DATA SHEET

Acme Packet® Net-Net Session Director

Overview

The Net-Net® Session Director (SD) is Acme Packet's industry-leading session border controller (SBC) for fixed line, mobile and over-the-top (OTT) service providers. Based on Acme Packet's Net-Net Operating Software (Net-Net OS), the Net-Net SD operates on Acme Packet's range of purpose-built hardware platforms or general purpose servers to deliver a unique combination of performance, capacity, high-availability and manageability that has made it the most widely-deployed SBC in the world.

The Net-Net SD enables service providers to deliver trusted, first-class interactive communications services across IP network borders. SIP, H.323, MGCP and H.248-based services and applications are supported ranging from basic VoIP to any IMS enabled service—voice, video conferencing and calling, presence, instant messaging, IPTV, video on demand, GSMA IPX, and femtocell and Wi-Fi-enabled fixed-mobile convergence over any type of IP network.

The functions offered by the Net-Net SD satisfy critical service provider requirements in five major areas:

Security

Leveraging Acme Packet's Net-SAFE security framework for real-time communications, the Net-Net SD secures all service provider access and interconnect/peering borders. The tight coupling of Net-Net OS and Acme Packet's advanced hardware enables the Net-Net SD to protect itself, the service delivery infrastructure and communications sessions from a wide range of malicious and non-malicious threats. The Net-Net SD leverages Net-SAFE to ensure the confidentiality, integrity and availability of real-time interactive communications services by preempting attacks, eliminating vulnerabilities and applying powerful mitigation to counteract events as they happen, even while ensuring continuity and high quality for subscribers and customers using the services within standard policies and guidelines.

Interoperability

The SIP, H.323 and SIP-H.323 interworking capabilities of the Net-Net SD are designed to maximize service reach by ensuring interoperability with and between subscriber endpoints, softswitches, IMS CSCF elements, application servers, media servers, media gateways and SBCs in peering networks and SIP/H.323-trunked enterprise networks. They enable sessions to traverse NAT/firewalls, IPv4 and IPv6 networks, public and private networks using overlapping IP addresses, and virtual private networks. The Net-Net SD mediates between different signaling, transport and encryption protocols, converts incompatible codecs, and translates signaling-layer telephone numbers, addresses and response codes.

Acme Packet Edge

- *Net-Net OS – comprehensive signaling, programmability and control functions and features*
- *Range of platforms – meets all low to high-end service provider requirements*
- *Advanced hardware for highly scalable encryption, QoS measurement and transcoding*
- *Full IMS integration – range of IMS standard functions and interfaces*
- *SBC clustering for industry-leading performance, capacity and availability*

Applications

- *Access SBC in next-generation fixed line, mobile and over-the-top (OTT) services*
- *Interconnect SBC for peering, PSTN termination/origination and wholesale services*
- *IMS access and interconnect*

Key Features

- *Comprehensive security – based on Acme Packet's Net- SAFE™ framework*
- *Service reach – Interworking and normalization of signaling, media, transport, security protocols*
- *Regulatory compliance – Lawful intercept, prioritized routing of E-911 calls, session replication*
- *Reliability and quality – QoS and QoE assurance, high availability, session routing*
- *Revenue and cost optimization – accounting, protection against service theft/fraud*

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Reliability and quality

The Net-Net SD plays a critical role in assuring session capacity, service availability and quality. It performs admission control via local policies and/or external policy servers to ensure that both the network and service infrastructure has the capacity to support high quality communications. It also monitors and reports actual session quality to determine compliance with performance specifications set forth in service level agreements between service providers. Intelligent session routing and high availability configurations minimize outages caused by upstream link failure or equipment problems.

Regulatory compliance

Government-mandated regulations worldwide, including national emergency services such as E911, national security emergency preparedness services such as Government Emergency Telecommunications Service (GETS) and lawful intercept such as the Communications Assistance for Law Enforcement Act (CALEA) in the United States are supported by the Net-Net SD.

Revenue and cost optimization

The Net-Net SD helps service providers control costs and increase revenues with options for integrating many IMS functions, by routing sessions optimally to minimize costs, by providing accounting and related mechanisms to maximize billable sessions, and by protecting against both bandwidth and quality of service theft.

The Net-Net Session Director is supported on Acme Packet's family of hardware platforms to deliver highly scalable signaling performance and media capacity for any type and any size of service provider. For massively scalable access networks capable of supporting up to two million subscribers, the Net-Net SD can also operate in a SBC cluster, controlled by Acme Packet's Net-Net Access Session-aware Load Balancer (A-SLB).

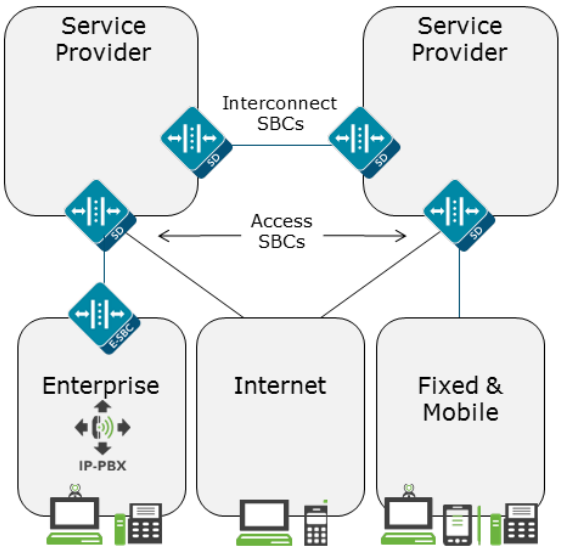
The Acme Packet Edge

Architectural flexibility

The Net-Net Session Director can be configured as an Access (A-SBC) or Interconnect SBC (I-SBC) depending on service requirements. The flexibility of the Net-Net SD extends to smaller service providers wishing to consolidate access and interconnect functionality in a single system. The Net-Net SD also integrates a number of standard IMS functions used at access or interconnect borders, simplifying its integration with that next-generation service delivery architecture.

At service provider access borders, which are the borders facing enterprise locations as well as public access networks such as the Internet, 3G/4G mobile or fixed line networks used by residential or cable subscribers, the Net-Net SD enables new service build-out and consolidation of service infrastructure. It protects the service delivery infrastructure from malicious and non-malicious threats while maximizing service reach, reliability and quality.

At interconnect borders, which are the borders between service provider networks, the Net-Net SD accelerates time-to-market or expansion of next generation IMS or IP services, helping to drive down TDM costs and expand service provider partnerships. The Net-Net SD delivers key functions for service provider interconnects such as security and highly scalable and flexible routing and transcoding.



Service provider SBC deployment

Net-Net OS

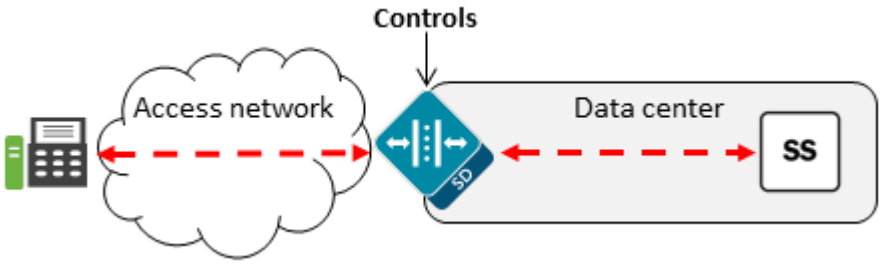
The Net-Net SD is based on Acme Packet's Net-Net Operating Software (OS), which delivers comprehensive multi-protocol signaling, programmability and control functions and features.

The Net-Net SD supports all commonly-used IP signaling protocols including SIP, SIP-I, SIP-T, H.323, MGCP, H.248, MSRP and RTSP, allowing service providers to extend services to the greatest number of endpoints as well as services offered via interconnect borders. Extensive signaling protocol interworking (IWF) allows service providers to consolidate signaling traffic within their networks, reducing the number of required network element and simplifying management to reduce CAPEX and OPEX. The Net-Net SD IWF also allows the integration of next-generation SIP with legacy networks and endpoints to maximize service revenues.

Acme Packet's implementation of Session Initiation Protocol (SIP) offers unmatched interoperability, maturity and functionality, with thousands of deployments in production throughout the world. To normalize session signaling between SIP implementations that often feature vendor-specific messages and response codes, the Net-Net SD features extensive signaling programmability that empowers the Net-Net SD to inspect and/or modify any element within SIP protocol headers or payload, including information found in Session Description Protocol (SDP) headers.

The Net-Net SD is unmatched in the number and scope of functions and features it supports to control the signaling, media and media control flows that comprise IP communications between endpoints. The Net-Net SD implements a full back-to-back user agent (B2BUA) approach that divides each session flowing through the Net-Net SD into two discrete segments. In this way, the Net-Net SD maintains session state with each endpoint simultaneously, empowering the application of a wide range of control functions over the end-to-end session without modification to either the behavior or configuration of either endpoint.

A full list of the control functions and features supported by the Net-Net SD is included in the below table.



Full IMS/NGN integration

The Net-Net SD is the world's most widely deployed SBC in 3GPP IP Multimedia Subsystem (IMS) services and services based on other next generation network (NGN) standards such as PacketCable 2.0, ETSI TISPAN and MSF Version 4. The Net Net SD implements numerous 3GPP-compliant functions and interfaces for seamless IMS integration and offers added capabilities to enhance security, interoperability and reliability beyond standard IMS requirements.

The Net-Net SD offers full IMS functionality at access and interconnect borders to fully control the SIP and RTP traffic flows that comprise IMS sessions. At IMS access borders, the Net-Net SD implements signaling and media-related IMS functions such as P-CSCF, E-CSCF, BGCF, AGW, ATCF and ATGW.

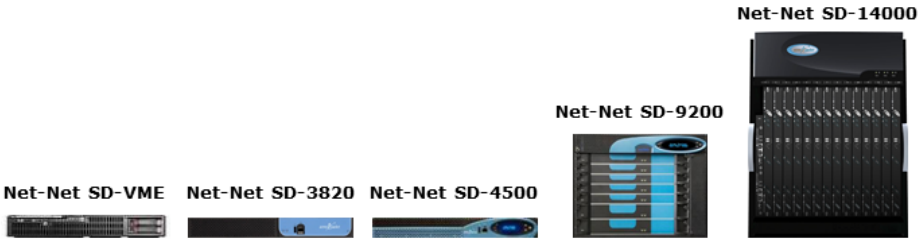
IMS interconnect SBC functions include I-BCF, IWF and I-BGF/TrGW. The table below provides a full list of IMS control functions supported by the Net-Net SD.

Highly scalable platforms and SBC clustering

The Net-Net SD operates on a wide range of platforms that fully leverage the rich functionality of Net-Net OS. All of Acme Packet's SBC platforms feature high-availability, carrier-class manageability and redundancy for uncompromised quality, interoperability and security.

When deployed in conjunction with Acme Packet's Net-Net Access Session-aware Load Balancer (Net-Net A-SLB), the Net-Net SD can also function as a member of a SBC cluster. SBC clusters provide dynamic, adaptive load balancing of subscriber traffic across the cluster, allowing services to scale to support millions of subscribers without architectural forklifts or network disruptions. SBC clusters also deliver enhanced redundancy and manageability not achievable with traditional Layer 3/Layer 5 Web load balancers or SIP redirect servers.

Further details related to Acme Packet's SBC hardware platforms, the Net-Net A-SLB and SBC clustering can be found at www.acmepacket.com.



	Net-Net SD-VME	Net-Net SD-3820	Net-Net SD-4500	Net-Net SD-9200	Net-Net SD-14000
Form factor	Standalone or blade	1RU appliance	1RU appliance	7RU chassis	14RU ATCA
Processor architecture	General purpose	Purpose-specific	Purpose-specific	Purpose-specific	Purpose-specific
Licensed session capacity	100 – 1000	150 – 8K	250 – 32K	4K – 128K	8K – 201K

Acme Packet-supported SBC hardware platforms

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Net-Net Session Director

Net-Net Session Director (SD) Key Functions and Features

Functional Area	SBC Function/Feature
General	• Supported on Acme Packet hardware and general purpose server platforms • Access (A-SBC) or interconnect (I-SBC) SBC functionality • Virtual SBC partitioning • High availability (HA) – signaling, media, configuration checkpointing
Signaling protocols	• Session Initiation Protocol (SIP) – user interface or back-to-back agent (B2BUA) • H.323 – gatekeeper (GK), gateway (GW), back-to-back GK or GW • MGCP/NCS – virtual gateway and call agent, back-to-back virtual gateway • H.248 – virtual call agent and virtual gateway • DNS – application layer gateway (ALG)
IMS/NGN support	• Proxy Call Session Control Function (P-CSCF) • Serving Policy Decision Function (SPDF) • Access/Core Border Gateway Function (A/C-BGF) • Interconnect Border Control Function (I-BCF) • Interworking Function (IWF) • Interconnect Border Gateway Function (I-BGF) • Signaling interfaces: Gm, Mw, Ic, Iw • Diameter interfaces: Rq, e2, Gq, Rx • COPS interfaces: Rq, e2 • H.248 interfaces: Ia
Net-SAFE™ Security	• SBC denial of service (DoS) self-protection • Static or dynamic access controls (permit/deny) • Self-protection against signaling overloads and DDoS attack • Protection of IMS core from registration overloads and attacks • Media and signaling validation to prevent service theft and fraud • IPsec, TLS and SRTP encryption for privacy and confidentiality
Interoperability	• SIP signaling protocol interworking and mediation • SIP/SIP-I/SIP-T interworking • SIP IPv6-IPv4 interworking • NAT traversal and IP address mediation • Signaling and dial plan normalization • DTMF extraction • Transcoding/transrating
SLA assurance	• Check-pointing of signaling, media, configuration for nonstop availability • Define and enforce QoS marking/mapping • Traffic and session prioritization • QoS monitoring, accounting and reporting • Admission controls to maximize service infrastructure availability • Policy enforcement to assure bandwidth availability • Session reroute around upstream outages
Revenue protection	• Flexible routing • SIP loading balancing • Standards-based AAA (ENUM, DNS, Diameter, RADIUS, etc.) • Protocol interworking to simplify core network traffic • Dynamic bandwidth monitoring and control
Regulatory compliance	• Prioritization and routing of emergency calls (E-CSCF) • Lawful intercept

Management

The Net-Net SD can be managed using any combination of Acme Packet's Net-Net Central management platform and powerful command line interface (CLI).

Net-Net Central delivers highly-scalable configuration and fault, performance and security management for the Net-Net SD. Its flexible high-availability architecture accommodates small to very large networks and provides extensibility for hosting advanced management applications and services.

The Net-Net SD is fully supported by all Net-Net Central applications. Through multiple dashboard and configuration views, Net-Net Central facilitates flow-through provisioning, capacity planning and comprehensive performance and fault-monitoring with "at-a-glance" status indicators that simplify real-time network-wide management. Through standard interfaces including SNMP, SFTP, XML and SOAP, Net-Net Central also integrates with OSS/BSS ecosystems to deliver advanced service fulfillment, service assurance, billing and mediation.

For further details related to Acme Packet's Net-Net Central, please visit www.acmepacket.com.

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