

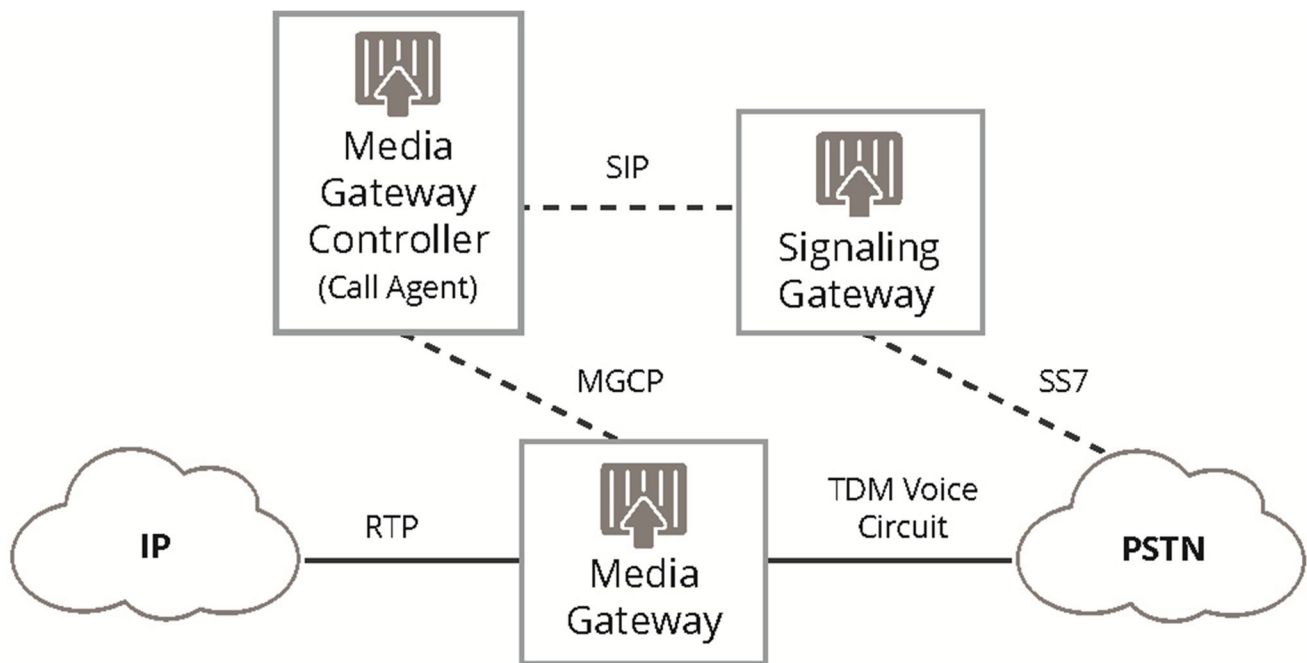
What is a Soft switch?

A soft switch provides call control intelligence for establishing, maintaining, routing and terminating sessions in Voice over IP (VoIP) networks. Soft switches were originally employed by service providers as part of next-generation IP network initiatives.

As the name implies, a soft switch is a software-based solution that runs on industry-standard hardware. Soft switch implementations offer inherent economic advantages over legacy monolithic telephony equipment based on proprietary hardware.

Soft switch Architecture

A soft switch is a general telecommunications industry construct. There are no industry specifications governing the implementation of a soft switch. The figure below depicts a soft switch system architecture.



In a typical soft switch implementation, the control plane is decoupled from the transport plane and the system is decomposed into three distinct functional elements: **a signaling gateway, a media gateway and media gateway controller.**

The signaling gateway interworks IP signaling protocols such as SIP (session initiation protocol) and H.323 with legacy SS7 (signaling system 7) protocols employed in the PSTN.

The media gateway terminates TDM circuits and packetizes the media streams for IP transport using protocols such as RTP (real-time transport protocol) or SRTP (secure RTP).

The media gateway controller instructs the media gateway, media servers and application servers (not shown) to set up and tear down calls, play recorded messages, and perform application functions like call forwarding, or call waiting. A media gateway controller is also referred to as a soft switch, call agent or call controller.

Session Border Controllers

Service providers typically deploy session border controllers (SBCs) to protect and control communications flows in soft switch implementations. **SBCs** manipulate IP communications signaling and media streams to protect against denial of service attacks and other security threats, to mitigate multivendor interoperability or multiprotocol interoperability issues, to enforce quality of service (QoS) policies or to route sessions to ensure high availability.

Relationship to IP Multimedia Subsystem (IMS) Network Architectures

IP Multimedia Subsystem (IMS) is a standards-based architectural framework for multimedia communications services such as voice, video and text messaging over IP networks. The IMS specifications were originally created by the 3rd Generation Partnership Project (3GPP) to standardize the implementation of next-generation mobile networks. IMS brings all the benefits of the IP soft switch concept to mobile network operators.

The IMS architecture decomposes the network into a distinct application, control and transport layers with standardized interfaces to promote scalability, flexibility, and extensibility. Many soft switch vendors extended or repurposed their solutions to support the IMS framework.