000 eNodeB locations. Sandvine's Fairshare Traffic Management is installed to monitor congestion hotspots and verify LTE service quality. The latency tolerance for the onset of congestion varies depending on the type, manufacturer, and especially location of each mobile resource. For example, an eNodeB that covers a highway has a different latency tipping point for congestion than an eNodeB located in the downtown core. QualityGuard's Automatic Calibration feature learns and configures the appropriate latency benchmark for every individual eNodeB location. This eliminates operational effort while ensuring accuracy and consistency across the heterogeneous LTE access network. With Sandvine, LTE operators can protect subscriber QoE while maximizing network efficiency by:

- Enabling, prioritizing, and verifying service quality for voice over LTE (VoLTE) calls
- Managing the small minority of current congestion contributors for aggregate traffic and/or by prioritizing real-time communication (e.g., VoLTE) and real-time entertainment over 'experience-later' downloads
- Introducing new application-based service tiers where permitted, offering users different priority levels for various applications during times of congestion (e.g., gaming protection, VoLTE, browsing, streaming video)

QualityWatch reporting provides real-time congestion monitoring, detailed operational verification, regulatory validation, and strategic capacity planning that indicates when it's finally time to add equipment to the network because a resource has reached maximum utility. The following shows the solution in action over the lifetime of an eNodeB:



Sandvine LTE Quality Monitoring and Congestion Management Advantages

- Deployed in heterogeneous LTE networks with regulatory compliance using standards-based interfaces
- QualityGuard delivers fully automated and precisely targeted congestion management with complete application, topology, congestion, and subscriber behavior awareness
- QualityWatch provides real-time, operational, and strategic reporting for congestion monitoring, operational verification, strategic capacity planning, and regulatory validation
- Enjoy incredible cost-savings while protecting quality of experience for all subscribers