



- 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

SC3100 UNIFIED COMMUNICATIONS PLATFORM

Building on SS8's rich history as a leader in delivering messaging solutions, including voicemail, unified messaging, fax services, interactive voice response and auto-attendant applications, to large enterprise and telecommunication carriers, the SC3100 UCP is set to empower next generation networks with innovative unified communications service offerings.

Designed for wireline, wireless, broadband, and converged network service providers, the SC3100 represents a new generation of messaging platforms.

Leveraging the latest advancements in distributed computing and open inter working techniques, the SC3100 UCP can deliver both classic messaging and advanced unified communications services within today's advanced intelligent network (AIN) and next generation networks that utilize the IP multimedia subsystem (IMS).

By employing these advanced technologies and next generation network infrastructures, the SC3100 is ready to deliver a new breed of mass-market consumer messaging and real-time communications services. This includes scalable deployments of complex service offerings that employ communication elements such as videomail, find-me/follow-me, presence/location, spoken email, synchronized network-based address book/calendar and flat, natural language, speech user interfaces.

Scalable, Extensible, Resilient

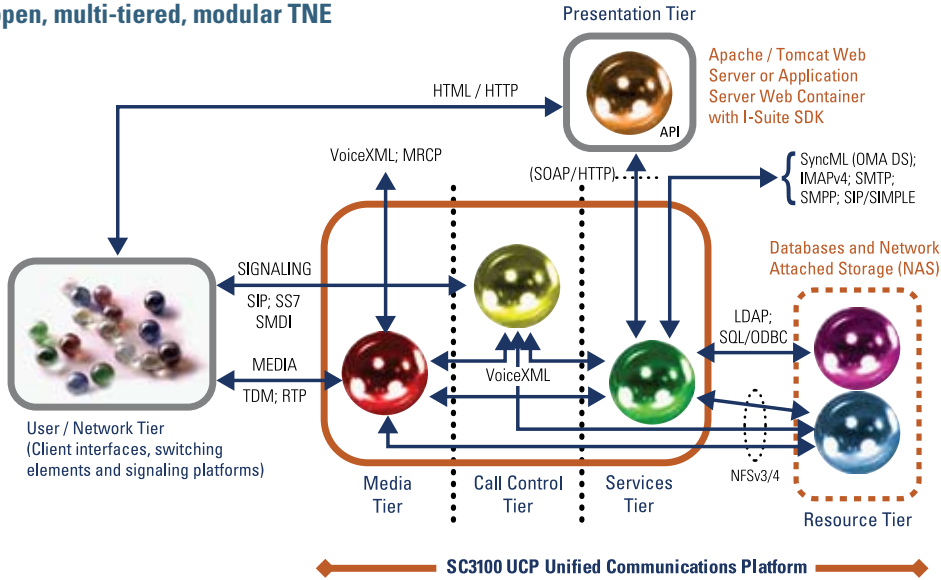
The SC3100 UCP combines a robust, standards-based, distributed computing architecture with comprehensive internal service engines, integrated applications and open application programming interfaces. The result is a platform capable of providing an array of high-availability unified communications services which can scale from a few thousand to many millions of subscribers.

Managing the Transition from AIN to IMS

Capable of delivering today's, crucial revenue-generating services, concurrently within both SS7/TDM AIN and SIP/IP IMS infrastructures, the SC3100 Unified Communications Platform acts as a Transitional Network Element (TNE) for service providers seeking to migrate their messaging applications to next-generation network architectures. Once this migration is complete, the SC3100 continues as an integral and flexible part of a fully-compliant, IMS solution.

- Extensible unified communications platform
- Robust, proven, unified messaging solutions
- Advanced distributed computing architecture
- Concurrent TDM/SS7 and IP/SIP operation
- An IMS Transitional Network Element (TNE)

**The SC3100 Unified Communications Platform:
An open, multi-tiered, modular TNE**



A Multi-Tiered Architecture

The SC3100 Unified Communications Platform features a modular, open, multi-tiered hardware and software architecture to deliver both classic messaging and advanced communications services. Commensurate with both AIN and IMS architectural philosophies, the SC3100 comprises 5 distinct tiers which may be decomposed and leveraged as individual network resources or stand-alone applications and services. These tiers, along with their composite elements, can be associated with a number of discrete components detailed within generalized IMS reference architectures.

Access to external messaging servers, network resources and database repositories is achieved through standard interfaces. These same interfaces are used to expose the functionality of the SC3100 to elements residing outside of the platform.

Granular Service Customization

Through SS8's web services-based APIs and SDKs, the presentation tier can dramatically simplify the development of branded, personalized, web-based unified communications interfaces that will help differentiate a carrier's service offering. User access to (and manipulation of) stored messages and tailored auto-attendant options can now be uniquely personalized and branded by an individual service provider.

The 5 distinct tiers of the SC3100 UCP

- Media tier:** Comprising of a media server (inc. VoiceXML browser / interpreter), ASR/TTS engines and media gateway capabilities
- Services tier:** Includes SS8's suite of VoiceXML-based UC applications and service gateways to external messaging elements and resources
- Resource tier:** Supplies user profile, messaging, and call/event charging function storage through directory servers database repositories and the resident network attached storage component
- Call control tier:** Provides access to the SC3100 UCP capabilities through standard IMS (SIP) and SS7 reference interfaces
- Presentation tier:** Enabled via a collection of java classes instantiated within a web services (web server) platform such as tomcat, J2EE or .NET



I-Suite: Customized user interfaces through open APIs

System-Level

PLATFORM TYPE	SC3100 SP	SC3100 LP
Chassis slots	4	21
Chassis/node	4	4
Redundancy	Y	Y
Chassis H/W/D	3.5"/17"/18"	21"/17"/18"
Chassis Height (RU)	2U	12U
Chassis Power	250W max	1200W max
Storage (NAS)	220GB	2000GB (2TB)
Mailboxes	250,000+	2,000,000+
Ports (RTP / DSO)	480	3,840
Peak BHCA	40,000	300,000
Compliance	TUV, EMI	NEBS Level 3, TUV, EMI

Chassis Environmental Characteristics

CHARACTERISTIC	OPERATIONAL	NON-OPERATIONAL
Temperature	-5°C ~ 50°C	-40°C ~ 85°C
Humidity	5% ~ 95% 50°C	0% ~ 95% 40°C
Altitude	10,000 ft	50,000 ft
Shock	5G	15G
Vibration	0.41G for 30 mins	1.1G for 30 mins
Input Power	-48VDC nominal (-38 ~ -58VDC) 110/220VAC (85 ~ 264VAC, 50/60Hz)	

Chassis Backplane/Bus

- PICMG 2.0 R2.1 cPCI compliant (mid-plane design)
- PICMG 2.16 cPCI hot-swap packet switching backplane (cPSB)
- PICMG 2.5 H.100/H.110 cPCI Computer telephony (TDM) bus
- PICMG 2.9 cPCI Intelligent platform management bus (IPMB)
- Dual switched Gb/E to each card slot; Gb/E network interfaces

Processing and Storage

- Operating System: Sparc/Solaris 10
- General purpose Processors: Sparc/Solaris 10 and Intel
– 64-bit/650Mhz; 40 GB HDD; 4GB RAM
- Removable storage media: CD-RW media
- RAID5 Network attached storage (NAS) with redundant file heads

OAM&P and Billing

- Alarm Card: Monitors hardware status (power, fans, temperature) leveraging the PICMG 2.9 cPCI IPMB
- Internal modem for out-of-band connectivity
- OMAP Server: Alarm consolidation, error logging, tracing, runtime process management, jumpstart and clustering support
- NAT/FW security management and IP address consolidation
- SNMPv3 (RFC 3411 et al.)
- Command Line Interface (CLI)
– SSH secure shell, telnet, local console or modem
- Telephony user interface (TUI)
- I-Suite Admin web/browser-based provisioning interface (GUI)
- Exposed Java API for all OAM&P interfaces
- Event and call charging function (ECF/CCF) – locally stored
- Billing records generated in CDR or AMA formats (via FTP)

Media Tier

- T1/E1 Media Gateway (MGW) interface module
– 4 x T1 / E1 universal interface card
– 8 x T1 / E1 universal interface card
- High-performance, DSP-based, Media Server
- IMS Media Resource Function Processor (MRFP)
– 120 and 240 port DSP resource modules
– Audio codecs: G.711, G.723, G.729, G.726, GSM
– DTMF detection & encoding (RFC 2833)
– Bidirectional fax support (T.38 fax or G.711 pass-through)
– VoIP: RTP/RTCP (RFC 3550)
– Voice activity detection, silence suppression, comfort noise
– G.168-compliant echo cancellation
– Early media (for NAT/FW traversal)
– Forward, reverse and most idle hunt
– In-band signaling: E&M ground start/loop start, R1 & R2, DID
– Customizable interactive voice response (IVR) function
- VoiceXML browser / interpreter
– W3C VoiceXML 2.1
- Automatic speech recognition (ASR)
– Natural language
– Supports SRGS (Speech Recognition Grammar Syntax)
– Media resource control protocol – MRCP
- Text to speech engine (TTS)
– Media resource control protocol – MRCP

Services Tier

- IMS Application Server (AS)
- High-performance VoiceXML document server
– W3C VoiceXML 2.1
- Voicemail (voicemail application suite)
– 14 languages, over 21 prompt sets
– 4 Telephone user interfaces (TUIs) Including ISO standard
– Speech user interface (SUI) with flattened menu structure
– Family / partitioned mailboxes
– Consolidated mailbox for multi-line integration
– Outcall from mailbox / call return
– Reminder services / wake-up call
– Personalized greetings (Rotational, CLID and I-Tracks)
– Enterprise partitioning for hosted services
– Distribution lists, subscriber-to-subscriber and broadcast
– Class of service (FCOS, LCOS, GCOS, NCOS, TCOS, RCOS)
– Media support: G.711, G.726, G.723.1, G.729, wave (.wav), MS-GSM, mp3
- Faxmemo (Fax server application suite / fax service bureau)
– In-bound and out-bound
– Media support: T.38/TIFF
- Call Agent (CAII)
– One number service (ONS)
– Time-of-day / day-of-week
- Auto Attendant (ARII)
– Call-routing IVR
– Dial-by-name
- Synchronized personal address book
– Via web services interfaces
– Hands-free dial-by-name (though ASR)

- Unified Messaging
 - Forward MIME-encoded messages to email server (UMP)
 - VPMv2 (RFC 3801) inter-platform messaging gateway
 - Native IMAPv4 (RFC 3501) server for synchronized direct access to messages via a standard IMAP client (i.e. Outlook)
 - Mail transfer agent (MTA) for incoming email
 - SMTP (RFC 2821) and POP3 (RFC 1939)
 - Spoken email (through media tier TTS engine)
- Notification Subsystem (Message waiting indication / MWI)
 - Cross-notification / multi-line integration
 - Out dialing (including pager)
 - DTMF to switch (CAS R1/R2)
 - ISUP MWI (various)
 - TCAP MWI (addressable via global title or MTP routing)
 - IS-41d MWI (Message directive)
 - GR-866 MWI (ANSI)
 - SMDI MWI
 - SMS MWI via SMPP interface (with callback number)
 - SIP NOTIFY (RFC 3842)
 - Email MWI (up to 5 URIs)

Call Control Tier

- SS7/C7 call control agent
 - Telecordia tested SS8 Networks D7 stack implementation
 - ANSI/ITU ISUP, TCAP, SCCP, MTP
 - Link capacity: 96 channels (T1) 120 channels (E1)
 - Up to 256 circuit groups
 - Optional redundancy with single signaling point code (SPC)
- SIP / IMS Call control agent
 - RFC 3261 compliant
 - SIMPLE Presence and IM extensions (RFC 3265)
 - SIP REFER (RFC 3515)
 - Early media and ring tone generation (RFC 3960)
 - SIP call control (CC)-diversion (draft extension)
 - MD5-encrypted INVITE authentication challenge
 - Privacy mechanisms for SIP (RFC 3323 / 3325)
 - Hitless hot-standby SIP proxy with single UA and shared IP
- Simplified Message Desk Interface (SMDI)
 - Template support for most switches
 - Up to 192 SMDI links (48 per agent, 4 per system)
 - Multiple redundancy options

Resource Tier

- Standard Network Attached Storage (NAS) element
 - Gb/E connectivity to the SC3100 UCP
 - Accessed via Network File System (NFS) v4 (RFC 3530)
 - Redundant disk array (RAID5) with data striping & hot spare
 - Stores all dynamic data: messages, user greetings, mailbox records, database metadata, call agent tables & configuration

NAS Variant	1/2	3/4	5/6
Capacity	Up to 220GB	Up to 540GB	Up to 1.2TB
SC3100 Platform	SP	LP	LP
Power	AC/DC	AC/DC	AC/DC
Redundancy	N	Y	Y

- Relational Database Server
 - ANSI SQL / ODBC
 - Messages, greetings and ECF/CCF
- Directory Server
 - IETF LDAPv3 (RFC 3377)
 - Unified messaging user profiles
- Mailbox transfer utility (MTU)
 - BSP-SC3100; SC3100-SC3100

Presentation Tier

- I-Suite – software development kit (SDK)
 - Leverages SC3100s open applications programming interface
 - Includes a manager class and a collection of business beans
 - Instantiated within a web server and called using JSPs
 - Abstracts functionality for custom application development
- I-Tracks Service
 - 100% hosted personalized ‘soundscape’ greeting application
- I-Suite Admin application
 - Browser-based configuration utility
 - Enterprise partitioning for hosted wholesale services
- My I-Suite application
 - Browser-based client web user interface (WUI)
 - Unified messaging portal, individual profile management
 - Access to alternate messaging stores for UM applications

Redundancy

- Redundant backplane, power, alarms and fans
- OAM&P redundancy through OMAP server subsystem clustering
- Redundant media server (MRFC) elements through clustering
- Redundant service tier (application server) elements
 - Clustered / load-sharing topology
- Hot-switchover of all processes through runtime floating
- Redundant pairing option for all call control tier call agents
- Active / standby database server redundancy
- Master / slave group directory server redundancy
- Redundant file heads and RAID controllers
- Block-level striping across all member disks with hot spare

Quality

- QuEST Forum TL9000 Quality Management System (QMS)



SS8 Networks
 91 East Tasman Drive, San Jose, CA 95134
 Tel: (408) 944-0250 Fax: (408) 428-3732
www.ss8.com

Some of the features listed may be under development. Please contact SS8 for feature availability schedule. This document does not create any express warranty by SS8 Networks or about its products or services. SS8 Network's sole warranty is contained in the written product warranty for each product. The end-user documentation shipped with SS8's products constitutes the sole specifications referred to in the product warranty. The customer is solely responsible for verifying the suitability of SS8's products for use in its network. Specifications are subject to change without notice.

Copyright © 2006 SS8 Networks, Inc. SS8 Networks, the SS8 Networks logo, Xcipio, and ServiceController are trademarks of SS8 Networks Inc. All other trademarks mentioned in this document are the property of their respective owners.