+44 20 8123 2220
info@marketpublishers.com

Global AI Data Center Switch Market: Analysis By Type (InfiniBand & Ethernet), By Enterprise Size (Large Enterprises & Small & Medium Enterprises (SMEs), By Region, Size and Trends with Impact of COVID-19 and Forecast up to 2029

https://marketpublishers.com/r/G567562453C4EN.html
Date: March 2024
Pages: 131
Price: US$ 2,250.00 (Single User License)
ID: G567562453C4EN

Abstracts

The integration of AI into data centers revolutionizes data transmission, storage, and processing. AI applications, with their data and compute intensive workloads distributed across multiple servers and processors, create a high-density data flow within data centers, posing networking bottlenecks and inefficiencies, necessitating upgrades in switch protocols, bandwidth, and software. Traditional centers adapt swiftly to meet AI application demands, birthing AI Data Center Switches. These advanced switches, designed for AI workloads, prioritize fast connectivity, minimal latency, and precise data processing. The surge in AI adoption fuels unprecedented demand for these switches. Enterprises and cloud providers rush to enhance networking capacity to match AI-driven workload needs. AI Data Center Switches become vital in modern data infrastructure, driving innovation and efficiency in AI computing. This dynamic landscape underscores their critical role in the ever-evolving realm of AI-enabled computing. The global AI data center switch market was valued at US$2.78 billion in 2023, and is expected to be worth US$19.38 billion in 2029.

In the rapidly evolving landscape of AI data center switches, several trends are poised to shape the market. One significant trend is the increasing demand for AI-driven automation and optimization capabilities to manage the growing complexity of data center networks efficiently. AI-powered switches are expected to offer more advanced features such as predictive analytics, self-learning algorithms, and automated network optimization, enabling data center operators to streamline operations and improve performance. Moreover, there's a rising focus on enhancing network bandwidth and

+44 20 8123 2220
info@marketpublishers.com

speed to support the burgeoning data traffic generated by emerging technologies like 5G, IoT, and AI applications. Ethernet switches with bandwidths of 600+ gigabits per second (Gbps) are gaining traction as they provide the necessary throughput to handle large volumes of data with low latency, facilitating smooth and reliable data center operations. The global AI data center switch market is expected to grow at a CAGR of 38.23% over the years 2024-2029.

Market Segmentation Analysis:

By Type: The report identifies two segments on the basis of type: InfiniBand and Ethernet. Over time InfiniBand switches have enjoyed widespread adoption due to their swift and effective communication pathways between AI data center switches and storage systems. However, the Ethernet switches are gaining significant traction in the AI data center networking market and are expected to become the dominant technology. Cloud service providers are increasingly considering Ethernet, particularly RDMA over Converged Ethernet (RoCE), as a substitute for InfiniBand due to factors like economies of scale, a broader supplier base, and interoperability. InfiniBand and Ethernet are both expected to be utilized in the back-end, with the choice influenced by customer and vendor preferences. The ongoing debate between InfiniBand and Ethernet for AI deployments is expected to persist, with valid arguments on both sides such as performance versus economies of scale. However, it's noteworthy that the deployment of high-bandwidth Ethernet data center switches is projected to grow at a double-digit rate regardless of AI deployments.

By Enterprise Size: The global AI data center switch market by enterprise size can broadly be divided into two segments namely, large enterprises and small & medium enterprises (SMEs). Large enterprises accounted for the highest share in the AI data center switch segment. Large enterprises typically comprise established organizations with extensive infrastructure requirements and complex networking needs. They often operate multiple data centers or large-scale cloud environments to support their operations. Factors driving the growth of AI data center switches in large enterprises include the need for high-performance, scalable, and resilient network infrastructure to handle massive data volumes, diverse workloads, and demanding applications. Simultaneously, small & medium enterprises segment is anticipated to exhibit the fastest CAGR during the forecasted period.

By Region: In the report, the global AI data center switch market is divided into four regions: North America, Europe, Asia Pacific, and ROW. North America remains a powerhouse in the global AI data center switch market, driven by a mature technology

+44 20 8123 2220
info@marketpublishers.com

landscape, substantial investments, and a concentration of leading tech companies. The US, with Silicon Valley at its core, is a major influencer in AI data center switch development and adoption. The competitive nature of industries in North America, especially in areas like e-commerce, social media, and autonomous vehicles, intensifies the need for cutting-edge AI infrastructure. The synergy of 5G, IIoT, and advanced technologies within the expansive cloud ecosystem in the region not only signifies a technological evolution but also underscores the pivotal role of cloud services in shaping the future landscape of the AI data center switch market in the country.

Asia pacific region is expected to grow at the fastest CAGR during the forecasted period. The demand and adoption of the cloud in the Asia Pacific are forecasted to exceed the rest of the world, as the effects of COVID-19 linger and businesses look to lay a foundation for increased agility and resilience. There is a steady increase in the percentage of IT spending that is devoted to the cloud. The AI data center switch market would witness rapid growth in the forecasted period, spurred by a rise in cloud computing usage by companies. The Asia Pacific (APAC) region stands out as a significant driver of the global AI data center switch market, characterized by a dynamic and rapidly expanding tech landscape. China, with its ambitious AI development plans, is a major contributor to the growth, leveraging AI data center switches in applications ranging from smart manufacturing to facial recognition systems. The country's focus on becoming a global AI leader is reflected in the substantial investments in AI research and development. The Chinese government has launched a three-year plan for the data center industry that requires new facilities to have a PUE (power usage effectiveness) of 1.3 and a utilization rate of 60% by the end of 2023. In addition, nations throughout the region are deploying ARM-based services. These factors generate demand for AI data center switches, likely stimulating market expansion.

Market Dynamics:

Growth Drivers: The market has been growing over the past few years, due to factors such as increasing adoption of AI and machine learning (ML), favorable government regulations, GPU acceleration, surge in data generation, demand for high-performance computing and need for scalability and flexibility. The surge in AI and machine learning (ML) tech adoption fuels growth in the AI data center switch market. Organizations leverage AI and ML to analyze vast data for insights, driving demand for high-performance computing infrastructure. AI data center switches enable seamless integration of AI applications, providing low-latency, high-bandwidth connectivity for massive data transfer. Offering features like deep packet inspection and traffic prioritization, they optimize network performance. With AI and ML initiatives expanding

+44 20 8123 2220
info@marketpublishers.com

across sectors like healthcare and finance, the market anticipates substantial growth ahead.

Challenges: However, some challenges are also impeding the growth of the market such as lack of advanced data center infrastructure and high upfront investment required for deploying Ai-enabled switches. The AI data center switch market faces a significant hurdle due to outdated infrastructure. Traditional architectures lack the scalability, agility, and intelligence needed for AI workloads. This leads to performance bottlenecks and latency issues as conventional switches struggle with the vast data volumes. Legacy setups may not seamlessly integrate with AI-driven technologies like intent-based networking and advanced security measures. This mismatch hinders AI switch adoption, forcing organizations to choose between costly upgrades or compromising AI deployment efficiency.

Trends: The market is projected to grow at a fast pace during the forecast period, due to various latest trends such as edge computing and distributed AI, rising cloud adoption, increasing bandwidth size, increasing adoption of intent-based networking (IBN), programmable switching fabrics, rise of new generative AI applications, sustainability and green data centers and increasing focus on energy efficiency. Edge computing entails deploying computational power closer to data sources, slashing latency and enabling real-time decisions at the network edge. This shift demands AI data center switches adept at managing data flows between edge devices and centralized repositories, ensuring smooth connectivity and resource use. Distributed AI models, spreading tasks across edge devices and data centers, rely on intelligent networking for effective communication. AI switches are pivotal in enabling edge computing and distributed AI, furnishing connectivity, scalability, and security. This convergence fuels demand for flexible networking tech, optimizing performance and integrating with cloud AI seamlessly.

Impact Analysis of COVID-19 and Way Forward:

The COVID-19 pandemic profoundly altered the global AI data center switch market, presenting both challenges and opportunities. Supply chain disruptions and manufacturing delays impacted hardware production, causing shortages and price hikes for AI data center switches. Meanwhile, the pandemic spurred demand for cloud services, remote work solutions, and digital transformation, increasing the need for robust switches. With AI's expanding role in sectors like healthcare and finance, enhancing data center capabilities became a priority. Furthermore, the rise of edge computing and 5G networks escalated demand for switches to manage edge-generated

+44 20 8123 2220
info@marketpublishers.com

data.

Competitive Landscape:

The AI data center switch market is dominated by three major players, holding approximately 90% of the market share. These leaders utilize their expertise in networking technologies, AI algorithms, and software-defined networking (SDN) to create advanced AI-powered switches with improved performance, automation, and security features. Strategic partnerships, acquisitions, and investments play a significant role in shaping the competitive landscape, facilitating product portfolio expansion, innovation acceleration, and market presence reinforcement.

The key players of the global AI data center switch market are:

Nvidia Corporation
Cisco Systems, Inc.
Hewlett Packard Enterprise Company
Dell Technologies Inc.
Huawei Investment & Holding Co. Ltd.
Broadcom Inc.
Arista Networks, Inc.
Juniper Networks, Inc.
Celestica Inc.
Marvell Technology, Inc.
Quanta Computer Inc. (Quanta Cloud Technology (QCT)

Currently, the datacenter switching market is engaged in a debate over the dominant technology protocol, with InfiniBand, proprietary to Nvidia, challenging Ethernet by promising significant cost savings at scale. While InfiniBand currently leads, Arista and Ethernet are poised to benefit, albeit with some delay. Additionally, Cisco and HPE are positioned to gain traction as AI adoption expands beyond large cloud environments. Arista's strength in Ethernet and Nvidia's dominance in InfiniBand, along with commendable offerings from Cisco, HPE, and Ethernet, present promising opportunities for growth in the Ethernet-based AI switch market.

+44 20 8123 2220
info@marketpublishers.com

Contents

1. EXECUTIVE SUMMARY

2. INTRODUCTION

2.1 AI Data Center Switch: An Overview
2.2 AI Data Center Switch Segmentation: An Overview
  2.2.1 AI Data Center Switch Segmentation

3. GLOBAL MARKET ANALYSIS

3.1 Global AI Data Center Switch Market: An Analysis
  3.1.1 Global AI Data Center Switch Market: An Overview
  3.1.2 Global AI Data Center Switch Market by Value
  3.1.3 Global AI Data Center Switch Market by Type (InfiniBand and Ethernet)
  3.1.4 Global AI Data Center Switch Market by Enterprise Size (Large Enterprises and Small & Medium Enterprises (SMEs))
  3.1.5 Global AI Data Center Switch Market by Region (North America, Europe, Asia Pacific, and Rest of the World (ROW))
3.2 Global AI Data Center Switch Market: Type Analysis
  3.2.1 Global AI Data Center Switch Market By Type : An Overview
  3.2.2 Global InfiniBand AI Data Center Switch Market By Value
  3.2.3 Global Ethernet AI Data Center Switch Market By Value
3.3 Global AI Data Center Switch Market: Enterprise Size Analysis
  3.3.1 Global AI Data Center Switch Market By Enterprise Size: An Overview
  3.3.2 Global Large Enterprises AI Data Center Switch Market By Value
  3.3.3 Global Small & Medium Enterprises (SMEs) AI Data Center Switch Market By Value

4. REGIONAL MARKET ANALYSIS

4.1 North America AI Data Center Switch Market: An Analysis
  4.1.1 North America AI Data Center Switch Market: An Overview
  4.1.2 North America AI Data Center Switch Market by Value
  4.1.3 North America AI Data Center Switch Market by Region (the US, Canada and Mexico)
  4.1.4 The US AI Data Center Switch Market by Value

+44 20 8123 2220
info@marketpublishers.com

4.1.5 Canada AI Data Center Switch Market by Value
4.1.6 Mexico AI Data Center Switch Market by Value
4.2 Europe AI Data Center Switch Market: An Analysis
4.2.1 Europe AI Data Center Switch Market: An Overview
4.2.2 Europe AI Data Center Switch Market by Value
4.2.3 Europe AI Data Center Switch Market by Region (Germany, United Kingdom, France, and Rest of the Europe)
4.2.4 Germany AI Data Center Switch Market by Value
4.2.5 United Kingdom AI Data Center Switch Market by Value
4.2.6 France AI Data Center Switch Market by Value
4.2.7 Rest of Europe AI Data Center Switch Market by Value
4.3 Asia Pacific AI Data Center Switch Market: An Analysis
4.3.1 Asia Pacific AI Data Center Switch Market: An Overview
4.3.2 Asia Pacific AI Data Center Switch Market by Value
4.3.3 Asia Pacific AI Data Center Switch Market by Region (China, Japan, India, and Rest of Asia Pacific)
4.3.4 China AI Data Center Switch Market by Value
4.3.5 Japan AI Data Center Switch Market by Value
4.3.6 India AI Data Center Switch Market by Value
4.3.7 Rest of Asia Pacific AI Data Center Switch Market by Value
4.4 Rest of the World AI Data Center Switch Market: An Analysis
4.4.1 Rest of the World AI Data Center Switch Market: An Overview
4.4.2 Rest of the World AI Data Center Switch Market by Value

5. IMPACT OF COVID-19

5.1 Impact of COVID-19
5.1.1 Impact of COVID-19 on Global AI Data Center Switch Market
5.1.2 Post-COVID Scenario

6. MARKET DYNAMICS

6.1 Growth Drivers
6.1.1 Increasing Adoption of AI and Machine Learning (ML)
6.1.2 Favorable Government Regulations
6.1.3 GPU Acceleration
6.1.4 Surge in Data Generation
6.1.5 Demand for High-Performance Computing
6.1.6 Need for Scalability and Flexibility

+44 20 8123 2220
info@marketpublishers.com

6.2 Challenges
6.2.1 Lack of Advanced Data Center Infrastructure
6.2.2 High Upfront Investment Required for Deploying AI-enabled Switches
6.3 Market Trends
6.3.1 Edge Computing and Distributed AI
6.3.2 Rising Cloud Adoption
6.3.3 Increasing Bandwidth Size
6.3.4 Increasing Adoption of Intent-Based Networking (IBN)
6.3.5 Programmable Switching Fabrics
6.3.6 Increasing Focus on Energy Efficiency
6.3.7 Rise of New Generative AI Applications
6.3.8 Sustainability and Green Data Centers

7. COMPETITIVE LANDSCAPE

7.1 Global AI Data Center Switch Market Players: Competitive Landscape
7.2 Global AI Data Center Switch Players by Market Share
7.3 Global AI Data Center Switch Market Players: Market Opportunity Comparison
7.4 Global Ethernet AI Data Center Switch Players by Market Share

8. COMPANY PROFILES

8.1 Nvidia Corporation
8.1.1 Business Overview
8.1.2 Operating Segments
8.1.3 Business Strategy
8.2 Cisco Systems, Inc.
8.2.1 Business Overview
8.2.2 Operating Segments
8.2.3 Business Strategy
8.3 Hewlett Packard Enterprise Company
8.3.1 Business Overview
8.3.2 Operating Segments
8.3.3 Business Strategy
8.4 Dell Technologies Inc.
8.4.1 Business Overview
8.4.2 Operating Segments
8.4.3 Business Strategy
8.5 Huawei Investment & Holding Co. Ltd.

+44 20 8123 2220
info@marketpublishers.com

8.5.1 Business Overview
8.5.2 Operating Segments
8.5.3 Business Strategy
8.6 Broadcom Inc.
8.6.1 Business Overview
8.6.2 Operating Segments
8.6.3 Business Strategy
8.7 Arista Networks, Inc.
8.7.1 Business Overview
8.7.2 Revenue By Geographic Region
8.7.3 Business Strategy
8.8 Juniper Networks, Inc.
8.8.1 Business Overview
8.8.2 Net Revenues By Geographic Region
8.8.3 Business Strategy
8.9 Celestica Inc.
8.9.1 Business Overview
8.9.2 Operating Segments
8.9.3 Business Strategy
8.10 Marvell Technology, Inc.
8.10.1 Business Overview
8.10.2 Net revenue by End Market
8.10.3 Business Strategy
8.11 Quanta Computer Inc. (Quanta Cloud Technology (QCT))
8.11.1 Business Overview
8.11.2 Business Strategy

+44 20 8123 2220
info@marketpublishers.com

List Of Figures

LIST OF FIGURES

Figure 1: Benefits and Features Of AI Data Center Switch
Figure 2: AI Data Center Switch Segmentation
Figure 3: Global AI Data Center Switch Market by Value; 2020-2023 (US$ Billion)
Figure 4: Global AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 5: Global AI Data Center Switch Market by Type; 2023 (Percentage, %)
Figure 6: Global AI Data Center Switch Market by Enterprise Size; 2023 (Percentage, %)
Figure 7: Global AI Data Center Switch Market by Region; 2023 (Percentage, %)
Figure 8: Global InfiniBand AI Data Center Switch Market By Value; 2020-2023 (US$ Billion)
Figure 9: Global InfiniBand AI Data Center Switch Market By Value; 2024-2029 (US$ Billion)
Figure 10: Global Ethernet AI Data Center Switch Market By Value; 2020-2023 (US$ Million)
Figure 11: Global Ethernet AI Data Center Switch Market By Value; 2024-2029 (US$ Billion)
Figure 12: Global Large Enterprises AI Data Center Switch Market By Value; 2020-2023 (US$ Billion)
Figure 13: Global Large Enterprises AI Data Center Switch Market By Value; 2024-2029 (US$ Billion)
Figure 14: Global Small & Medium Enterprises (SMEs) AI Data Center Switch Market By Value; 2020-2023 (US$ Million)
Figure 15: Global Small & Medium Enterprises (SMEs) AI Data Center Switch Market By Value; 2024-2029 (US$ Billion)
Figure 16: North America AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 17: North America AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 18: North America AI Data Center Switch Market by Region; 2023 (Percentage, %)
Figure 19: The US AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 20: The US AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 21: Canada AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 22: Canada AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 23: Mexico AI Data Center Switch Market by Value; 2020-2023 (US$ Million)

+44 20 8123 2220
info@marketpublishers.com

Figure 24: Mexico AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 25: Europe AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 26: Europe AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 27: Europe AI Data Center Switch Market by Region; 2023 (Percentage, %)
Figure 28: Germany AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 29: Germany AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 30: United Kingdom AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 31: United Kingdom AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 32: France AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 33: France AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 34: Rest of Europe AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 35: Rest of Europe AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 36: Asia Pacific AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 37: Asia Pacific AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 38: Asia Pacific AI Data Center Switch Market by Region; 2023 (Percentage, %)
Figure 39: China AI Data Center Switch Market by Value, 2020-2023 (US$ Million)
Figure 40: China AI Data Center Switch Market by Value; 2024-2029 (US$ Billion)
Figure 41: Japan AI Data Center Switch Market by Value, 2020-2023 (US$ Million)
Figure 42: Japan AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 43: India AI Data Center Switch Market by Value, 2020-2023 (US$ Million)
Figure 44: India AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 45: Rest of Asia Pacific AI Data Center Switch Market by Value, 2020-2023 (US$ Million)
Figure 46: Rest of Asia Pacific AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 47: Rest of the World AI Data Center Switch Market by Value; 2020-2023 (US$ Million)
Figure 48: Rest of the World AI Data Center Switch Market by Value; 2024-2029 (US$ Million)
Figure 49: Global Artificial intelligence (AI) Market; 2021-2030 (US$ Billion)
Figure 50: Global Edge Computing Market; 2019-2026 (US$ Billion)
Figure 51: Global Public Cloud Services End-user Spending; 2022-2024 (US$ Billion)
Figure 52: Global Ethernet Datacenter Switch Market; 2022 & 2027 (US$ Billion)
Figure 53: Global AI Data Center Switch Players by Market Share; March 2021 – December 2022 (Percentage, %)

+44 20 8123 2220
info@marketpublishers.com

Figure 54: Global Ethernet AI Data Center Switch Players by Market Share; December 2022 (Percentage, %)
Figure 55: Nvidia Corporation Revenues by Segments; 2023 (Percentage, %)
Figure 56: Cisco Systems, Inc. Revenue by Geographic Segments; 2023 (Percentage, %)
Figure 57: Hewlett Packard Enterprise Company Net Revenue by Segments; 2023 (Percentage, %)
Figure 58: Dell Technologies Inc. Net Revenue by Segments; 2023 (Percentage, %)
Figure 59: Huawei Investment & Holding Co. Ltd. Revenue by Segments; 2022 (Percentage, %)
Figure 60: Broadcom Net Revenue by Segments; 2022 (Percentage, %)
Figure 61: Arista Networks, Inc. Revenue by Geographic Region; 2022 (Percentage, %)
Figure 62: Juniper Networks, Inc. Net Revenues by Geographic Region; 2022 (Percentage, %)
Figure 63: Celestica Inc. Revenue by Segment; 2022 (Percentage, %)
Figure 64: Marvell Technology, Inc., Net Revenue by End Market; 2023 (Percentage, %)
Table 1: China’s Favorable Policies Regarding Artificial Intelligence
Table 2: Global AI Data Center Switch Market Players: Market Opportunity Comparison

+44 20 8123 2220
info@marketpublishers.com

I would like to order

Product name: Global AI Data Center Switch Market: Analysis By Type (InfiniBand & Ethernet), By Enterprise Size (Large Enterprises & Small & Medium Enterprises (SMEs), By Region, Size and Trends with Impact of COVID-19 and Forecast up to 2029

Product link: https://marketpublishers.com/r/G567562453C4EN.html

Price: US$ 2,250.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/G567562453C4EN.html

To pay by Wire Transfer, please, fill in your contact details in the form below:

First name:
Last name:
Email:
Company:
Address:
City:
Zip code:
Country:
Tel:
Fax:
Your message:

**All fields are required

Custumer signature _____

Please, note that by ordering from marketpublishers.com you are agreeing to our Terms & Conditions at https://marketpublishers.com/docs/terms.html

To place an order via fax simply print this form, fill in the information below

+44 20 8123 2220
info@marketpublishers.com

and fax the completed form to +44 20 7900 3970