Synway's SS7 Inbuilt VoIP Gateway Combines Both Signaling and TDM-to-SIP Transition to Effortlessly Converge TDM with IP Network

Under the drive of everything over IP, SIGTRAN appears to achieve SS7 over IP. SMG2000 and 3000 series E1/T1 VoIP gateway, with a range of built in signaling protocols (SIGTRAN, SS7 ISUP, MTP1-3, TCAP, PRI ISDN, R2), processes interconnection between signaling and IP network.

SMG2000/3000 series E1/T1 VoIP gateway separates the signaling from the voice path, adopts high-speed data link to transmit the signaling message, featuring high transfer speed, shorter call setup time, large signal processing capacity, flexibility to change and expand, low investment on signaling equipment and high channel availability.

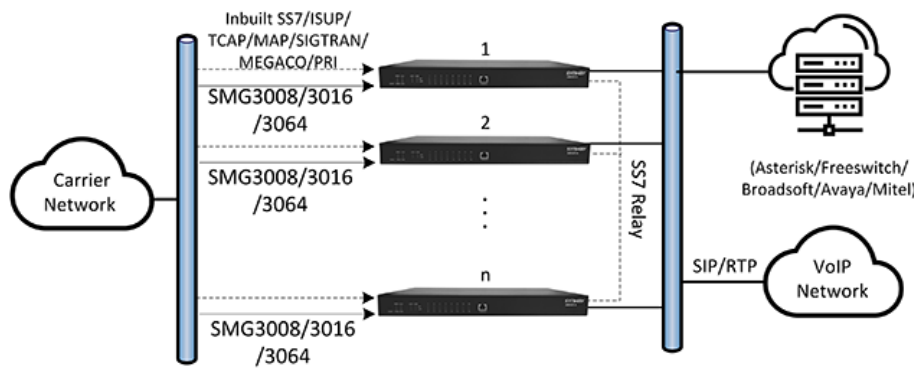

Figure 1: SMG3000 Series SS7/SINGTRAN VoIP Gateway in Carrier Network

SMG3000 solves the problem of high reliability and high real-time transmission effectively in IP network, and ensures the reliable transmission of the SCN signaling (mainly SS7) in IP network.

SMG3000 has been used for a wide range of applications in the market worldwide, Its DSP-based architecture ensures the signaling is transmitted accurately and efficiently. With high reliability in operation, SMG3000 possesses unparalleled transmission efficiency, providing the reliable way to ensure the signaling to transmit in the correct order without losing and repeating.

SMG3000 transmits business signaling or other forms of information that diverse users require transparence, high-reliability, and high-stability to meet the needs of several business networks. At the same time, because of low-cost network facility, low investment on signaling equipment, enterprises and individuals can benefit from it.

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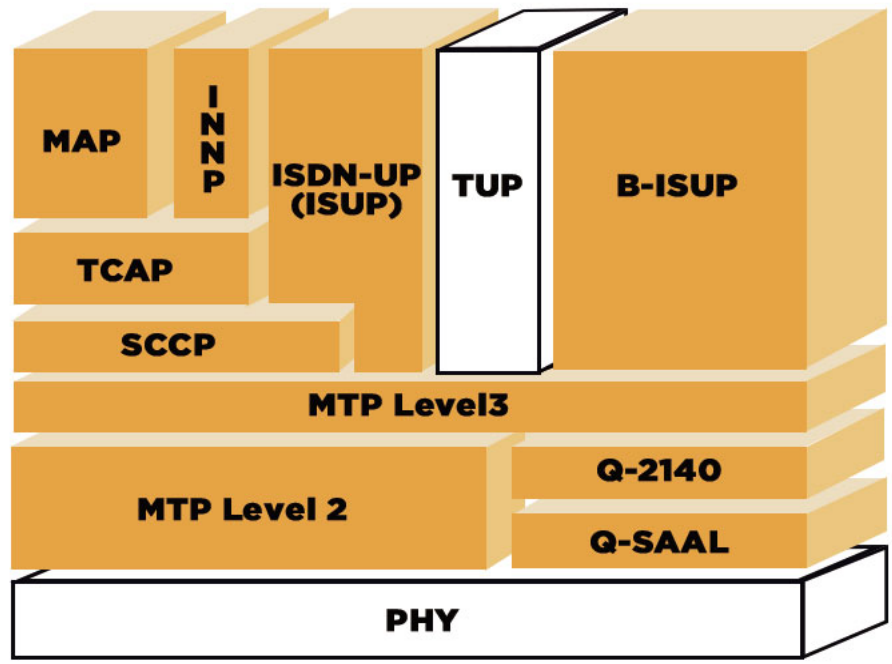

SS7 Stack Diagram of SMG3000 series VoIP Gateways

Homegrown SS7 Packets of Synway

Synway offers Signaling System 7 (SS7) software as part of its broad range of protocols, allowing users to directly connect switching, media processing and signaling platforms to a carrier's network–via TDM-based signaling transport. Using Synway's SMG2000/3000 series E1/T1 VoIP Gateways, the SS7 protocols are suitable for worldwide deployment, bringing together DSP-based functions and PSTN connectivity on a cost-effective single platform for both IP and TDM environments.

SS7 is the protocol that defines the procedures to transport and process database queries necessary for providing today's advanced intelligent network (AIN) features and services. SS7 is increasingly being used to bridge the PSTN with next-generation Internet Protocol (IP) and 3G Wireless networks, which enables seamless convergence and inter-working of PSTN and IP protocols within a unified architecture.

The SS7 packets combine to bring tremendous value for service providers and enterprise solution providers alike. A complete array of packets, including MTP1~3, ISUP, TCAP, SCCP, MAP and more, empower mobile solution providers to efficiently and rapidly deliver most value-added service and applications. The SS7 standard has been extended for multiple country-specific variations, such as ANSI in America and ETSI standard in Europe.

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Synway SS7 Solutions

Synway SS7 product line includes the following protocol layers:

Intelligent Network Application Protocol (INAP)

- Capability Set 1 (CS1), as defined by the ITU, ETSI, and the Generic Requirement (GR) standards of the Telcordia Advanced Intelligent Network (AIN)
- The interaction between the SSF, SCF, Specialized Resource Function (SRF), and the Service Data Function (SDF)

Mobile Application Part (MAP)

- Used by the Mobile Switching Center (MSC), Serving GPRS Support Node (SGSN), and Gateway GPRS Support Node (GGSN) in wireless networks to query the Home Location Register (HLR) or Visitor Location Register (VLR) to determine and/or verify subscriber services

ISDN User Part (ISUP)

- The signaling protocol to establish, maintain and release circuit-switched network connections across an SS7 network; can act as originating, destination or intermediate exchange
- ITU-T, Telcordia (formally Bellcore), ANSI, Singapore, Q.767, ETSI, FTZ, Russia, Italy, NTT (Japan), and other variants

MTP1

- Defines the physical and functional characteristics of the digital signaling link

MTP2

- Reliable transfer of signaling messages over signaling links
- ITU-T, ANSI, TTC (Japan), NTT (Japan), China, and other variants

MTP3

- Broadband and narrowband signaling traffic management, signaling link and route management
- Functionality as an SSP or STP; Direct inter-working with Trillium Q.2140

ATM

- ITU-T, ANSI, TTC (Japan), NTT (Japan), Singapore, China, B-ICI, and other variants

Signaling Connection Control Part (SCCP)

- Connection-oriented and/or connection-less services (Class 0, 1, 2, and 3) for transferring data across an SS7 network
- ITU-T, ANSI, and China variants

Transaction Capabilities Application Part (TCAP)

- End-to-end, connectionless network service protocol between transaction capability users across an SS7 network
- An ASN.1 encoding/decoding engine to encode/decode all operation codes and dialog parameters
- ITU-T, ANSI, ETSI, and TTC (Japan) variants

Telephone User Part (TUP)

- Establishing, maintaining and releasing circuit-switched network connections across an SS7 network; can act as the originating, destination, or intermediate exchange
- ITU-T and China variants

ABOUT MAP – GSM, GPRS, UMTS, 3G

The Global System or 3G for Mobile Communications (GSM) is a globally accepted standard for digital cellular communications. Mobile Application Part (MAP) – GSM/3G supports interactive mobile applications (e.g., cellular, paging, voice messaging) between the network entities in a GSM/3G system. These functional entities include Home Location Registers (HLRs),

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