



# 20 25 | COMPANY OF THE YEAR

*Driving impact across the customer value chain*

RECOGNIZED FOR BEST PRACTICES IN THE  
SOUTH KOREAN WEB APPLICATION  
FIREWALL INDUSTRY

## Table of Contents

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<b>Best Practices Criteria for World-class Performance</b>	<b>3</b>
<b>Cybersecurity Crisis of the Digital Age</b>	<b>3</b>
Intelligence-driven Defense and Response for a Dynamic Threat Landscape	4
Building Trust through Exceptional Customer Support and Experience	5
Positioned for Growth	6
<b>Conclusion</b>	<b>7</b>
<b>What You Need to Know about the Company of the Year Recognition</b>	<b>8</b>
<b>Best Practices Recognition Analysis</b>	<b>8</b>
Visionary Innovation & Performance	8
Customer Impact	8
<b>Best Practices Recognition Analytics Methodology</b>	<b>9</b>
Inspire the World to Support True Leaders	9
<b>About Frost &amp; Sullivan</b>	<b>10</b>
The Growth Pipeline Generator™	10
The Innovation Generator™	10

## Best Practices Criteria for World-class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each recognition category before determining the final recognition recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Penta Security excels in many of the criteria in the web application firewall space.

RECOGNITION CRITERIA	
<i>Visionary Innovation &amp; Performance</i>	<i>Customer Impact</i>
Addressing Unmet Needs	Price/Performance Value
Visionary Scenarios Through Megatrends	Customer Purchase Experience
Leadership Focus	Customer Ownership Experience
Best Practices Implementation	Customer Service Experience
Financial Performance	Brand Equity

## Cybersecurity Crisis of the Digital Age

Cyberthreats are rapidly evolving as technological advancements enable threat actors to adapt and outpace traditional defenses. The rise of cloud services, application programming interfaces (APIs), Internet of Things (IoT) devices, and remote work has significantly expanded the attack surface, creating more entry points for attackers. In this dynamic threat landscape, traditional signature- or pattern-based security approaches are no longer sufficient. While legacy firewalls can still defend against known vulnerabilities such as structured query language (SQL) injection or cross-site scripting (XSS), they often fail to detect zero-day threats, sophisticated bot traffic, API exploitation, and distributed denial-of-service (DDoS) or denial-of-service (DoS) attacks.

With digital transformation accelerating across industries in South Korea, enterprises are prioritizing proactive, adaptive security strategies that leverage real-time intelligence to stay ahead of emerging risks. Persistent threats from new attack techniques, tighter regulations, and widespread cloud adoption are driving steady growth in the South Korean web application firewall (WAF) market. WAF solutions must minimize false positives while preserving a seamless user experience. Delivering these capabilities requires security providers to deeply understand system architecture to ensure full coverage and accessibility for legitimate users. Providers that offer comprehensive, integrated solutions with strategic, customer-specific implementation plans are better positioned to protect against a broad range of sophisticated threats and attack techniques. This holistic approach offers a competitive advantage in navigating today’s threat landscape. Founded in 1997 and headquartered in Seoul, South Korea, Penta Security is an industry-leading cybersecurity solutions provider specializing in web and data security.

Its flagship product, WAPPLES, is a WAF solution known for advanced threat detection. With over 17 years of experience leading the WAF industry, Penta Security has consistently demonstrated its commitment to innovation and excellence, backed by numerous patents and a strong foundation in research and development (R&D). As a result, the company stands as a trusted partner for government agencies and enterprises across finance, healthcare, and technology.

### Intelligence-driven Defense and Response for a Dynamic Threat Landscape

Penta Security's WAPPLES delivers comprehensive protection against a wide range of advanced cyberattacks through its patented Contents Classification and Evaluation Processing (COCEP™) engine, an intelligent analysis-based detection system. Unlike traditional pattern-based WAFs that depend on predefined signatures, the COCEP™ engine utilizes logical analysis of web traffic behavior to detect both known and unknown application-layer threats, including zero-day vulnerabilities and modified attack patterns in real time.

Powered by pre-configured detection rules, the COCEP™ engine enables immediate threat response without frequent signature updates or lengthy learning periods, empowering faster mitigation and

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**- Ying Ting Neoh**  
**Industry Analyst**

proactive vulnerability management. Its logic-based detection mechanism also contributes to a near-zero false positive rate, enhancing accuracy and minimizing false alarm management efforts. With these intelligence-driven capabilities, WAPPLES delivers highly efficient, effective security for web applications and APIs against evolving cyberthreats.

Penta Security demonstrates agility, launching proactive defenses against wide-ranging threats. For example, WAPPLES supports multiple data structures and formats, including GraphQL and YAML, ensuring robust security across diverse API communication

protocols. It can identify malicious bots from different sources and internet protocols involved in DoS attacks—an essential capability for time-sensitive applications and critical infrastructure websites. As cyberattacks become increasingly sophisticated, including API exploits and the growing complexity of XSS attacks, the company is committed to advancing its detection and mitigation technologies to address them. In 2024, Penta Security implemented key enhancements to its WAF, further strengthening its API protection. Additionally, the company incorporated a broader range of attack vectors to address evolving XSS attacks. Its COCEP™ engine was further strengthened with the addition of a new security rule—now totaling 41—improving pattern detection, reducing false positives, and enhancing threat prioritization.<sup>1</sup> To ensure the stability and reliability of its WAF, Penta Security also upgraded its system maintenance tools. Moving forward, Penta Security will continue refining its solutions through rapid vulnerability response, proactive security updates, and intelligent threat detection. These ongoing improvements

<sup>1</sup> Frost & Sullivan Interview with Penta Security (April 2025)

reinforce Penta Security's leadership in web application and API security.

Penta Security ensures successful deployment and delivers reliable, high-performance security solutions aligned to each customer's operational environment through best-practice implementation. The company prioritizes an in-depth understanding of system architecture to configure WAF detection settings precisely. It employs real-time traffic analysis, log monitoring, and anomaly detection to gain environment-specific insights that support optimized security. As hyper-personalization grows—driven by user behavior data—Penta Security's customer-specific deployment practices go beyond static rules to prevent blocking legitimate traffic even amid diverse request patterns and user behaviors.

Penta Security's technical expertise, advanced technologies, and WAF performance are recognized by leading domestic and international accreditation bodies. The company distinguishes itself from domestically focused competitors by adhering to international standards, enhancing the global credibility of its WAF offerings in the South Korean market. Penta Security further stands out through its steadfast dedication to sustainability, demonstrated by its pursuit of industry-recognized certifications in green technologies and environmental management—an area where most competitors still lag. Its WAPPLES solution is certified by the International Computer Security Association (ISCA) Labs and holds ISO 9001, 14001, and 27001 certifications from the Korea Quality Assurance body. In addition, the company has earned Common Criteria (CC), Good Software (GS), Green Technology Product, and Internet Protocol version 6 (IPv6) Ready certifications. These credentials strengthen Penta Security's reputation as a trusted leader in web security solutions.

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### **Building Trust through Exceptional Customer Support and Experience**

Penta Security maintains a strong customer focus by aligning its solutions with operational needs, business objectives, and regulatory requirements. Its flagship WAF solution, WAPPLES, complies with the South Korean National Intelligence Service's security verification scheme, ensuring reliable protection of sensitive information across industries. Additionally, the company offers deployment flexibility through seamless integration across multi-cloud, hybrid, and on-premises infrastructures. With service models including on-premises application (WAPPLES), software appliance (WAPPLES SA), and security-as-a-service model (Cloudbrix WAF), customers can choose the model best suited to their needs. WAPPLES also supports diverse global and Asia-Pacific cloud platforms—including Amazon Web Services (AWS), Azure, Alibaba Cloud, NAVER Cloud, NHN Cloud, and Kakao Cloud—offering broad accessibility and scalability.

Besides a customer-centric design approach, Penta Security emphasizes a seamless customer journey with robust support services. Its integrated customer-facing systems include the 24/365 information delivery system (IDS), which provides real-time updates and operational status, and the incident management system (IMS), which streamlines issue reporting and enables swift responses from engineers to minimize service disruptions. The WAPPLES Control Center further enhances user control by allowing centralized management of multiple WAPPLES instances across diverse environments—supporting policy

synchronization, system monitoring, and log and report management. To maintain peak WAF performance, Penta Security offers a dedicated maintenance tool that monitors resources, network status, and operational conditions, ensuring a seamless and reliable user experience.

In 2024, Penta Security strengthened its commitment to delivering customer value. As an AWS Activate

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**- Rubini Kamal**  
**Best Practices Research Analyst**

partner, the company enabled startup customers to access valuable resources such as AWS credits support, personalized guidance, and architecture support to accelerate their growth.<sup>2</sup> Moreover, the solution provider introduced a usage-based software-as-a-service (SaaS) subscription model for its WAF managed services—Cloudbric WMS—on AWS Marketplace, enabling customers to pay as they use while benefiting from expert-managed, simplified web application security.<sup>3</sup> Frost & Sullivan analysts commend Penta Security’s long-term growth strategy focused on customer value, noting its customer-

centric approach as a key driver of innovation, business continuity, and growth in the thriving digital landscape.

### Positioned for Growth

Penta Security’s WAPPLES has high growth potential in South Korea’s WAF industry. As an established leader, the company maintains a strong market presence, with widespread adoption across key sectors, including the public sector, e-commerce, fintech, and cloud services. It is particularly capitalizing on the enterprise shift to the cloud through strategic product enhancements, multi-cloud support, and innovation in cloud-based WAF technologies. These efforts have driven over 40% year-over-year growth in its cloud segment in 2024, fueled by strong market demand and the company’s scalable, transition-ready solutions.<sup>4</sup> Penta Security continues to drive growth by expanding its network of strategic partnerships. In 2024, the company strengthened its presence in South Korea by forming new local and global channel partnerships specialized in WAPPLES-related technical services, teaming up with BELLOCK INC., M&Secure, Ryutec, and KSoft.<sup>5</sup> It is also expanding regionally through a partnership with distributor Version 2 Digital, leveraging its extensive sales network to enter markets in Hong Kong, Macau, Taiwan, and Singapore.<sup>6</sup> These collaborations enhance Penta Security’s competitiveness and brand value, backed by its deep expertise of the local landscape and capabilities of its partners. This positions the company to effectively serve domestic customers in South Korea and support those expanding internationally. Frost & Sullivan notes Penta Security’s impressive growth trajectory and believes the company is well-positioned to drive the WAF space into its next phase of innovation and expansion.

<sup>2</sup> <https://www.pentasecurity.com/press-releases/selected-as-a-provider-for-aws-startup-support-program-aws-activate/>

<sup>3</sup> <https://www.pentasecurity.com/press-releases/penta-security-launches-a-cloud-security-provider-waf-managed-service-on-aws-marketplace/>

<sup>4</sup> Frost & Sullivan Interview with Penta Security (April 2025)

<sup>5</sup> Ibid.

<sup>6</sup> <https://www.pentasecurity.com/press-releases/penta-security-enhances-asian-market-presence-through-strategic-partnership-with-version-2-digital/>

## Conclusion

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Penta Security's WAPPLES combats advanced cyberattacks with an intelligent, proactive defense that goes beyond traditional pattern-based solutions like legacy firewalls. Its patented logic-based detection engine uses behavioral analysis of web traffic to deliver accurate, real-time threat detection, effectively countering evolving attack techniques, securing multiple entry points, and minimizing false positives. Backed by cybersecurity experts and strategic implementation practices, Penta Security delivers comprehensive protection against modern threats. Complemented by robust customer support, it remains a trusted partner and industry leader, earning a reputation for offering the best in the South Korean web application firewall industry. Penta Security has reinforced its market leadership through over 40% year-over-year growth and an expanding network of strategic partnerships, which strengthen its presence in South Korea and across the region.

With its strong overall performance, Penta Security earns Frost & Sullivan's 2025 South Korea Company of the Year Recognition in the web application firewall industry.

## What You Need to Know about the Company of the Year Recognition

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Frost & Sullivan's Company of the Year Recognition is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

### Best Practices Recognition Analysis

For the Company of the Year Recognition, Frost & Sullivan analysts independently evaluated the criteria listed below.

#### Visionary Innovation & Performance

**Addressing Unmet Needs:** Customers' unmet or under-served needs are unearthed and addressed to create growth opportunities across the entire value chain

**Visionary Scenarios Through Megatrends:** Long-range scenarios are incorporated into the innovation strategy by leveraging mega trends and cutting-edge technologies, thereby accelerating the transformational growth journey

**Leadership Focus:** The company focuses on building a leadership position in core markets to create stiff barriers to entry for new competitors and enhance its future growth potential

**Best Practices Implementation:** Best-in-class implementation is characterized by processes, tools, or activities that generate consistent, repeatable, and scalable success

**Financial Performance:** Strong overall business performance is achieved by striking the optimal balance between investing in revenue growth and maximizing operating margin

#### Customer Impact

**Price/Performance Value:** Products or services offer the best ROI and superior value compared to similar market offerings

**Customer Purchase Experience:** Purchase experience with minimal friction and high transparency assures customers that they are buying the optimal solution to address both their needs and constraints

**Customer Ownership Excellence:** Products and solutions evolve continuously in sync with the customers' own growth journeys, engendering pride of ownership and enhanced customer experience

**Customer Service Experience:** Customer service is readily accessible and stress-free, and delivered with high quality, high availability, and fast response time

**Brand Equity:** Customers perceive the brand positively and exhibit high brand loyalty, which is regularly measured and confirmed through a high Net Promoter Score®



## Best Practices Recognition Analytics Methodology

### Inspire the World to Support True Leaders

This long-term process spans 12 months, beginning with the prioritization of the sector. It involves a rigorous approach that includes comprehensive scanning and analytics to identify key best practice trends. A dedicated team of analysts, advisors, coaches, and experts collaborates closely, ensuring thorough review and input. The goal is to maximize the company's long-term value by leveraging unique perspectives to support each Best Practice Recognition and identify meaningful transformation and impact.

VALUE IMPACT			
STEP		WHAT	WHY
1	<b>Opportunity Universe</b>	Identify Sectors with the Greatest Impact on the Global Economy	Value to Economic Development
2	<b>Transformational Model</b>	Analyze Strategic Imperatives That Drive Transformation	Understand and Create a Winning Strategy
3	<b>Ecosystem</b>	Map Critical Value Chains	Comprehensive Community that Shapes the Sector
4	<b>Growth Generator</b>	Data Foundation That Provides Decision Support System	Spark Opportunities and Accelerate Decision-making
5	<b>Growth Opportunities</b>	Identify Opportunities Generated by Companies	Drive the Transformation of the Industry
6	<b>Frost Radar</b>	Benchmark Companies on Future Growth Potential	Identify Most Powerful Companies to Action
7	<b>Best Practices</b>	Identify Companies Achieving Best Practices in All Critical Perspectives	Inspire the World
8	<b>Companies to Action</b>	Tell Your Story to the World (BICEP*)	Ecosystem Community Supporting Future Success

\*Board of Directors, Investors, Customers, Employees, Partners

## About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at <http://www.frost.com>.

## The Growth Pipeline Generator™

Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

[Learn more.](#)

### Key Impacts:

- **Growth Pipeline:** Continuous Flow of Growth Opportunities
- **Growth Strategies:** Proven Best Practices
- **Innovation Culture:** Optimized Customer Experience
- **ROI & Margin:** Implementation Excellence
- **Transformational Growth:** Industry Leadership



## The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

### Analytical Perspectives:

- **Megatrend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**

