

cPacket cVu[®] Network Packet Broker & Monitoring Observability Nodes



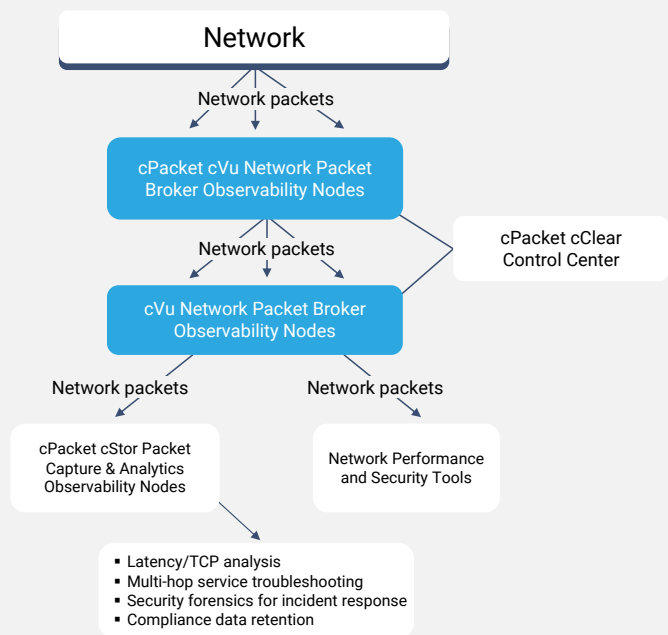
Deliver packets to performance and security tools that keep your network –and business–humming.

Today's high-speed networks present great opportunities and challenges for businesses facing constant change. High-speed networks permit organizations to succeed in rapidly changing markets. Organizations require zero downtime to move at warp speed. But those same high-speed networks also make it easier for trouble to hit businesses fast and hard in the form of security breaches and network outages.

cPacket cVu network packet brokers are fundamental to robust network monitoring, security and observability solutions. Network packet brokers distribute packets to tools that keep the business running smoothly, including network monitoring, observability and security. Network packet brokers are the foundation of a packet data Observability solution to enable business continuity by facilitating reliability and security.

cPacket cVu packet brokers are unique because they perform advanced packet processing at line speed, leveraging dedicated hardware based on proprietary ASICs and FPGAs behind every port. cPacket offers a simple licensing model that unlocks all the advanced features of our products, unlike our competitors, who charge extra fees for advanced capabilities. Cutting-edge architecture and simple licensing lead to low total cost of ownership (TCO) for observability and security solutions. Furthermore, by offloading pre-processing to the Packet Broker, available Security Tool capacity increases by up to 30%. cVu packet brokers are used by the most demanding environments in financial services, healthcare and high-performance computing.

cPacket cVu Network Packet Broker & Monitoring Observability Nodes



What's in the box

cPacket cVu packet brokers aggregate network data from multiple optical TAPs, SPAN ports and Remote SPAN ports within the data center.

The cPacket cVu packet broker's ability to deliver every packet at line speeds comes from dedicated hardware in every ingress and egress "smart-port," which inspects, filters and processes network traffic, reducing congestion during delivery to security and management tools and optimizes the tools' usage.

Each smart port can perform advanced functions such as filtering, slicing, decapsulation, deduping, nanosecond timestamping, burst calculation and load balancing at line speed without packet drops.

Because the smart ports control traffic for both ingress and egress, packets can't escape monitoring, even in the case of oversubscription.

By distributing processing to the ports, cVu can run up to 100 Gbps line-speed on every port, and provide advanced features without bogging down, unlike other solutions which are bottlenecked by shared processing for advanced features.

cPacket cVu packet brokers also limit tool sprawl by consolidating network traffic to a central location.

The cPacket cVu includes all features in a single SKU—100% inclusive, without locking ports and connectors, significantly reducing the TCO of a complete security and observability solution.

Goes anywhere your network goes

The cVu packet broker is available as a hardware appliance, or software appliance running in a virtual machine or in the cloud.

The cVu-V virtual packet broker is a virtual machine that consolidates, processes and delivers east-west traffic in data-centers, private clouds, branch offices or public cloud deployment. In the cloud, cVu-V is an agentless solution that consolidates, processes and delivers inter- and intra-VPC traffic in the public cloud and within multi-cloud configurations.

cVu-V can be deployed in Microsoft Azure, Amazon Web Services (AWS), and Google Cloud Platform, in multi-cloud configurations and in a VMware-based data center.

Two-tier hardware architecture

In smaller networks, a single packet brokering layer may suffice, but in more extensive networks, a more scalable two- or even three-tier architecture is desirable for future expansion without rewiring the network. The cVu AG/EAG Network Packet Broker series provides cost-effective aggregation, network packet brokering and microburst monitoring. The cVu NG/NGE Network Packet Broker series delivers high-performance core packet brokering with advanced packet processing and microburst monitoring. These hardware nodes are designed to work with cVu-V series packet brokering virtual nodes for complete network visibility and overall observability.



cVue AG/EAG

cPacket cVu AG/EAG series nodes offer 32 ports of wire-speed 100 and 400 Gbps, which can also operate in 40/25/10 Gbps mixed mode to aggregate tools and TAPs at different network speeds, providing superior flexibility and investment protection.

Because the nodes are deployed out-of-band, they don't interfere with the network forwarding plane.

Capabilities include:

- Up to 12.8Tbps packet acquisition, aggregation, and delivery.
- Layer 2-4 packet filtering.
- Adjustable data rates to bridge between sources and destinations that transmit and receive at different data rates (bridging is typically from faster to slower data rates).
- Packet replication and forwarding/delivery (data pipelining) to multiple targets.
- A mixture of ports that operate at different ingress and egress data rates.
- High-resolution timestamping (EAG model only).
- Microburst profiling using cPacket cBurst feature (EAG model only).

cVu AG/EAG nodes are non-blocking and provide minimal packet loss when used as specified to acquire packets at varied wire data rates up to 100 Gbps using TAP/SPAN ports and ERSPAN/VXLAN tunnels.

Reliably delivering network packet data is vital for security applications such as NDR/XDR and for SIEM tools because every packet is essential, and dropped packets are an exploitable vulnerability.

All cVu AG/EAG nodes broker network packets from multiple sources to multiple targets. They minimize outages and help strengthen IT infrastructure resilience to cyberattacks when used with observability and security tools such as Network/Extended Detection and Response solutions (NDR, XDR). The devices also provide unbiased network traffic details (Key Performance Indicators) that help pinpoint, troubleshoot and resolve IT problems. These KPIs are available by API and are presented via customizable dashboards on cClear. The KPIs can identify denial-of-service (DDOS) attacks, sub-second microbursts, oversubscription and packet data loss.

The cVu EAG packet brokers can use Precision Time Protocol (PTP) to keep nanosecond time precision where needed.

cVu EAG nodes include unique microburst detection and a profiling feature called cBurst, which provides precise details to troubleshoot network spikes (microbursts) that cause packet drops. cBurst can also be used to accurately plan and optimize network capacity to handle steady-state traffic and traffic bursts—critical for applications such as high-frequency trading and real-time video delivery.

cVu observability nodes are designed to meet specific procurement and use case requirements of financial enterprises, high-frequency trading, high-performance computing, government and education organizations. All models are engineered and manufactured for Trade Agreements Act (TAA) compliance, and select models support FIPS 140 Level-2 cryptography. Protocol analytics supports industry and application-specific use cases such as profiling microbursts and market-feed data gaps (for example, the cMDF Market Data Feed Analytics).

cVu AG/EAG observability nodes are available in industry-standard 1U chassis, rack installable and designed to readily fit into any data center, campus, remote site, or telco environment and offer configurable mix-and-match port data rates ranging from 10 Gbps to 400 Gbps. Industry-standard transceivers (QSFPDD, QSFP28, QSFP+, and SFP+) are used for full interoperability and compatibility with other vendors' monitoring fabric, averting vendor lock-in.

cVu NG/NGE Network Packet Broker Observability Nodes. cVu NG/NGE nodes are cPacket's top-of-the-line products built on scalable distributed hardware architecture and years of software innovation. They offer all the capabilities of cVu AG/EAG nodes and more.

Additional features available in the cVu NG/NGE nodes include:

- Software-defined port enablement to elastically extend port density.
- Front and back ports for uplink connectivity to 40/100 Gbps networks.
- A mixture of standard ports (aka "aggregation ports") and smart ports. Standard ports are often used for aggregation, and smart ports are often used for delivery to tailor the packet streams to specific targets.
- Dedicated advanced features that operate independently in every smart port.
 - Packet deduplication
 - Smart dynamic packet truncation
 - Conditional packet truncation

Patented distributed processing using custom-developed ASICs and FPGAs are placed on each smart port to inspect and process packets at wire speed. This architecture offloads internal switching to ensure that all packet processing features on all smart ports work flawlessly and simultaneously without dropping packets. The distributed processing architecture used in cVu NG/NGE nodes deliver multi-port network traffic acquisition, aggregation, smart filtering, layer 2-7 inspection and protocol processing, load balancing, and forwarding. This architecture assures scale and performance in real time to understand what is happening on every network link. This architecture also averts dropped packets and other problems that network packet brokers from other vendors are prone to due to their use of a shared CPU or FPGA for advanced packet processing, with much lower throughput than the switching fabric throughput.



*cVu NG/NGE Network Packet Broker
Observability Nodes*

The cVu NG/NGE nodes provide the following functionality:

- Up to 1.6Tbps packet acquisition, aggregation and delivery
- Inspection of any part of the packet using string match and pre-compiled layer 2-7 filters
- Advanced “smart” packet filtering on any smart port
- Packet deduplication on any smart port
- Flexible load-balancing options
- Advanced decapsulation of tunnels including VxLAN, ERSPAN and Geneve
- Support for MACSEC decryption for monitoring encrypted links such as AWS direct connect
- Conditional dynamic and static packet truncation
- High-resolution (nanosecond) timestamping
- Advanced network load monitoring including microburst profiling using cPacket cBurst feature

Better Together

cPacket cVu observability nodes can be provisioned, managed, and observed using the cPacket cClear observability platform and through the nodes’ own user interfaces for quick access.

cVu nodes can copy selected network data to cPacket cStor and cStor-V series packet capture and analysis observability nodes for storing and analyzing data for the long term, as may be required for latency or TCP analysis, multi-hop service troubleshooting, security forensics for incident response, and compliance.

Find out more

Learn more about cVu observability nodes at cpacket.com/products/cvu/

cVu NG Technical Specifications

Key Features	cVu400NGE	cVu400NGE-CX	cVu560NGE	cVu2440NG	cVu3240NG	cVu4100NG	cVu8100NG	cVu16100NG
Traffic Aggregation/Replication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Packet Slicing/Truncation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Advanced Load Balancing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VXLAN/MPLS/VNTag Stripping	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VLAN Tag with Inner VLAN Filtering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Smart Filtering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
High-Resolution Counters (HRC KPI)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Microburst Analysis (cBurst)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Packet Deduplication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Packet Size Byte Counter Insertion	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MAC-in-MAC DC Decapsulation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MACSec Decryption	Yes	Yes	Yes	Yes	Yes	No	No	No
Timestamping with External PPS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Timestamping with PTP/NTP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Sync Management (PTP/NTP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Role-Based Administration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Software Upgrade/Restore	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GUI, Serial Console and CLI	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMPv3 and MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Optical Transceiver Diagnostics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TACACS+/RADIUS/LDAP Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
cMDF	No	No	No	No	No	Yes	Yes	Yes
Unified Management (requires cClear)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Certified FIPS 140 Level 2 Cryptography						Yes	Yes	Yes
TAA Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

cVu NG Technical Specifications

	cVu400NGE	cVu400NGE-CX	cVu560NGE	cVu2440NG	cVu3240NG	cVu4100NG	cVu8100NG	cVu16100NG
Interface Connectivity								
10 GbE Ports (SFP+)	Smart: 24 Aggregation:16	Smart: 24 Aggregation:16	Smart: 24 Aggregation:16	96*	128*	16*	32*	64*
40 GbE Ports (QSFP+)	Smart: 4*	Smart: 4*	"Smart: 4* Standard 4**"	24	32	4	8	16
100 GbE Ports (QSFP28)	N/A	Aggregation:2	N/A	N/A	N/A	4	8	16
Management Interface	Ethernet/Serial (RJ45)							
Timing/Synchronization	PPS (SMA) PTP/NTP							

* Using QSFP+/QSFP28 breakout box/cable; future check with cPacket Networks or your sales representative for availability

Dimensions and Weight

Height/Rack Unit	1.7" (4.3 cm) 1U	1.7" (4.3 cm) 1U	1.7" (4.3 cm) 1U	3.5" (8.9 cm) 2U	3.5" (8.9 cm) 2U	3.5" (8.9 cm) 2U	3.5" (8.9 cm) 2U	3.5" (8.9 cm) 2U
Width	16.6" (43 cm)	16.6" (43 cm)	16.6" (43 cm)	17.0" (43 cm)	17.0" (43 cm)	16.5" (42 cm)	16.5" (42 cm)	16.5" (42 cm)
Depth	28.1" (72 cm)	28.1" (72 cm)	28.1" (72 cm)	29.0" (74 cm)	29.0" (74 cm)	28.25" (72 cm)	28.25" (72 cm)	28.25" (72 cm)
Weight	32 lb (14.5 kg)	32 lb (14.5 kg)	32 lb (14.5 kg)	80 lb (36.3 kg)	80 lb (36.3 kg)	46 lb (20.8 kg)	50 lb (22.6 kg)	56 lb (25.5 kg)

Operating Conditions

Operating Temperature	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"
Operating Humidity	10% – 90%	10% – 90%	10% – 90%	10% – 90%	10% – 90%	10% – 90%	10% – 90%	10% – 90%
Certifications	"FCC Class A EN 55032 Class A EN 62368-1"	"FCC Class A EN 55032 Class A EN 62368-1"	"FCC Class A EN 55032 Class A EN 62368-1"	"FCC Class A EN 55022 Class A"	"FCC Class A EN 55022 Class A"	"FCC Class A FCC Class CE"	"FCC Class A FCC Class CE"	"FCC Class A FCC Class CE"

Power and Cooling

Airflow	Front-to-Back	Front-to-Back	Front-to-Back	Front-to-Back	Front-to-Back	Front-to-Back	Front-to-Back	Front-to-Back
Power Redundancy	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"	"1+1 AC/DC 100-240 VAC 50-60 Hz"
Max. Power Consumption	650 W	650 W	650 W	1700 W	1700 W	1100W	1350 W	1800 W
Heat Dissipation	2216 BTU/hour	2216 BTU/hour	2216 BTU/hour	5797 BTU/hour	5797 BTU/hour	3751 BTU/hour	4603 BTU/hour	6138 BTU/hour

cVu AG Technical Specifications

	cVu32100AG	cVu32400AG
Key Features		
Traffic Aggregation/Replication	Yes	Yes
Packet Slicing/Truncation	Yes	Yes
Load Balancing	Yes	Yes
VXLAN Termination	Yes	Yes
L2/L3 Protocol Stripping (VLAN/MPLS/ERSPAN)	Yes	Yes
Filtering	Yes	Yes
Microburst Analysis (cBurst)	Yes *	Yes *
cPacket Timestamping	No	No
MAC Replacement Timestamping	Yes *	Yes *
Time Sync Management (PTP/NTP)	Yes	Yes
Role-Based Administration	Yes	Yes
Software Upgrade/Restore	Yes	Yes
GUI, Serial Console and CLI	Yes	Yes
SNMPv3 and MIB	Yes	Yes
Optical Transceiver Diagnostics	Yes	Yes
TACACS+/RADIUS Authentication	Yes	Yes
Unified Management (requires cClear)	Yes	Yes
Certified FIPS 140 Level 2 Cryptography	No	No
TAA Compliance	Yes	Yes

* Requires PREMIUM Subscription or EAG Upgrade License

Interface Connectivity

1 GbE Ports (SFP)	(128**)	(128**)
10 GbE Ports (SFP+)	128**	128**
40 GbE Ports (QSFP+)	32	32
100 GbE Ports (QSFP28)	32	128**
400 GbE Ports (QSFP-DD)	-	32
Management Interface	Ethernet/Serial (RJ45)	Ethernet/Serial (RJ45)
Timing/Synchronization	PTP/NTP	PTP/NTP

** Using QSFP+/QSFP28 breakout box/cable; check with cPacket Networks or your sales representative for availability

cVu AG Technical Specifications

	cVu32100AG	cVu32400AG
Dimensions and Weight		
Height/Rack Unit	1.72" (4.4 cm) 1U	1.72" (4.4) 1U
Width	16.84" (42.8 cm)	16.85" (42.8cm)
Depth	22.0" (55.9 cm)	22.0" (55.9 cm)
Weight	24.5 lb (11.1 kg)	25.4lbs (11.52 kg)
Operating Conditions		
Operating Temperature	"32° F – 104° F 0° C – 40° C"	"32° F – 104° F 0° C – 40° C"
Operating Humidity	5% – 85%	5% – 85%
Certifications	"FCC Class A FCC Class CE"	"FCC Class A FCC Class CE"
Power and Cooling		
Airflow	Front-to-Back ^	Front-to-Back
Power Redundancy	"1+1 AC/DC 100-264 VAC 50-60 Hz"	"2 (1+1 redundant) AC 100-264 VAC 50-60 Hz"
Max. Power Consumption	250 W	672W

^ Back to Front Options available; check with cPacket Networks or your sales representative for availability



About cPacket Networks

cPacket Networks de-risks IT I&O through network-aware service and security assurance across hybrid and multi-cloud environments. Our AIOps-ready Intelligent Observability Platform provides single-pane-of-glass analytics and deep network visibility required for complex IT environments enabling Fortune 500 organizations around the world to keep their business running. cPacket solutions are fully reliable, tightly integrated, and consistently simple. Our cutting-edge technology enables network, application, and security teams to proactively identify issues before negatively impacting the business. The result: increased service agility, enhanced experience assurance, and faster transactional velocity. Learn more at cpacket.com.