

Unlocking Cloud Innovation in DOD

Highlights from a Roundtable hosted by the Advanced Technology Academic Research Center (ATARC) in partnership with Accenture, July 2024

During a recent roundtable, Federal experts came together to discuss cloud innovation in the DoD. Participants explored the potential for cloud innovation to improve operations, ways agencies are utilizing cloud on the tactical edge, and several challenges with unlocking cloud innovation.

Current Status of Cloud in the DOD

Most agencies operate a hybrid cloud model to meet unique warfighting needs and capabilities. For many, the challenge lies in determining the minimum set of hardware and software needed to operate in areas without direct communication pathways. At the tactical edge, cloud innovation is paramount to ensuring operability and fulfilling missions. Equipment, vehicles, and electronics all need enterprise services, but that's only possible with cloud connection.

“Cloud is great, but only because of the potential for innovation. We’re turning to cloud fundamentally for the ongoing promise of the latest and greatest capabilities.”

As one panelist stated, cloud innovation is the ability to continuously deliver software updates to the warfighter at the speed of relevance, whether that's a security update needed for day one or new features to deploy combat forces as soon as possible.

Panelists also discussed the importance of software factories on the deployment of new capabilities. Cloud technologies enable software creation, making it easier than ever for DoD agencies to develop their own tools. Doing so can bypass lengthy procurement and approval processes.

The Customer Experience

Several panelists highlighted the importance of a dedicated group within organizations to support customers seeking cloud solutions. These centralized groups, whether program offices or working groups, gather requirements from the customer and then advise them on how best to save on costs.

Centralizing cloud innovation helps to synchronize efforts between agencies and operating partners, thereby creating significant efficiencies. One agency on the panel went from 35 cloud environments to just 9 in a span of a few years by following this approach. Similarly, other agencies are looking to create common environments to coordinate the work of contractors and staff and drive efficiencies.

Challenges with Cloud Innovation

“You can have the best cloud, but if nobody can access it, it's pointless.”

Connectivity

The DoD is continually working to improve resiliency and create redundancy within cloud connections. There are numerous scenarios where connectivity is paramount to mission success or warfighter safety. Panelists are working on developing secondary connections to data centers so connections are not interrupted or disrupted.

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Capability

Agencies need cloud foundations that are capable of onboarding innovation and multiple clouds as AI is embedded into platforms and services. Developing a strong hybrid cloud foundation to leverage advanced technology capabilities involves a combination of architecture and talent. Agencies will need enough skilled talent to enable multiple cloud without duties becoming diluted with other obligations. However, panelists note that there is a significant difference between operating in multiple clouds in an unstructured manner and operating in several clouds to maximize innovation while driving costs.

Agencies often become locked into a primary cloud environment only to then experience significant security issues, like hacking events or getting locked out of a primary platform. Panelists recommend choosing a hybrid cloud architecture and leveraging a handful of capabilities designed specifically for the environment or agency. Prioritizing a select number of capabilities and hiring skilled talent to operate those clouds is a sustainable approach to operating in multi-cloud environments.

Interoperability

“The biggest challenge to implement new technologies isn’t the new technology. It’s actually the old one.”

DoD organizations are working on building cloud environments that enable information sharing and interoperability. Some are achieving this through API standardization, while others are building data repositories. Several panelists acknowledged the importance of AI tools to help manage the volume of data produced through interoperability capabilities. DoD organizations often coordinate information with other countries, which further complicates how to access, transport, store, and secure data.

Building new technology for interoperability is incredibly important. Panelists underscore how critical it is that new technology does not add to or create tomorrow’s technical debt. Panelists also note that they have yet to see modernized legacy software that’s truly interoperable with new technology. In their view, it’s usually more economical to rebuild or reinvent systems with new technology to ensure interoperability with future technology.

Interoperability also depends on non-technical conditions, such as procurement timelines and training pipelines. Often, the time to procure, hire, and train the organization on new technology contributes to technical debt.

Looking Ahead

As technology advances, the DoD is examining how best to incorporate the latest innovations into cloud environments. Some panelists recommend embedding AI into every platform and service possible, especially in those environments where agencies own their own data. Building custom AI environments will create a renaissance of applications that are designed for a completely different operational experience. As such, every entity and organization should have its own AI strategy to bolster cloud innovation into the future.

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