Cisco Broadband Policy Manager 1.6

Product Overview

Cisco® Broadband Policy Manager 1.6 delivers the network intelligence that service providers need in order to deploy high-value, differentiated services on broadband networks. Cisco Broadband Policy Manager products help enable rapid creation and deployment of advanced services combined with real-time dynamic provisioning of network features, end to end across the network. The IP Next-Generation Networks (NGNs) must deliver multiple applications, data, voice, and video, with consistent quality. Cisco Broadband Policy Manager is a critical IP NGN component that helps ensure high-quality service delivery.

Delivering advanced broadband services to subscribers, optimizing network resources, and maintaining profitably present a complex challenge. Cisco Broadband Policy Manager helps service providers to meet this challenge by making real-time decisions on how to dynamically configure the network for optimal service delivery. Cisco Broadband Policy Manager combines evaluation of subscriber-, network-, and application-level rules to make intelligent decisions that are enforced in the network. Subscriber management, application-driven quality of service (QoS), session-based policy control, access control, and policy-enabled network management are a few of the applications for Cisco Broadband Policy Manager.

Cisco Broadband Policy Manager delivers a powerful platform used to create and deploy multiple services on broadband networks. Quotas, network resource control, subscriber access permissions, and time-of-day rules can be integrated to deliver differentiated services. Cisco Broadband Policy Manager can create services and enforce policies across a broad range of network architectures and devices. It is the ideal solution for enabling TR-059 architectures, for supporting policy-enabled networks as specified in IETF RFC 2753, and for bringing broadband QoS into IP networks to optimize the performance of voice-over-IP (VoIP) and video applications.

Key Features and Benefits

Service providers must take advantage of their network resources and deliver compelling services to compete in their markets. Cisco Broadband Policy Manager helps service providers to deliver differentiated services to subscribers. Its policy-creation tool, Broadband Policy Design Studio, allows service providers to rapidly create and deploy compelling services. Cisco Broadband Policy Manager includes features required to integrate service delivery with service provider management systems:

- **Accounting**—Cisco Broadband Policy Manager logs and transmits accounting records to RADIUS or Extensible Markup Language (XML)—enabled accounting interfaces.

- **Admission control**—To provide service assurance, Cisco Broadband Policy Manager can include integrated admission control capability to allow the service provider to control service delivery based on resource availability. QoS, bandwidth limits, and limits on the number of sessions can be enforced to help ensure a high-quality customer experience.
Resource utilization—Charging for network services is often a function of usage that is based on duration, quantity, or frequency. Cisco Broadband Policy Manager can create and manage quota repositories to account for customer usage and set threshold limits. This information can then be used to trigger execution of business rules and enforcement of policies on the customer’s session.

Wholesale—Distribution of policy intelligence and control in the network is required when services are delivered using a wholesale/retail model. Cisco Broadband Policy Manager gives retail partners control over policies for their customers and integrates retail policy requests with overall network policies administered by the wholesale provider.

Service assurance—Policy decisions are monitored and logged in real time. In the event of a policy deployment failure, Cisco Broadband Policy Manager can emit notifications to customers, network operators, and partners as needed using Simple Network Management Protocol (SNMP), XML, or HTTP messaging.

Market-leading technology—Cisco Broadband Policy Manager is based on an established OEM technology partnership with TAZZ Networks, Inc. TAZZ Networks is a pioneering developer of policy and service delivery platforms.

True interoperability—Integration into existing service provider architectures is a complex task. Cisco Broadband Policy Manager delivers a full suite of standard interfaces to facilitate integration at both a system and network level, allowing Cisco Broadband Policy Manager to support not only the full suite of Cisco network equipment but also multivendor equipment.

Impressive performance and scale—Cisco Broadband Policy Manager is built to support an extremely high transaction rate to minimize session setup or service initiation request delays. It is designed to be deployed as a distributed system to scale in relation to the number of network elements. This helps ensure a responsive system independent of the size of the network.

Service Examples

Cisco Broadband Policy Manager products can be used to deploy numerous policy-enabled services, accelerate time to market, and provide enhanced service experiences for customers. The Cisco Broadband Policy Manager platform simplifies the processes associated with the creation, delivery, and management of premium IP services. The following examples highlight the flexibility and new revenue opportunities that can be delivered using Cisco Broadband Policy Manager:

- Bandwidth on demand—Subscribers modify their bandwidth to suit their personal needs whether for a large file transfer or just a temporary boost in performance. Cisco Broadband Policy Manager can expose configurable durations to the subscribers or alternatively provide a simple on/off button so they can activate the service as desired. Admission control policies can be implemented as required to meet other bandwidth commitments.

- Application-driven bandwidth—Application-driven bandwidth services dynamically respond to application requests by adjusting the subscriber’s bandwidth configuration in the network devices for the duration of an application session. Whether triggered by a file download, a video-on-demand (VoD) request, or starting a file-backup service, Cisco Broadband Policy Manager dynamically tunes the network configuration to the configured service requirement.
• Application-driven QoS—Cisco Broadband Policy Manager provides the ability to dynamically configure network-device QoS configurations for applications including VoIP or video streaming. Using Session Initiation Protocol (SIP) or other signaling methods, Cisco Broadband Policy Manager can detect application events, evaluate policy rules, and apply the appropriate network actions. Dynamic QoS configuration is required to deliver high-quality voice or video services.

• Time-of-day services—Service providers can use differentiated service offerings to smooth out network usage peaks. Cisco Broadband Policy Manager can deliver services modified by the time of day to promote network usage during specified time periods. Subscribers choose service packages that meet their needs. Cisco Broadband Policy Manager can encourage different time-of-day use profiles by throttling bandwidth and/or QoS back during the restricted window and then dynamically asserting policies to enable higher bandwidth and QoS performance during the nonrestricted windows. A stricter application of a time-of-day policy would be complete network-access denial to a subscriber during a restricted window.

• Prepaid access—Cisco Broadband Policy Manager, when integrated with Cisco Service Control Engine or used on Cisco routers, can monitor network-use parameters including aggregate bandwidth use, duration, and bandwidth use by service or application type. This information can be used to apply policies enforcing prepaid access whereby a user is granted access to an application or network based on the service provider’s business rules.

• Quota-limited bandwidth or applications—Prepaid access is a form of a quota-limited service. Cisco Broadband Policy Manager can be configured to allow a subscriber access to the network until the subscriber has used a certain amount of bandwidth throughput (for example, 5 GB). Providers can offer services, combined with schedule policies, which couple a time element with a counter element, such as a service that allows only 5 GB of throughput per 30 days. The counter can be configured to reset at the end of 30 days. If the policy enforcement point (PEP) has application-layer visibility, for example Cisco Service Control Engine on Cisco routers, new services can be created that monitor peer-to-peer traffic or other applications and execute policy rules used to optimize network performance, maximize revenue, or enforce fair access to network resources.

• Edge voice capacity admission control—Managing the access network capacity to determine whether new voice calls can be successfully supported on the available resources while continuing to guarantee voice call quality.

• Edge video capacity admission control—Managing the access network capacity to determine whether new video service requests can be accepted on the available resources and within the required service requirements.
Network Operations Examples

Cisco Broadband Policy Manager can act as an operations tool to deploy policies across a range of network elements across a broad geography. Cisco Broadband Policy Manager is also aware of individual subscribers, their connections to the networks, and their rights to use specific network services.

The following examples illustrate how providers can control and manage their networks using Cisco Broadband Policy Manager:

- Networkwide policy reconfigurations—Cisco Broadband Policy Manager can be used to apply policies to manage broadband traffic end to end across networks. Policies can be asserted to manage network traffic on a global, regional, point of presence (POP), or per device basis.
- Time-of-day policy reconfigurations—Cisco Broadband Policy Manager can deploy policy changes based on time-of-day triggers.
- Subscriber policy profiles—Cisco Broadband Policy Manager can change default subscriber policies and group membership. It allows global redefinition of a group membership to apply new service benefits or restrictions. For example, all subscribers who are members of a specific user profile could have their basic Internet access service increased from 256 to 512 Kbps with a single action.

Supported Network Environments

Cisco Broadband Policy Manager is well suited for many environments requiring complex broadband policy application. It can apply policies from the customer premises equipment (CPE) to the core network. Cisco Broadband Policy Manager is ideal for supporting DSL broadband access.

Cisco Broadband Policy Manager plays a critical role in policy and service delivery. Figure 1 illustrates how Cisco Broadband Policy Manager manages policy assertion and dynamic network configuration when a user requests an application requiring greater bandwidth in a Layer 2 Tunneling Protocol (L2TP) wholesale model.
Figure 1. Policy Assertion and Dynamic Network Configuration with Cisco Broadband Policy Manager

1. User connects to network using PPP client.
2. PPP session is authenticated and terminated at the Cisco broadband remote access server.
3. Cisco Broadband Policy Manager receives the Accounting Start and looks up the user’s network profile from the policy database.
4. Cisco Broadband Policy Manager configures the session for the assigned service-level bandwidth.
5. User is authenticated onto the network and receives the service-level bandwidth.
6. User accesses an application that requires a higher service-level bandwidth. This application request triggers execution of a policy rule in Cisco Broadband Policy Manager, resulting in a temporary change in the user service profile held in the policy database and a dynamic configuration of the network devices.
7. The new service-level bandwidth is dynamically configured on the network devices, and the user’s connection is configured with the new bandwidth until the application session is complete.

Cisco Broadband Policy Manager Product Family

Cisco Broadband Policy Manager includes the following products:

- Cisco Broadband Policy Manager—Software installed on a small, one-rack-unit network appliance providing policy and dynamic session management, changing network parameters (such as QoS or bandwidth allocation) for subscriber data sessions based on subscriber identity, access network connection, subscriber service authorization, type of application (voice, video, data) requested, and the evaluation of other rules.
- Cisco Broadband IP Services Module—Software executing on Broadband Policy Manager implementing specific use cases, helping service providers to deliver services including bandwidth-flex on demand (subscriber can request a bandwidth upgrade), application-driven QoS and bandwidth (for example, a video on demand triggers the network to automatically change QoS and bandwidth parameters to assure service quality), tiered applications (to enforce different levels of service depending on the subscriber service level), quota-based applications including identifying subscriber use of specific services (such as peer-to-peer traffic), and applying policies as defined in related business rules.
• Cisco Edge Voice Capacity Admission Control—Software executing on Broadband Policy Manager implementing specific admission control decisions based on resources available in the access network, helping service providers to deliver VoIP services.

• Cisco Edge Video Capacity Admission Control—Software executing on Broadband Policy Manager implementing specific admission control decisions based on resources available in the access network, helping service providers to deliver VoD services.

• Cisco Broadband Policy Design Studio—Visual development environment used to create rules and policies and to deploy and manage policies used to manage the network. Cisco Policy Design Studio greatly reduces the system-integration time and expense required to create and deploy new services. The objective is to reduce the system-integration schedule and expense by at least 80 percent compared to alternative methods or competitive policy-creation tools.

Product Specifications
Cisco Broadband Policy Manager is deployed on a one-rack-unit Sun Microsystems rack-mountable server supplied by the customer or system integrator. Multiple deployment models are available to optimize the performance of the network policy management implementation. Table 1 lists the server specifications for Cisco Broadband Policy Manager.

Table 1. Cisco Broadband Policy Manager Server Specifications

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Sun Fire V40z Server</td>
</tr>
<tr>
<td>2</td>
<td>Sun Fire V40z AMD Opteron 3U Rack Mount x86 Server</td>
</tr>
<tr>
<td>4</td>
<td>Localized Power Cord Kits North American/Asian</td>
</tr>
<tr>
<td>4</td>
<td>4 GB Memory kit DDR1/400 Registered ECC DIMMs (two 2 GB units) for Sun Fire V40z</td>
</tr>
<tr>
<td>1</td>
<td>73 GB 10K RPM Ultra320 SCSI Hard Drive for Sun Fire V40z</td>
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<tr>
<td>1</td>
<td>Sun Fire V40z daughterboard with two AMD Opteron 870 CPUs with VRMs and heatsinks. Expands dual CPU (dual core) systems to quad CPU (dual core) capability.</td>
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</tbody>
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Availability
Cisco Broadband Policy Manager 1.6 will be available through normal sales channels beginning January 19, 2007.

Service and Support
Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco services, see Cisco Technical Support Services or Cisco Advanced Services.

For More Information
For additional product information, visit http://www.cisco.com/en/US/products/ps6478/index.html or contact your local Cisco account representative.