Cisco Bandwidth Quality Manager 3.2

General

Q. What is Cisco® Bandwidth Quality Manager (BQM) 3.2

A. Cisco BQM is a network congestion-management appliance that provides visibility and analysis of traffic, bandwidth, and quality of service (QoS) on IP access networks. It is used to monitor, troubleshoot, and help assure network performance objectives for converged application traffic.

Q. What are the primary capabilities of Cisco BQM?

A. Its primary capabilities are:

- Troubleshooting network application congestion: Allows the user to quickly identify the root cause of application congestion and associated intermittent performance problems
- Monitoring access WAN congestion: Measures traffic at microsecond timescales and reports the expected QoS that traffic will receive at remote access links
- Bandwidth sizing and QoS migration: Baselines how much bandwidth is required to achieve user-specified QoS targets across all classes and provides specific QoS action recommendations

Q. What are the functional areas of Cisco BQM?

A. Cisco BQM has the following four main functional areas:

- Traffic insight: Cisco BQM measures all packets with nanosecond time-stamp resolution. This information is used to provide microburst detection and Layer 7 application autodiscovery and to report on top talkers, listeners, and conversations.
- Congestion analysis: Cisco BQM uses its proprietary algorithms to compute the expected service level in remote routers and summarize congestion on an interface or class using the Cisco BQM congestion indicator. Event traces can be captured to perform a detailed analysis of culprits and victims of congestion.
- Bandwidth sizing: Cisco BQM uses Corvil Bandwidth to perform QoS-aware bandwidth requirement measurements.
- Quality alarms: Cisco BQM has user-programmable thresholds for generating triggered event traces and alerting the network manager for performance degradation before it affects application users.

Q. What is the core technology within BQM?

A. Cisco BQM keeps track of all the traffic at a micro level using its patent-pending Rapid Traffic Sequencing (RTS) technology. RTS provides a framework for processing high volumes of traffic at very fine time resolution and generates bandwidth and QoS analysis results in real time. It helps enable:

- High-speed packet sampling: A high-speed packet and data processing engine that uses hardware acceleration. This engine can process gigabit rates and provides compact packet descriptors with nanosecond resolution to the subsequent analysis modules.

- High-speed data classification: Matches packets against the network model and identifies applications and hosts.
- Microburst detection: Detects periods of microburst activity with an adjustable duration of 5 milliseconds (ms) to 1 second.
- Expected service level (delay and loss): Estimates queuing delay/jitter and loss experienced by packets in local and remote routers. Supports multiclass configurations in Cisco routers.
- Corvil Bandwidth: Estimates the bandwidth requirement for the traffic as a function of the desired QoS.
- Event traces: Provide a compact format of packet timelines when events were detected.

Q. What are the primary business benefits of Cisco BQM?

A. Cisco BQM has four main business benefits:

- Increases network application uptime: Helps network managers ensure that network applications are performing optimally by protecting against network congestion in converged WANs. Cisco BQM monitors, analyzes, and recommends corrective actions against network application congestion.
- Reduces operational time and troubleshooting expense: Cisco BQM has the unique ability to monitor and analyze traffic at the micro level, allowing it to diagnose traffic-induced performance problems that many competing tools miss or misdiagnose.
- Mitigates risk of making expensive bandwidth-upgrade decisions: Uses its unique algorithms to determine whether a bandwidth upgrade or QoS/traffic management policy is the preferred action. These algorithms take into account whether an upgrade action may result in no improvement to network quality.
- Protects customer investments in Cisco QoS infrastructure: Models Cisco router QoS mechanisms, helping enable network managers to unleash the power of QoS without having to deploy yet another packet-processing application.

Installation and Usage

Q. What if my Cisco BQM device fails?

A. Because Cisco BQM is not in the data path, if it fails, only monitoring and analysis of the network will stop, yet traffic will continue to flow.

Q. Does Cisco BQM require any client configuration?

A. No, there is no client configuration required; Cisco BQM is completely transparent to end users.

Q. Do I need to configure client software for my network management system?

A. No, there is no configuration required; Cisco BQM is accessible through a standard Web browser and does not require client configuration.

Q. What is the Microburst Detection Feature?

A. Microburst detection uses a unique algorithm to calculate the microburst traffic activity with an adjustable duration of 5 milliseconds to 1 second. This algorithm measures every packet to report microbursts on links and classes.

Q. What is Expected Service Level?

A. Expected service level monitors the analysis and reporting of queuing delay and loss of links and classes. It estimates the router queuing delay and loss for every packet and takes account of the sharing of bandwidth between classes in a multiclass network. This technology can be used to estimate the queuing delay and loss incurred at the service provider router connected to the remote site.

Q. What is Corvil Bandwidth?

A. Corvil Bandwidth is the amount of bandwidth needed for a given interface or class to achieve a user-defined QoS target. It is calculated by measuring the traffic on the interface or class.

Q. What is the Congestion Indicator?

A. The congestion indicator is a highly summarized view of congestion available through the GUI that helps enable network managers to rank links according to congestion status. The congestion indicator gives a relative figure of merit for the level of congestion experienced on a link or class. If the congestion indicator is less than 1, then the QoS objectives are met.

Q. What is Event Tracing?

A. Event tracing gives visibility into congestion-related events—what traffic caused the problem, what traffic suffered as a result. If any congestion event is detected, a 10-second section of the trace is isolated and recorded for postprocessing. The user can later analyze the event down to the level of packet granularity.

Q. How long are event traces kept?

A. Event traces are recorded for up to 60 days.

Q. Q. Does Cisco BQM use simulated traffic?

A. No. It monitors all the packets, not just a sample of packets.

Q. Don’t lots of products have analysis algorithms? How is this different?

A. The Cisco BQM starting point is very different. It provides microvisibility at gigabit-per-second rates. This is the level at which congestion events are visible on LAN and WAN boundaries. Rapid Traffic Sequencing (RTS) can be programmed with network-configuration parameters to uniquely compute, in real time, the expected QoS levels and bandwidth requirements for application traffic. The latter is compatible with Cisco router QoS mechanisms.

Q. Will the Cisco BQM algorithms slow down my network and applications?

A. The Cisco BQM algorithms can process a full gigabit of network traffic. In addition, because Cisco BQM is not in the data path, it does not affect the network or applications.

Q. Does Cisco BQM capture packets?

A. Cisco BQM has an optional license to provide full packet capture and export in standard format for analysis in external tools. Packet captures can be triggered or manually started and stopped.

Q. Is Cisco BQM difficult to use?

A. No, Cisco BQM is a next-generation network management system designed for low operational overhead. It delivers the following benefits:

- Easy to use: Cisco BQM includes a Web-based user interface and dashboards for easy access to relevant information. Instant PDF reports with up to 60-day histories allow network managers to easily share information with other departments and management.

Simple Network Management Protocol (SNMP) traps for quality alarms integrate with existing network management and operations systems.

- Easy to deploy: Provides remote site monitoring from a single appliance in the data center. It supports up to four ports to facilitate easy connectivity in redundant router configurations. It provides the same command-line interface (CLI) and modular QoS CLI (MQC) structure that network managers use in their Cisco routers.

Q. Does Cisco BQM monitor traffic on an IP/Multiprotocol Label Switching (MPLS) network or VLAN?

A. Yes, it can model IP/MPLS and VLAN sites.

Q. Does Cisco BQM monitor custom applications?

A. Yes, it supports definition of custom applications based on IP addressing information, generic class-maps mechanisms, and URLs.

Q. How much data does the recommended Cisco BQM hardware store?

A. The Cisco BQM reference sale hardware is offered with 300-GB hard drives that can hold up to 60 days of monitoring data and up to four billion event-trace records.

Q. Who manufactures Cisco BQM?

A. Cisco BQM is a Cisco product built on OEM technology licensed from Corvil.

Ordering Information

Q. What Cisco BQM products are available?

A. Cisco BQM is available as an appliance. Cisco BQM 3.1 is supported on Cisco 1180 hardware, and Cisco BQM 3.2 is supported on the next-generation platforms of Cisco Application Deployment Engine (ADE). Cisco BQM 3.2 is supported on Cisco ADE 1010 series and Cisco ADE 2120 series. Cisco ADE is a high-performance platform for Cisco network management applications. Customers can select the Cisco ADE platform that meets their application needs. Cisco 1180 is targeted towards central sites such as a data center while the Cisco ADE 2120 and Cisco ADE 1010 are targeted towards regional sites such as an aggregation point or remote sites. There are no new features between Cisco BQM 3.1 and Cisco BQM 3.2; these different releases are intended to support Cisco BQM on additional hardware platforms.

Q. What about Cisco BQM for TelePresence in the 3.2 release?

A. The pricing structure for Cisco BQM 3.2 has been built with additional flexibility in mind. Cisco provides the ability to select the bandwidth processing license that will meet a wide selection of price requirements. Unlike Cisco BQM 3.1, which had TelePresence-specific pricing, there is no TelePresence-specific pricing in Cisco BQM 3.2 based on the added flexibility listed above. It should be noted that both releases, Cisco BQM 3.1 and Cisco 3.2, are fully capable of analyzing TelePresence and non-TelePresence traffic so as to meet service-level objectives in a network.

Q. Do I need to buy the Traffic Accelerator card?

A. The Traffic Accelerator card provides the following benefits when added to the ADE 2120:

- increases the maximum monitored WAN bandwidth from 100 Mb to 2 Gbps by offloading some packet processing from the appliance's CPU
- increases the port connectivity of the appliance from 1 Gb port to 2 Gb or 4 Gb ports as specified

Q. What are the scaling capabilities of Cisco BQM?

A. BQM has three scaling characteristics. The first is based on the amount of bandwidth monitored; this includes the sum of all the bandwidth links being monitored by Cisco BQM. The second is based on the number of remote sites that Cisco BQM is monitoring. Finally, Cisco BQM scales on the basis of the total number of QoS classes being monitored (defined on all the links that Cisco BQM monitors).

Table 1 highlights scaling for the Cisco ADE 1010 and Cisco ADE 2120 series.

Table 1. Table 1. Scaling Characteristics for the Cisco ADE 1010 and Cisco ADE 2120 Series

Scaling Characteristic	Cisco ADE 1010 Series	Cisco ADE 2120 Series
Maximum monitored bandwidth	100 Mbps	2 Gbps
Maximum number of remote sites monitored	20 sites	250 sites
Maximum number of classes monitored	60 classes	1000 classes

Q. What part numbers do I need to order for Cisco BQM?

A. Cisco BQM is available as an appliance. Table 2 provides part numbers for ordering. Please note that Cisco BQM 3.2 features a base software license for monitoring 10 sites. Additional Bandwidth Processing licenses can be procured based on the amount of bandwidth that needs to be monitored. Cisco BQM 3.2 software is supported on the Cisco ADE 1010 series and Cisco ADE 2120 series. The Cisco ADE 1010 series is the entry-level product, which provides for a single Gigabit Ethernet monitoring port. The Cisco ADE 2120 series can be ordered either with fixed ports of 10/100/1000 Mbps or in a modular version. The modular version of Cisco ADE 2120 series can be configured with combinations of 1000BaseSX or LH (optical) Small Form-Factor Pluggables (SFPs) or 1000BaseT (electrical) SFPs.

Table 2. Ordering Information

Part Number	Description
CBQME-3.2-SW10-K9	Cisco BQM Base Software licensed for up to 10 Mbps of Bandwidth Monitored and up to 10 remote sites
CBQME-3.2-10MLC	Cisco BQM 10 Mbps Bandwidth Processing License
CBQME-3.2-50MLC	Cisco BQM 50 Mbps Bandwidth Processing License
CBQME-3.2-100MLC	Cisco BQM 100 Mbps Bandwidth Processing License
CBQME-3.2-500MLC	Cisco BQM 500 Mbps Bandwidth Processing License
CBQME-3.2-1GLC	Cisco BQM 1 Gbps Bandwidth Processing License
CBQME-3.2-10-LC	Cisco BQM License – for additional 10 sites
CADE-2120-K9	Cisco Application Deployment Engine 2120 series
CADE-1010-K9	Cisco Application Deployment Engine 1010 series
CBQME-PCI-4	Cisco BQM Accelerator card – fixed PCI card with 4 port 10/100/1000 Mbps (available with ADE 2120 only)
CBQME-PCI-4M	Cisco BQM Accelerator card – Modular PCI card requires purchase of SFPs (available with ADE 2120 only)
CBQME-PCI-2	Cisco BQM Engine – PCI card with 2 active ports 10/100/1000 Mbps; 2 SFPs can be added (available with ADE 2120 only)
CBQME-3.2-10MLC=	Cisco BQM 10 Mbps Bandwidth Processing License (Spares)
CBQME-3.2-50MLC=	Cisco BQM 50 Mbps Bandwidth Processing License (Spares)
CBQME-3.2-100MLC=	Cisco BQM 100 Mbps Bandwidth Processing License (Spares)
CBQME-3.2-500MLC=	Cisco BQM 500 Mbps Bandwidth Processing License (Spares)
CBQME-3.2-1GLC=	Cisco BQM 1 Gbps Bandwidth Processing License (Spares)
CBQME-3.2-10-LC=	Cisco BQM License – for additional 10 sites (Spares)

GLC-LH-SM=	Gigabit Ethernet SFP, LC connector LX/LH transceiver (Spares)
GLC-SX-MM=	Gigabit Ethernet SFP, LC connector SX transceiver (Spares)
GLC-T=	Gigabit Ethernet SFP, 1000BASE-T (Spares)

Q. What are the configuration rules for ordering Cisco BQM 3.2?

A. CBQME-3.2-SW10-K9 is the configurable part number that is the starting point for the Cisco BQM 3.2 ordering configuration set. You will need to select additional bandwidth processing licenses based upon the amount of bandwidth that needs to be monitored. The Cisco ADE is a mandatory selection wherein you will need to procure either CADE-2120-K9 or CADE-1010-K9. Cisco ADE 1010 is the entry-level hardware platform and does not require additional monitoring cards. Cisco ADE 2120 can be equipped with hardware monitoring cards that are available in either two-port or four-port configurations. If optical connectivity is needed, you can select the modular versions of the cards, CBQME-PCI-4M or CBQME-PC-2 and add the appropriate GLC part numbers. If you are an existing customer of Cisco BQM and would like to add additional bandwidth monitoring, you can procure the “Spares” versions of the Bandwidth Processing Licenses. These part numbers end with an equal sign (=).

Q. I am an existing user of Cisco BQM 3.x. Do I need to upgrade to Cisco BQM 3.2?

A. No. The Cisco BQM 3.2 release is intended to support Cisco BQM on the Cisco ADE platforms. There are no new features in this release. If you have a requirement to add Cisco BQM to your remote sites, then you can procure Cisco BQM 3.2 with the associated hardware Cisco ADE platforms.

Q. When is Cisco BQM 3.2 available?

A. Cisco BQM 3.2 will be available June 18, 2007. Customers can order these products and fully attached services through their normal sales channels beginning June 1, 2007.

Q. How do I order Cisco BQM?

A. Cisco BQM is available for purchase through regular Cisco sales and distribution channels worldwide.

To place an order, visit the Cisco Ordering Homepage.

For More Information

For more information about Cisco BQM, visit http://www.cisco.com/go/bqm, contact your local Cisco account representative, or send an e-mail to bqm-product-info@external.cisco.com.

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Printed in USA C67-408756-00 05/07

