

## Cisco Broadband Access Center for Cable 2.5

Cisco Broadband Access Center for Cable (BACC) is a distributed, carrier-class, subscriber-device-provisioning application allowing for automated flow-through provisioning of subscriber services in a fully redundant environment. Cisco BACC automatically recognizes devices, assigns class of service, dynamically creates and generates device configuration files, and activates subscribers. Cisco BACC 2.5 introduces full PacketCable voice provisioning services.

As service provider infrastructures increase rapidly in size and complexity, management systems that enable and simplify the task of operating the network and its services become more essential. Cisco BACC addresses this need by automating the configuration and provisioning of subscriber devices based on the service provider's business policies. Cisco BACC allows service providers to implement either or both of the following workflow models:

- *Preprovisioning*—Devices are assigned to subscribers and recorded in the provisioning application in advance. The subscriber plugs them in, and Cisco BACC automatically assigns the appropriate service level and activates them.
- *Autoprovisioning*—When subscribers self-register for service, subscriber devices are captured and recorded in the provisioning application. The subscriber is forced to register for service before Cisco BACC configures the device and activates the service.

Cisco BACC is a fast, secure, and scalable system for provisioning tiered services on devices. It is designed for:

- *Reliability*—Cisco BACC provides high reliability, supporting autonomous headends, multiple distributed device provisioning engines (DPEs), each of which includes its own data-caching repository, a Trivial File Transfer Protocol (TFTP) server, and a Time-of-Day (ToD) server. During central server outages or communication problems, Cisco BACC provides continued service to existing registered subscribers.
- *Scalability and performance*—Cisco BACC can support millions of devices in distributed deployments. Cisco BACC uses multiple distributed DPEs to balance processing of device requests. A single DPE can support as many as 500,000 devices, which can be combined in groups to provide redundancy and load sharing. Cisco BACC includes a central component called a regional distribution unit (RDU) to handle service requests and modifications. A single enterprise-class



RDU server in conjunction with the appropriate number of DPE groups can support as many as 20 million devices with a sustained rate of hundreds of thousands of new devices a day.

- *Integration with current systems*—Cisco BACC integrates with existing service provider systems, such as billing systems, operations support systems (OSSs), and other customer management systems through a Java provisioning application programming interface (API). It can also notify interested applications of certain events within the system through an event-notification registration procedure.
- *Extendable technology support*—Cisco BACC supports DOCSIS cable modems and set-top boxes for high speed data provisioning, PacketCable voice provisioning of media termination adapters (MTAs), Internet telephone cable modems (ITCMs), and fixed wireless modems, and it also can be extended to support other Dynamic Host Configuration Protocol (DHCP)-based devices, including non-DOCSIS cable modems.

Table 1 outlines the features and benefits of Cisco BACC.

Table 1 Cisco BACC Features and Benefits

Feature	Benefit
<b>Embedded high-performance data storage, optimized for device provisioning</b>	Ensures high-performance service request management and device provisioning and minimum service delay; no additional external database needed
<b>Integrated Kerberos Protocol server for PacketCable voice service provisioning</b>	Provides a single platform with all the necessary security components for PacketCable provisioning
<b>Java-based provisioning API</b>	Provides easy integration to customer OSS, billing, or workflow and mediation software
<b>Appliance-based distributed DPEs</b>	Offers true scalability with a simple way to extend provisioning to additional subscribers and new markets; dramatically simplifies capacity upgrade and maintenance costs and complexity
<b>Distributed architecture</b>	Offers true scalability, failover, and reliability and provides an easy way to manage a growing subscriber base while ensuring minimum subscriber service disruption
<b>Technology extensions</b>	Provides an easy means to extend this single platform to provision new devices and technologies to meet changing network and subscriber requirements
<b>PacketCable-compliant</b>	Supports PacketCable v1.0 for complete end-to-end IP voice service provisioning and meets all PacketCable security specifications
<b>DOCSIS 1.0 and 1.1 support</b>	Easily extends to take advantage of advance features of DOCSIS 1.1
<b>Dynamic DOCSIS file generation</b>	Offers a means to build unique DOCSIS files for individual subscriber devices to meet needs of tiered service provisioning and true IP voice requirements
<b>Simple Gateway Control Protocol (SGCP) support</b>	Provides a means to deploy voice services promptly
<b>Safe failover</b>	High uptime and service reliability through DPE and DHCP failover as well as TFTP redundancy



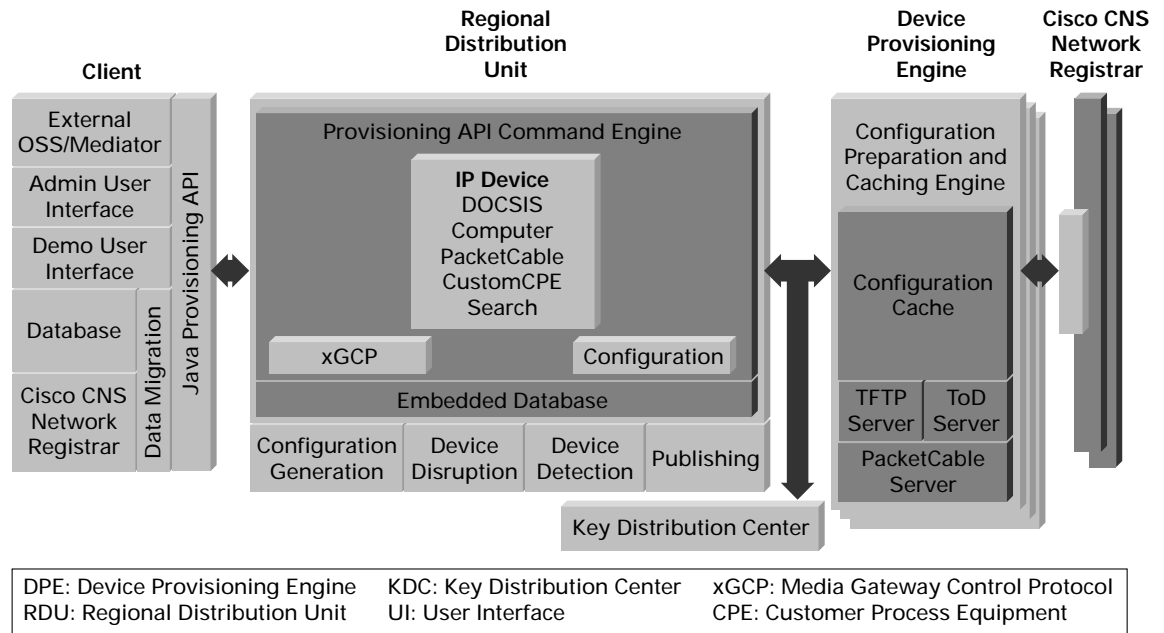
## Product Specifications

Cisco Broadband Access Center for Cable 2.5 uses a distributed architecture for provisioning services on broadband devices. Figure 1 illustrates the components of the Cisco BACC 2.5 solution, which include the following:

- *Provisioning API*—A flow-through provisioning interface used to integrate the Cisco BACC system with service providers' client programs, such as workflow applications and billing systems. Integration is implemented through a Java client library that service providers' client programs use to drive tiered-service selection and to trigger device activation on their networks. The client library reduces the need to develop integration code and facilitates integration with Web-based user interfaces.
- *Cisco Regional Distribution Unit (RDU)*—The primary server in the Cisco BACC system. It performs the following functions:
  - Manages the generation of all configurations
  - Maintains the authoritative database
  - Represents the central point through which all API requests must pass
  - Supports external clients, OSSs, and other provisioning functions through the provisioning API
- *Cisco DPE 590 Device Provisioning Engine*—The Cisco DPE 590 server that manages device configurations and which also contains TFTP and ToD servers. The Cisco DPE 590 manages the following:
  - Last-step, device-configuration, file handling
  - Communication of the configuration files through an embedded TFTP server
  - Embedded ToD server
  - Integration with Cisco CNS Network Registrar<sup>®</sup>
  - Cached-device configuration and provisioning information
- *Cisco CNS Network Registrar*—A software product that includes the protocol servers to provide IP addresses, configuration parameters, and Domain Name System (DNS) names to devices, based on network and service policies. Cisco BACC relies upon the Cisco CNS Network Registrar DHCP server for IP address assignment, DNS, device detection, and load distribution among Cisco DPE servers.



Figure 1  
Cisco BACC Architecture



### Platform Support and System Requirements

The Cisco BACC RDU component is supported on the Sun Solaris 8 operating system. The Cisco DPE component is a self-contained Cisco appliance. The minimum recommended configuration of the Cisco BACC RDU installation is a SunE280R Class workstation with 1 GB of RAM and an 18-GB hard drive. This will support up to 500,000 devices. Cisco Network Registrar will require a Sun Netra T-1 workstation with 512 MB of RAM and a 5-GB hard drive. For current Solaris-based network management product hardware requirements, refer to the [Cisco/Sun Hardware Platform Recommendation](#) Table for hardware and part numbering ordering information.

### For More Information

For more information about Cisco BACC, please visit the Network Management section of Cisco.com at:

<http://www.cisco.com>

or contact your Cisco account manager.



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