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Post-Quantum Transport Layer Security (TLS) Appliance Market Drivers and Analysis by Application and Forecast to 2029

The Business Research Company's Post-Quantum Transport Layer Security (TLS) Appliance Global Market Report 2025 – Market Size, Trends, And Forecast 2025-2034

The Business Research Company

LONDON, GREATER LONDON, UNITED KINGDOM, October 29, 2025 /EINPresswire.com/ -- What Is The Estimated Industry Size Of Post-Quantum Transport Layer Security (TLS) Appliance Market?
In recent times, the market size of the post-quantum transport layer security (TLS) appliance has seen considerable expansion. The market value, which stood at $0.53 billion in 2024, is forecasted to increase to $0.66 billion by 2025, reflecting a compound annual growth rate (CAGR) of 23.4%. This notable surge during the historic period is attributable to several reasons; regulatory compliance requirements, a rise in classical encryption-related cyber attacks, an increase in data breaches, the growing utilization of cloud computing, and greater investments in quantum-safe hardware modules and accelerators.

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Expectations are high for the post-quantum transport layer security (TLS) appliance market in the coming years as it anticipates exponential growth. By 2029, its worth is projected to hit $1.51 billion, with a compound annual growth rate (CAGR) of 23.1%. The projected surge during the forecast period can be attributed to factors like stringent government security regulations, increasing knowledge of quantum threats, the demand for a secure network infrastructure, the expansion of the remote workforce, and the accelerated adoption of digital transformation efforts. Key trends expected during the forecast period include the movement towards hybrid encryption models, progress in quantum computing, the shift towards lattice-based cryptographic algorithms, enhancements in lattice-based cryptographic algorithms, the creation of hybrid encryption protocols, and the development of quantum-proof public key infrastructure.

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What Are The Major Factors Driving The Post-Quantum Transport Layer Security (TLS) Appliance Global Market Growth?
The escalating prevalence of cyberattacks is projected to fuel the expansion of the post-quantum transport layer security (TLS) appliance market. These cyberattacks, committed by cybercriminals and adversaries with malicious intent, aim to jeopardize computer systems, networks, and data for damage infliction, information theft, or operation disruption. The rising incidents of cyberattacks occur against the backdrop of rapid digital transformation adopted by businesses and organizations and the growing vulnerabilities within online activities and remote work atmospheres. Post-quantum transport layer security (TLS) appliance serves as a tool against such threats by using quantum-resistant cryptographic algorithms, acting as a shield against classical and prospective quantum threats while providing secure communication channels and ensuring sensitive data is protected for the long term. As an example, the Australian Signals Directorate, a government agency based in Australia, revealed in November 2023 that there was a notable rise in cyber threats within 2022–23, with close to 94,000 reports of cybercrimes submitted, a 23% increase from the last year. Moreover, the financial toll on businesses due to cybercrime escalated by 14% compared to the previous fiscal year. Hence, the growing incidents of cyberattacks are advancing the growth of the post-quantum transport layer security (TLS) appliance market. With more data generation comes a higher need for security measures, which in turn boosts the growth of the post-quantum transport layer security (TLS) appliance market. The term ""data generation"" pertains to the ongoing creation, capture, and production of digital data through different devices, platforms, and applications globally. The explosion of data generated is linked to the extensive use of Internet of Things (IoT) devices, which incessantly churn out vast quantities of real-time telemetry, sensor data, and machine-to-machine communication that require secure transmission and protection. The post-quantum transport layer security (TLS) appliance aids in managing this data by making sure the creation, transmission, and storage of information take place within a quantum-resistant encryption framework, hence preserving integrity, confidentiality, and trust in high-volume digital settings. For instance, Edge Delta, a software company based in the US, reported that in 2023, the world produced an estimated 120 zettabytes (ZB) of data, approximately 337,080 petabytes (PB) daily. With around 5.35 billion internet users worldwide, it was estimated that each user could be generating around 15.87 terabytes (TB) of data every day. Consequently, the increasing data generation is stimulating the growth of the post-quantum transport layer security (TLS) appliance market.

Who Are The Leading Companies In The Post-Quantum Transport Layer Security (TLS) Appliance Market?
Major players in the Post-Quantum Transport Layer Security (TLS) Appliance Global Market Report 2025 include:

• Huawei Technologies Co. Ltd.
• Toshiba Corporation
• Thales S.A.
• Atos SE
• Palo Alto Networks Inc.
• Fortinet Inc.
• Keysight Technologies Inc.
• Check Point Software Technologies Ltd.
• Cloudflare Inc.
• Entrust Corporation

What Are The Primary Segments Covered In The Global Post-Quantum Transport Layer Security (TLS) Appliance Market Report?
The post-quantum transport layer security (TLS) appliance market covered in this report is segmented as

1) By Component: Hardware, Software, Services
2) By Deployment Mode: On-Premises, Cloud
3) By Organization Size: Small And Medium Enterprises, Large Enterprises
4) By Application: Banking And Financial Services, Government, Healthcare, Information Technology (IT) And Telecommunications, Defense, Other Applications
5) By End-User: Enterprises, Government Agencies, Service Providers, Other End-Users

Subsegments:
1) By Hardware: Processing Units, Network Interface Cards, Encryption Modules, Storage Modules
2) By Software: TLS Protocol Software, Post-Quantum Cryptography Software, Network Management Software, Security And Monitoring Software
3) By Services: Installation Services, Maintenance Services, Consulting Services, Training Services

View the full post-quantum transport layer security (tls) appliance market report:
https://www.thebusinessresearchcompany.com/report/post-quantum-transport-layer-security-tls-appliance-global-market-report

Which Region Is Forecasted To Grow The Fastest In The Post-Quantum Transport Layer Security (TLS) Appliance Industry?
In the Post-Quantum Transport Layer Security (TLS) Appliance Global Market Report 2025, North America held the position as the biggest market in 2024. Predictions indicate that Asia-Pacific will experience the most rapid expansion in the forecasted period. The report provides coverage of several regions including Asia-Pacific, Western Europe, Eastern Europe, North America, South America, as well as the Middle East and Africa.

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