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IT MODERNIZATION

with cloud, AWS drives mission improvements

By Adam Stone

In their civilian lives, National Guard members already reap the benefits of technology modernization. From streaming video services to online banking applications, members experience the benefits delivered through a robust and scalable technology architecture making every-day life more productive, informed, and connected.

The same technology that brings this promise to life in the commercial world could be leveraged to help the National Guard fulfill its unique and complex mission. With the power of the cloud, Guard members would train more efficiently and deploy more effectively.

"The Guard's OPTEMPO is not steady state. They deal with missions that spin up very fast, situations where they have to bring on board thousands of people very quickly to address a mission requirement," said Greg Decker, Amazon Web Services (AWS) manager, solutions architecture. "Cloud gives them that ability to scale up and then scale back down, and to only pay for what they use."

AWS can help the Guard to rapidly and effectively operationalize the vast compute and storage potential of the cloud, driving improvements across a range of key mission area.

WHAT CLOUD CAN DO

Cloud computing refers broadly to the on-demand delivery of IT resources over

the Internet, with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like AWS.

"Cloud can support the Guard's digital transformation, driving the way they support, manage, train, and equip personnel to fulfill their ultimate mission," Decker said.

Cloud offers massive scalability to support rapidly-changing IT needs, for example when the Guard deploys in support of domestic disaster response or a military mission. It offers immense flexibility, with the ability to ramp up services when and as needed. And cloud supports the warfighter at the tactical edge. Cloud computing delivers the infrastructure needed to analyze sensor data from the ever-growing landscape of connected Internet of Things (IoT) devices.

PRACTICAL IMPACTS

"Prior to the pandemic, drills and training were only done in person," Decker said. "During COVID-19, several Department of Defense organizations were able to quickly and efficiently develop and deploy cloud-based applications to support remote connectivity, whether in support of training needs, or simply to empower soldiers or airmen to do a daily health-status check in."

Going forward, the same tools will sup-

port more flexible training protocols across the Guard. With the mass compute power of the cloud, units will minimize travel time by implementing high-quality virtual training programs — an approach the Defense Department has put into motion by standing up Synthetic Training Environments.

In times of deployment, the cloud's ability to connect those at the tactical edge will be transformative. With its global reach, cloud will improve connectivity among deployed troops, and make it possible to tap the power of IoT, enabling commanders to turn data from the edge into actionable intelligence in real time.

Supported by powerful analytics, "troops can take data they're collecting on the ground and contextualize it, make sense of it, and use it to drive next best actions," Decker said. "Cloud delivers scalability, flexibility with fewer fixed costs. And through continual innovation, cloud allows the Guard to spin up new ideas and tools faster than ever before."

THE ROAD TO CLOUD

At the highest levels, the National Guard already recognizes the powerful potential of the cloud. The Guard's Chief Information Officer for example has called for the development of a cloud migration plan in line with the Defense Department's IT priorities.

The AWS Cloud Adoption Framework can help the Guard to meet this call by providing the technical, managerial and strategic

components needed to support a migration to cloud.

"As you move to cloud, you need strong governance so that systems have the right guardrails from a technical and a security standpoint," Decker said. "The Cloud Adoption Framework can help put all of those things in place."

In addition, AWS tools and services can help the Guard to operationalize artificial intelligence and machine learning in the cloud. "Going forward, almost every DoD capability is going to have AI built into it, everything from travel reimbursement to identifying enemy attack patterns," Decker said.

At AWS, "we have AI services that are ready to consume out of the box: You can apply them to different use cases without having to go through the technical work of labeling data and training models," he said. In addition, AWS SageMaker "provides end-to-end, zero setup for AI solutions, from selecting models to data ingestion and training the models, all the way through to actually deploying AI capabilities in support of mission."

As the Guard moves to cloud, the key objectives continue to be operationalize data and streamline applications. Here, too, AWS tools and services come to the fore.

"Mission systems are generating a massive quantity of data now, and data can serve as a force multiplier. To use data, you need to be able to look at long-term trends in order to forecast for the future," Decker said.

"At AWS, we have multiple different types of services to support your data management, including the ability to differentiate classes of storage," he said. "That means the data that you're accessing frequently is stored differently than what you use infrequently. That makes the data easier to manage, and can deliver a big cost savings."

In terms of application management, AWS application portfolio assessment strategy and tools make it possible to get maximum value out of modernized applications, supporting mission readiness while simultaneously driving down the total cost of ownership.

Another key consideration for the Guard is connectivity: What happens in a natural disaster, when Internet access isn't an option?

AWS answers this with Outposts, a means of ensuring end users can access mission-critical, cloud-based data and appli-

cations, even under the most challenging circumstances. Outposts delivers a family of fully-managed solutions bringing the power of AWS infrastructure to any on-premises or edge location, enabling local connectivity to AWS services and applications.

MISSION-CENTRIC APPROACH

Beyond these specific tools and services, AWS's "missions solution" approach can help the Guard meet specific operational requirements. In this approach, Cloud Service Providers and AWS partners now are deploying mission-focused solutions in order to rapidly meet customers' specific business challenge.

Amidst the ongoing pandemic, the Navy needed to deploy a new, simplified way to track potential COVID-19 symptoms among onboarded sailors. With a focus on solutions, AWS rapidly deployed the COVID-19 tracking system when the Navy needed it most.

The National Guard can begin taking steps now to support a pivot to cloud-based services.

"We can help them to easily acquire things like analytic services and machine learning. They can access application hosting, managed databases, a whole array of powerful offerings," Decker said. "They can bring to life speech recognition, text recognition, data analytics — the full breadth and depth of AWS solutions — to make people more efficient and effective than ever before."

IT leaders for example can review the skill sets available across their organization, and can start to think about reskilling technology personnel in support of cloud operations.

"You can begin to train the IT teams to build systems in the cloud," Decker said. "Then as these cloud services become available, they will be able to spend less time patching servers and managing configurations, focusing instead on new ways to deliver business value to the mission."

At the same time, National Guard leadership can begin to lay the foundation for a successful modernization effort. They can prioritize cloud across the organization, ensuring everyone from commanders to Guard members in the field is ready to be a part of this journey.

"You need to get alignment among all the stakeholders in the process, from program managers to resource sponsors to cybersecurity," Decker said. "Migration

to the cloud will require everyone to be marching in the right direction."

Rank and file members play an important role to play in shaping the Guard's cloud-driven future.

"I know from my own experience as a Navy Reservist that the people on the ground are often best equipped to see the problem and identify the solution," Decker said. "In the future, every Guardsman could potentially be an Amazon 'builder,' meaning they could look across the capabilities available on AWS and see how those tools and resources could support them in their efforts."

With its flexibility and scalability, cloud delivers improved performance across the National Guard mission set, from drilling to deployment, and AWS delivers by enabling an efficient, affordable, and reliable IT modernization journey.



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Greg Decker is a seasoned technical cloud leader with over 20 years of experience building innovative solutions to protect our country. He graduated from the US Military Academy, served in the US Army as an Explosive Ordnance Disposal officer, and progressed in technical leadership positions across Civilian, Defense and National Security industries.

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