

Cisco Broadband Wireless Gateway

Cisco® announces the availability of the Cisco Broadband Wireless Gateway (BWG) for the Cisco 7600 Series Routers and the Cisco 7301 Router. The Cisco Broadband Wireless Gateway delivers best-in-class functionality, service control, and performance in a highly scalable, fault-tolerant package for the emerging WiMAX-based broadband wireless solution. Available for order now, the Cisco Broadband Wireless Gateway uses the high-capacity parallel processing of the Cisco Service Application Module for IP (SAMI) to enable the delivery of broadband wireless at access speeds previously only available with wireline access networks.

As the edge aggregation device in the IP end-to-end WiMAX network, the Cisco Broadband Wireless Gateway is an essential network element for service providers focused on implementing an open IP architecture in a multivendor WiMAX environment. The Cisco Broadband Wireless Gateway builds on proven and market-leading Cisco IP technology to aggregate subscriber connections serviced by WiMAX base stations. It also provides authentication and mobility management, Mobile IP foreign agent services, key distribution, and quality-of-service (QoS) functionality.

WiMAX End-to-End Reference Model

Figure 1 shows the WiMAX end-to-end Reference Model as defined by the WiMAX Forum's Network Working Group. It consists of the following logical entities: Mobile Subscriber Station (MSS), Access Service Network (ASN), and Core Service Network (CSN). Further ASN decomposition is shown in Figure 2. The Network Reference Model (NRM) is a logical representation of the network architecture. The NRM identifies functional entities, and reference points over which interoperability may be achieved between functional entities.

Figure 1. WiMAX End-to-End Reference Model

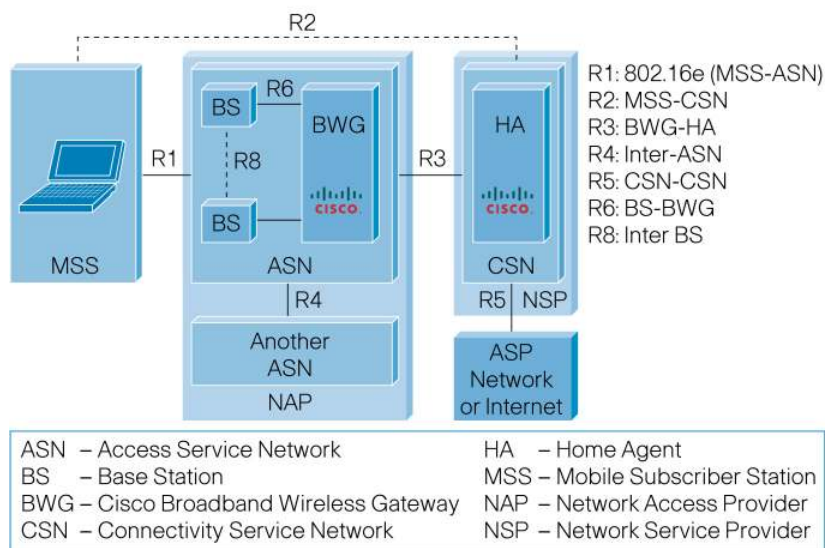
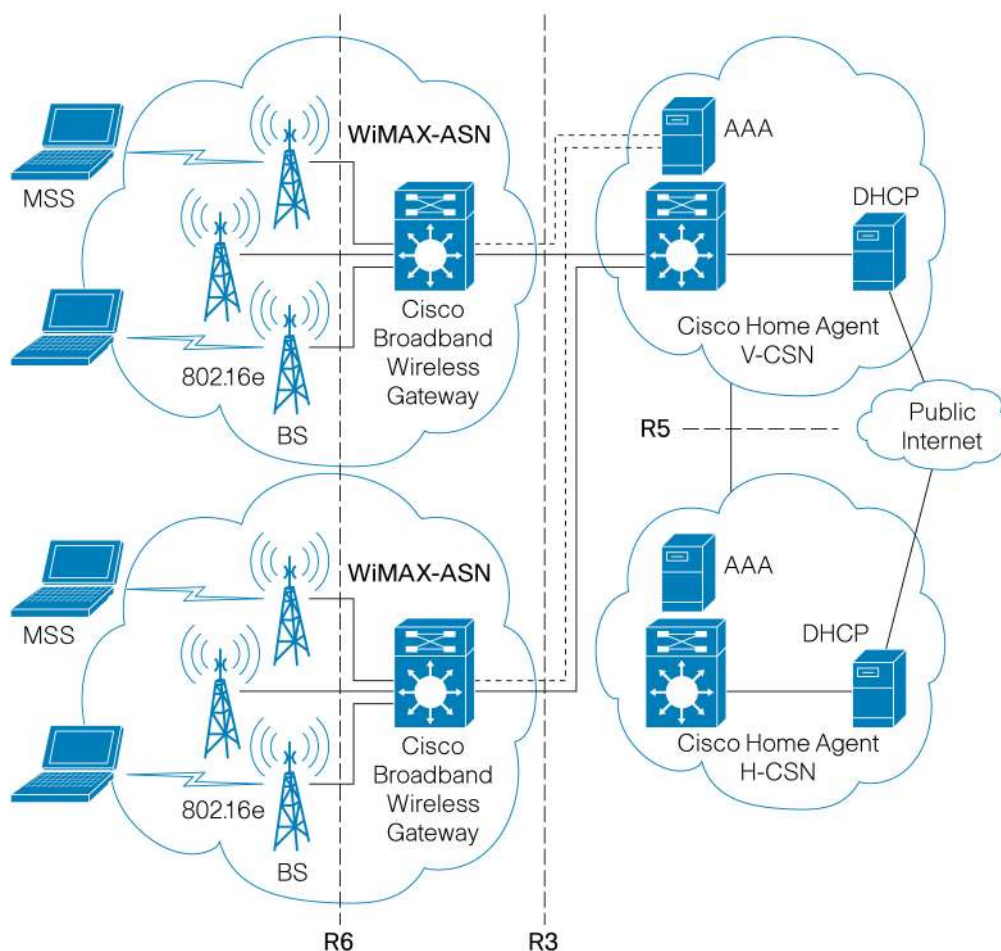


Figure 2. WiMAX Access Service Network

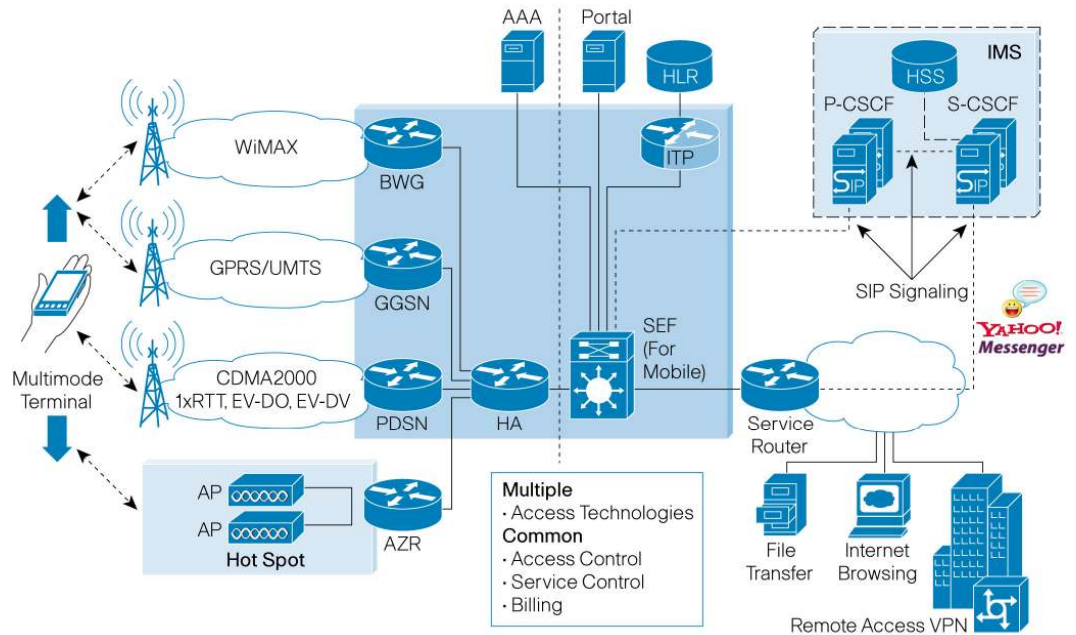
Cisco Service Exchange Framework

The Cisco Broadband Wireless Gateway is part of the Cisco Service Exchange Framework (SEF), an open platform that can readily interface to all the control elements in a mobile network, including multiple radio access networks (RANs), back-end billing systems, and content filtering and compression solutions. With more than 100 mobile operators worldwide having deployed Cisco SEF, Cisco has already demonstrated its commitment to the compatibility of its SEF platform with major RANs; authentication, authorization, and accounting (AAA); content billing; content filtering; compression solutions; and gateways, relieving service providers of the need to dedicate resources to ensure a smooth deployment. Cisco continuously applies customer feedback to add valuable new features, maintaining the innovation and cost-effectiveness of its SEF platform.

Cisco's strong partnerships with SEF billing and mediation, filtering, and now WiMAX radio vendors allows it to provide end-to-end SEF solutions. With SEF, the Cisco Broadband Wireless Gateway delivers the service and subscriber awareness, along with performance and scaling, which are essential to the high-capacity aggregation WiMAX environment. In addition, the Cisco Broadband Wireless Gateway provides implementation flexibility for cost-effective delivery of broadband wireless services – thereby enabling increased customer loyalty and new revenue streams.

The cornerstone of the Cisco offering is the Mobile SEF architecture (Figure 3). The Cisco Mobile SEF supports service access control, deep packet inspection, Mobile IP, security, and packet gateways for each of the major radio technologies. Packet gateway options include the Cisco Packet Data Serving Node (PDSN) for CDMA, Cisco Gateway GPRS Support Node (GGSN) for GSM/UMTS, and Cisco Broadband Wireless Gateway for WiMAX deployments. The home agent is used as an anchor point to provide easy mobility across access technologies.

Figure 3. Cisco Service Exchange Framework for Mobile Networks



Cisco Broadband Wireless Gateway Features and Benefits

The Cisco Broadband Wireless Gateway provides subscriber and base station aggregation to facilitate the delivery of IP end-to-end high-speed broadband services to mobile subscribers using WiMAX (IEEE 802.16-2005). The Cisco Broadband Wireless Gateway provides WiMAX standards-based R3 protocol (Cisco Broadband Wireless Gateway/home agent) and R6 protocol (Base Station/Cisco Broadband Wireless Gateway), which are essential to implementing an open IP architecture in a multivendor WiMAX environment.

In addition to aggregating subscriber connections serviced by WiMAX base stations, the Cisco Broadband Wireless Gateway provides authentication and mobility management, Mobile IP foreign agent services, key distribution, and QoS functionality. The Cisco Broadband Wireless Gateway enables subscriber roaming and VPN services to deliver the flexible service environment needed by enterprises and service providers.

Features

- Authentication, security, and authorization architecture
 - Extensible Authentication Protocol (EAP)
 - Content caching
 - Address allocation – Dynamic Host Configuration Protocol (DHCP)
- VPN
 - Virtual Route Forwarding (VRF): 802.1q, Generic Routing Encapsulation (GRE), Multiprotocol Label Switching (MPLS), IP Security (IPsec)
 - VPN connectivity
 - Network access provider (NAP) sharing
 - Overlapping address support
 - Multiple hosts
- Mobility
 - Foreign agent
 - Inter-base-station mobility
- QoS
 - Marking
 - Policing
 - Classifier support
- Accounting
 - Start/stop/interim accounting
 - Per-service flows
 - Enhanced charging
 - Prepaid service
- Redundancy
 - Intrachassis
 - Interchassis

- Platforms
 - Cisco 7600 Series Routers with SAMI
 - Cisco 7301 Router

Benefits

The Cisco Broadband Wireless Gateway provides the following benefits:

- Supports fixed and mobile WiMAX
- Supports WiMAX Forum open R6 interface
- Offers multiplatform support to address different deployment scenarios
 - Cisco Broadband Wireless Gateway-based SAMI for Cisco 7600 Series
 - Highly scalable carrier-class solution
 - 4-, 6-, 9-, and 13-slot chassis options
 - Ethernet switching and routing
 - Support for multiple interface and service modules
 - Cisco Broadband Wireless Gateway-based Cisco 7301 Router

The Cisco Broadband Wireless Gateway delivers a robust and proven approach that has been used to support a variety of different applications in the mobile space:

- Cisco Mobile Wireless Transport Manager
- Cisco AAA

Configuration and Performance

SAMI (with Cisco 7600 Series)

- Up to 500 base stations/sectors per module
- Subscribers per module
 - Up to 100,000 connected
 - Up to 30,000 active
- Four bidirectional service flows per WiMAX customer premises equipment (CPE) device
 - Up to 400,000 connected
 - Up to 120,000 active
- Up to nine Cisco Broadband Wireless Gateways can be installed in a Cisco 7600 Series Router
- Up to 5 Gbps

Cisco 7301 Router

- Up to 50 base stations/sectors per module
- Subscribers per module
 - Up to 5000 connected
 - Up to 1000 active

- Four bidirectional service flows per WiMAX CPE device
 - Up to 20,000 connected
 - Up to 4000 active
- Up to 200 Mbps

Cisco 7600 Series Platform Requirements

- All Cisco 7600 Series chassis are supported: Cisco 7604, 7606, 7609, and 7613, with a minimum Cisco IOS[®] Software release requirement of 12.2(33)SRB1
- Cisco Broadband Wireless Gateway features are supported on the SAMI service module with a minimum Cisco IOS Software release requirement of 12.4(15)XL
- Supported supervisor engines are: Cisco 7600 Series Supervisor Engine 720-3BXL at first customer shipment (FCS)
- Single or redundant supervisor engine configurations are permitted
- No restriction on other cards (such as service and network modules) on the chassis

Cisco Mobile Wireless Transport Manager

Cisco Mobile Wireless Transport Manager (MWTM) provides monitoring and management capabilities to the Cisco Broadband Wireless Gateway solution. Cisco MWTM addresses the element-management requirements of mobile operators and provides fault, performance, configuration, and troubleshooting capability as mobile operators make the transition from first-generation fixed, leased-line networks to a converged IP-based infrastructure.

Features

- Support for Cisco Broadband Wireless Gateway for Cisco 7600 Series and Cisco 7301
- Event monitoring
- Wizard-based provisioning
- Performance reporting
- Autodiscovery
- Troubleshooting
- OSS integration
- Security
- Client/server architecture

Cisco AAA

Cisco Access Registrar[®] is the flagship Cisco RADIUS AAA server for the service provider market. It supports Extensible Authentication Protocol (EAP), which is the authentication method used in WiMAX. Cisco Access Registrar helps service providers to deploy access services by centralizing AAA information and simplifying provisioning and management. Cisco Access Registrar is a standards-based RADIUS and proxy RADIUS server designed for high performance, extensibility, and integration with external data stores and systems. Cisco Access Registrar has been widely deployed by a number of service providers over the years that are looking for a high-performing and extensible AAA server for their mobile wireless, public WLAN, broadband, dial, and VoIP services. Cisco Access Registrar 4.1 introduces a number of enhancements that can benefit current and potential customers of Cisco Access Registrar.

Cisco Network Registrar

Cisco Network Registrar[®] is an IP address management application that eases the task of administering Domain Name System (DNS) and DHCP services. Cisco Network Registrar includes a standards-compliant DNS server that offers a highly advanced feature set including support for incremental zone transfers, and dynamic updates and notifications. To secure DNS services, Cisco Network Registrar supports transactional signature (TSIG) to authenticate DNS zone transfer and update requests. Cisco Network Registrar DHCP server offers DHCP Safe Failover with redundant DHCP servers, dynamic DNS updates, and integration with directory services using LDAPv3. Moreover, tight integration with Cisco IOS devices further elevates the value of a Cisco network solution. The scalability and the rich and intelligent features set of Cisco Network Registrar help service providers expedite service activation, enable policy-based IP address allocation, and handle the network growth as business expands.

Ordering Information

Table 1 lists the product numbers for the Cisco Broadband Wireless Gateway software licenses and SAMI hardware. The software license provides for unlimited use of features in the release with a defined number of connected subscribers, which may be limited by hardware resource capacity and traffic mix. The Cisco Broadband Wireless Gateway subscriber license allows for increasing the number of connected subscribers in increments of 10,000 connected subscribers.

Table 1. Cisco Broadband Wireless Gateway Ordering Information for Cisco 7600 Series Routers

| Product Number | Description |
|--------------------------|--|
| SAMI Module | |
| WS-SVC-SAMI-BB-K9 | Service Application Module for IP 6 x PPCs with 1GB (Crypto) |
| WS-SVC-SAMI-BB-K9= | Service Application Module for IP 6 x PPCs with 1GB Spare (Crypto) |
| Software Licenses | |
| SSAA10K9-12415XL | SAMI BWG Software License Release 1.0 Crypto – RTU (Right To Use) |
| SSAA10K9-12415XL= | SAMI BWG Software License Release 1.0 Crypto – RTU (spare) |
| FL-SB-10K-SUB | Cisco BWG 10K Connected Subscribers SAMI |
| FL-SB-10K-SUB= | Cisco BWG 10K Connected Subscribers SAMI (spare) |

Table 2 lists the product numbers for the Cisco Broadband Wireless Gateway software licenses and Cisco 7301 hardware. The software license provides for unlimited use of features in the release with up to 5000 connected subscribers, which may be limited by hardware resource capacity and traffic mix.

Table 2. Cisco Broadband Wireless Gateway Ordering Information for Cisco 7301 Router

| Product Number | Description |
|--------------------------|---|
| Cisco 7301 Series | |
| CISCO7301 | Cisco 7301 chassis, 256MB memory, A/C power, 64MB Flash |
| Software Licenses | |
| S73A10-12415XL | 7301 BWG Software License Release 1.0 Crypto – 5K Connected Subscribers |
| S73A10-12415XL= | 7301 BWG Software License Release 1.0 Crypto – 5K Connected Subscribers (spare) |

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 your 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](#).

Additional Information

For more information about SAMI, please refer to the SAMI data sheet:

www.cisco.com/en/US/products/hw/routers/ps368/products_data_sheet0900aecd8067f164.html

For more information about Cisco Mobile Wireless Transport Manager, visit:

www.cisco.com/go/mwmtm

For more information about Cisco AAA and Cisco Network Registrar, visit:

www.cisco.com/en/US/products/sw/netmgtsw/ps1982/tsd_products_support_series_home.html

and www.cisco.com/en/US/products/sw/netmgtsw/ps411/tsd_products_support_series_home.html

For more information about Cisco mobile wireless products and solutions, visit:

www.cisco.com/go/mobile

For more information about Mobile Wireless Center for Cisco Service Exchange Framework, visit

www.cisco.com/en/US/products/hw/wireless/index.html or contact your Cisco account manager.



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