

# **Quantum-resistant Cryptography Solutions Market By Type (Hardware, Software, Services) , By End User (BFSI, IT & Telecommunication, Government & Defense, Healthcare, Retail & E-commerce, Others) By Application (Cloud Security, Database Security, Network Security, Application Security) : Global Opportunity Analysis and Industry Forecast, 2024-2032**

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## **Abstracts**

### **Quantum-resistant Cryptography Solutions Market**

The quantum-resistant cryptography solutions market was valued at \$523.4 million in 2023 and is projected to reach \$7802.6 million by 2032, growing at a CAGR of 35% from 2024 to 2032.

Quantum-resistant cryptography solutions comprise of protocols and algorithms that exhibit resistance to hazards caused by quantum computers. The designing of these algorithms is based on mathematical problems that are difficult for a quantum computer to solve. The solutions aim to provide security against conventional as well as quantum attacks, ensuring the confidentiality of data and authentication of identities. These solutions find applications in healthcare, national security, cloud computing, and financial services.

Advancements in quantum technologies have amplified the threat of attacks on cryptographic systems, which is boosting the demand for quantum-resistant cryptography solutions. In addition, inclination of businesses toward digital systems has

enhanced the reliance of communication channels, thereby rising the demand for ingenious cryptographic solutions and driving the growth of the market. To increase the agility of cryptographic solutions, the incorporation of hybrid schemes is anticipated to trend in coming years. The hybrid scheme comes equipped with conventional public key cryptography and advanced post-quantum cryptographic algorithms that is expected to be a realistic & compliant approach toward quantum-safe systems.

However, the installation of quantum-resistant cryptography solutions is a time-consuming and capital-intensive procedure that requires significant hardware changes, software upgrades, and professional training. These requirements deter several small-scale organizations from adoption of the solutions and hamper the development of the market. Moreover, lack of standardization in the algorithms restrains the market growth significantly. On the contrary, the implementation of new post-quantum cryptography standards by the U.S. National Institute of Standards and Technology is poised to present lucrative opportunities for the market. The National Security Agency of the U.S. released a mandate in April 2024 for the organizations using quantum-resistant cryptography solutions to stringently adhere to the standards by 2030. This mandate is projected to open new avenues for the market growth in the future.

## Segment Review

The quantum-resistant cryptography solutions market is segmented into type, end user, application, and region. On the basis of type, the market is divided into hardware, software, and services. By end user, it is classified into BFSI, IT & telecommunication, government & defense, healthcare, retail & e-commerce, and others. According to application, it is categorized into cloud security, database security, network security, and application security. Region wise, it is analyzed across North America, Europe, Asia-Pacific, Latin America, and MEA.

## Key Findings

On the basis of type, the software segment held a high share of the market in 2023.

By end user, the healthcare segment dominated the market in 2023.

According to application, the network security segment acquired a high stake in the market in 2023.

Region wise, North America was the highest revenue generator in 2023.

## Competition Analysis

The leading players operating in the global quantum-resistant cryptography solutions market include Crypta Labs, IBM Corporation, ID Quantique, Infineon Technologies AG, MagiQ Technologies, NEC Corporation, QNu Labs, QuantumCTek Co., Ltd., QuintessenceLabs Pty. Ltd., Toshiba Corporation, Agnostiq, Inc., and Qrypt. These major players have adopted various key development strategies such as business expansion, new product launches, and partnerships, to strengthen their foothold in the competitive market.

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## Key Market Segments

### By Type

Hardware

Software

Services

### By End User

BFSI

IT Telecommunication

Government Defense

Healthcare

Retail E-commerce

Others

### By Application

Cloud Security

Database Security

Network Security

Application Security

## By Region

North America

U.S.

Canada

Europe

France

Germany

Italy

Spain

UK

Rest of Europe

Asia-Pacific

China

Japan

India

South Korea

Australia

Rest of Asia-Pacific

Latin America

Brazil

Colombia

Argentina

Rest of Latin America

MEA

Saudi Arabia

South Africa

UAE

Rest of MEA

Key Market Players

Crypta Labs

IBM Corporation

ID Quantique

Infineon Technologies AG

MagiQ Technologies

NEC Corporation

QNu Labs

QuantumCTek Co., Ltd.

QuintessenceLabs Pty. Ltd.

Toshiba Corporation

Agnostiq, Inc.

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