



HP OpenCall Internet Protocol Signaling Transfer Gateway

Data sheet



Prepare for the future, grow safely, evolve with the winning technologies. HP OpenCall IP-Signaling Transfer Gateway interconnects solutions that span existing and future networks, providing a safe migration towards the all-IP infrastructure.

Bridge next-generation IP and SS7 networks.

Based on leading HP server technology, HP OpenCall Internet Protocol Signaling Transfer Gateway (HP OpenCall IP-STG) bridges the next-generation Internet Protocol (IP) and the SS7 networks, enabling service providers to connect present and future applications across multiple networks.

HP OpenCall IP-STG is a flexible, scalable, standard servers-based platform that manages network, protocol and traffic-load sharing complexity in an all-in-one box. It is able to seamlessly manage changes in services provisioning, enabling you to widen applications as needed.

HP OpenCall IP Signaling Transfer Gateway

- Protects your investments by connecting existing and future applications to evolving telecommunication infrastructures
- Increases profitability by reducing transport and operational infrastructure costs
- Simplifies service development and deployments, enabling you to focus on building IP revenue-generating services
- Reduces risk with HP industry-proven product design and technology
- Supports the Internet Engineering Task Force (IETF) SIGTRAN M2PA, M2UA, M3UA and SUA protocols for future-proof connectivity

- Offers platform scalability with N+1 architecture for smooth upgrades to cater to new bandwidth requirements without any drastic modification of underlying technology
- Is an integrated solution, including HP software, hardware and professional services for commissioning and telco-grade support

Simplify and standardize; increase profitability. HP OpenCall IP-STG keeps up with evolutions in standards while providing a cost-effective architecture for deploying revenue-generating services.

Key features and benefits

As a worldwide IT vendor and industry-proven hardware supplier, HP has the solid background that you need to compete as a service provider. HP OpenCall has a proven track record with more than 5,000 signaling platforms and more than 4,000 HP interactive voice ports deployed in telecom networks in over 100 countries. Drawing on this widespread success, HP OpenCall IP-STG offers your company a seamless, cost-efficient transition to the future all-IP infrastructure.

Safe migration toward new networks and services, with investment protection of legacy systems and future-proof connectivity

HP OpenCall IP-STG enables you to connect present and future applications to the SS7 legacy infrastructure through an IP data network running the IETF SIGTRAN protocol. It provides future-proof connectivity with SS7, HSL and IP/SIGTRAN connectivity (M2PA, M2UA, M3UA, SUA) as well as worldwide interoperability (ITU-T, CHINA and ANSI protocols). You can be confident in HP OpenCall's proven track record in signaling platforms that meet the carrier-grade requirements of your telecom infrastructure environment.

Flexible, architecture simplifies service introduction and operations, enabling service developers to focus on services.

HP OpenCall IP-STG's architecture separates all signaling and routing aspects from the application so that signaling complexity is concentrated in the signaling platform. In addition, the signaling platform can be co-located or remote from the application, resulting in an architecture that avoids the application silos of traditional configurations.

Further, the flexibility of HP OpenCall IP-STG enables the use of a full range of platforms for different purposes. Non-stop addition and removal of machines to the distributed platform allows capacity to be added as requirements evolve and routing rules are configurable for increased flexibility.

Easy to integrate, easy to operate, adaptable offering

The HP OpenCall IP-STG is a black-box offering that can be configured to operate in a central office or commercial hosting environment. The central office versions are based on carrier-grade server family. These NEBS Level 3-compliant servers are rack-mountable for ease of installation and servicing. The solution can also be delivered on standard rack-mountable systems best suited for telecom and Internet solutions that do not require a NEBS-compliant feature set.

Reduced recurrent costs for vital competitive advantage

Your company can significantly reduce recurring SS7 network costs by using the HP OpenCall IP-STG Gateway as the unified signaling SS7 access for any type of services sitting on IP SIGTRAN like M3UA for example, or a mix of SIGTRAN protocols. HP OpenCall IP-STG also reduces the cost of services that are now easily deployable on the same IP infrastructure by carrying traffic on the more economical IP network.

Enhanced platform scalability with N+1 architecture to help you control the costs of new service deployments

The HP OpenCall IP-STG active redundant architecture provides you with the right price, performance and scalability. The initial cost of providing a service can be kept low and the system can be easily grown as the processing and data requirements of the service increase.

Additional signaling gateway processes (SGPs) can be added to increase overall capacity. SGPs, memory and network interfaces can be tailored to meet current traffic and upgraded, online, as the service grows.

Telco-grade reliability, availability and performance with the active redundant architecture

Components are replicated in the IP-STG system so that there is no "single point of failure." Active redundant systems also lend themselves to online software upgrades so the system remains available. In addition, active redundant systems can provide more effective failure recovery delays that preserve signaling traffic flows. Further, each IP-STG box provides premium-rate performance, whatever the user message's length, and with full Global Title or Mobile Application Part (MAP) routing mechanisms activated.

Figure 1. Signaling gateway and multiple protocol conversions with IP-STG

- Supports signaling access point or front end by providing SIGTRAN and MTP2/SAAL HSL connectivity to legacy switching elements

- Provides multiple protocol conversions—any-to-any:

	SS#7	M2PA	M2UA	M3UA	SUA
SS#7	•	•	•	•	•
M2PA	•	•	•	•	•
M2UA	•	•	•	•	•
M3UA	•	•	•	•	•
SUA	•	•	•	•	•

- Allows SS7 to SIGTRAN offload or SIGTRAN peer to peer connections

- Acts as M2UA End point for AS

- Acts as M3UA end point for AS and/or IPSP

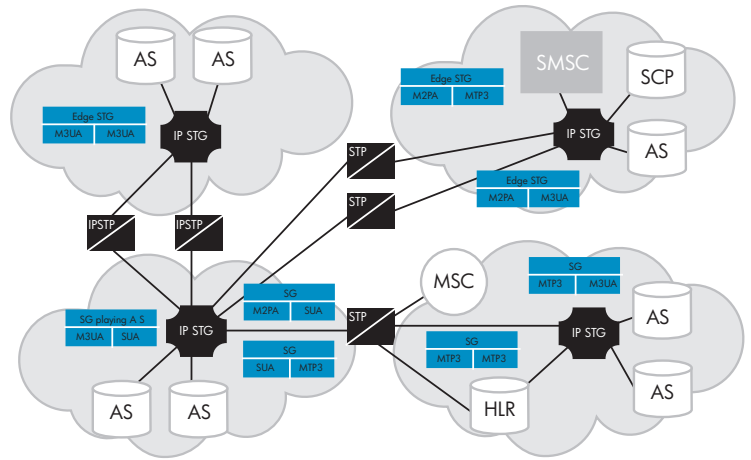


Figure 2. Edge-STP with IP-STG

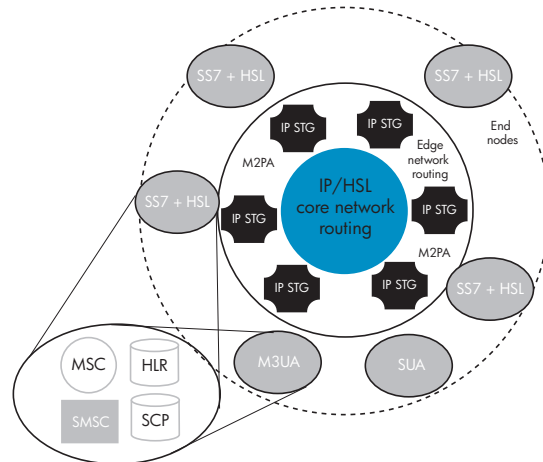
- Provides full STP routing capabilities at the edge of the signaling network (Edge-STP for regional traffic)

- Integrates easily with core network STPs to serve the centralized monitoring/screening needs with traffic concentration from the edge to the core

- Reduces cost with signaling backhauling capabilities over SIGTRAN

- Offers the core network STP unique and common multiple connectivity equipment with heterogeneous connectivity on the same platform and single access mode (over M2PA for example)

- Supports mated pair configuration with C-linkset



HP OpenCall IP Signaling Gateway deployment uses

HP OpenCall IP-STG Signaling Gateway

The HP OpenCall IP-STG Platform supports all combinations of legacy SS7 (ITU-T, ANSI, CHINA) and SS7 over IP protocols (IETF SIGTRAN M2PA, M2UA, M3UA, SUA). HP OpenCall IP-STG allows you to bridge present and future telecommunication services to your SS7 legacy infrastructure, as well as to your IP data network running SIGTRAN protocols.

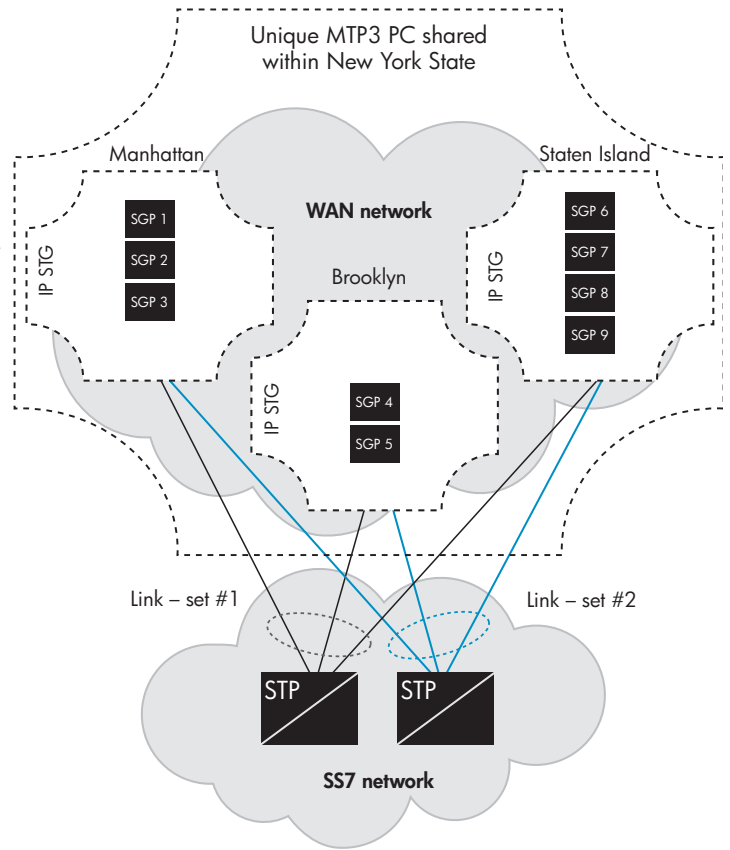
HP OpenCall IP-STG flexibility facilitates the interoperability of various signaling network equipment, such as switches, Signaling Transfer Point (STP) and Signaling Control Point (SCP). It allows you to bridge SS7 and IP networks using any combination of the signaling protocols and any combination of SIGTRAN roles. HP OpenCall IP-STG can play the role of application servers (AS or IPSP) and/or signaling gateways (SG). Refer to Figure 1.

HP OpenCall IP-STG Edge-STP

The HP OpenCall IP-STG Platform provides Edge-STP capabilities acting in a “tandem mode” with a classical and centralized core network STP to offer the core network STP a remote and additional STP routing function. It provides not only the basic STP routing features but also an increased level of connectivity toward SIGTRAN. For example, using SIGTRAN M2PA connectivity between core-STP and IP-STG provides you with a robust and cost-effective solution. Therefore the HP OpenCall IP-STG can be seen as an extension of a core network centralized STP playing the remote regional STP function, or seen as the solution to provide signaling long-distance backhauling capabilities. Refer to Figure 2.

Figure 3. Geographic dispersion with IP-STG

- Provides a geographic dispersion feature that allows you to play one single point code, thanks to the scalability architecture, and offers an efficient solution for the MTP3 point code depletion problem
- Provides IP-STG active redundant N+1 architecture for robust disaster recovery, and to strengthen network survivability
- Eases the routing of signaling traffic from the core network STP by using only one route to access the IP-STG unique PC



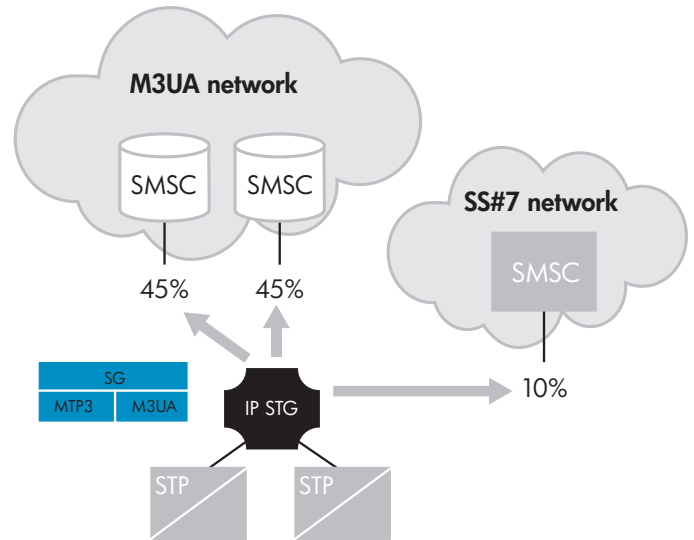
HP OpenCall IP-STG geographic dispersion

The HP OpenCall IP-STG Platform offers a scalable N+1 architecture solution sharing a unique point code across multiple geographical sites. With a unique IP-STG PC, it simplifies the core network STP signaling routing through only one route to access to the IP-STG.

The geographic dispersion solves the MTP3 point code depletion issue. With the geographic dispersion feature, HP OpenCall IP-STG provides an efficient disaster recovery design for business continuity. Refer to Figure 3.

Figure 4. Example of signaling hub and load-sharing with IP-STG

- Provides “intelligent router” approach with SS#7 legacy nodes to gracefully dissociate the services layer from the network layer
- Provides “signaling hub” approach with multiple SIGTRAN end nodes and SS7 legacy nodes connected to IP-STG
- Gives you the capability to load balance traffic in a weighted way to next-generation services



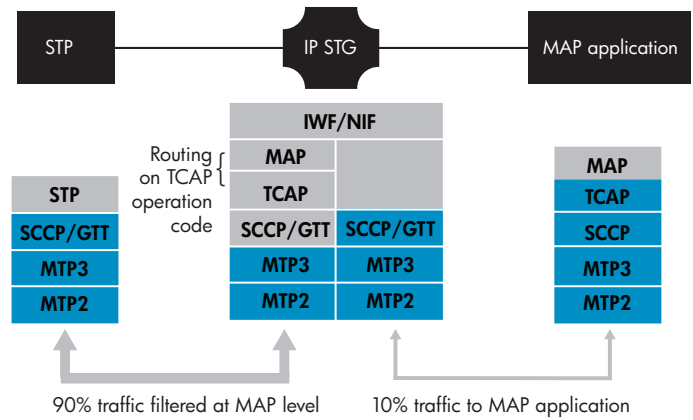
HP OpenCall IP-STG Intelligent Router

The HP OpenCall IP-STG platform integrates new advanced features such as intelligent routing and filtering to permit networks to connect services without costly deployments of additional platforms and complex network topologies changes.

This allows many different services to span across a virtually unlimited number of servers, while the scalable IP-STG acts as a signaling hub to manage the networks' complexity as well as the signaling traffic load sharing and growth. Refer to Figure 4.

Figure 5. Example of MAP intelligent routing with IP-STG

- Allows service deployment where traffic discrimination is crucial before any treatment (e.g. when traffic of interest is a portion of inbound traffic)
- Uses HP IP-STG Intelligent Routing to connect any type of services wherever it is deployed in the signaling core network
- Gives you the capability to dissect messages at MTP3, SCCP, TCAP and MAP levels to take appropriate actions (e.g. route back to SS#7 network, deliver to application or discard silently, abort, etc.)



As an example, the HP OpenCall IP-STG can operate Intelligent Routing based on MAP messages content as shown in Figure 5.

Architectural description

Future-proof worldwide connectivity

The HP OpenCall IP-STG is aimed at IP signaling networks connected to the legacy SS7 as well as IP-enabled services connected to the SS7 network infrastructure.

The HP OpenCall IP-STG supports all combinations of SS7 and SS7 over IP protocols: SS7, IETF SIGTRAN (M2PA, M2UA, M3UA, SUA). It therefore offers worldwide-certified connectivity with all major networks. This allows existing applications to smoothly evolve toward an all-IP infrastructure and provides a robust, proven foundation for building new solutions using any combination of these protocols.

The HP OpenCall IP-STG includes:

- Ethernet cards for SIGTRAN M2PA, M2UA, M3UA, SUA
- SS7 high-density and high-performance boards providing E1/T1 NSL 64 Kbps/56 Kbps, high-speed link 2 Mbps ClearChannel, 1.5 Mbps ATM
- The HP combination of servers and PCI-based quad-board signaling cards offering high-density and cost-effective SS7/MTP network connectivity

Solutions based on the HP OpenCall IP-STG benefit from unique HP expertise and 15 years experience as a leading vendor of signaling platforms.

Global reach

The HP OpenCall IP-STG is factory integrated by HP. The result is fast delivery of a fully functional signaling platform, with enhanced security features, at your site.

The HP OpenCall IP-STG complies with national and international industry standards and variants for SS7 and SS7 over IP, including:

- ANSI, ITU, ITU-T Chinese: narrowband and HSL broadband implementations of SS7 protocols
- Authorize hybrid environments—for example with ANSI TCAP services over ITU SCCP/MTP IP-STG environment and vice versa
- Multiple SS7 stacks running on a single platform
- IETF SCTP, M2PA, M2UA, M3UA, SUA



HP OpenCall IP-STG technical specifications

Operating system	Red Hat Linux
Servers hardware	Commercial off-the-shelf hardware, HP ProLiant series
Signaling hardware	Communication controller boards on a PCI bus: E1/T1 board, Channelized and Unchannelized (a.k.a. ClearChannel) and HSL ATM over E1/T1
Redundancy architecture	N+1 SGP/signaling gateway process with CPU multi-core per SGP (per server)
Proposed availability	Single node 99.999%
Scalability and performance	Highly available configuration with multiple active servers. Interfaces and processes are distributed across SGPs within an IP-STG platform Up to 124 Channelized links or 4 Unchannelized trunks per communication controller board
Platform capacity	32 SGP maximum per IP-STG platform Up to 2.048 ISL or HSL
Routing capacity	Routing key rules: intelligent routing and screening based on MTP3, SCCP (SPC, SSN, GT), TCAP (Operation code), MAP (SMS parameters) <i>Refer to the IPSTG performance brief for more details.</i>

Protocols

Stream Control Transmission Protocol/RFC 2960/RFC 3309 and RFC 2581

SS7 Message Transfer Part 2 (MTP2)—User Peer-to-Peer Adaptation Layer (M2PA)/RFC 4165

SS7 Message Transfer Part 2 (MTP2)—User Adaptation Layer (M2UA)/RFC 3331

SS7 Message Transfer Part 3 (MTP3)—User Adaptation Layer (M3UA)/RFC 3332/RFC 4666

Signaling Connection Control Part User Adaptation Layer (SUA)/RFC 3868

ANSI 1996 standards T1.111.1, T1.111.2, T1.111.3, T1.111.4, T1.111.5, T1.111.7, T1.111.8: ANSI MT

ANSI 1996 standards T1.112.1, T1.112.2, T1.112.3, T1.112.4: ANSI SCCP

ANSI T1.637 1999, T1,645 1995: high-speed link

ITU-T recommendation Q.704/Q.703 (07/96 a.k.a. "MTP White Book")

ITU-T recommendations Q711, Q712, Q713, and Q714 (February 1996): ITU-T SCCP

ITU-T Q.2100 recommendations (07/94), Q.2110 (07/94), Q.2140 (02/95), Q.2210 (07/96), I363.5 (08/96) B-ISDN Signaling ATM Adaptation Layer (SAAL) connectivity

GF001-9001: The ITU-T recommendations are modified or supplemented for China by the set of specifications contained in the technical specification document GF001-9001 issued by the Ministry of Posts and Telecommunications of the People's Republic of China.

Installation, operation and support

Configuration, monitoring and management with SS7-configure and S7MP command-line tools

SNMP traps and monitoring

About HP OpenCall

Leading carrier-grade platforms

HP OpenCall software is an integral part of the HP portfolio of wireline, wireless, IP and media solutions and enables service providers to transition to IMS-based networks and effectively manage the triple play of voice, data and multi-media services. Deployed in 40 of the world's top 50 service provider networks, HP OpenCall is the market leader in many industry categories, facilitating the convergence of the Internet with the world of voice communications.

A complete solution

The smartest way to invest in IT

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage and ultimately retire your HP solutions. For more information on these services, contact your HP sales representative or visit www.hp.com/go/hpfinancialservices.

For more information

For further information on HP OpenCall platforms, visit www.hp.com/go/opencall.

HP Services

Providing you with a first-to-market advantage

HP provides high-quality software that addresses all aspects of your software application lifecycle needs. With HP as your partner, you have access to standards-based, modular, multi-platform software coupled with best-in-class services and support. HP offers premier development services, including developer training, consulting and assistance; integration services for hardware and software; start-up services such as administrator training and onsite activation; in-production telco 24x7 base-level foundation support; and mission-critical support.

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