ARTIFICIAL INTELLIGENCE IN THE CLOUD

How AI Is Driving Innovation and Efficiency

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INTRODUCTION

There's a noticeable synergy between cloud and AI: cloud computing makes AI and machine learning (ML) more flexible, cost-effective, and accessible. At the same time, cloud services can utilize AI and ML to optimize operations, increase cost efficiency, improve customer experience, and provide better security.

Due to their mutual benefits, it is not surprising that cloud computing and artificial intelligence are becoming increasingly intertwined, primarily through automation and the integration of AI into more software as a service (SaaS) tools. Over one-third of organizations say AI is the top application they plan to migrate to the cloud[1], and 94% of business leaders see AI as critical to success over the next five years.[2] But, deploying AI and ML in cloud environments isn't without its challenges. Even as companies move to adopt AI, almost one-third (29%) say they are underachieving on the value they anticipated AI cloud deployments to deliver.[2]

Despite these challenges, AI offers too many advantages to be dismissed or set on the back burner. Here's how to deploy AI in your cloud environments to drive greater innovation, efficiency, and customer experience.

HOW AI IS CHANGING CLOUD DEPLOYMENTS

AI is fundamentally altering the landscape of cloud deployments and is revolutionizing how businesses handle and utilize data while enabling improved optimization of operations—which can result in greater cost efficiencies. For instance, AI algorithms can analyze historical data and real-time usage patterns to predict demand and enable businesses to allocate cloud resources more efficiently at significant cost savings.

AI's ability to identify patterns and trends also allows for the automation of routine tasks, minimizing the risk of errors and reducing the need for manual intervention. AI can analyze enormous volumes of data to identify anomalies and potential security breaches. This enables businesses to be more proactive and responsive in their threat detection and mitigation efforts, bolstering their cloud security posture.

AI is also transforming how businesses use the cloud. According to recent research by Foundry, while 20% of AI/ML production workloads are currently running in private clouds and 16% in hybrid clouds, organizations favor public clouds when running AI/ML pilot projects.[1] As for the future, public clouds are also gaining more traction, with 30% of organizations considering public cloud models for future AI/ML workloads, while 29% favor hybrid and 28% private.[1]

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AI/ML CLOUD USE CASES

There is almost limitless opportunity to embed AI in cloud-based applications and technologies. Here are some ways AI is being implemented in the cloud today that could benefit your organization.

Internet of Things (IoT): The demand for IoT cloud platforms is expected to increase by almost 15% between 2023 and 2030.[3] While the cloud can help IoT devices store and access large amounts of data, it can also provide access to AI platforms. This can further speed up data processing and analysis while lowering costs.

Edge Computing: Edge computing brings data storage closer to the device location and can be combined with AI algorithms to add a layer of intelligence at the edge. This makes it possible for the device to collect and act on data in near real-time. In addition, using AI at the edge can increase data security and privacy since data can be stored at the edge rather than transmitted to a backend cloud system.

Containerization: By incorporating AI into Docker images, developers can build AI applications for the cloud that can be orchestrated via Kubernetes or other cloud-service orchestration backbones. By packaging AI models and all the necessary dependencies and configurations into a single container, developers can easily create the same environment regardless of the infrastructure. This ensures increased consistency and repeatability.
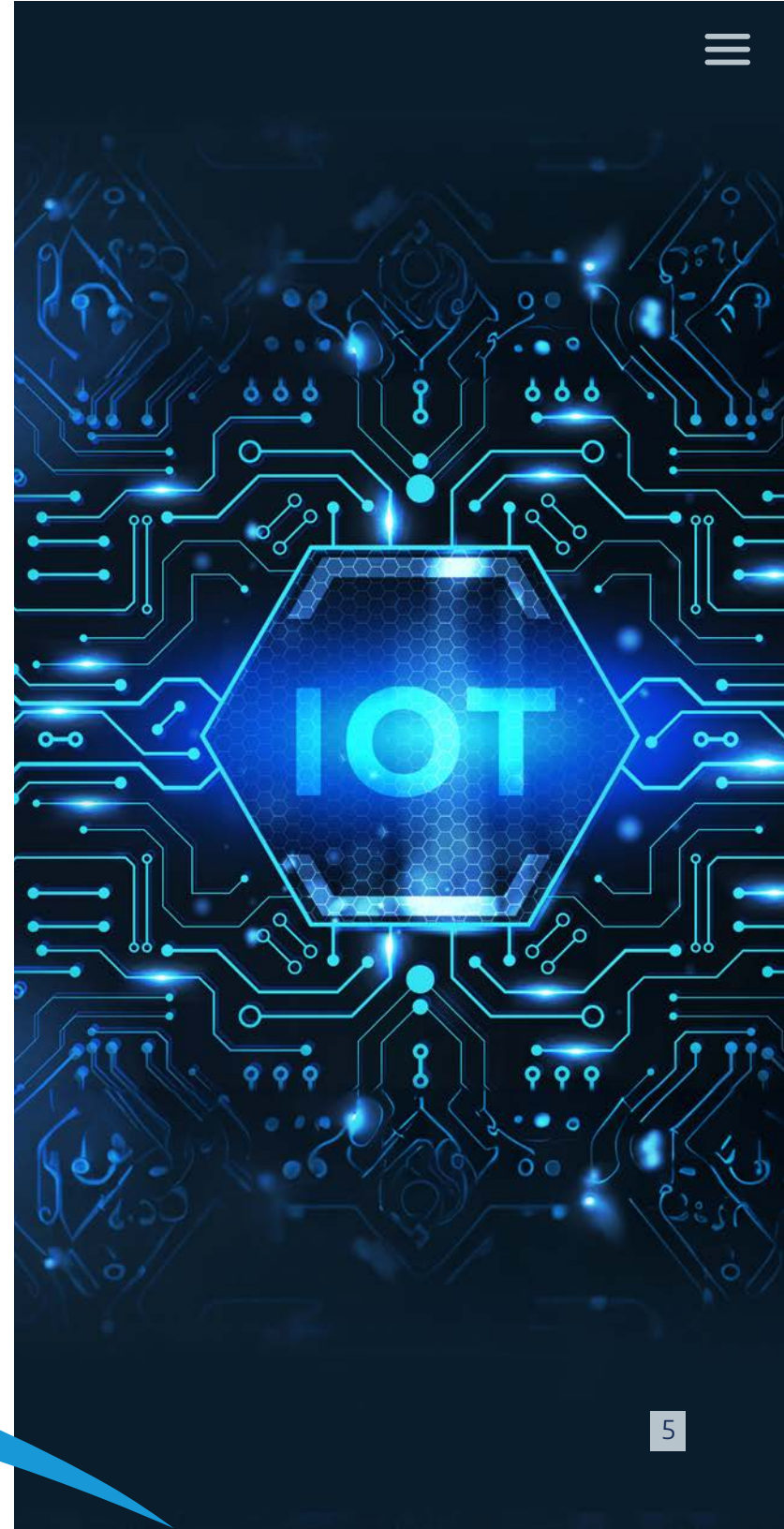
AI/ML CLOUD USE CASES CONTINUED

Self-management of the Cloud: By embedding AI into the cloud infrastructure, it fosters greater automation of routine activities, such as monitoring, managing, and self-healing public and private clouds, saving resource time and lowering overall maintenance costs.

Predictive Analytics and Forecasting: Cloud-based AI platforms allow for scalable and efficient processing of large datasets, which can analyze historical data and predict various business scenarios, including use cases such as demand forecasting for inventory planning, predicting customer behavior for marketing strategies, or building out recommendation systems to enhance the customer experience.

Natural Language Processing (NLP) and Sentiment Analysis: Cloud-based NLP and sentiment analysis models can process and analyze vast amounts of text data from various sources, such as customer reviews, support tickets, calls, and social media. Businesses can use these insights to inform product development, marketing strategies, and reputation management.

Computer Vision and Image Recognition: AI-powered image recognition and computer vision algorithms hosted in the cloud can analyze images and videos at scale, enabling real-time processing, object detection, and classification of images, which can help with product recognition, medical imaging analysis, and more.

Chatbots: Cloud-hosted AI can power intelligent chatbots that provide automated customer support, assist with inquiries, and handle routine tasks—all of which can enhance customer engagement and streamline support services.

Anomaly Detection and Cybersecurity: AI algorithms hosted in the cloud can detect anomalies within network traffic or system behaviors to identify potential security threats or irregular activities indicative of cyberattacks or fraud.

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BARRIERS TO FURTHER AI ADOPTION AND INNOVATION

As many as half of business leaders say managing AI-related risk and a lack of executive commitment, maintenance, and post-launch support remain widespread barriers to AI implementation.[2] Addressing these challenges is crucial to successful adoption and innovation of AI. Here's a look at how businesses can overcome many of these challenges.

Risk Management and Compliance: To mitigate AI-related risks, businesses should conduct comprehensive risk assessments and compliance checks specific to the cloud environment. This involves understanding regulatory requirements, data privacy laws, and security standards applicable to the region where the cloud servers are hosted.

Executive Commitment and Alignment: AI initiatives need to be aligned with the organization's overall business strategy so that business leaders can clearly understand the potential benefits and long-term strategic advantages of AI adoption. Creating a dedicated AI steering committee comprised of senior leaders can help prioritize AI projects.

Maintenance and Post-Launch Support: By establishing a robust framework for ongoing monitoring, updates, and maintenance of AI systems and utilizing cloud-based platforms for easier and more efficient updates and patches to AI models, companies can better ensure post-launch support and maintenance. Leveraging AIOps tools to automate and streamline monitoring, alerting, and issue resolution processes ensures continued optimal performance of AI systems. AI and the cloud offer businesses many opportunities and advantages. They can make it faster and easier to accomplish tasks, reduce manual processes through greater automation, and reduce errors and costs. While AI isn't without its challenges, the rewards far outweigh the risks—and the biggest risk for most organizations will be not moving forward with greater AI adoption in the cloud.

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NEXT STEPS

Making investments in AI and cloud technology is a critical part of your budget—and building your organizational infrastructure. You don't have to go it alone.

Contact Connection today to speak to an AI and cloud expert to discover the solutions that can help address your most critical technology challenges.

1.800.800.0014
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1. Foundry, 2023, 2023 Cloud Computing Survey
2. Deloitte, 2022, State of AI in the Enterprise, 5th Edition report
3. Grand View Research, 2021, IoT Cloud Platform Market Size & Growth Analysis Report 2030

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