

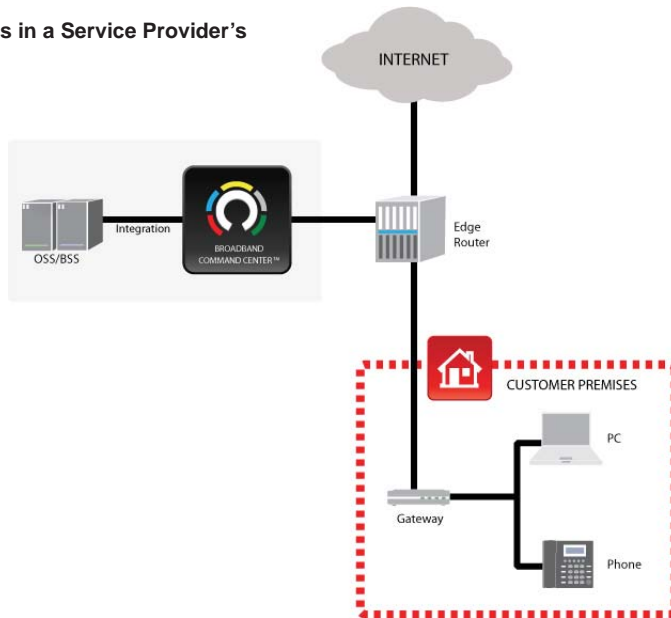
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Broadband Command Center™

Network Agnostic Device Provisioning

Broadband Command Center™ automatically brings modems, MTAs, ATAs, set top boxes, IP phones and other customer premise equipment (CPE) online based on subscriber-selected services and operator-defined policies. It provisions SIP, PacketCable, TR-069 and DOCSIS devices according to service speed or quality, subscriber location, device type, MAC address, or other criteria across a variety of networks such as cable, wireline, wireless, satellite and ePON. The solution retrieves subscriber and device information directly from OSS and billing systems to ensure the usage of only the most up-to-date information.

Figure 1. How BCC fits in a Service Provider's Network



Improved Reliability, Scalability, and Performance

Regardless of your network's size or speed of growth, Broadband Command Center ensures reliable service deployment. It vastly reduces manual administration and enhances customer service with powerful auto-configuration capabilities. It also provides much higher availability, ease of use, performance, scalability, and security than open source code.

In benchmark tests for stability, monitoring, redundancy, and ease of administration, Broadband Command Center scored a total of 1875 out of 2000, leading the competition by at least 30%.

Meet Customer Expectations, Maximize ARPU, and Increase Profitability

Reliability and speed are key benefits. Device provisioning is one of the first touch points of your service so it needs to be flawless. Any delays or outages can lead to customer churn, support costs, and lost revenues. Broadband Command Center lets you make the best decision for your network in meeting changing market demands.

Accurate billing is fundamental. With Broadband Command Center you can prevent fraud, and ensure that the services activated match the fees collected, with device authentication that integrates with LDAP database or OSS/billing systems via a comprehensive API set.

You can also control costs by reducing administration and truck rolls. Cut system expenditures by integrating directly with existing OSS/billing systems. Automated provisioning can result in substantial savings on subscriber activation costs.

HIGHLIGHTS

- Fast, minimum-effort provisioning of TR-069, SIP, PacketCable™, and DOCSIS® devices
- Always-on availability to prevent delays and assure revenues
- High-performance response to ensure fast device activation and revenue collection
- Flexible device support so you can choose the best-fit devices for your business model
- Scalability and hardware efficiency: Support for millions of devices in distributed deployments
- High security with RFC compliant code
- Service provider grade: higher reliability, ease of use, performance, scalability, and security
- Support for the latest standards and technologies, including IPv6, TR-069, ePON and DOCSIS 3.0

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Reliable and Accurate

Always-On Availability

With Broadband Command Center (BCC), you can achieve industry-leading availability across all BCC component servers, ensuring high service uptimes for your subscribers. Its DHCP service exceeds IETF specifications with 1:1 primary to secondary DHCP deployment. Its Multimedia Provisioning Service (MPS) server pair, which performs VoIP provisioning and subscriber management, also provides load-balanced failover for maximum reliability.

The Configuration File Management (CFM) Proxy service, which administers TFTP, HTTP, HTTPS, or FTP services, offers reliability through its integrated server clusters. If a CFM Proxy server is unavailable, the DHCP or MPS server that is controlling the cluster can assign another (redundant) CFM Proxy server to handle file transfers to Customer Premise Equipment.

Subscriber, Device, and Service Data Retrieval

Provision your subscriber devices with the most up-to-date data using Broadband Command Center's ability to automatically retrieve subscriber data (contact information, devices owned), subscriber device data (MAC address, maximum number of CPEs, voice line configuration, call agent), and service options (speed, quality of service) from 3rd party OSS or LDAP.

Configuration File Management (CFM) for Final Activation

To always get your subscribers online quickly, Broadband Command Center's Configuration File Management (CFM) servers are load balanced. The DHCP or Multimedia Provisioning Service (MPS) server always sends file requests to the most available CFM server. This allows the CFM to handle massive volumes of simultaneous file transfers, especially during peak periods when thousands of devices may come online simultaneously.

Simplified Management

Dynamically Generated Files

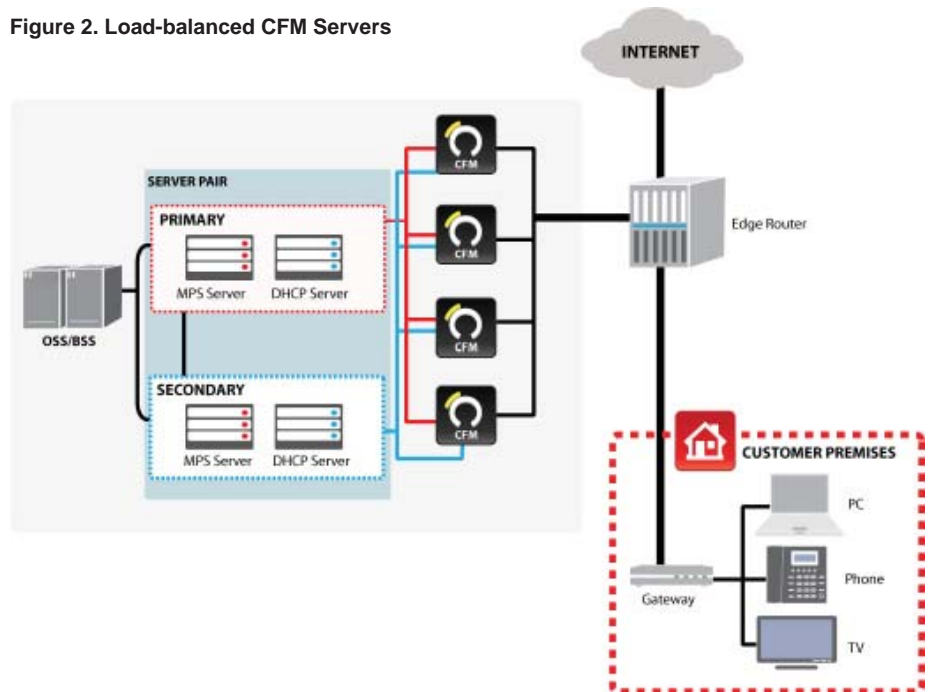
Minimize the effort required in manually creating service-specific configuration files for device activation requests with dynamically generated configuration files. To quickly provision end-user devices at the user's request, BCC dynamically generates device configuration files with its Configuration File Management (CFM) service. Moreover, you can easily change service features without any manual re-configuration of devices in the field and there is no need to track and store numerous static files.

Time Saving GUI

Conveniently manage all your provisioning functions with Broadband Command Center's intuitive Java GUI, which you can easily access regardless of your operating system. Whether your job is system administration or customer service, you can use wizards and templates to ensure fast deployment and streamlined workflows.

Quickly access operational and configuration information through a tree structure of setup options, as well as network views based on region, department, subnet, or subscriber.

Figure 2. Load-balanced CFM Servers



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To help you resolve issues and analyze system design, Broadband Command Center provides powerful diagnostics and reporting tools, including:

- Auditing: tracking of all changes made by system administrators or operators
- Reporting: usage or auditing reports automatically triggered by specific data, actions, or requests
- Backups: automated scheduled backups of database and audit records
- Real-time, color-coded IP address usage statistics: designated as free, active, offered, static, reserved, or unused
- Security alerts
- 5 emergency notification methods: SNMP traps, system logs, email, or event triggers. Emergency notifications can be initiated when an operator-specified threshold is reached. For example, you can receive alerts based on high-water marks when an IP address range is about to run out of addresses

Scalable, Efficient and Expandable

Separation of Dynamic File Generation and Distribution

Broadband Command Center helps you reduce costs during growth by separating dynamic file generation and distribution into two components:

- Configuration File Management (CFM) Service for generation of dynamic files, and;
- Configuration File Management Proxy Service for delivery of data using FTPs, TFTP, HTTPs or FTP protocol over both IPv4 and IPv6
- Both of these components support integrated clustering to allow in-service growth. When the demand for file transfers increases, you will only need to add Configuration File Management Proxy servers. Similarly, an increase in demand for dynamic file generation will only require additional CFM servers. This allows your network to grow more efficiently.

Cost-Effective Growth and Maximized Efficiency

Ensure cost-effective growth of your business with Broadband Command Center's superior scalability and server efficiency. It supports up to one million IP addresses per server, as well as an unlimited number of edge routers per server.

You can maximize efficiency with Broadband Command Center's streamlined 1-to-many DHCP-to-CFM (or MPS-to-CFM) architecture, where dedicated file servers are used for transferring configuration files to subscriber devices.

Make the most efficient use of your available IP address space as Broadband Command Center's primary and secondary DHCP servers use the same IP address range. In other systems, up to 50% of IP addresses may be reserved for the secondary server alone, where they sit idle most of the time.

64-bit Service

To ensure your provisioning system's ability to handle future technology capacity, you can deploy Broadband Command Center in 64-bit. The deployment of 64-bit DHCP service supports increased capacities based on total system memory.

Secure

High Security

Ensure the security of your data with secure administrator login, triple DES password encryption, granular user access privileges, access control lists, and delegation limits.

DHCP, DNS, Multimedia Provisioning Service (MPS) and Configuration File Management (CFM) components are highly secure, as they are not based on any open source code. DNS is closely integrated with the DHCP services for DDNS FQDN mapping (as required by PacketCable), and provides a secure alternative to BIND.

Flexible

Easy OSS Integration

For easy setup of data sharing with your OSS, BSS, or Customer Care Center, Broadband Command Center comes with an array of integration toolkits: a native SOAP web services API, CORBA APIs, XML APIs, and a Command Line Interface (CLI). You can directly integrate Broadband Command Center with 3rd party OSS platforms, including LDAP databases, as well as simplify access to subscriber data for both data and voice device provisioning.

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To enhance the visibility of provisioning data and the management of subscribers, Broadband Command Center can track subscribers, their devices, IP addresses, and associated broadband services as well as allows the retrieval of that information. The solution can gather customer data in three ways. They can be:

1. entered into its own database
2. transferred automatically from an OSS, BSS, or Customer Care Center
3. directly retrieved from a centralized backend database via integration with LDAP

Broadband Command Center can integrate with your OSS in the following ways:

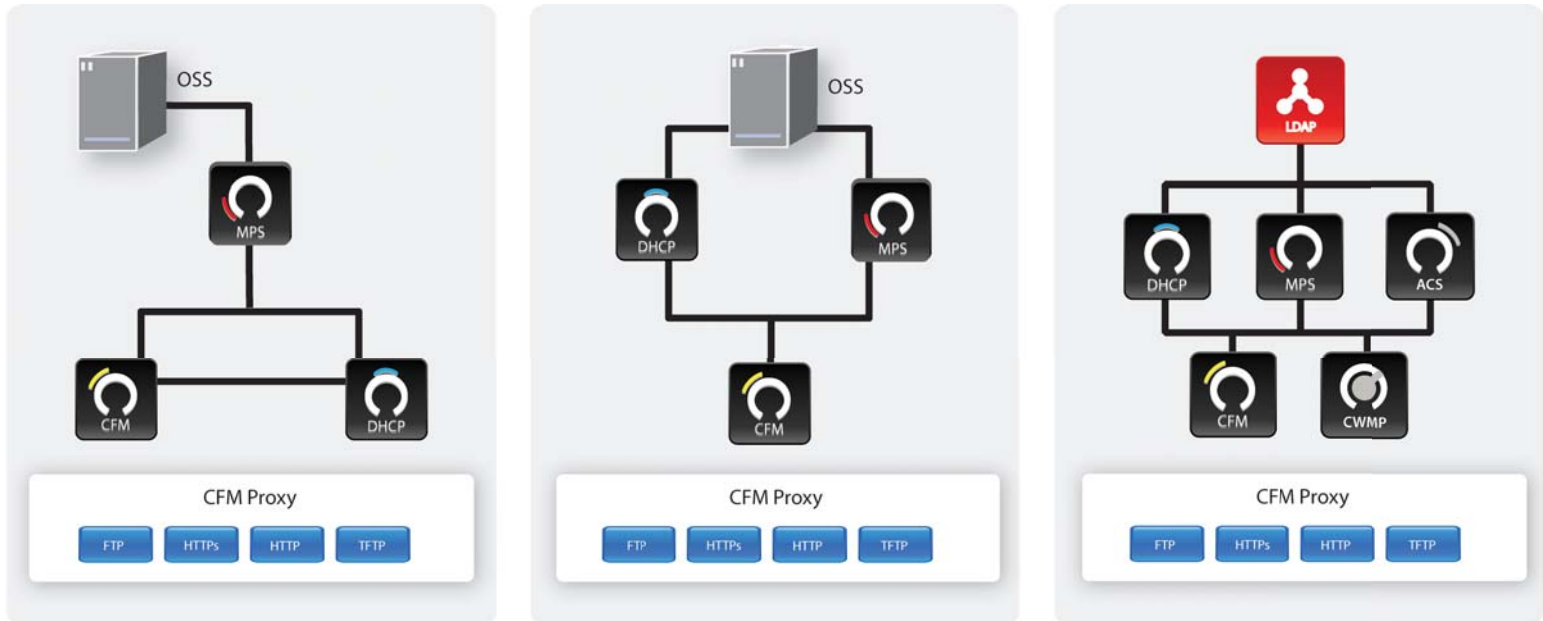


Figure 3. Ways in which Broadband Command Center can retrieve customer data

Special Event Handling

To handle your customized provisioning flows, Broadband Command Center's best in class DHCP packet processing leverages all data contained in client DHCP messages and influences DHCP processing based on your needs.

The DHCP service also enables event-based processing to third party external systems using event trigger mechanisms. DHCP will act on specific pieces of information contained in the DHCP options and invoke action in third party systems in order to complete the transaction.

Flexible Device Support

Choose the best device type for your business without being limited in any way by hardware. Broadband Command Center leads the industry in provisioning an extensive variety of devices: TR-069 gateways (WiMAX, ePON, GPON, xDSL, and Ethernet), DOCSIS® cable and PON modems, PacketCable™ Voice MTA as well as SIP devices. Broadband Command Center also supports DOCSIS 3.0 devices operating in IPv4 and IPv6.

Multi-Standard Support

IPv6 Support and Fully Featured DHCPv6

Take one step closer to IPv6 adoption with Broadband Command Center's IPv6 and fully featured DHCPv6 support. DHCPv6 server features include:

- IPv6 Prefix Delegation
- DHCPv6 Reconfigure
- Temporary Address Allocation
- Support of CableLabs DHCP Options Registry
- DDNS AAAA Updates

Broadband Command Center's configuration file management (CFM) and CFM proxy service also support download protocols, including TFTP, HTTPS, and FTP over both IPv4 and IPv6.

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Support for SIP NOTIFY and Softswitch Connectors

Broadband Command Center triggers re-provisioning events to SIP VoIP terminals via Softswitch integration. This includes both SIP Notify and API methods to trigger a remote device reboot action.

Multiple SIP Line Appearances - Decoupling SIP Users from SIP Device

With consumers demanding more phone lines and possessing more devices than ever, you need the ability to properly configure these users. Broadband Command Center supports the decoupling of SIP phone user configuration from a SIP device configuration, allowing you to provision a SIP to multiple line appearances spanning over multiple simultaneous devices.

Device Provisioning for TR-069 and DOCSIS Customer Gateways

Emerging converged multimedia gateways are enabling access network agnostic services and require support for multiple standards. Broadband Command Center's optional Auto-Configuration Server (ACS) component provides the TR-069 provisioning support and, along with Broadband Command Center's DOCSIS provisioning capabilities, offers a single integrated solution to handle all the device provisioning requirements of these converged multimedia gateways. The result is significant cost savings in the implementation of a single integrated solution and operational savings down the road.

Related Products

IP Address Management

An optional add-on is Address Commander™ software, Incognito Software's complete IP address management package. This convenient solution is a perfect match for broadband environments. It tracks and reports on organization-wide IP address space to prevent inventory depletion and outages, optimize usage, ensure cost-effective expansion, and serve ARIN/RIPE needs, including SWIP updates. Its centralized IP address allocation policies ensure consistent management by all administrators.

Specifications

Minimum Server Requirements*

- CPU: Pentium® 4 2.8 GHz
UltraSPARC-IIi Processor @ 650 MHz
- RAM: 512 MB
- Disk Space: 10 GB

* Dependent on customer deployment size
** Please refer to product release notes for the most up-to-date information. Note that hardware processing power influences overall system performance.
† Currently only DHCPsvc and DHCPCLI supported

Operating Systems Requirements*

- Microsoft® Windows 2003
- Debian 4.0 Etch (32 bit and 64 bit)
- Solaris 9, 10 (Sparc)
- Redhat RHEL 5.1 (32 bit)
- Redhat RHEL 5.2 (64 bit)

Interfaces:

- CORBA v2.3
- XML
- Java VIP Monitor and Statistics Monitor: JRE 1.6
- Command Line Interface (CLI): All server Operating Systems
- SOAP