Project JEDI: A Cloud of Controversy
CASE STUDY

Most major companies have moved some of their computing operations to the cloud, and now the U.S. military wants to follow suit. Unifying information in the cloud is more necessary than ever as the armed services deploy large numbers of remote sensors, semiautonomous weapons, and artificial intelligence applications. All of these capabilities require immediate and instantaneous access to very large quantities of data gathered from many different locations. This is even more crucial now that the United States Cyber Command has been elevated to the equivalent of Central Command, which runs operations in the Middle East, or the Northern Command, which defends the continental United States.

Project JEDI is the U.S. Department of Defense's plan to modernize its IT infrastructure so that employees, officers, and soldiers on the front line can access and manipulate data at the speed of modern enterprises. Project JEDI aims to create a unified cloud infrastructure across the entire Department of Defense (DOD) that will speed the flow of data and analysis to combat troops. The new plan is part of a larger move toward replacing the military's branch-specific systems and networks with a more efficient and manageable enterprise model.

On July 26, 2018 the DOD issued a Request for Proposal (RFP) for a Joint Enterprise Defense Infrastructure (JEDI) Cloud Program, which calls for a cloud services solution that can support Unclassified, Secret, and Top Secret requirements with a focus on using commercially available services. The JEDI program calls for a ten-year $10 billion government contract to go to a single cloud computing vendor, which will serve as the exclusive cloud computing provider for the U.S. Department of Defense. The U.S. Department of Defense maintains more than 500 public and private cloud infrastructures that support Unclassified and Secret requirements. The DOD's current cloud services are decentralized, creating an additional level of complexity for managing data and services at

an enterprise-wide level. Current DOD systems are fragmented, slowing the decision-making process within the DOD both at home and abroad. Much of the U.S. military operates on outdated computer systems built during the 1980s and 1990s. The Defense Department has spent billions of dollars trying to make these systems talk to one another. What the DOD wants and needs is an enterprise-wide cloud that supports rapid data-driven decision making and provides worldwide support for DOD operations. The JEDI contract is central to the Pentagon's efforts to modernize its technology.

The 10-year JEDI contract set off a showdown among Amazon, Microsoft, Oracle, IBM, and Google for the work to transform the military's cloud computing systems. (Google dropped out in October 2018 without submitting a formal bid, claiming the military work conflicted with corporate principles prohibiting the use of artificial intelligence in weaponry.)

Oracle, IBM, and Microsoft stated that the DoD shouldn't use a single cloud vendor for JEDI. Some experts have backed them up. Justin Cappos, associate professor of computer science and engineering at New York University, said a single cloud solution is out of the norm. Many companies use multiple cloud vendors because it's safer. Leigh Madden, Microsoft's general manager for national security, stated that his company wants to win the contract, but 80 percent of businesses use multiple cloud vendors. Other experts have pointed out that deployment of a single cloud conflicts with established best practices and industry trends in the commercial marketplace. They believe that such a large contract should not be awarded to a single company. Those favoring a single JEDI vendor note that using one provider would reduce complexity in military IT systems and streamline communications.

Oracle America and IBM both filed pre-award bid protests against the JEDI Cloud solicitation, claiming it favored Amazon and Microsoft. These were dismissed by the General Accounting Office (GAO)

in late 2018. In the end, Amazon and Microsoft, which have numerous data centers around the globe, became the two finalists, and Microsoft was awarded the contract in October 2019.

The Pentagon's Cloud Executive Steering Group described the acquisition process for the massive cloud migration that will stretch across the entire DOD IT infrastructure, focusing primarily on infrastructure-as-a-service (IaaS) and platform-as-a-service (PaaS). Instead of building and maintaining its own data centers and systems, the DOD wants to take advantage of the existing strengths of commercially available cloud technologies and not limit them with extensive customizations. The DOD wants to remain in pace with industry and be able to take advantage of new commercial software solutions. The Pentagon's acquisition regulations have in the past served as barriers to innovation. Internal acquisition policies need to be revised to take full advantage of the commercial cloud platform.

The envisioned IaaS must be more than a data center. Other requirements include vendor monitoring, identity, failover, scalability, even artificial intelligence (AI). The DOD wants to be able to immediately take advantage of commercial innovations in these areas. If the DOD uses commercially available cloud solutions, it will have the foundational technology in place to deliver better software to fighters, with better security, lower cost, and easier maintainability.

On February 13, 2020 a federal judge ordered the Pentagon to halt work on the JEDI contract, which had been awarded to Microsoft. Amazon had been long considered the favorite to win the JEDI contract, because of its dominance of cloud computing (it has 45 percent of the market) and its experience building cloud services for the Central Intelligence Agency. However, its bid was overshadowed by conflict-of-interest allegations. Amazon had filed suit in December 2019 to block the contract award to Microsoft, contending that the selection of Microsoft had been improperly influenced by President Trump's

public complaints about Amazon. Amazon's CEO, Jeff Bezos, owns *The Washington Post*, which is a frequent critic of Trump and his policies.

Oracle, a leading government contractor noted for the software to handle large databases, lobbied heavily in Congress to find opponents of Amazon with influence in the Pentagon and the White House. Oracle went to court to challenge what it felt were Amazon's conflicts of interest, but it did not prevail. Industry experts point out that Oracle is playing catch-up in cloud computing and holds many federal contracts that could be displaced by a shift to the cloud. Obstructing the implementation of JEDI could help Oracle preserve its current business longer. Although Oracle probably did not have a chance of winning the JEDI contract, it might have been able to get part of the business if the JEDI contract had been broken into smaller parts.

Microsoft, with 25 percent of the cloud computing market, had only recently opened enough classified server facilities capable of handling data on a scale required by the JEDI contract. Experts initially thought Microsoft would only get a part of the JEDI business and that the Pentagon would use multiple vendors of cloud services, as do many private companies. Microsoft had been considered the favorite for other government cloud programs, including an intelligence contract.

Despite the controversy, the JEDI project will have a huge ripple effect as a cloud innovation driver within the US government and across the private sector. Today, cloud computing has matured into the cornerstone of digital transformation across public and private sectors and as an engine for emerging technologies such as artificial intelligence, big data, and the Internet of Things (IoT).

In 2010, then-U.S. CIO Vivek Kundra announced a Cloud First policy for federal agencies. Since then, federal cloud spending has increased 500 percent. However, a 2019 survey by the Center for Digital Government found that cloud migration for government agencies continues to face obstacles, including data mobility, security, compliance, and

ensuring the right training and skills. Project JEDI is expected to have an enormous impact on all of these fronts.

Although all federal agencies must be sure not to compromise security as they shift to the cloud, the bar is even higher for the Pentagon, for the obvious reason that national security is at stake. JEDI should be a catalyst for the development of cutting-edge security advances and best practices whose benefits will eventually spill over to all cloud users across the government and in the private sector. A better enterprise cloud will also support the Pentagon's plans to expand the use of AI systems throughout the military. Huge government projects may have positive consequences beyond their original scope.

Sources: Sydney J. Freedberg Jr."Experts Debate: Should JEDI Cloud Be Saved?" Breaking Defense, May 4, 2020; Joao-Pierre

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CASE STUDY QUESTIONS

5-14 Describe the JEDI Project. Why is it so important? What problems was it meant to solve?

5-15 What management, organization, and technology issues are raised by this project?

5-16 Should the JEDI contract be awarded to a single vendor? Why or why not?

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