
Cisco Gateway GPRS Support Node Release 7.0 Data Sheet

Product Overview

The Cisco® Gateway GPRS Support Node (GGSN) is a high-performance data gateway enabling advanced wireless data service for mobile wireless Service Providers. The Cisco enhanced GGSN is a scalable, high-performance, resilient system build on industry-leading Cisco 7600 Edge Router platform and Cisco Internetworking Operation System (IOS).

On top of the 3GPP GGSN functionality the Cisco GGSN provides advanced Service Awareness, QoS, Policy Control and versatile billing capabilities to provide carrier-class access to Consumer Multimedia Services as well as secured access to Corporate Services.

The Cisco GGSN is part of the Cisco Mobile Service Exchange Framework (mSEF). Cisco Mobile Service Exchange Framework offers mobile operators a complete solution for connectivity, control, and charging.



Features and Benefits

Cisco GGSN 7.0 supports the entire feature set supported in GGSN 6.0 and previous versions with the addition of the following key features:

- **IPv6 support** for user traffic, allowing operators to benefit from IPv6 enhancements and start deploying next-generation services and applications. The GGSN 7.0 IPv6 feature set combines industry leading Cisco IOS IPv6 feature set with 3GPP standards requirement.

- **APN-aware load-balancing.** This feature allows the mobile operators to customize the APN distribution and the associated resources. Adequate APN distributions is essential to optimize the resources when a large number of APNs are used (i.e. thousands of corporate APNs)
- **Roaming and Radio Access technology triggers** for service based billing. These enhancements allow service based billing (prepaid and postpaid) to contain roaming and Radio Access Technology changes.
- **IP address management enhancement.** The local IP address assignment mechanism is enhanced with a hold back timer to better control IP address allocation/release.

Table 1 Cisco GGSN Features

Cisco GGSN Highlights	
<p>Platform:</p> <p>Industry Leading high end 7600 series Edge platform</p> <p>Scalability from 4 to 13 slots</p> <p>Up to 720 Gbps backplane capacity</p> <p>High-availability with stateful failover</p> <p>Redundant AC or DC power</p>	<p>GGSN Features</p> <p>GTPv0 and GTPv1 support</p> <p>3GPP compliant interfaces: Gn, Ga, Gi, Gp</p> <p>IPv4, IPv6 and PPP PDP type</p> <p>Transparent, non transparent and anonymous access</p>
<p>Modules</p> <p>Dual Routing/Switching engine with HW assist forwarding, routing, QoS, security functions</p> <p>Redundant multi-processors GGSN and CSG modules</p> <p>Security Modules (IPsec, Firewall)</p> <p>Widest range of interface modules for LAN, WAN connectivity</p>	<p>Quality Of Service</p> <p>UMTS QoS support</p> <p>Diffserv marking</p> <p>Secondary PDP context support</p> <p>Per APN Call-Admission control</p> <p>Per APN/Per PDP Context Traffic Policing</p>
<p>APN Features</p> <p>Per-APN and per-customer routing tables</p> <p>Highly customizable APN settings</p> <p>Virtual APN (Single APN) capability</p> <p>RADIUS-based (dynamic) per-user APN assignment</p> <p>Highly scalable APN solution</p>	<p>Service Control within Single APN or Multi-APN</p> <p>Service-based forwarding</p> <p>Advanced Service charging</p> <p>Protocol-aware event differentiation for WAP1, WAP2, Streaming (RTSP), Email (POP3, IMAP, SMTP), iMode, HTTP, and FTP.</p>
<p>VPN and Corporate access</p>	<p>Service charging based on Event, Volume, or</p>

<p>Overlapping address and APN tot VRF binding support</p> <p>Per APN/VRF routing protocol support</p> <p>GRE VPN</p> <p>PPP-regeneration and L2TP for L2TP access with IPv4 PDP context</p> <p>Routing Behind MS for EDGE/GPRS/UMTS CPE</p> <p>VLAN (802.1q) VPN</p> <p>IPsev VPN</p> <p>MPLS VPN</p> <p>Highly scalable APN solution</p>	<p>Duration</p> <p>Generation of standart G-CDR and Service /Event/Content CDR</p> <p>Ga/GTP' support compliant to 3GPP</p> <p>Volume/Time Roaming/QoS/Location trigger</p> <p>DCCA-based dynamic control, prepaid quota management, and reporting</p> <p>Per-user billing plans and service control</p> <p>User-messaging support (via redirection) for Account Top-Up, Advice of Charge, etc</p> <p>Connection time expiration</p> <p>Forced user disconnection</p> <p>Service-level or Transaction-level CDR reporting</p> <p>Automatic event failure refunding</p> <p>Time-based tariff change</p> <p>Quota pullback</p>
<p>Flexible Service classification for Access Control, Pre-paid and Post-paid charging</p> <p>URL Regex match</p> <p>HTTP (and WAP2) Header match</p> <p>Server address mapping</p> <p>Netmask mapping</p>	<p>IMS (IP Multimedia Support)</p> <p>IPv6 PDP support</p> <p>P-CSCF discovery for IPv4 and IPv6</p> <p>Enhanced QoS features</p>
<p>IP address management</p> <p>Static address (provisioned in HLR)</p> <p>Local address pools</p> <p>Remote allocation via RADIUS or DHCP</p> <p>Stateless auto-configuration for IPv6</p> <p>Overlapping address support</p>	<p>Availability</p> <p>PDP context stateful failover</p> <p>Routing/Switching Engine stateful failover</p> <p>Online Insertion and Removal of Supervisor and Application Modules</p> <p>99.999% availability</p>
<p>Security</p> <p>RADIUS Authentication</p> <p>Traffic separation (Gn, Gi, Ga, etc.)</p> <p>Anti-spoofing</p>	<p>Management</p> <p>Standard MIB and SNMP support</p> <p>Maintenance mode</p> <p>Enhanced Software Upgrade</p>

Traffic redirection Per APN Packet Filtering for IPv4 and IPv6 Content Filtering	Domain-level management including provisioning, fault, and performance mediation application with Cisco Mobile Wireless Center
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GGSN Architecture

The Cisco GGSN uses the Cisco 7600 platform with the GGSN application hosted on the Multi-Processor WAN Application Module (MWAM).

The Cisco MWAM is a Cisco IOS Software application module that can be installed a Cisco 7600 Series routers (Figure 1). The module runs multiple instances of a Cisco IOS application such as the Cisco GGSN. The Cisco MWAM card is required to run the GGSN application in a Cisco 7600 Series chassis. Cisco GGSN Release 7.0 is supported only on the Cisco MWAM-1G.

Figure 1 Cisco MWAM Card



The Cisco 7600 series ranges from 4 to 13 slots allowing a scalable system starting with one GGSN processors to a multi-card multi processor system. Moreover other Application or Service module can be added for Content Inspection/Billing, Content Filtering, Firewall, Security, Storage, etc.

For more details on MWAM go to http://www.cisco.com/en/US/prod/collateral/modules/ps5510/product_data_sheet0900aecd800f8965.html

Product Specifications

Table 2 GGSN Product Specifications

Product compatibility	Full Gateway GPRS Support Node as defined in 3GPP standards
Protocols	GTP, IPv4, IPv6, GTP', RADIUS, Diameter CC
Components	Cisco 7600, Supervisor Engine 720 or 32, MWAM and optional Line Cards or Service Module
Cards/ports/slots	See Cisco 7600 series for details on all the different configurations http://www.cisco.com/go/7600
Connectivity	Wide range of LAN and WAN interfaces supported in the Cisco 7600 platform
Performance	From 10,000 to 1.2M PDP context and 2 Gbps of Data Throughput
Reliability and availability	Full stateful failover, carrier-grade system and 99.999% availability
Network management	Fault/Performance management and Service Provisioning with Cisco Mobilw Wireless Center for GGSN (http://www.cisco.com/go/mwc-cmx)
Physical dimensions (HxWxD)	Depends on the 7600 router mode, for details on 7600 dimensions see http://www.cisco.com/go/7600
Power	AC/DC power
Approvals and compliance	See Cisco 7600 description http://www.cisco.com/go/7600

Ordering Information

The Table below describes the GGSN 7.0 specific product for ordering purposes. For details on GGSN ordering got to http://www.cisco.com/en/US/products/sw/wirelssw/ps873/prod_bulletins_list.html.

The Cisco GGSN software has two license types available, Premium and Basic. GGSN Basic features generally include those features used in 2G networks (e.g. GSM/GPRS/EDGE). Whereas the GGSN Premium license supports those features required in 3G networks (e.g. UMTS/HSDPA). For a complete listing on a feature by feature basis, please visit http://www.cisco.com/en/US/products/sw/wirelssw/ps873/prod_bulletins_list.html.

To place an order, visit the Cisco Ordering Home Page. To download software, visit the Cisco Software Center.

Table 4 Ordering Information

Product Name	Part Number
Cisco GGSN 7.0 Premium - MWAM	SC-SVC-GG70P
Cisco GGSN 7.0 Premium - Single Image	SC-SVC-GG70PIM
Cisco GGSN 7.0 Basic - MWAM	SC-SVC-GG70B
Cisco GGSN 7.0 Basic - Single Image	SC-SVC-GG70BIM
Cisco GGSN 7.0 IPv6 Feature License - Single Image	FL-IPV6-GG70P
Cisco GGSN 7.0 IPv6 Feature License - Premium Bundle	FL-IPV6-GG70PB
Cisco GGSN 7.0 Premium Upgrade - MWAM	SC-SVC-GG70P-U=
Cisco GGSN 7.0 Premium Upgrade - Single Image	SC-SVC-GG70PIM-U=
Cisco GGSN 7.0 Basic Upgrade - MWAM	SC-SVC-GG70B-U=
Cisco GGSN 7.0 Basic Upgrade - Single Image	SC-SVC-GG70BIM-U=
Cisco GGSN 7.0 Basic to Premium Upgrade - MWAM	SC-SVC-GG70B2P=
Cisco GGSN 7.0 Basic to Premium Upgrade - Single Image	SC-SVC-GG70B2PIM=
Cisco GGSN 7.0 Premium Bundle Upgrade - IPv4 and IPv6	SC-SVC-GG70PB6-U=
Cisco GGSN 7.0 Premium - MWAM	SC-SVC-GG70P=
Cisco GGSN 7.0 Premium - Single Image	SC-SVC-GG70PIM=
Cisco GGSN 7.0 Basic - MWAM	SC-SVC-GG70B=
Cisco GGSN 7.0 Basic - Single Image	SC-SVC-GG70BIM=
Cisco GGSN 7.0 IPv6 Feature License - MWAM	FL-IPV6-GG70P=
Cisco GGSN 7.0 IPv6 Feature License - Single Image	FL-IPV6-GG70PIM=
Cisco GGSN 7.0 IPv6 Feature License - Premium Bundle	FL-IPV6-GG70PB=

Note: the Cisco 7600 chassis and MWAM needs to be ordered separately

Service and Support

Cisco Systems is unmatched in the breadth and depth of its access to resources, shared intellectual capital, and leading data and telecommunications products and expertise. This combination helps Cisco provide the highest quality available in carrier-class support, solutions, and vision for its service provider customers. Cisco service and support solutions enhance the value of your investment in your network infrastructure, resulting in an overall reduced cost of doing business. Now, with the backing of world-class support and service, you can deliver fully on the promise of internetworking technology..

For More Information

For more information about Cisco GGSN, go to <http://www.cisco.com/go/ggsn>.

For more information on Cisco Products and Solutions for Mobile Service Provider got to <http://www.cisco.com/go/mobile>.

