

Broadband Services Router 1000 BSR 1000

Cable Modem Termination System and Router



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Motorola's Broadband Services Router 1000 (BSR 1000) is a compact, high-performance Cable Modem Termination System (CMTS) and full-featured router that enables broadband service providers to cost-effectively deliver voice, data, and multimedia content and services.

The BSR 1000 is a 1U, rack-mountable platform with an integrated up converter, and is a perfect solution for small or medium-sized distribution hubs or for larger sites in the earlier stages of broadband service market penetration. Broadband providers can also deploy space-saving BSR 1000s in hospitality locations or Multiple Dwelling Unit (MDU) facilities to extend broadband access services.

The compact BSR 1000 can be deployed as a stand-alone unit or in small clusters to cost-effectively extend broadband access infrastructure to additional subscribers. This easy-to-use platform helps carriers develop a competitive edge in defining, deploying, and managing broadband services. The BSR 1000 implements SmartFlow™ features to cost-effectively extend the rich Quality of Service (QoS) support required to deliver multiple services. It can be installed by non-technical personnel and can operate as a Layer 2 bridge or as an edge router with enhanced security features.

Traffic flows from multiple BSR 1000s can be aggregated by the carrier-class Broadband Services Router 64000 (BSR 64000) to bring robust traffic management to a distributed environment. The BSR 1000 changes the value proposition for small broadband access network locations by offering a highly compact CMTS solution that can be installed in minutes to enable the cost-effective delivery of voice, data, and multimedia content and services.

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FEATURES INCLUDE:

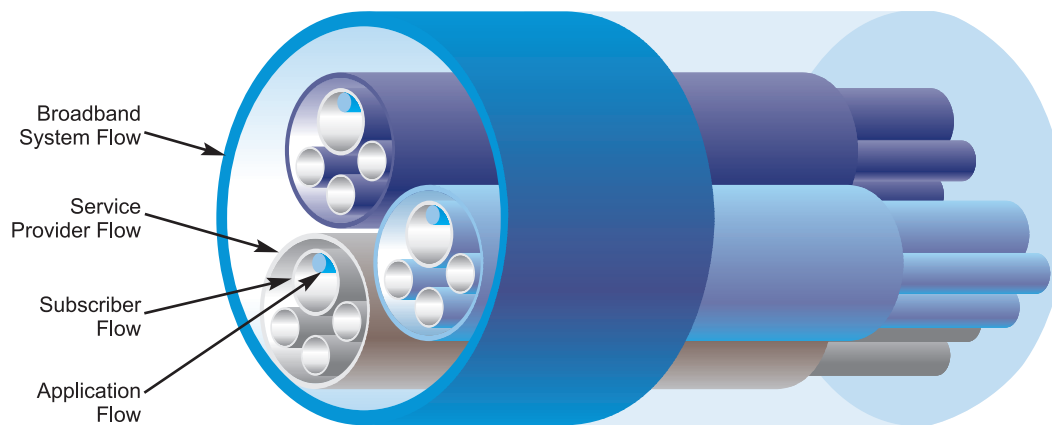
- The compact, space-saving, 1U platform can be installed in minutes by non-technical personnel
- Fully compatible with the carrier-class BSR 64000
- Based on open systems standards, the BSR 1000 is Data Over Cable Service Interface Specification (DOCSIS) and EuroDOCSIS 1.1 qualified and is compatible with PacketCable 1.0
- Managed via SNMP v1 and v3, standard DOCSIS and IETF MIBs, and a Command Line Interface
- Advanced Spectrum Management to ensure reliable and high-quality service delivery
- Supports 16,000 service flows to enable individual voice, data, and multimedia streams to be handled effectively
- SmartFlow QoS classification for thousands of flows at wire-speed with guaranteed Service Level Agreements (SLAs)
- Full-featured routing with support for intradomain, interdomain, and multicast routing including OSPF v2, RIP v1 and v2, BGP4, IS-IS, VRRP, IGMP, DVMRP, and PIM-SM



Distributed QoS and Multi-Service Support

Broadband access networks deliver the capacity required for converged data, voice, and multimedia services. The BSR 1000 is a flexible platform that enables the convergence of these services at the Internet Protocol (IP) level.

It allows broadband operators to support multiple services from one-or-more providers. Operators can deliver measurable QoS from the subscriber to the backbone networks of multiple service providers. SmartFlow allows operators to classify packets into flows based on packet content and provide the appropriate QoS treatment for each traffic flow according to DOCSIS 1.1 standards.



SmartFlow Granular QoS

Full-Featured Routing

Operators can deploy the BSR 1000 to serve as a self-configuring CMTS/router or as a Layer 2 CMTS. Each routing protocol implemented on the BSR 1000 offers maximum expansion to support new services, subscribers, and providers. A full suite of unicast routing protocols is supported, including carrier-class implementations of advanced routing protocols such as Routing Information Protocol (RIP) v1, RIP v2, Open Shortest Path First (OSPF) v2, Border Gateway Protocol (BGP) 4, and Intermediate System-Intermediate System (IS-IS).

The BSR 1000 also offers carrier-grade implementations of IP multicast protocols, including the Distance Vector Multicast Routing Protocol (DVMRP) and Protocol-Independent Multicast/Sparse Mode (PIM-SM). It inspects multiple fields within packets to determine the appropriate routing and QoS.

The BSR 1000 also supports policy-based routing where routing is partially determined by inspecting other fields within the packet. For example, in applications where the operator garners wholesale revenue streams by providing multiple service provider access, the BSR 1000 can inspect a source IP address and then route the traffic to the appropriate partner for handling. The per-flow queuing ability of the BSR 1000 implements QoS on the access network by mapping IP flows to DOCSIS 1.1 service flows.

Network Management and Control

The BSR 1000 offers several options for efficient administration, management, and control to streamline deployment and operations costs. In distribution hubs with limited availability of trained staff, troubleshooting on the BSR 1000 is simple, with easy-to-read diagnostic LEDs as well as remote management capability to support provisioning, configuration, and problem identification.

Various levels of custom-defined access privileges can be granted to administrators for management and troubleshooting. The BSR 1000 supports Simple Network Management Protocol (SNMP) v1 and v3. Motorola supports all appropriate standard MIBs and offers custom MIBs to monitor and control the BSR 1000's value-added features.

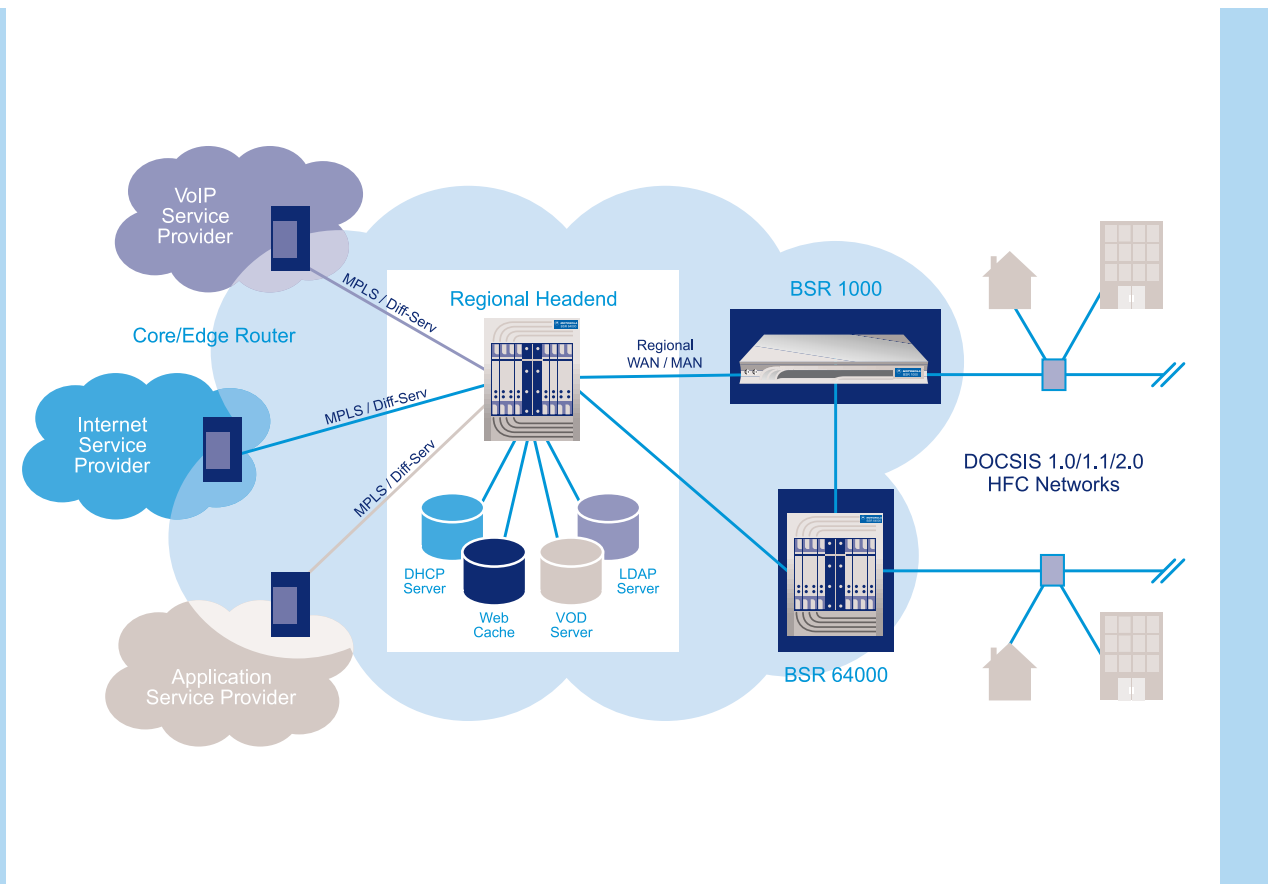
The system supports the File Transfer Protocol (FTP) for bulk data transfer, and it can be seamlessly integrated into the existing network management infrastructure. The BSR 1000 also offers a Cisco-compatible Command Line Interface (CLI) for ease-of-use and interoperability with legacy infrastructure. The CLI supports full scripting capability, and ASCII-formatted command files can be uploaded, downloaded, and executed.

A Next-Generation Distributed Platform

The BSR 1000 is DOCSIS and EuroDOCSIS 1.1 qualified, and is compatible with PacketCable 1.0. This compact CMTS is configured with an autosensing 10/100 Ethernet uplink to connect to a local data network.

It is available in bridge and router configurations in a space-saving, 1U "pizza box" chassis that allows broadband operators to deploy high-speed services in the smallest locations where real estate is at a premium.

The system delivers the isolation, policing, and address management needed to implement measurable SLAs. This solution allows cost-effective expansion of the service area and it delivers the traffic shaping needed to enable end-to-end SLAs across broadband access networks.



Compact, Distributed CMTS

Form	1U
Height	1.75" (43.5 mm)
Width	19" (48.3 cm)
Depth	16.75" (42.5 cm)
Fully-configured Weight	9.8 lbs (5.4 kgs)
VxWorks Real-time Operating System	
Power	90 - 260 Volts, 47 - 63 Hz
Operating Temperature	-5° C to 50° C
Non-operating Temperature	-25° C to 70° C
Operating Humidity	10 - 90% (Non-condensing)
Non-operating Humidity	5 - 95% (Non-condensing)

Standards-Based Interoperability

- DOCSIS 1.0 qualified
- EuroDOCSIS 1.0 qualified
- Compatible with PacketCable 1.0
- DOCSIS 1.1 qualified
- EuroDOCSIS 1.1 qualified

Network Interfaces

- Single-port Autosensing 10/100 Ethernet

Intradomain/Interdomain Routing

RIP v1	RIP v2	IS-IS
OSPF v2	BGP4	VRRP

Multicast Routing Support

DVMRP	PIM-SM	IGMP v2
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Network Management and Provisioning

- Cisco-compatible CLI
- Standard DOCSIS and IETF MIBs
- LDAP v3
- Telnet with Security Extensions
- Open Interfaces to Provisioning, Accounting, and Billing Applications
- Multiple Levels of Account/Password Authentication
- SNMP v1 and v3
- Motorola MIBs
- DHCP Relay
- Multiple Community Strings

Full RF Spectrum Support

DOCSIS and EuroDOCSIS

4 Upstream DOCSIS Receivers

Advanced Spectrum Management Functionality

Downstream DOCSIS Transmitter

Integrated Up Converter for RF Output

Upstream Modulation QPSK and 16 QAM

Upstream Per-channel Bit Rate 0.320 - 10.24 Mbps

Upstream Input Frequency Range 5 - 42 MHz DOCSIS

5 - 65 MHz EuroDOCSIS

Downstream Modulation 64 QAM and 256 QAM

Downstream Output Frequency Range 88 - 857 MHz (Channel Center)

Output Frequency Step Size 32.0 kHz

Downstream Per-channel Bit Rate 27 Mbps (64 QAM DOCSIS)

36 Mbps (64 QAM EuroDOCSIS)

38 Mbps (256 QAM DOCSIS)

56 Mbps (256 QAM EuroDOCSIS)

Bridging and Routing

Layer 2 Bridging

Layer 3 Routing

SmartFlow Wire-speed Forwarding and Flow Classification

Specifications are subject to change without notice.

MGBI

