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5G Security Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, By Offering (Solution, Services), By Architecture (5G NR Standalone, 5G NR Non-Standalone), By Network Security (RAN Security, Core Security), By Industry (Manufacturing, Healthcare, Retail, Automotive and Transportation, Public Safety, Others), By Region, By Competition 2020-2030F

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Abstracts

Market Overview

The Global 5G Security Market was valued at USD 3.76 Billion in 2024 and is expected to reach USD 26.06 Billion by 2030 with a CAGR of 38.08% through 2030. The Global 5G Security Market encompasses solutions, services, and infrastructure designed to protect 5G networks, users, and devices from cyber threats. As 5G networks enable faster speeds, ultra-low latency, and massive device connectivity, they also introduce new vulnerabilities due to increased complexity, virtualized infrastructure, and more open architecture. 5G security involves securing data transmission, protecting network slices, managing identities, and ensuring end-to-end encryption across connected systems.

With the rapid rollout of 5G technology by telecom operators globally, the demand for robust security measures has become essential. Unlike previous generations, 5G enables mission-critical applications such as autonomous vehicles, smart manufacturing, and remote surgeries. These applications require uninterrupted service and high trust in network integrity. As a result, governments and enterprises are

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investing in advanced 5G security solutions, including firewalls, endpoint security, threat intelligence platforms, and AI-driven threat detection tools. Furthermore, regulations and compliance mandates from bodies such as the European Union and the U.S. Federal Communications Commission are compelling stakeholders to adopt stronger 5G security frameworks.

The 5G Security Market is expected to grow significantly as industries such as healthcare, automotive, and smart cities adopt 5G-enabled technologies. Increasing concerns over nation-state cyberattacks, data privacy breaches, and the need for secure communications in defense and critical infrastructure will further accelerate market growth. Vendors are focusing on developing network-level encryption, zero-trust architectures, and cloud-native security tools tailored for 5G environments. As digital transformation intensifies and the Internet of Things expands, the importance of proactive and integrated 5G security strategies will become central to safeguarding global digital ecosystems, driving sustained demand and innovation in this market over the next decade.

Key Market Drivers

Rapid Expansion of 5G Infrastructure and Connected Devices

The accelerated global deployment of 5G infrastructure is fueling demand for advanced security frameworks. Governments and telecommunications companies are racing to build expansive 5G networks to support real-time data delivery, automation, and latency-sensitive applications. This mass expansion results in a broader attack surface, making security integration a mission-critical priority from the outset of deployment.

As 5G supports exponential growth in connected devices per square kilometer, vulnerabilities multiply. From smart meters and surveillance cameras to autonomous drones, each node becomes a potential target. Traditional security models cannot handle the dynamic and decentralized nature of 5G networks. Hence, zero-trust architectures and AI-based network monitoring are seeing robust adoption, accelerating investments in the 5G Security Market. In 2024, South Korea installed more than 340,000 5G base stations, marking a 30% increase year-on-year. These supported over 20 million connected devices, signaling how rapidly networks are scaling. Each base station and connected device expands the threat landscape, compelling operators to adopt layered, proactive security approaches to manage risk across the entire network.

Key Market Challenges

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Complexity of Securing Network Slicing and Multi-Tenant Architectures

As 5G evolves beyond its predecessors, one of its most transformative features—network slicing—also becomes a critical security concern. Network slicing enables service providers to create multiple virtualized and isolated networks over a single physical infrastructure. These slices can be customized to meet distinct service-level requirements, catering to diverse industries such as healthcare, manufacturing, and autonomous transportation. However, this segmentation introduces a complex multi-tenant environment where different applications, services, and enterprises coexist within the same infrastructure. The challenge lies in ensuring that a compromise in one slice does not lead to lateral attacks across others. Traditional perimeter-based security models are inadequate in such a dynamic environment. Therefore, securing every individual slice with its own access controls, authentication mechanisms, and intrusion detection systems becomes essential. Without real-time visibility into inter-slice traffic and automated response mechanisms, operators face increased vulnerability and potential cascading failures.

The implementation of security within network slices is not uniform across service providers, often leading to inconsistent standards and increased risk exposure. Multi-tenancy exacerbates this issue, as tenants with varying levels of security maturity and compliance may operate side by side. Shared underlying infrastructure means one tenant’s lax controls can indirectly endanger others, creating trust and accountability challenges. Regulators are yet to mandate strict guidelines for slice-level isolation, and most 5G architectures today are not equipped with native tools to monitor threats at this granular level. This shortfall forces providers to invest heavily in third-party security solutions or develop proprietary tools, which increases capital expenditure and operational complexity. The issue becomes more critical as enterprises rely on 5G for mission-critical operations. A breach affecting industrial automation or emergency services running on compromised slices could result in significant operational and financial damage, further underlining the urgency of resolving this architectural security challenge.

Key Market Trends

Integration of Artificial Intelligence and Machine Learning in Threat Detection

Artificial Intelligence (AI) and Machine Learning (ML) are emerging as indispensable tools in the fight against increasingly complex 5G-related cyber threats. With the ultra-

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low latency and high device density that 5G supports, manual monitoring and traditional security analytics no longer suffice. AI-powered systems are being deployed to automate threat detection, predict anomalies in real-time, and respond to potential breaches before they cause systemic disruptions. These intelligent systems continuously learn from vast datasets—generated by 5G's massive machine-type communications—enabling faster identification of zero-day vulnerabilities and advanced persistent threats.

AI and ML enhance adaptive security models that evolve with shifting network conditions and attacker tactics. For telecom providers and enterprises, integrating these technologies into 5G security operations translates into reduced downtime, faster incident response, and stronger regulatory compliance. AI-driven security information and event management (SIEM) tools and behavior analytics platforms are being embedded within network slices and edge computing environments to safeguard mission-critical applications. This trend will accelerate as the cost of AI solutions decreases and as more stakeholders recognize the necessity of real-time, automated cyber defense in 5G environments.

Key Market Players

Nokia Corporation

Huawei Technologies Co., Ltd.

Samsung Electronics Co., Ltd.

ZTE Corporation

Cisco Systems, Inc.

Juniper Networks, Inc.

Fortinet, Inc.

Palo Alto Networks, Inc.

Report Scope:

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In this report, the Global 5G Security Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

5G Security Market, By Offering:

Solution

Services

5G Security Market, By Architecture:

5G NR Standalone

5G NR Non-Standalone

5G Security Market, By Network Security:

RAN Security

Core Security

5G Security Market, By Industry:

Manufacturing

Healthcare

Retail

Automotive and Transportation

Public Safety

Others

5G Security Market, By Region:

North America

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United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

Asia Pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

Saudi Arabia

UAE

South Africa

South America

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Brazil

Colombia

Argentina

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global 5G Security Market.

Available Customizations:

Global 5G Security Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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