Service Gateway
Sigma E

Enabling Digital Lifestyle services in fixed/mobile broadband networks

Allot Service Gateway Sigma E (SG-Sigma E) is a carrier-grade, highly scalable DPI-based platform for service enablement and broadband optimization in fixed and mobile networks. It provides built in compatibility with 3G, 4G/LTE, cable, DSL, FTTx, and converged network environments. With 160 Gbps of throughput in a single platform, SG-Sigma E enables operators to manage high-speed broadband performance, to control infrastructure and operating costs, and to generate new revenue streams through the deployment of value-added network and subscriber services.

Benefits

- **Control costs** through efficient traffic management

- **Increase profitability** with fully integrated network and subscriber services

- **Generate revenue from Over-The-Top (OTT) services** through intelligent online charging

- **Ensure Quality of Experience (QoE)** for all services, including OTT

- **Leverage actionable network intelligence** from traffic statistics per application, subscriber, content, and network location

- **Reduce deployment complexity and time-to-market** with a high-capacity, single-chassis services platform

- **Protect investment** in infrastructure and pay as you grow with an open, modular, standards-based solution

Allot
communications

Feature Highlights

Core functionality

Real-time and long-term traffic monitoring and reporting, usage profiling, demographics, traffic management, policy enforcement, prioritization, traffic shaping, and Quality of Service (QoS) control. IPv6 is supported, with IPv4/IPv6 dual stack subscriber management for flexible network configuration.

Extreme performance

Supports throughput of up to 160 Gbps and up to 130 million concurrent flows in a single platform.

Actionable network intelligence

Powered by Allot's Dynamic Actionable Recognition Technology (DART) to provide:

- **Application awareness:** Identifies and analyzes applications at Layer-7 with extreme accuracy at very high speeds and peak loads. Visibility is further enhanced by in-depth HTTP analysis of individual applications in order to distinguish between streaming, file sharing, social networking, and others.

- **Subscriber awareness:** Seamless integration with Allot Subscriber Management Platform provides traffic monitoring, service provisioning, and policy enforcement per subscriber-application.

- **Topology awareness:** Cell-aware monitoring and enforcement detects and reduces congestion within a mobile cell and on cell backhaul links.

- **Device awareness:** Identifies and categorizes mobile devices, informs business and strategic decision-making. Tethering detection supports service plan level enforcement, quota reporting, and charging.

DART employs hitless signature updates for continuous and accurate detection and classification of flows even while the signature library is being updated.

User defined signatures

In addition to Allot's granular classification of various HTTP protocols, SG-Sigma E allows service providers to monitor and manage local applications, sites, and URLs by creating customized HTTP/S signatures. User-defined signatures may be based on any of the main HTTP headers in use. These signatures can also be included in the system's full range of analytics capabilities, providing valuable traffic and usage statistics.

Web data collection and export

Web Charging Data Records (CDR) provide actionable user behavior information in the form of detailed records about user activity over the HTTP protocol. Data is exported in CSV format to Allot Proactive Analytics or other BI systems.

Value-added network and subscriber services

Facilitates fast and cost-effective deployment of value-added network and subscriber services that are integrated in the Service Gateway platform, including URL filtering (parental control), media caching and acceleration, DoS/DDoS protection, outgoing spam mitigation, tiered and quota-based services, and third-party service applications.

Traffic steering and load balancing

Steers relevant traffic to network and subscriber service applications deployed in the SG-Sigma E chassis or on external servers, and dynamically balances the load among multiple service elements as needed. Traffic steering policies may be based on application, subscriber, network topology, or any combination of these criteria.

Online policy control and charging

SG-Sigma E works in conjunction with Allot's Policy Control and Charging (PCC) solution and the Allot Subscriber Management Platform to provide accurate, real-time usage data for online and offline charging. The solution is designed for flexible and cost-effective integration with operator Policy and Charging Rule Function (PCRF) infrastructure and with online and offline charging systems (OCS, BSS) in 3G and 4G mobile broadband networks.

Asymmetric traffic handling

Enhances classification accuracy by ensuring that all traffic flows from the same connection are identified as such, even if the upstream and downstream traffic is processed by different Service Gateway platforms in a cluster configuration.

High scalability

Pay-as-you-grow deployment reduces initial capital outlay and allows operators to add services or upgrade capacity at any time.

- **Capacity:** Available in a 14-slot chassis (SG-Sigma E14) and an economical 6-slot chassis (SG-Sigma E6)

- **Port Density:** Network connectivity and service connectivity provided by:
    - Up to 16 x 10GE network interfaces in SG-Sigma E14
    - Up to 8 x 10GE network interfaces in SG-Sigma E6
    - Up to 32 x 1GE network interfaces plus an additional 32 x 1GE interfaces for steering

- **Performance:** Modular blades deliver incremental throughput from 32 to 160 Gbps, while platform clusters can scale to provide up to 1 Terabit /second of aggregate throughput

- **Subscribers:** Supports up to 8 million active subscribers per platform, enabling scalable service deployment

- **Services:** Deployed on hot-swappable blades hosted in the platform or deployed externally; can be extended as needed

High availability

The platform provides 1+1 redundancy at the system level, plus blade-level redundancy mechanisms to ensure service continuity with no downtime due to component failure.

Open architecture

Standard interfaces, protocols, and APIs facilitate rapid and trouble-free integration of third-party network and subscriber services. Compliant with 3GPP standards for Traffic Detection Function (TDF) and Policy and Charging Enforcement Function (PCEF) elements in mobile networks.

Carrier-grade design

Engineered to AdvancedTCA® standards for deployment in service provider networks.

Centralized management

Fully integrated with Allot NetXplorer Management system.

Specifications

Allot Service Gateway Sigma E platforms comprise an AdvancedTCA® chassis with a minimum blade configuration that includes two Core Controllers and two Switch & Flow Balancer blades, and one Bypass element.

Allot Service Gateway Sigma E Platforms

	SG-Sigma E14	SG-Sigma E6
Platform Configuration		
Chassis	14-slot, AdvancedTCA (ATCA)	6-slot AdvancedTCA (ATCA)
Maximum Available Slots	14	6
Core Controller (CC) Blade	2 to 10 (blade occupies 1 slot)	1 to 4 (blade occupies 1 slot)
Switch and Flow Balancer (SFB) Blade	2 to 4 (blade occupies 1 slot)	1 or 2 (blade occupies 1 slot)
Bypass (BP) Blade	1 to 2 blades (8 ports each), or external	1 blade (8 ports), or external
Service Blades	Up to 8 single-slot blades	Up to 3 single-slot blades
Capacity		
Throughput per Platform	Up to 160 Gbps	Up to 64 Gbps
Throughput per Cluster (cascading platforms)	1 Terabit/sec, using 8 devices	360 Gbps, using 8 devices
Number of Flows	Up to 130 Million (13 Million per CC)	Up to 52 Million (13 Million per CC)
Number of Subscribers / Active PDP Contexts	Up to 8,000,000	Up to 3,200,000
Number of Lines / Pipes / Virtual Channels	Up to 512 / 2,000,000 / 6,000,000 (200,000 / 600,000 per CC)	Up to 512 / 800,000 / 2,400,000 (200,000 / 600,000 per CC)
Interface Types		
Ethernet Interfaces	Up to 24 x 10 Gigabit Ethernet SR/LR/ER	Up to 12 x 10 Gigabit Ethernet SR/LR/ER
Management	2 x 10/100/1000Base-T (1+1)	2 x 10/100/1000Base-T (1+1)
Console	Serial, RJ45 Connector	Serial, RJ45 Connector
Connectivity Configurations and Throughput Options		
Maximum Ports for Network Connectivity	16 x 10GE or 32 x 1GE ports	8 x 10GE or 32 x 1GE ports
Maximum Ports for Server Connectivity (Steering)	12 x 10GE ports (shared with network ports), plus an additional 32 x 1GE	12 x 10GE (shared with network ports), plus an additional 32 x 1GE
Throughput	32 to 160 Gbps (in increments of 16 Gbps)	16 to 64 Gbps (in increments of 16 Gbps)
Availability		
Hardware Bypass	1-2 independent passive optical bypass, each support up to 4 links/8 ports (external and internal options available)	Independent passive optical bypass (external and internal options available)
High Availability	1+1 system-level redundancy N+1 redundancy of Core Controller blades	1+1 system-level redundancy N+1 redundancy of Core Controller blades
Management	Active-Standby HA on management ports	Active-Standby HA on management ports
System	Redundancy for PSUs and fans	Redundancy for PSUs and fans
Allot Product Compatibility		
Allot NetXplorer Centralized Management Server	Version NX11.2 and up	Version NX11.2 and up
Allot NetXplorer Collector	Version DC11.2 and up	Version DC11.2 and up
Allot Subscriber Management Platform	Version SMP11.2 and up	Version SMP11.2 and up
Dimensions		
Size	Standard 13U by 19" rack mount	Standard 6U by 19" rack mount
Weight	80Kg (177lb), in full configuration	40Kg (88.2lb), in full configuration
AC Power Supply Size (all PSUs)	External 1U by 19" rack mount	Integral Power Supply, Front redundant, Hot swappable
Bypass Unit (Optional)	1 or 2 x External 1U, 19" rack mount, 2.4kg (5.3lb)	External 1U, 19" rack mount, 2.4kg (5.3lb)
Power		
Input DC	-48V / -60V DC, 100A Max	-48V / -60V DC, 45A Max
Number of DC PSUs	2	2
DC PSU Redundancy	1+1	1+1
Input AC	External 100 – 240VAC, 50/60Hz, 4kW Max	Integral 100 – 240VAC, 50/60Hz, 1.8kW Max
Number of AC PSUs	N+1	N+1
AC PSU Redundancy	Yes	Yes
Heat Dissipation	13,658 BTU/hour (in full configuration)	6,146 BTU/hour (in full configuration)
Environment		
Operating Temperature	23 to 131°F (-5 t o 55°C)	23 to 131°F (-5 t o 55°C)
Operating Temperature, short term with fan failure	41 to 104°F (5 to 40°C)	41 to 104°F (5 to 40°C)
Storage Temperature	-38 to 150°F (-40 to 70°C)	-38 to 150°F (-40 to 70°C)
Storage Relative Humidity	5 to 95% relative humidity (RH)	5 to 95% relative humidity (RH)
Operating Humidity, nominal	5 to 85% RH	5 to 85% RH
Operating Humidity, short term	5 to 90% RH	5 to 90% RH
Operating Altitude	-60 to 4000m	-60 to 4000m

Specifications

Allot Service Gateway Sigma E Platforms (continued)

	SG-Sigma E14	SG-Sigma E6
Standards		
NEBS, Level 3	Fully compliant with Telecordia GR-1089-CORE, Telecordia GR-63-CORE standards	Designed to comply with Telecordia GR-1089-CORE, Telecordia GR-63-CORE standards
CE Conformity	2004/108/EC Electromagnetic Compatibility Directive 2006/95/EC Low Voltage Equipment directive	
Safety	UL 60950-1:2007 EN 60950-1:2006 / A11:2009 + A2:2009 CAN/CSA-C22.2 No. 60950-1-07	
EMC	European Directives 2004/108/EC & LVD 73/23/ EEC EN 55022:2006 + A1:2007 EN 55024:1998 + A1:2001 + A2: 2003 EN61000-3-2: 2006 + A1: 2009 + A2:2009 EN61000-3-3: 2008 ETSI EN 300 386 V1.4.1: 2008-04 for use in telecommunication canters ETSI EN 300 386 V1.4.1:2008-04 FCC CFR 47 Part 15B Class A Industry Canada ICES-003 Issue 4; C108.8-M1983 CISPR 22:2009 VCCI Class A Technical Requirements, V-3/2001.04 AS/NZS CISPR22:2009	
RoHS/WEEE Compliance	2011/65/EU RoHS Restrictive of the use of certain hazardous substances 2002/96/EC WEEE	

Allot Service Gateway Sigma E Blades

	Switch & Flow Balancer (SFB) Blade	Core Controller (CC) Blade	1GE Switch Blade	Bypass (BP) Blade
Capacity				
Throughput	240 Gbps	16 Gbps	36 Gbps	N/A
Number of Connections / Flows	N/A	6,500,000 / 13,000,000	N/A	N/A
Pipes / Virtual Channels	N/A	200,000 / 600,000	N/A	N/A
Number of Subscribers / PDP Contexts	N/A	800,000	N/A	N/A
Interface Types				
Console	Serial, RJ45 Connector	Serial, RJ45 Connector	Serial, RJ45 Connector	N/A
Ethernet Interfaces	6 x 10 Gigabit Ethernet SR/LR/ER	N/A	14 x 1 Gigabit Ethernet SX/LX/ZX /Copper 2 x 10/100/1000Base-T	N/A
Management	2 x 10/100/1000 BaseT	N/A	2 x 10/100/1000 BaseT	N/A
Availability				
Hot Swap	Supported	Supported	Supported	Supported
Redundancy	1+1	N+1	1+1	N/A
Dimensions and Power				
Size	Standard 1-slot ATCA blade	Standard 1-slot ATCA blade	Standard 1-slot ATCA blade	Standard 1-slot ATCA blade
Power Dissipation (Max)	240W	215W	130W	5W
Standards				
AdvancedTCA	PICMG 3.0 R.2.0	PICMG 3.0 R.2.0	PICMG 3.0 R.2.0	PICMG 3.0 R.2.0

ⓘ About Allot Communications

Allot Communications Ltd. (NASDAQ: ALLT) is a leading global provider of intelligent broadband solutions that put mobile, fixed and enterprise networks at the center of the digital lifestyle. Allot's DPI-based solutions identify and leverage the business intelligence in data networks, empowering operators to shape digital lifestyle experiences and to capitalize on the network traffic they generate. Allot's unique blend of innovative technology, proven know-how and collaborative approach to industry standards and partnerships enables service providers worldwide to elevate their role in the digital lifestyle ecosystem and to open the door to a wealth of new business opportunities For more information, please visit www.allot.com.

sales@allot.com

Americas: 300 TradeCenter, Suite 4680, Woburn, MA 01801 USA Tel: +1 (781) 939-9300 Fax: +1 (781) 939-9393 Toll free: 877-255-6826 ● **Europe:** NCI – Les Centres d'A_aires Village d'Entreprises 'Green Side', 400 Avenue Roumanille, BP309, 6906 Sophia Antipolis Cedex, France Tel: +33 (0) 4-93-001160, Fax: +33 (0) 4-93-001165 ● **Asia Pacific:** 25 Tai Seng Avenue, #03-03, Scorpio East Building, Singapore 534104 Tel: +65 67490213 Fax: +65 68481015 ● **Japan:** 4-2-3-301 Kanda Surugadai, Chiyoda-ku, Tokyo 101-0062 Tel: +81 (3) 5297-7668 Fax: +81(3) 5297-7669 ● **Middle East and Africa:** 22 Hanagar St., Industrial Zone B, Hod-Hasharon, 45240, Israel, Tel: +972 (9) 761-9200, Fax: +972 (9) 744-3626

www.allot.com   info@allot.com

ALLOT communications