

# A Comprehensive Comparison of IBM Cloud and Microsoft Azure

**Rhishi Kalp Chandrika<sup>1</sup> and Dr. Ashima Mehta<sup>2</sup>**

Undergraduate Student, Department of Computer Science Engineering<sup>1</sup>

Head of Department, Department of Computer Science Engineering<sup>2</sup>

Dronacharya College of Engineering, Gurgaon, Haryana, India

**Abstract:** *The ever-growing demand for scalability, agility, and cost-effectiveness has fuelled cloud computing to the forefront of modern IT infrastructure. According to Precedence Research, the global cloud computing market size was valued at USD 480 billion in 2022 and is expected to hit USD 2297.37 billion by 2032 with a registered CAGR of 17% from 2023 to 2032 [1].*

*The growth of cloud computing is driven by various factors such as the rapid evolution of technology and the globalization of businesses. Cloud computing is already embraced in various industries like Financial Services, Manufacturing, Healthcare, Retail, Education, and Architecture Engineering & Construction (AEC), where it streamlines operations, enhances collaboration, and revolutionizes processes.*

*Cloud computing holds immense potential, especially in sectors like healthcare, real estate, tourism, and small and medium enterprises, where it will facilitate faster and more informed decision-making processes through data collection and analysis. Additionally, cloud technology is revolutionizing government sectors by driving cost savings, enhancing efficiency, and promoting transparency and citizen engagement.*

*With the increasing number of cloud computing service providers such as IBM, Microsoft, Google, Amazon, and others, it becomes crucial to delve into their technical nuances. Understanding how each provider's offerings align with specific business requirements, technical specifications, and future scalability is paramount for organizations venturing into their cloud journey. The main purpose of this paper is to explore and evaluate the technical dimensions of IBM Cloud and Microsoft Azure and understand its future potential.*

**Keywords:** Cloud computing service providers, IBM Cloud, Microsoft Azure, Technical dimensions, Future Potential

## REFERENCES

- [1]. <https://www.precedenceresearch.com/cloud-computing-market>
- [2]. Erdogmus, Hakan. "Cloud computing: Does nirvana hide behind the nebula?." IEEE software 26, no. 2 (2009): 4-6.
- [3]. Mäenpää, Jouni. "Cloud computing with the Azure platform." In TKK T-110.5190 Seminar on Internet Working. 2009.
- [4]. Mell, Peter, and Tim Grance. "The NIST definition of cloud computing." (2011).
- [5]. Hamrén, Oskar. "Mobile phones and cloud computing: A quantitative research paper on mobile phone application offloading by cloud computing utilization." (2012).
- [6]. Yasrab, Robail. "Platform-as-a-service (paas): the next hype of cloud computing." arXiv preprint arXiv:1804.10811 (2018).
- [7]. Alnumay, Waleed S. "A brief study on Software as a Service in Cloud Computing Paradigm." Journal of Engineering and Applied Sciences 7, no. 1 (2020): 1-15.
- [8]. Darwish, Dina, ed. "Emerging Trends in Cloud Computing Analytics, Scalability, and Service Models." (2024).
- [9]. Raza, Ali, Ibrahim Matta, Nabeel Akhtar, Vasiliki Kalavri, and Vatche Isahagian. "Sok: Function-as-a-service: From an application developer's perspective." Journal of Systems Research 1, no. 1 (2021).

- [10]. Mather, Tim, Subra Kumaraswamy, and Shahed Latif. Cloud security and privacy: an enterprise perspective on risks and compliance. " O'Reilly Media, Inc.", 2009.
- [11]. Lewis, Grace. "Basics about cloud computing." Software engineering institute carnegiemellon university, Pittsburgh (2010).
- [12]. Hamrén, Oskar. "Mobile phones and cloud computing: A quantitative research paper on mobile phone application offloading by cloud computing utilization." (2012).
- [13]. Goyal, Sumit. "Public vs private vs hybrid vs community-cloud computing: a critical review." International Journal of Computer Network and Information Security 6, no. 3 (2014): 20-29.
- [14]. Shaji, Parvathi S. "Understanding the Digital Forensics Framework of Cloud Computing-Cloud Forensics." An Open Access Journal from The Law Brigade (Publishing) Group 6, no. 3 (2020): 10-37.
- [15]. Agarwal, Dinesh, and Sushil K. Prasad. "Azurebench: Benchmarking the storage services of the azure cloud platform." In 2012 IEEE 26th International Parallel and Distributed Processing Symposium Workshops & PhD Forum, pp. 1048-1057. IEEE, 2012.
- [16]. [https://trends.google.com/trends/explore?date=all&q=%2Fm%2F02y\\_9m3&hl=en](https://trends.google.com/trends/explore?date=all&q=%2Fm%2F02y_9m3&hl=en)
- [17]. <https://greatcloudmigration.wordpress.com/2014/03/03/the-history-of-cloud-computing/>
- [18]. Carvalho, Jose Fernando S., Paulo Anselmo da Mota Silveira Neto, Vincius Cardoso Garcia, Rodrigo Elia Assad, and Frederico Duraó. "A systematic mapping study on cloud computing." arXiv preprint arXiv:1308.4208 (2013).
- [19]. Rajaraman, V. "Cloud computing." Resonance 19 (2014): 242-258.
- [20]. Beach, Thomas H., Omer F. Rana, Yacine Rezgui, and Manish Parashar. "Cloud computing for the architecture, engineering & construction sector: requirements, prototype & experience." Journal of Cloud Computing: Advances, Systems and Applications 2 (2013): 1-16.
- [21]. Bajwa, Junaid, Usman Munir, Aditya Nori, and Bryan Williams. "Artificial intelligence in healthcare: transforming the practice of medicine." Future healthcare journal 8, no. 2 (2021): e188.
- [22]. Zhang, Hua. "The application of cloud computing in government management." In IOP Conference Series: Materials Science and Engineering, vol. 750, no. 1, p. 012166. IOP Publishing, 2020.
- [23]. Wyld, David C. Moving to the cloud: An introduction to cloud computing in government. IBM Center for the Business of Government, 2009.
- [24]. <https://redresscompliance.com/ibm-cloud-history-a-journey-through-transformation/>
- [25]. <https://www.verdict.co.uk/cloud-computing-timeline/?cf-view>
- [26]. <https://www.ibm.com/roadmaps/hybrid-cloud/2024/>
- [27]. <https://www.techaheadcorp.com/knowledge-center/history-of-azure/>
- [28]. <https://www.knowledgehut.com/blog/cloud-computing/azure-future>
- [29]. <https://www.ibm.com/products/cloud-object-storage>
- [30]. <https://cloud.ibm.com/docs/blockchain/index.html?topic=blockchain-get-started-ibp>
- [31]. <https://www.ibm.com/cloud/internet-of-things>
- [32]. <https://azure.microsoft.com/en-in>
- [33]. <https://learn.microsoft.com/en-us/azure/architecture/reference-architectures/iot/iot-architecture-overview>
- [34]. <https://www.gartner.com/reviews/market/data-integration-tools/compare/ibm-vs-microsoft>
- [35]. [https://www.vpsbenchmarks.com/compare/azure\\_vs\\_ibm](https://www.vpsbenchmarks.com/compare/azure_vs_ibm)
- [36]. <https://www.techrepublic.com/article/azure-machine-learning-vs-ibm-watson/>
- [37]. <https://www.ibm.com/industries>
- [38]. <https://builtin.com/companies/tech/microsoft-azure-companies>