

F R O S T & S U L L I V A N

2024

**NEW PRODUCT
INNOVATOR**

*IN THE GLOBAL
NETWORK PACKET
BROKERS MARKET
NEW PRODUCT
INNOVATION AWARD*

F R O S T & S U L L I V A N

BEST

2024 PRACTICES

AWARD



Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Keysight Technologies excels in many of the criteria in the network packet brokers market space.

AWARD CRITERIA	
<i>New Product Attributes</i>	<i>Customer Impact</i>
Match to Needs	Price/Performance Value
Reliability	Customer Purchase Experience
Quality	Customer Ownership Experience
Positioning	Customer Service Experience
Design	Brand Equity

Innovation: Empowering Engineers and Innovators

The network packet brokers (NPB) market involves solutions that allow organizations to reduce cyber risk and strengthen their network security with devices that collect, manage, optimize, and distribute network traffic to security, monitoring, and performance tools. NPB solutions are critical for enterprises and organizations to optimize their network monitoring infrastructure and improve cybersecurity posture with a more effective total cost of operation. More specifically, NPB, in combination with other network visibility solutions, can:

- Reduce the burden and complexity of extracting, preparing, and distributing network packet data for analysis and forensics.
- Optimize and improve tools' operation, ensuring that the right data is delivered to the right tool when needed.
- Lower the total cost and improve the efficiency of both security and monitoring deployments.

The NPB market is growing, among other things, due to ongoing investments to combat increasing cyber threats and the growing complexity of enterprise hybrid and cloud environments, highlighting Keysight Technologies (Keysight) as a key player.

Keysight visibility solutions focus on cybersecurity efficiency, whereas other business units also empower innovators with cutting-edge design, emulation, and test environments that expedite development and

deployment, minimizing risks. The company's fusion of technologies and measurement expertise, developed through co-innovation with industry leaders, enables engineers to push innovation boundaries and deliver superior product experiences.

As the original business of Hewlett-Packard founded in 1939, Keysight has a rich history in technology innovation. In 2014, Keysight Technologies became an independent, publicly traded company, focusing on enabling innovation across industries like telecommunications, aerospace, defense, and automotive. Since then, Keysight has continued to expand its product portfolio, offering solutions that accelerate innovation in wireless communications, automotive, and aerospace. It collaborates with top companies and universities globally, supporting innovators in enhancing development processes, optimizing networks, and leveraging artificial intelligence (AI) and digital twins for future technologies.

Keysight significantly strengthened its portfolio through the acquisition of Ixia in 2017. This strategic acquisition, valued at \$1.6 billion, brought Keysight's abilities to the cybersecurity ecosystem, leveraging its rich technological capabilities. Ixia, renowned for its pioneering advancements in network visibility and leadership in network testing, brought complementary strengths to Keysight.

This merger enabled Keysight to offer end-to-end solutions across Layers 1 to 7 of the OSI model, addressing the fast-growing segments of the communications ecosystem, such as 5G, Wi-Fi, and Internet of Things (IoT). The combined expertise allowed Keysight to leverage Ixia's robust software-driven solutions and extend its market reach, driving significant revenue synergies and operational efficiencies. With Ixia's innovative team and their history in the cybersecurity ecosystem and network monitoring depth, enhanced by its network emulation capabilities, Keysight was poised to deliver breakthrough solutions and accelerate growth in the dynamic communications, cyber and compliance landscape.¹

Elevating Network Intelligence: Keysight's NPB Excellence

Keysight's NPBs offer high-performance solutions, to reduce cyber risk by ensuring zero packet loss and the efficient flow of network traffic. These innovative devices optimize security operations with dedicated hardware acceleration for packet processing and analytics for a reliable architecture, enabling precise traffic filtering to ensure that monitoring and security tools receive only the necessary data.

Keysight offers a range of NPBs tailored to different needs. Edge solutions include Vision Edge 40, Vision Edge 100, Vision 7816, Vision Edge 10S, and Vision Edge 1S. Core solutions, with more complex processing include Vision ONE, Vision X, and Vision 400. In their latest 400G solutions, edge and core are bridged with high aggregation and select advanced features to meet market demand - these products include Vision Edge 400S and Vision Edge 400P. Keysight visibility also has a cloud solutions suite: CloudLens - a virtual tapping and virtual packet brokering platform. Overall, Keysight visibility solutions cater to various network sizes and configurations, providing intelligent visibility for microscale to hyperscale data centers, from edge to core to cloud.

Even before the AI chip-hype, Keysight has been long invested in dedicated chips and hardware to deliver line-rate performance with no dropped packets. The company achieves this level of reliability through field-programmable gate arrays (FPGA) - a type of programmable chip. With this FPGA-based architecture, Keysight's NPBs can run multiple advanced functions simultaneously on the same device, eliminating the need for additional modules and complex daisy-chaining of devices. Ultimately, this approach reduces

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- Sujan Sami
Industry Analyst

deployment complexities, improves scalability, and optimizes costs.

Keysight solutions prioritize ease of use for the end user. Keysight was the first in its space to provide a drag-and-drop user interface, eliminating the need for complex CLI. Keysight's latest management software - Keysight Vision Orchestrator (KVO) - is a new-generation central management console with automation and orchestration capabilities that streamline the operations of a Keysight NPB/visibility network of any size. Keysight’s KVO and drag-and-drop capabilities are possible because of its patented dynamic filter compiler algorithm, which simplifies the handling of complex traffic filter rules, eliminating human error and boosting productivity.

Frost & Sullivan identifies Keysight Technologies as a key player in the network visibility and management space,

commending its approach to product design and commitment to high-performing, reliable, and innovative solutions.

Setting the Standard: Keysight’s Commitment to Excellence

Keysight stands out for its unwavering commitment to excellence and a strong focus on product quality and capability, which is deeply ingrained in its culture and operations. This dedication ensures that customer satisfaction remains paramount, driving innovation forward. At the core of the company’s approach is its foundation of trust and customer focus, ensuring that quality, security, and continuous improvement are integral parts of its essence.

The company holds its suppliers and partners to high standards, ensuring a consistent commitment to excellence. Keysight’s Continuous Improvement Program, deeply integrated into the leadership model and product lifecycle management, continually applies Lean/Six Sigma principles to enhance product design, development, manufacturing, and sales processes.

Keysight’s dedication to quality is further evident in its security and test automation approach, conducting rigorous product testing cycles, including multiple automation and regression testing rounds for each release cycle. The company prioritizes addressing vulnerabilities, using the latest tools and best reporting practices to ensure product security and reliability.

In addition to its focus on product quality, Keysight is committed to its customers’ success, and highly invested in Global Visibility Solutions Support programs which offer comprehensive 24/7 support backed by deep knowledge and technical expertise, documentation, regular software updates, and comprehensive hardware repair. This commitment ensures that customers receive the assistance they need, further enhancing the quality and reliability of the company’s products and services. Frost & Sullivan lauds Keysight Technologies’ unwavering dedication to excellence and quality.

Innovation at Its Core

Keysight's NPBs stand out for their innovative use of various sources of processing power, including programmable silicon, central processing units (CPUs), and FPGAs, to maximize performance and efficiency. Unlike many competitors relying solely on CPU-based processing, Keysight's NPBs leverage FPGA-based hardware acceleration for intensive line-rate processing. This approach ensures zero-loss performance even with multiple functions enabled simultaneously.

Integrating CPUs and dedicated FPGA hardware in Keysight's advanced packet brokers enables various functions, including packet deduplication, application detection, filtering, NetFlow, and decryption, to run simultaneously on the same device. The company's latest NPBs also run on advanced programmable silicon, allowing advanced packet processing functions at unprecedented performance and scalability.

Keysight's commitment to innovation is evident in its comprehensive 400G-capable NPB portfolio, including the Vision E400S, Vision 400, and the upcoming Vision E400P. These NPBs support a wide range of interfaces and offer unmatched port speed flexibility, ideal for customer migration efforts to higher speeds and meeting the demands of tomorrow's networks. Furthermore, Keysight's adoption of an advanced programmable silicon chip in its 400G product line demonstrates its commitment to technology advancement, offering greater flexibility at a lower cost without compromising performance or quality. This ability to adopt and deploy the latest technologies, while still providing quality and performance is possible for Keysight due to the unique combination of its NPB expertise coupled with the strength of its test and measurement capabilities, allowing the company to adapt quicker than other organizations.

Unveiling the Future: Keysight's Forward-thinking Design Philosophy

Keysight strongly emphasizes product design elements, prioritizing market-leading performance, scalability, innovative future-proof design, adoption of new technologies, automation, intelligence, and end-user experience. These design elements are crucial to meeting customer needs and ensuring that the company's solutions remain adaptable and at the forefront of the industry.

Keysight's product team emphasizes market-leading performance as a crucial differentiator. Platform designs prioritize traffic processing performance to enhance customers' visibility into network traffic, leveraging hardware technologies for unmatched performance and reliability to achieve the greatest cyber risk reduction.

Keysight focuses on scalability as an essential design element to align with the exponential growth of network data. The company's system clustering solutions allow customers to scale visibility as their needs grow. Clustering enables new hardware and software functionality, including virtual products, to seamlessly integrate with existing products and provide customers with flexibility and scalability, regardless of the size of the security deployment.

Keysight also focuses on innovative future-proof design, using up-to-date technology to address current customer needs and provide flexibility to expand over time. The design philosophy allows new technologies to integrate with existing monitoring networks quickly and easily, ensuring the company's solutions remain relevant and effective in the rapidly evolving cybersecurity ecosystem.

Keysight prioritizes automation and intelligence in design, continually enhancing customer workflows

through automation and orchestration. Keysight's Vision Orchestrator central management solution allows customers to automate actions across disparate systems in their network and utilize an expert system to optimize traffic flow through the monitoring network, improving efficiency and reducing manual effort.

Finally, Keysight strongly emphasizes end-user experience, making complex configurations simple and intuitive. Whether customers use a standalone system with its own GUI or Keysight central management platform, they can quickly build complex monitoring policies and clearly view traffic flow and features, enhancing the overall user experience.

Frost & Sullivan praises Keysight for its strong commitment to innovation and customer-centric product design, highlighting its focus on market-leading performance, modularity, scalability, future-proof design, automation, intelligence, and end-user experience.

Conclusion

Keysight Technologies (Keysight) is a beacon of innovation and excellence, empowering global engineers and innovators with cutting-edge solutions redefining industry standards. Through pioneering advancements in network visibility and performance monitoring tools, Keysight sets new product design and customer support benchmarks in the cybersecurity ecosystem. The company shows its dedication to innovation with its advanced 400G-capable network packet broker (NPB) lineup, featuring the Vision E400S, Vision 400, and the upcoming Vision E400P. These NPBs offer flexible port speeds and support various interfaces, perfect for customers transitioning to higher speeds and future-proofing their networks. Keysight's adoption of advanced programmable silicon chips in its 400G products further demonstrates its commitment to innovation, providing increased flexibility at a lower cost while maintaining high performance and quality. Driven by a rich history of breakthroughs and a steadfast commitment to pushing boundaries, Keysight is shaping the future of technology, one breakthrough at a time.

Keysight earns Frost & Sullivan's 2024 Global New Product Innovation Award for its strong overall performance in the NPB market industry.

What You Need to Know about the New Product Innovation Recognition

Frost & Sullivan's New Product Innovation Award recognizes the company that offers a new product or solution that uniquely addresses key customer challenges.

Best Practices Award Analysis

For the New Product Innovation Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

New Product Attributes

Match to Needs: Customer needs directly influence and inspire product design and positioning

Reliability: Product consistently meets or exceeds customer performance expectations

Quality: Product offers best-in-class quality with a full complement of features and functionality

Positioning: Product serves a unique, unmet need that competitors cannot easily replicate

Design: Product features an innovative design that enhances both visual appeal and ease of use

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

