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Cloud-based Cold Chain Management Market Forecasts to 2030 – Global Analysis By Component (Hardware, Software and Services), Transportation, Deployment, Temperature Range, Technology, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Cloud-based Cold Chain Management Market is accounted for $14.92 billion in 2024 and is expected to reach $128.64 billion by 2030 growing at a CAGR of 28.4% during the forecast period. Cloud-based cold chain management is a digital system that utilizes cloud computing to monitor, control, and optimize temperature-sensitive supply chains. It enables real-time tracking of perishable goods such as food, pharmaceuticals, and biologics, ensuring compliance with regulatory standards. This technology enhances efficiency, reduces spoilage, and minimizes risks by enabling remote access to critical data, ensuring product integrity, and improving decision-making for logistics and supply chain stakeholders.

According to Forbes, cloud-based sales in the US soared, marking a 14.2% increase compared to 2021.

Market Dynamics:

Driver:

Rising demand for perishable goods

As consumers increasingly seek high-quality, fresh products, the need for efficient temperature-controlled logistics has surged. Cloud-based systems offer real-time tracking, monitoring, and management of these goods, ensuring that temperature

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requirements are consistently met during storage and transportation. This minimizes spoilage, ensures product quality, and complies with regulatory standards. As industries like foodservice and pharmaceuticals expand, the demand for automated, data-driven solutions in cold chain management continues to rise, propelling market growth.

Restraint:

Connectivity & infrastructure limitations

Connectivity and infrastructure limitations in cloud-based cold chain management arise from unreliable internet access in remote or rural areas, where cold chain operations are critical. Inconsistent connectivity can disrupt real-time monitoring, causing delays in temperature control and data transmission. Moreover, inadequate infrastructure in certain regions limits the deployment of advanced technologies like IoT sensors and cloud-based platforms, slowing down market adoption. These limitations ultimately reduce operational efficiency, hinder scalability, and limit the overall growth potential of the market.

Opportunity:

E-commerce & online grocery expansion

E-commerce platforms and grocery services must ensure temperature-sensitive products like food and pharmaceuticals stay safe during transit to meet growing demand for faster, fresher, and more convenient delivery options. Cloud-based cold chain solutions offer real-time tracking, remote monitoring, and data analytics to ensure compliance with temperature requirements. This technology reduces spoilage, delays, and inventory losses while improving operational efficiency. The growing preference for home deliveries and the rise in online grocery shopping further drive the need for reliable, scalable cold chain logistics solutions.

Threat:

High initial investment

Cloud-based cold chain management systems require significant initial investment due to the costs of advanced technologies like IoT sensors, AI-driven analytics, real-time tracking infrastructure, and cloud integration. Additionally, companies must invest in

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training and workforce development to manage these systems effectively. For small and medium-sized businesses, these high upfront costs can be a barrier to adoption. As a result, many organizations delay or avoid implementing such solutions, which hampers overall market growth.

Covid-19 Impact:

The covid-19 pandemic significantly accelerated the adoption of cloud-based cold chain management due to the urgent need for efficient vaccine distribution and pharmaceutical logistics. Increased demand for temperature-sensitive medical supplies, remote monitoring, and real-time tracking boosted market growth. Lockdowns and supply chain disruptions highlighted the importance of automation, IoT, and AI-driven predictive analytics. However, challenges like supply chain bottlenecks, cybersecurity risks, and initial investment costs remained.

The blockchain segment is expected to be the largest during the forecast period

The blockchain segment is expected to account for the largest market share during the forecast period. Blockchain technology in cloud-based cold chain management enhances transparency, security, and traceability in the transportation of temperature-sensitive goods. It enables seamless sharing of temperature data and compliance reports among stakeholders. With cloud computing, this system offers scalability and real-time access, improving decision-making and operational efficiency while reducing costs and risks associated with cold chain operations.

The food & beverages segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the food & beverages segment is predicted to witness the highest growth rate. Cloud-based cold chain management in the food and beverage industry uses cloud computing to monitor and control the temperature-sensitive supply chain. It ensures optimal storage and transportation conditions for perishable goods by collecting real-time data from IoT devices. Cloud technology enables remote monitoring, predictive analytics, and data sharing across stakeholders, improving efficiency, reducing waste, and maintaining product quality.

Region with largest share:

During the forecast period, the Asia-Pacific region is expected to hold the largest market

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share, due to increasing demand for perishable food, pharmaceuticals, and vaccines. Rising urbanization, expanding e-commerce, and government initiatives for food and drug safety drive market expansion. Countries like China, India, and Japan are investing in IoT-enabled cold chain solutions for real-time tracking and compliance. The region's growing pharmaceutical and biotechnology industries further boost adoption, making Asia-Pacific a key player in the global cold chain market.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, by the advanced logistics infrastructure, high demand for perishable food, and a strong pharmaceutical sector. The U.S. and Canada are leading adopters of IoT-enabled temperature monitoring, AI-driven analytics, and blockchain for real-time tracking and compliance. The rise of e-commerce, online grocery delivery, and biologic drug distribution enhances market expansion. Continuous technological innovation and increasing investments in supply chain optimization position North America as a key market leader.

Key players in the market

Some of the key players in Cloud-based Cold Chain Management market include Oracle, SAP, IBM Corporation, Microsoft Corporation, Amazon Web Services, Inc. (AWS), Cisco Systems Inc., AT&T Inc., Tata Consultancy Services Limited, Infosys Limited, Capgemini SE, HCL Technologies Limited, Wipro Limited, Zebra Technologies Corporation, Korber AG, Fujitsu Corporation, Infratab, Inc, Emerson Electric Corporation, ELPRO-BUCHS AG, Tower Cold Chain and Savi Technology.

Key Developments:

In October 2024, Tower Cold Chain launched a one-stop-shop solution that offers access to four key areas: a sustainability toolkit, a knowledge hub, performance data, and ethical guidelines. This initiative aims to provide companies in the cold chain sector with comprehensive resources to improve their operations and sustainability practices.

In December 2023, Fujitsu launched a new cloud-based logistics data standardization and visualization service designed for shippers, logistics companies, and vendors. This solution is particularly beneficial for improving supply chain transparency and optimizing workflows, making it a valuable tool for companies looking to enhance their logistics processes.

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Components Covered:

- Hardware
- Software
- Services

Transportations Covered:

- Land-Based
- Air-Based
- Sea-Based
- Rail-Based

Deployments Covered:

- Public Cloud
- Private Cloud

Temperature Ranges Covered:

- Cold (2-8°C)
- Frozen (-18°C or Lower)
- Ambient (10-25°C)

Technologies Covered:

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- Internet of Things (IoT)
- Blockchain
- Artificial Intelligence (AI) & Machine Learning
- Big Data Analytics
- GPS & Real-Time Tracking
- Other Technologies

End Users Covered:

- Food & Beverages
- Healthcare
- Chemicals
- Agriculture
- Logistics & Transportation
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe

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- Germany
- UK
- Italy
- France
- Spain
- Rest of Europe

Asia Pacific

- Japan
- China
- India
- Australia
- New Zealand
- South Korea
- Rest of Asia Pacific

South America

- Argentina
- Brazil
- Chile
- Rest of South America

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Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as

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per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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