

A large U.S. Navy ship, likely a destroyer, is shown from a low angle, moving through the water. The ship's hull is dark grey, and its superstructure is visible. The water is a deep blue-grey, and the sky is overcast with soft, grey clouds. The ship is moving towards the right side of the frame.

## U.S. Navy Launches Ship-Board COVID-19 Tracker With Help of AWS

For the U.S. Navy, the COVID-19 pandemic heightened the importance of keeping ship crew members safe and healthy. And despite the ongoing pandemic, the Navy has had to continue meeting its mission. They needed to rapidly deploy a new, simplified way to track potential COVID-19 symptoms among sailors onboard ships.

To help deploy the solution it needed earlier on in the pandemic, the Navy turned to AWS to develop and roll out an AWS Snowball edge-based, server-based COVID-19 tracking system.

Fernando Cancel, Navy UNACORN Project Lead Architect and Systems Engineer and CEO of DuChancell Engineering Consulting LLC, explained that the tracking system was “essentially a self-reporting tool” that would allow doctors to interview crew members and would allow crew members to enter their own symptoms and temperatures remotely. He said the solution “was a pretty powerful” capability when it came to needing to quarantine crew members.

Rolling out the new solution required the Navy to change its standard procedures. Cancel explained that because of security reasons, it is typically not allowed to turn on a Wi-Fi device and connect to the Internet on a Navy ship. However, Wi-Fi-connected devices were critical to making the tracking system work.

AWS, along with its partners, was able to create security boundaries and prove to the Navy’s IT security team that the only data coming off the ship was the data that needed to come off. That allowed AWS and partners to obtain a dispensation to allow Wi-Fi connected devices on board the ships. Cancel added that key to AWS’s security strategy was using the least level of trust “in every step of the food chain,” as well as relying on containers to ensure no nefarious behavior took place.

Cancel explained that mission partners deployed a “flyaway kit” so that Wi-Fi connected devices could connect to the Snowball. With the communications dispensations in place, applications that were previously being run on the cloud were then running natively on the Snowball, and ship crews could use either cell phones, ship computers, or laptops to upload their symptoms and temperatures.

Quickly deploying the COVID-19 tracking system was essential to providing continued operations onboard ships and preserving crew member safety.



Working with AWS, the Navy was able to deploy the new system in record time: five weeks. Cancel said deploying such a large system on a number of sizable Navy ships so quickly is “unheard of.” Typically, he said, “it takes years to go through all the wickets.”

But in the end, it was mission accomplished as AWS and its partners were able to leverage the security and ruggedness Snowball provides, as well as the storage and compute on the devices to deploy and collect the data.

Given that so much of its work takes place at sea, the Navy faces unique issues. When it came to this deployment to help gauge COVID-19 symptoms, one notable issue was bandwidth limitations. At a very simple level, Cancel explained that whenever a ship turns, it loses bandwidth. “But,” Cancel explained, “we were able to live within that communications bandwidth budget and send data back almost continuously.”

He added that the tracking system did not receive any priority traffic privilege, because “bandwidth on those ships is gold, and it’s very tightly controlled.” Instead, AWS and its partners had to live within the bandwidth windows it was given, and the system was able to securely send data where it needed to go.

AWS was able to rapidly deploy the COVID-19 tracking system when the Navy needed it most, and it was also able to rapidly de-install the system when it was no longer needed. Cancel explained that in March 2021, AWS and its partners were able to pull the kits used for the tracking system off of the ships.

Cancel noted that the system was not intended to be a permanent solution but rather one to help the U.S. Navy rapidly meet a new technology need.

Pivoting to the broader possibilities of the AWS Snow devices, Ramesh Kumar, senior manager of product management, AWS Snow Family, explained that AWS is increasingly seeing interest from customers to “run a fleet of Snow devices to run their operation.”

He explained that a Snow device deployment can range from a “multi-node Snowball edge compute and storage deployment in one location, or it could be thousands of Snowcone devices deployed in geo-dispersed locations.”

Tying back to AWS’s work with military branches, Kumar explained, “You can literally carry a Snowcone in the warfighter’s backpack.” Whether that comes into play down the road, the cloud provider’s success in the quick deployment of COVID-19 symptom measuring solutions to the Navy points to the possibilities of further innovation.

