



- Unified Communications Services
- Voicemail and Fax Server
- Unified Messaging with Email Sync
- Auto Attendant & One Number Service
- Interactive Voice Response
- Spoken User Interface & Spoken Email
- Address Book Sync with Speech-Dialing

Designed to Simplify the Complex

To meet the increasingly sophisticated demands of subscribers, the SC3100 unified communications platform (UCP) from SS8 Networks is built for high performance in today's diverse service provider environments. In fact, there is no better example of the SS8 vision to provide enhanced services independent of network type. Combining expertise in enhanced messaging and IP-based telephony, the SS8 SC3100 UCP represents tomorrow's migration path to enhanced multimedia services.

Software Architecture

Natively supporting TDM and IP standards, the SC3100 UCP provides the ultimate in flexibility. No matter where a service provider stands in the evolution of its network, the SC3100 provides uninterrupted enhanced services. The complete suite of open standards includes SIP/RTP, ITU/ANSI ISUP, ITU/ANSI TCAP, SCCP, T1/E1 CAS, SMDI, SNMP, IMAP4, POP3, SMTP, SMPP, LDAP, HTTP, and VXML.

Software Subsystems of the SC3100

With a modular architecture, the various software components of the SC3100 platform work together seamlessly, yet provide the flexibility of independent operation.

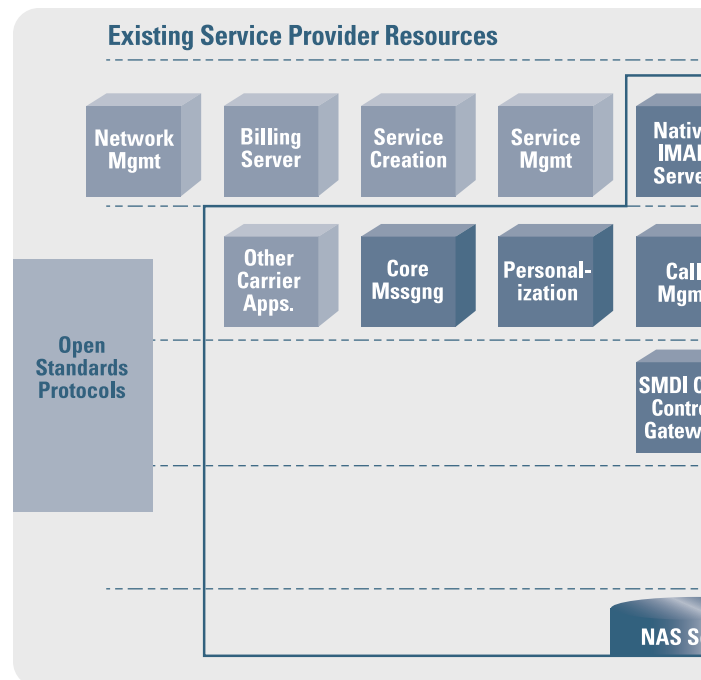
- **Next Generation Application Server** – The application server provides a fully redundant and scalable execution environment for running SS8's advanced application software. Multiple servers can be configured in a system depending on the capacity and redundancy needs of the application, combining to operate as a single integrated system.
- **Media Server** – The media server provides network connectivity for the platform and performs real-time IVR services for the applications. It supports both

TDM and IP networks on a common hardware platform. T1, E1, and RTP connectivity is supported independently or simultaneously on a single media server. Applications can communicate with the media server using either industry standard VoiceXML protocol or an easy-to use SS8-developed protocol optimized for IVR and call control applications, allowing easy integration of third party applications. Multiple media servers can be deployed in a single platform allowing scalability from the very low end up to thousands of ports. The media server can record and play audio files in many formats and supports bi-directional ports and configurable hunt sequences for optimal use of media server resources.

- **Call Control Gateway** – The call control gateway provides platform support for SS7, SIP, and SMDI signaling protocols. The call control gateways allow an entire SC3100 platform to appear as a single network entity and provide full redundancy, ensuring that the system will continue to function correctly even in the event of processor failures. A wide variety of protocol variants are supported for SIP, SS7, and SMDI, providing easy integration with virtually any switches. Telcordia tested, the SC3100 SS7 implementation complies with the ANSI ISUP, TCAP, and MTP standards. A variety of MWI protocols are supported including the SIP SUBSCRIBE/NOTIFY protocol, industry standard TCAP and SMDI GR-866 protocols, and several other switch proprietary protocols.
- **Database Server** – The database server operates a standard SQL database that is used to store user account records, meta-data for subscriber messages, and call detail records. The data is stored on the RAID5 network attached storage (NAS) unit ensuring that the data is safe and secure. The database server is fully integrated with the management systems in the platform and does not require system operators to have any expertise in database administration.

- Directory Server** – Using the industry-standard LDAP protocol, this server stores information for unified communications, inter-system messaging via VPIM, and web access to the platform. The directory server is highly scalable, offering multiple deployment options to meet carriers' needs. A master-slave architecture can be deployed where a directory server master can replicate data to many slaves. And a distributed directory server architecture can be deployed with subscribers allocated across many directory servers. The SC3100 directory server can be shared with the SS8 Broadband Services 2.1 Platform, enabling easy integration and simultaneous support of the two platforms in the network.
- VPIM/Unified Communications Portal Gateway** – The VPIM/Unified Communications Portal gateway provides the necessary transcoding capabilities for integrating the SC3100 with external voice messaging systems and e-mail servers. Mail users can message subscribers on other VPIM compliant voice messaging platforms, allowing integration of the SC3100 with other vendors' messaging solutions. In addition, the VPIM/UCP gateway allows the SC3100 to integrate with an external e-mail store. The UCP gateway sends voice messages to the subscriber's chosen e-mail account as attachments to an e-mail message. The platform can be configured to automatically synchronize the subscriber's e-mail server via IMAP4 if desired, ensuring that once a message is played or deleted in the e-mail server, that the corresponding changes are reflected on the SC3100. The UCP gateway supports a variety of different audio formats including 64kbps wav, mp3, and a highly compressed audio format developed by SS8.
- Native IMAP Server** – This protocol allows e-mail clients to access the platform using a standard interface, giving end users the ability to access voice messages just as they would e-mail messages. Use of the native IMAP interface allows carriers a simple and cost-effective means of providing online access to the messaging capabilities of the SC3100.

- OMAP Server** – The OMAP server provides a unified console interface for configuration and provisioning of the platform. It provides support for software installation and backup/re-store functions. The OMAP server consolidates the SNMP traps on the system and is integrated with the alarm card on the platform to provide remote access via an integrated modem connection.
- Application Programming Interface Sets** – The SC3100 UCP has two application programming interface (API) sets for provisioning operations on the platform. The C++ API set is optimized for integration with a carrier's automated provisioning system, providing full capabilities for creation of accounts and COS management. It is supported on both Solaris and Windows platforms. The Java API is designed for use in development of web applications running in any standard Java Virtual Machine, allowing carriers to develop highly customized web interfaces for the platform.
- SS8 My I-Suite – Web Access** – SS8 provides a fully functioning web interface to the SC3100 as part of its Personalization module. Users can access their accounts for changing preferences, uploading new greetings, listening to their voice messages, and changing call routing preferences. The web access package is supported on the Tomcat, IBM Web Sphere, and BEA Weblogic web servers. It is highly customizable, utilizing Java, and allows the carrier to easily change the look and feel to meet their needs.

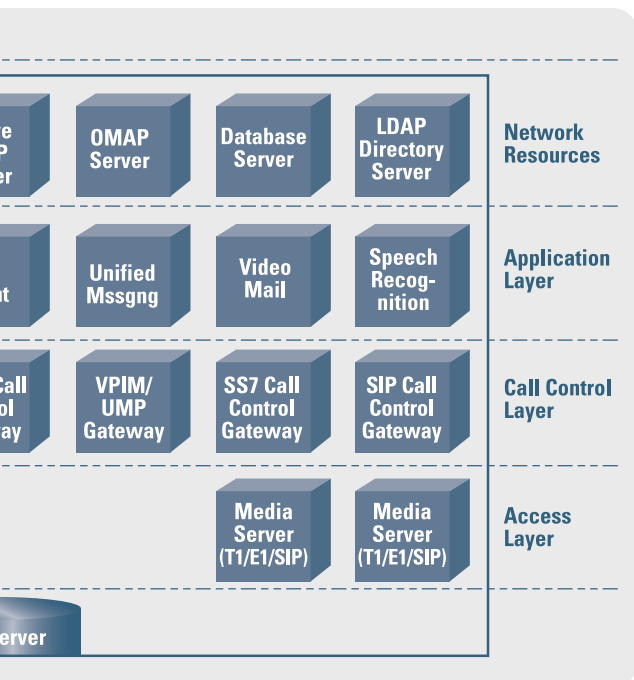


SC3100 UCP in the Network

The SC3100 unified communications platform offers significant network application flexibility for service providers. It connects to PSTN, mobile, or packet-switched networks through standard interfaces. The modular architecture separates the components of the SC3100 but shares their functionality across multiple applications via a high-speed IP Ethernet backbone.

The SC3100 UCP is designed to work most effectively within a network architecture comprised of distinct, well-defined layers communicating through standard protocols. Such an architecture offers numerous benefits to service providers:

- An access-independent service layer that can support a wide range of services and applications such as unified communications and conferencing
- Capital expenditure savings through the efficient sharing of network resources and the utilization of existing modules for newly deployed services
- Operational savings through the sharing of provisioned subscriber data and the avoidance of costly data duplication and associated errors
- Freedom from reliance on any one vendor for applications and services that drive new revenue
- The ability to control the distribution of resources on the network to minimize operational costs associated with administration, sparing, and support



Unified Communications Platform Hardware and Software Architecture

Hardware Architecture

Built on a Compact PCI chassis with an H.110 bus, the SC3100 UCP is entirely standards-based and has been designed to meet the unique requirements of a Telco POP. The entire platform has been NEBS and TUV certified. The SC3100 revolutionizes the efficiency of expansion, thanks to its decoupled and redundant functional subsystems designed to provide independent, scalable growth. Using separate functional modules, the SC3100 maximizes availability and localizes faults. Also, the SC3100 UCP avoids expensive, error-prone duplication of data from shared modules. These factors add up to increased efficiency and manageability.

- **Chassis** – The PICMG-compliant chassis includes the standard functions of cPCI, including redundancy, clustering, hot swap capability, and fail-over. Alarm indicators are available on the chassis and individual cards. Minimizing cabling requirements, the chassis supports the new PICMG 2.16 standard. This allows dual gigabit Ethernet links to be routed across the backplane, allowing all of the CPU and line cards in the platform to communicate over IP through the backplane. IP cabling is only required for interconnects between the chassis and uplinks to the carrier's network.
- **NAS Unit** – Operating as an NFS server, the NAS unit hosts all dynamic data. Communicating through Ethernet connections, it can scale to more than a terabyte of storage. Operating independently, the NAS unit provides more reliable, available, and scalable storage to network applications. Data is stored using RAID5 technology, ensuring the optimum in reliability and performance for data access.
- **Alarm Card** – On the large SC3100 platform, the PICMG 2.9-compliant alarm card monitors the temperature in several zones of the chassis, the fans, and the power levels for all voltages used in the system. This monitoring allows SNMP traps to be generated for these hardware conditions along with visual indications in the form of LEDs on the front the chassis. The alarm card also provides closed-contact relays that can be used for connecting to a remote alarm panel. Finally, the alarm card includes a built-in modem for remote connection via dial-up.

- **Ethernet Switch Cards** – Two Ethernet switch cards operate across the chassis backplane to provide highly reliable throughput for the internal IP network. This supports a significant speed increase and cable reduction. The system includes several gigabit Ethernet uplinks for interconnecting chassis, access to the NAS, and access to the carrier's IP network.
- **CD-RW Drive Card** – The system uses a CD-RW drive card for general functions such as data backup, restoration, installation, and software patches.
- **CPU Card** – The SC3100 UCP uses the familiar Sparc Solaris processor with its own memory and on-board hard disk. The Solaris 8 OS runs on this CPU card providing the ultimate in system reliability.
- **Line Card** – The line card supports T1, E1, and RTP connectivity for the platform. All ports have full IVR and fax capabilities along with built-in echo cancellation. For RTP connections, RFC 2833 is supported along with DTMF encoded as voice. Several different sizes of line cards are supported based on carriers' specific needs.
- **SS7 Card** – In a typical configuration, two SS7 cards run in a load-balanced configuration, supporting up to 48 SS7 links per card via T1 or 60 links via E1. These cards are PMC cards installed on a standard CPU board that contains its own CPU, memory, and hard drive to allow decoupled SS7 gateway functionality.

SC3100: A Flexible System for Evolving Networks

The SC3100 unified communications platform represents a fundamental advance in the state of the art of messaging and unified communications. By combining native interfaces to PSTN, mobile, and packet-switched networks with a modular, standards-based architecture, the SC3100 offers unparalleled efficiency and flexibility. Operators can scale individual components independently to optimize the system for their network environment. And it lets operators adapt software to meet any specific requirements without making major changes to the application logic. The addition of the OMAP server further increases the flexibility with web-based management and provisioning as well as access to the billing system. And for superior adaptability, the SC3100 UCP features industry standard interfaces on all connections. These open standards allow service providers or third-party vendors to easily customize networks.



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