

Cisco GGSN Gateway GPRS Support Node: Connectivity for the UMTS/HSPA Packet Core

Mobile subscribers want access to email, the Internet, mobile TV, video on demand, instant messaging, and other multimedia services through a mobile broadband connection.

This requires mobile operators to deploy a robust, scalable packet core network capable of processing massive amounts of throughput with exceptional reliability and availability.

Cisco GGSN Gateway GPRS Support Node has become the choice for many of the world's most innovative 3rd Generation Partnership Project (3GPP) network operators deploying GSM, Universal Mobile Telecommunications Service (UMTS), and High Speed Packet Access (HSPA) networks. Supported on the Cisco® ASR 5000, the GGSN delivers exceptional throughput, call transaction rates, and packet processing, along with significant memory resources. With its subscriber and network intelligence, reliability, and availability, the GGSN allows mobile operators to focus on building high-margin revenue streams without worrying about the packet core.

Cisco's GGSN acts as the gateway between the packet core and the external packet- or IP-based network, such as the Internet. Located at the heart of the mobile packet core network, the GGSN plays a critical role in policy enforcement, network protection, security, quality of service (QoS) enforcement, and interaction with charging and billing systems. It can also be combined with Cisco SGSN Serving GPRS Support Node on a single platform to maximize efficiency and flexibility, reduce latency, and simplify network architecture.

Network Migration

Cisco's GGSN supports major standards for deployment in GPRS/EDGE/UMTS/WCDMA/HSPA networks. With simple software upgrades, Cisco's GGSN can support present and future 3GPP technologies to protect your investments as your network evolves to support Long Term Evolution (LTE)/Evolved Packet Core (EPC) and multi-access requirements (Wi-Fi, femtocell, etc.).

In-line Services

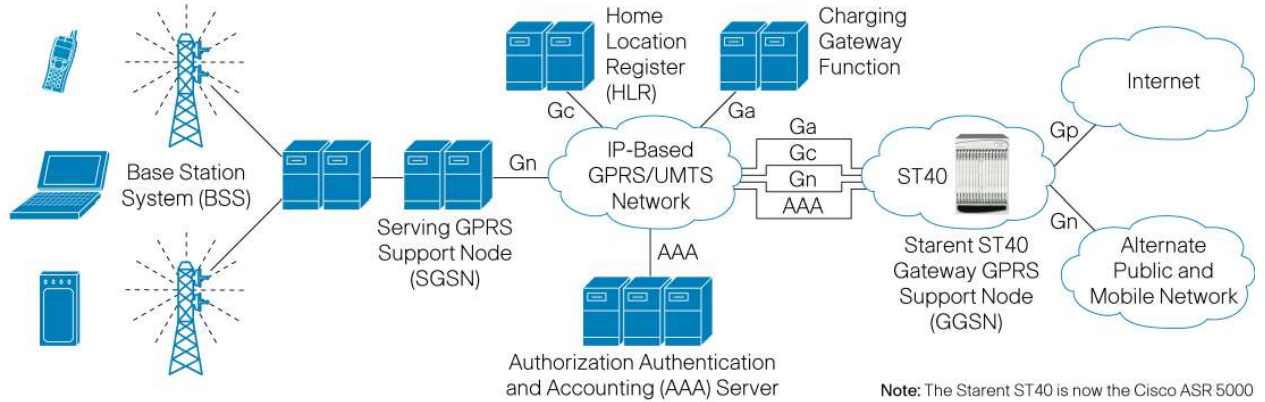
The Cisco ASR 5000 platform features the unique capability to deploy services "in-line," meaning the services are integrated into the bearer traffic plane at the edge of the packet core network. This capability provides in-depth session awareness that allows network management on a per-subscriber basis and deployment of content-aware applications. Tasks are performed without introducing latency, session interruption, or other kinds of signal degradation.

Cisco's In-line Services use deep packet inspection and intelligent traffic steering to offer the following:

- Enhanced traffic monitoring, metering, and charging (interaction with standard RADIUS and GPRS Tunneling Protocol [GTP] charging and billing systems)
- Application detection and optimization for peer-to-peer (P2P) detection and control
- Network-based traffic optimization to achieve QoS based on volume, usage, time-of-day, and traffic type
- Stateful firewall
- Content filtering for parental control, black/white listing

Figure 1 shows how Cisco's GGSN delivers enhanced voice, data, and multimedia services for GPRS/UMTS networks.

Figure 1. Cisco GGSN as the Service Delivery Gateway



Features and Benefits

- In-depth session awareness allows network management on per-subscriber basis and deployment of content-aware applications
- Interaction with standard RADIUS and GTP charging and billing systems
- Intelligence features perform tasks without introducing latency, session interruption, or other kinds of signal degradation
- Can be combined with SGSN on a single platform to maximize efficiency and flexibility, reduce latency, and simplify network architecture
- High-value In-line Services increase revenue opportunities and network efficiency

Table 1. GGSN Features

Description	Specification
Interfaces	<ul style="list-style-type: none"> • Gigabit Ethernet • Fast Ethernet
Authentication, authorization, and accounting	<ul style="list-style-type: none"> • RADIUS authentication • RADIUS and GPRS Transparent Tunneling Protocol (GTP) accounting
Connectivity	<ul style="list-style-type: none"> • Secondary Packet Data Protocol (PDP) context support • Network-initiated PDP context activation (PDP type IP only) • HSDPA support to 16 Mbps • 3GPP Gy Diameter credit control application interface • 3GPP R7 Gx+ policy interface
IP address allocation	<ul style="list-style-type: none"> • Local pools • Dynamic Host Configuration Protocol (DHCP) • RADIUS • GTP support • GTP v0 and v1 • GTP v0 to v1 fall back/fall forward conversion • GTP' v1 and v2

Description	Specification
VPN and tunneling	<ul style="list-style-type: none"> • Multiple virtual router support • IPsec • L2TP Access Concentrator (LAC) and L2TP Network Server (LNS) • PPP regeneration: PDP type IP sessions into Layer 2 Tunneling Protocol (L2TP) tunnel • IP-in-IP tunneling • Generic routing encapsulation (GRE) tunneling • 802.1q VLANs
Routing	<ul style="list-style-type: none"> • Routing Information Protocol (RIP) • Open Shortest Path First (OSPF) • Border Gateway Protocol 4 (BGP4)
Enhanced applications	<ul style="list-style-type: none"> • Paging controller • Location register • Enhanced content charging • Content filtering/parental control • Stateful firewall • Peer-to-peer (P2P) detection and control

For More Information

For more information, visit www.cisco.com/go/mobileinternet.



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