ORACLE

Oracle Communications Acme Packet 6000 Series

Acme Packet 6000 Series combines groundbreaking performance, capacity, and system throughput with the most proven and comprehensive session delivery functions and features in the industry. Featuring the 3RU Acme Packet 6300 and Acme Packet 6350 , the 6000 Series is building the foundation for future generation Internet Protocol (IP) real-time communications (RTC) services.

OVERVIEW

Acme Packet 6000 Series is based on a next-generation hardware design that leverages state-of-the-art components and 64-bit symmetrical multiprocessing (SMP) in a modular system designed for growth and flexibility. It operates the same version of Acme Packet OS as all other Acme Packet platforms for ease of management and uncompromised field-proven functionality in many product configurations and options. The 6000 Series provides for flexible deployment at high-volume network access or interconnect borders or within the service provider signaling core.

Figure 1: Acme Packet 6300

Figure 2: Acme Packet 6350

Breakthrough performance in a field- proven design

APPLICATIONS

- Service provider SBC for access and interconnect applications
- High-performance SIP session routing
- Combination access SBC with IMS core and session management functions

KEY FEATURES

- High-performance, purpose-built multiprocessor design
- Acme Packet 6300, 6350 platforms feature three slots for modular flexibility
- Market-leading Acme Packet OS functions, features and configurations
- 40 Gb/sec (6300, 6350 platforms) system throughput
- Leverages proven SBC design with state-of-the-art components

KEY BENEFITS

- Capable of supporting up to 3,000,000 simultaneous subscribers
- Protects investment in existing SBC infrastructure
- Meets all emerging service requirements in efficient 3RU (6300, 6350 platforms) form factor
- Reduced total cost of ownership

DATA SHEET | Oracle Communications Acme Packet 6000 series | Version 1.01

Based on a common architecture that tightly integrates Acme Packet OS with Oracle's distributed multiprocessor hardware, each platform in the 6000 Series can handle the signaling and media traffic generated by next-generation services such as voice over Long Term Evolution (VoLTE); rich communication services (RCS) and enhanced RCS (RCS-e), and high-definition video calling. It features Oracle's carrier-class high availability (HA) and Network Equipment Building Systems (NEBS) certification to ensure nonstop operation and survivability in the most business-critical services and applications.

ACME PACKET 6000 SERIES FLEXIBILITY, SCALE AND EFFICIENCY

Acme Packet 6000 Series systems leverage common state-of-the-art components, design and system architecture. The 6300, 6350 platforms deliver up to 40 Gb/sec of system throughput.

ACME PACKET 6000 SERIES PLATFORM FEATURES, CAPACITY, AND PERFORMANCE

	Acme Packet 6300	Acme Packet 6350 Dual 10GbE NIU	Acme Packet 6350 Quad 10GbE NIU
SIP subscriber capacity[a]	Up to 1 M simultaneous subscribers	Up to 3 M simultaneous subscribers	
SIP calls per second (CPS)	Up to 1,200 calls per second (in a fully redundant configuration)	Up to 1,800 calls per second (in a fully redundant configuration)	
SIP-TLS capacity	Up to 300,000 TLS sessions	Up to 800,000 TLS sessions	
Media session capacity	Up to 80,000 simultaneous anchored media sessions		Up to 160,000 simultaneous anchored media sessions
IPSec capacity	• Up to 0.5 M tunnels with IMS Authentication and Key Agreement (IMS AKA) • Up to 1,000 tunnels with IKEv1	• Up to 1.5 M tunnels with IMS Authentication and Key Agreement (IMS AKA) • Up to 1,000 tunnels with IKEv1	
SRTP capacity	Up to 40,000 encrypted call legs		Up to 90,000 encrypted call legs
High Availability	Active/standby systems (1-to-1 redundancy) with check-pointing of signalling, media, and configuration state for no loss of service		
Two-level encryption acceleration hardware	IPsec tunnel and TLS session setup, IPsec and SRTP traffic encryption/decryption		
Management	Front panel display with keypad; rear panel console, management, alarm interfaces, power supply indicator		
Route table capacity	Up to 8 million routes		
Packaging	3RU system		
Maximum system throughput	40 Gb/sec		

NIU	Up to two 2x10 Gb/sec Ethernet NIUs	One 4x10 Gb/sec Ethernet NIUs
HW-based transcoding	Up to 60,000 transcoded sessions (G.711- G.729)	
Fan assemblies	15 individually hot-swappable fan assemblies	
Management and HA interfaces	Chassis integrated	
Internal storage	480 GB solid state drive	

a. Actual number will vary based on features enabled and call mode.
Note: Performance and capacity based on Oracle Communications Session Border Controller v8.3 software

ACME PACKET 6000 SERIES SUPPORTED CONFIGURATIONS

The Acme Packet 6000 Series operates Acme Packet OS in a variety of high-end product configurations designed for a wide array of services and applications.

NETWORK SESSION DELIVERY AND CONTROL INFRASTRUCTURE PRODUCTS AND CONFIGURATIONS SUPPORTED BY ACME PACKET 6000 SERIES

PRODUCT/CONFIGURATION	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 Communications Unified Session Manager*	3GPP IMS compliant Call Session Control Function (CSCF) with integrated access session border controller (SBC)
Oracle Enterprise Session Border Controller	Provides strong security, high availability, and interoperability for enterprise VoIP and unified communications (UC) networks.

* Oracle Communications Session Router and Oracle Communications Unified Session Manager are not supported on 6350 platforms.

HARDWARE

The Acme Packet 6000 Series feature Oracle's integrated multiprocessor design to achieve the industry's highest system-level performance and capacity for signaling, media, and encryption. Acme Packet 6300 and 6350 platforms also feature industry-leading transcoding capacity and features. Powerful network processor drive system throughput up to 40 Gb/sec in fully-populated systems. The versatility, carrier-grade hardware design, and high-availability makes the 6000 Series suitable for deployment at large service provider access and interconnect network borders or within the IP Multimedia Subsystem (IMS) signaling core.

The front of Acme Packet 6000 Series platforms features a bright vacuum fluorescent display (VFD) with a front panel keypad and individual fan assemblies to deliver precise and consistent airflow for optimal cooling of all processors and internal components. Each fan assembly can be replaced individually while the system is in service. A black front bezel hides the fan assemblies without restricting

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 Unified Session Manager
- Oracle Communications Mobile Security Gateway
- Oracle Communications Interactive Session Recorder
- Oracle Communications Core Session Manager
- Oracle Enterprise Session Border Controller
- Oracle Communications Session Delivery Management Suite
- Acme Packet 1100
- Acme Packet 3900
- Acme Packet 4600
- Acme Packet 6300
- Acme Packet 6350

airflow through the system. Acme Packet 6300 and 6350 platforms feature fifteen individual fan assemblies, five for each of its three slots.

The rear of Acme Packet 6300 and 6350 platforms include three slots for NIUs or TCUs with at least one slot reserved for an NIU. One or two slots can be populated with TCUs. The rear of the chassis also accommodates fully redundant power supplies, console and alarm ports, and management ports. A separate rear slot accommodates a 480 GB solid state drive. The power supplies and drives are hot replaceable. Light-emitting diode (LED) indicators for all field-replaceable modules (FRUs) provide at-a-glance power and redundancy status.

Acme Packet 6000 Series platforms support two-stage hardware-accelerated encryption to assure confidentiality, privacy and integrity for IP real-time communications at wire rate. 6000 Series Secure Services Module 3 (SSM3) performs compute-intensive random number generation, TLS encryption and IKE key generation to accelerate call setup for encrypted SIP sessions. Encryption co-processors on 6000 Series NIUs support standard IPsec and SRTP for encrypting RTP media.

Acme Packet 6000 Rear Slot Modules

One of the three Acme Packet 6300 and 6350 rear slots (slot 0) is populated with a NIU; the other two slots can accommodate either NIUs or TCUs. NIU options deliver hardware-accelerated advanced media controls, such as quality of service (QoS) monitoring and encryption and denial of service (DoS) attack protection far beyond the capabilities of general purpose server-based platforms.

Network Interface Unit

The Dual 10 GbE and Quad 10 GbE network interface units (NIU) are high-performance NIU that integrate dual processors with options for high-performance, high-capacity encryption for line-rate security even at maximum system throughput. This ensures uncompromised end user or subscriber quality of experience. NIU processors also integrate QoS monitoring and measurement in addition to intelligence designed to protect the rest of the system in the event of signaling overloads or fuzzing attacks. These NIUs also support hardware acceleration of SIP sessions encrypted with TLS, Datagram Transport Layer Security (DTLS), or Internet Key Exchange (IKE) for privacy and confidentiality.

Acme Packet 6300 only supports the Dual 10GbE NIU, while the Acme Packet 6350 supports both the Dual and Quad 10 GbE Network Interface Unit. The Quad 10GbE NIU contains four 10G interfaces to provide greater session scaling capacity and Packet Processing Module (PPM) support. The Quad 10 GbE NIU also includes an internal network processor to allow for more flexible traffic loading to the multi-core processor.

High Capacity Transcoding Carrier Unit (Acme Packet 6300, 6350 platforms)

The Acme Packet 6300 and 6350 Transcoding Carrier Unit (TCU) delivers high-performance, high capacity hardware-accelerated transcoding and transrating for services and applications requiring the highest levels of scale and codec management. Each TCU leverages up to 24 transcoding modules, to support up to 30,000 transcoded sessions for a total of up to 60,000 transcoded sessions when Acme Packet 6300 and 6350 are populated with dual TCUs. The Acme Packet 6300 and 6350 transcoding hardware complements the extensive codec management functionality supported by the Oracle Communications Session Border Controller (SBC).

ACME PACKET 6000 SERIES DETAILS

Details of Acme Packet 6000 Series specifications, power, physical properties, and regulatory compliance are listed in the table below.

DETAILS OF ACME PACKET 6000 SERIES

Specifications	Details
Chassis	• *3RU, rack mount* • *Front: Display console, front bezel, fan pack assemblies* • *Rear: One NIU slot, two expansion slots for NIU or TCUs, console and alarm ports, three management ports, redundant power supplies (AC or DC), slot for integrated drive* • *Rack mount options: Four-post cabinet or two-post center mount*
Network Processor	• *Coordinates signaling, media, encryption and transcoding, and management subsystems* • *Drives up to 40 Gb/sec overall system throughput (dependent on number of NIUs present)*
Operating Software	• *Acme Packet OS* • *64-bit Linux-based OS kernel to fully support SMP hardware*
Local storage	• *480 GB drive for call detail record storage, log files, and other permanent file storage*

NIUs	• *Supports network interfaces for signaling, media, and data*
	  o *Dual 10 Gb/sec NIU - Acme Packet 6300 or 6350*
	  o *Quad 10 Gb/sec NIU - Acme Packet 6350 only*
	• *10 Gb/sec Ethernet ports with enhanced small form-factor pluggable transceivers (SFP+) for short and long reach options:*
	  o *SFP+ short reach—10 GBase-SR 850 nm transceiver for operation in multimode fiber link applications to 300 m*
	  o *SFP+ long reach—10 GBase-LR 1310 nm transceiver for operation in single-mode fiber (SMF) link applications to 10 km*
	• *Optional Signaling Security Module (SSM3) for hardware acceleration of encryption, compression, hashing, and public key algorithms for TLS, random number generation, Advanced Encryption Standard (AES), and Triple Data Encryption Standard (3DES)*
	• *Integrated QoS monitoring and measurement*

Transcoding Carrier Unit	• *Up to two modules supported per Acme Packet 6300, 6350 chassis*
	• *Supported codecs:*
	  o *Wireline – G.711 10, G.711 20, G.722, G.723.1, G.726, G.729A/B, iLBC, Opus, SILK*
	  o *Wireless – AMR-NB, AMR-WB, GSM-FR, EVRC, EVRC-B, EVS*
	• *T.38 fax interworking*

Management Interfaces	• *One RS-232 serial console interface with RJ-45 connector* • *One alarm port with RJ-45 connector* • *One 10/100/1000 Mb/sec Ethernet interface with RJ-45 for management* • *Two 10/100/1000 Mb/sec Ethernet interfaces with RJ-45 for HA*
Power	**Details**
Power Supplies	• *Redundant, load-sharing, 1,100 W maximum*
AC Power Option	• *Voltage: Auto-ranging 100 AC to 240 AC wide input with power factor correction* • *Frequency: 50/60 Hz* • *Current: 100 AC 6A base system,14A with two transcode carriers (shared between two power supplies)*
-48 DC Power Option	• *Voltage: -48 DC (+/-10%) nominal in North America (maximum range: -40 DC to -72 DC)* • *Current: 12A base system, 30A with two transcode carriers (shared between two power supplies)* • *Cable: 10 AWG recommended minimum, with at least three conductors rated for at least 140°F (60°C)*
Physical	**Details**
Dimensions (not including mounting hardware)	• *Height: 5.22 in. (13.26 cm)* • *Width: 17.10 in. (43.43 cm)* • *Depth: 20.00 in. (50.80 cm)*
Weight	• *Empty chassis: 28.90 lb. (13.11 kg)* • *With 2 power supplies: 33.50 lb. (15.20 kg)* • *Fully populated: 42.5 lb. (19.28 kg)*

Temperature	• Operating: 32ºF to 104ºF, 0ºC to +40ºC • Storage: -4ºF to 149ºF, -20ºC to +65ºC
Relative Humidity	• *10% to 85%, noncondensing*
Air Flow	• *90 CFM per slot front to back*
Heat Dissipation	• *300 W (1030 BTU/hr.) typical, 1400 W (4800 BTU/hr.) maximum*
Power Dissipation	• *300 W typical, 500 W maximum (base system with one NIU)* • *Additional 250 W for second NIU* • *Additional 340 W for each fully populated transcode carrier card*

Regulatory	Details
Regulatory Markings	• *CE, FCC, ICES-003, VCCI, NRTL TUV (US/Canada), KCC, BSMI, EAC, RCM, BIS, ANATEL*
Safety	• *EN 60950-1* • *IEC 60950-1* • *UL 60950-1* • *CSA 22.2 No. 60950-1-07*
EMI	• *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	• *EN55024* • *EN61000-3-2* • *EN61000-3-3* • *EN300386:2010 for Telecommunications Centers and for Other Than Telecommunications Centers*
Other	• *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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