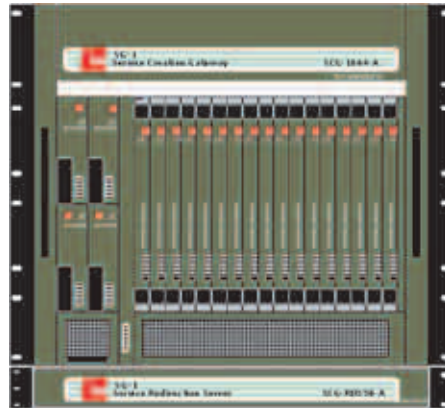


SG-1 Service Gateway

Optimized Dynamic Service Creation System



ADC's SG-1 Service Gateway offers service providers dynamic service creation capabilities that are optimized for the delivery of value-added services to their broadband customers. Designed to promote and deliver dynamic IP-based services such as content and bandwidth on demand, the SG-1 offers unique architectural and operational advantages for the profitable deployment of new, advanced services. This next-generation platform provides improved scalability and configuration flexibility, easy and economical service definition and enforcement procedures, and reduced integration expenses. Combined, these advantages deliver a faster time to profit with lower up-front capital investment.

Benefits

- Broadband services can be marketed easily and profitably to target customers over a web-based medium, increasing take rates on promotional activities.
- Multiple grades of broadband service can be delivered such as lower cost packages to increase market share; additional revenue and profits generated through dynamic Turbo button bandwidth and content on demand services.
- Marketing, provisioning and maintenance costs can be lowered by increasing and automating web-based interaction with customers, increasing customer intimacy and reducing manual service rep interactions.
- Provides drop-in architecture for ease of implementation; complete offering of open interfaces that adapt to any network.
- Service selection from any portal, including third party.

DATA SHEET



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SG-1 Service Gateway

Description

Features

- Real-time user profile creation/activation for various types of users
- Real-time profile change without session termination
- Requires no proprietary user portal/web server for user interactive services
- Dynamic access lists for walled gardens
- Real-time service metering and mediation
- Real-time user profile bandwidth modifications
- Requires no internal profile/policy/service server - uses existing RADIUS database
- Scalability from small NSP to larger size carriers
- Standard protocols-based - nothing proprietary
- Supports multi-phase authentication for dynamic service profile activation
- Supports dynamic IP address allocation by either the service provider and / or its third party partners through DHCP and RADIUS technologies

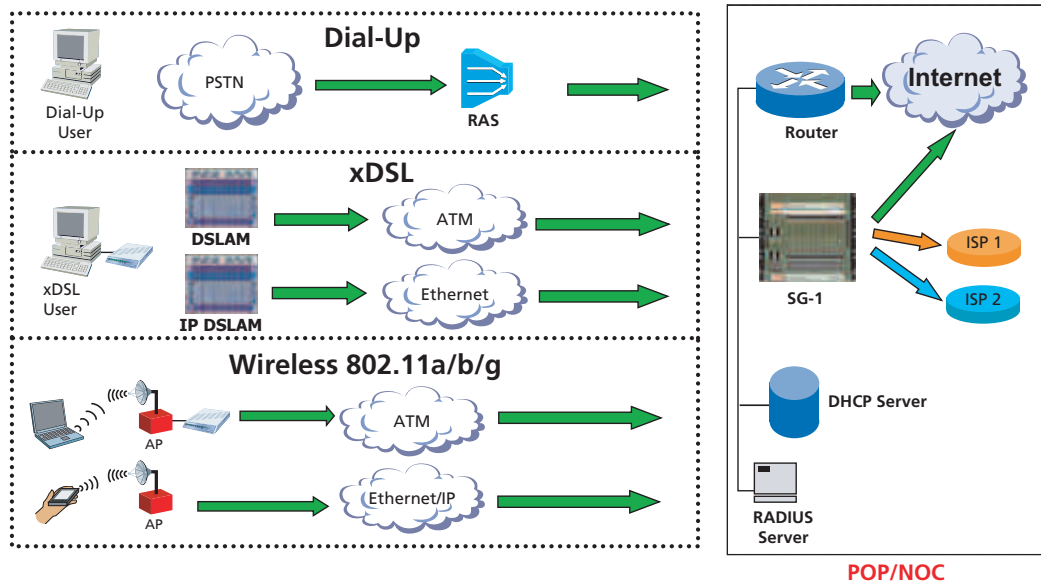
Application Awareness Capability

- With the Application Awareness feature on the SG-1 Service Gateway, a service provider can allocate different resources to different applications being utilized by various users. With the system's RADIUS proxy, DHCP proxy and phased user scenario capabilities, different service providers can offer a different service or group of services that can be authenticated, authorized and billed by the appropriate provider. This is a next generation, multi-service approach that follows the concept of multiple networks. Not only can the SG-1 provide an individual service profile for each user, but the service may be further defined according to the application required by the user. For example, VoIP peer-to-peer traffic may be assigned with a specific priority and bandwidth that can be billed separately.

SG-1 Service Gateway

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Complete Network Integration





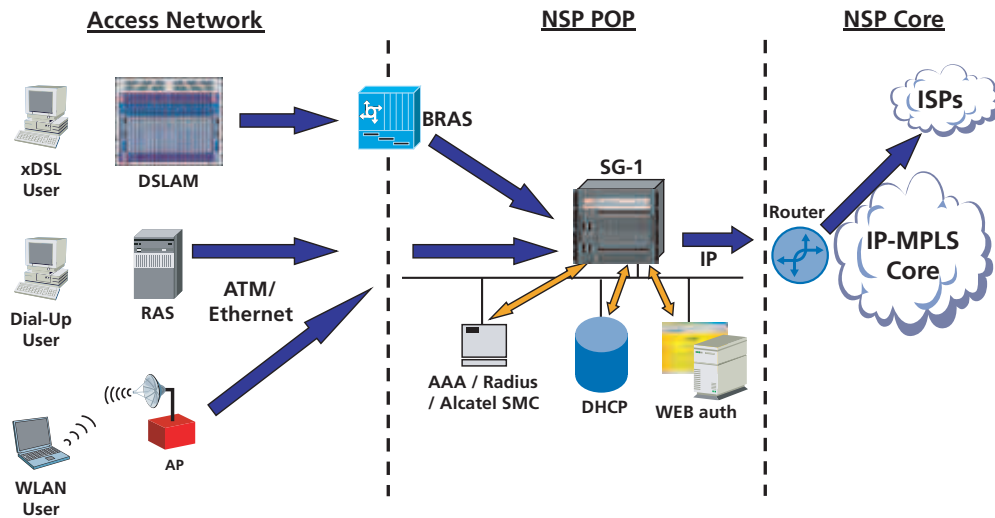
SG-1 Service Gateway

Description

Advantages

- **Subscriber Redirection** - The SG-1 can change the URL received by the end-user according to his/her profile or network status at any time following a pre-defined trigger such as a service time-out or session initiation.
- **IP Filtering** - The SG-1 enforces a network-based filter on end-user traffic. A filter can be set for each individual connection or for any defined group of users. The filter definitions are based on IP addresses, IP networks and network application (such as mail, web, instant messaging, etc).
- **Bandwidth Management** - The Service Gateway can enforce different bandwidth limits for upstream and downstream traffic, and for bandwidths according to individual user profiles or according to a group of users using the same profiles. Bandwidth management also allows for dynamic changes in the bandwidth allowed to a subscriber within the same session.
- **Self-Provisioning** - This feature lowers the operational costs of the service provider by automating provisioning and maintenance processes such as password verification and service auto-registration. Self-provisioning also supports dynamic changes of a user profile within the session. When a service is offered to a user or group of users through a portal interface, the user can request the service and his profile will be changed accordingly "on the fly" with accounting information also updated in real time.

SG-1 Network Segments



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SG-1 Service Gateway

Specifications

SERVICE CREATION

LAN, WAN and Routing Protocols:

IP, Ethernet
PPP, multi-link PPP
L2TP Tunneling – LNS, LAC, Tunnel switching
IP Tunneling - GRE, IP in IP
TCP/IP
DHCP
IP allocation using pools
IP routing
RIPv2
OSPF
ATM (UNI 3.1 & TM 4.1)
RFC 1483, RFC 2684 (VC multiplexed)
PPP over Ethernet - RFC 2516
PPP over ATM - RFC 2364
VLAN Tagging 802.1q
VRRP RFC 2338 (Redundancy and load-sharing)
Multicast
Ipv6 ready

Security:

User name and password
Web authentication
PAP, CHAP
RADIUS authentication
Proxy RADIUS authentication
EAP
802.1x support
MAC anti-spoofing
Calling Line ID authentication
4 levels of administrative passwords
Transmit and receive packet filtering
Dual SNMP security levels
Anti-spoofing mechanism

Operation and Management:

Telnet
SNMP
Remote software download
Advanced security management

Accounting:

Proxy RADIUS Accounting
Per subscriber accounting information
Per service accounting
Subscriber statistics
Time-based accounting
Time traffic and application-based accounting
Accurate time-based accounting



SG-1 Service Gateway Specifications

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Service Management:	Per subscriber service Web-based service selection Domain-based service Location-based service Called number-based service Dynamic IP filtering Service authentication using RADIUS Service-based accounting Various authentication source Service catching mechanism Internal service configuration Differentiated routing Automatic service capability Per subscriber DNS configuration Application awareness (p2p, RTP)
Advanced Features:	Dynamic HTTP redirection Internal pre-paid support and enforcement support Dynamic packet forwarding Dynamic profile configuration Per subscriber personal home page
QoS Support:	Per session bandwidth policing Dynamic bandwidth selection Dynamic packet coloring
WLAN Access Methods	802.1x/SIM DHCP Plain IP
Applications:	Guided entrance Promotional services Walled garden Child protection Password verification Pre-paid (time, data, application) Central site anti-virus (hosted application) Content filtering (hosted application)
FULL SIZE SYSTEM CHASSIS	
Dimensions:	10U (h) x 19" (w) Rack mounted 43.33 cm (h) x 48.3 cm (w) x 33 cm (d)
Input Power:	90 - 264V AC continuous range 36 - 72V DC continuous range
Service Creation Slots:	Up to 16 cards Hot swappable, N + 1 redundancy, Load sharing
LAN Interfaces	Up to 80 Fast/Gigabit Ethernet
WAN Interfaces	Up to 32 STM1/OC3c
Power Supply Slots:	Up to 4 power supply modules Hot swappable, N + 1 redundancy
Rear-IO Module:	Up to 16 rear-IO modules
Fans:	3+1 powerful low noise fans
Least Capacity Configuration:	1 chassis 1 Service Creation Card 1 Power Supply Module Fans unit 3+1 15 x Blank panel Cables kit
MINI SYSTEM CHASSIS	



SG-1 Service Gateway

Specifications

1 / 0 5 • 1 3 0 2 3 1 2 SG-1 Service Gateway

Dimensions:	1U (h) x 19" (w) Rack mounted 4.33 cm (h) x 48.83 cm (w) x 33 cm (d)
Input Power:	90 to 132V, 180 to 264V AC Auto-ranging 47 - 63 Hz input frequency
Service Creation Slots:	Up to 2 service creation cards Hot swappable, N + 1 redundancy, Load sharing
LAN Interfaces:	Up to 10 Fast/Gigabit Ethernet
WAN Interfaces:	Up to 4 STM1/OC3c
Rear-IO Module:	Up to 2 rear-IO modules
Fans:	3 powerful low noise internal fans
Least Capacity Configuration:	1 chassis 1 service creation card 1 x blank panel Cables kit

SERVICE CREATION CARD (1 Gigabit Ethernet Port)

Capacity:	4,000 virtual ports
Ethernet:	Gigabit Ethernet 1 x LAN connection Front-IO Copper - 10/100/1000BaseT (RJ-45 connector) Full duplex Auto-sensing Optional 2 x LAN connection (RJ-45 connector) Rear-IO Copper - 10/100/1000BaseT Full duplex Auto-sensing
Serial:	1 x Serial RS-232 ports (9-pin micro SUBD) Front-IO Optional 2 x Serial RS-232 ports (9-pin micro SUBD) Rear-IO

SERVICE CREATION CARD (3 Gigabit Ethernet Ports)

Capacity:	4,000 virtual ports
Ethernet:	Gigabit Ethernet 2 x LAN connection Front-IO Optic - 1000BaseSX/LX (SC, VF-45 or MT-RJ) or Copper - 10/100/1000BaseT (RJ-45 connector) Full duplex Auto-sensing 1 x LAN connection Front-IO Copper - 10/100/1000BaseT (RJ-45 connector) Full duplex Auto-sensing Optional 2 x LAN connection (RJ-45 connector) Rear-IO Copper - 10/100/1000BaseT Full duplex Auto-sensing
Serial:	1 x Serial RS-232 ports (9-pin micro SUBD) Front-IO Optional 2 x Serial RS-232 ports (9-pin micro SUBD) Rear-IO



SG-1 Service Gateway

Specifications

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SERVICE CREATION CARD (SONET/ATM)

Capacity:	4,000 virtual ports
WAN:	OC3c/STM1 2 x WAN connection Front-IO WAN Optic SC/LC connector (multi-mode, single-mode) (RJ45 copper optional) SONET APS - Bellcore GR-253-CORE compliance
Ethernet:	Gigabit Ethernet 2 x LAN connection Front-IO Optic - 1000BaseSX/LX (SC, LC, VF-45 or MT-RJ) or Copper - 10/100/1000BaseT (RJ-45 connector) Full duplex Auto-sensing 1 x LAN connection Front-IO Copper - 10/100/1000BaseT (RJ-45 connector) Full duplex Auto-sensing Optional 2 x LAN connection (RJ-45 connector) Rear-IO Copper - 10/100/1000BaseT Full duplex Auto-sensing
Serial:	1 x Serial RS-232 ports (9-pin micro SUBD) Front-IO Optional 2 x Serial RS-232 ports (9-pin micro SUBD) Rear-IO

POWER SUPPLY MODULE

AC Input:	90-264 Vac continuous range, 47 to 63 Hz
Power Factor:	0.99 typical at full load (meets EN61000-3-2)
Over Voltage Protection:	Protects load against power supply induced over-voltage
Output Isolation:	Isolated from ground 1500 VAC (leakage current <20 µA)
Thermal Protection:	Shuts down power supply if overheated Automatic recovery
Fusing:	Internal line fuse (no-user serviceable)
Current Load Sharing:	Current sharing remains within 10% of the unit's full outputs rating while units are in thermal equilibrium
DC Input:	40-70 VDC continuous range
Over Voltage Protection:	Protects load against power supply induced over-voltage
Output Isolation:	Isolated from ground 1500 VAC (leakage current <20 µA)
Thermal Protection:	Shuts down power supply if overheated Automatic recovery
Fusing:	Internal line fuse (no-user serviceable)
Current Load Sharing:	Current sharing remains within 10% of the unit's full outputs rating while units are in thermal equilibrium

ENVIRONMENTAL

Ambient Temperature:	0° to 40°C
Storage Temperature:	-40° to 85°C
Humidity:	95%

GENERAL

Total System Capacity	Up to 64,000 virtual ports per chassis
16 slots chassis:	Up to 8,000 virtual ports per chassis
2 slots chassis:	
High Availability:	Hot Swap N+1 redundant Power Supply Module (in 16 slots chassis) N+1 redundant Service Creation Card



SG-1 Service Gateway

Ordering Information

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Ordering Information	
Description	Catalog Number
SG1 Assembly (incl. Cage 10U + MBs, fan units, blank panels & set of cables) (*) - For AC supply	SG1-400-005-A
SG1 Assembly (incl. Cage 10U + MBs, fan units, blank panels & set of cables) (*) - For DC supply	SG1-400-008-A
SG1 Assembly (incl. Cage1U + MBs, fan units, power supply, blank panels & set of cables) (*)	SG1-400-007
Service Creation Card GEth with 1 x 10/100/1000BaseT RJ-45 connectors (front access)	SG1-650-030
Service Creation Card GEth with 3 x 10/100/1000BaseT RJ-45 connectors (front access)	SG1-650-035
Service Creation Card GEth with 2 x 1000 Base SX/SC connectors (front access) and 1 x 10/100/1000BaseT RJ-45 connectors (front access)	SG1-650-031
Service Creation Card ATM155 with 2 x singlemode LC connector, 2 x 1000 Base SX/SC connectors and 1 x 10/100/1000BaseT RJ-45 connectors (front access)	SG1-650-033
Service Creation Card ATM155 with 2 x multimode LC connector, 2 x 1000 Base SX/SC connectors and 1 x 10/100/1000BaseT RJ-45 connectors (front access)	SG1-650-032
General Operating System - G.O.S (V7.0)	SG1-790-008 R7
Service Creation Software Package including License for Http Redirection, Service Selection and Dynamic Filtering (V7.0)	SG1-790-003 R7
AC Power Supply Module (**)	SG1-603-002
DC Power Supply Module (-48V) (**)	SG1-603-003
Redirection Server - RDS h/w (***)	SG1-780-002
Redirection Server Software - RDS s/w V3.0 (***)	SG1-790-002 R3
SCC Rear-IO Module (including 10/100/1000 BaseT RJ-45 connectors)	SG1-650-034
Memory Extension Module - 256M	SG1-650-024
FAN-10U-Upper	SG1-650-040
FAN-10U-Lower	SG1-650-041
Basic service creation license package: Bandwidth control + Customized Guided Entry + Location Information Report	SG1-791-001 R7
Extended service creation license package: Bandwidth control + Automatic service changing + Location Information Report + COS + Customized Guided Entry + Native IP + Dynamic IP changing + Differentiated routing + Application Awareness	SG1-791-003 R7
Bandwidth control	SG1-792-001
Automatic service changing (Smart pre-paid)	SG1-792-002
Location Information Report	SG1-792-003
COS	SG1-792-004
Customized Guided Entry	SG1-792-006
Native IP	SG1-792-007
Dynamic IP changing	SG1-792-008
Differentiated Routing	SG1-792-011
Application Awareness	SG1-792-013

(*): 1 Cage can house up to 16 SCC cards and up to 4 Power Supply modules

(**): 1 to 5 SCCs need 1 PS, 6 to 10 SCCs need 2 PSs, 11 to 16 SCCs need 3 PSs

(***): 1 RDS (h/w + s/w) supports operation with up to 16 SCCs

DATA SHEET



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