Cloud raises AI
to new heights

The technology is enabling more robust analysis and sharing of data for better mission outcomes

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ARTIFICIAL **INTELLIGENCE IS** not new, but the challenge has always been curating and storing the terabytes of data that fuel AI. In addition, executing machine learning algorithms requires powerful computing resources that were typically only available on a limited number of supercomputers.

Fortunately, cloud technology has given us vast capacity for data storage and nearly unlimited compute capacity to take advantage of AI, which is democratizing the ability for end users, not just data scientists, to build and run machine learning algorithms.

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Extending edge data to the cloud

Gartner predicts that by 2025, 75% of data will be gathered by edge devices. The latest technologies make it possible to operate on real-time edge data and upload that data to the cloud. For example, Microsoft is helping the Tennessee Valley Authority leverage AI to prevent equipment failures across the 80,000 square miles of its service area. By gathering and analyzing data from far-flung equipment, TVA can be proactive about predictive maintenance and ensure

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consistent delivery of power.

We're also working with the Agriculture Department on FarmBeats, an end-to-end system that enables seamless data collection and insights for agriculture.

Digital agriculture seeks to improve crop performance and reduce costs by giving farmers the ability to collect telemetry data through a variety of sensors installed on farms, as well as images taken by drones. Farmers then process real-time data using machine algorithms that are trained in the cloud to help them make more precise decisions about crop management.

In addition, recent legislation requires

the Navy Judge Advocate General's Corps to create an audio file that serves as the official record of a trial immediately after a trial has ended. Officials were spending $200 an hour — and waiting six

to eight weeks — to have those recordings transcribed. When they switched to using the speech translation feature available through Microsoft Azure's Cognitive Services, they dramatically reduced the turnaround time and cost for those transcriptions.

Addressing complex ethical challenges

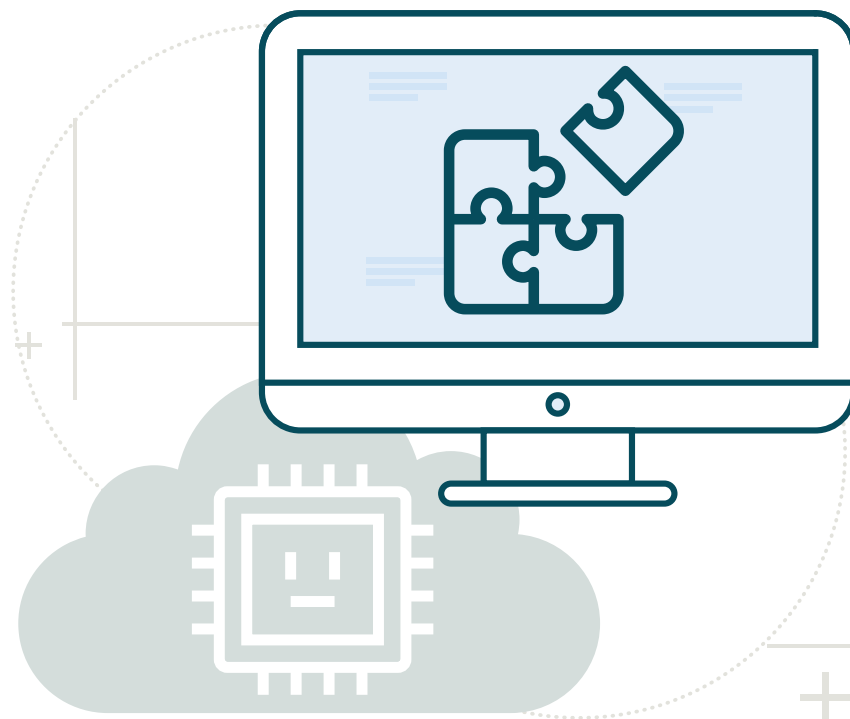AI raises many questions about the ethics

involved in applying the technology to areas as diverse as battlefields and hospitals, as well as addressing inherent challenges related to bias in datasets. We should establish guardrails to ensure that AI platforms are providing good outputs and being fully transparent. And we should know how an AI tool reached its conclusion and how the data was collected, among other things.

For data sharing to work under the Federal Data Strategy, we must have a common data model and bilateral agreements. Specifically, government and industry need to answer questions about who owns data, where that data lives, who pays for storing it and how we can give other people access to it.

Microsoft is tackling those issues by creating Azure Data Share, which allows users to share large datasets while establishing some governance rules about who can access the data and what they can do with it. The datasets' owners can see who's using the data and revoke their access if they start to do something nefarious with the data or manipulate it in a way that wasn't intended.

Of course, Microsoft is not the only company that offers AI tools in the cloud, which means good guys and bad actors have access to the technology. That's why it's so important for government and industry to establish agreements and governance to ensure the security and quality of data in the cloud. The U.S. should take a leadership role in crafting those standards and policies on the global stage. ◾

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