

Oracle Communications Acme Packet 4600

Acme Packet 4600 is Oracle’s mid-range communications platform, combining outstanding flexibility, efficiency, and functionality in a compact one rack unit (1RU) form factor. As a key component of Oracle’s network session delivery and control infrastructure platform family, the Acme Packet 4600 meets all of the functionality, scalability, availability, and manageability requirements of service providers and large enterprises.

Overview

Acme Packet 4600 supports Oracle Communications products in mid-tier service provider and larger enterprise IP real-time communications deployments. Its unique hardware design is purpose-built to control complex, high volume signaling and media traffic at network borders. Its network interface unit (NIU) offers 1 GbE or 10 GbE network connectivity and integrated acceleration for encryption and transcoding.

Acme Packet 4600 also features carrier-grade high availability (HA) and is compliant with stringent Network Equipment Building Systems (NEBS) standards, ensuring nonstop operation and survivability in business-critical environments.



Figure 1. Acme Packet 4600

Capabilities

Acme Packet 4600 session border controller (SBC) features and capabilities

FEATURE	CAPABILITIES
Security	<ul style="list-style-type: none"> Granular access control IP address and SIP signaling concealment Layer three through five topology hiding and signaling overload controls IP telephony spam protection Stateful deep packet inspection Signaling and media encryption
Interoperability	<ul style="list-style-type: none"> SIP message normalization Response code translation Session Description Protocol (SDP) and Dual Tone Multi-Frequency (DTMF) manipulation Number and uniform resource identifier (URI) manipulation Signaling message header manipulation

Versatile, mid-range communications platform

Applications

- Medium to large service provider SBC – for access and interconnect
- Large enterprise IP real-time communications deployments
- Member of the Oracle SBC cluster
- Session routing proxy

Key features

- Versatile mix of dedicated encryption and transcoding hardware in single 1U system
- Combination of 1 GbE and 10 GbE I/O in a single 1RU system
- Operates same version of Acme Packet OS as all other Acme Packet platforms
- High-performance symmetrical multiprocessing
- Hardware-accelerated transcoding, encryption, and QoS measurement options
- Supports up to 32,000 concurrent sessions
- HA, redundant components
- NEBS compliant

Key benefits

- Revenue optimization through diverse product configurations
- Maximum reliability
- Scalable to limit capital expenditures and reduce operational expenditures

	<ul style="list-style-type: none"> • Protocol interworking: Transmission Control Protocol (TCP), User Datagram Protocol (UDP), Stream Control Transmission Protocol (SCTP) • Encryption interworking: Transport Layer Security (TLS), Mutual TLS, Secure Real-time Transport Protocol (SRTP) • Network address translation (NAT) and firewall traversal • IP address translation: private/public • Transcoding • Session routing based on Microsoft Active Directory query • Microsoft Teams Direct Routing • Message Session Relay Protocol (MSRP)
Reliability	<ul style="list-style-type: none"> • Standby SIP registrar with caching for remote site survivability • Stateful signaling and media failover • Quality of service (QoS) marking, virtual local area network (VLAN) mapping, access control • Registration storm avoidance • Call rate limit enforcement • Trunk load balancing • Stateful session routing • QoS-based routing
Regulatory Compliance	<ul style="list-style-type: none"> • Session prioritization for emergency services • Internet Engineering Task Force (IETF) standard SIP Recording (SIPREC) interface • Call detail records (CDRs) with local or remote storage via RADIUS
Cost Management	<ul style="list-style-type: none"> • Least cost routing • Codec Negotiation
Management	<ul style="list-style-type: none"> • Browser-based GUI (Oracle Enterprise Session Border Controller only) • SIP monitoring and tracing tool • SNMP, Syslog, REST, SFTP, RADIUS interfaces

System capacity, performance, and availability

Acme Packet 4600 delivers high session performance, capacity, and HA in a 1RU form factor, and supports quality of service (QoS) measurement and hardware-assisted transcoding.

Acme Packet 4600 capacity, performance, and availability¹

CAPABILITY	DESCRIPTION
Media session capacity	Up to 32,000 simultaneous anchored media sessions
IPsec capacity	Up to 500,000 tunnels with IMS Authentication and Key Agreement (AKA) Up to 1,000 tunnels with IKEv1
SIP-TLS capacity	Up to 250,000 TLS sessions
SRTP capacity	Up to 16,000 encrypted call legs
Transcoding capacity	Up to 15,000 transcoded sessions
Route table capacity	Up to 2 million routes
System throughput	20 Gbps
NIU	Provides multiple ports of 1 GbE (SFP) or 10 GbE (SFP+) connectivity for signaling, media, and data services in addition to management
Packaging	1U rack-mount system
Management	Front panel display with keypad; rear panel with console, management and alarm ports
Two-level encryption acceleration hardware	IPsec tunnel and TLS session setup, IPsec, and SRTP traffic encryption/decryption
HA	Active/standby systems (1-to-1 redundancy) with check-pointing of signaling, media, and configuration state for no loss of service

¹ Performance and capacity numbers vary by signaling protocol, call flow, codec, configuration, and feature usage.

Performance and capacity based on Oracle Communications Session Border Controller S-Cz9.0 software release.

Network session delivery and control infrastructure

Oracle's network session delivery and control infrastructure enables enterprises and service providers to manage the many challenges in the delivery of IP voice, video, and data services and applications. Service provider solutions are deployed at network borders and in the IP service core to help fixed-line, mobile, wholesale, and over-the-top service providers optimize revenues and realize long-term cost savings. In the enterprise, session delivery infrastructure solutions seamlessly connect fixed and mobile users, enabling rich multimedia interactions and automating business processes for significant increases in productivity and efficiency.

The following Oracle products are part of the network session delivery and control infrastructure:

- Oracle Communications Session Border Controller
- Oracle Communications Session Router
- Oracle Communications Subscriber-Aware Load Balancer
- Oracle Communications Core Session Manager
- Oracle Enterprise Session Border Controller
- Oracle Communications Session Delivery Manager
- Oracle Session Delivery Management Cloud

Supported configurations

Acme Packet 4600 operates Oracle's Acme Packet Operating Software (Acme Packet OS) to deliver flexible product configuration and deployment options. The below table describes the Oracle product configurations supported by Acme Packet 4600.

Acme Packet 4600 supported configurations

PRODUCT	DESCRIPTION
Oracle Communications Session Border Controller	Session border controller (SBC) integrating controls for real-time communications signaling and media traffic
Oracle Communications Session Router	Session routing proxy (SRP) for SIP session routing between core and access networks and interconnects
Oracle Enterprise Session Border Controller	Securely Connects Enterprise VoIP and UC systems to SIP Trunking and Wide Area Network Services.

Hardware

Acme Packet 4600 is a 1RU rack-mountable system. With its integrated multiprocessor design, Acme Packet 4600 delivers optimum levels of session processing, capacity and system throughput to a wide variety of services and applications in mid-sized service provider, enterprise, government, and contact center applications.

The front of Acme Packet 4600 features a bright vacuum fluorescent display (VFD), individual status indicators and a front panel keypad for viewing and silencing minor, major and critical alarms. The system fan pack is also front-located. The rear of Acme Packet 4600 includes a single NIU slot in addition to slots for redundant, load-sharing AC or DC power supply units.

Network Interface Unit

Acme Packet 4600 supports a single network interface unit (NIU), which integrates physical ports for network connectivity as well as management/HA, alarm and console ports.

The Acme Packet 4600 NIU includes two 10 GbE and four 1 GbE interfaces for signaling, media, and data traffic. The NIU supports Small Form-Factor Pluggable (SFP) transceivers for 1 GbE interfaces and Enhanced Small Form-Factor Pluggable (SFP+) transceivers for 10 GbE interfaces to accommodate both fiber optic and twisted pair copper cabling options.

Encryption, Transcoding, and Quality of Service Monitoring Hardware

To meet the demands of scalable, high-quality, real-time communications, the Acme Packet 4600 NIU offers onboard hardware that offloads the CPU from processor intensive functions, such as encryption, transcoding and quality of service (QoS) monitoring and reporting.

To enable secure communications without compromising end user or subscriber quality of experience (QoE), the Acme Packet 4600 NIU accommodates onboard encryption hardware for Internet Protocol Security (IPsec) and Secure Real-Time Transport Protocol (SRTP) encryption of media traffic. The Acme Packet 4600

NIU also hosts an optional Signaling Security Module (SSM3) that accelerates high-volume Transport Layer Security (TLS) or IPsec key negotiation for services or applications that require encrypted signaling.

The Acme Packet 4600 NIU also accommodates up to 12 Digital Signaling Processing (DSP) modules for audio transcoding of up to 15,000 simultaneous sessions. DSP modules can be populated incrementally for “pay-as-you-grow” scalability.

QoS monitoring and reporting hardware on the Acme Packet 4600 NIU monitors and measures each media flow through the system, calculating quality scores (such as Mean Opinion Score) and aggregating the information into data for transmission to external reporting or accounting systems. Onboard QoS monitoring and measurement is also utilized for real-time functions such as QoS-based routing and load balancing, also without compromising end user or subscriber QoE.

Acme Packet 4600 details

Details of Acme Packet 4600’s physical properties, power, specifications, and regulatory compliance are listed in the table below.

Details of Acme Packet 4600

PHYSICAL	DETAILS
Dimensions (not including mounting hardware)	<ul style="list-style-type: none"> Height: 4.37 cm (1.72 in.) Width: 43.43 cm (17.10 in.) Depth: 50.80 cm (20.00 in.)
Weight	<ul style="list-style-type: none"> 9.30 kg (20.5 lb.)
Colors	<ul style="list-style-type: none"> Front panel: Midnight black with glacier blue trim
Temperature	<ul style="list-style-type: none"> Operating: 32°F to 104°F, 0°C to +40°C Storage: -4°F to 149°F, -20°C to +65°C
Relative humidity	<ul style="list-style-type: none"> 10% to 85%, noncondensing
Airflow	<ul style="list-style-type: none"> 100 CFM (max) front to back
Power usage and heat dissipation	<ul style="list-style-type: none"> 250W typical, 350W maximum Based on Acme Packet 4600 NIU fully-populated with transcoding modules
POWER	DETAILS
Power supply	<ul style="list-style-type: none"> Dual power supplies: Redundant, load sharing, 1,100W maximum
AC power option	<ul style="list-style-type: none"> Voltage: Auto-ranging 100 AC to 240 AC wide input with power factor correction Frequency: 50/60 Hz Current: 5A x 2 rating
DC power option	<ul style="list-style-type: none"> Voltage: -48 DC (+/-10%) nominal in North America (maximum range: -40 DC to -72 DC) Current: 10A x 2 rating Cable: 10 AWG recommended minimum, with at least three conductors rated for at least 140°F (60°C)
SPECIFICATIONS	DETAILS
Chassis	<ul style="list-style-type: none"> 1 RU, rackmount Front: Display Rear: One NIU slot (signaling, media, and management interfaces), Redundant AC or DC power supply units Optional mounting brackets for front, rear, or center mount in 19 in. or 23 in. rack

Memory	<ul style="list-style-type: none"> 16 GB for configuration files and Acme Packet OS software storage
Local storage	<ul style="list-style-type: none"> 480 GB solid state drive for call detail record (CDR) storage, log files and other permanent file storage
NIU (SUPPORT NETWORK INTERFACES FOR SIGNALING, MEDIA, AND DATA)	DETAILS
Network I/O	<ul style="list-style-type: none"> Four 1 GbE (requires SFP transceivers) for copper or fiber optic connectivity Two 10 GbE (requires SFP+ transceivers) for fiber optic connectivity Simultaneous use of 1 GbE and 10 GbE network interfaces is not supported
Security	<ul style="list-style-type: none"> Secure services module (SSM3) – optional NIU hardware acceleration option for TLS and IPsec session establishment with use of non-manual keys Onboard dedicated encryption processor for IPsec and SRTP-encrypted traffic
Transcoding	<ul style="list-style-type: none"> Up to 12 onboard transcoding DSP modules Supported codecs: <ul style="list-style-type: none"> » Wireline – G.711 10, G.711 20, G.722, G.723.1, G.726, G.729A/B, iLBC, Opus, SILK » Wireless – AMR-NB, AMR-WB, GSM-FR, EVRC, EVRC-B, EVS T.38 fax interworking
QoS measurement/monitoring	<ul style="list-style-type: none"> Dedicated NIU processor for inline QoS measurement
Management interfaces	<ul style="list-style-type: none"> Two 10/100/1000 Mb/sec interfaces with RJ-45 for HA node configurations One 10/100/1000 Mb/sec interface with RJ-45 for management networks One RS-232 serial console interface with RJ-45 connector One alarm port with RJ-45 connector
REGULATORY	DETAILS
Regulatory markings	<ul style="list-style-type: none"> CE, FCC, ICES-003, VCCI, NRTL TUV (US/Canada), KCC, BSMI, EAC, RCM, BIS, ANATEL
Safety	<ul style="list-style-type: none"> EN 60950-1 IEC 60950-1 UL 60950-1 CSA 22.2 No. 60950-1-07
EMC Emissions	<ul style="list-style-type: none"> 47CFR15 Subpart B (FCC) Class A ICES-003 Class A AS/NZS CISPR22 Class A CISPR22 Class A EN300386 for Telecommunications Centers and for Other Than Telecommunications Centers EN 55022 Class A VCCI Class A limits
EMC Immunity	<ul style="list-style-type: none"> EN55024 EN61000-3-2 EN61000-3-3 EN300386:2010 for Telecommunications Centers and for Other Than Telecommunications Centers
Other	<ul style="list-style-type: none"> NEBS Level 3 ETSI: EN 300019 Class 1.2, 2.2, 3.2 Seismic: GR-63-CORE requirements for earthquake zone 4 1 TR 9 Restriction of Hazardous Substances (RoHS) Directive and Waste Electrical and Electronics Equipment (WEEE) Directive

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