Cisco Broadband Access Center 4.1

Simplifies Service Activation and Management

Product Overview

Cisco® Broadband Access Center (BAC) is a comprehensive network management solution that reduces time to market for new services and accelerates revenue. BAC simplifies service activation and management and allows providers to:

- **Automate configuration, provisioning, and management:** Operators can easily roll out and manage network devices with flexible provisioning options for data, voice, and video applications over cable, IP, and mobile networks.
- **Scale to virtually any size network:** Deployable in any size network, BAC has more than 60 million pieces of customer premises equipment under management today.
- **Lower operating expenses (OpEx):** Increases operator efficiency and reduces network management problems.

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

- **Preprovisioning:** Devices are assigned to subscribers and recorded in advance in the provisioning application. When subscribers plug them in, Cisco BAC 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. Subscribers are required to register for service before Cisco BAC configures the device and activates the service.

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

- **Reliability:** Cisco BAC provides high reliability and high availability, 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 BAC provides continued service to existing registered subscribers.
- **Scalability and performance:** Cisco BAC can support up to 60 million devices in distributed deployments. Cisco BAC uses multiple distributed device management and caching engines to balance processing of device requests. A single DPE can support as many as 2 million devices. These DPEs can be combined in groups to provide redundancy, load sharing, and disaster recovery. Cisco BAC includes a central component called a regional distribution unit (RDU) to manage service requests and modifications. A single RDU server in conjunction with the appropriate number of DPE groups can support as many as 60 million devices with a sustained rate of hundreds of thousands of new devices a day.

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

Key Features and Benefits

Table 1 outlines the features and benefits of Cisco BAC.

Table 1. Cisco Broadband Access Center Features and Benefits

Feature	Benefit
DOCSIS 3.0 and IPv6 support	DOCSIS 3.0 channel bonding allows increased data speed for subscribers. Support for IPv4 and IPv6 cable modems and IPv4/IPv6 mixed device environment.
Distributed architecture with high availability and disaster recovery	Offers true scalability, failover, and high reliability to manage a growing subscriber base while helping to ensure minimum subscriber service disruption. Allows a simple way to extend provisioning to additional subscribers and new markets; dramatically simplifies capacity upgrade and maintenance costs and complexity. Distributed provisioning engines allow you to put them in different datacenters for disaster recovery.
Integrated Kerberos Protocol server (KDC) for PacketCable voice service provisioning	Provides a single platform with all the necessary security components for PacketCable provisioning.
Java-based provisioning API	Provides easy integration to customer OSS, billing, or workflow and mediation software.
Scripting Interface with templates	Templates offer an easy way for reducing the number of configuration files and decreasing operational costs. Scripting interface with templates allows more flexibility for managing templates parameters and an automated way for deploying templates.
Technology extensions	Provides an easy means to extend this single platform to provision new devices and technologies to meet changing network and subscriber requirements.
PacketCable compliant	Supports PacketCable 1.0, 1.1, and 1.5 for complete end-to-end IP voice service provisioning and meets all PacketCable security specifications.
Dynamic DOCSIS file generation	Offers a means to build unique DOCSIS files for individual subscriber devices to meet needs of tiered service provisioning and true IP voice requirements.
Safe failover	High uptime and service reliability through DPE and DHCP failover as well as TFTP redundancy.

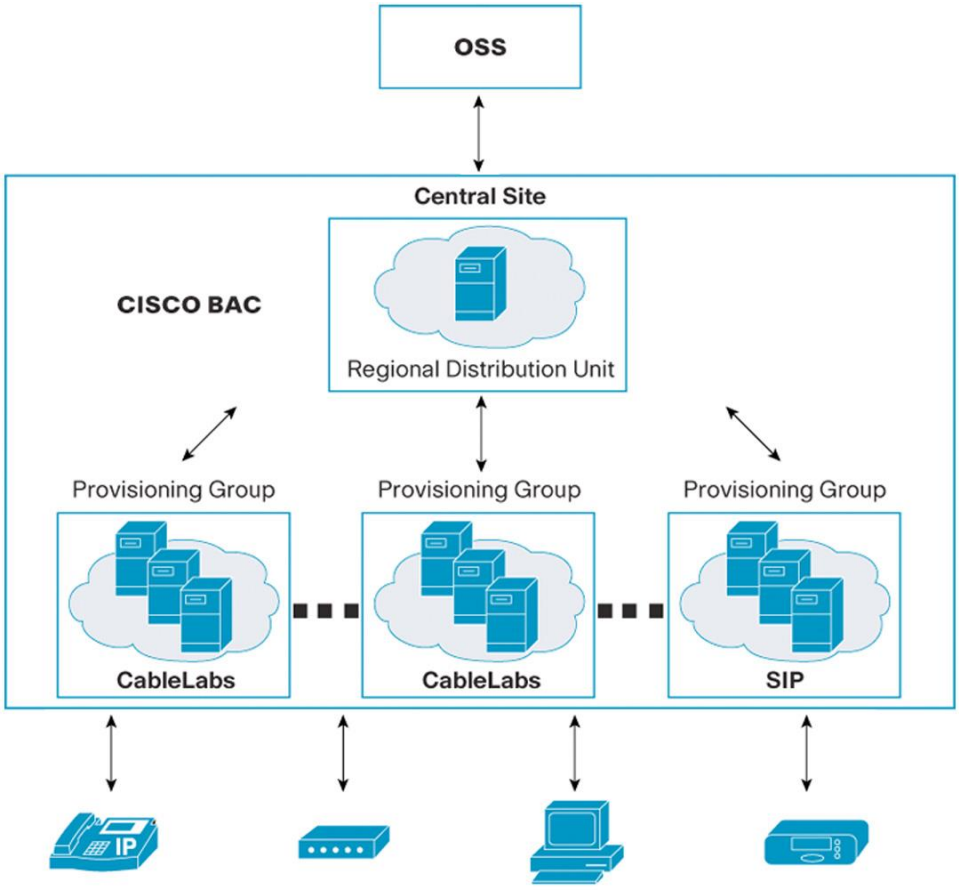
Product Specifications

Cisco Broadband Access Center 4.1 uses a distributed architecture for provisioning services on broadband devices. Figure 1 illustrates the components of the Cisco BAC 4.1 solution, which include the following:

- **Provisioning API:** A flow-through provisioning interface used to integrate the Cisco BAC 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.
- **RDU:** The primary server in the Cisco BAC 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

- **DPE:** The Cisco DPE server that manages device configurations and that also contains TFTP and ToD servers. The Cisco DPE 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 Network Registrar (CNR)
  - Cached-device configuration and provisioning information
- **Cisco Network Registrar (CNR):** 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 BAC relies upon the CNR DHCP server for IP address assignment, DNS, device detection, and load distribution among Cisco DPE servers.

Figure 1. Cisco BAC Architecture



Platform Support and System Requirements

The Cisco BAC RDU, DPE, KDC, and CNR components are supported on the Sun Solaris 10 operating systems based on SPARC architecture.

Starting with Cisco BAC 4.1, Cisco BAC provisioning group components - BAC DPE, CNR DHCP, and CNR DNS are also supported on Red Hat Enterprise Linux 5 and above. These systems have been tested on Cisco Unified Computing System (UCS).

For More Information

For additional product information, visit http://www.cisco.com/en/US/products/sw/netmgtsw/ps529/index.html or contact your local account representative.

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